

PRIORITY AGRICULTURAL LAND USE ASSESSMENT

MLA 50232

New Acland Mine Stage 3 Project

Prepared for:

New Acland Coal Pty Ltd

Cherrys Road

Muldu QLD 4401

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with New Acland Coal Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
620.11226 MLA 50232	November 2019	Murray Fraser	Rod Masters	Rod Masters

EXECUTIVE SUMMARY

SLR Consulting (SLR) was commissioned by New Acland Coal Pty Ltd to undertake a Priority Agricultural Land Use (PALU) Assessment for the initial (5 years) of mining for the New Acland Coal Mine Stage 3 Project (the Project). The Project is located approximately 12 kilometres north north-west of Oakey in South-East Queensland.

The activities subject to this application are proposed to be undertaken on land within Mining Lease Application (MLA) 50232, which is located within the Priority Agricultural Area (PAA) and partly within a Strategic Cropping Area (SCA). An assessment was undertaken to determine whether the activities are located on land that is used for a PALU for the purpose of Required Outcome 1 of the RPI Regulation. This involved determining whether the land has been used for a PALU for at least 3 years during the 10 years immediately before the application is made.

The application is proposed to be made over an area totalling approximately 2,995 hectares, being the lots to be disturbed within the first 5 years of mining. This disturbance, which is predicted to total approximately 918 hectares of surface disturbance, can be broadly summarised as follows:

- Manning Vale West Mine Disturbance;
- Manning Vale East Mine Disturbance;
- Willeroo Mine Disturbance; and
- Road & Rail Infrastructure Areas

The *Regional Planning Interests Act 2014* (RPI Act), section 29, requires that this report assess the impact of the activities on the area of regional interest. In the case of the PAA, there will be no material impact on the PAA as this report demonstrates that the activities will not be located on land that is used for a PALU and therefore satisfies Required Outcome 1 from Schedule 2 of the *Regional Planning Interests Regulation 2014* (RPI Regulation). Total mapped PAA in the Darling Downs region is 4,292,740 hectares and PAA within the Application Area comprises only 0.07% of that area.

The land in the study area owned by the Acland Pastoral Company Pty Ltd (APC) (a subsidiary of the New Hope Group) is managed as a cattle grazing enterprise is a “property” as described in the RPI Act. Based on the findings of this assessment the entire study area of 2,995 hectares is used for non-PALU activities, predominantly cattle grazing and native vegetation.

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1 Introduction

SLR Consulting (SLR) was commissioned by New Acland Coal Pty Ltd to undertake a Priority Agricultural Land Use (PALU) Assessment for the initial (5 years) of mining for the New Acland Coal Mine Stage 3 Project (the Project). The Project is located approximately 12 kilometres north north-west of Oakey in South-East Queensland (**Figure 1**) and is situated in the Toowoomba Region Local Government Area.

1.1 Background to the New Acland Coal Stage 3 Project

New Acland Coal Pty Ltd (NAC), as a subsidiary of the New Hope Group, has operated the New Acland Coal Mine (Mine) since 2002. The Mine is currently operated under Mining Lease (ML) 50170 and ML 50216 and Environmental Authority EPML00335713, all of which are held by NAC. Currently, the Mine has approval to produce 5.2 million tonnes per annum (Mtpa) of product coal as an open cut coal mine. The Project proposes the expansion of the Mine to produce up to 7.5 Mtpa of thermal coal.

The Project proposes the extension of the Mine's operating life, with the inclusion and progressive development of three new resource areas within Mining Lease Application (MLA) 50232 as three new pits, construction of a rail spur and balloon loop from Jondaryan, within MLA 700002 and MLA 50232, and associated infrastructure. The mining activities for the new resource areas in the Project will not involve a substantial change to the mining method from that used for the existing operations.

The Project will allow NAC to expand its production capacity at the Mine to meet current and future market demands for its thermal coal products.

To-date, the Project has progressed through an extended approvals process. The key events for the Project's approval process are highlighted as follows.

Table 1 Approvals Timeline

Event	Date
Gazettal of coordinated project declaration	18 May 2007
MLA 50232 lodged	25 May 2007
Environmental Impact Statement (EIS) submitted	January 2014
EIS released for public consultation	18 January 2014 – 3 March 2014
Additional information to EIS (AEIS) submitted	August 2014
AEIS released for public consultation	1 – 29 September 2014
Coordinator-General's evaluation report, recommending that the Project be approved, subject to conditions	19 December 2014
MLA 700002 lodged	16 January 2015
EA Amendment Application lodged	13 April 2015
Public notification of MLAs 50232 and 700002 and the EA Amendment Application	13 May 2015 – 2 July 2015

Event	Date
Draft EA issued by the then Department of Environment and Heritage Protection	28 August 2015
Referral of MLA 50232 and 700002 to the Land Court for Objections Hearing	14 October 2015
Referral of EA Amendment Application to the Land Court for Objections Hearing	19 October 2015
Original Objections Hearing dates	7 March 2016 – 12 August 2016 5 – 7 October 2016 3 – 20 April 2017
EPBC Act approval issued. The approval has effect until 31 January 2042.	18 January 2017
Land Court decision (Member Smith) on EA Amendment Application, MLA 50232 and MLA 700002 (since overturned)	31 May 2017
Associated Water License application lodged	3 October 2017
Supreme Court decision (Bowskill J) overturned Land Court decision and the EA decision of 14 February 2018 and remitted the matter to the Land Court for reconsideration	2 May 2018 (final orders 28 May 2018)
Appeal lodged in the Court of Appeal against Supreme Court decision by Oakey Coal Action Alliance Inc.	30 May 2018
Remitted Land Court Hearing dates	2 – 4 October 2018
Remitted Land Court decision	7 November 2018
Land Court recommendation is unconditional and DES decision making process commences	12 February 2019
Court of Appeal hearing dates	27 February 2019 – 1 March 2019
EA Approved	12 March 2019
AWL Application released for public notification	20 March 2019
AWL public notification complete	7 May 2019
Court of Appeal decision	10 September 2019
Court of Appeal final orders	1 November 2019

1.2 Overview of mining activities for the Project

NAC will continue to employ an open cut strip mining process for the Project's coal extraction on MLA 50232. This form of open cut mining facilitates the removal of coal in a progressive and efficient manner across the Project's Manning Vale West, Manning Vale East and Willeroo coal reserves. The rate of progression of each of the Project's active mine pits over the first five years of mining will be governed by a range of factors, in particular the overall production rate of each pit, the nature of the geological environment (e.g. coal seam thickness, overburden/inter-burden characteristics and faults), and environmental factors (e.g. noise management requirements).

1.3 Mining activities covered by this application

The mining and supporting activities proposed on MLA 50232 by NAC for the first 5 years of the Project form the basis of this RIDA application (**Figure 2**). These mining activities will be carried out on the land identified on **Figure 3** (detailed in **Appendix G**), which also shows the indicative location of the primary mining activities.

In summary, the activities subject to this RIDA application, include:

- the construction and operation of the Manning Vale West, Manning Vale East and Willeroo Pits for coal extraction, the extent of the pits to be developed in the first five years of operation are set out in **Figure 3**, which will involve:
 - the clearance of vegetation,
 - the selective removal of topsoil and subsoil units for stockpiling or selective direct return (i.e. for future rehabilitation purposes),
 - for the first two years (approximately), the removal and transport of overburden/interburden either to an out-pit-dump (Manning Vale West Pit) or to back-fill an existing pit area on ML 50216 (Manning Vale East and Willeroo Pits),
 - after two years (approximately), the removal of overburden/interburden for dumping in-pit behind the active mine path (Manning Vale West, Manning Vale East and Willeroo Pits);
 - the removal of the individual coal seams and the transport of the Run of Mine (ROM) coal to the Coal Handling and Processing Plant (CHPP) for the processing of ROM coal to product coal; and
 - ancillary activities to the above construction activities, such as temporary construction laydown, facilities, pipelines will also be undertaken within the land subject to this application;
- the construction and operation of new water management structures (e.g. dams, levees, drains, bunds, and sediment containment structures):
 - to divert runoff from disturbed catchments,
 - to protect the mining operations from flood events in Lagoon Creek,
 - to capture mine affected water for internal use or to treat for eventual release,
 - to manage water capture in-pit for internal use or to treat for eventual release, and
 - to transfer captured water onsite for dust suppression and other purposes;
- the construction and operation of internal haul/access roads to allow the transport of:
 - ROM coal from the Willeroo Pit to the CHPP,
 - ROM coal from the Manning Vale East Pit to the CHPP,
 - ROM coal from the Manning Vale West Pit to the CHPP,
 - overburden/interburden from the Manning Vale East and Willeroo Pits to the South Pit (former Stage 2 mining area),

- mining equipment and personnel to and from the active pit areas, and
- product coal from the CHPP to the Train Load Out (TLO) for transport off site;
- the construction and operation of part of the rail spur line, rail loop and TLO (including the as required development of access and laydown areas) and associated facilities;
- the construction and operation of administration and ablution facilities at the TLO;
- the construction and operation of an engineered 'at-grade' creek crossing of Lagoon Creek to allow:
 - mining equipment and personnel access to the Willeroo Pit,
 - the transport of ROM coal to the CHPP, and
 - the transport of overburden/interburden to facilitate the backfilling of the South Pit (former Stage 2 mining area);
- the construction of a Materials Handling Facility to manage the supply of product coal from the CHPP to the TLO (i.e. to ensure customer product specifications can be addressed on a train by train basis for transport to the Port of Brisbane);
- the 'as required' construction of noise bunds, which will be located within the indicative disturbance areas;
- the removal and transfer of waste from the former Acland Tip to an in-pit clay-lined cell within ML 50216 (including conducting contaminated land investigations to remove the former Acland Tip site from the Environmental Management Register);
- periodic drilling activities just ahead of the mine path in each active pit (i.e. as required to improve resource delineation);
- drilling and blasting activities in each active pit; and
- the management and optimisation of mining equipment fleet, including the acquisition of new fleet, replacement of existing fleet, and enhancements to existing fleet.

In addition, rehabilitation activities will occur on MLA 50232 during the first five years of operation under the Project's new Final Land Use and Rehabilitation Plan (FLURP), and will involve:

- the progressive shaping of the available in-pit and/or out-of-pit dump slopes as they become available;
- the selective spreading of topsoil and subsoils on the reshaped dump slopes;
- the establishment of water management and sediment control structures;
- the seeding with appropriate cover crop and pasture species;
- weed and pest management activities;
- the initial monitoring of rehabilitation performance.

Existing mining activities within ML 50216 and ML 50170 are not the subject of this application. Mining activities on MLA 700002 are not the subject of this application.

1.4 Mine Pit Progression

Manning Vale East and Willeroo Pits

In terms of pit development for this RIDA application, the Project's Manning Vale East and Willeroo Pits will commence operations first and will require the development of a box-cut (initial mine pit) and the progressive backfilling of the adjacent South Pit (former Stage 2 mining area possessing a void). The backfilling of the adjacent South Pit will continue until the South Pit is backfilled sufficiently to allow final rehabilitation activities to commence in this pit.

Once backfilling operations have ceased, in-pit dumping behind the active mine path will commence in the Manning Vale East and Willeroo Pits and will then progress in an ordered manner or 'steady state' across the individual resource areas (i.e. as part of the strip mining process).

Manning Vale West Pit

The Project's Manning Vale West Pit is expected to commence approximately six months after the start of the Manning Vale East and Willeroo Pits and will require the development of a box-cut and an out-of-pit (or rock waste) dump.

The construction period for the Manning Vale West Pit's out-of-pit dump will be up to approximately 24 months. At this stage of development, the Manning Vale West Pit will have progressed sufficiently to allow in-pit dumping. The strip mining process will then progress in an ordered manner or 'steady state' across the resource area as defined by the five year mine plan.

It should be noted that the planned progression and production from all the Project's pits will be heavily influenced by noise management requirements, which may require the periodic reduction, cessation or relocation of mining activities to maintain compliance with the Project's strict noise limits.

1.5 Continuing Mining Activities – MLs 50170 and 50216

Mining activities (including the use of existing infrastructure and conducting major rehabilitation activities) will continue on Mining Leases 50170 and 50216 (existing Mine). However, existing mining activities on these Mining Leases are not the subject of this RIDA application.

1.6 New Acland Coal Mine Stage 3 Project – Constraints Analysis

1.6.1 Overview

Section 29 of the RPI Act requires that this assessment identify any constraints on the configuration or operation of the mining activities.

The Project will extend the production life of New Acland Coal Mine by approximately 12 years through the continued application of its thin seam, open cut mining techniques to extract coal from the Acland-Sabine Sequence of the Walloon Coal Measures.

The Project is designed to mine three new JORC-defined coal reserve areas, Manning Vale West, Manning Vale East and Willeroo, through the development and operation of three new open cut mining pits on MLA 50232.

The Project's proposed new mine areas have been established from thorough geological investigations and a robust long-term mine planning process that has taken into account a range of key variables in order to ensure the most economically viable mining operation over the life of the Project.

The key variables that have influenced the proposed configuration and operation of the Project's mining activities within the Manning Vale West, Manning Vale East and Willeroo Pits within MLA 50232 are as follows:

- Geological features.
- Mine planning.
- Mining method.
- Environmental constraints.
- Community concerns.

1.6.2 Geological Features

The physical parameters of the Manning Vale West, Manning Vale East and Willeroo coal reserves have been initially determined by a number of critical geological factors defined during geological investigations conducted by New Hope Exploration Pty Ltd. For example, the depth of the coal seams, the number of coal seams, the extent of the coal seams, the continuity of the coal seams, the thickness of the individual coal seams, the coal quality within the coal seams, structural influences (e.g. faulting and folding), igneous influences (e.g. magmatic intrusions and basaltic lava flows), tectonic activity, and weathering and erosional forces have all interact to help determine the economic viability of the coal deposit through the development of a comprehensive geological model of the Project's coal reserves. In addition, the accuracy of the Project's coal reserves have been verified by a stringent JORC determination process (i.e. for ASX and other reporting purposes).

1.6.3 Mine Planning

NAC have applied the outputs of the Project's geological model to develop a life-of-mine plan for the Project, which outlines the most economically viable way to conduct the mining operation over the life of the Project. Aspects considered by NAC during the mine planning process include safety, resource recovery, potential environmental impacts (e.g. noise, air quality, water), community issues, risks to the operation, mining methods and rates, equipment requirements, infrastructure capacity, development timeframes and economics (i.e. capital and operating costs).

NAC has determined the relative scale, rate and nature for the Project's proposed mining operations to ensure the optimum resource recovery and production rate that maximises value and demonstrates ongoing viability in consideration of mine planning constraints.

1.6.4 Mine Method

The Project's mining method for the Manning Vale West, Manning Vale East and Willeroo coal reserves will involve an open cut strip mining process modified for thin seam coal extraction. This mining method is currently employed at New Acland Coal Mine.

The continued use of this form of mining method has largely been determined by the in-situ geological features of the Manning Vale West, Manning Vale East and Willeroo coal reserves, in particular the shallow, thin and multiple nature of the coal seams to be mined. These physical features of the Project's coal deposit are consistent with coal deposits found elsewhere within the Acland-Sabine Sequence of the Walloon Coal Measures.

As a result, NAC has determined the most efficient and economically viable mining method over the life of the Project for the Manning Vale West, Manning Vale East and Willeroo coal reserves is the on-going use of an open cut strip mining process modified for thin seam coal extraction.

The continued use of an open cut strip mining process modified for thin seam coal extraction by the Project is advantageous for NAC because it allows the continued use of the existing mining fleet and the workforce's unique skill set for thin seam mining techniques, which has developed over the years of mining operations at New Acland Coal Mine and other similar New Hope Group mines.

1.6.5 Environmental Constraints

The current life-of-mine plan for the Project's Manning Vale West, Manning Vale East and Willeroo coal reserves has been constrained by the presence of sensitive receptors living in the township of Acland, which is located in a centralised location with respect to the proposed Manning Vale West and Manning Vale East Pits.

As a consequence, the shape of the proposed Manning Vale West and Manning Vale East Pits has been constrained by the results of detailed noise and air quality modelling, which has determined a buffer between the proposed pits and the township of Acland.

NAC has sacrificed a considerable volume of coal reserves to ensure compliance with its strict environmental limits of operation.

1.6.6 Community Concerns

During 2012, NAC actively responded to the comments and concerns raised by government and the community as part of the Project's original approvals process, and as a result, the original Project scope was significantly revised, which included a reduction in the total surface rights area of MLA 50232 from approximately 5,069 hectares to approximately 3,276 hectares and a reduction in the total disturbance footprint by 2,614 hectares through the avoidance of the southern areas from within the original extent of MLA 50232 (i.e. the Sabine area).

In addition, under the Project's revised mining schedule, NAC excluded 29 Mt of insitu coal resource by proposing not to mine Lagoon Creek (including an offset of approximately 150 metres from the highwall crest of the new mine pits to Lagoon Creek). NAC also established a mining exclusion zone over Acland with a no surface area application for this zone.

1.7 Relevant Legislation

This PALU Assessment has been prepared generally in accordance with the requirements of the following relevant strategic land use planning documents:

- Regional Planning Interests Act 2014 (RPI Act);
- Regional Planning Interests Regulation 2014 (RPI Regulation); and
- Regional Planning Interests Act Guideline 07/14 (RPI Guideline).

1.7.1 Regional Planning Interests Act 2014

The RPI Act commenced on 13 June 2014. The RPI Act is designed to manage the impact of resource activities and other regulated activities on areas of the State that contribute, or are likely to contribute, to Queensland's economics, social and environmental prosperity.

The RPI Act requires that, unless a resource activity is an exempt resource activity, a person must not carry out the resource activity in an area of regional interest unless the person holds, or is acting under, a Regional Interests Development Approval (RIDA) for the activity.

The RPI Act identifies four areas of regional interest:

- Priority Agricultural Areas (PAA);
- Priority Living Areas;
- Strategic Cropping Areas; and
- Strategic Environmental Areas.

The RPI Act (s.8) defines PAA as an area that includes 1 or more areas used for a PALU, whether it also includes other areas or features, including, for example, a regionally significant water source, and is either:

- shown on a map in a regional plan as a PAA; or
- prescribed under a regulation.

The activities subject to this application (being mining activities for the first 5 years of the New Acland Coal Mine Stage 3 Project) are located within a PAA as described in the Darling Downs Regional Plan (Department of State Development, Infrastructure and Planning, 2013). Total mapped PAA in the Darling Downs region is 4,292,740 hectares and PAA within the Application Area comprises only 0.07% of that area. Although the activities are also partly located on areas of SCA, as shown on the Strategic Cropping Land (SCL) trigger map, SCA is not the subject of this application and so is not assessed in this report.

1.7.2 Priority Agricultural Land Use (PALU)

A PALU is defined as highly productive agriculture of a type identified in a regional plan or prescribed under a regional for an area of regional interest. Under the Darling Downs Regional Plan, as defined in the Australian Land Use and Management Classification Version 7, May 2010 these include:

- Class 3.3 – Cropping;
- Class 3.4 – Perennial Horticulture;
- Class 3.5 – Seasonal Horticulture;
- Class 4 – Irrigated Agriculture and Plantations; and
- Class 5.1 – Intensive Horticulture;

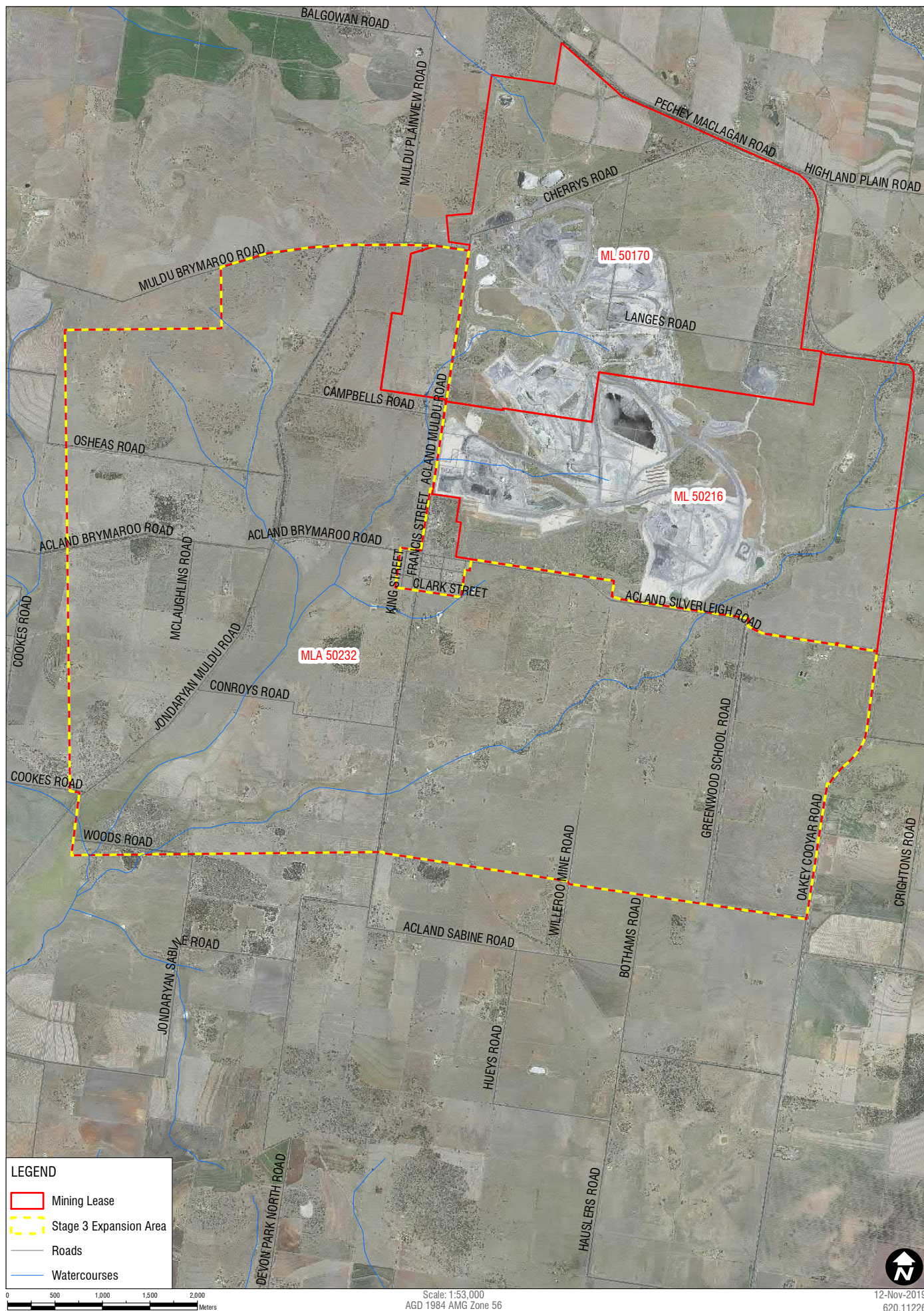
Schedule 2 of the RPI Regulation provides that, where resource activities are in the PAA but there is no material impact on the use of a property for a PALU, Required Outcome 1 will be satisfied. Required Outcome 1 applies as the activities the subject of this application are to be carried on a single property owned by Acland Pastoral Company Pty Ltd (APC) (see **Section 1.9**).

Required Outcome 1 is satisfied where the activity is in the PAA but not located on land that is used for a PALU (Prescribed Solution 1). For land to be used for a PALU, it must have been used for a PALU for at least three years during the ten years immediately before the assessment application is made.

1.8 Purpose of this Document

The purpose of this report is to undertake an assessment as to whether the mining activities the subject of the application will be located on land that is used for a PALU for the purpose of Required Outcome 1 (Prescribed Solution 1) of the RPI Regulation. As noted above, this involves determining whether the land has been used for a PALU for at least three years out of the past ten. The years of PALU need not be consecutive.

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1.9 Study Area

The mining activities subject to this application are to be carried out on a single “property” owned by APC. The broader landholding of APC, which is managed as a single cattle grazing agricultural enterprise by APC (other than land currently used for active mining), is shown in **Appendix H**. The mining activities subject to this application are to be carried out on a single “property” as defined in the RPI Act. The mining activities will be located on lots within the APC landholding which are managed as a single cattle grazing operation. As can be seen from **Appendix H**, these lots within the APC landholding form a single discrete area (other than for roads and watercourses). For this reason Required Outcome 1 applies under the RPI Regulation.

The other land to which this RIDA Application relates are subterranean lots which have no agricultural use and no PALU. Those subterranean lots are not and cannot be managed as an agricultural enterprise. These subterranean lots are not a “property” and there is no applicable required outcome for the subterranean lots. The subterranean lots range from 12.192 to 33.045 metres depth below the surface.

The study area for this assessment is wholly located within MLA 50232. It consists of those land parcels in MLA 50232 upon which the relevant mining activities are proposed to be located for the first five years of mining. The study area has been assessed to determine whether it is used for a PALU for the purpose of Required Outcome 1 (Prescribed Solution 1) of the RPI Regulation. The RIDA application also includes small areas of road reserve and road licences, which are classed as non-PALU. In total, the application is made over an area of approximately 2,995 hectares, comprising the all the lots subject to mining activities within the first 5 years of mining on MLA 50232. This Application Area is shown on **Figure 3**. **Appendix G** sets out the real property descriptions of the land subject to this application.

Figure 3 also shows the indicative location of the various activities and infrastructure to be developed in the study area associated with the first 5 years of mining on MLA 50232 and the land parcels likely to be affected (Lots within the Application). This disturbance, which is predicted to total approximately 918 hectares of surface disturbance, can be broadly summarised as follows:

- Manning Vale West Area (282 hectares);
- Manning Vale East Area (191 hectares);
- Willeroo Area (342 hectares); and
- Infrastructure Areas (81 hectares).

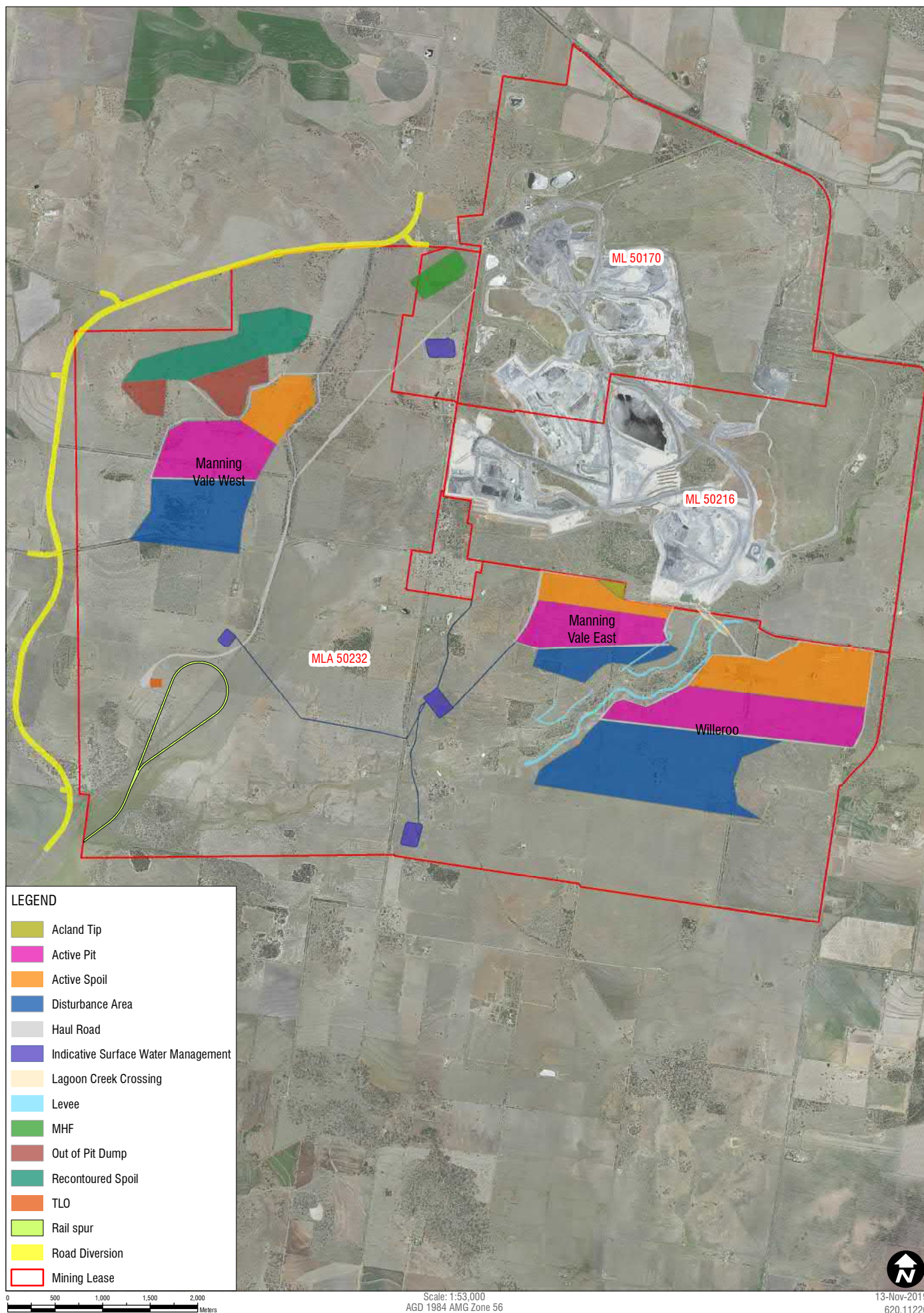
The Infrastructure Areas primarily include the Rail Spur & Loop (approximately 8 hectares), Internal Haul Roads (approximately 44 hectares), Surface Water Management (approximately 18 hectares) and a Road Diversion (approximately 4 hectares), as shown on **Figure 2**. Areas of the proposed Road Diversion outside of MLA 50232 are not included in this assessment.

For the purpose of this assessment, each of these disturbance areas have been divided using existing paddock boundaries and are numbered 1 to 38, as shown in **Figure 4**, with the total area of these assessed paddocks encompassing the Application Area of 2,995 hectares.

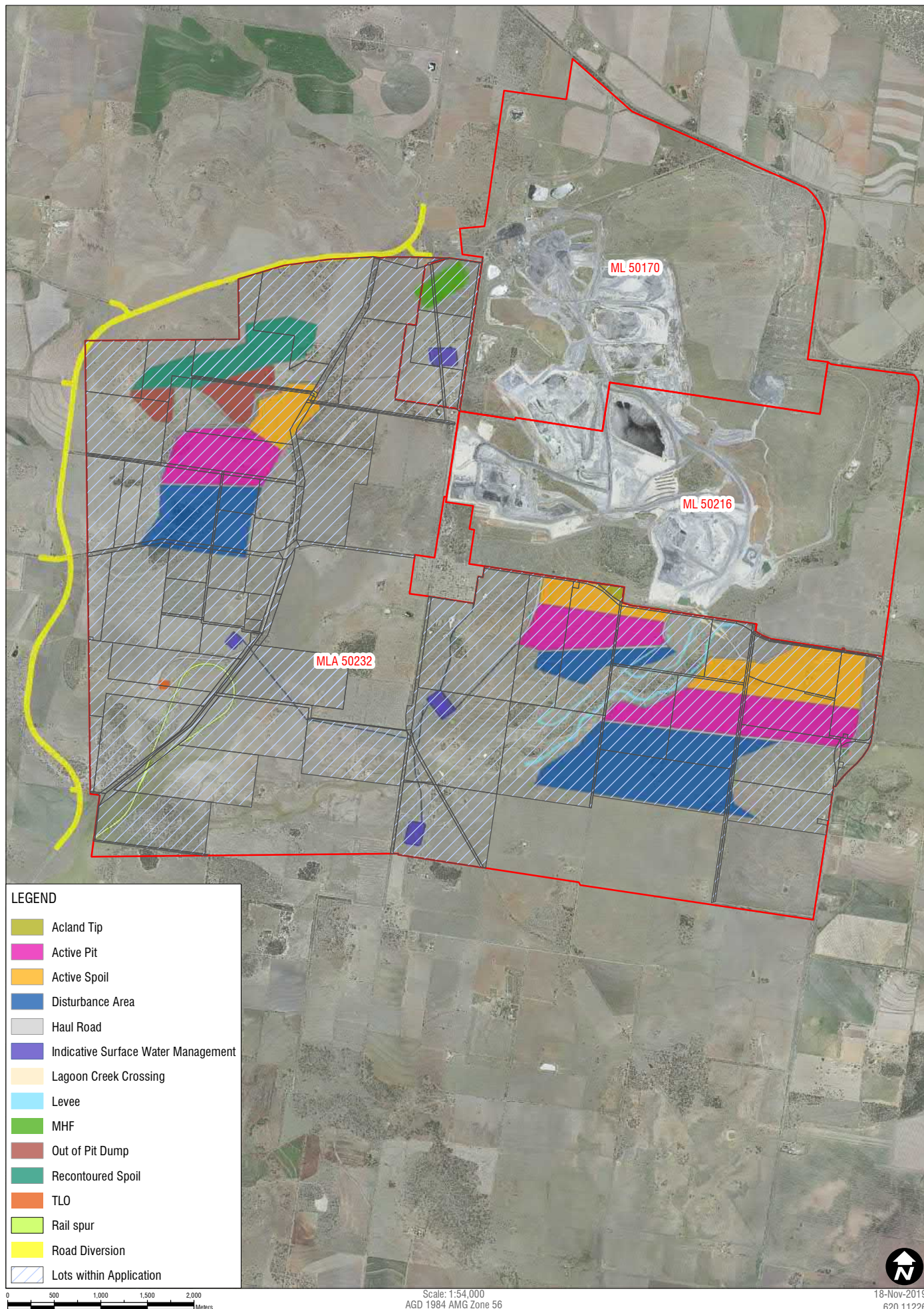
Figure 4 shows that a small section of the indicative location for the proposed Haul Road (approximately 1 hectare) is outside the paddocks that have been assessed (specifically, to the east of Paddocks 26, 27 and 31). Whilst this land is included in this RIDA application, there was no need to undertake a full PALU assessment over this small area, as it is located within the current Jondaryan-Muldu Road and therefore is clearly non-agricultural land that is not used for a PALU. The Jondaryan-Muldu Road has been a constructed road for the past 10 years.

All road reserves subject to this application were assessed as non-PALU having been constructed for at least the past 10 years, as determined through examination of historical aerial imagery, cadastral data and during consultation with APC and surrounding landholders. There are road licences which have been granted over some of the roads in the Application Area, which are all held by APC. These areas of road licence are therefore also non-PALU being granted over constructed roads.

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**Application Area
& Indicative Disturbance**

FIGURE 3

2 Methodology

2.1 Information Components

The assessment of historical and current land use within the study area for the years 2009 – 2019 has been undertaken utilising the following information sources:

- Reference to the Darling Downs Regional Plan (Department of State Development, Infrastructure and Planning, 2013) to confirm the Project is located within a PAA (**Appendix A**).
- Reference to the Queensland Land Use Mapping Program (QLUMP) to confirm dominant Australian Land Use and Management (ALUM) classification for the study area, cropping and grazing native vegetation (**Appendix B**).
- Department of Science, Information Technology, Innovation and the Arts (DSITIA) Forage Crop Frequency Data for the years 2009 – 2018 (**Appendix C**), as 2019 data was not available at the time of assessment. As the Forage Crop Frequency Data is provided as cadastral data, the corresponding cadastre was overlain on paddock boundaries. The program was run for each individual paddock. The corresponding paddock number is shown in the description label at the top of each forage report.
- Historical aerial images from Google Earth, including images for years 2004, 2009, 2010, 2011, 2012, 2013 and 2017 (**Appendix D**). These images were zoomed in to identify areas of cropping and/or cultivation within the nominated paddocks.

Field survey by SLR's Associate Agronomist, Mr. Murray Fraser, which was undertaken in conjunction with the Soil and Land Resource Assessment (SLR, 2015) and the. Further field assessment was undertaken in July 2019 to assess each of the paddocks within the study area.

Murray has over 21 years' experience in summer and winter cropping and pasture production systems and has been involved in the mining approval process with SLR for the past 8 years. During the 2015 inspections Murray was accompanied by Principal, Mr Clayton Richards (CPSS II) who was responsible for the Soil and Land Resource Assessment (SLR, 2015). Clayton has over 14 years' experience in soil and land resource assessment. Verbal and written communication regarding paddock history was obtained during the 2015 field assessment from APC's manager Mr. Ben Muirhead and assistant manager Mr. Michael Laird.

As previously shown in **Figure 4**, each of the disturbance areas have been divided into paddocks to ensure total coverage of the study area during both the field and desktop assessment process. Field inspection points are shown in **Figure 4**, with each field inspection point numbered to correlate with the same points in the Soil and Land Resource Assessment (SLR, 2015).

A number of observations were recorded at each field inspection point and these are shown in **Table 2**, along with a description of how each observation aided in PALU determination. Detailed site inspection information and photos are shown in **Appendix E**. Field inspection points were not required where Forage Reports showed no evidence of PALU in the past ten years.

Table 2 PALU Inspection Table

Site Number	
Inspection Type	Detailed soil pit or observation soil pit from the Soil and Land Resource Assessment (SLR, 2015) for Sites 1 – 241, Sites 242 onwards were inspected in 2019
Paddock	Paddock number associated with inspection point
Landform Element	Description of inspection point on landform
Soil Type	Australian Soil Classification type, often an indicator of potential PALU, especially Vertosols, Dermosols and Chromosols
Current Land Use	No inspection points were currently under cultivation
Dominant Vegetation Type	Useful indicators of previous cultivation, if any. Generally, the more weed species present the more recent the cultivation. Species botanical names are given in Appendix F
Dominant Pasture Species	
Dominant Weed Species	
Groundcover	
Historical Cultivation	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	
2017	
2018	
2019	
Assessed PALU	Yes, if three out of ten years under cultivation or cropping
Field Cultivation Observation	Approximate time since previous cultivation from field inspection

Cadastral data for those areas impacted by proposed disturbance within MLA 50232 is provided as a figure and in table form in **Appendix G**, whilst APC land ownership is shown in **Appendix H**.

The SCL trigger map and a regional locality figure are shown in **Appendix I**.

Appendix J outlines the assessment of the Project against the Darling Downs Regional Plan's outcome and policies.

2.2 Current Land Use

In accordance with RPI Act Statutory Guideline 07/14, SLR reviewed the Queensland Land Use Mapping Program (QLUMP) data for the study area and a surrounding 1 kilometre radius. As shown on the QLUMP mapping in **Appendix B**, land use within the study area is dominated by grazing of native vegetation and cropping. Minor land use comprises intensive animal husbandry. Within a 1 kilometre radius land use is dominated by grazing of native vegetation, cropping, and mining. Minor land uses comprise intensive animal husbandry, residential, transport and communication and reservoir/dam.

Table 3 below shows the photo layout for each inspection site. Each site is labelled according to its unique site number as well as the name of the disturbance area it is associate with, being Manning Vale West, Manning Vale East, Willeroo or Infrastructure Area. The panorama photos show the view of north, east, south and west, whilst the large photo at the bottom of each page shows the soil surface and pasture/weed species present.

Table 3 PALU Site Photo Presentation

Site 1	
Northern Aspect	Eastern Aspect
Southern Aspect	Western Aspect
Soils Surface & Pasture/Weed Species	

3 Results

Of the thirty-three paddocks within the study area, all were found to qualify as non-PALU, having not been cultivated a minimum of three years in the past ten (2,995 hectares), as shown in **Tables 3 & 4** and on **Figure 5**.

No cultivation or cropping (PALU) activities have been undertaken within the study area since 2013, this was confirmed during SLR's 2015 inspection and interviews and again during the 2019 field inspections.

Table 4 PALU Summary Hectares (Approximate)

Assessed	Study Area	Mining Areas	Infrastructure Area	Nil Disturbance	Disturbance %
Non-PALU	2,995	815	103	2,077	27

Table 5 PALU Assessment Results

Paddock	Area	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	PALU
1	Manning Vale East	Yes	Yes	No	No	No	No	No	No	No	No	No	No
2		Yes	Yes	No	No	No	No	No	No	No	No	No	
3		Yes	No	No	No	Yes	No	No	No	No	No	No	
4		Yes	No	No	No	Yes	No	No	No	No	No	No	
7		No	No	No	No	No	No	No	No	No	No	No	
5	Willeroo	No	No	No	No	No	No	No	No	No	No	No	No
6		Yes	Yes	No	No	No	No	No	No	No	No	No	
7		No	No	No	No	No	No	No	No	No	No	No	
8		Yes	No	No	Yes	No	No	No	No	No	No	No	
9		No	No	No	No	No	No	No	No	No	No	No	
10		Yes	No	No	Yes	No	No	No	No	No	No	No	
11		No	No	No	Yes	No	No	No	No	No	No	No	
12		Yes	No	No	No	Yes	No	No	No	No	No	No	
17	Manning Vale West	No	No	No	No	No	No	No	No	No	No	No	No
18		Yes	Yes	No	No	No	No	No	No	No	No	No	
20		No	No	No	No	No	No	No	No	No	No	No	
22		No	Yes	No	No	No	No	No	No	No	No	No	
23		No	No	No	No	No	No	No	No	No	No	No	
24		Yes	No	No	No	No	No	No	No	No	No	No	
25		No	No	No	No	No	No	No	No	No	No	No	
26		Yes	Yes	No	No	No	No	No	No	No	No	No	
27		No	No	No	No	No	No	No	No	No	No	No	
29		No	Yes	No	No	No	No	No	No	No	No	No	

Paddock	Area	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	PALU
30	Manning Vale West	No	No	No	No	No	No	No	No	No	No	No	No
31		Yes	Yes	No	No	No	No	No	No	No	No	No	
32		Yes	Yes	No	No	No	No	No	No	No	No	No	
17*	Infrastructure Area	No	No	No	No	No	No	No	No	No	No	No	No
18*		Yes	Yes	No	No	No	No	No	No	No	No	No	
19		No	Yes	No	No	No	No	No	No	No	No	No	
20*		No	No	No	No	No	No	No	No	No	No	No	
21		Yes	No	No	No	No	No	No	No	No	No	No	
23*		No	No	No	No	No	No	No	No	No	No	No	
24*		Yes	No	No	No	No	No	No	No	No	No	No	
28		No	No	No	No	No	No	No	No	No	No	No	
31*		Yes	Yes	No	No	No	No	No	No	No	No	No	
33		No	No	No	No	No	No	No	No	No	No	No	
34		No	No	No	No	No	No	No	No	No	No	No	
35		Yes	No	Yes	No	No	No	No	No	No	No	No	
37		No	No	No	No	No	No	No	No	No	No	No	
38		No	No	No	No	No	No	No	No	No	No	No	

*Indicates paddocks have both mine and infrastructure disturbance.

3.1 QLD Forage Report: Crop Frequency

Paddock 1 – estimated total crop frequency mapping shows a very small area of potential PALU in the centre of paddock, likely to be a mapping error. There is a large difference in estimated crop frequency between the July 2019 and September 2019 Forage Report, also likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted after 2010. See photos for sites 68, 69, 71, 72, 104, 105, 105 and 225 in **Appendix D** (Manning Vale East) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 2 – estimated total crop frequency mapping shows a small area of potential PALU in the south of paddock, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted after 2010. See photos for sites 67, 70, 99 – 103, 107, 224 and 230 in **Appendix D** (Manning Vale East) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 3 – estimated total crop frequency mapping from July 2019 shows no evidence of PALU activities (three instances), however September 2019 has scattered areas of potential PALU, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted since 2013. See photos for sites 64, 65, 66, 96, 97, 98, 108, 193, 223 in **Appendix D** (Manning Vale East) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 4 – estimated total crop frequency mapping from July 2019 shows no evidence of PALU activities (three instances), however September 2019 has scattered areas of potential PALU. Likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted since 2013. See photos for sites 109, 111, 190, 191, 192, 231, 232 in **Appendix D** (Manning Vale East) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 6 – 2011 & 2013 Forage Reports show dam overflow as crop growth. In 2015 APC farm manager confirmed no cultivation or crop sown in either year. No cultivation or crop sown since 2010. There is a large difference in estimated crop frequency between the July 2019 and October 2019 Forage Report, likely to be a mapping error. See photos for sites 164 – 196 and 184 – 189 in **Appendix D** (Willeroo) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 7 – estimated total crop frequency mapping shows a very small area of potential PALU in the south west of paddock, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted after 2008. See photos for site 110 in **Appendix D** (Manning Vale East) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 8 – 2013 Forage Report shows weed growth as crop growth. In 2015 APC farm manager confirmed no cultivation or crop sown in 2013. See photos for sites 115 – 121 in **Appendix D** (Willeroo) of regenerating grassland from 2015. Verified as non-PALU.

Paddock 9 – estimated total crop frequency mapping shows very small areas of potential PALU in the east and west of the paddock, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted since 2009. See photos for sites 139 – 142 and 146 in **Appendix D** (Willeroo) of regenerated grassland from 2015. Verified as non-PALU

Paddock 10 – estimated total crop frequency mapping shows small areas of potential PALU in the south east and central west of paddock, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation or crop planted after 2012. See photos for sites 122 – 131, 158, 173, 174 and 175 in **Appendix D** (Willeroo) of regenerated grassland from 2015. Verified as non-PALU.

Paddock 12 – Forage Report shows weed growth as crop growth. In 2015 APC farm manager confirmed no cultivation or crop planted between 2010 – 2012, last crop sown in 2013. See photos for sites 170 and 171 in **Appendix D** (Willeroo) of regenerated grassland from 2015. Verified as non-PALU.

Paddock 18 – estimated total crop frequency mapping shows a small area of potential PALU in the centre of paddock, likely to be a mapping error. In 2015 APC farm manager confirmed no cultivation crop planted after 2010. See photos for sites 12 – 16, 19, 94 and 95 in **Appendix D** (Manning Vale West) of regenerated grassland in 2015, along with site 261 in **Appendix D** (Infrastructure) of regenerated grassland from 2019. Verified as non-PALU.

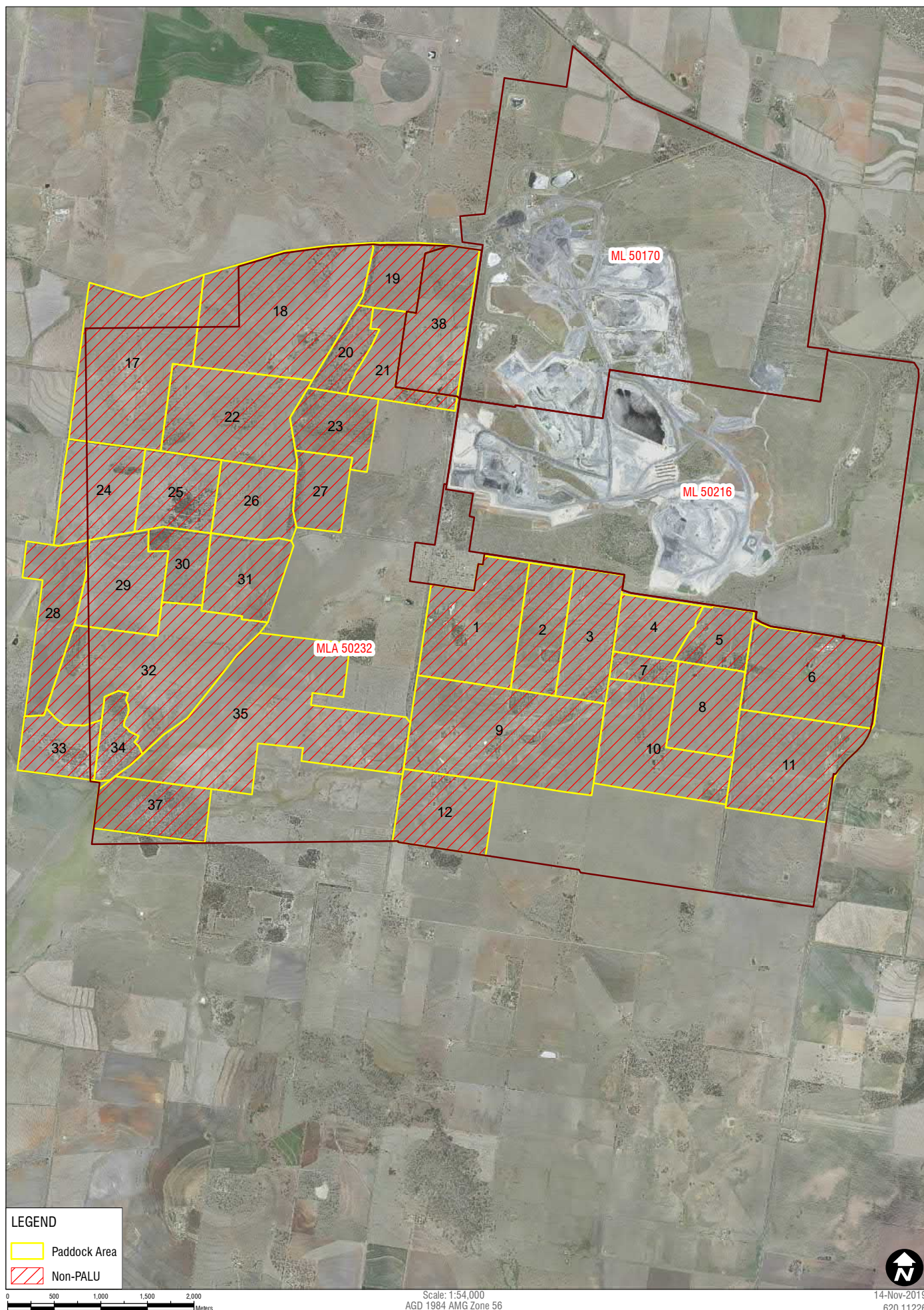
South-eastern corner of **Paddock 26** – 2014 Forage Report shows weed growth as crop growth. In 2015 APC farm manager confirmed no cultivation or crop sown since 2013. See photos for sites 30, 31, 32, and 73 in **Appendix D** (Manning Vale West) of regenerating grassland from 2015. Verified as non-PALU.

North-eastern corner of **Paddock 31** – 2011 Forage Report shows weed growth as crop growth. In 2015 APC farm manager confirmed no cultivation or crop sown in 2011. See photos for sites 41, 54, 55, 83, and 84 in **Appendix D** (Manning Vale West) of regenerating grassland from 2015, along with site 260 (Infrastructure) of regenerated grassland in 2019. Verified as non-PALU.

Paddock 35 – 2010 Forage Report shows weed growth as crop growth. In 2015 APC farm manager confirmed no cultivation or crop planted in 2010 or since 2011. There is also a large difference in estimated crop frequency between the July 2019 and October 2019 Forage Report, likely to be a mapping error. See photos for sites 52 and 53 in **Appendix D** (Infrastructure) of regenerating grassland from 2015, along with 246 and 247 of regenerated grassland in 2019. Verified as non-PALU.

Lot 3 RP84726 (0.15 hectares) and Lot 4 RP84726 (0.17 hectares) were too small for the crop frequency mapping to collate data. They are however, located between Paddock 9 and Paddock 12 and being contiguous with these paddocks have also been verified as non-PALU.

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4 Conclusion

The RPI Act, section 29, requires that this report assess the impact of the activities described in **Section 3** on the area of regional interest. The relevant area of interest for this assessment is the PAA.

In the case of the PAA, there will be no material impact on the PAA as this report demonstrates that the activities will not be located on land that is used for a PALU and therefore satisfies Required Outcome 1 from Schedule 2 of the RPI Regulation. Any impact on the suitability of land for an agricultural use will be mitigated by implementation of the FLURP and subsequent reinstatement of the disturbed areas to a land use commensurate with the pre-disturbance land use of cattle grazing.

Based on findings made after reviewing all available information during this PALU assessment, the following conclusion has been determined for the study area:

- There is no PALU within the Application Area.
- The Application Area is used for non-PALU activities, predominantly cattle grazing native vegetation.

5 References

Department of Science, Information Technology, Innovation and the Arts (2015) Forage Crop Frequency Data (2006 – 2015)

Department of State Development, Infrastructure and Planning (2013) Darling Downs Regional Plan

Department of State Development, Infrastructure and Planning (2014) New Acland Coal Mine Stage 3 Project – Coordinator-General's evaluation report on the environmental impact statement December 2014

Google Earth accessed 16th July 2019

New Acland Pastoral Company (2015) Verbal and written communication regarding paddock history from Manager Mr. Ben Muirhead

Queensland Land Use Mapping Program (QLUMP) accessed 16th July 2019, to confirm Australian Land Use and Management (ALUM) classification for the study area

Department of State Development, Infrastructure and Planning (2014) Regional Planning Interests Act 2014 (RPI Act)

Department of State Development, Infrastructure and Planning (2014) Regional Planning Interests Act Guideline 07/14 (RPI Guideline)

Department of State Development, Infrastructure and Planning (2014) Regional Planning Interests Regulation 2014 (RPI Regulation)

SLR (2015) Soil and Land Resource Assessment

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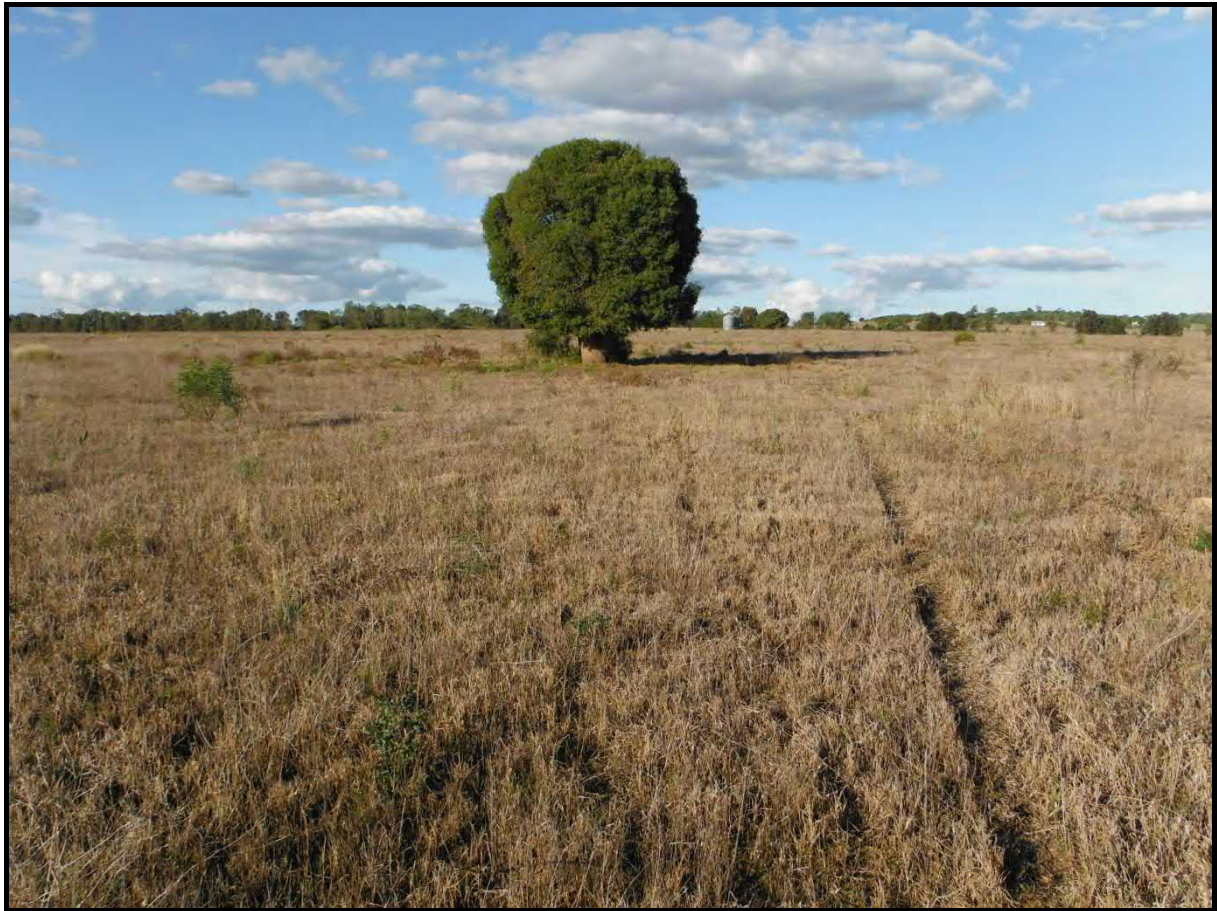
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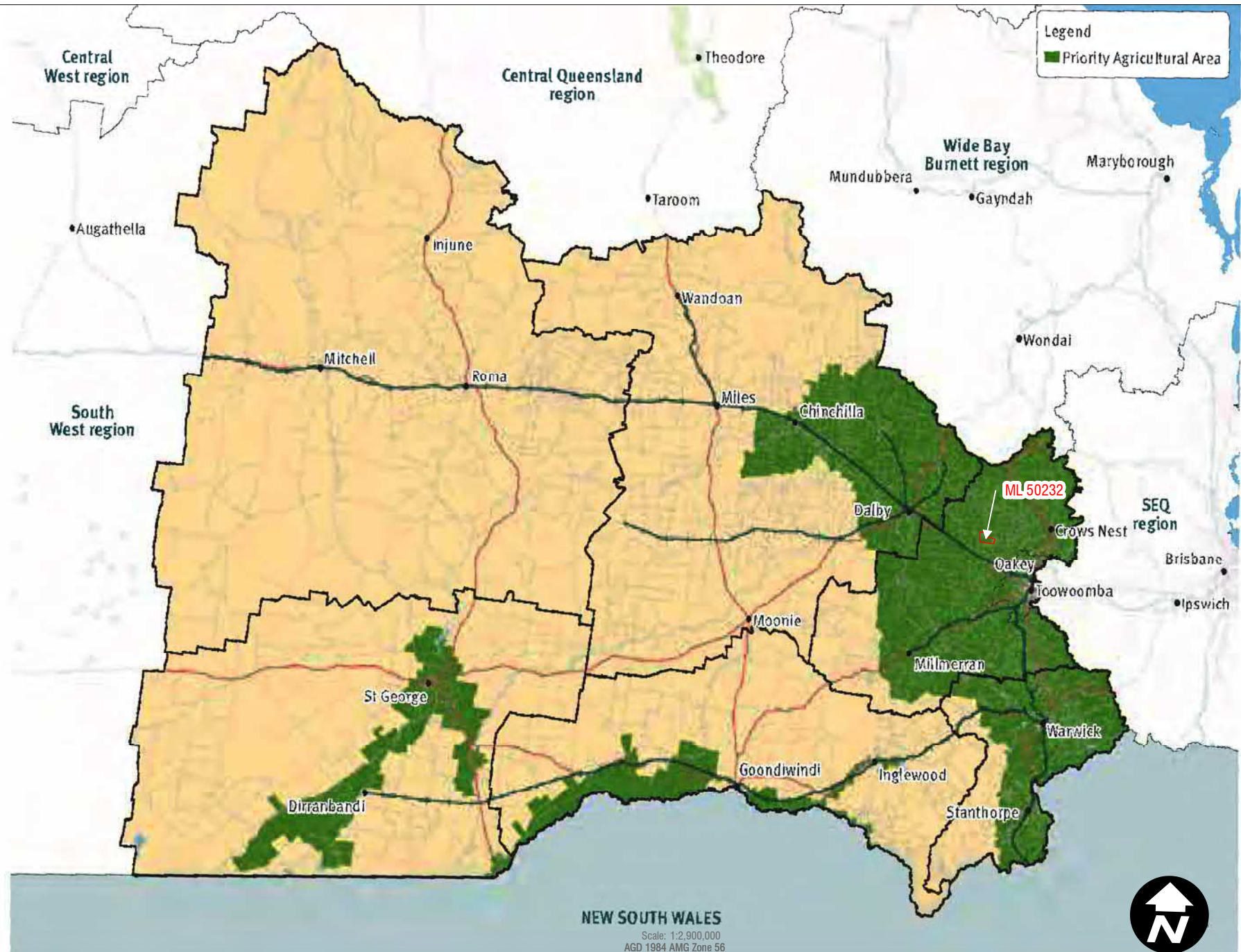
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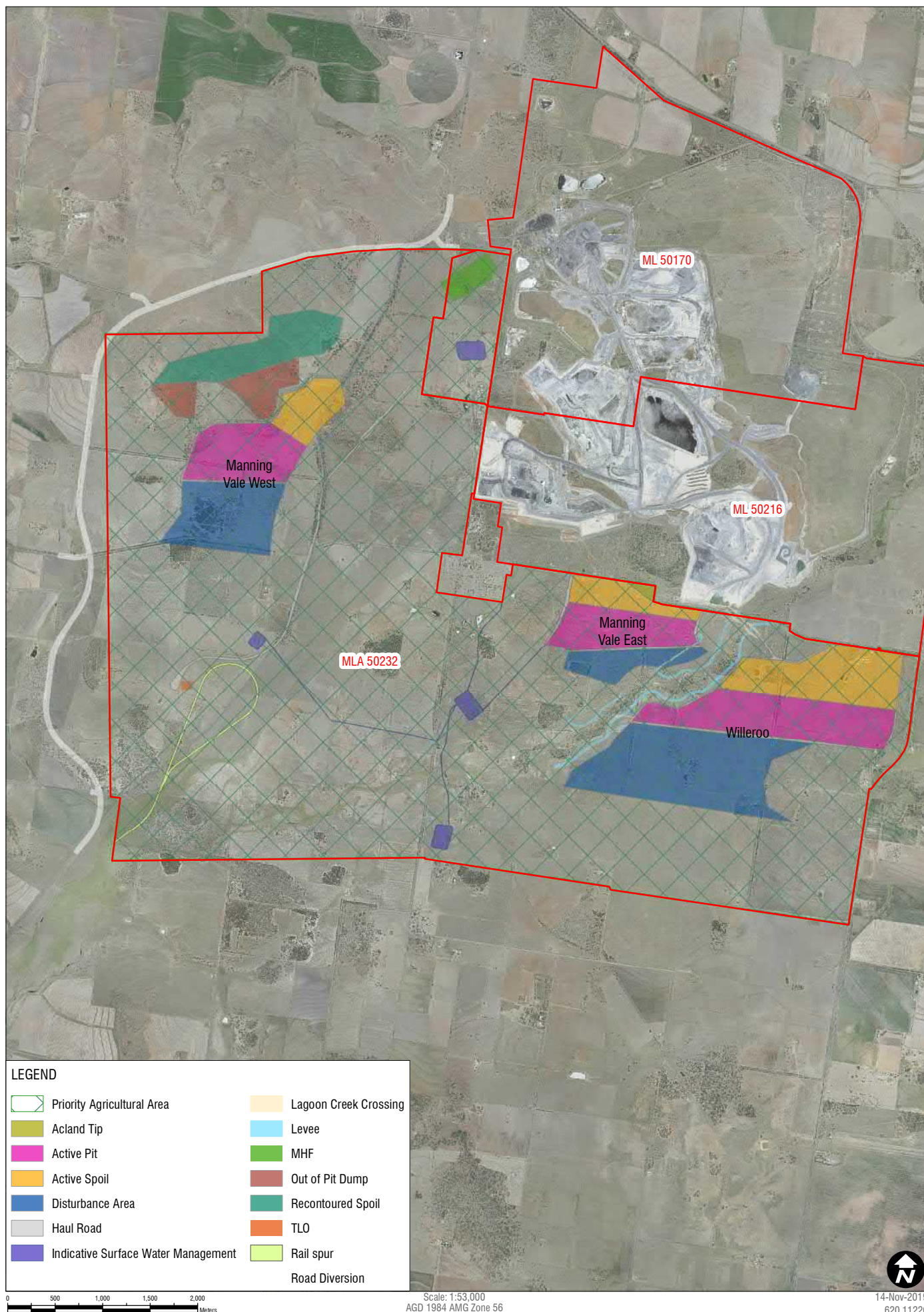
APPENDIX A

Darling Downs Regional Plan Priority Agricultural Areas





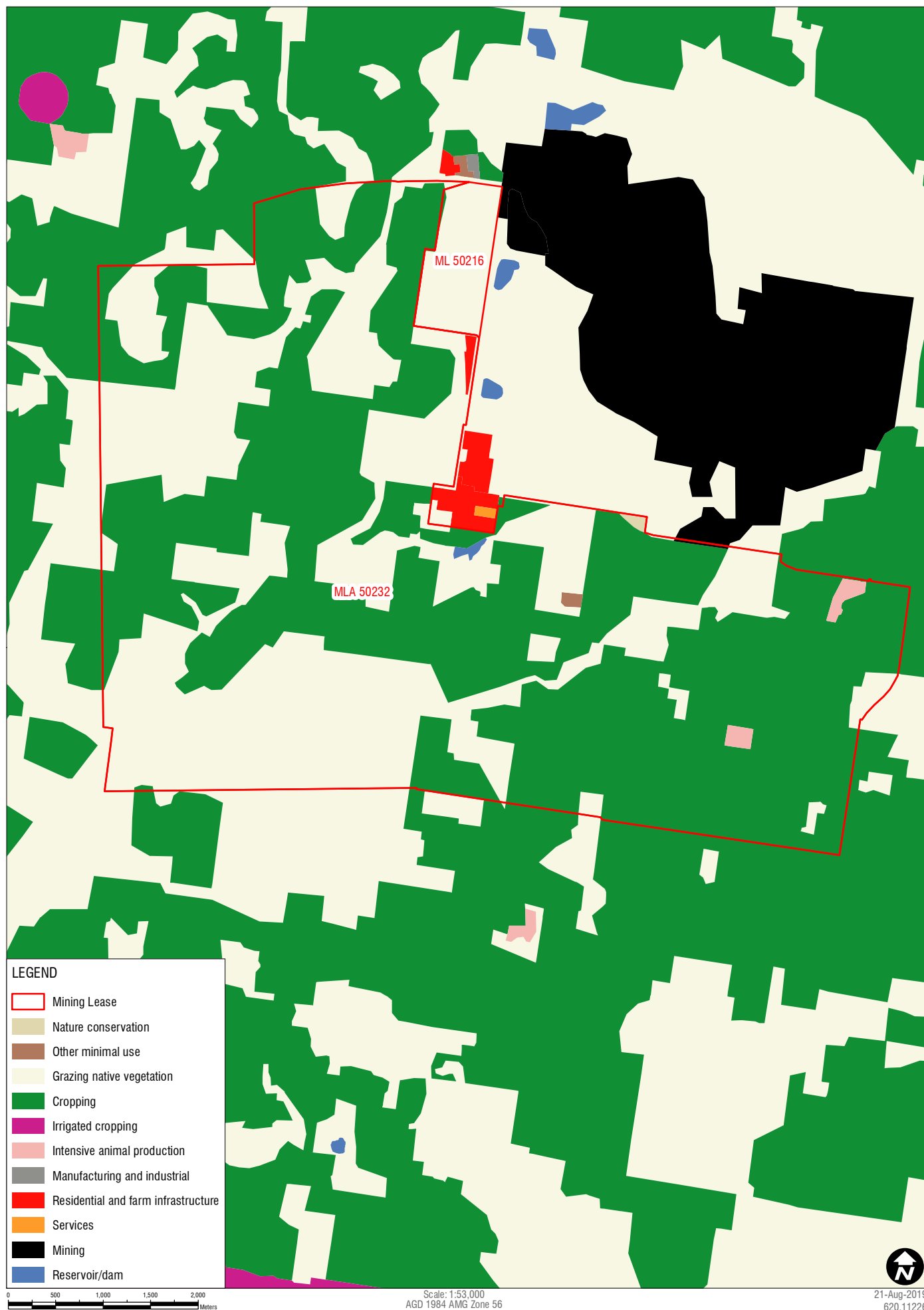
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APPENDIX B

Queensland Land Use Mapping Program Australian Land Use Management Classification





Scale: 1:53,000
AGD 1984 AMG Zone 56

21-Aug-2019
620.11226

APPENDIX C1 - C5

Queensland Government Forage Crop Frequency Data



Paddock Numbers Shown In Description Label

APPENDIX C1

Manning Vale East



Forage Crop Frequency

Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 2RP200083

Label: paddock1

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 2RP200083

Label: paddock1

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 2RP200083

Label: paddock1

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

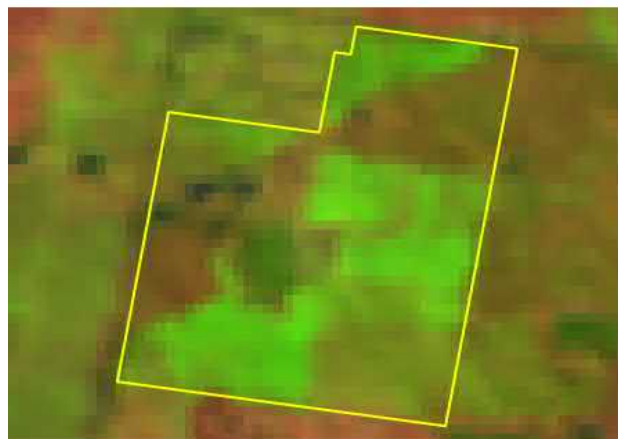
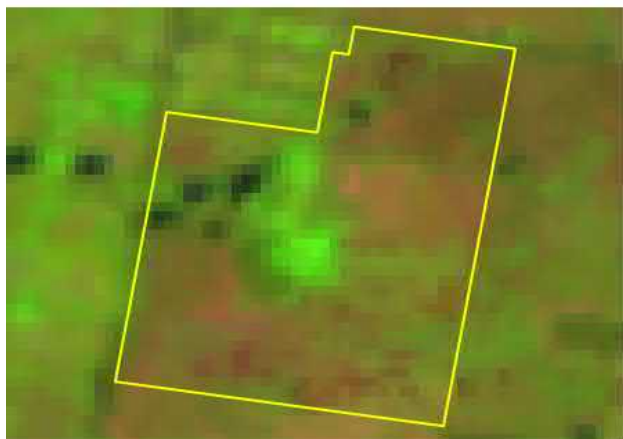
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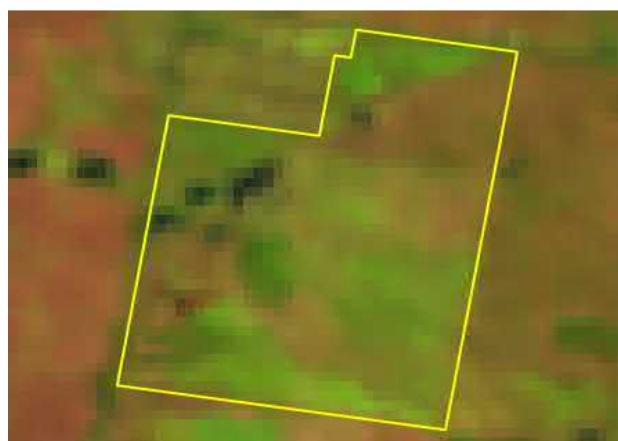
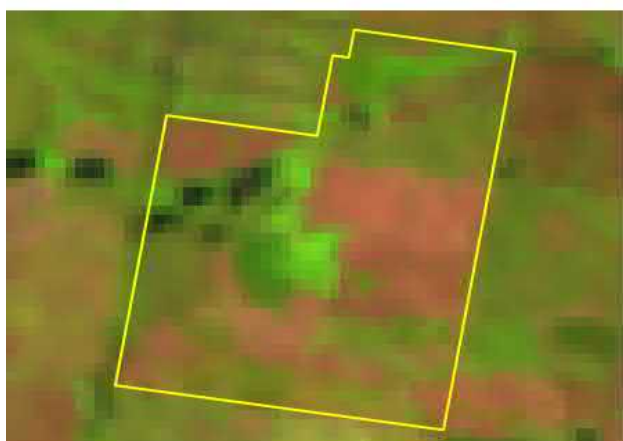


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Government

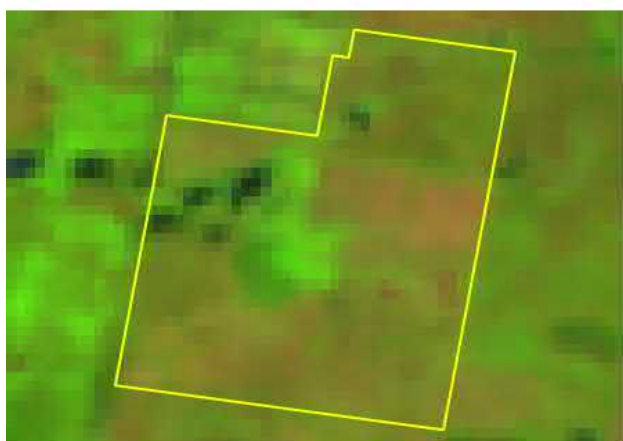
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 2RP200083

Label: paddock1



Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 2RP200083

Label: paddock1

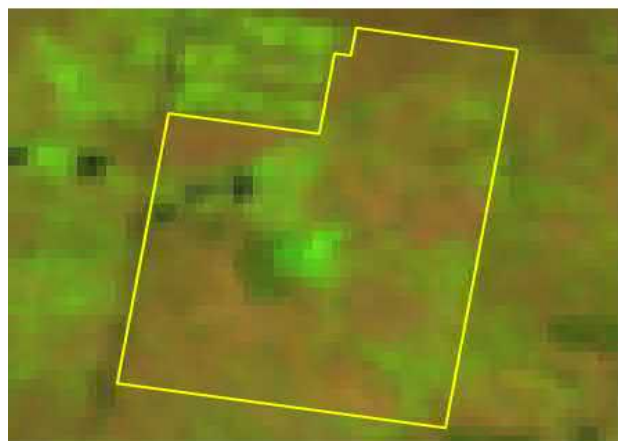


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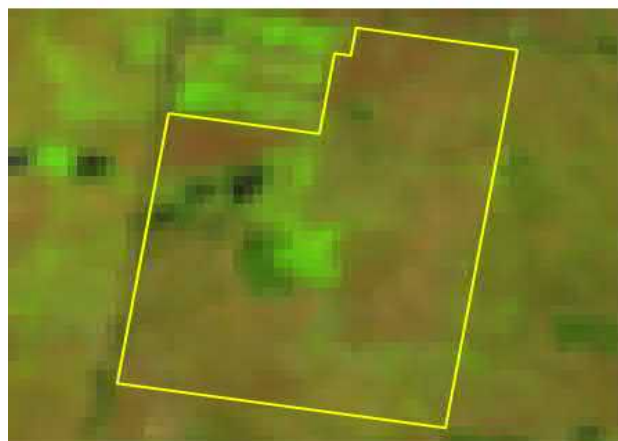
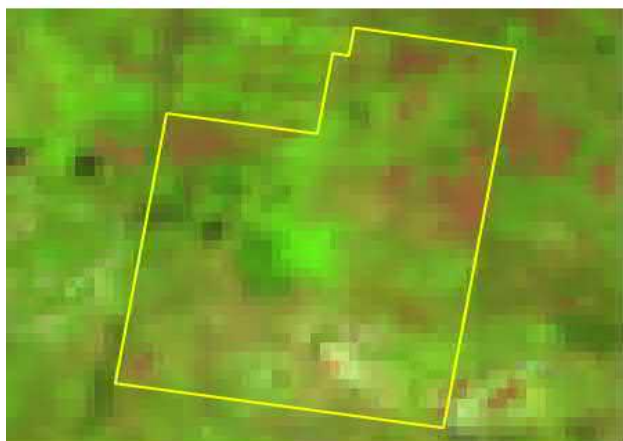
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

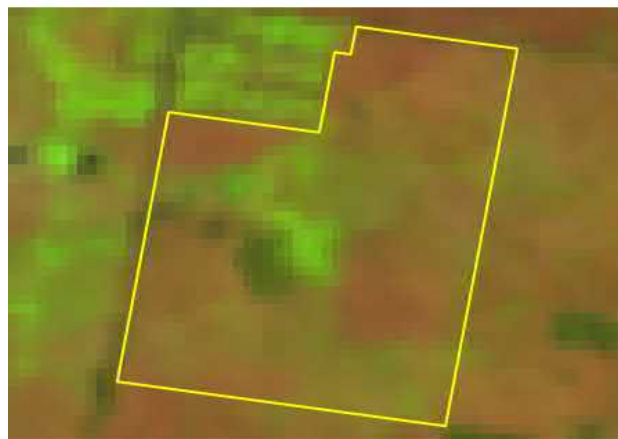
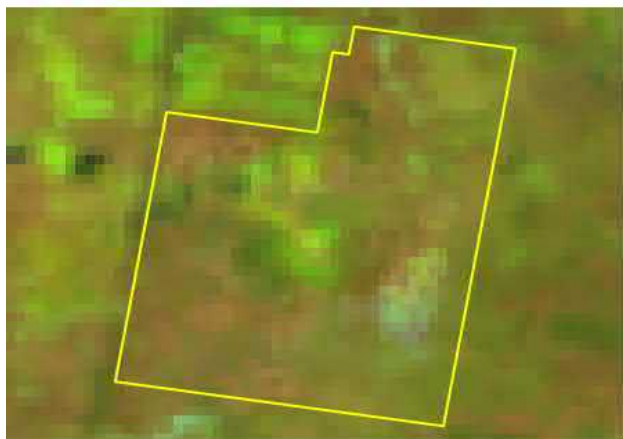
Lot on Plan: 2RP200083

Label: paddock1



Queensland
Government

February (left) and September (right) images for 2018



Disclaimer

Limitation of liability: the State of Queensland, as represented by the Department of Environment and Science (DES) gives no warranty in relation to the data (including without limitation, accuracy, reliability, completeness or fitness for a particular purpose). To the maximum extent permitted by applicable law, in no event shall DES be liable for any special, incidental, indirect, or consequential damages whatsoever (including, but not limited to, damages for loss of profits or confidential or other information, for business interruption, for personal injury, for loss of privacy, for failure to meet any duty including of good faith or of reasonable care, for negligence, and for any other pecuniary or other loss whatsoever including, without limitation, legal costs on a solicitor own client basis) arising out of, or in any way related to, the use of or inability to use the data. ©The State of Queensland, 2019.

Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

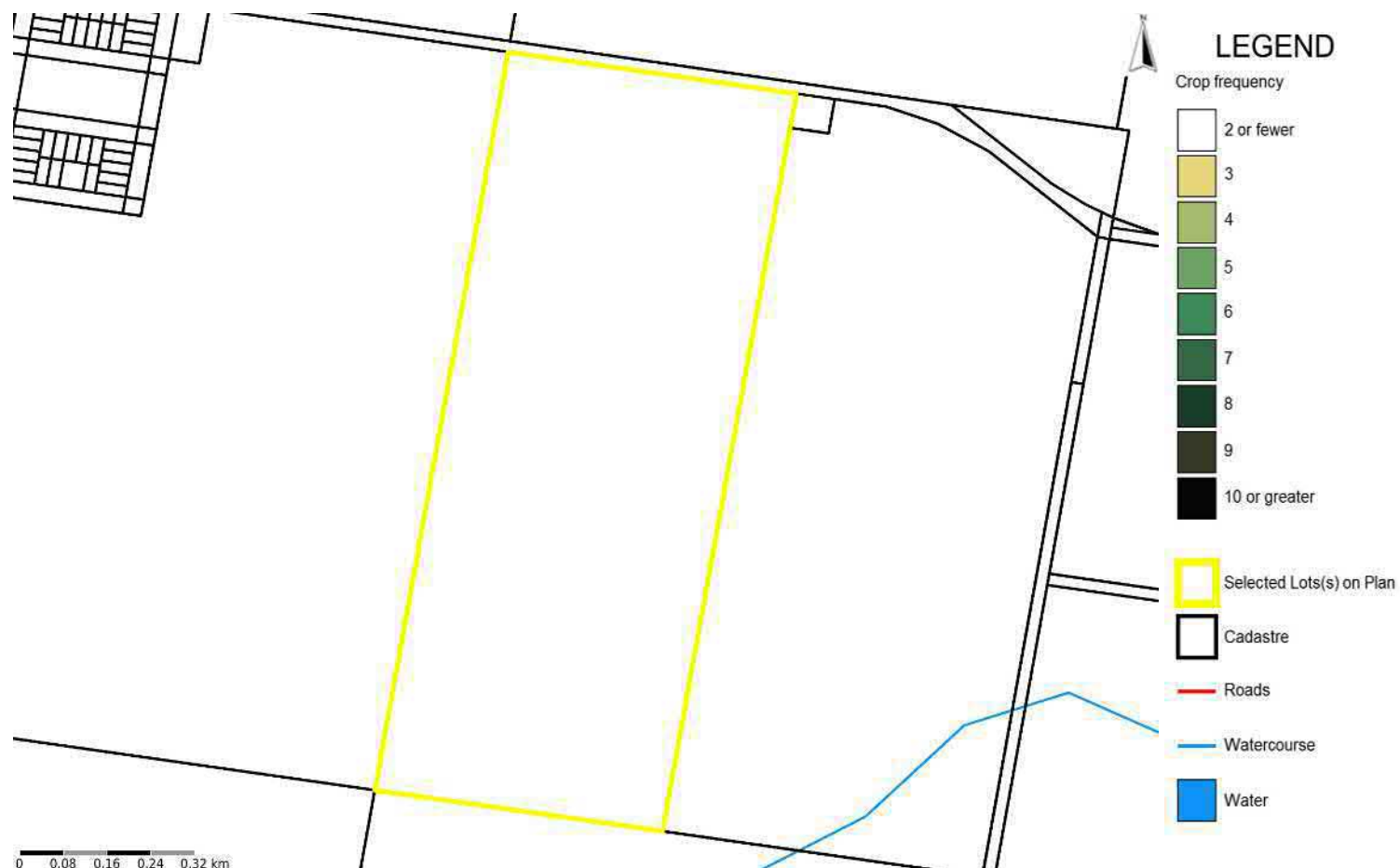
<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 67RP25514

Label: paddock2

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

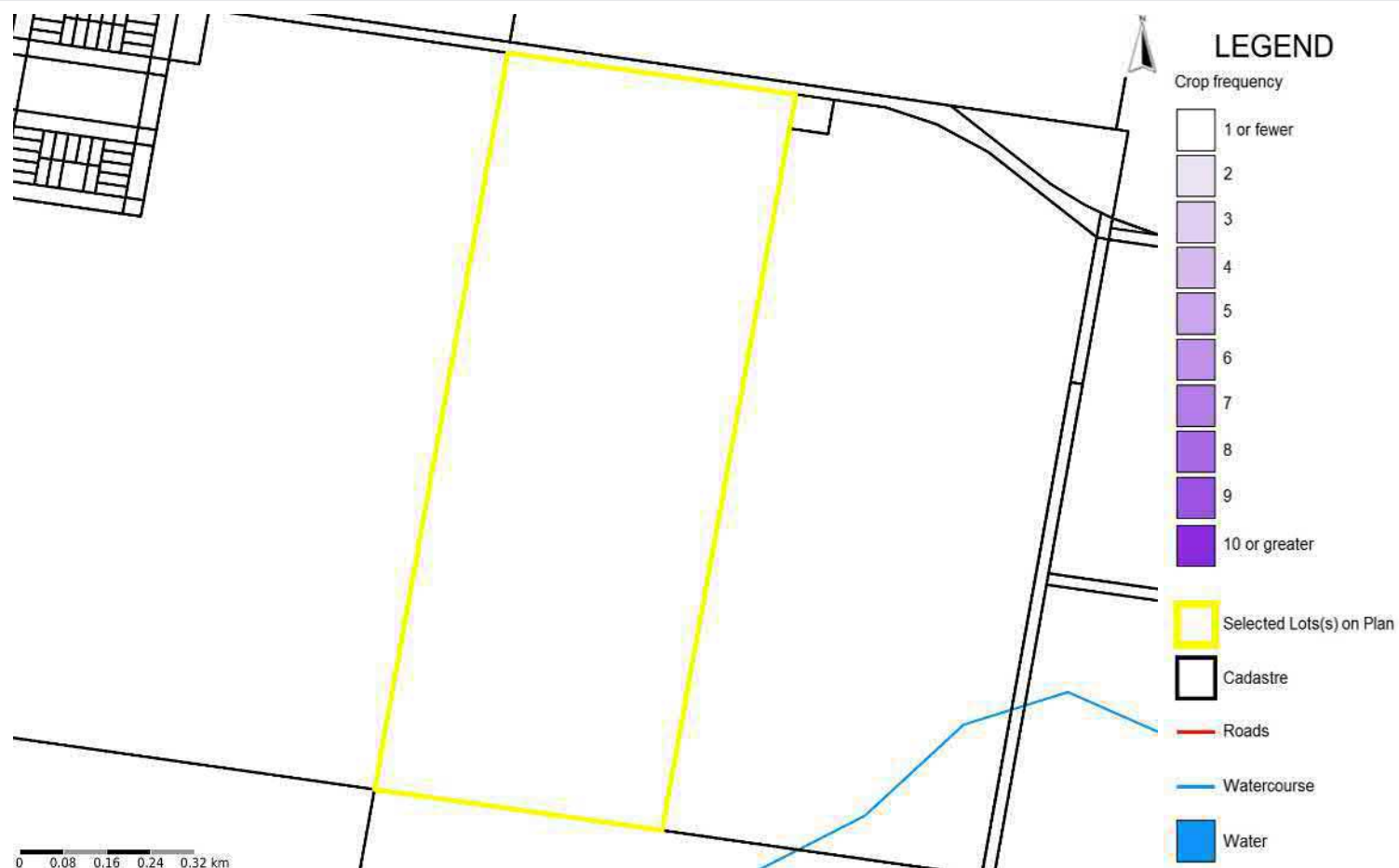
<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

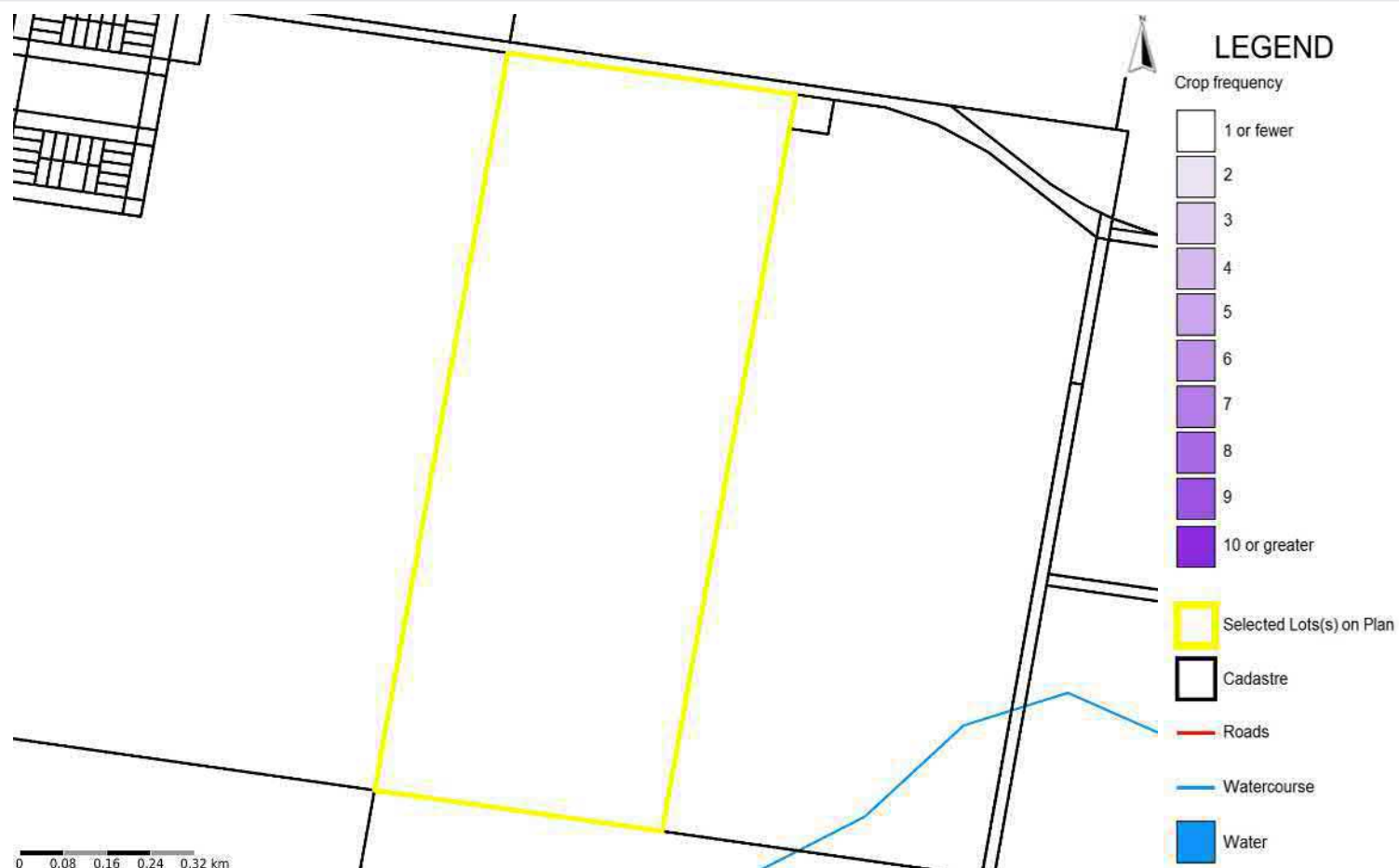
Lot on Plan: 67RP25514

Label: paddock2

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

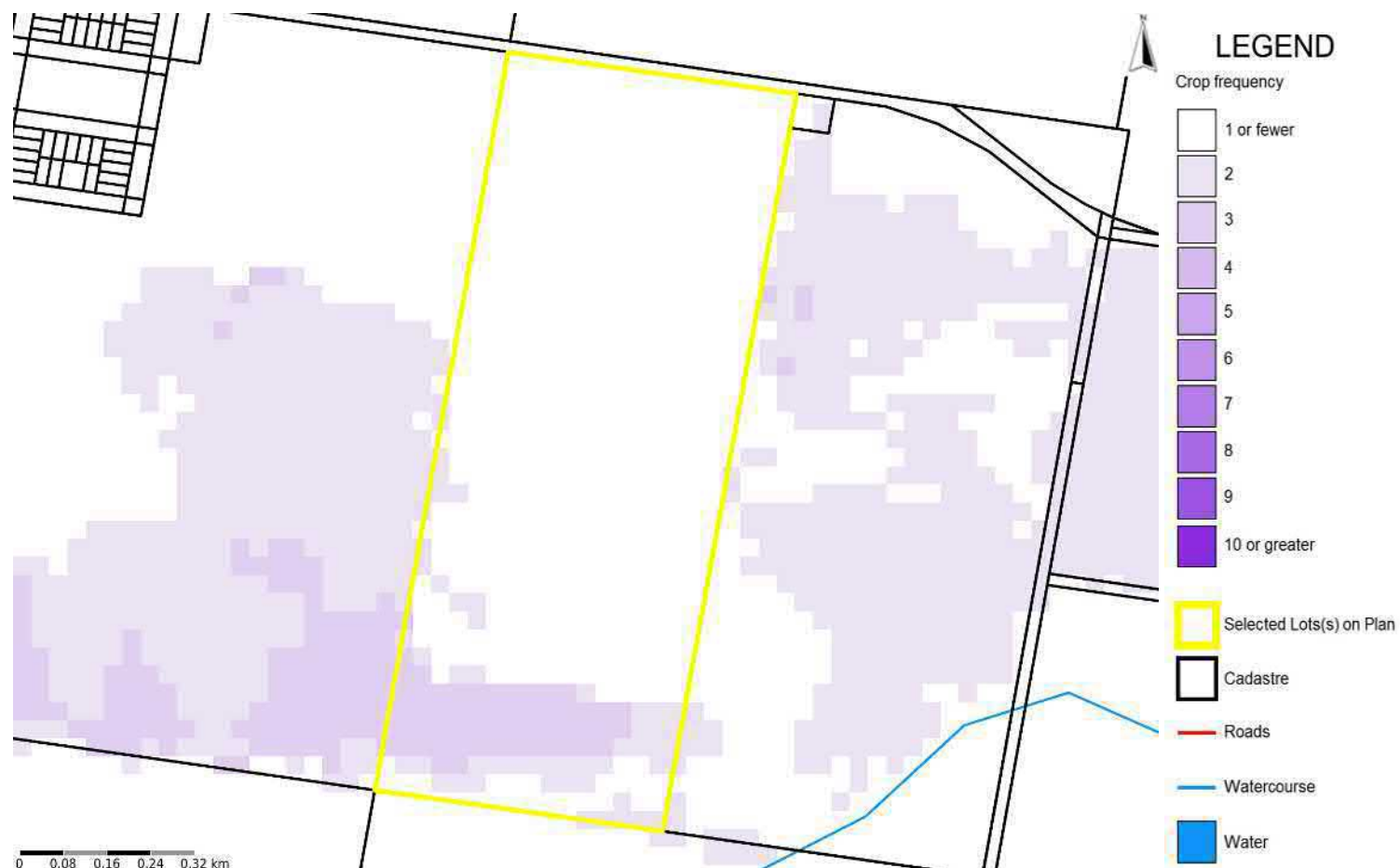
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Label: paddock2

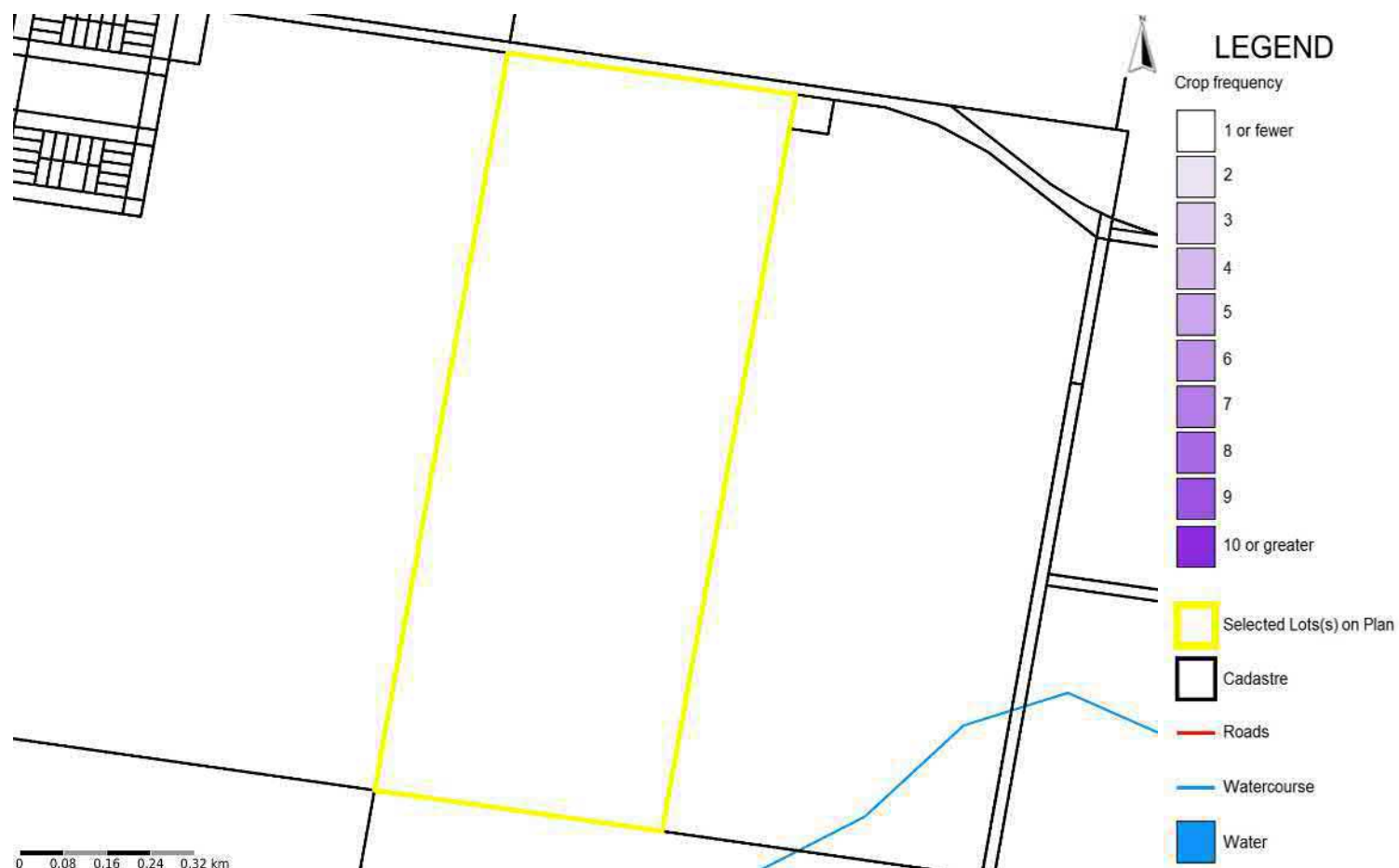


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

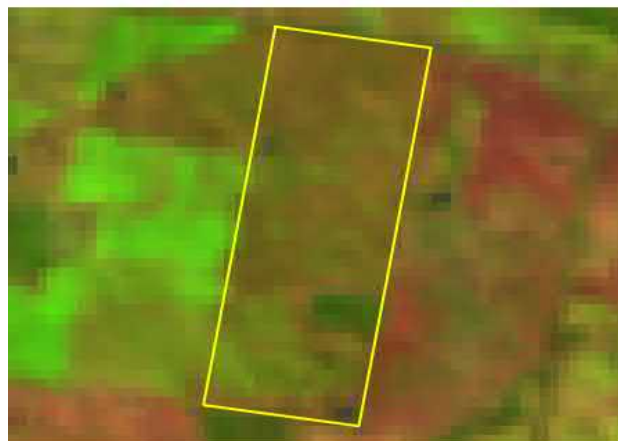
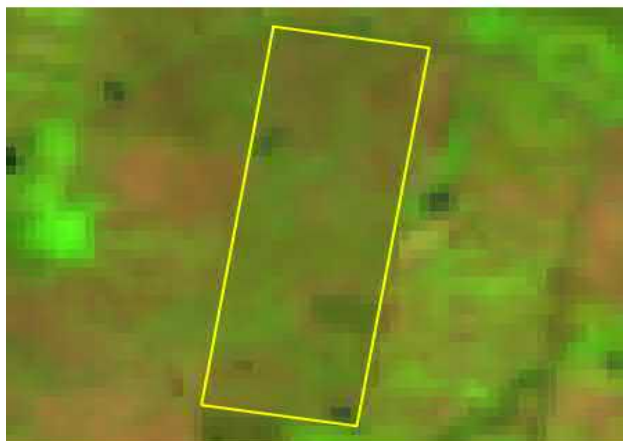
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Label: paddock2

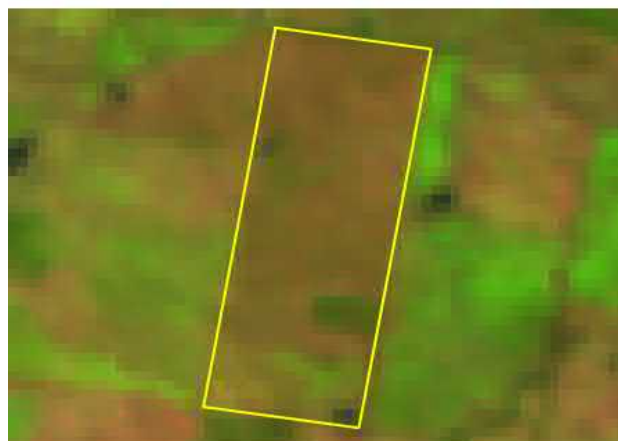
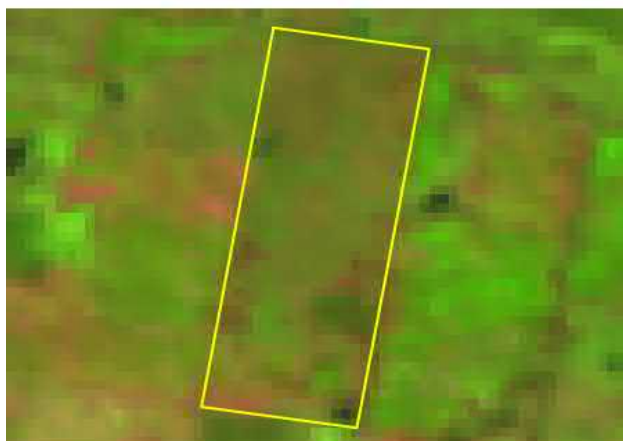


Queensland
Government

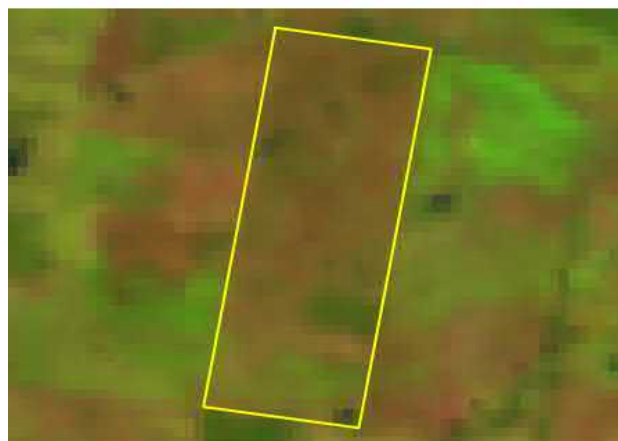
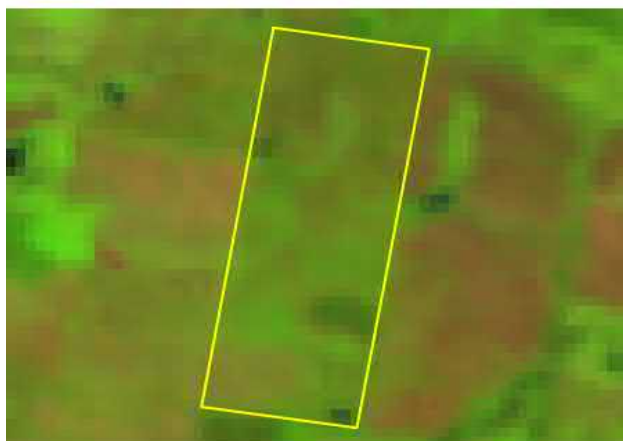
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

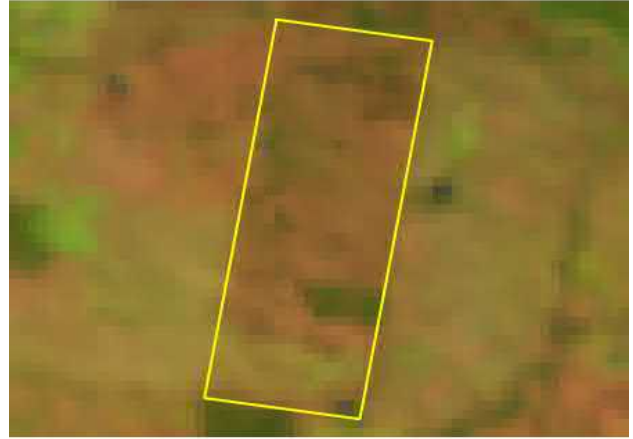
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Label: paddock2

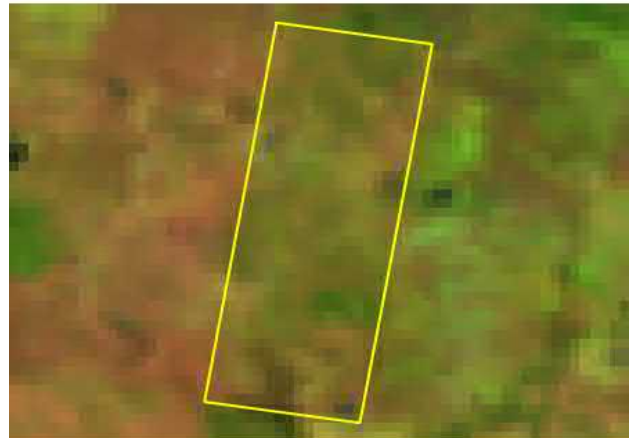


Queensland
Government

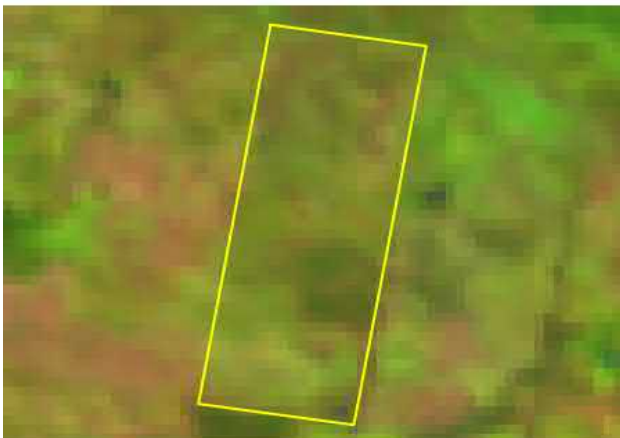
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

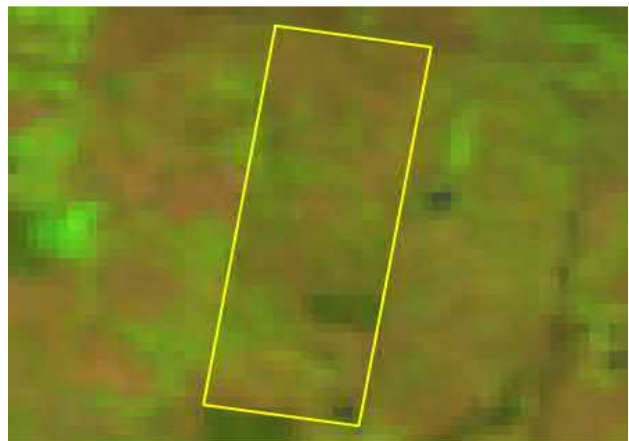
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Label: paddock2

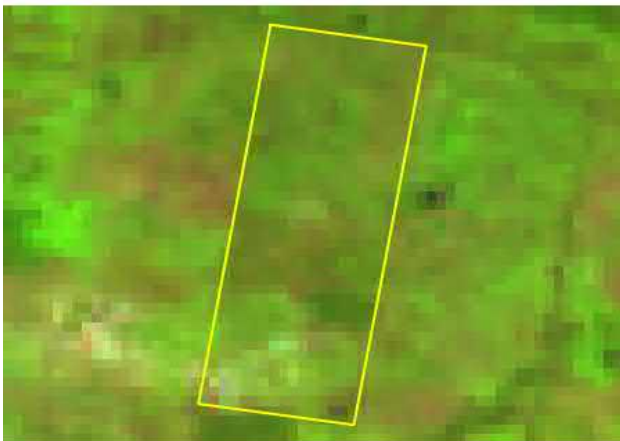
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

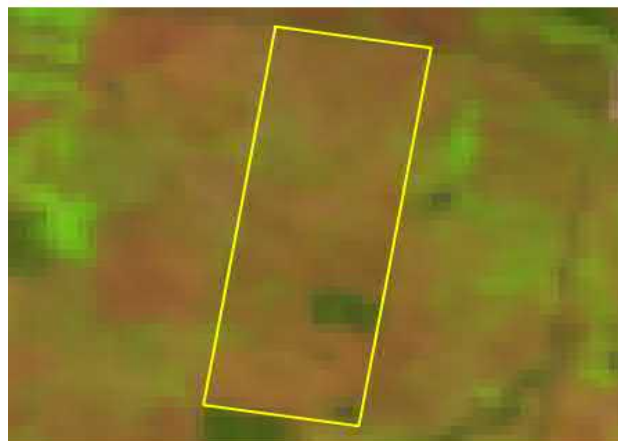
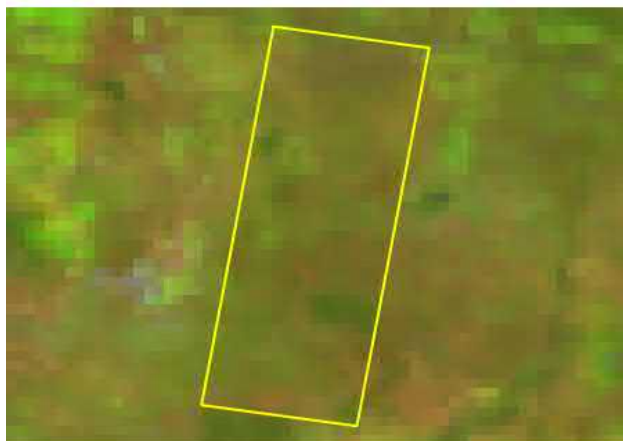
Lot on Plan: 67RP25514

Label: paddock2



Queensland
Government

February (left) and September (right) images for 2018



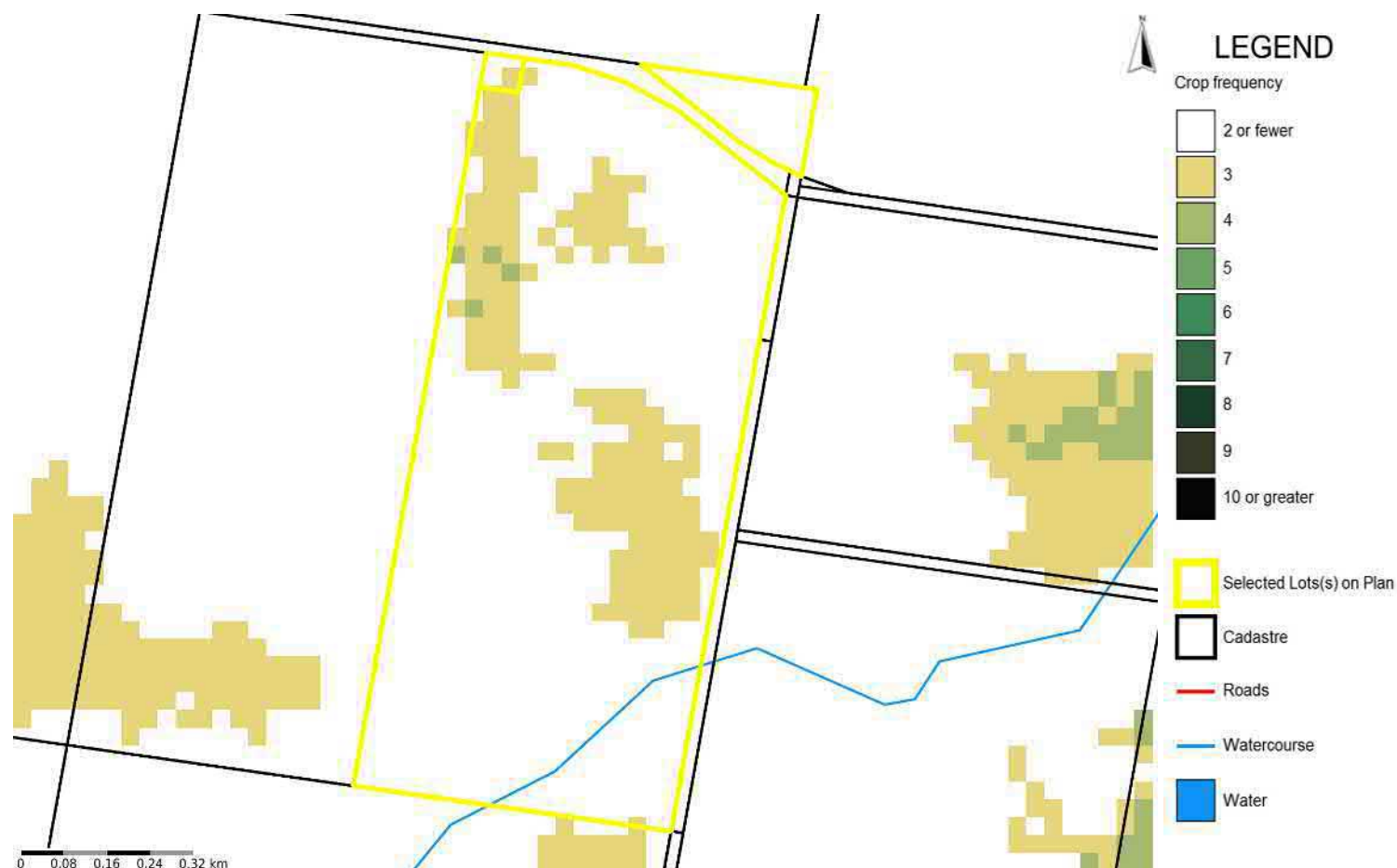
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3

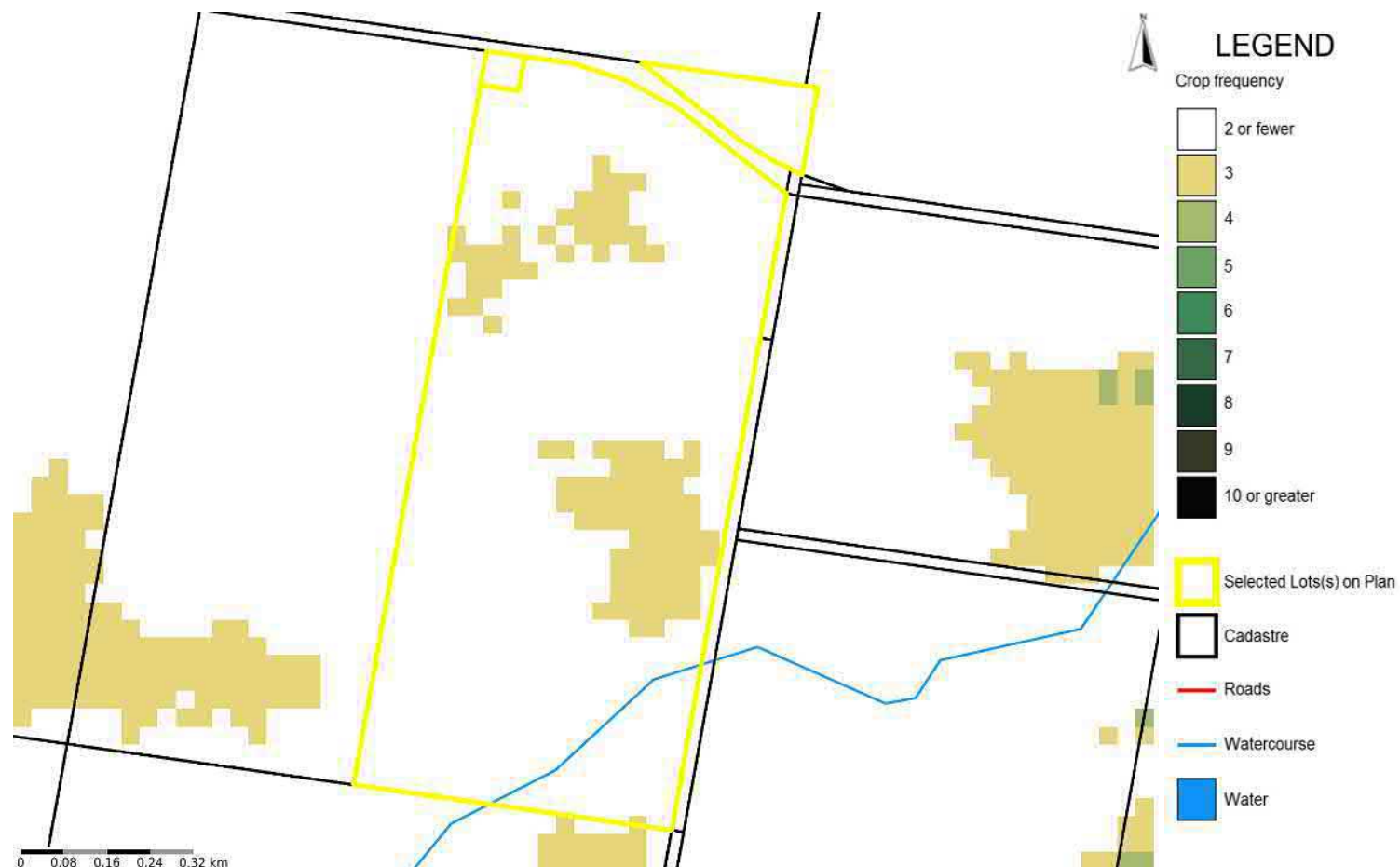


Queensland
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Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3

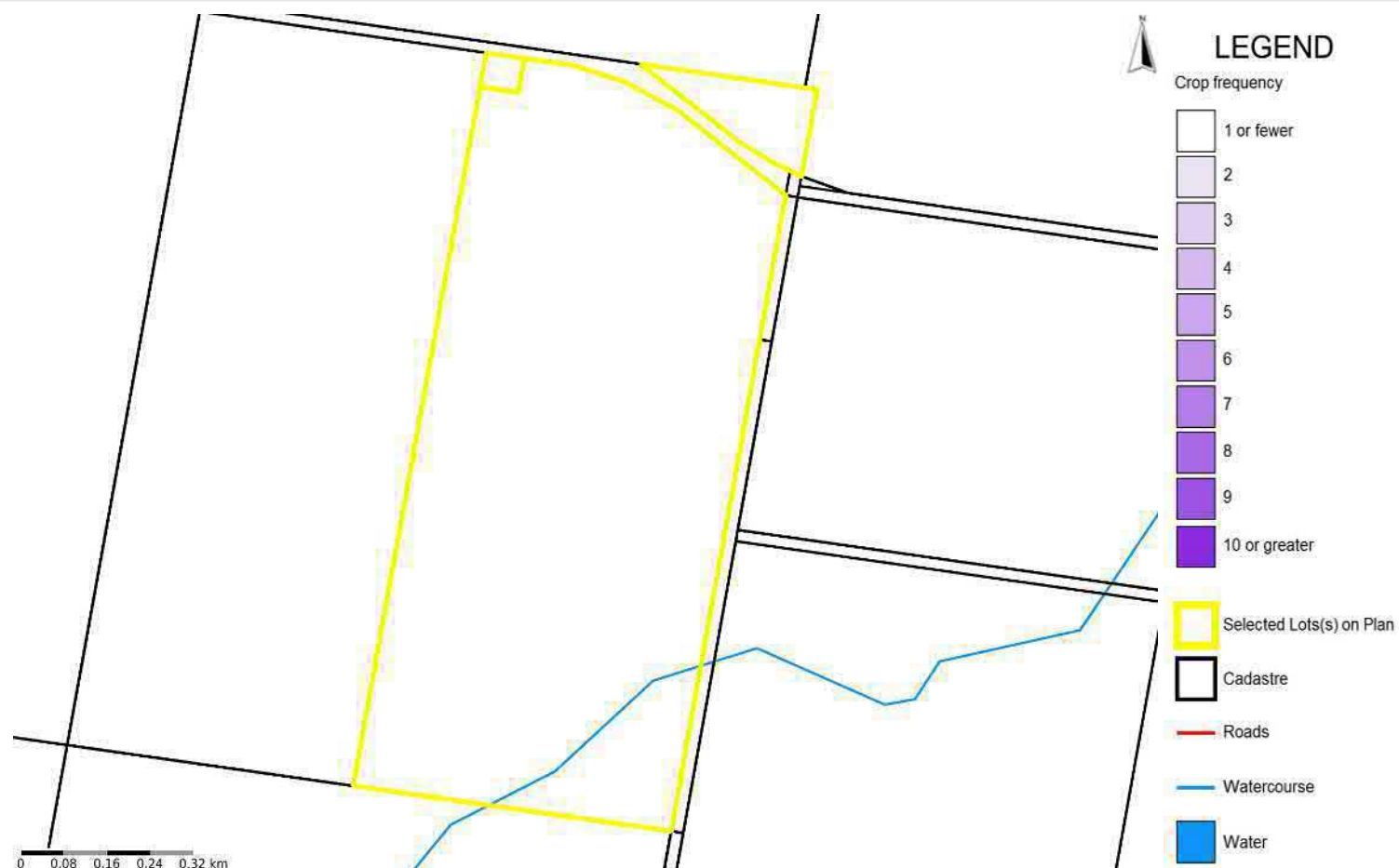


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

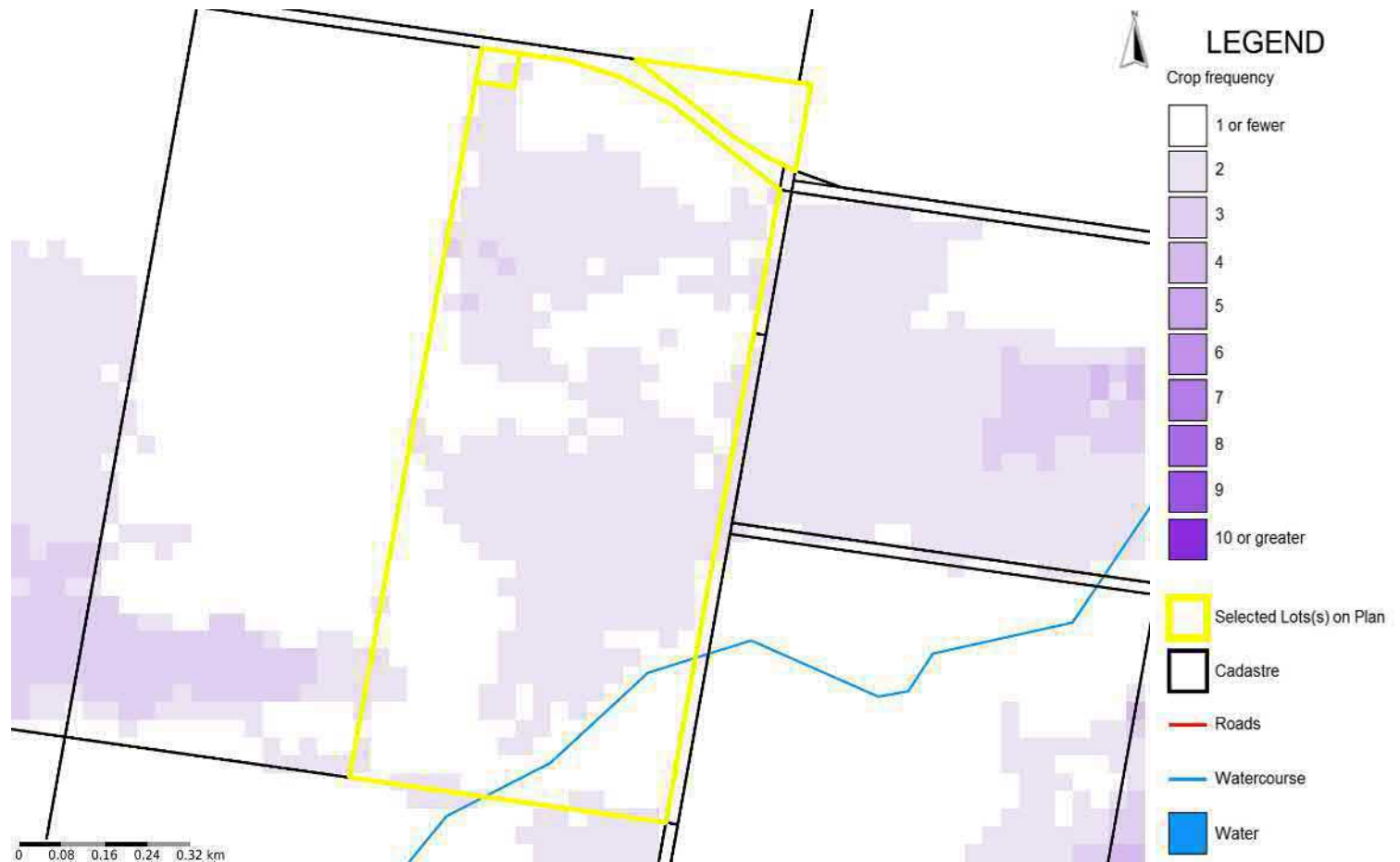
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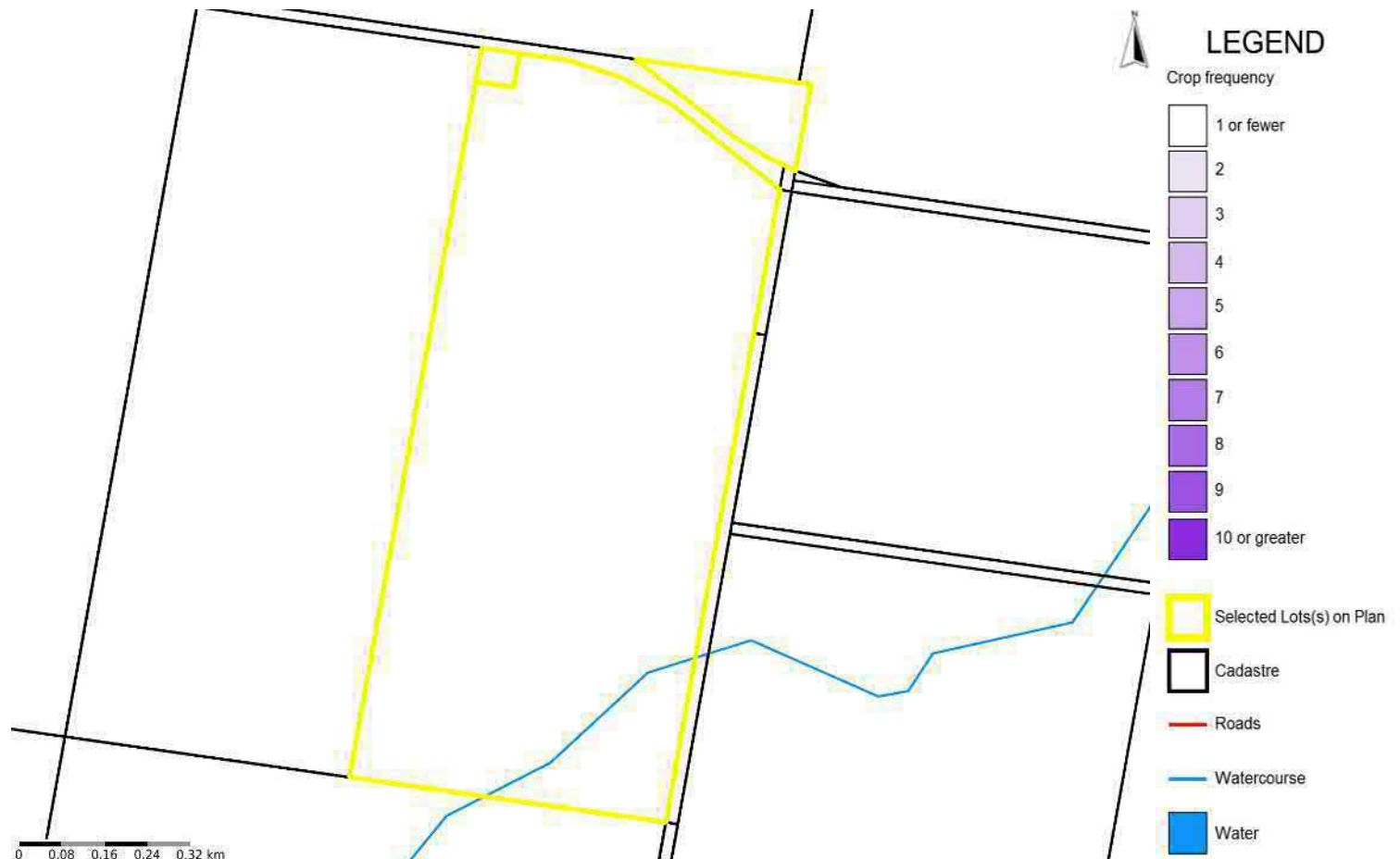


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Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3



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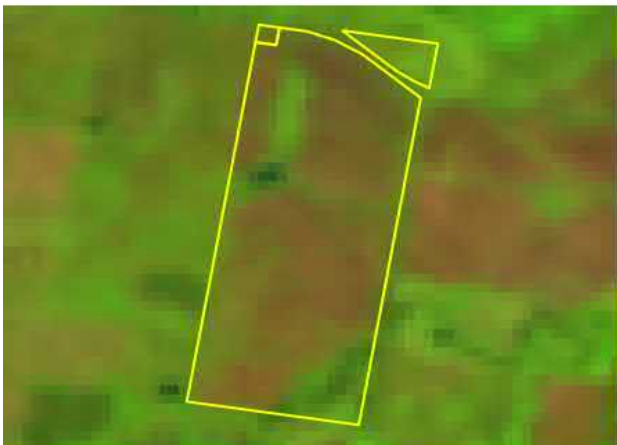
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3



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February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3



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Government

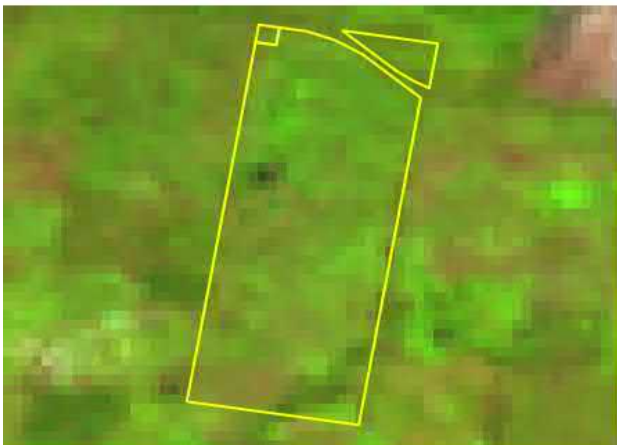
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP36493,2AG262,62AG2962

Label: paddock3



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February (left) and September (right) images for 2018



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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

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In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 19, 2019

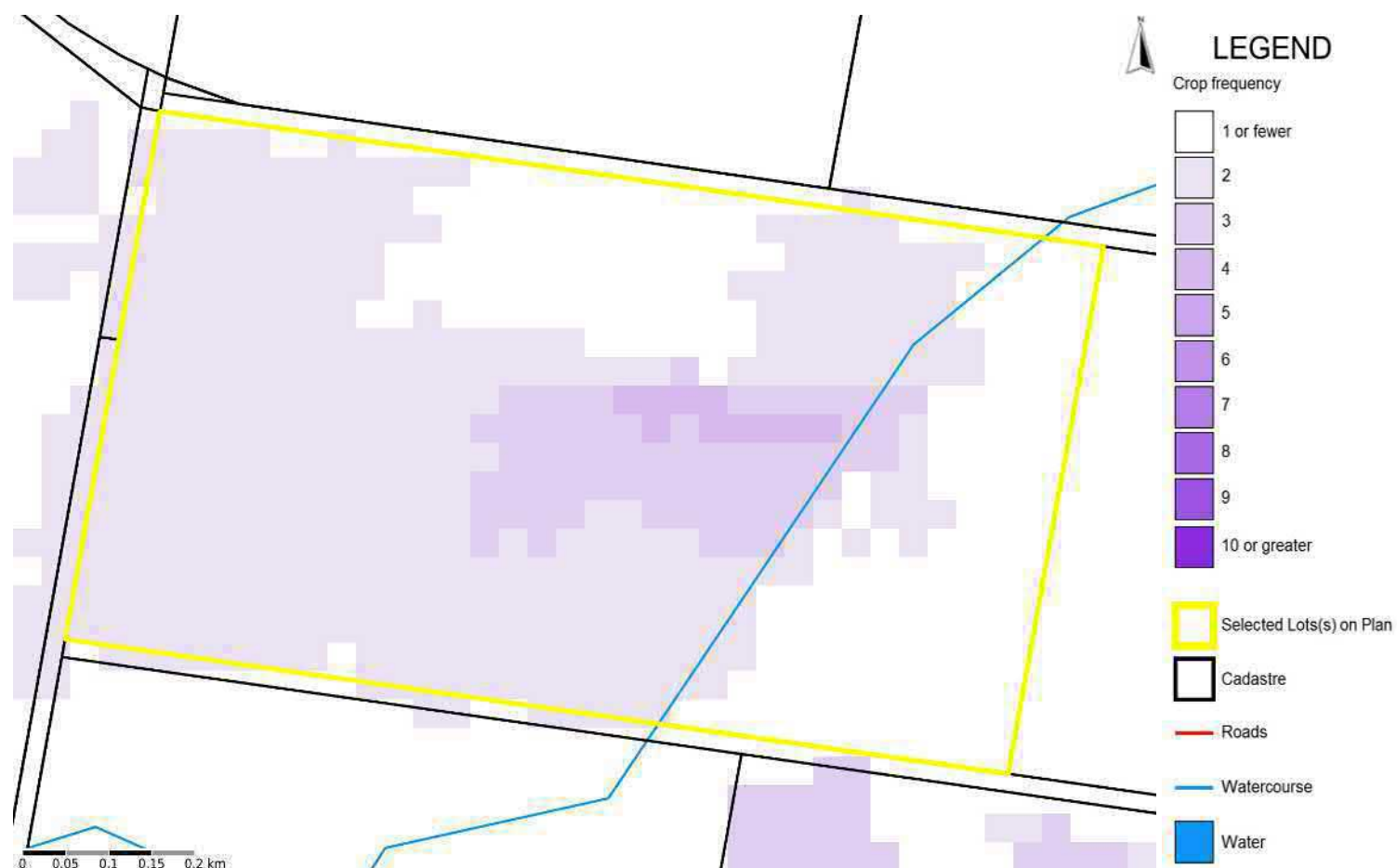
Lot on Plan: 38AG2512

Label: paddock4



Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 19, 2019

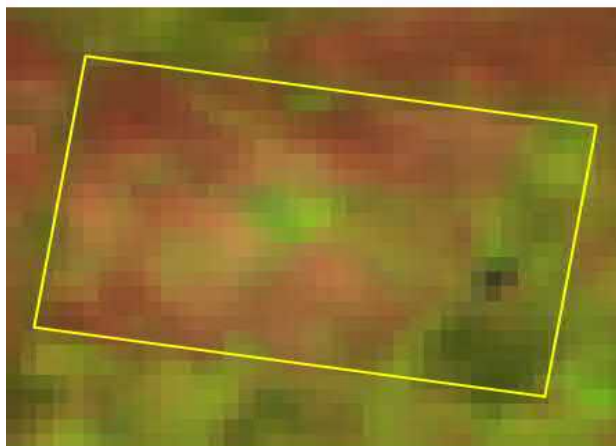
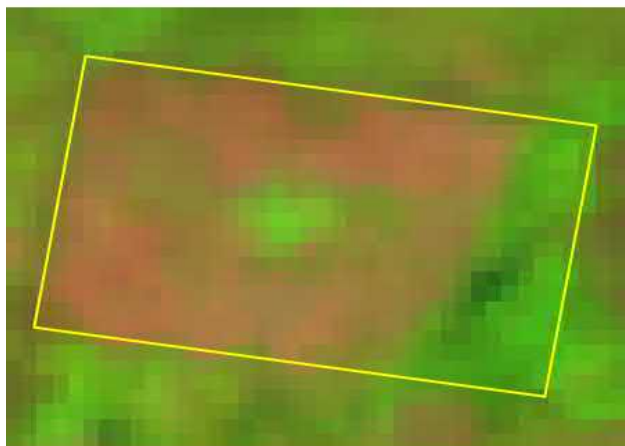
Lot on Plan: 38AG2512

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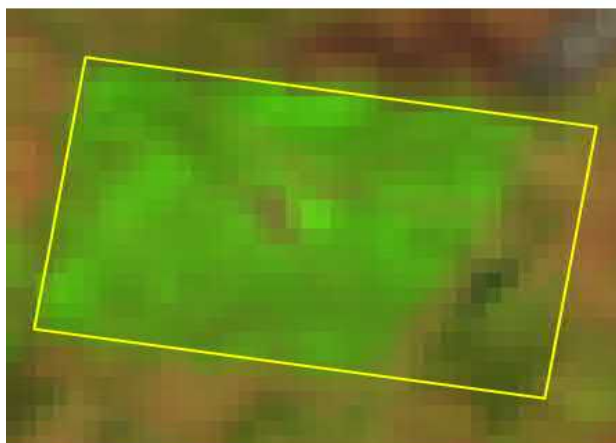
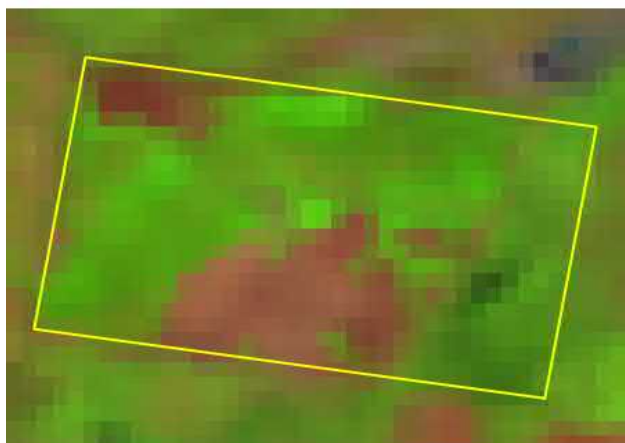


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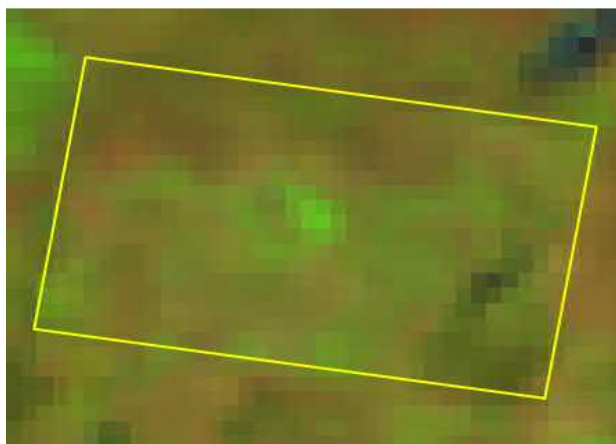
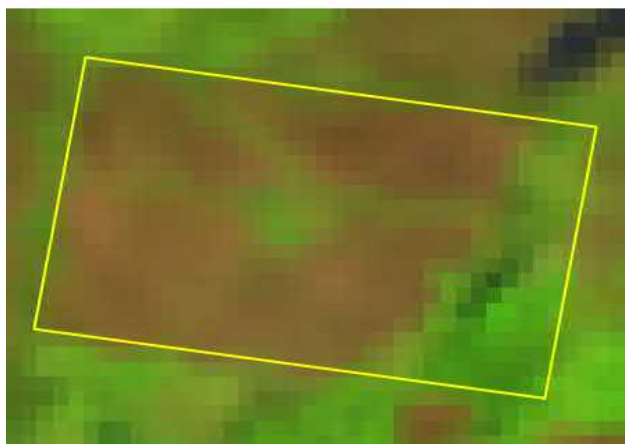
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 19, 2019

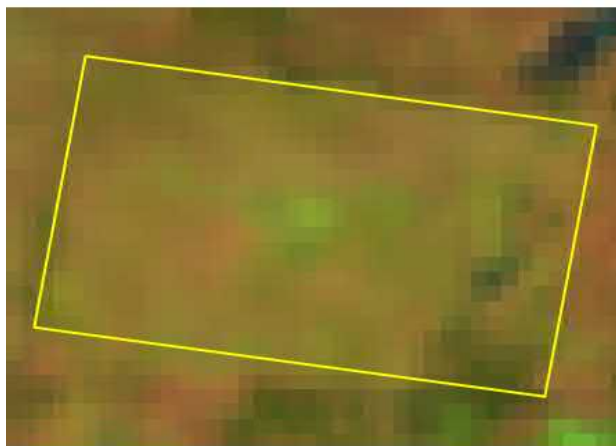
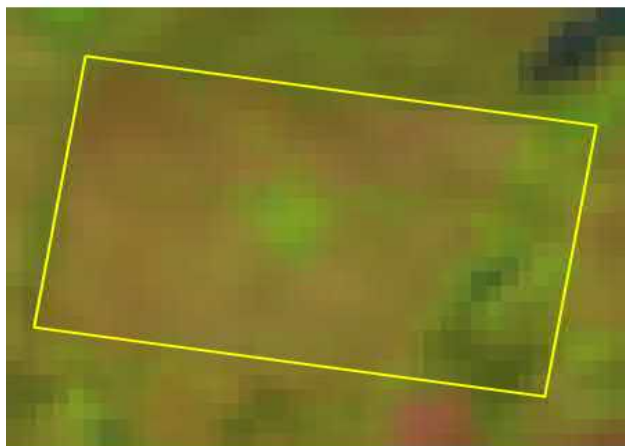
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Label: paddock4

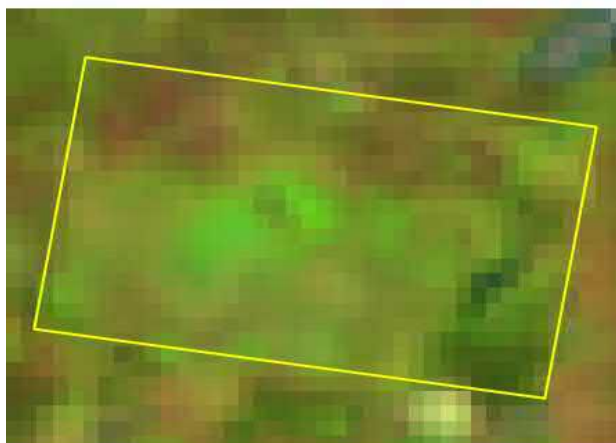
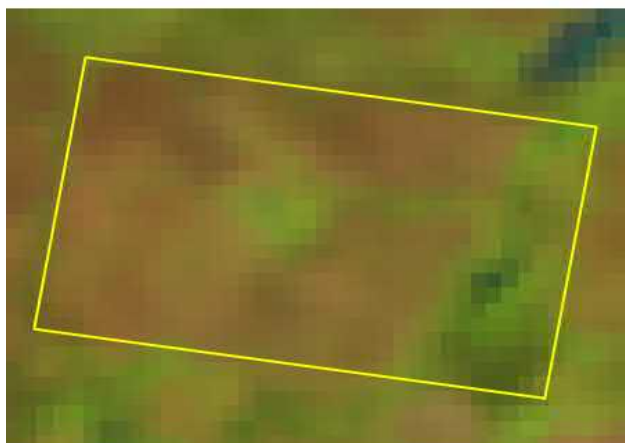


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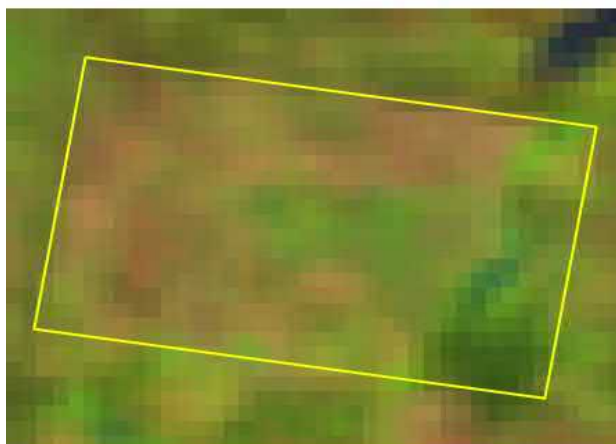
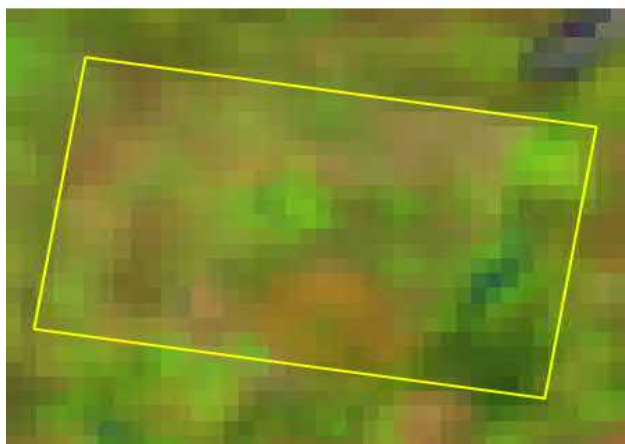
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 19, 2019

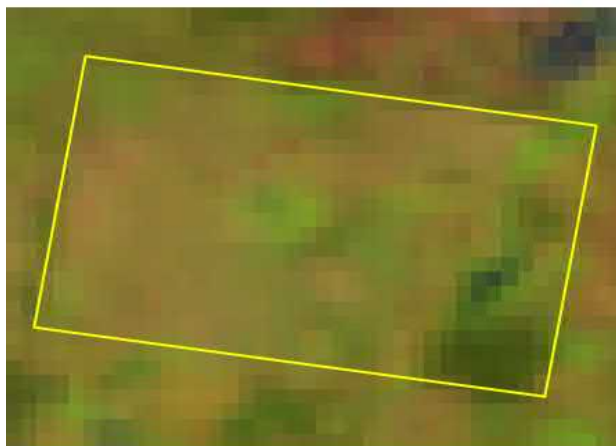
Lot on Plan: 38AG2512

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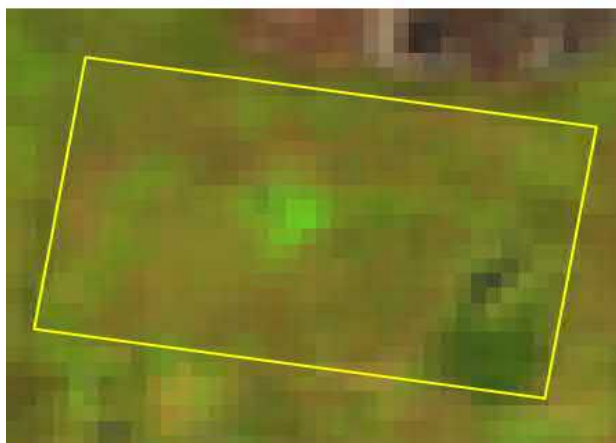
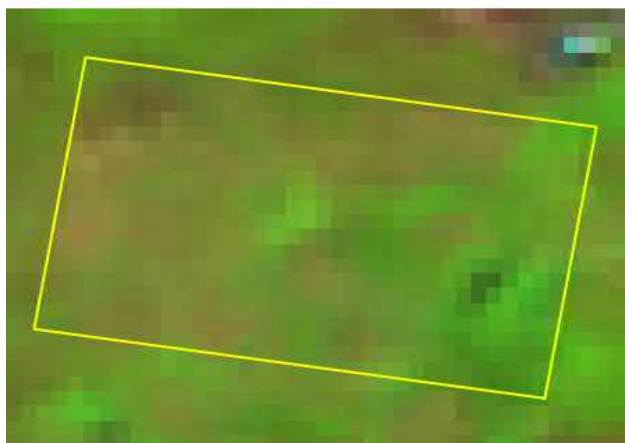


Queensland
Government

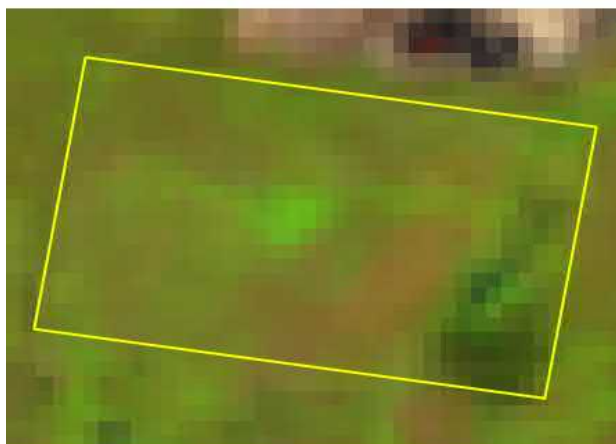
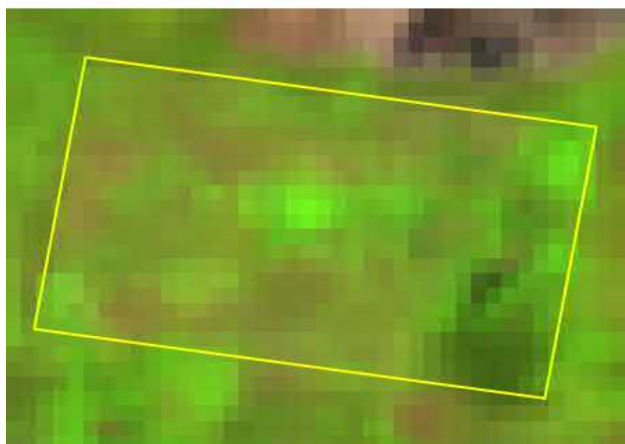
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 19, 2019

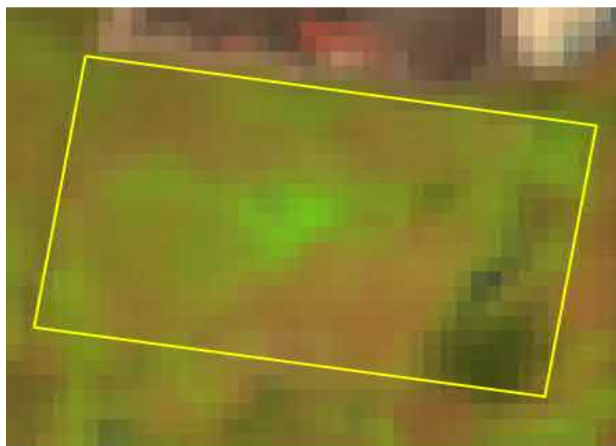
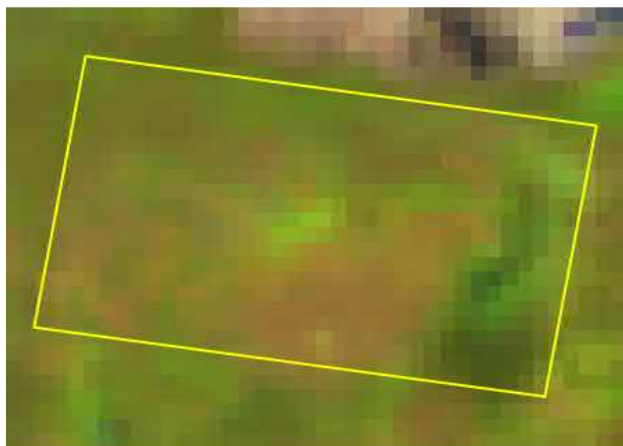
Lot on Plan: 38AG2512

Label: paddock4



Queensland
Government

February (left) and September (right) images for 2018



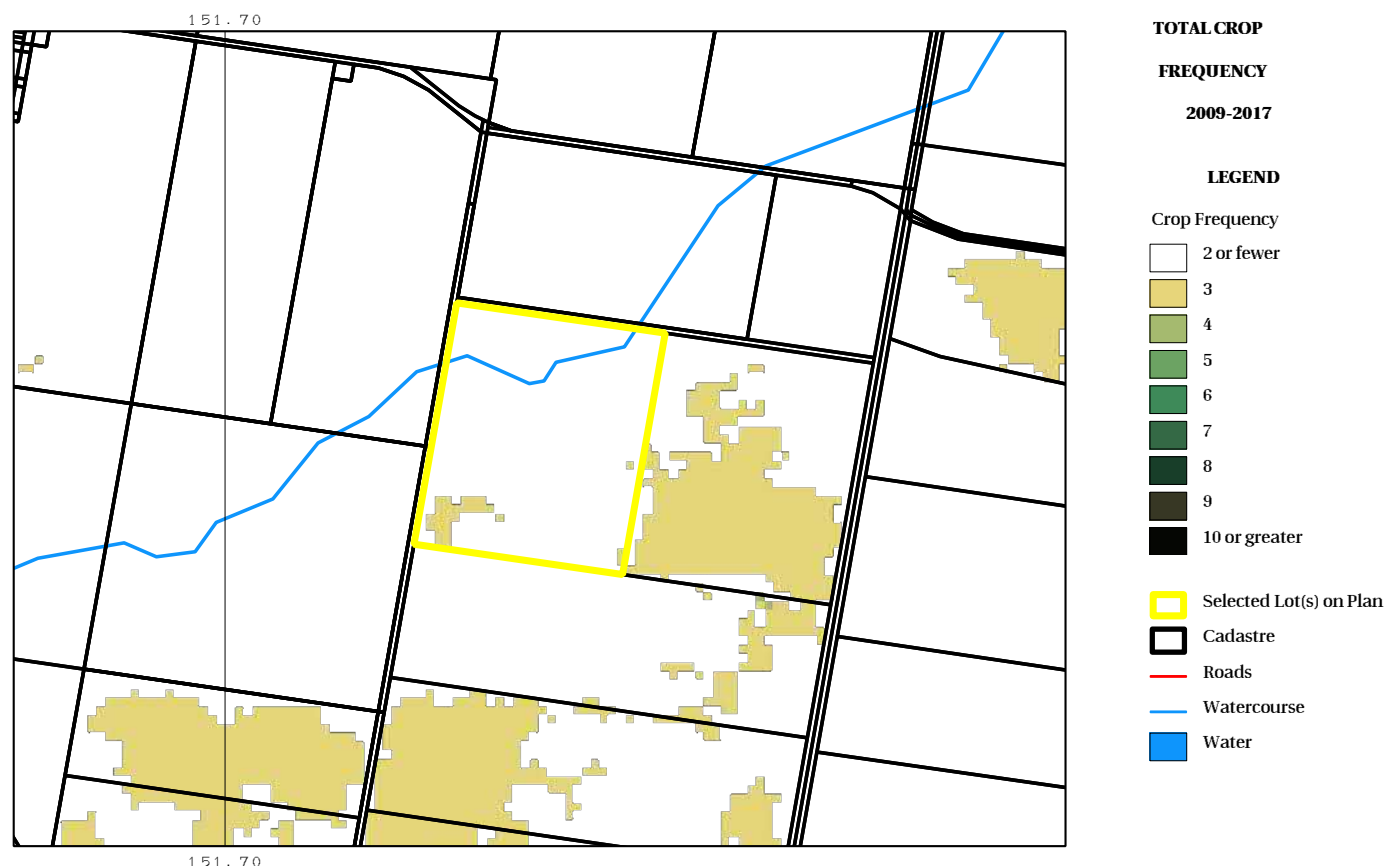
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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

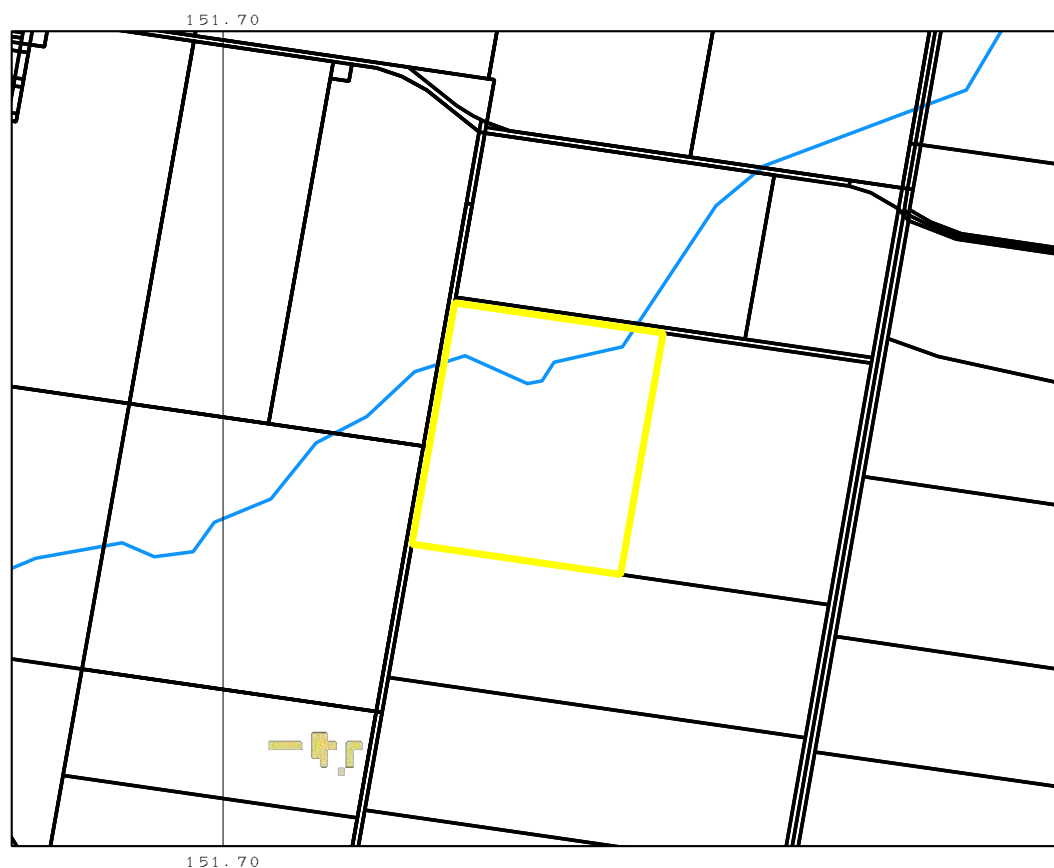
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 36RP25514

Label: paddock7

Estimated frequency map for summer (February) crop (2009 - 2018)



SUMMER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5


6


7


8


9


10 or greater

 Selected Lot(s) on Plan

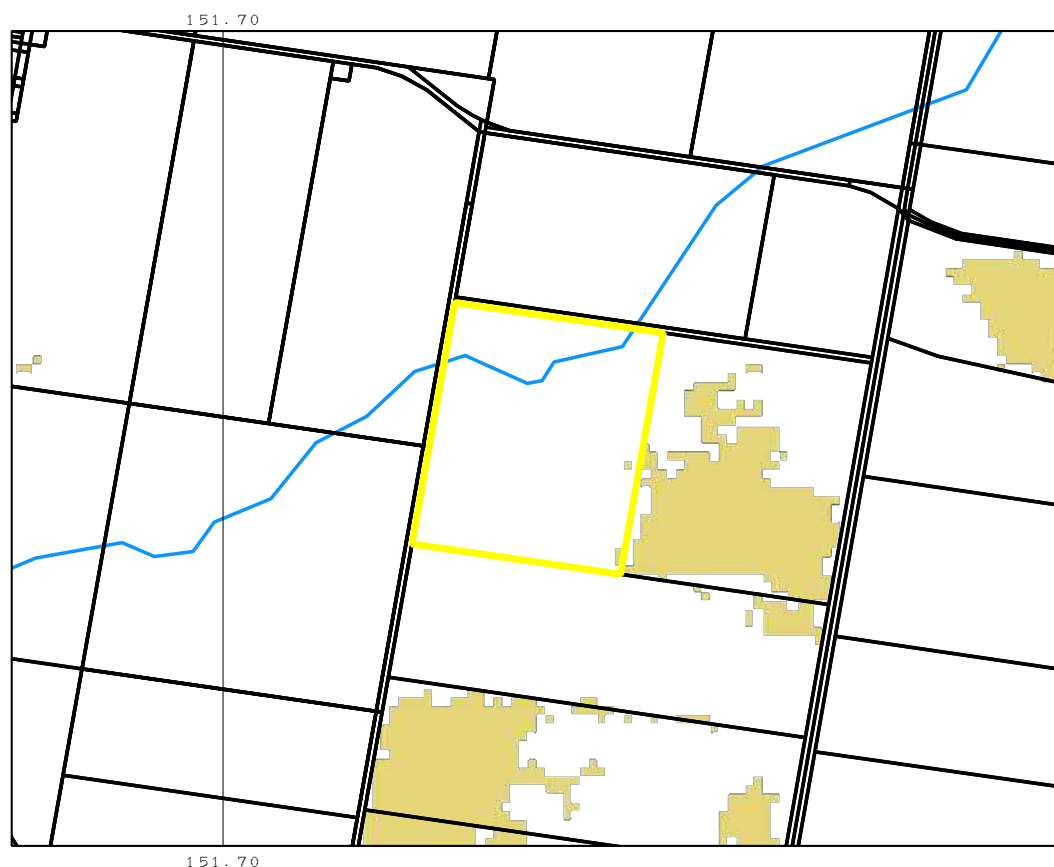
 Cadastre

 Roads

 Watercourse

 Water

Estimated frequency map for winter (September) crop (2009 - 2018)



WINTER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7


8


9

10 or greater

 Selected Lot(s) on Plan

 Cadastre

 Roads

 Watercourse

 Water

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

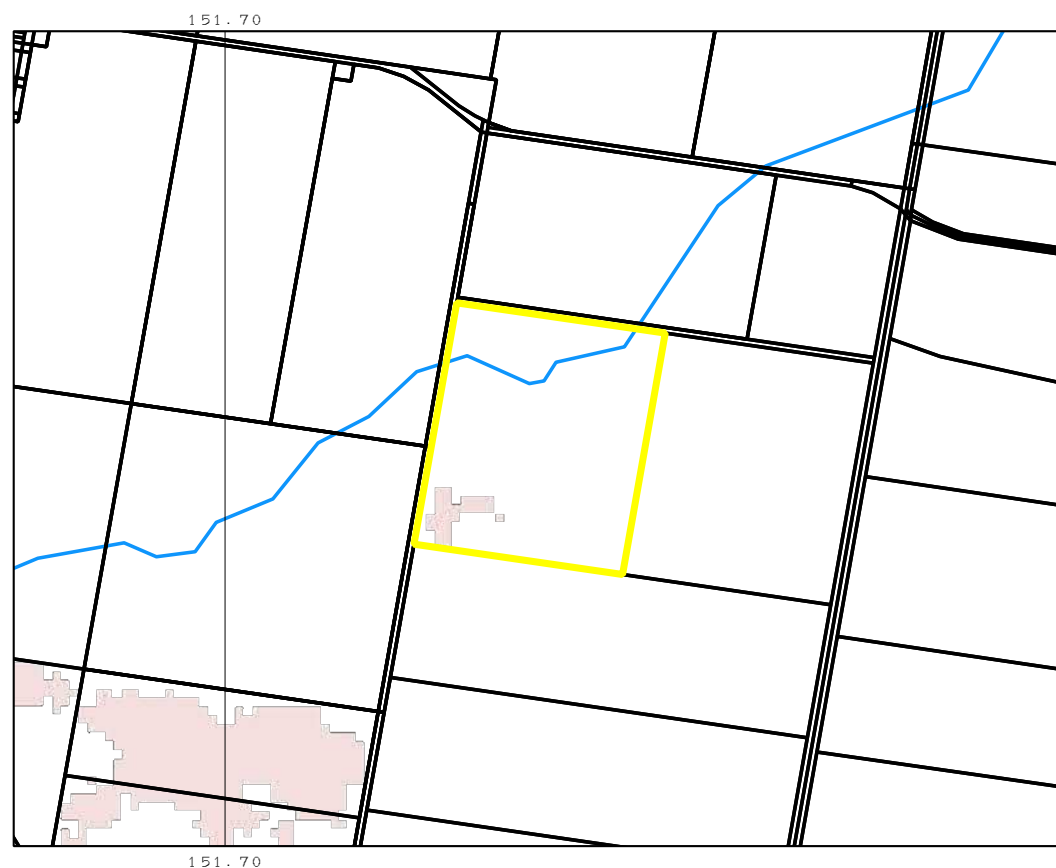
Lot on Plan: 36RP25514

Label: paddock7



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



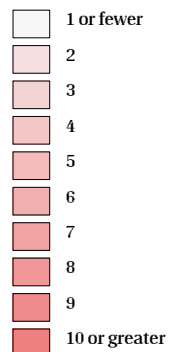
SUMMER Grain

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

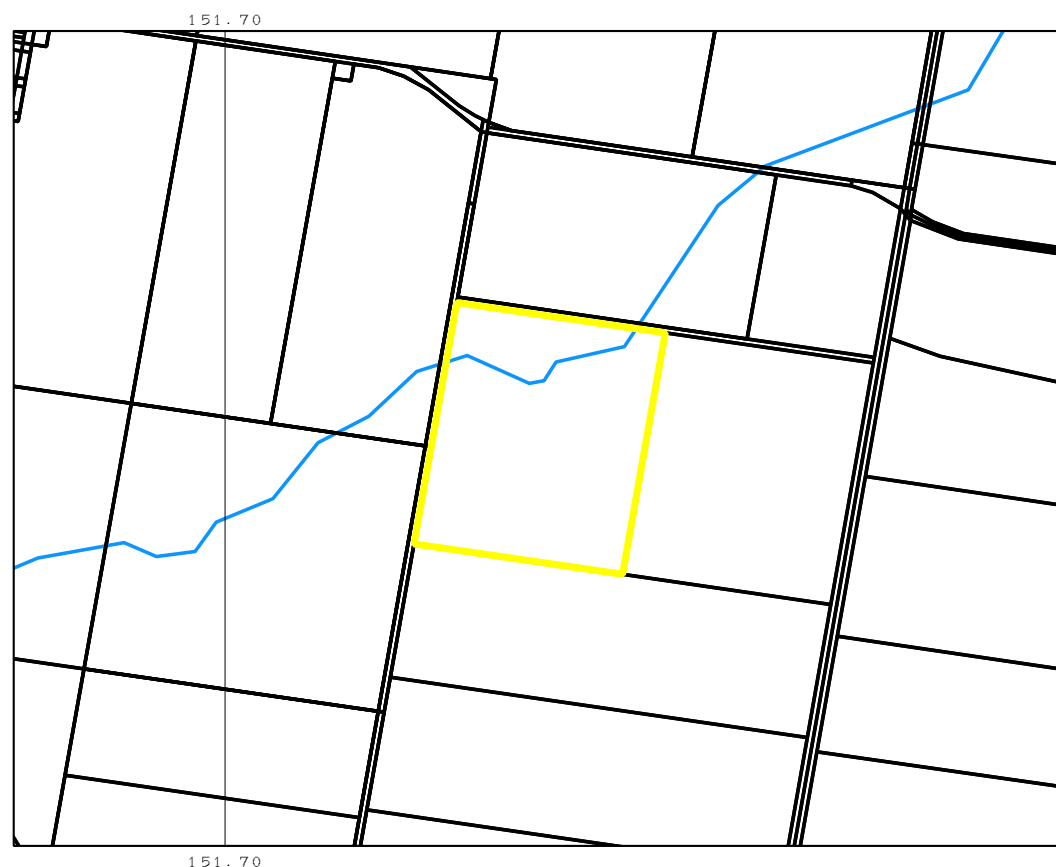
Cadastral

Roads

Watercourse

Water

Estimated frequency map for summer (February) cotton crop (2009 - 2018)



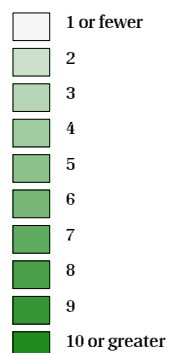
SUMMER Cotton

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

Cadastral

Roads

Watercourse

Water

FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

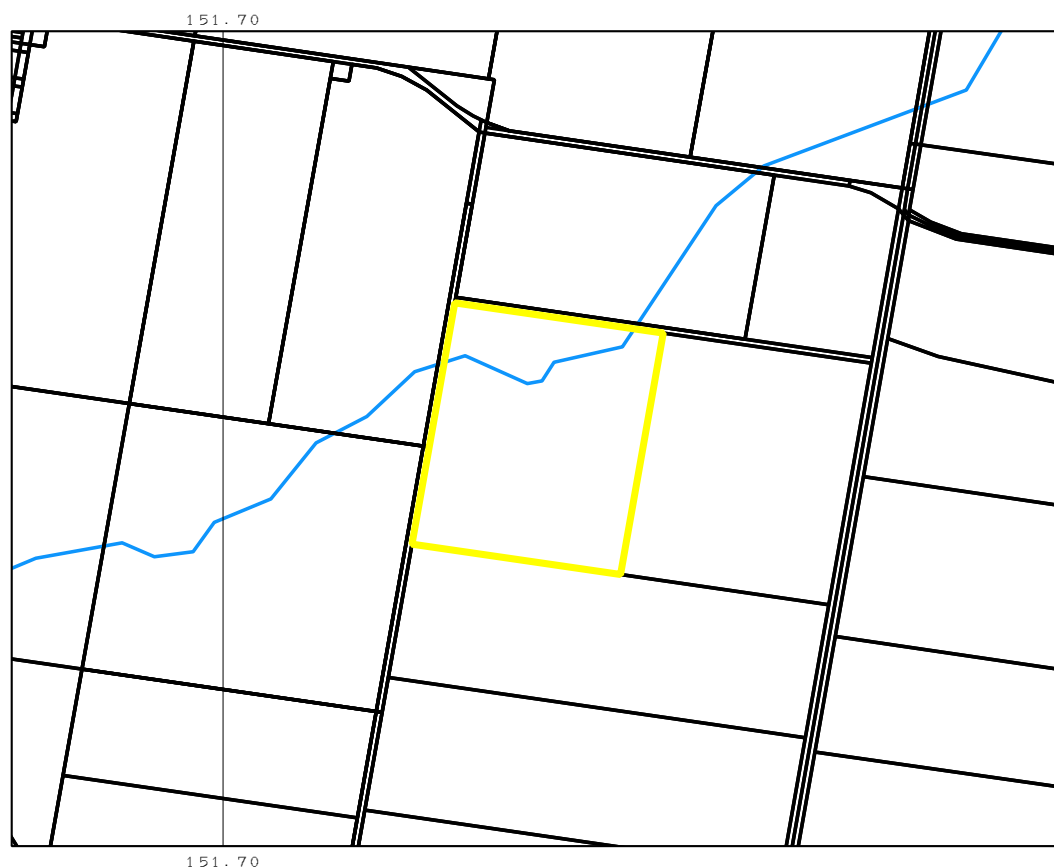
Lot on Plan: 36RP25514

Label: paddock7



Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



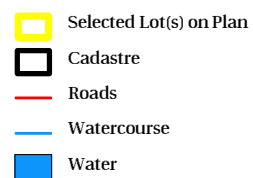
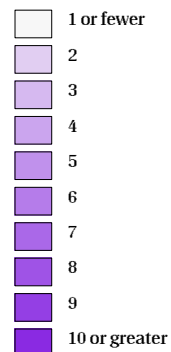
WINTER Pulse

FREQUENCY

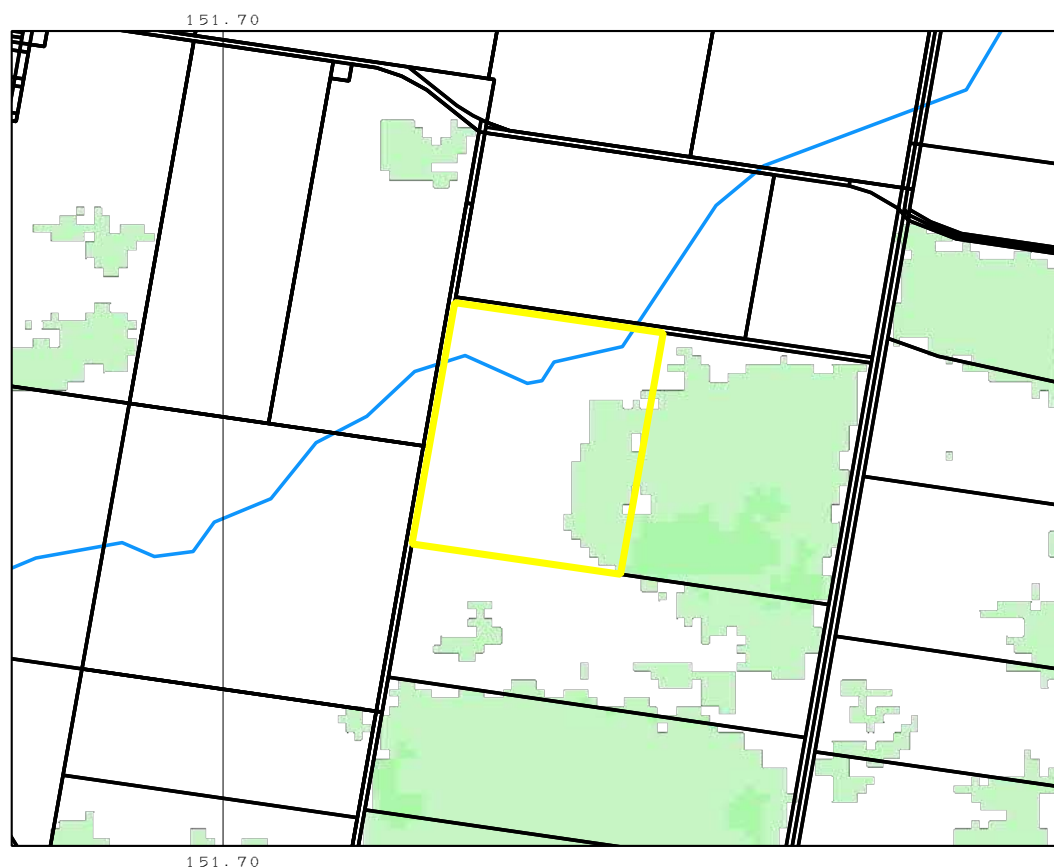
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



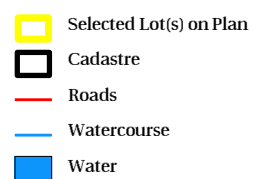
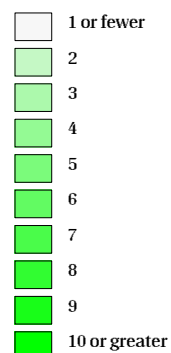
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 36RP25514

Label: paddock7

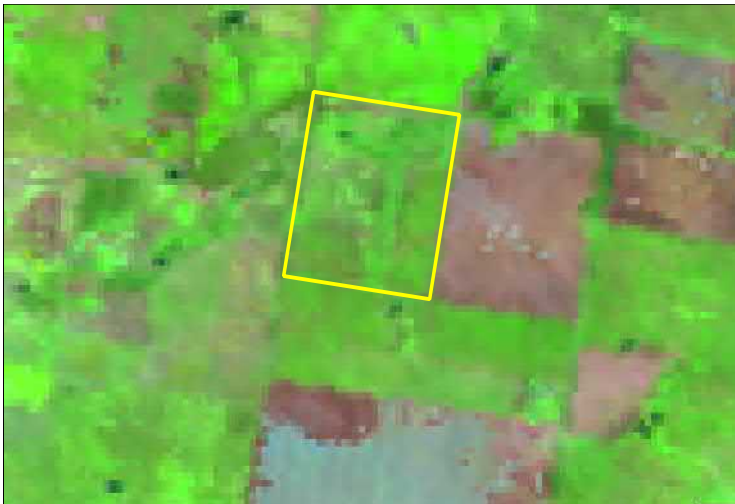


Queensland
Government

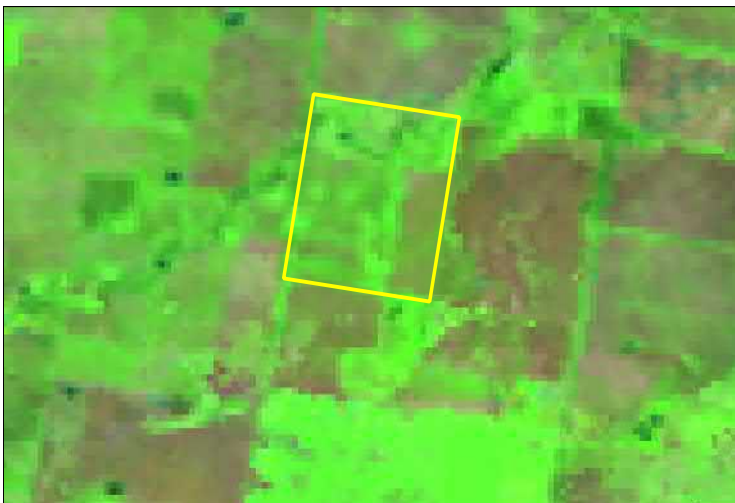
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

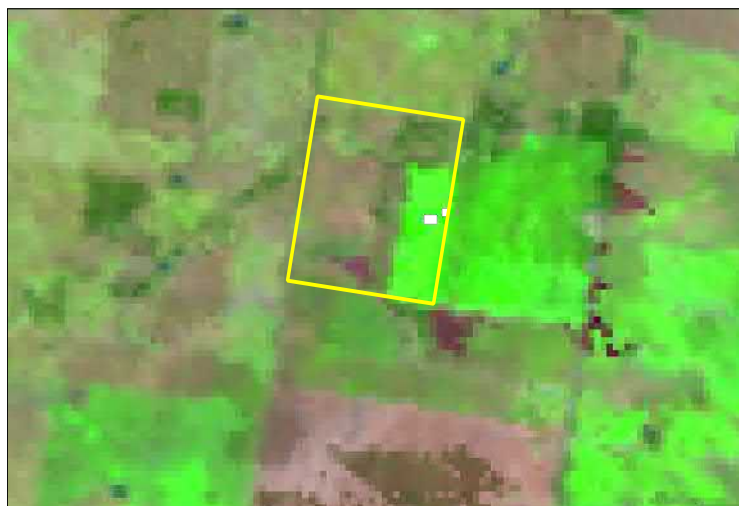
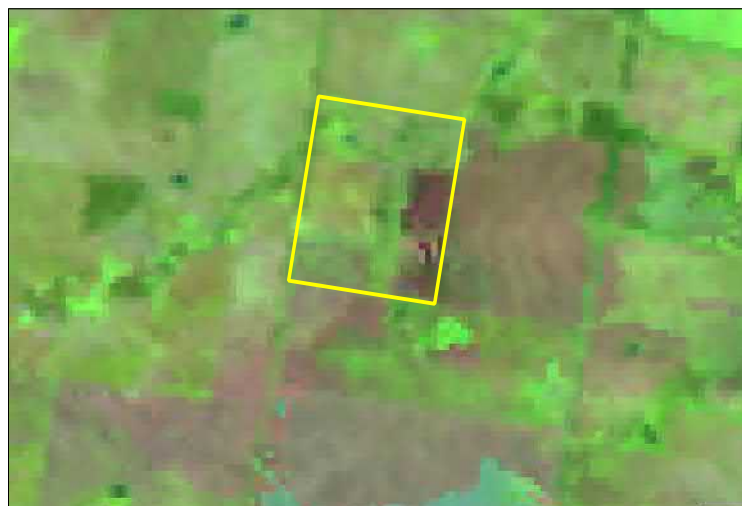
Lot on Plan: 36RP25514

Label: paddock7

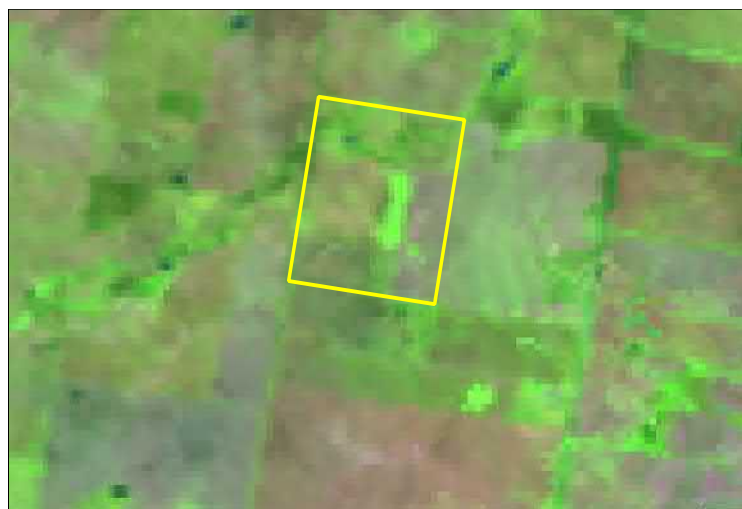


Queensland
Government

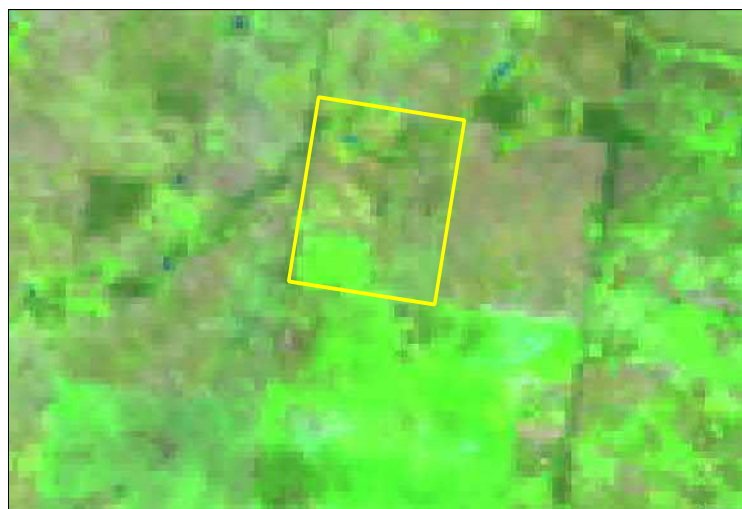
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

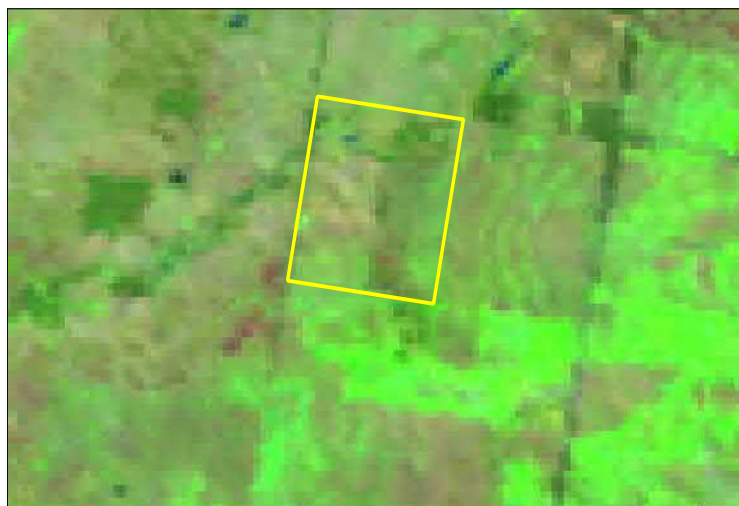
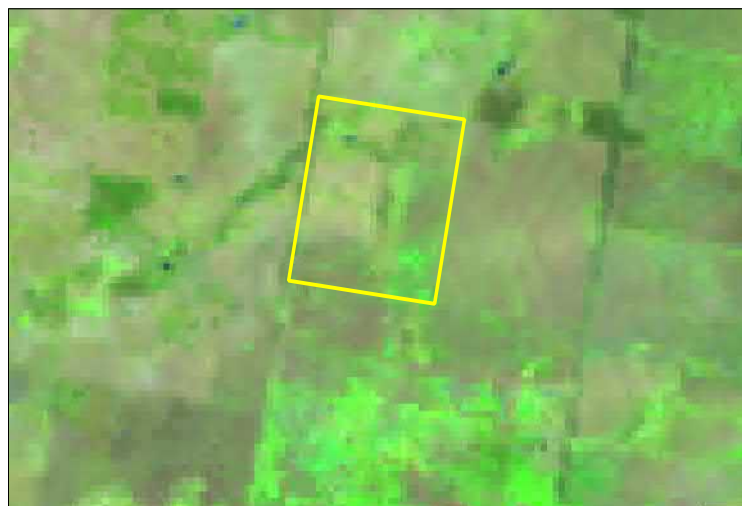
Lot on Plan: 36RP25514

Label: paddock7

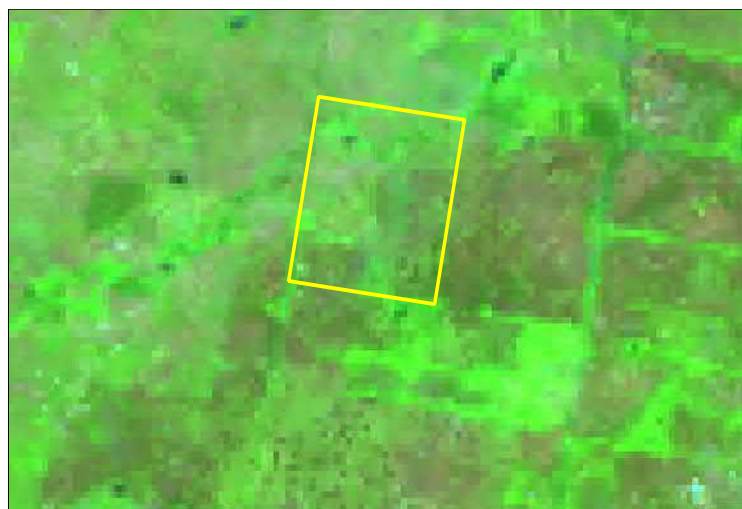


Queensland
Government

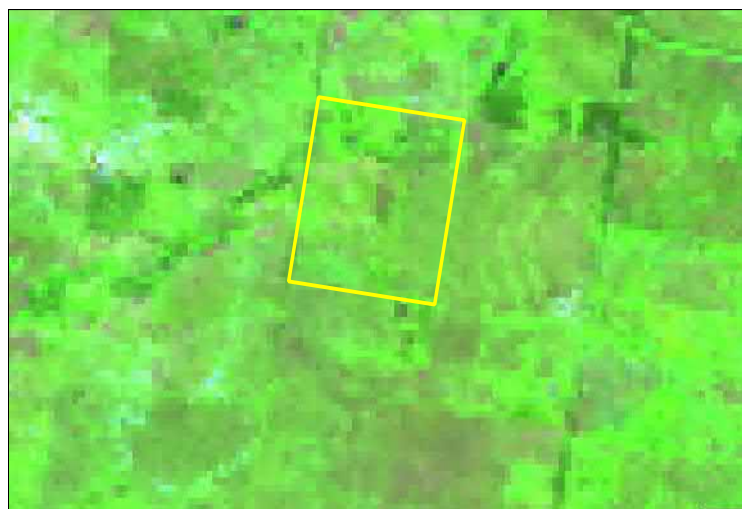
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 36RP25514

Label: paddock7



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

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APPENDIX C2

Willeroo

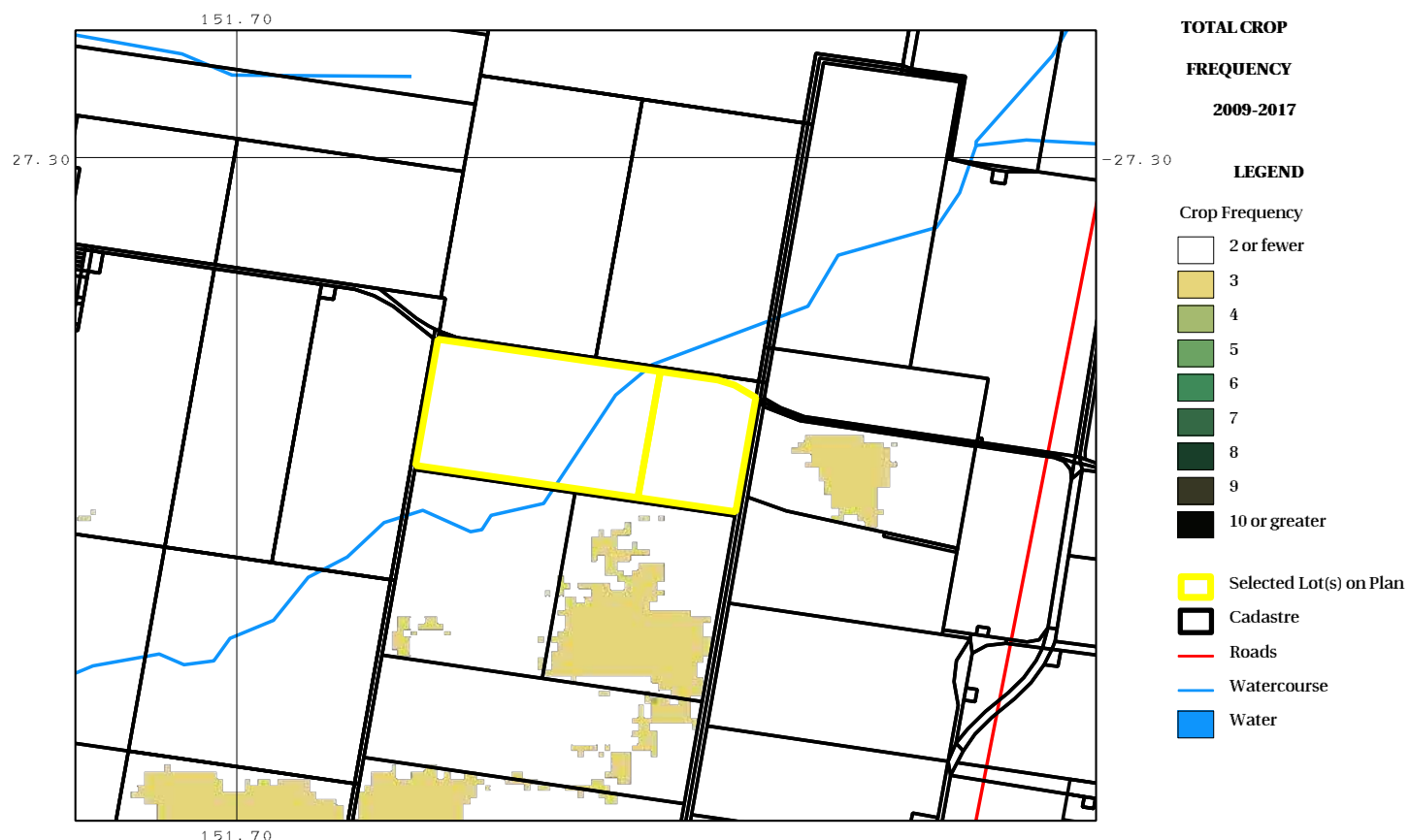


Forage Crop Frequency

Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

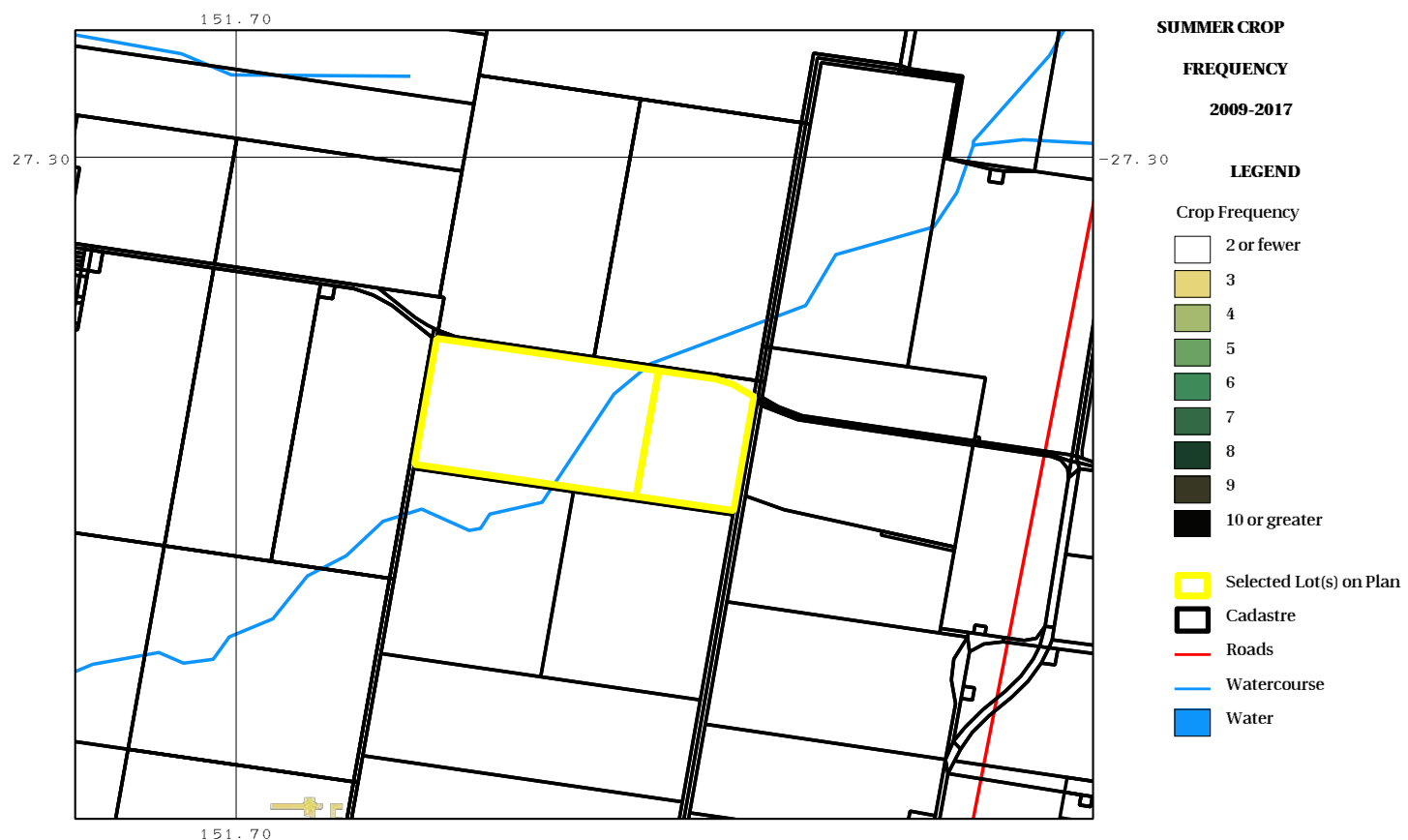
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

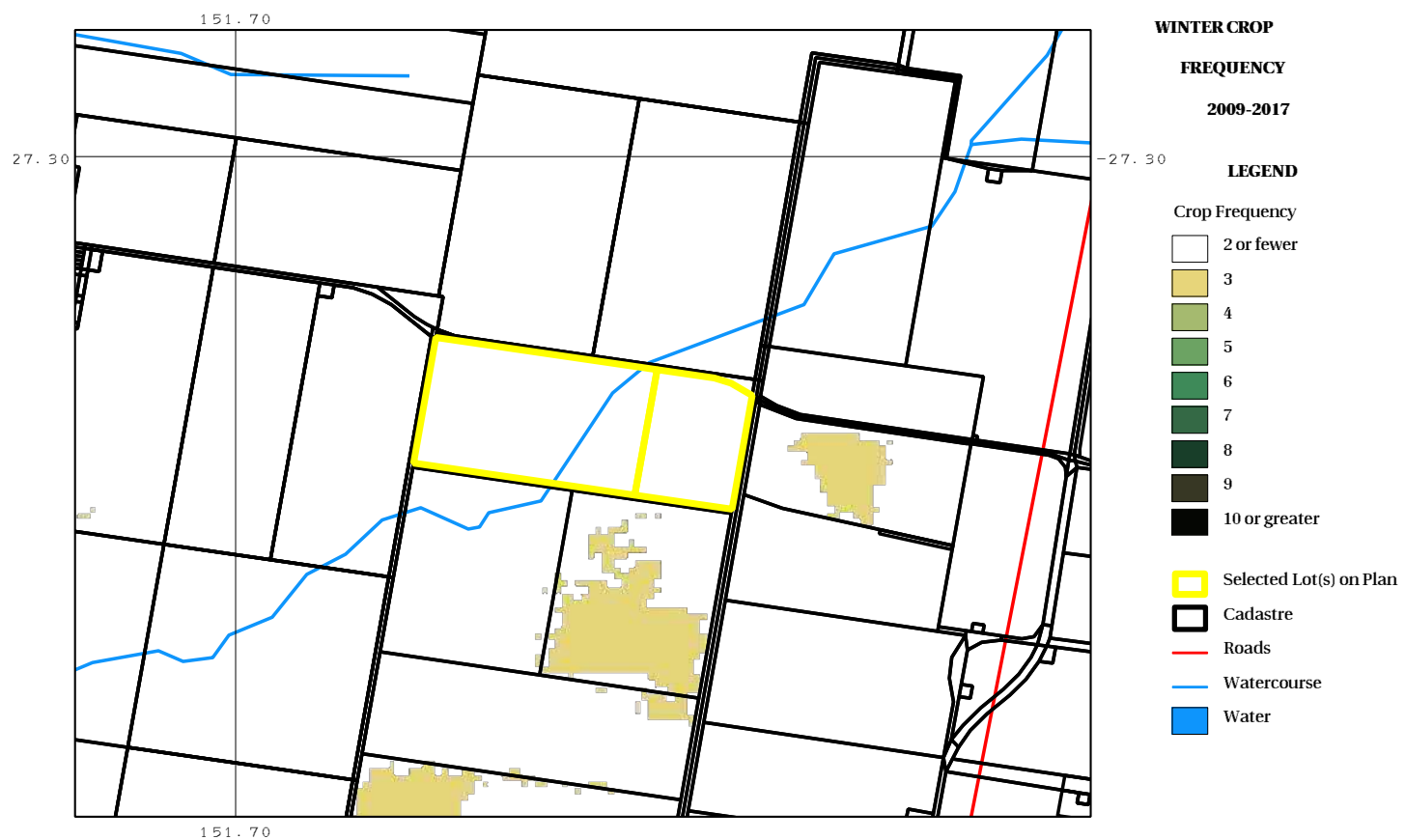
Lot on Plan: 38AG2512,39AG718

Label: paddock5

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

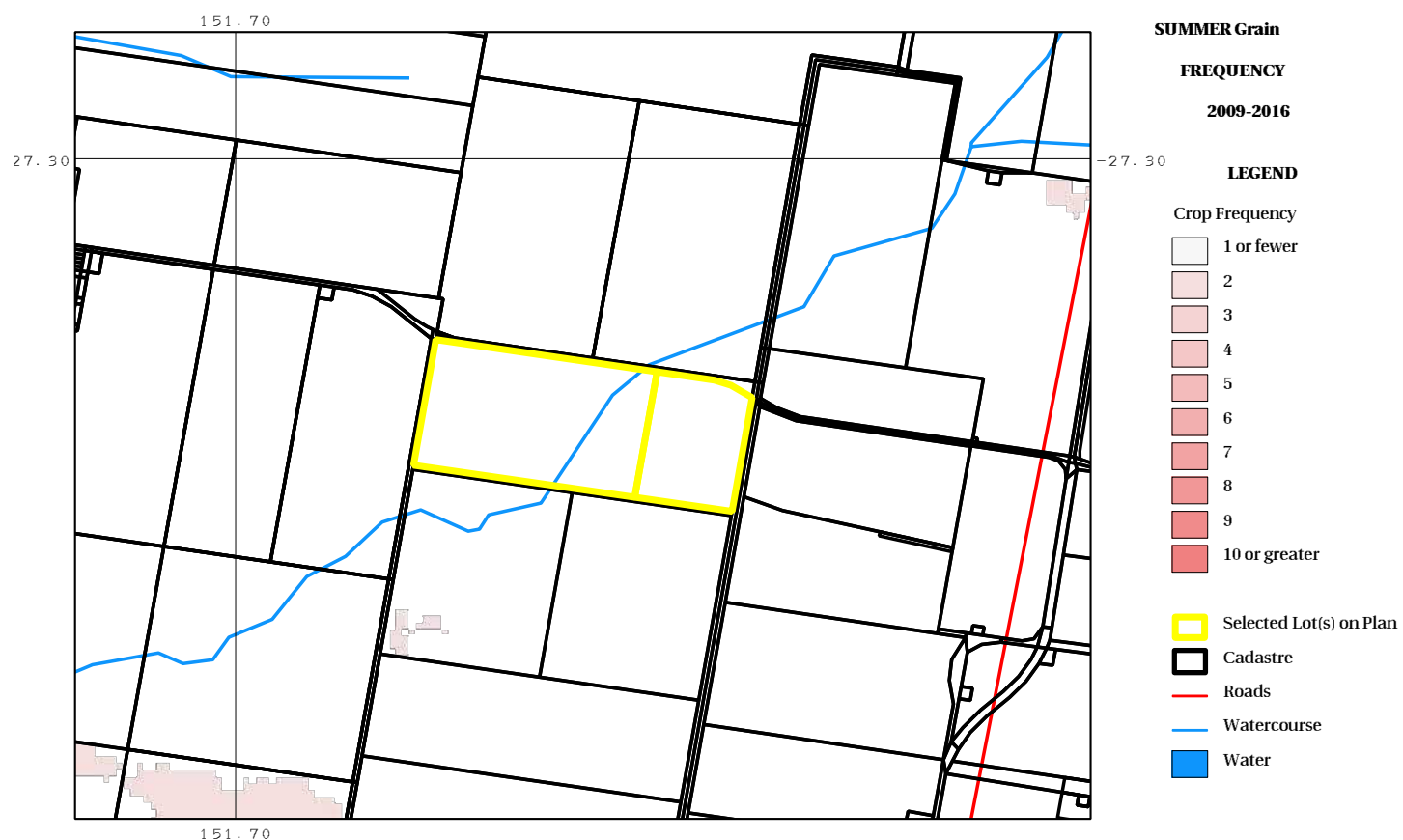
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Label: paddock5

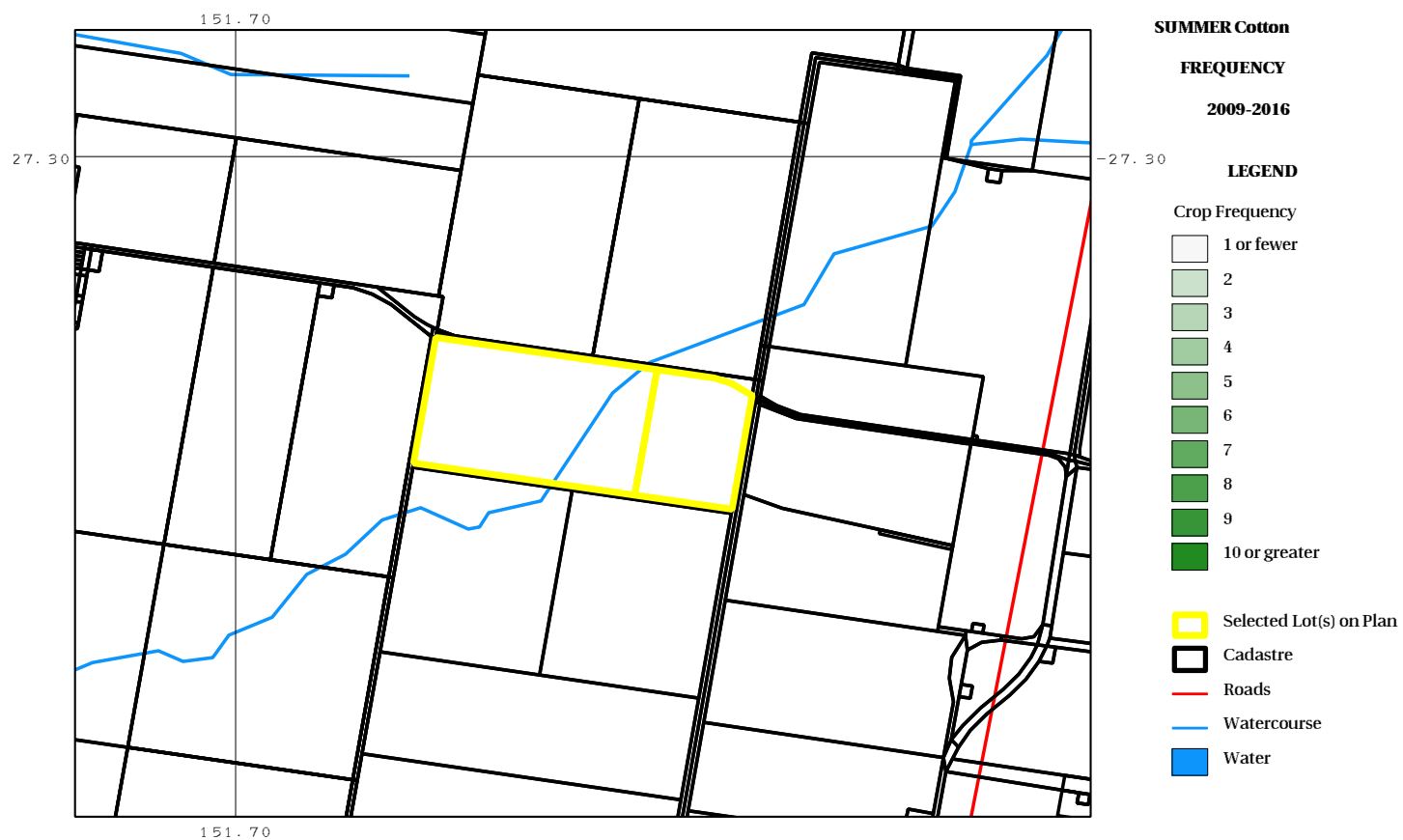


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

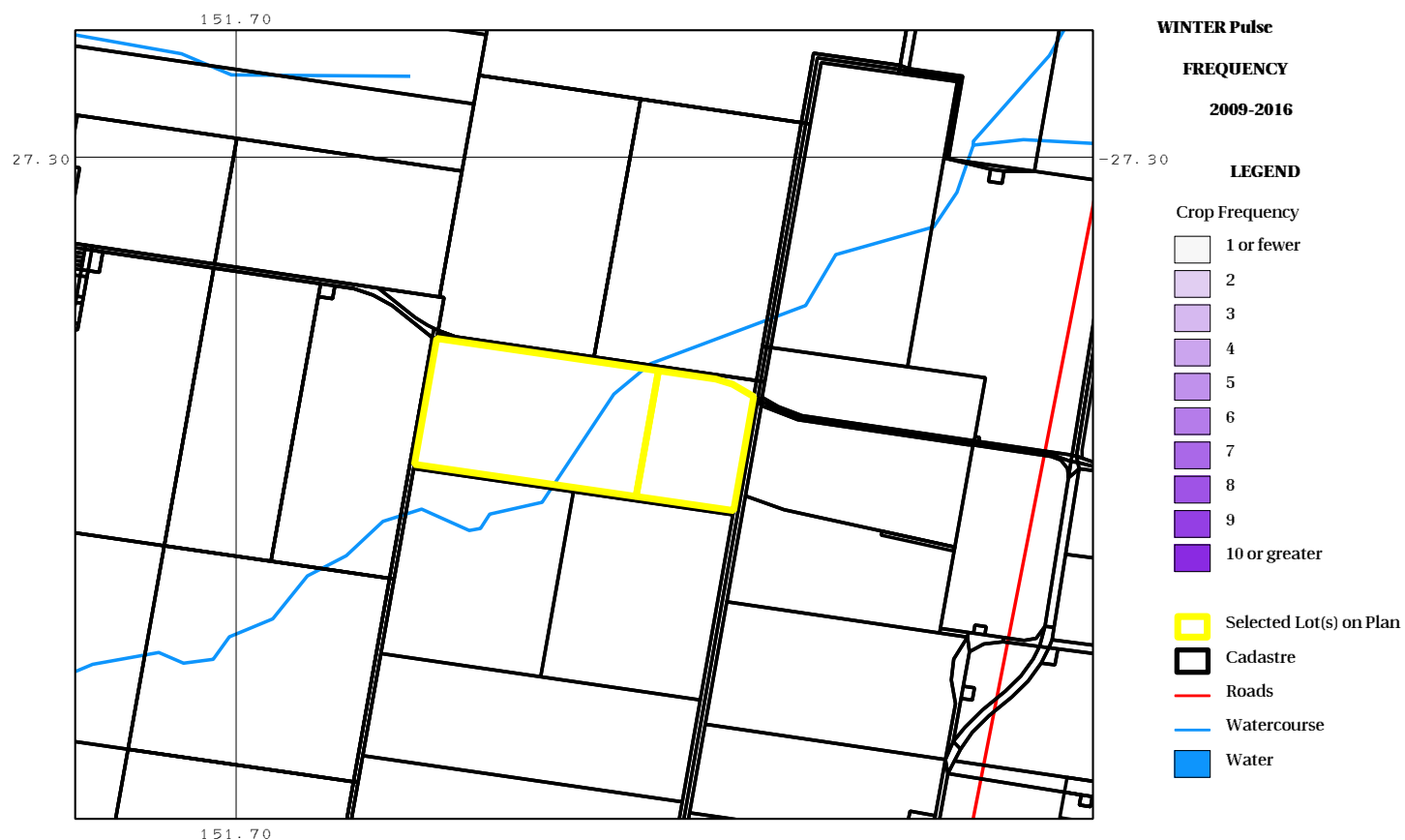
Lot on Plan: 38AG2512,39AG718

Label: paddock5

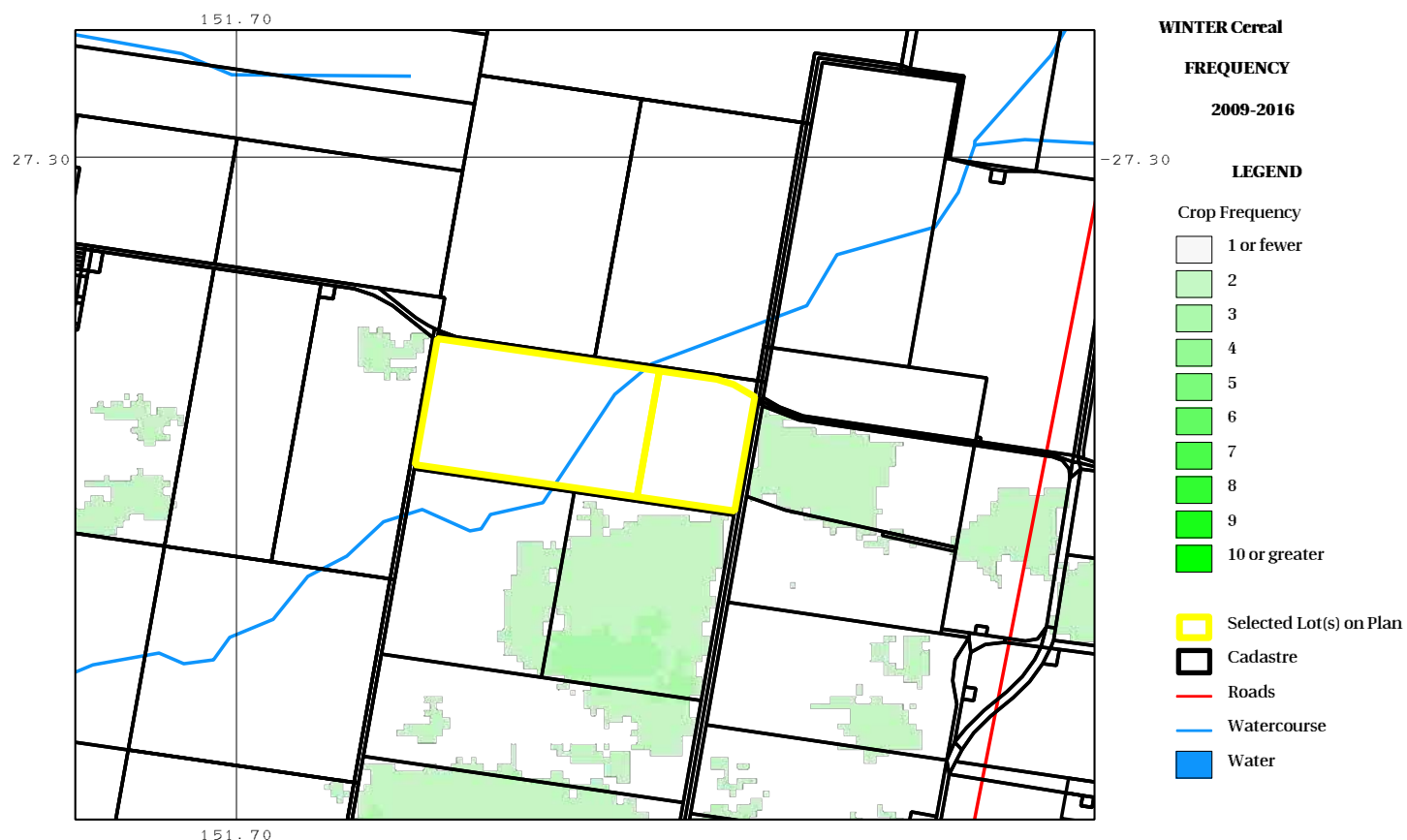


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 38AG2512,39AG718

Label: paddock5



Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 38AG2512,39AG718

Label: paddock5



Queensland
Government

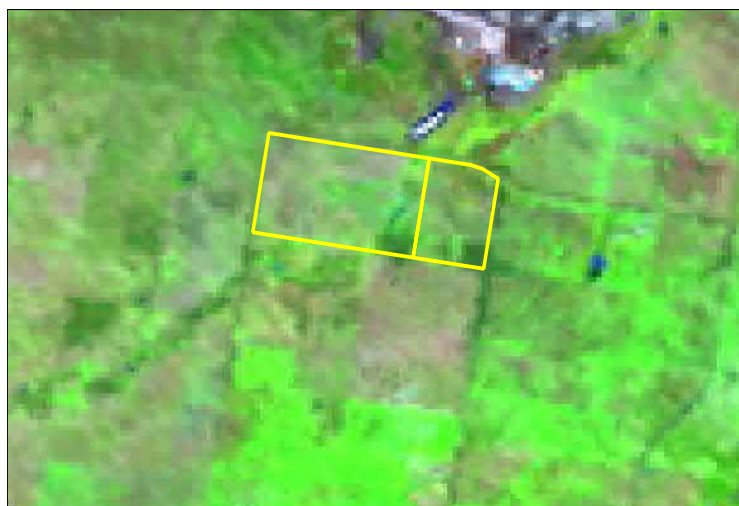
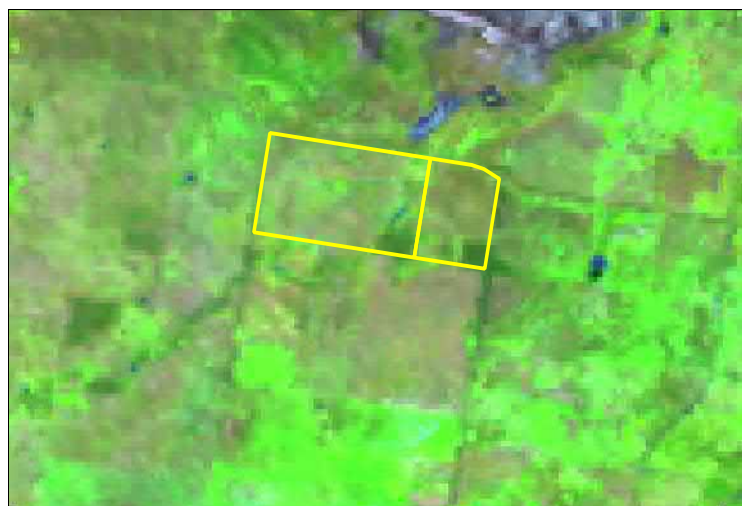
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

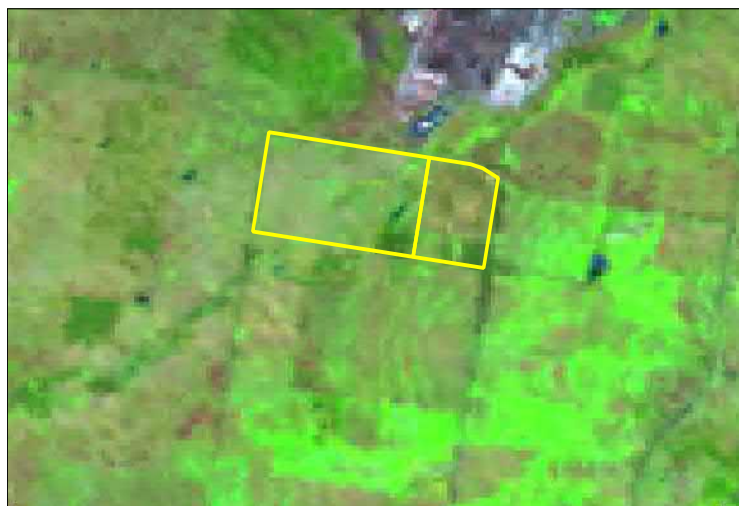
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Label: paddock5

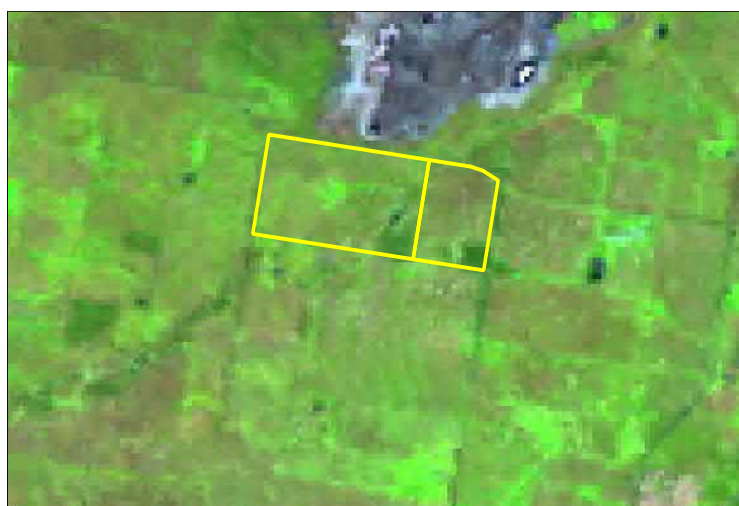
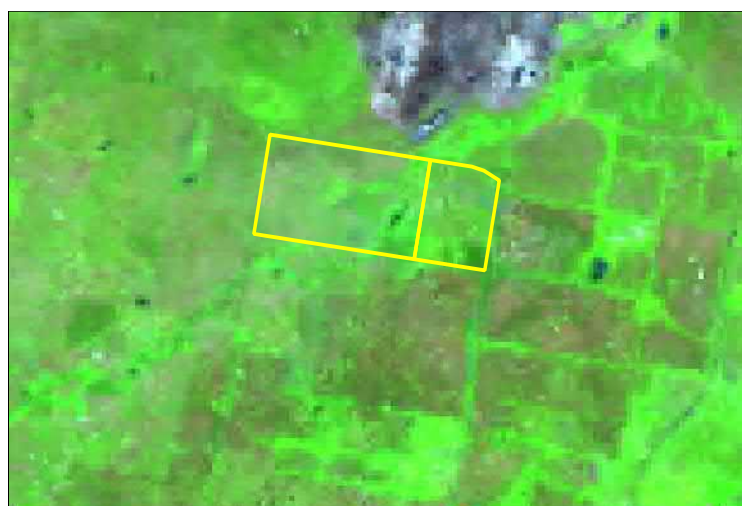


Queensland
Government

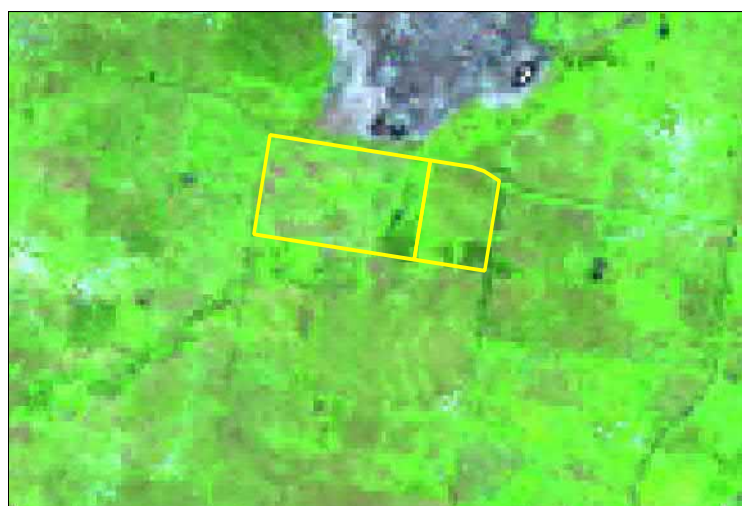
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 38AG2512,39AG718

Label: paddock5



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6



Queensland
Government

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6



Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

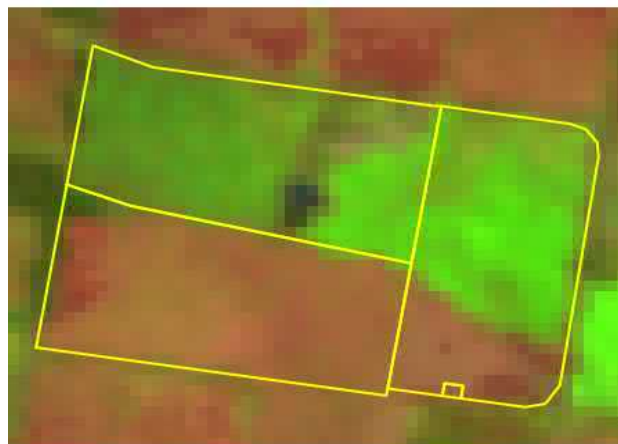
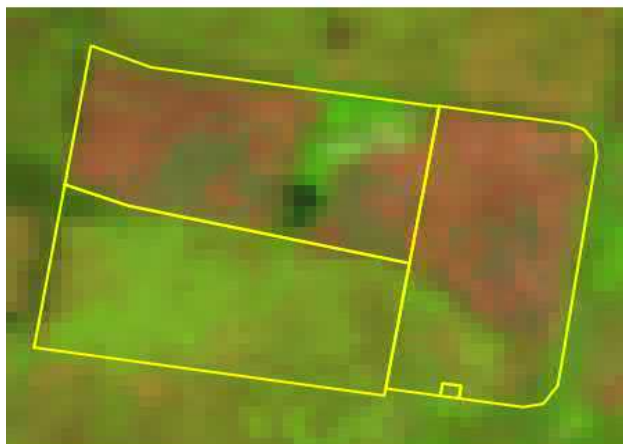
Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6

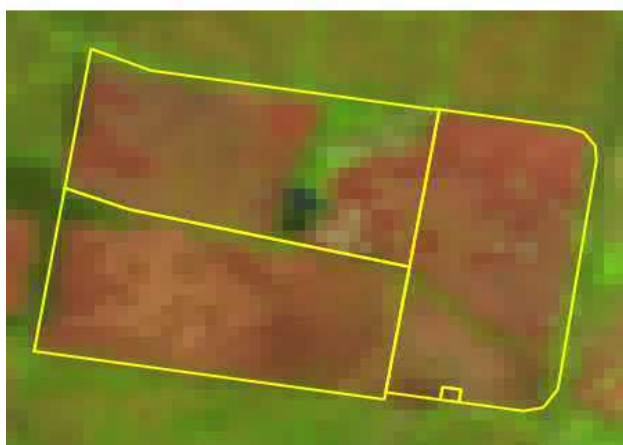


Queensland
Government

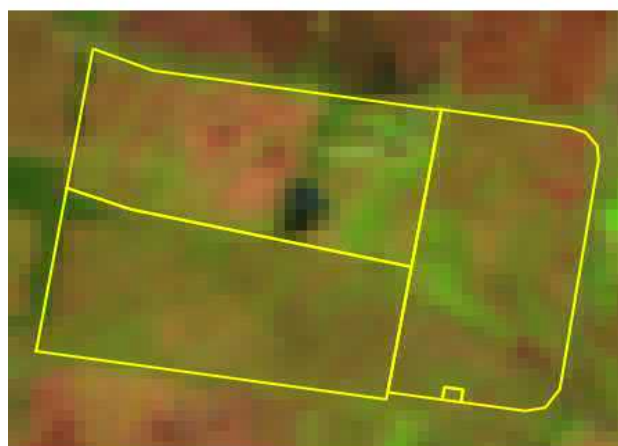
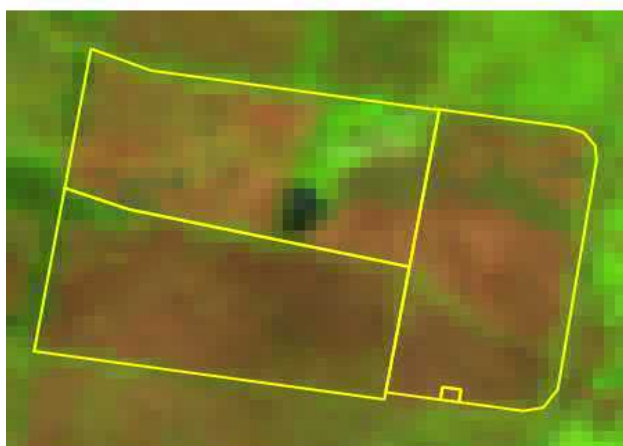
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

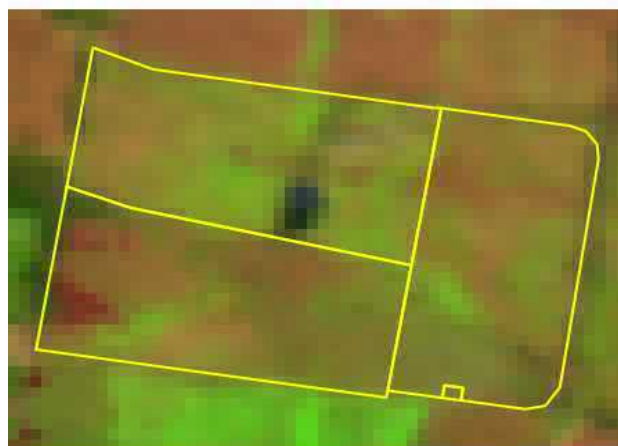
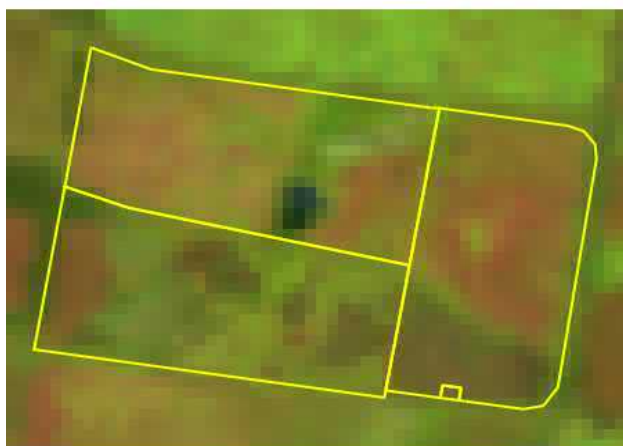
Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6

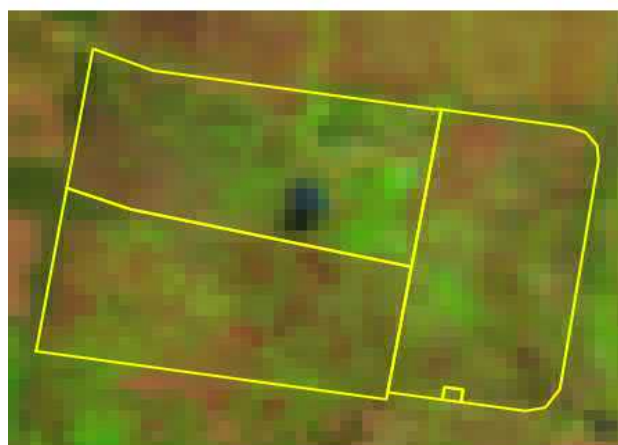


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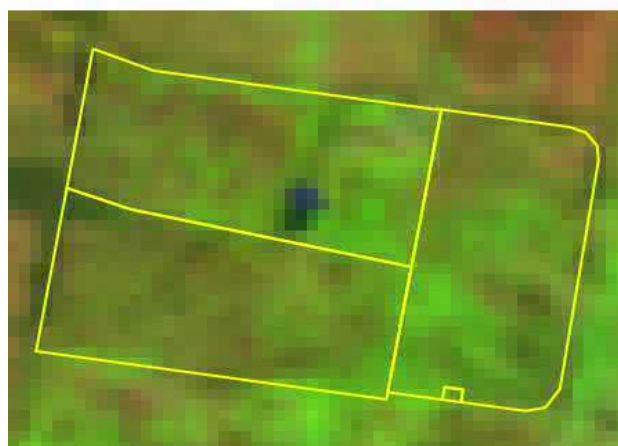
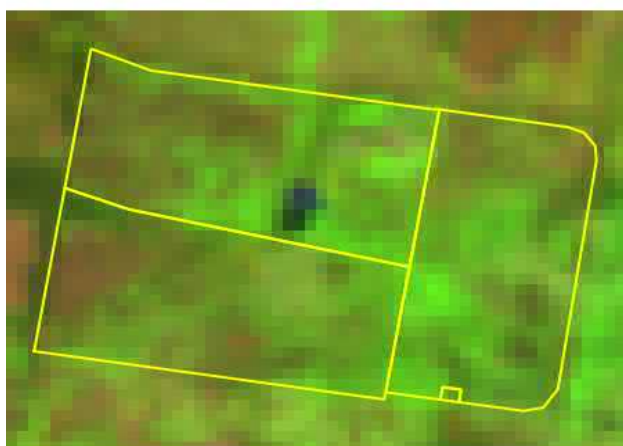
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

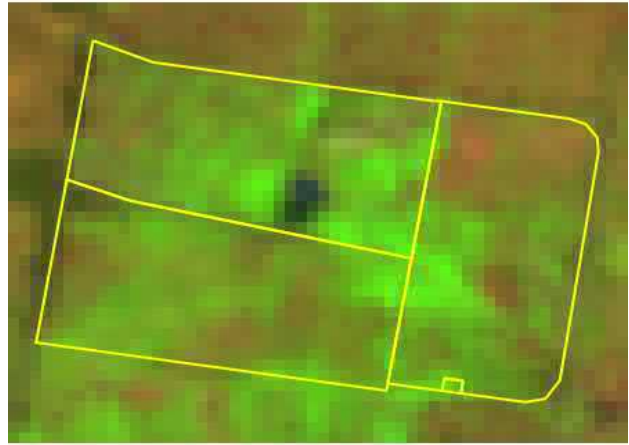
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Label: paddock6

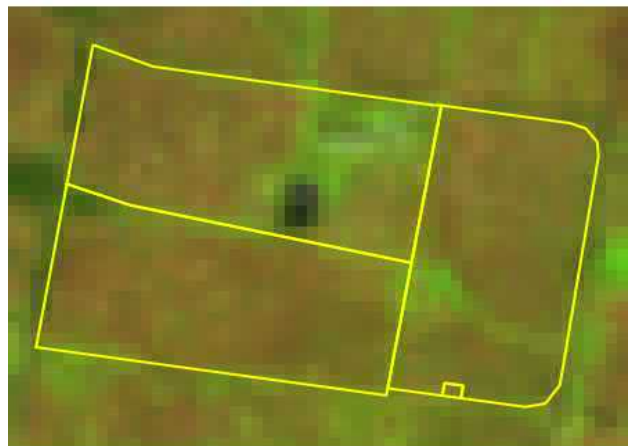
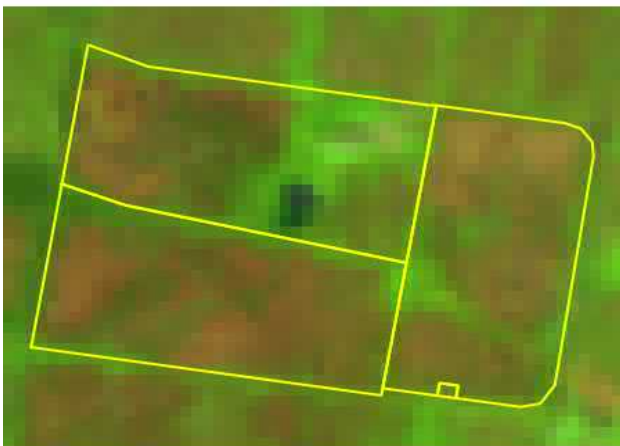


Queensland
Government

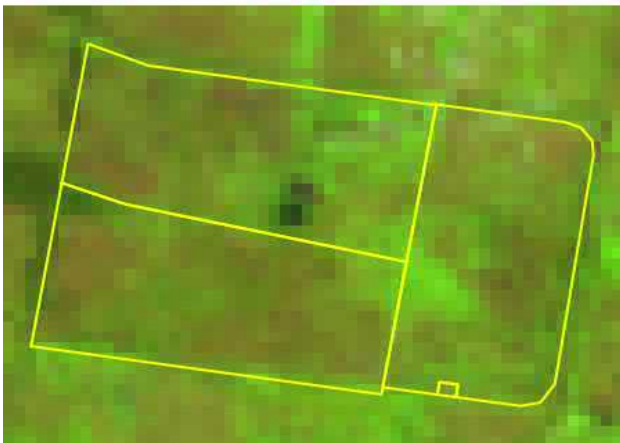
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

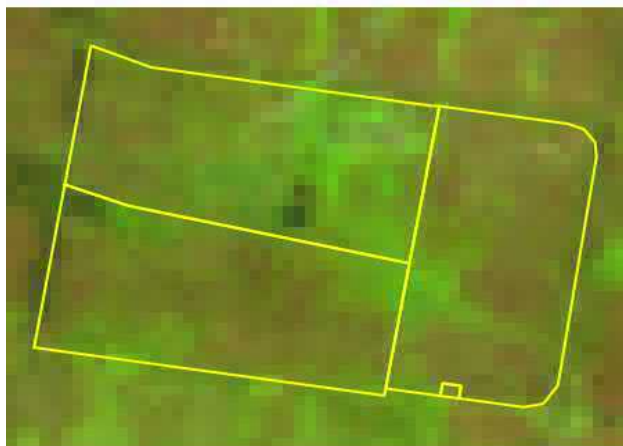
Lot on Plan: 1RP25521,2AG1806,2RP197103,1RP19 etc.

Label: paddock6



Queensland
Government

February (left) and September (right) images for 2018



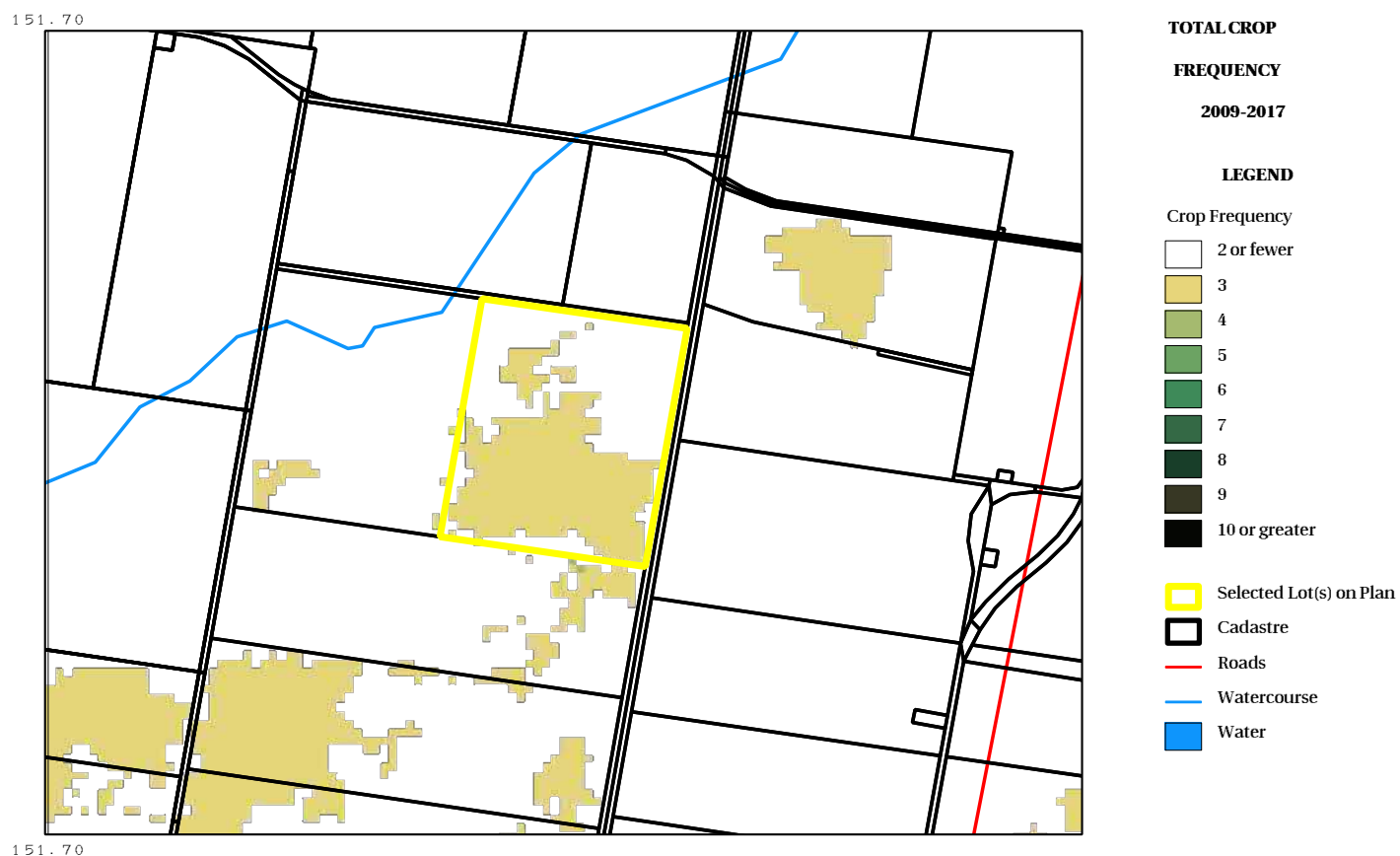
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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

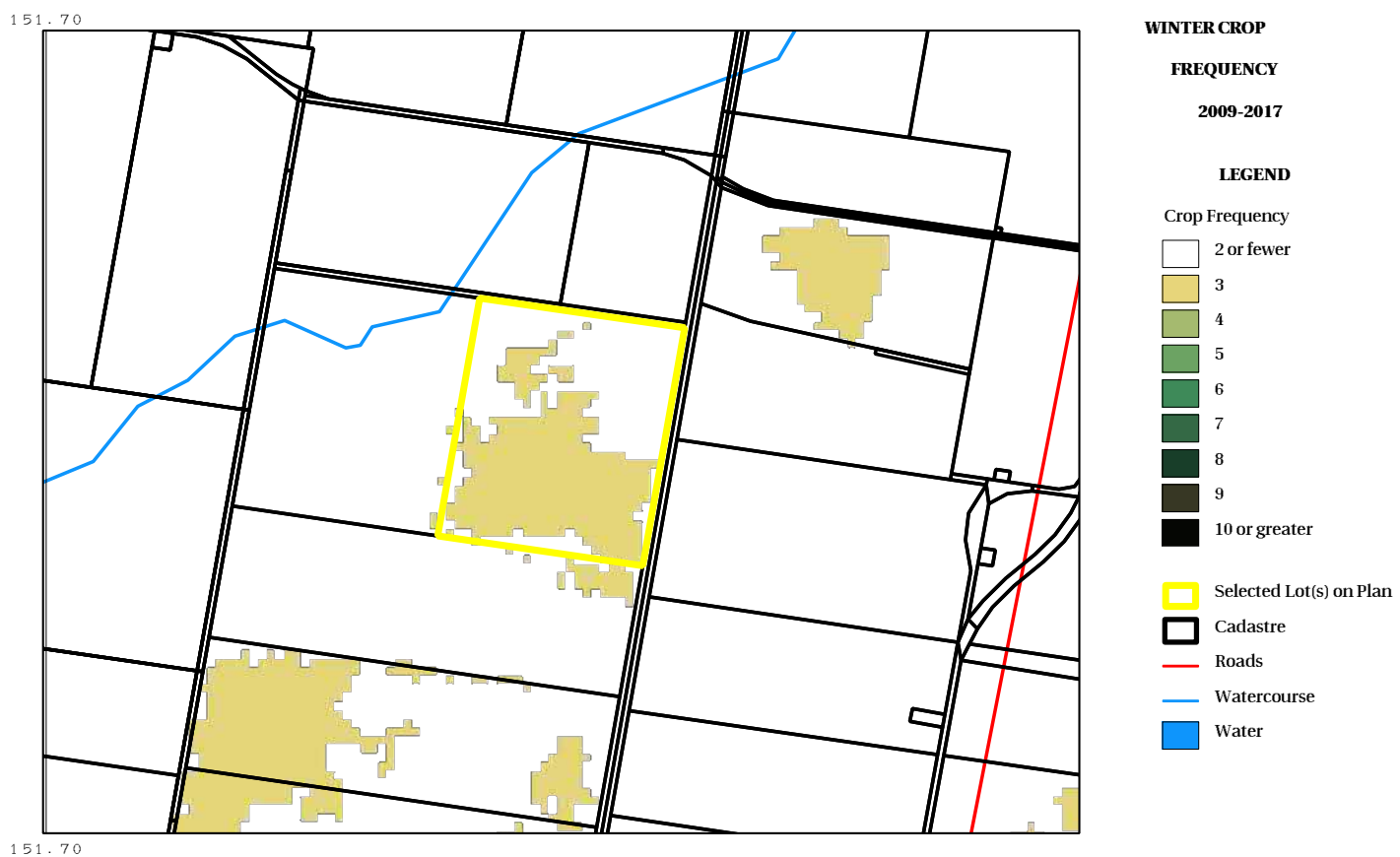
Lot on Plan: 37RP25514

Label: paddock8

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

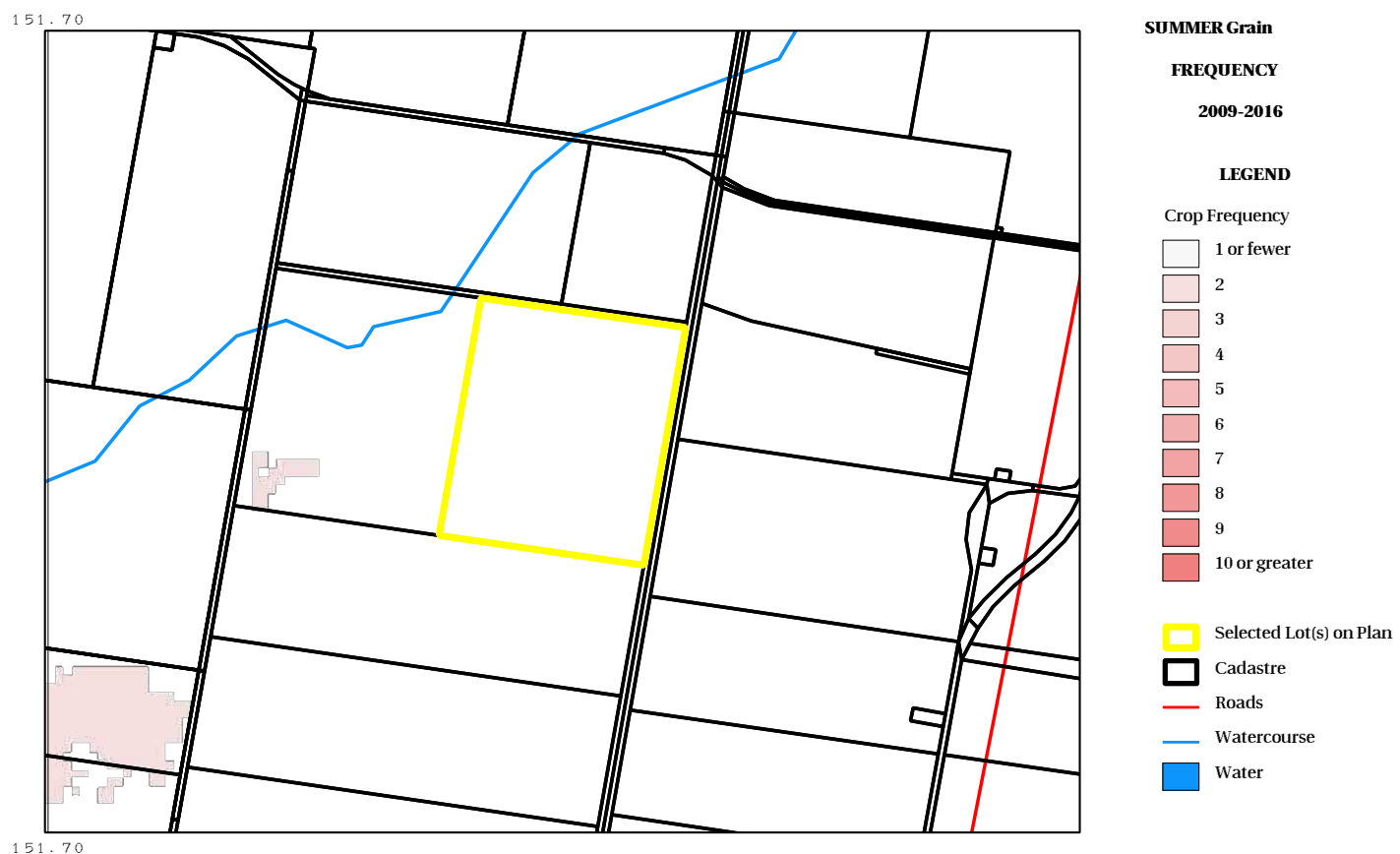
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514

Label: paddock8

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514

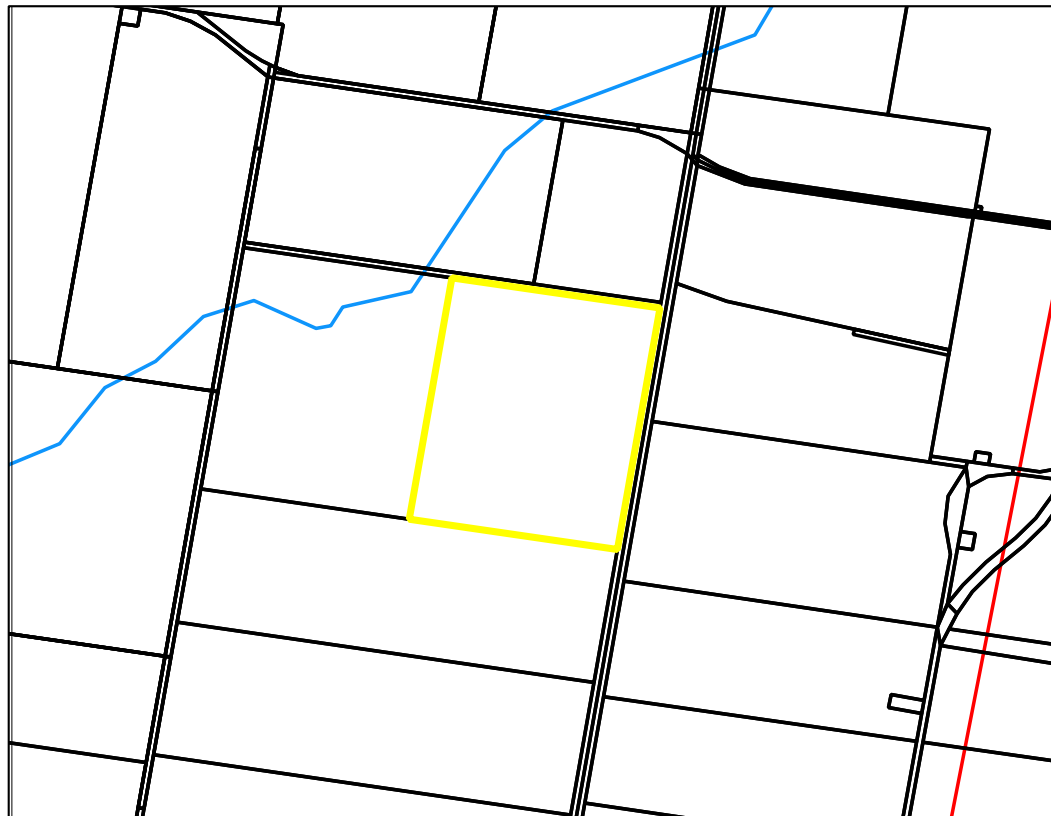
Label: paddock8



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Estimated frequency map for winter (September) pulse crop (2009 - 2018)

151.70



151.70

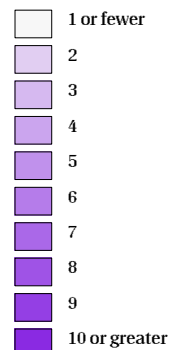
WINTER Pulse

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

Cadastral

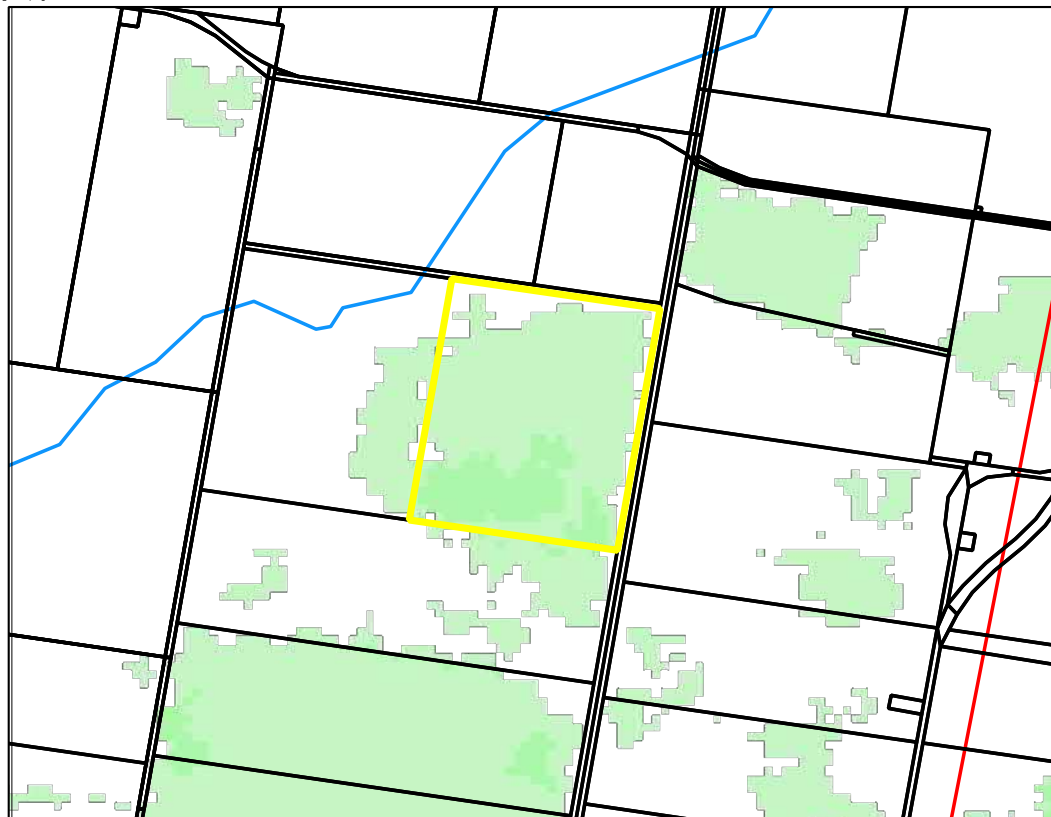
Roads

Watercourse

Water

Estimated frequency map for winter (September) cereal crop (2009 - 2018)

151.70



151.70

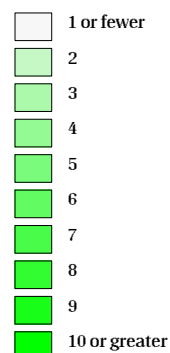
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

Cadastral

Roads

Watercourse

Water

FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

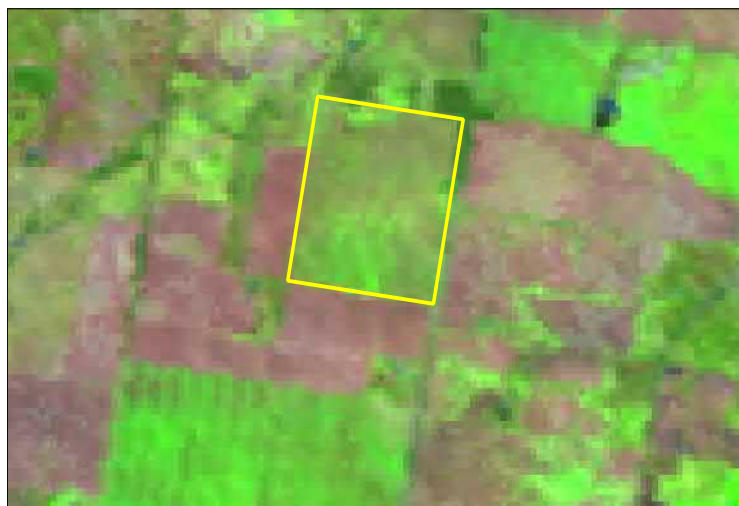
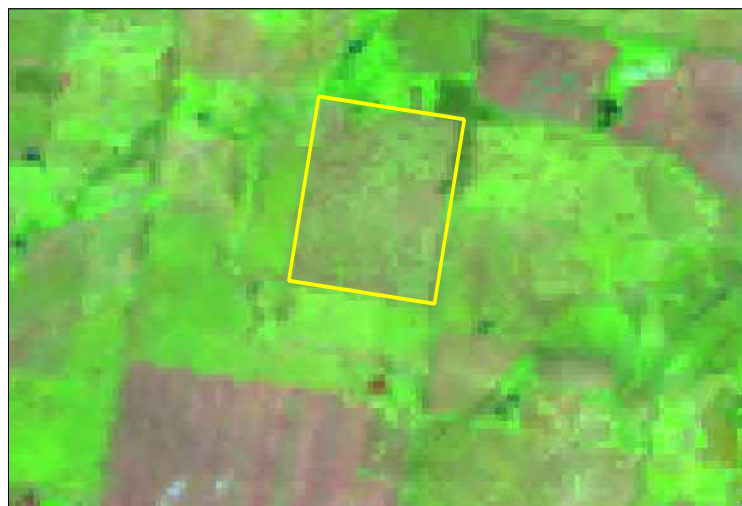
Lot on Plan: 37RP25514

Label: paddock8

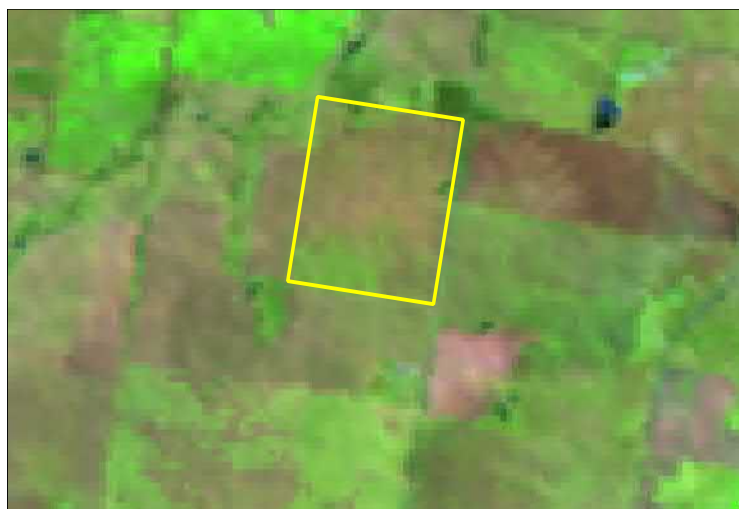


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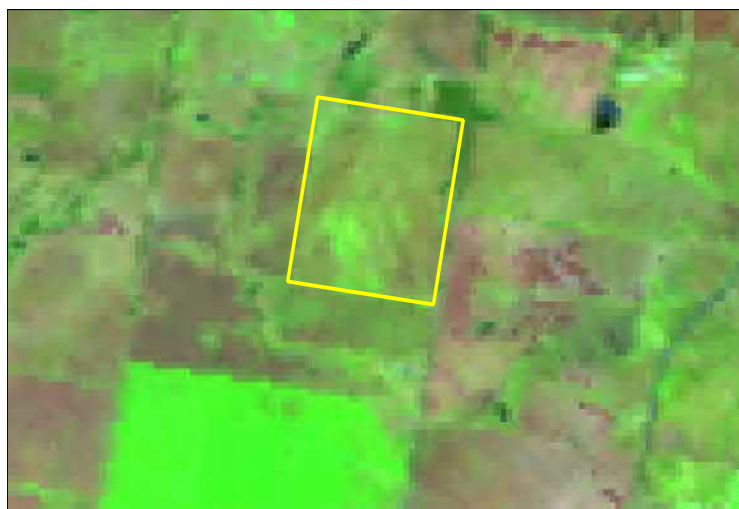
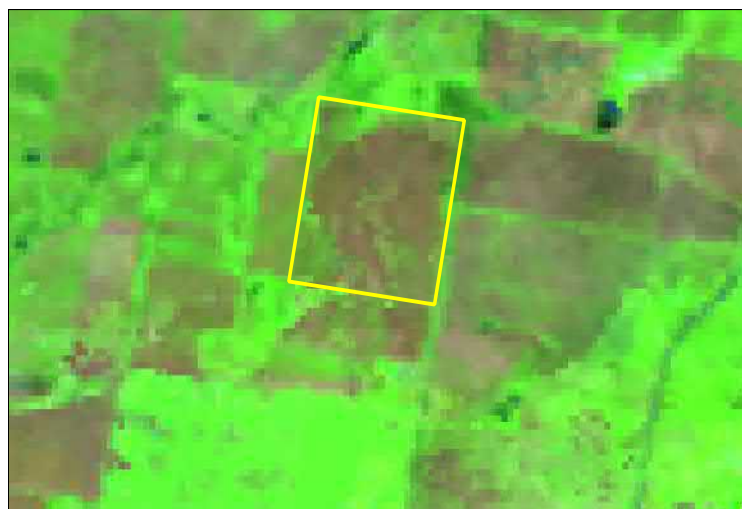
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

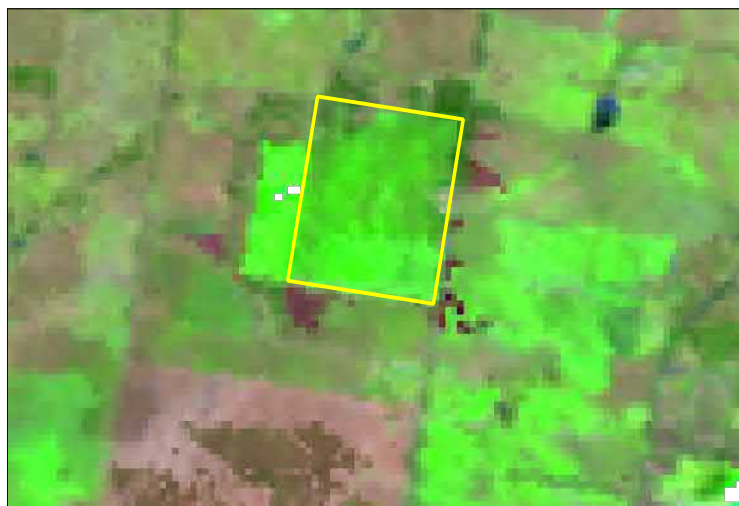
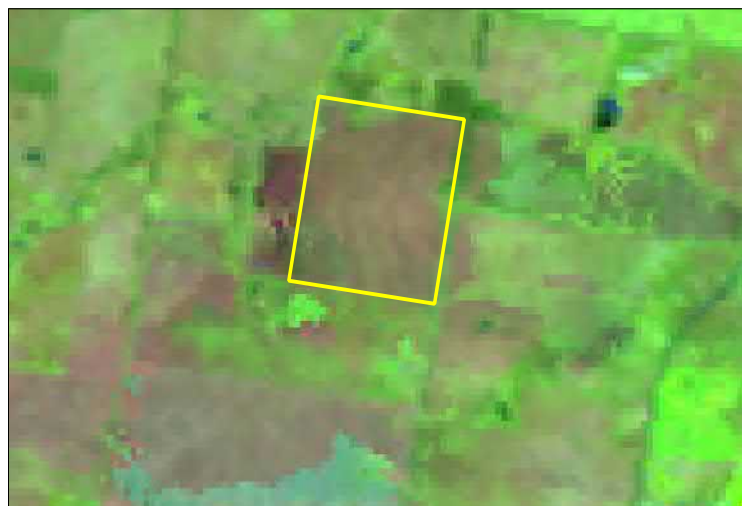
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Label: paddock8

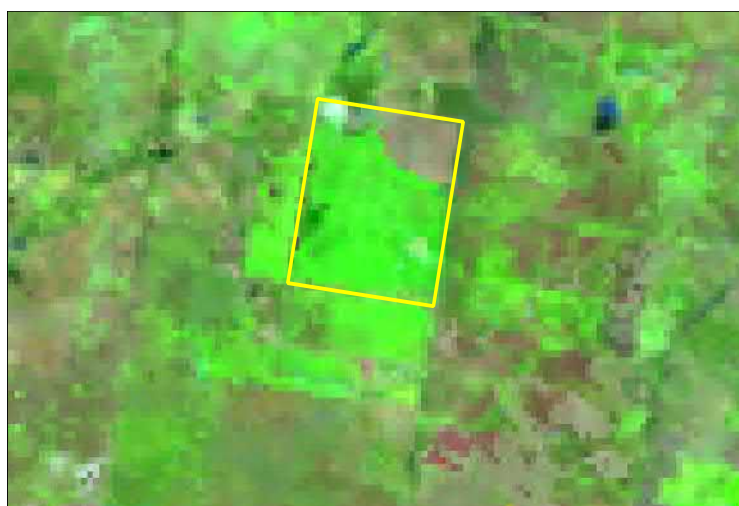
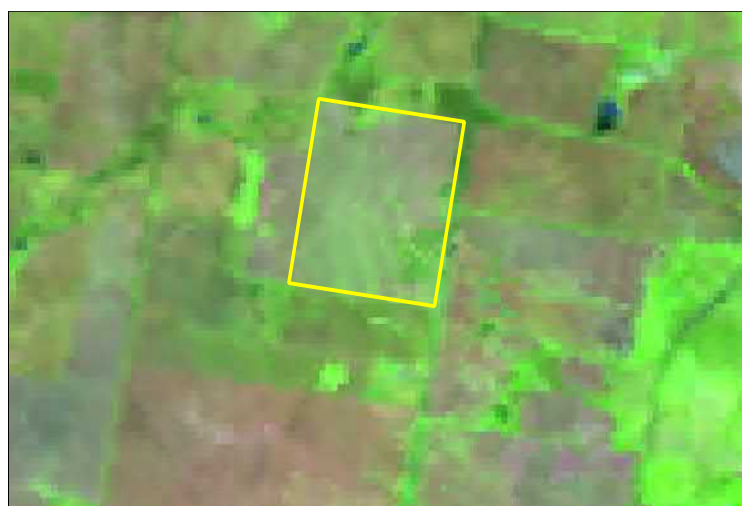


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Government

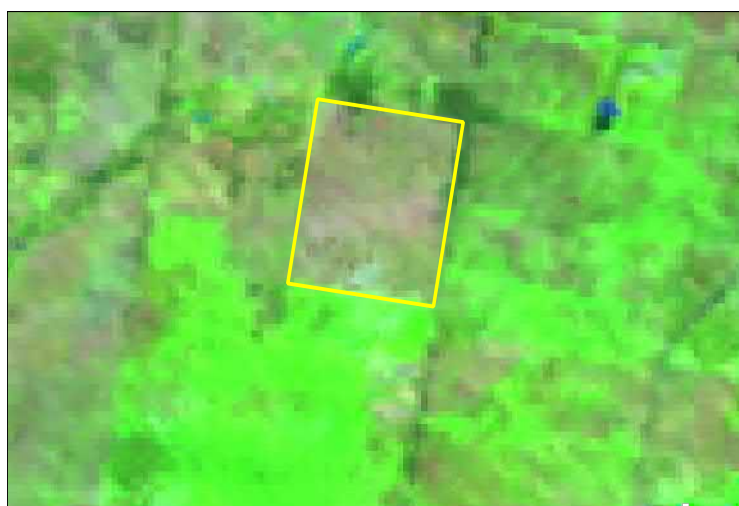
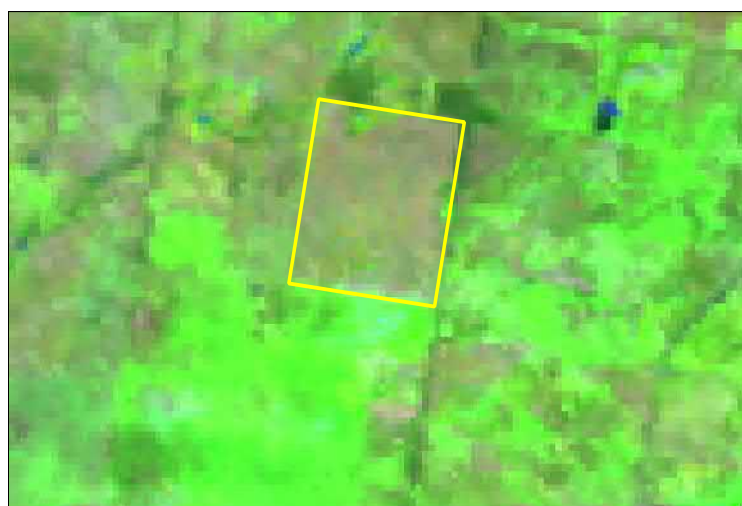
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

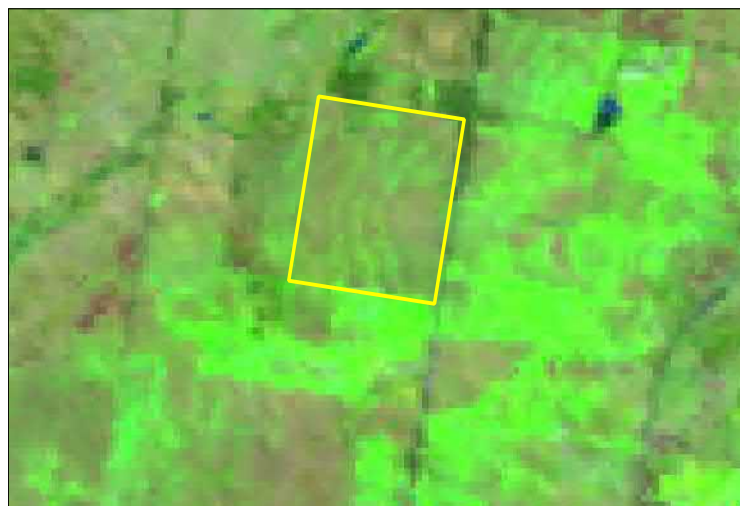
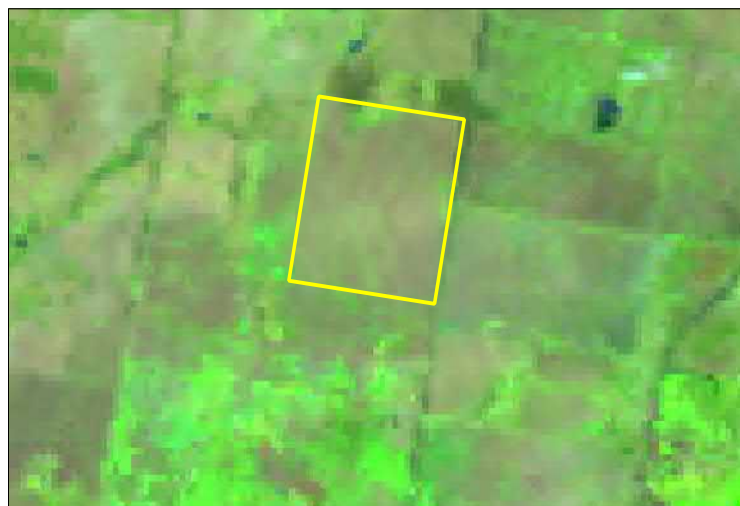
Lot on Plan: 37RP25514

Label: paddock8

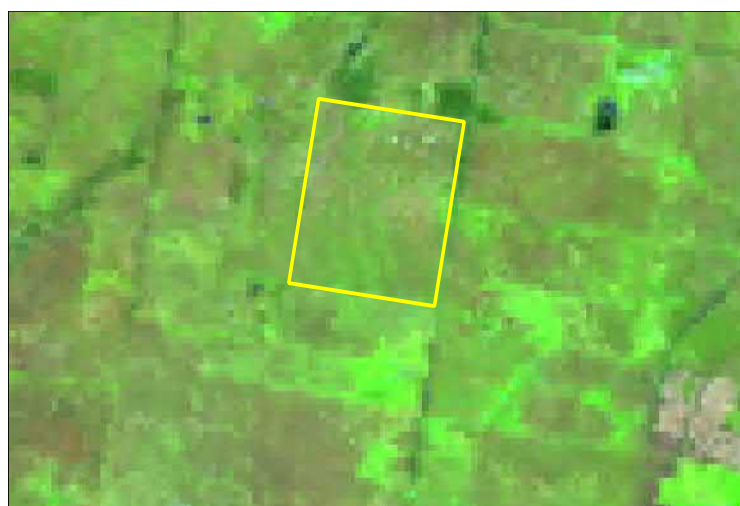
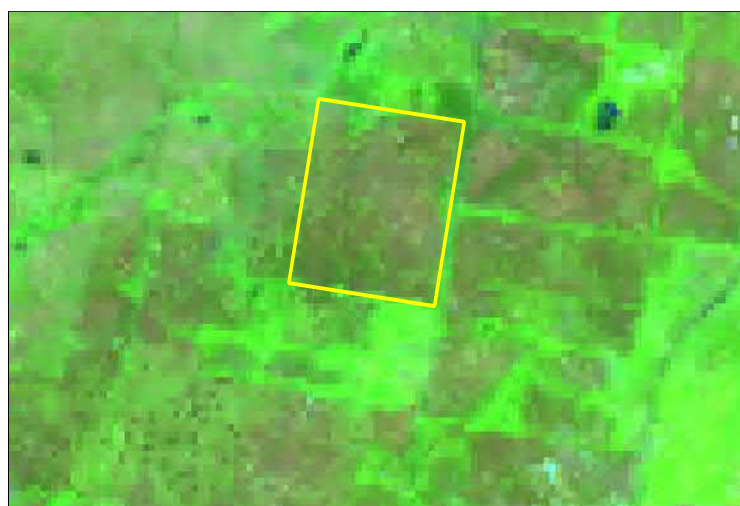


Queensland
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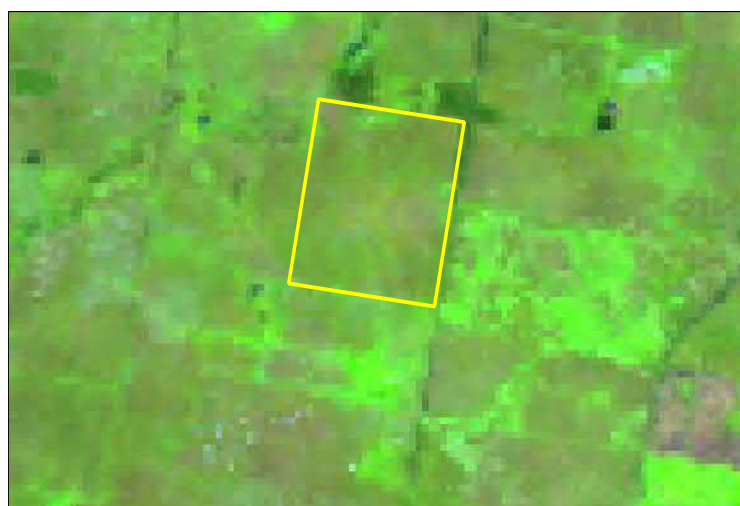
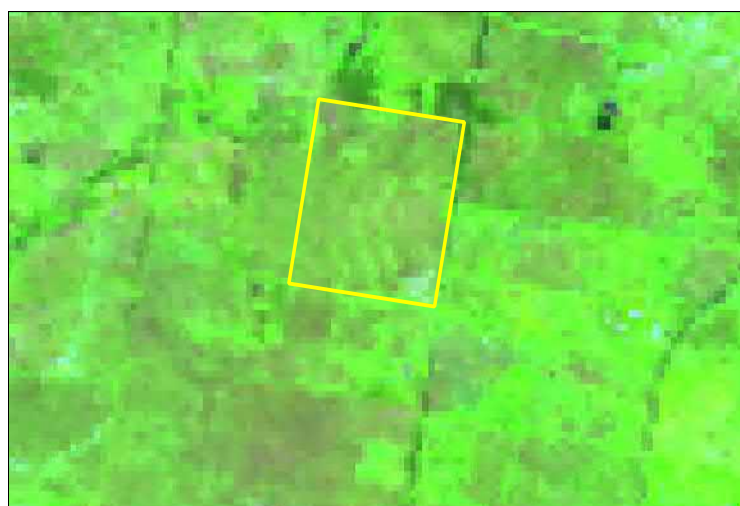
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514

Label: paddock8



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

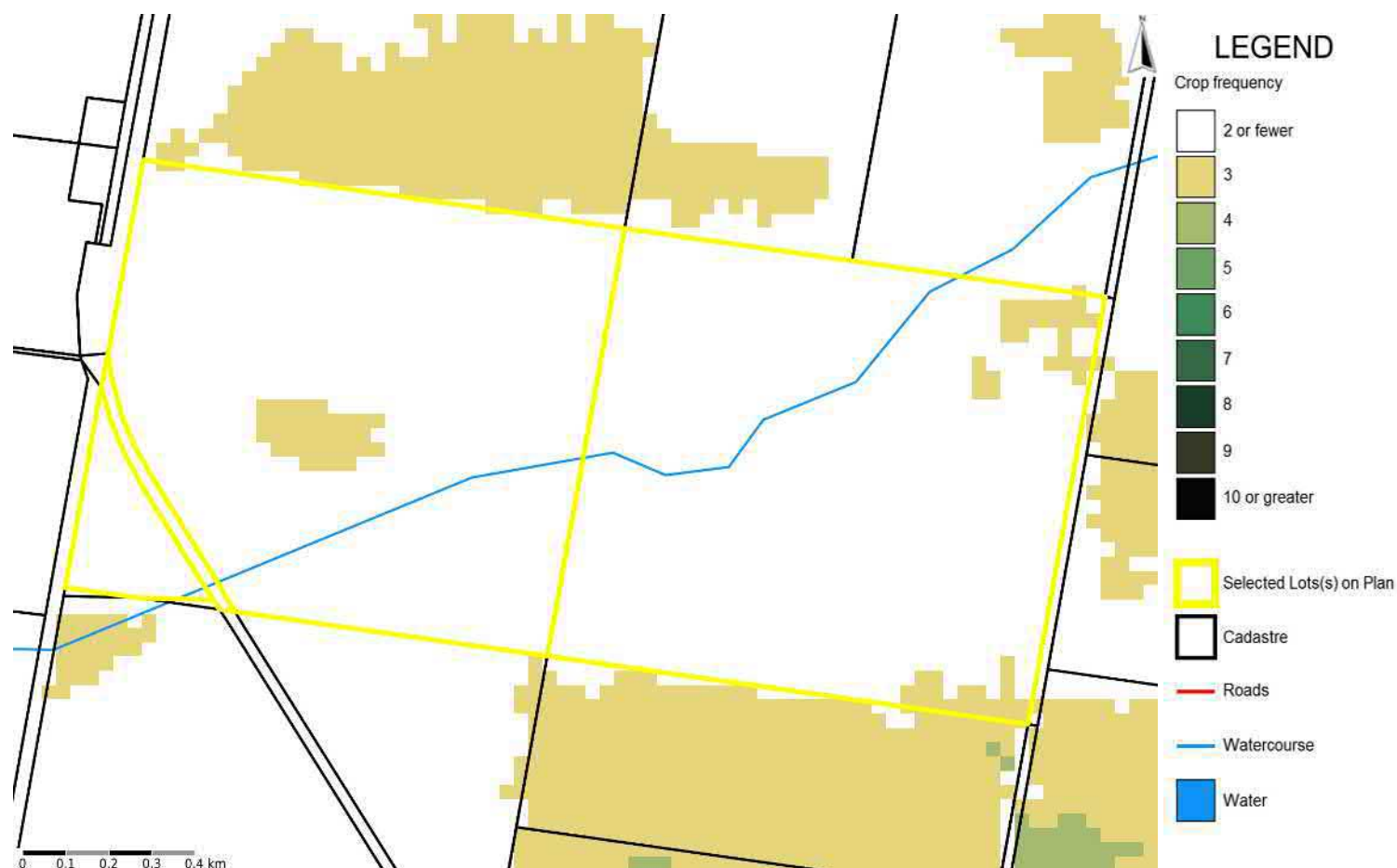
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

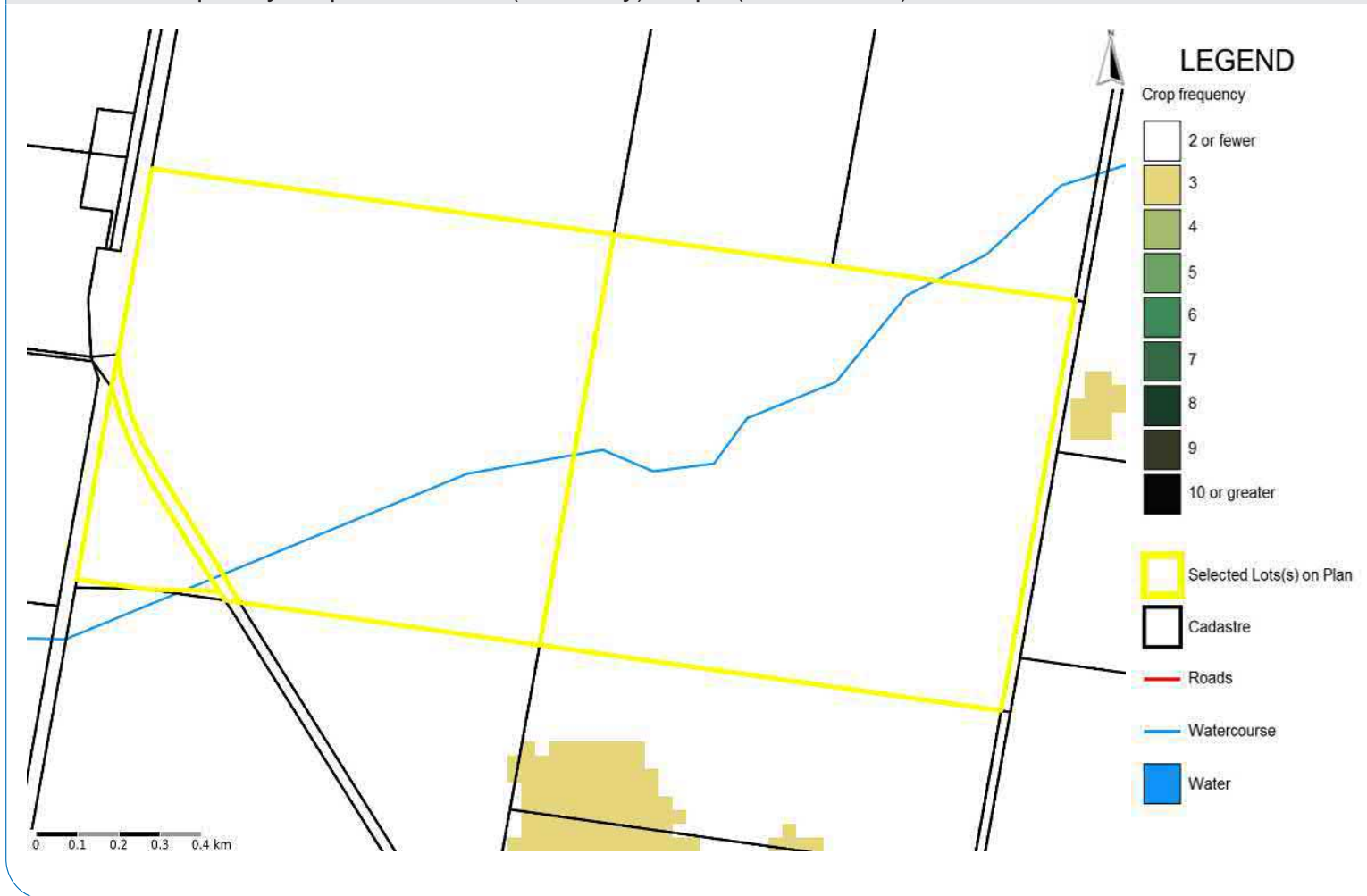
Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9



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Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

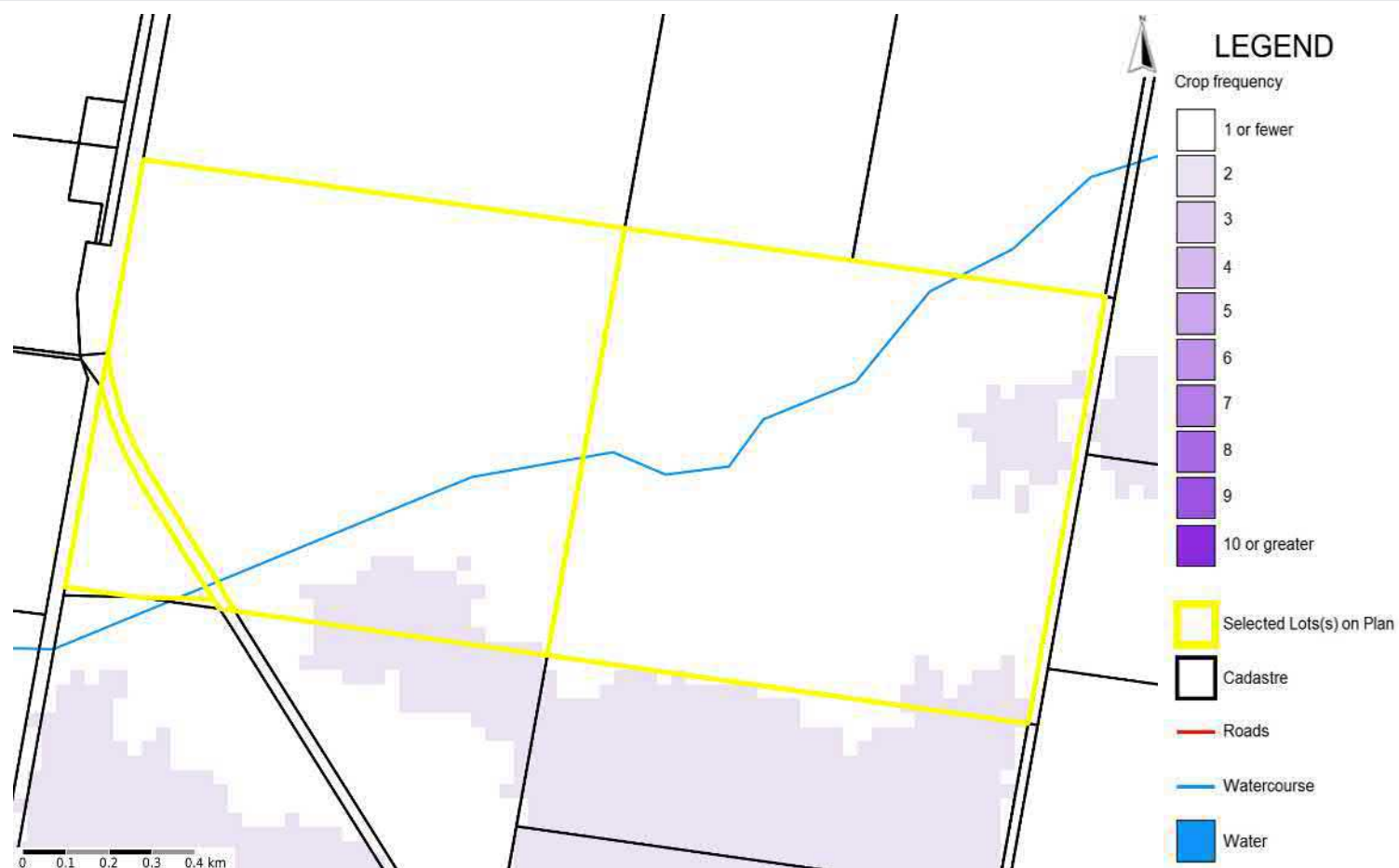
Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9

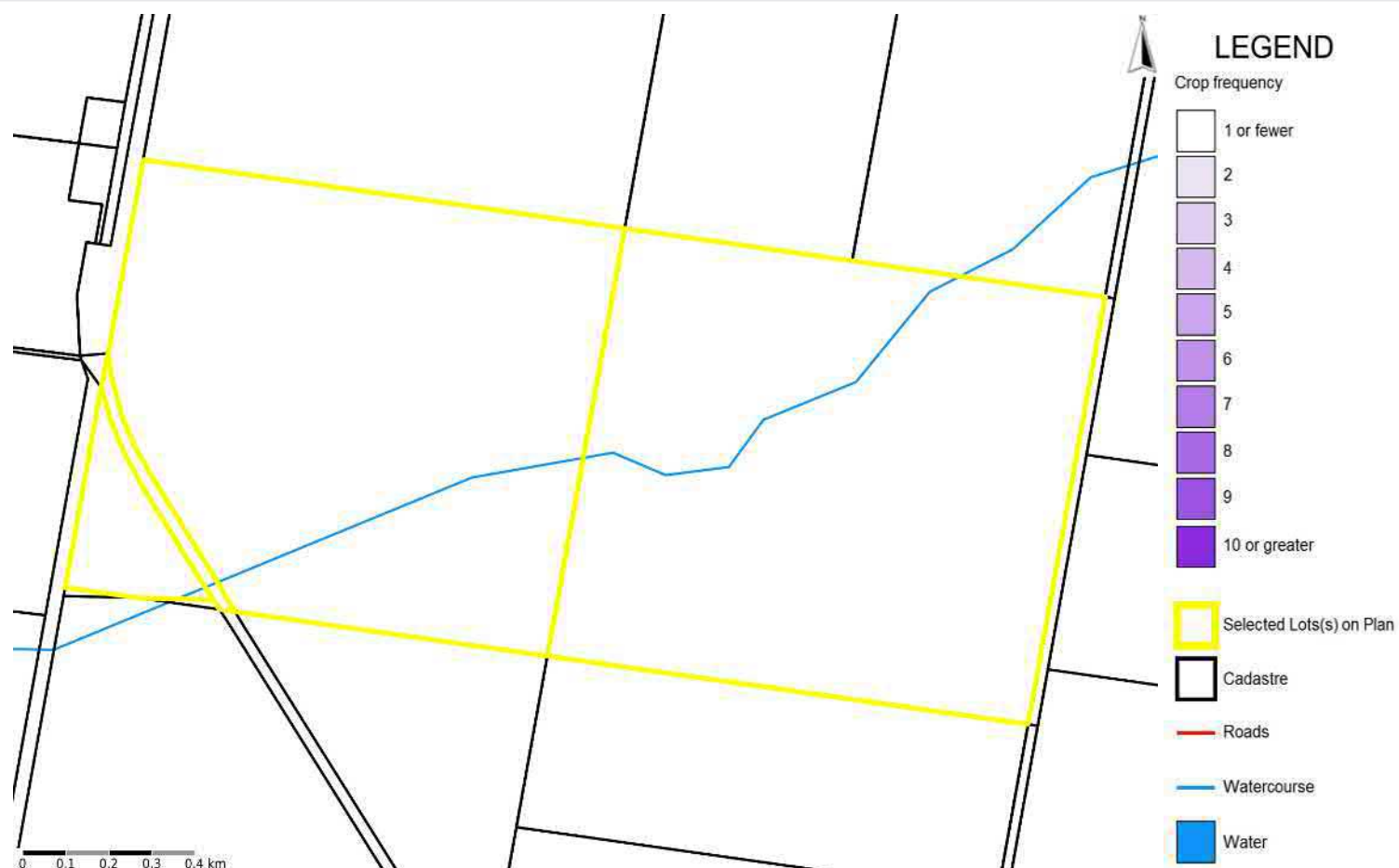


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Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

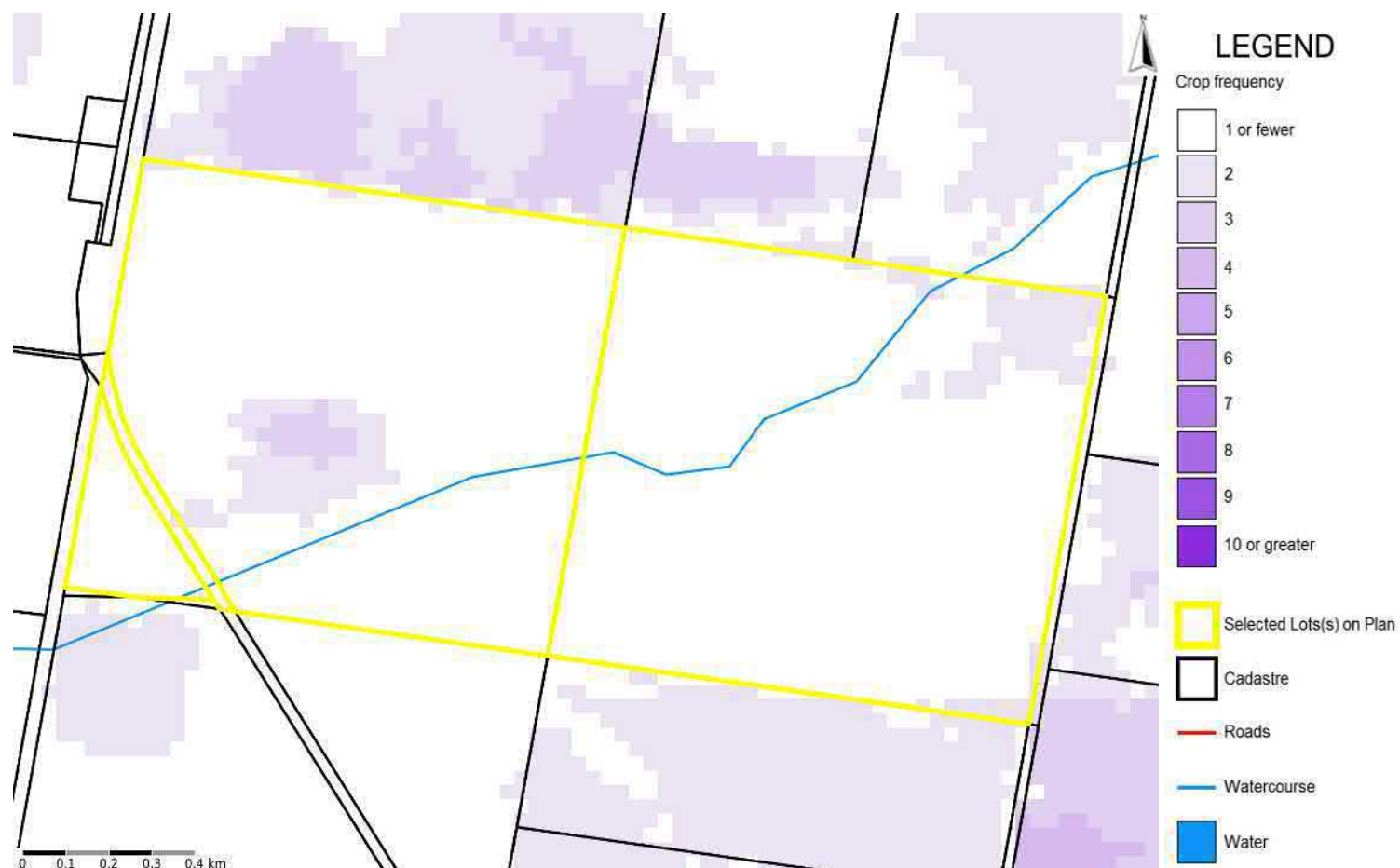
Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9

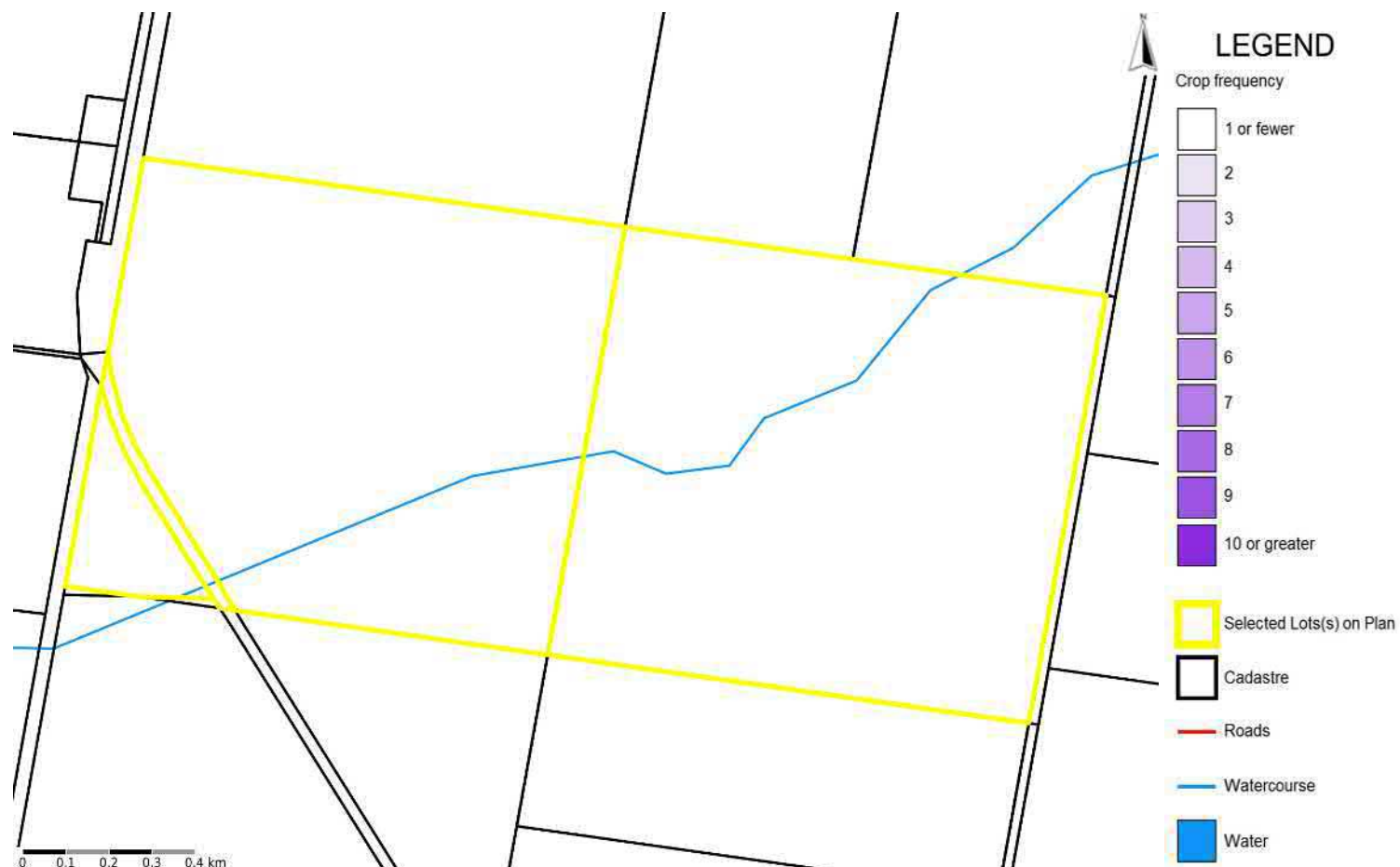


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

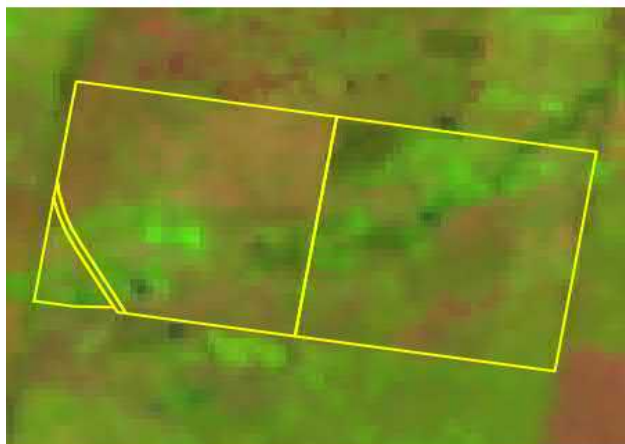
Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9

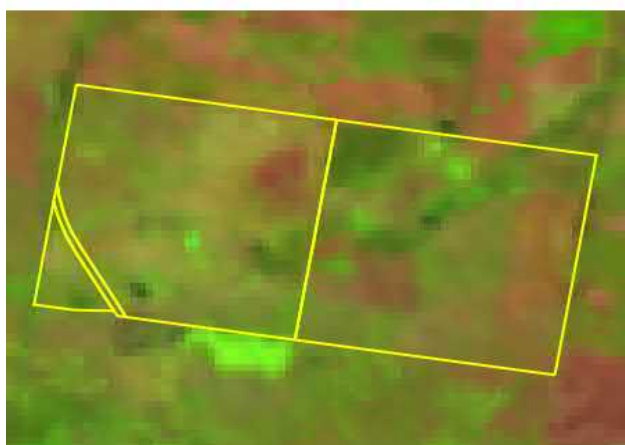


Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9



Queensland
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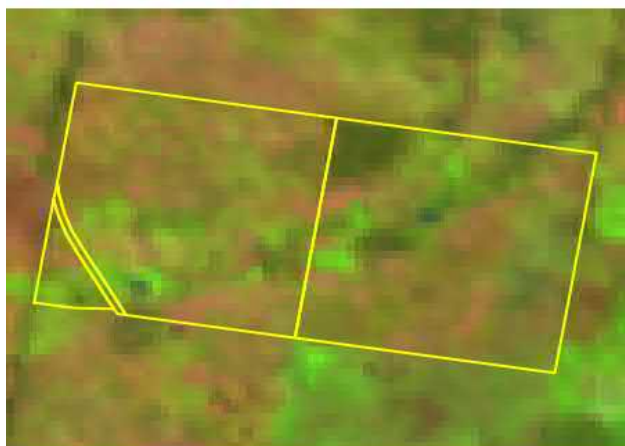
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

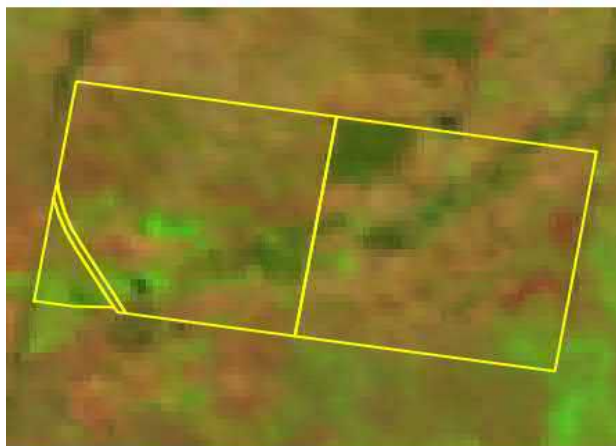
Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9



Queensland
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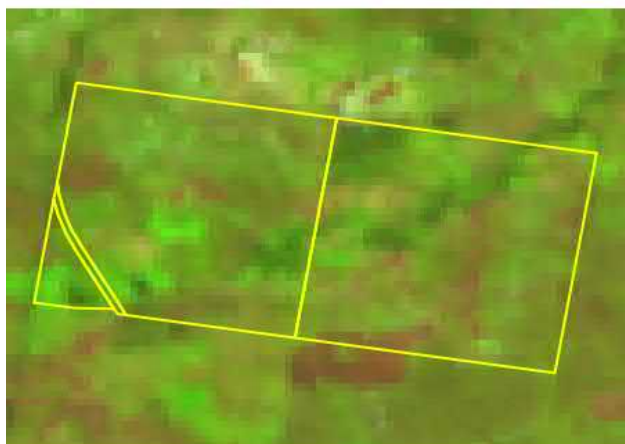
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 15, 2019

Lot on Plan: 72AG3550,3RP36494,1RP84726,69RP2 etc.

Label: paddock9



Queensland
Government

February (left) and September (right) images for 2018



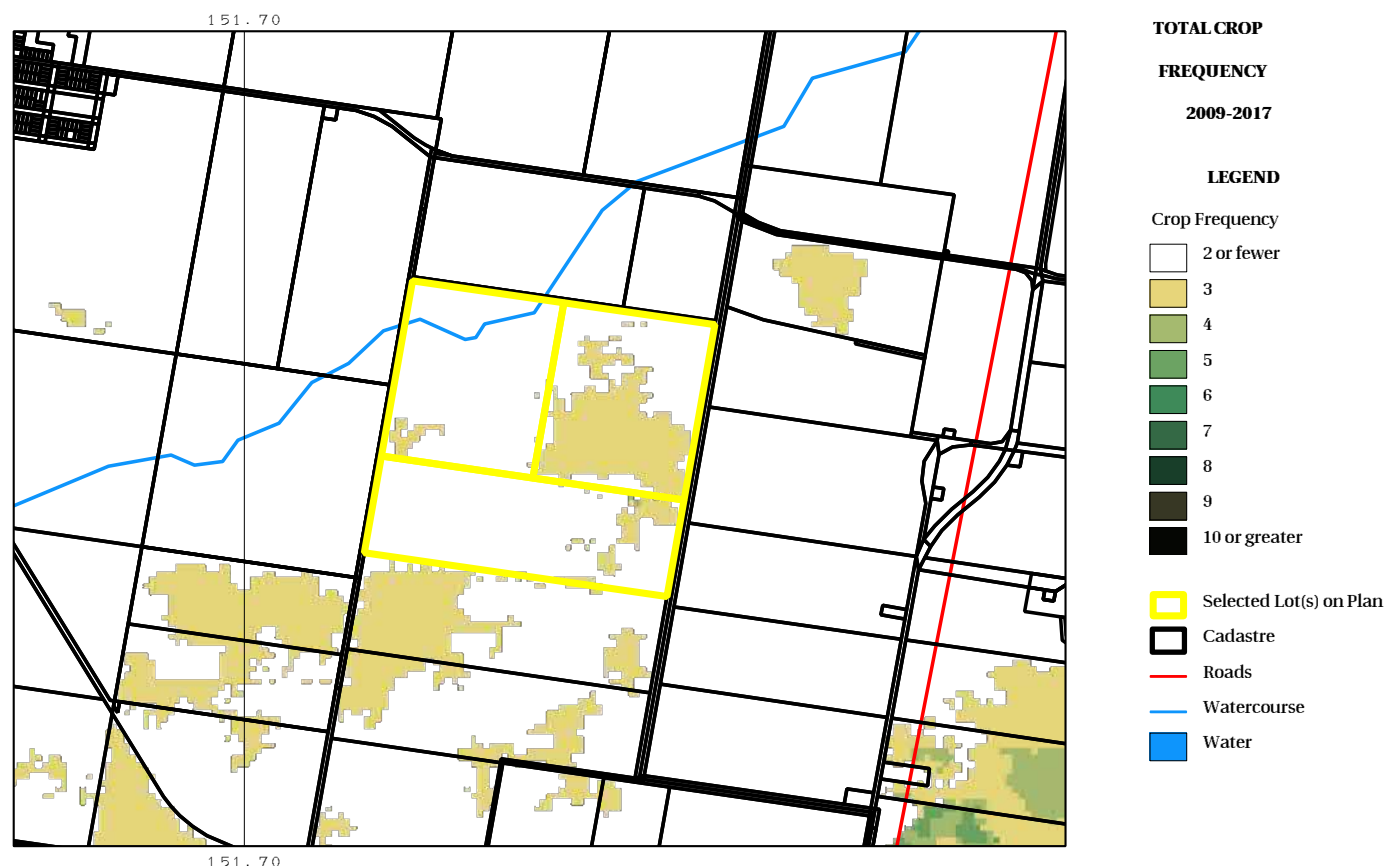
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Introduction

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Estimated total crop frequency map (2009 - 2018)



How to interpret the information

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- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

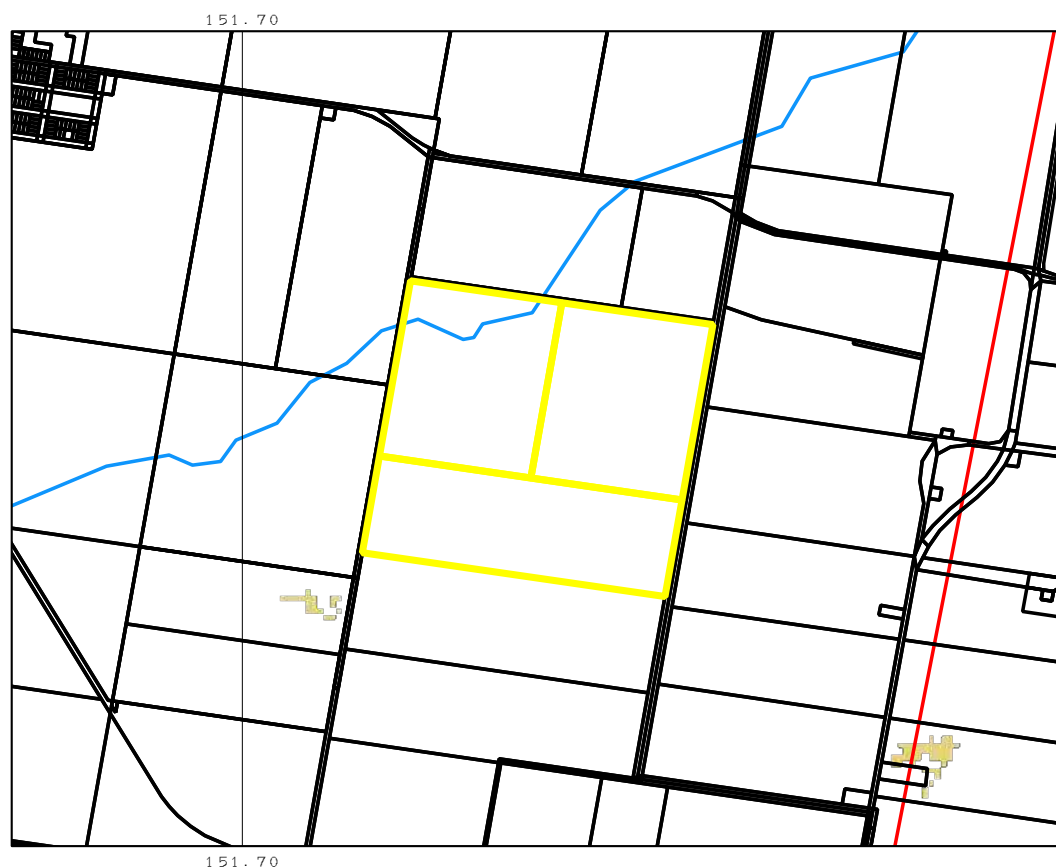
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10

Estimated frequency map for summer (February) crop (2009 - 2018)



SUMMER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7

8

9

10 or greater

 Selected Lot(s) on Plan

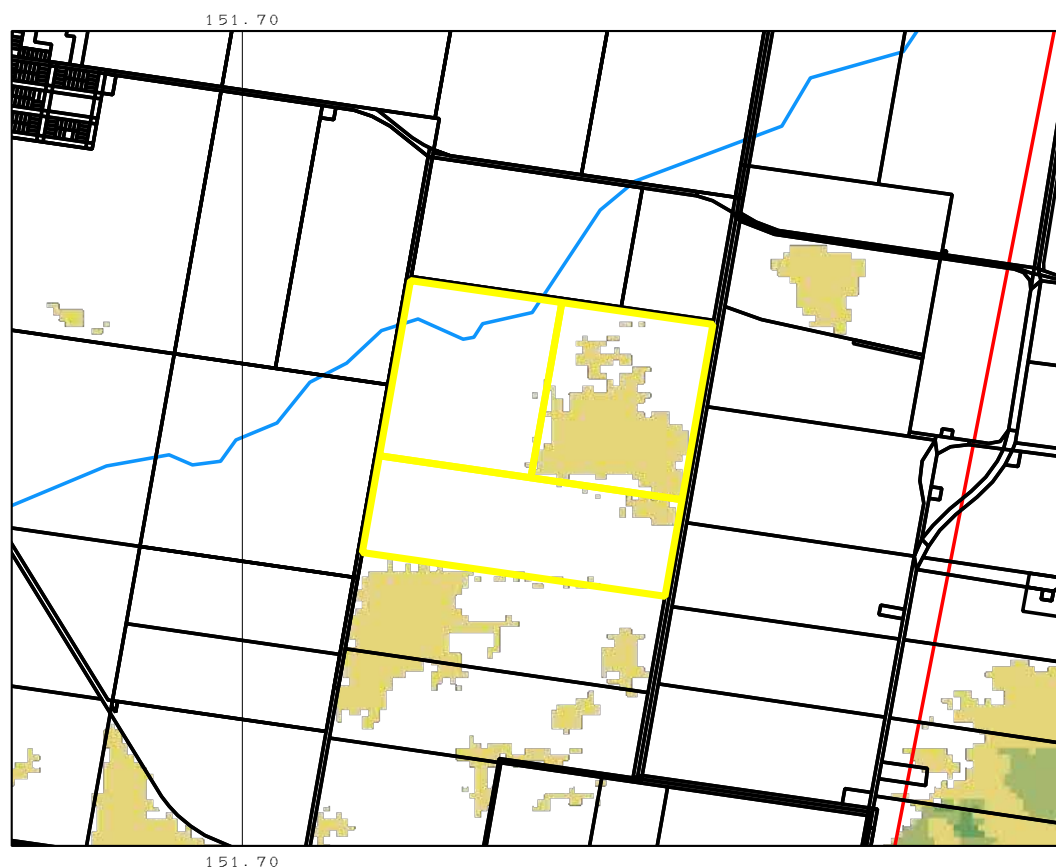
 Cadastre

 Roads

 Watercourse

 Water

Estimated frequency map for winter (September) crop (2009 - 2018)



WINTER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7

8


9


10 or greater

 Selected Lot(s) on Plan

 Cadastre

 Roads

 Watercourse

 Water

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

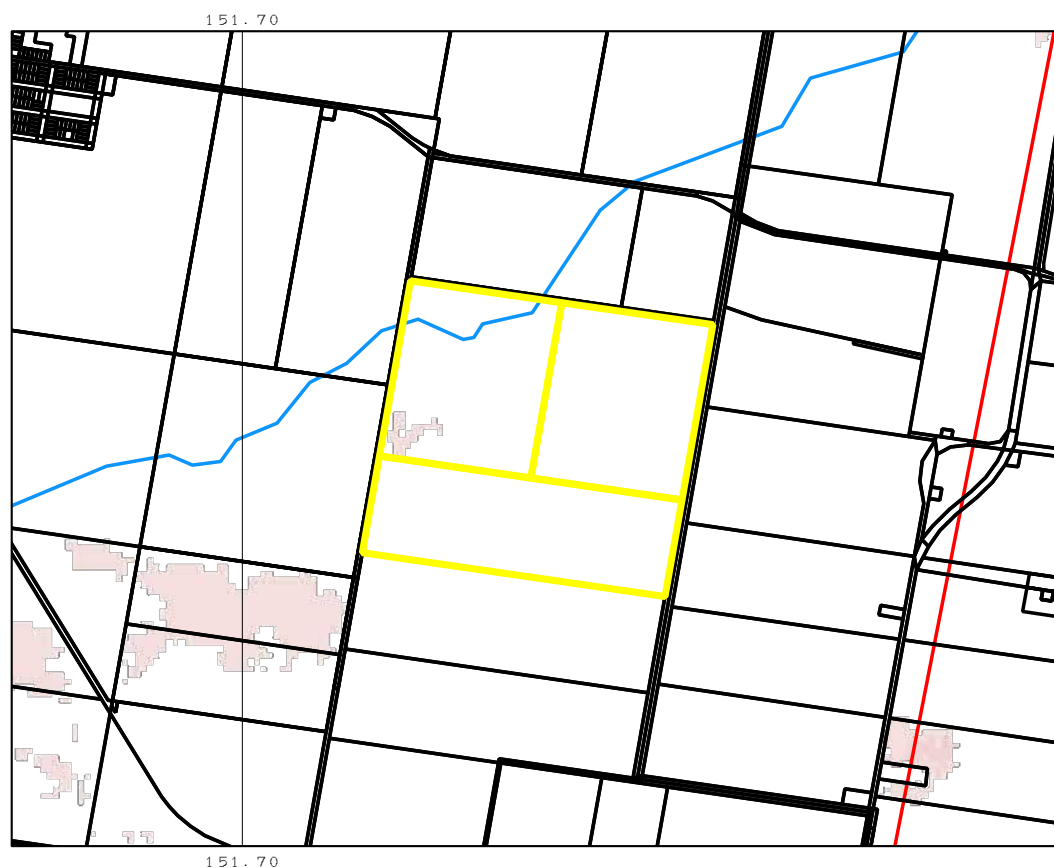
Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



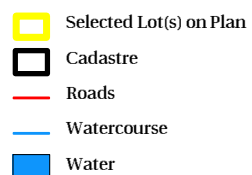
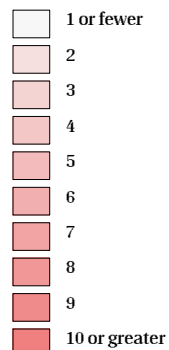
SUMMER Grain

FREQUENCY

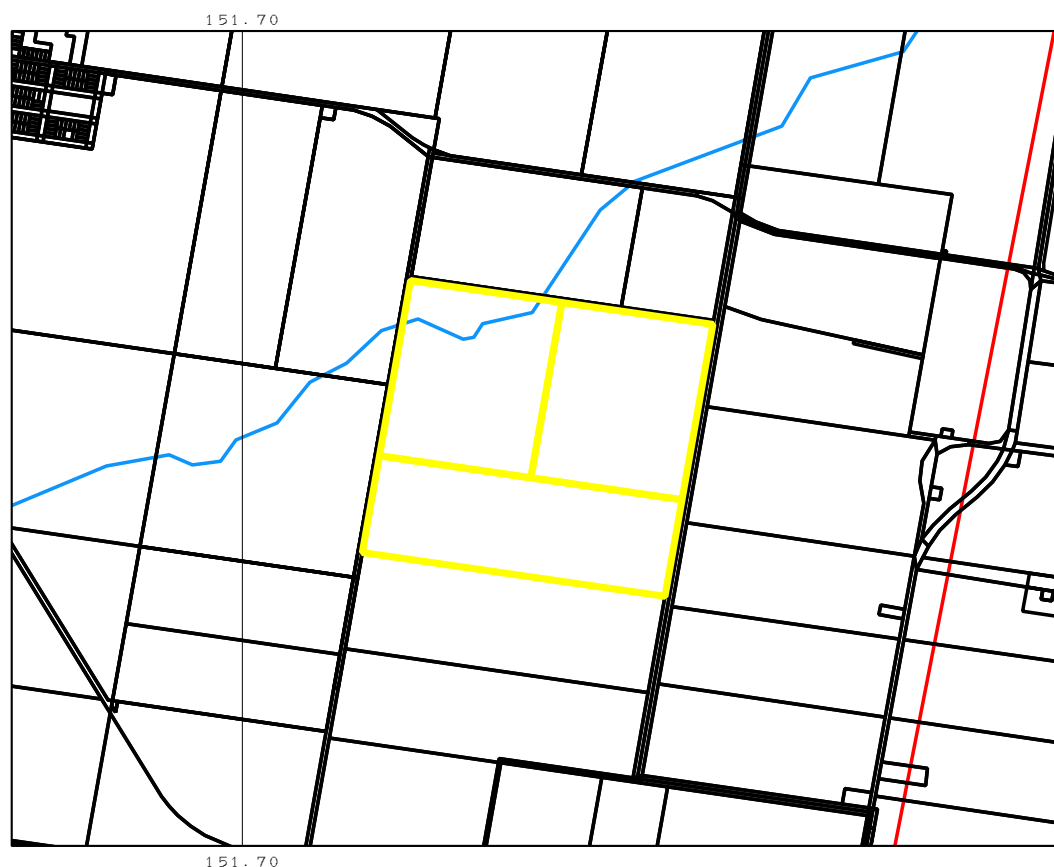
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



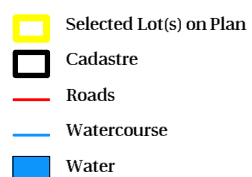
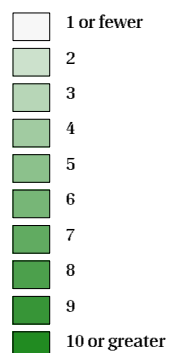
SUMMER Cotton

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

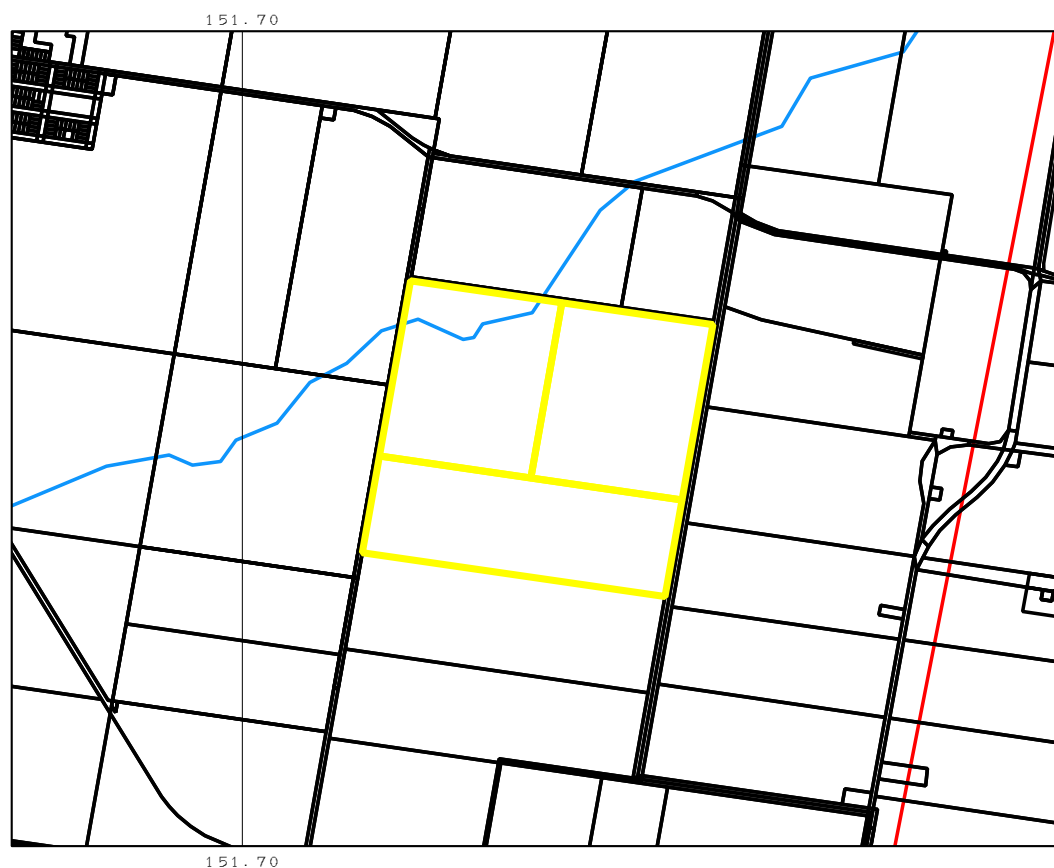
Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10



Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



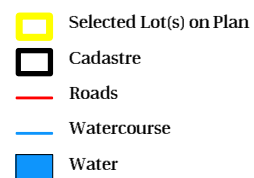
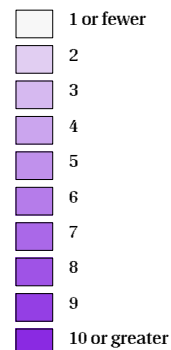
WINTER Pulse

FREQUENCY

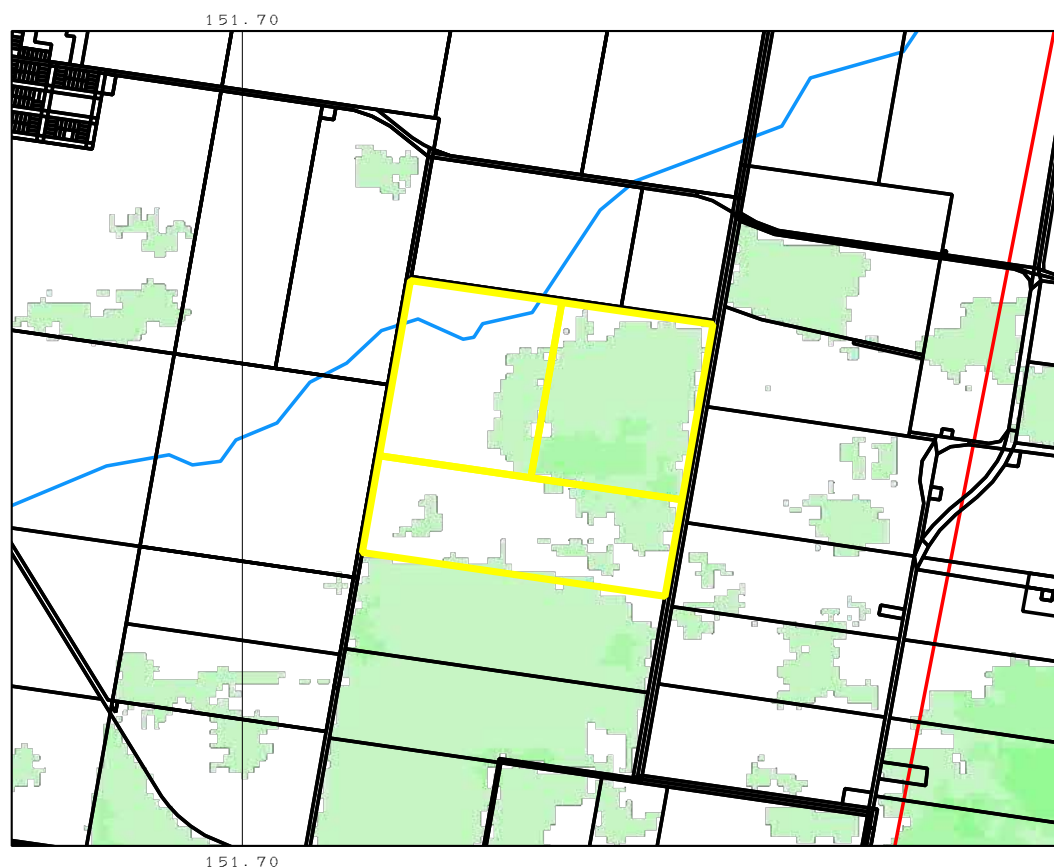
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



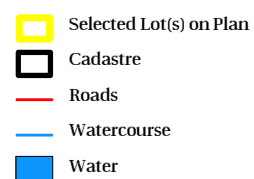
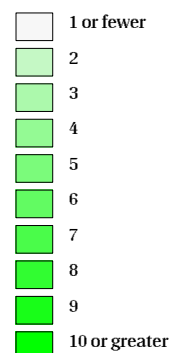
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10



Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

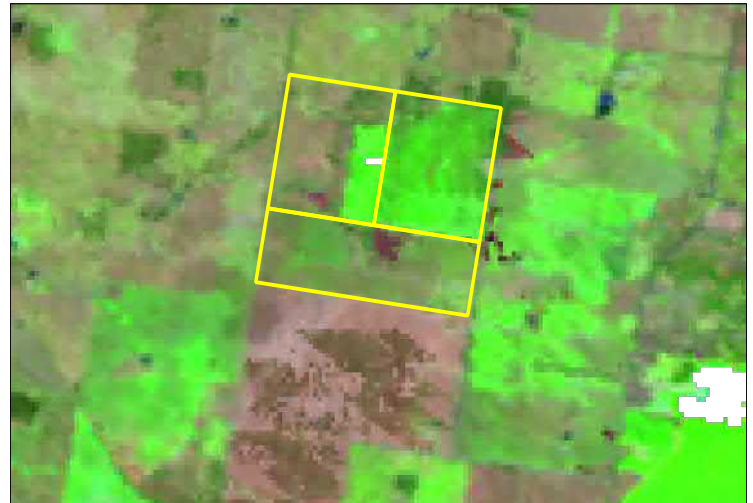
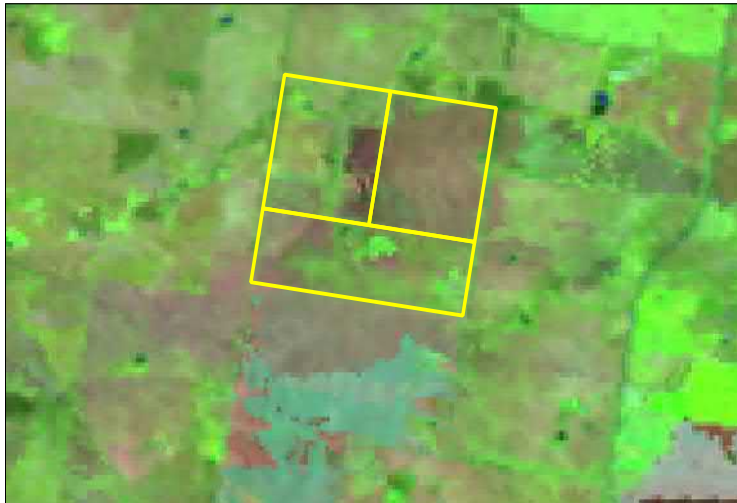
Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10

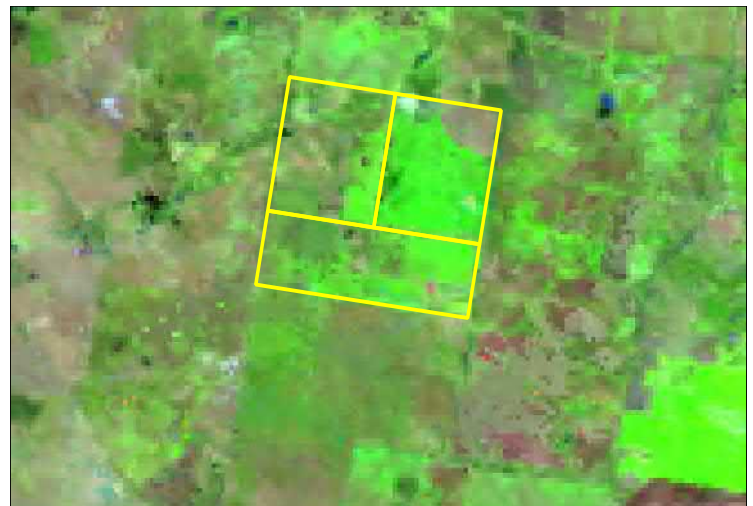


Queensland
Government

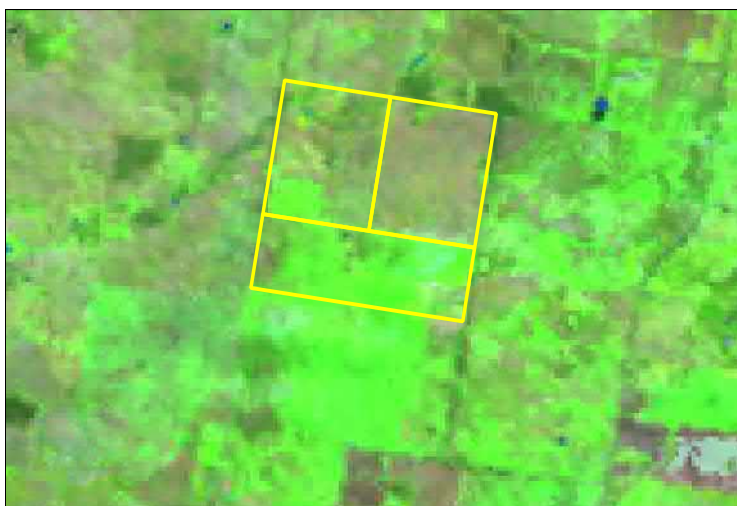
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

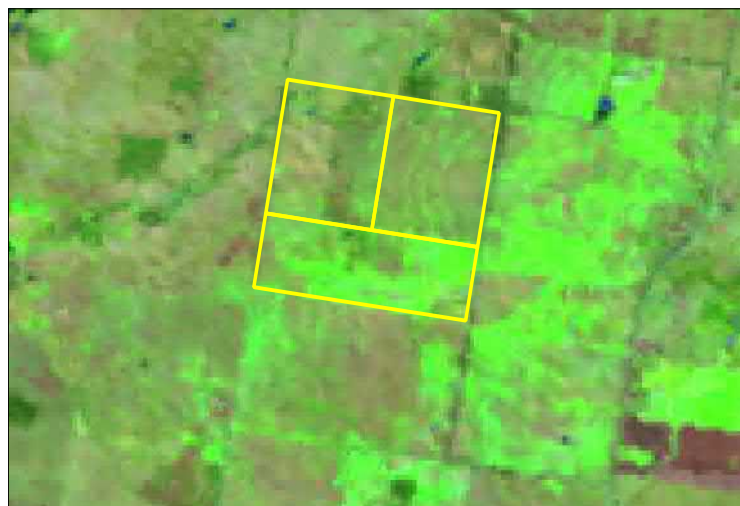
Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10

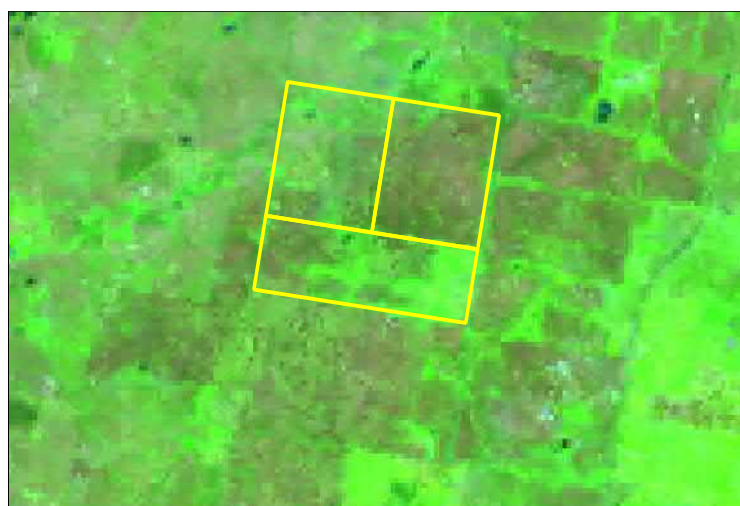


Queensland
Government

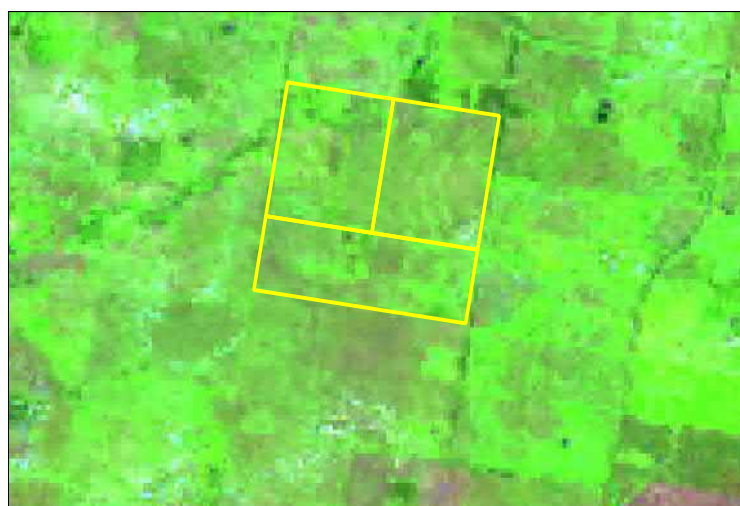
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 37RP25514,36RP25514,35RP25514

Label: paddock10



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

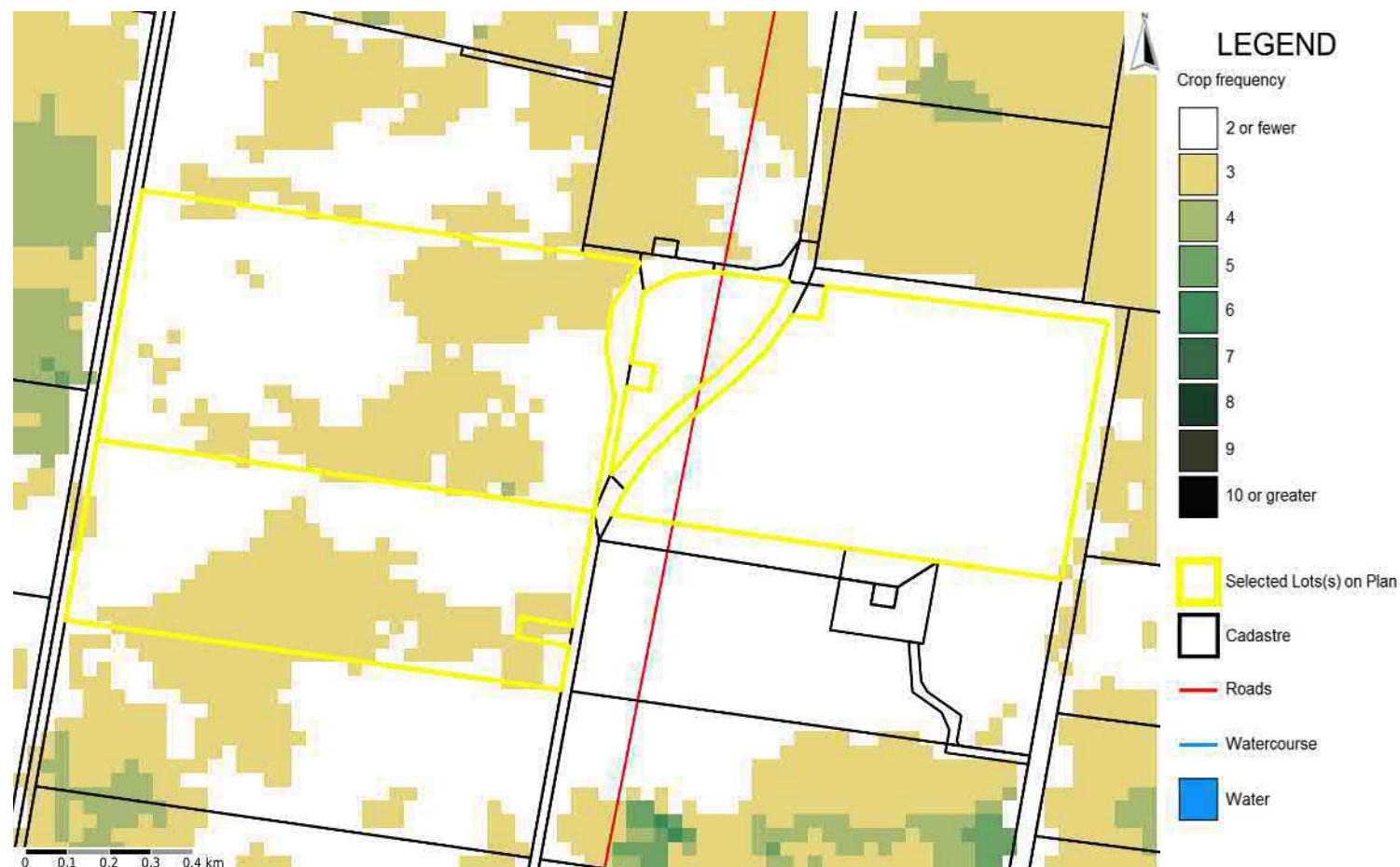
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

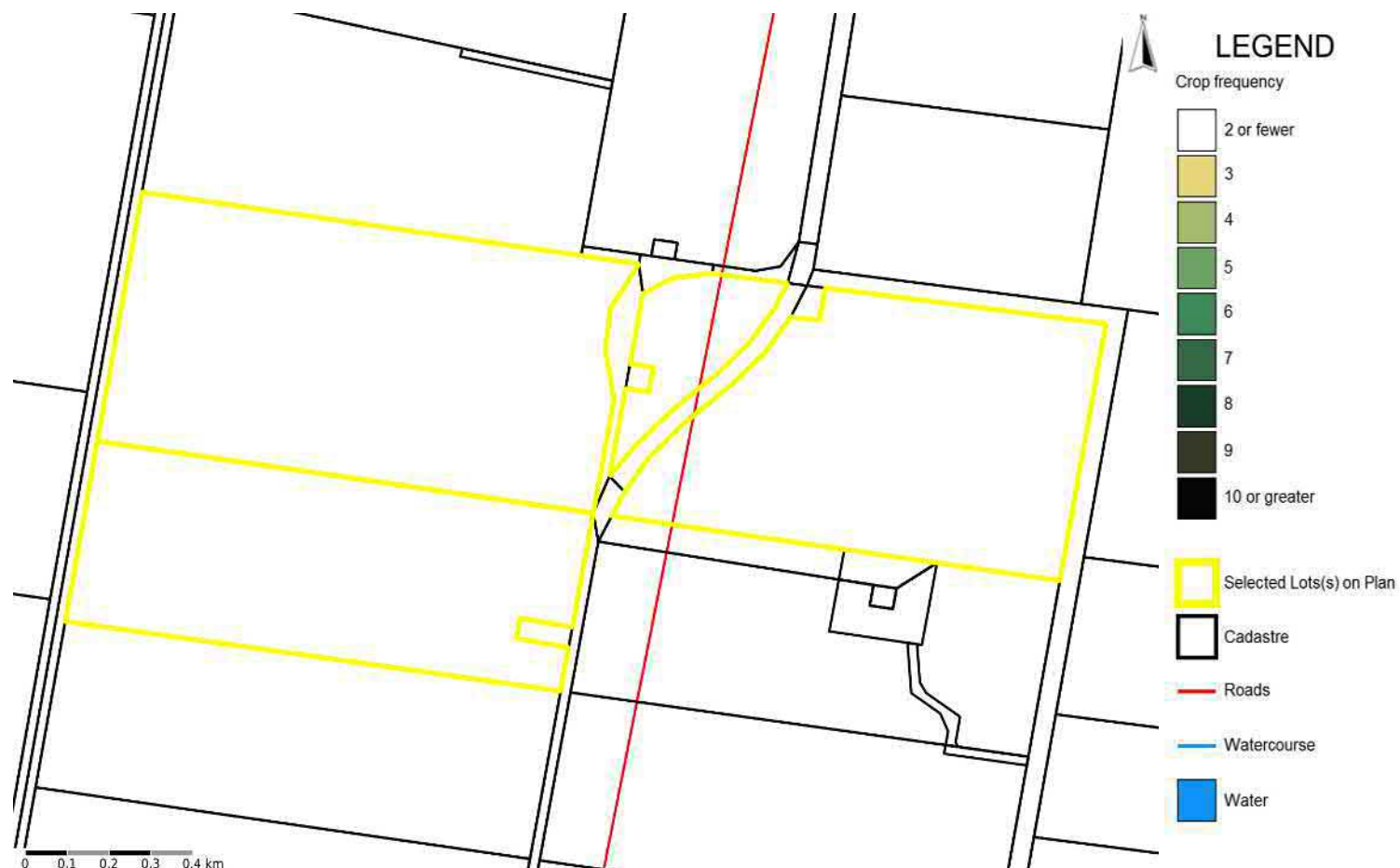
Lot on Plan: 2RP93626,6AG1127,3RP220755

Label: paddock11



Queensland
Government

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

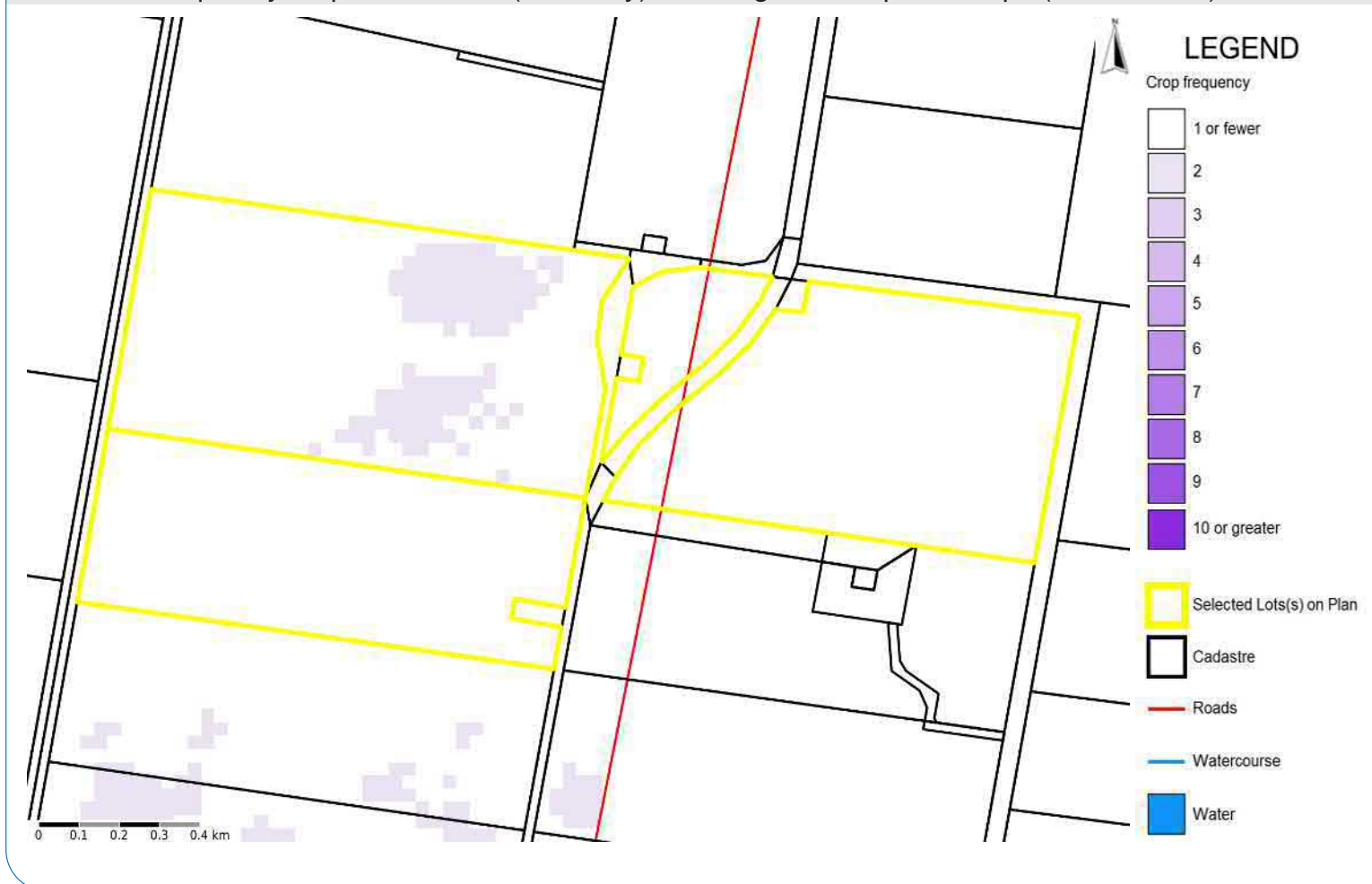
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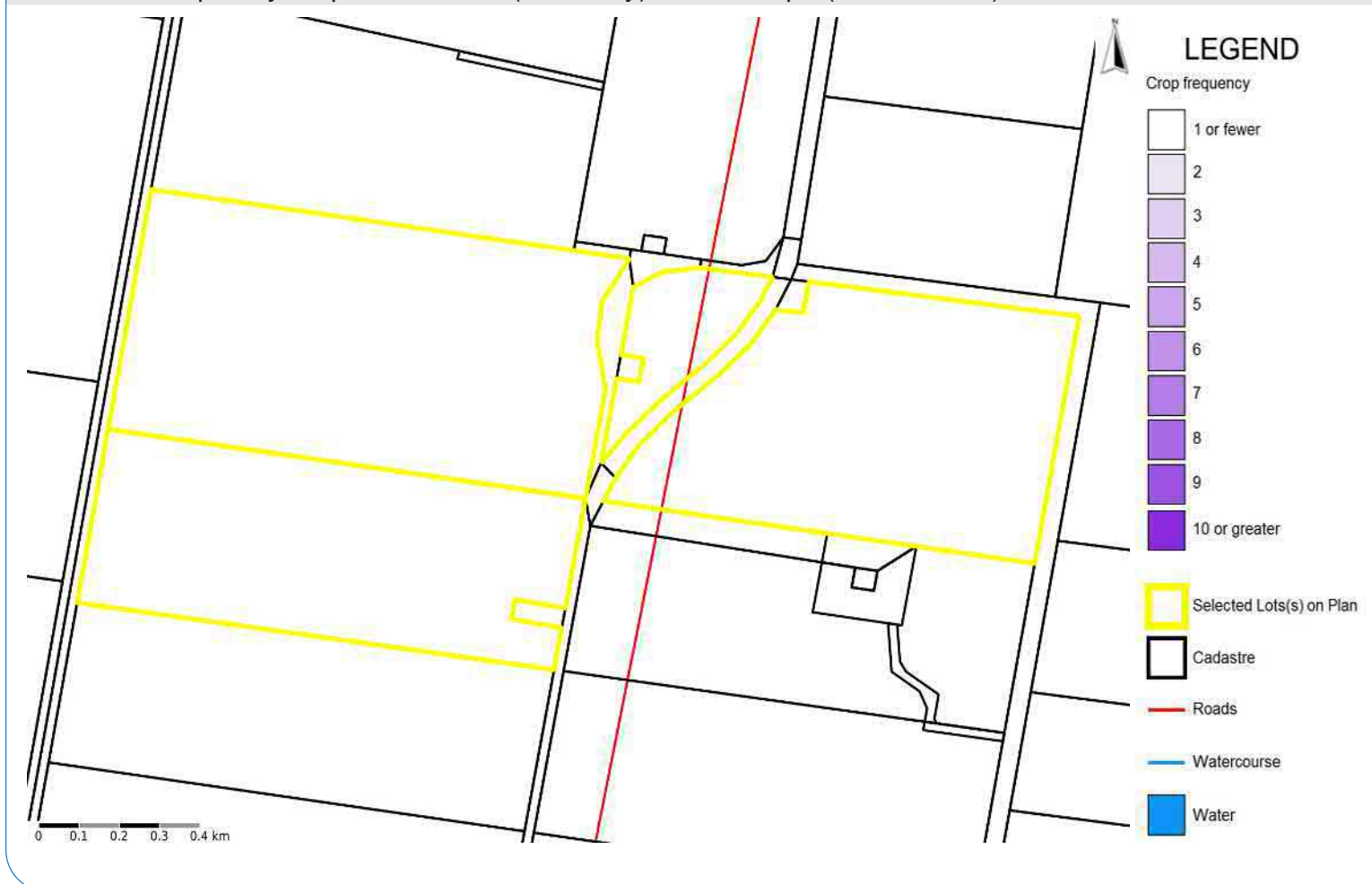


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

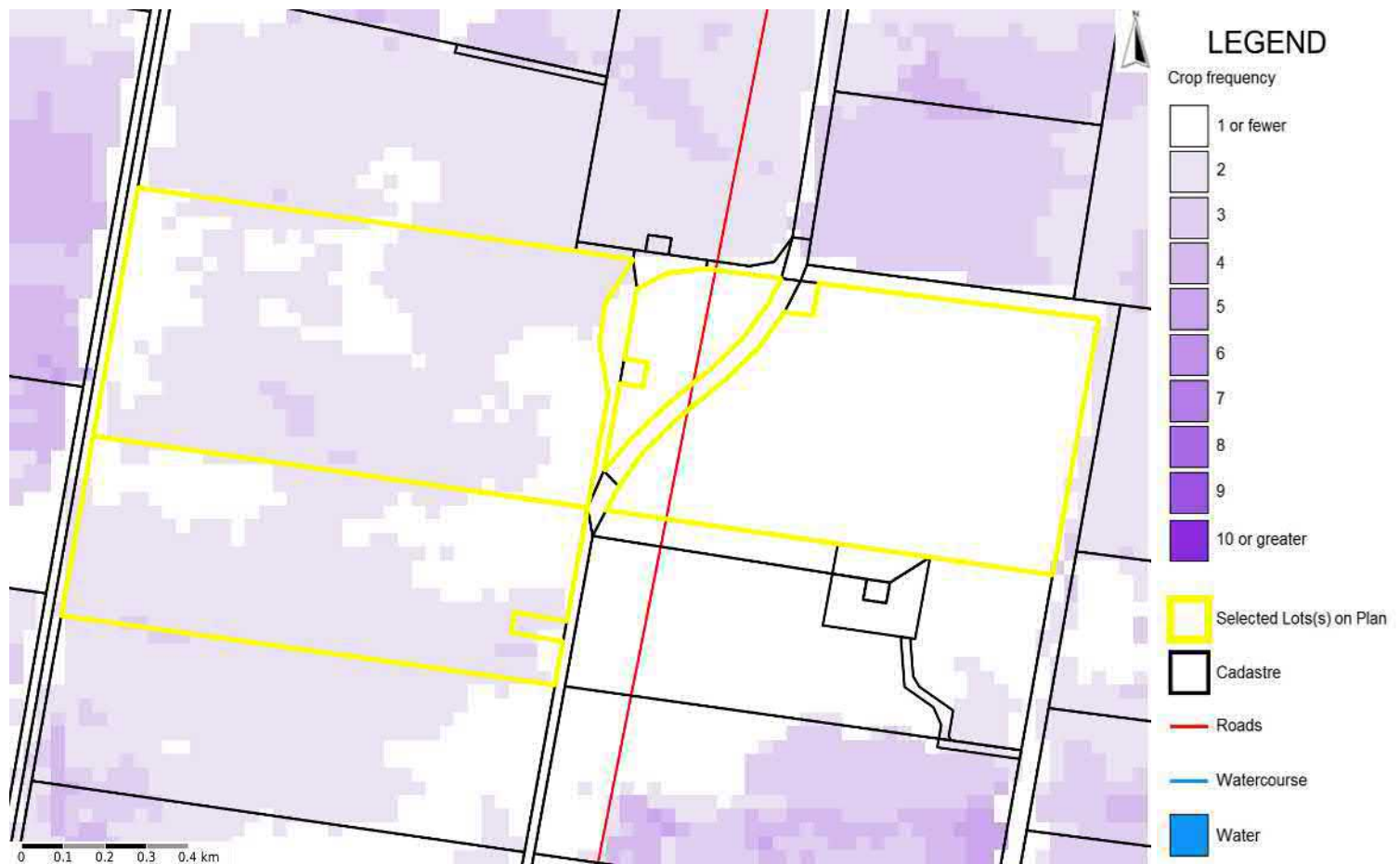
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Label: paddock11

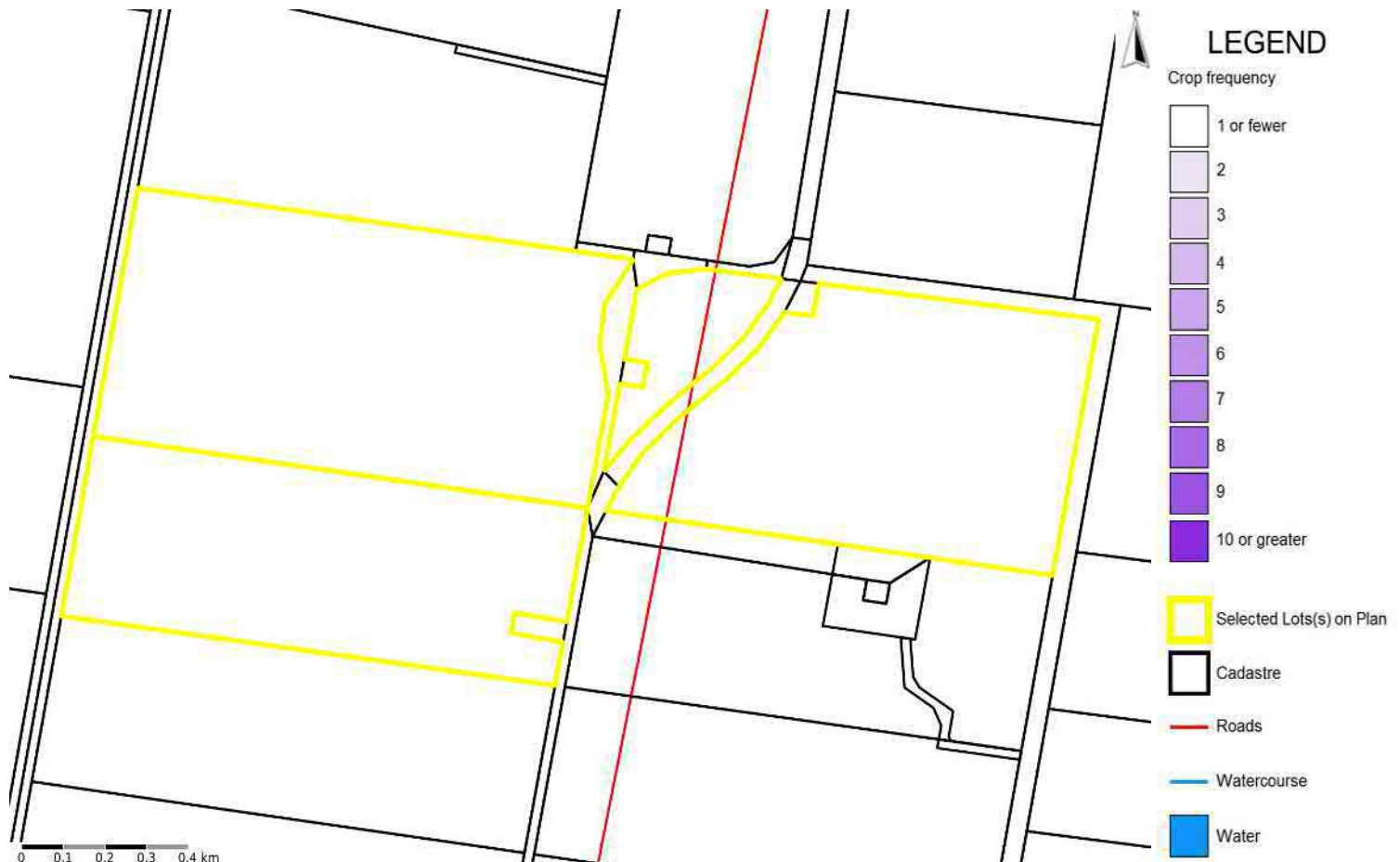


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

Lot on Plan: 2RP93626,6AG1127,3RP220755

Label: paddock11



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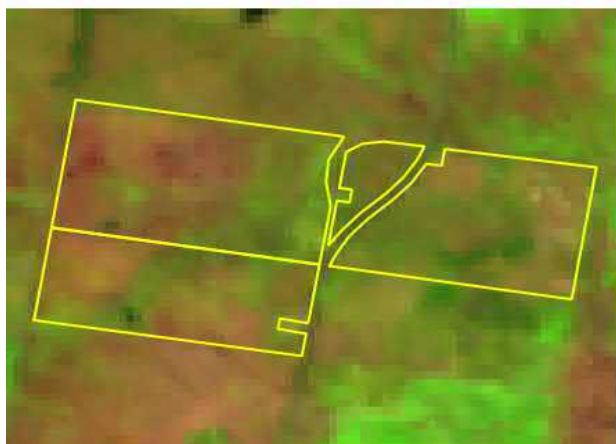
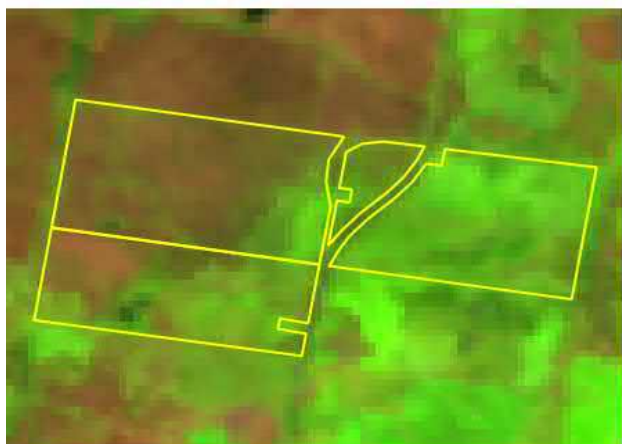
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

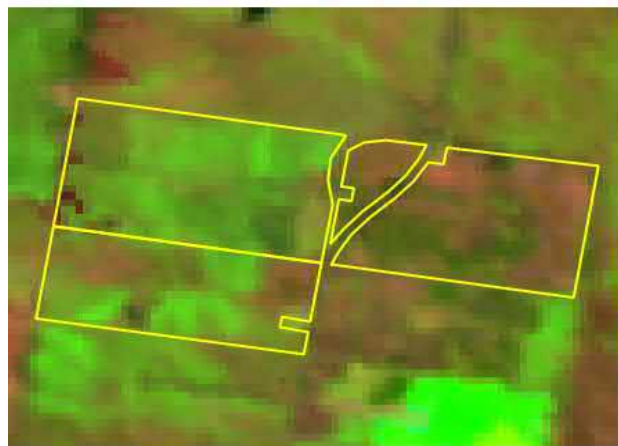
Lot on Plan: 2RP93626,6AG1127,3RP220755

Label: paddock11



Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

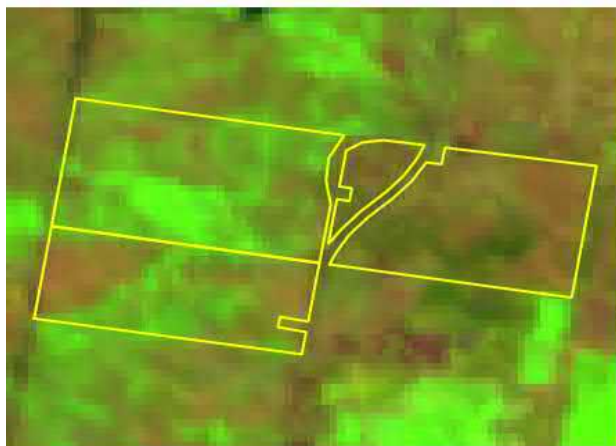
Lot on Plan: 2RP93626,6AG1127,3RP220755

Label: paddock11



Queensland
Government

February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

Lot on Plan: 2RP93626,6AG1127,3RP220755

Label: paddock11



Queensland
Government

February (left) and September (right) images for 2018



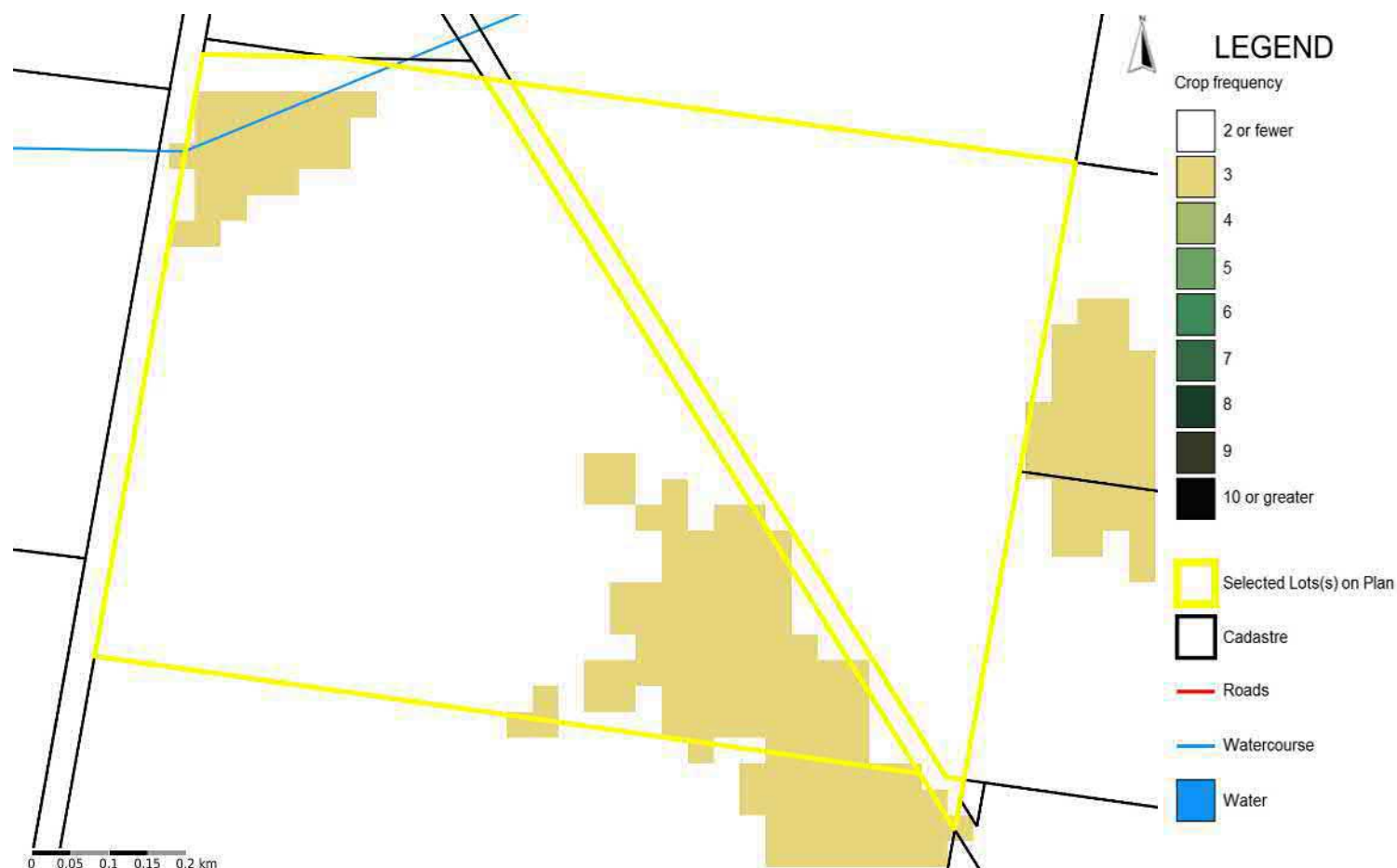
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Limitation of liability: the State of Queensland, as represented by the Department of Environment and Science (DES) gives no warranty in relation to the data (including without limitation, accuracy, reliability, completeness or fitness for a particular purpose). To the maximum extent permitted by applicable law, in no event shall DES be liable for any special, incidental, indirect, or consequential damages whatsoever (including, but not limited to, damages for loss of profits or confidential or other information, for business interruption, for personal injury, for loss of privacy, for failure to meet any duty including of good faith or of reasonable care, for negligence, and for any other pecuniary or other loss whatsoever including, without limitation, legal costs on a solicitor own client basis) arising out of, or in any way related to, the use of or inability to use the data. ©The State of Queensland, 2019.

Introduction

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- Pulse crops (e.g. chickpea).

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

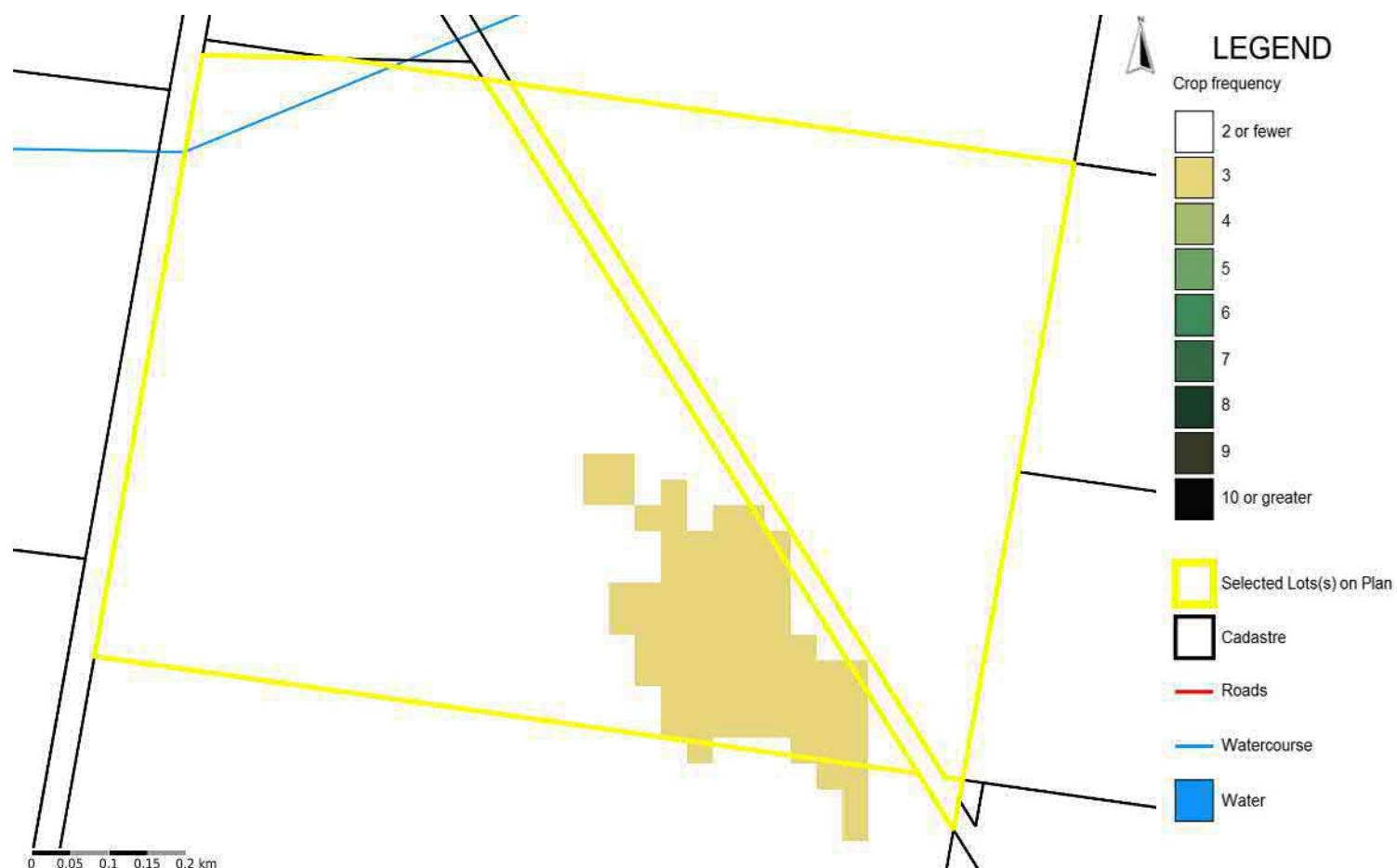
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Label: paddock12

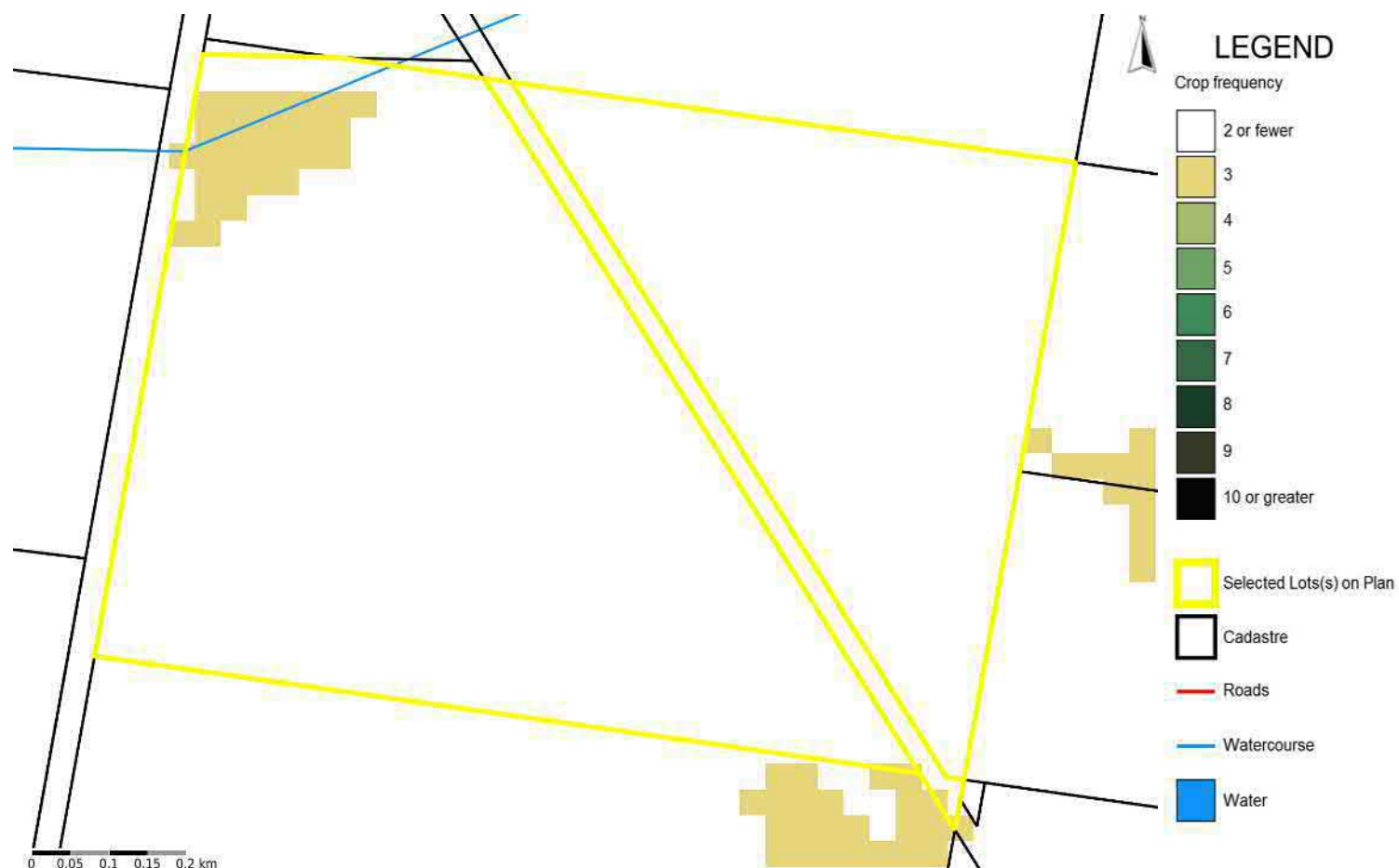


Queensland
Government

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

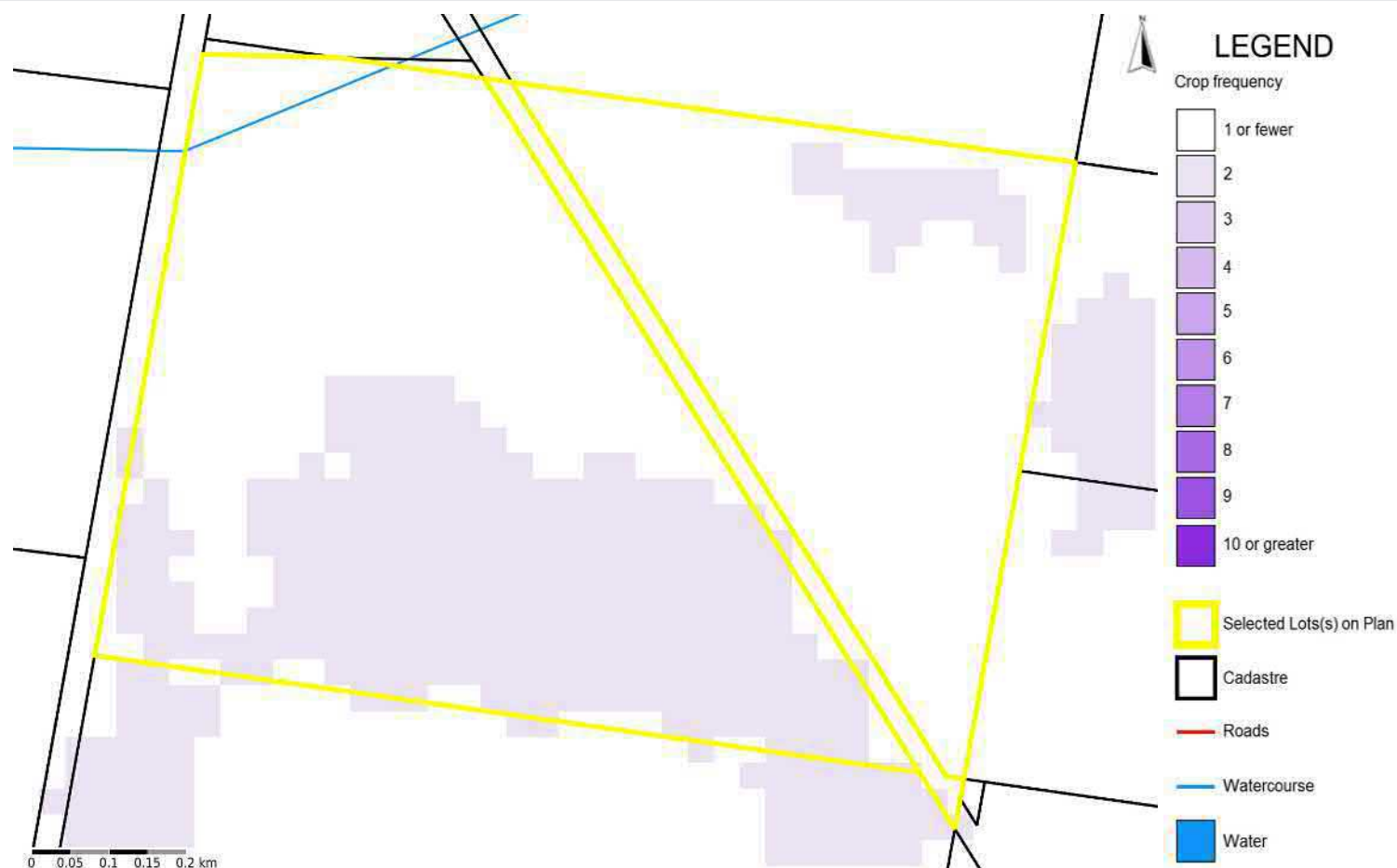
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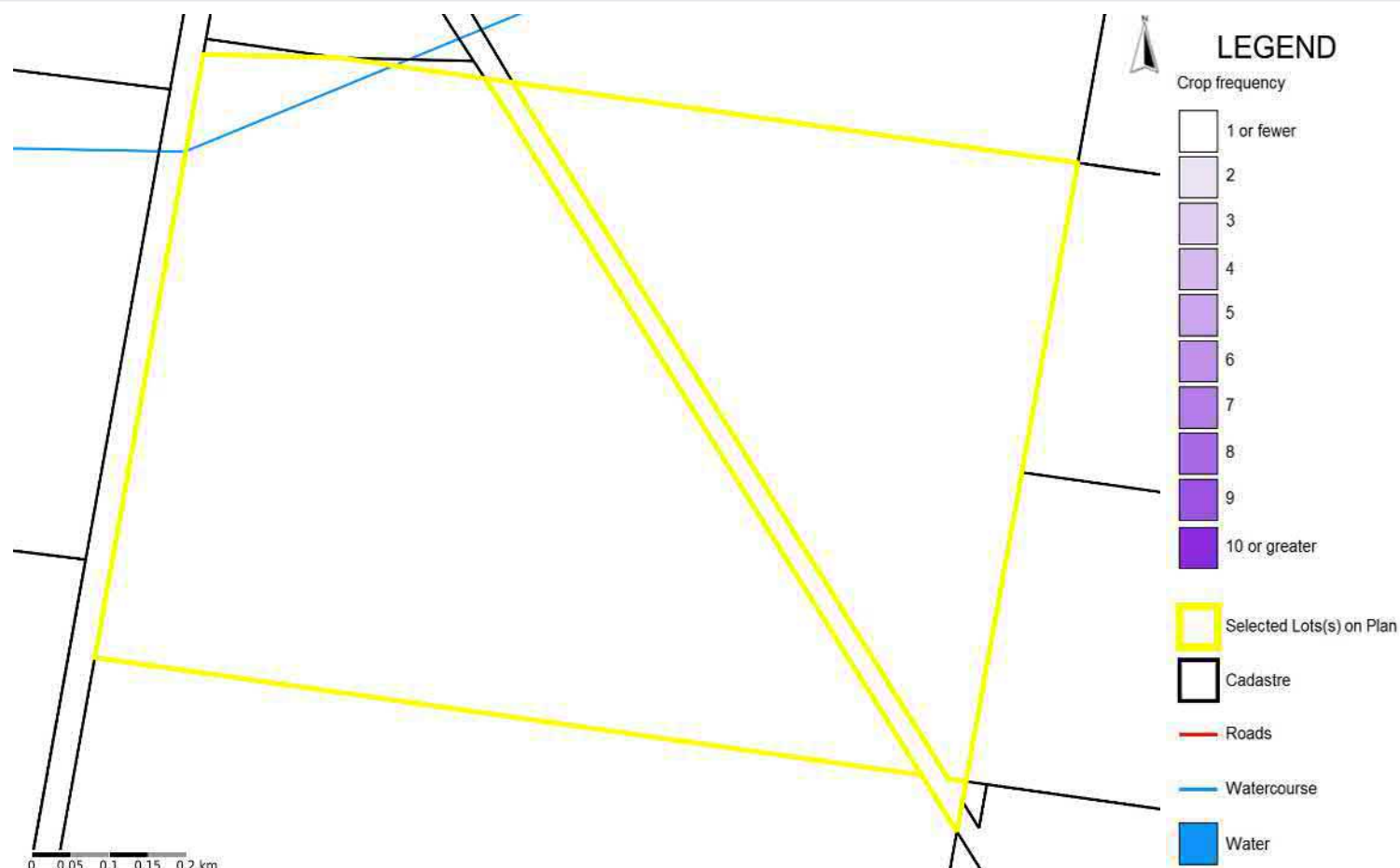


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

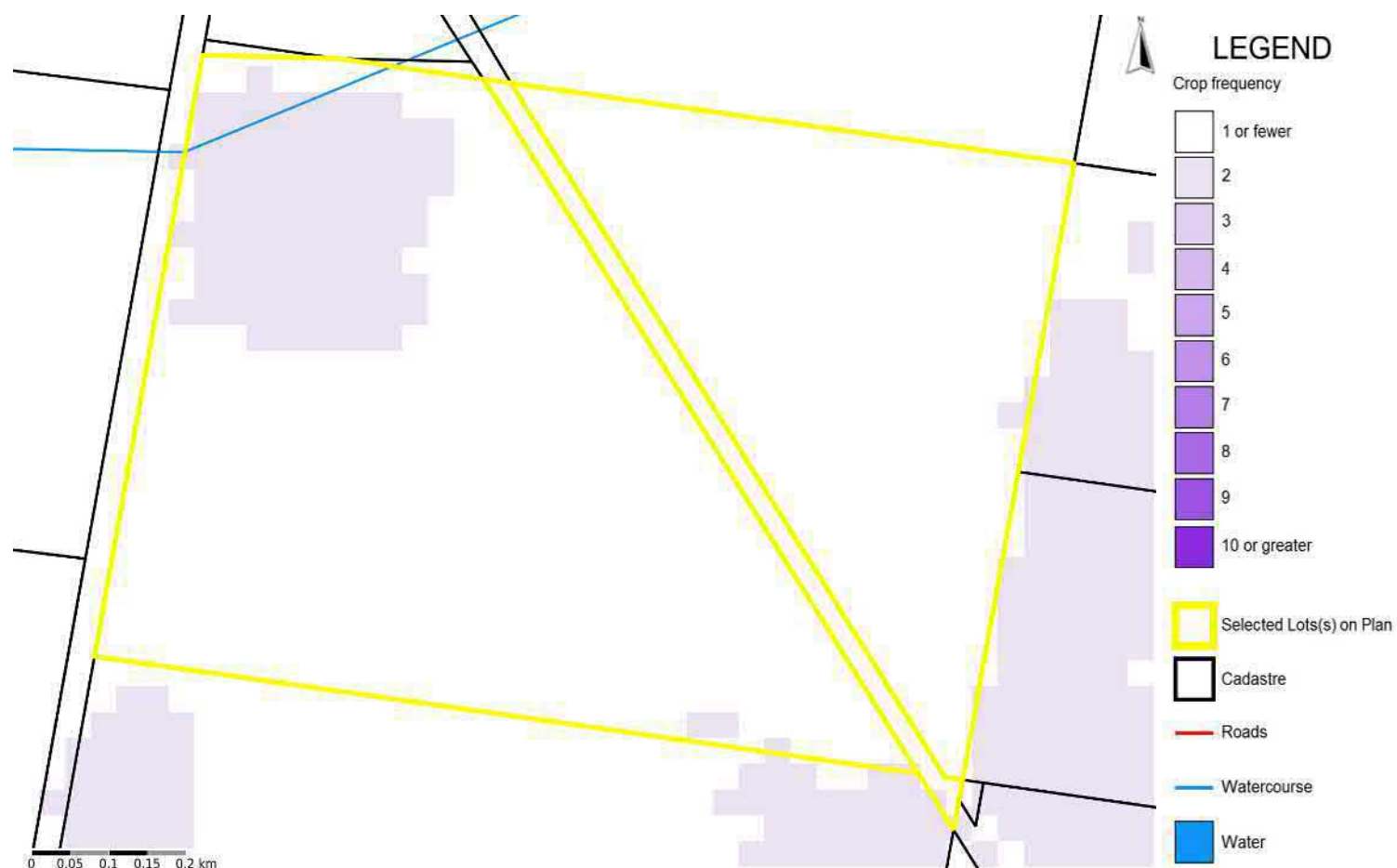
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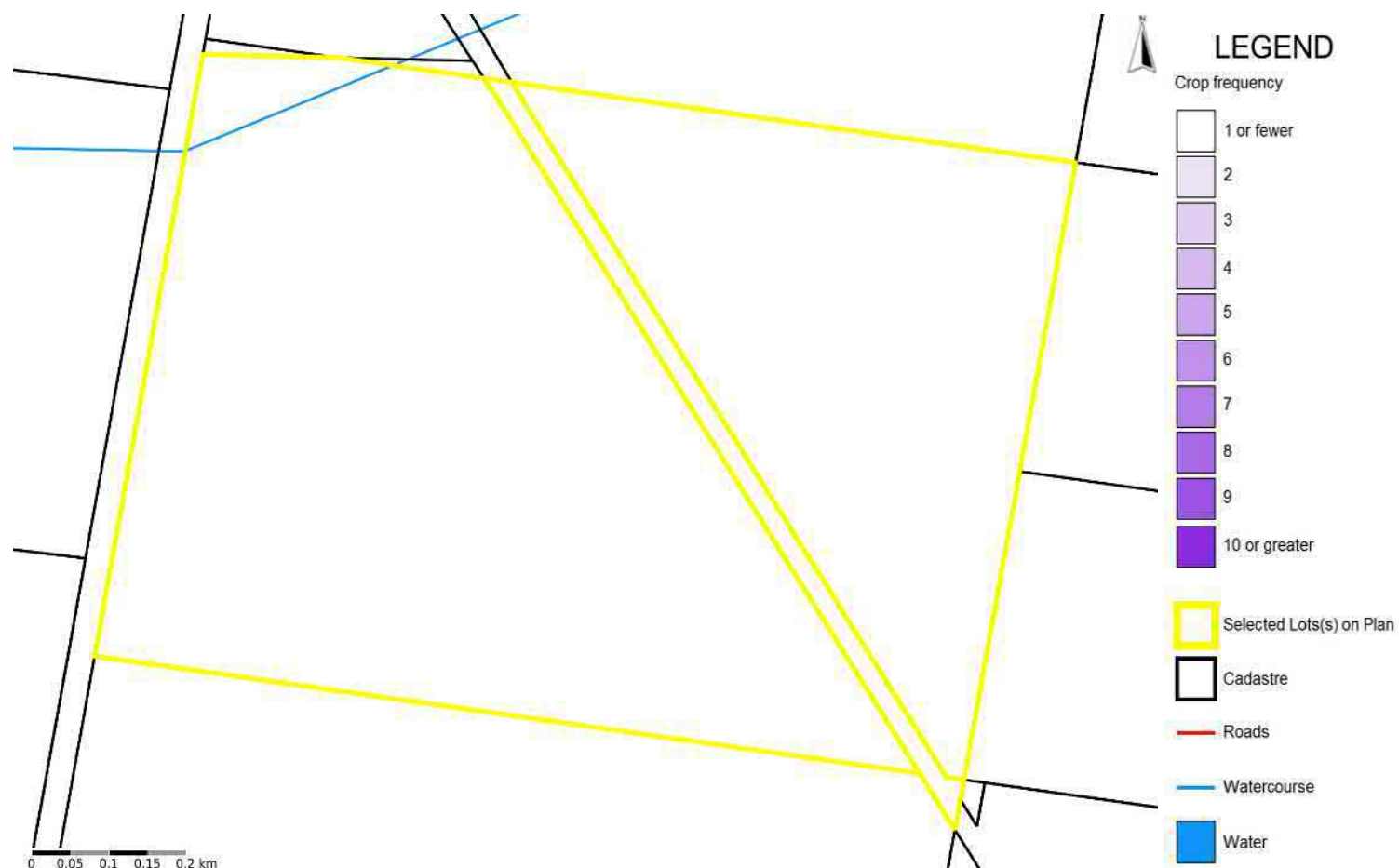


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

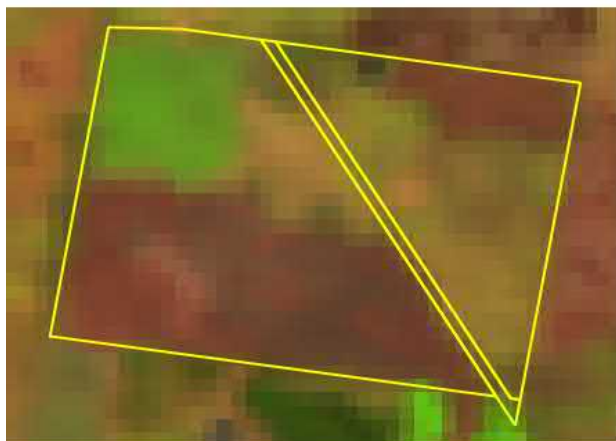
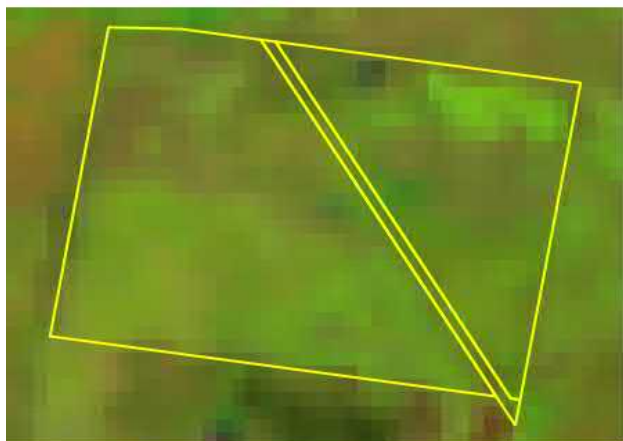
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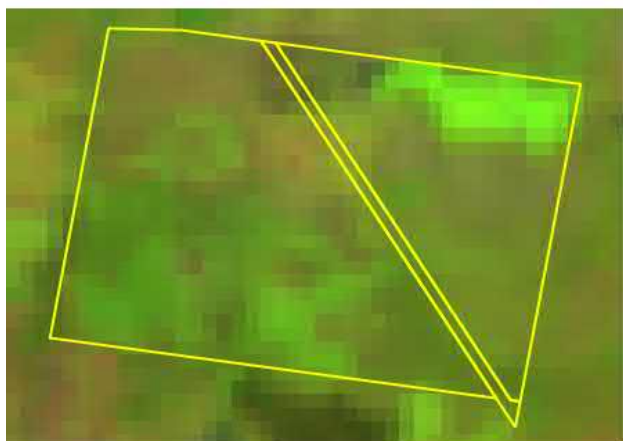


Queensland
Government

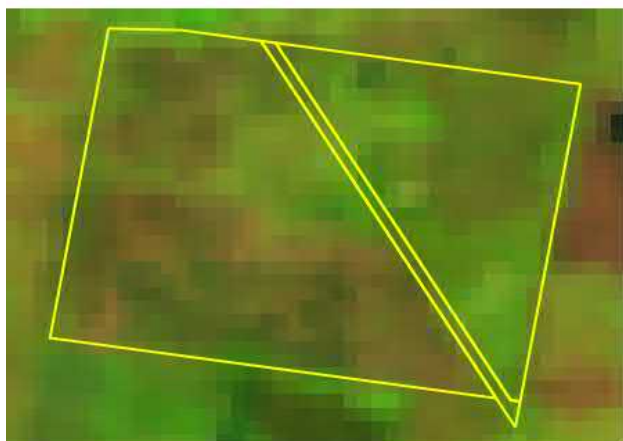
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

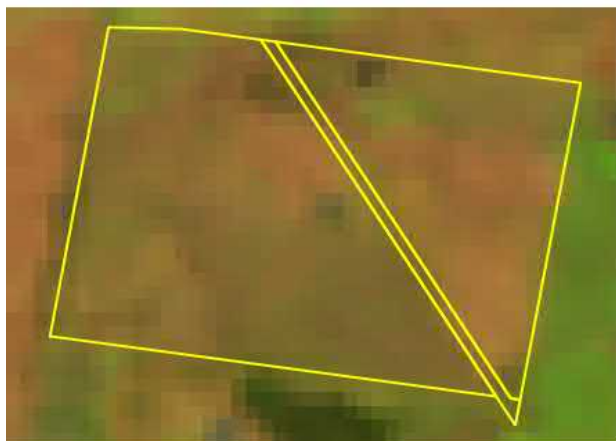
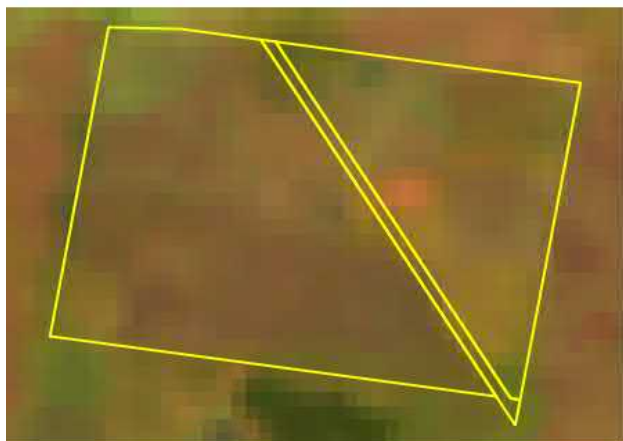
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Label: paddock12

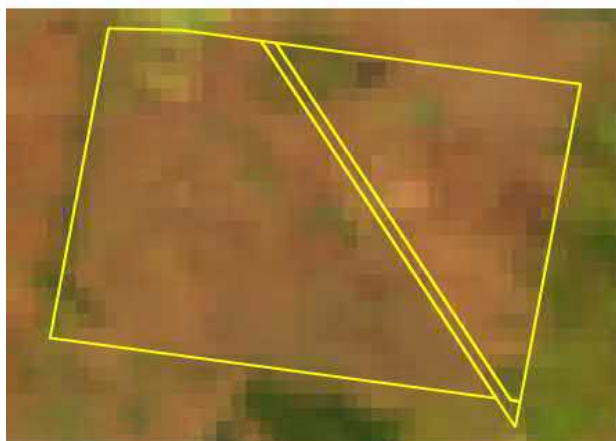
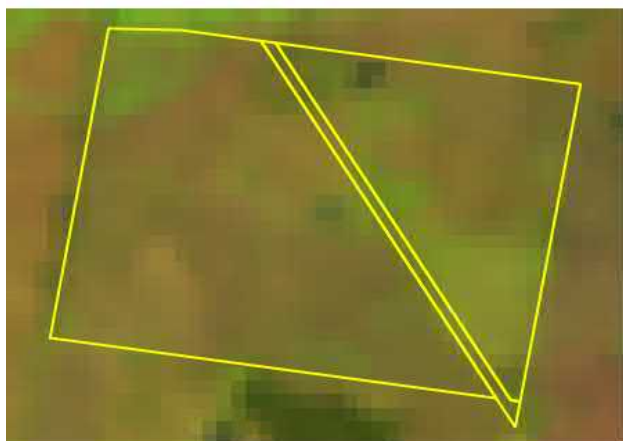


Queensland
Government

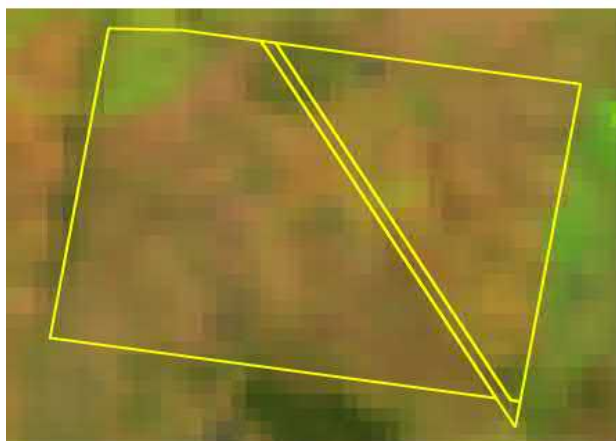
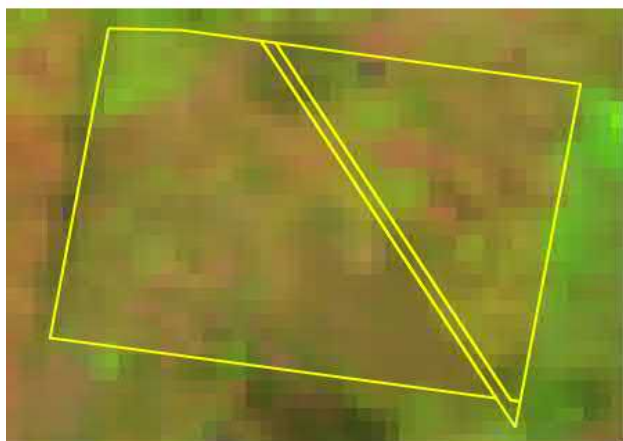
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

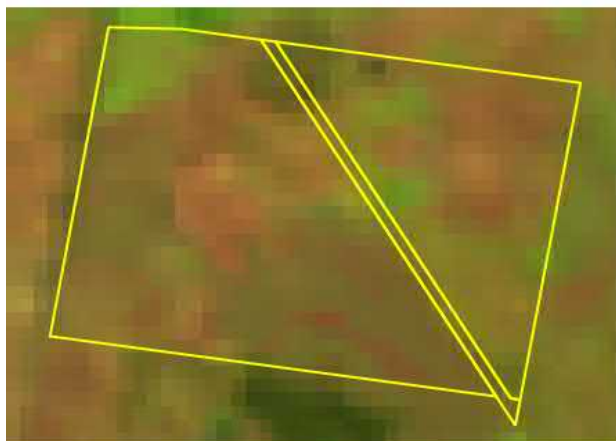
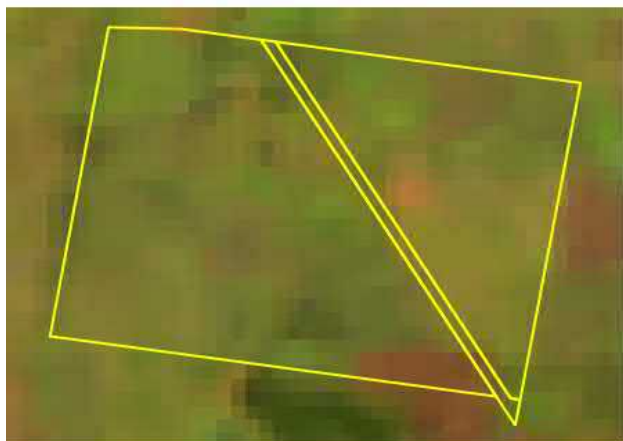
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Label: paddock12

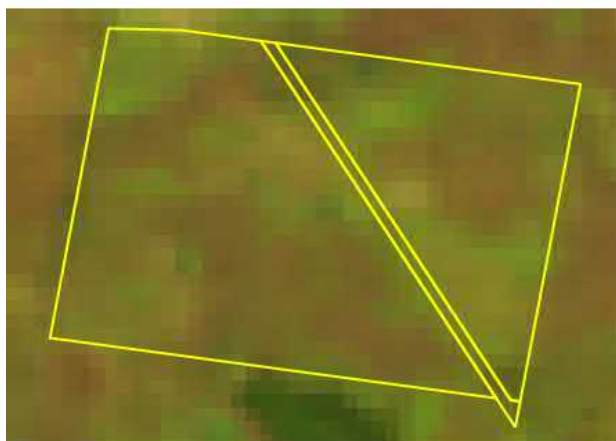
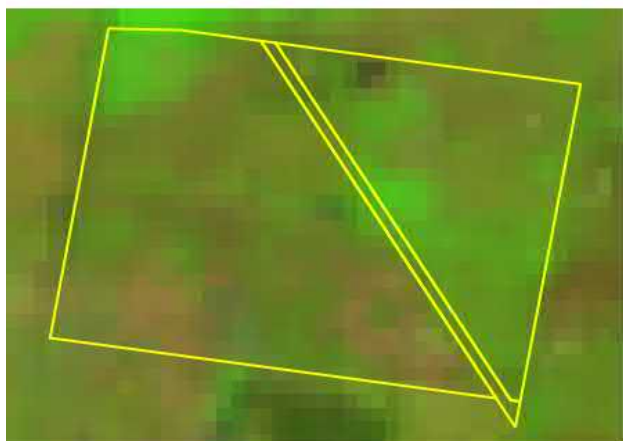


Queensland
Government

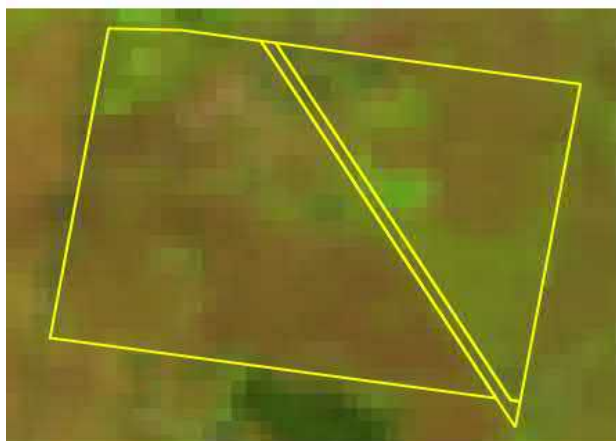
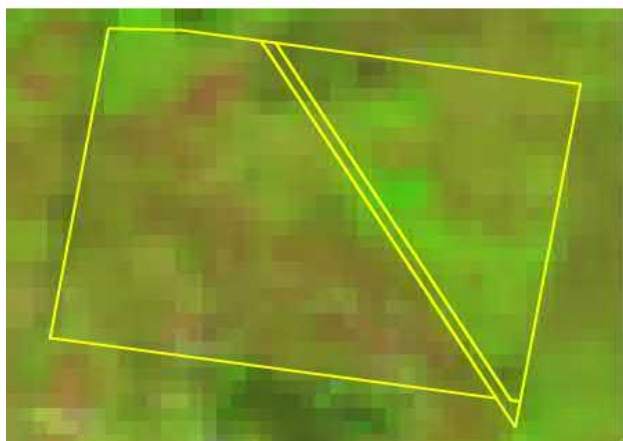
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

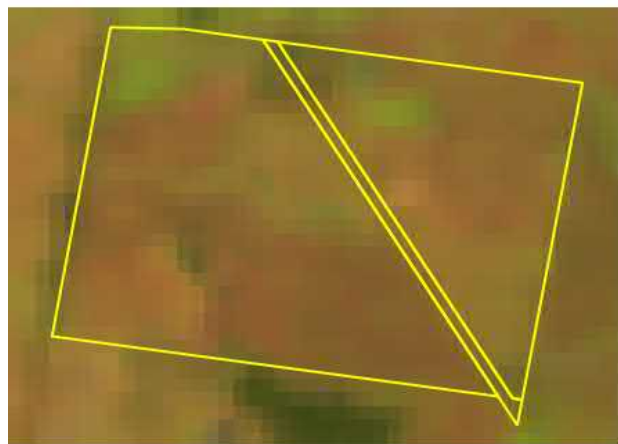
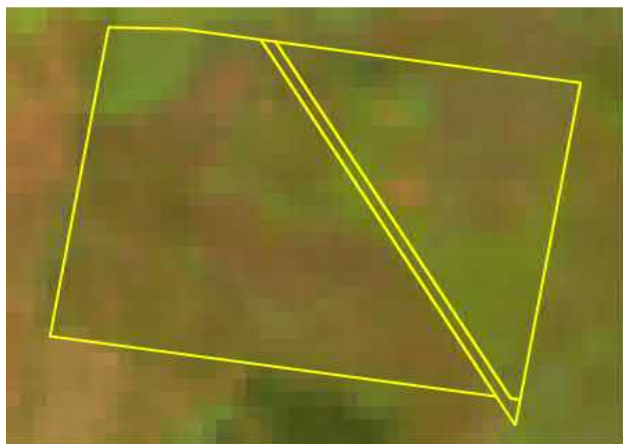
Lot on Plan: 2RP84726,3RP36495,79AG3526

Label: paddock12



Queensland
Government

February (left) and September (right) images for 2018



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APPENDIX C3

Manning Vale West

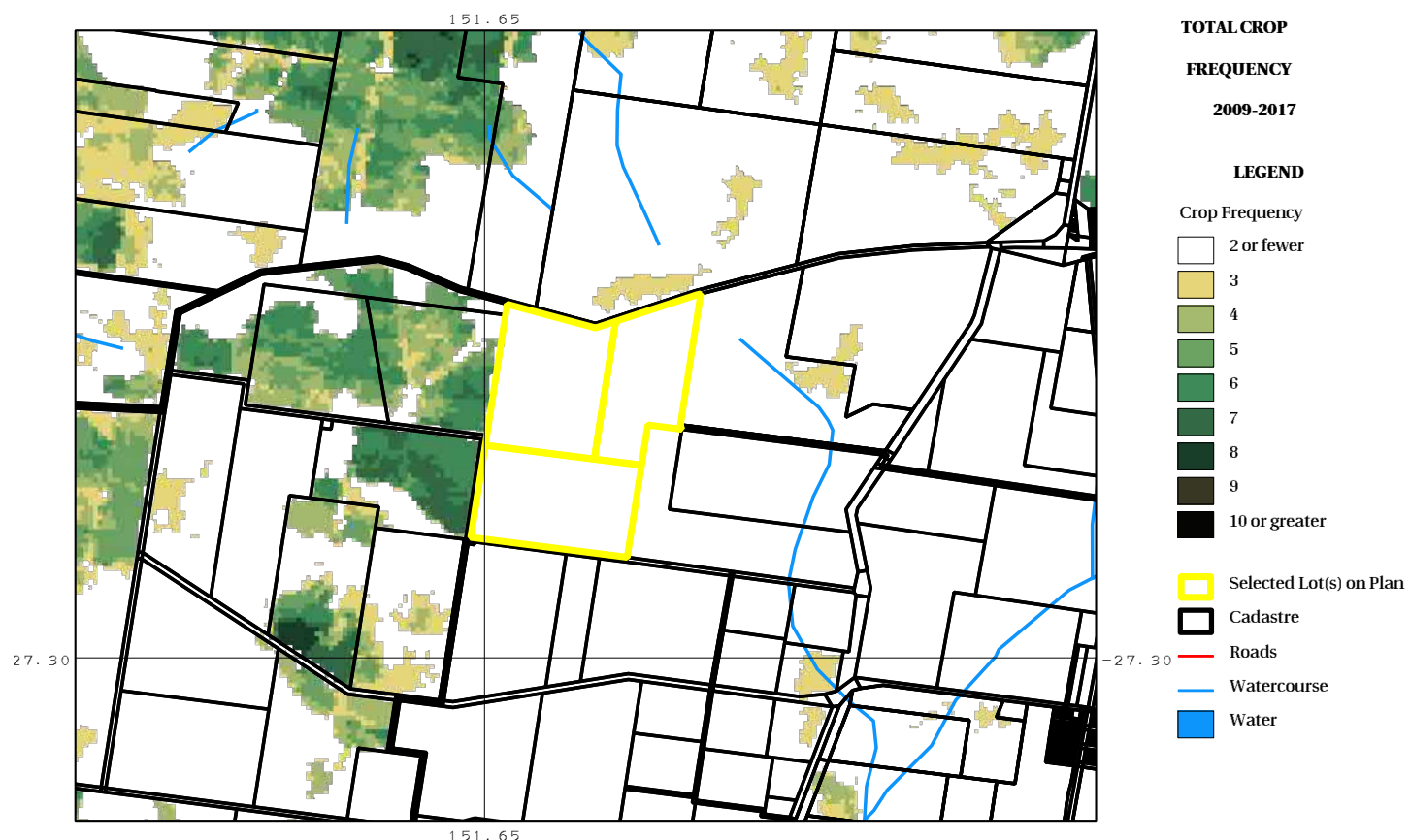


Forage Crop Frequency

Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3473AG2388,3873AG2388,3472A34174 etc.

Label: paddock17

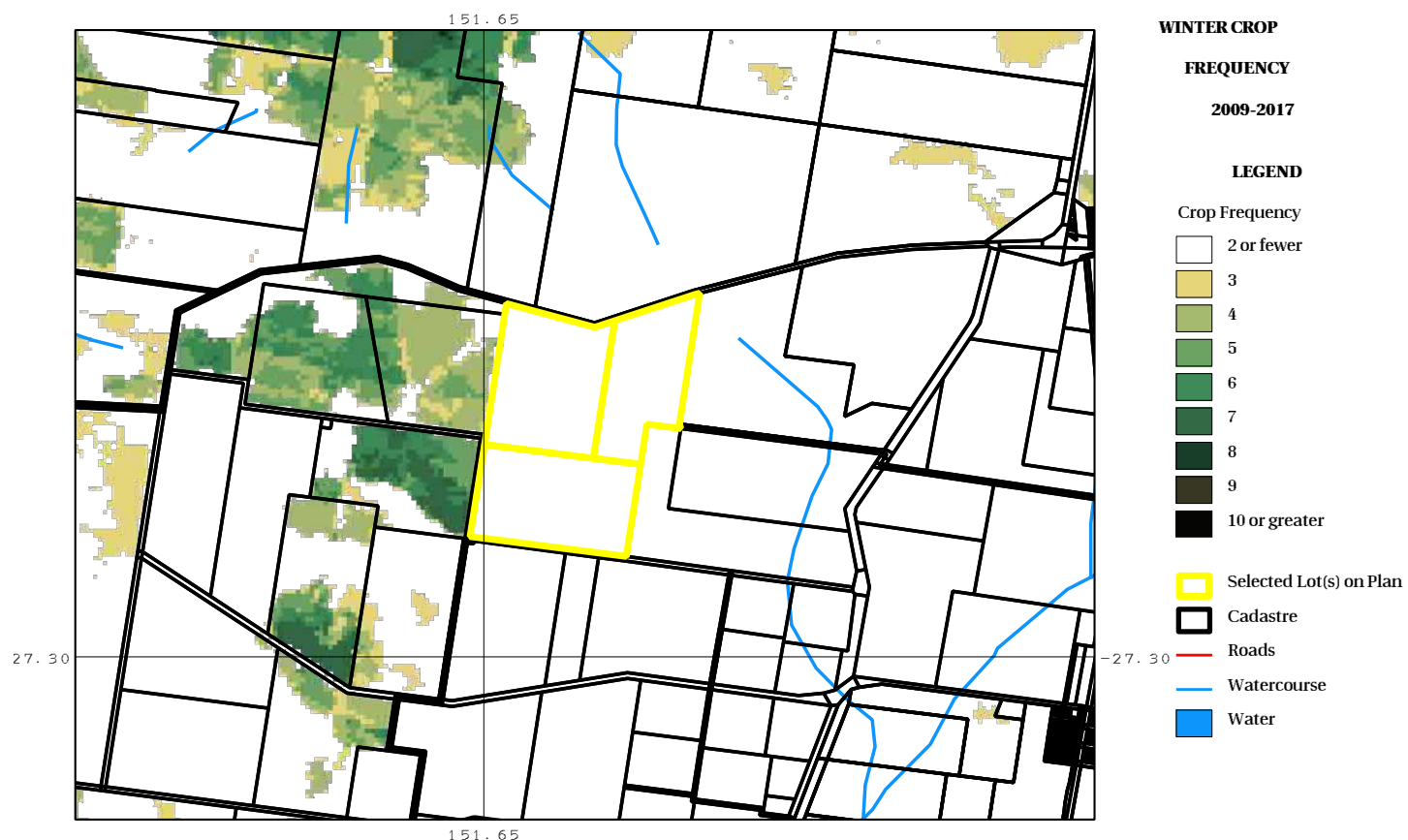


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

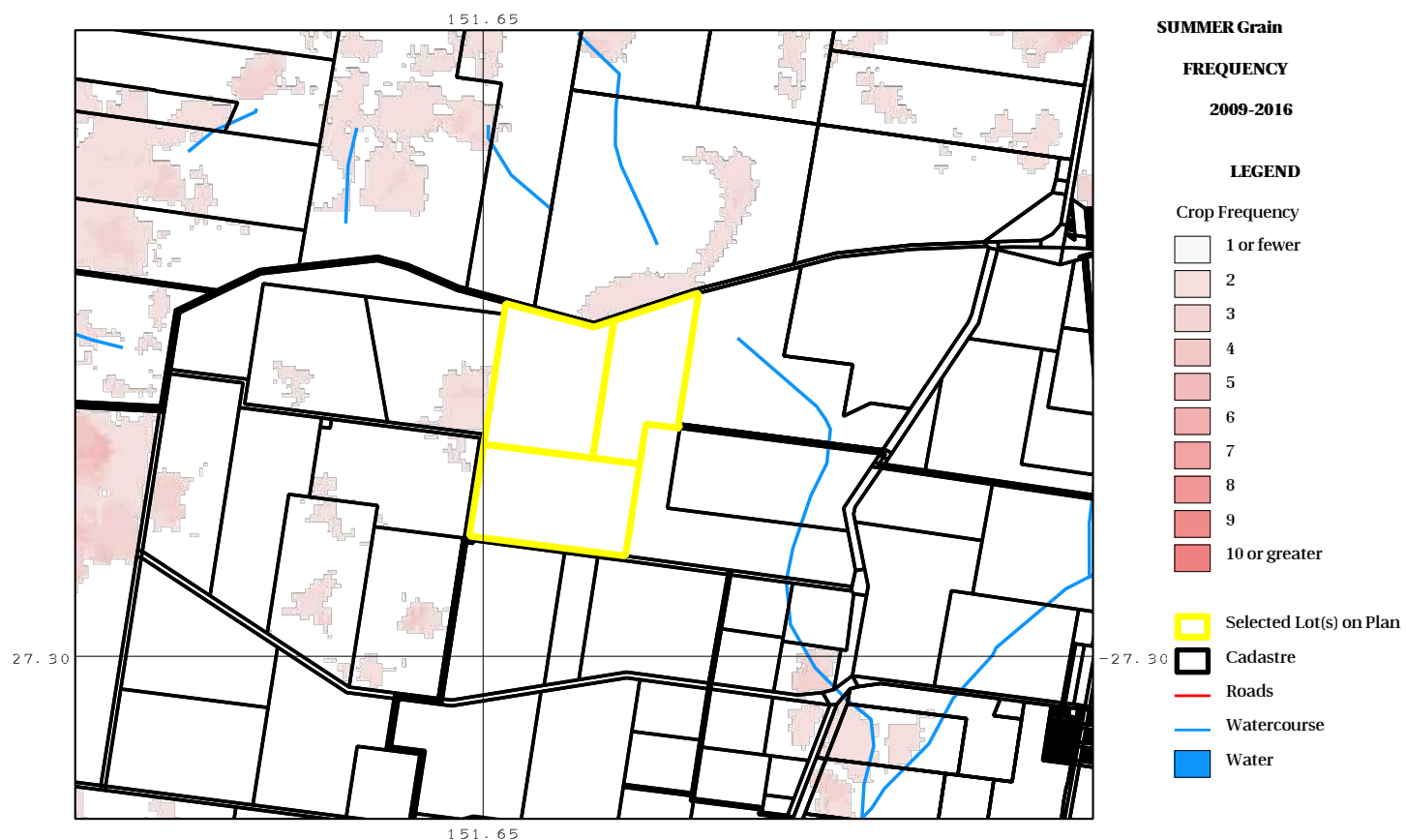
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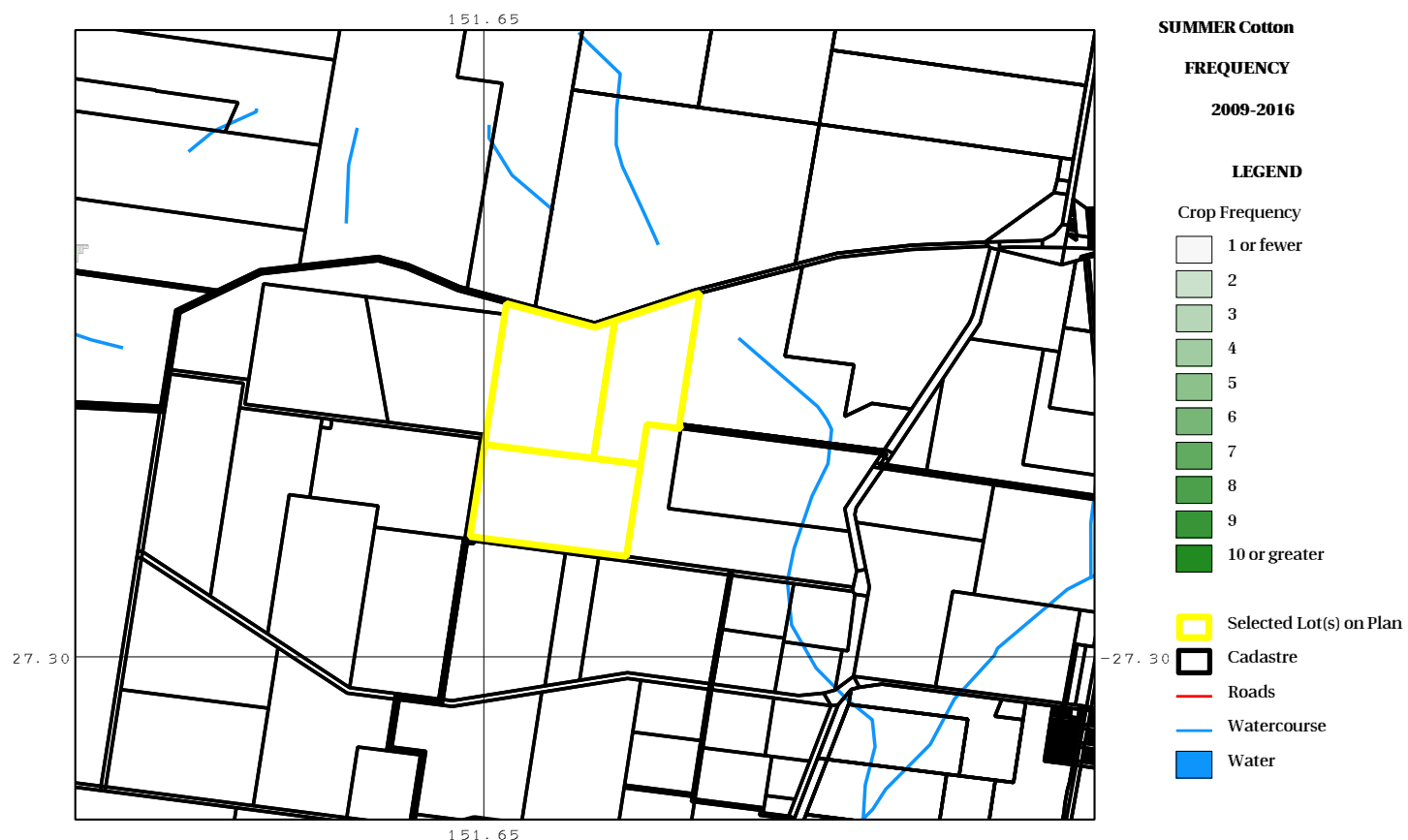


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

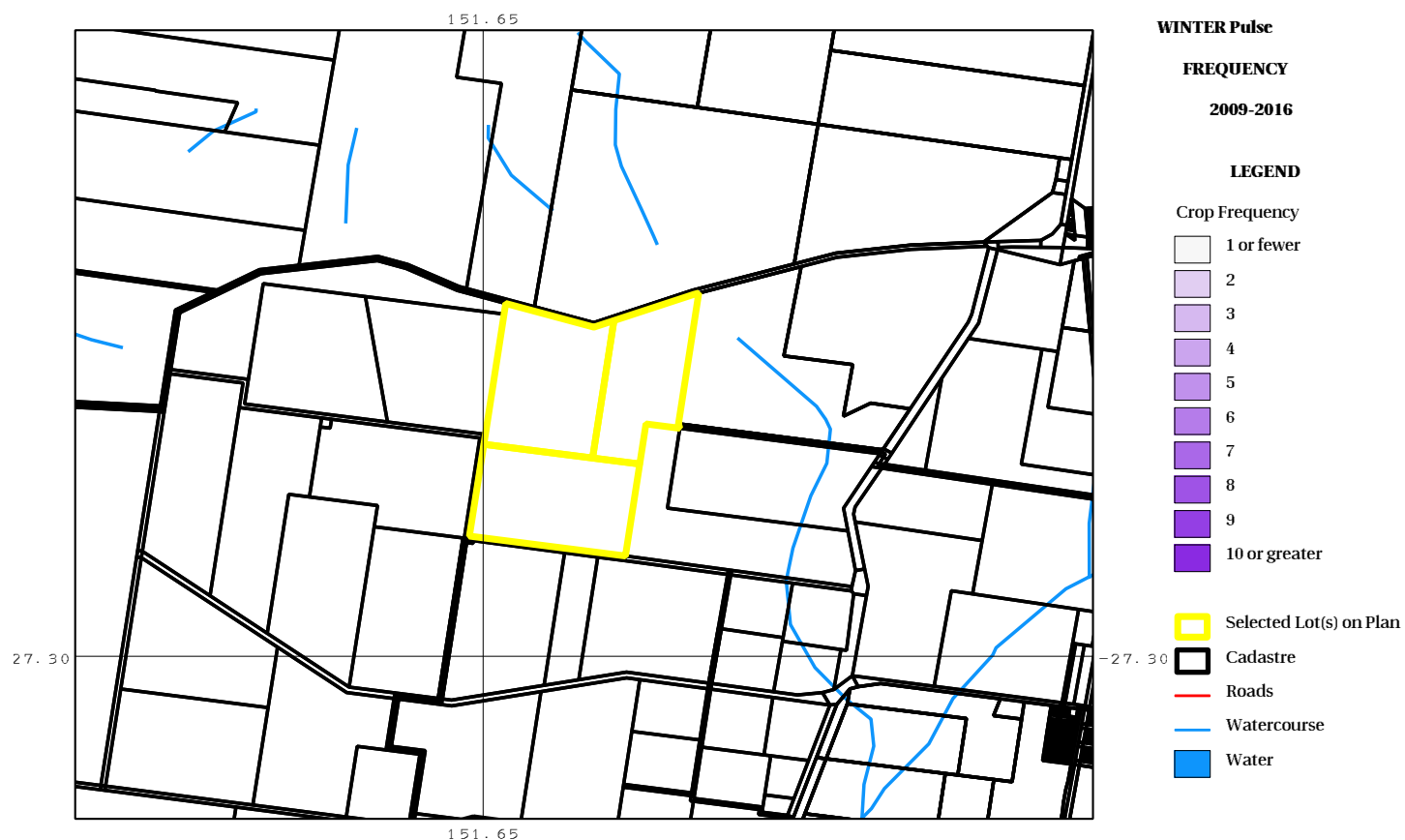
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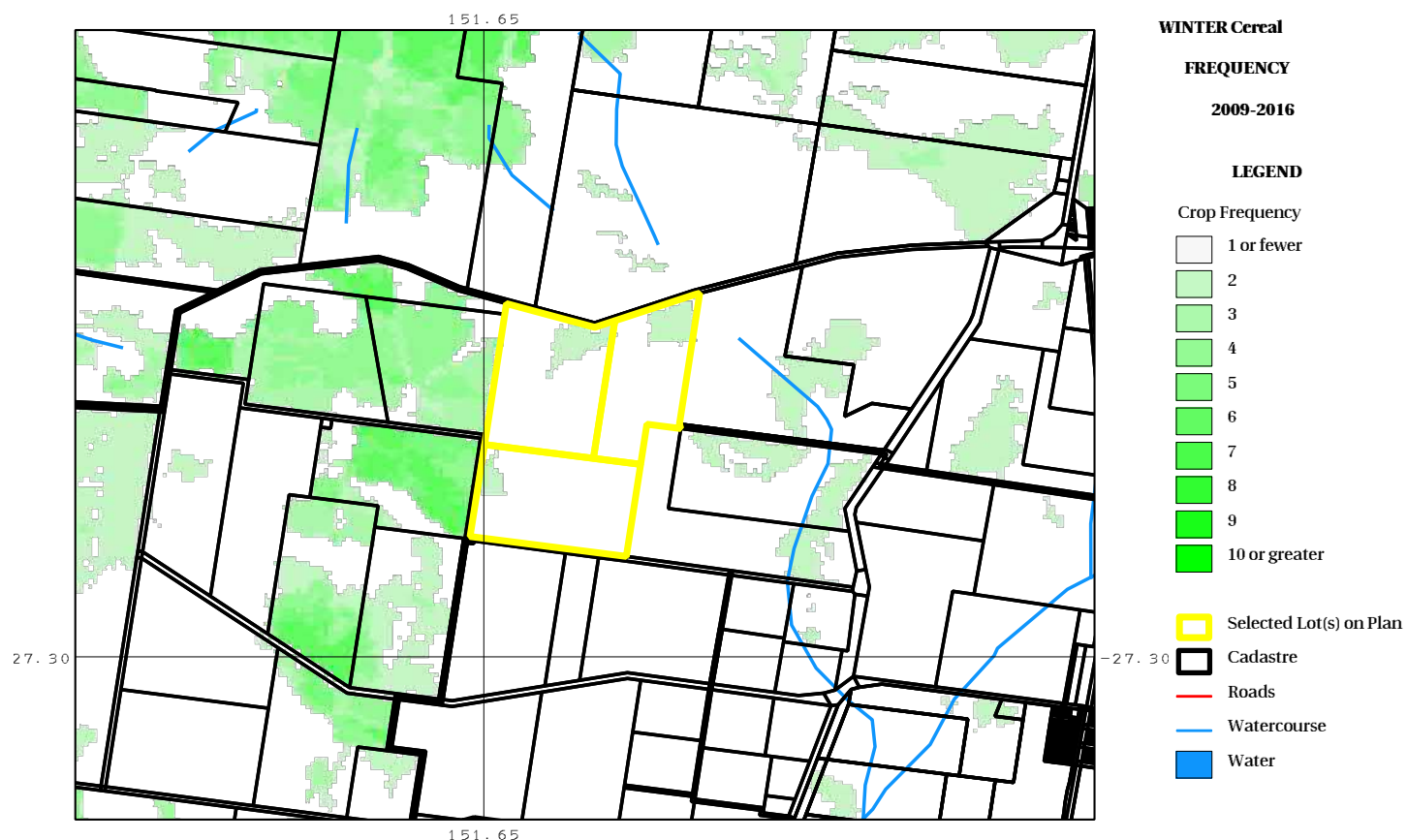


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3473AG2388,3873AG2388,3472A34174 etc.

Label: paddock17



Queensland
Government

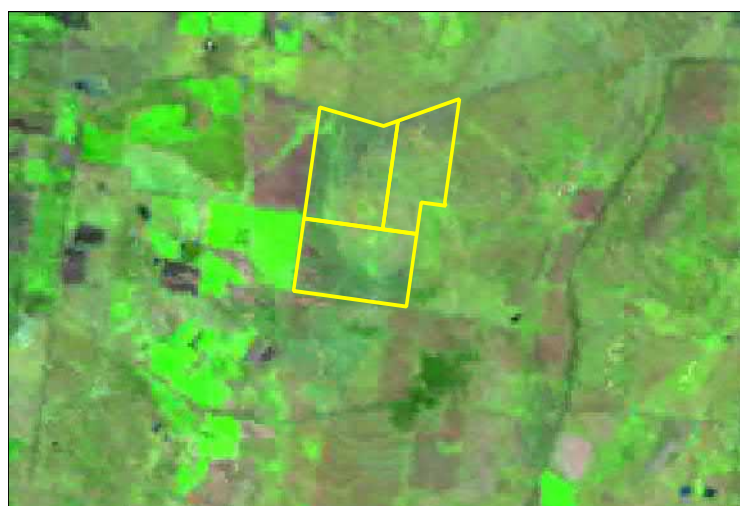
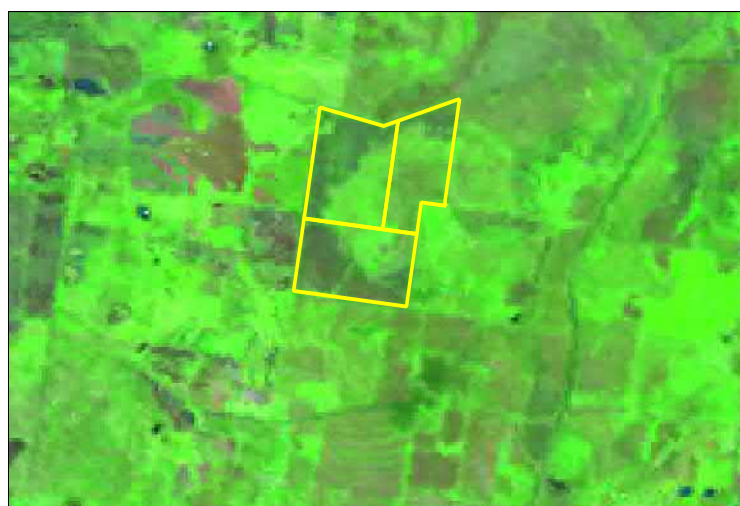
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

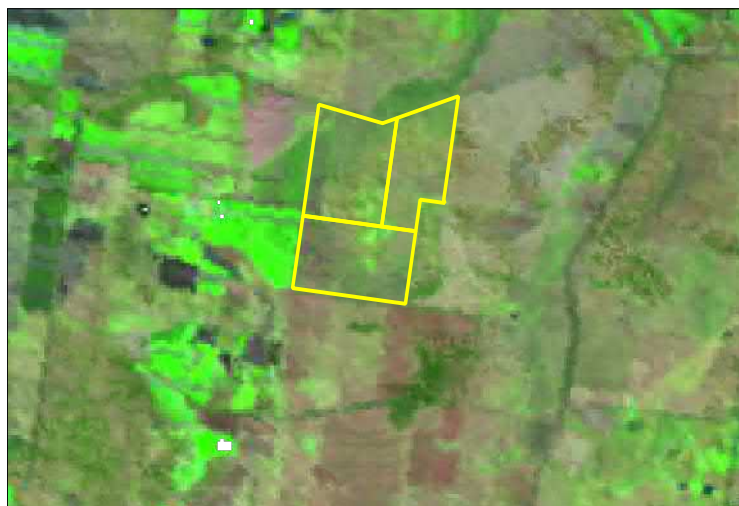
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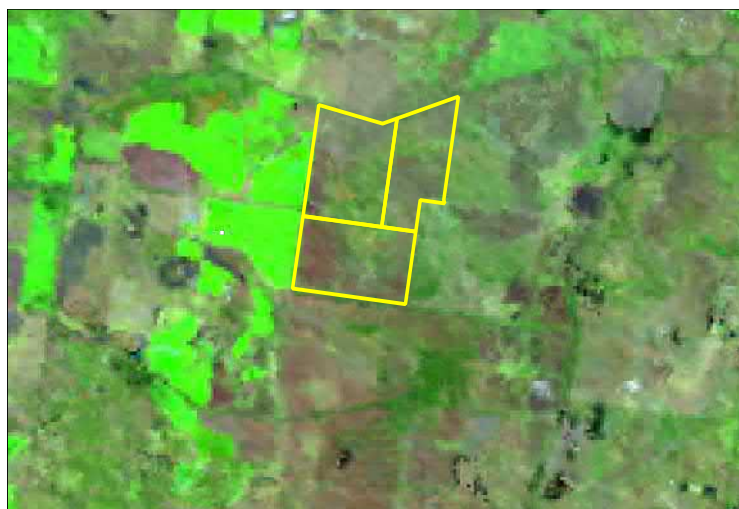


Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

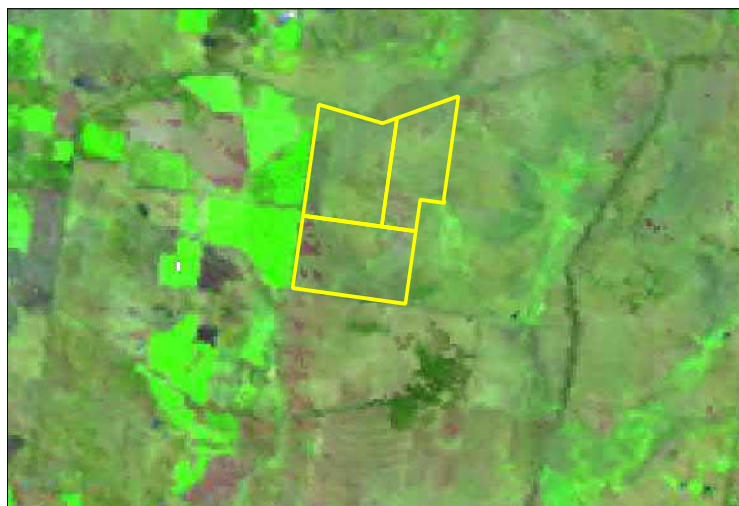
Lot on Plan: 3473AG2388,3873AG2388,3472A34174 etc.

Label: paddock17



Queensland
Government

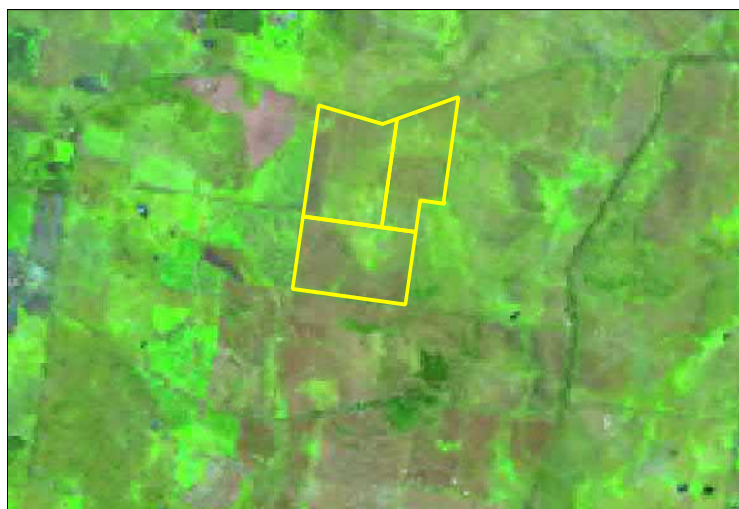
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3473AG2388,3873AG2388,3472A34174 etc.

Label: paddock17



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

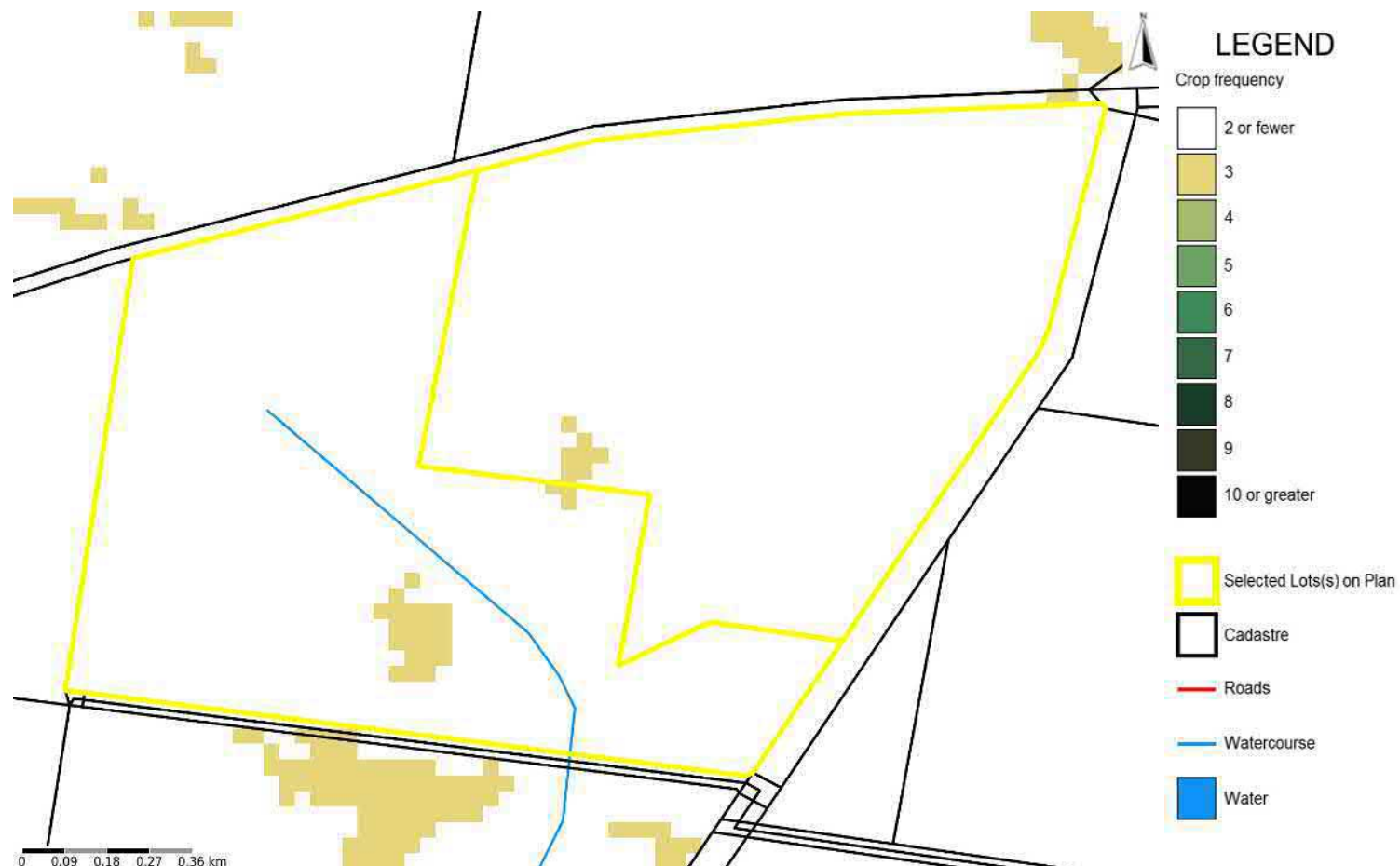
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

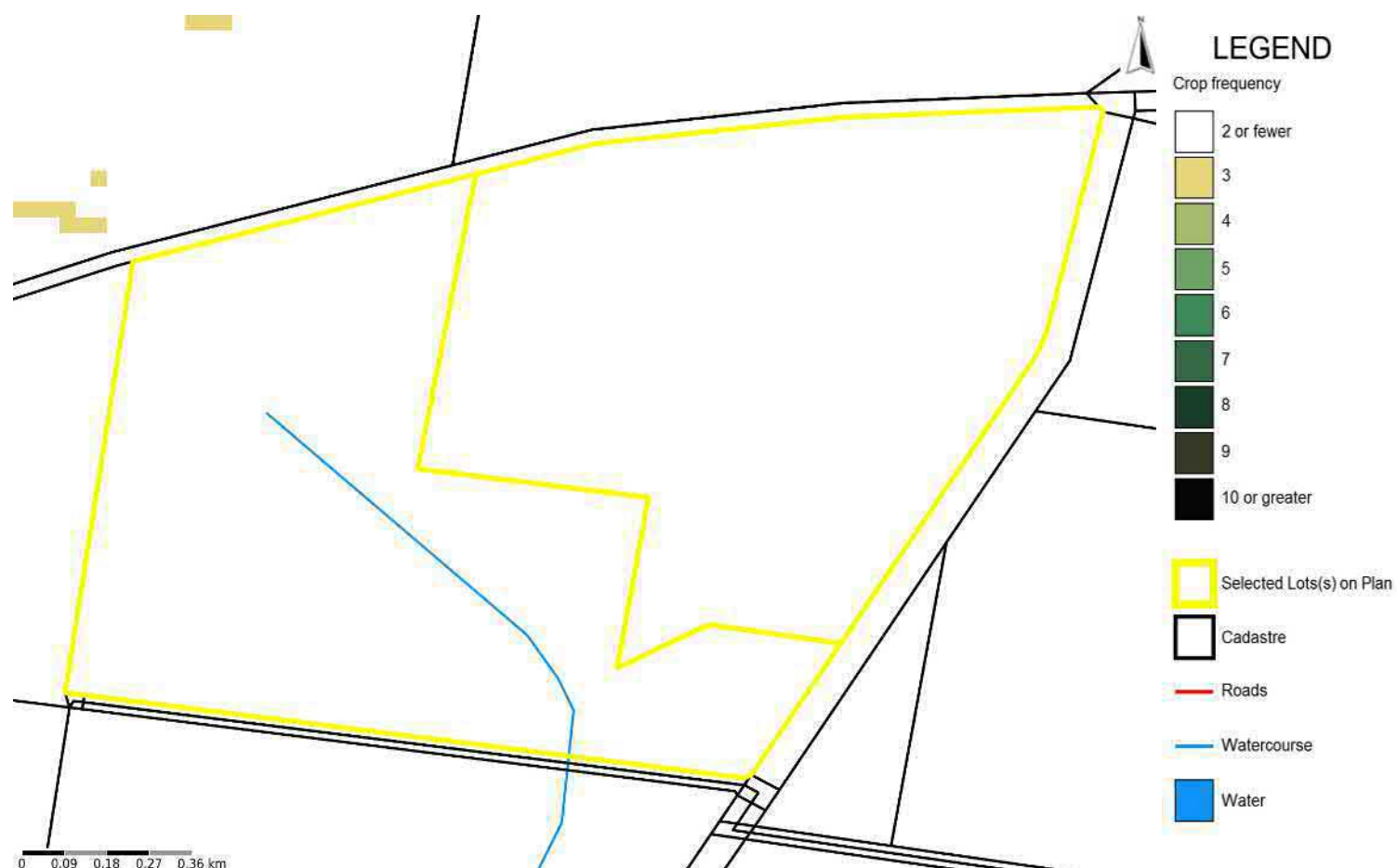
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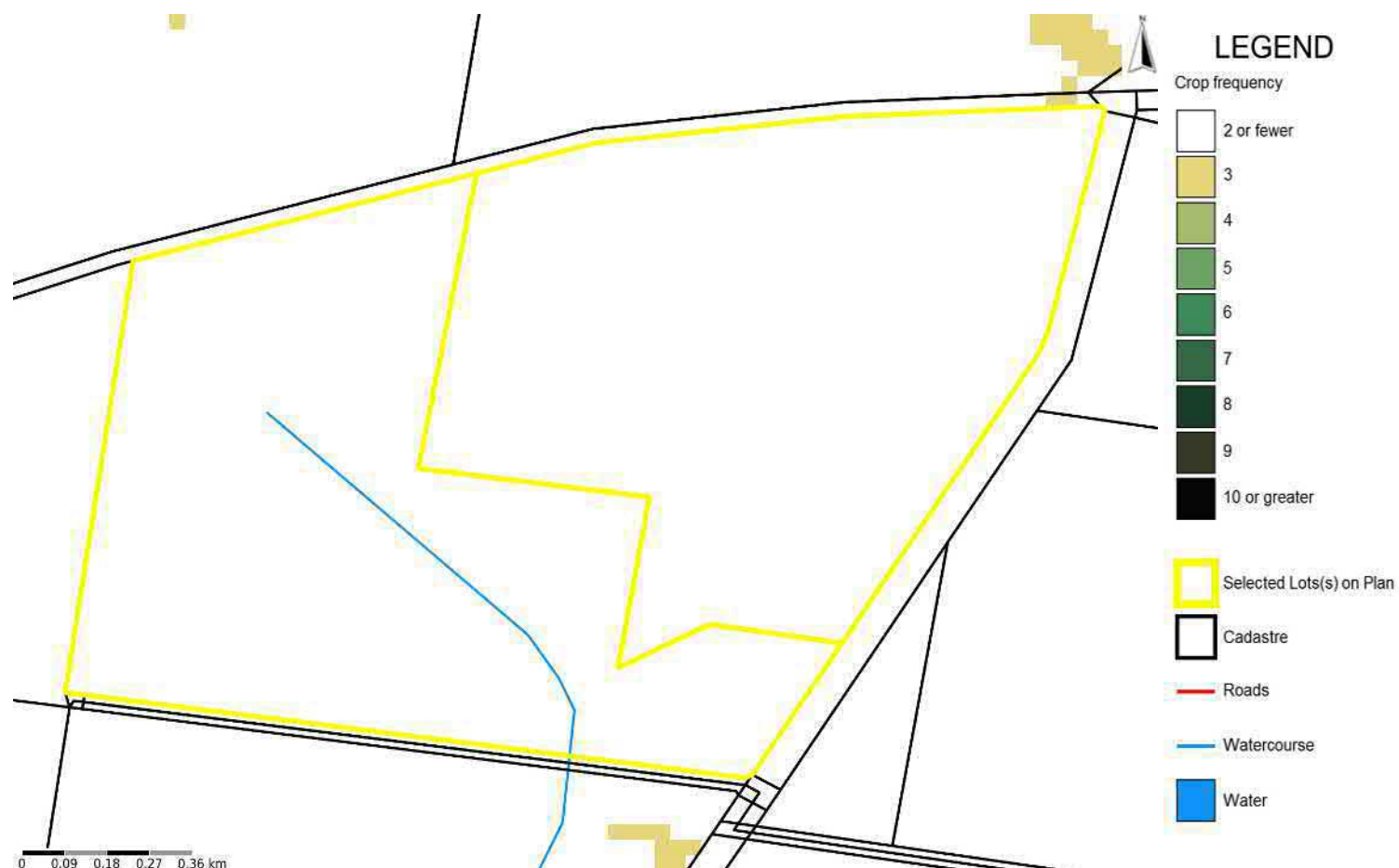


Queensland
Government

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

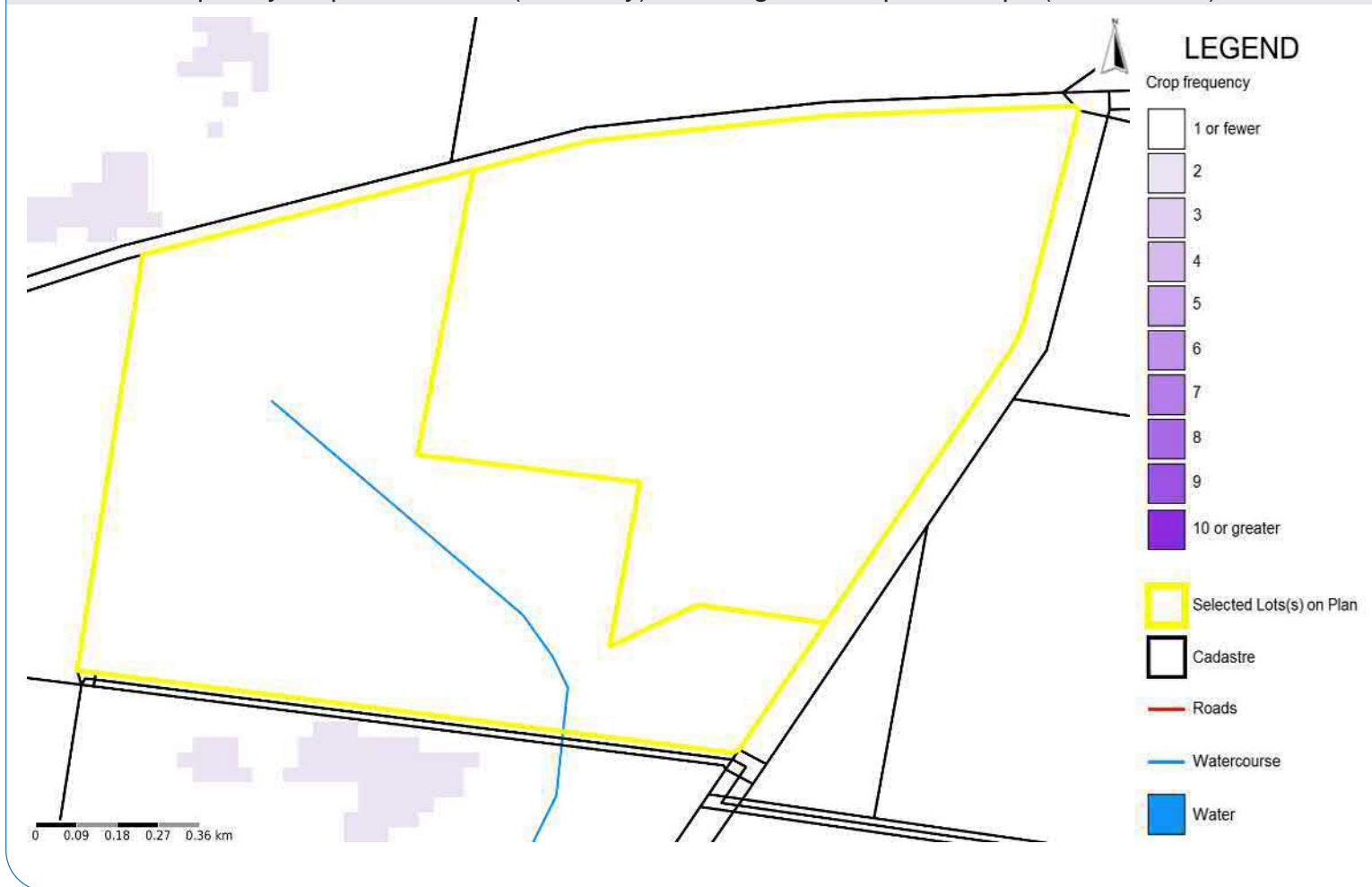
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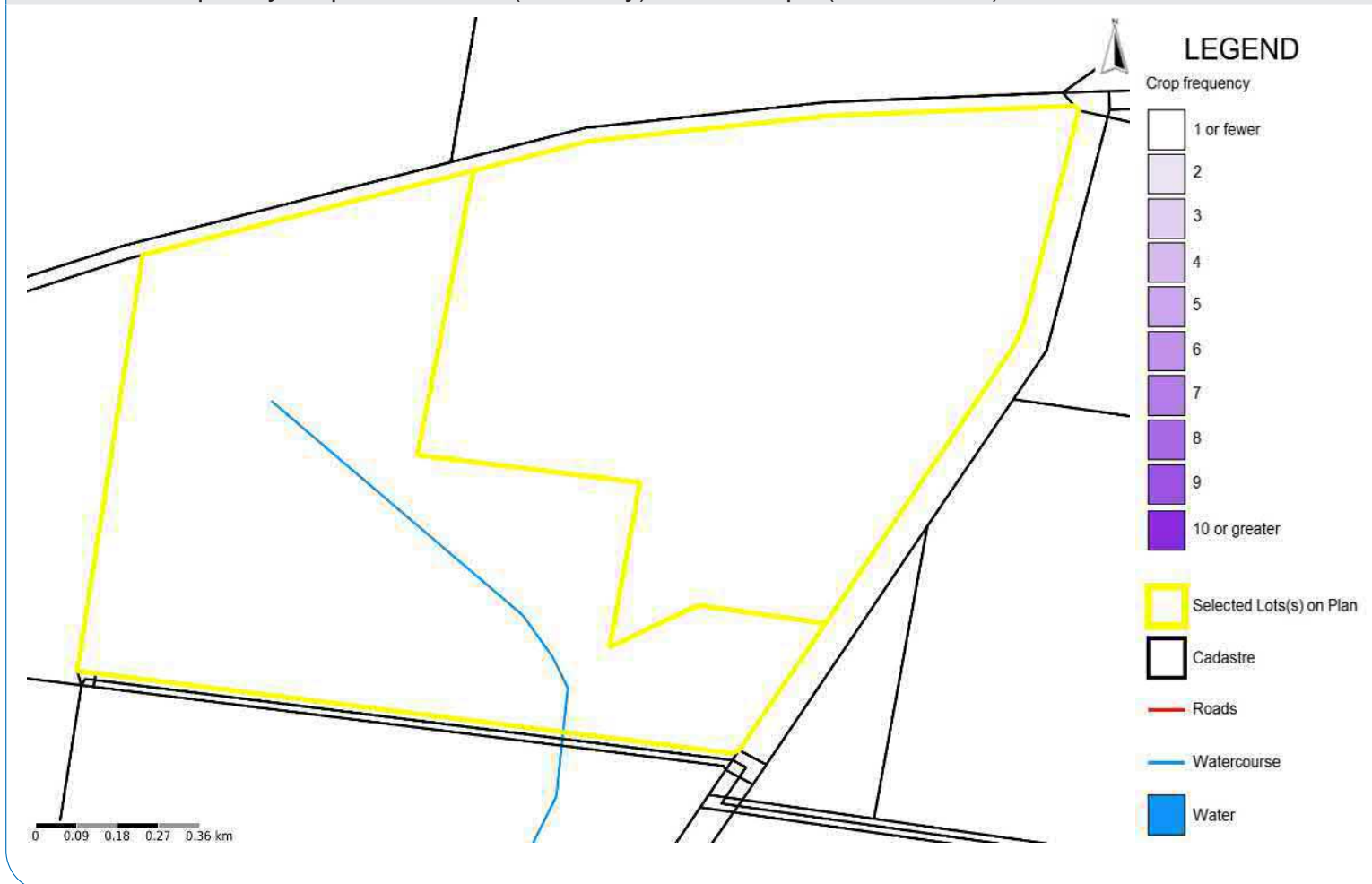


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

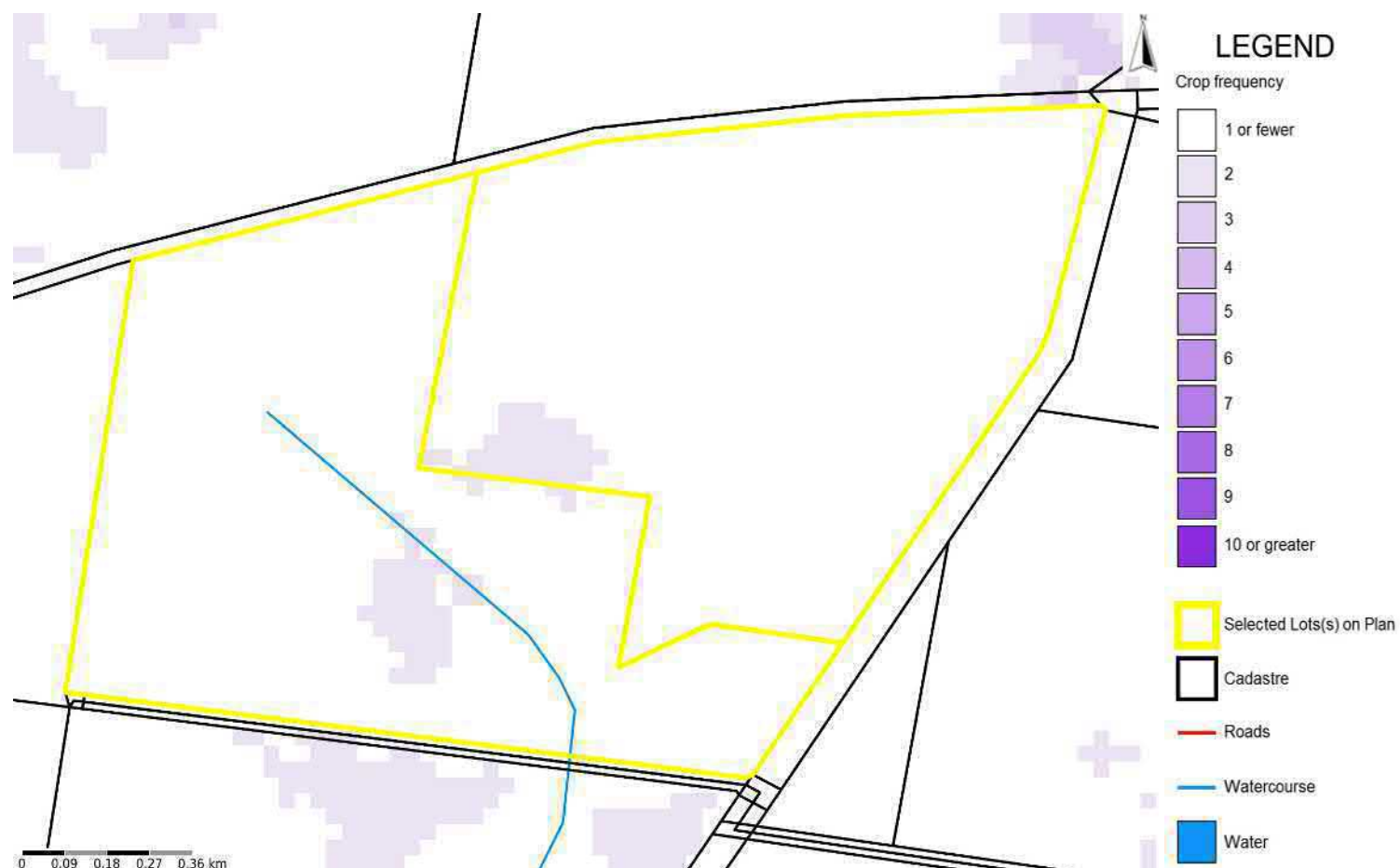
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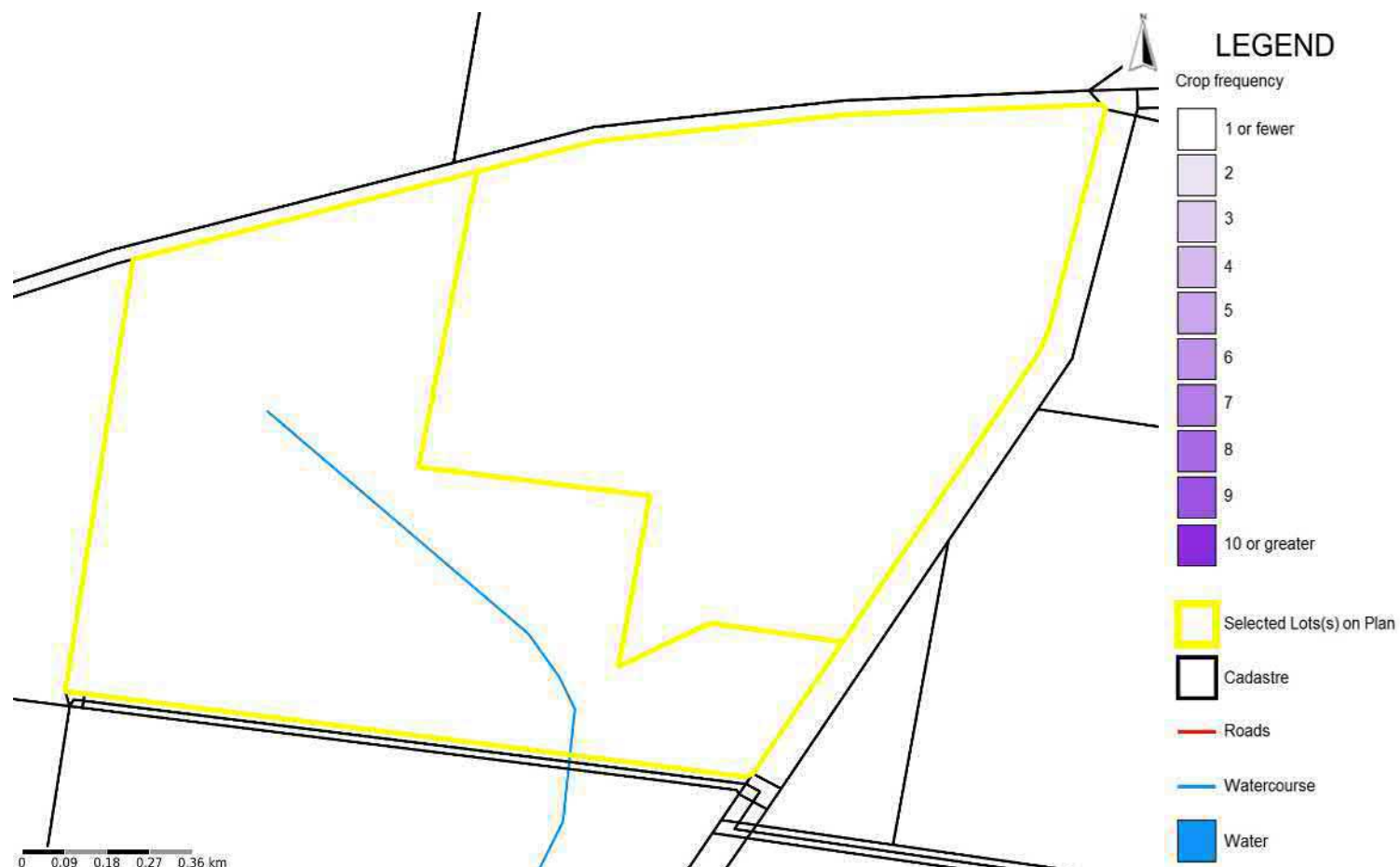


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1AG2605,2AG2605

Label: paddock18

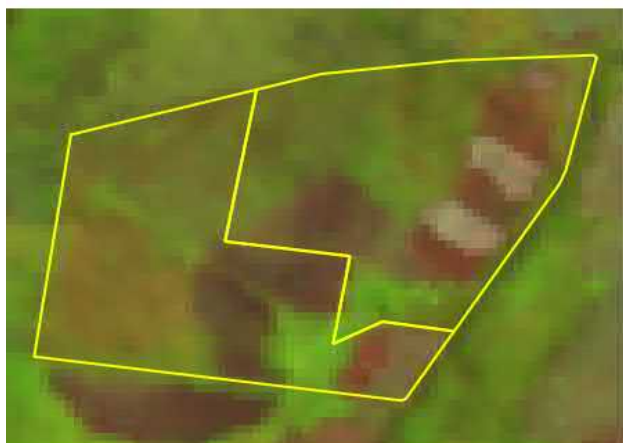


Queensland
Government

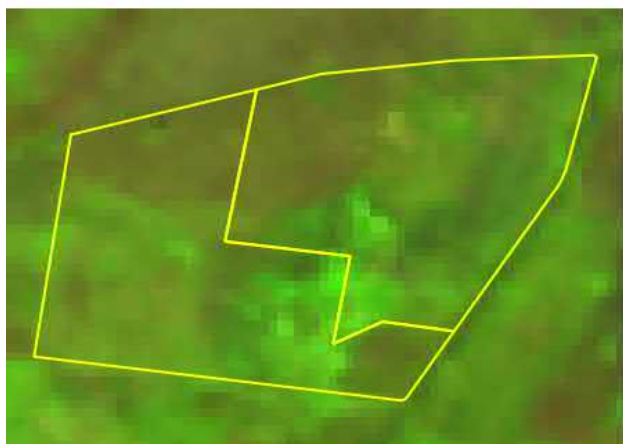
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

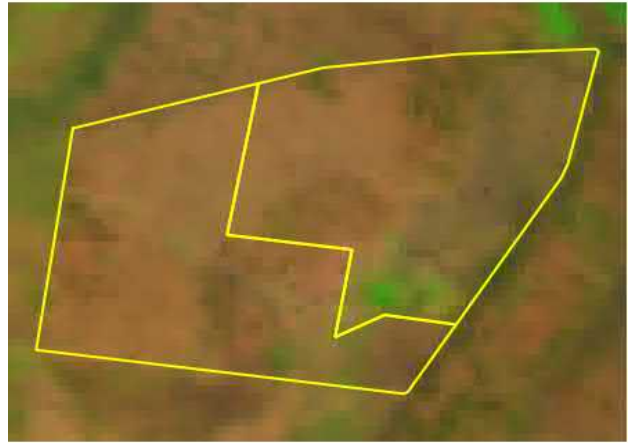
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Label: paddock18



Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1AG2605,2AG2605

Label: paddock18

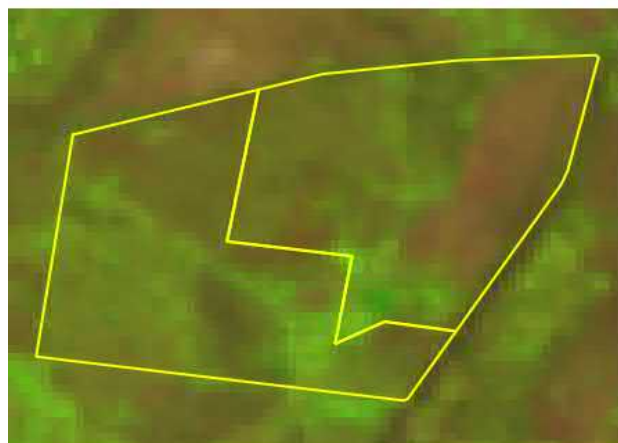


Queensland
Government

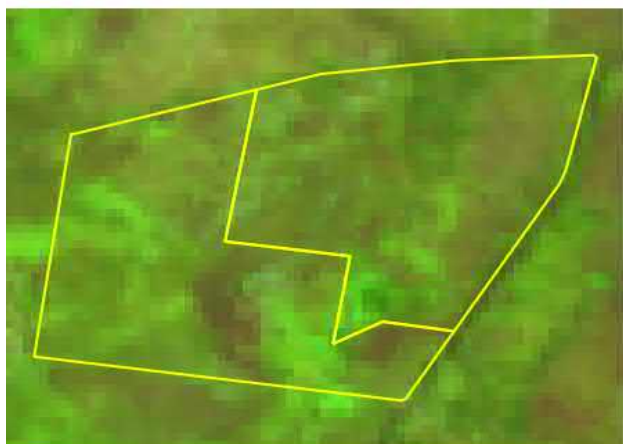
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 17, 2019

Lot on Plan: 1AG2605,2AG2605

Label: paddock18



Queensland
Government

February (left) and September (right) images for 2018



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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

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Label: paddock20

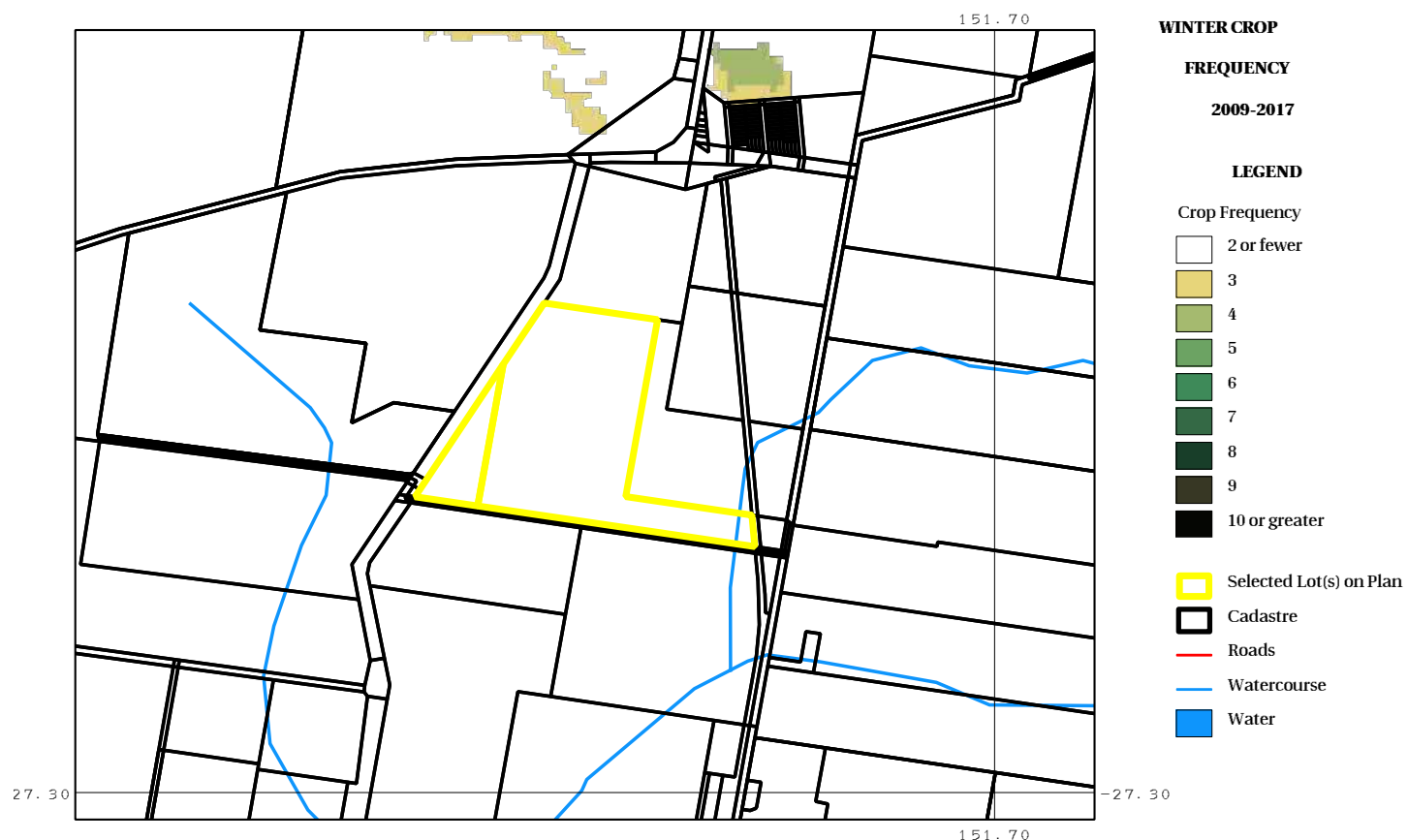


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

Lot on Plan: 92A341981,3RP36466

Label: paddock20



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

Lot on Plan: 92A341981,3RP36466

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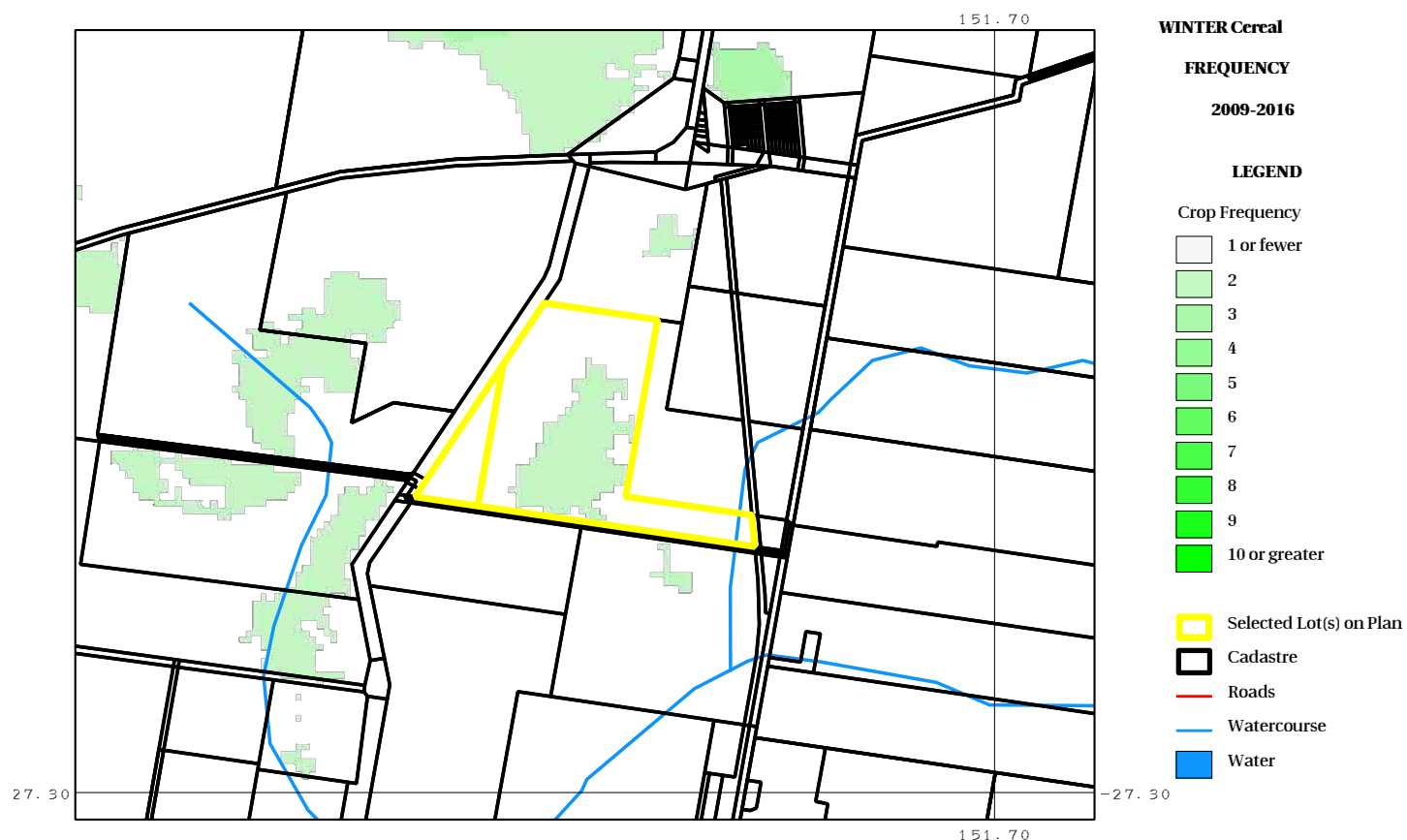


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

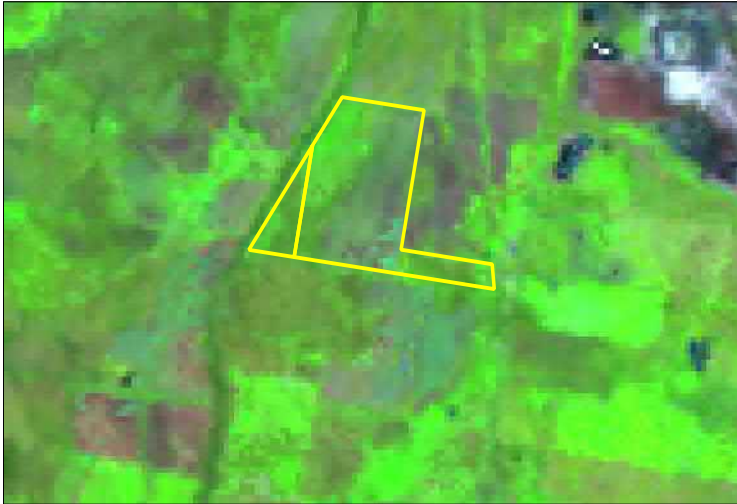
Lot on Plan: 92A341981,3RP36466

Label: paddock20



Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

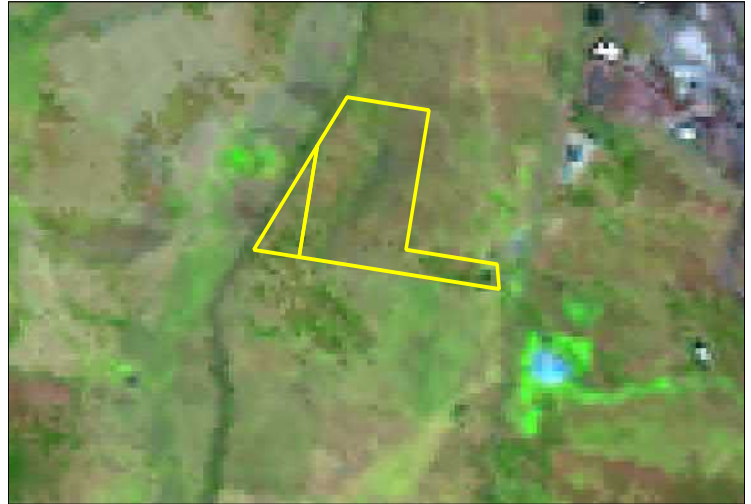
<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

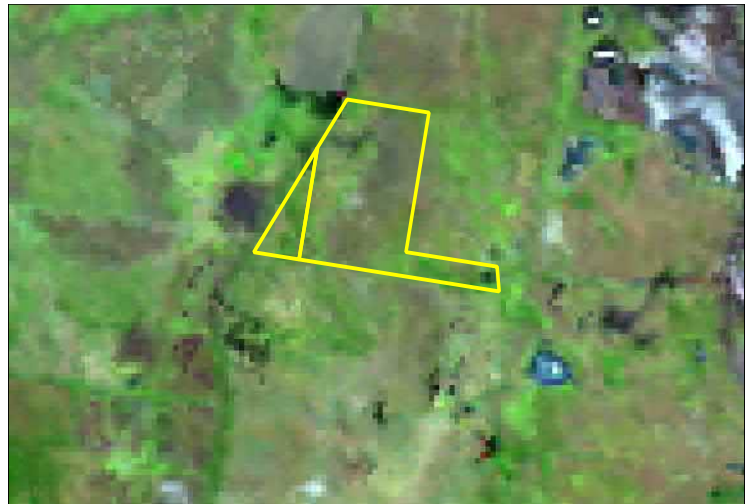
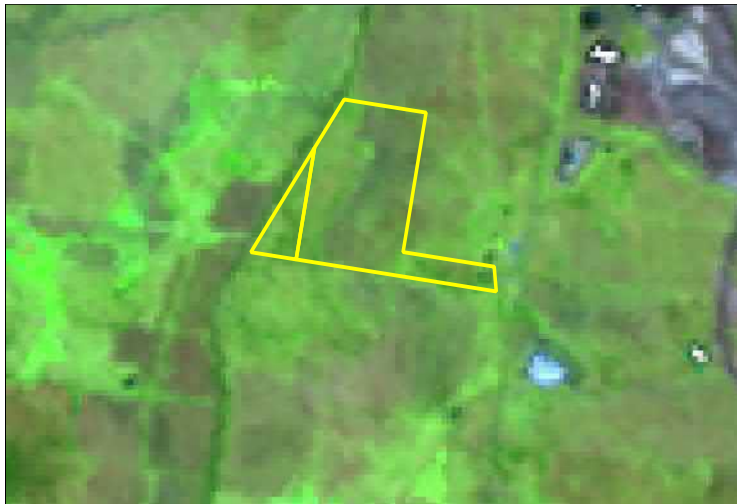
Lot on Plan: 92A341981,3RP36466

Label: paddock20

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

Lot on Plan: 92A341981,3RP36466

Label: paddock20

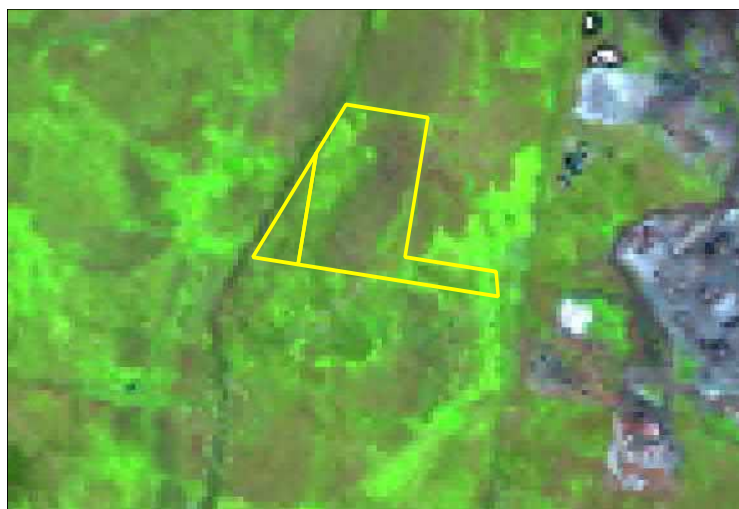
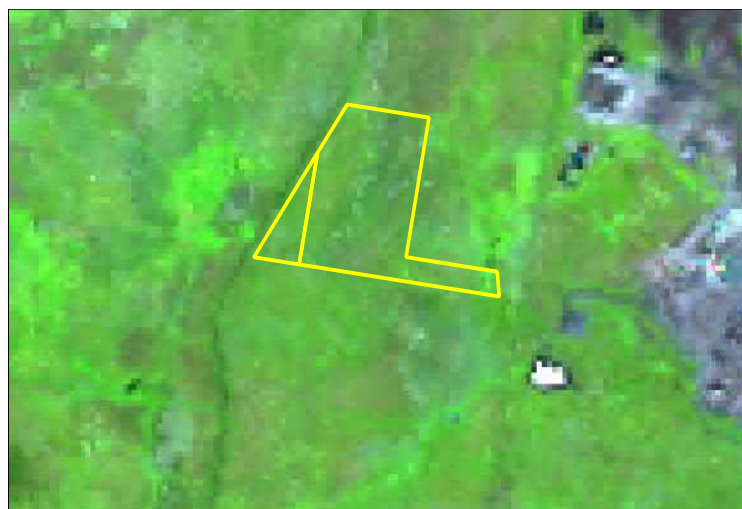


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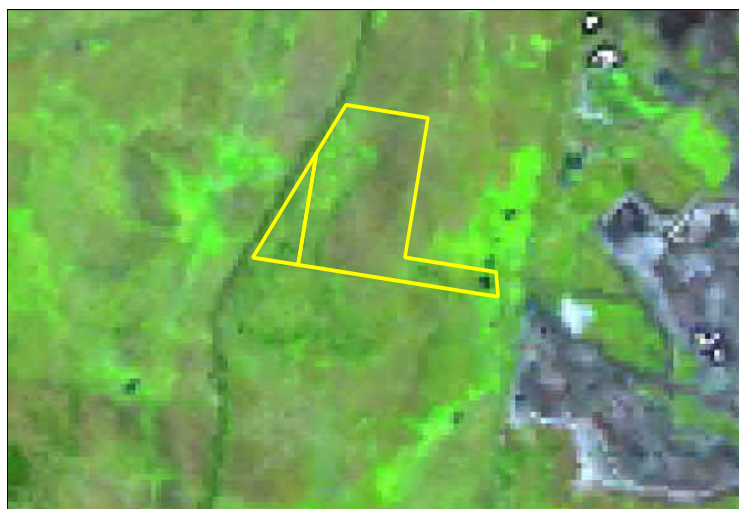
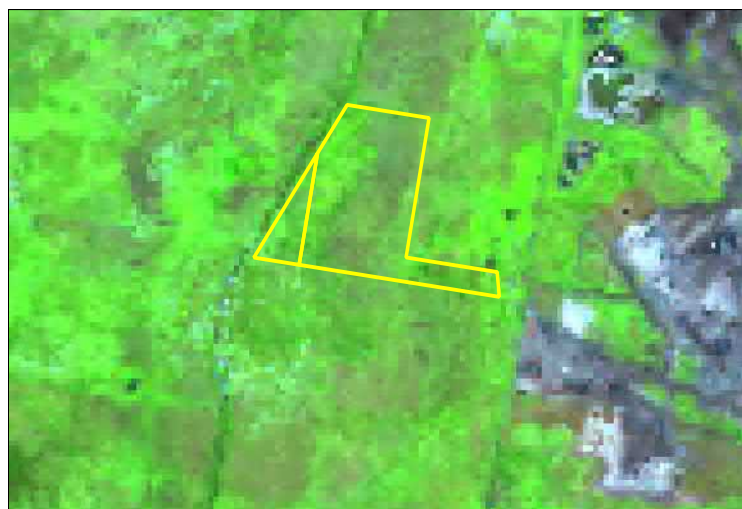
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 18, 2019

Lot on Plan: 92A341981,3RP36466

Label: paddock20



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February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

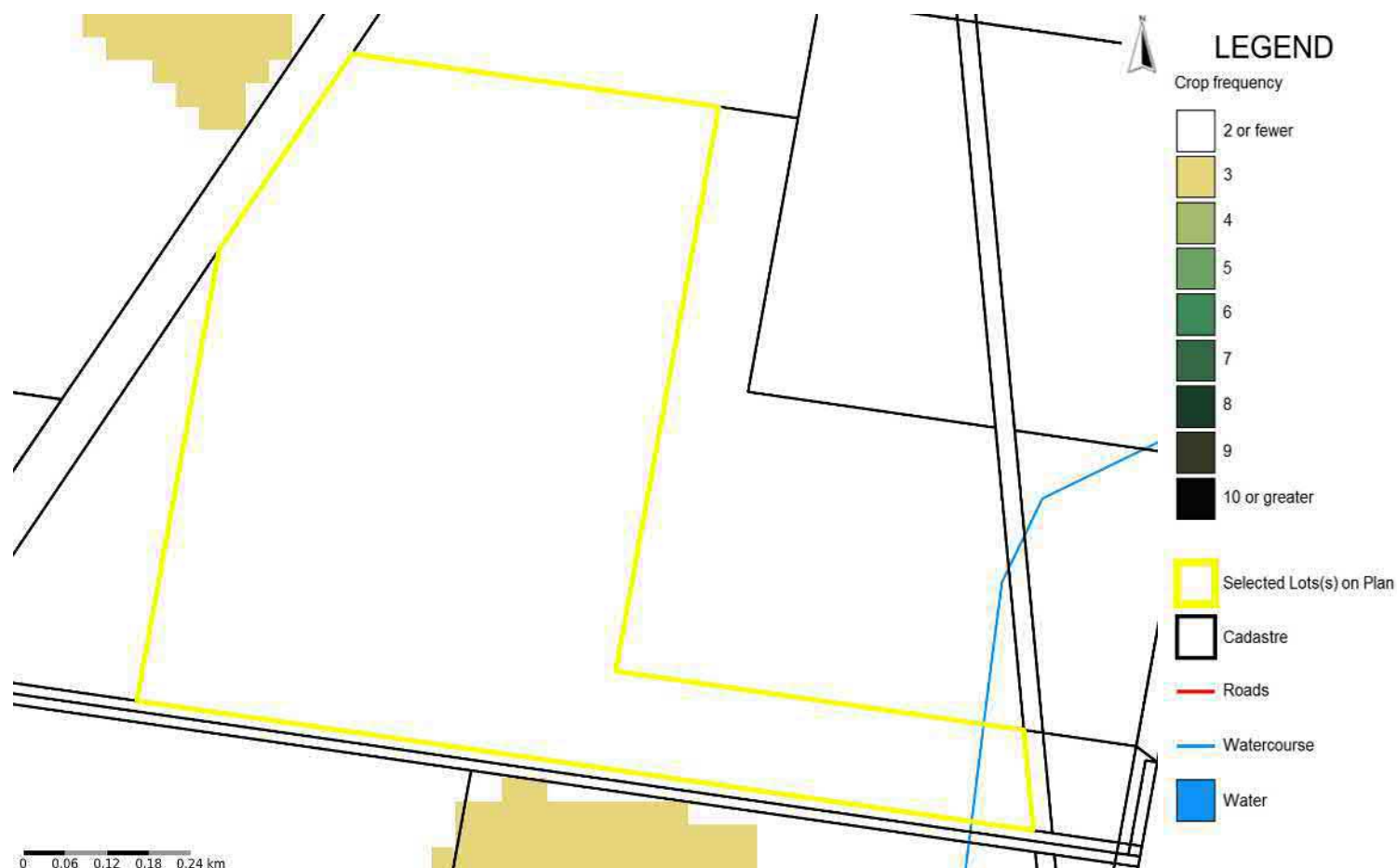
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

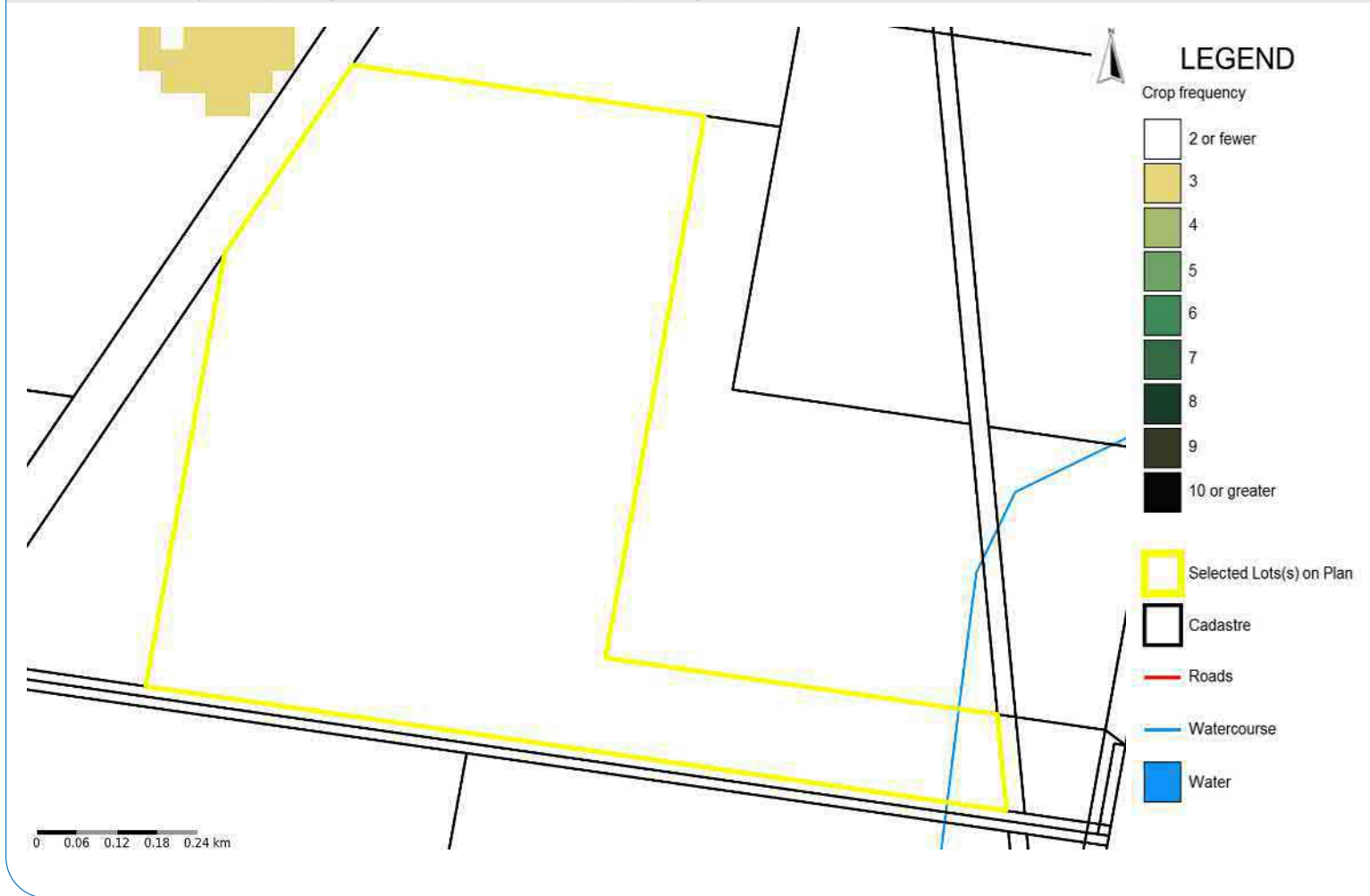
- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

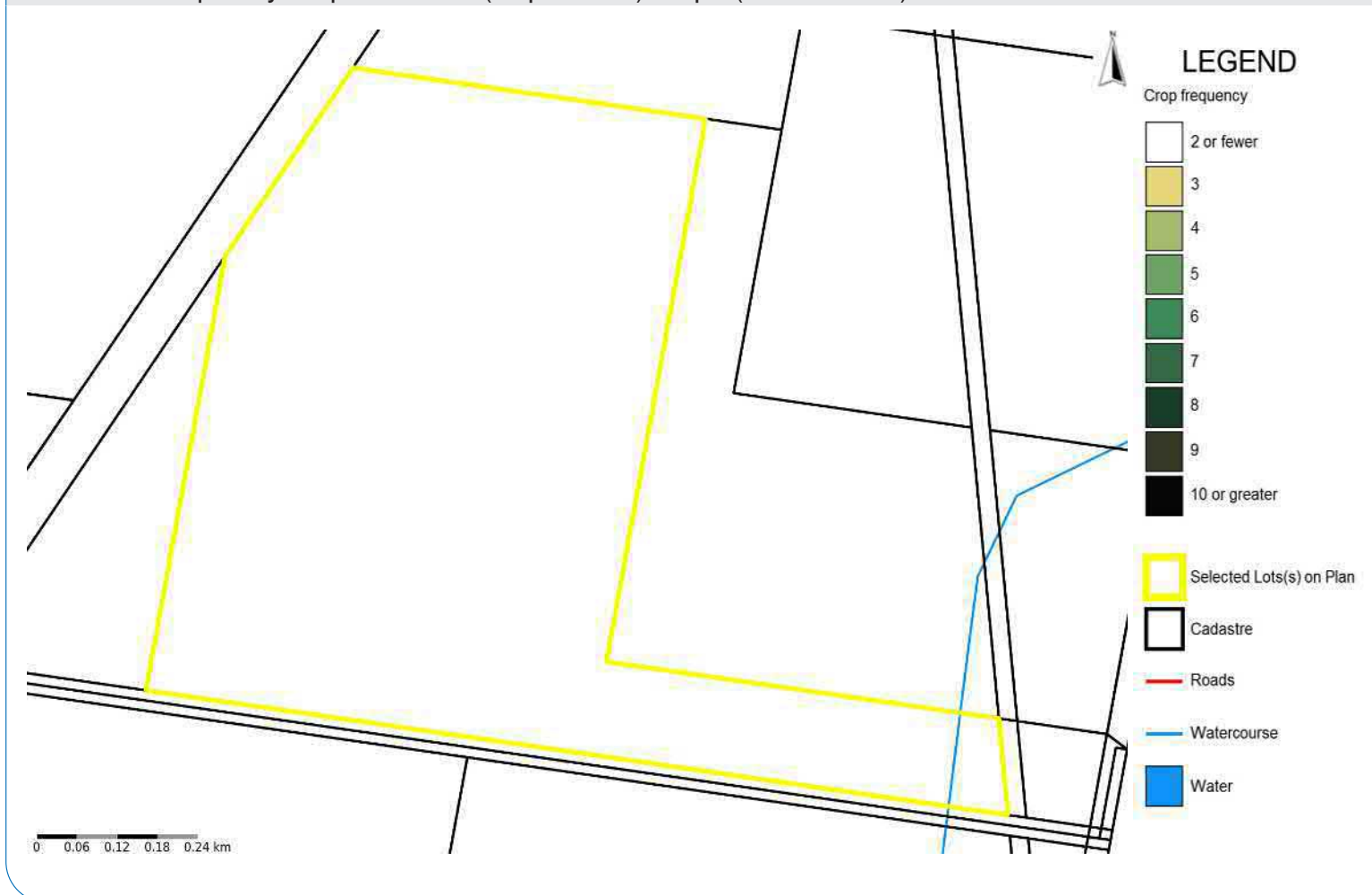
- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

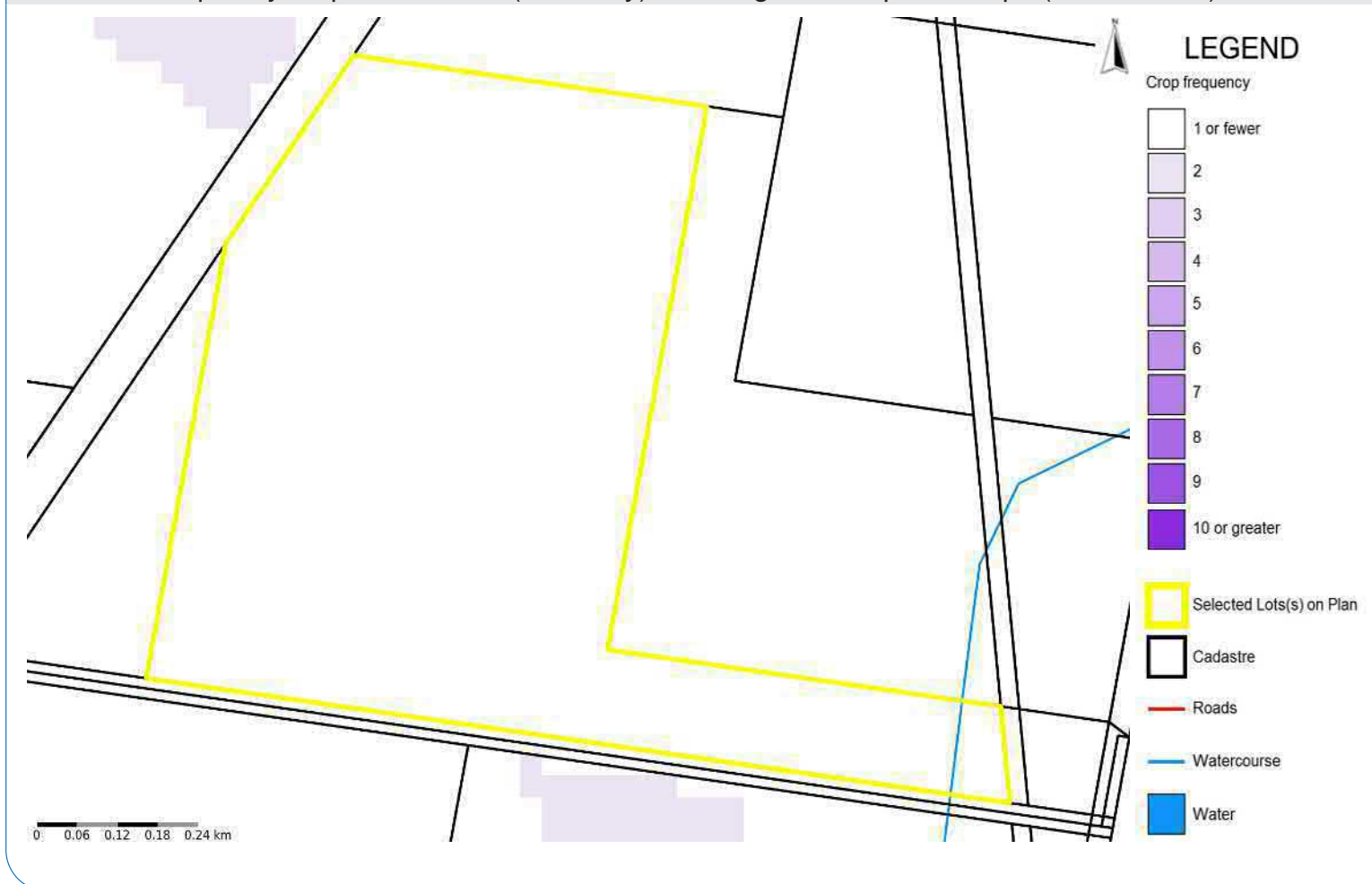
Estimated frequency map for summer (February) crops (2009 - 2018)



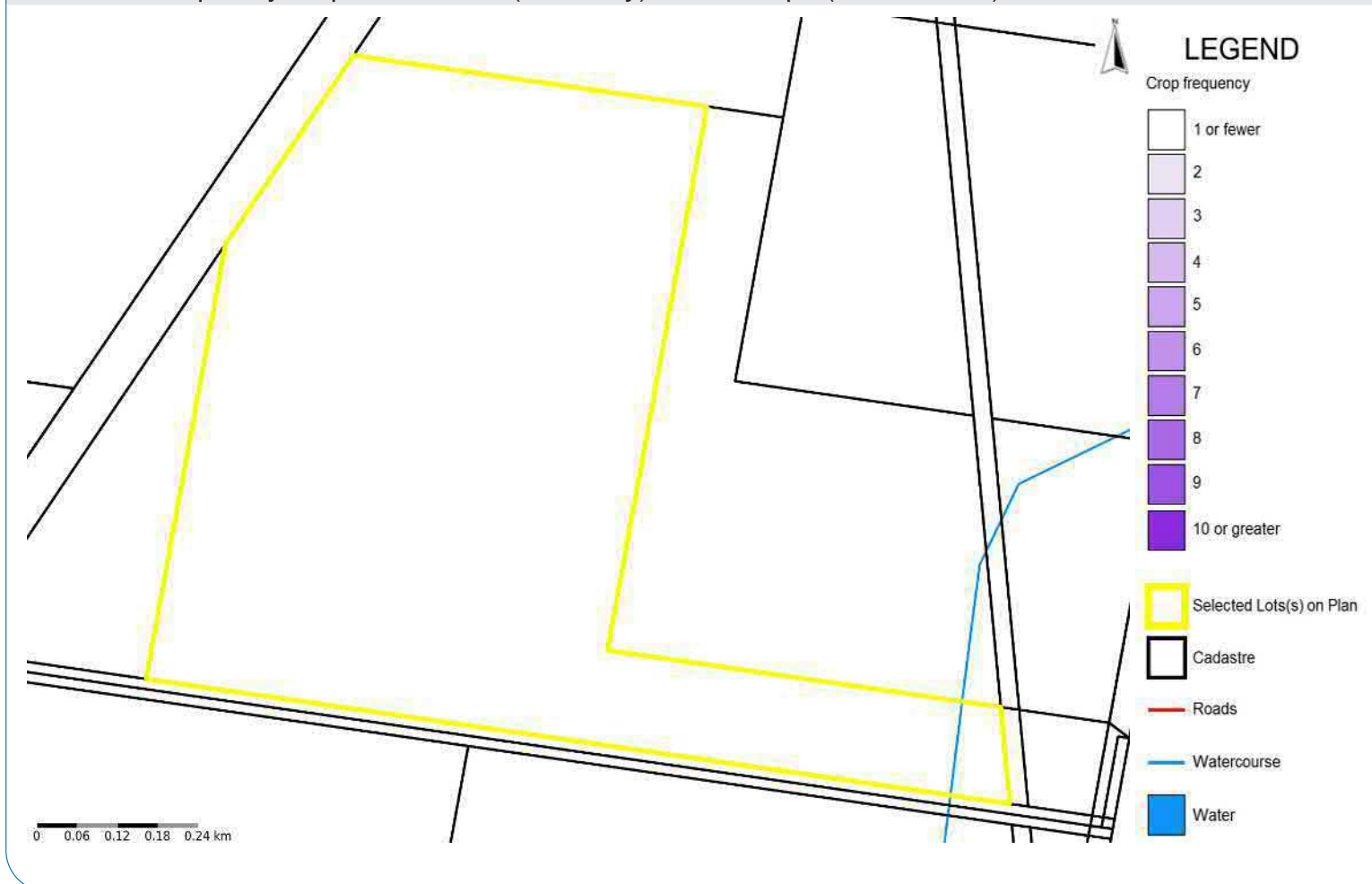
Estimated frequency map for winter (September) crops (2009 - 2018)



Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)

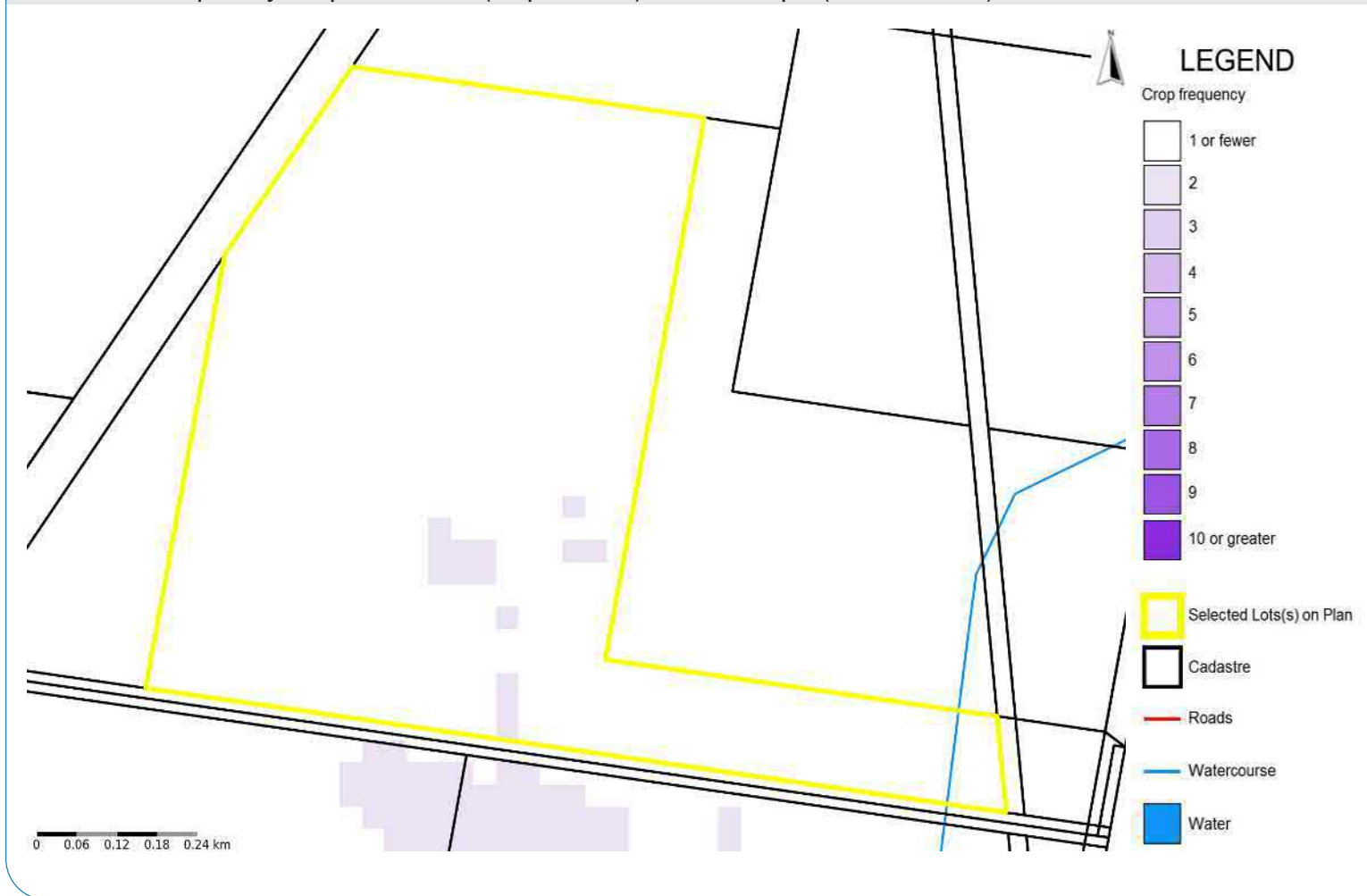


Estimated frequency map for summer (February) cotton crops (2009 - 2018)

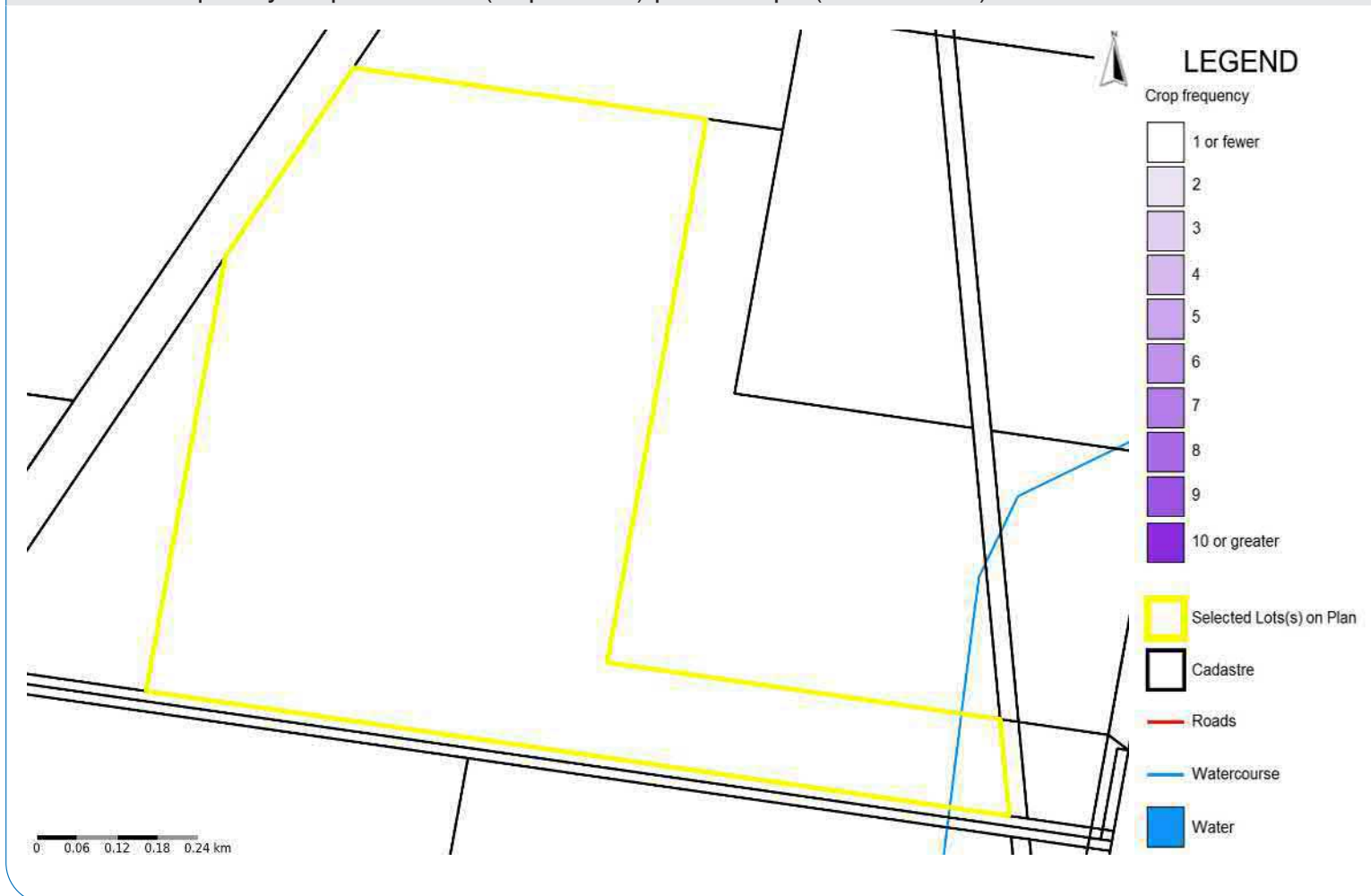




Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

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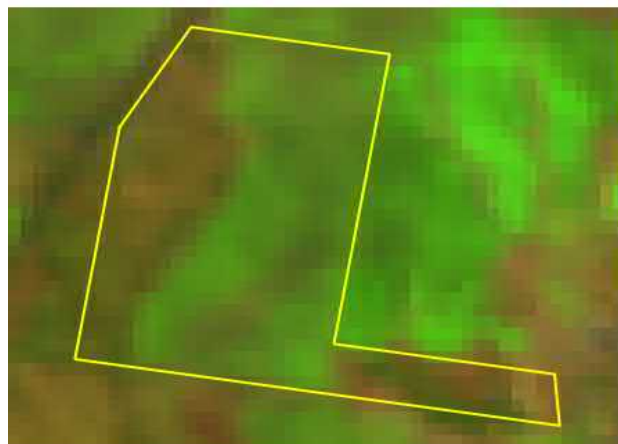
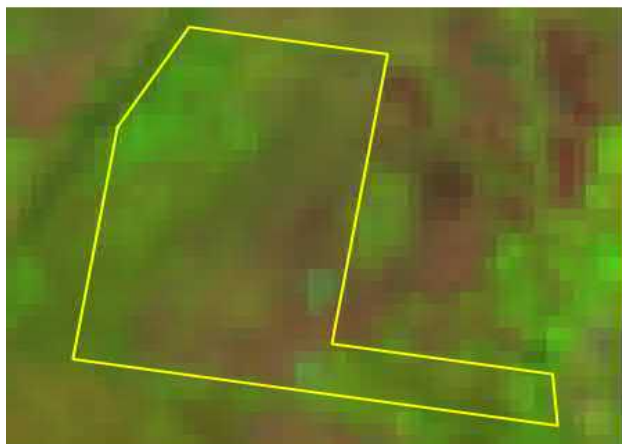
Lot on Plan: 3RP36466

Label: paddock21

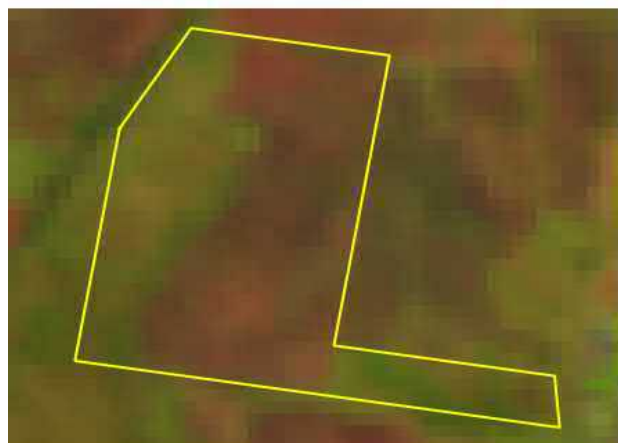
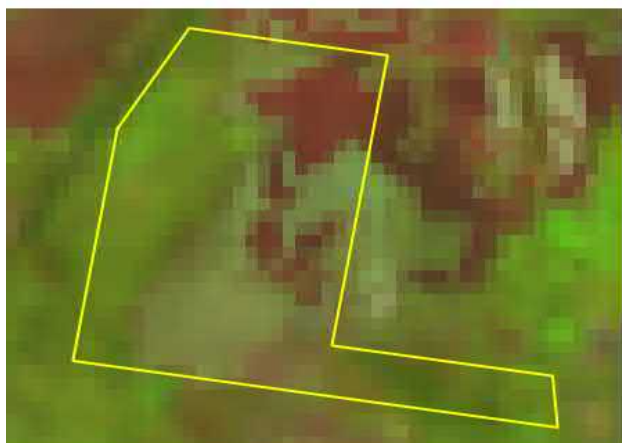


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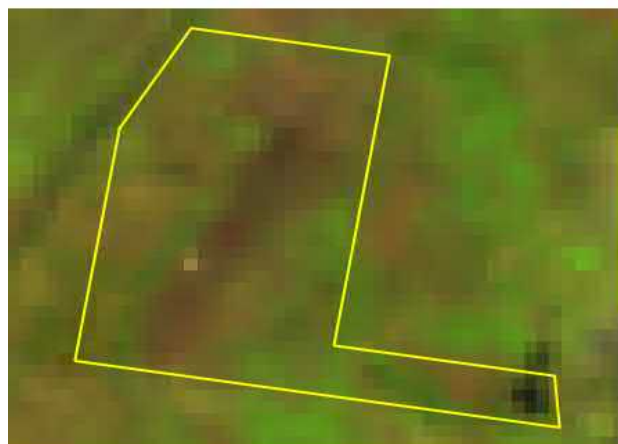
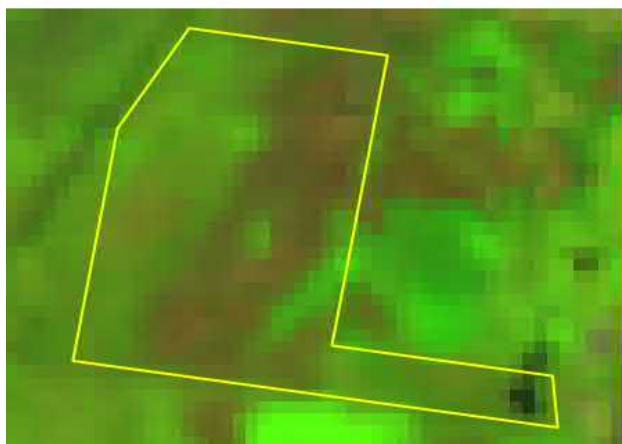
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

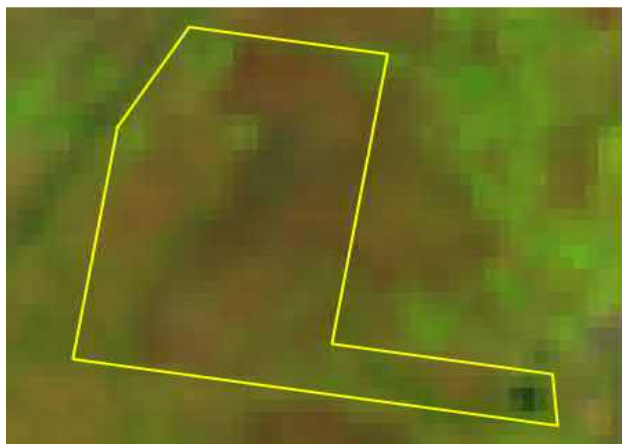
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Label: paddock21



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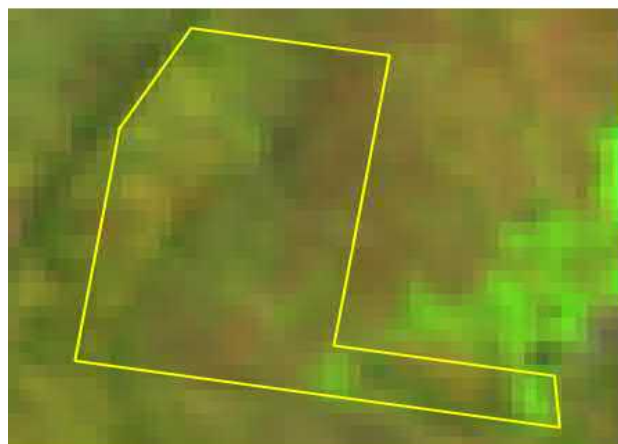
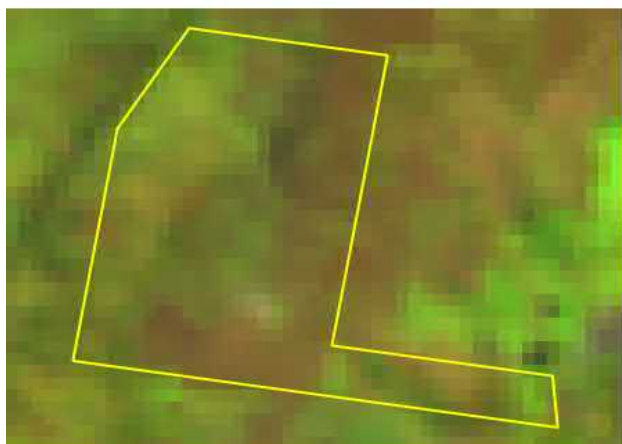
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

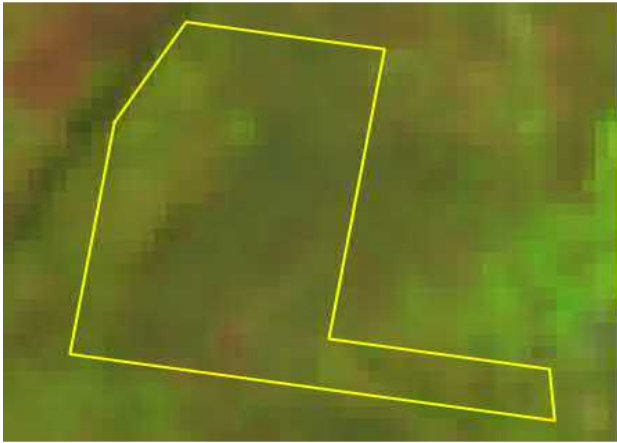
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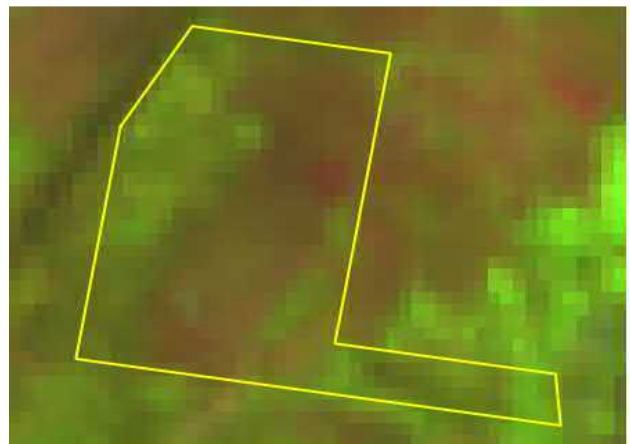
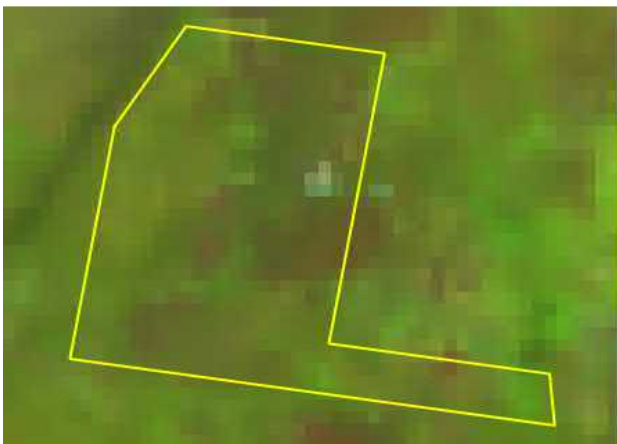


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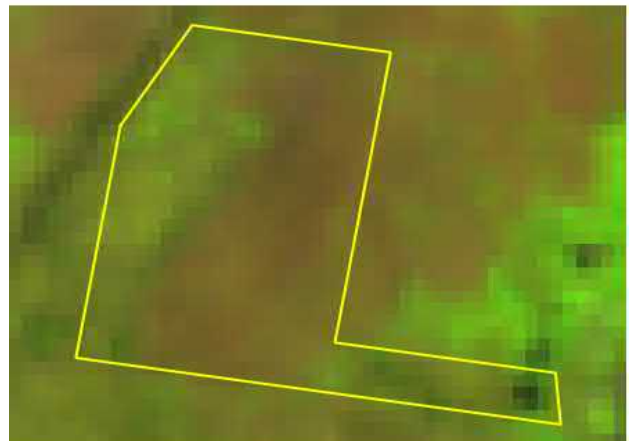
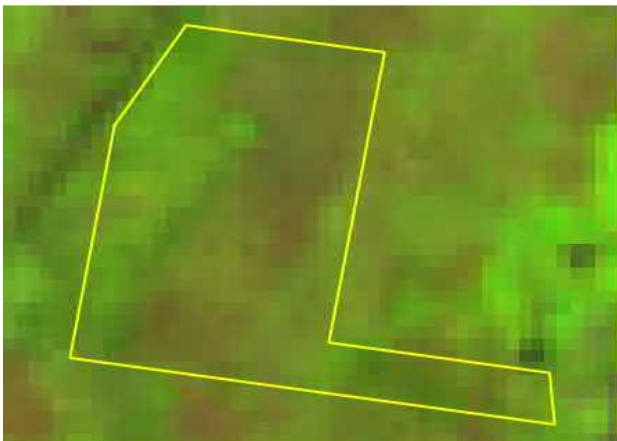
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 8, 2019

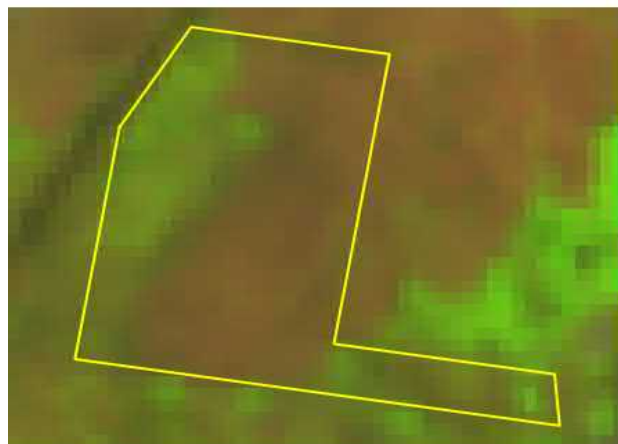
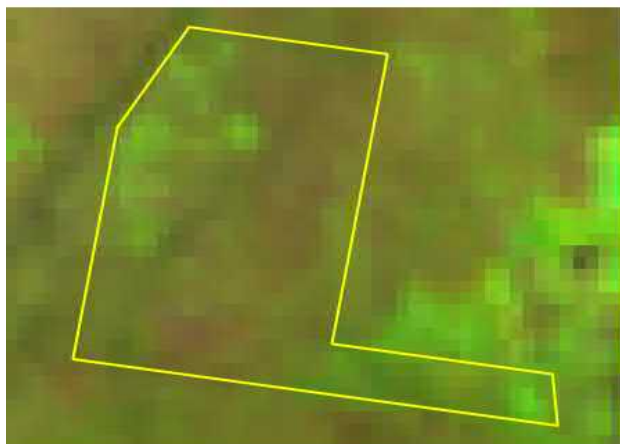
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Label: paddock21



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February (left) and September (right) images for 2018



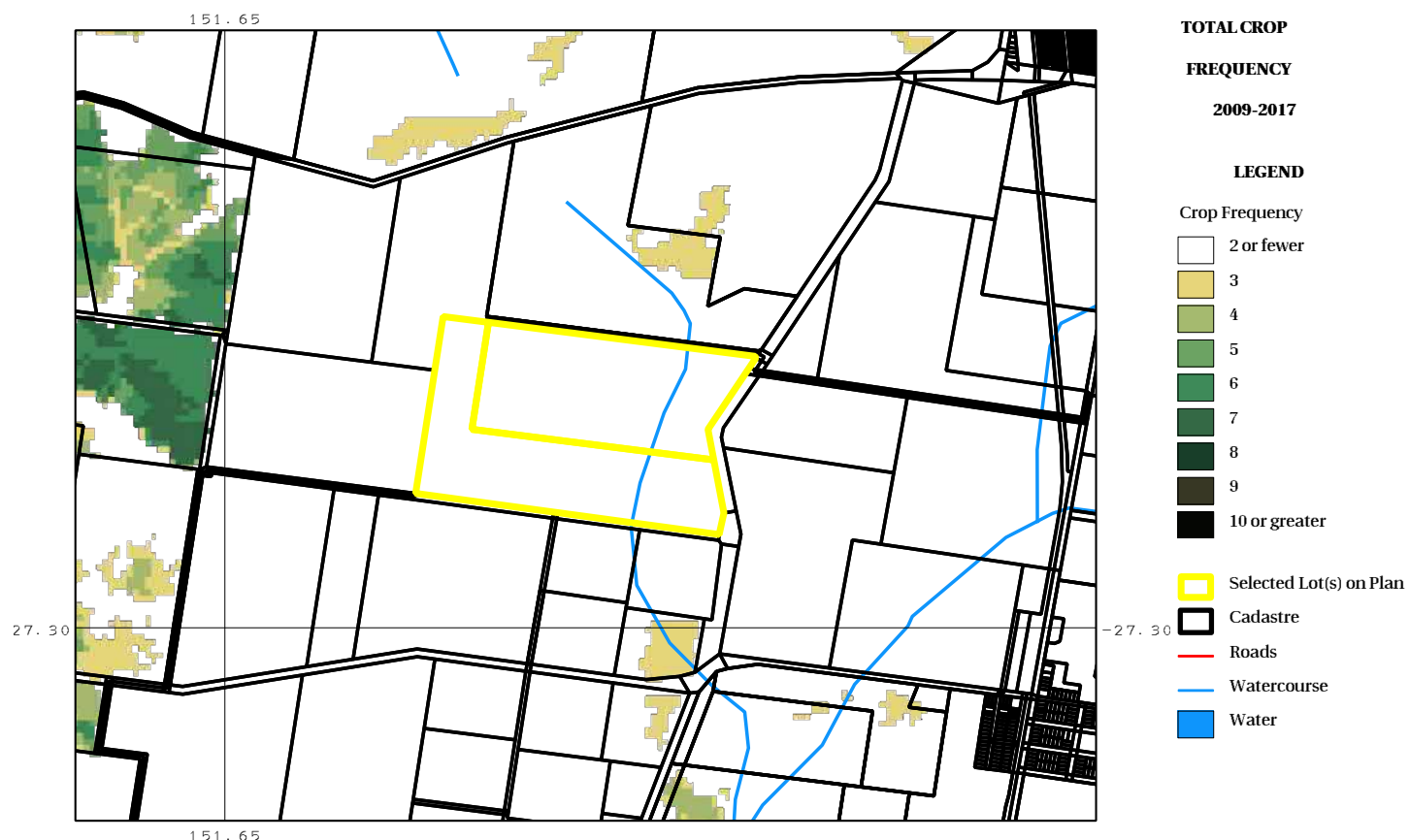
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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

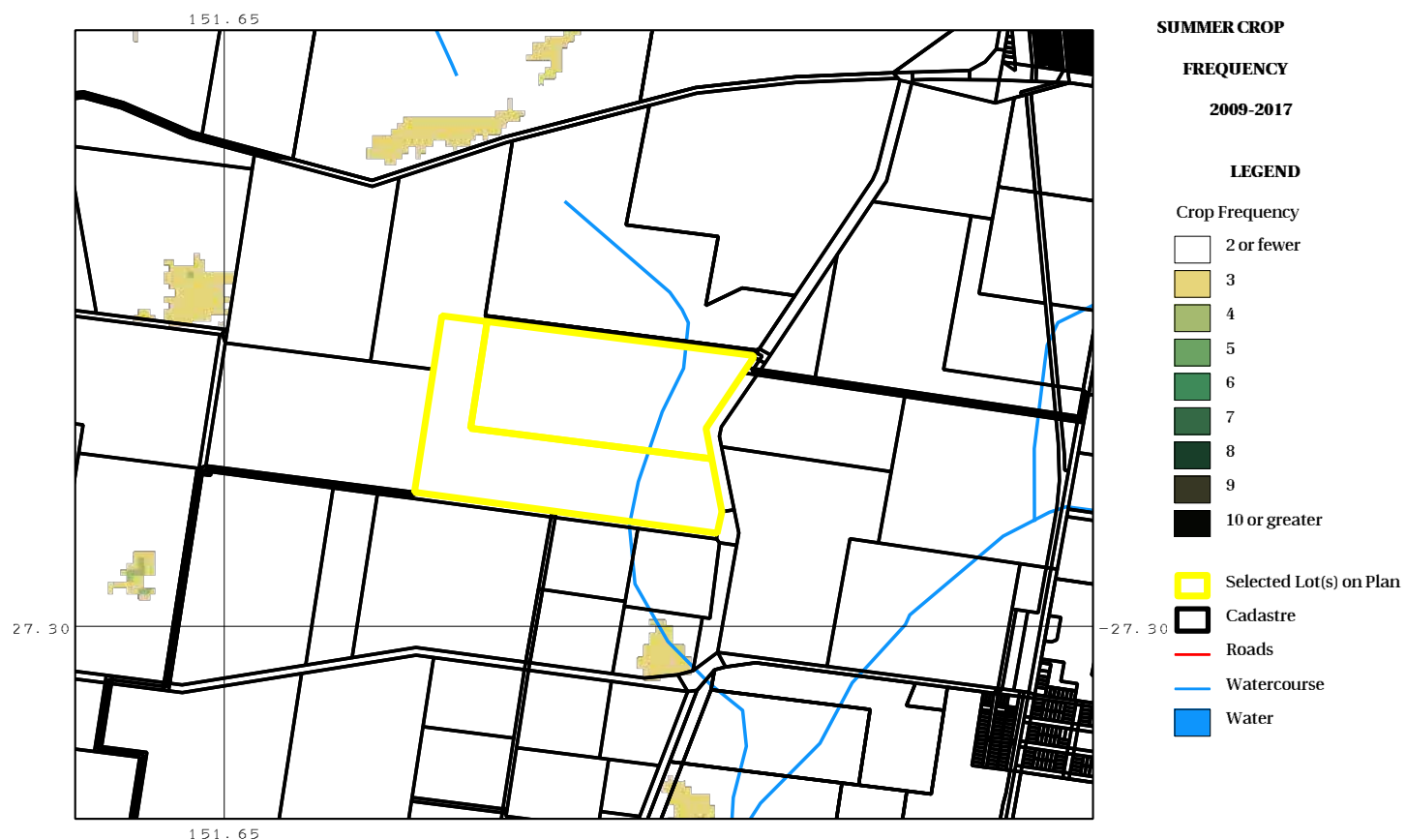
- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

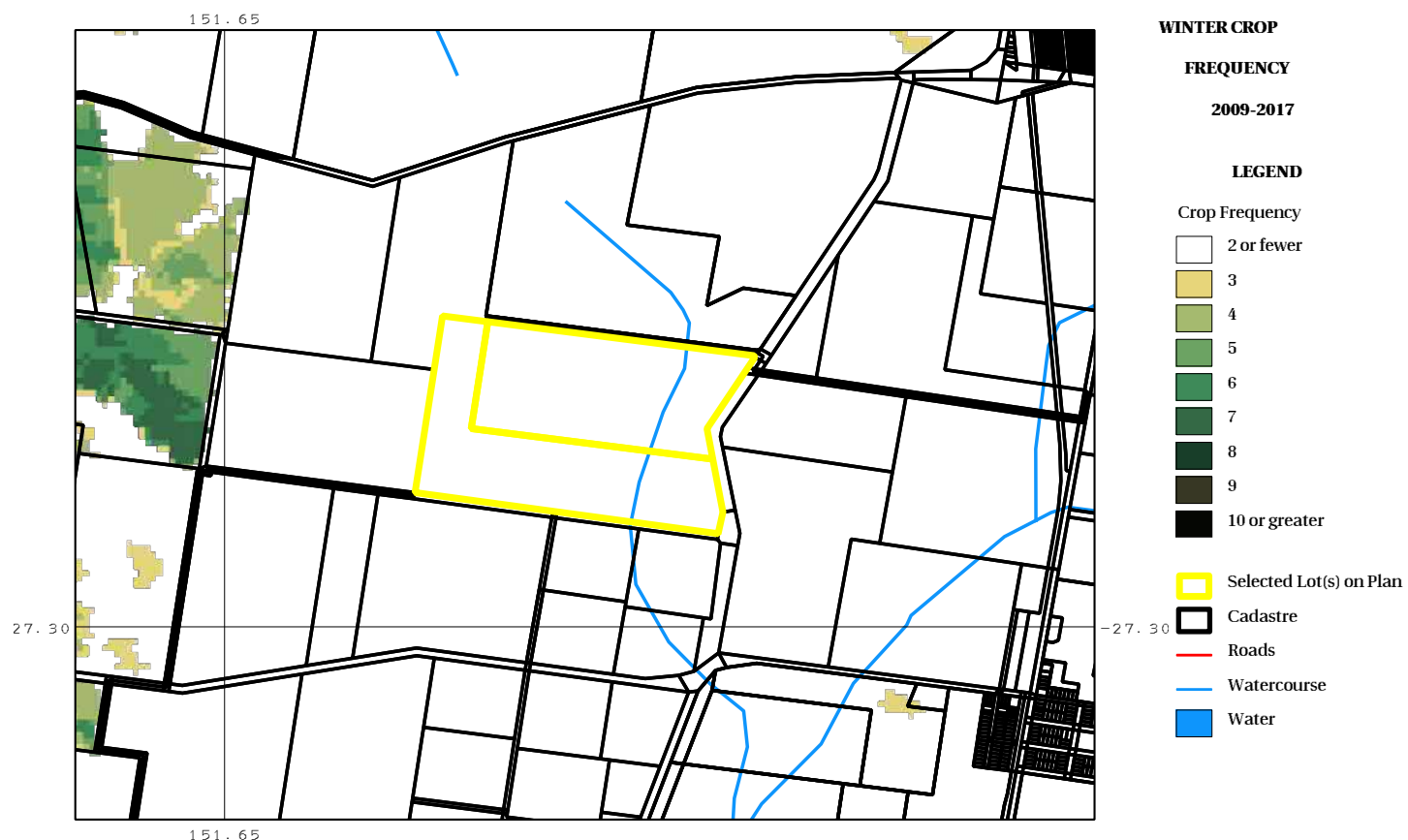
- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

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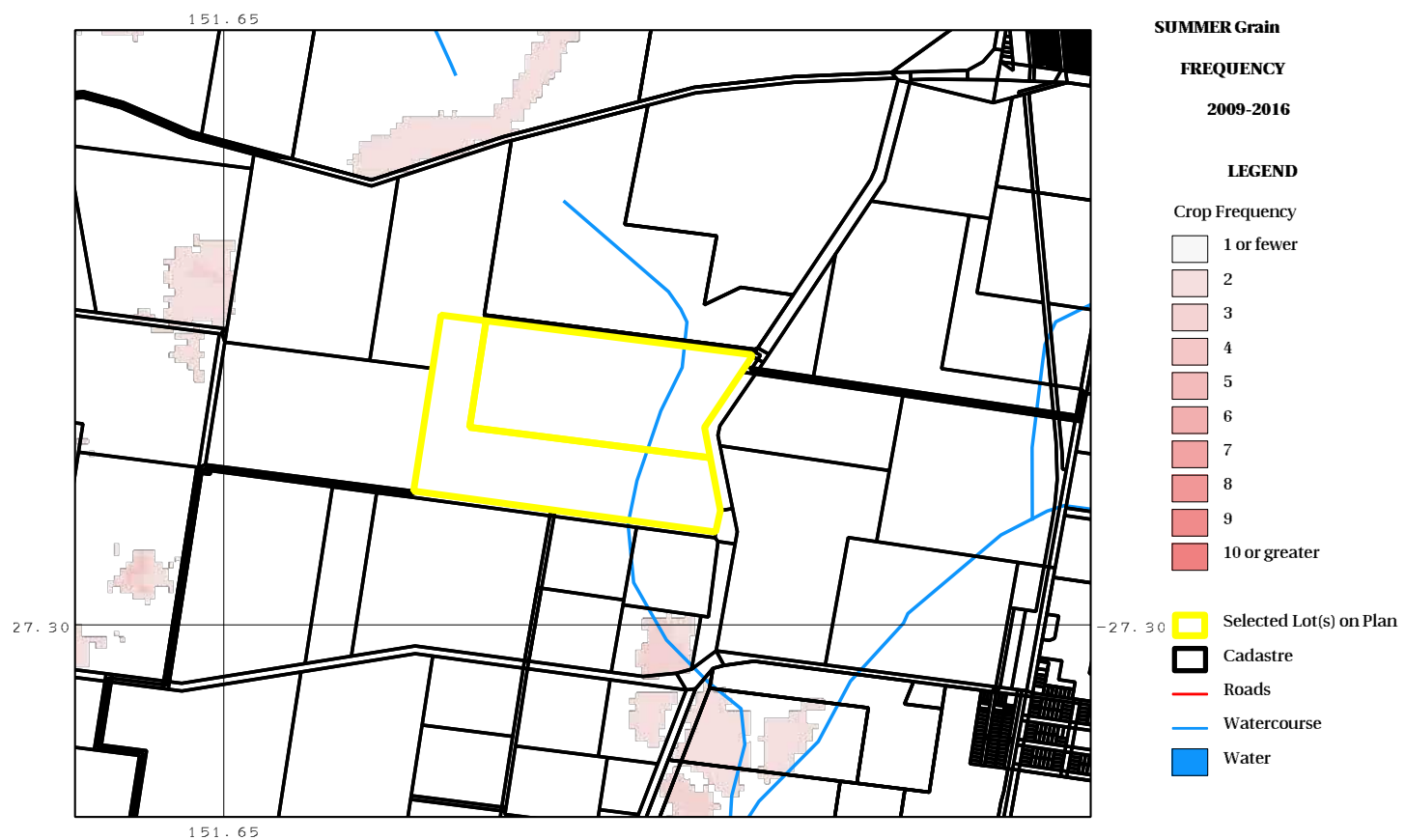
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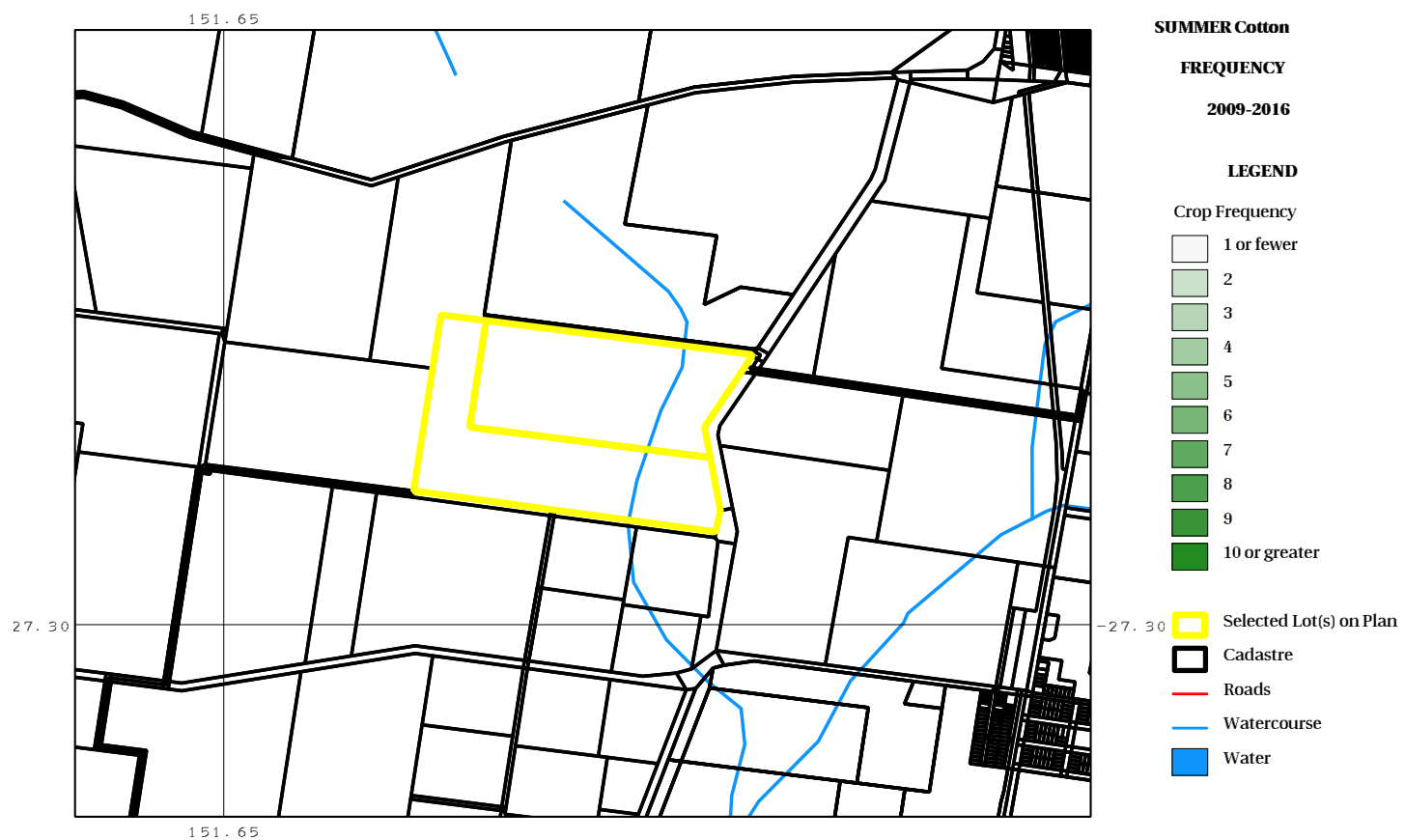


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Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

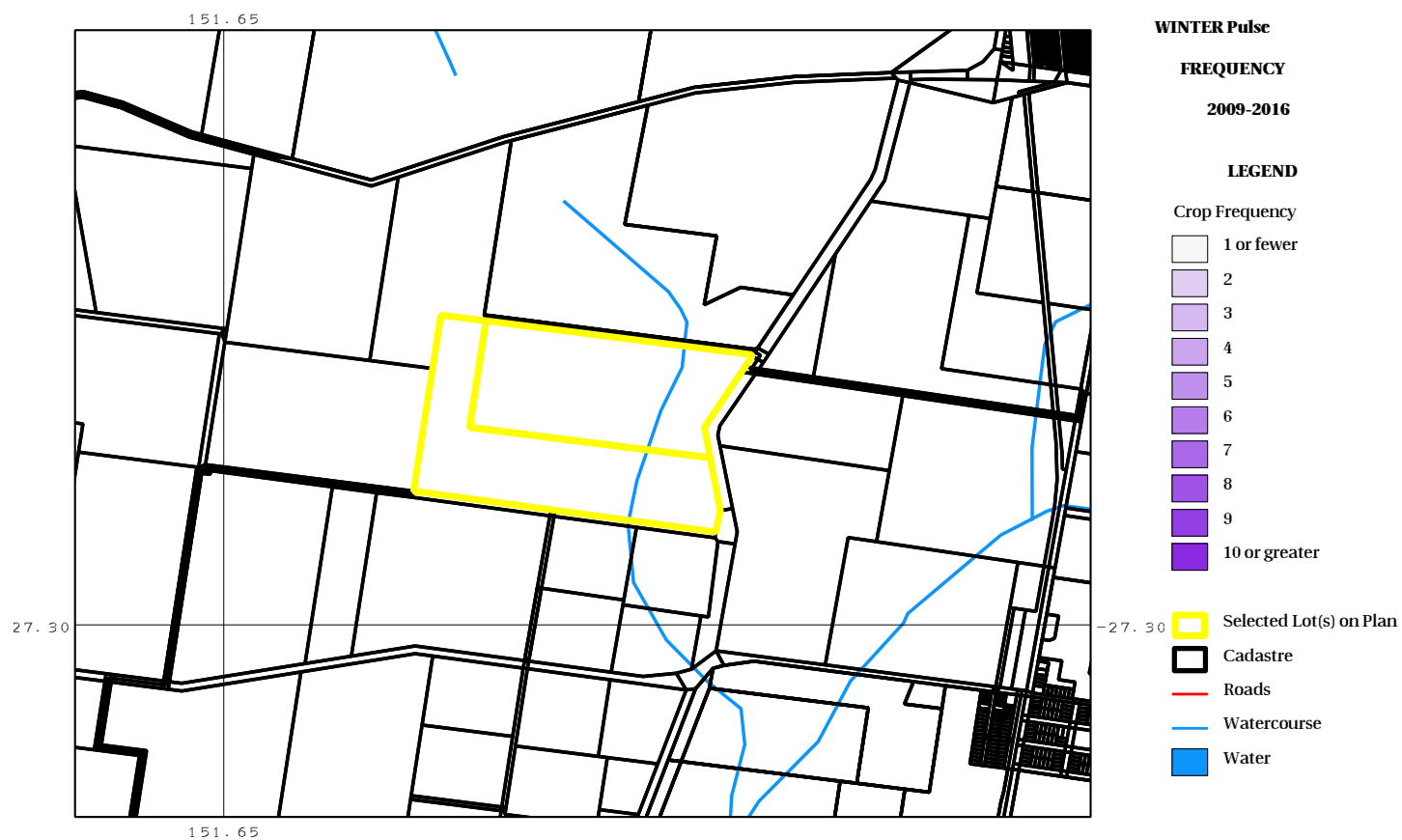
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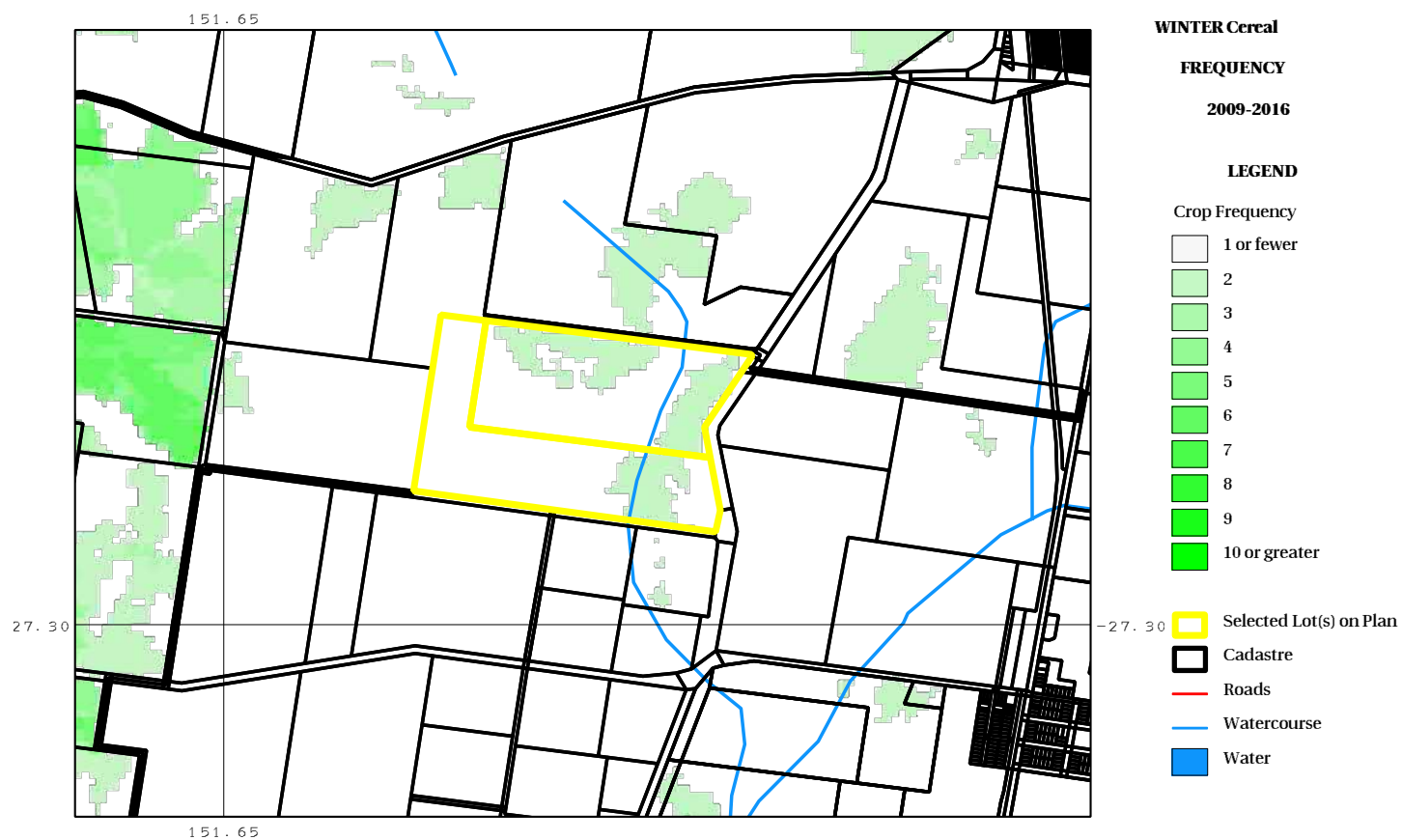


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Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

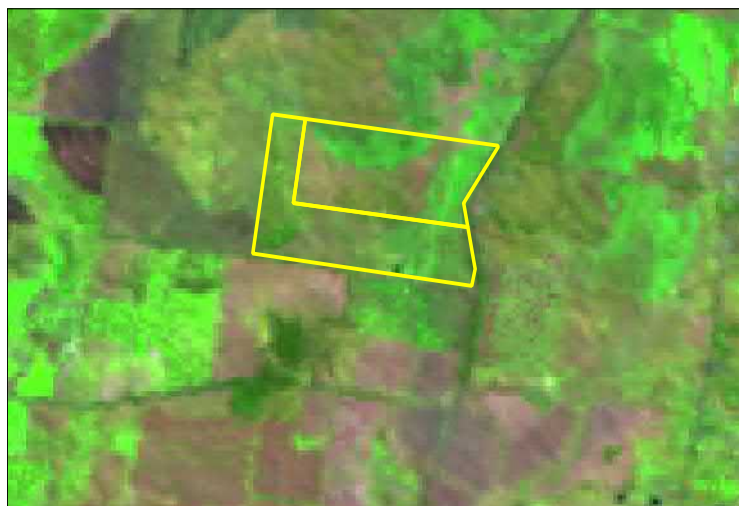
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Label: paddock22



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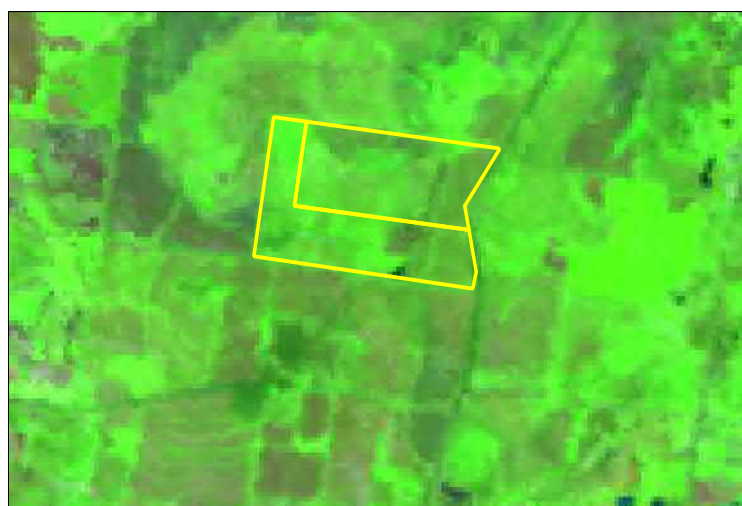
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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Label: paddock22

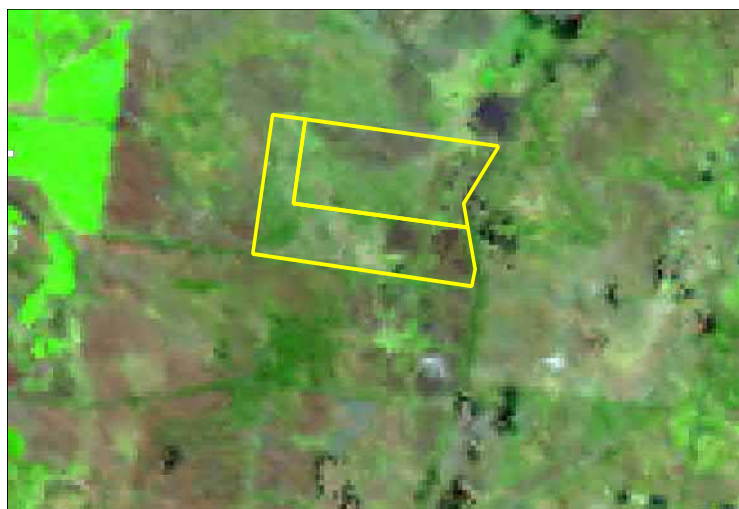


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February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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Label: paddock22

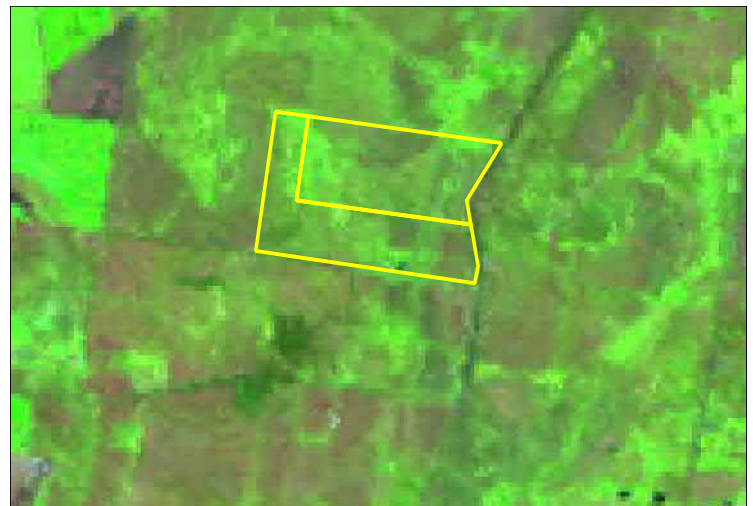
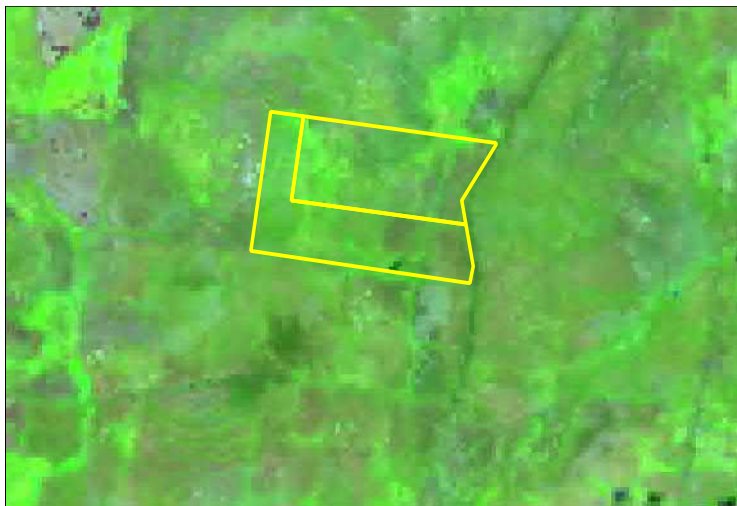


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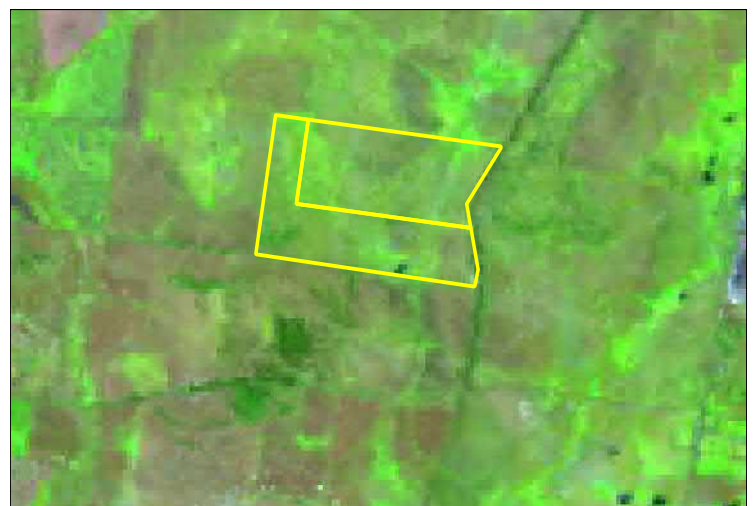
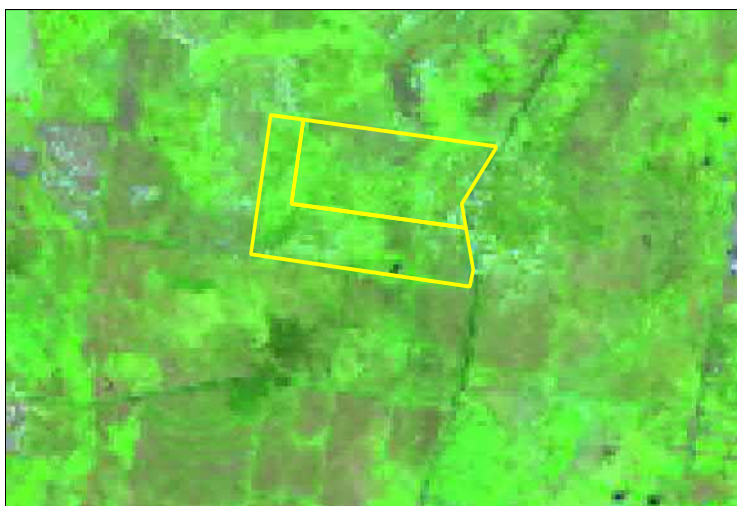
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3435AG2605,3293A341624

Label: paddock22



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

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Introduction

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Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

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In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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Label: paddock23

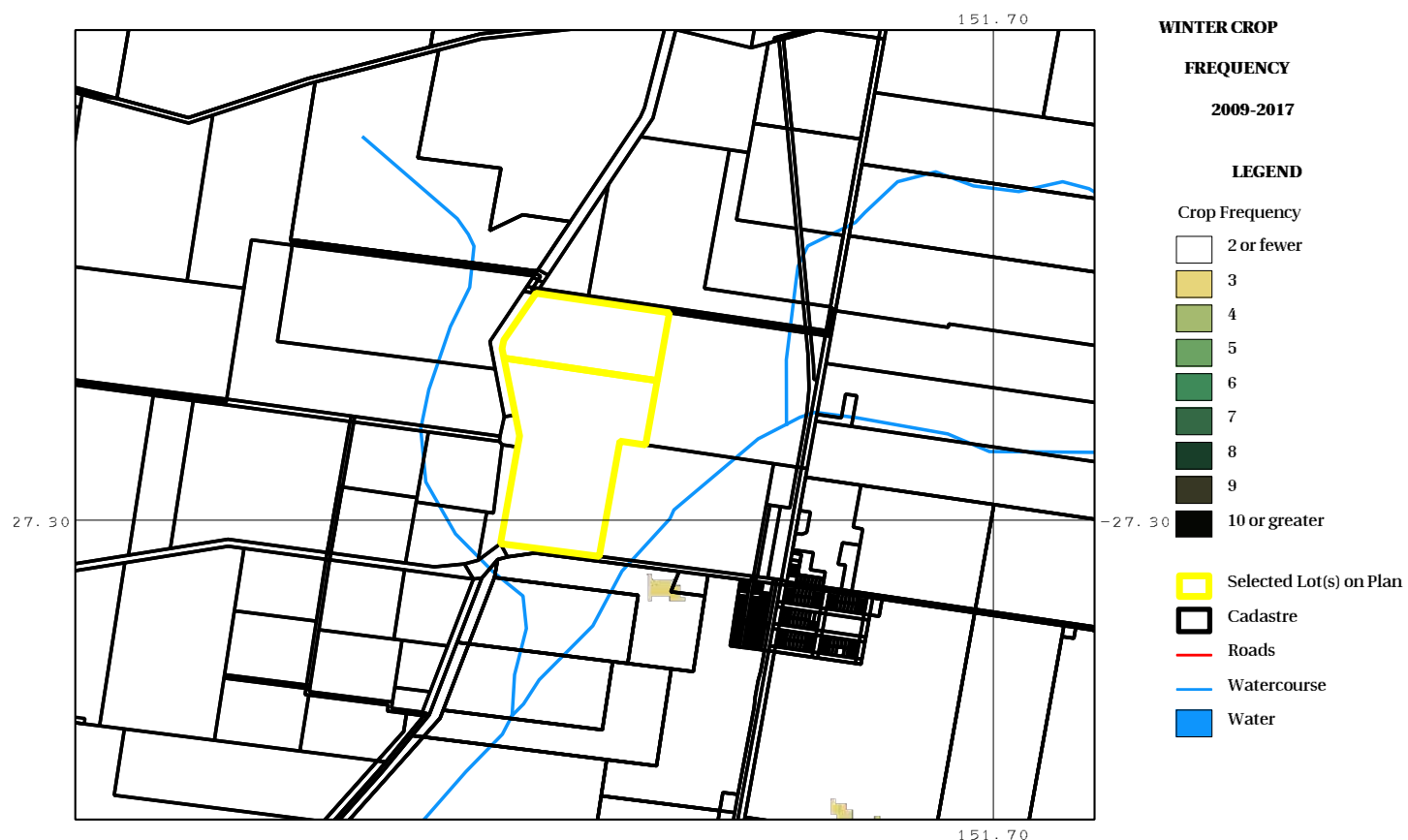


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Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

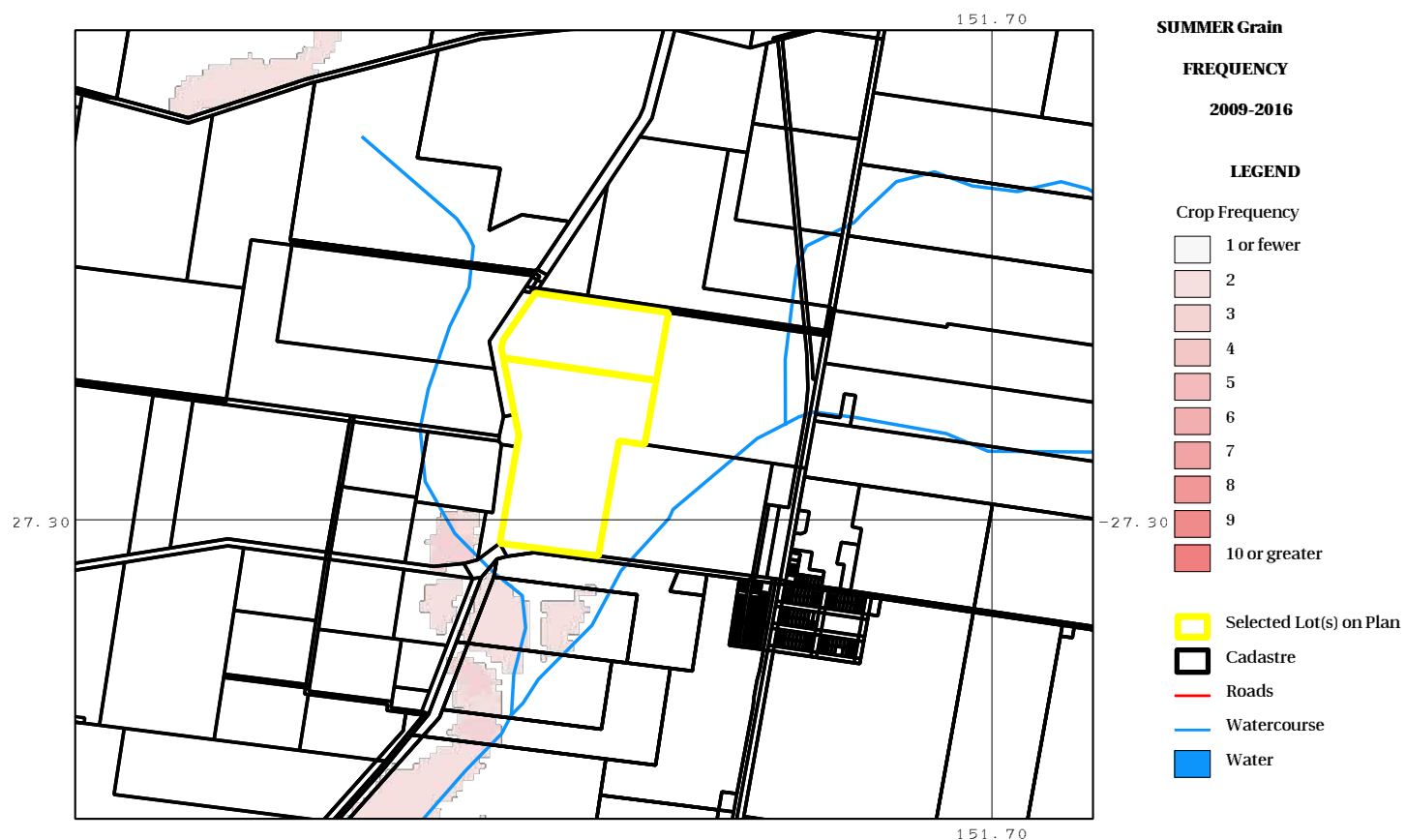
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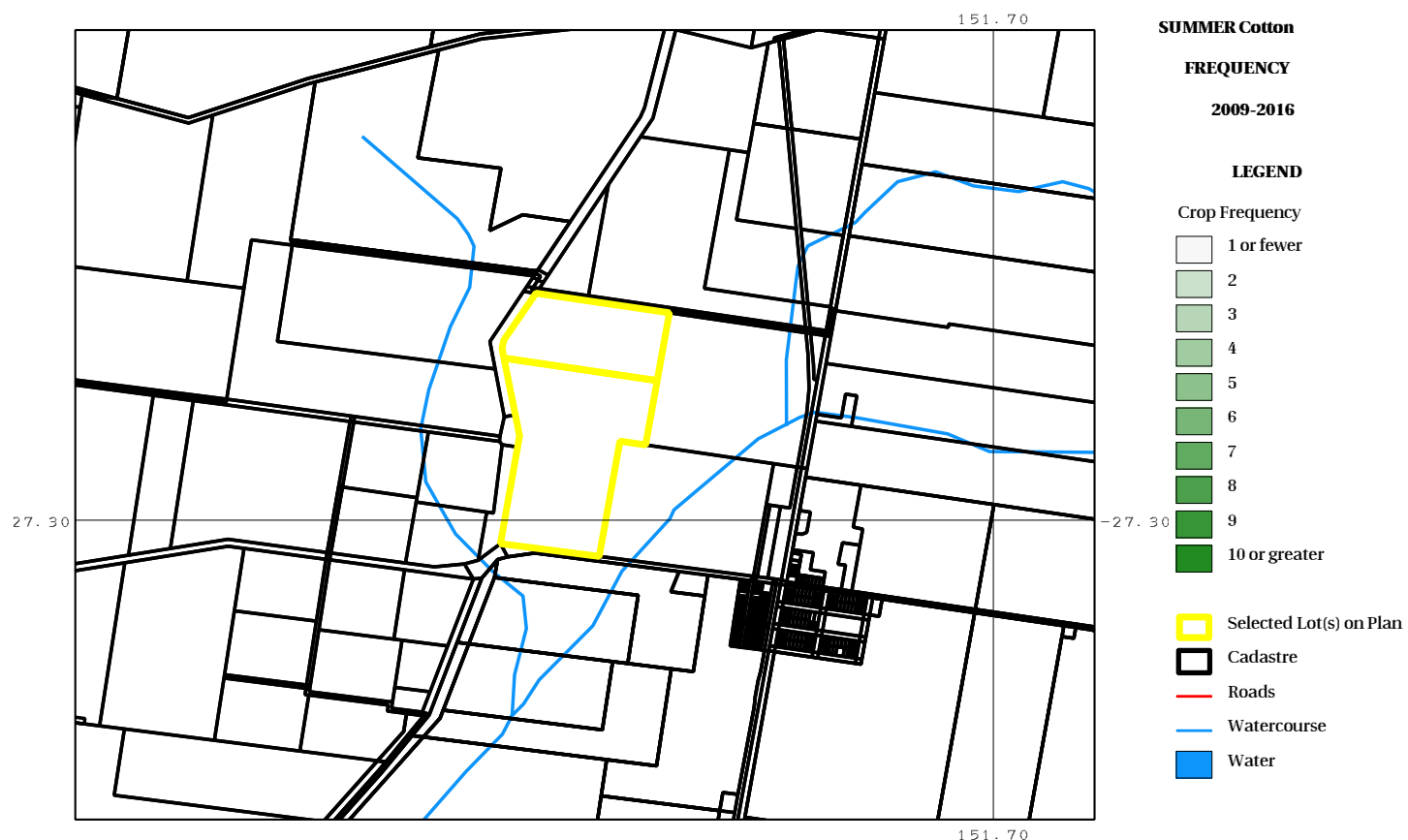


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

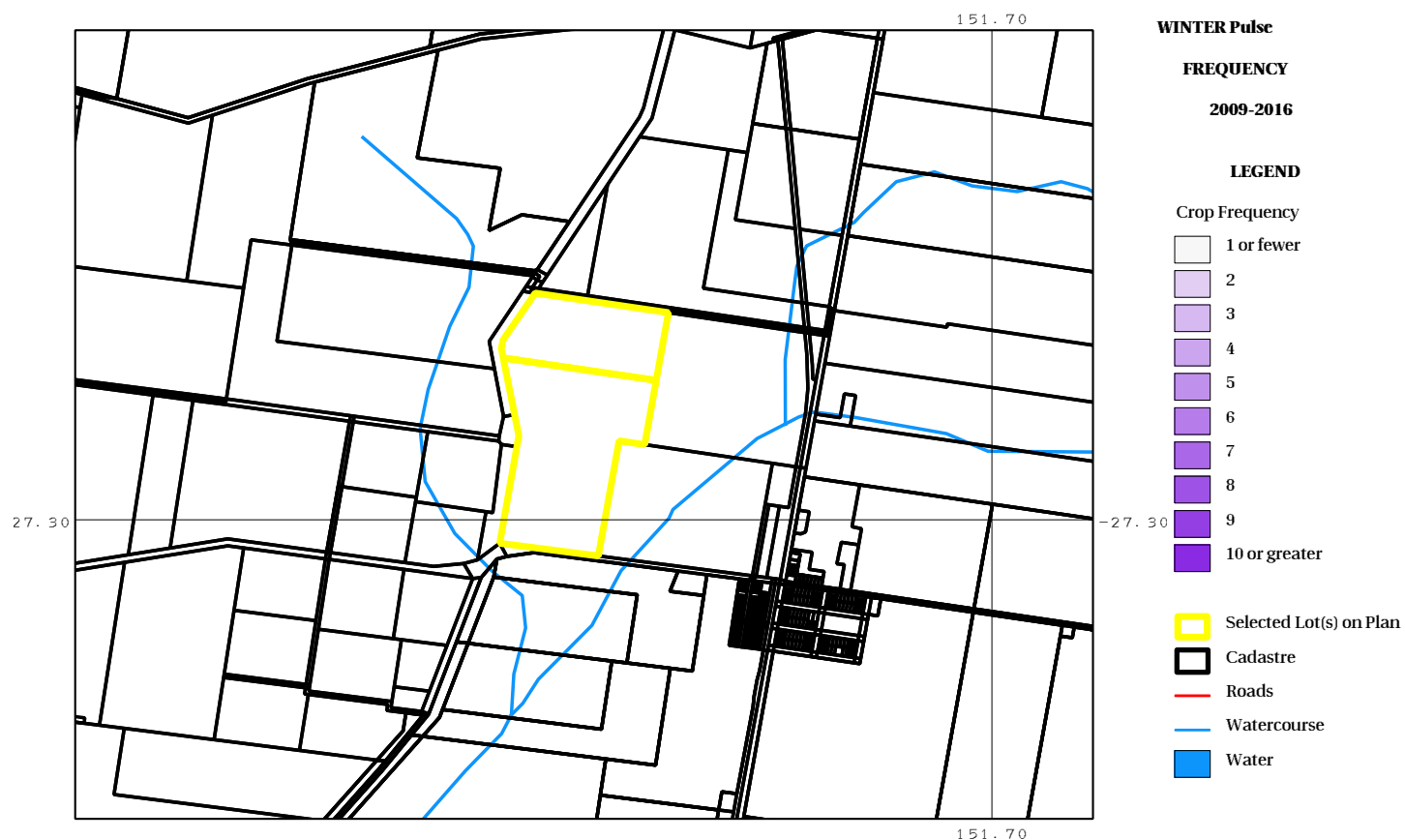
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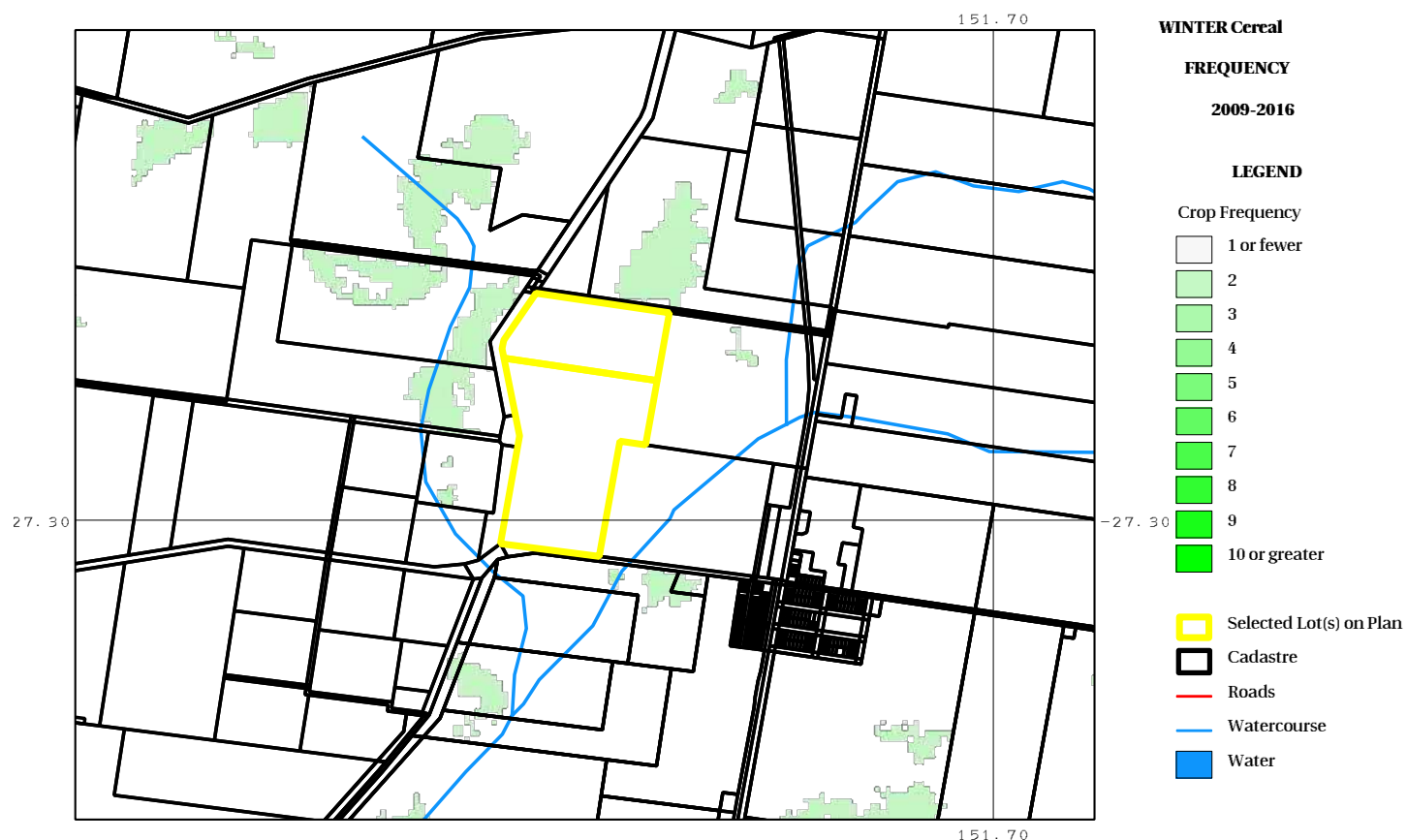


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

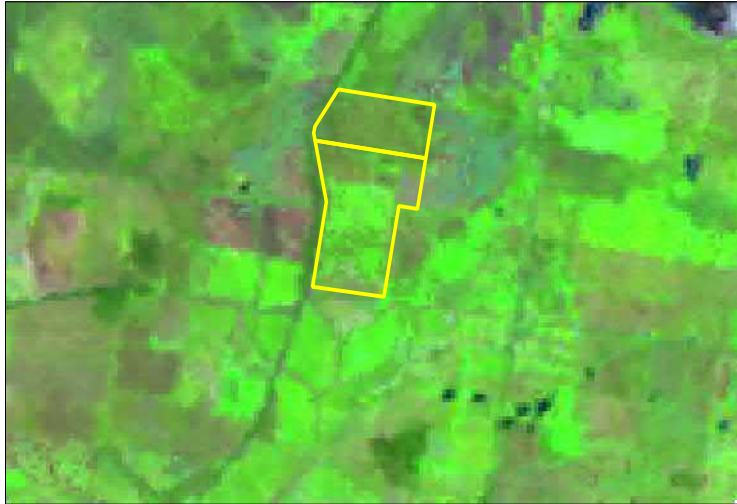
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Queensland
Government

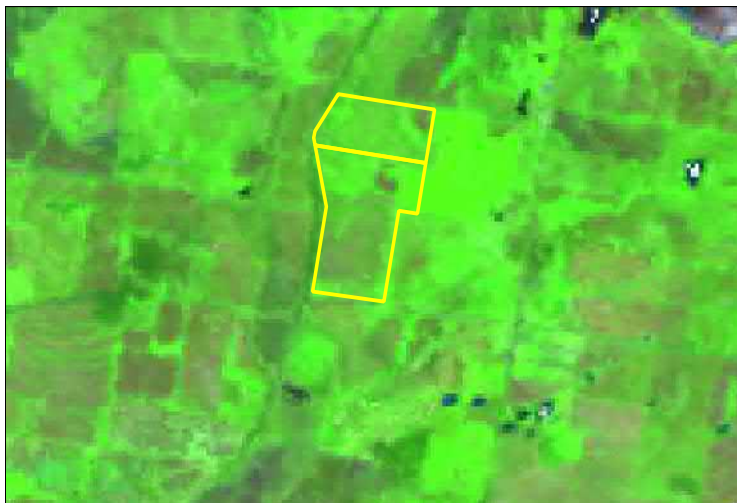
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

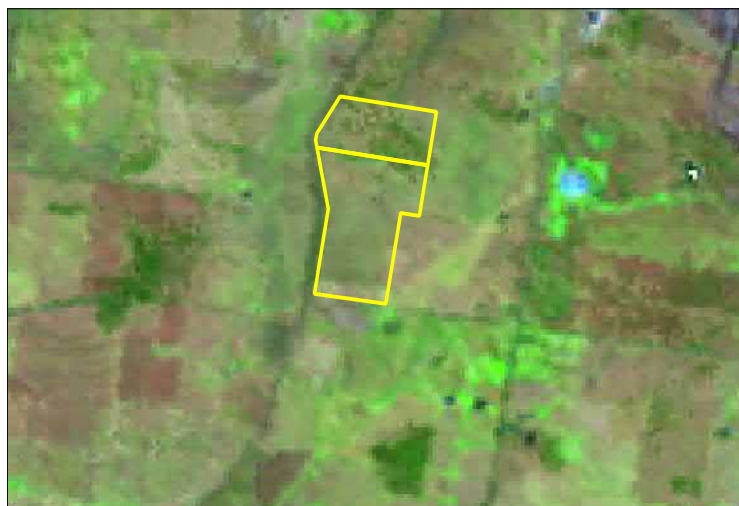
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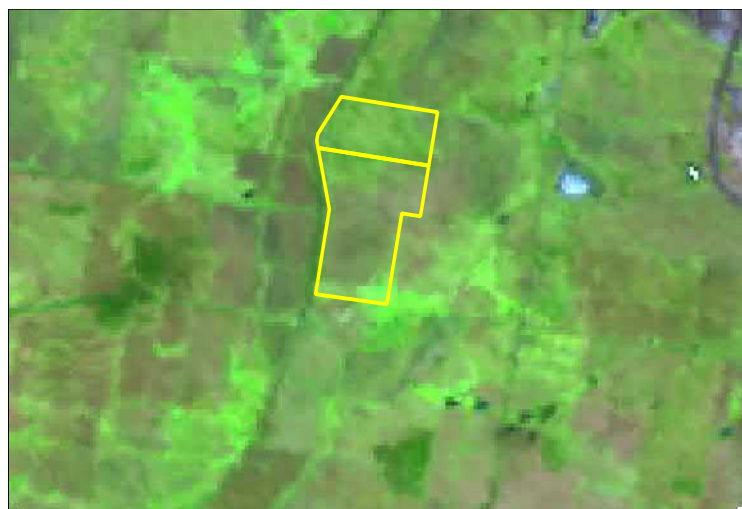


Queensland
Government

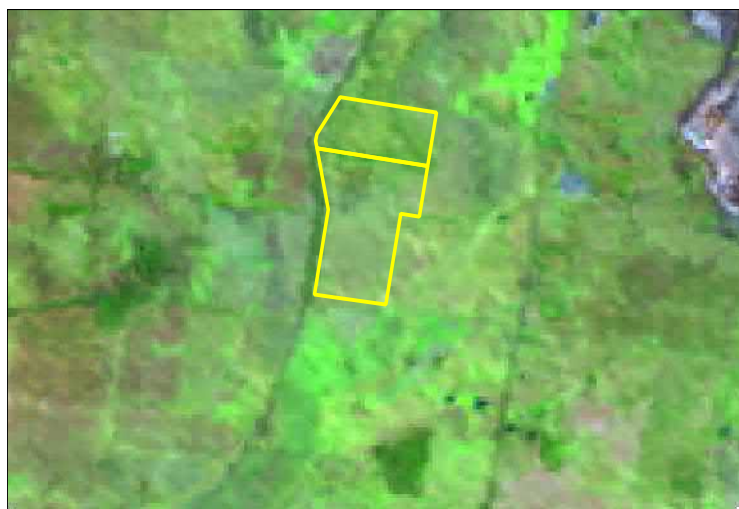
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

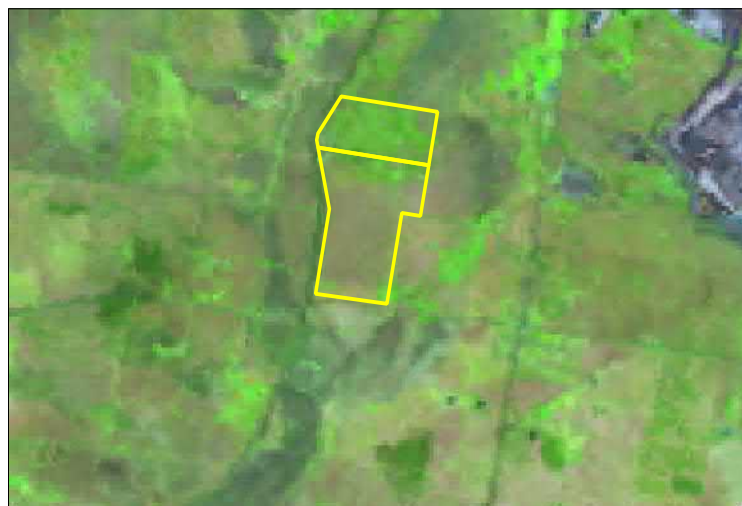
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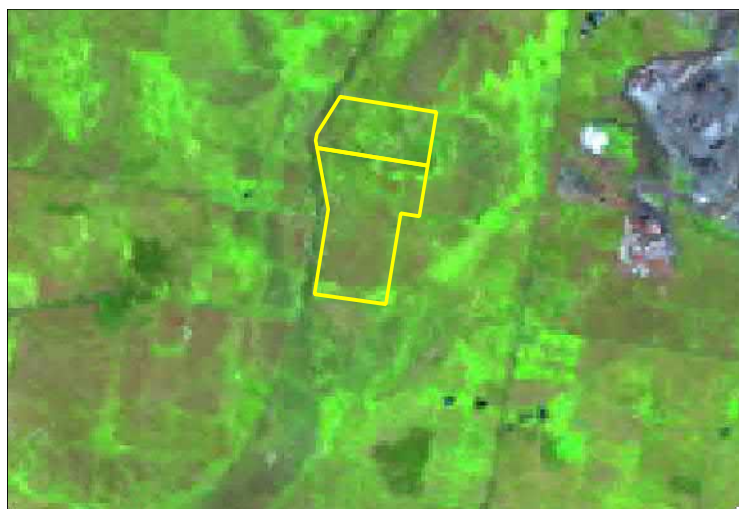


Queensland
Government

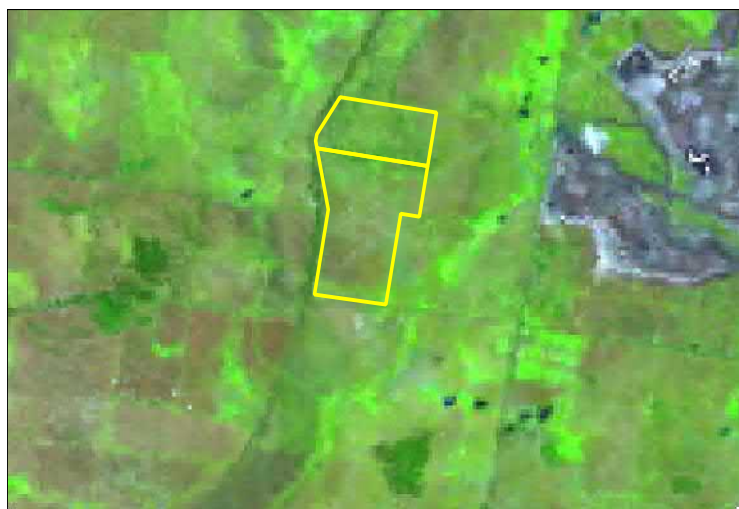
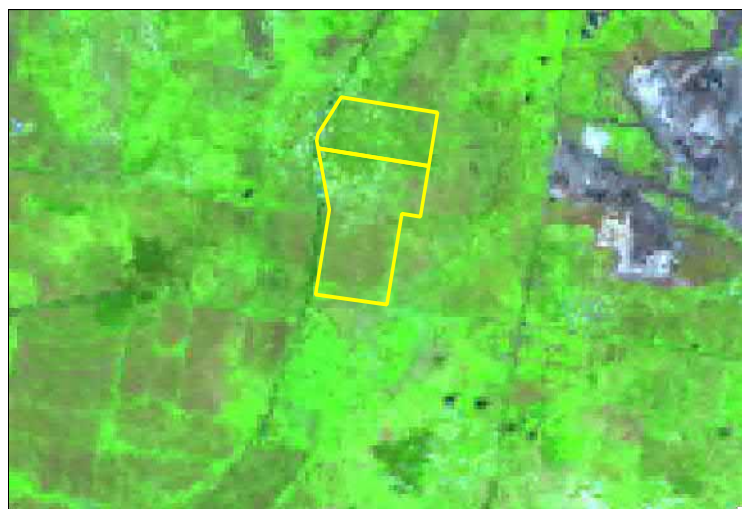
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3875SP150555,3679A341857

Label: paddock23



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

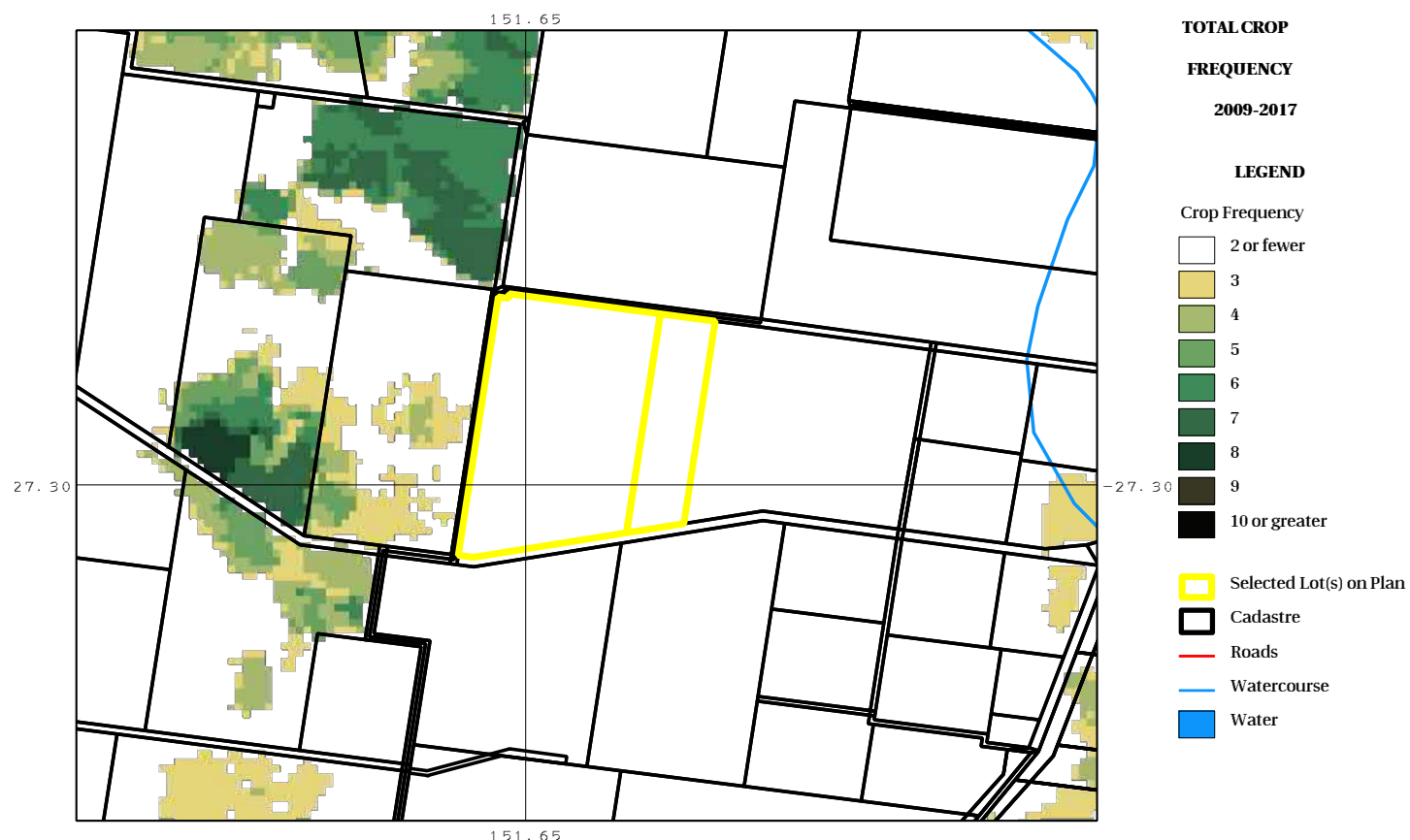
Disclaimer

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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

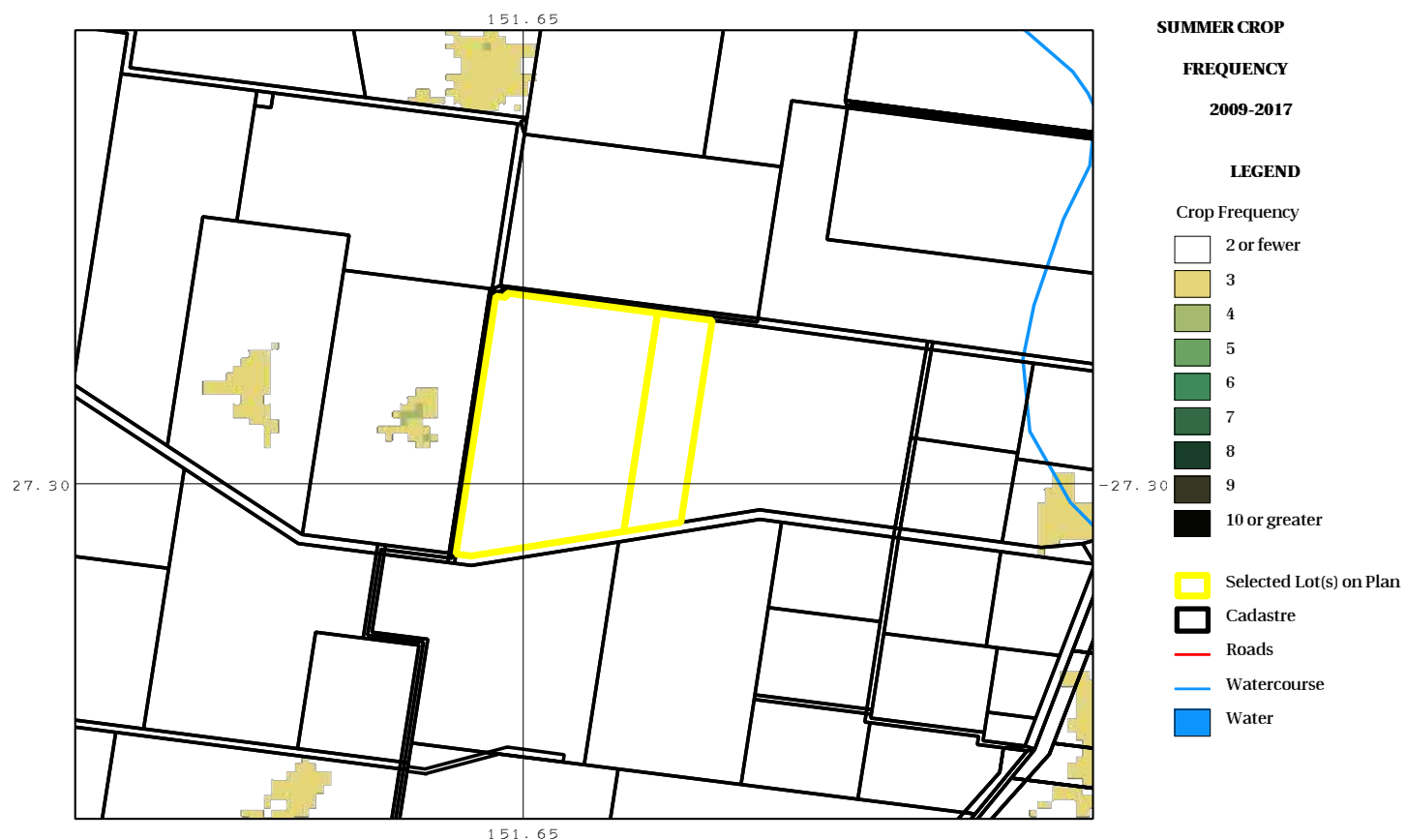
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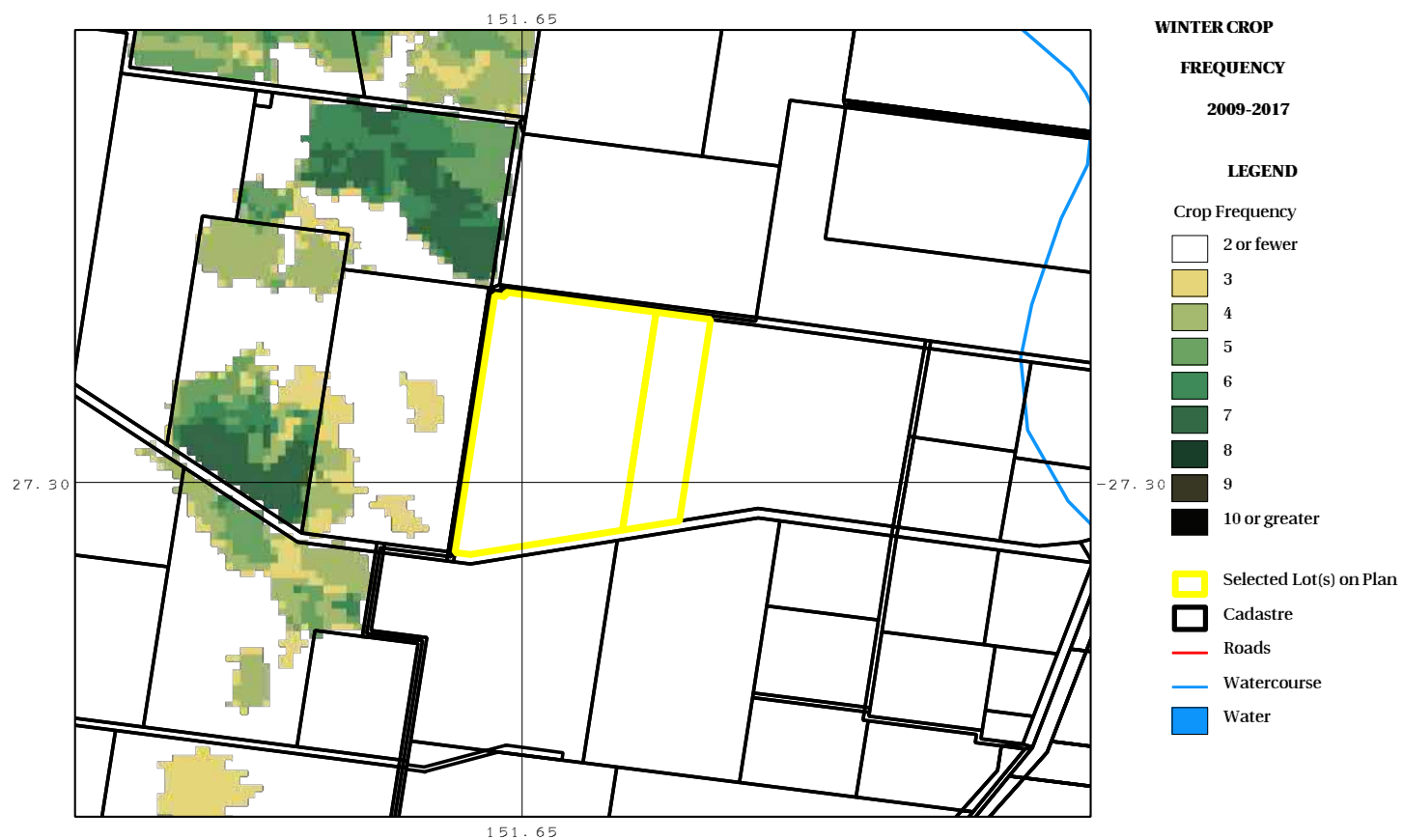


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

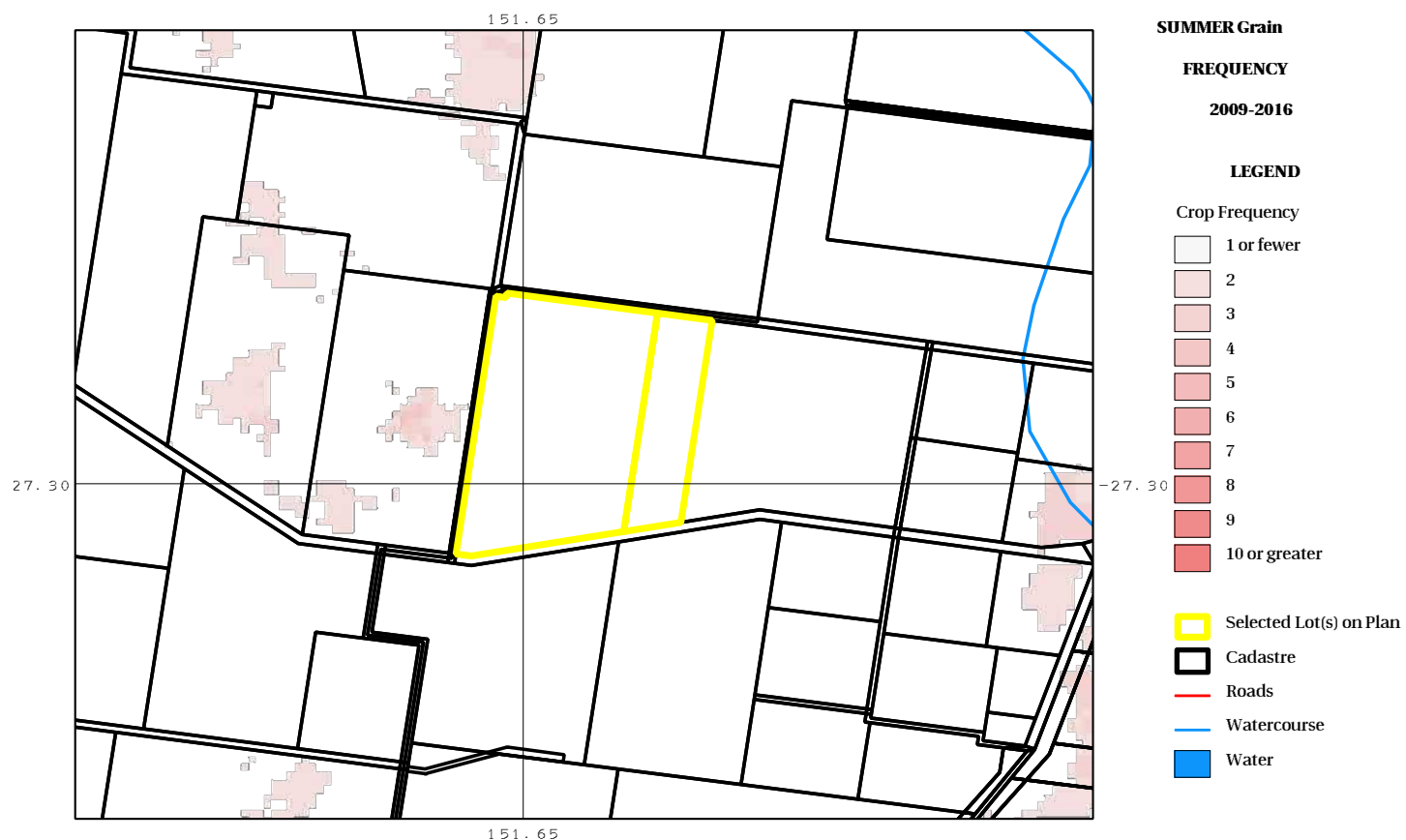
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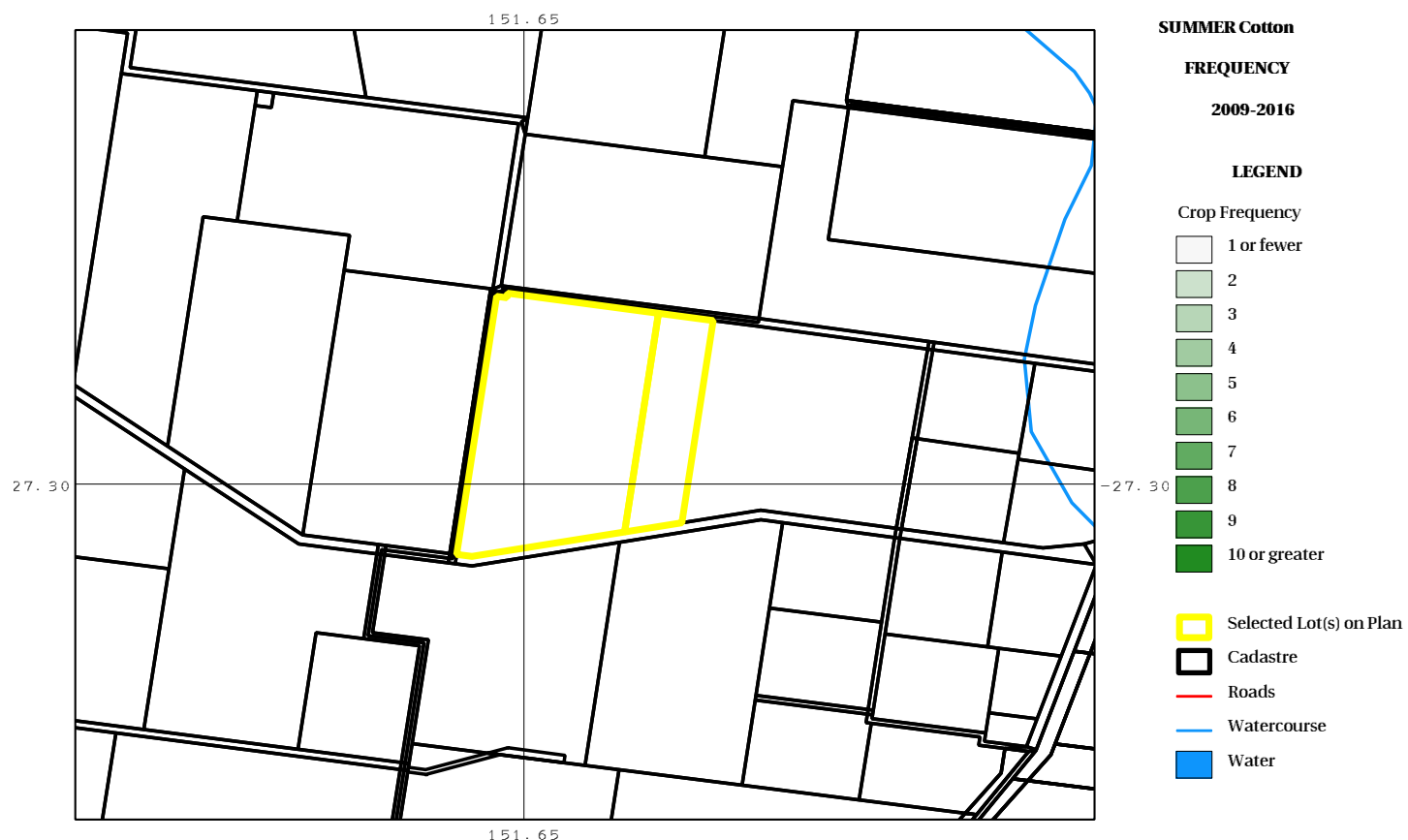


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

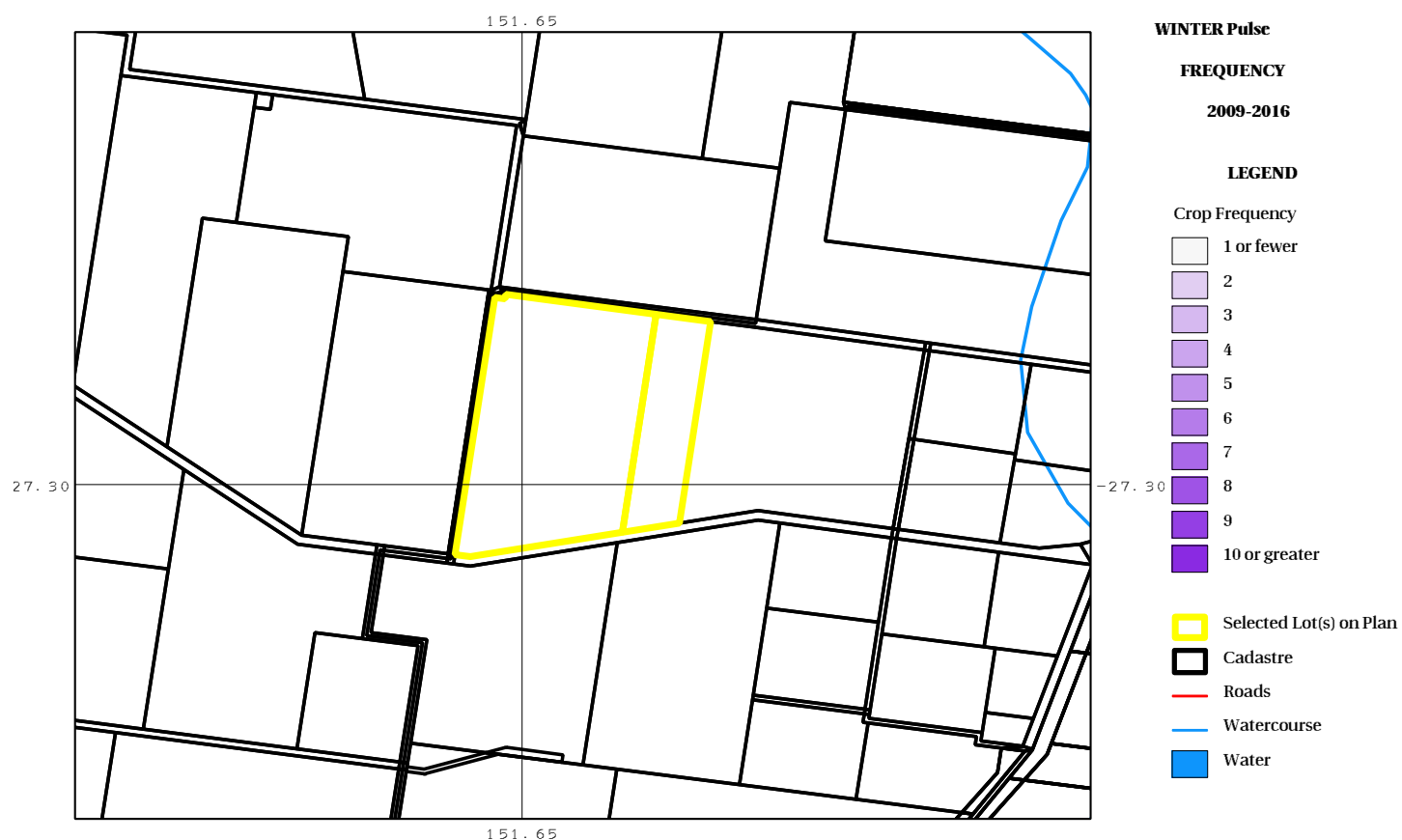
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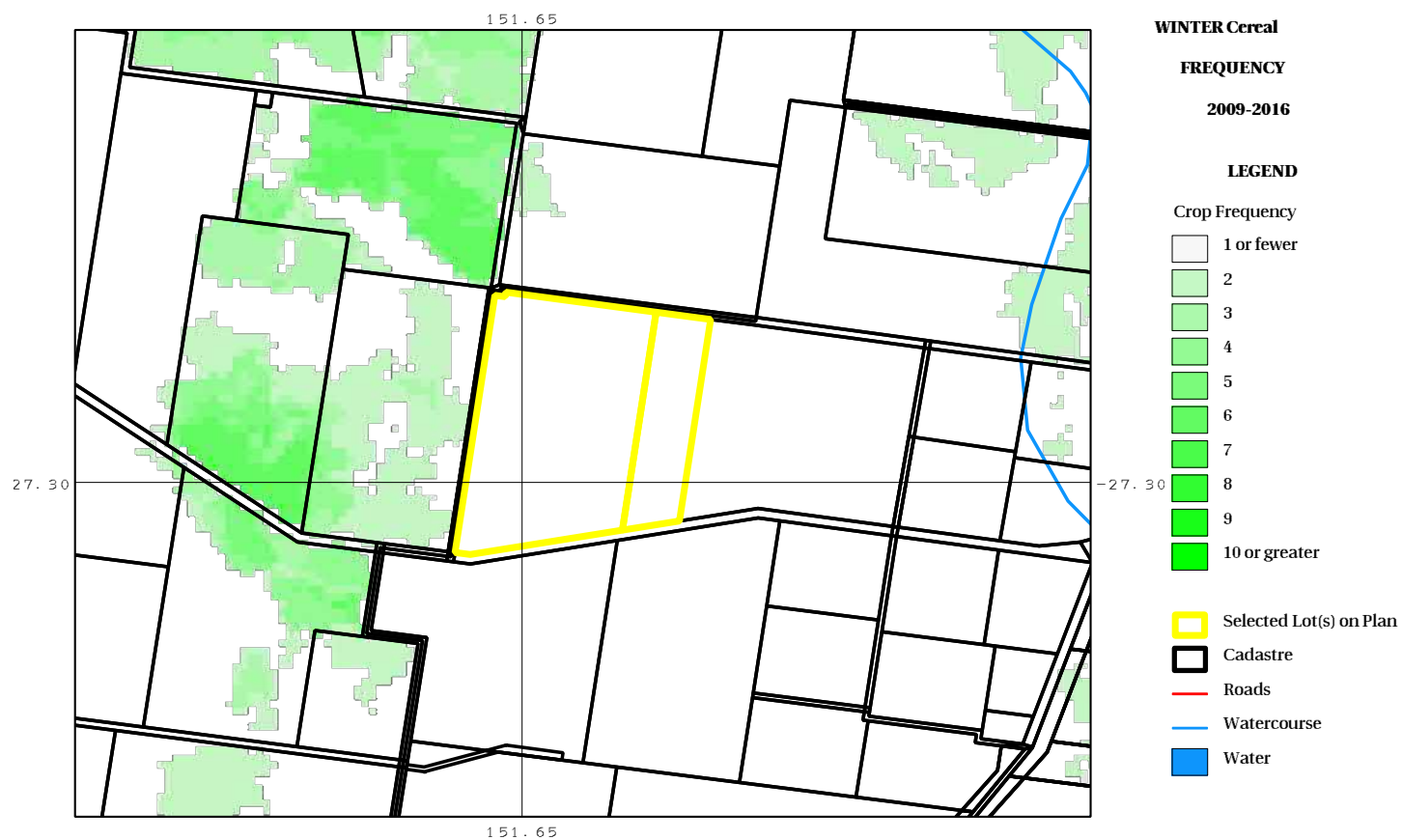


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Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

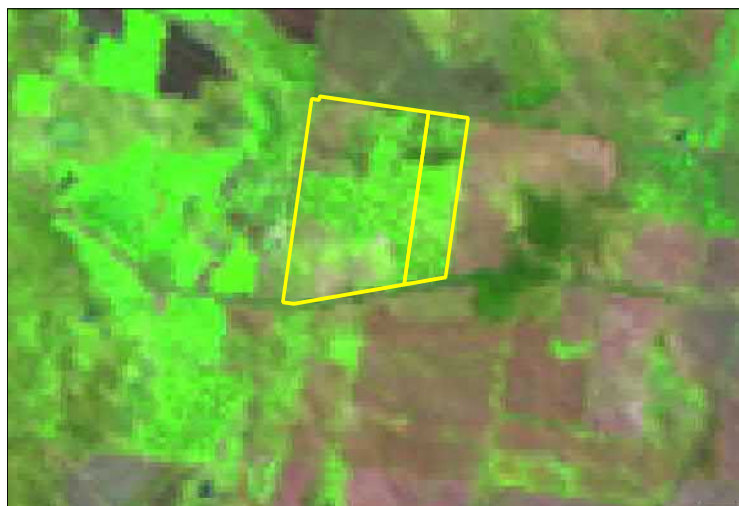
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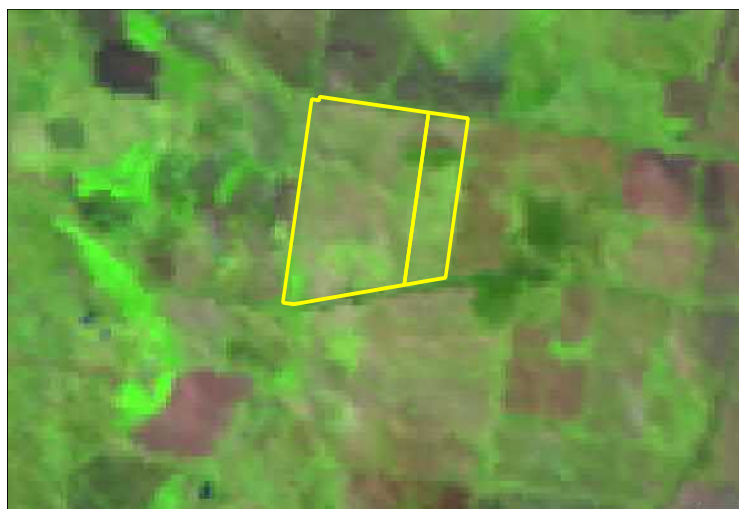


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Government

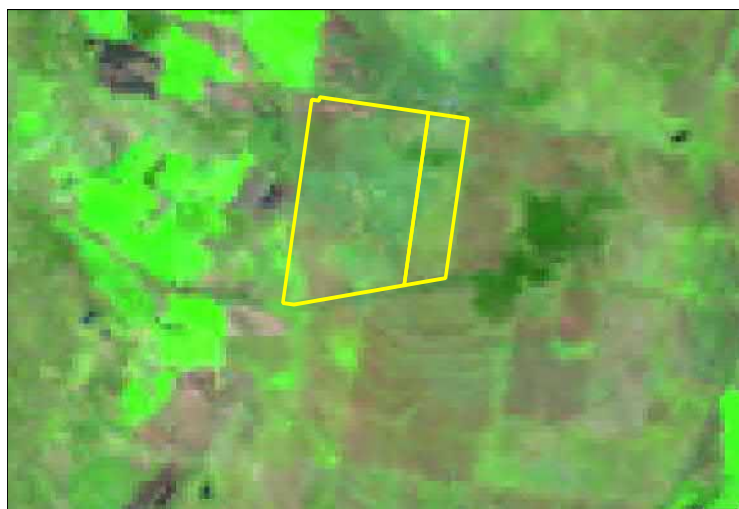
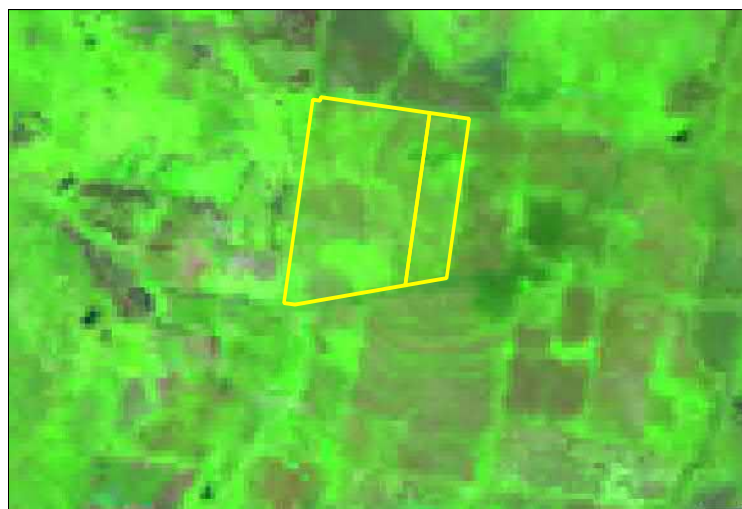
February (left) and September (right) images for 2009



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February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

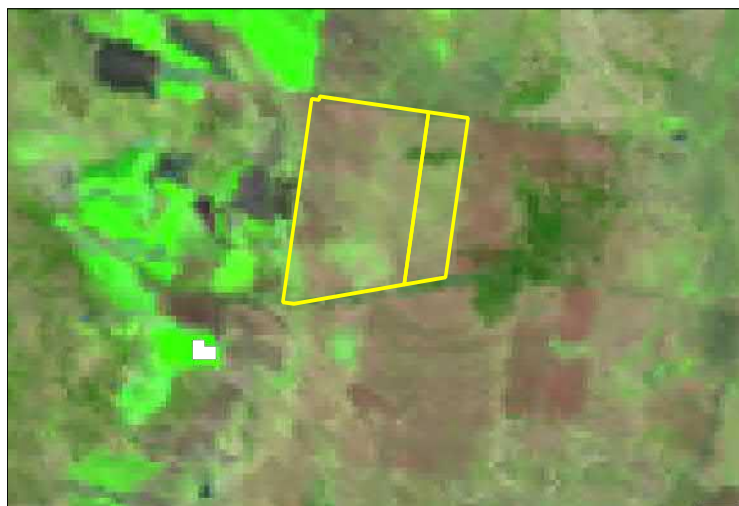
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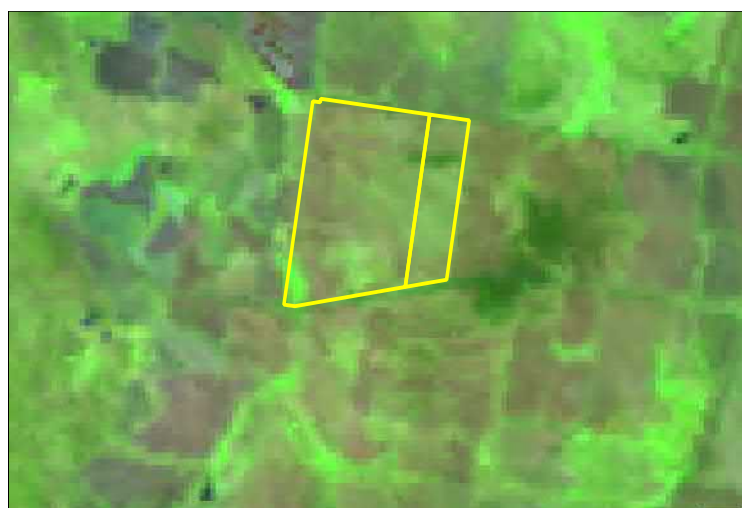


Queensland
Government

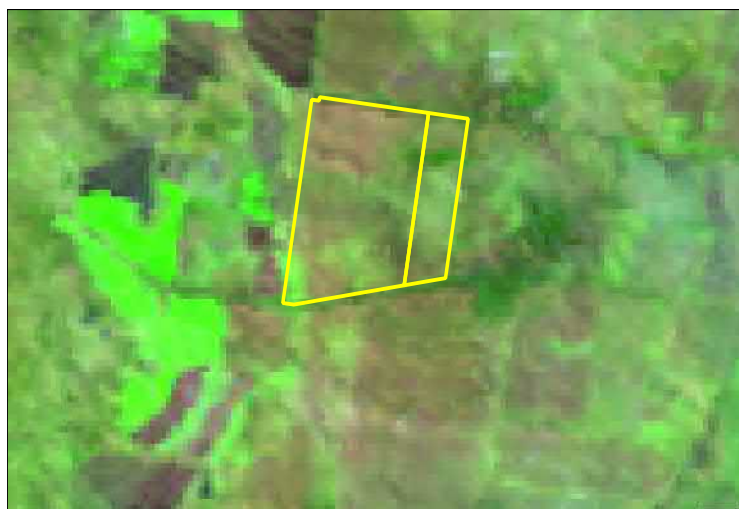
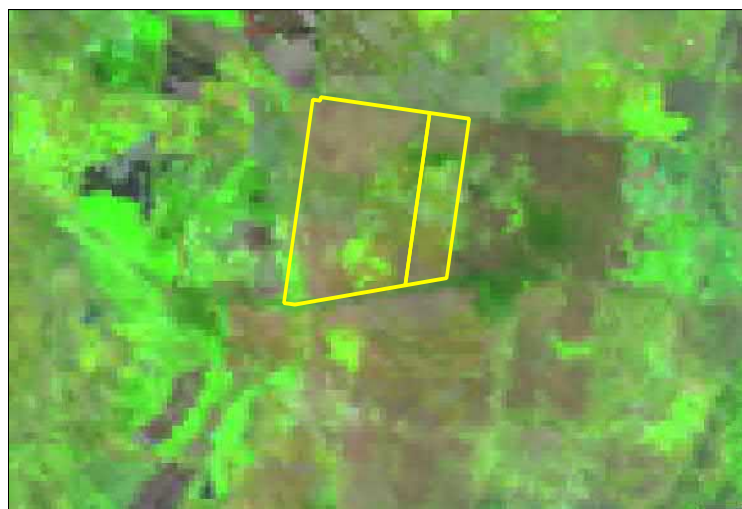
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



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July 17, 2019

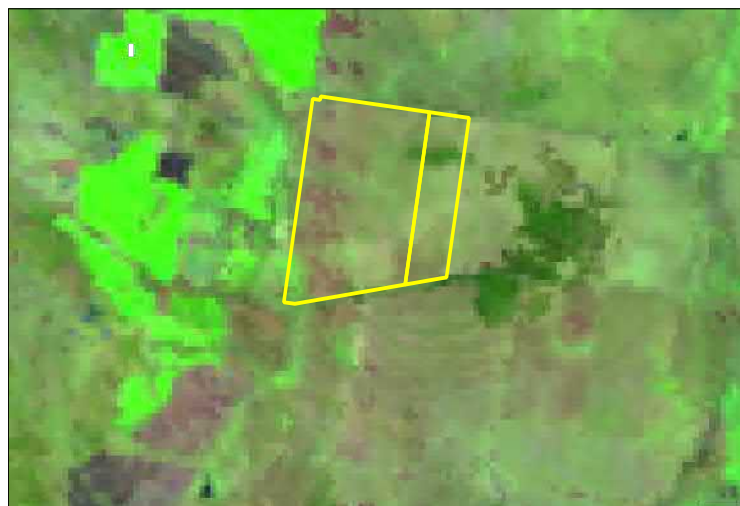
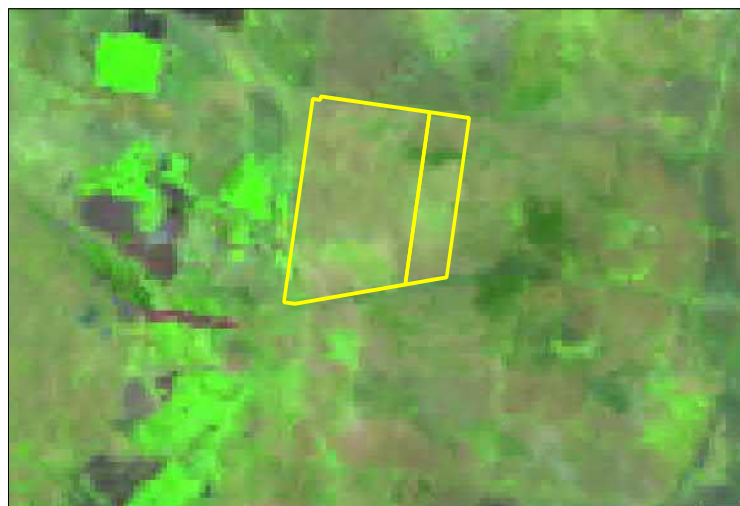
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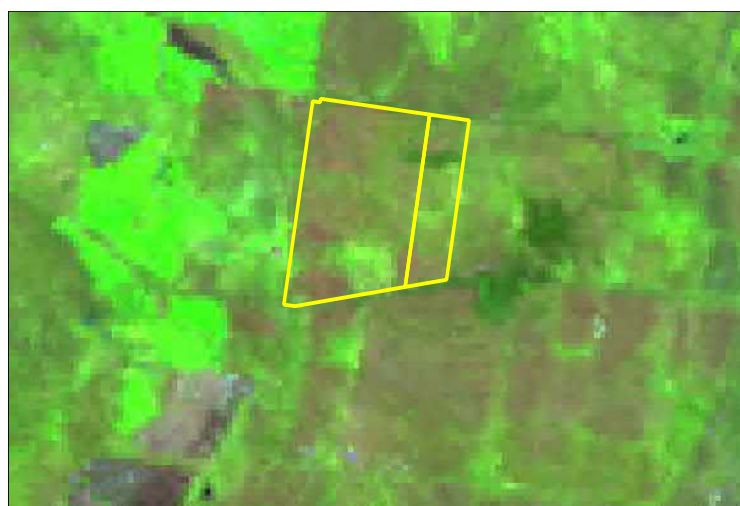
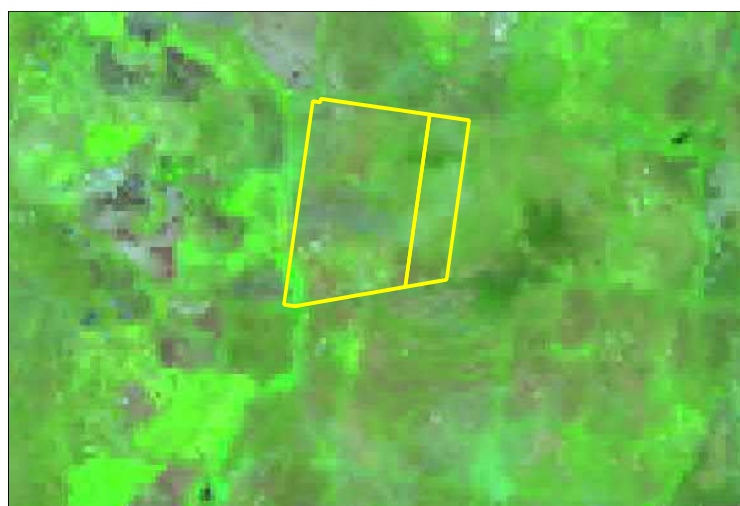


Queensland
Government

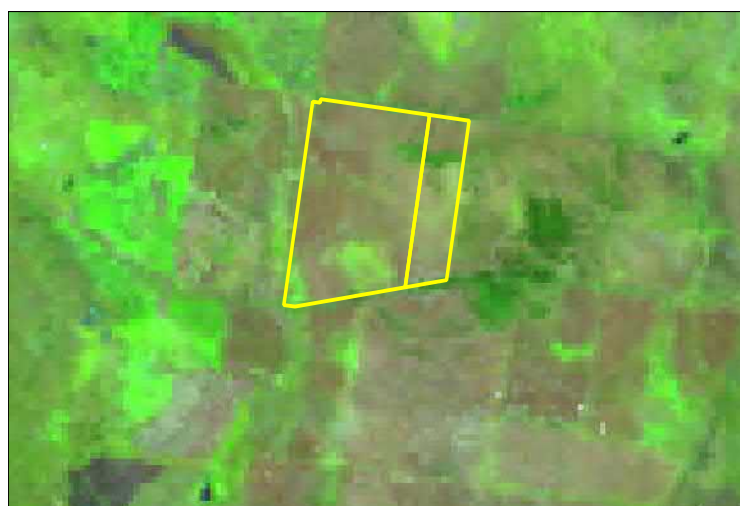
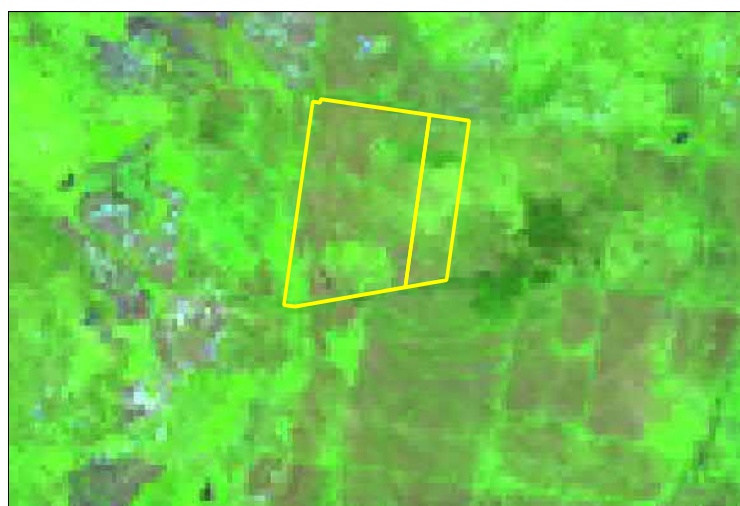
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July 17, 2019

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Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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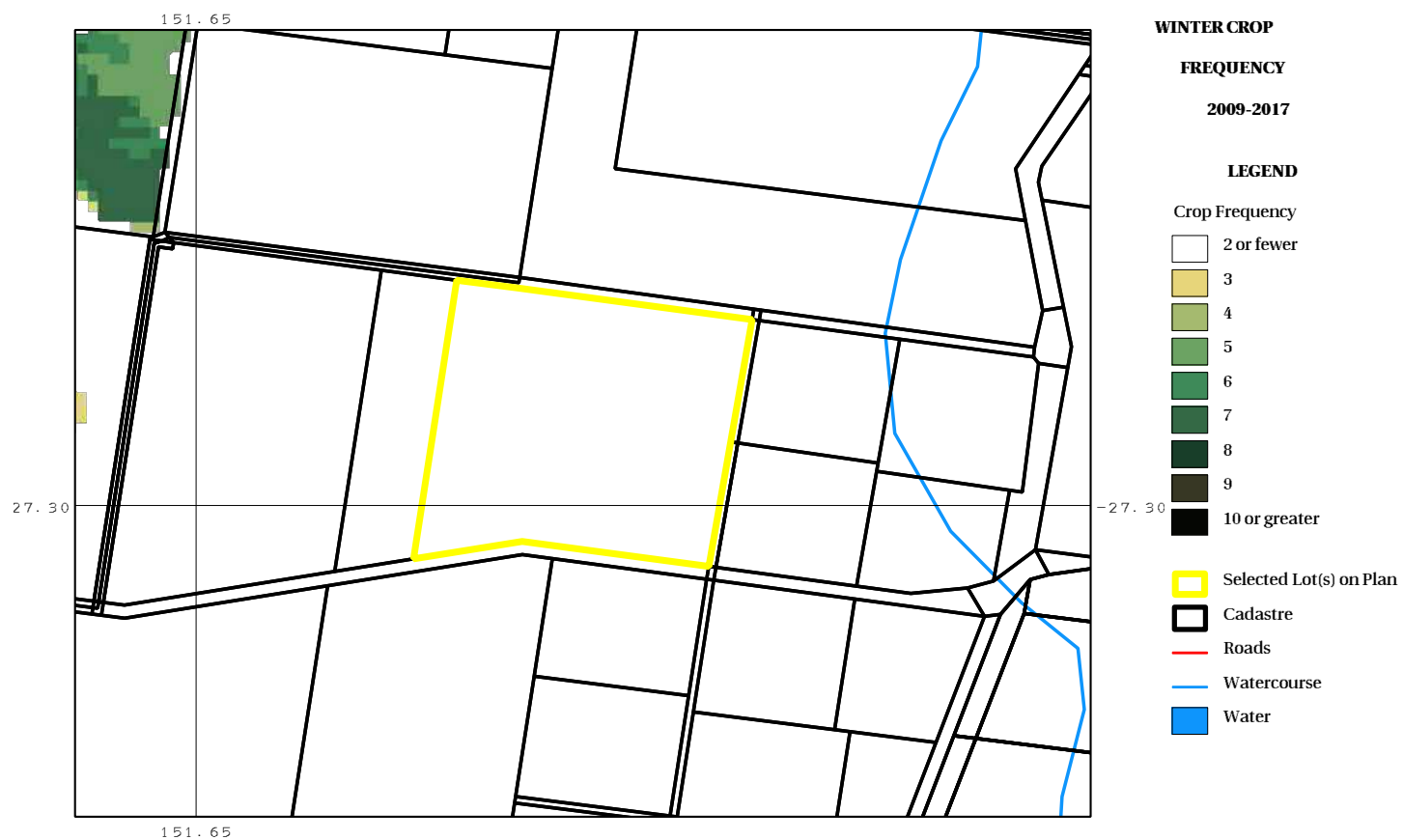


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Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

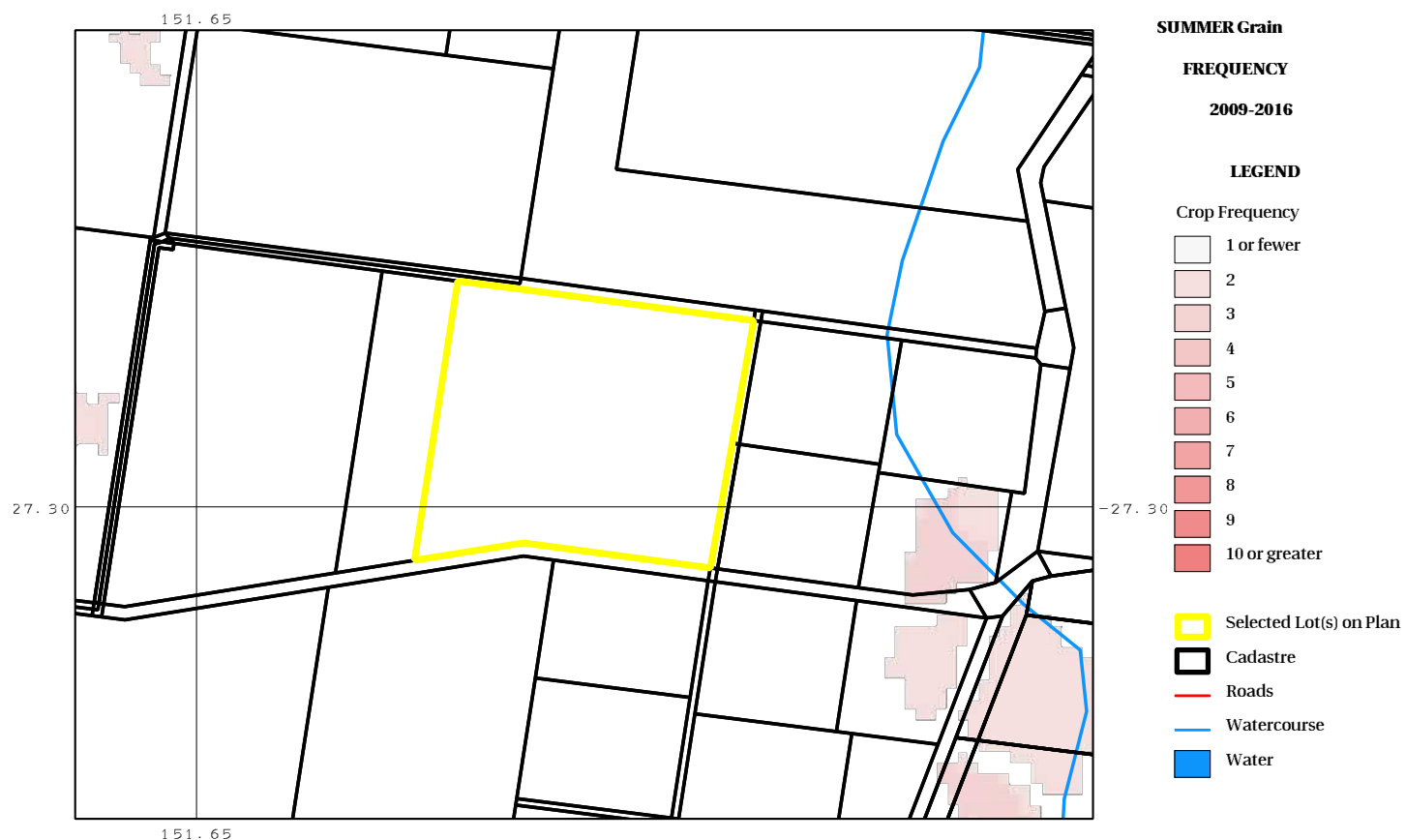
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Label: paddock25



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

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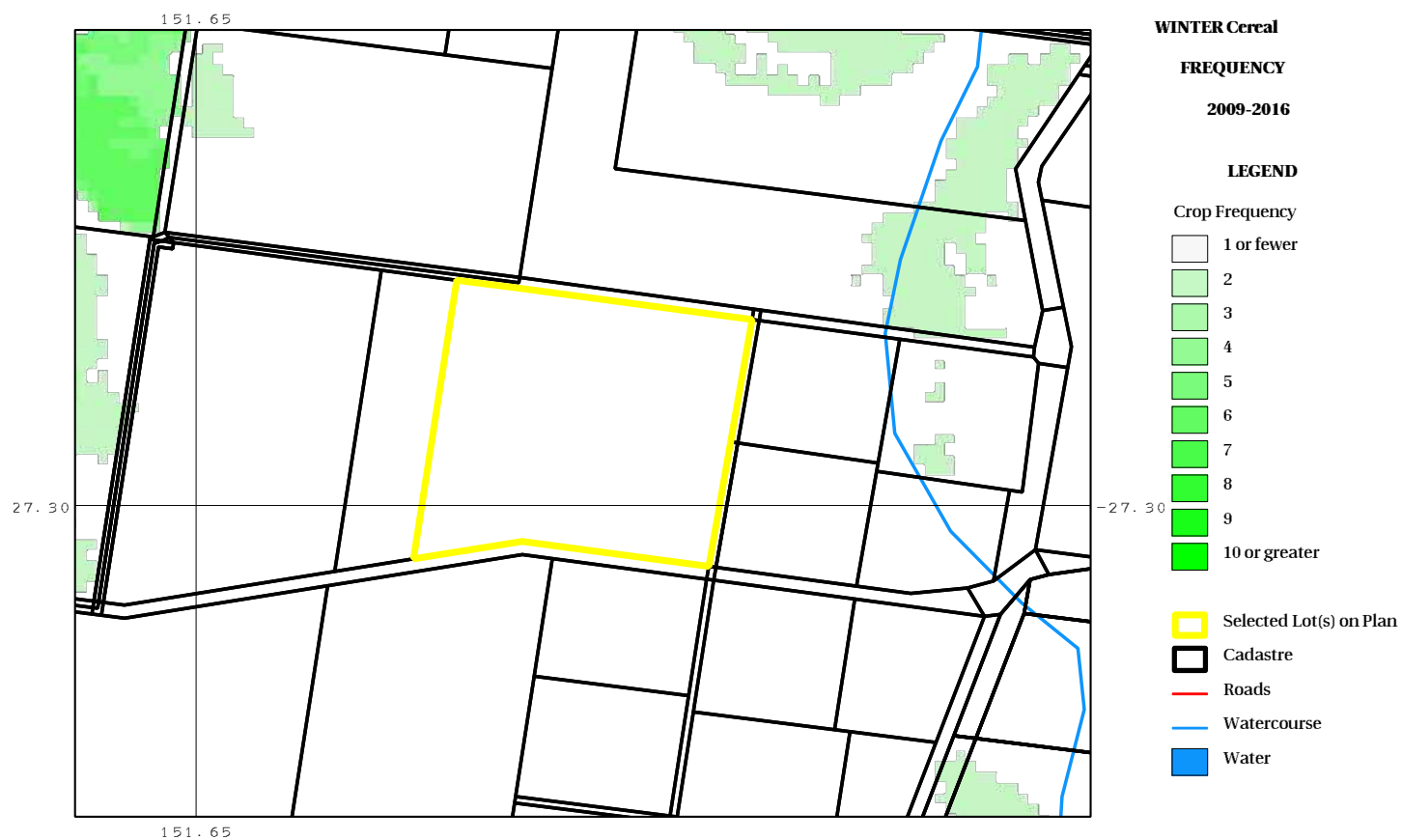


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Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

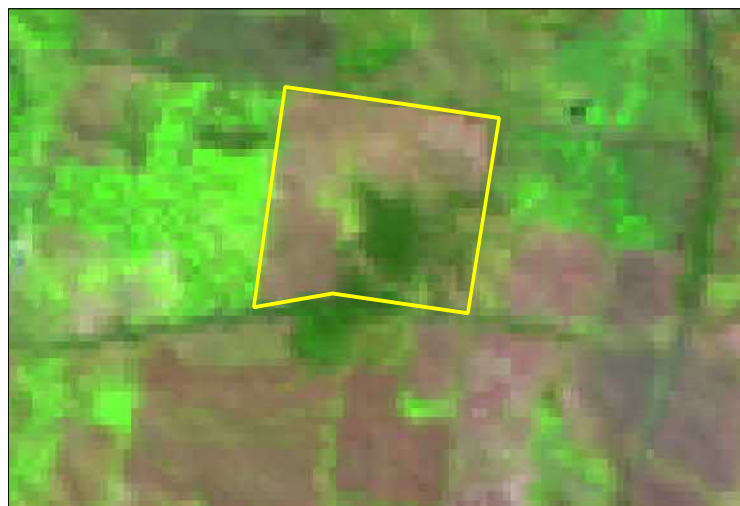
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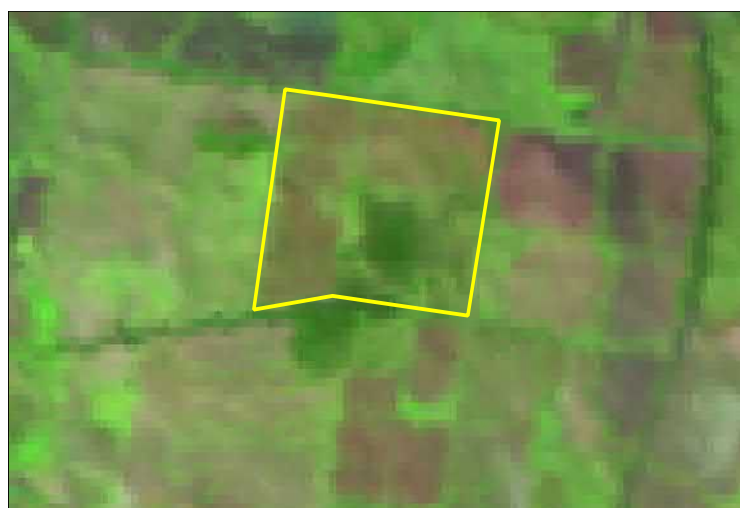
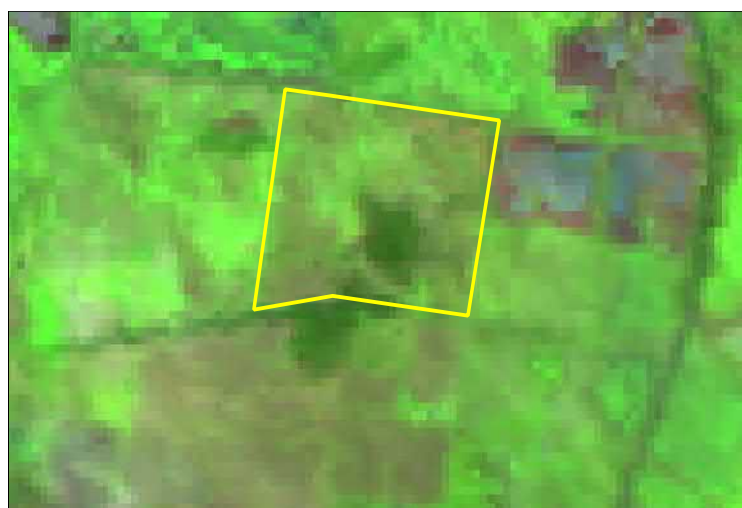


Queensland
Government

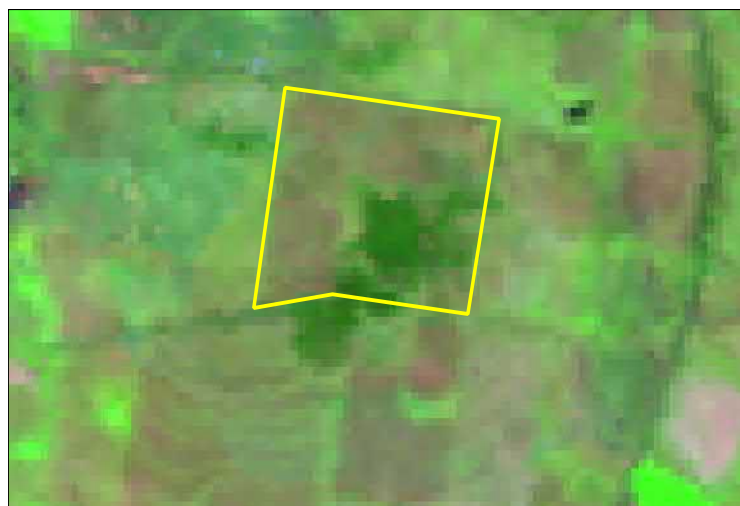
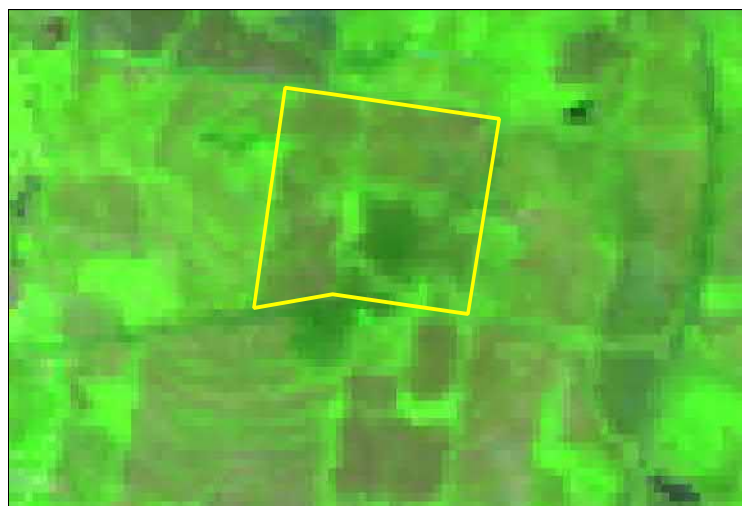
February (left) and September (right) images for 2009



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February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

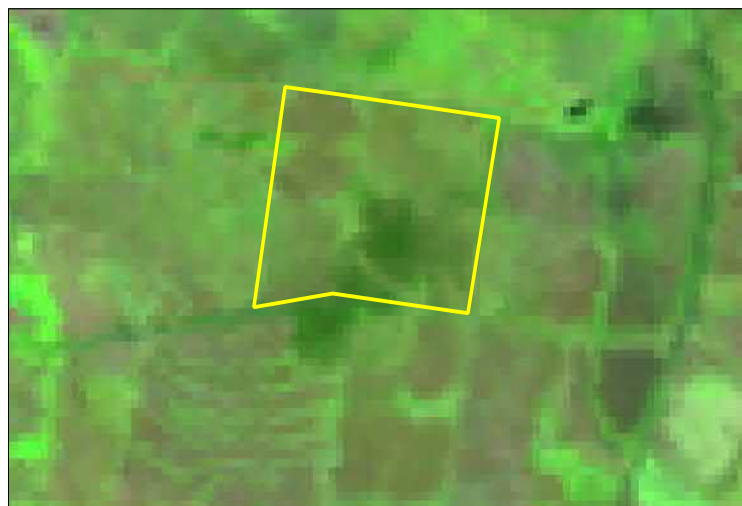
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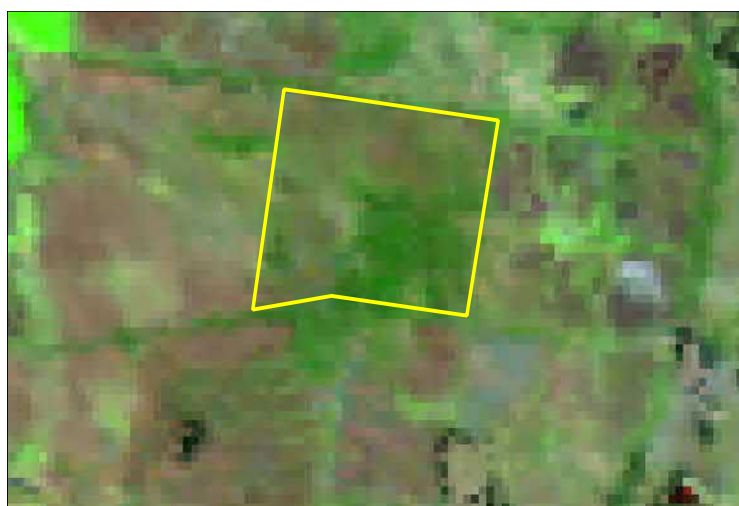
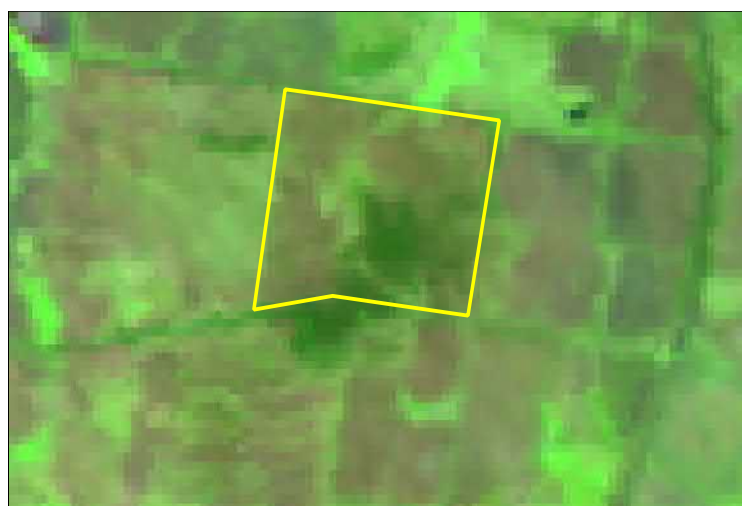


Queensland
Government

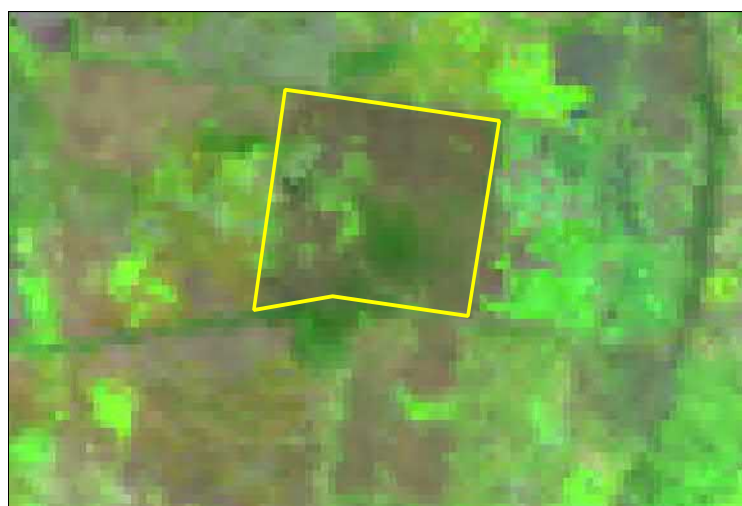
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

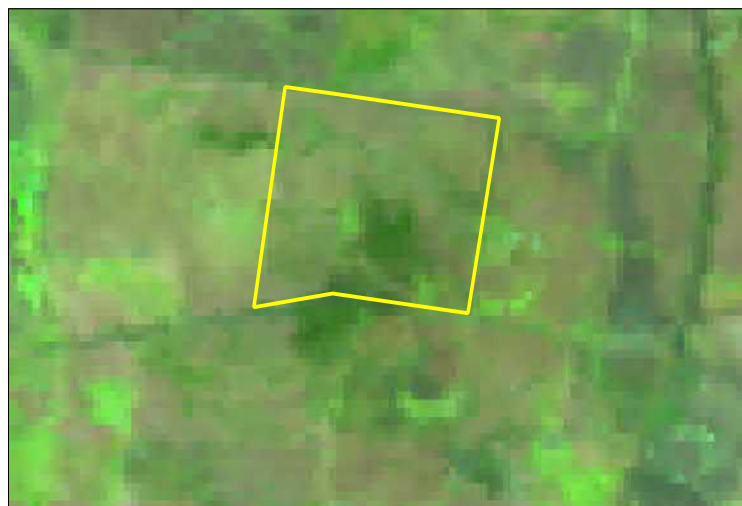
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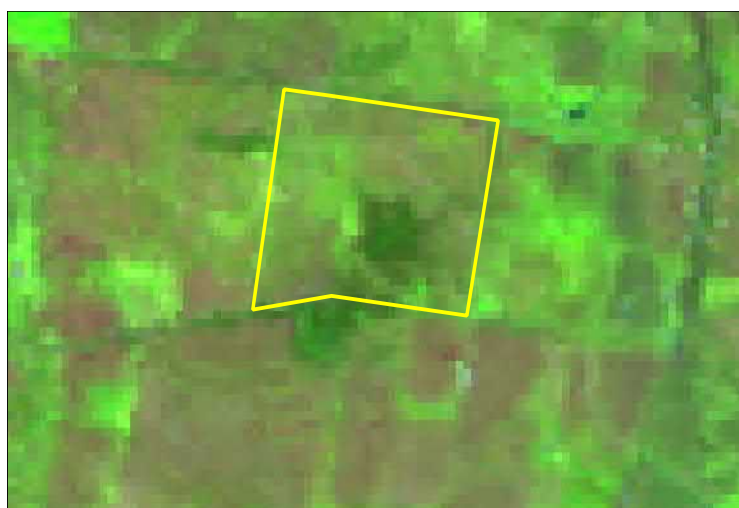
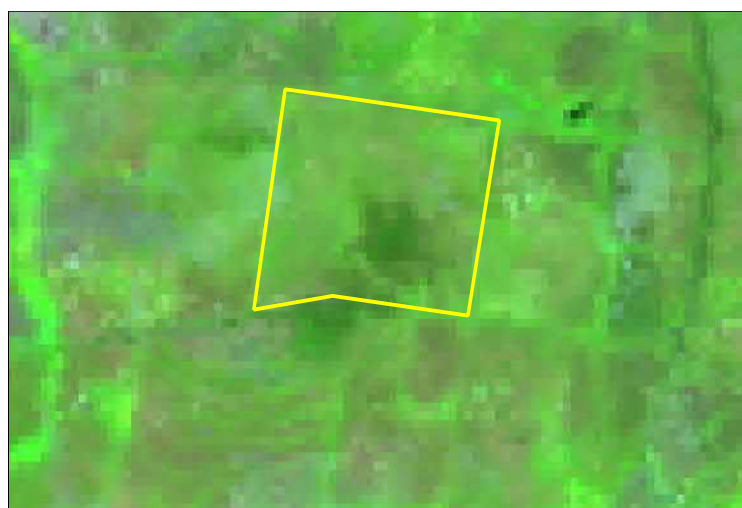


Queensland
Government

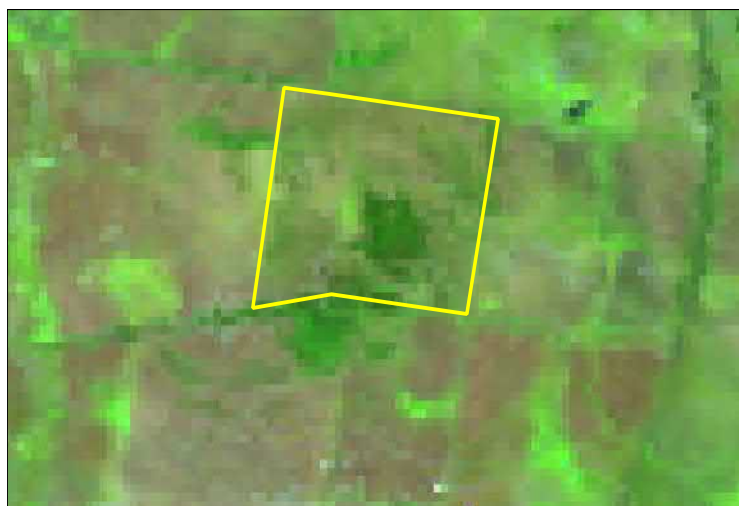
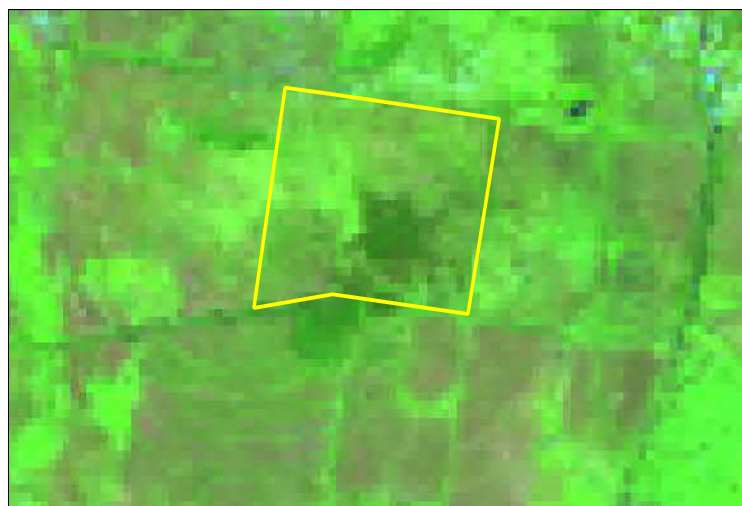
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 4086A342138

Label: paddock25

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

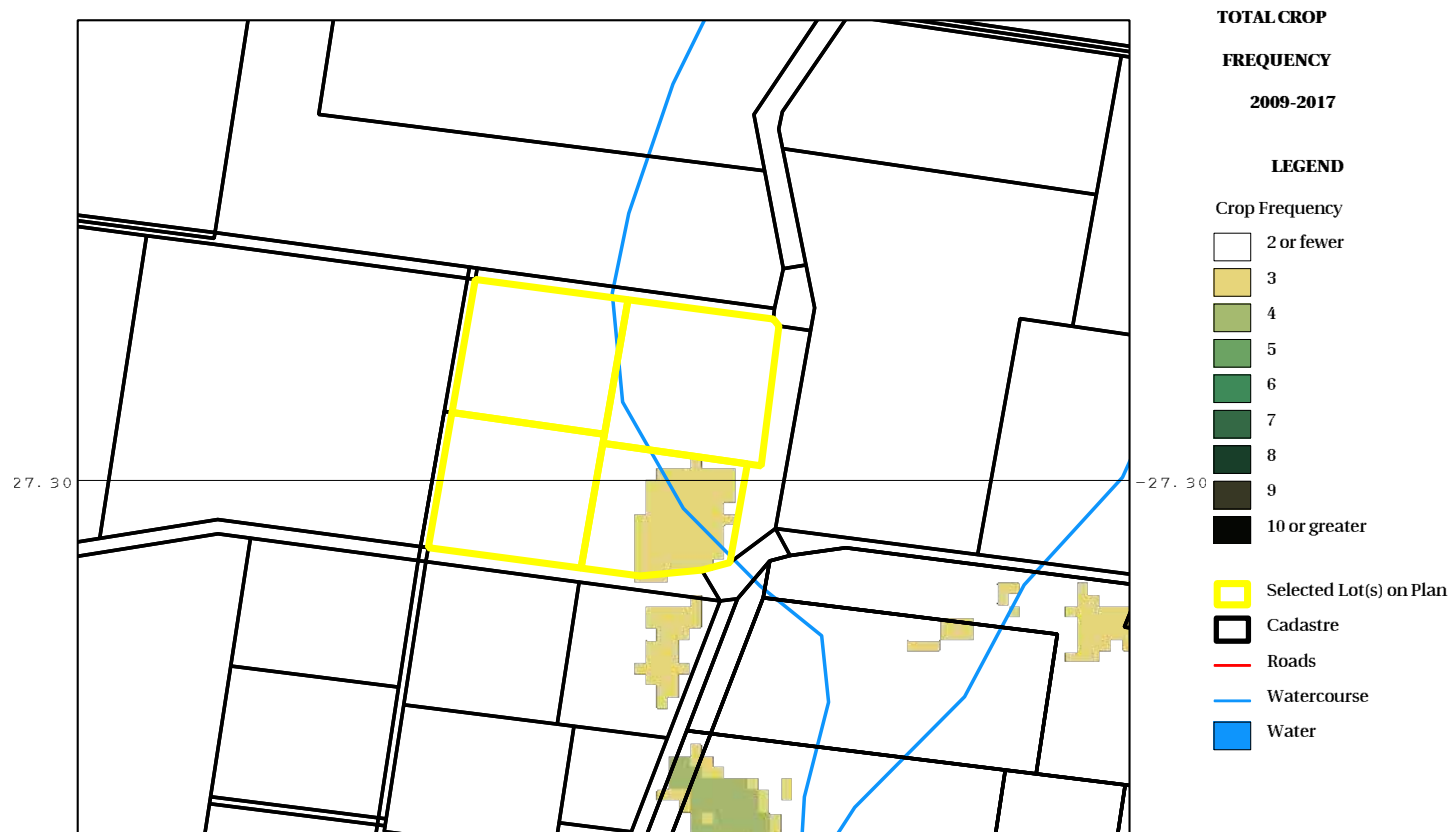
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Estimated total crop frequency map (2009 - 2018)



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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 101A342317,100AG2498,94A342317,5 etc.

Label: paddock26



Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 101A342317,100AG2498,94A342317,5 etc.

Label: paddock26



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



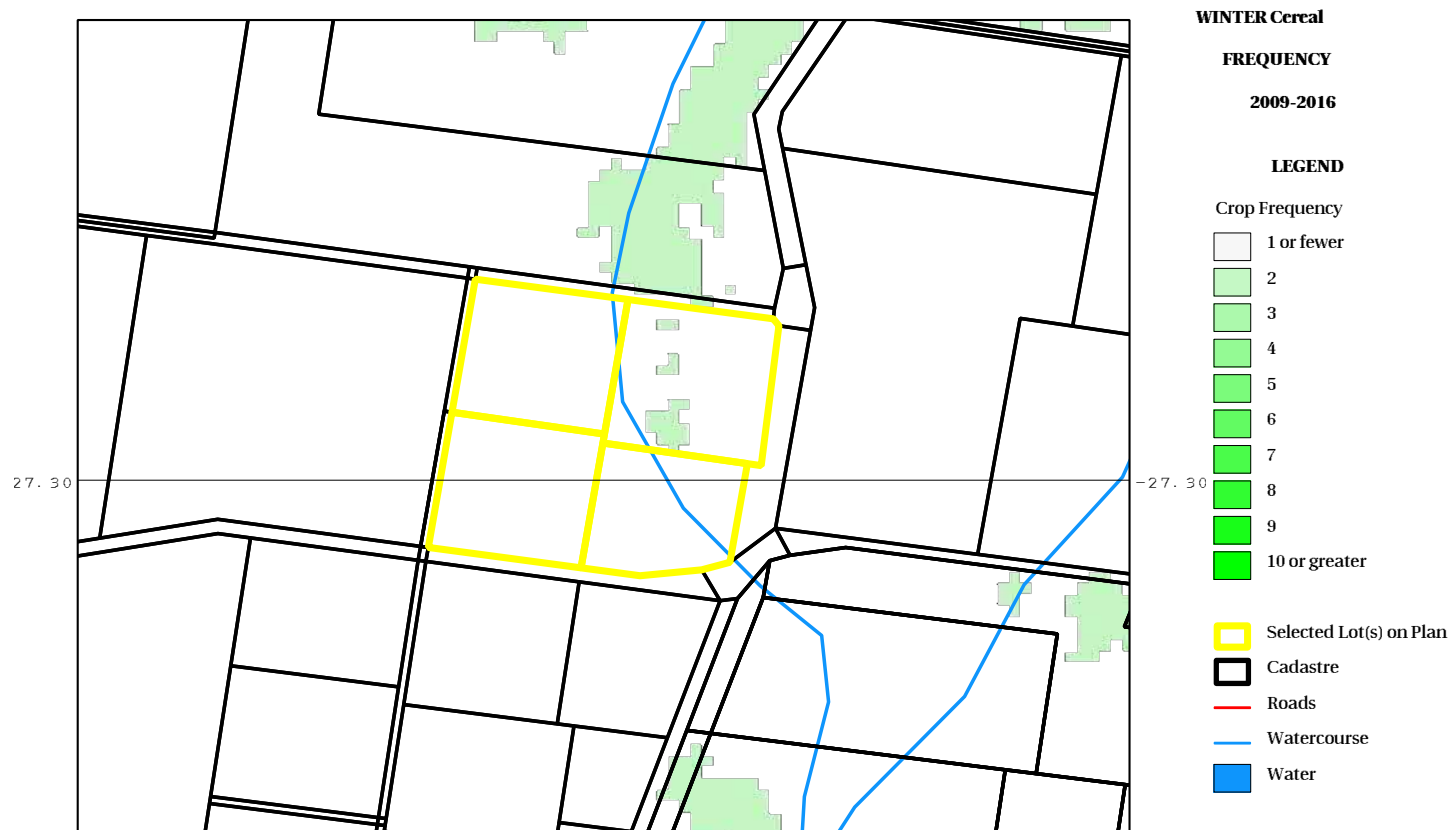
Estimated frequency map for summer (February) cotton crop (2009 - 2018)



Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

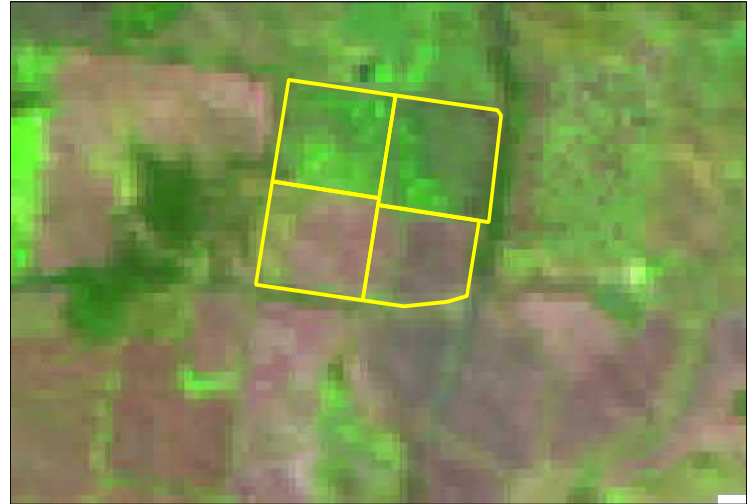
Lot on Plan: 101A342317,100AG2498,94A342317,5 etc.

Label: paddock26



Queensland
Government

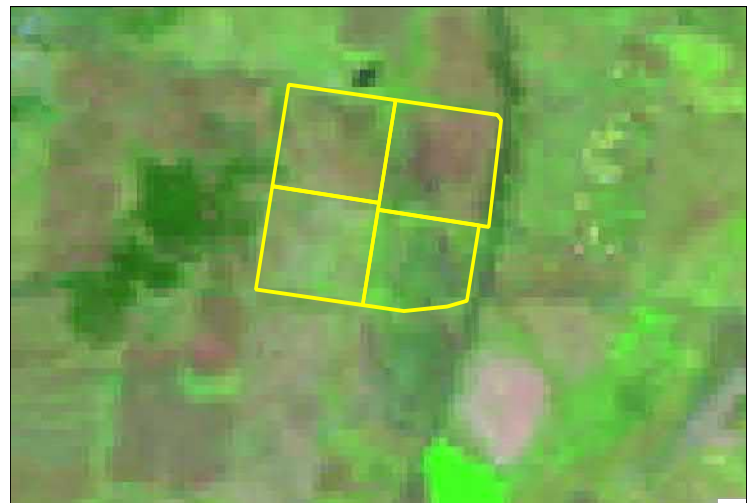
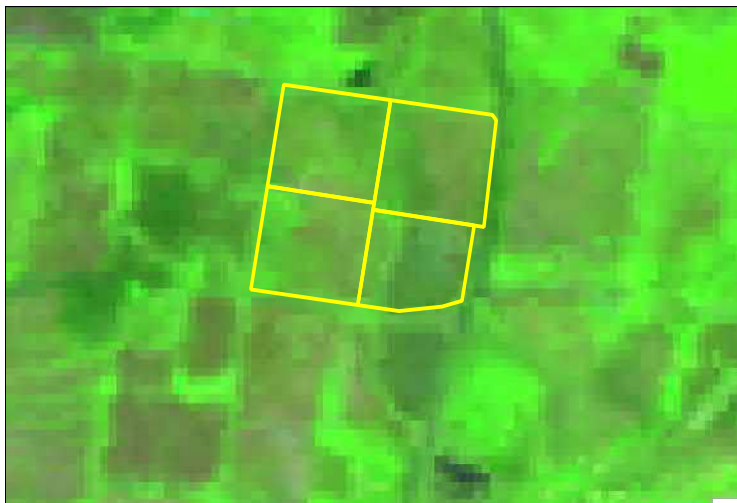
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

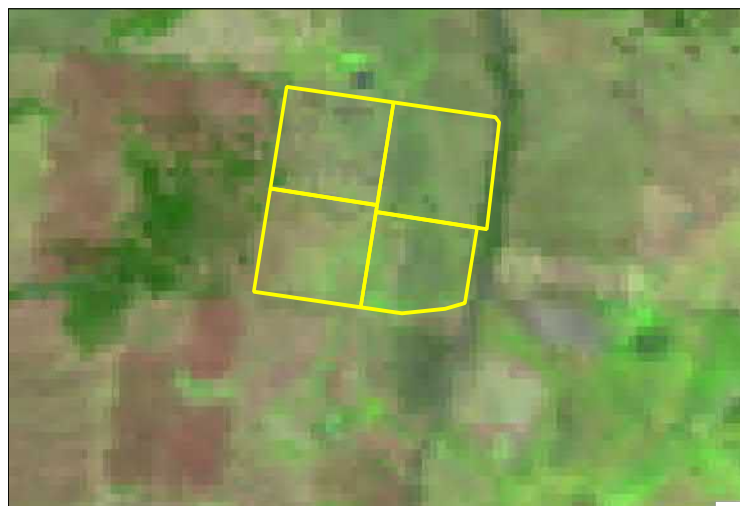
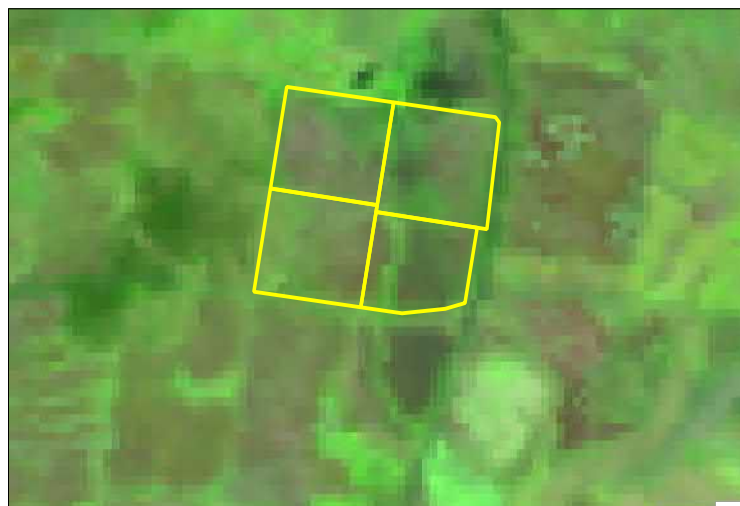
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Label: paddock26

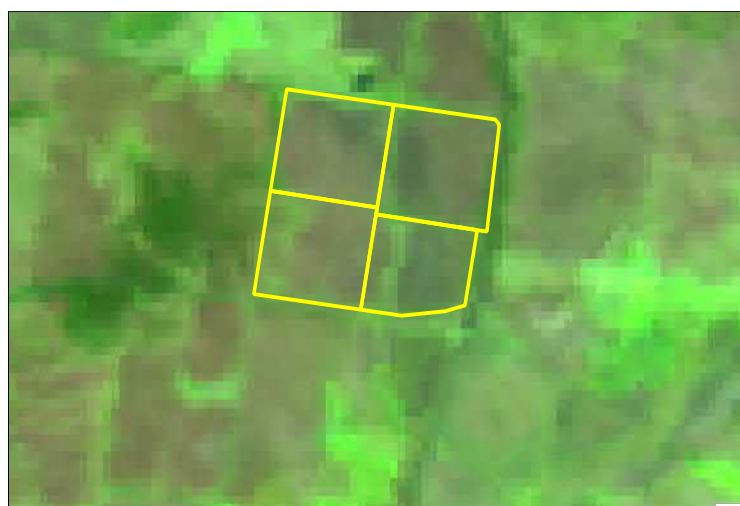


Queensland
Government

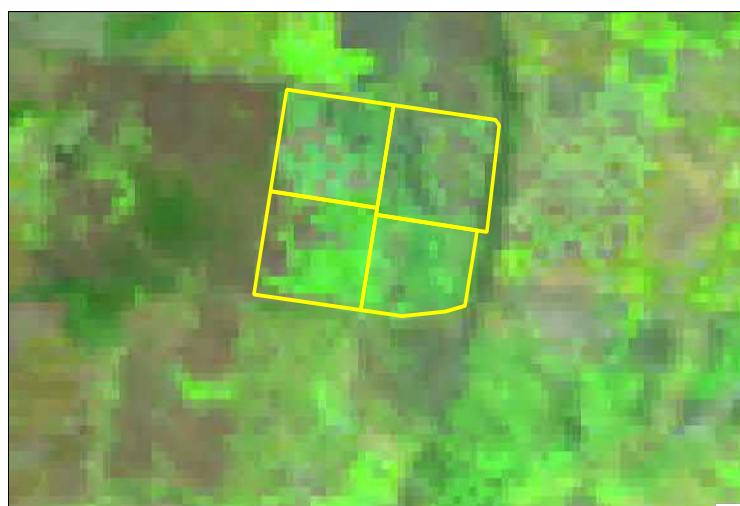
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

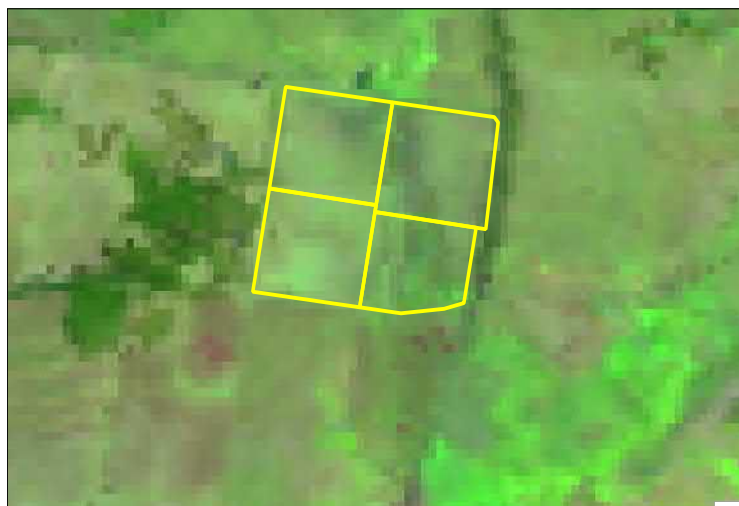
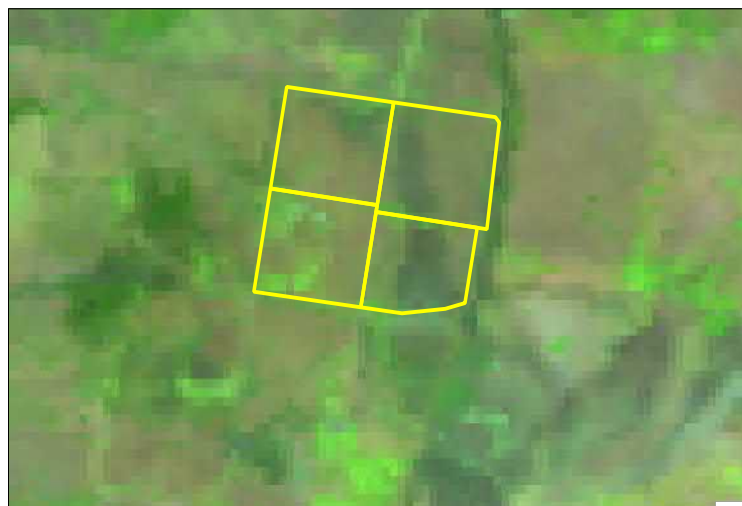
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Label: paddock26

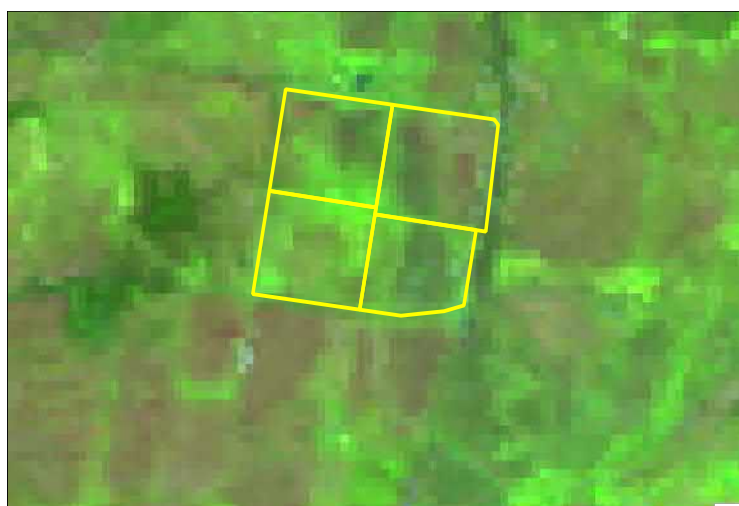
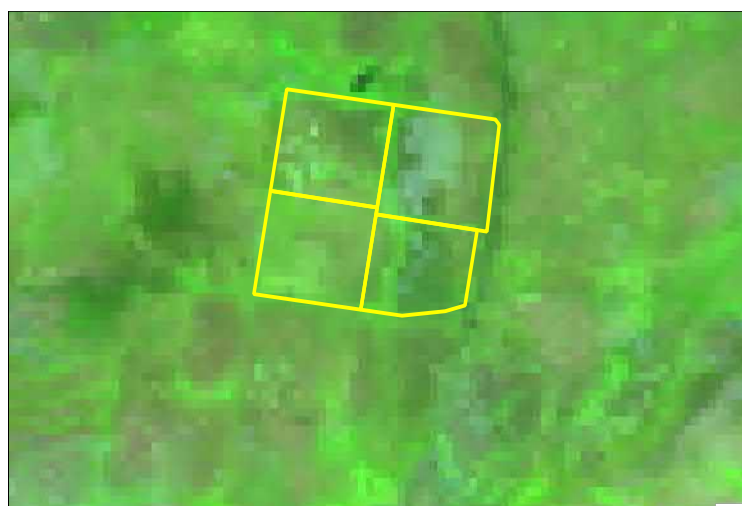


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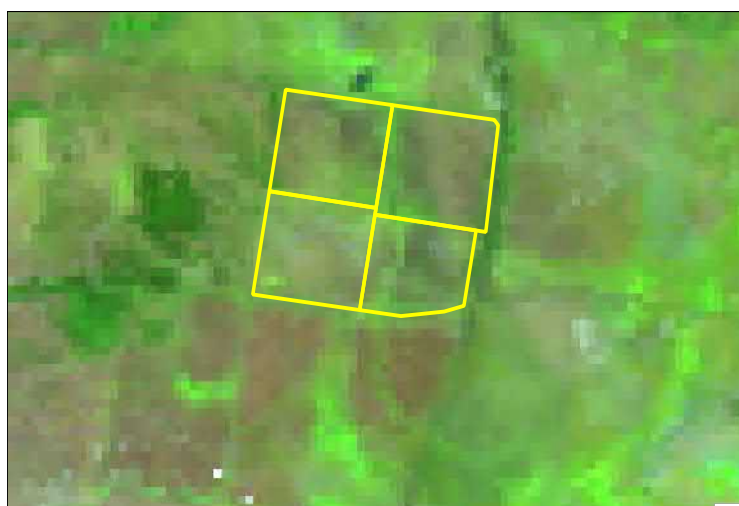
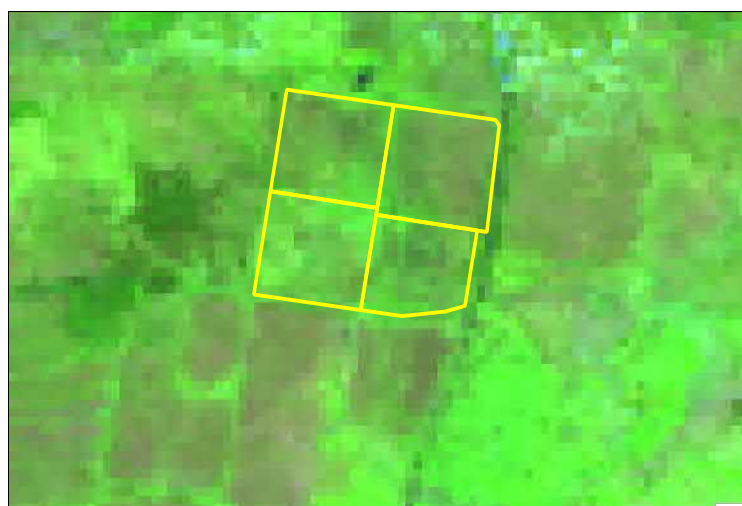
February (left) and September (right) images for 2015



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July 17, 2019

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Label: paddock26



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 91A342317,90A342317,3448A341747

Label: paddock30



Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 91A342317,90A342317,3448A341747

Label: paddock30



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 91A342317,90A342317,3448A341747

Label: paddock30

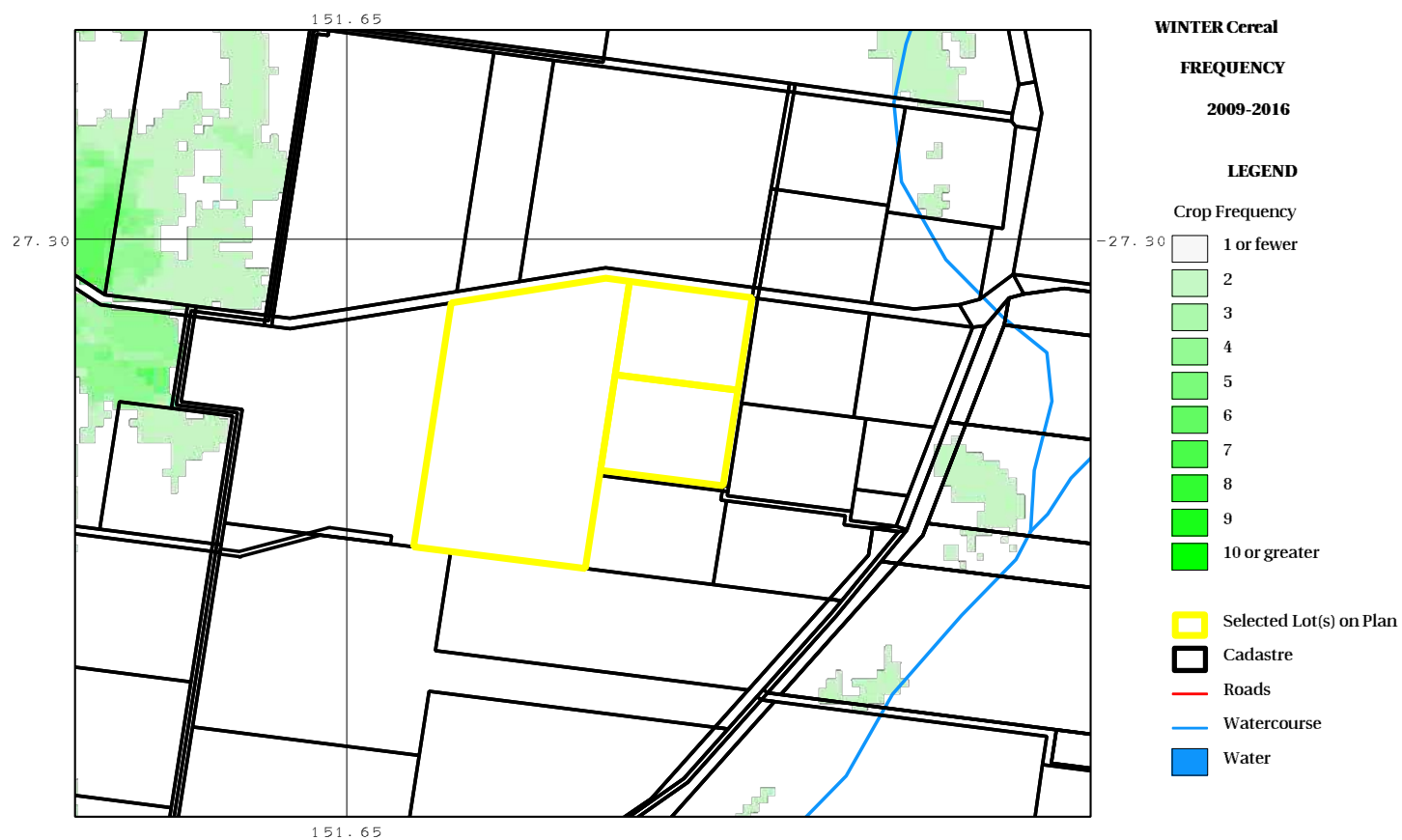


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 91A342317,90A342317,3448A341747

Label: paddock30



Queensland
Government

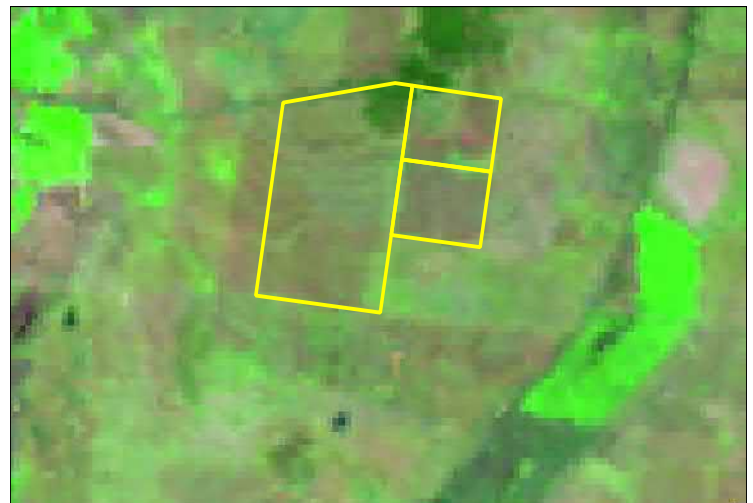
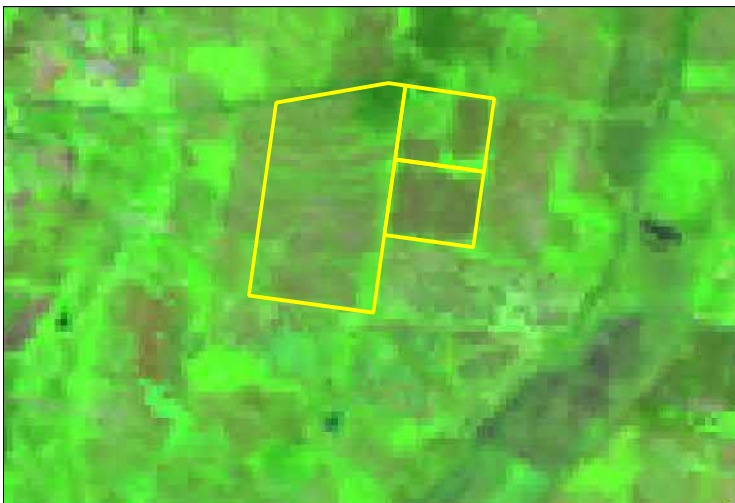
February (left) and September (right) images for 2009



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FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

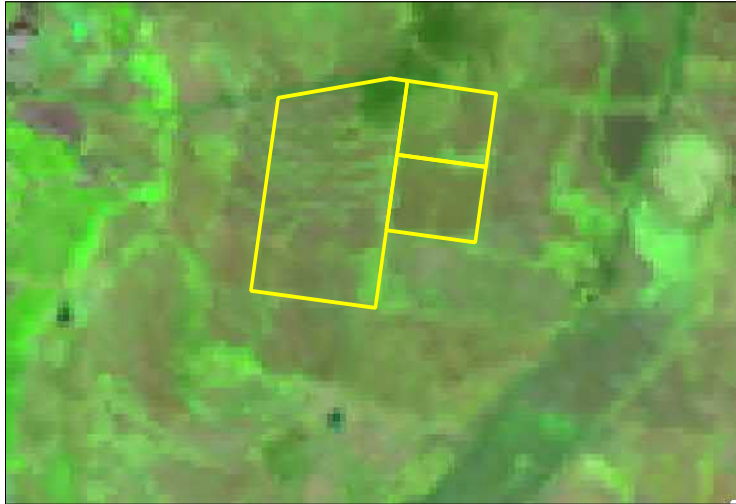
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Label: paddock30



Queensland
Government

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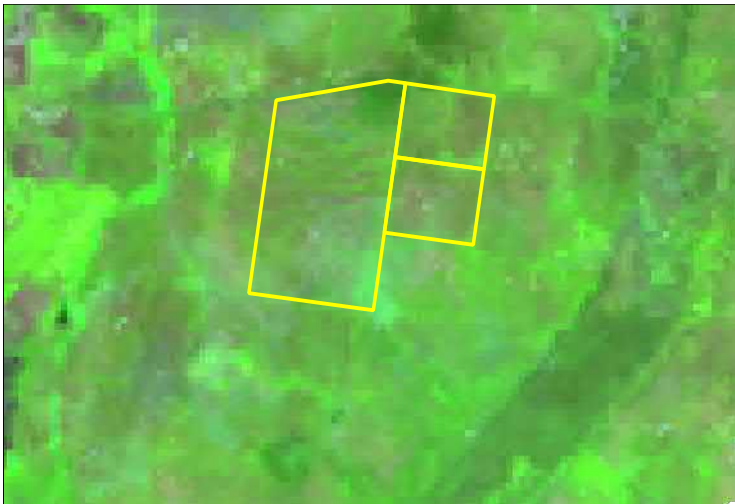


Queensland
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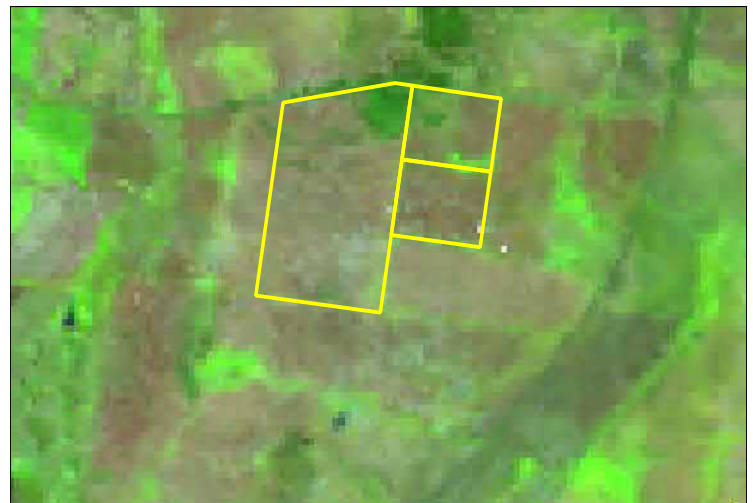
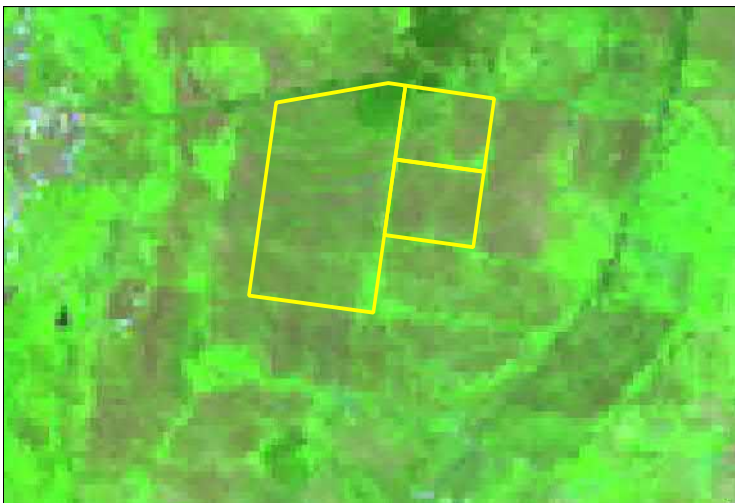
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February (left) and September (right) images for 2018

Image not available

Image not available

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 95A342317,99A342317,96A342317,50 etc.

Label: paddock31



Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 95A342317,99A342317,96A342317,50 etc.

Label: paddock31



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 95A342317,99A342317,96A342317,50 etc.

Label: paddock31



Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

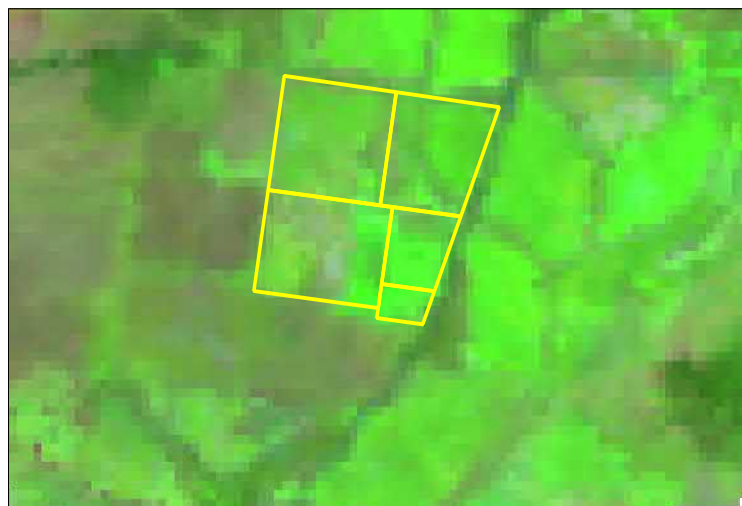
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Label: paddock31



Queensland
Government

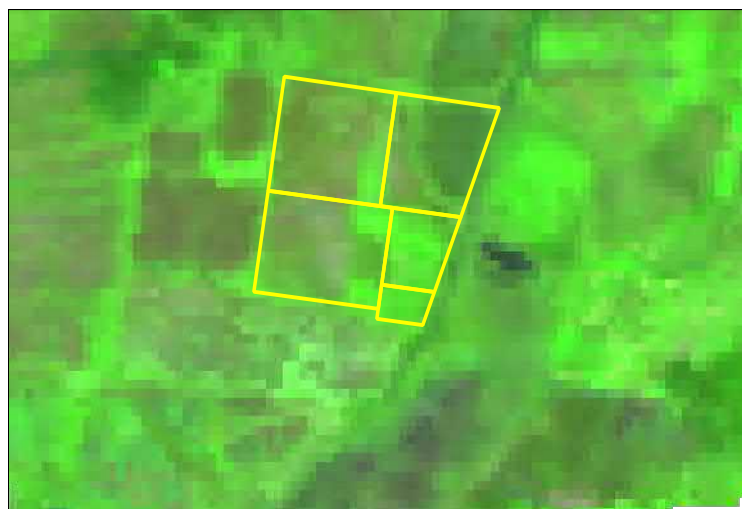
February (left) and September (right) images for 2009



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February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

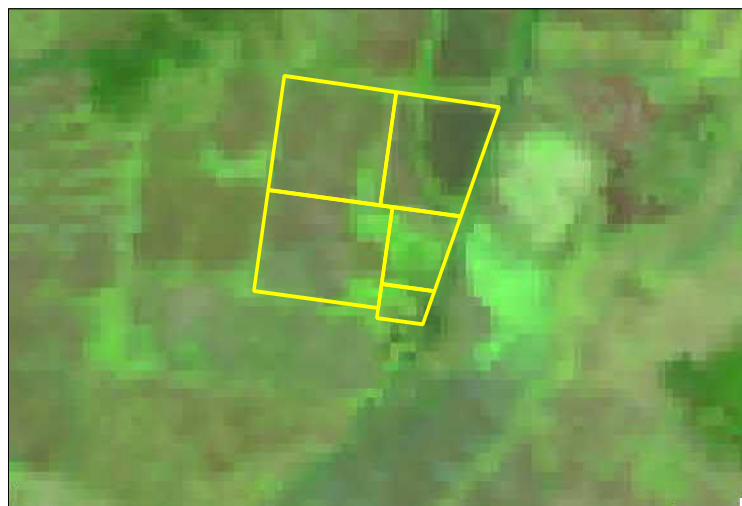
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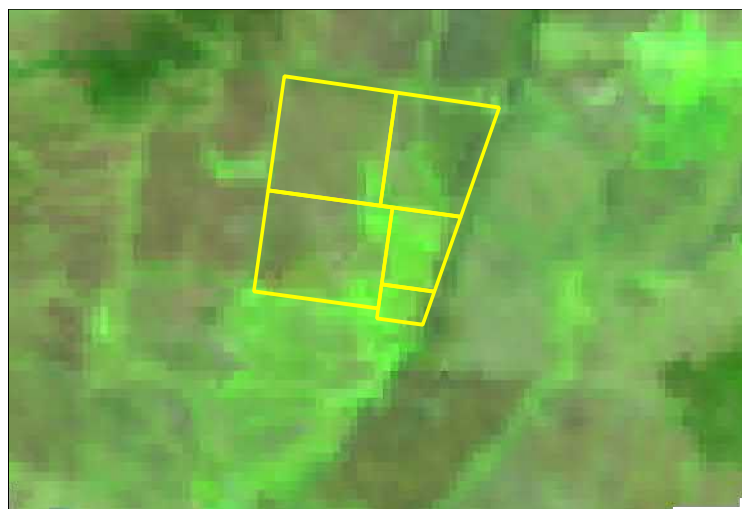


Queensland
Government

February (left) and September (right) images for 2012



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FORAGE REPORT: CROP FREQUENCY

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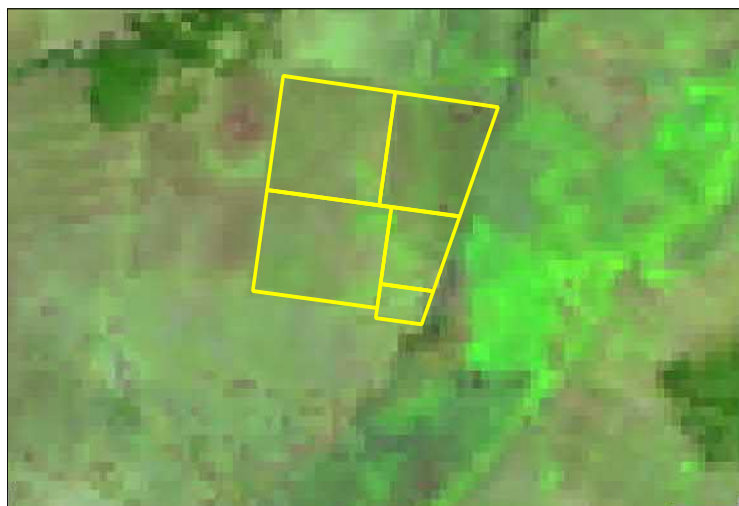
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Label: paddock31

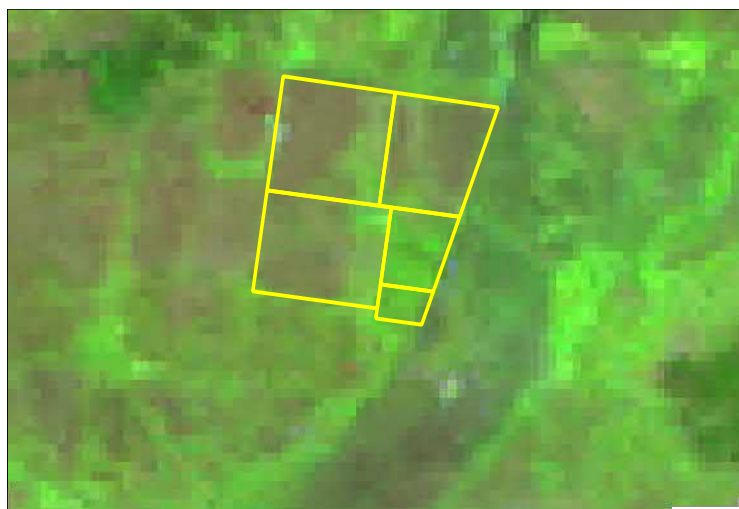
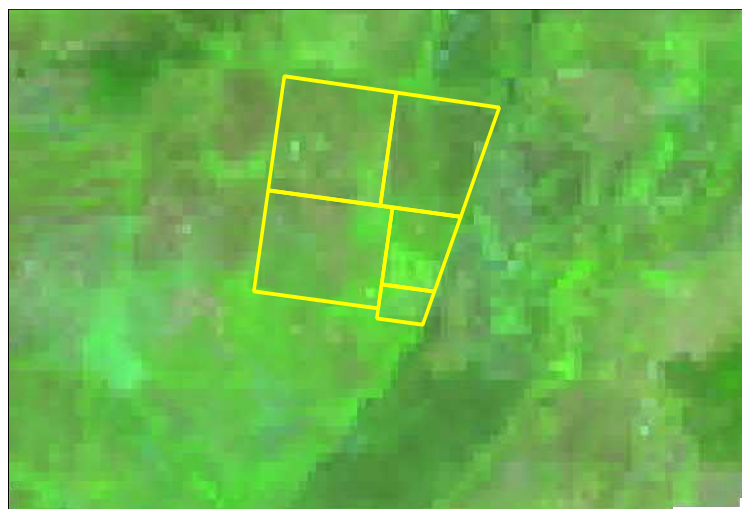


Queensland
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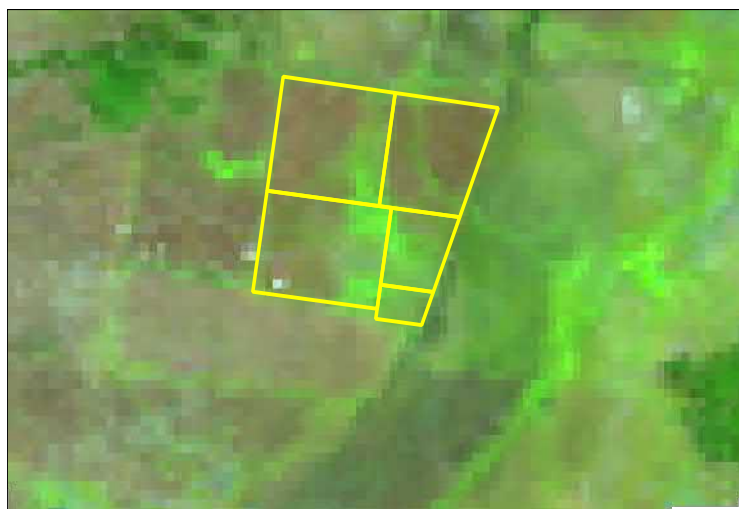
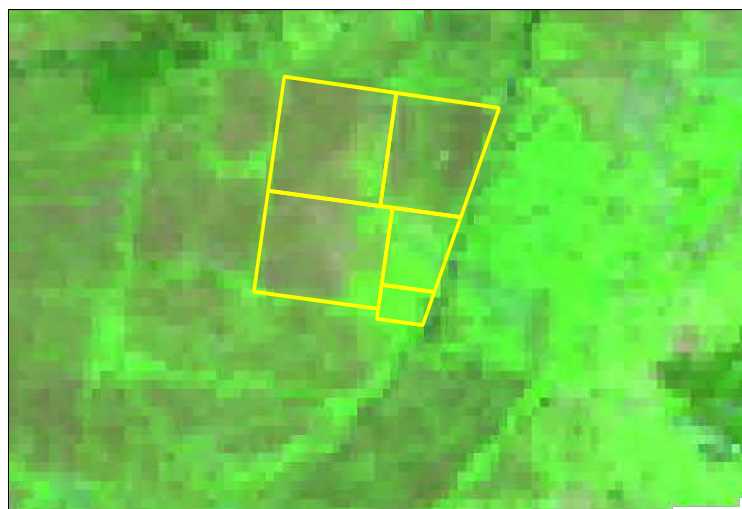
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 95A342317,99A342317,96A342317,50 etc.

Label: paddock31



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

Disclaimer

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APPENDIX C4

Infrastructure

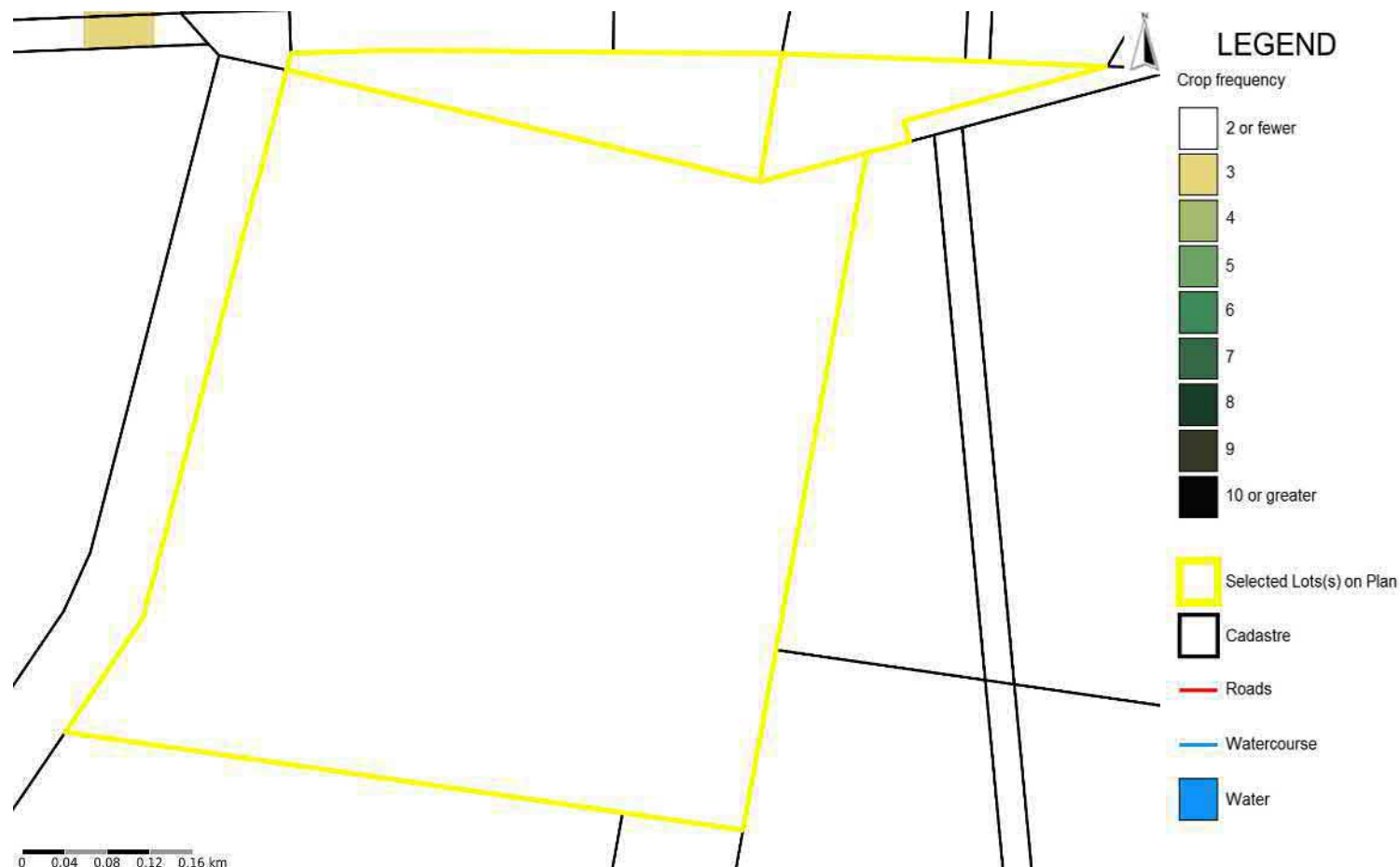


Forage Crop Frequency

Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

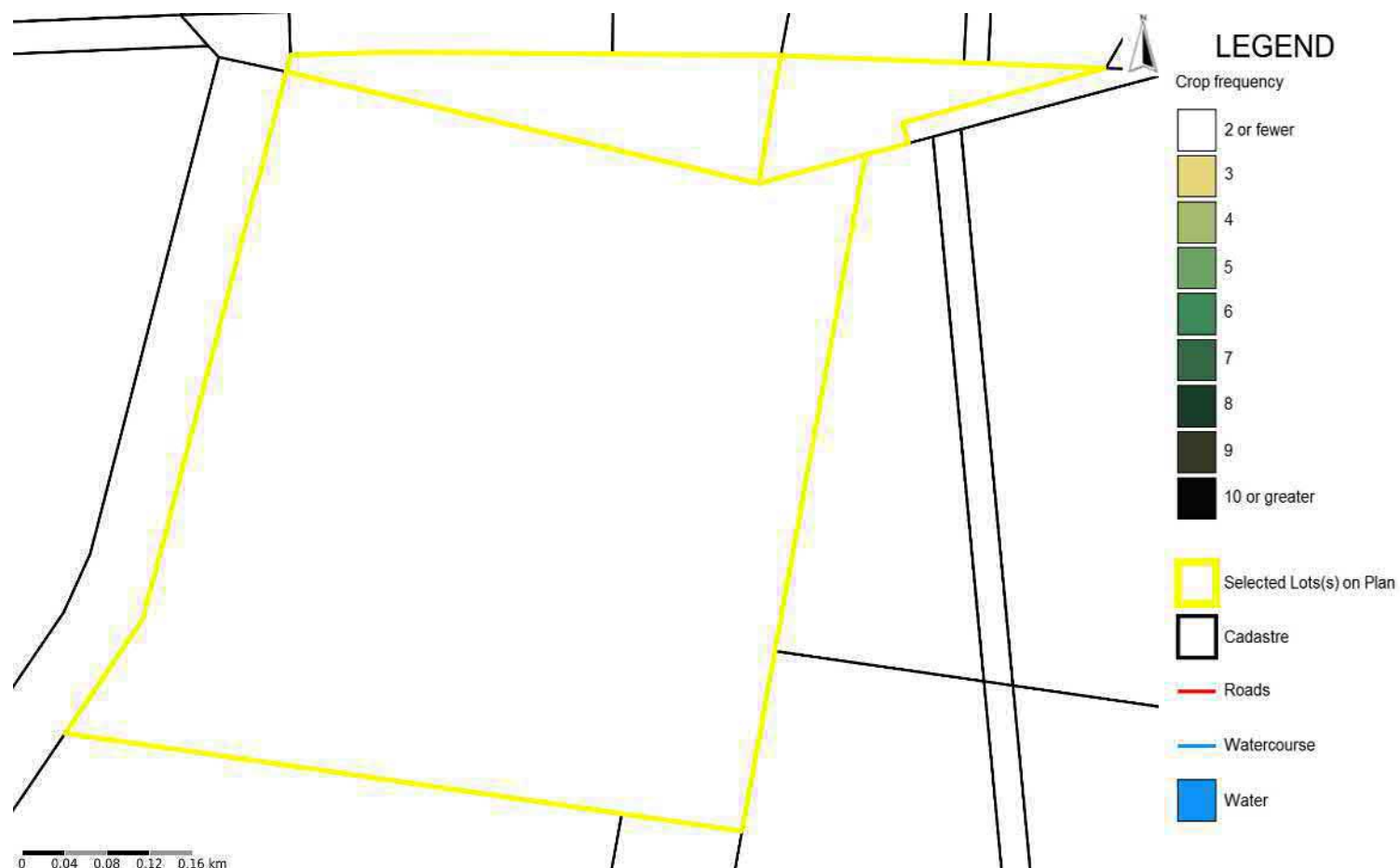
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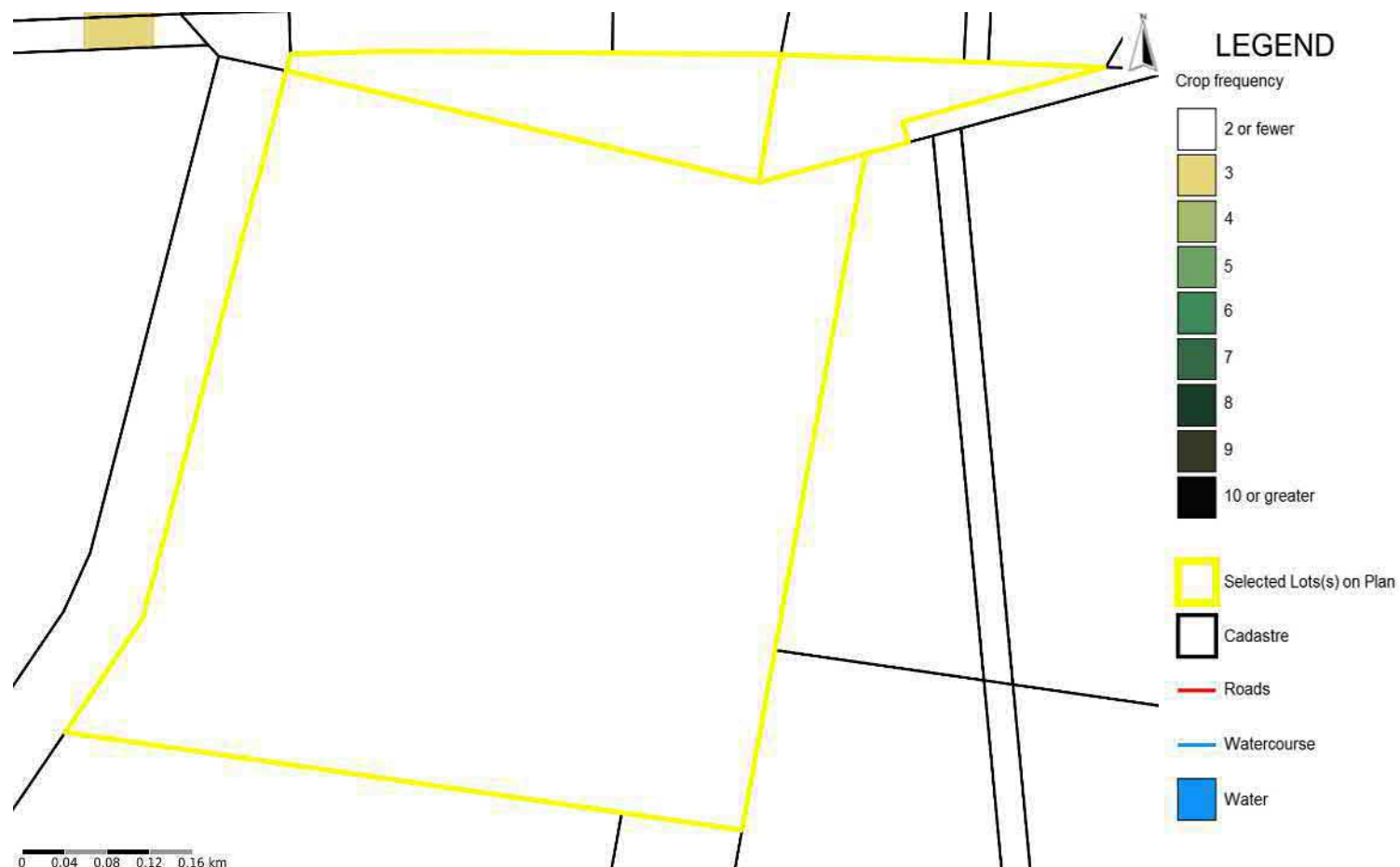


Queensland
Government

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

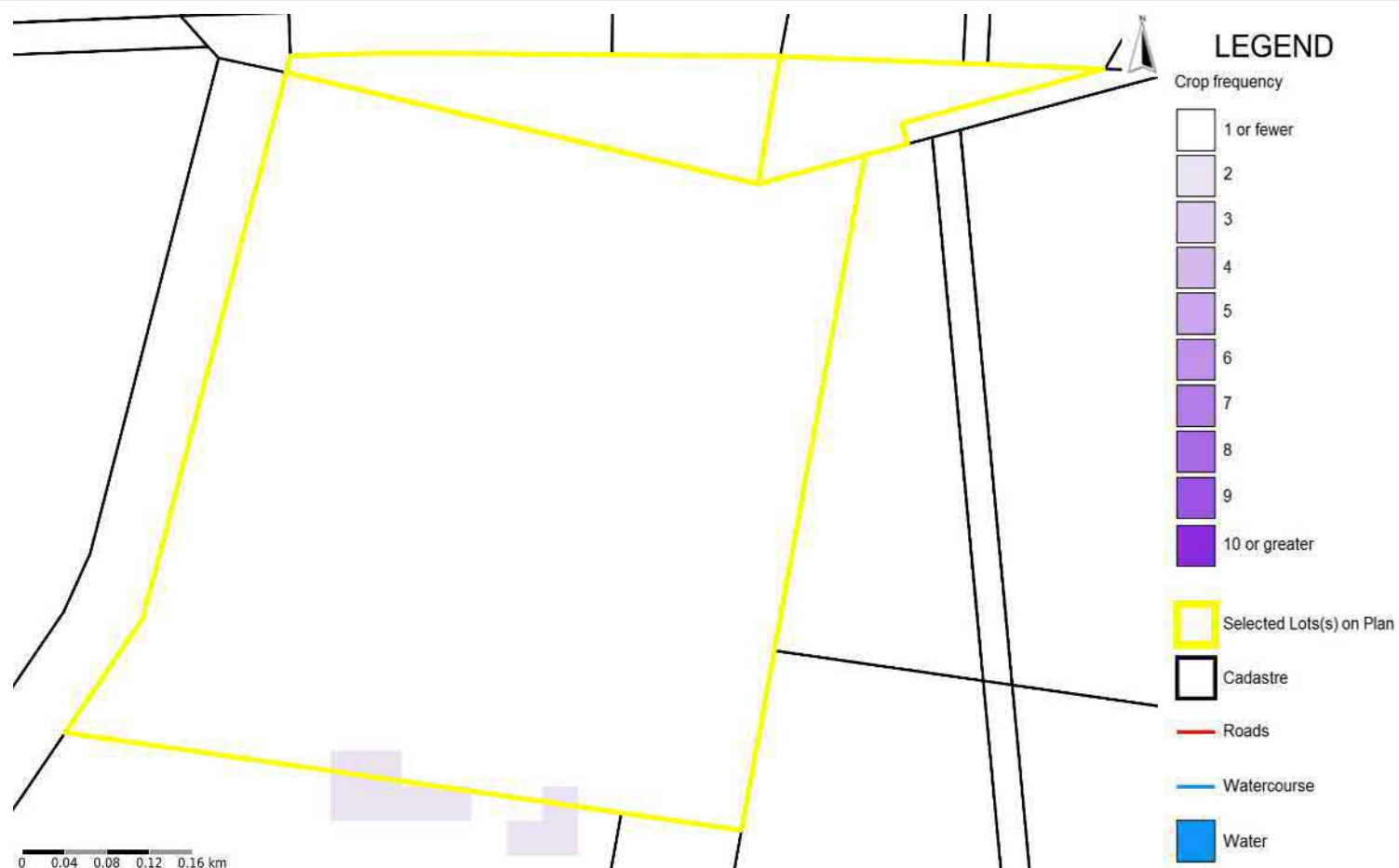
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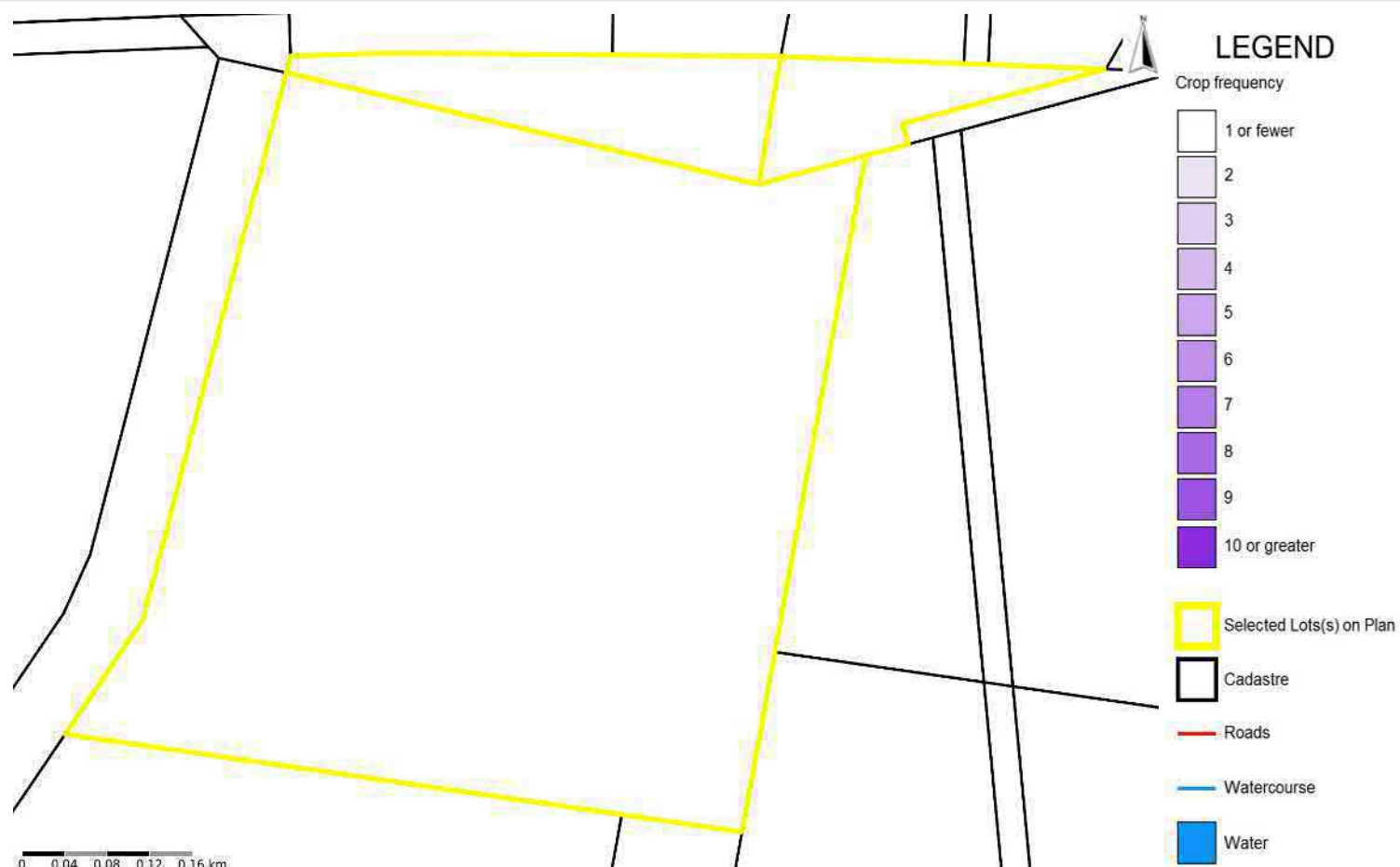


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

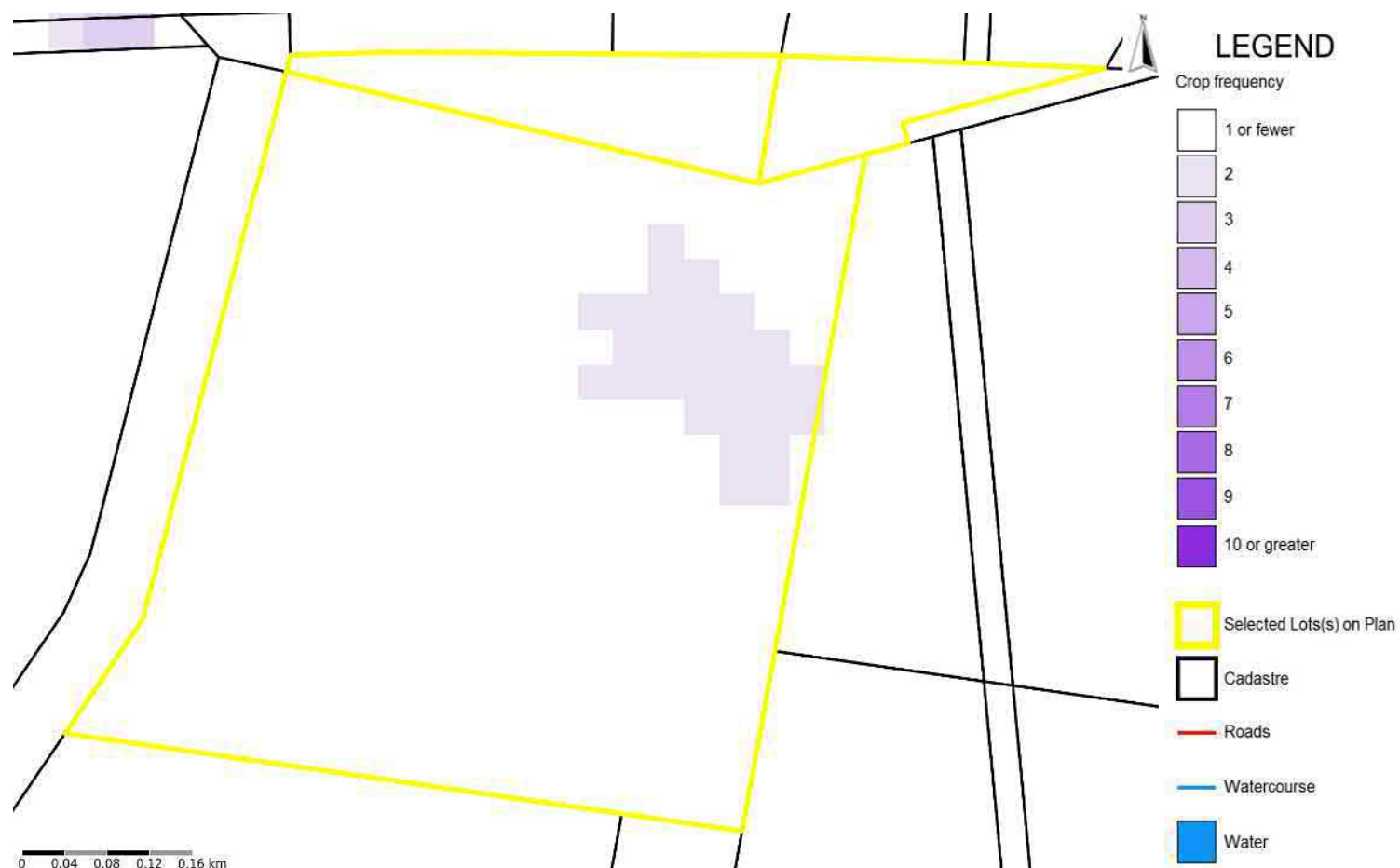
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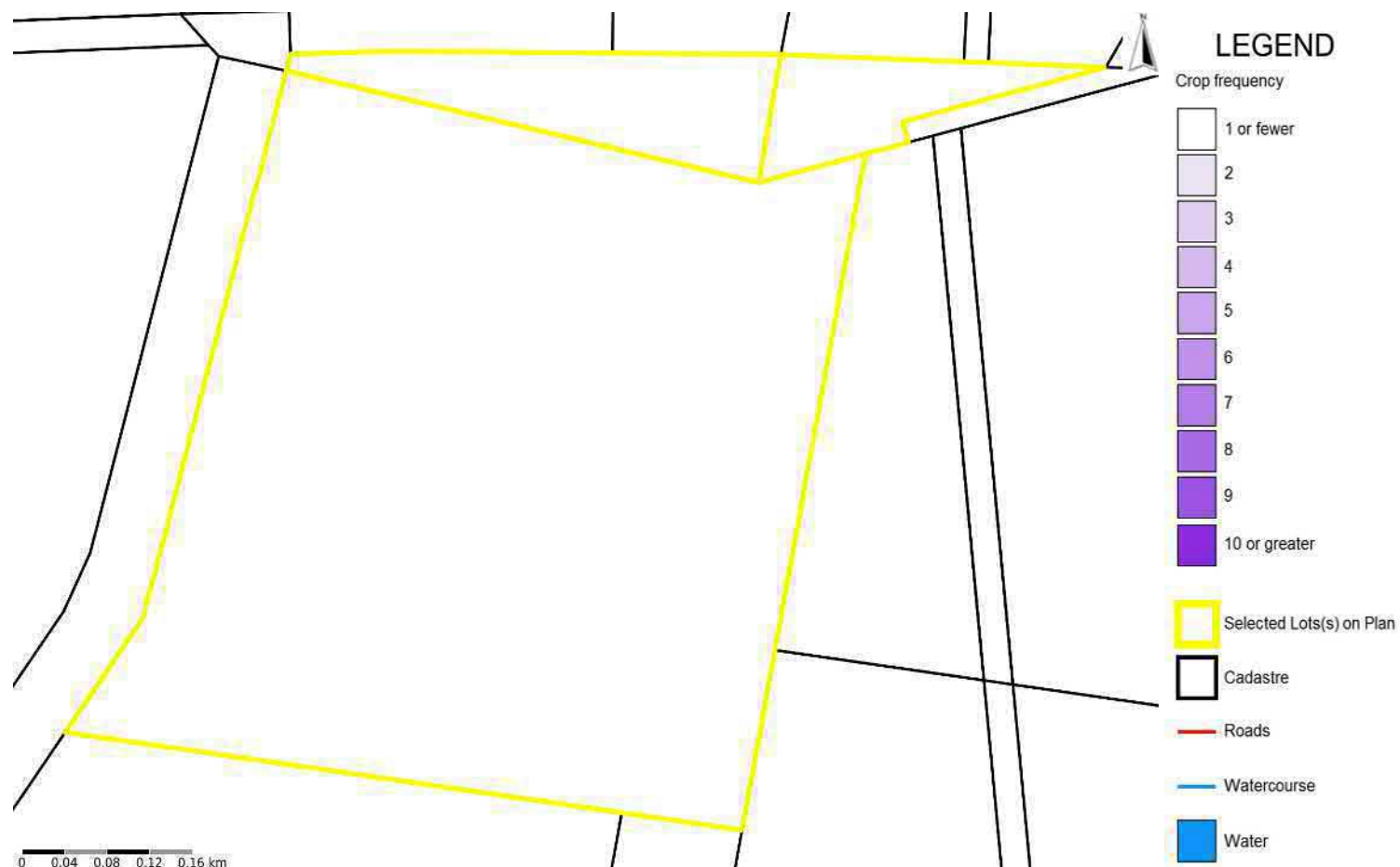


Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

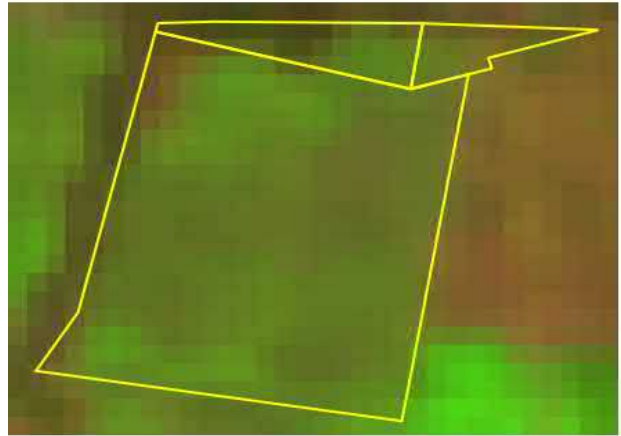
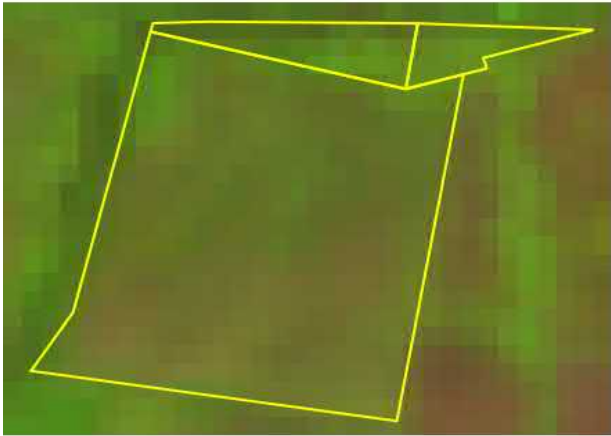
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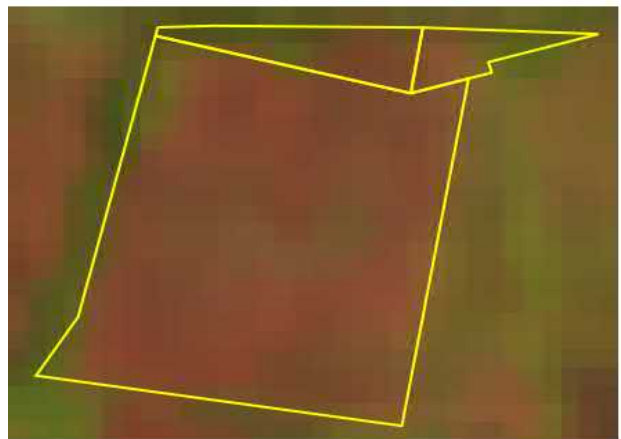
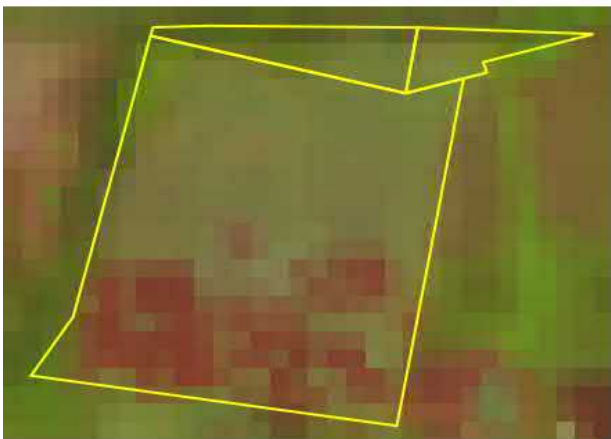


Queensland
Government

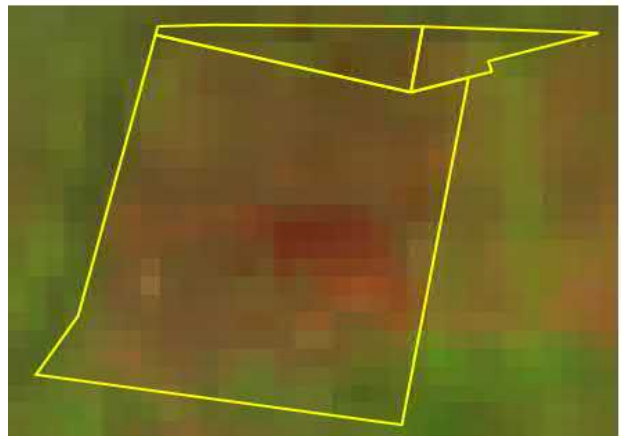
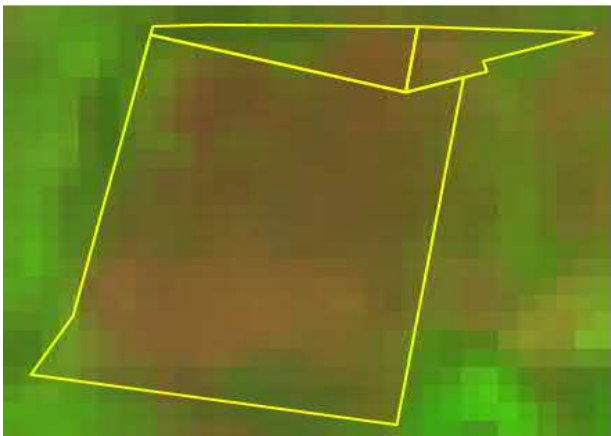
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

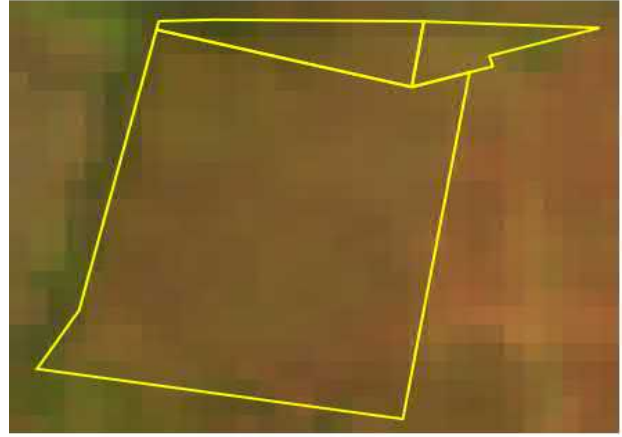
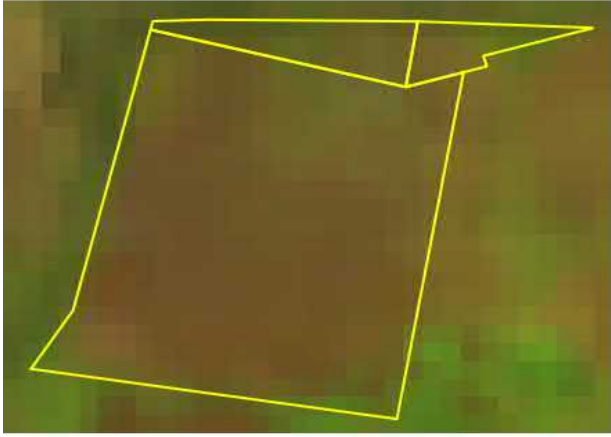
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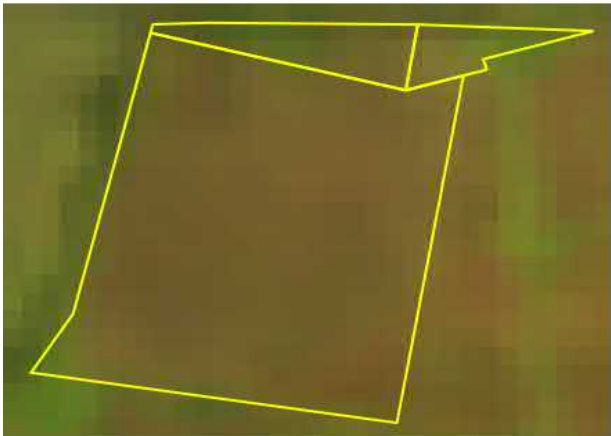


Queensland
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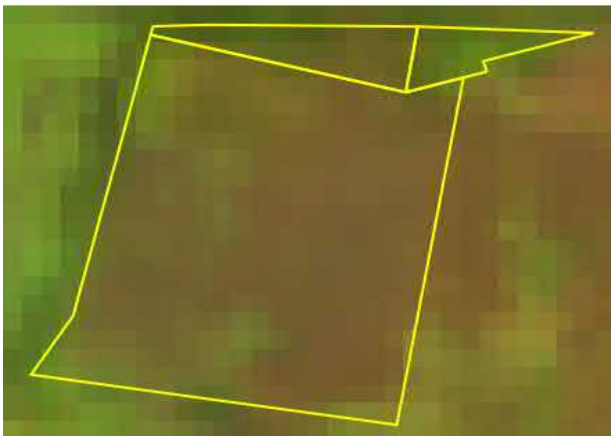
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

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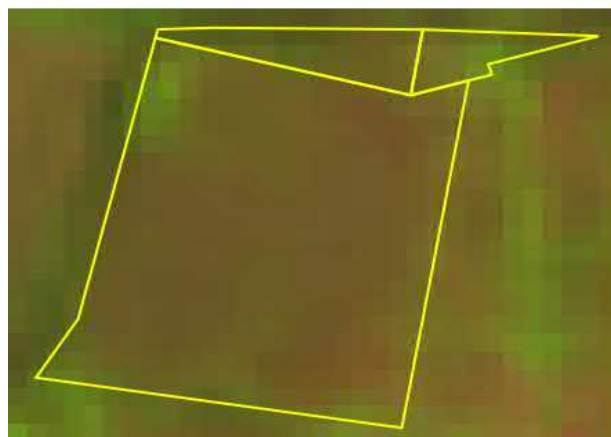


Queensland
Government

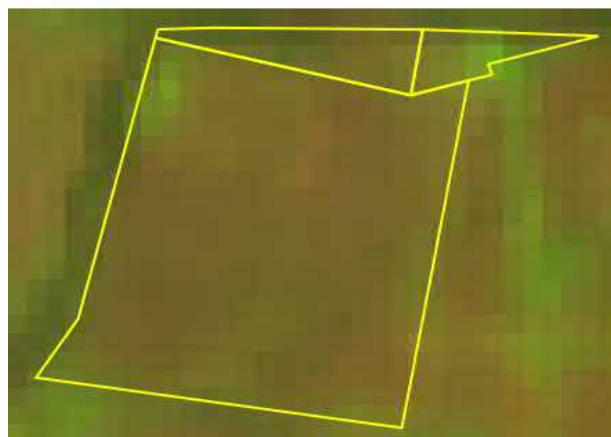
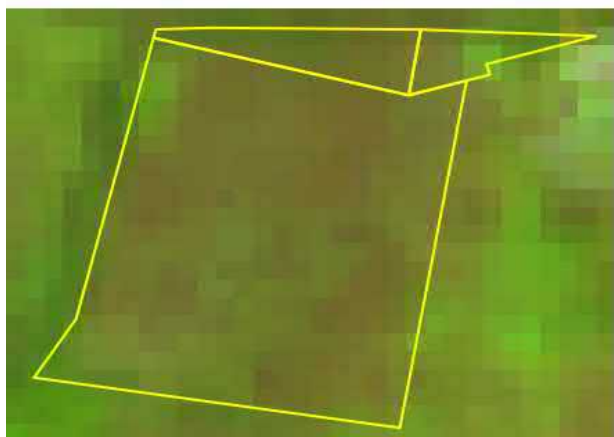
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

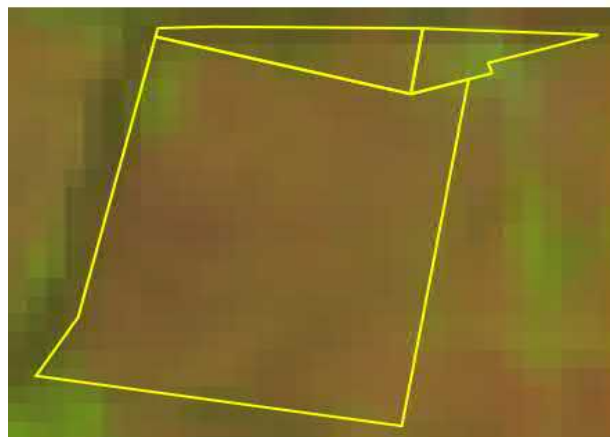
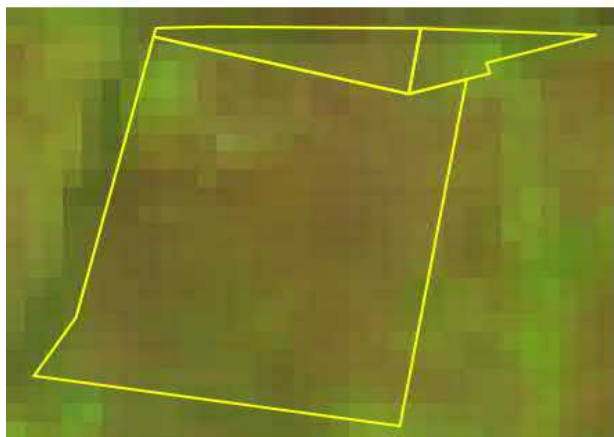
Lot on Plan: 251SP177899,60SP177899,3069A3415 etc.

Label: paddock19



Queensland
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February (left) and September (right) images for 2018



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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

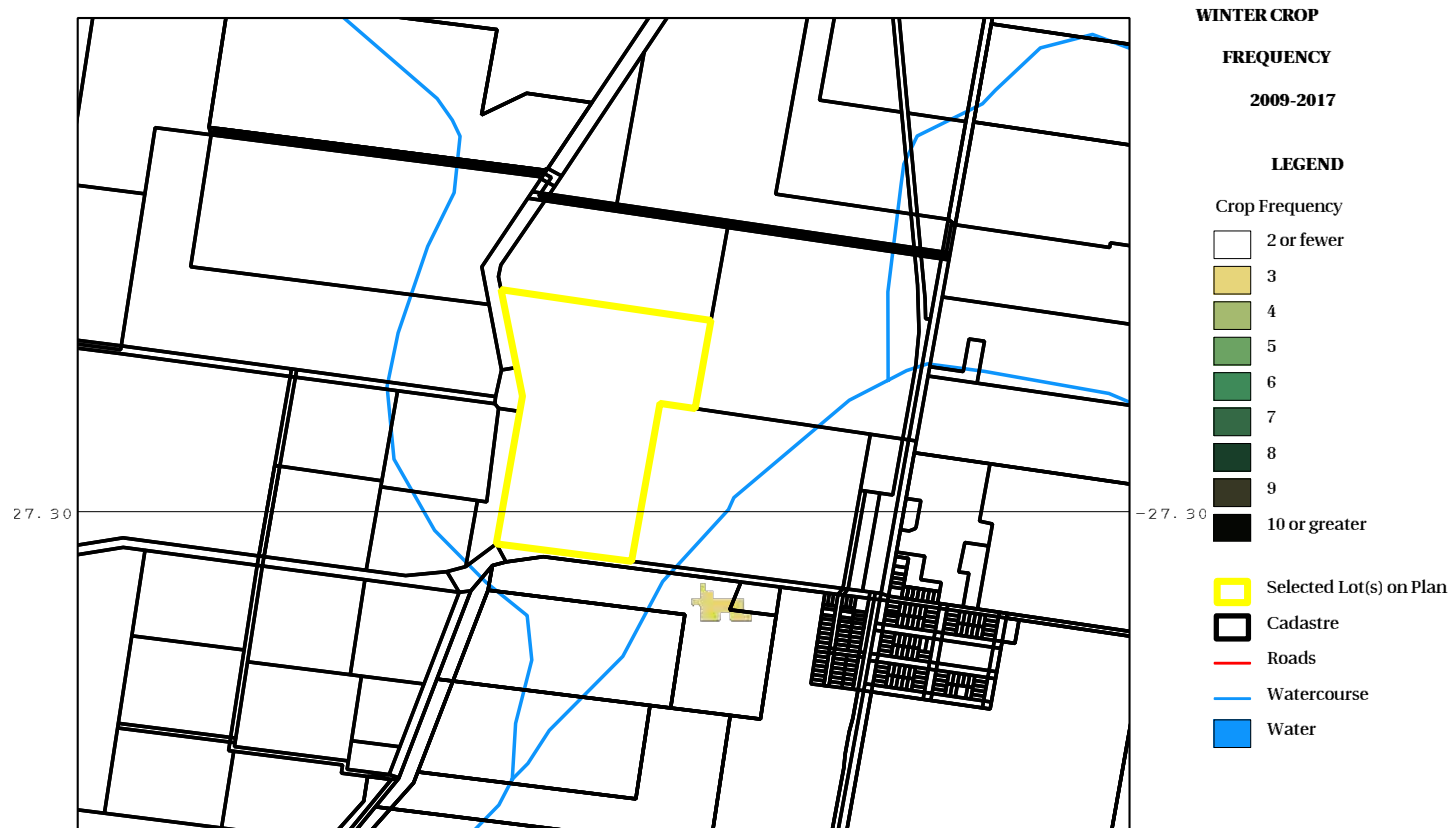
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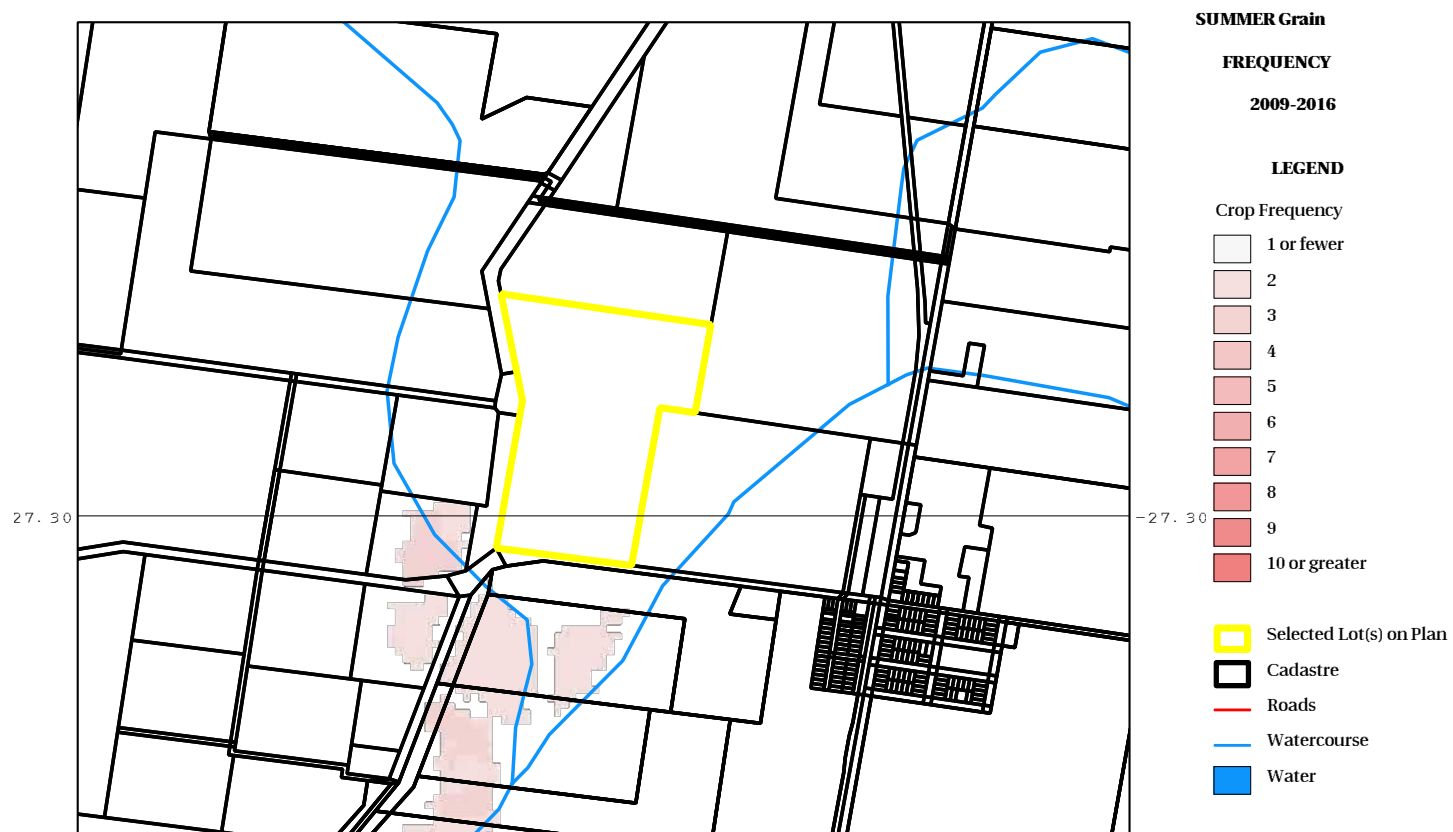
Estimated frequency map for summer (February) crop (2009 - 2018)



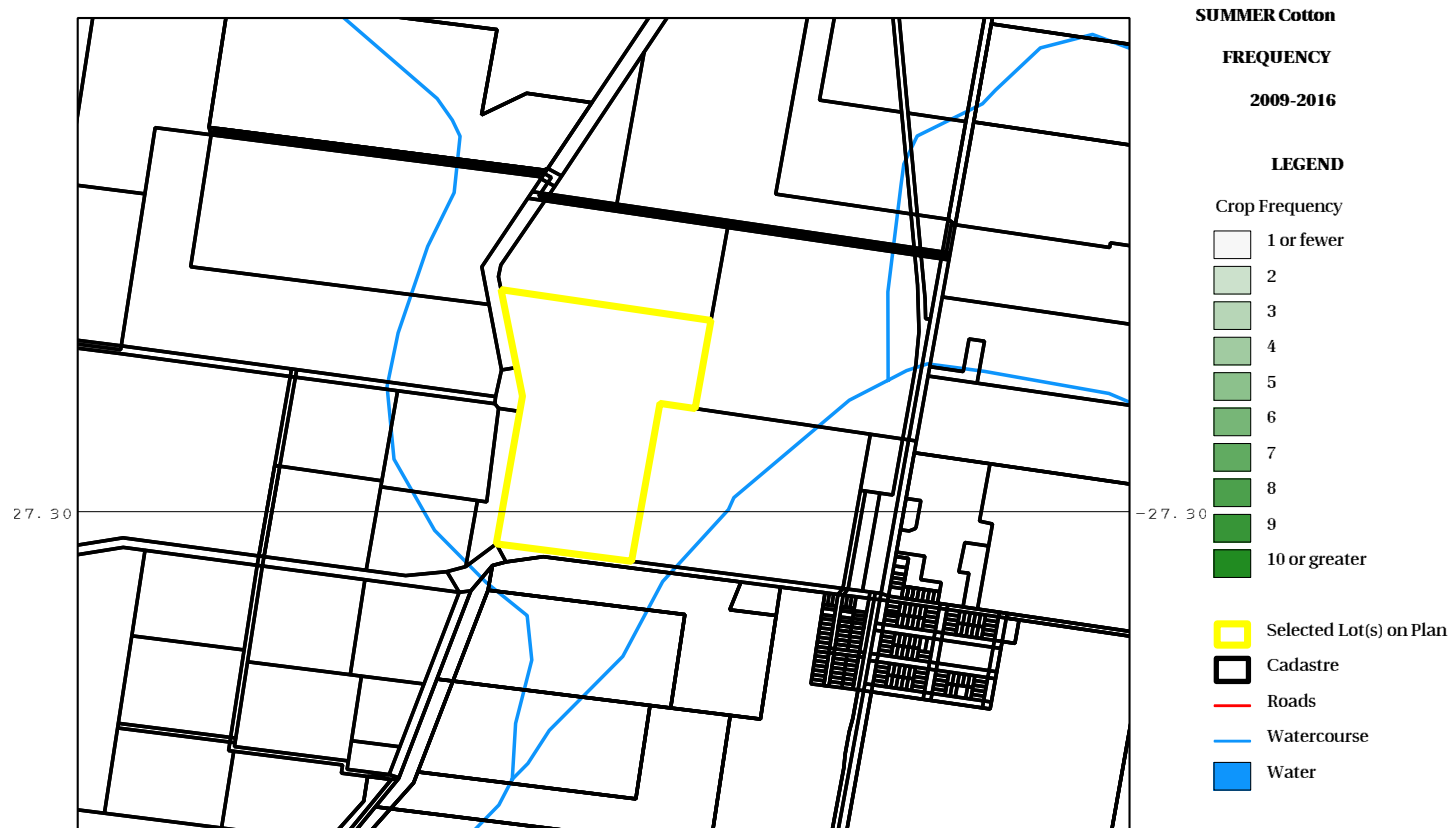
Estimated frequency map for winter (September) crop (2009 - 2018)



Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

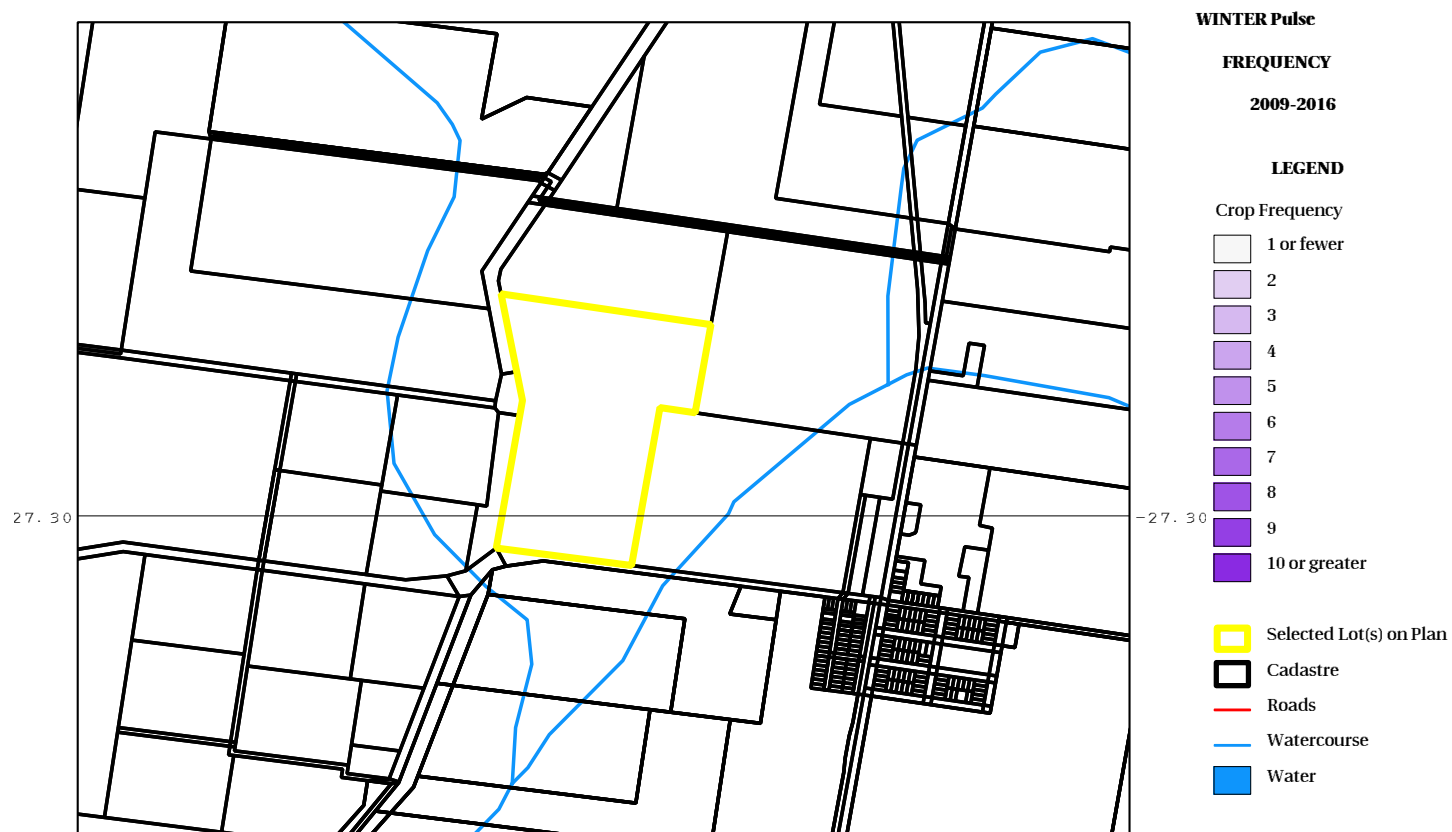
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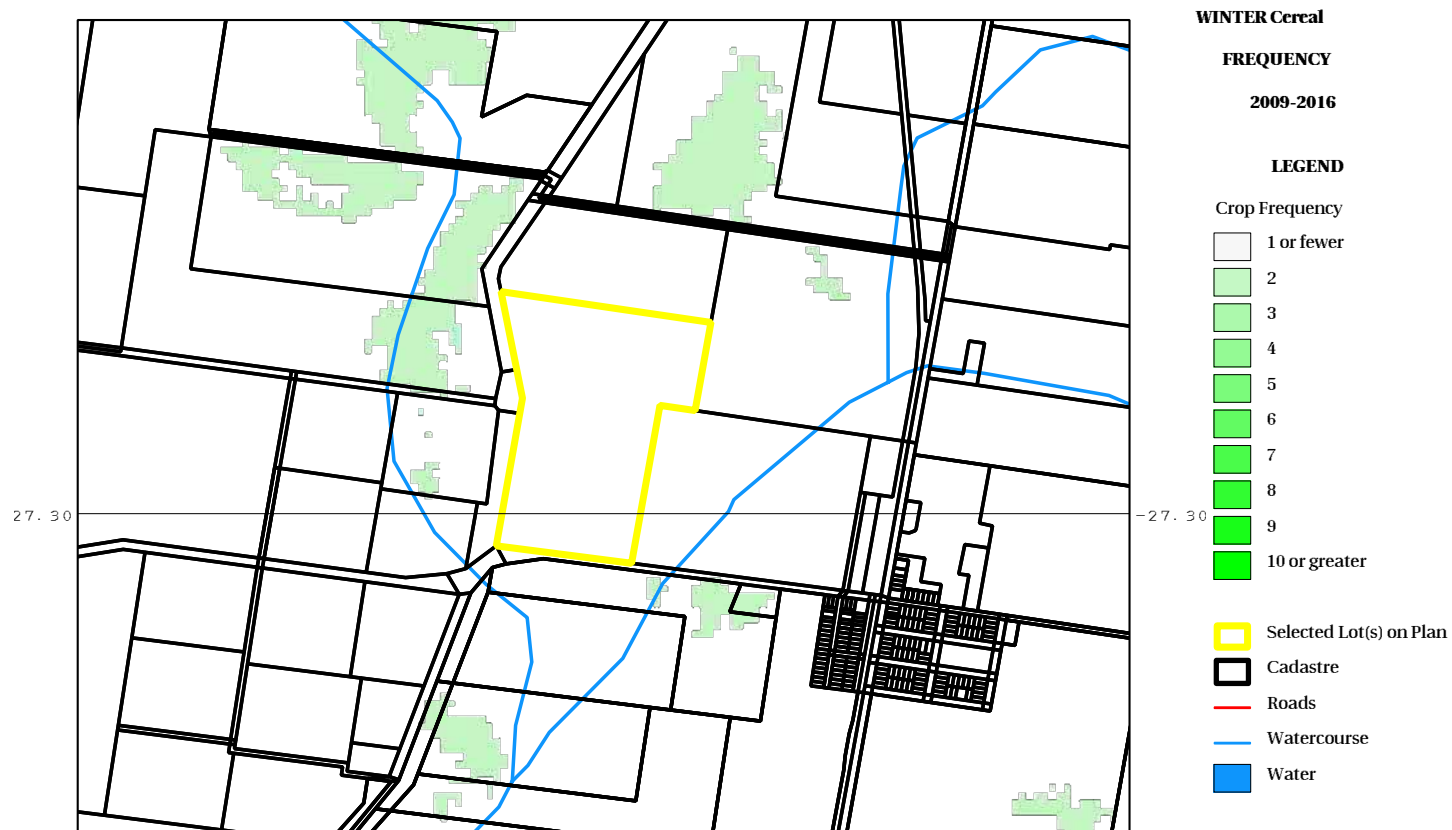


Queensland
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Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

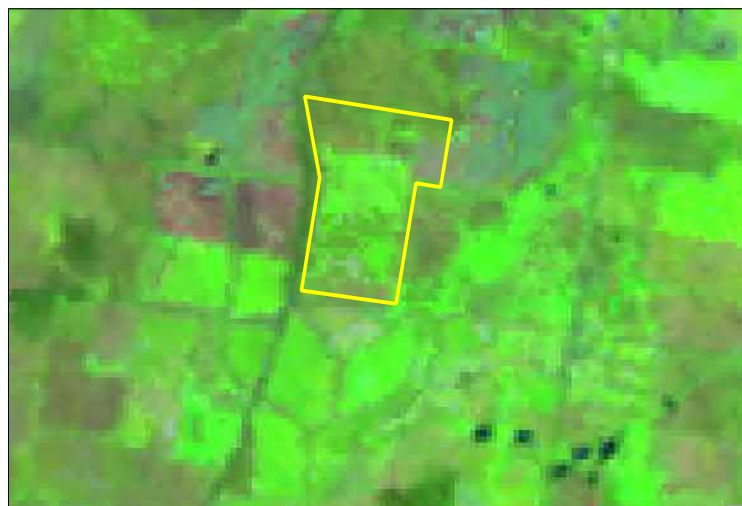
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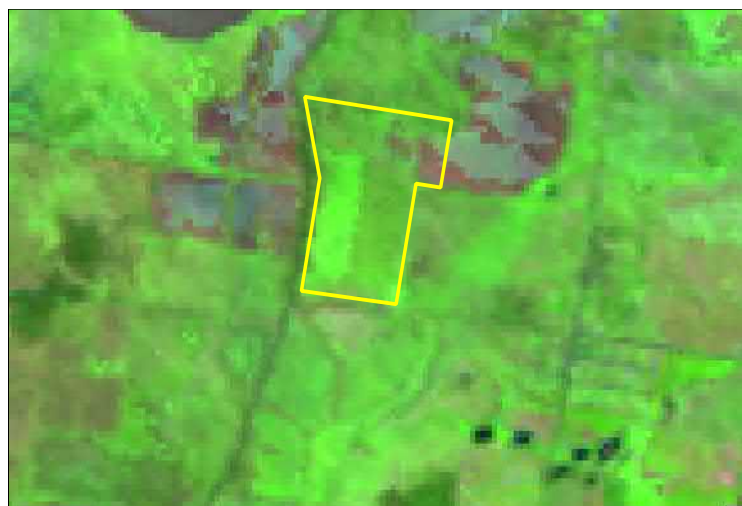


Queensland
Government

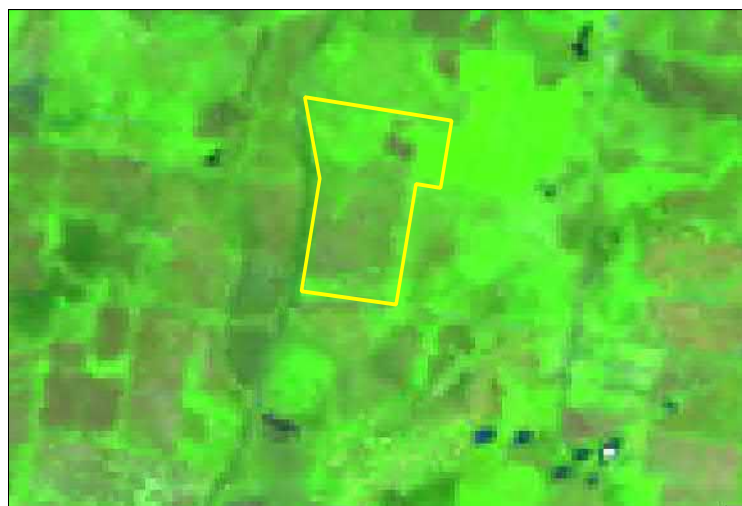
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

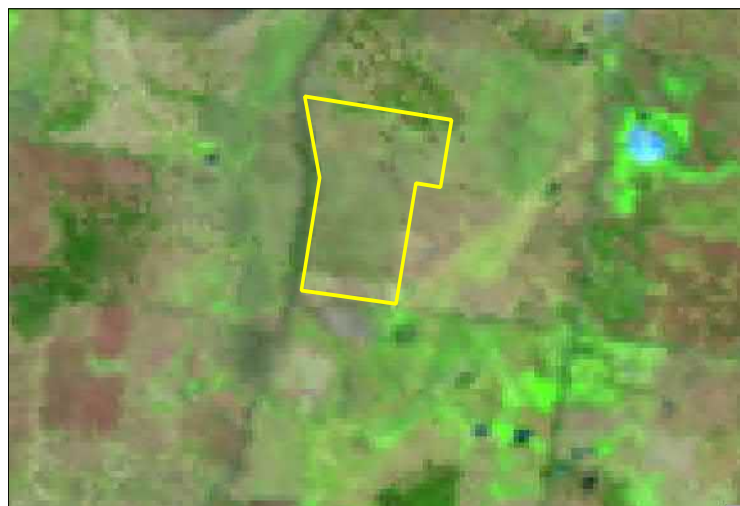
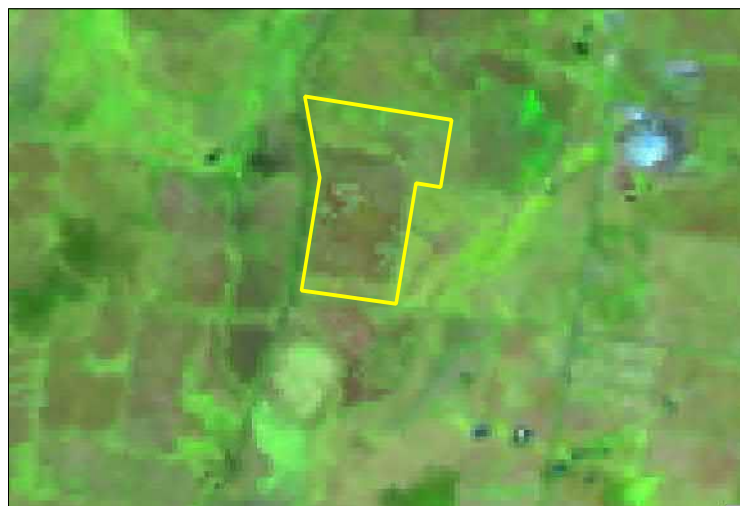
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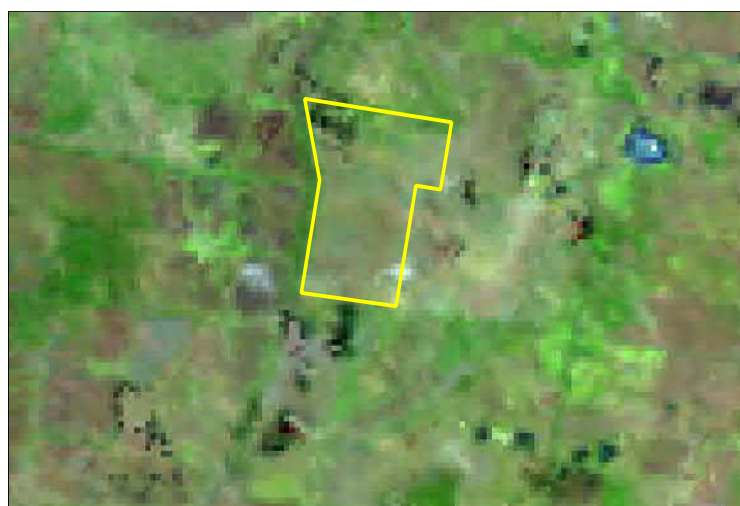
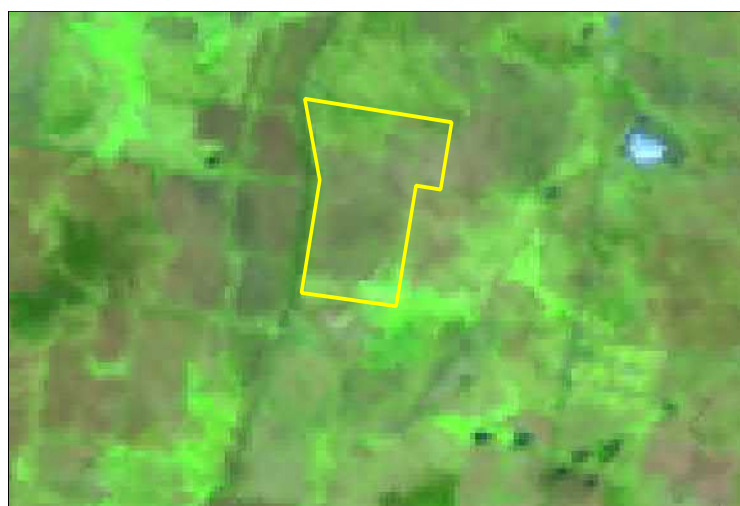


Queensland
Government

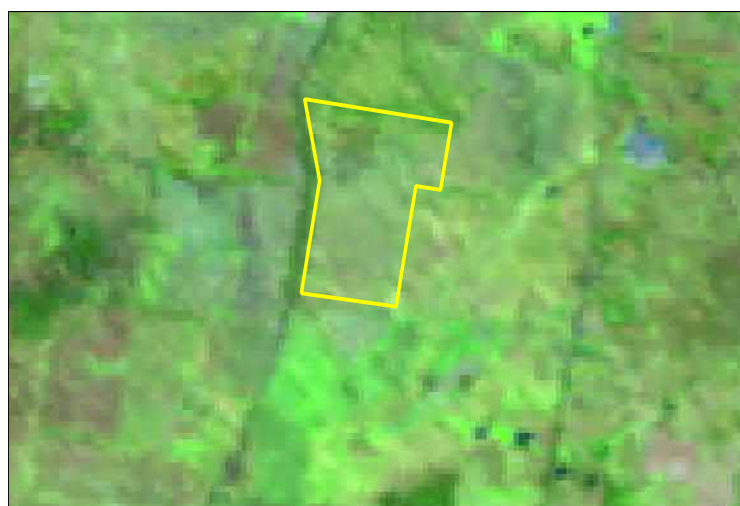
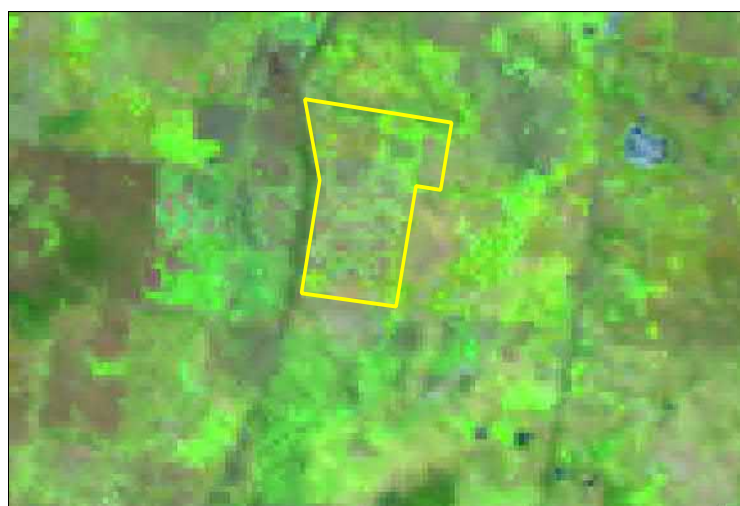
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

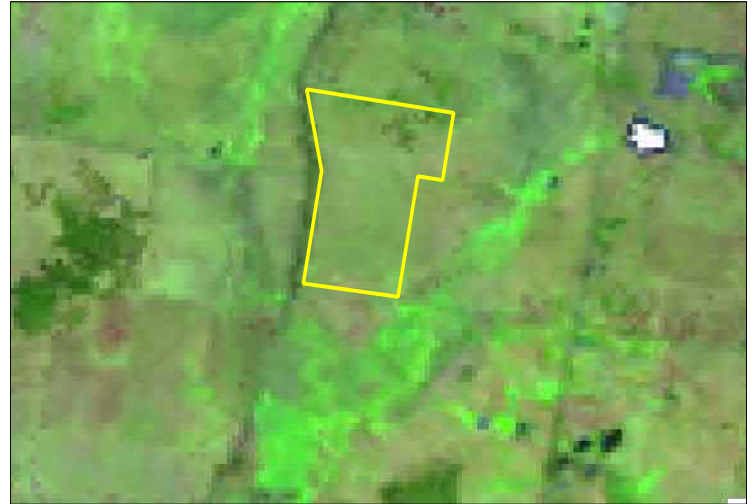
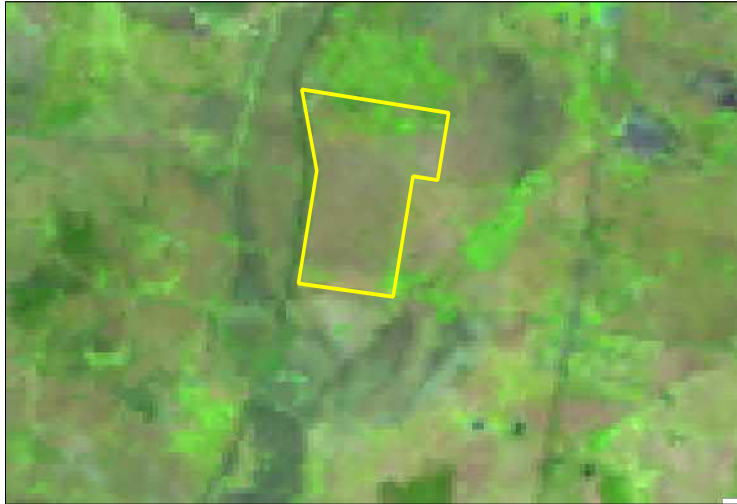
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July 17, 2019

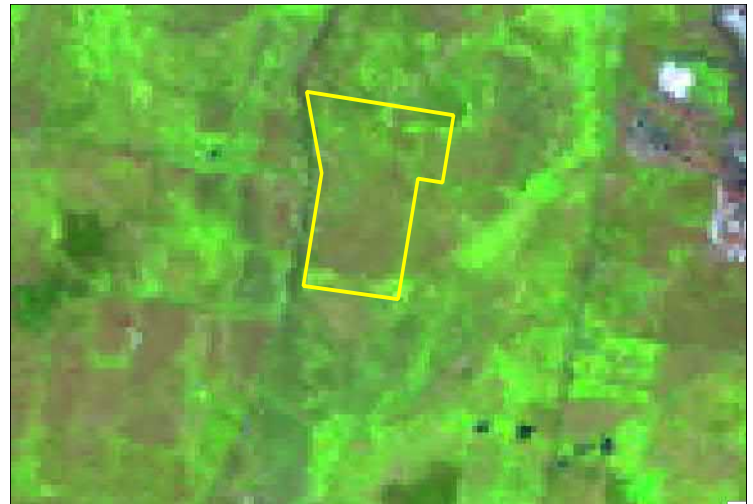
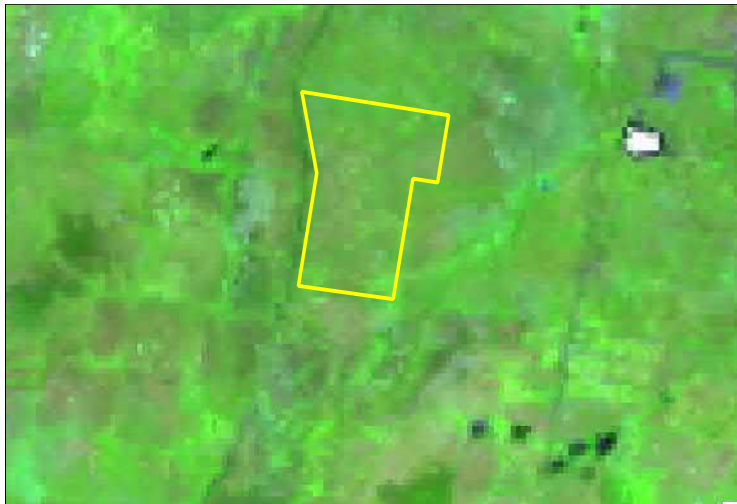
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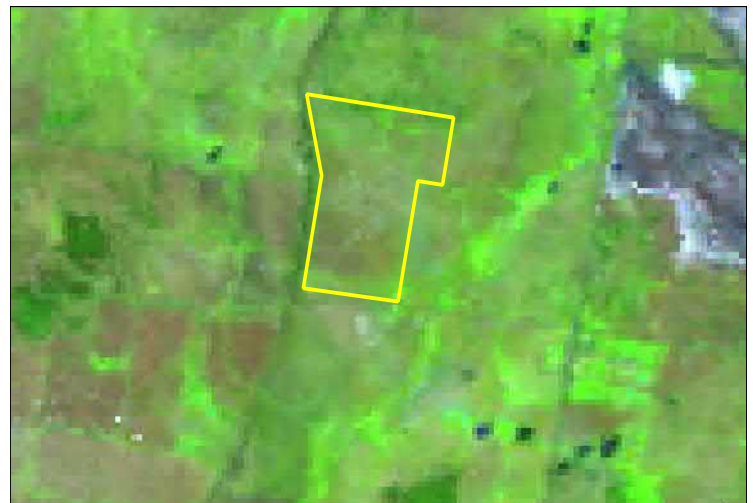
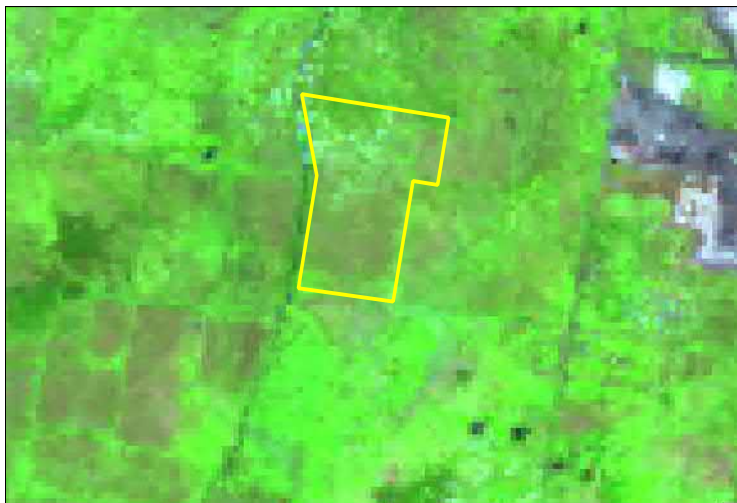
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July 17, 2019

Lot on Plan: 3679A341857

Label: paddock27



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

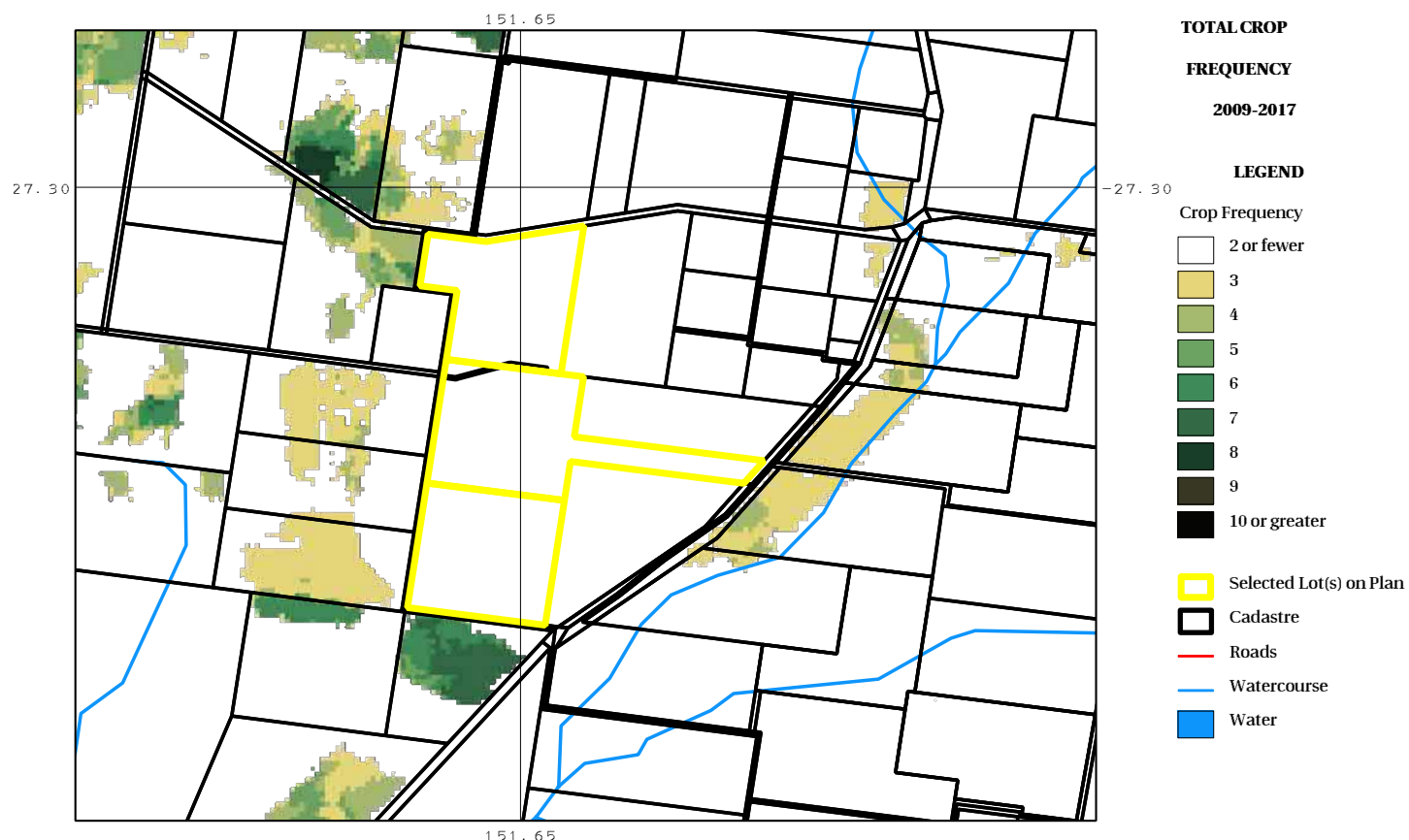
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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

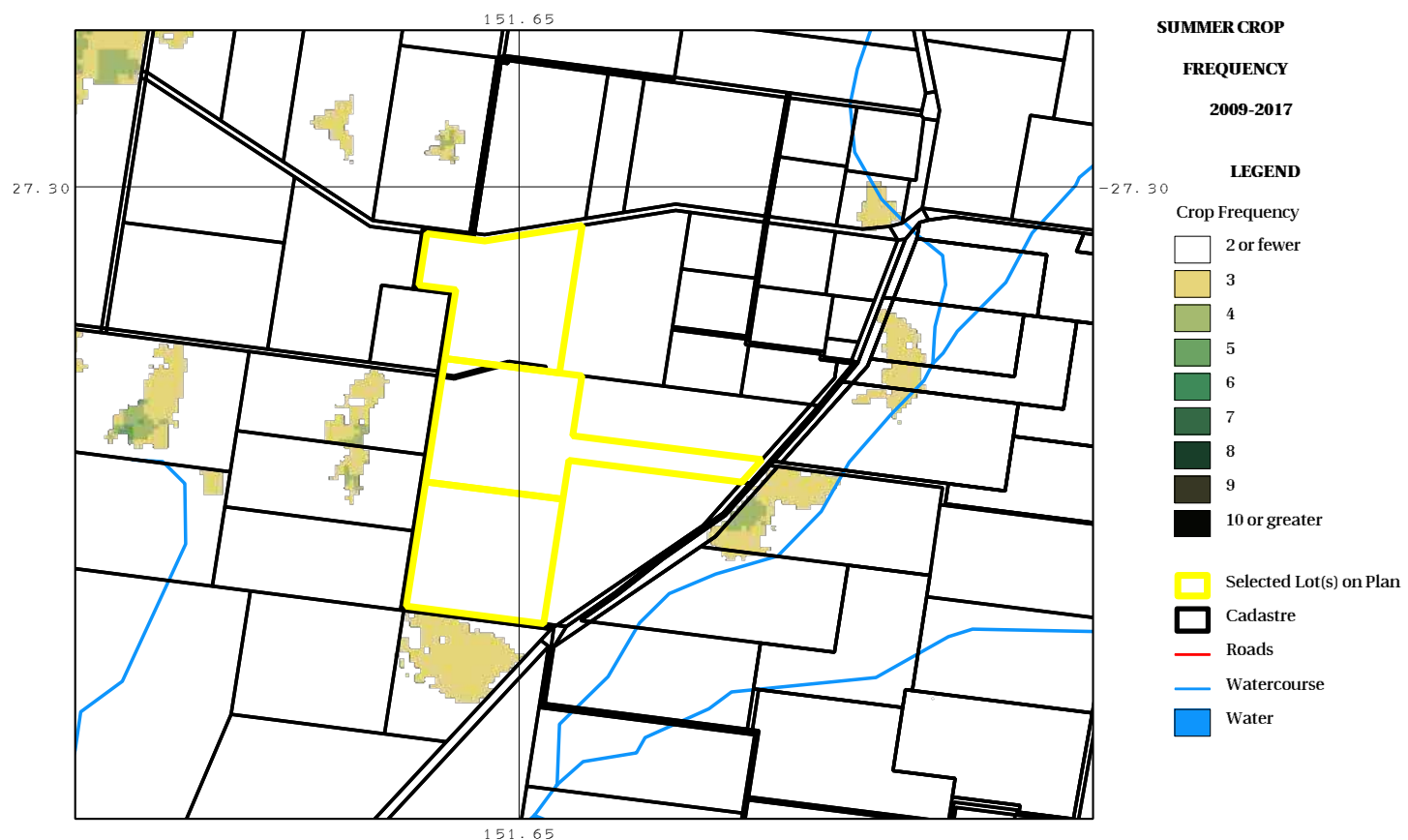
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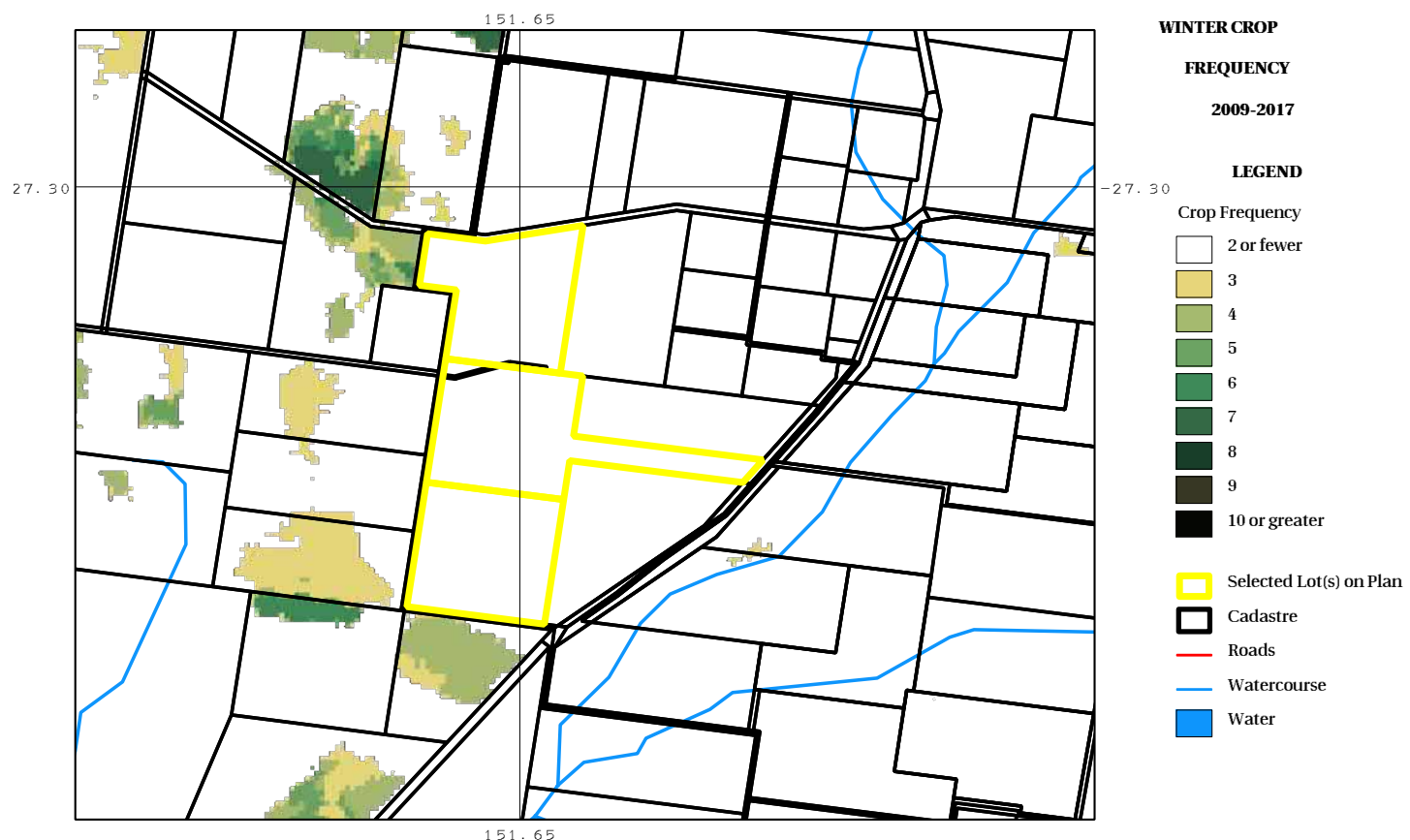


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

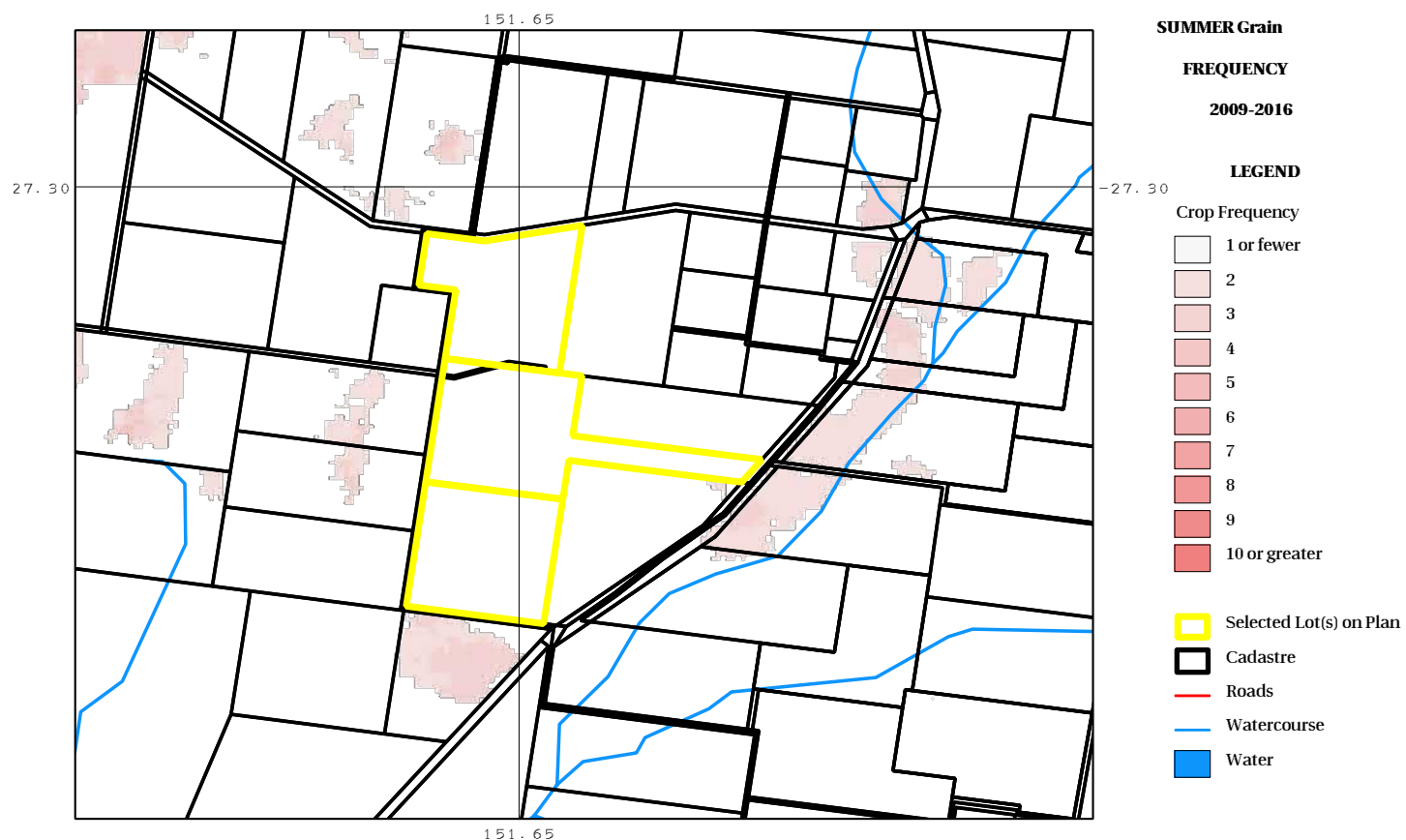
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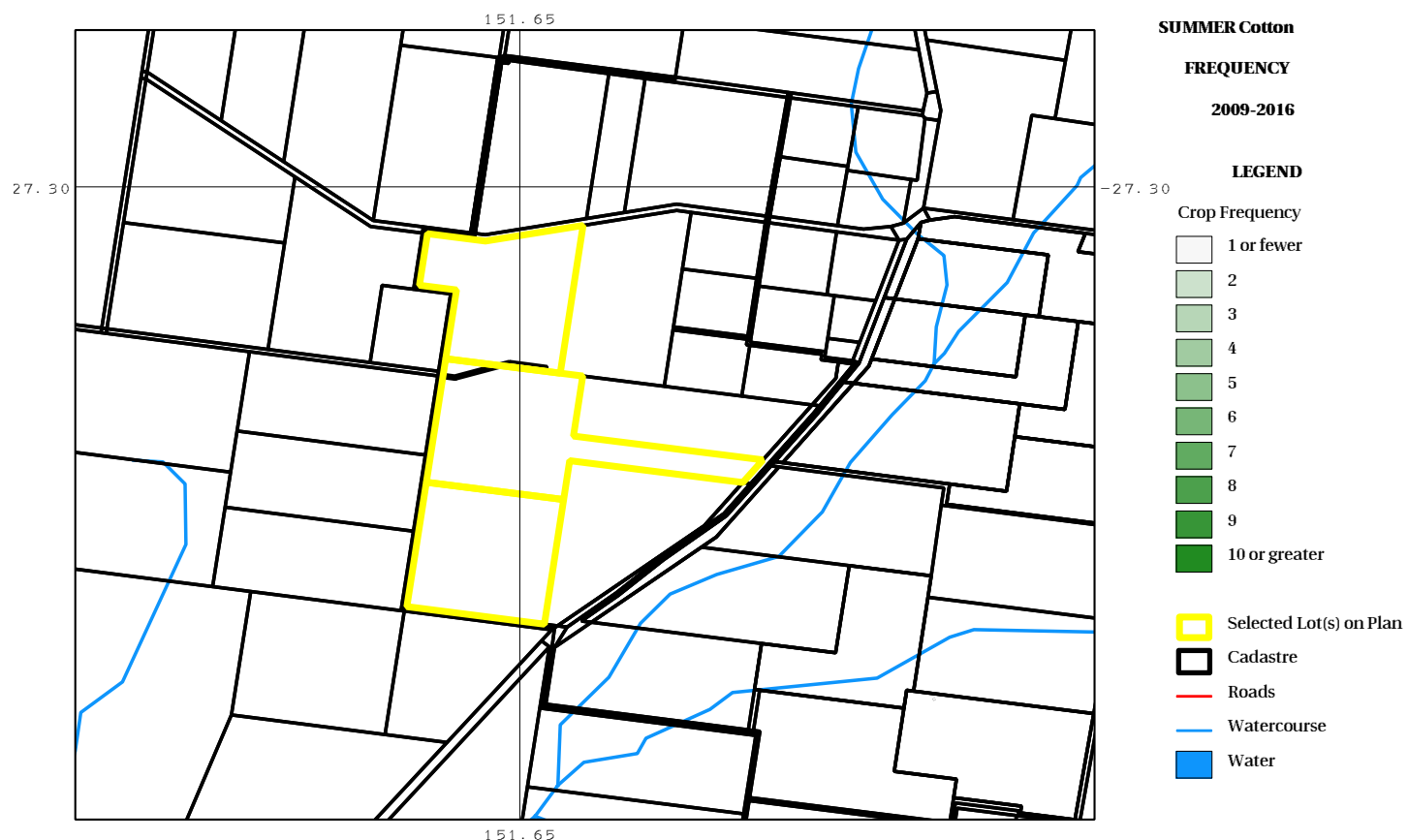


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



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July 17, 2019

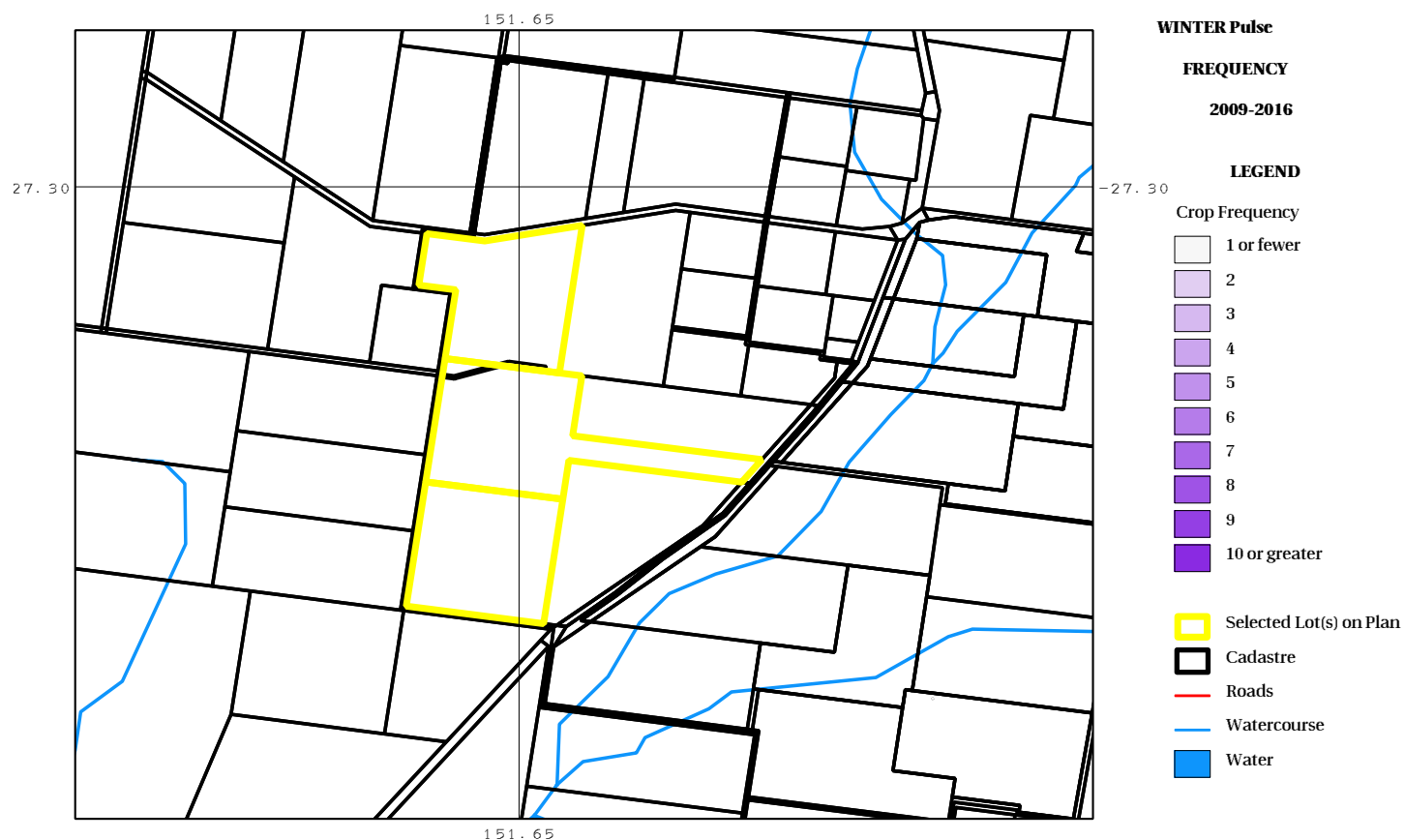
Lot on Plan: 3171RP902113,3445A341747,3170A34 etc.

Label: paddock28

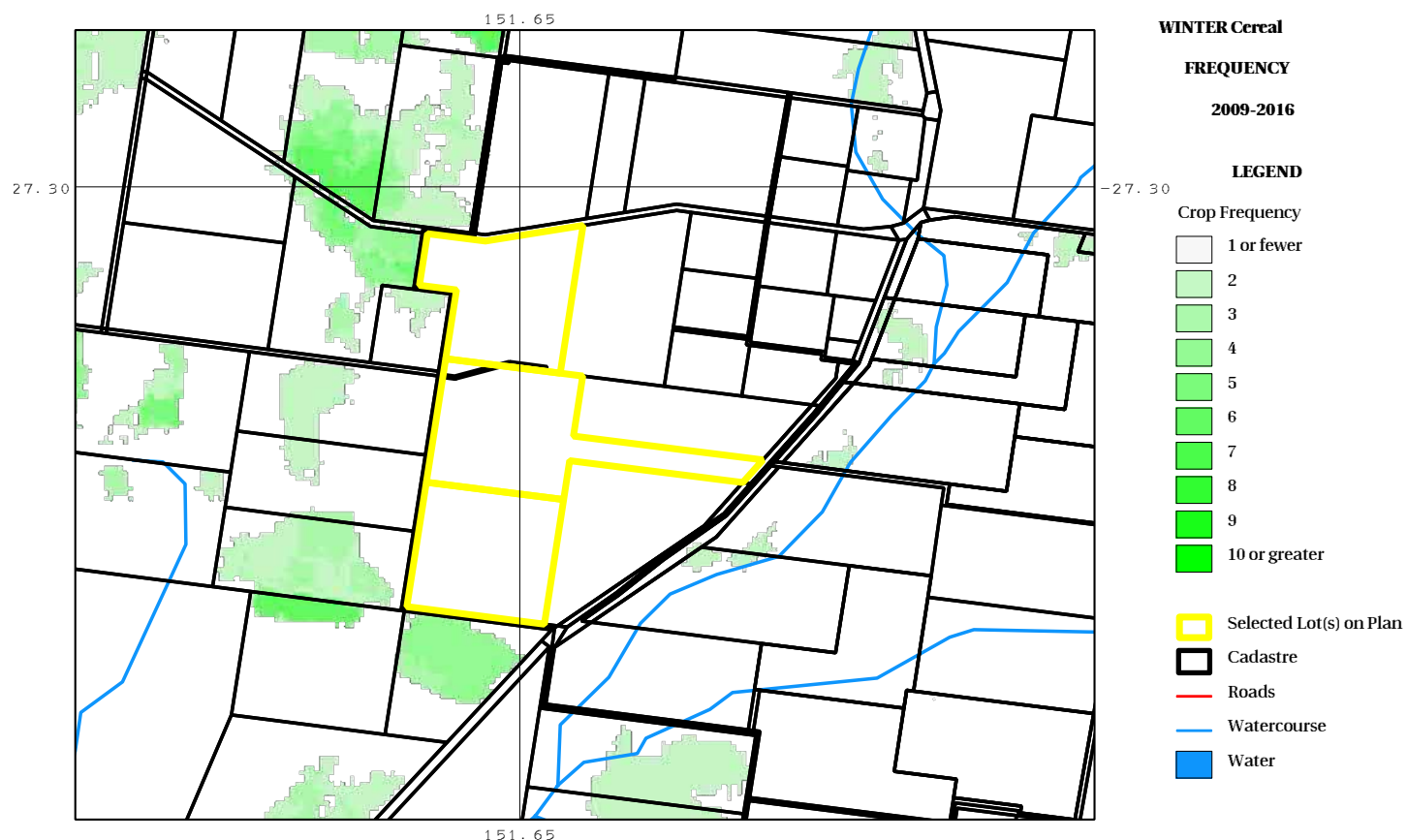


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

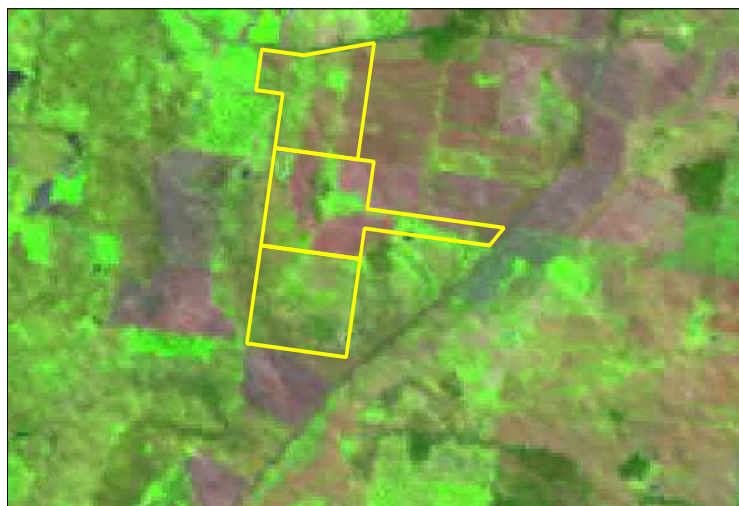
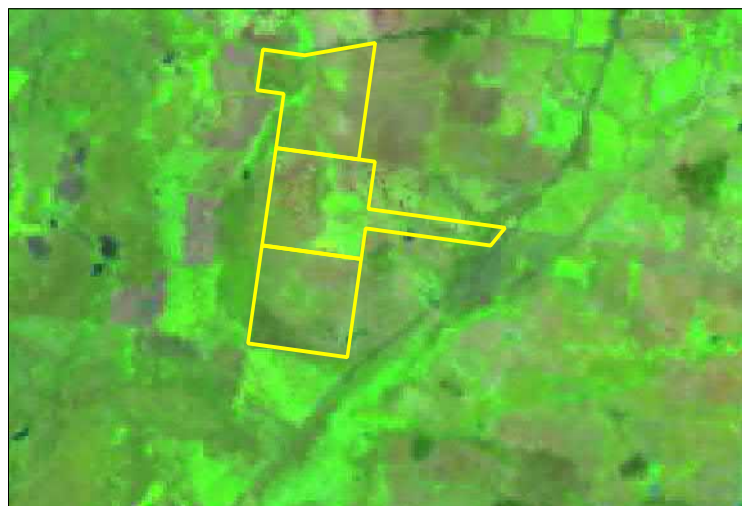
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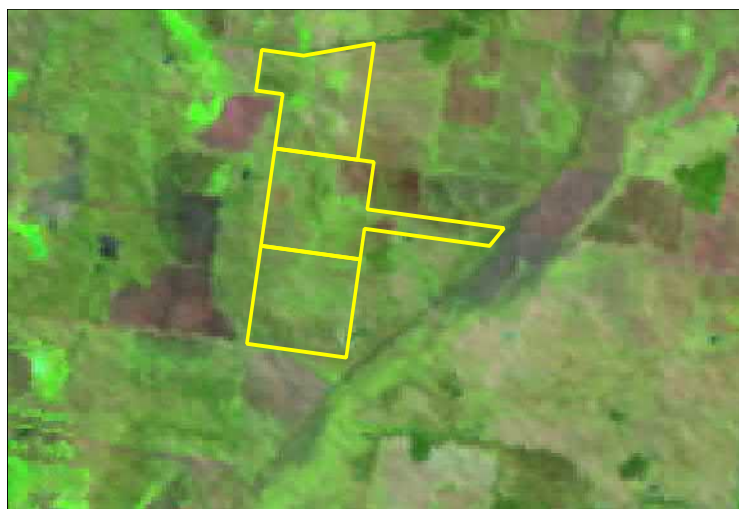
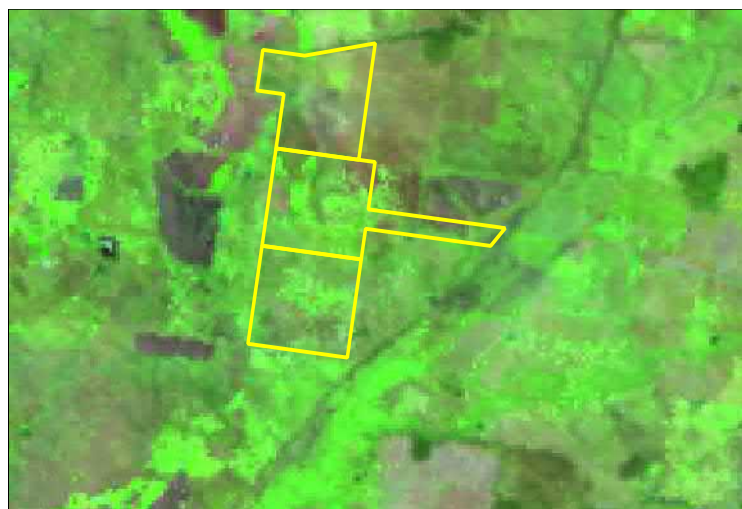


Queensland
Government

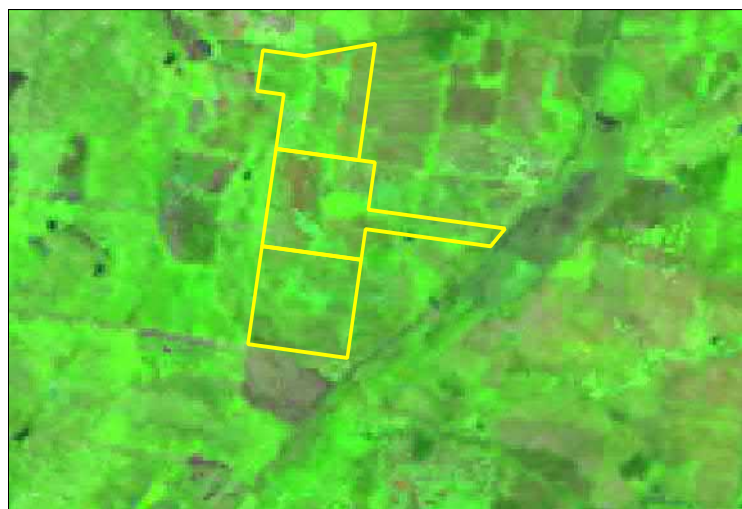
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

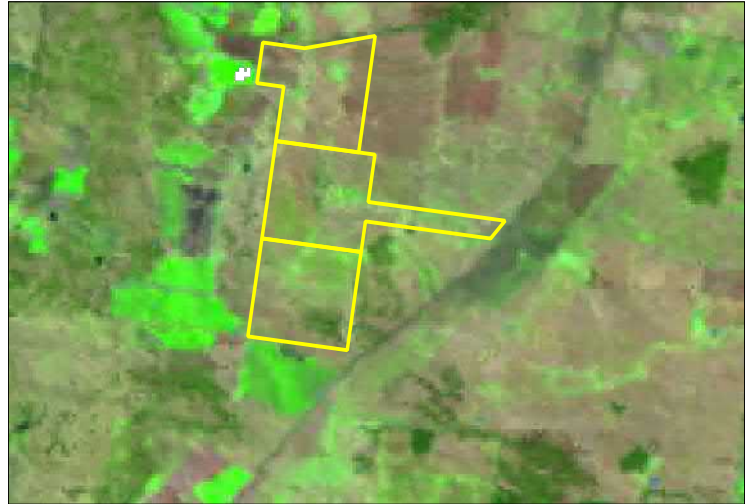
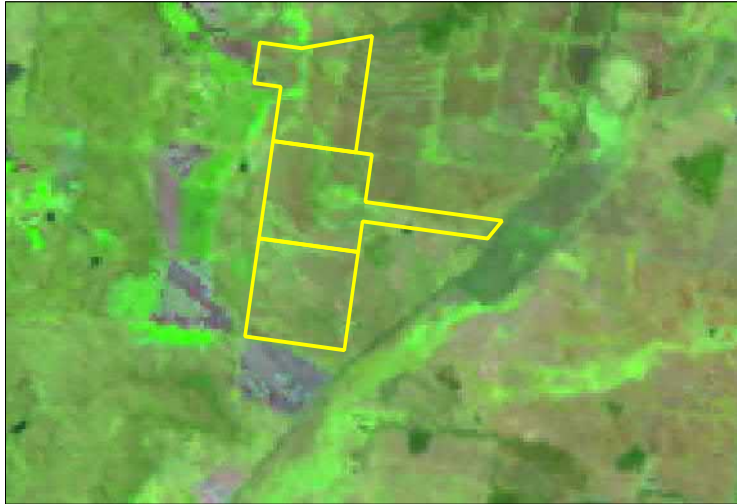
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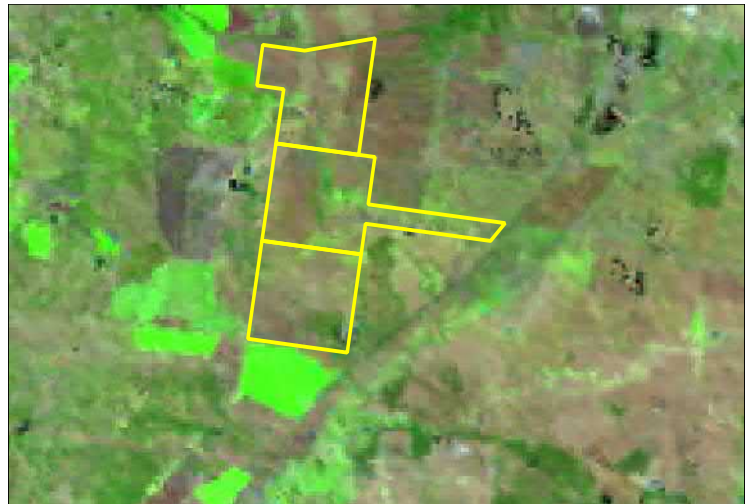
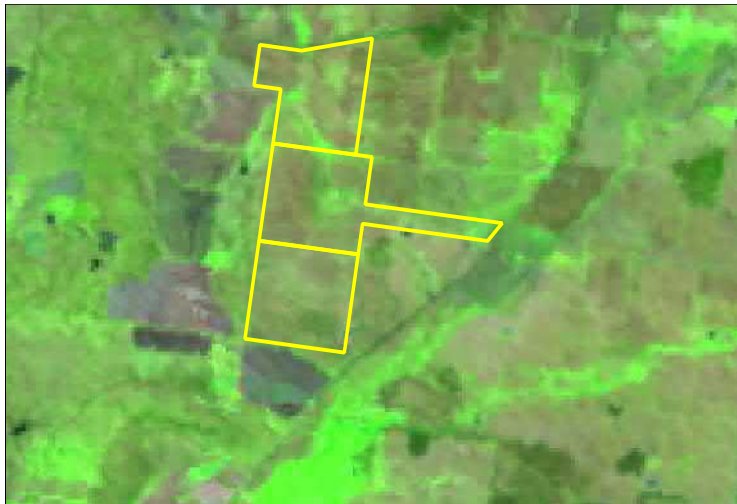


Queensland
Government

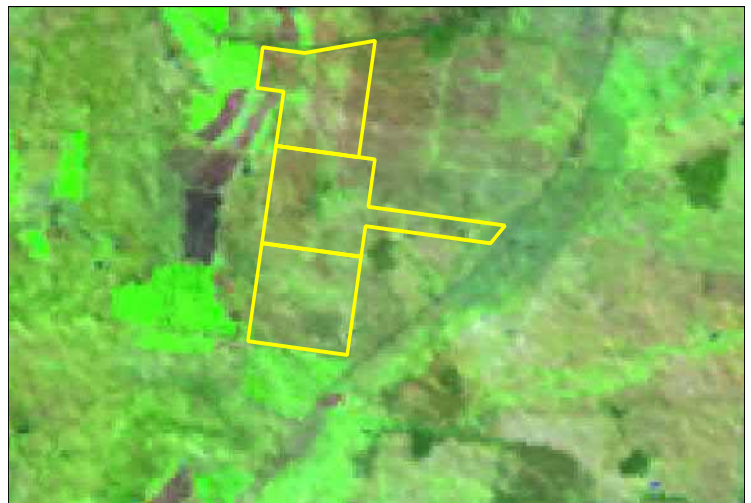
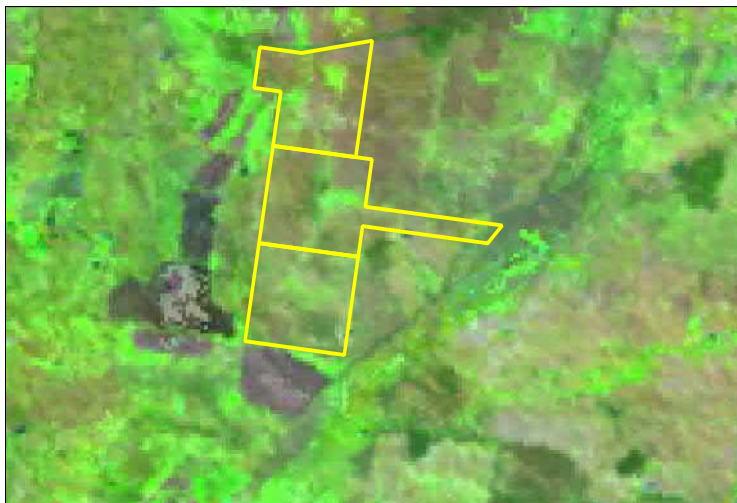
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

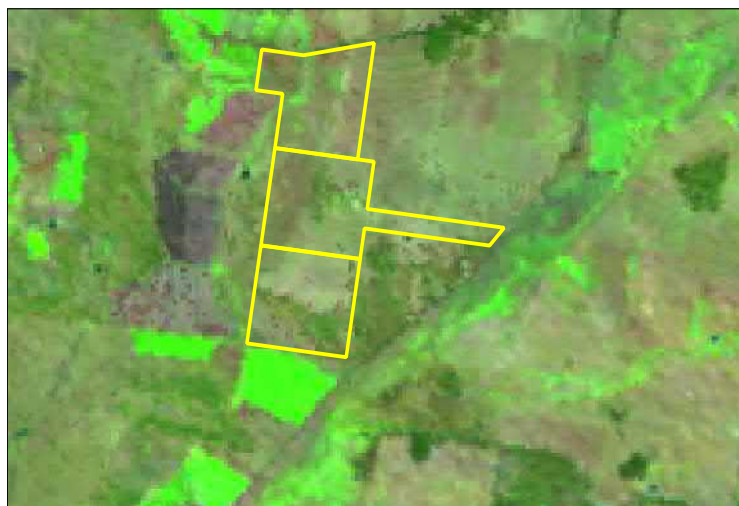
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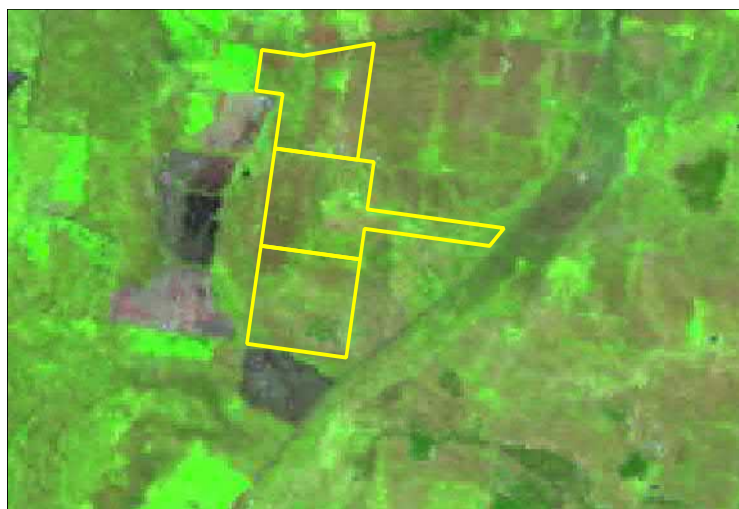


Queensland
Government

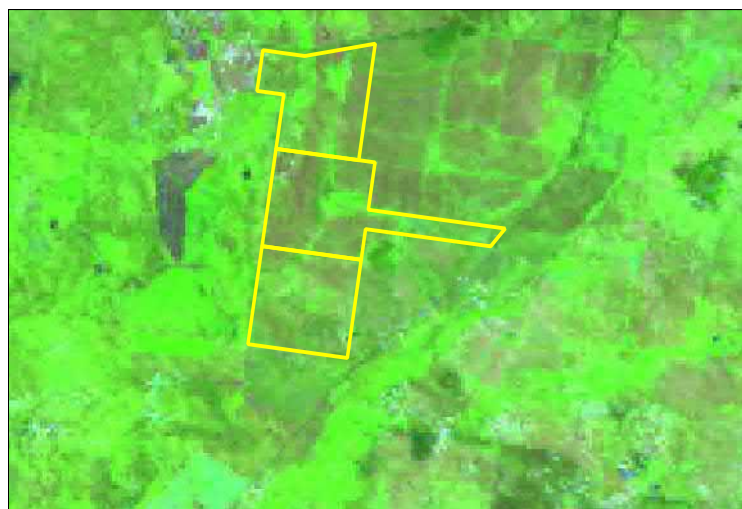
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3171RP902113,3445A341747,3170A34 etc.

Label: paddock28



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

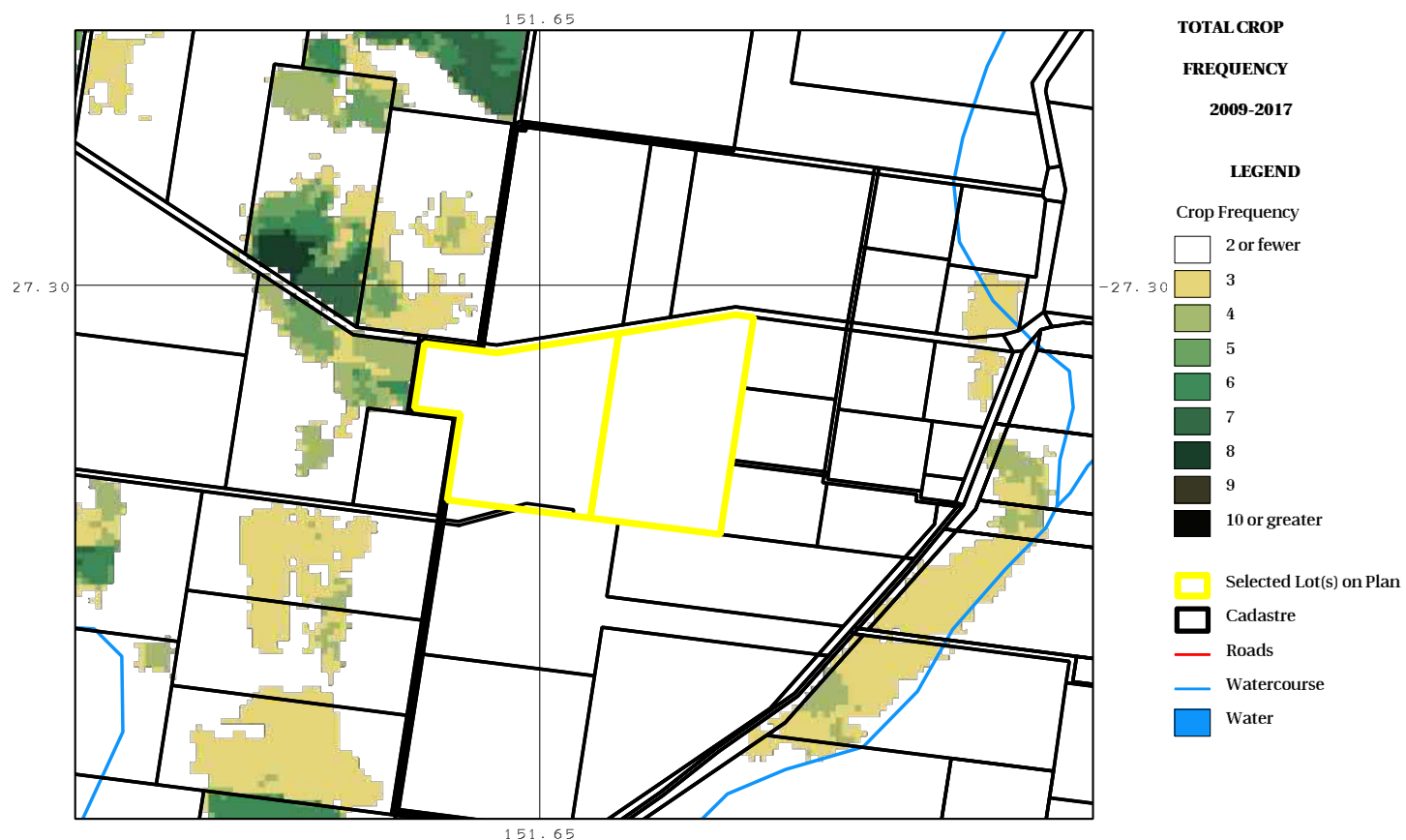
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Introduction

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Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

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Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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Label: paddock29

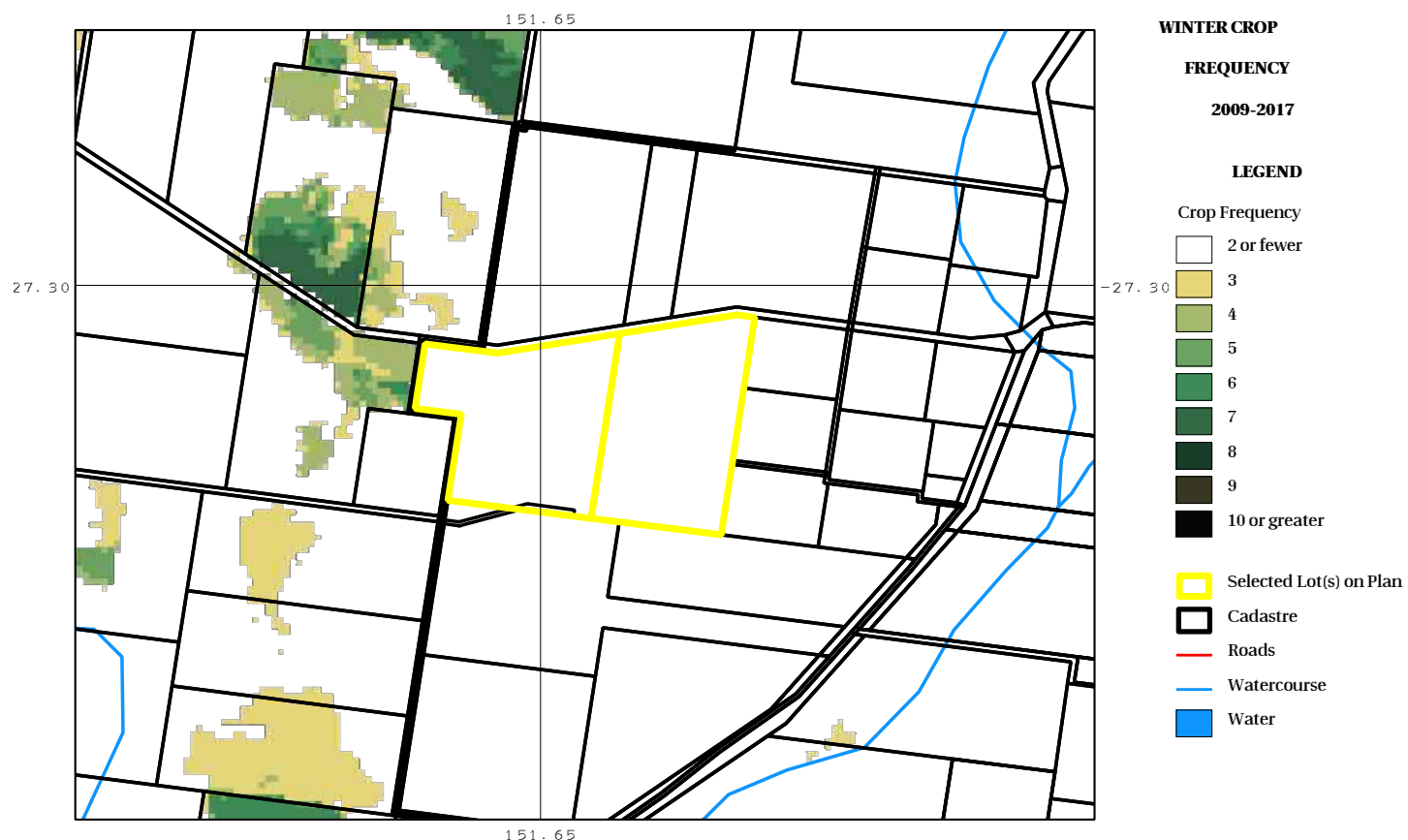


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Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

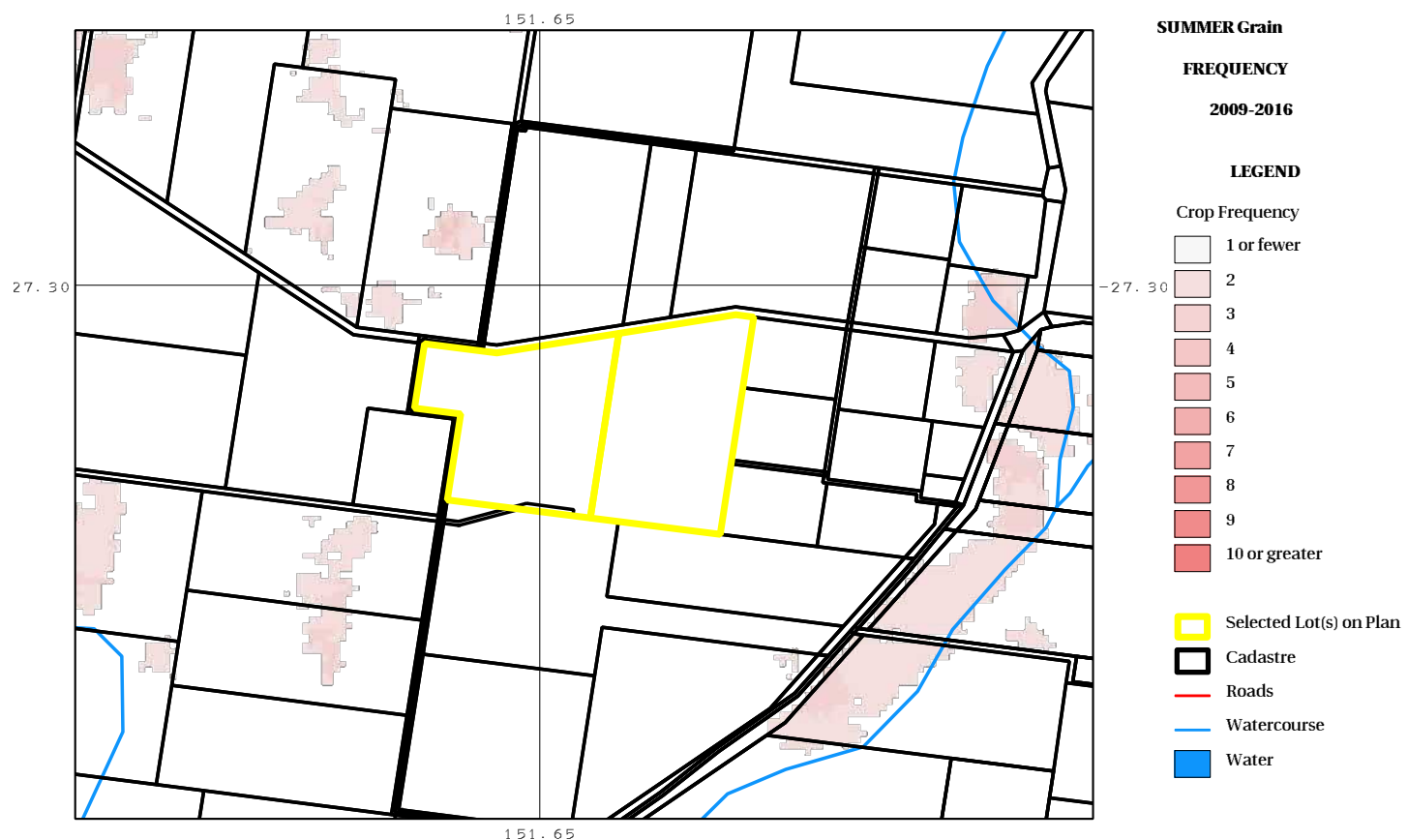
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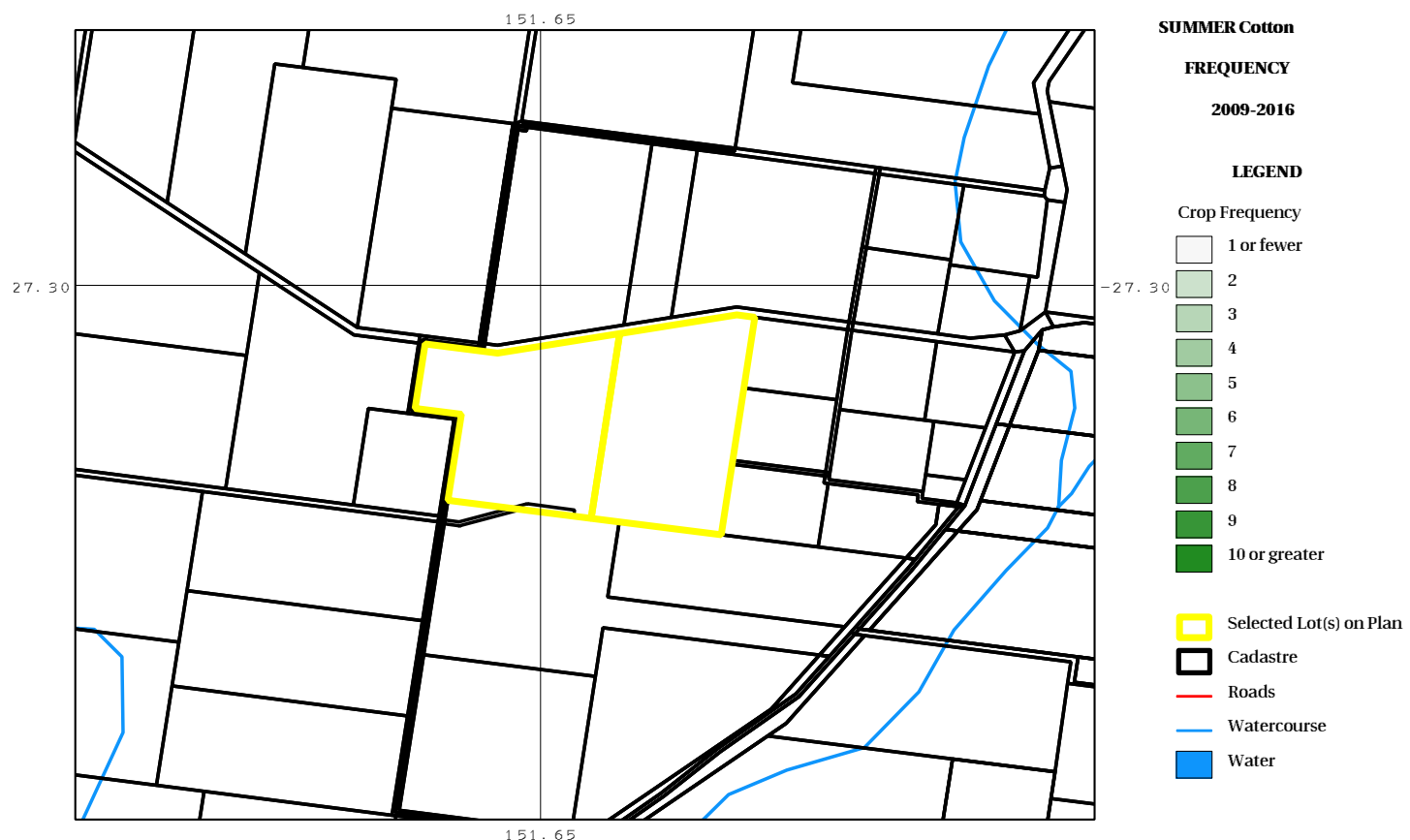


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

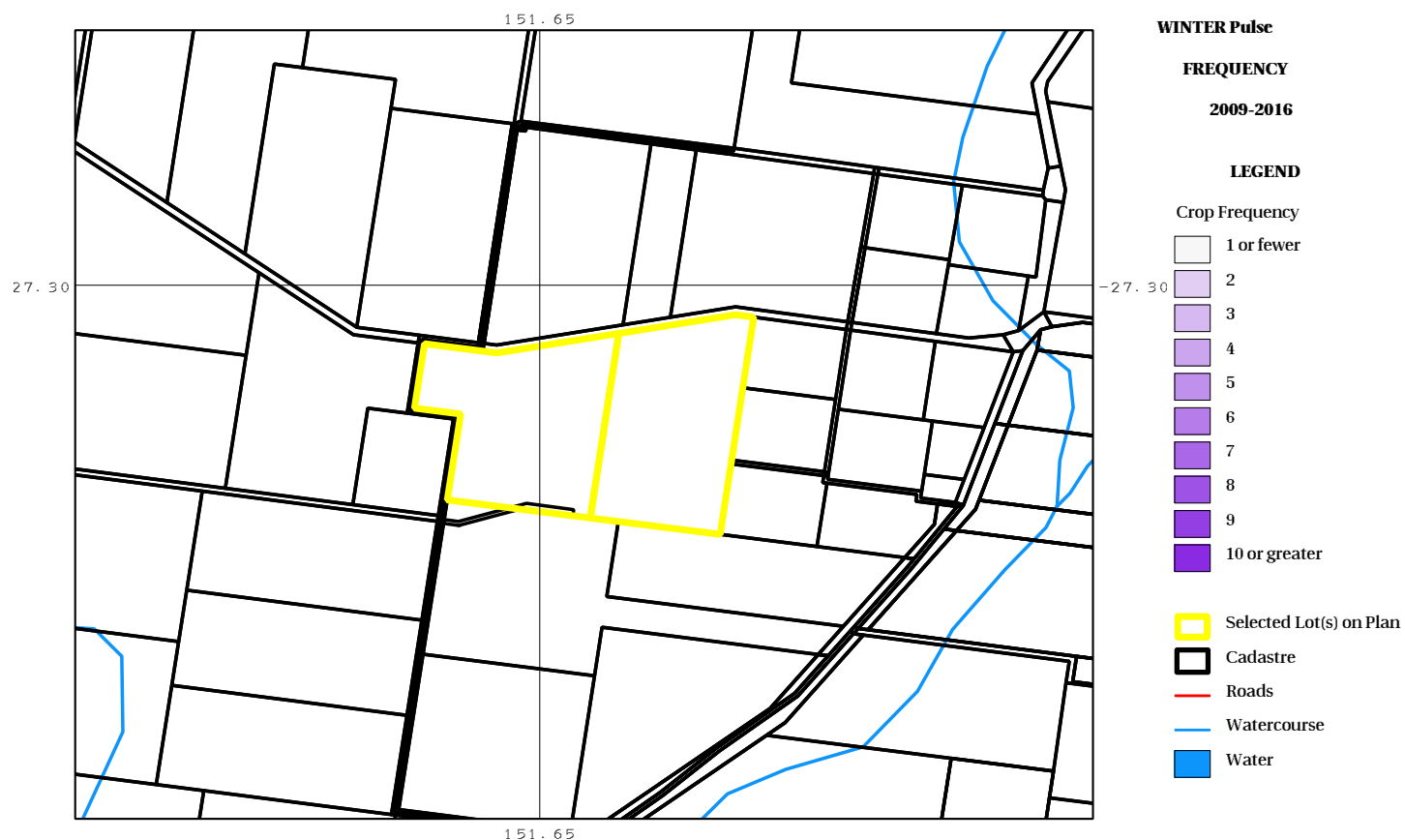
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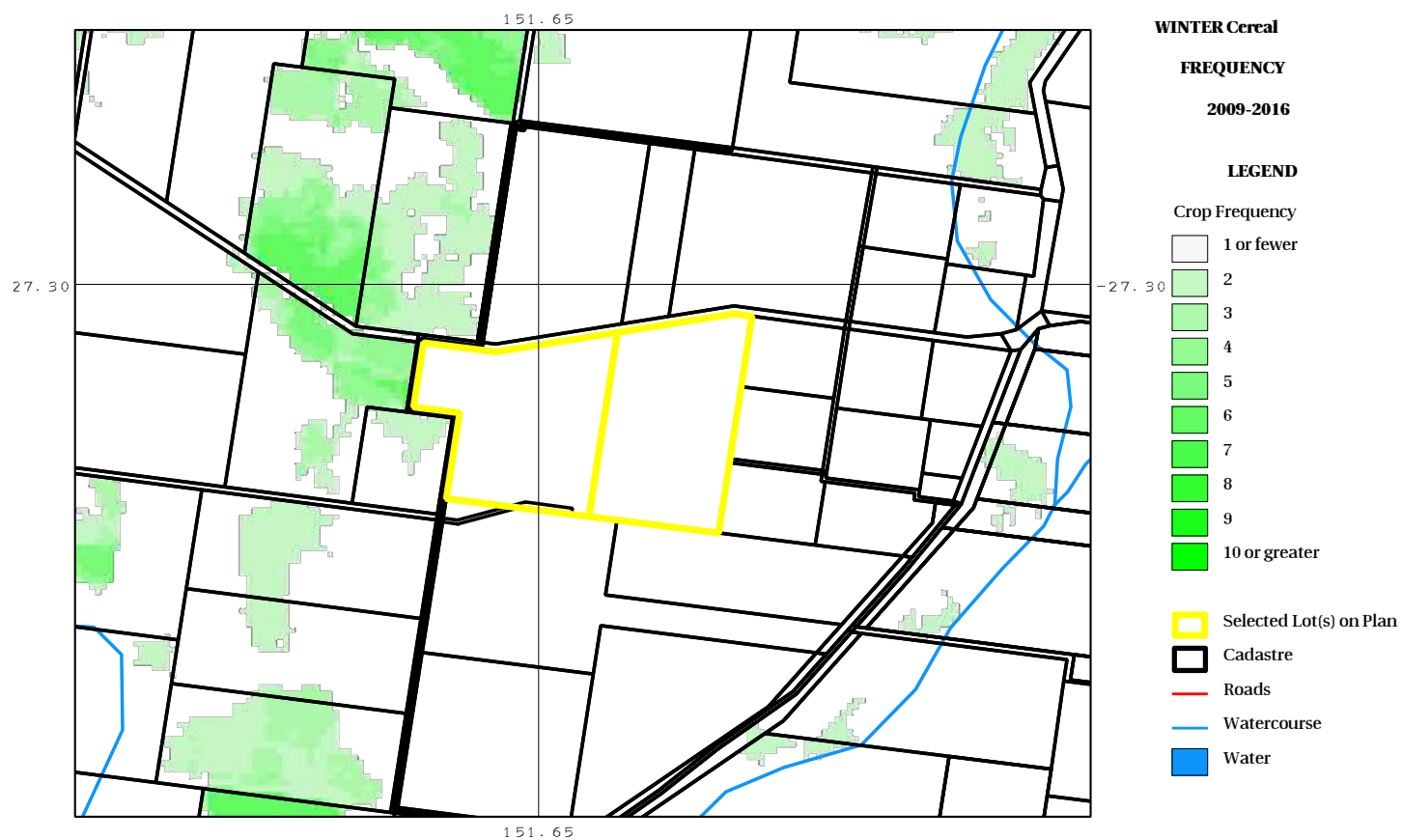


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Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

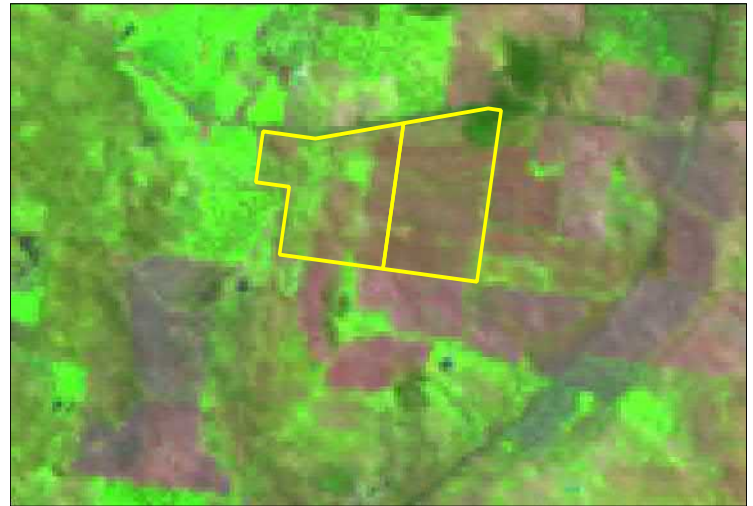
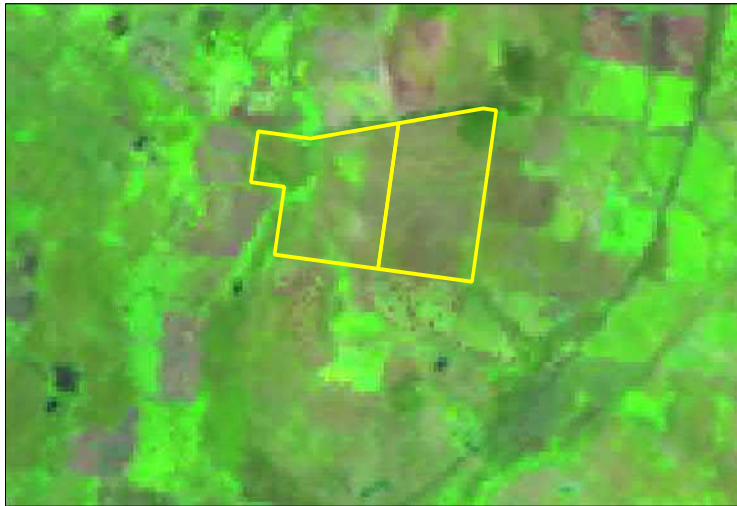
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Queensland
Government

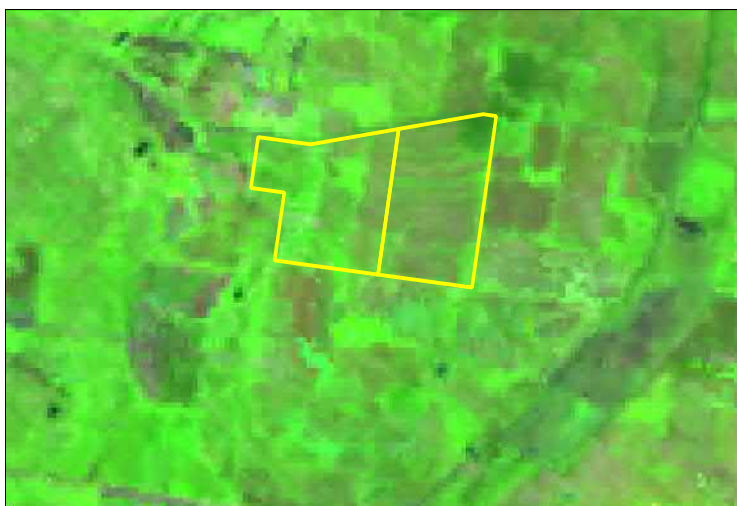
February (left) and September (right) images for 2009



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February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

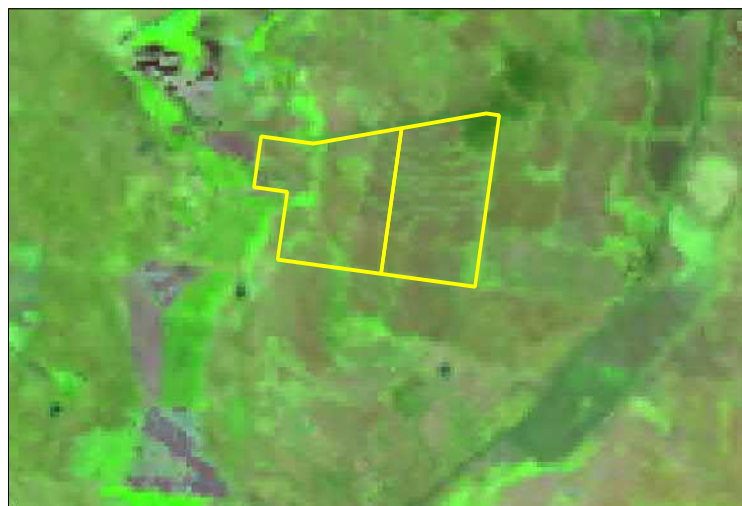
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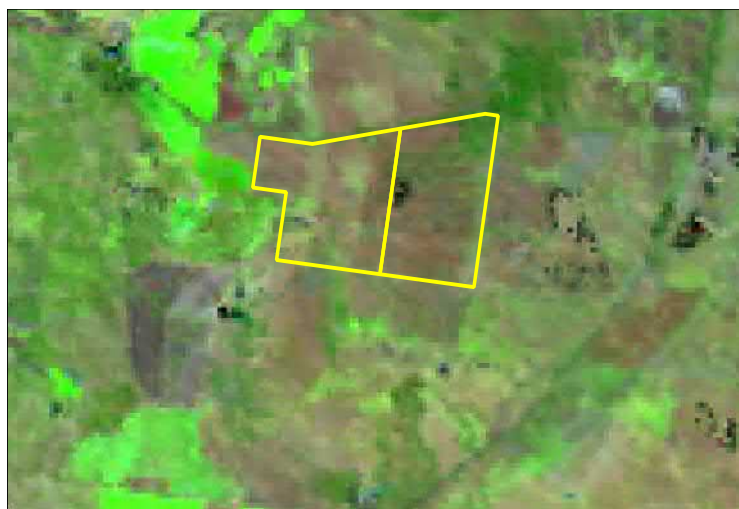
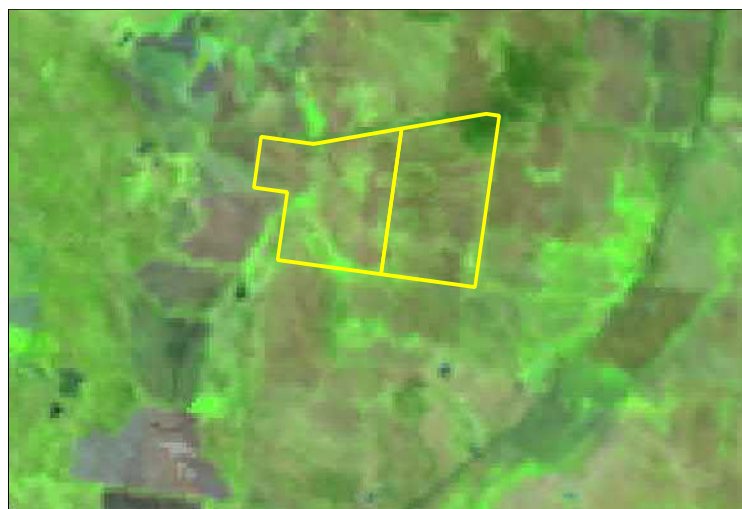


Queensland
Government

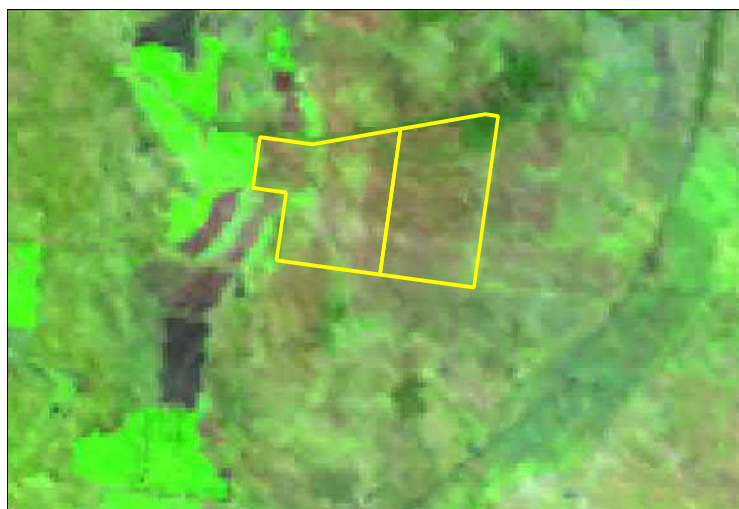
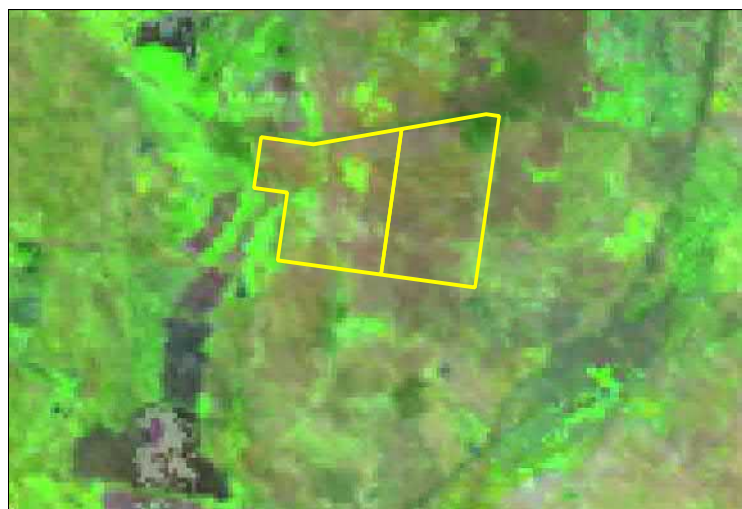
February (left) and September (right) images for 2012



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February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

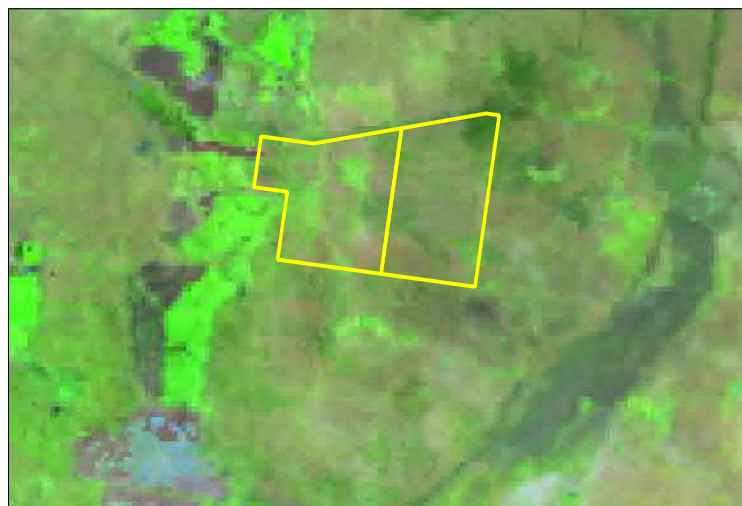
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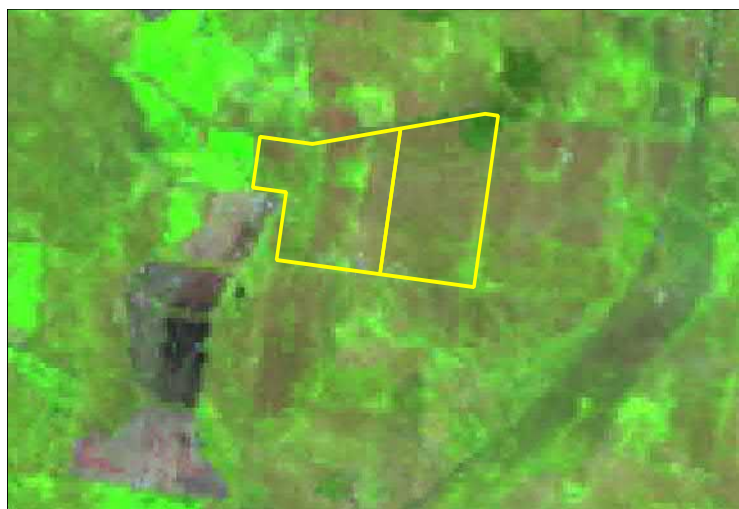
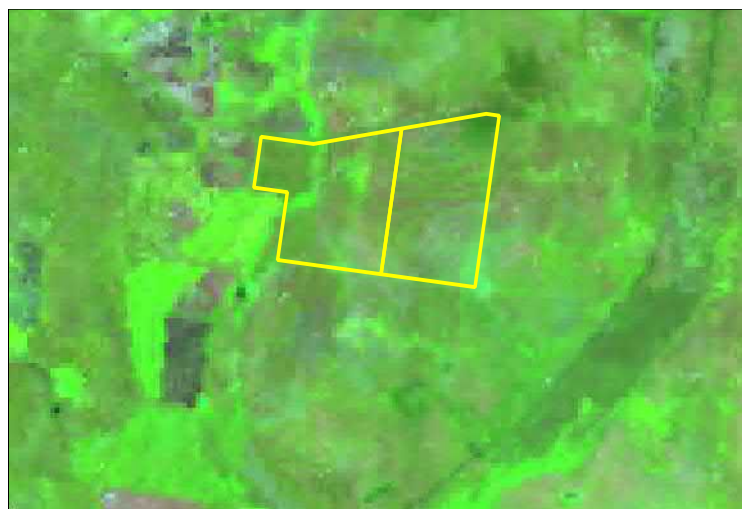


Queensland
Government

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Lot on Plan: 3448A341747,3445A341747

Label: paddock29



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

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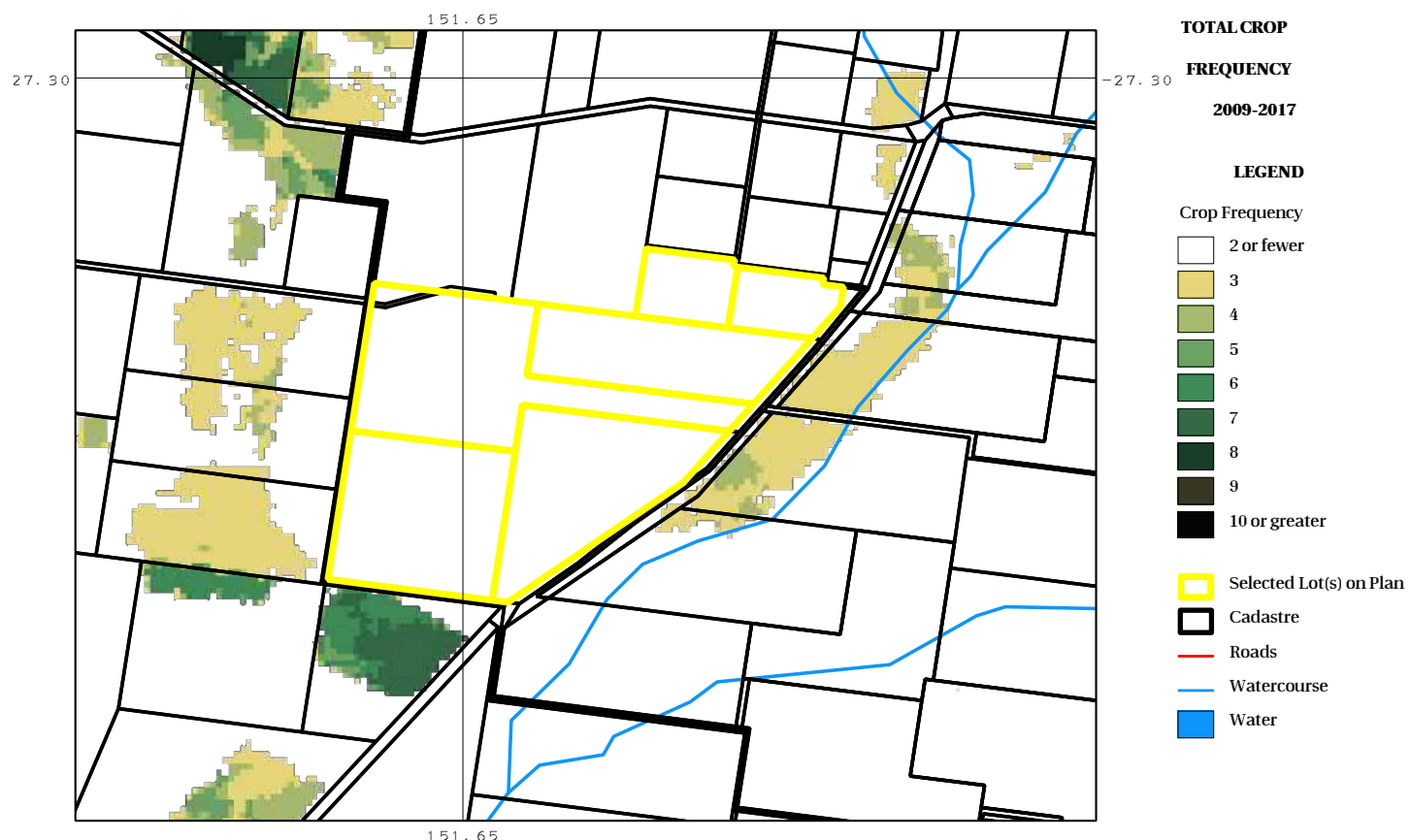
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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

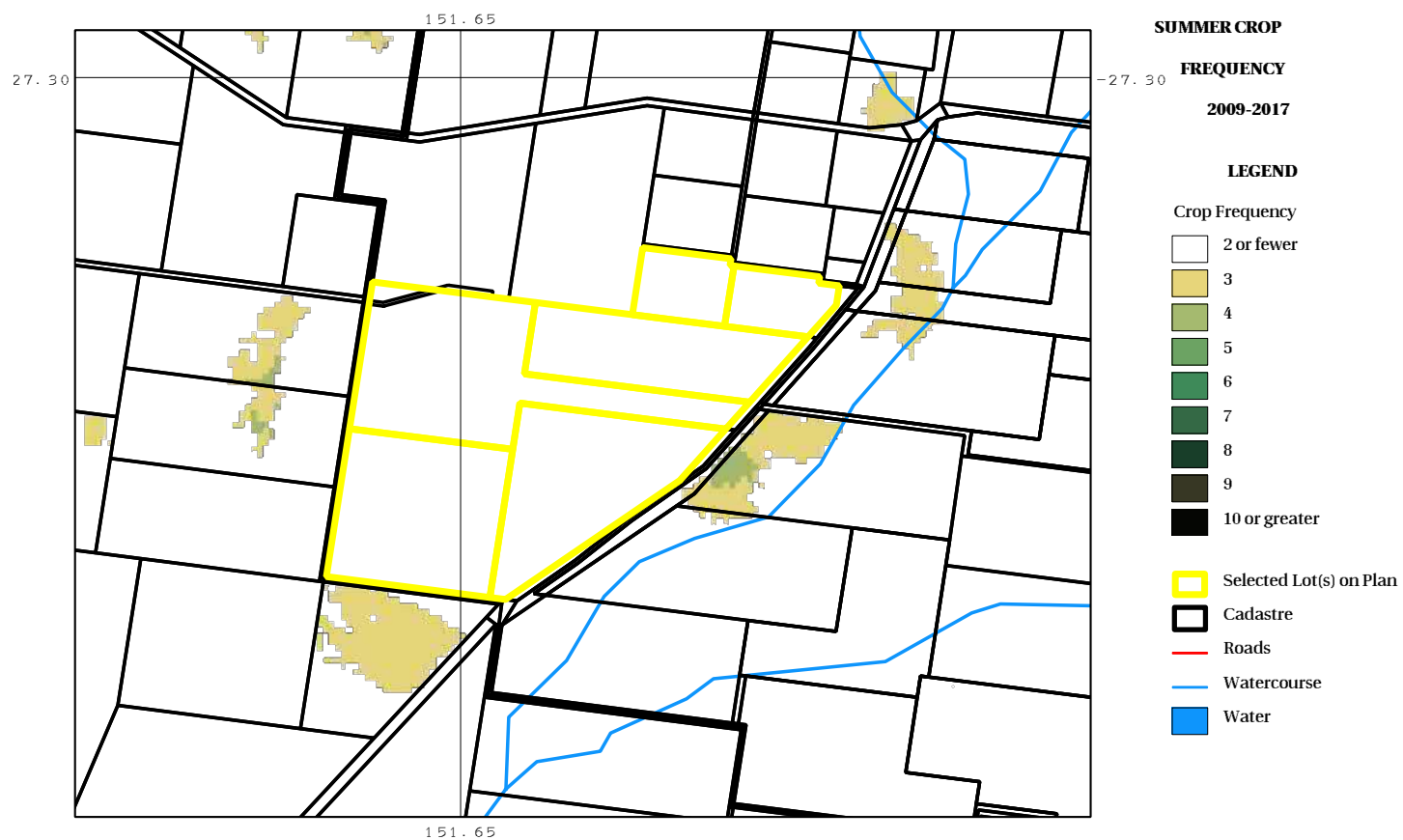
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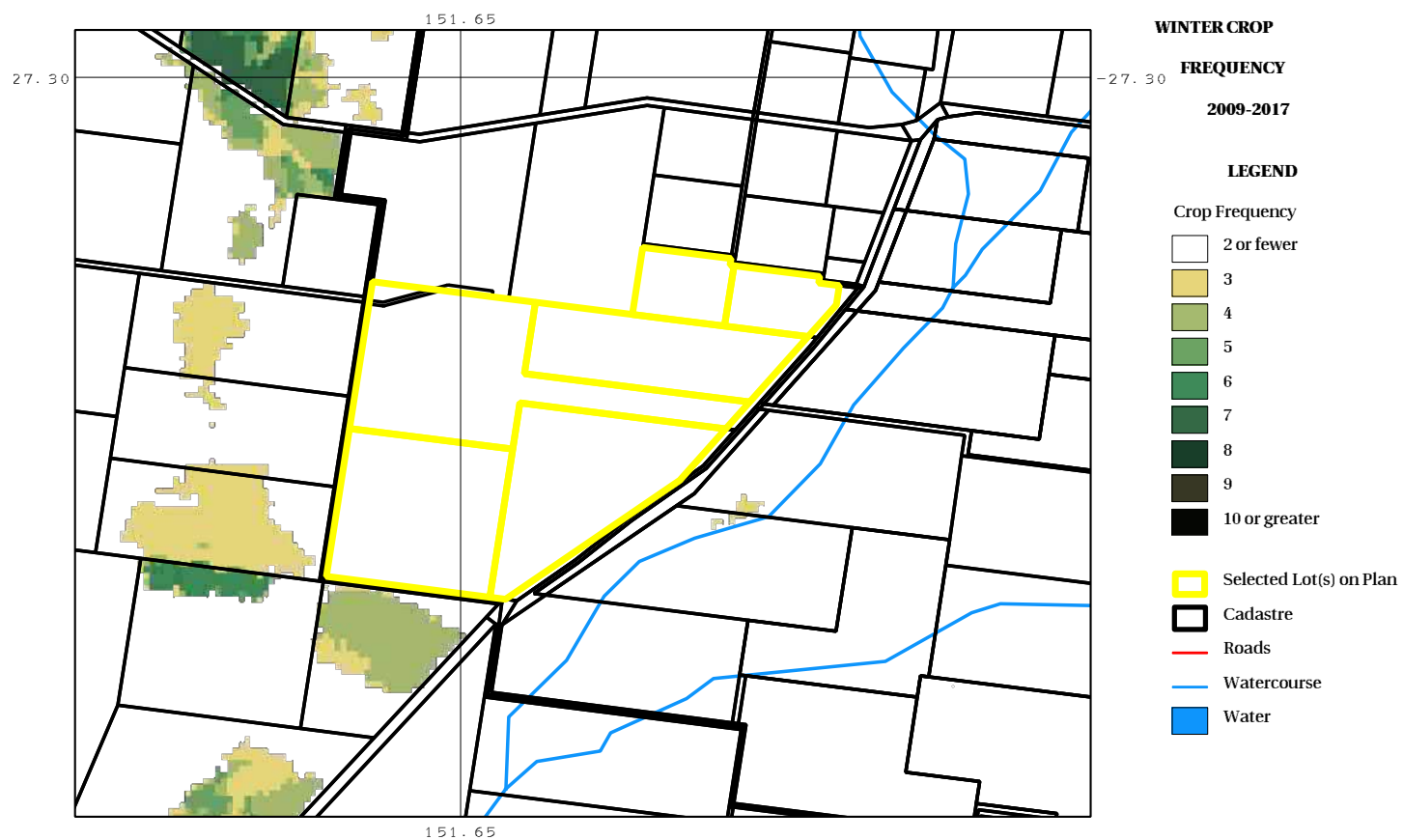


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Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

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July 17, 2019

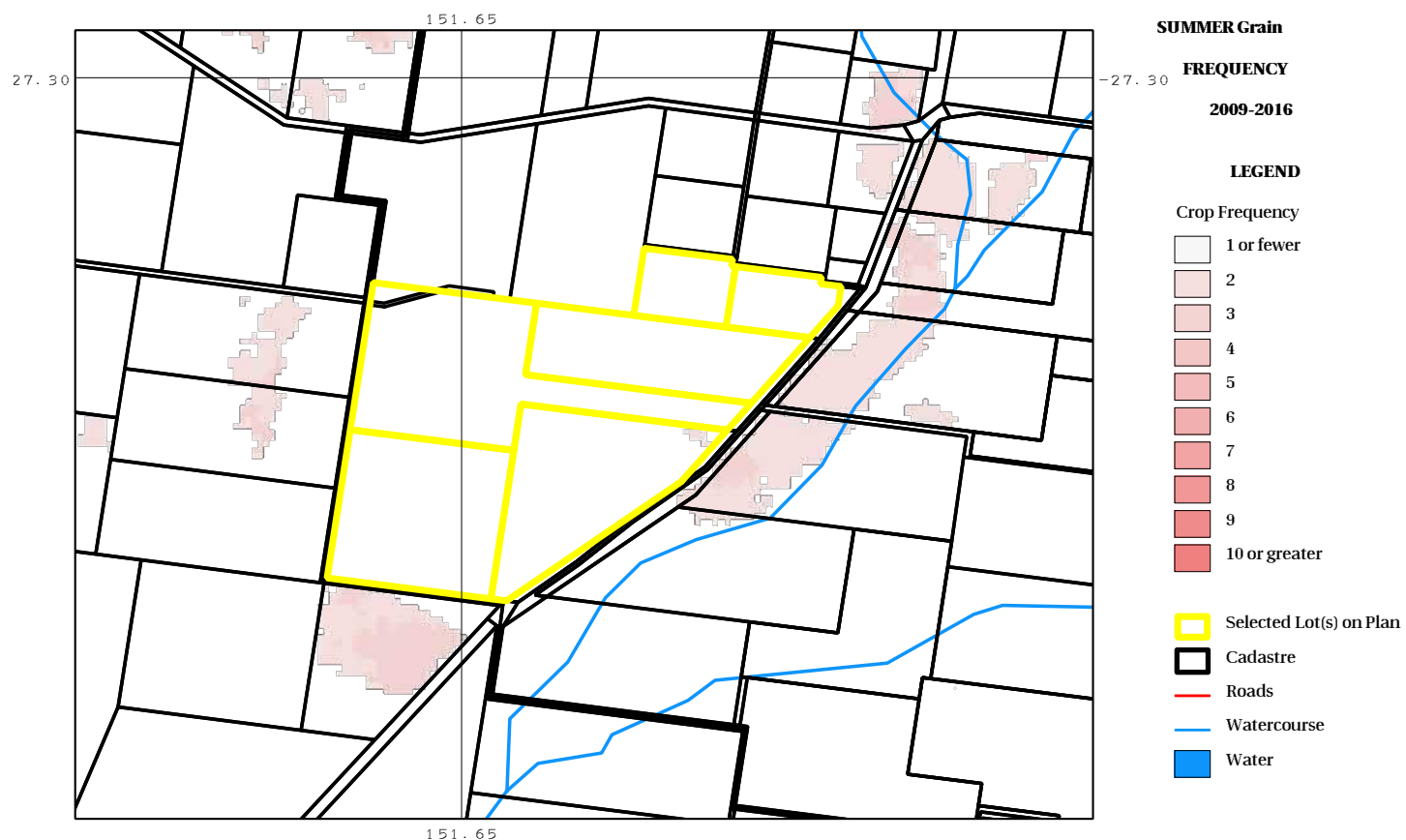
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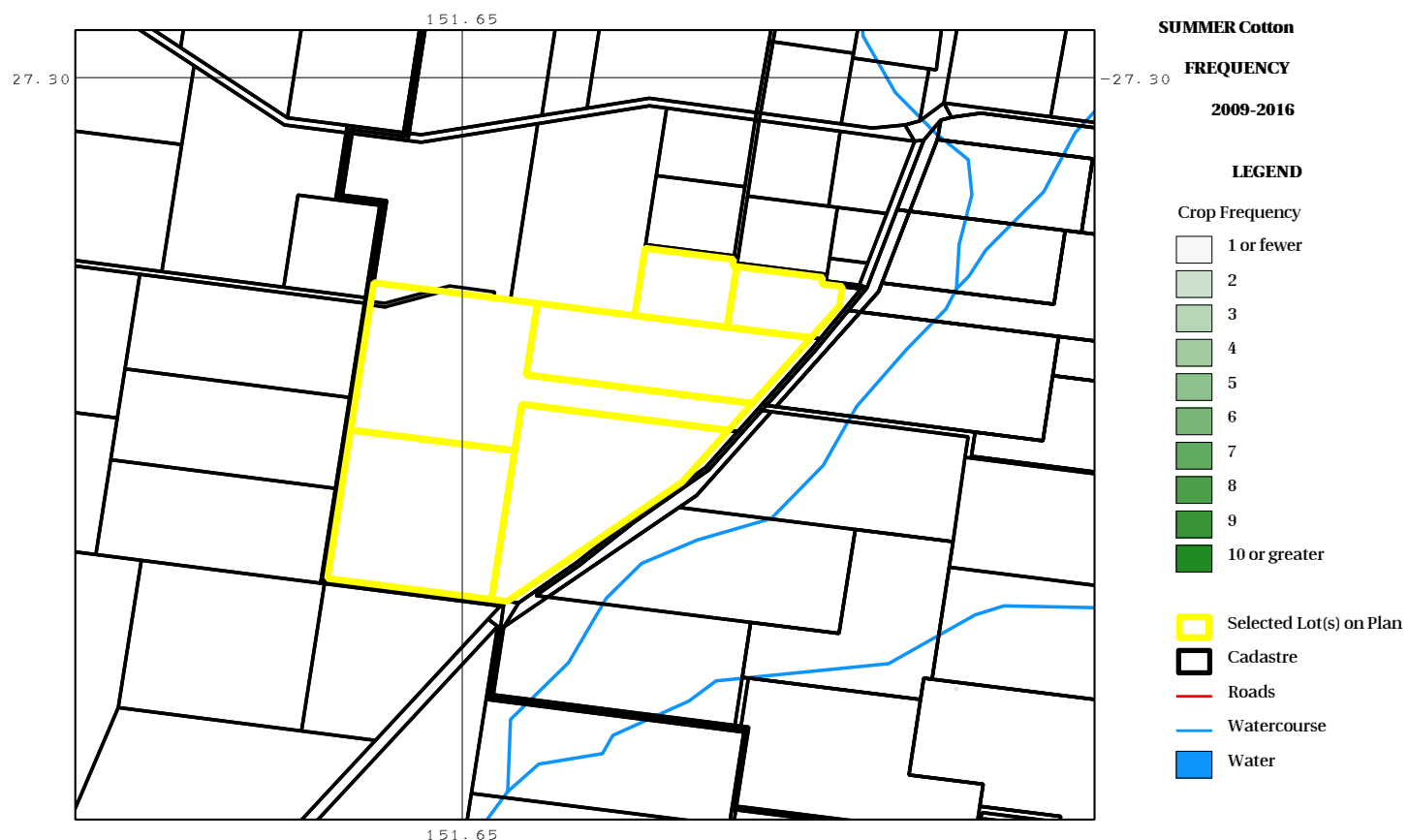


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Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

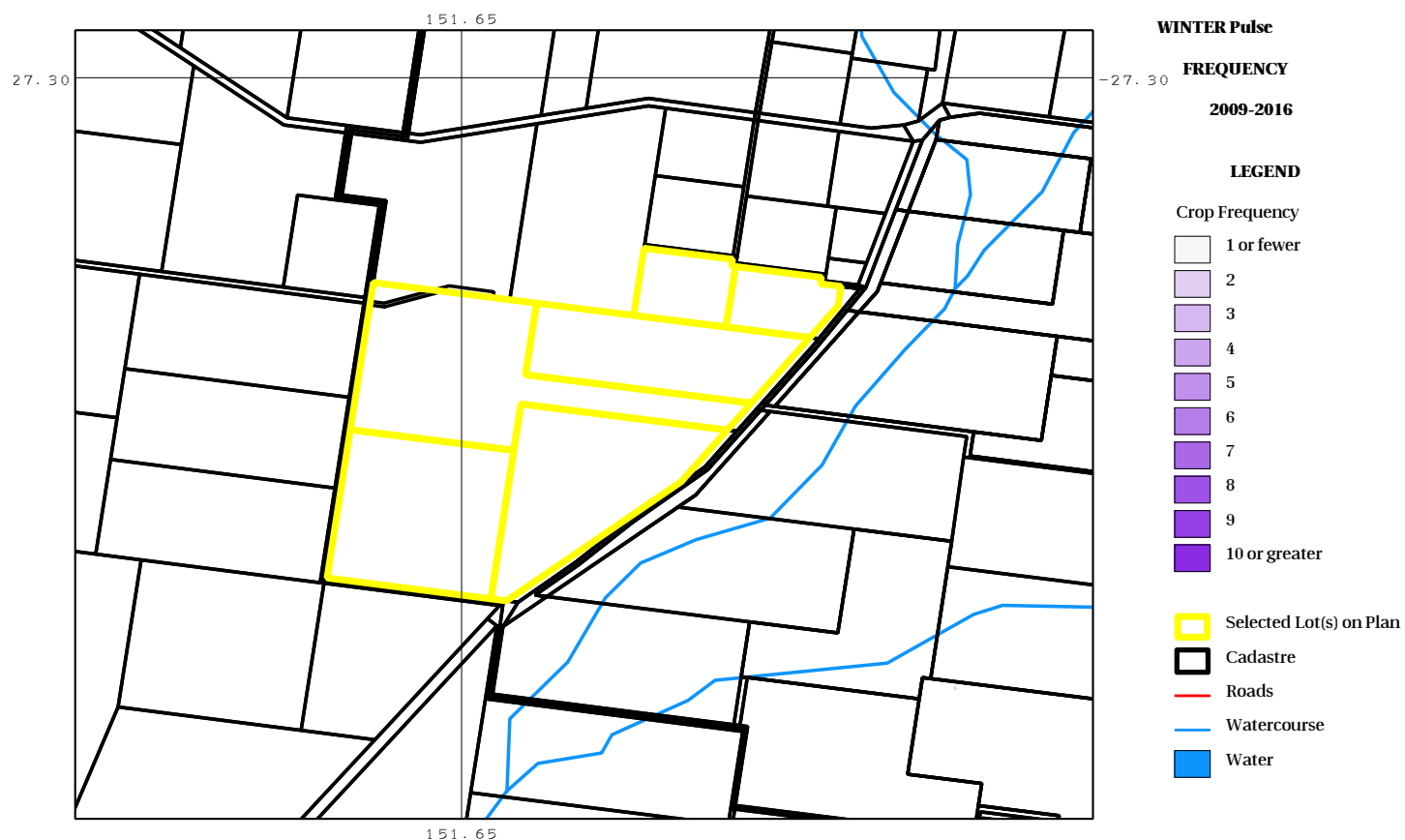
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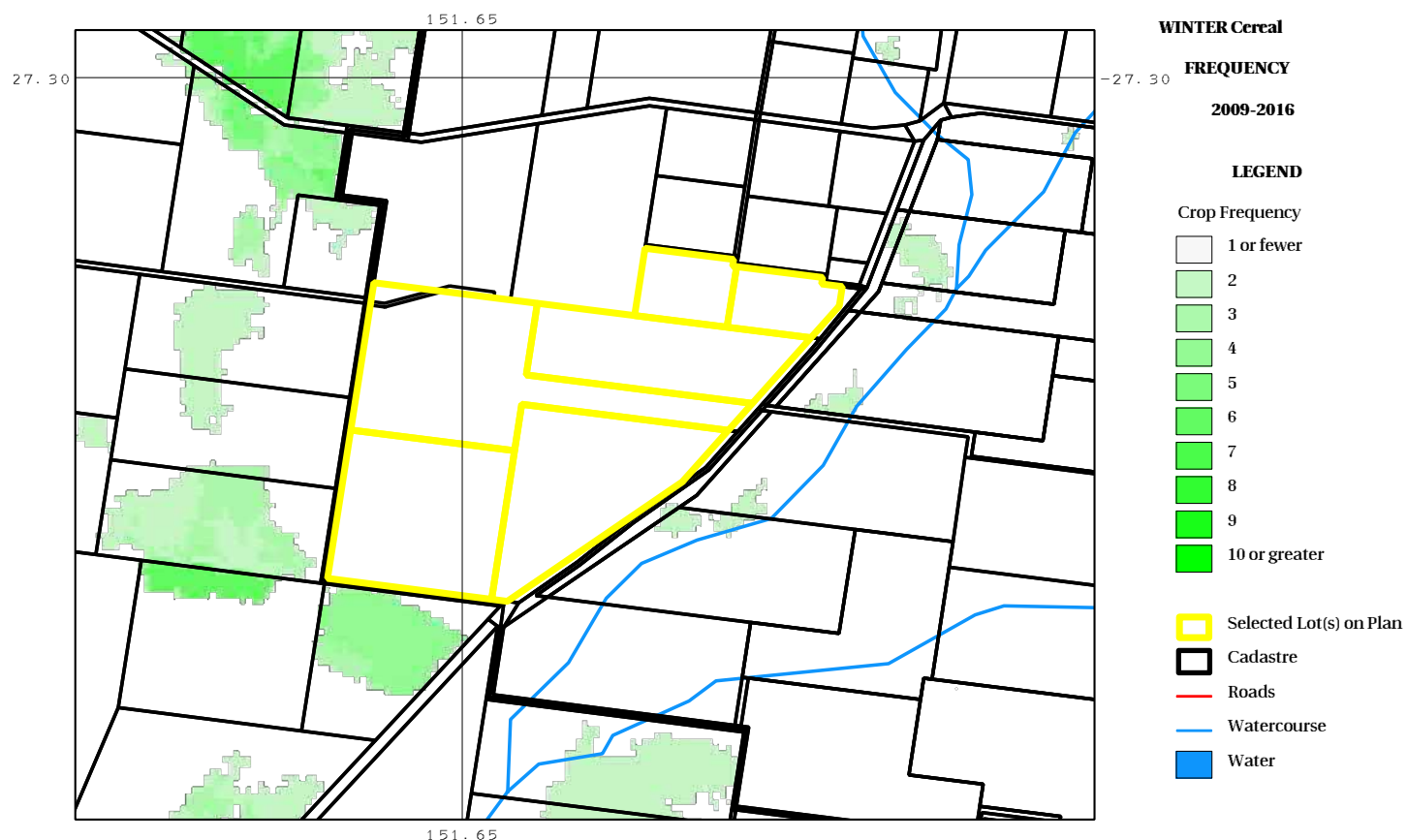


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

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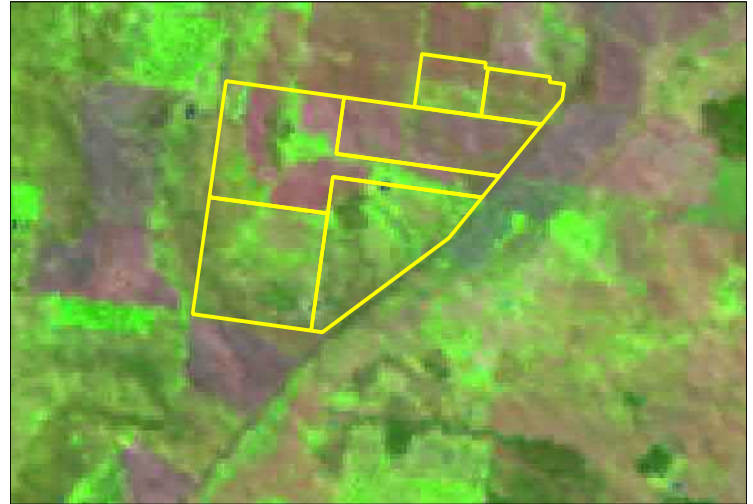
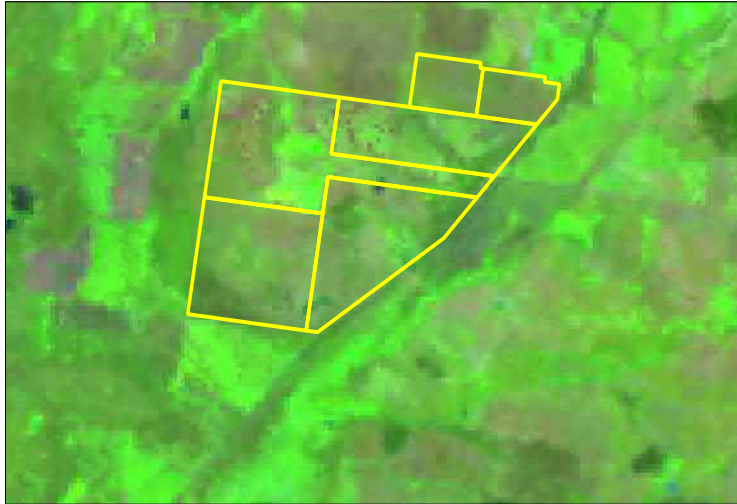
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Label: paddock32

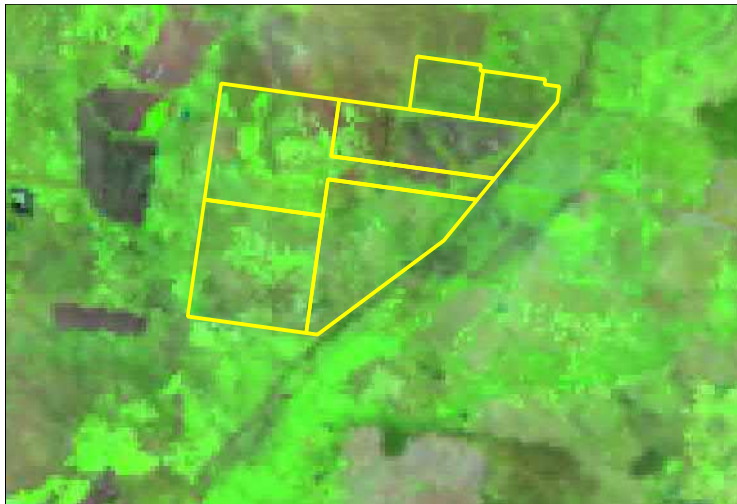


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Government

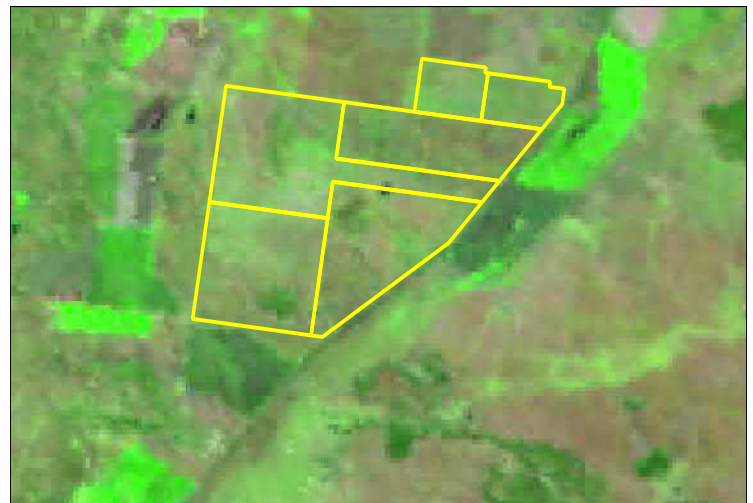
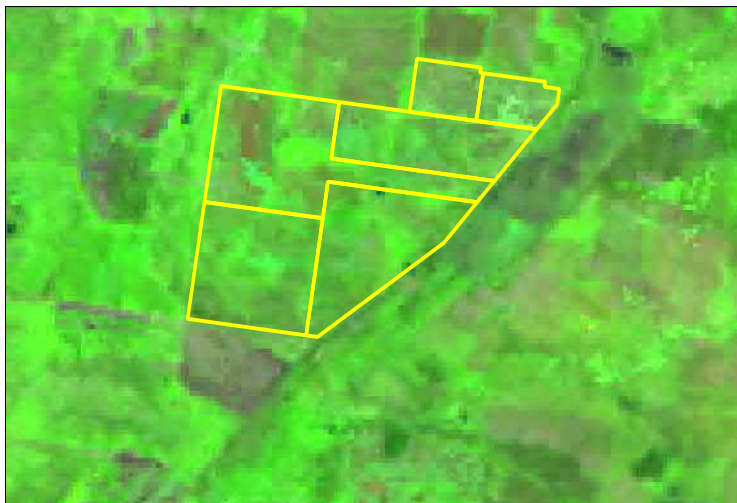
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FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

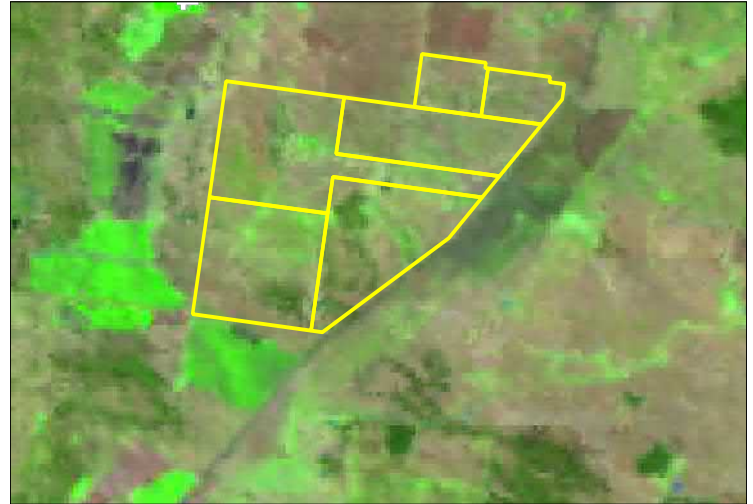
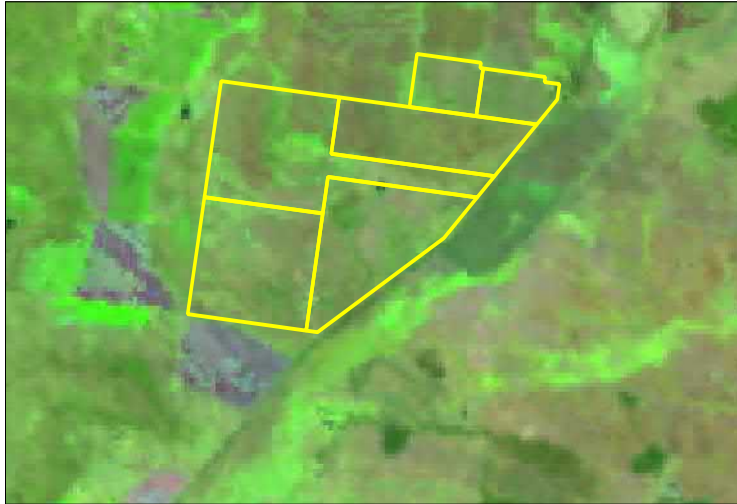
Lot on Plan: 98A342317,97A342317,3461RP902113 etc.

Label: paddock32

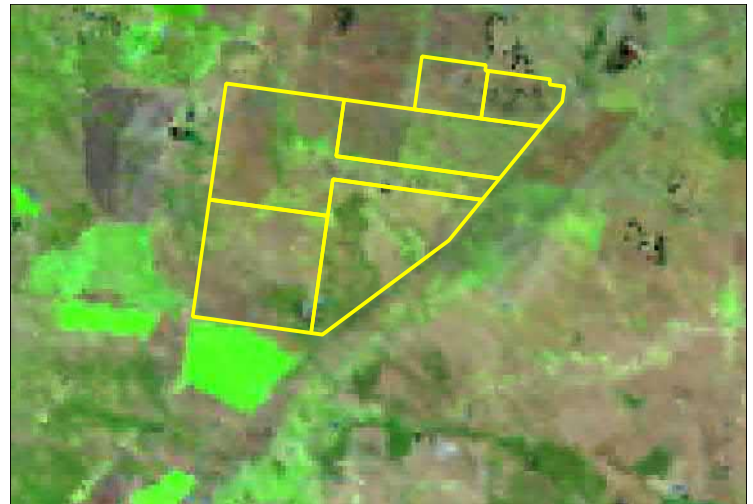
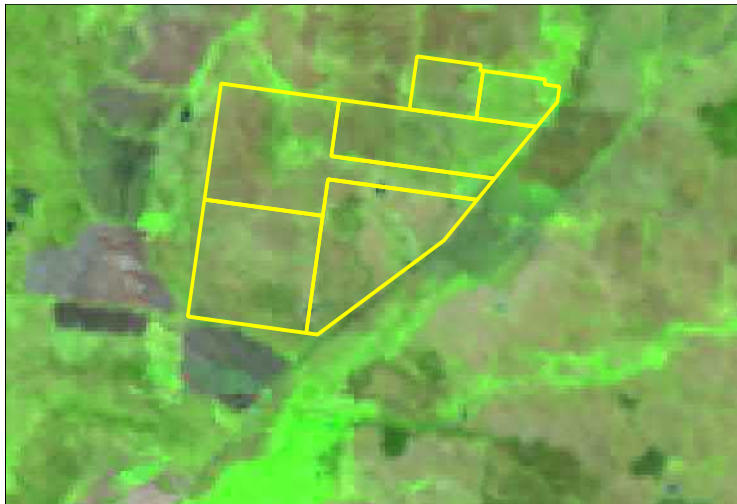


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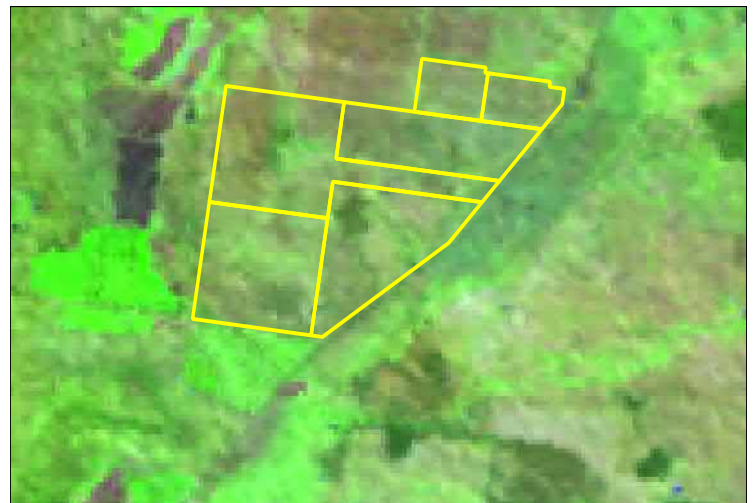
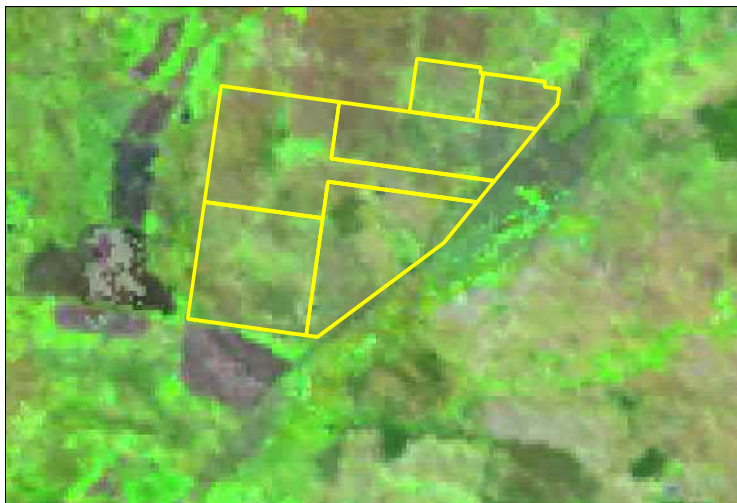
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

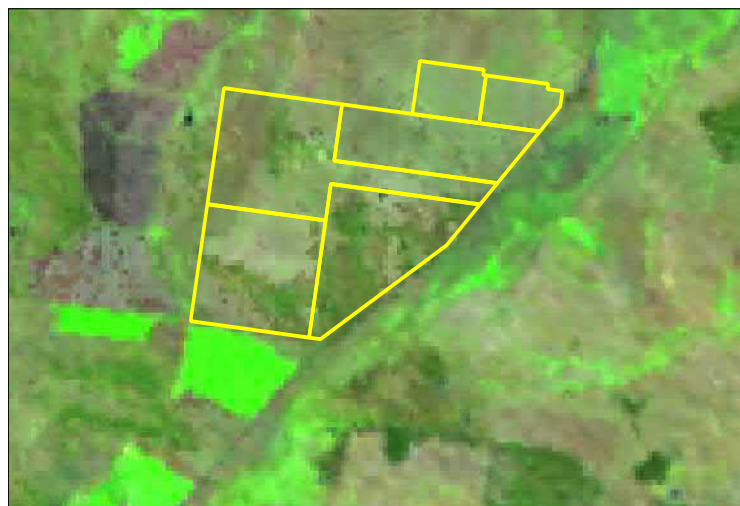
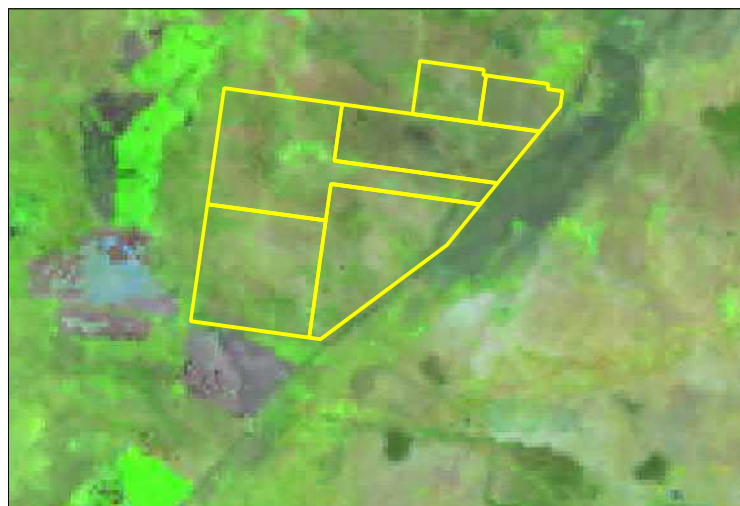
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Label: paddock32

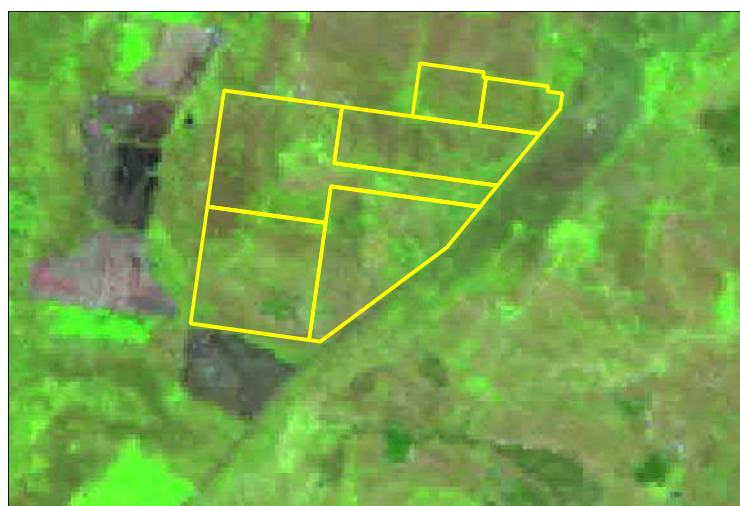
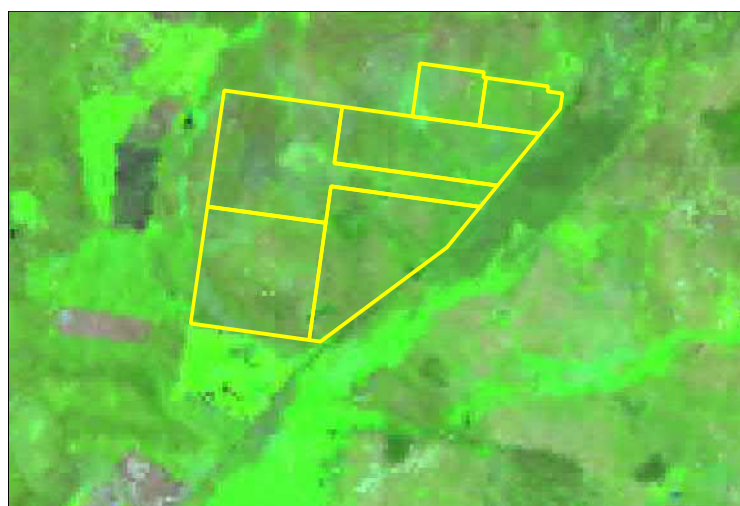


Queensland
Government

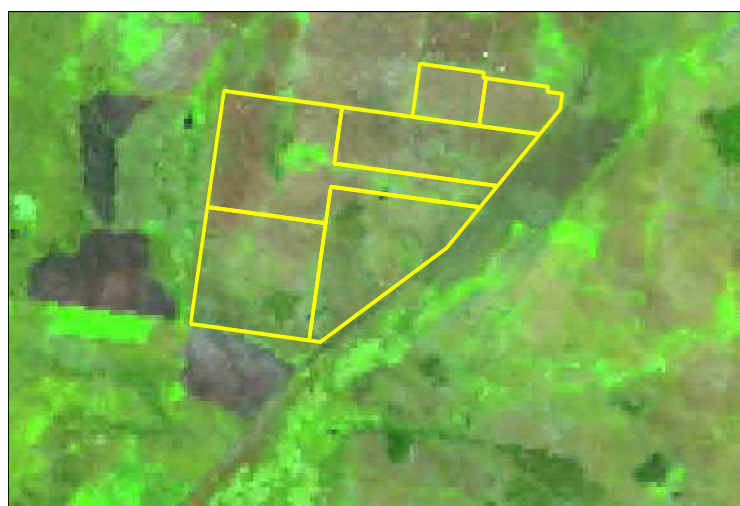
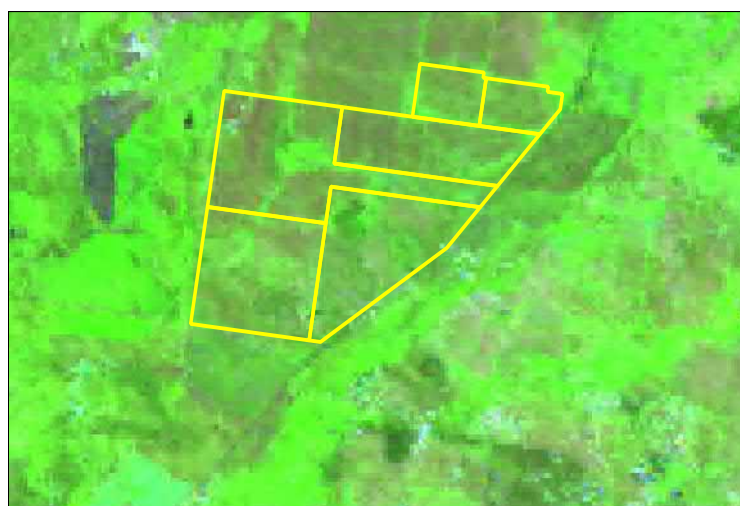
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 98A342317,97A342317,3461RP902113 etc.

Label: paddock32



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Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

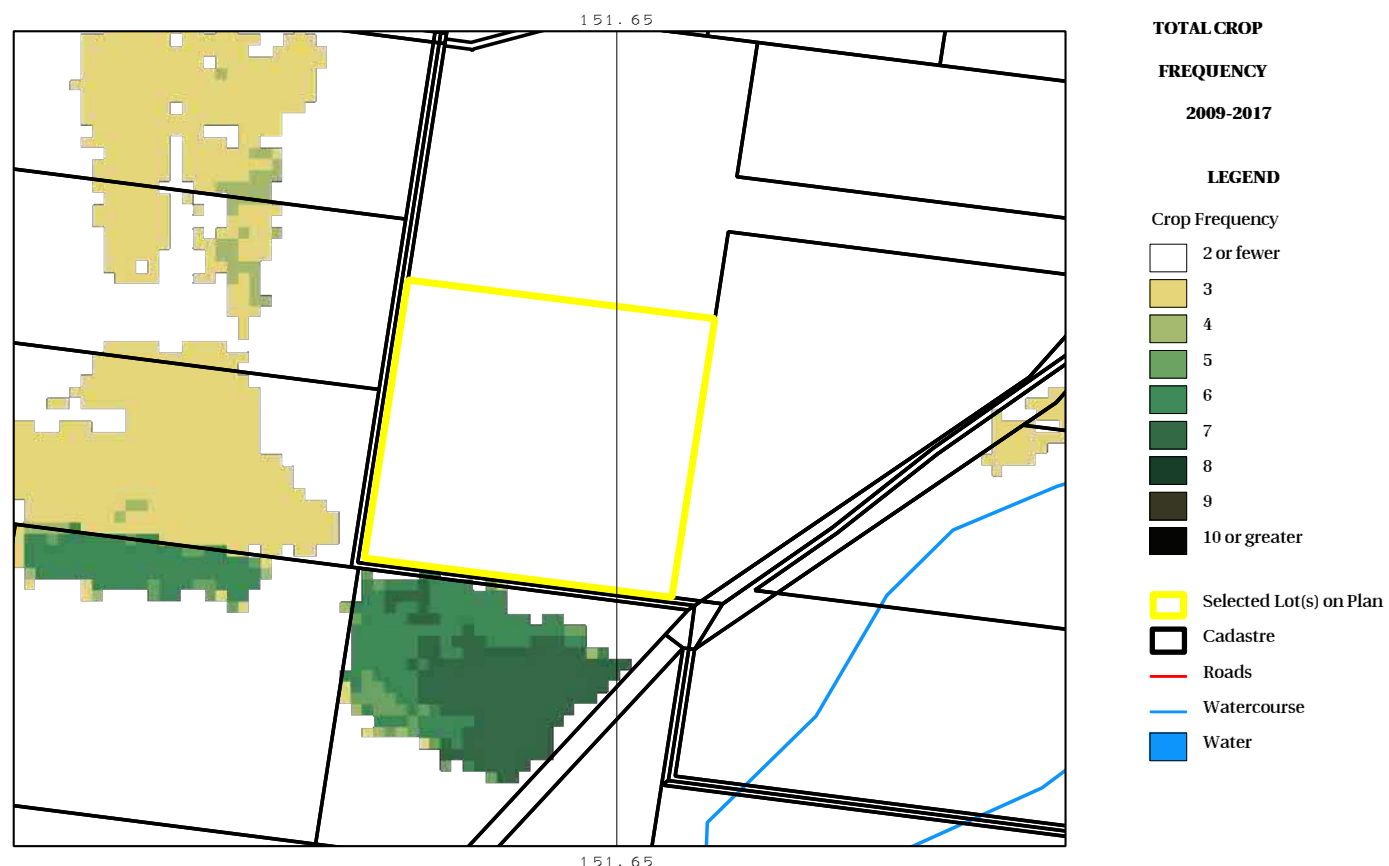
Disclaimer

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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

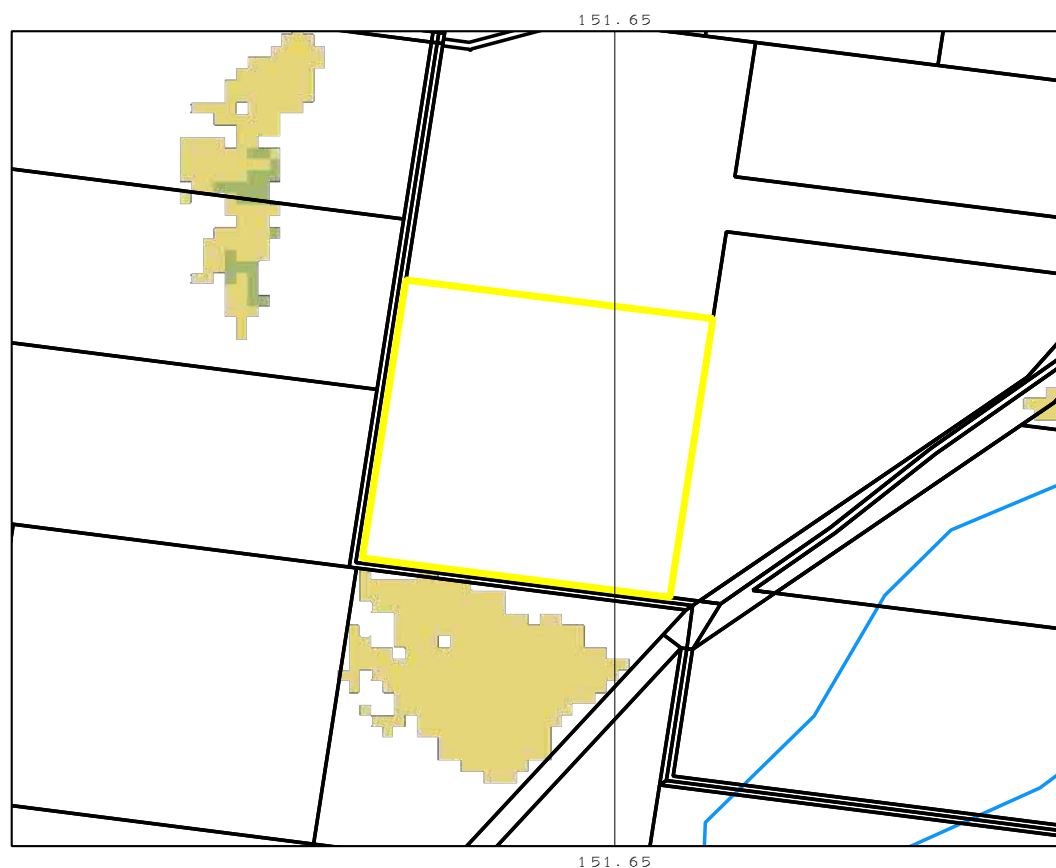
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3170A341594

Label: paddock33

Estimated frequency map for summer (February) crop (2009 - 2018)



SUMMER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7

8


9

10 or greater

 Selected Lot(s) on Plan

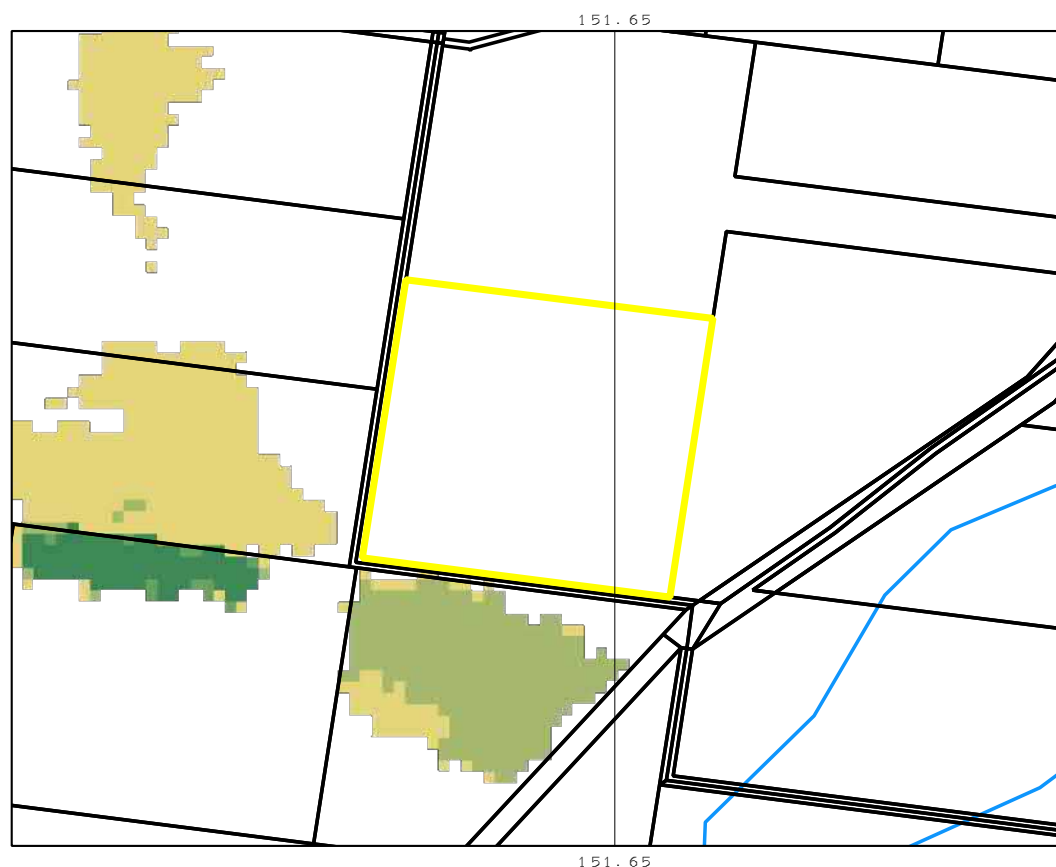
 Cadastre

 Roads

 Watercourse

 Water

Estimated frequency map for winter (September) crop (2009 - 2018)



WINTER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7

8


9

10 or greater

 Selected Lot(s) on Plan

 Cadastre

 Roads

 Watercourse

 Water

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

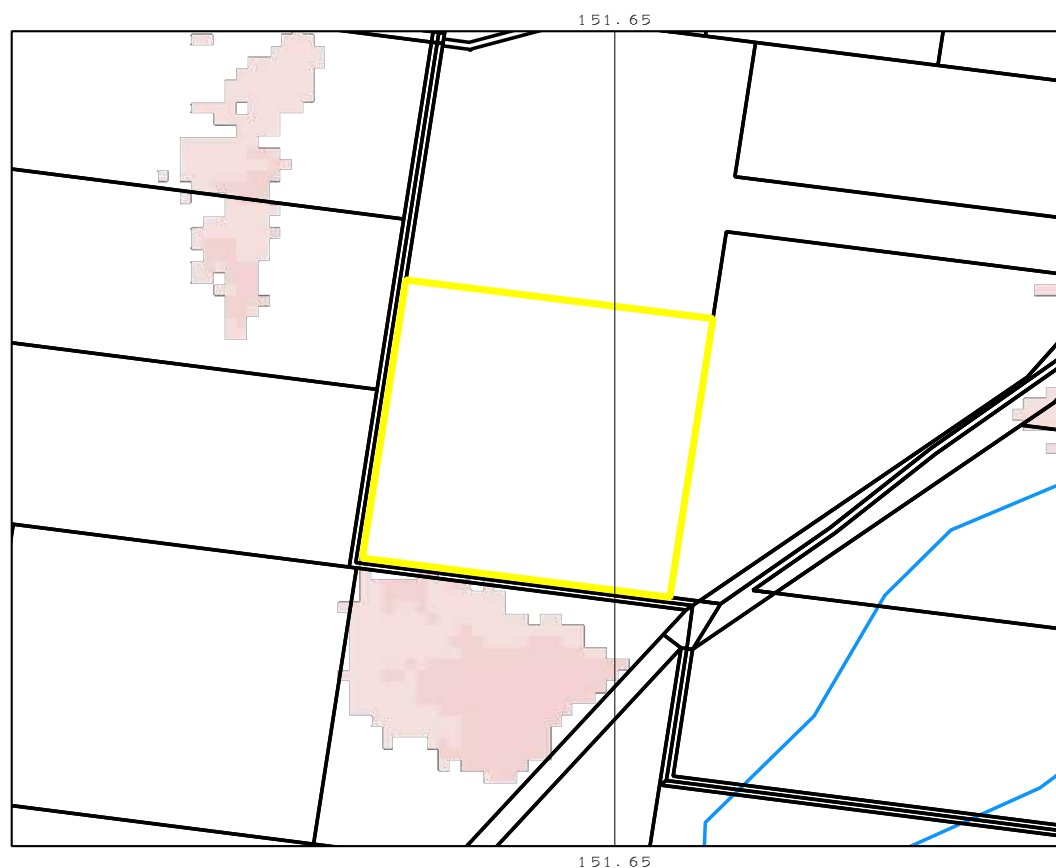
Lot on Plan: 3170A341594

Label: paddock33



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Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



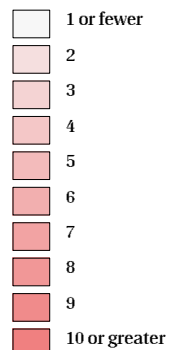
SUMMER Grain

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

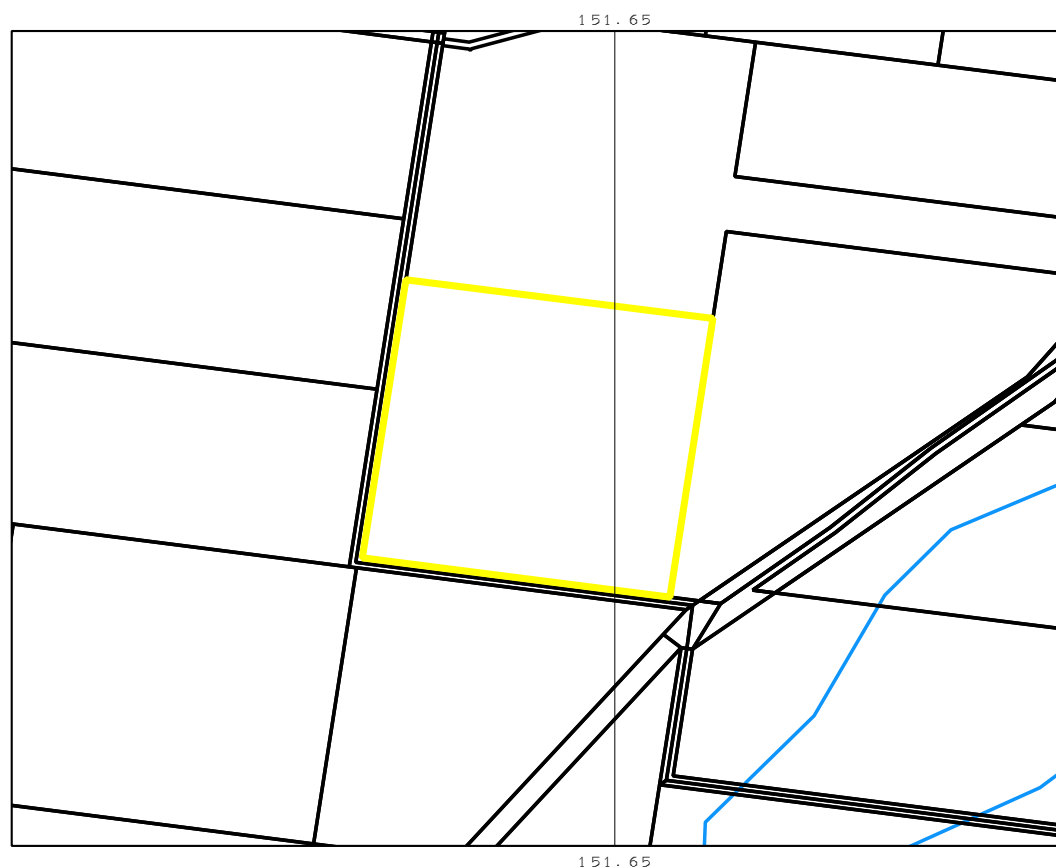
Cadastre

Roads

Watercourse

Water

Estimated frequency map for summer (February) cotton crop (2009 - 2018)



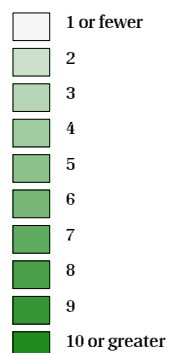
SUMMER Cotton

FREQUENCY

2009-2016

LEGEND

Crop Frequency



Selected Lot(s) on Plan

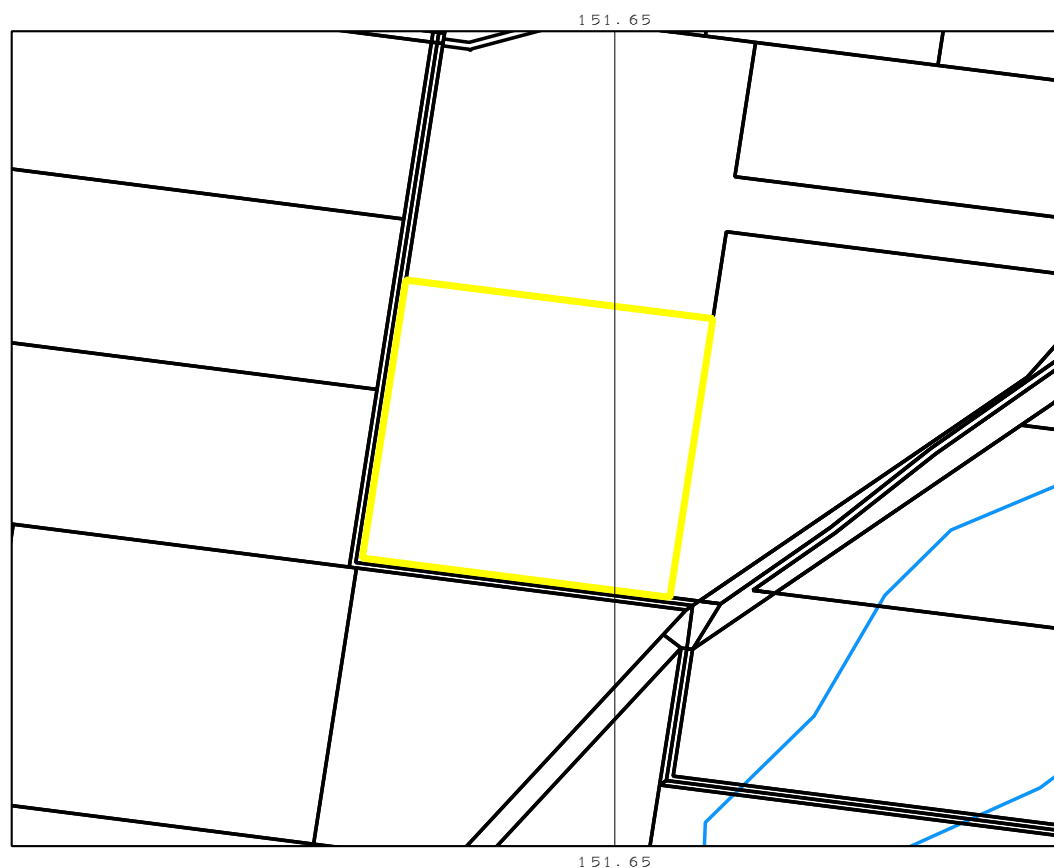
Cadastre

Roads

Watercourse

Water

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



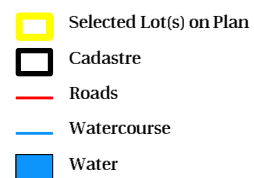
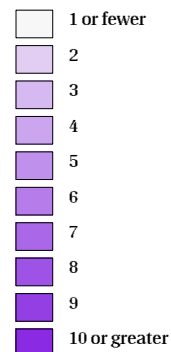
WINTER Pulse

FREQUENCY

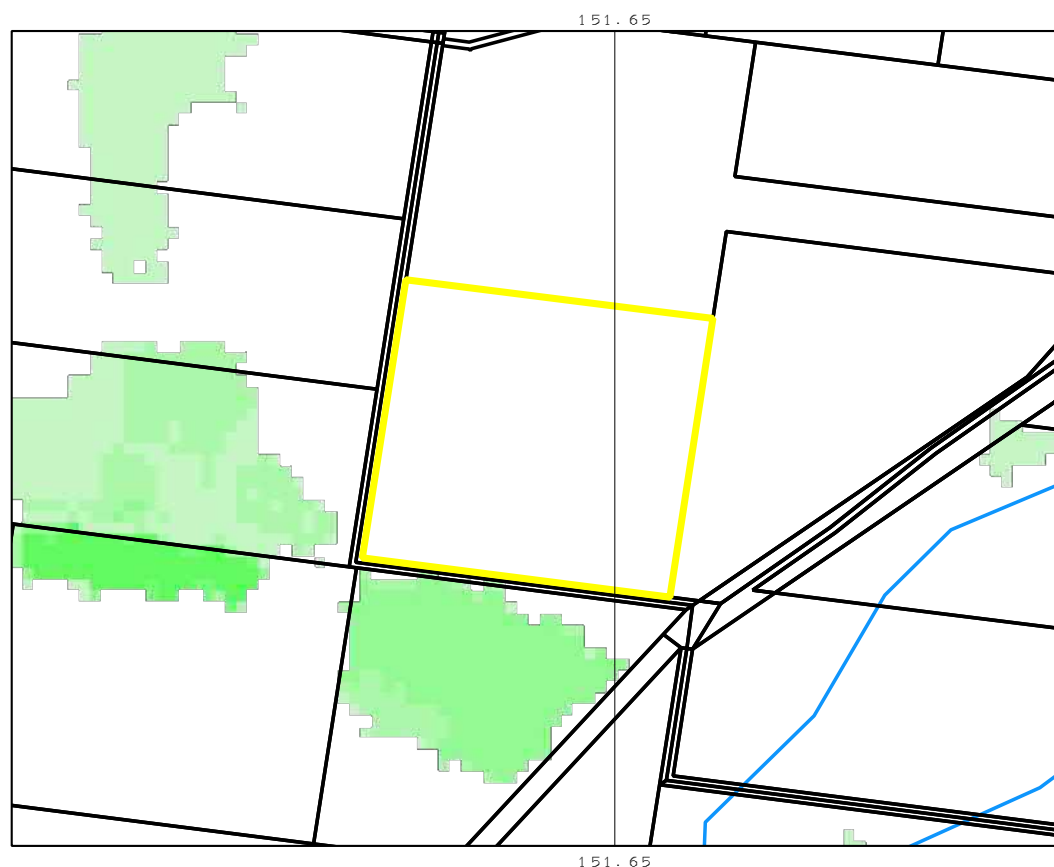
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



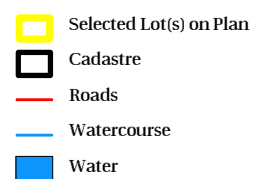
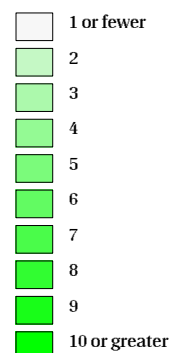
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3170A341594

Label: paddock33

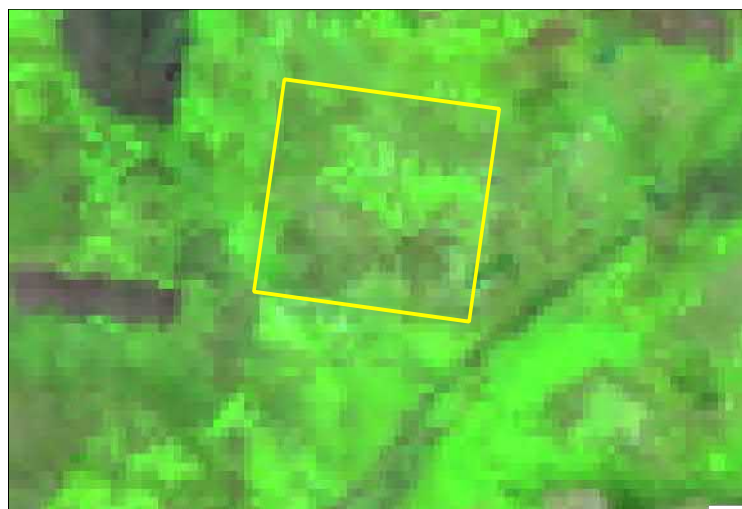


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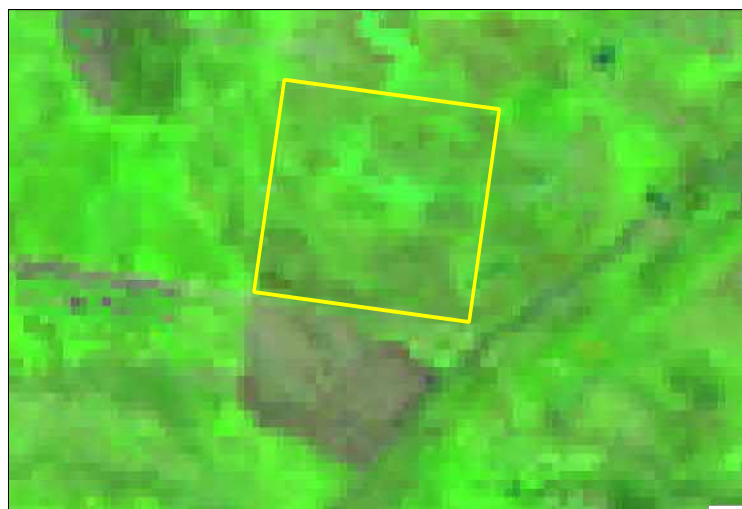
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3170A341594

Label: paddock33



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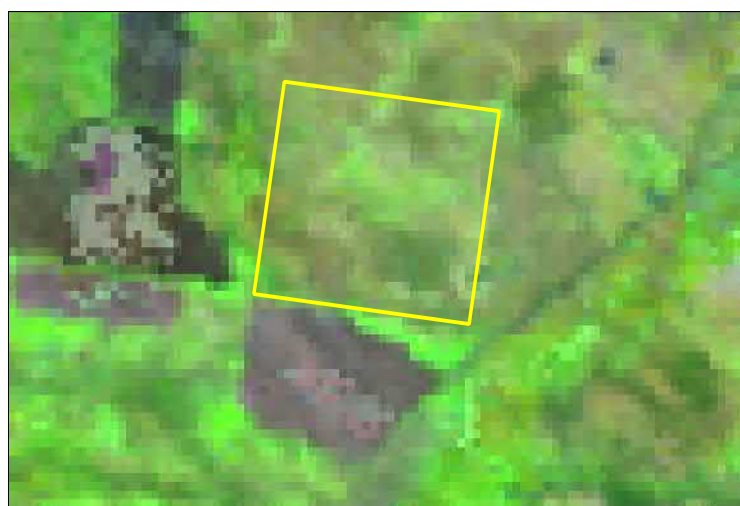
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



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July 17, 2019

Lot on Plan: 3170A341594

Label: paddock33

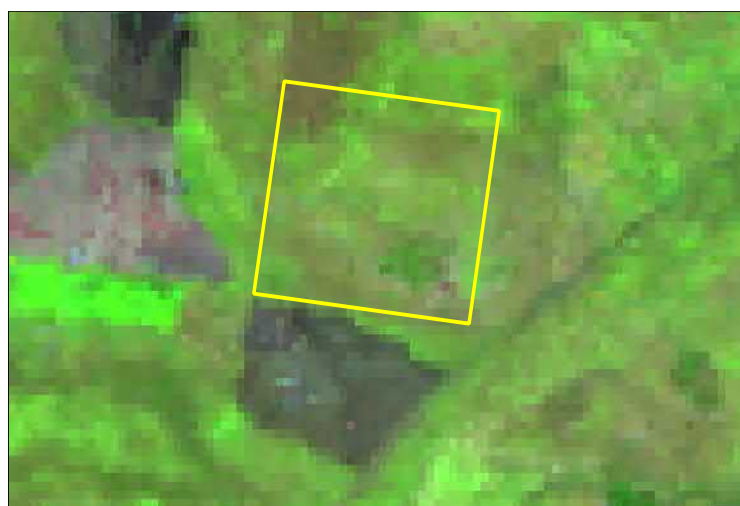


Queensland
Government

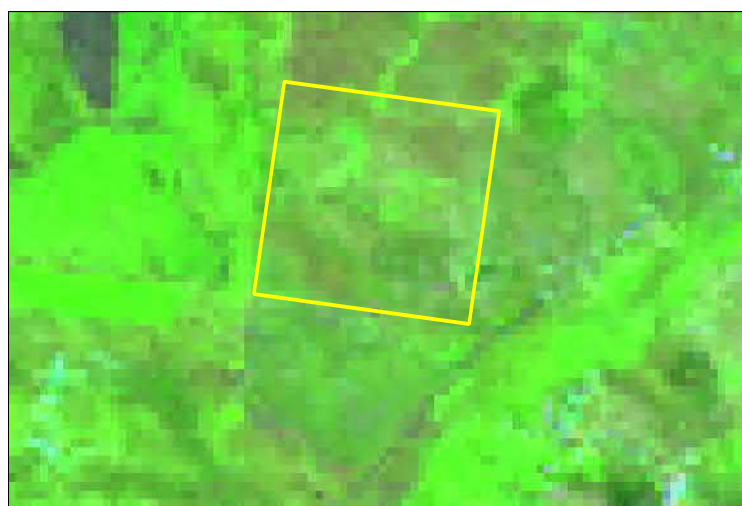
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February (left) and September (right) images for 2017



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Label: paddock33

February (left) and September (right) images for 2018

Image not available

Image not available

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FORAGE REPORT: CROP FREQUENCY AND TYPE

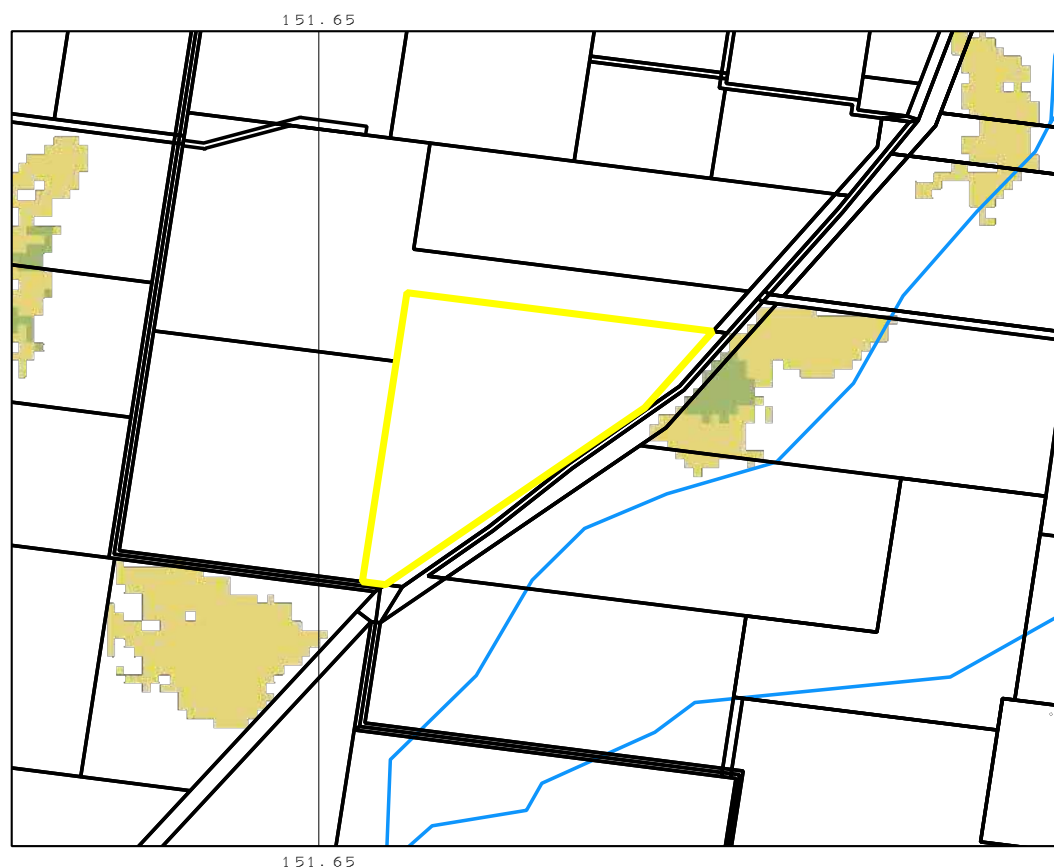
<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3519A341792

Label: paddock34

Estimated frequency map for summer (February) crop (2009 - 2018)



SUMMER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5


6


7

8

9


10 or greater

 Selected Lot(s) on Plan

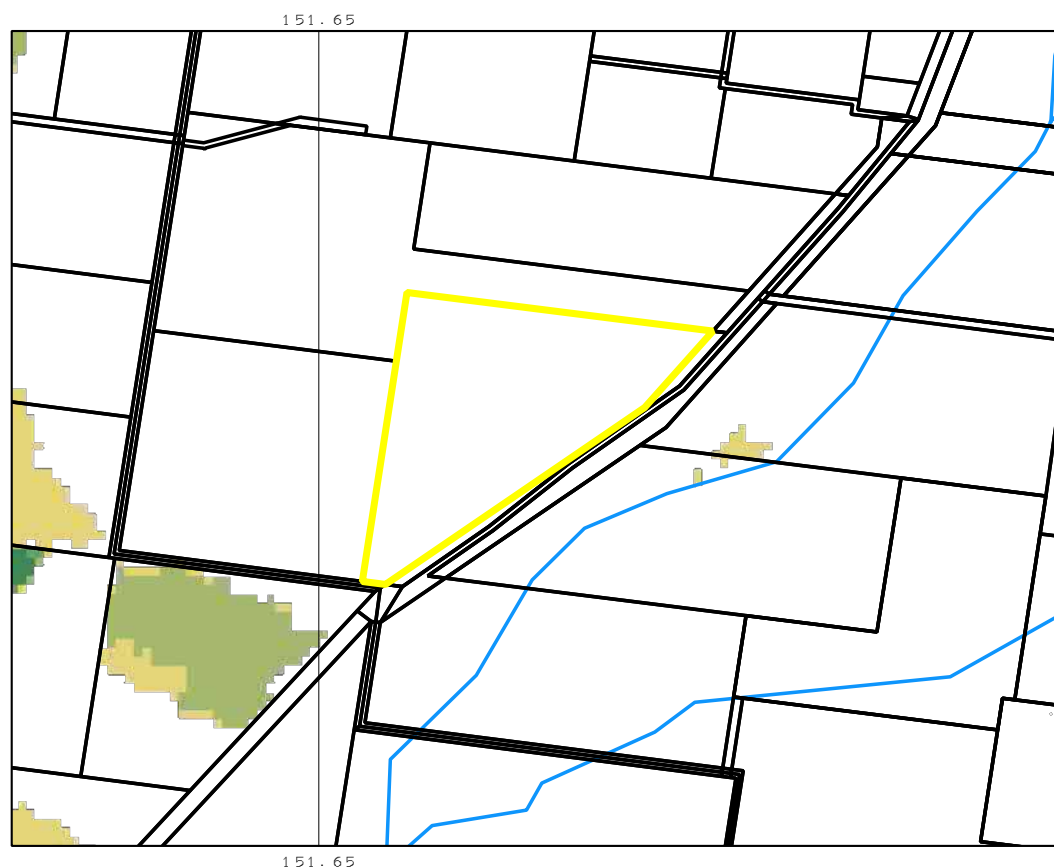
 Cadastre

 Roads

 Watercourse

 Water

Estimated frequency map for winter (September) crop (2009 - 2018)



WINTER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6


7

8


9

10 or greater

 Selected Lot(s) on Plan

 Cadastre

 Roads

 Watercourse

 Water

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

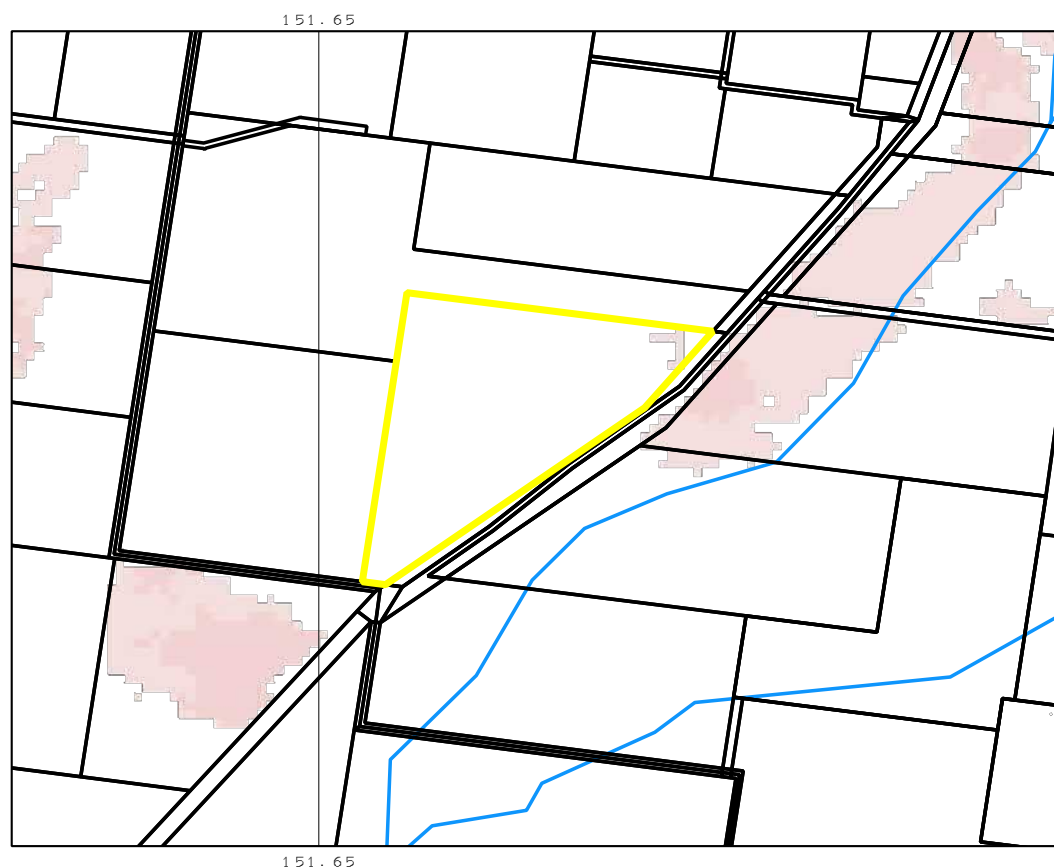
Lot on Plan: 3519A341792

Label: paddock34



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Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



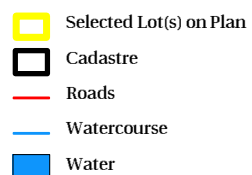
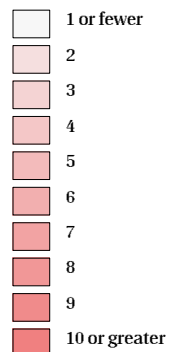
SUMMER Grain

FREQUENCY

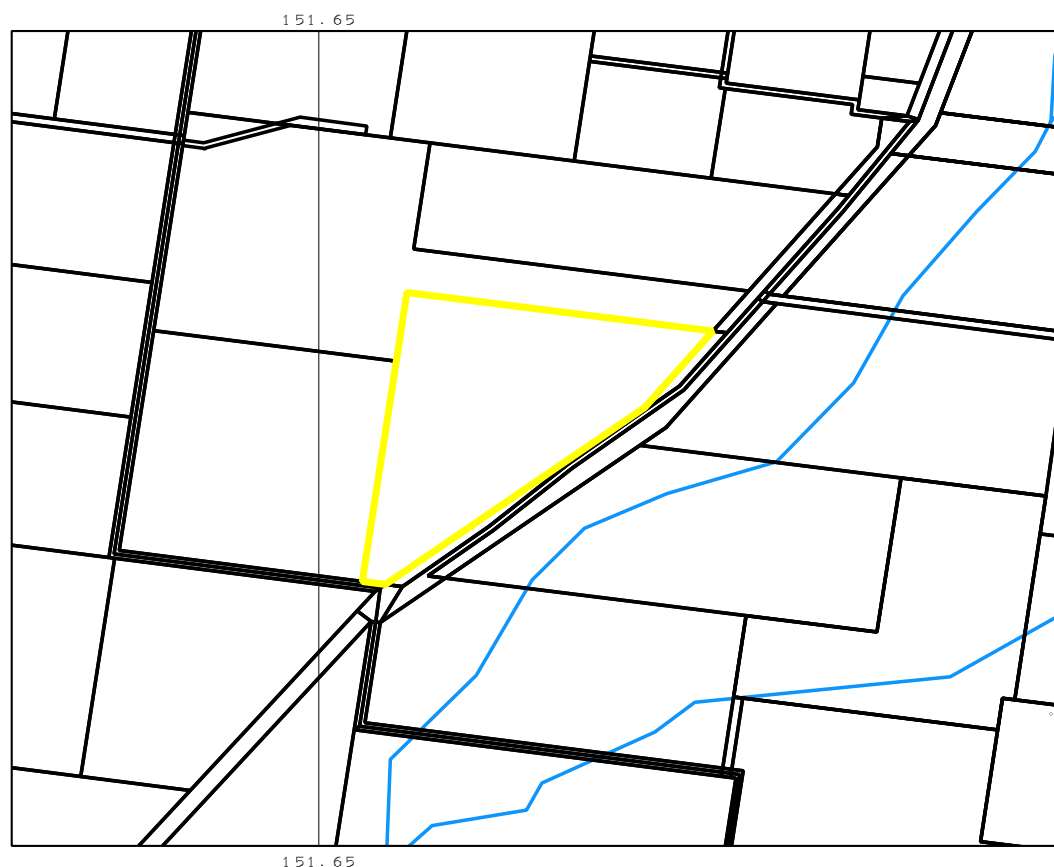
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



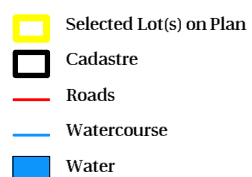
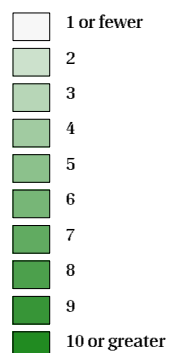
SUMMER Cotton

FREQUENCY

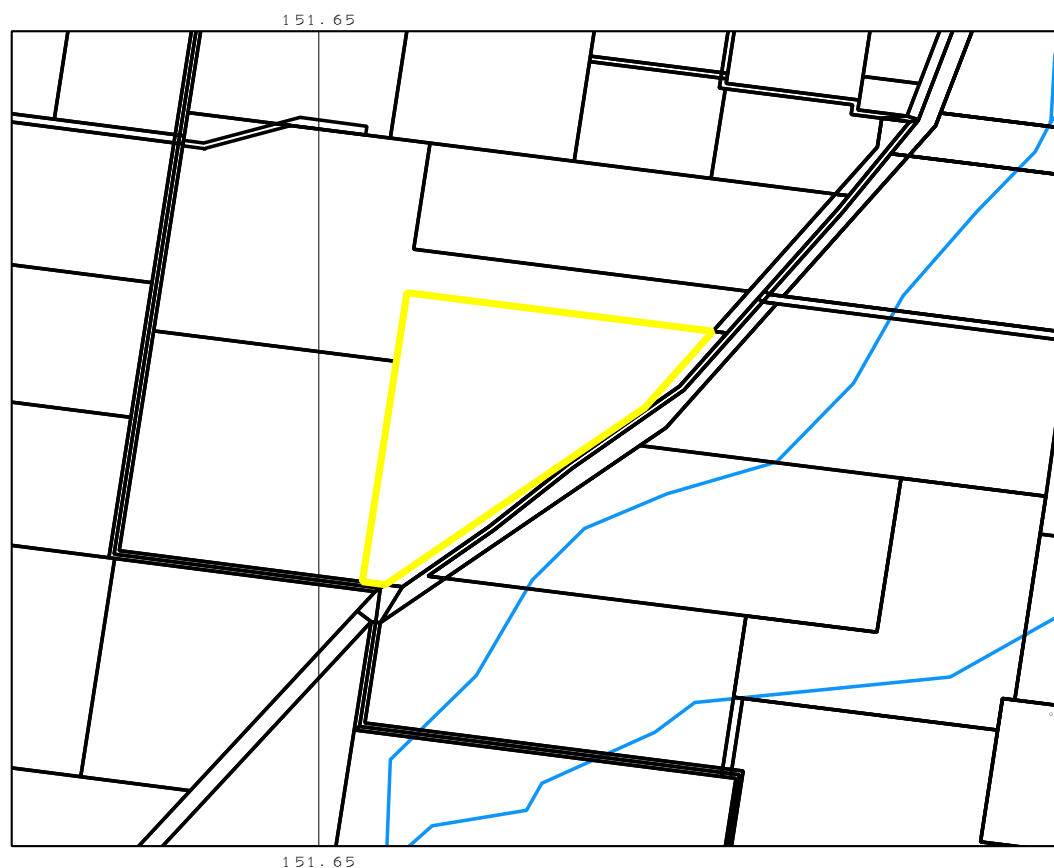
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) pulse crop (2009 - 2018)



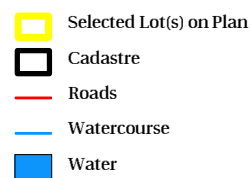
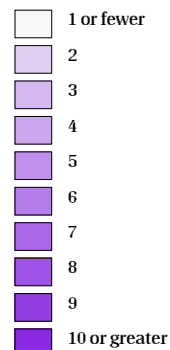
WINTER Pulse

FREQUENCY

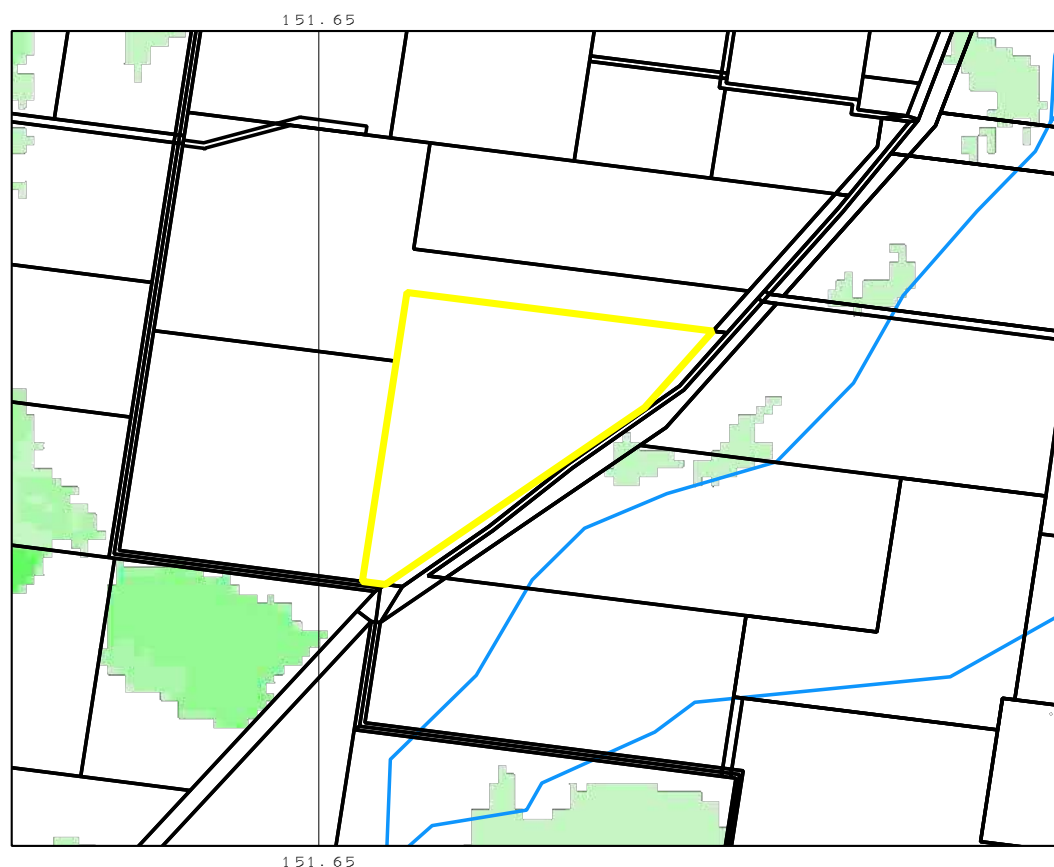
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



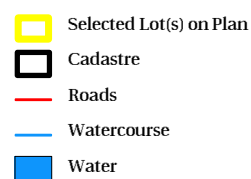
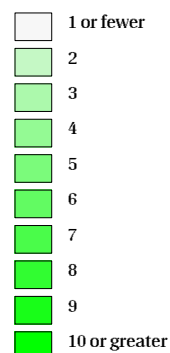
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

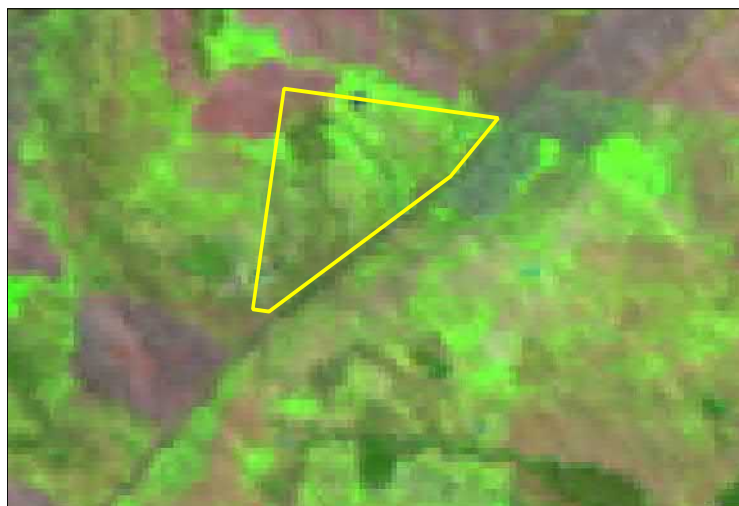
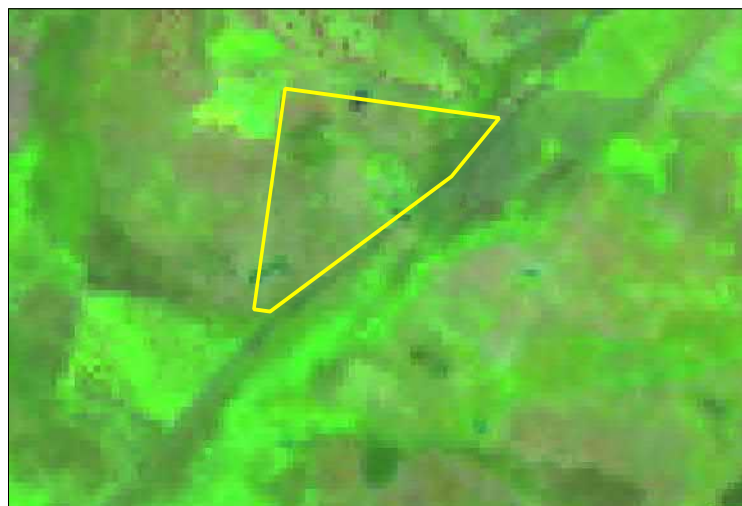
Lot on Plan: 3519A341792

Label: paddock34

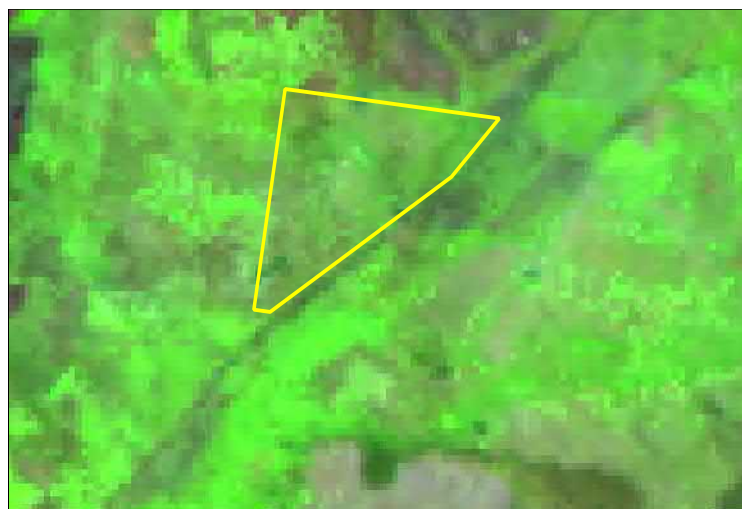


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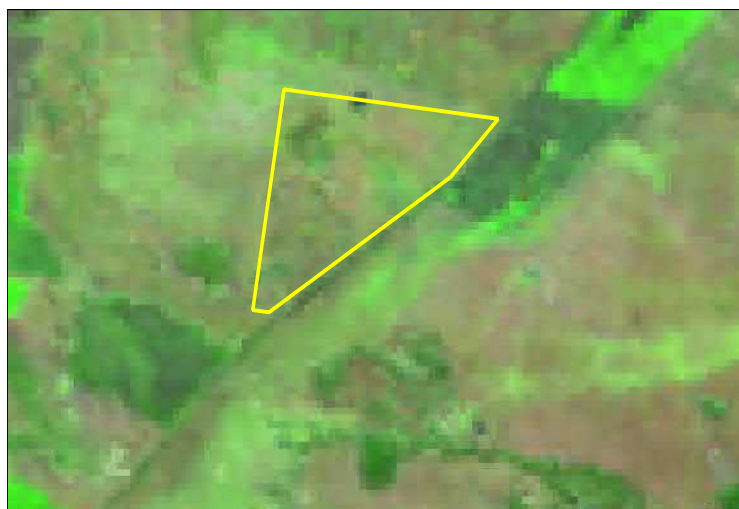
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

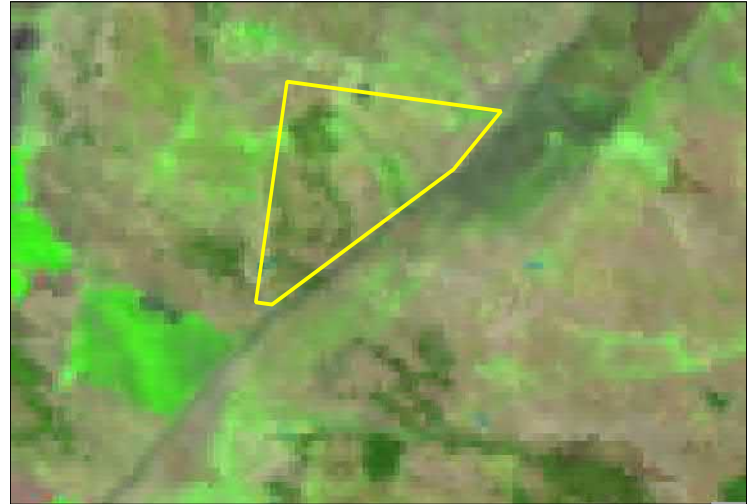
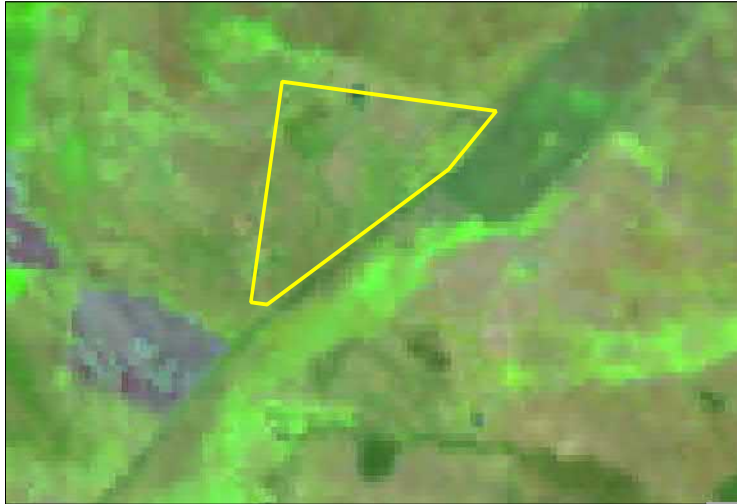
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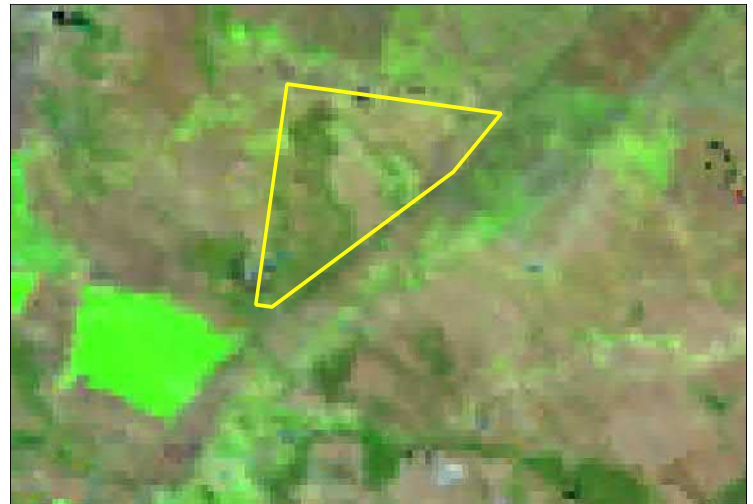


Queensland
Government

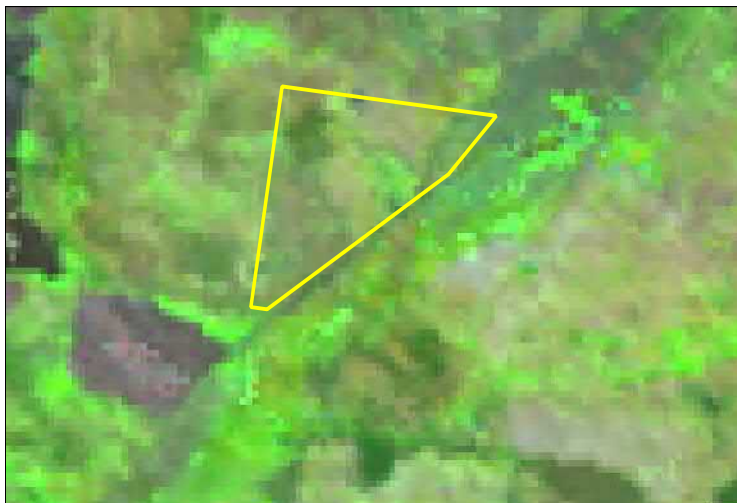
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

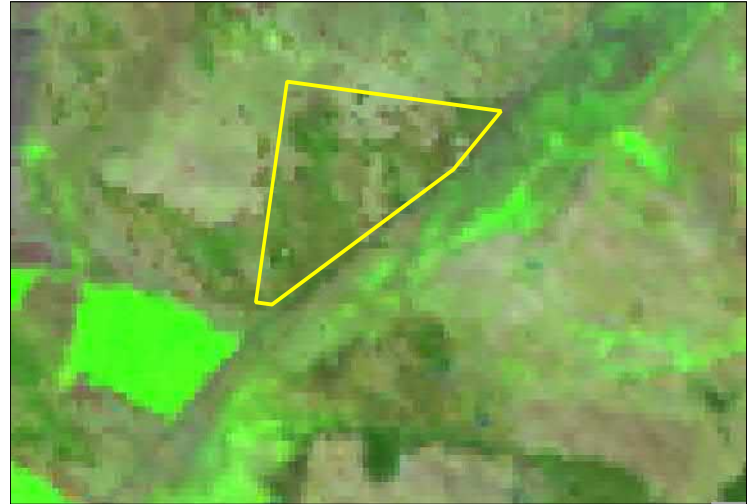
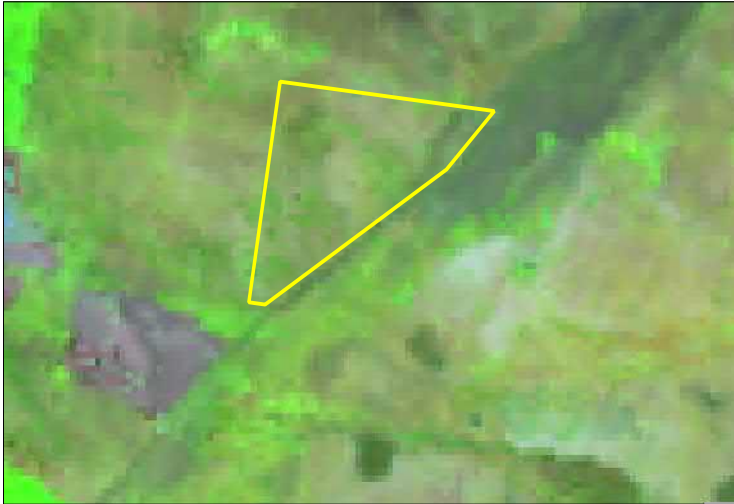
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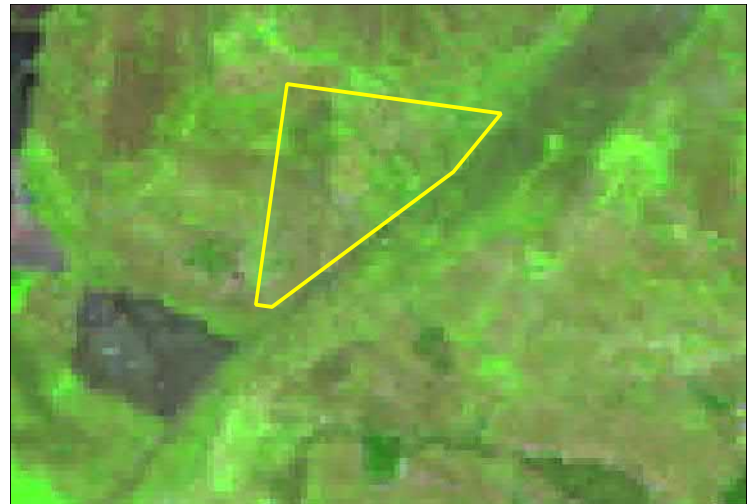
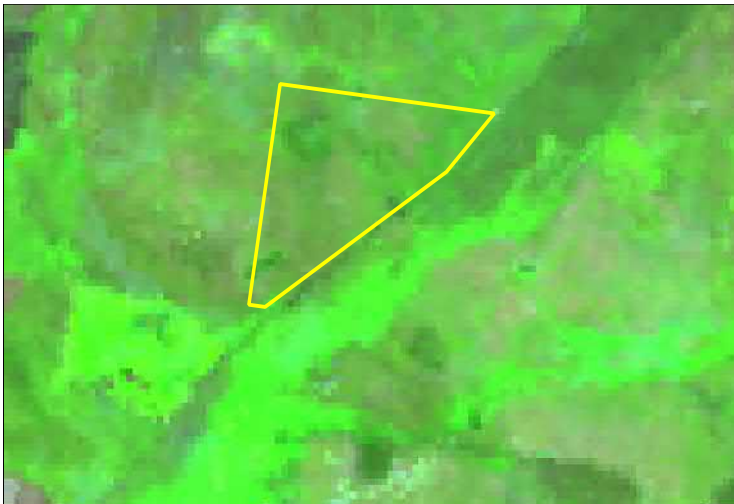


Queensland
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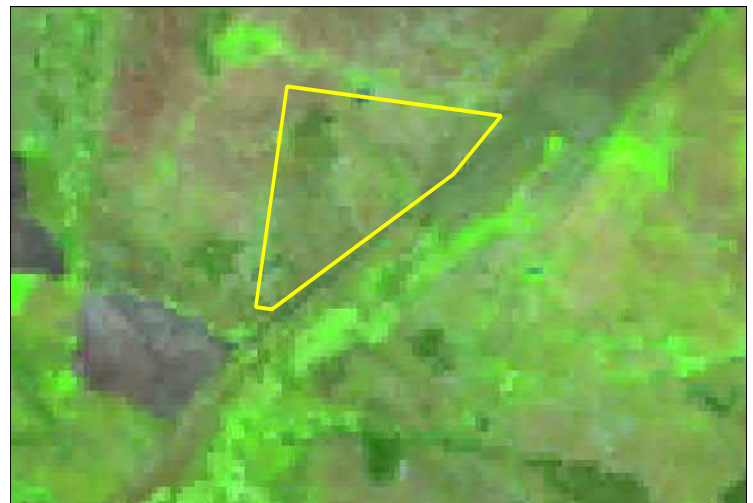
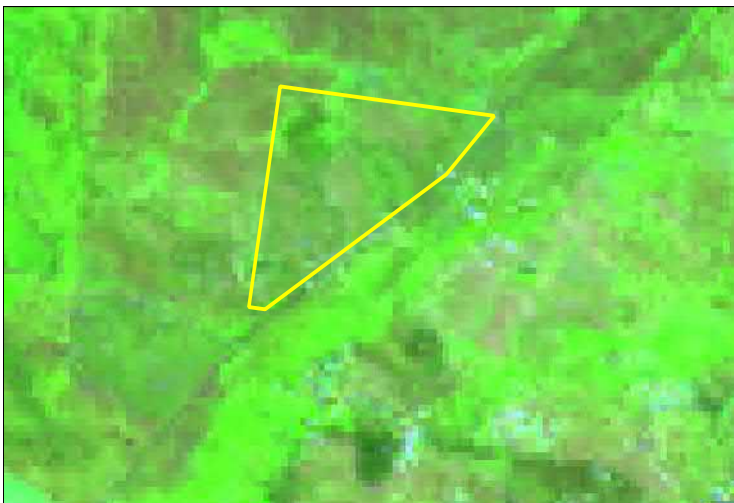
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3519A341792

Label: paddock34



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

Disclaimer

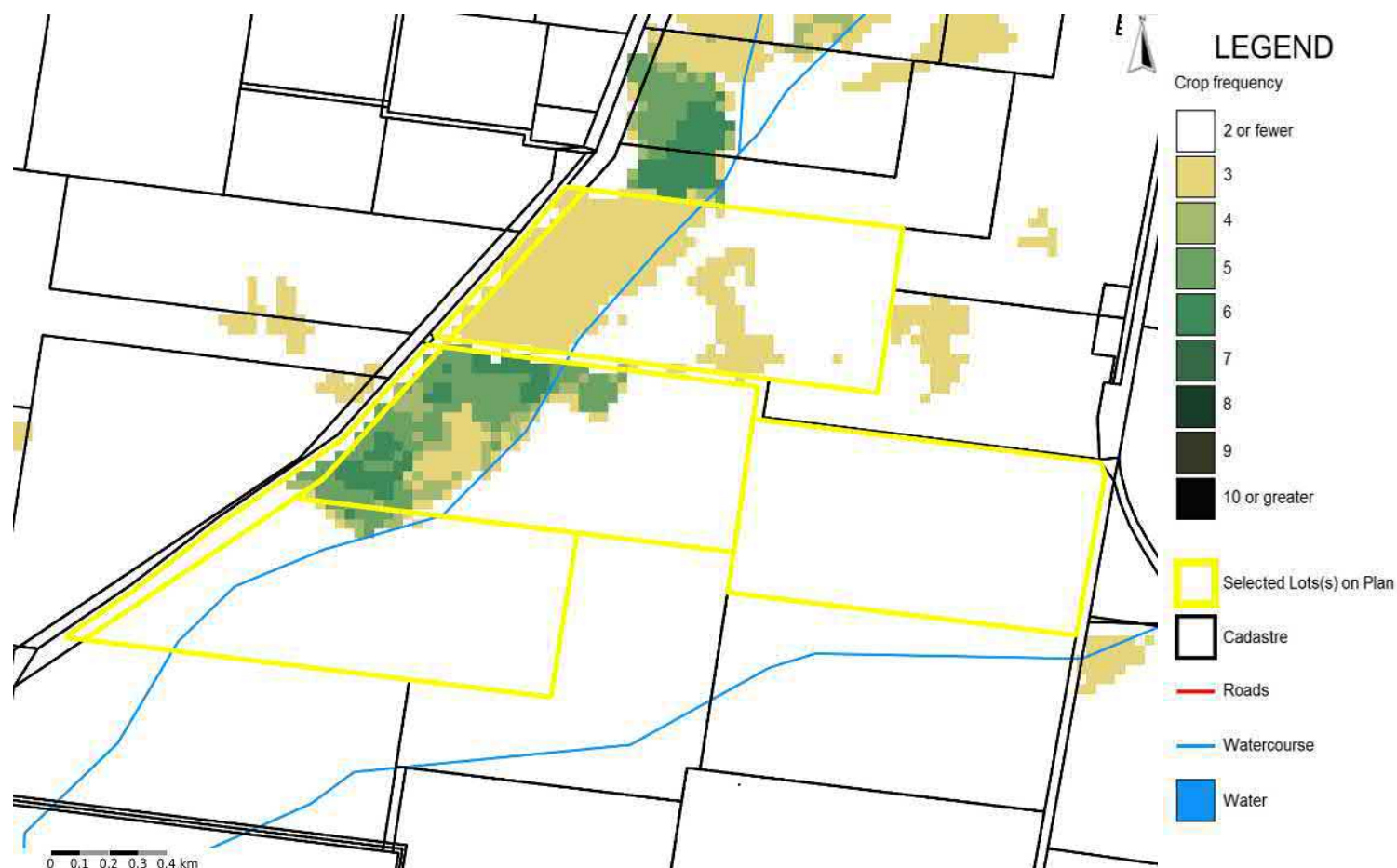
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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

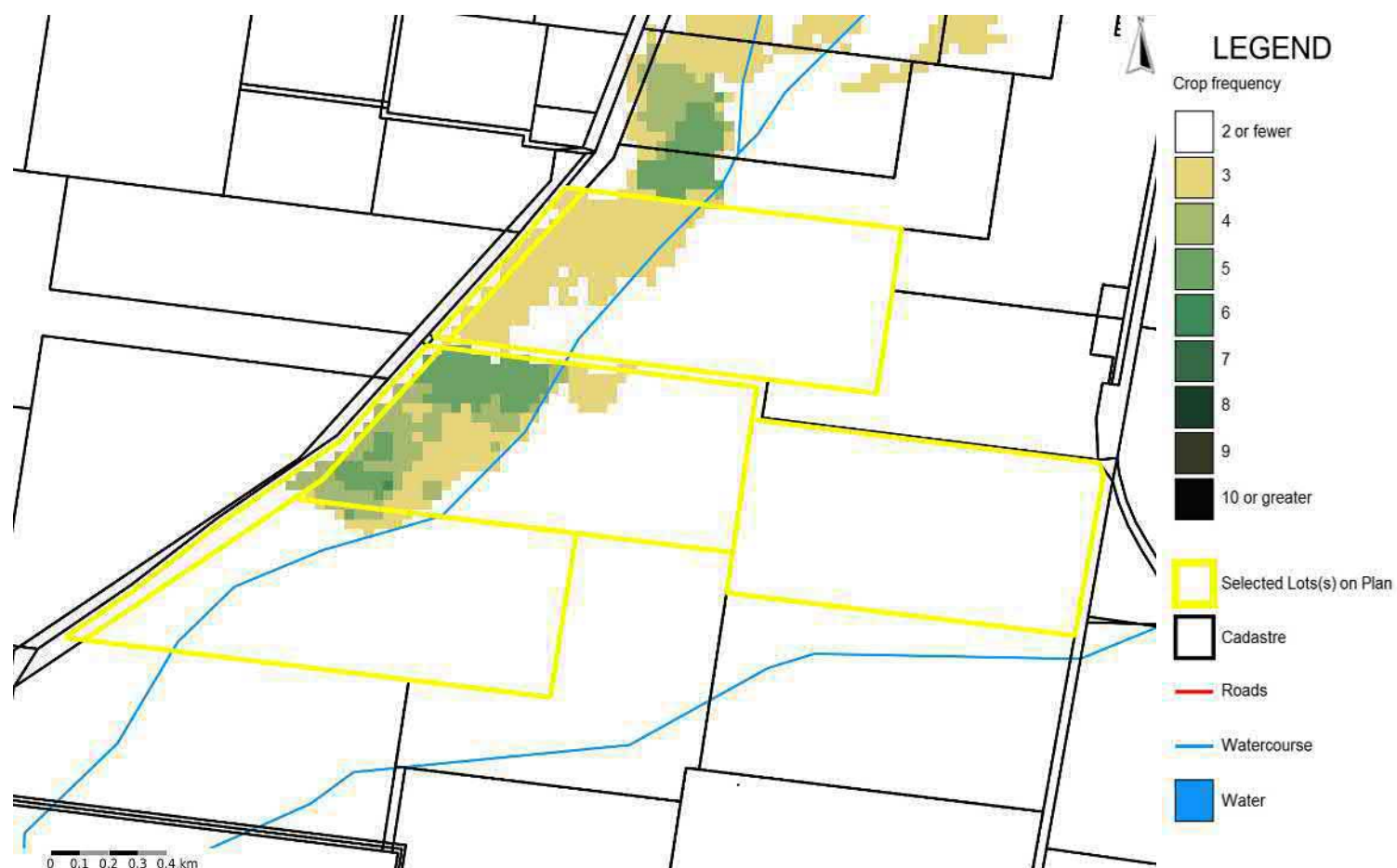
Lot on Plan: 9SP188367,3421A341699,3462A34174 etc.

Label: paddock35



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Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

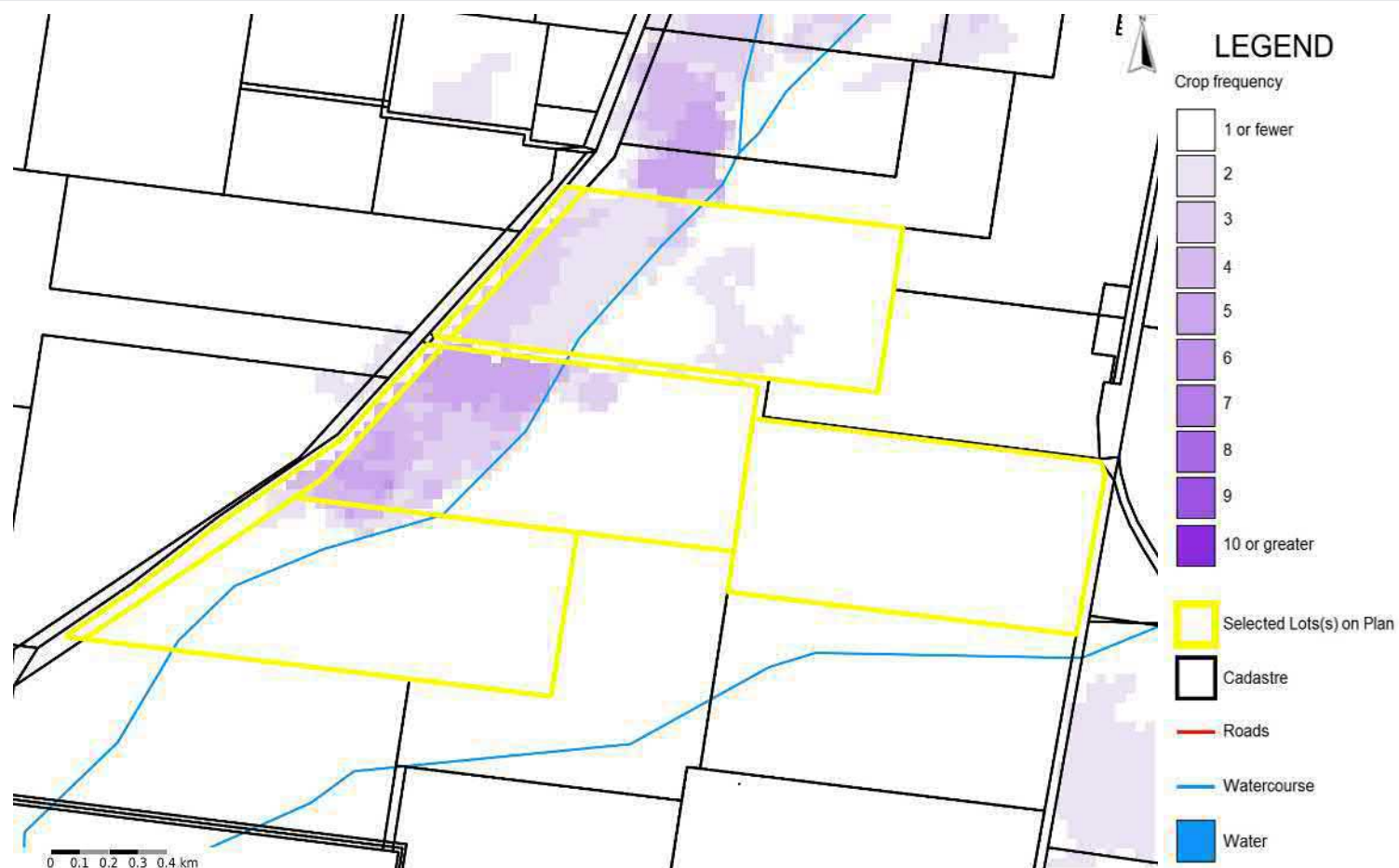
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Label: paddock35



Queensland
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Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

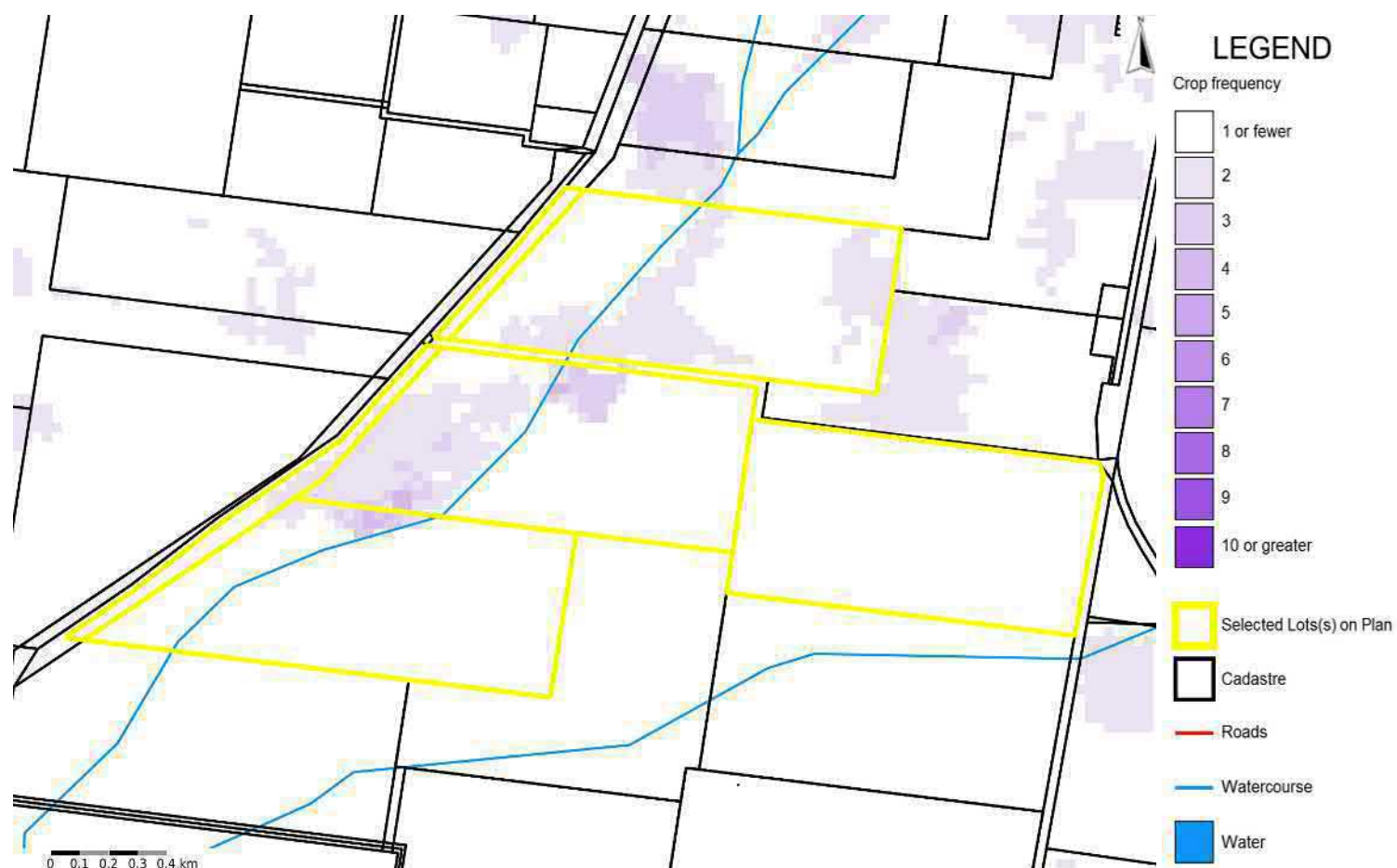
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Label: paddock35



Queensland
Government

Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

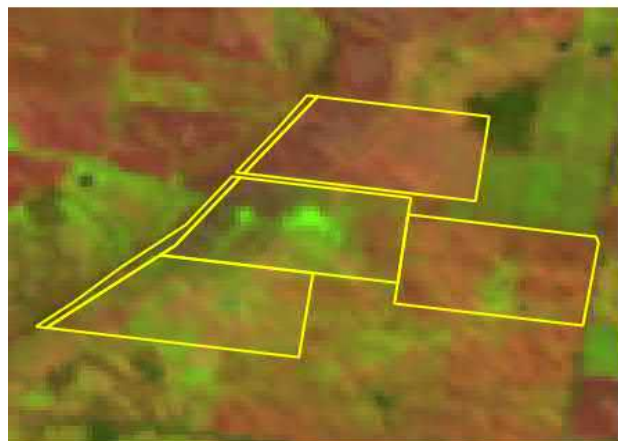
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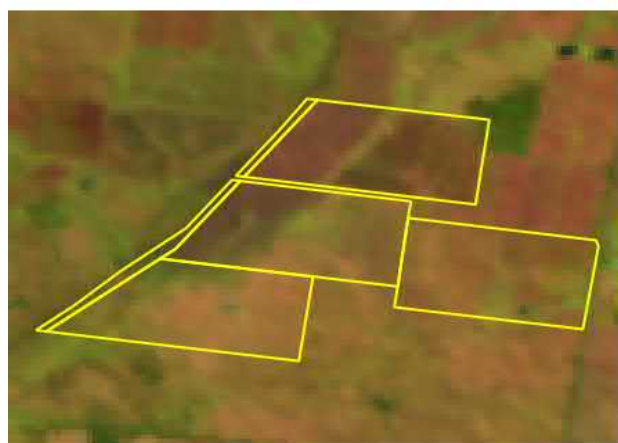
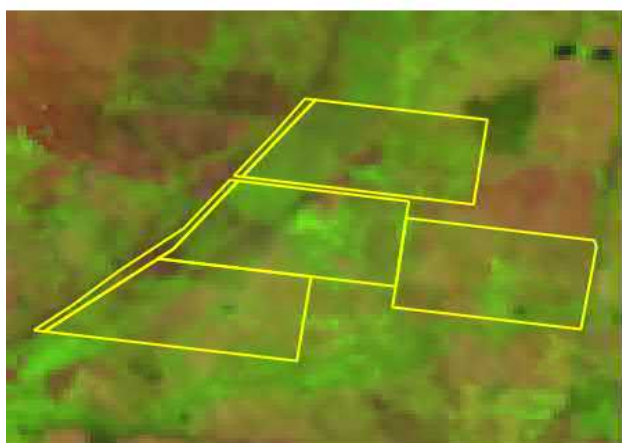


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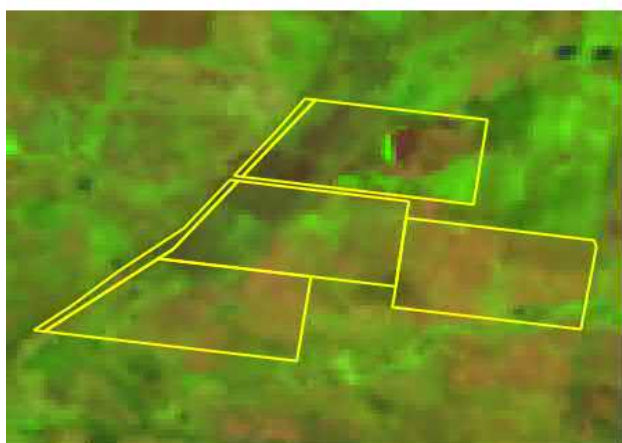
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

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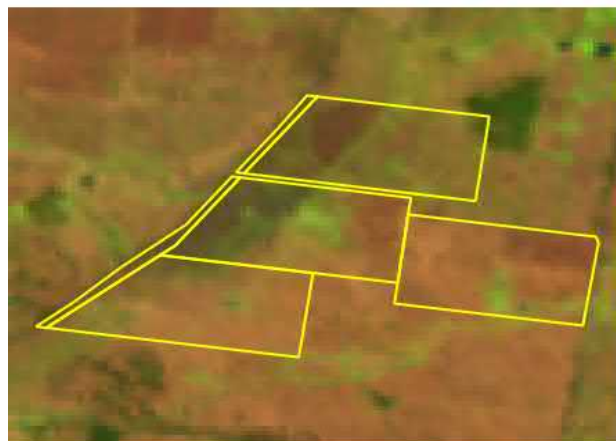
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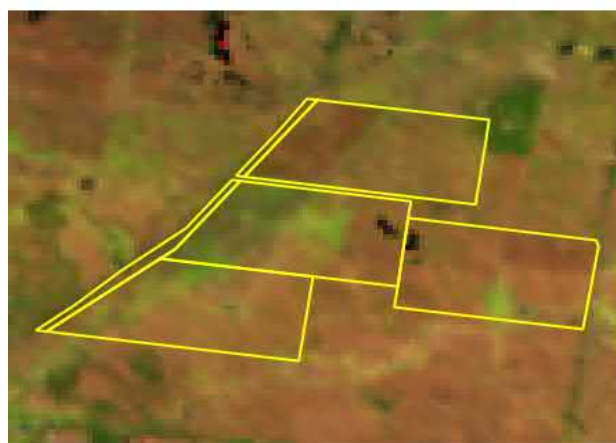


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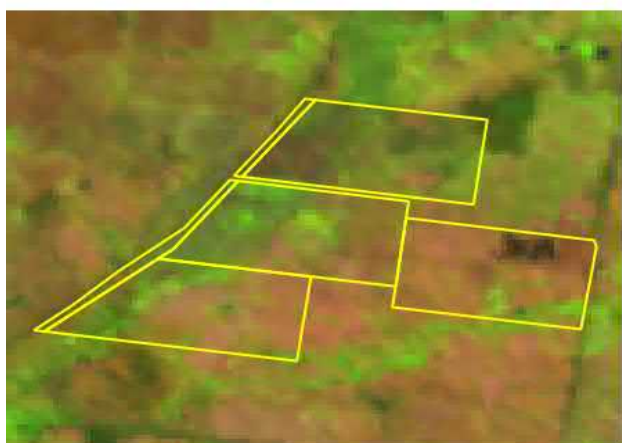
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

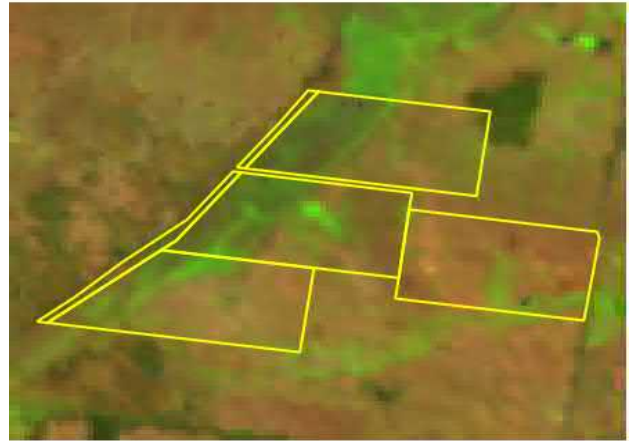
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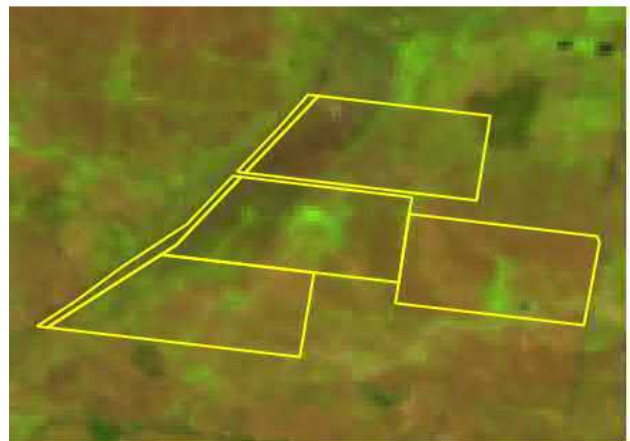


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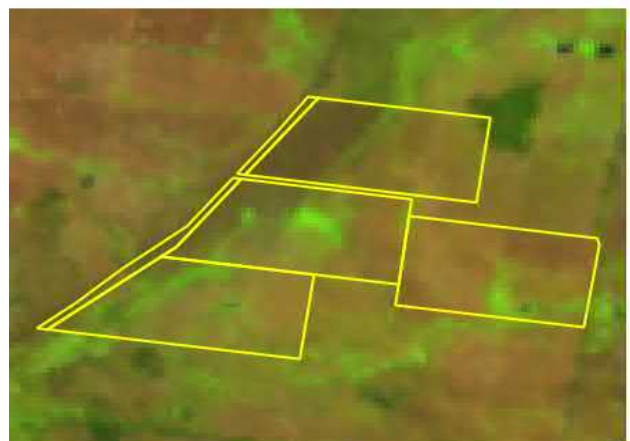
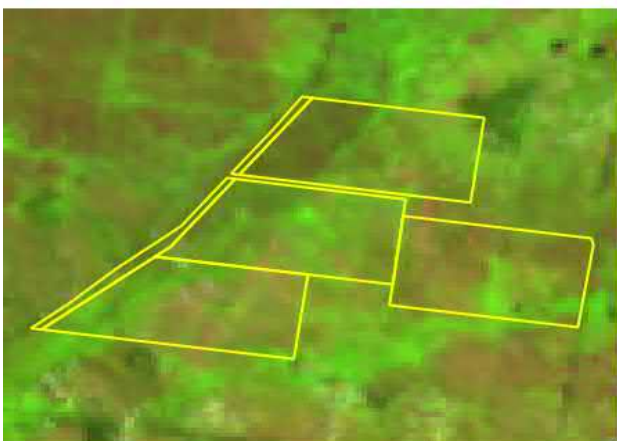
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

October 28, 2019

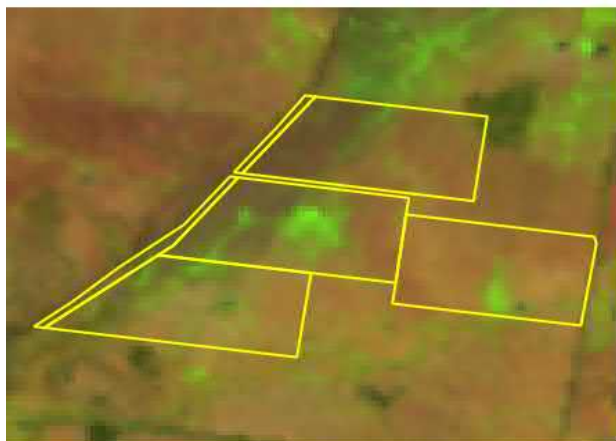
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Label: paddock35



Queensland
Government

February (left) and September (right) images for 2018



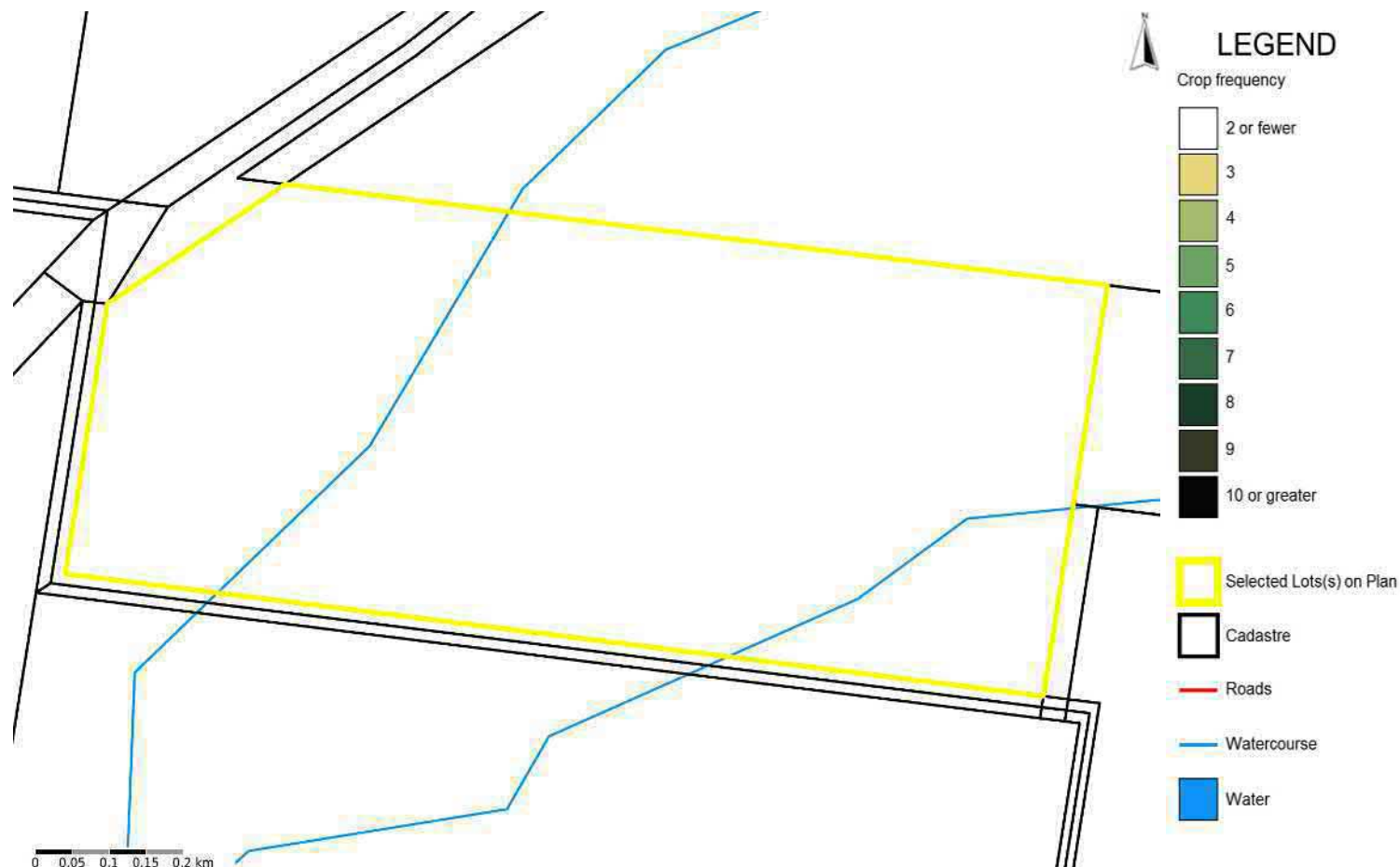
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Introduction

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Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

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- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

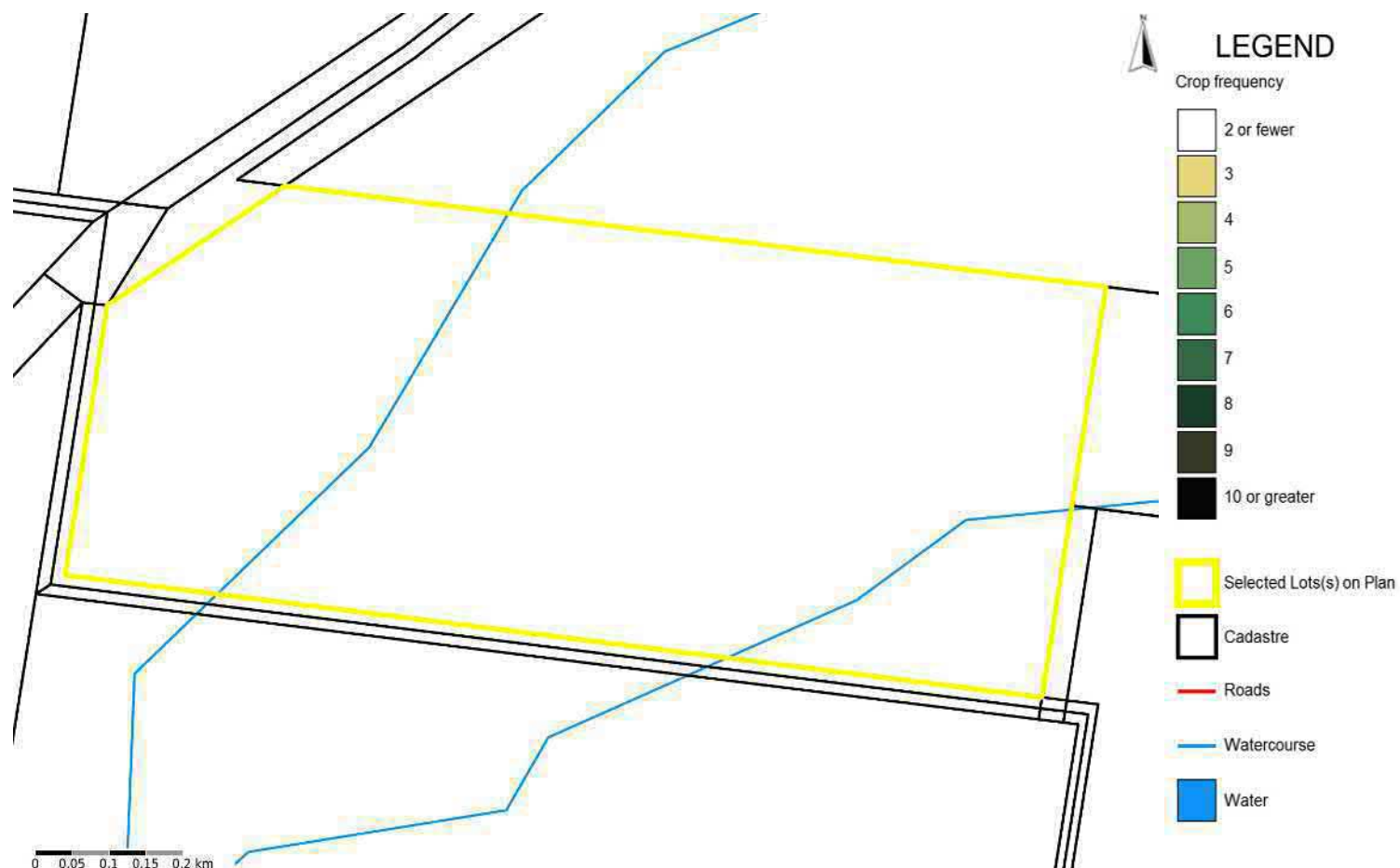
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September 26, 2019

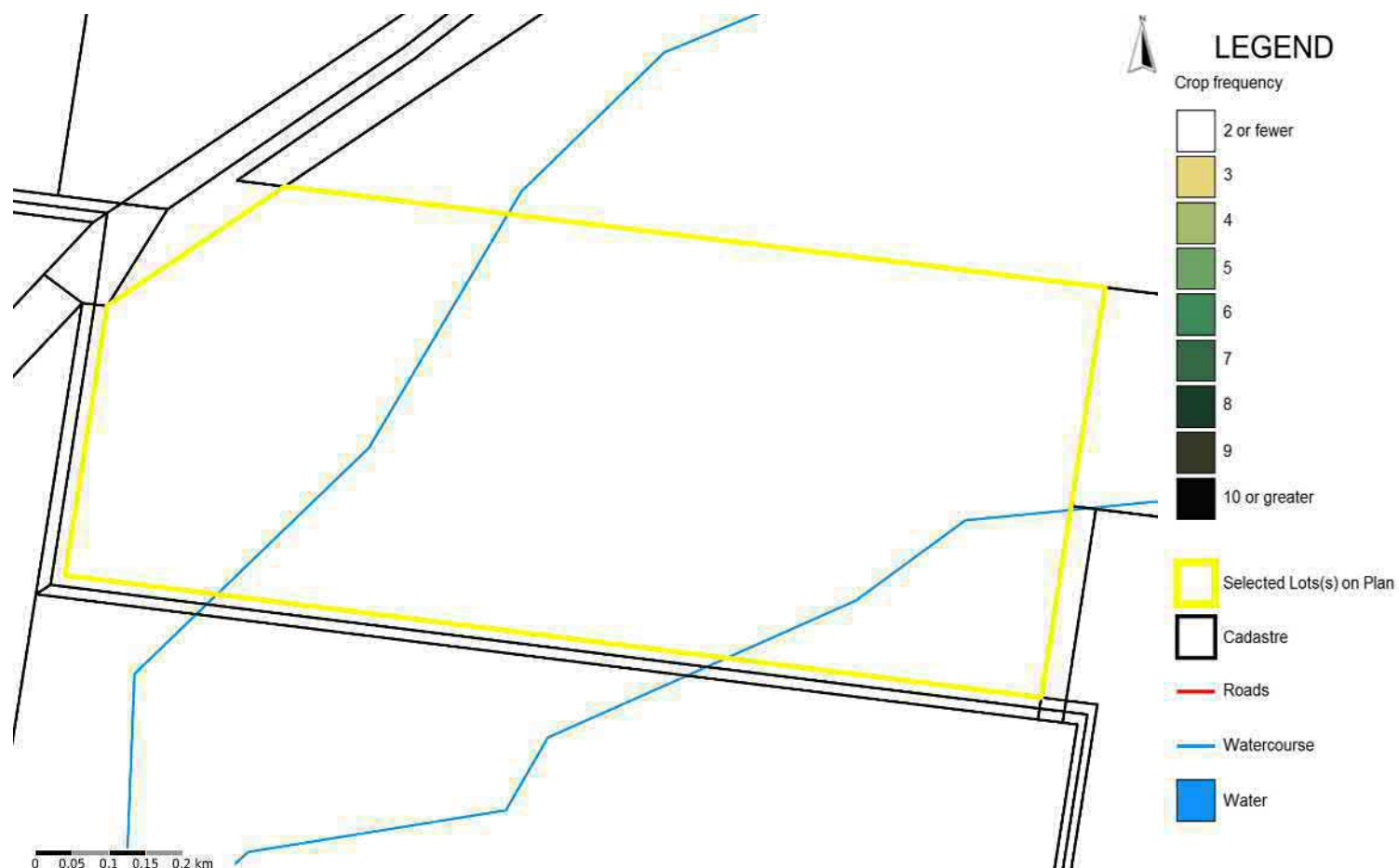
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Label: paddock37

Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

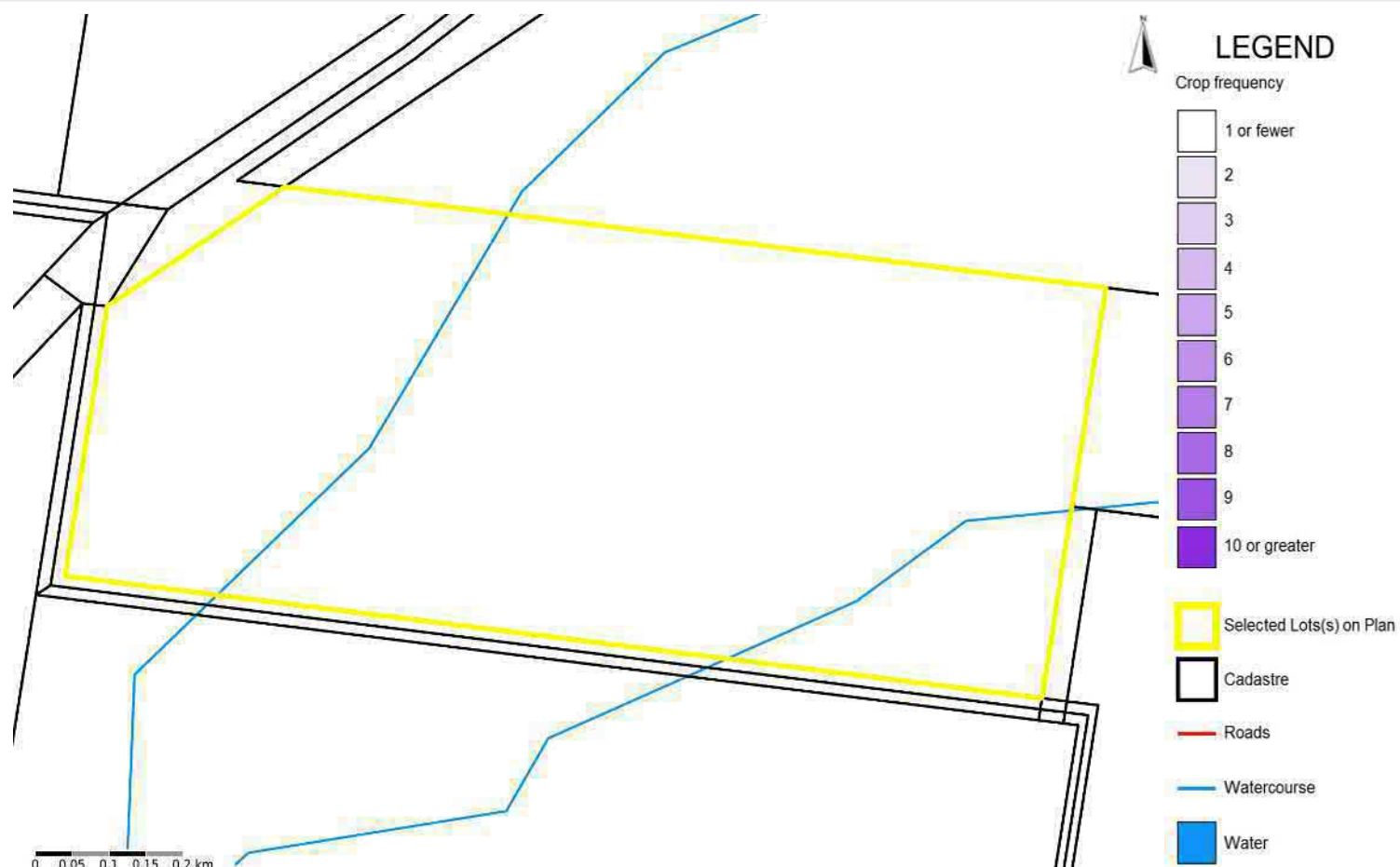
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Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

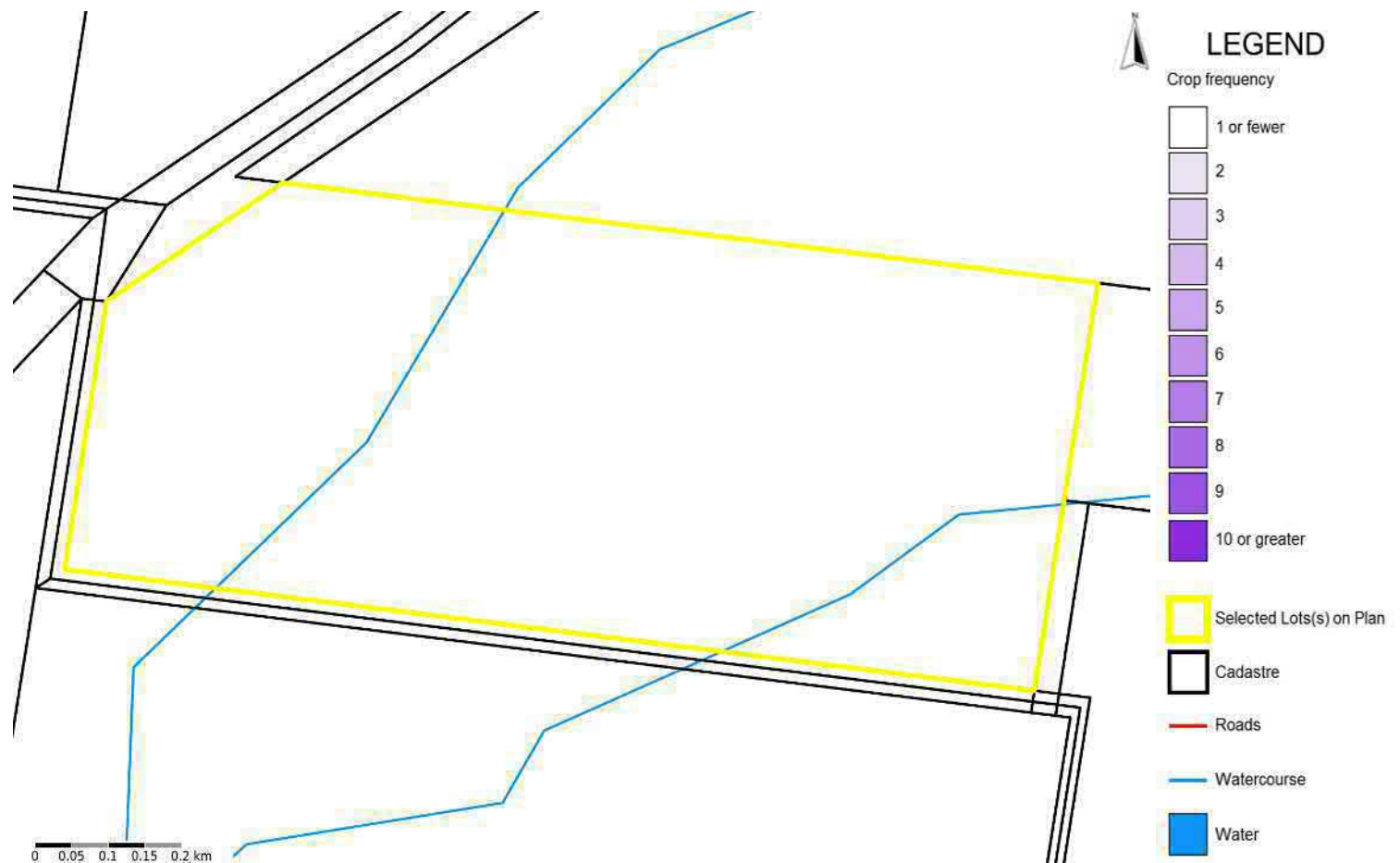
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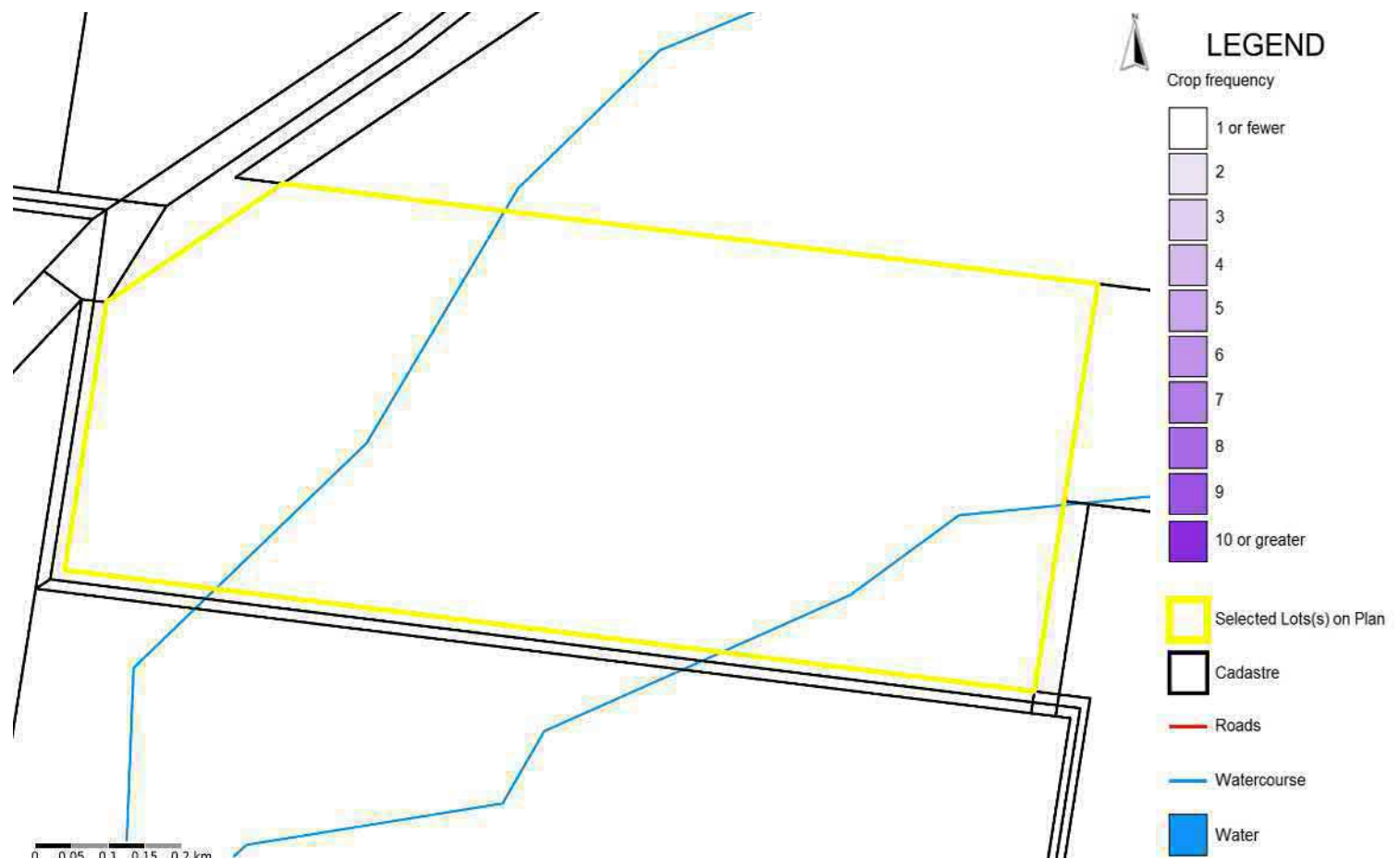
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Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

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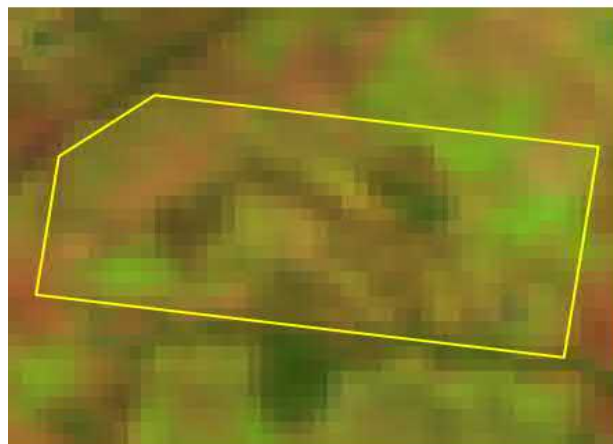
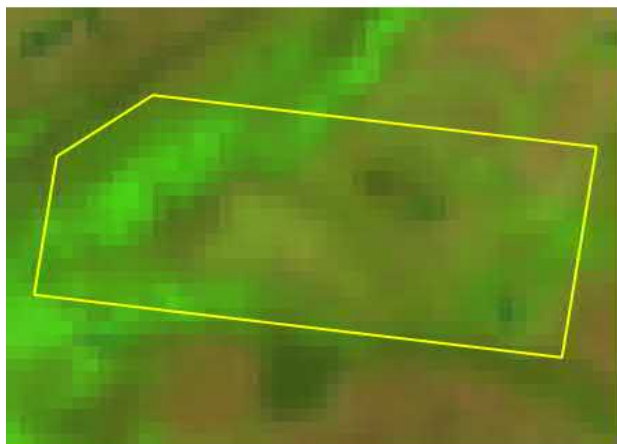
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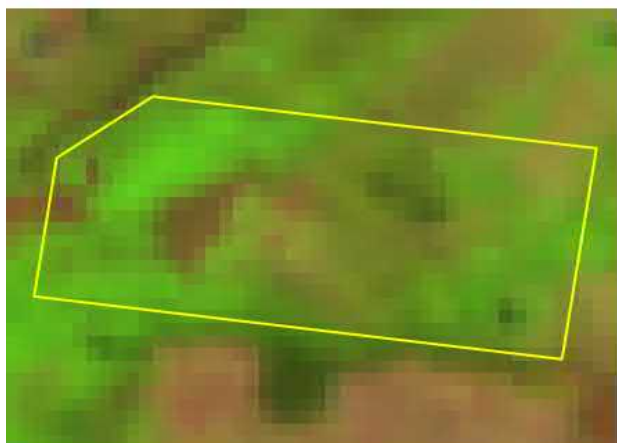


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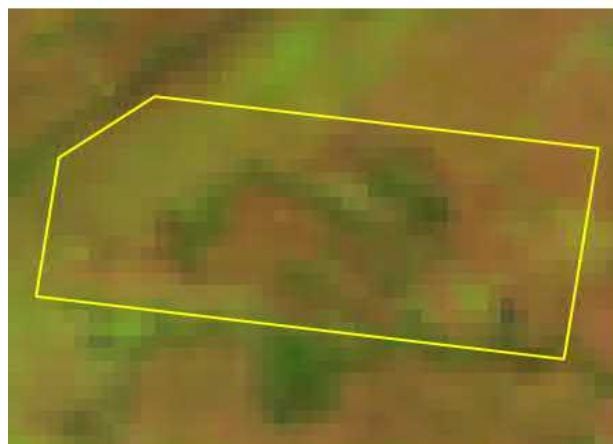
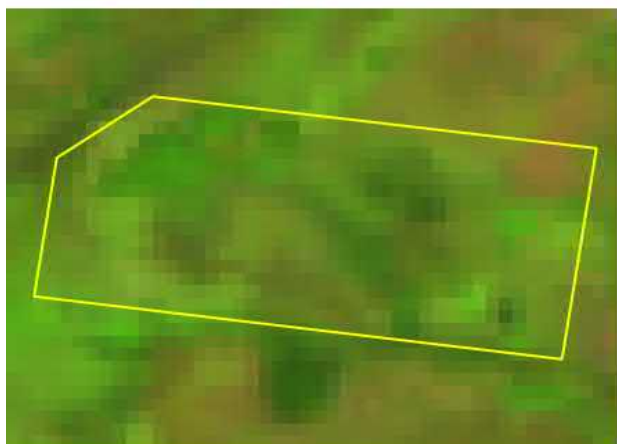
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

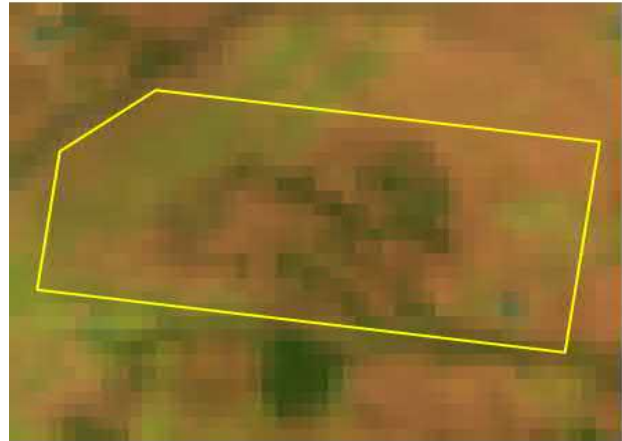
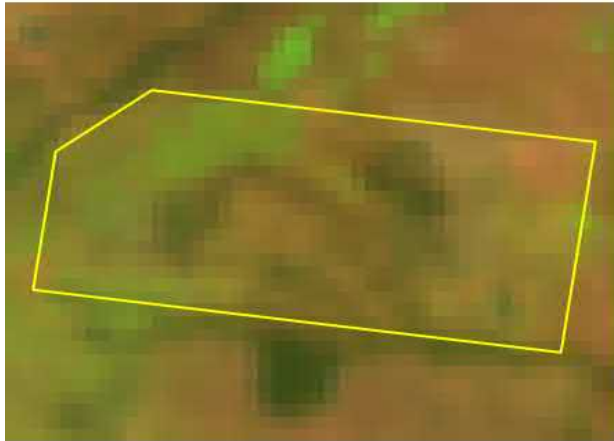
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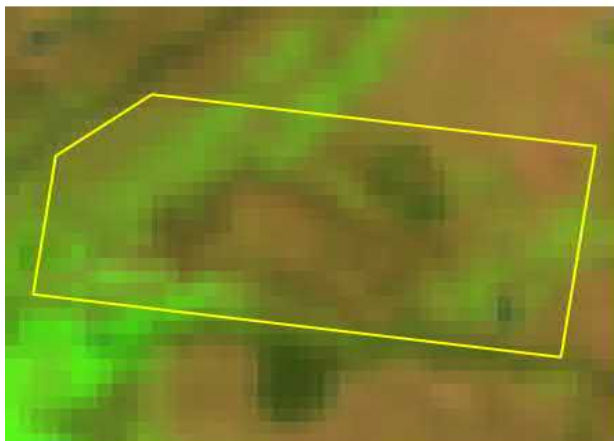


Queensland
Government

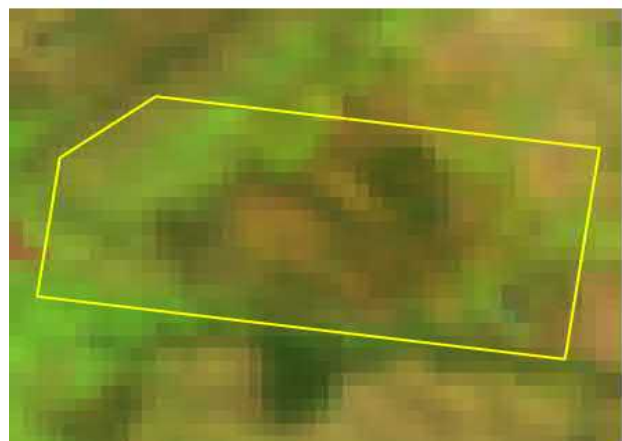
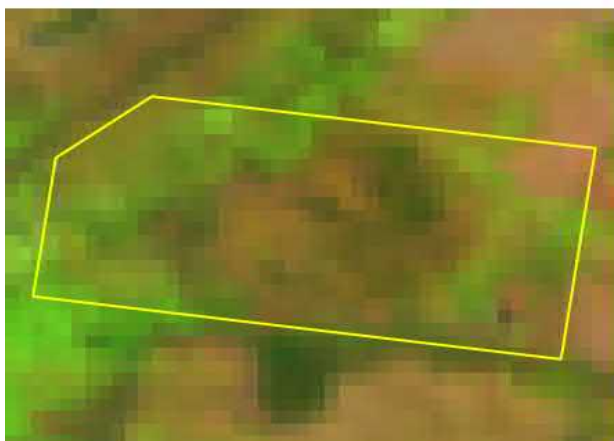
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

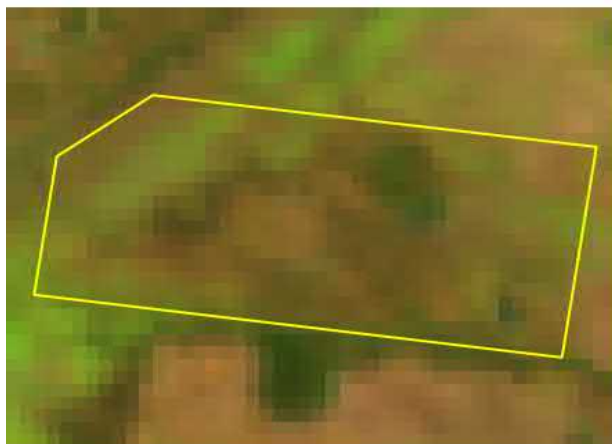
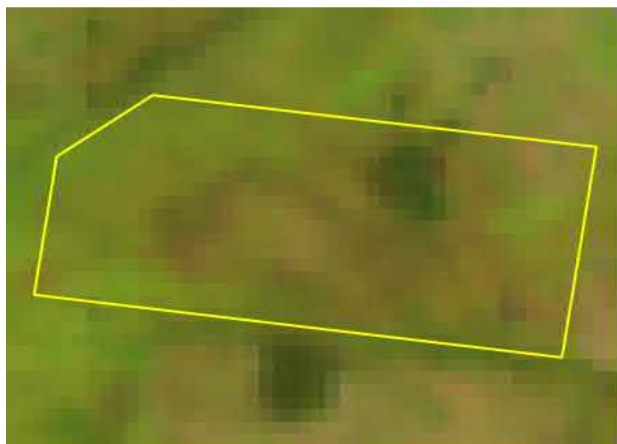
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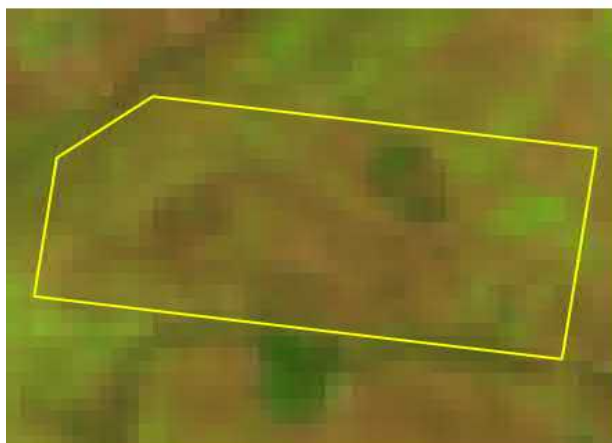
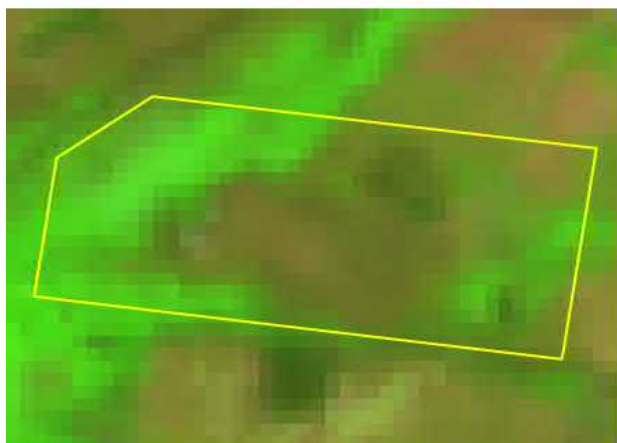


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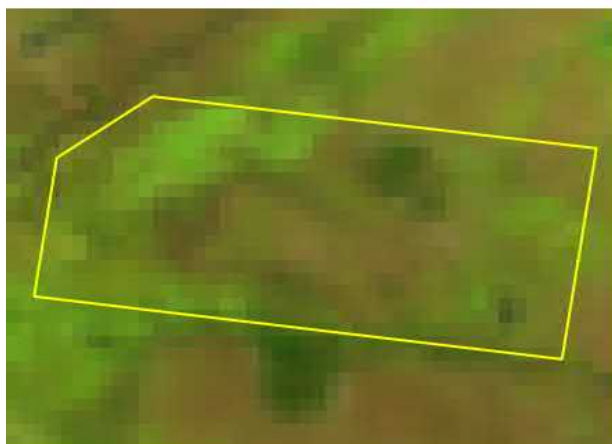
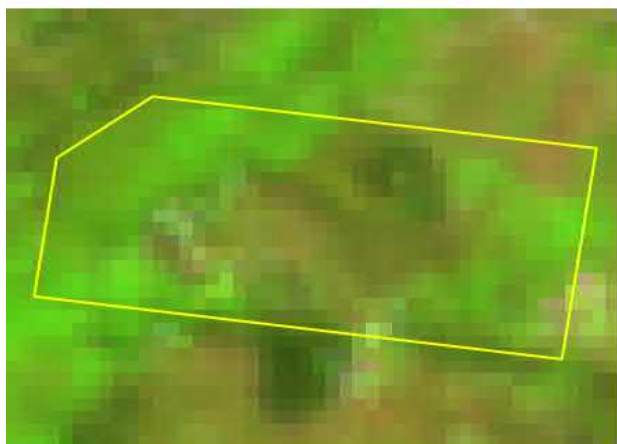
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

September 26, 2019

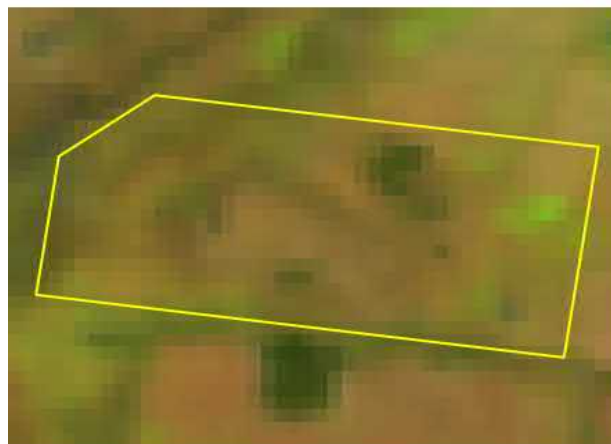
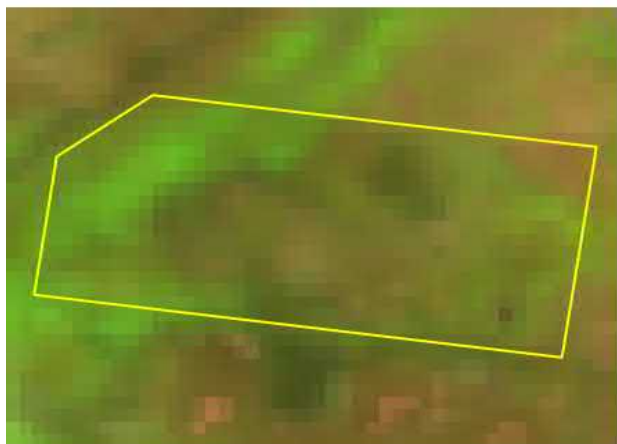
Lot on Plan: 3463A341746

Label: paddock37



Queensland
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February (left) and September (right) images for 2018



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APPENDIX C5

Queensland Government Forage Crop Frequency Data

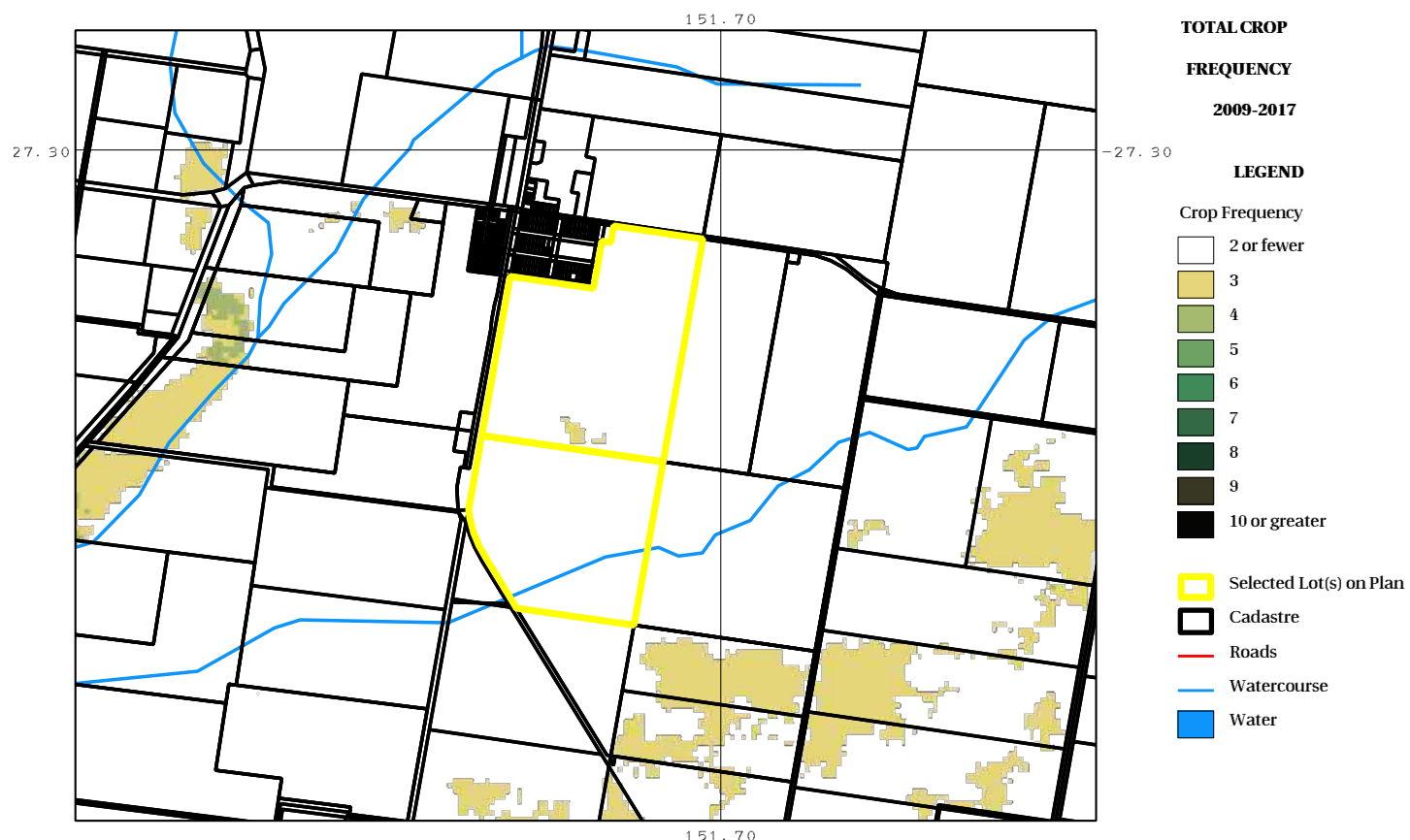


July 2019 Mapping - Paddocks 1, 3, 4, 6, 11 & 35

Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

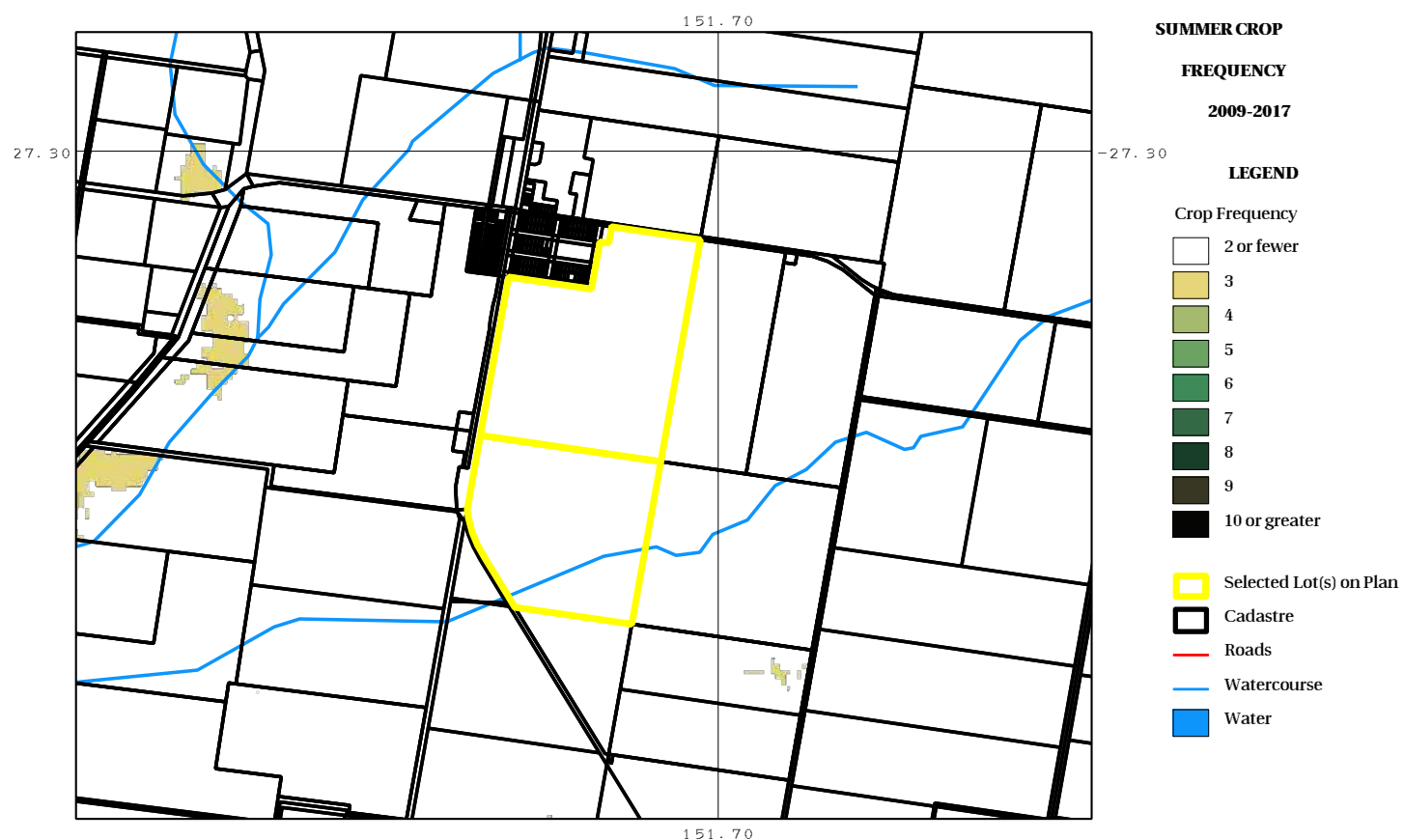
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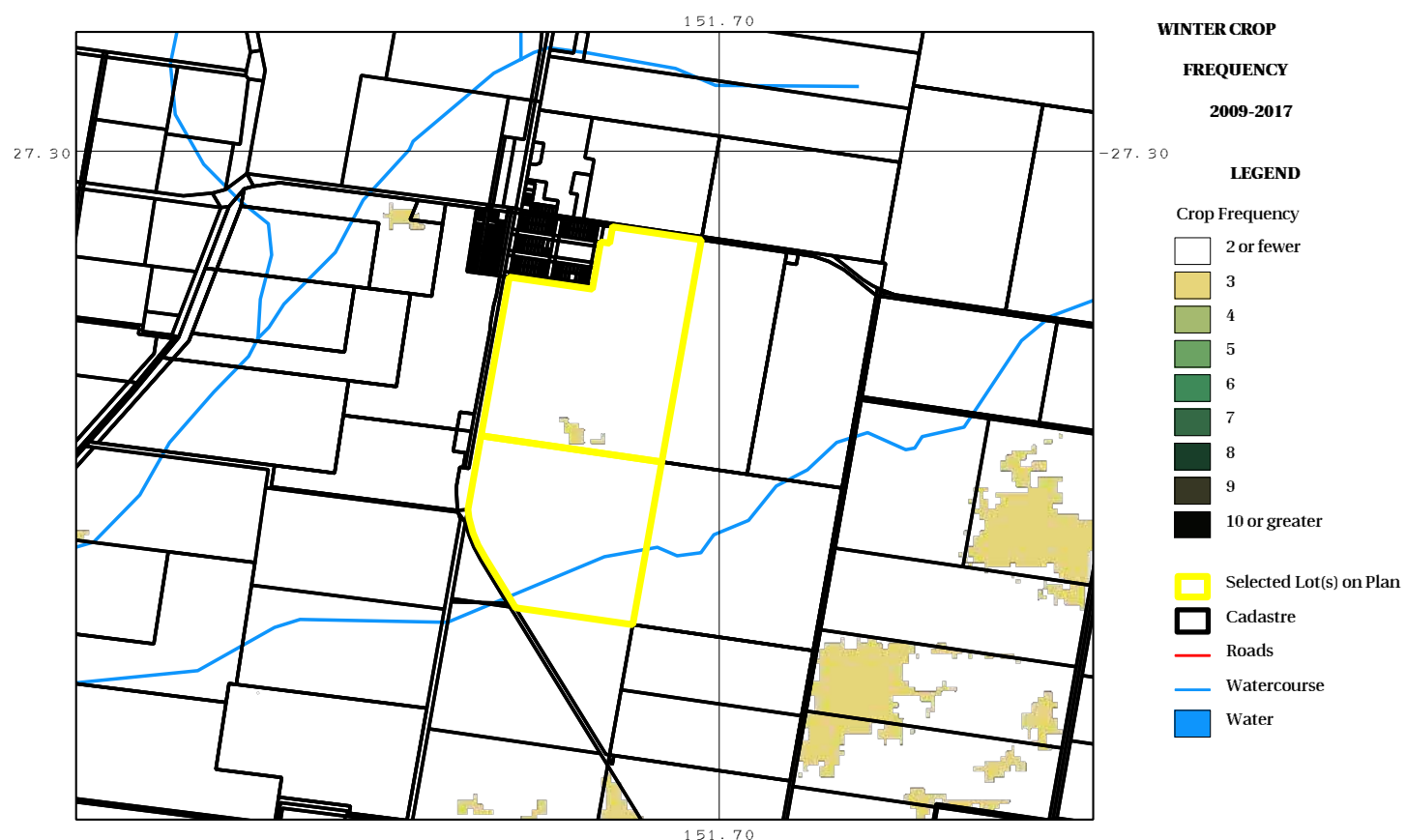


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

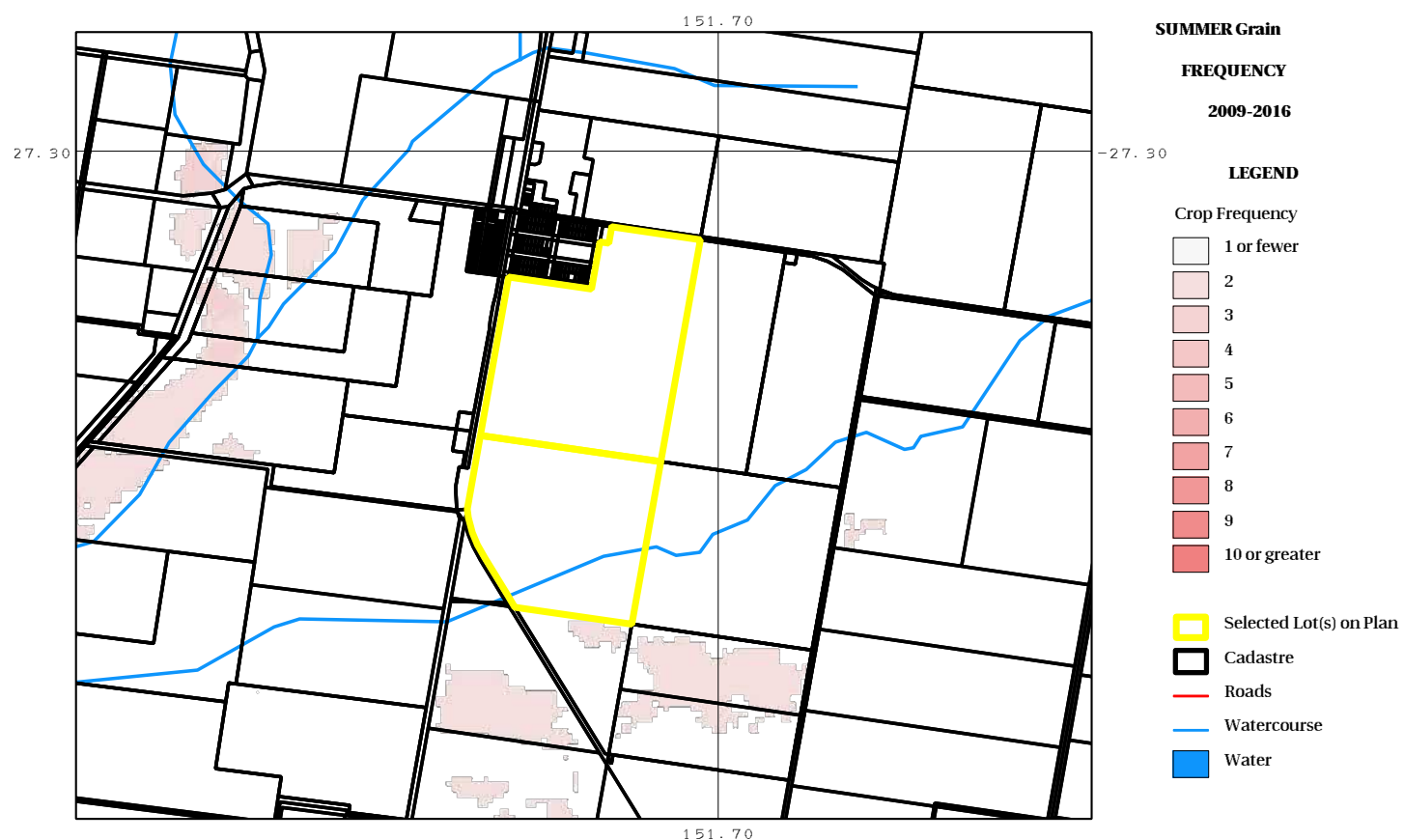
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Label: paddock1

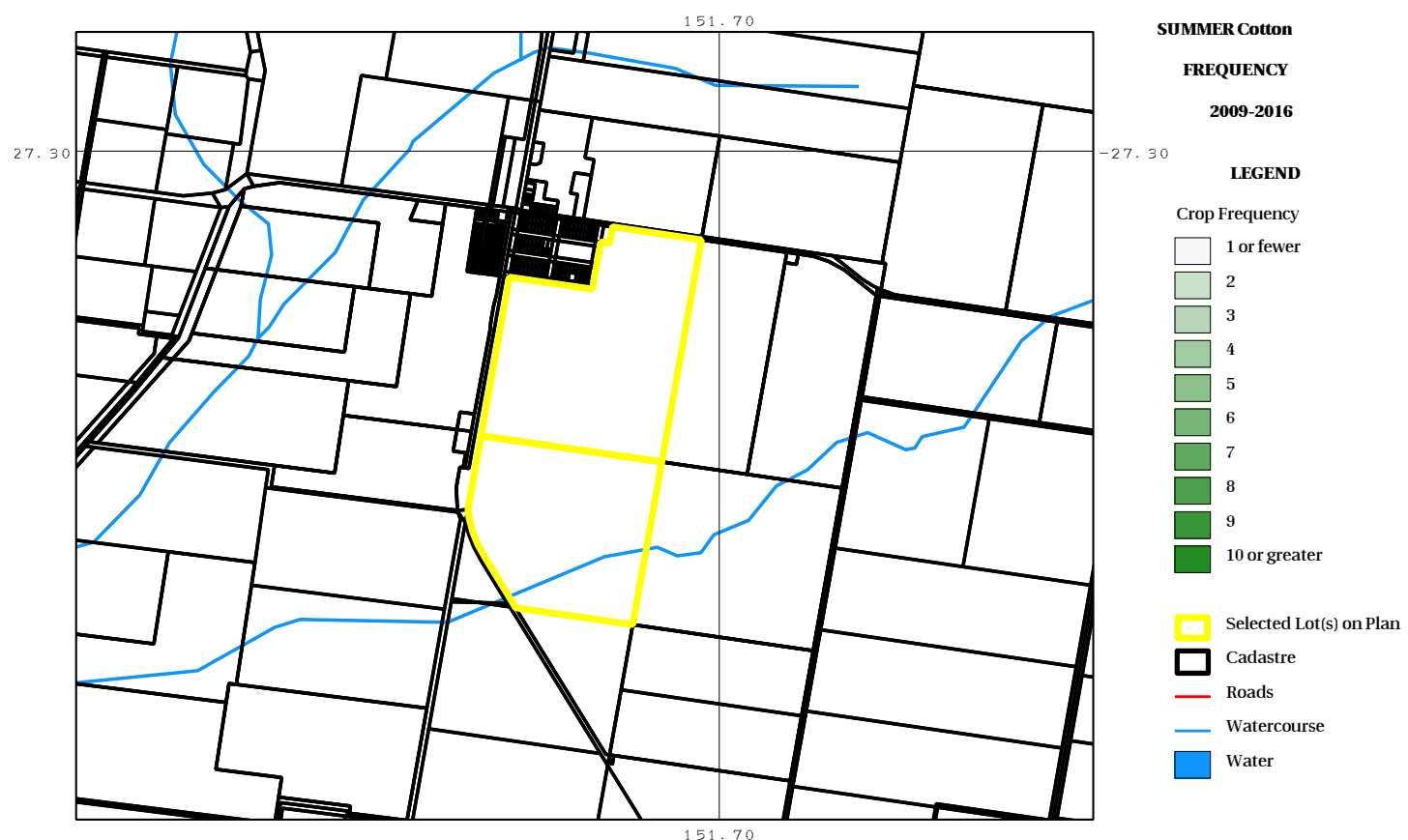


Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 2RP200083,3RP36494

Label: paddock1

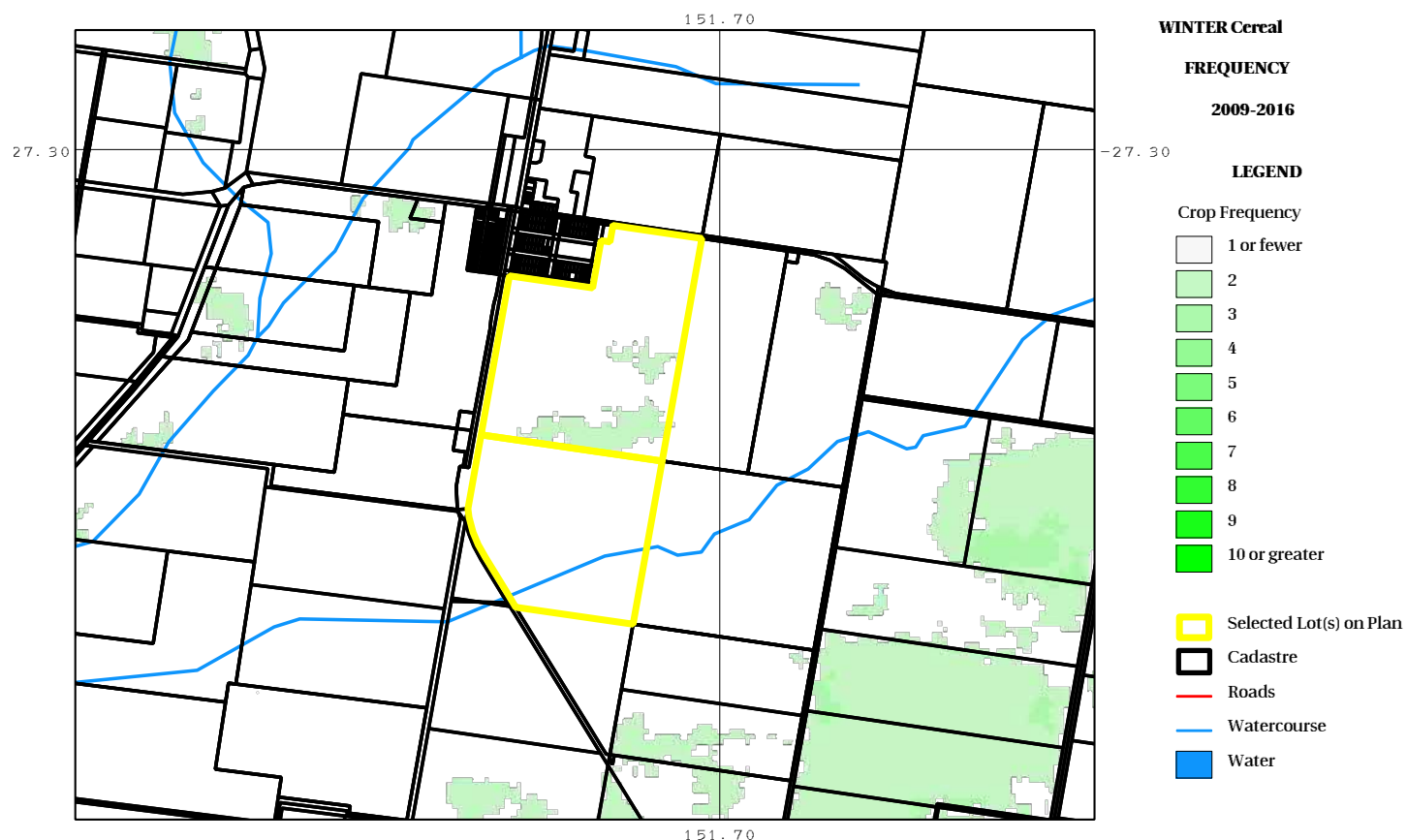


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

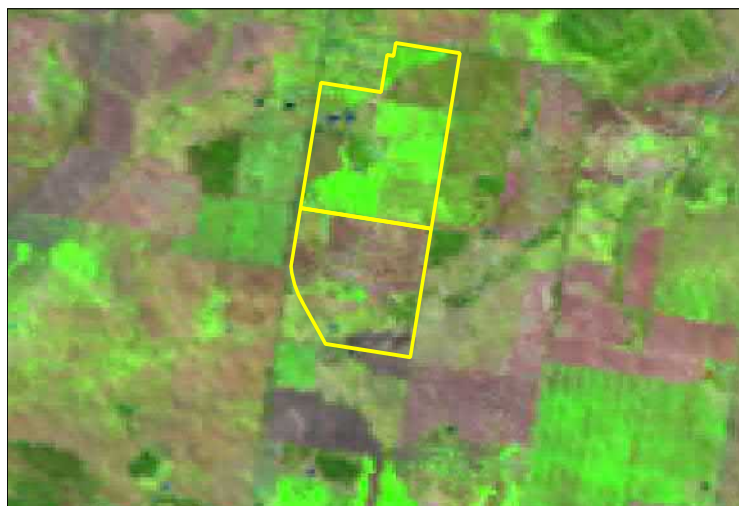
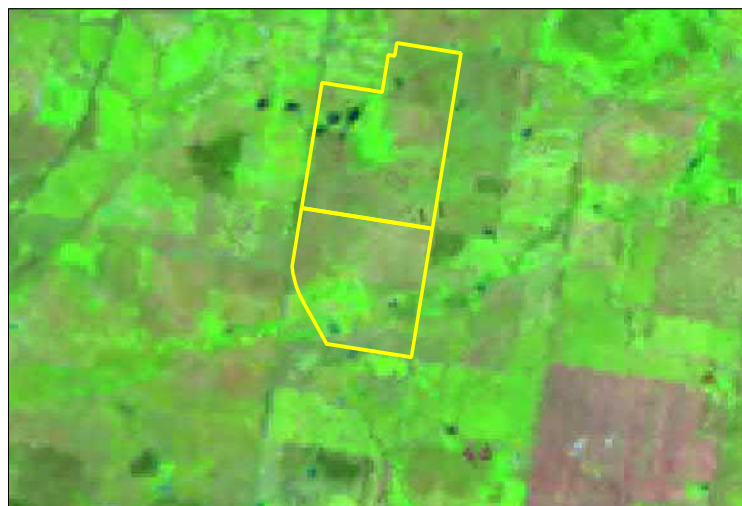
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Label: paddock1

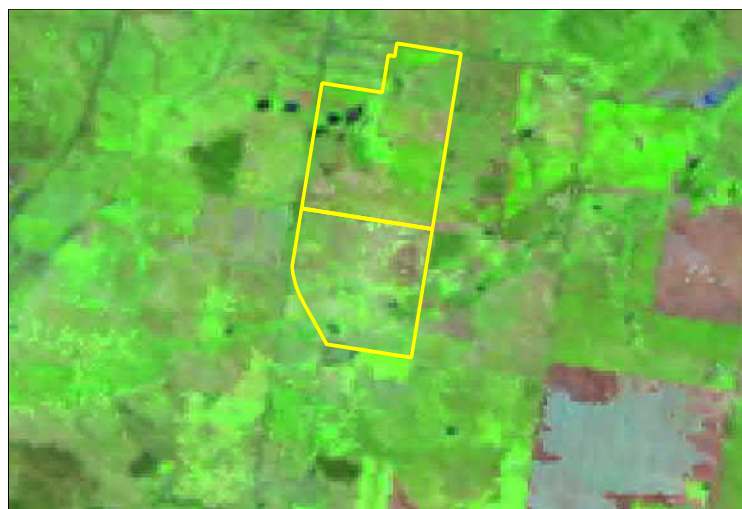


Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 2RP200083,3RP36494

Label: paddock1



Queensland
Government

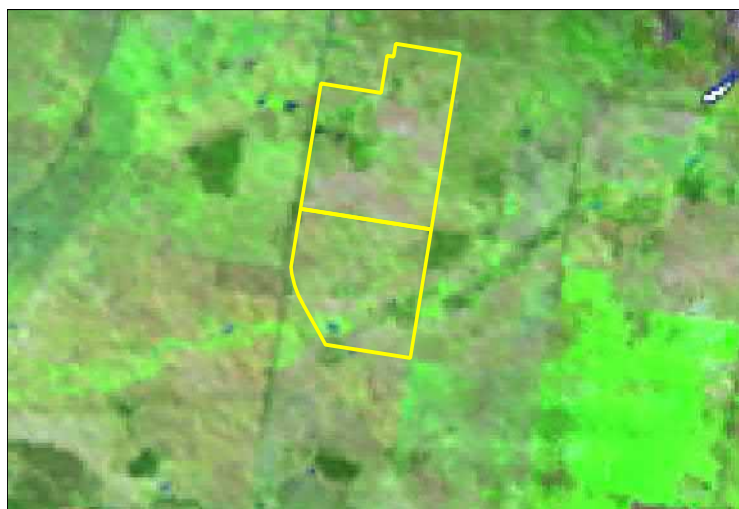
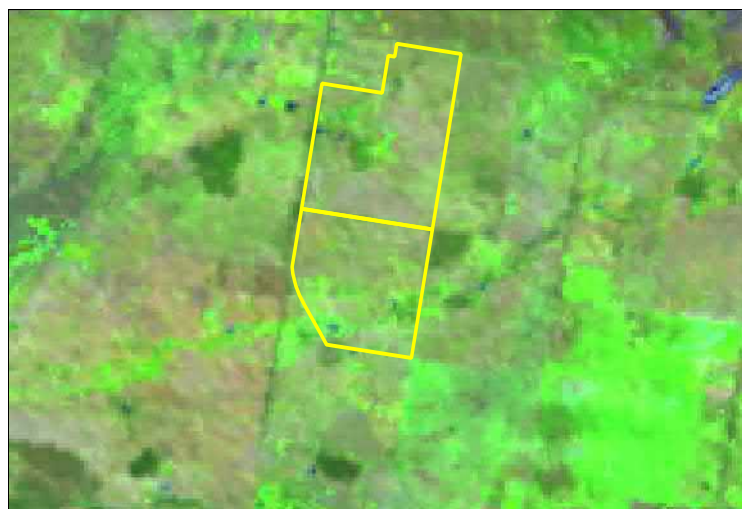
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

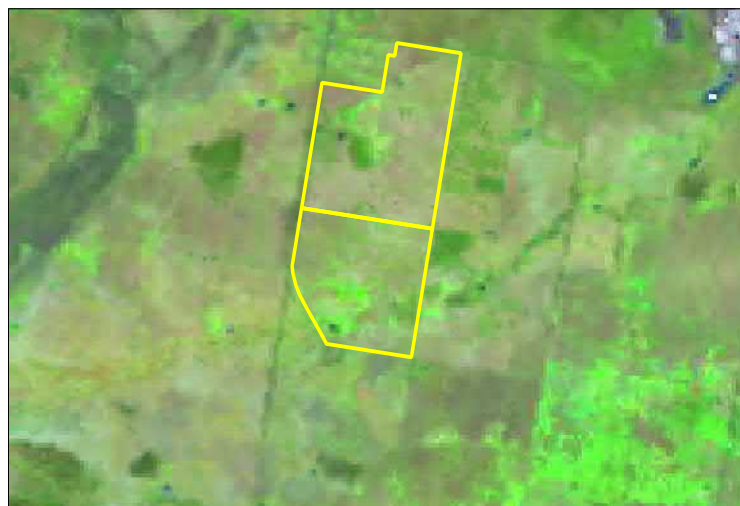
Lot on Plan: 2RP200083,3RP36494

Label: paddock1

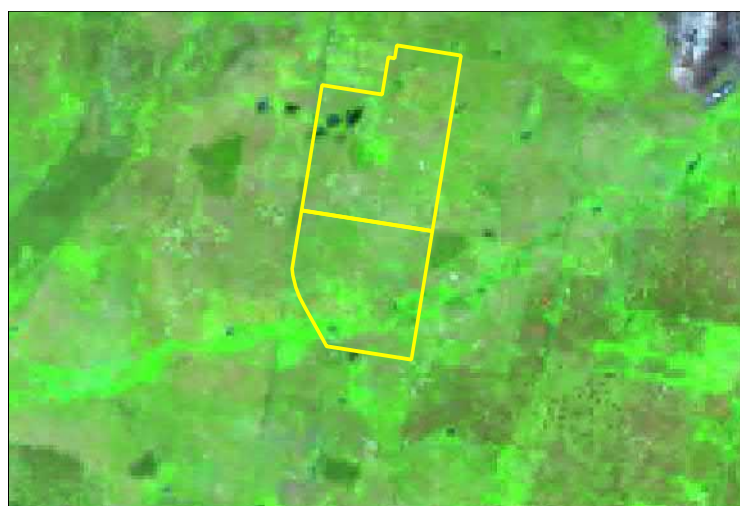


Queensland
Government

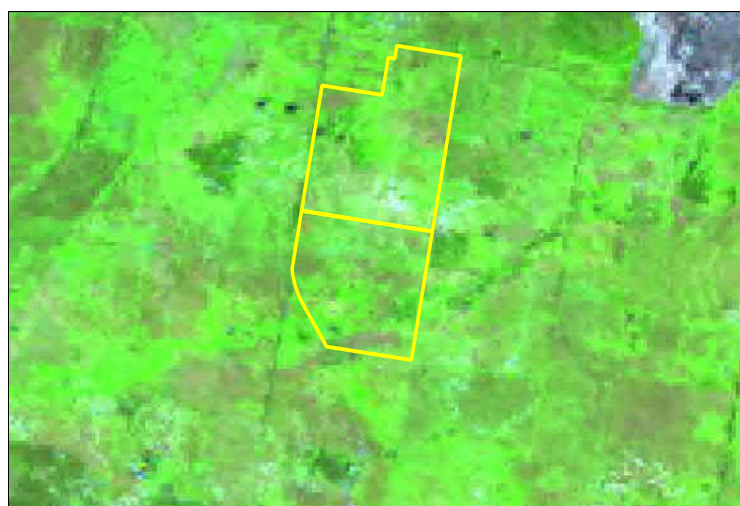
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



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July 17, 2019

Lot on Plan: 2RP200083,3RP36494

Label: paddock1

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

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Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

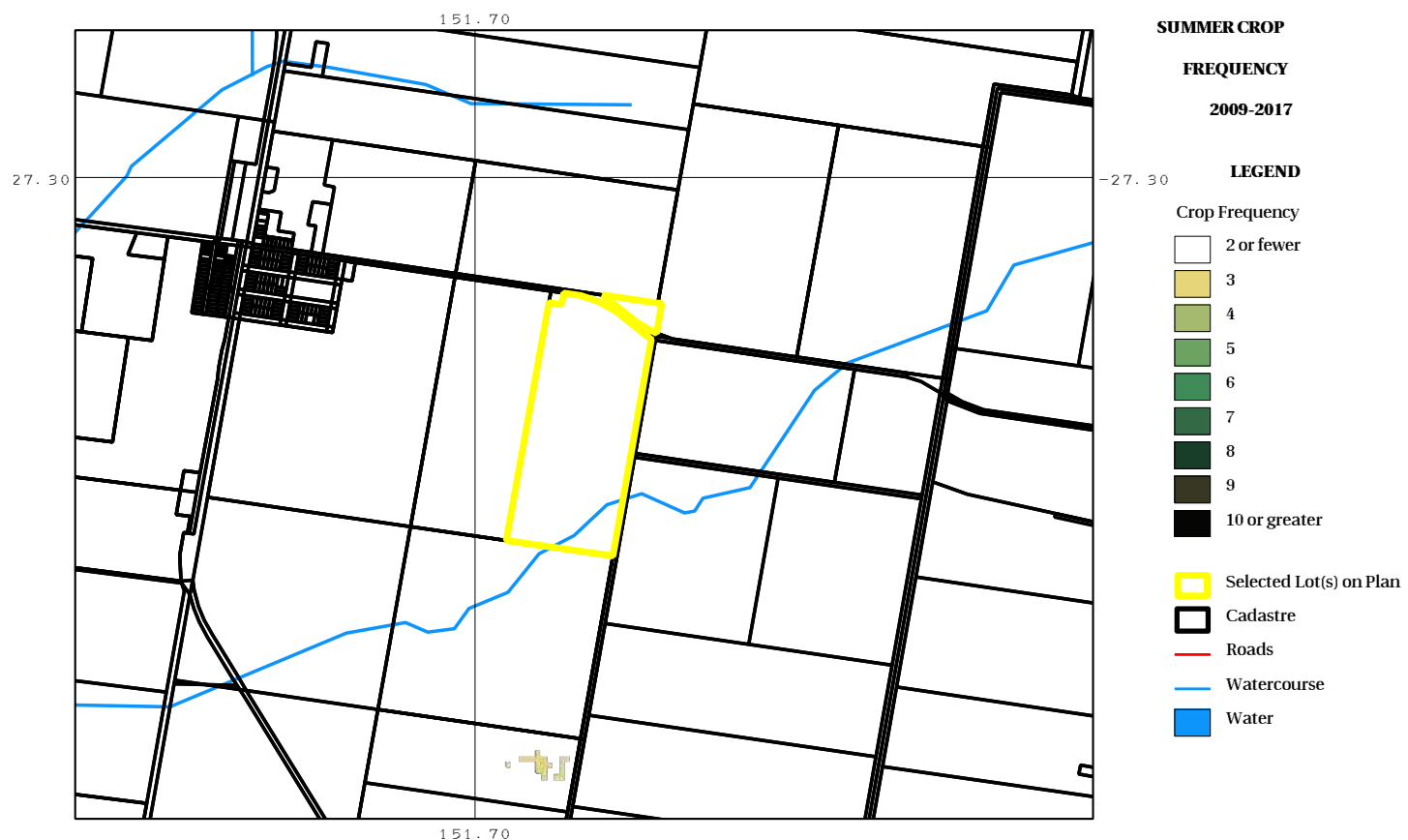
- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
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Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

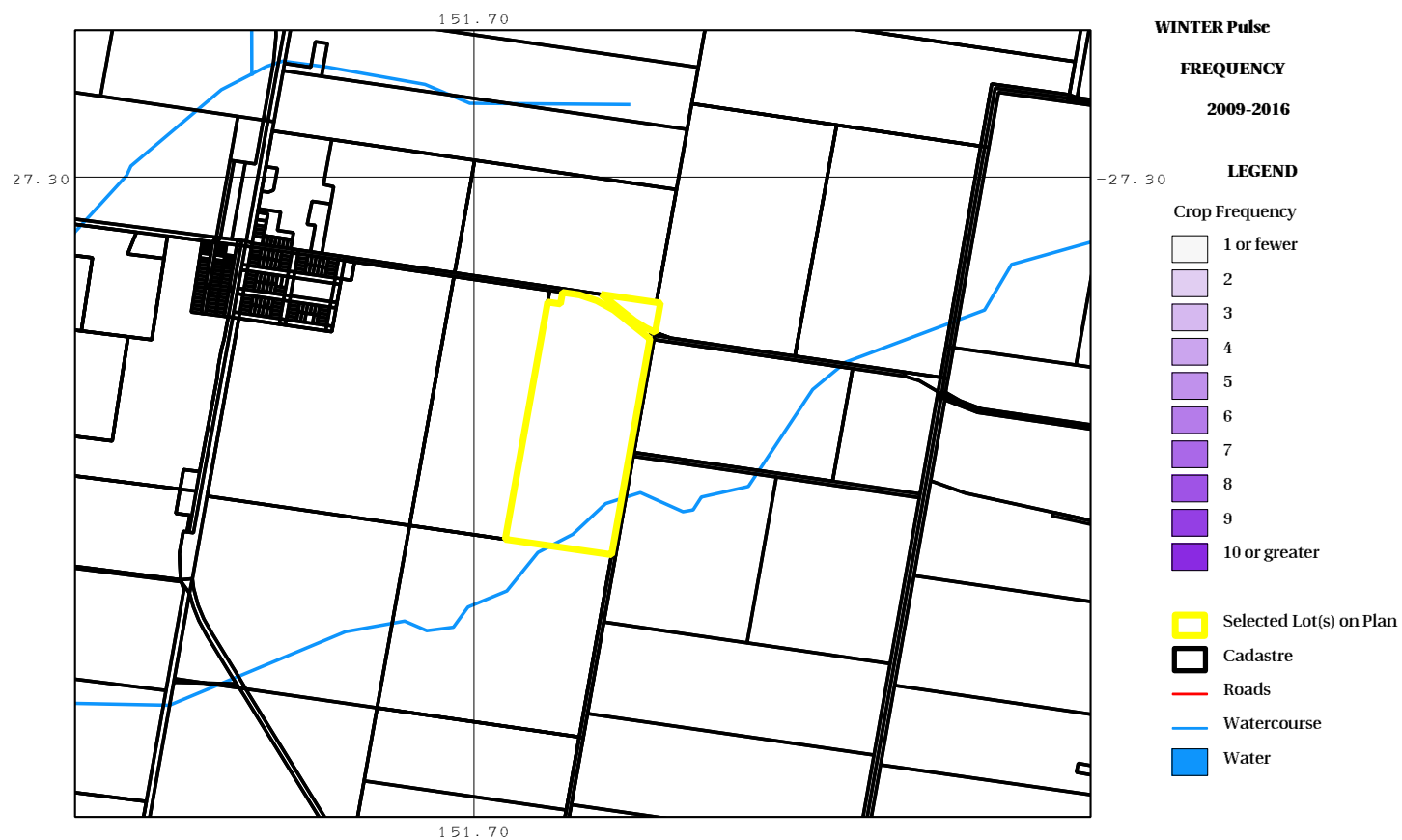
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July 17, 2019

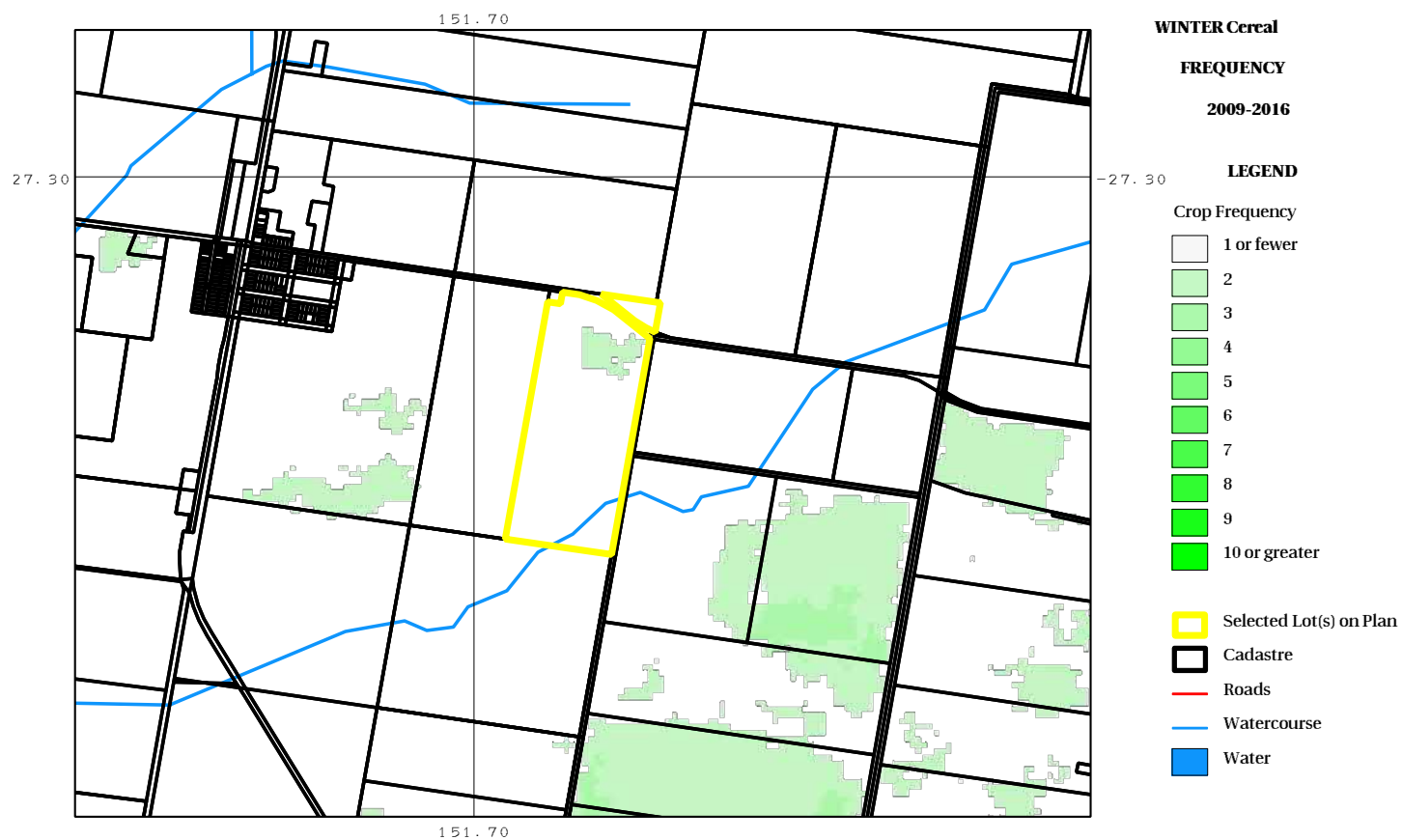
Lot on Plan: 2AG262,62AG2962

Label: paddock3

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

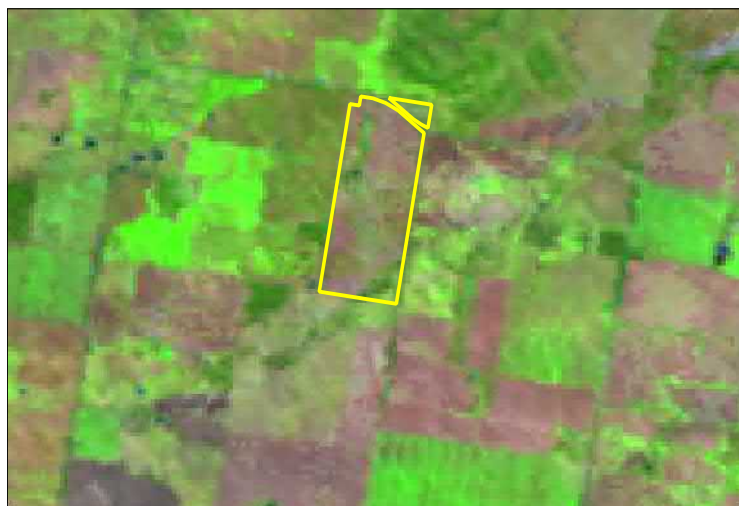
Lot on Plan: 2AG262,62AG2962

Label: paddock3



Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 2AG262,62AG2962

Label: paddock3



Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 2AG262,62AG2962

Label: paddock3

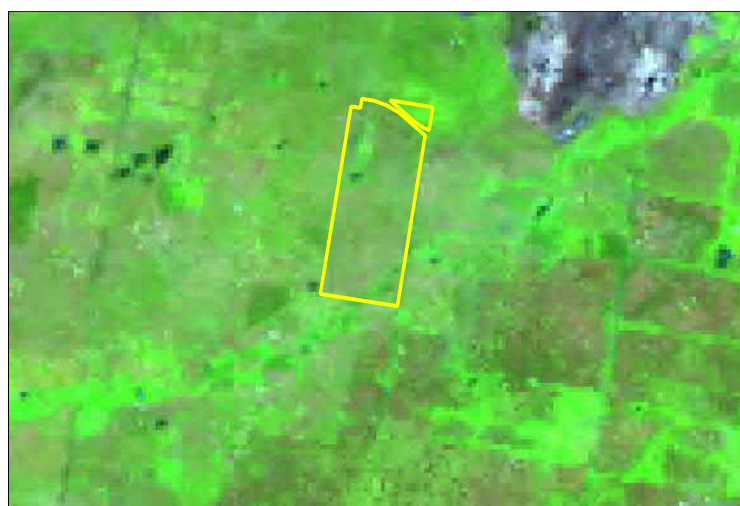


Queensland
Government

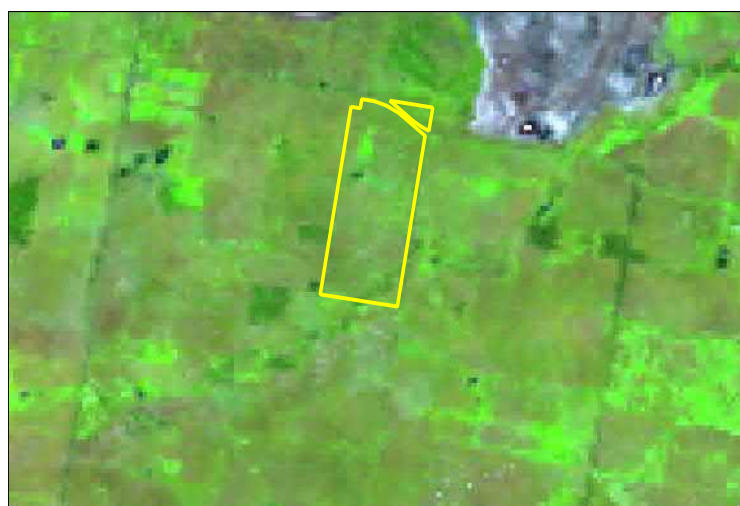
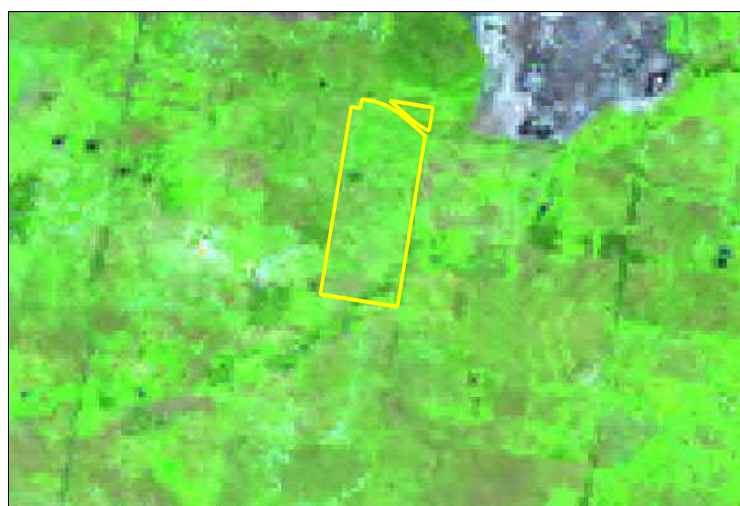
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 2AG262,62AG2962

Label: paddock3



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

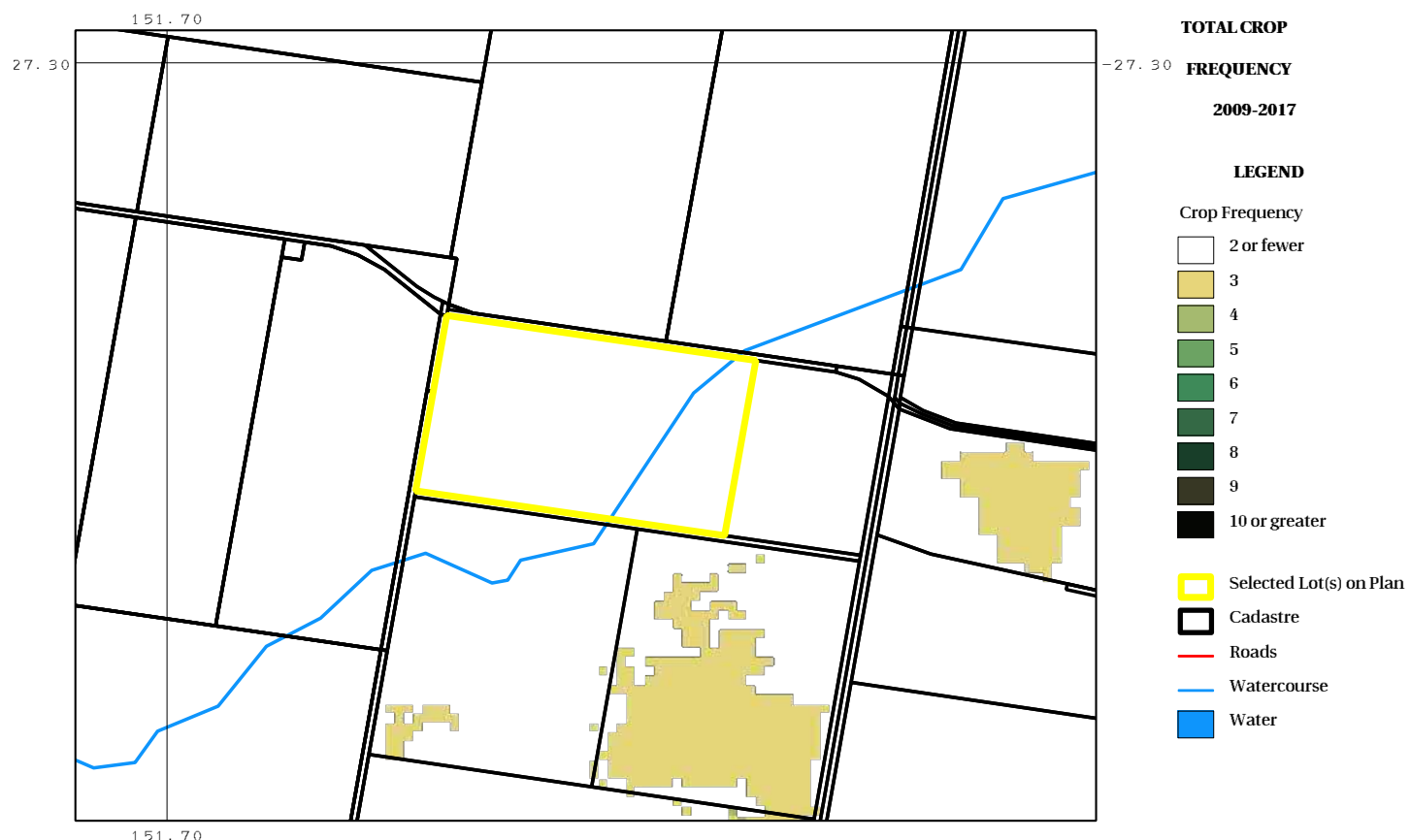
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Estimated total crop frequency map (2009 - 2018)



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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 38AG2512

Label: paddock4

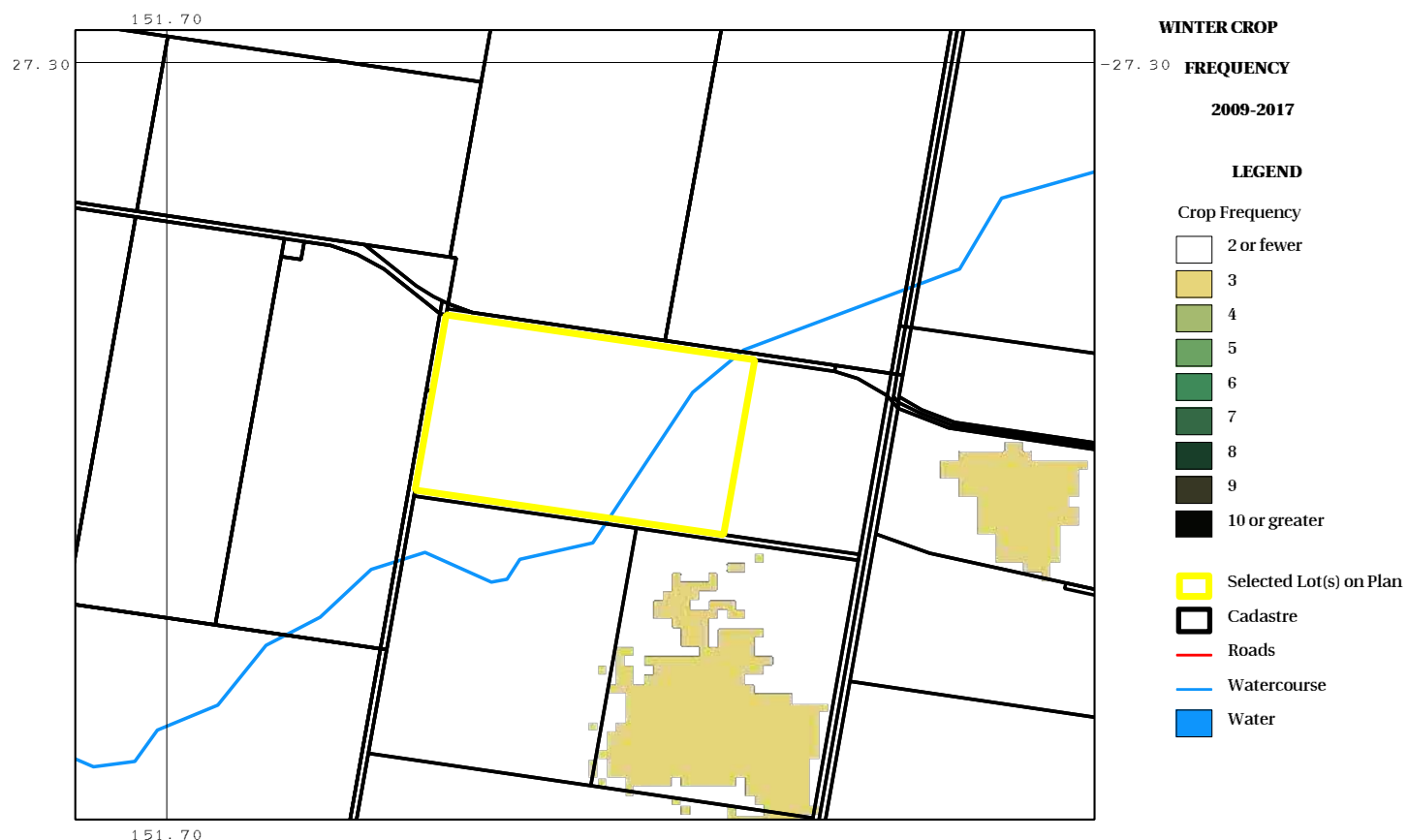


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

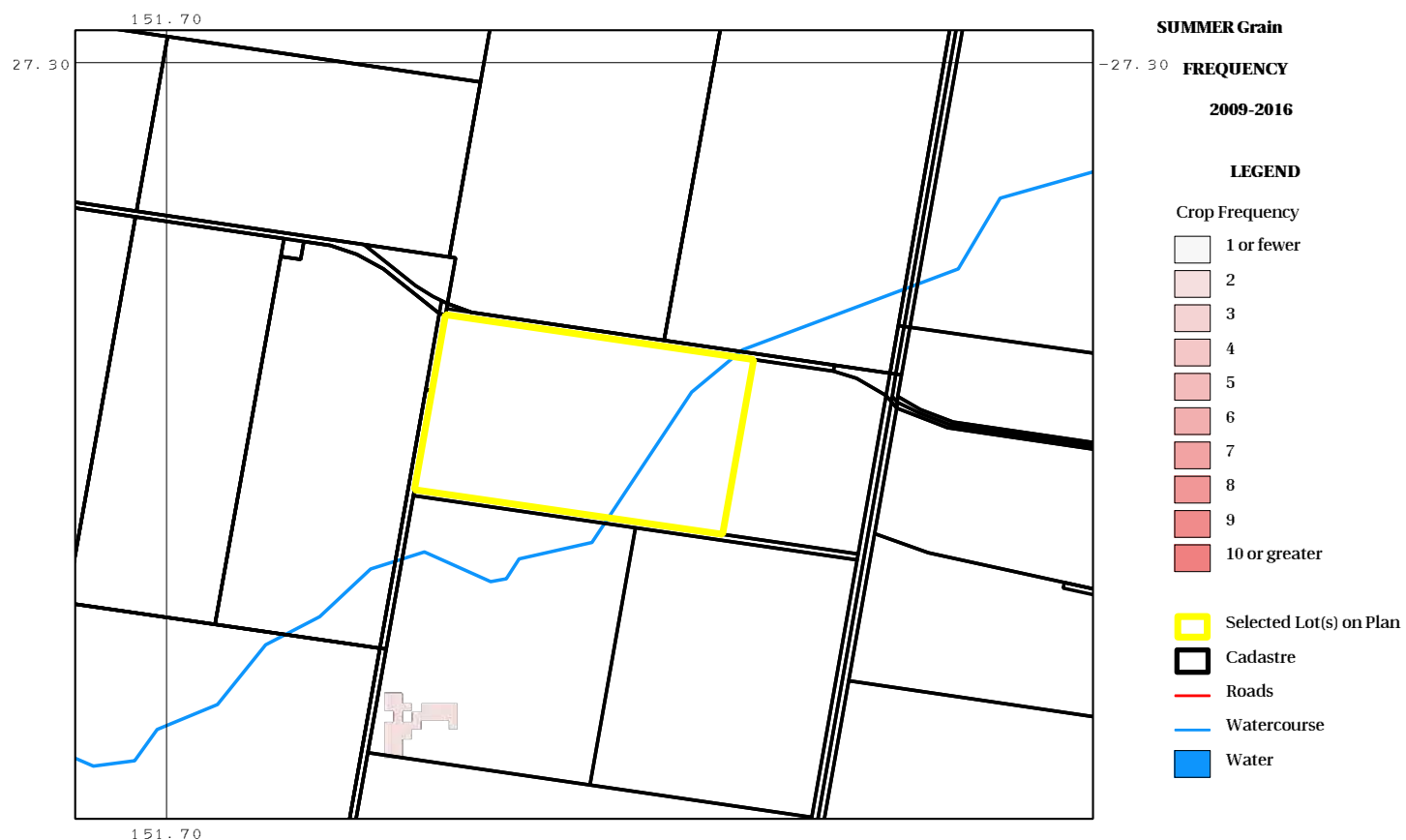
Lot on Plan: 38AG2512

Label: paddock4



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 38AG2512

Label: paddock4

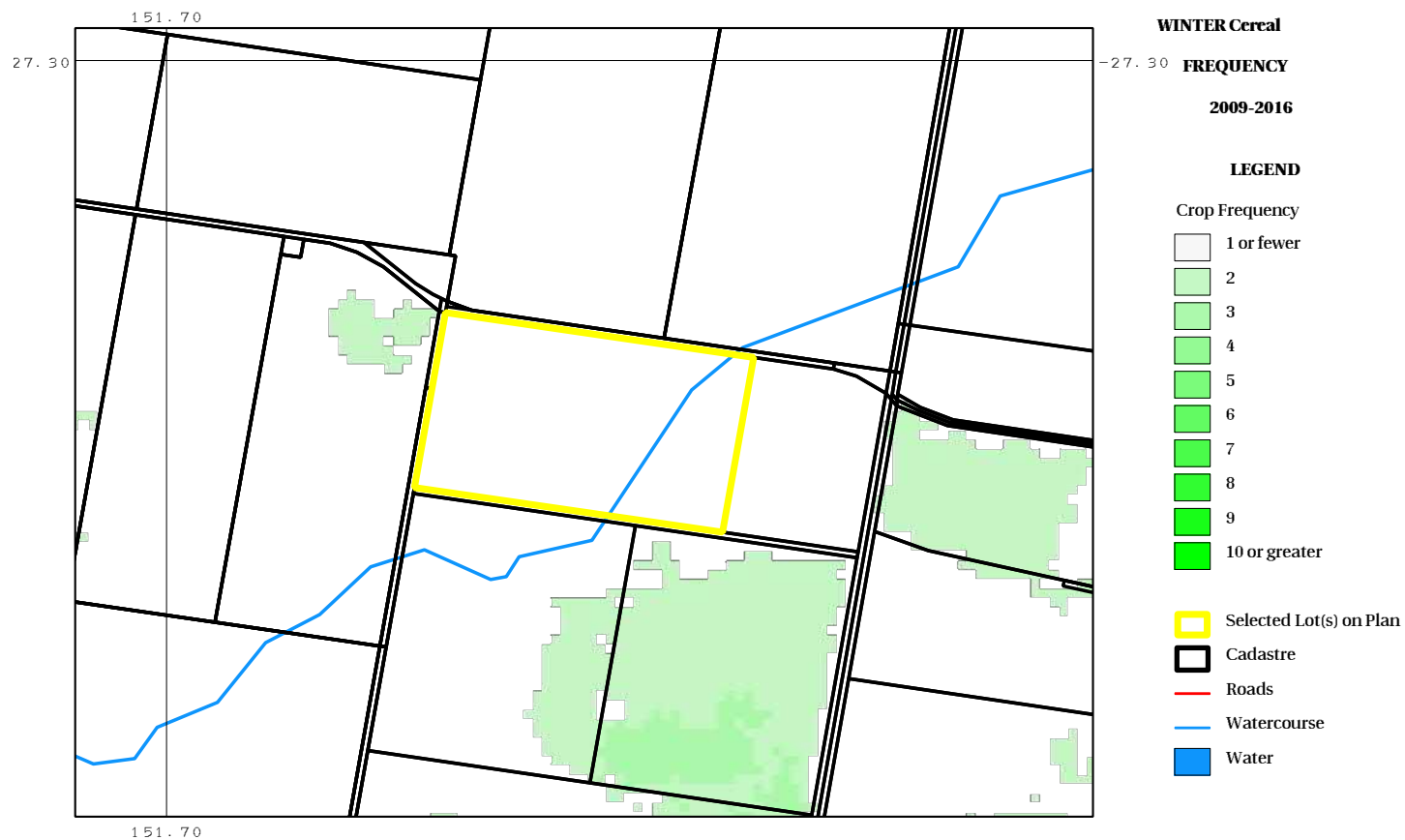


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

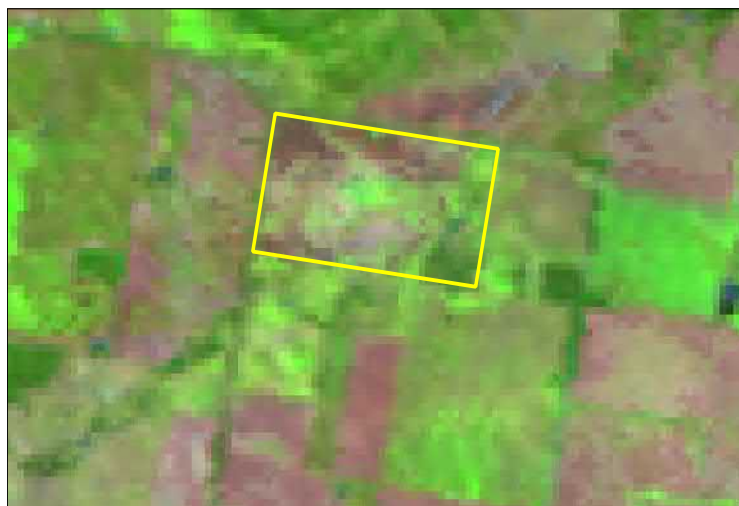
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Label: paddock4

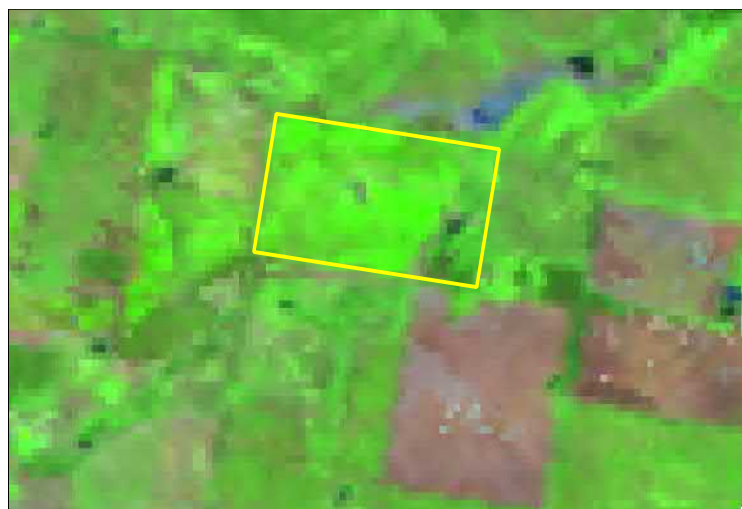


Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

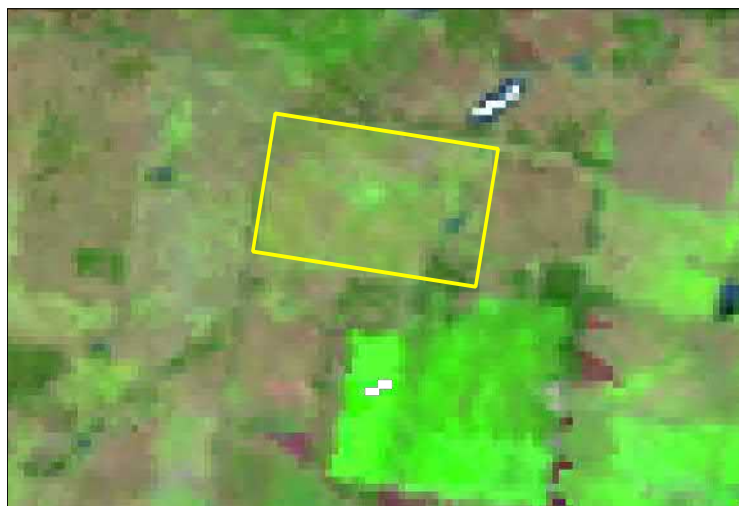
Lot on Plan: 38AG2512

Label: paddock4



Queensland
Government

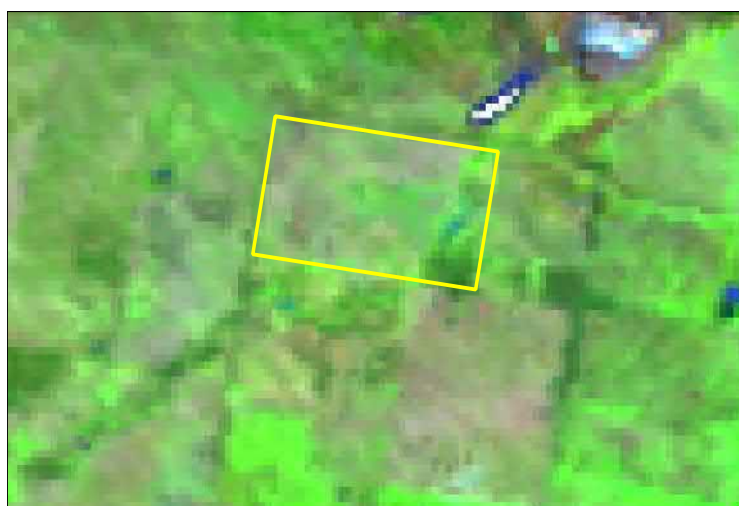
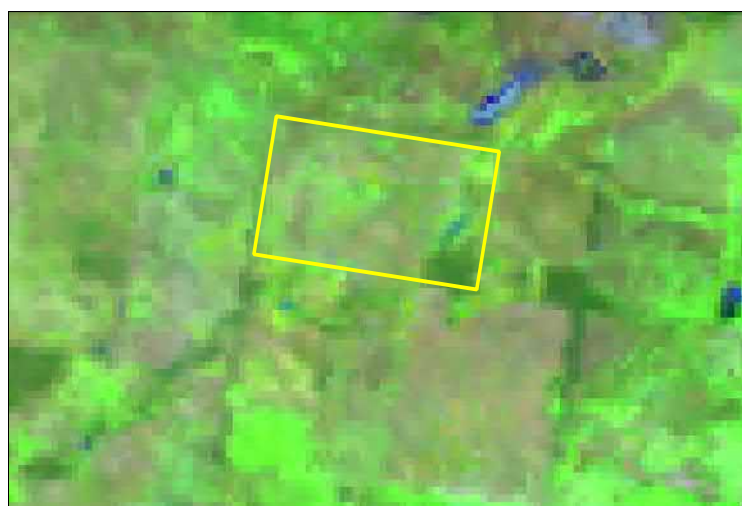
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FORAGE REPORT: CROP FREQUENCY

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July 17, 2019

Lot on Plan: 38AG2512

Label: paddock4

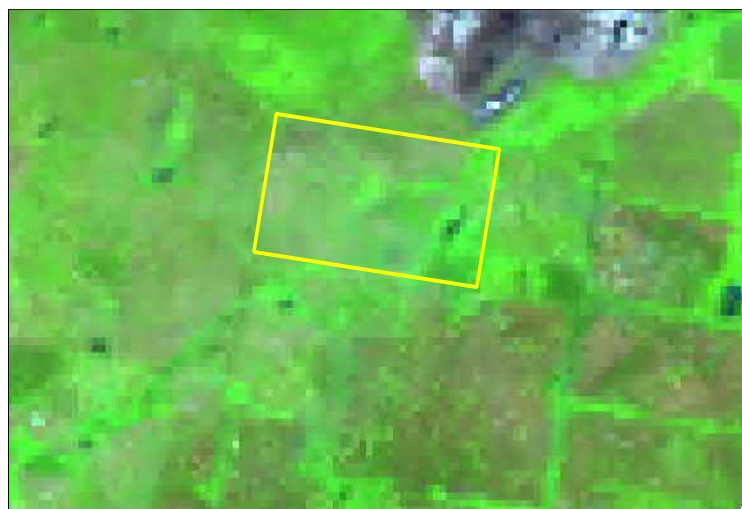


Queensland
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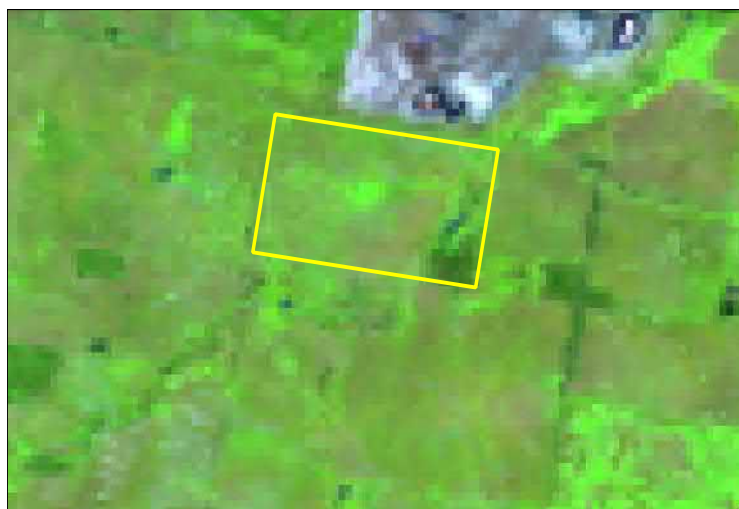
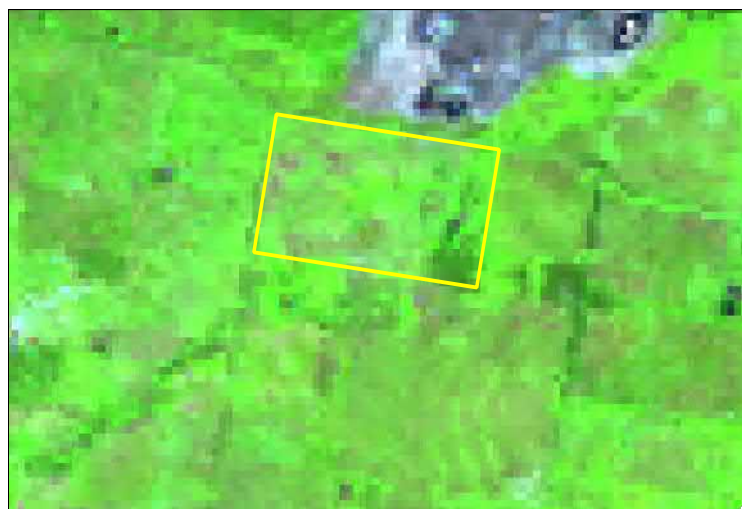
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July 17, 2019

Lot on Plan: 38AG2512

Label: paddock4



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

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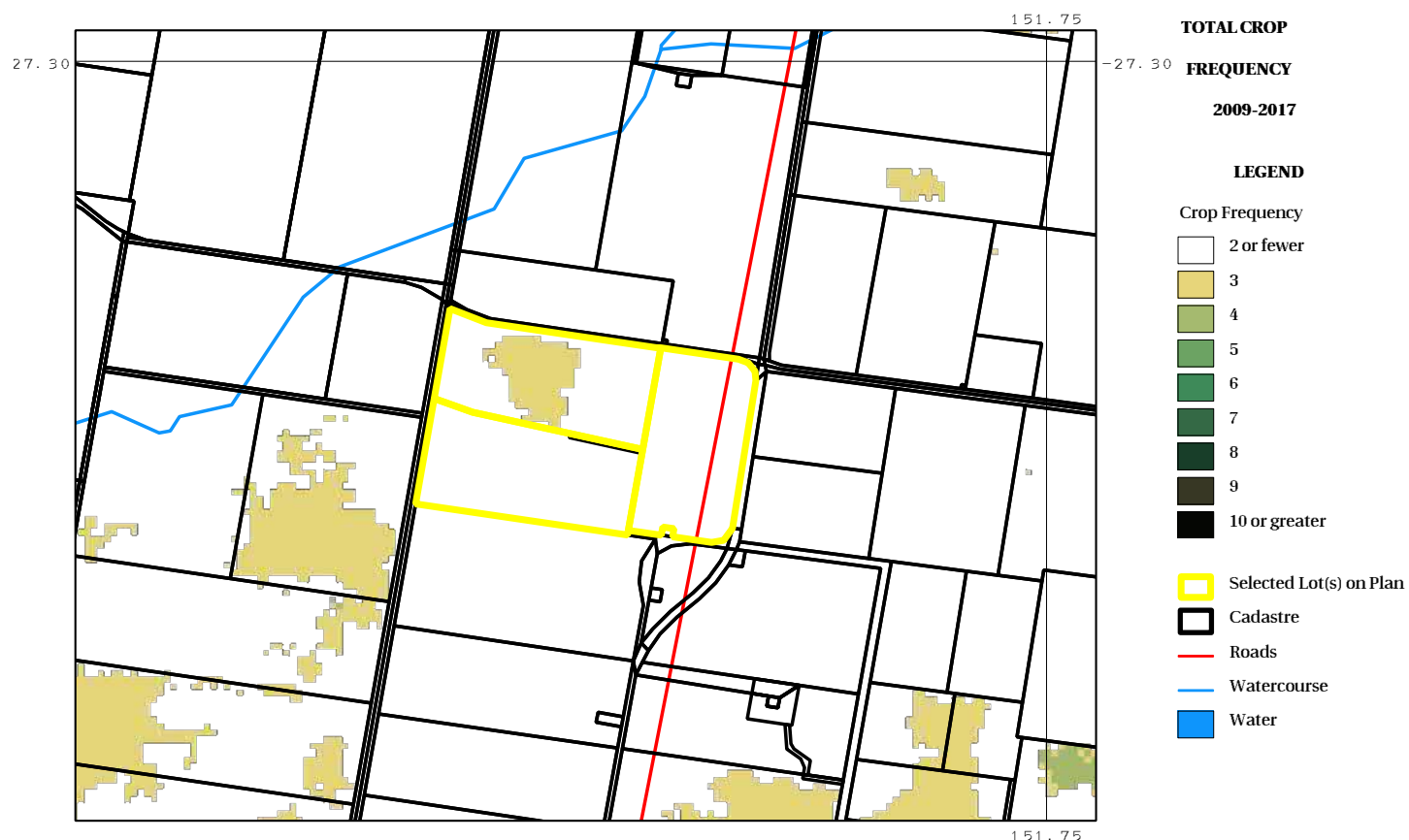
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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6

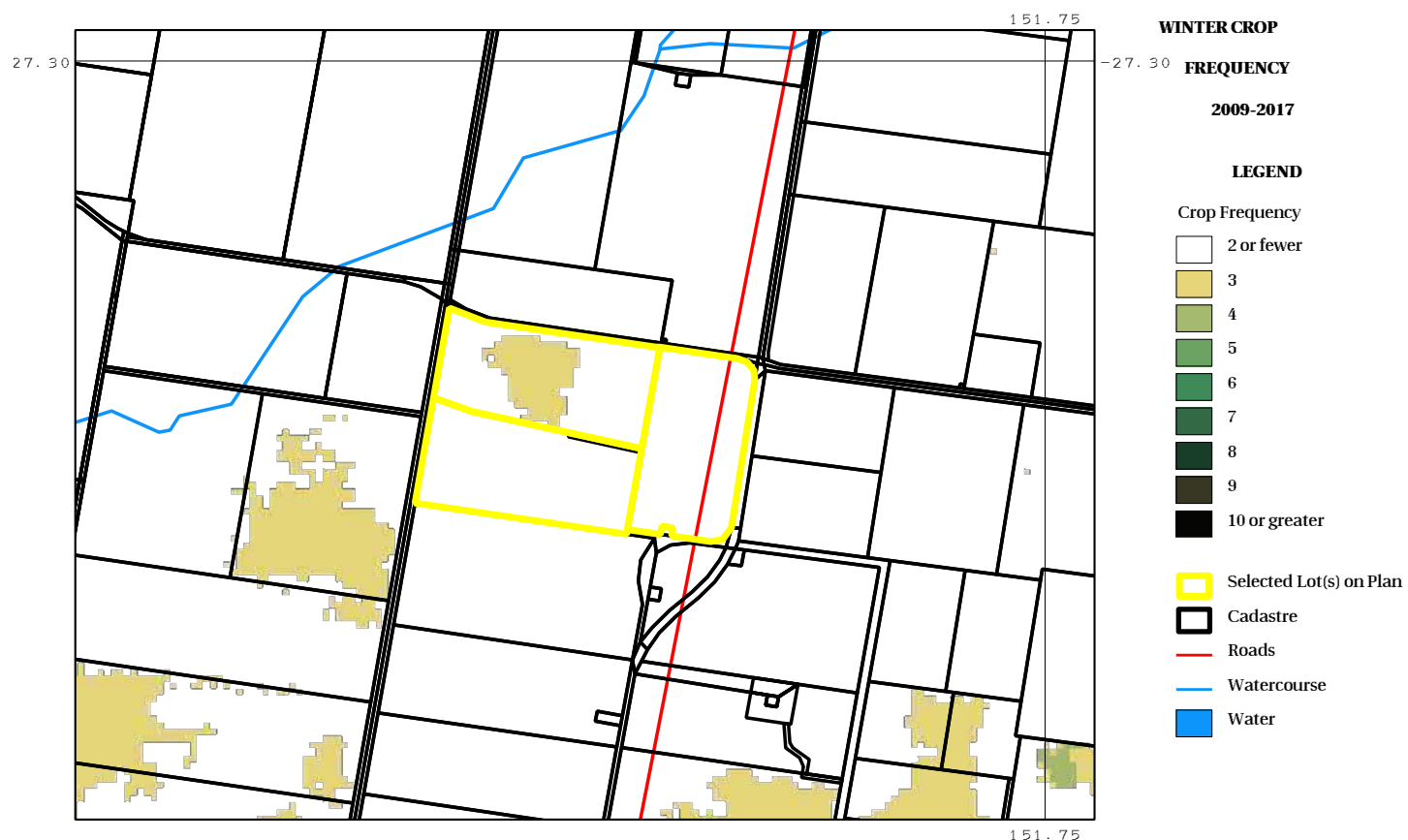


Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6

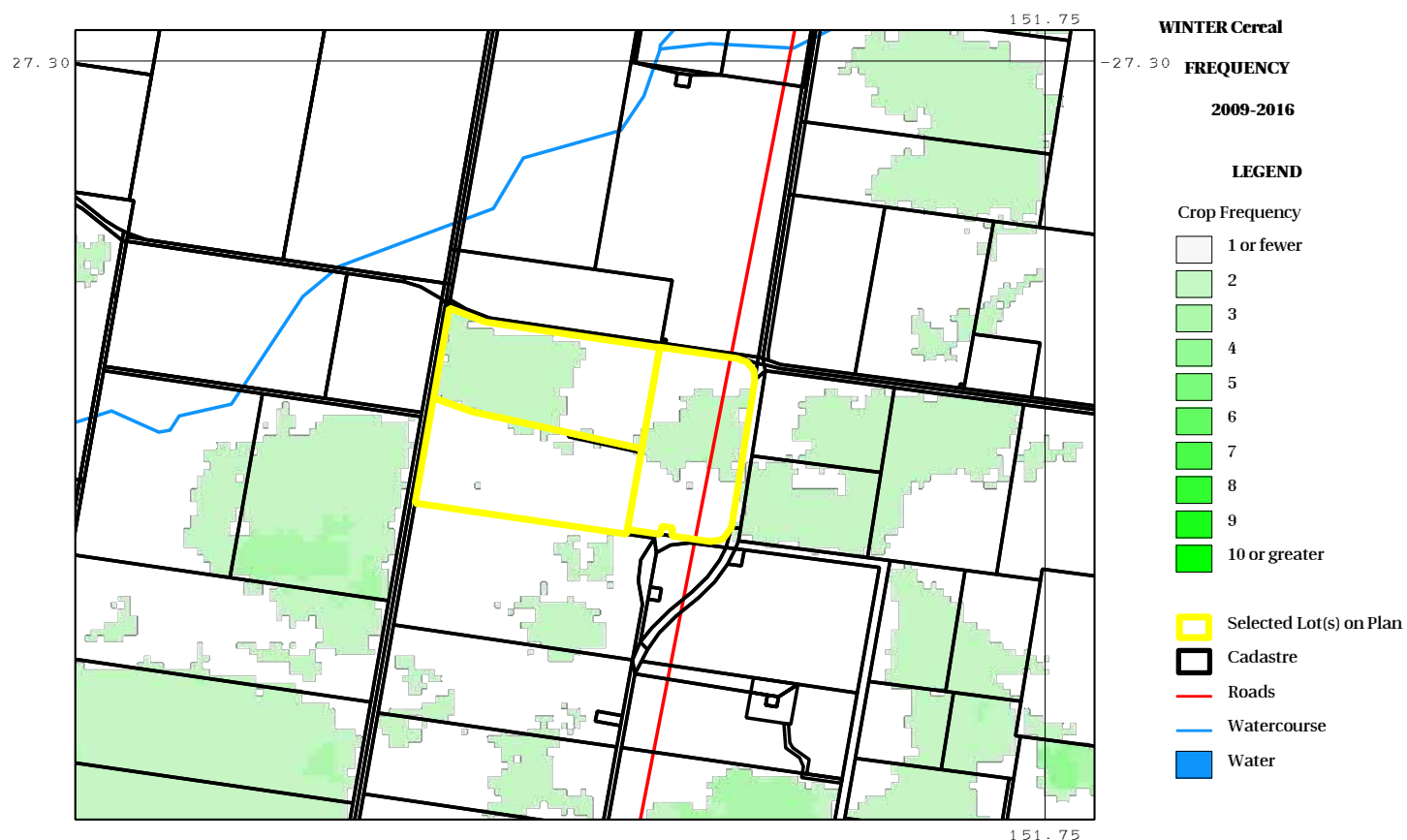


Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6



Queensland
Government

February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6



Queensland
Government

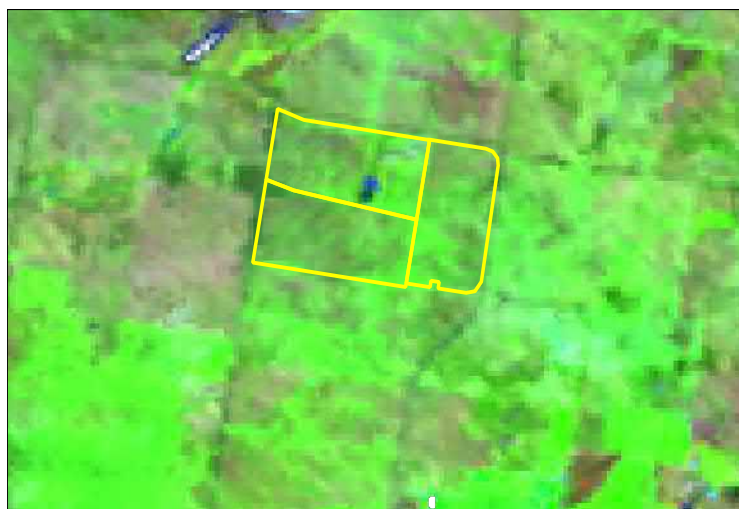
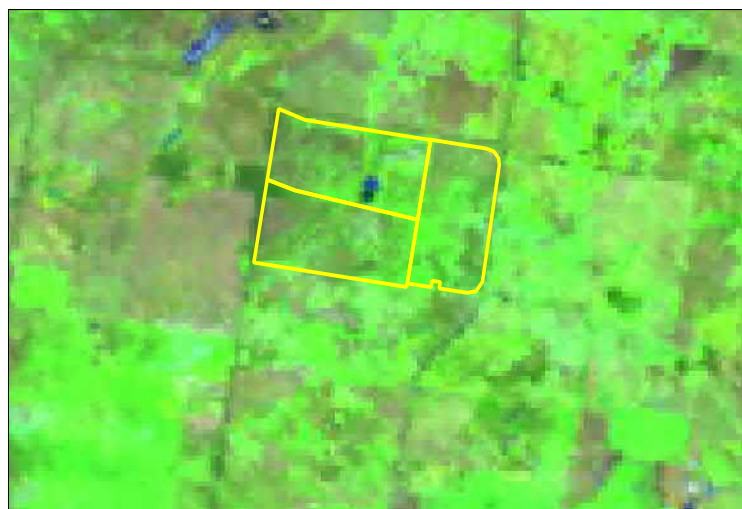
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6



Queensland
Government

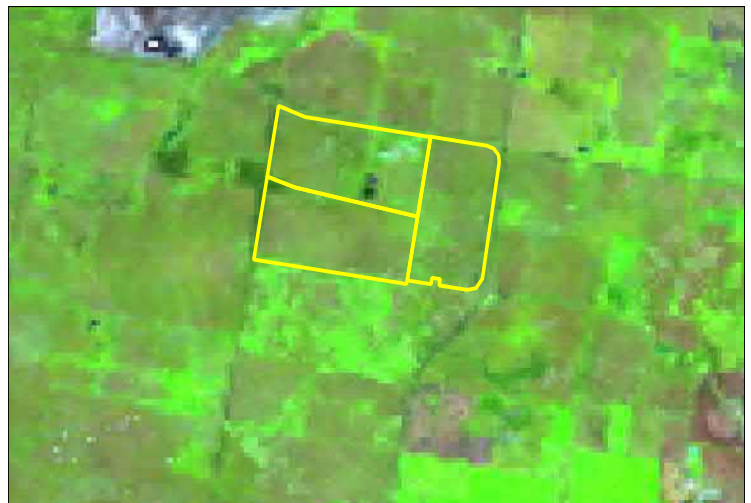
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 1RP197103,2AG1806,2RP197103

Label: paddock6



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

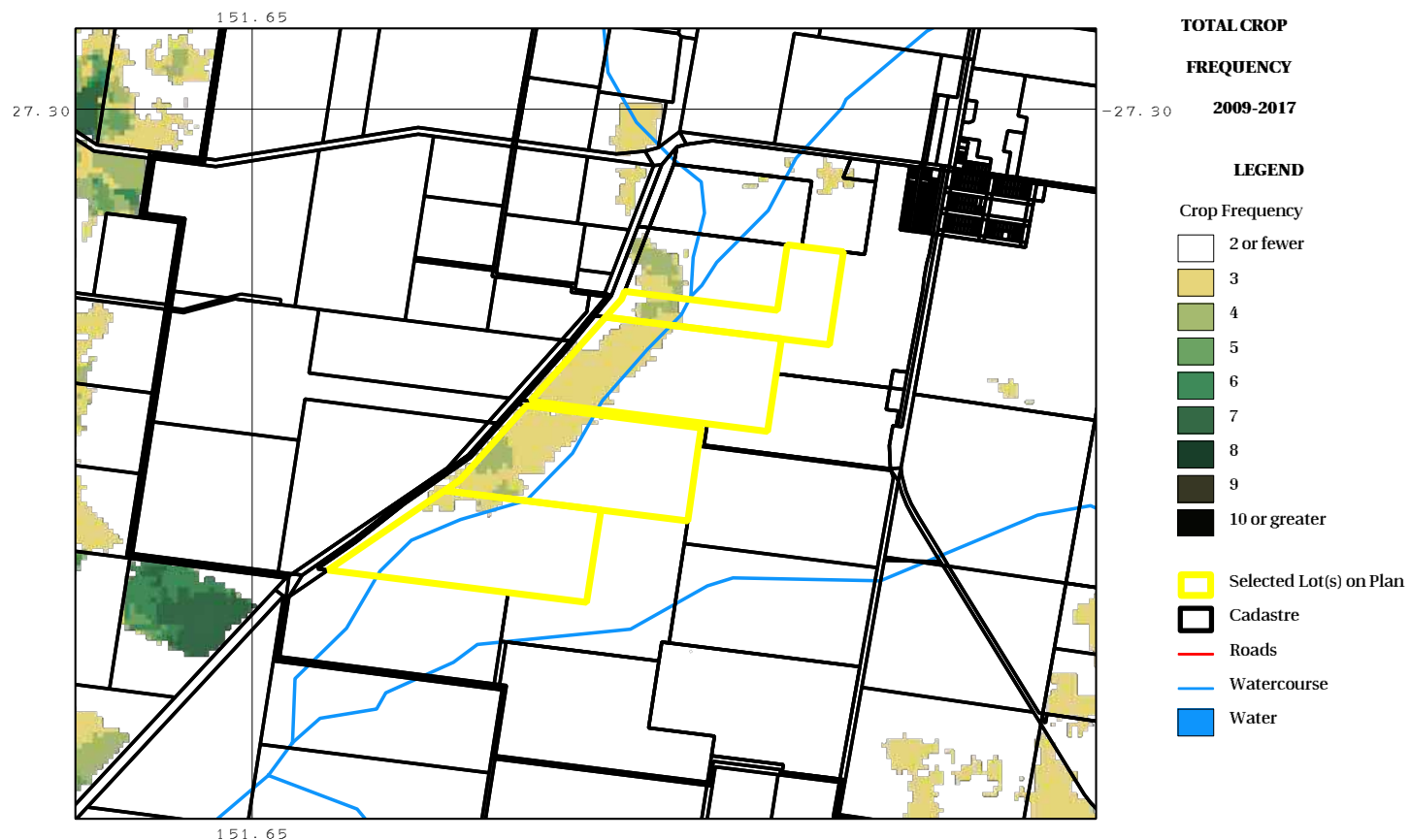
Disclaimer

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Introduction

This report presents crop frequency and broad crop type information for your chosen area, for the time period selected (ten year period between 1988 and current). The report includes crop frequency mapping which is based on time series analysis of satellite imagery (30m spatial resolution) over the summer and winter growing seasons. The approach is based on detection of seasonal cycles of vegetation greenness, therefore some perennial crops may not be represented. Seasonal images displaying the maximum greenness within a summer and winter growing season for each year are also provided. For further information, refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer and winter growing seasons, for a ten year period. The map on this page shows 'Total Frequency' which is a count of number of years that an active crop was detected. The two maps on the following page show the summer and winter crop frequency, respectively. These maps show a count of the number of times an active crop was detected in each of those distinct growing seasons. The detection of active crops is based on time-series analysis of satellite imagery. Due to the limitations of the automated method used to detect active cropping, you should also view the temporally adaptive seasonal image composite on page 6, compiled to represent the maximum greenness (per pixel) within a growing season.

Mapping of broad crop groups: Crop frequency information is also separated into estimates of dominant broad crop groups within the region. This estimation is based on an automated classification approach for each season (see Pringle *et al.* 2018 for more details).

In the winter season the classification differentiates between classes:

- Cereal crop (e.g. wheat, barley, oats);
- Pulse crop (e.g. chickpea).

In the summer season the classification differentiates between the classes:

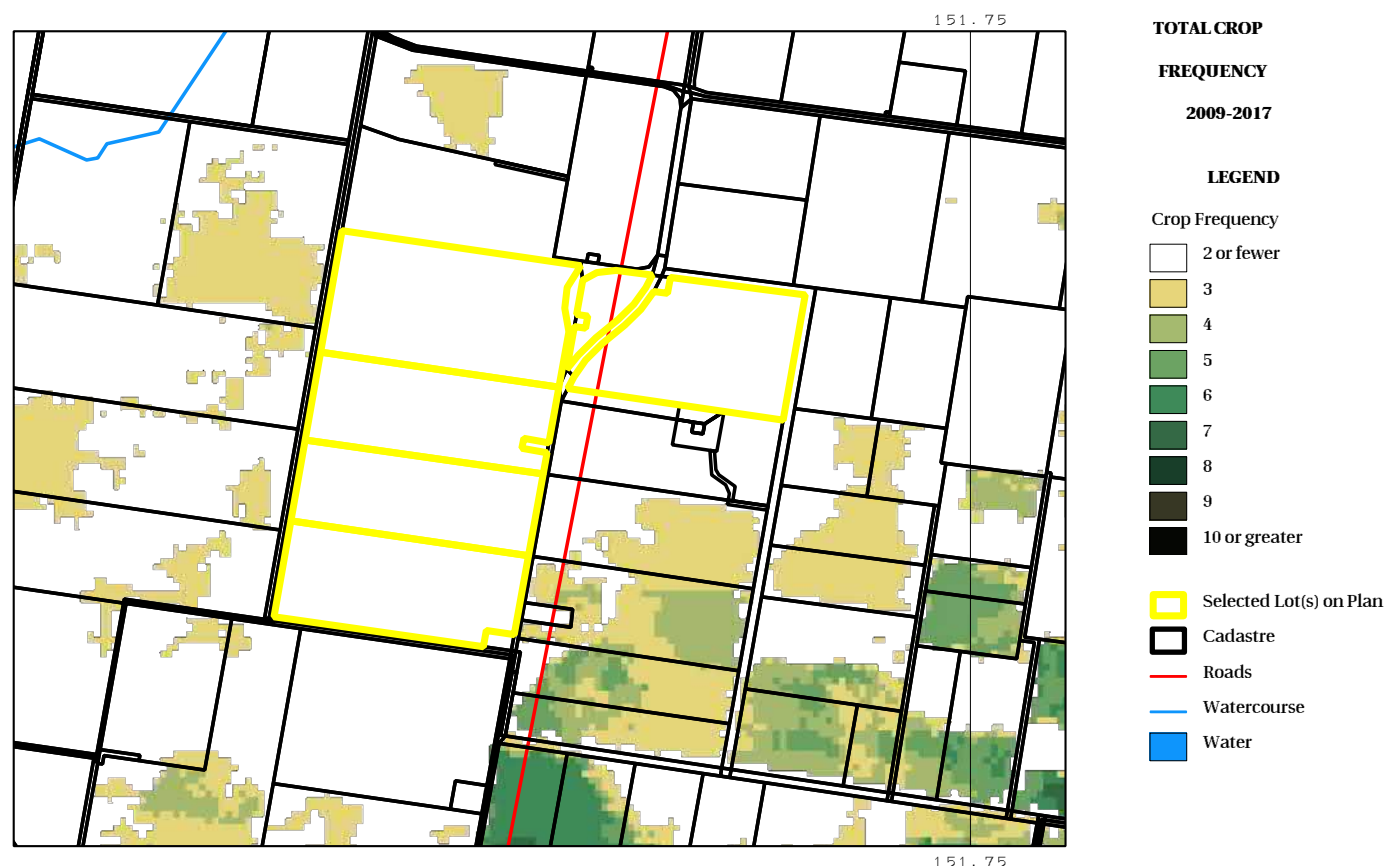
- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Landsat satellite imagery: Landsat imagery at 30m spatial resolution are predominately used. Since 2015 Sentinel-2 imagery are included and re-sampled to a 30m spatial resolution to match the Landsat imagery. Since 2000 imagery from MODIS serve as backup data in case of large (> 4 weeks) data gap (e.g. cloud issues). The seasonal maximum vegetation imagery for summer (around February) and winter (around September) on the following pages help confirm the presence of an active crop. Each maximum vegetation image is designed to optimise the identification of winter and summer cropping and is generated from a number of images acquired within the growing season. The cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop frequency mapping does not indicate cropping in an area, it is important to check each Landsat image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery. For example, in some wetter seasons, much of the imagery can appear very green and cropping may be difficult to identify. Where this is the case, it is recommended to undertake further investigation using other information sources. Note: It is not possible to visually differentiate between crop groups in the seasonal maximum vegetation image. This image is only used to confirm the presence or absence of cropping activities.

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FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

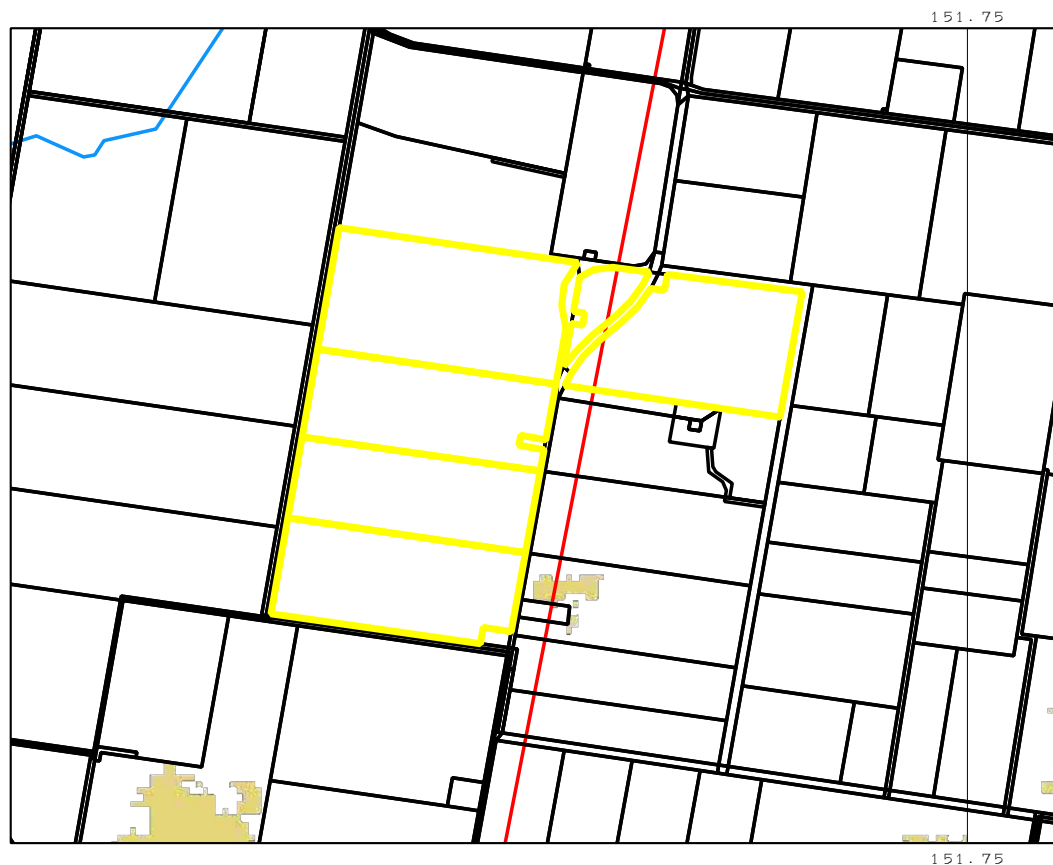
Lot on Plan: 6AG1127,3RP220755,2RP93626,8RP25 etc.

Label: paddock11



Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



SUMMER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6

7

8

9

10 or greater

Selected Lot(s) on Plan

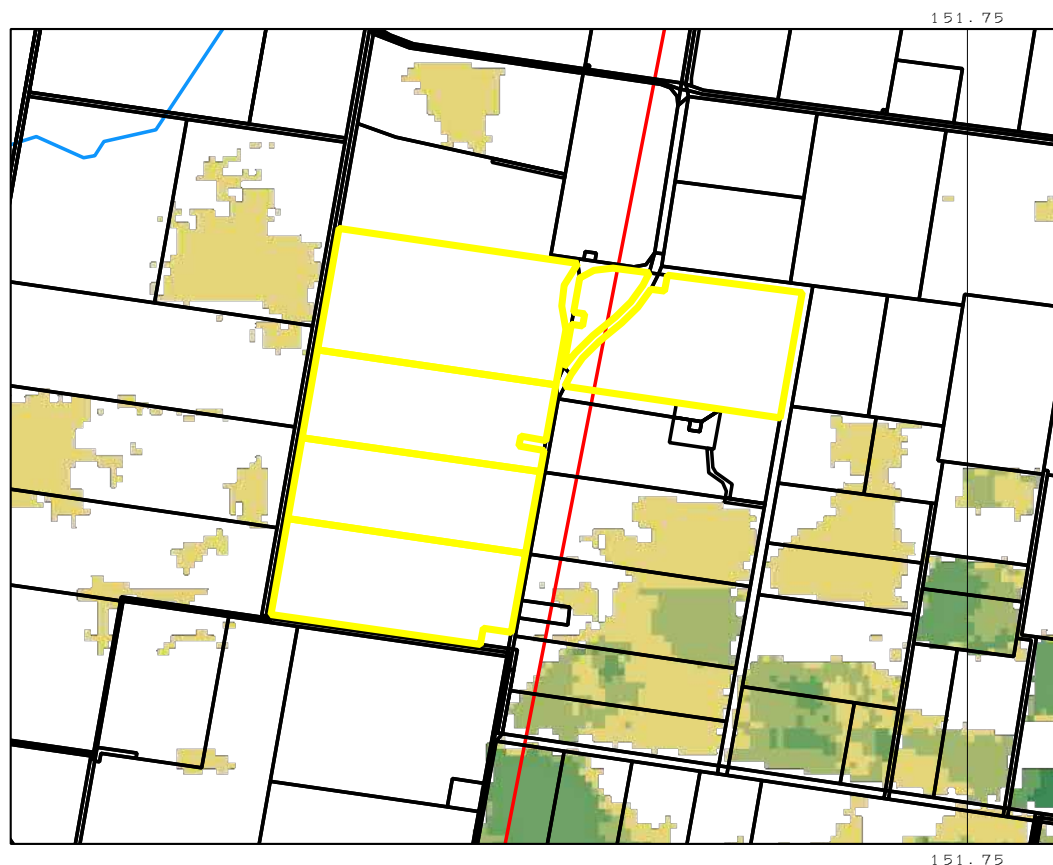
Cadastre

Roads

Watercourse

Water

Estimated frequency map for winter (September) crop (2009 - 2018)



WINTER CROP

FREQUENCY

2009-2017

LEGEND

Crop Frequency

2 or fewer

3

4

5

6

7

8

9

10 or greater

Selected Lot(s) on Plan

Cadastre

Roads

Watercourse

Water

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 6AG1127,3RP220755,2RP93626,8RP25 etc.

Label: paddock11



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

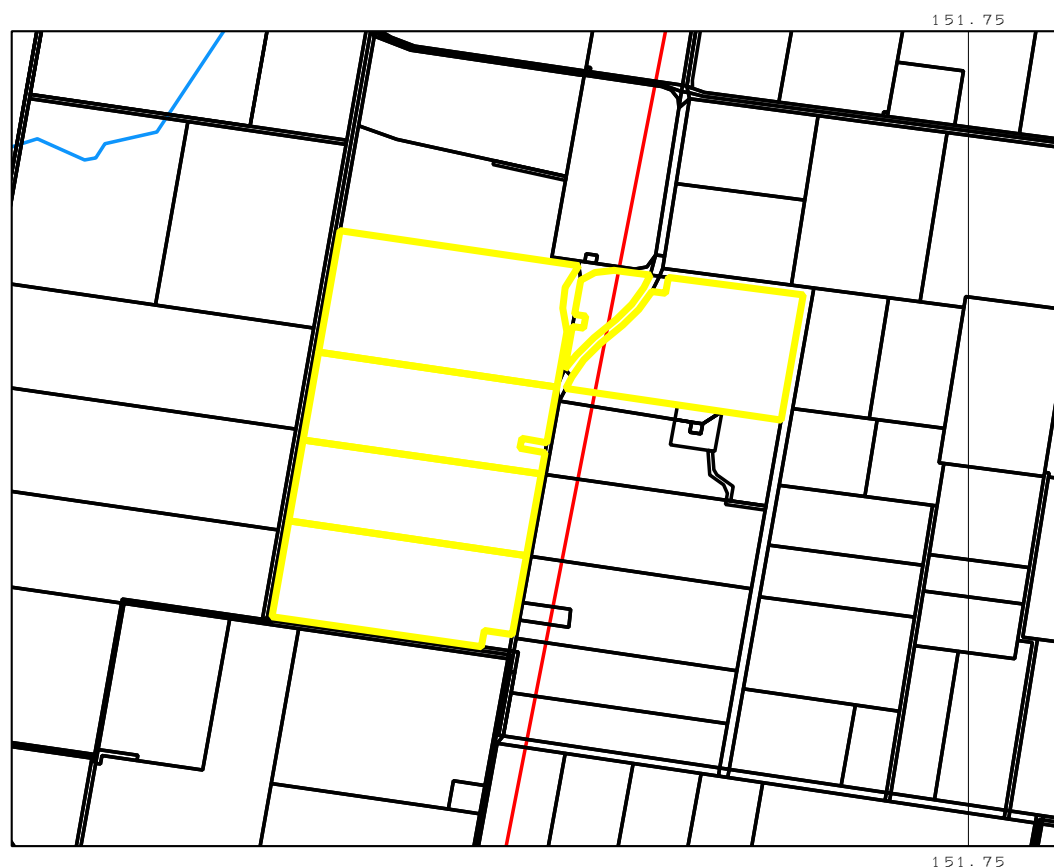
Lot on Plan: 6AG1127,3RP220755,2RP93626,8RP25 etc.

Label: paddock11



Queensland
Government

Estimated frequency map for winter (September) pulse crop (2009 - 2018)



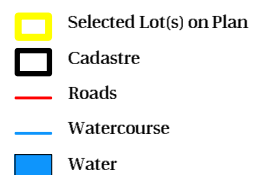
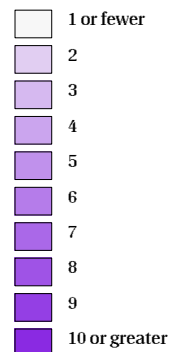
WINTER Pulse

FREQUENCY

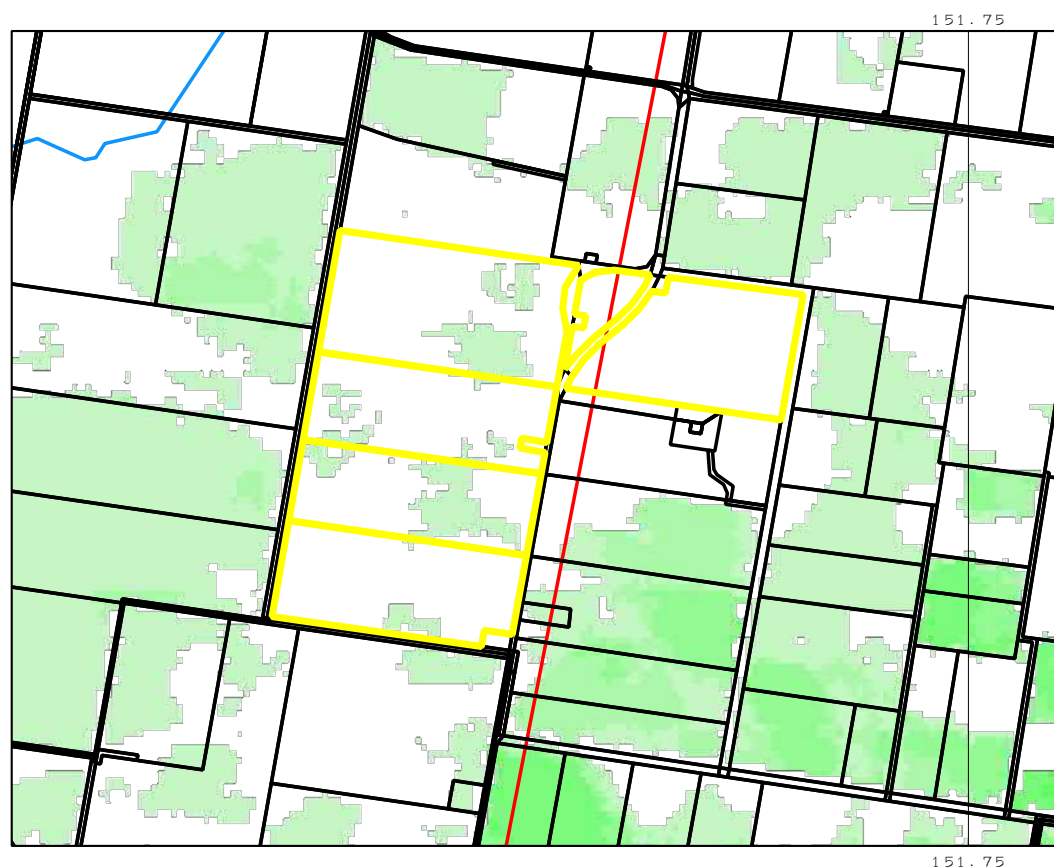
2009-2016

LEGEND

Crop Frequency



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



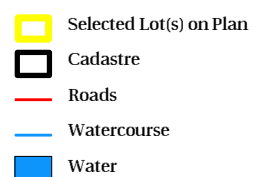
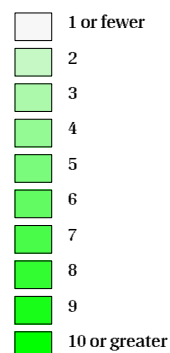
WINTER Cereal

FREQUENCY

2009-2016

LEGEND

Crop Frequency



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

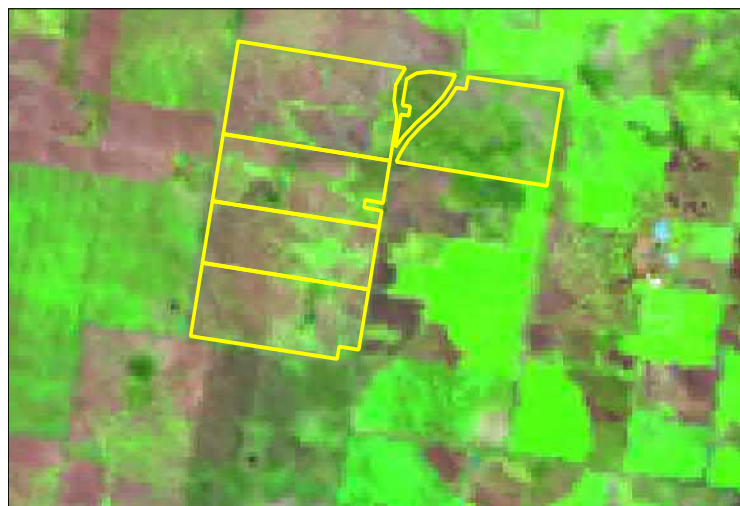
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Label: paddock11

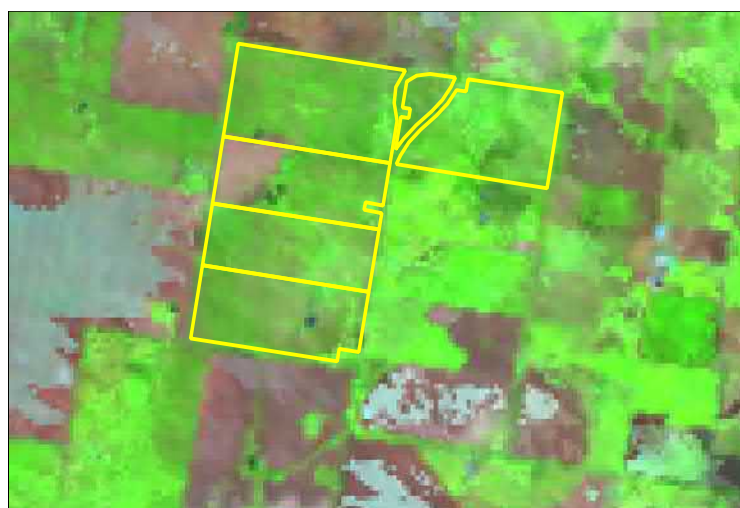


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Government

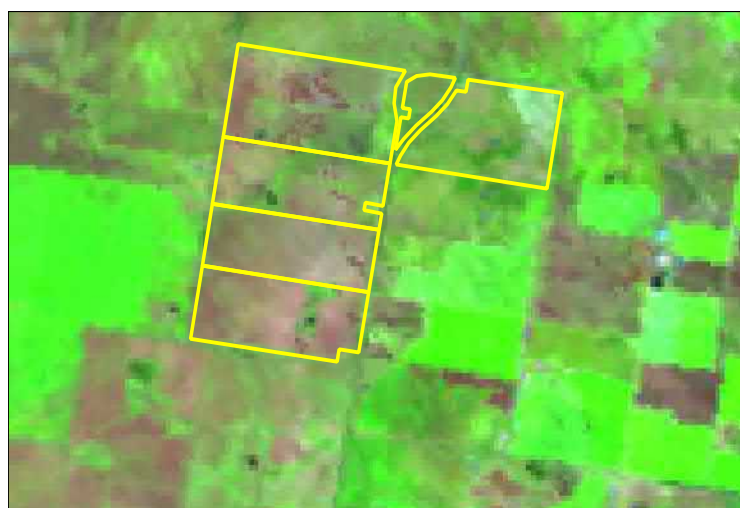
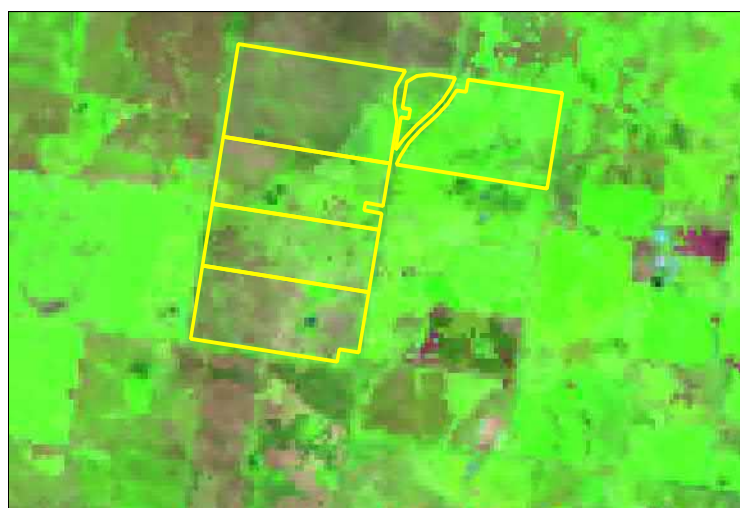
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

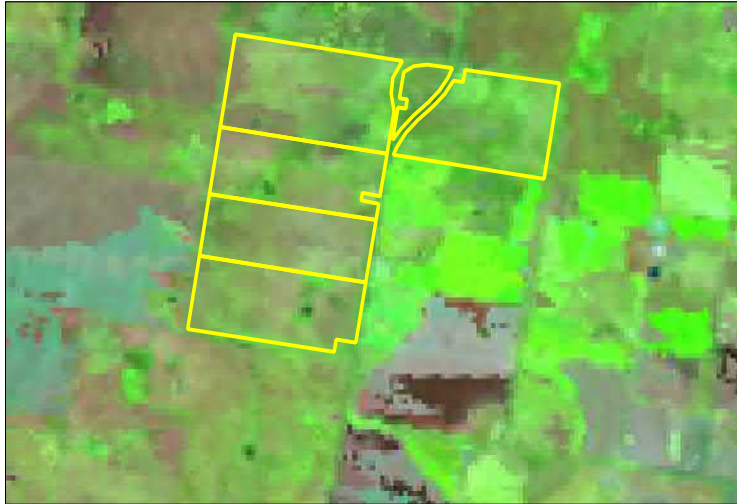
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Label: paddock11

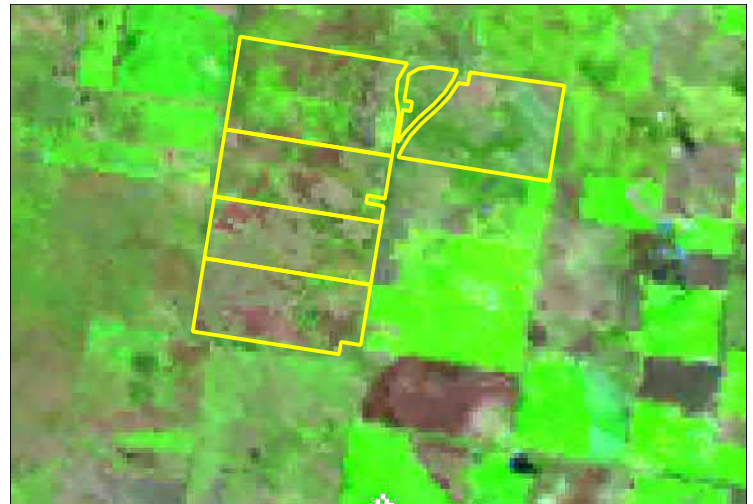
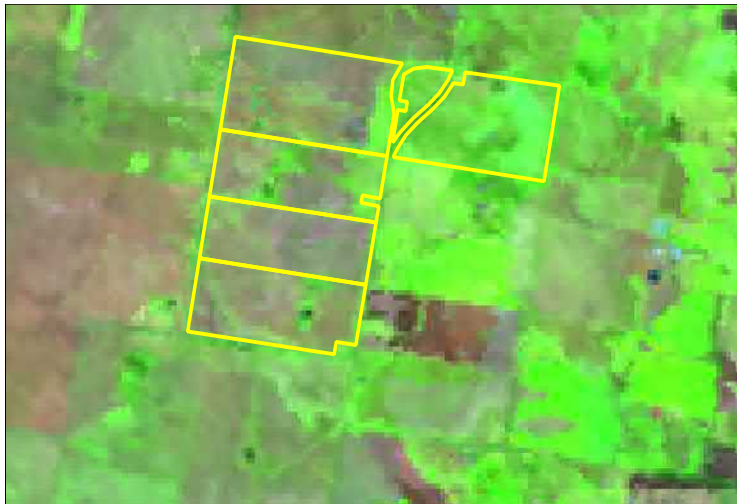


Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

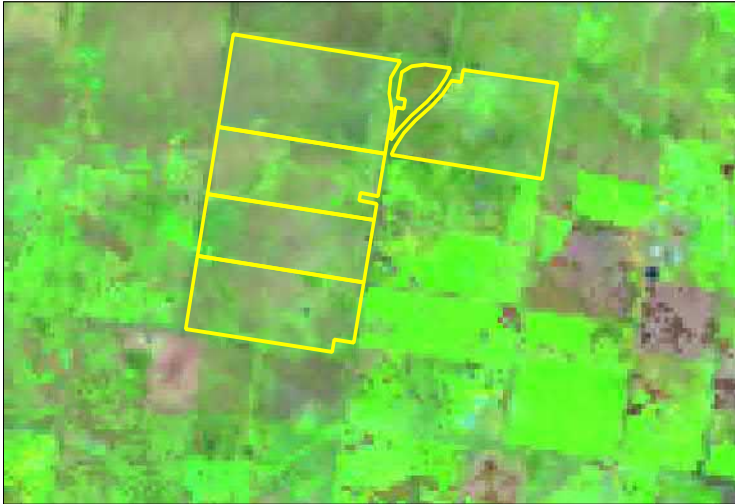
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Label: paddock11

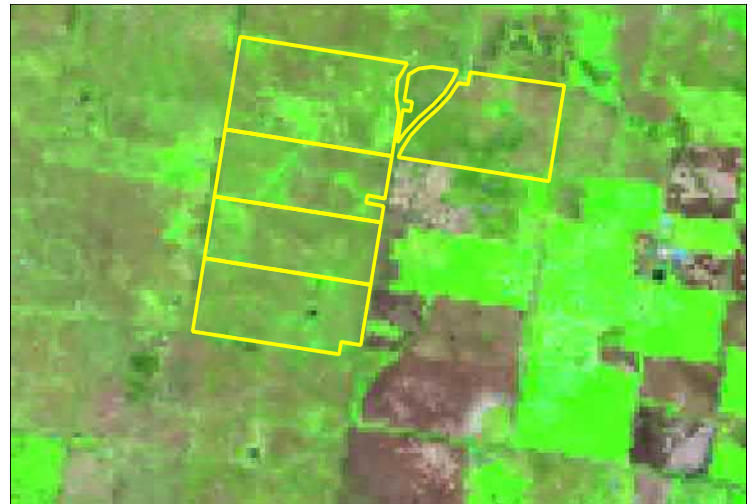
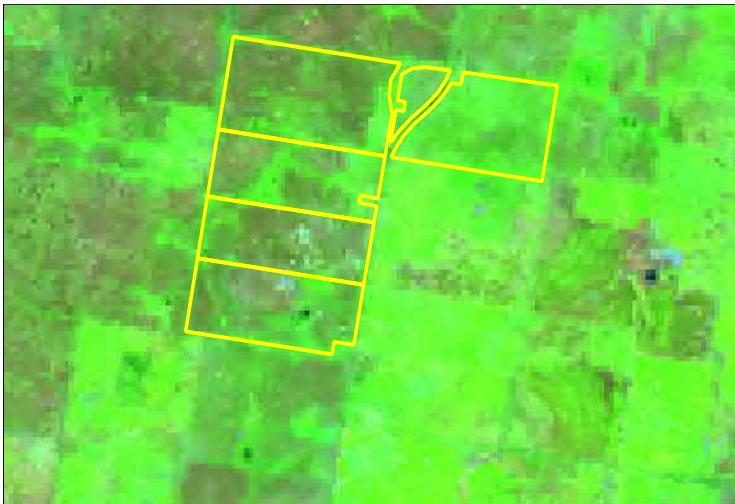


Queensland
Government

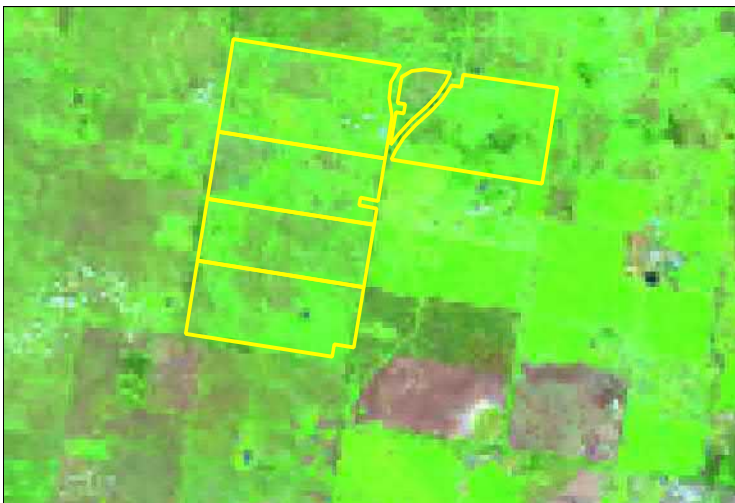
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 6AG1127,3RP220755,2RP93626,8RP25 etc.

Label: paddock11



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

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FORAGE REPORT: CROP FREQUENCY AND TYPE

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July 17, 2019

Lot on Plan: 3462A341746,3421A341699,9SP18836 etc.

Label: paddock35



Queensland
Government

Estimated frequency map for summer (February) crop (2009 - 2018)



Estimated frequency map for winter (September) crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

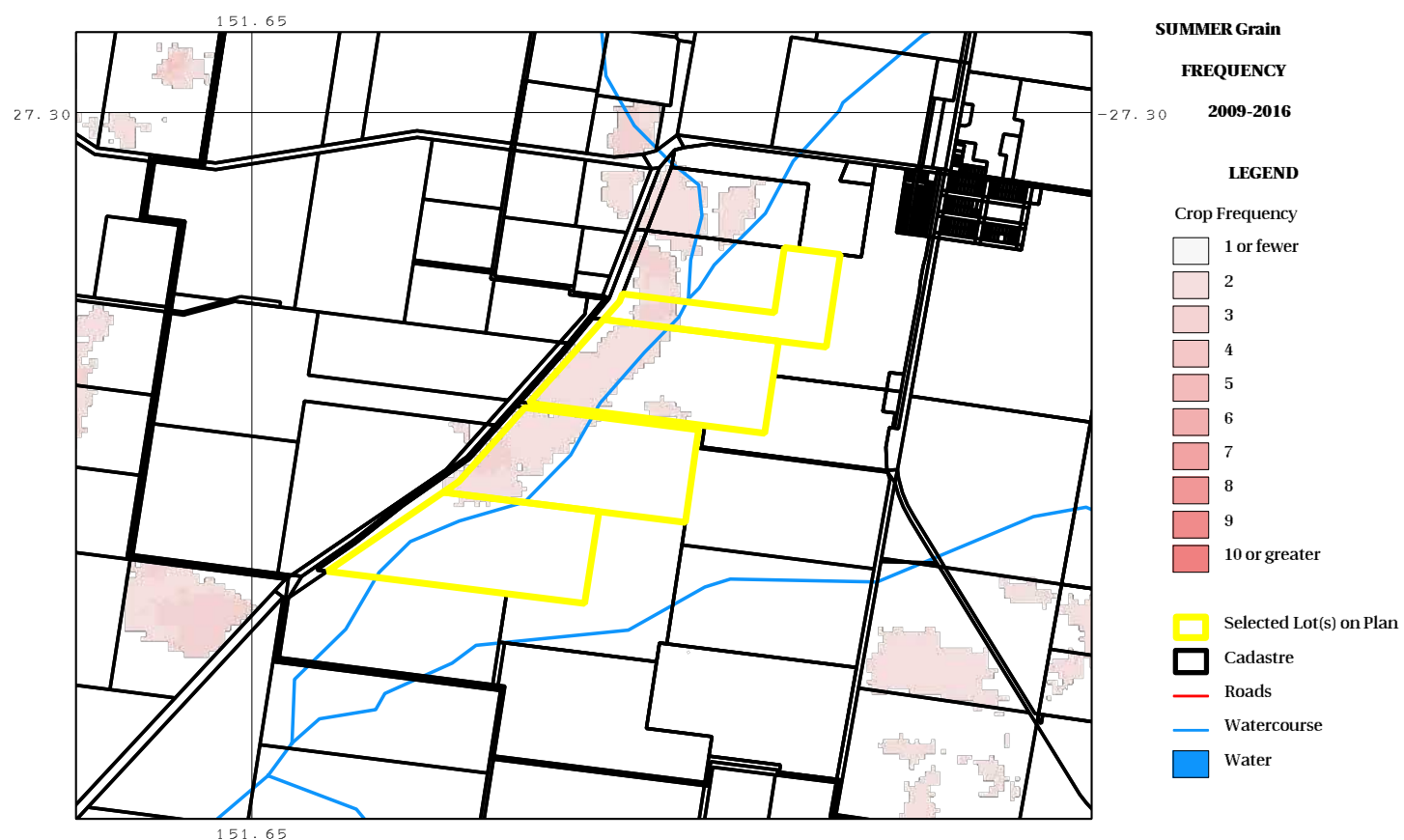
Lot on Plan: 3462A341746,3421A341699,9SP18836 etc.

Label: paddock35



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crop (2009 - 2018)



Estimated frequency map for summer (February) cotton crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

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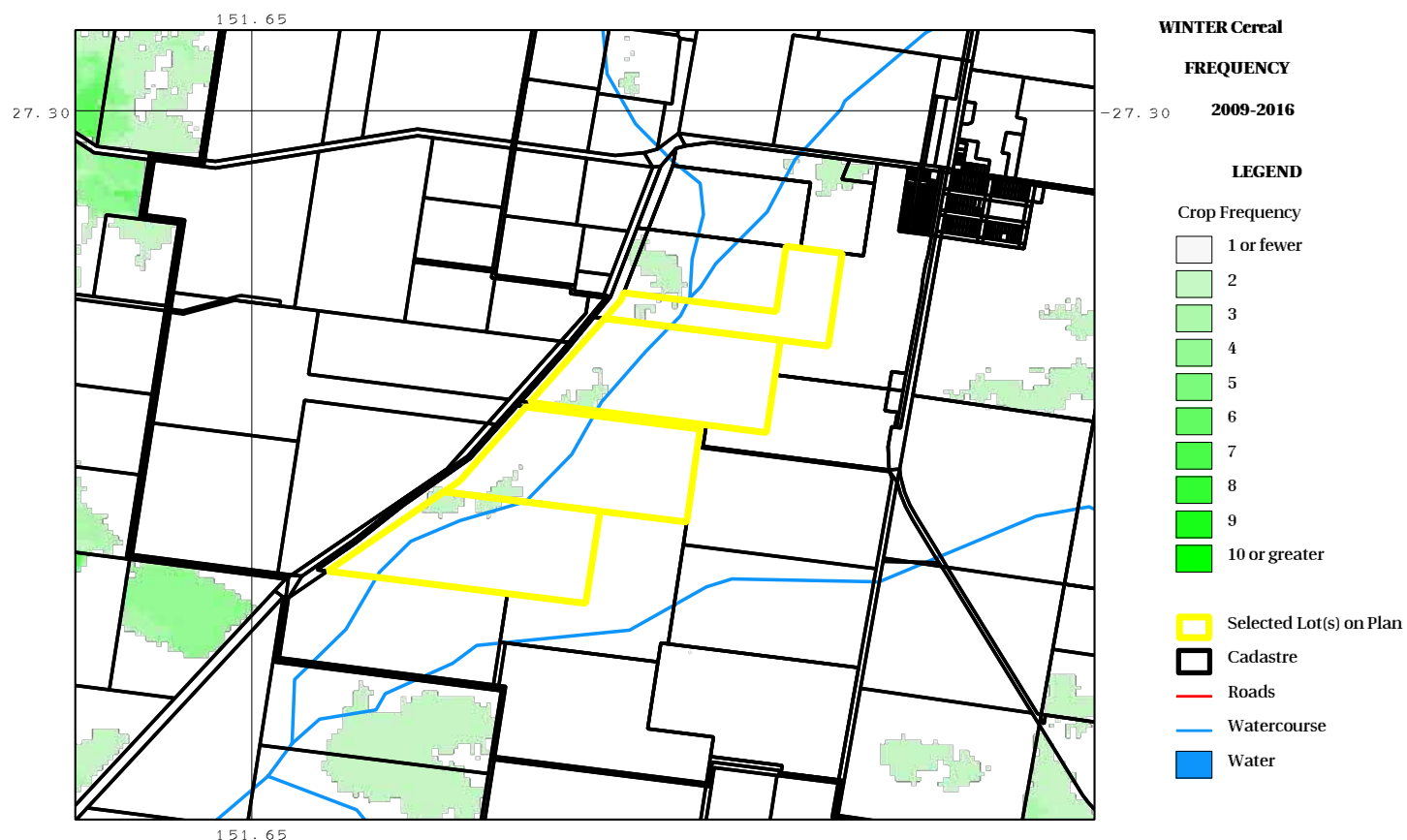


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Estimated frequency map for winter (September) pulse crop (2009 - 2018)



Estimated frequency map for winter (September) cereal crop (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

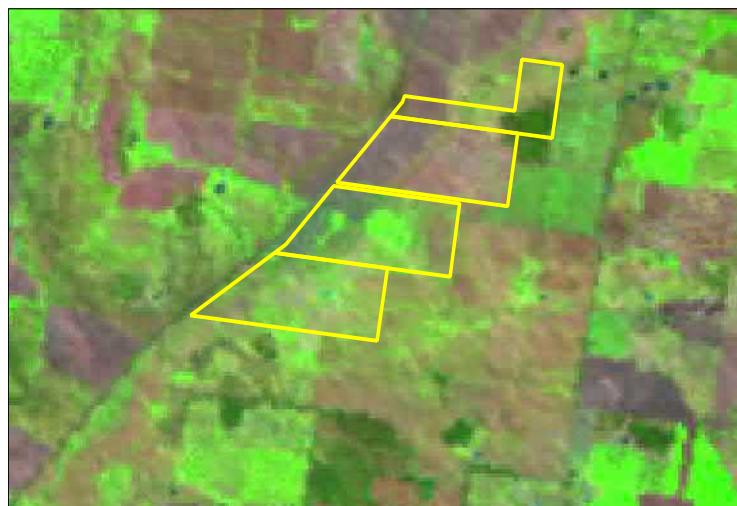
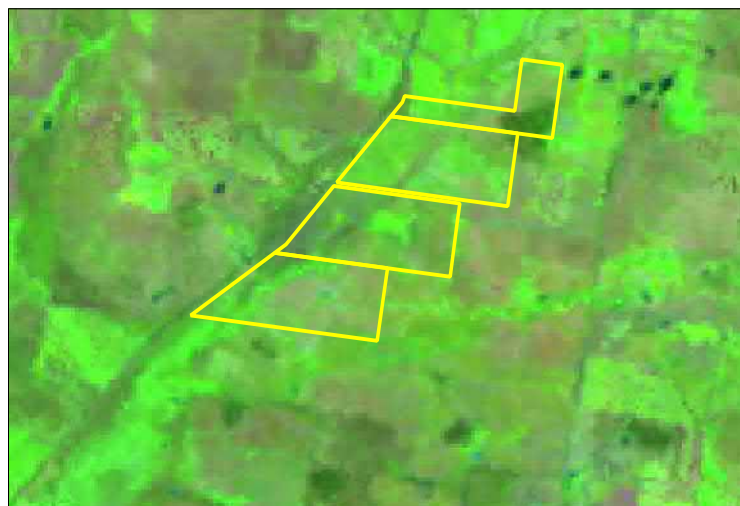
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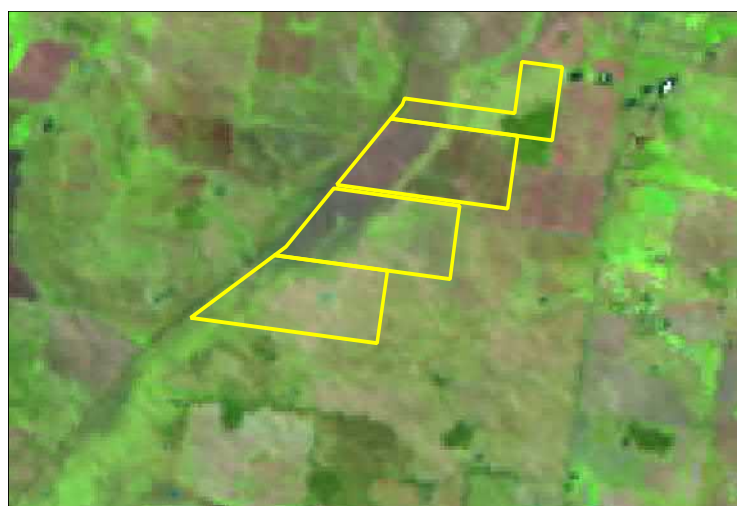
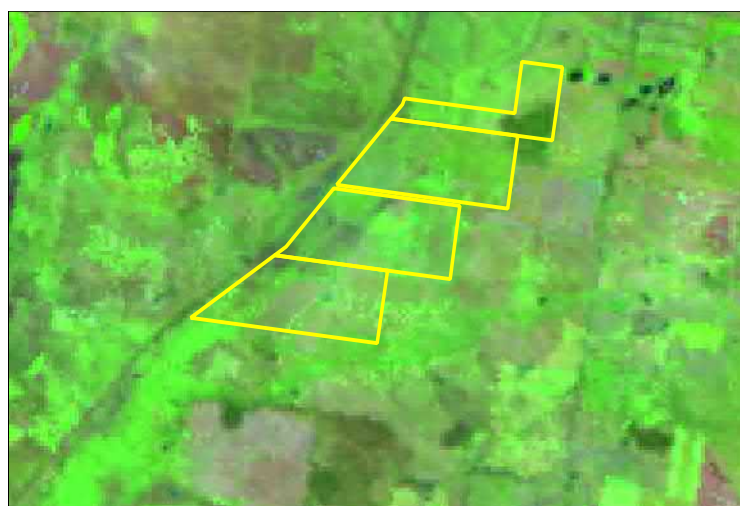


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Government

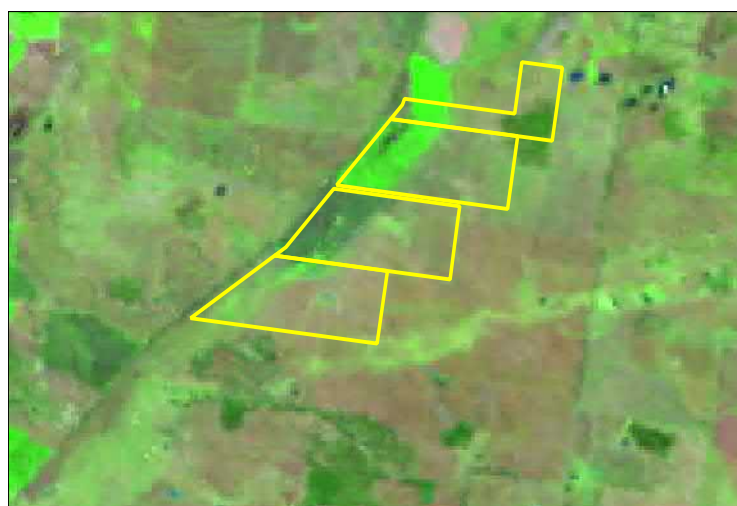
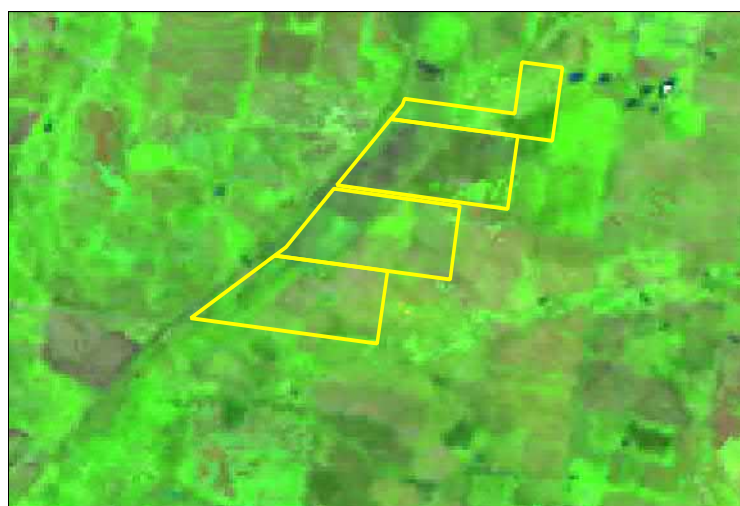
February (left) and September (right) images for 2009



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February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

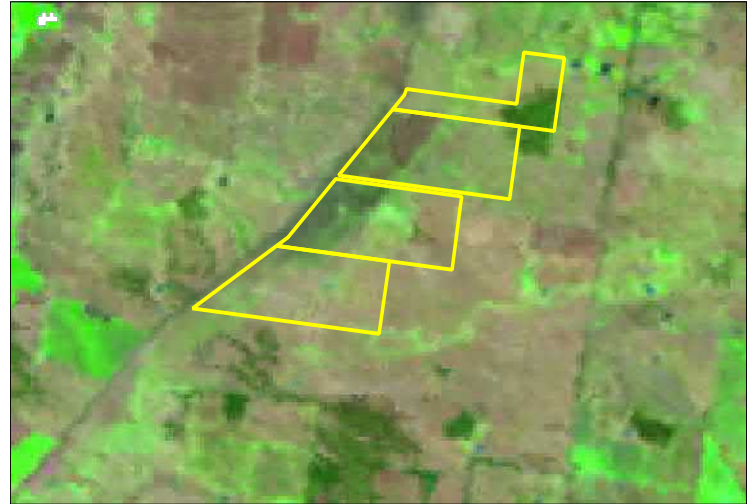
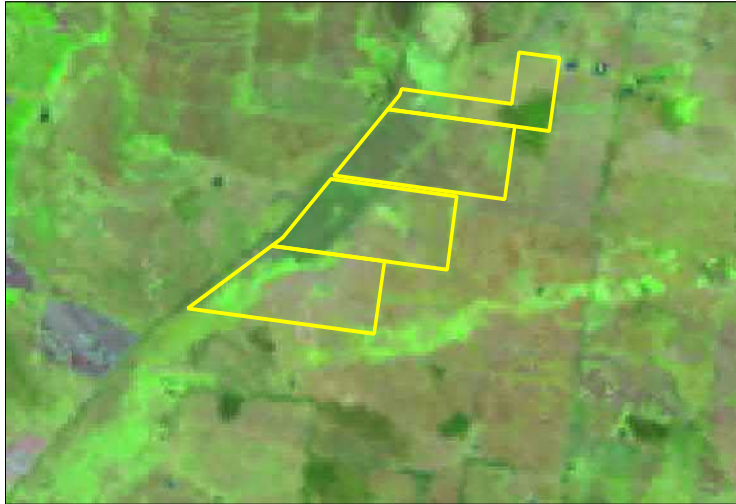
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Label: paddock35

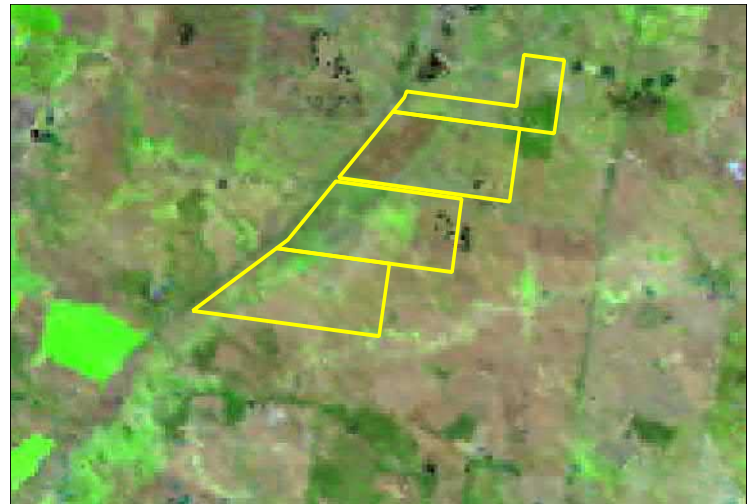
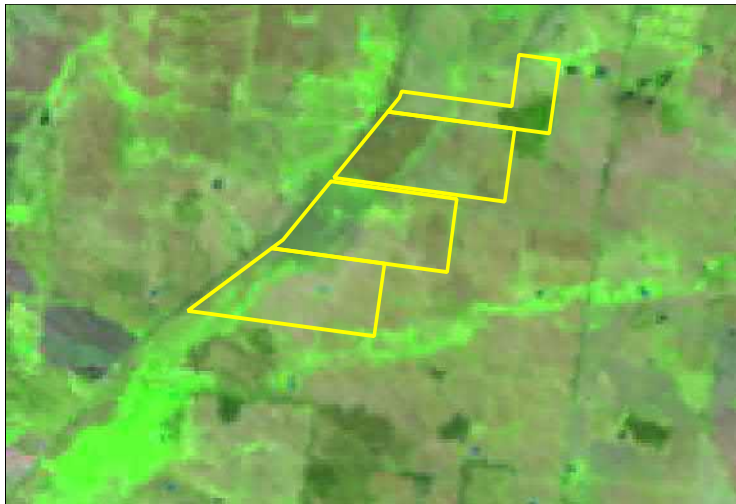


Queensland
Government

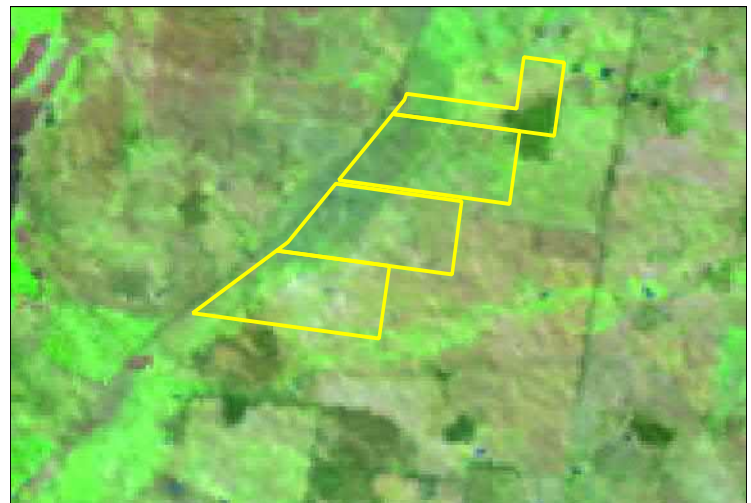
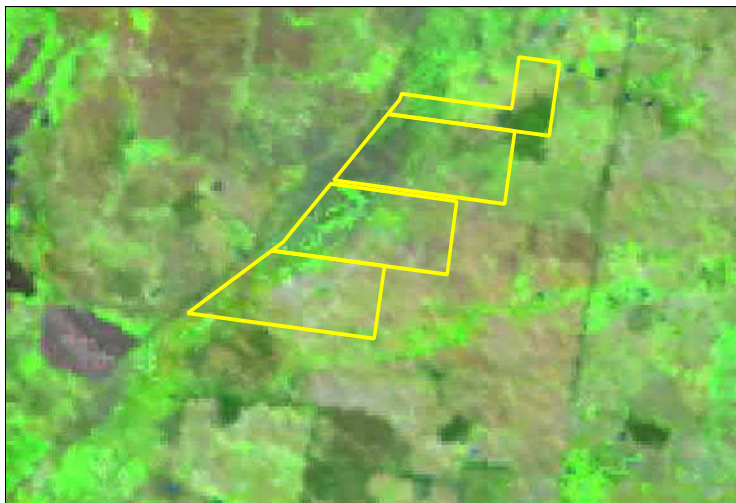
February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

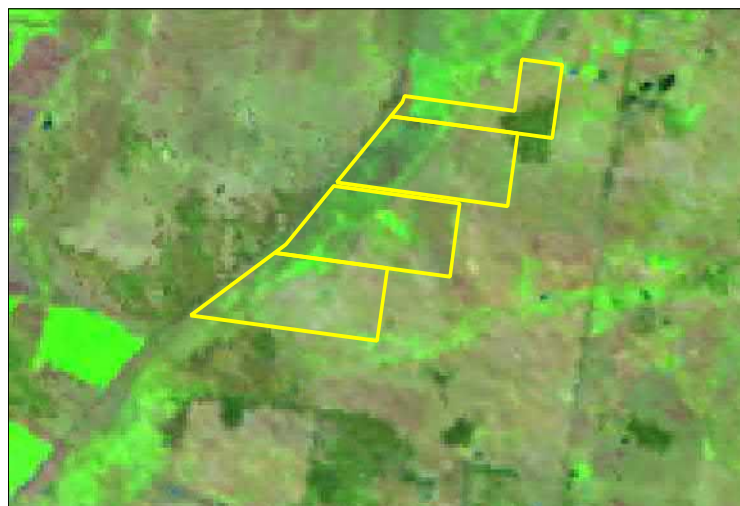
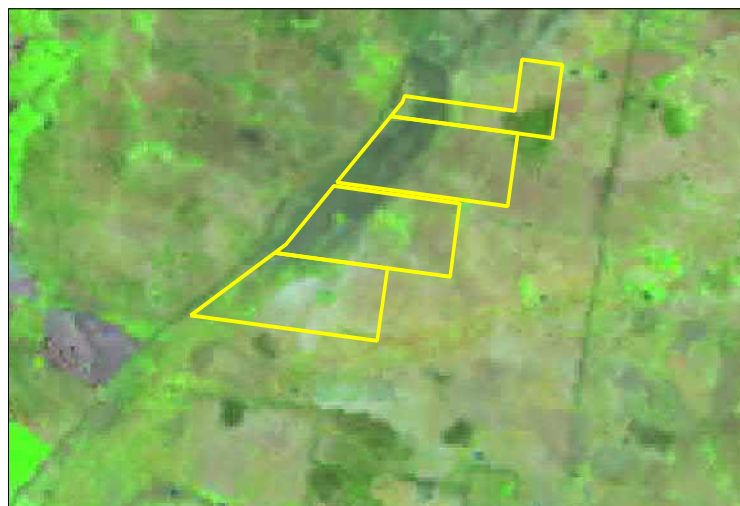
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Label: paddock35

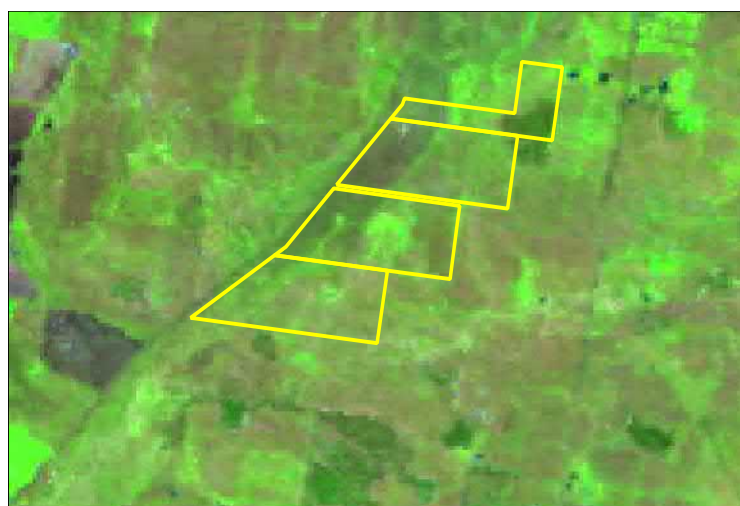
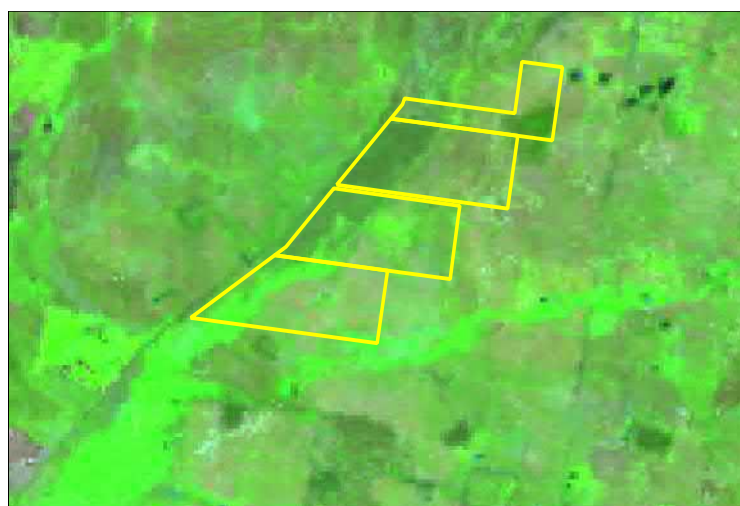


Queensland
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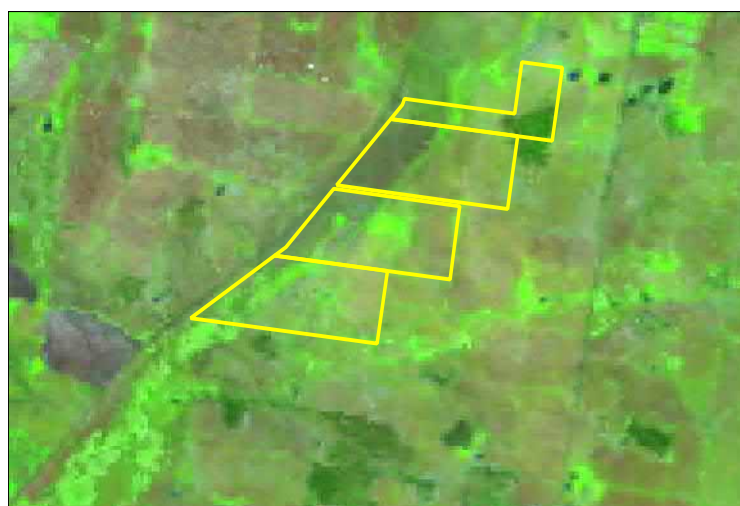
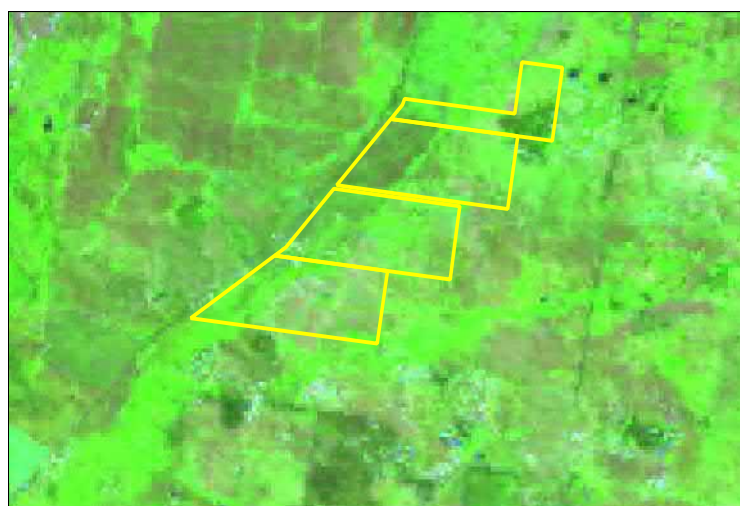
February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

July 17, 2019

Lot on Plan: 3462A341746,3421A341699,9SP18836 etc.

Label: paddock35



Queensland
Government

February (left) and September (right) images for 2018

Image not available

Image not available

Reference

Pringle, M., Schmidt, M., and Tindall, D. (2018): Multi-decade, multi-sensor time-series modelling based on geostatistical concepts to predict broad groups of crops. Remote Sensing of Environment. Vol. 216: 183-200

Disclaimer

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Introduction

This report presents maps of crop frequency for your chosen area, and chosen time period. Maps are based on time-series analysis of satellite imagery (30-m spatial resolution), for both the summer and winter growing seasons, aimed at detecting cycles of greenness in vegetation. Composite satellite images that display the maximum greenness within a summer or winter growing season for each year are also provided, as a visual reference. For further information refer to the FORAGE User Guide (https://data.longpaddock.qld.gov.au/static/forage_user_guide.pdf).

Estimated total crop frequency map (2009 - 2018)



How to interpret the information

Crop-frequency mapping: Coloured areas on the maps indicate locations where active crops have been detected three or more times in the summer or winter growing seasons, for the time period specified. The map on this page shows "Total Frequency" which is a count of the number of times that an active crop was detected. The maps on the following page show the summer and winter crop frequency, respectively. Analysis of satellite imagery can result in some misclassification, so it is recommended to view the composite imagery (see below) to help confirm the presence of a crop in a given season.

Mapping of broad groups of crops: Crop frequency is also separated into estimates of the broad crop groups within the area. This estimation is based on an automated classification approach (see <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/crops> for more detail).

In the winter season the classification differentiates between the groups:

- Cereal crops (e.g. wheat, barley, oats);
- Pulse crops (e.g. chickpea).

In the summer season the classification differentiates between the groups:

- Coarse-grain and pulse (e.g. sorghum, maize, mungbean);
- Cotton crop.

Composite satellite imagery: Due to the limitations of the automated method used to detect active cropping, it is recommended to view the seasonal composite images (pages 5 onward), compiled to represent the maximum greenness (per pixel) within a growing season. Cropped areas will generally appear bright green in the imagery compared with the surrounding landscape. Even if the crop-frequency mapping does not indicate cropping in an area, it is important to check each composite image to confirm that cropping has not been undertaken. Sometimes it will not be possible to clearly identify cropped areas in the imagery, e.g. in some wetter seasons the entire landscape might appear green. In this case, it is recommended to undertake further investigation using other information sources. Note: the composite images are only used to confirm the presence or absence of cropping activity; it is not possible to visually differentiate between the crop groups.

FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

Lot on Plan: 3RP36464,1RP36462,3RP36462,1RP36 etc.

Label: paddock38



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Estimated frequency map for summer (February) crops (2009 - 2018)



Estimated frequency map for winter (September) crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY AND TYPE

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

Lot on Plan: 3RP36464,1RP36462,3RP36462,1RP36 etc.

Label: paddock38



Queensland
Government

Estimated frequency map for summer (February) coarse grain and pulse crops (2009 - 2018)



Estimated frequency map for summer (February) cotton crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

Lot on Plan: 3RP36464,1RP36462,3RP36462,1RP36 etc.

Label: paddock38



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Estimated frequency map for winter (September) cereal crops (2009 - 2018)



Estimated frequency map for winter (September) pulse crops (2009 - 2018)



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

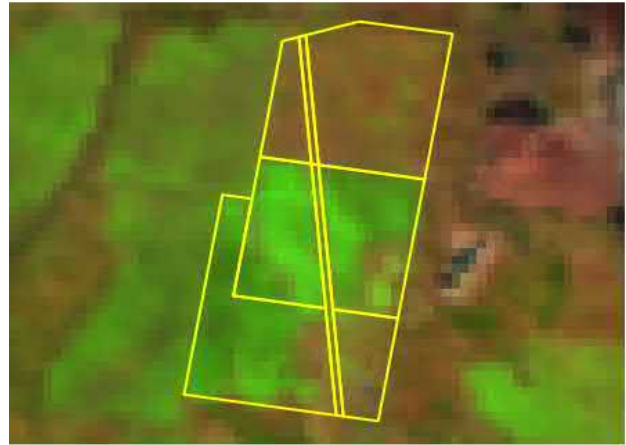
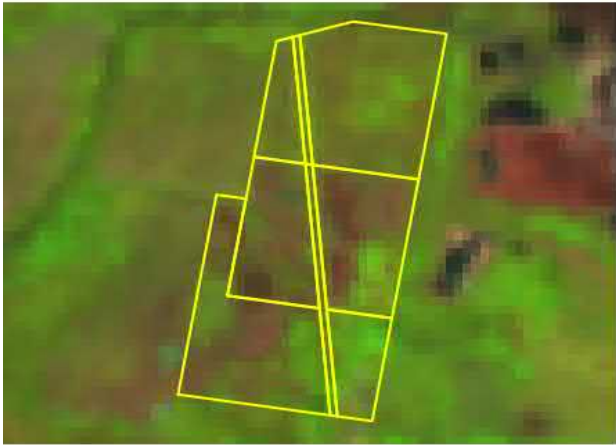
Lot on Plan: 3RP36464,1RP36462,3RP36462,1RP36 etc.

Label: paddock38

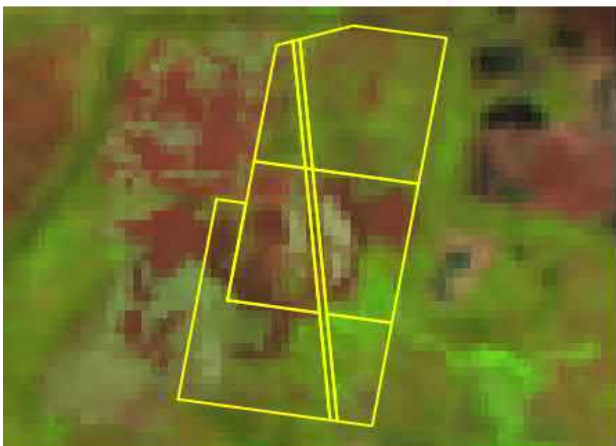


Queensland
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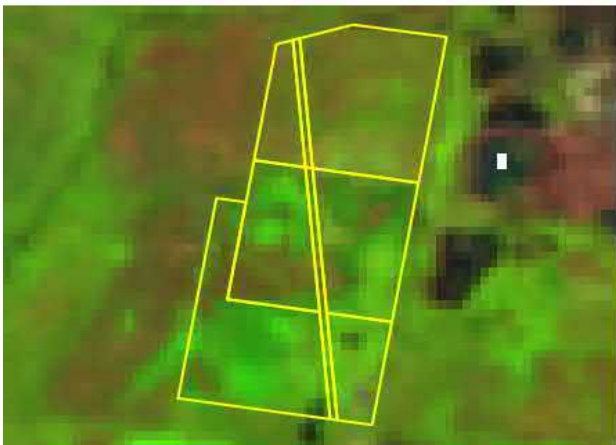
February (left) and September (right) images for 2009



February (left) and September (right) images for 2010



February (left) and September (right) images for 2011



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

Lot on Plan: 3RP36464,1RP36462,3RP36462,1RP36 etc.

Label: paddock38



Queensland
Government

February (left) and September (right) images for 2012



February (left) and September (right) images for 2013



February (left) and September (right) images for 2014



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

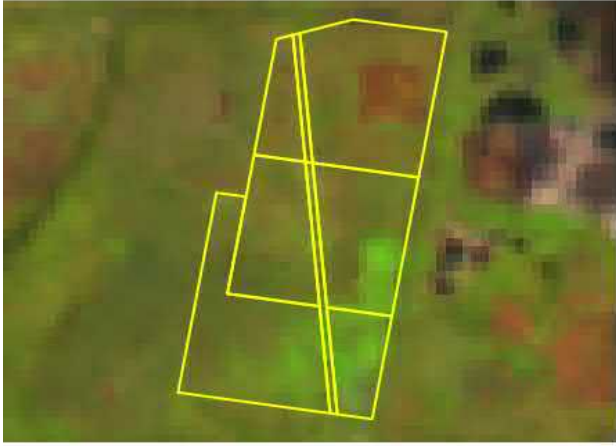
Lot on Plan: 3RP36464, 1RP36462, 3RP36462, 1RP36 etc.

Label: paddock38



Queensland
Government

February (left) and September (right) images for 2015



February (left) and September (right) images for 2016



February (left) and September (right) images for 2017



FORAGE REPORT: CROP FREQUENCY

<http://www.longpaddock.qld.gov.au/forage>

November 11, 2019

Lot on Plan: 3RP36464, 1RP36462, 3RP36462, 1RP36 etc.

Label: paddock38



Queensland
Government

February (left) and September (right) images for 2018



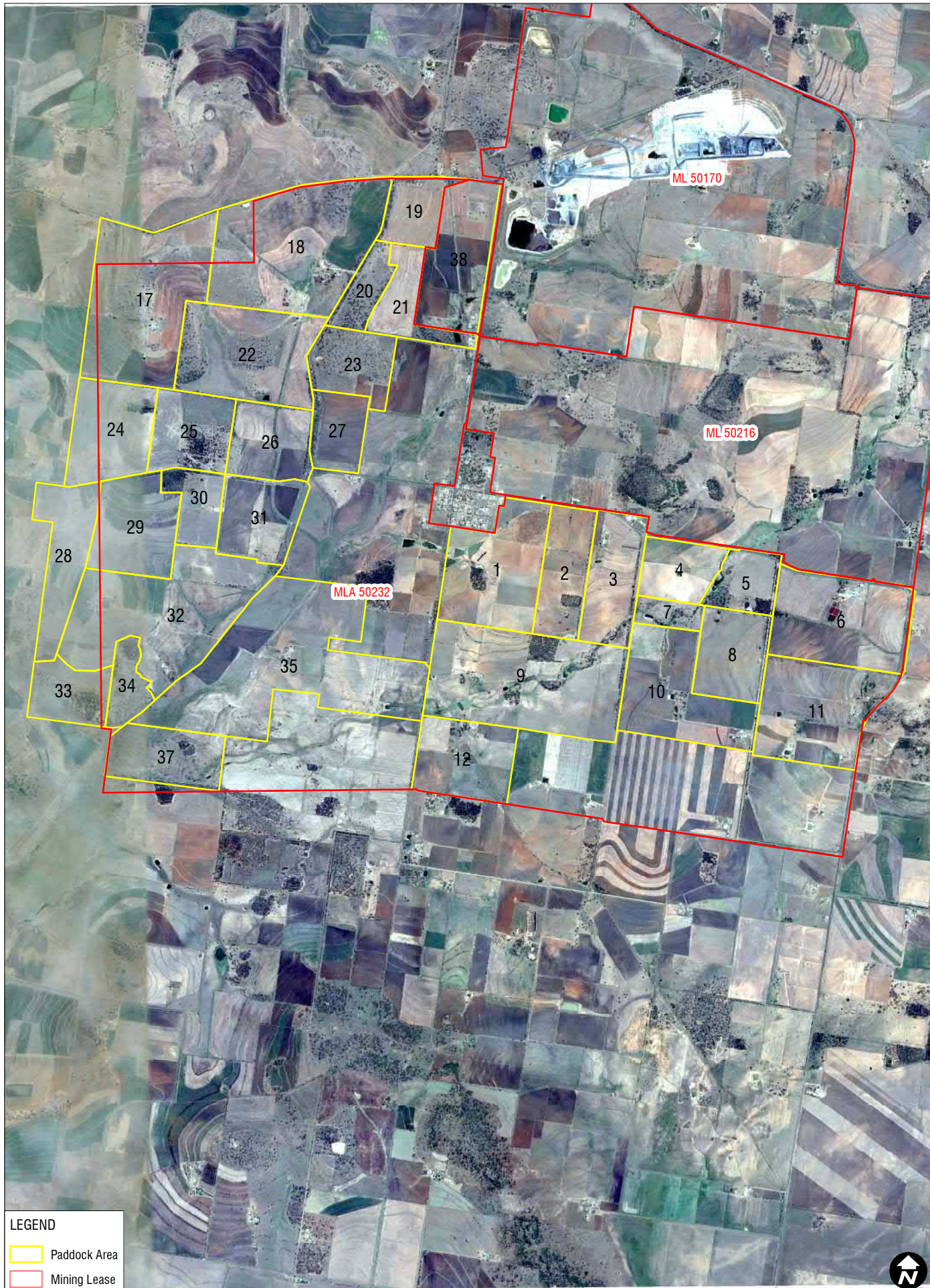
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APPENDIX D

Historical Google Earth Images





H:\Projects\SLR\610-Srds\620-BNVE\620 12454 New Islands\620 1226 New Island Soils Stage 3\Map Data\SLR6201226_Appendix 2004 ML50232.mxd

LEGEND

- Paddock Area
- Mining Lease

0 500 1,000 1,500 2,000
Meters

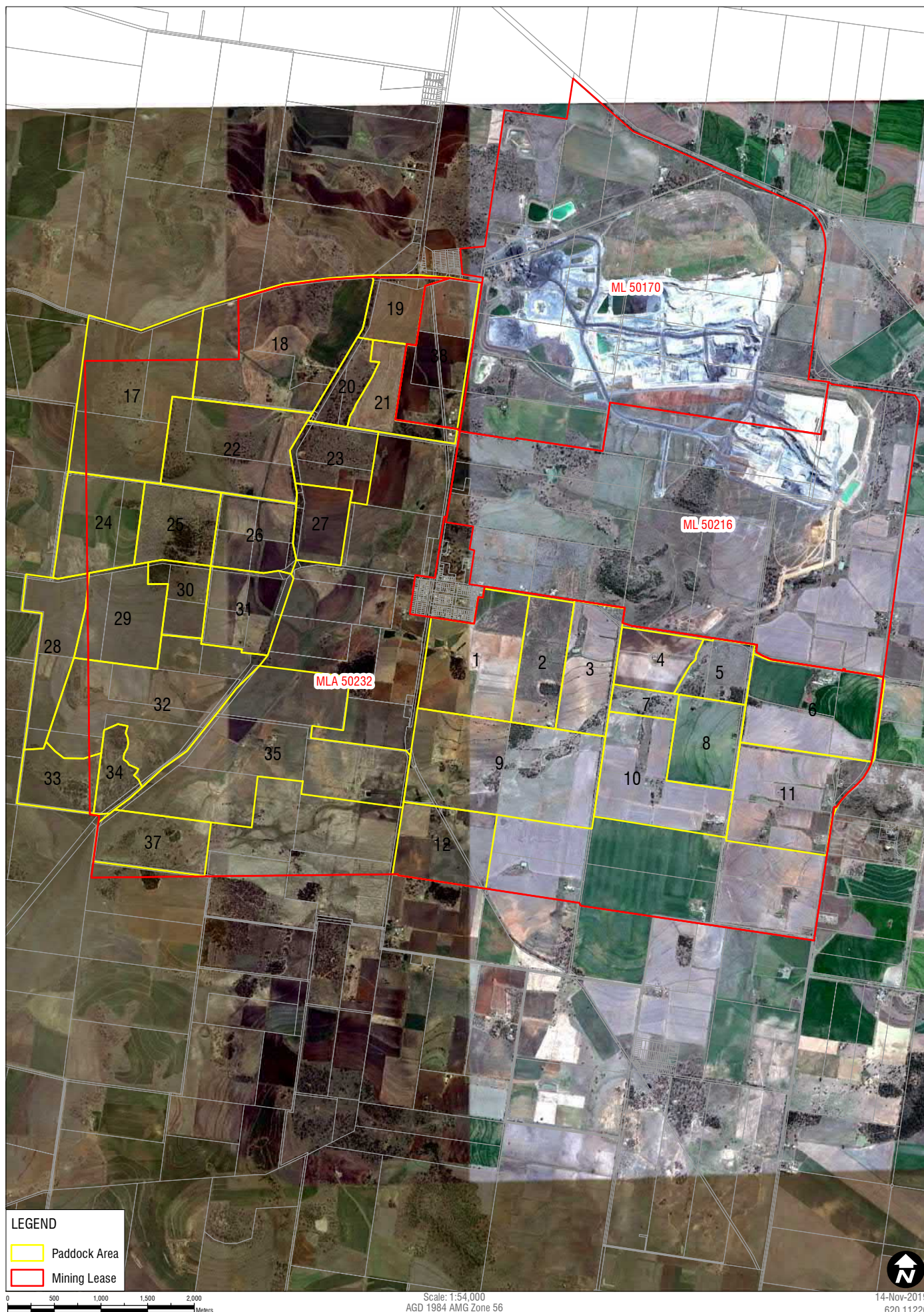
Scale: 1:53,000
AGD 1984 AMG Zone 56

14-Nov-2019
620.11226

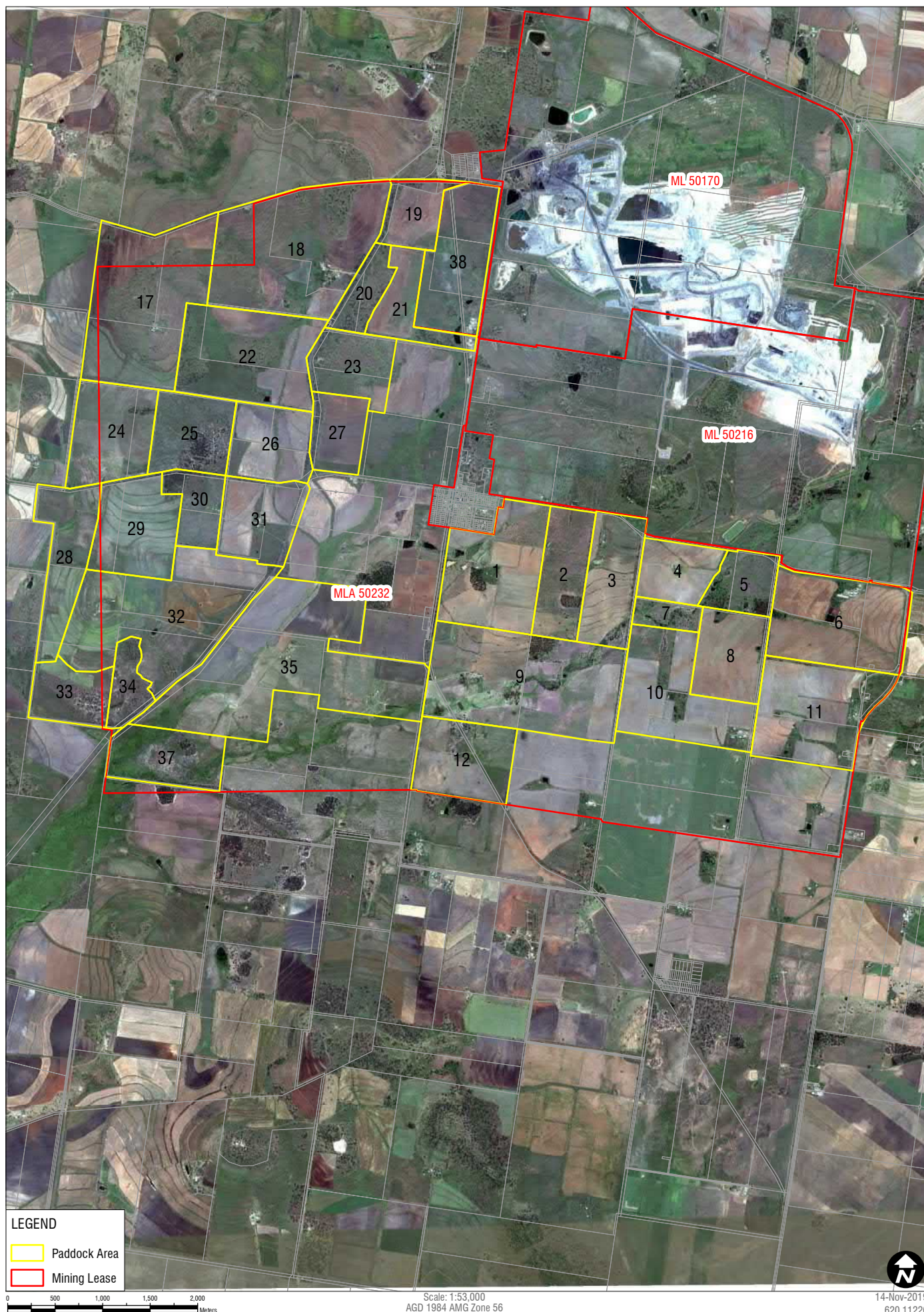
Sheet Size : A4

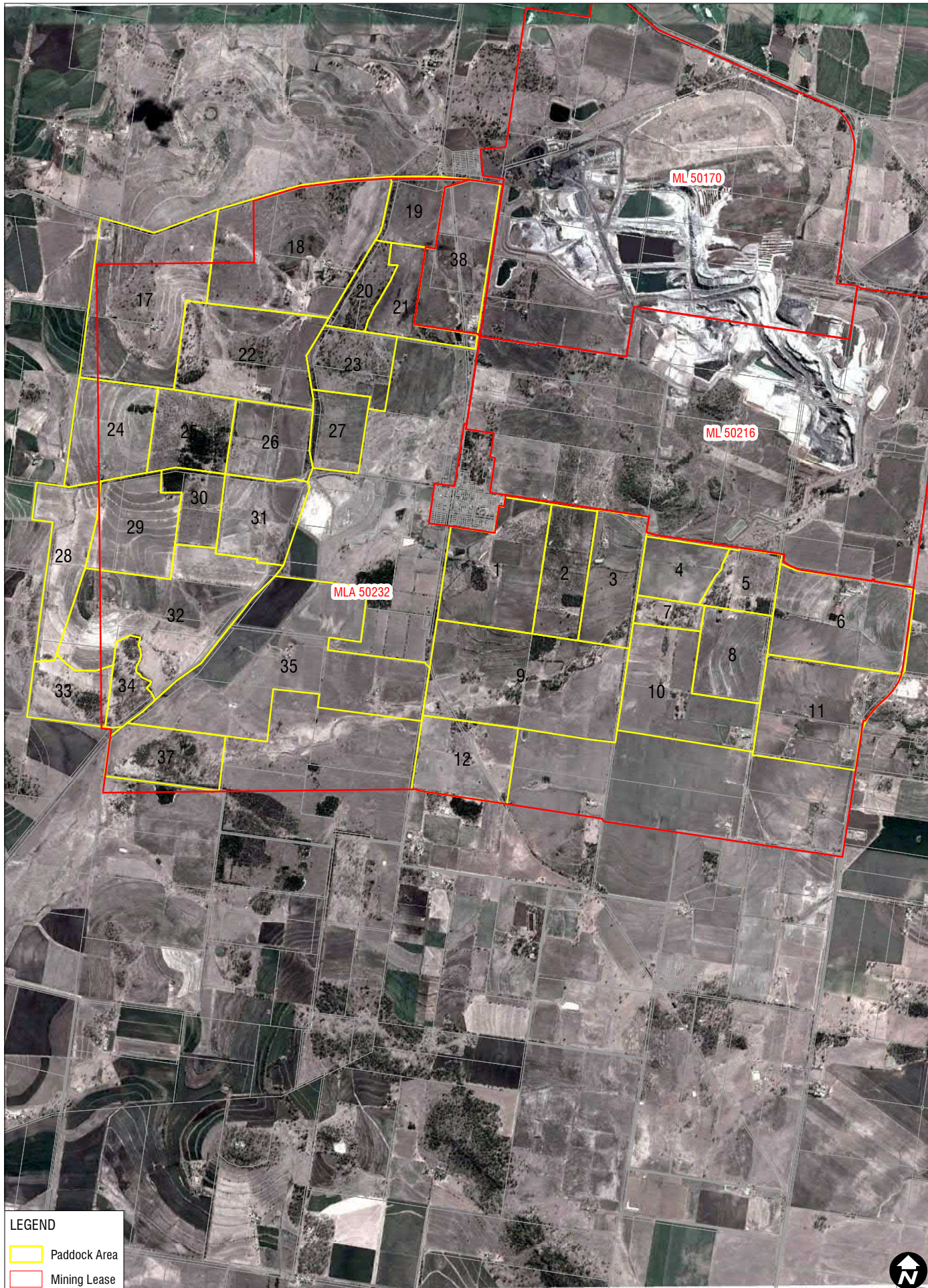
2004

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H:\Projects\SLR\610-Srds\620-BNVE\620.12454 New Island\620.12226 New Island\620.12226 Appendix 2010 ML 50232.mxd

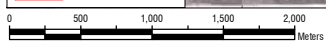




LEGEND

Paddock Area

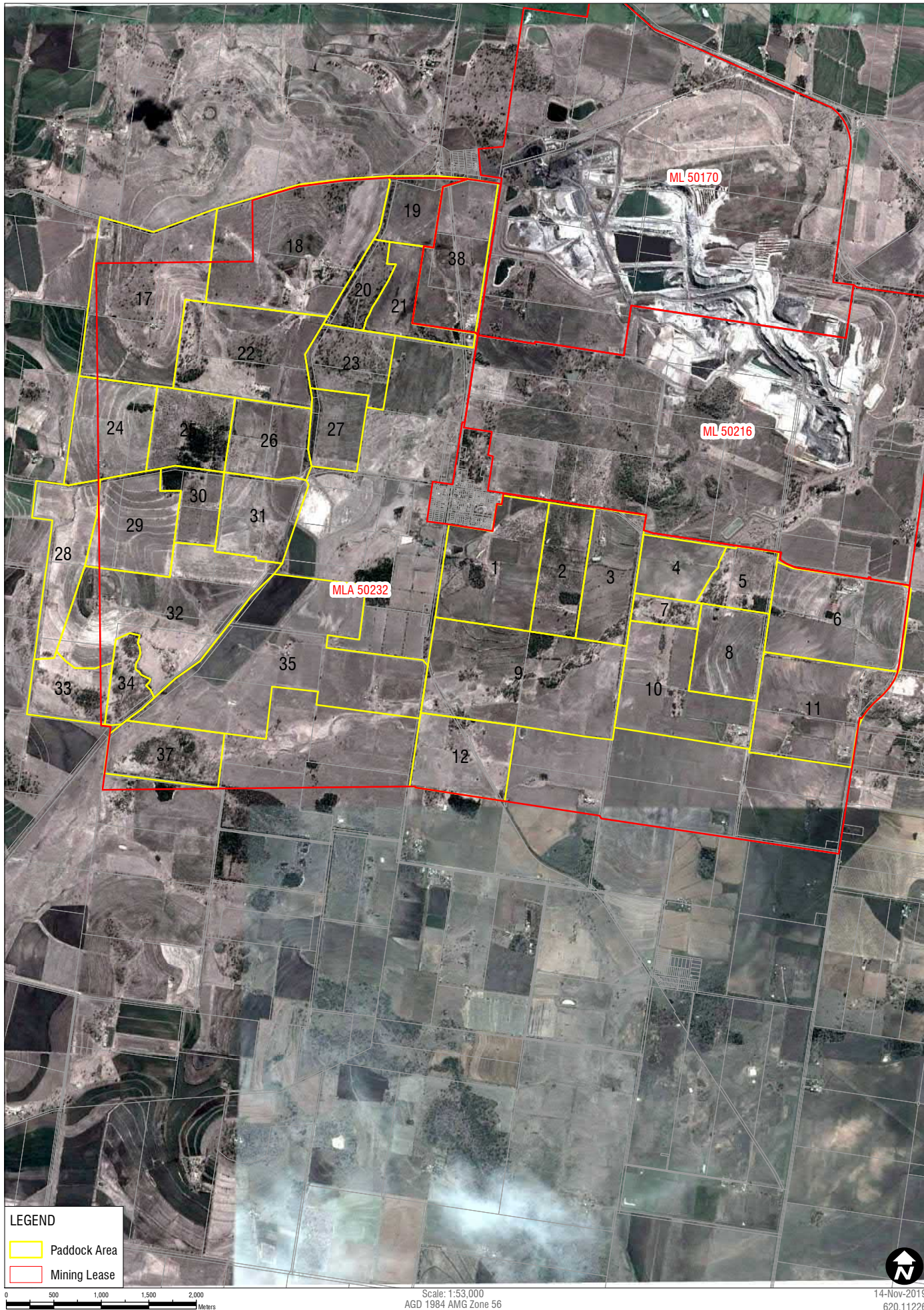
Mining Lease



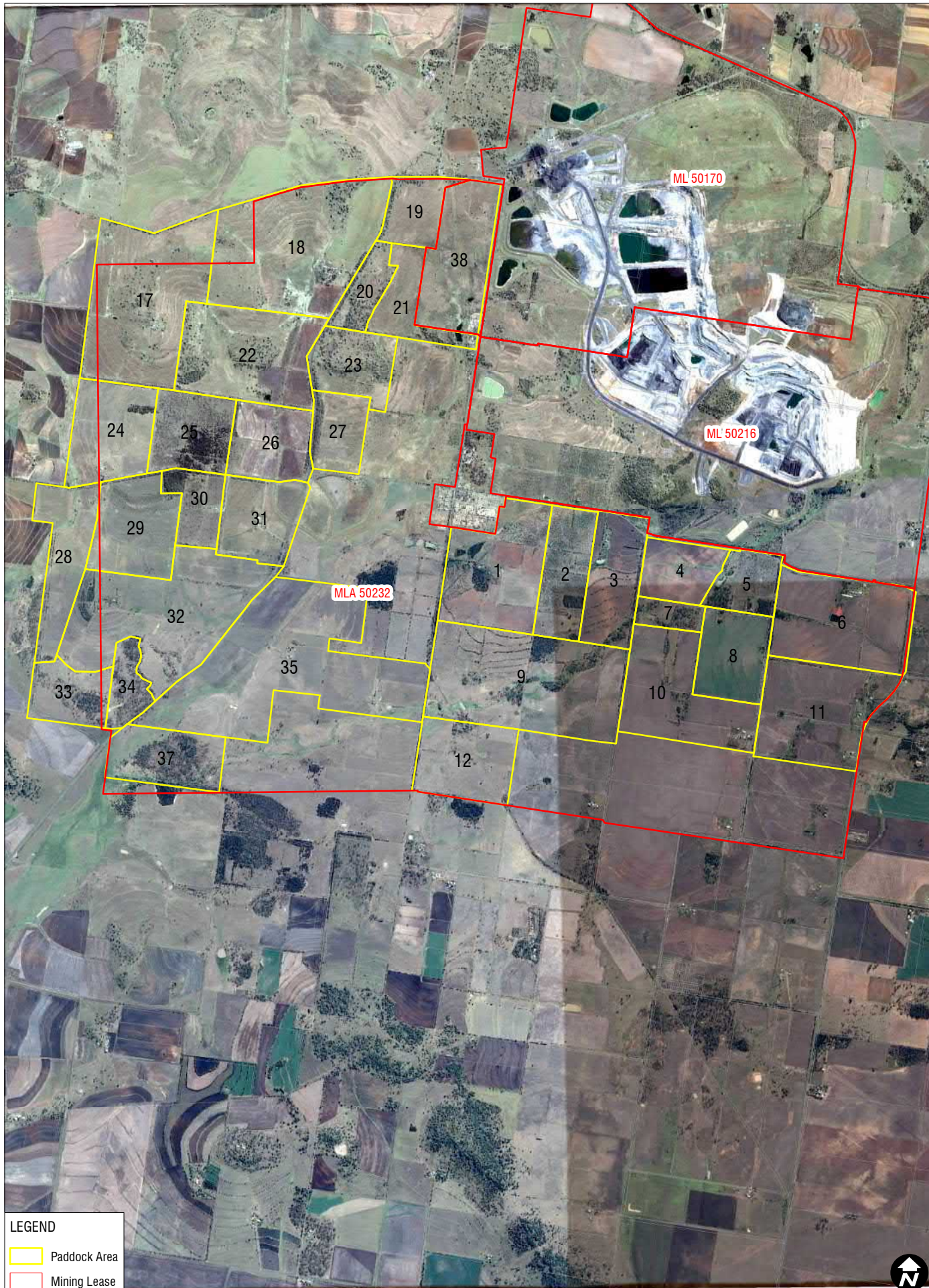
Scale: 1:53,000
AGD 1984 AMG Zone 56

14-Nov-2019
620.11226

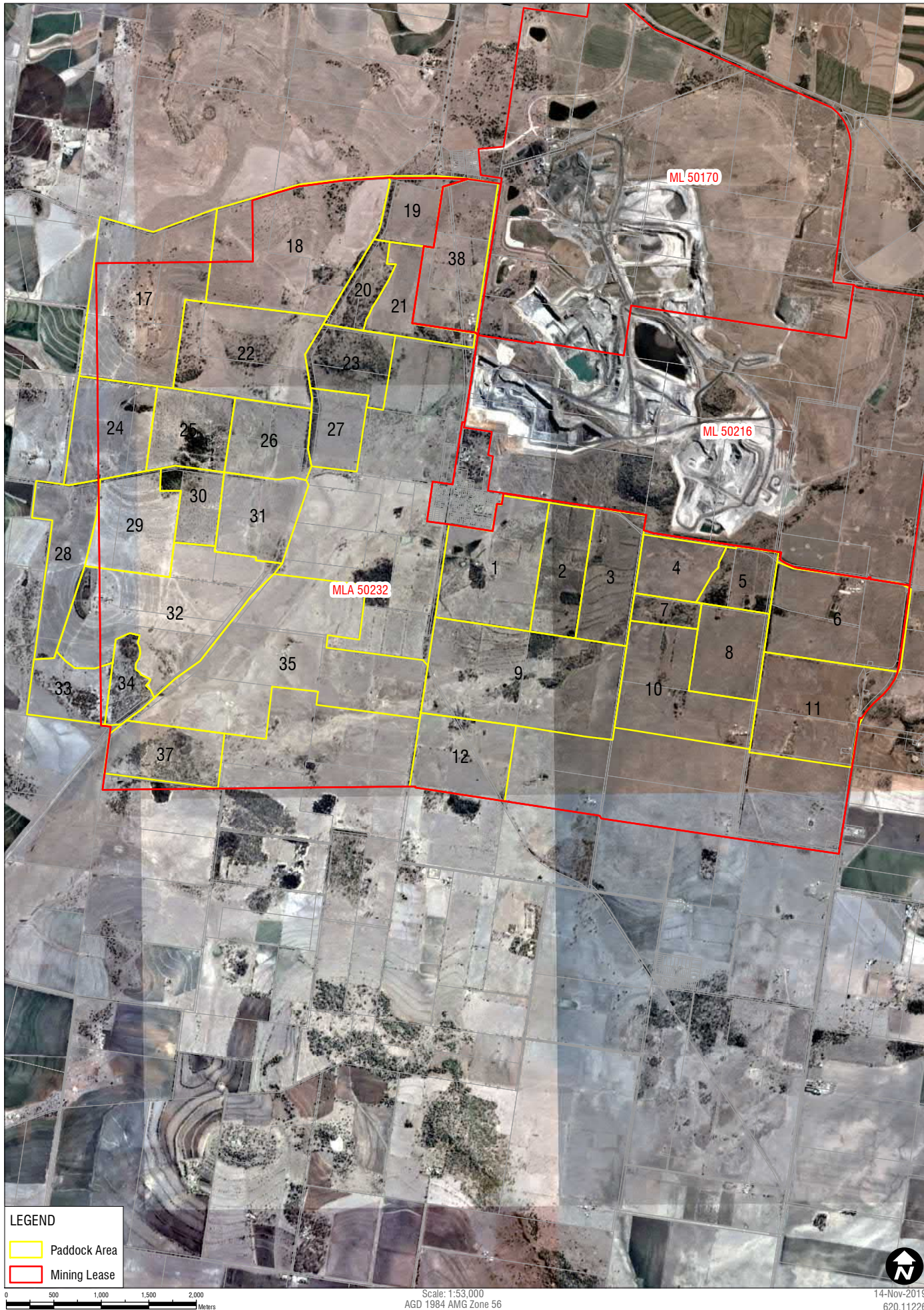
H:\Projects\SLR\610-Srds\620-BNVE\620.12454 New Island\620.11226 New Island Soils Stage 3\Map Data\SLR62011226_Appendix 2011 ML50232.mxd



H:\Projects\SLR\610-SWS\620-BNVE\620.11226 New Island Soils Stage 3\Map Data\SLR\620.11226_Appendix 2012 ML 50232.mxd



H:\Projects\SLR\610-SWS\620-BNE\620-12454-New Islands\620-11226-New Island Soils Stage 3\Map Data\SLR62011226_Appendix 2013 ML50232.mxd



H:\Projects\SLR\610-SWS\620-BNE\620-12454-New Islands\620-11226-New Island Soils Stage 3\Map Data\SLR62011226_Appendix 2017 ML50232.mxd

APPENDIX E

Field Inspection Sites



Manning Vale East



Field Inspection Sites

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Site 64 Manning Vale East

Table 1 Site 64 Summary

Site 64 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	3
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Moreton bay ash, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass
Dominant Weed Species	Marshmallow, turnip weed, soursob, roly poly, liverseed grass, wireweed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 64 Photos



Site 65 Manning Vale East

Table 2 Site 65 Summary

Site 65 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	3
Landform Element	Mid hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass
Dominant Weed Species	Balloon cotton bush, African boxthorn, liverseed grass, roly poly
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 65 Photos



Site 66 Manning Vale East

Table 3 Site 66 Summary

Site 66 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	3
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass
Dominant Weed Species	Prickly pear, African boxthorn, liverseed grass, roly poly, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 66 Photos



Site 67 Manning Vale East

Table 4 Site 67 Summary

Site 67 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Balloon cotton bush, African boxthorn, copperburr, Mayne's pest
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 67 Photos



Site 68 Manning Vale East

Table 5 Site 68 Summary

Site 68 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Mid hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	African boxthorn, copperburr, Mayne's pest, yellow burr daisy, prickly pear, roly poly
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 68 Photos



Site 69 Manning Vale East

Table 6 Site 69 Summary

Site 69 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Mid hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	African boxthorn, kidney weed, Mayne's pest, prickly pear
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 69 Photos



Site 70 Manning Vale East

Table 7 Site 70 Summary

Site 70 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	African boxthorn, Mayne's pest, prickly pear, roly poly, copperburr, kidney weed, balloon cotton bush
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 70 Photos



Site 71 Manning Vale East

Table 8 Site 71 Summary

Site 71 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	QLD bluegrass, chloris, burr medic, Rhodes grass
Dominant Weed Species	African boxthorn, prickly pear, Mayne's pest,
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 71 Photos



Site 72 Manning Vale East

Table 9 Site 72 Summary

Site 72 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, Mayne's pest, prickly pear, roly poly
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 72 Photos



Site 96 Manning Vale East

Table 10 Site 96 Summary

Site 96 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	3
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass
Dominant Weed Species	African boxthorn, turnip weed, marshmallow, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 96 Photos



Site 97 Manning Vale East

Table 11 Site 97 Summary

Site 97 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	3
Landform Element	Lower hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Mayne's pest, hairy panic, roly poly, liverseed grass, African boxthorn, prickly pear, turnip weed
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 97 Photos



Site 98 Manning Vale East

Table 12 Site 98 Summary

Site 98 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	3
Landform Element	Lower hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow
Dominant Pasture Species	Chloris, QLD bluegrass
Dominant Weed Species	Mayne's pest, hairy panic, roly poly, liverseed grass, African boxthorn, prickly pear, turnip weed
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes, no crop sown
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 98 Photos



Site 99 Manning Vale East

Table 13 Site 99 Summary

Site 99 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Chloris, QLD bluegrass, burr medic
Dominant Weed Species	Mayne's pest, roly poly, liverseed grass, African boxthorn, prickly pear, kidney weed
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 99 Photos



Site 100 Manning Vale East

Table 14 Site 100 Summary

Site 100 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Soursob, roly poly, turnip weed, African boxthorn, copperburr, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 100 Photos



Site 101 Manning Vale East

Table 15 Site 101 Summary

Site 101 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Lower hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, chloris, burr medic
Dominant Weed Species	African boxthorn, Mayne's pest, kidney weed, prickly pear, roly poly
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 101 Photos



Site 102 Manning Vale East

Table 16 Site 102 Summary

Site 102 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box, weeping myall
Dominant Pasture Species	Chloris, burr medic
Dominant Weed Species	African boxthorn, kidney weed, Mayne's pest, prickly pear, roly poly, liverseed grass
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 102 Photos



Site 103 Manning Vale East

Table 17 Site 103 Summary

Site 103 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	African boxthorn, Mayne's pest, prickly pear, roly poly, copperburr, balloon cotton bush
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 103 Photos



Site 104 Manning Vale East

Table 18 Site 104 Summary

Site 104 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	African boxthorn, prickly pear, Mayne's pest, liverseed grass, roly poly, copperburr, wireweed
Groundcover	50%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 104 Photos



Site 105 Manning Vale East

Table 19 Site 105 Summary

Site 105 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	1
Landform Element	Hillslope crest
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, weeping myall
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	African boxthorn, prickly pear, Mayne's pest, liverseed grass, roly poly, copperburr, wireweed, hairy panic
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 105 Photos



Site 106 Manning Vale East

Table 20 Site 106 Summary

Site 106 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	1
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris, burr medic
Dominant Weed Species	African boxthorn, copperburr, Mayne's pest, roly poly, prickly pear
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 106 Photos



Site 107 Manning Vale East

Table 21 Site 107 Summary

Site 107 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	2
Landform Element	Hillslope crest
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Mayne's pest, roly poly, African boxthorn, prickly pear, kidney weed, copperburr
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 107 Photos



Site 108 Manning Vale East

Table 22 Site 108 Summary

Site 108 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	3
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Mayne's pest, hairy panic, roly poly, liverseed grass, African boxthorn, prickly pear, cobblers peg, turnip weed, fleabane, black thistle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 108 Photos



Site 109 Manning Vale East

Table 23 Site 109 Summary

Site 109 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	4
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	Chloris, QLD bluegrass, burr medic, creeping bluegrass
Dominant Weed Species	Mayne's pest, roly poly, liverseed grass, African boxthorn, prickly pear, wireweed, bindweed, hairy panic
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 109 Photos



Site 110

Table 24 Site 110 Summary

Site 110	
Inspection Type	Detailed soil pit
Paddock	7
Landform Element	Open drainage flat
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Chloris, burr medic
Dominant Weed Species	Wireweed, roly poly, turnip weed, African boxthorn, Mayne's pest, liverseed grass, marshmallow, wild radish
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 110 Photos



Site 111 Manning Vale East

Table 25 Site 111 Summary

Site 111 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Creeping bluegrass, burr medic
Dominant Weed Species	Wireweed, wild radish, deadnettle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 111 Photos



Site 190 Manning Vale East

Table 26 Site 190 Summary

Site 190 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Chenopod
Dominant Pasture Species	Burr medic, chloris, lamb's tongue
Dominant Weed Species	Roly poly, Mayne's pest, liverseed grass, soursob, balloon cotton bush, turnip weed
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 190 Photos



Site 191 Manning Vale East

Table 27 Site 191 Summary

Site 191 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Chenopod
Dominant Pasture Species	Burr medic, chloris, lamb's tongue
Dominant Weed Species	Roly poly, Mayne's pest, liverseed grass, soursob, balloon cotton bush, turnip weed, bindweed, marshmallow
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 191 Photos



Site 192 Manning Vale East

Table 28 Site 192 Summary

Site 192 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Chenopod
Dominant Pasture Species	Burr medic, chloris, lamb's tongue
Dominant Weed Species	Roly poly, Mayne's pest, liverseed grass, soursob, balloon cotton bush, turnip weed, bindweed, marshmallow
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 192 Photos



Site 193 Manning Vale East

Table 29 Site 193 Summary

Site 193 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	3
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Lovegrass, sorghum, radish, burr medic
Dominant Weed Species	Roly poly, Mayne's pest, liverseed grass, turnip weed, bindweed, Marshmallow, cobblers peg, wild radish, milk thistle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 193 Photos



Site 223 Manning Vale East

Table 30 Site 223 Summary

Site 223 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	3
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD Bluegrass, lovegrass, lamb's tongue
Dominant Weed Species	Liverseed grass, milk thistle, turnip weed, roly poly, cobblers peg, marshmallow, black thistle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 223 Photos



Site 224 Manning Vale East

Table 31 Site 224 Summary

Site 224 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	2
Landform Element	Mid hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, wilga
Dominant Pasture Species	Windmill grass, red grass, chloris
Dominant Weed Species	Prickly pear, African boxthorn, Mayne's pest, copper burr, kidney weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 224 Photos



Site 225 Manning Vale East

Table 32 Site 225 Summary

Site 225 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	1
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, wilga
Dominant Pasture Species	Red grass, chloris, vetch, lamb's tongue
Dominant Weed Species	Roly poly, Turnip weed, capeweed, African boxthorn, black thistle
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 225 Photos



Site 230 Manning Vale East

Table 33 Site 230 Summary

Site 230 Manning Vale East	
Inspection Type	Detailed soil pit
Paddock	2
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	African boxthorn, Mayne's pest, kidney weed, prickly pear, roly poly, balloon cotton bush
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 230 Photos



Site 231 Manning Vale East

Table 34 Site 231 Summary

Site 231 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Lower hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, creeping bluegrass, burr medic, chloris, lamb's tongue
Dominant Weed Species	African boxthorn, wild radish, Mayne's pest, prickly pear, roly poly, liverseed grass, milk thistle, turnip weed
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 231 Photos



Site 232 Manning Vale East

Table 35 Site 232 Summary

Site 232 Manning Vale East	
Inspection Type	Soil pit observation
Paddock	4
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow
Dominant Pasture Species	QLD bluegrass, creeping bluegrass, burr medic, chloris
Dominant Weed Species	African boxthorn, wild radish, Mayne's pest, prickly pear, roly poly, liverseed grass, milk thistle, turnip weed
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 232 Photos



Willeroo



Field Inspection Sites

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Site 110

Table 1 Site 110 Summary

Site 110	
Inspection Type	Detailed soil pit
Paddock	7
Landform Element	Open drainage flat
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Chloris, burr medic
Dominant Weed Species	Wireweed, roly poly, turnip weed, African boxthorn, Mayne's pest, liverseed grass, marshmallow, wild radish
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 110 Photos



Site 112 Willeroo

Table 2 Site 112 Summary

Site 112 Willeroo	
Inspection Type	Detailed soil pit
Paddock	5
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Brigalow, belah
Dominant Pasture Species	Chloris, pin rush
Dominant Weed Species	Roly poly, wireweed
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 112 Photos



Site 113 Willeroo

Table 3 Site 113 Summary

Site 113 Willeroo	
Inspection Type	Soil pit observation
Paddock	5
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Brigalow, belah, acacia
Dominant Pasture Species	Chloris, red grass, burr medic
Dominant Weed Species	Mayne's pest, prickly pear
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <14 years ago

Site 113 Photos



Site 114 Willeroo

Table 4 Site 114 Summary

Site 114 Willeroo	
Inspection Type	Soil pit observation
Paddock	5
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Chloris, red grass, panic grass
Dominant Weed Species	Mayne's pest
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <14 years ago

Site 114 Photos



Site 115 Willeroo

Table 5 Site 115 Summary

Site 115 Willeroo	
Inspection Type	Soil pit observation
Paddock	8
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	belah, acacia, weeping myall
Dominant Pasture Species	Chloris, Rhodes grass, silky sorghum
Dominant Weed Species	Roly poly, Mayne's pest, liverseed grass, corn gromwell
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 115 Photos



Site 116 Willeroo

Table 6 Site 116 Summary

Site 116 Willeroo	
Inspection Type	Detailed soil pit
Paddock	8
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Red grass, Rhodes grass
Dominant Weed Species	Turnip weed, liverseed grass, black thistle, balloon cotton bush
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 116 Photos



Site 117 Willeroo

Table 7 Site 117 Summary

Site 117 Willeroo	
Inspection Type	Detailed soil pit
Paddock	8
Landform Element	Lower hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Rhodes grass
Dominant Weed Species	Liverseed grass, hairy panic grass, black thistle, roly poly, milk thistle
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 117 Photos



Site 118 Willeroo

Table 8 Site 118 Summary

Site 118 Willeroo	
Inspection Type	Soil pit observation
Paddock	8
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Bottle tree
Dominant Pasture Species	Nil
Dominant Weed Species	Hairy panic grass, liverseed grass, black thistle, milk thistle, fleabane, turnip weed
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 118 Photos



Site 119 Willeroo

Table 9 Site 119 Summary

Site 119 Willeroo	
Inspection Type	Soil pit observation
Paddock	8
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box
Dominant Pasture Species	Burr medic
Dominant Weed Species	Hairy panic grass, turnip weed, milk thistle, roly poly, fleabane
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 119 Photos



Site 120 Willeroo

Table 10 Site 120 Summary

Site 120 Willeroo	
Inspection Type	Soil pit observation
Paddock	8
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Nil
Dominant Weed Species	Hairy panic grass, liverseed grass, fleabane, turnip weed, roly poly, milk thistle, black thistle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivation <10 years ago

Site 120 Photos



Site 121 Willeroo

Table 11 Site 121 Summary

Site 121 Willeroo	
Inspection Type	Soil pit observation
Paddock	8
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Nil
Dominant Pasture Species	Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, roly poly, milk thistle, hairy panic grass, liverseed grass
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 121 Photos



Site 122 Willeroo

Table 12 Site 122 Summary

Site 122 Willeroo	
Inspection Type	Detailed soil pit
Paddock	10
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Liverseed grass, hairy panic, roly poly, cobblers peg, turnip weed, milk thistle, marshmallow, fleabane, wild radish, black thistle, Noogoora burr
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 122 Photos



Site 123 Willeroo

Table 13 Site 123 Summary

Site 123 Willeroo	
Inspection Type	Detailed soil pit
Paddock	10
Landform Element	Flat terrace
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Liverseed grass, roly poly, cobblers peg, turnip weed, milk thistle, marshmallow, fleabane, wild radish, black thistle, horehound, Bathurst burr
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 123 Photos



Site 124 Willeroo

Table 14 Site 124 Summary

Site 124 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Chenopod, poplar box, belah
Dominant Pasture Species	Nil
Dominant Weed Species	Roly poly
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 124 Photos



Site 125 Willeroo

Table 15 Site 125 Summary

Site 125 Willeroo	
Inspection Type	Detailed soil pit
Paddock	10
Landform Element	Mid slope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Belah
Dominant Pasture Species	Nil
Dominant Weed Species	Roly poly, marshmallow, liverseed grass, turnip weed, milk thistle
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 125 Photos



Site 126 Willeroo

Table 16 Site 126 Summary

Site 126 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Flat terrace
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, belah
Dominant Pasture Species	Spear grass, red grass, wire grass
Dominant Weed Species	Mayne's pest, African boxthorn
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 126 Photos



Site 127 Willeroo

Table 17 Site 127 Summary

Site 127 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Belah, poplar box, brigalow, acacia
Dominant Pasture Species	Rhodes grass, creeping bluegrass, pin rush
Dominant Weed Species	Balloon cotton bush, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 127 Photos



Site 128 Willeroo

Table 18 Site 128 Summary

Site 128 Willeroo	
Inspection Type	Detailed soil pit
Paddock	10
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Belah, myall
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Roly poly, turnip weed, milk thistle, fleabane, marshmallow, Mayne's pest, liverseed grass
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 128 Photos



Site 129 Willeroo

Table 19 Site 129 Summary

Site 129 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Liverseed grass, hairy panic, roly poly, prickly pear, turnip weed, milk thistle, marshmallow, fleabane, Mayne's pest, blackberry nightshade, wild radish, fat hen
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 129 Photos



Site 130 Willeroo

Table 20 Site 130 Summary

Site 130 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Liverseed grass, hairy panic, roly poly, prickly pear, turnip weed, milk thistle, marshmallow, fleabane, Mayne's pest, blackberry nightshade, wild radish, fat hen, black thistle
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 130 Photos



Site 131 Willeroo

Table 21 Site 131 Summary

Site 131 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Liverseed grass, hairy panic, roly poly, prickly pear, turnip weed, milk thistle, marshmallow, fleabane, Mayne's pest, blackberry nightshade, wild radish, fat hen
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 131 Photos



Site 139 Willeroo

Table 22 Site 139 Summary

Site 139 Willeroo	
Inspection Type	Soil pit observation
Paddock	9
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, red grass, chloris
Dominant Weed Species	Mayne's pest, fleabane milk thistle, carrot weed, roly poly
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 139 Photos



Site 140 Willeroo

Table 23 Site 140 Summary

Site 140 Willeroo	
Inspection Type	Detailed soil pit
Paddock	9
Landform Element	Open drainage flat
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris, burr medic
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 140 Photos



Site 141 Willeroo

Table 24 Site 141 Summary

Site 141 Willeroo	
Inspection Type	Soil pit observation
Paddock	9
Landform Element	Open drainage flat
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris, burr medic
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 141 Photos



Site 142 Willeroo

Table 25 Site 142 Summary

Site 142 Willeroo	
Inspection Type	Soil pit observation
Paddock	9
Landform Element	Alluvial plain
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, vetch
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 142 Photos



Site 146 Willeroo

Table 26 Site 146 Summary

Site 146 Willeroo	
Inspection Type	Soil pit observation
Paddock	9
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	QLD bluegrass, vetch
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, black thistle, marshmallow
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 146 Photos



Site 157 Willeroo

Table 27 Site 157 Summary

Site 157 Willeroo	
Inspection Type	Soil pit observation
Paddock	11
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle, prickly lettuce
Groundcover	100%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 157 Photos



Site 158 Willeroo

Table 28 Site 158 Summary

Site 158 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, bottle tree, brigalow
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Roly poly, prickly pear, African boxthorn, liverseed grass, soursob, turnip weed, fleabane, black thistle, marshmallow, wild radish, blackberry nightshade, milk thistle, prickly lettuce, catheads
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Yes	No
Field Cultivation Observation	Cultivated <10 years ago

Site 158 Photos



Site 159 Willeroo

Table 29 Site 159 Summary

Site 159 Willeroo	
Inspection Type	Soil pit observation
Paddock	11
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle, horehound
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 159 Photos



Site 160 Willeroo

Table 30 Site 160 Summary

Site 160 Willeroo	
Inspection Type	Detailed soil pit
Paddock	11
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, burr medic, radish
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle, blueberry nightshade
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 160 Photos



Site 161 Willeroo

Table 31 Site 161 Summary

Site 161 Willeroo	
Inspection Type	Detailed soil pit
Paddock	11
Landform Element	Upper hillslope
Soil Type	Red Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 161 Photos



Site 162 Willeroo

Table 32 Site 162 Summary

Site 162 Willeroo	
Inspection Type	Soil pit observation
Paddock	11
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, burr medic, yellow wild tomato, vetch
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 162 Photos



Site 163 Willeroo

Table 33 Site 163 Summary

Site 163 Willeroo	
Inspection Type	Detailed soil pit
Paddock	11
Landform Element	Upper hillslope
Soil Type	Red Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, burr medic, forage sorghum, vetch
Dominant Weed Species	Mayne's pest, roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, cobblers peg, hairy panic, milk thistle
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 163 Photos



Site 164 Willeroo

Table 34 Site 164 Summary

Site 164 Willeroo	
Inspection Type	Detailed soil pit
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 164 Photos



Site 165 Willeroo

Table 35 Site 165 Summary

Site 165 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane, prickly pear, blueberry nightshade
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 165 Photos



Site 166 Willeroo

Table 36 Site 166 Summary

Site 166 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane, wild radish, stinking roger
Groundcover	50%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 166 Photos



Site 167 Willeroo

Table 37 Site 167 Summary

Site 167 Willeroo	
Inspection Type	Detailed soil pit
Paddock	6
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane, sinking roger
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 167 Photos



Site 168 Willeroo

Table 38 Site 168 Summary

Site 168 Willeroo	
Inspection Type	Detailed soil pit
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane, cobblers peg
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 168 Photos



Site 169 Willeroo

Table 39 Site 169 Summary

Site 169 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, medic
Dominant Weed Species	Liverseed grass, turnip weed, black thistle, balloon cotton bush, roly poly, milk thistle, fleabane, blueberry nightshade
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 169 Photos



Site 170 Willeroo

Table 40 Site 170 Summary

Site 170 Willeroo	
Inspection Type	Soil pit observation
Paddock	12
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Nil
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Fleabane, liverseed grass, African boxthorn, milk thistle, turnip weed, soursob
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 170 Photos



Site 171 Willeroo

Table 41 Site 171 Summary

Site 171 Willeroo	
Inspection Type	Soil pit observation
Paddock	12
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Nil
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Mayne's pest, roly poly, turnip weed, liverseed grass, verbena, bindweed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	Yes
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 171 Photos



Site 173 Willeroo

Table 42 Site 173 Summary

Site 173 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Flat Terrace
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, black thistle, marshmallow, wild radish, blackberry nightshade, milk thistle, prickly lettuce
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Yes	No
Field Cultivation Observation	Cultivated <10 years ago

Site 173 Photos



Site 174 Willeroo

Table 43 Site 174 Summary

Site 174 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Roly poly, prickly pear, African boxthorn, kidney weed, liverseed grass, soursob, turnip weed, fleabane, black thistle, marshmallow, wild radish, blackberry nightshade, milk thistle, prickly lettuce
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Yes	No
Field Cultivation Observation	Cultivated <10 years ago

Site 174 Photos



Site 175 Willeroo

Table 44 Site 175 Summary

Site 175 Willeroo	
Inspection Type	Soil pit observation
Paddock	10
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Lovegrass
Dominant Weed Species	Roly poly, prickly pear, African boxthorn, liverseed grass, soursob, turnip weed, fleabane, black thistle, marshmallow, wild radish, blackberry nightshade, milk thistle, prickly lettuce, Noogoora burr, cobbler's peg, catheads
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Yes	No
Field Cultivation Observation	Cultivated <10 years ago

Site 175 Photos



Site 184 Willeroo

Table 45 Site 184 Summary

Site 184 Willeroo	
Inspection Type	Detailed soil pit
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 184 Photos



Site 185 Willeroo

Table 46 Site 185 Summary

Site 185 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger, roly poly
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 185 Photos



Site 186 Willeroo

Table 47 Site 186 Summary

Site 186 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger, balloon cotton bush
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 186 Photos



Site 187 Willeroo

Table 48 Site 187 Summary

Site 187 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 187 Photos



Site 188 Willeroo

Table 49 Site 188 Summary

Site 188 Willeroo	
Inspection Type	Soil pit observation
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 188 Photos



Site 189 Willeroo

Table 50 Site 189 Summary

Site 189 Willeroo	
Inspection Type	Detailed soil pit
Paddock	6
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, brigalow, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Fleabane, turnip weed, milk thistle, prickly pear, liverseed grass, prickly lettuce, black thistle, stinking roger
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 189 Photos



Site 241 Willeroo

Table 51 Site 241 Summary

Site 241 Willeroo	
Inspection Type	Soil pit observation
Paddock	11
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Belah, brigalow
Dominant Pasture Species	Lovegrass, radish, burr medic
Dominant Weed Species	Turnip weed, Mayne's pest, liverseed grass, hairy panic grass, roly poly, marshmallow, prickly pear, soursob, deadnettle
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	Yes
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 241 Photos



Manning Vale West



Field Inspection Sites

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Site 1 Manning Vale West

Table 1 Site 1 Summary

Site 1 Manning Vale West	
Inspection Type	Detailed Soil Pit
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, creeping bluegrass
Dominant Weed Species	Turnip weed, Chinese lantern, prickly pear
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 1 Photos



Site 2 Manning Vale West

Table 2 Site 2 Summary

Site 3 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 2 Photos



Site 3 Manning Vale West

Table 3 Site 3 Summary

Site 3 Manning Vale West	
Inspection Type	Detailed Soil Pit
Paddock	22
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 3 Photos



Site 4 Manning Vale West

Table 4 Site 4 Summary

Site 4 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 4 Photos



Site 5 Manning Vale West

Table 5 Site 5 Summary

Site 5 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Upper hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass, wire grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	70%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of cultivation

Site 5 Photos



Site 6 Manning Vale West

Table 6 Site 6 Summary

Site 6 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass, wire grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 6 Photos



Site 7 Manning Vale West

Table 7 Site 7 Summary

Site 7 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass, wire grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	70%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 7 Photos



Site 8 Manning Vale West

Table 8 Site 8 Summary

Site 8 Manning Vale West	
Inspection Type	Detailed Soil Pit
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing native grasses
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, wallaby grass, wire grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 8 Photos



Site 9 Manning Vale West

Table 9 Site 9 Summary

Site 9 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass, paspalum
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 9 Photos



Site 10 Manning Vale West

Table 10 Site 10 Summary

Site 10 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass, sedge
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	70%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 10 Photos



Site 11 Manning Vale West

Table 11 Site 11 Summary

Site 11 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 11 Photos



Site 12 Manning Vale West

Table 12 Site 12 Summary

Site 12 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Turnip weed, Chinese lantern, roly poly
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 12 Photos



Site 13 Manning Vale West

Table 13 Site 13 Summary

Site 13 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Midslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, pigeon grass
Dominant Weed Species	Turnip weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 13 Photos



Site 14 Manning Vale West

Table 14 Site 14 Summary

Site 14 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 14 Photos



Site 15 Manning Vale West

Table 15 Site 15 Summary

Site 15 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Roly poly
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 15 Photos



Site 16 Manning Vale West

Table 16 Site 16 Summary

Site 16 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Turnip weed
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 16 Photos



Site 17 Manning Vale West

Table 17 Site 17 Summary

Site 17 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Mountain coolabah, acacia
Dominant Pasture Species	QLD bluegrass, burr medic, chloris
Dominant Weed Species	Nil
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 17 Photos



Site 18 Manning Vale West

Table 18 Site 18 Summary

Site 18 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga
Dominant Pasture Species	Rhodes grass
Dominant Weed Species	Hairy panic
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 18 Photos



Site 19 Manning Vale West

Table 19 Site 19 Summary

Site 19 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Mountain coolabah
Dominant Pasture Species	QLD bluegrass, three awn grass
Dominant Weed Species	Roly poly
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 19 Photos



Site 20 Manning Vale West

Table 20 Site 20 Summary

Site 20 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Poplar Box, wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Hairy panic
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 20 Photos



Site 21 Manning Vale West

Table 21 Site 21 Summary

Site 21 Manning Vale West	
Inspection Type	Detail soil pit
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Turnip weed, hairy panic
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 21 Photos



Site 22 Manning Vale West

Table 22 Site 22 Summary

Site 22 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, acacia
Dominant Pasture Species	Rhodes grass, QLD bluegrass
Dominant Weed Species	Stinking roger, roly poly, hairy panic
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 22 Photos



Site 23 Manning Vale West

Table 23 Site 23 Summary

Site 23 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	22
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, Moreton bay ash
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Turnip weed, African boxthorn
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 23 Photos



Site 24 Manning Vale West

Table 24 Site 24 Summary

Site 24 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 24 Photos



Site 25 Manning Vale West

Table 25 Site 25 Summary

Site 25 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, mountain coolabah
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 25 Photos



Site 26 Manning Vale West

Table 26 Site 26 Summary

Site 26 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, mountain coolabah
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, tree pear
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 26 Photos



Site 27 Manning Vale West

Table 27 Site 27 Summary

Site 27 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Prickly pear
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 27 Photos



Site 28 Manning Vale West

Table 28 Site 28 Summary

Site 28 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	23
Landform Element	Mid hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, mountain coolabah, Moreton bay ash
Dominant Pasture Species	Wire grass, spear grass, QLD bluegrass
Dominant Weed Species	African boxthorn, prickly pear
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of cultivation

Site 28 Photos



Site 29 Manning Vale West

Table 29 Site 29 Summary

Site 29 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	20
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Mountain coolabah, Moreton bay ash,
Dominant Pasture Species	Wallaby grass, QLD bluegrass, wire grass
Dominant Weed Species	African boxthorn, prickly pear, paddy melon
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of cultivation

Site 29 Photos



Site 30 Manning Vale West

Table 30 Site 30 Summary

Site 30 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	26
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga
Dominant Pasture Species	Nil
Dominant Weed Species	QLD bluegrass
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 30 Photos



Site 31 Manning Vale West

Table 31 Site 31 Summary

Site 31 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	26
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Prickly pear, QLD bluegrass
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 31 Photos



Site 32 Manning Vale West

Table 32 Site 32 Summary

Site 32 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	26
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, poplar box
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Prickly pear
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 32 Photos



Site 33 Manning Vale West

Table 33 Site 33 Summary

Site 33 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Casuarina, poplar box, wilga
Dominant Pasture Species	Wire grass, three awn grass
Dominant Weed Species	African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 33 Photos



Site 34 Manning Vale West

Table 34 Site 34 Summary

Site 34 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Casuarina, poplar box, wilga
Dominant Pasture Species	QLD bluegrass, three awn grass
Dominant Weed Species	Prickly pear
Groundcover	<20%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 34 Photos



Site 35 Manning Vale West

Table 35 Site 35 Summary

Site 35 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol (Very Stony)
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah
Dominant Pasture Species	QLD bluegrass, panic grass, three awn grass
Dominant Weed Species	African boxthorn
Groundcover	<50%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 35 Photos



Site 36 Manning Vale West

Table 36 Site 36 Summary

Site 36 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Maynes pest
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 36 Photos



Site 37 Manning Vale West

Table 37 Site 37 Summary

Site 37 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Balloon cotton bush
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 37 Photos



Site 38 Manning Vale West

Table 38 Site 38 Summary

Site 38 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	25
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, wilga
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Balloon cotton bush
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 38 Photos



Site 39 Manning Vale West

Table 39 Site 39 Summary

Site 39 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	24
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, wilga
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, turnip weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 39 Photos



Site 40 Manning Vale West

Table 40 Site 40 Summary

Site 40 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	30
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah
Dominant Pasture Species	QLD bluegrass, panic grass
Dominant Weed Species	Prickly pear, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 40 Photos



Site 41 Manning Vale West

Table 41 Site 41 Summary

Site 41 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	31
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Wilga, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Nil
Groundcover	90%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 41 Photos



Site 42 Manning Vale West

Table 42 Site 42 Summary

Site 42 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Balloon cotton bush, prickly pear
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 42 Photos



Site 43 Manning Vale West

Table 43 Site 43 Summary

Site 43 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	30
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, wilga, poplar box
Dominant Pasture Species	Panic grass
Dominant Weed Species	Nil
Groundcover	<5%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 43 Photos



Site 44 Manning Vale West

Table 44 Site 44 Summary

Site 44 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Balloon cotton bush, African boxthorn
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 44 Photos



Site 45 Manning Vale West

Table 45 Site 45 Summary

Site 45 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Balloon cotton bush, African boxthorn
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 45 Photos



Site 46 Manning Vale West

Table 46 Site 46 Summary

Site 46 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, burr medic
Dominant Weed Species	Balloon cotton bush, African boxthorn, yellow burr daisy
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 46 Photos



Site 47 Manning Vale West

Table 47 Site 47 Summary

Site 47 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, burr medic, panic grass
Dominant Weed Species	Balloon cotton bush, African boxthorn, yellow burr daisy
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 47 Photos



Site 48 Manning Vale West

Table 48 Site 48 Summary

Site 48 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, burr medic, panic grass
Dominant Weed Species	Balloon cotton bush, African boxthorn, yellow burr daisy
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 48 Photos



Site 49 Manning Vale West

Table 49 Site 49 Summary

Site 49 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Balloon cotton bush, African boxthorn, yellow burr daisy, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 49 Photos



Site 50 Manning Vale West

Table 50 Site 50 Summary

Site 50 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Balloon cotton bush, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 50 Photos



Site 51 Manning Vale West

Table 51 Site 51 Summary

Site 50 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Balloon cotton bush, African boxthorn, roly poly
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 51 Photos



Site 54 Manning Vale West

Table 52 Site 54 Summary

Site 53	
Inspection Type	Soil pit observation
Paddock	31
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, fleabane
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 54 Photos



Site 55 Manning Vale West

Table 53 Site 55 Summary

Site 55	
Inspection Type	Soil pit observation
Paddock	31
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, fleabane, black thistle, Mayne's pest, African boxthorn, hairy panic, liverseed grass
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 55 Photos



Site 56 Manning Vale West

Table 54 Site 56 Summary

Site 56 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	29
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 56 Photos



Site 57 Manning Vale West

Table 55 Site 57 Summary

Site 57 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 57 Photos



Site 58 Manning Vale West

Table 56 Site 58 Summary

Site 58 Manning Vale West	
Inspection Type	Drainage line cutting
Paddock	32
Landform Element	Convergent drainage depression
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, Johnson grass, Bathurst burr
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 58 Photos



Site 59 Manning Vale West

Table 57 Site 59 Summary

Site 59 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, pigeon grass
Dominant Weed Species	Prickly pear, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 59 Photos



Site 60 Manning Vale West

Table 58 Site 60 Summary

Site 60 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Mid hillslope
Soil Type	Brown Dermosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, burr medic
Dominant Weed Species	Prickly pear, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 60 Photos



Site 61 Manning Vale West

Table 59 Site 61 Summary

Site 61 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, pigeon grass, panic grass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 61 Photos



Site 62 Manning Vale West

Table 60 Site 62 Summary

Site 56 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Open drainage flat
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, wallaby grass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, yellow burr daisy
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 62 Photos



Site 63 Manning Vale West

Table 61 Site 63 Summary

Site 63 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	32
Landform Element	Open drainage line
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, panic grass, chloris
Dominant Weed Species	Roly poly, turnip weed, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 63 Photos



Site 73 Manning Vale West

Table 62 Site 73 Summary

Site 73 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	26
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Belah, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, roly poly, QLD bluegrass
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 73 Photos



Site 74 Manning Vale West

Table 63 Site 74 Summary

Site 74 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	29
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 74 Photos



Site 75 Manning Vale West

Table 64 Site 75 Summary

Site 75 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	29
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, Rhodes grass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 75 Photos



Site 76 Manning Vale West

Table 65 Site 76 Summary

Site 76 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	29
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 76 Photos



Site 77 Manning Vale West

Table 66 Site 77 Summary

Site 77 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	17
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, burr medic, clover
Dominant Weed Species	Prickly pear
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 77 Photos



Site 78 Manning Vale West

Table 67 Site 78 Summary

Site 78 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	25
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, black thistle, balloon cotton bush, Mayne's pest
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 78 Photos



Site 79 Manning Vale West

Table 68 Site 79 Summary

Site 79 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	30
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, Rhodes grass, vetch
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 79 Photos



Site 83 Manning Vale West

Table 69 Site 83 Summary

Site 83 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	31
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	African boxthorn, prickly pear, turnip weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 83 Photos



Site 84 Manning Vale West

Table 70 Site 84 Summary

Site 84 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	31
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Horses grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, Mayne's pest
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 84 Photos



Site 85 Manning Vale West

Table 71 Site 85 Summary

Site 85 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	32
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 85 Photos



Site 86 Manning Vale West

Table 72 Site 86 Summary

Site 86 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	32
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass, chloris, burr medic, annual saltbush
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 86 Photos



Site 87 Manning Vale West

Table 73 Site 87 Summary

Site 87 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	32
Landform Element	Lower hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box, brigalow
Dominant Pasture Species	QLD bluegrass, chloris
Dominant Weed Species	Prickly pear, Roly poly, African boxthorn, turnip weed, soursob
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 87 Photos



Site 88 Manning Vale West

Table 74 Site 88 Summary

Site 88 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	32
Landform Element	Upper hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Prickly pear, roly poly, African boxthorn, turnip weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 88 Photos



Site 89 Manning Vale West

Table 75 Site 89 Summary

Site 89 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	32
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, lovegrass, burr medic
Dominant Weed Species	Prickly pear, roly poly, African boxthorn
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 89 Photos



Site 90 Manning Vale West

Table 76 Site 90 Summary

Site 90 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass, panic grass, creeping bluegrass
Dominant Weed Species	Prickly pear, African boxthorn
Groundcover	<10%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 90 Photos



Site 91 Manning Vale West

Table 77 Site 91 Summary

Site 91 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	25
Landform Element	Mid hillslope
Soil Type	Brown Sodosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah, poplar box
Dominant Pasture Species	QLD bluegrass, lovegrass
Dominant Weed Species	Prickly pear
Groundcover	<50%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 91 Photos



Site 92 Manning Vale West

Table 78 Site 92 Summary

Site 92 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	25
Landform Element	Mid hillslope
Soil Type	Red Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, belah
Dominant Pasture Species	QLD bluegrass, Rhodes grass, panic grass
Dominant Weed Species	Soursob
Groundcover	80%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 92 Photos



Site 93 Manning Vale West

Table 79 Site 93 Summary

Site 93 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	22
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Mountain coolabah, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Turnip weed, liverseed grass, balloon cotton bush
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 93 Photos



Site 94 Manning Vale West

Table 80 Site 94 Summary

Site 94 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	18
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box
Dominant Pasture Species	QLD bluegrass, creeping bluegrass
Dominant Weed Species	Hairy panic, liverseed grass, fleabane, black thistle, roly poly, balloon cotton bush, African boxthorn, prickly lettuce, deadnettle
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 94 Photos



Site 95 Manning Vale West

Table 81 Site 95 Summary

Site 95 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	18
Landform Element	Upper hillslope
Soil Type	Shallow Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, ironbark, acacia
Dominant Pasture Species	QLD bluegrass, wire grass, wallaby grass, creeping bluegrass
Dominant Weed Species	Prickly pear, African boxthorn, tree pear
Groundcover	70%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 95 Photos



Site 226 Manning Vale West

Table 82 Site 226 Summary

Site 226 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	22
Landform Element	Upper hillslope
Soil Type	Shallow Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	QLD bluegrass, Feathertop grass, sorghum, radish
Dominant Weed Species	Balloon cotton bush, liverseed grass, black thistle, milk thistle, turnip weed, Mayer's pest, prickly lettuce, yellow paddock weed
Groundcover	90%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 226 Photos



Site 227 Manning Vale West

Table 83 Site 227 Summary

Site 227 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	22
Landform Element	Mid hillslope
Soil Type	Very Shallow Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	QLD bluegrass, feathertop grass, Rhodes grass, sorghum, radish
Dominant Weed Species	Balloon cotton bush, liverseed grass, black thistle, milk thistle, turnip weed, Mayne's pest, prickly lettuce, yellow paddock weed
Groundcover	60%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 227 Photos



Site 228 Manning Vale West

Table 84 Site 228 Summary

Site 228 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	17
Landform Element	Upper hillslope
Soil Type	Very Shallow Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah
Dominant Pasture Species	QLD bluegrass, spear grass, wire grass, creeping bluegrass, burr medic,
Dominant Weed Species	Prickly pear, African boxthorn, Mayne's pest
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 228 Photos



Site 229 Manning Vale West

Table 85 Site 229 Summary

Site 229 Manning Vale West	
Inspection Type	Detailed soil pit
Paddock	25
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, wilga, belah
Dominant Pasture Species	QLD Bluegrass
Dominant Weed Species	Balloon cotton bush, prickly pear, Mayne's pest
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 229 Photos



Infrastructure



Field Inspection Sites

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Site 29 Infrastructure Area

Table 1 Site 29 Summary

Site 29 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	20
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pastures
Dominant Vegetation Type	Mountain coolabah, Moreton bay ash,
Dominant Pasture Species	Wallaby grass, QLD bluegrass, wire grass
Dominant Weed Species	African boxthorn, prickly pear, paddy melon
Groundcover	90%
Historical Cultivation	
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of cultivation

Site 29 Photos



Site 52 Infrastructure Area

Table 2 Site 52 Summary

Site 52 Manning Vale West	
Inspection Type	Soil pit observation
Paddock	35
Landform Element	Open drainage flat
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Balloon cotton bush, turnip weed, Johnson grass
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	Yes
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 52 Photos



Site 53 Infrastructure Area

Table 3 Site 53 Summary

Site 53	
Inspection Type	Soil pit observation
Paddock	35
Landform Element	Open drainage flat
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Balloon cotton bush, turnip weed, Johnson grass, fleabane
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	Yes
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 53 Photos



Site 221 Infrastructure Area

Table 4 Site 221 Summary

Site 29 Infrastructure Area	
Inspection Type	Detailed soil pit
Paddock	21
Landform Element	Mid hillslope
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, poplar box
Dominant Pasture Species	Red grass, medic burr, Rhodes grass,
Dominant Weed Species	African boxthorn, prickly pear, feathertop, black thistle, turnip weed
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 221 Photos



Site 222 Infrastructure Area

Table 5 Site 222 Summary

Site 242 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	38
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD Bluegrass, panic grass
Dominant Weed Species	Black thistle, variegated thistle
Groundcover	100%
Historical Cultivation	
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 222 Photos



Site 236 Infrastructure Area

Table 6 Site 236 Summary

Site 236 Infrastructure Area	
Inspection Type	Detailed soil pit
Paddock	19
Landform Element	Mid hillslope
Soil Type	Shallow Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, mountain coolabah, wilga
Dominant Pasture Species	Wiregrass, red grass, spear grass, creeping bluegrass, medic, lovegrass
Dominant Weed Species	Mayne's pest, roly poly, turnip weed, prickly pear, African boxthorn
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 236 Photos



Site 242 Infrastructure Area

Table 7 Site 242 Summary

Site 242 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	19
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD Bluegrass, panic grass
Dominant Weed Species	Tree pear
Groundcover	40%
Historical Cultivation	
2009	No
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 242 Photos



Site 243 Infrastructure Area

Table 8 Site 243 Summary

Site 243 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	20
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	Creeping bluegrass, QLD bluegrass, plains grass
Dominant Weed Species	Tree pear
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 243 Photos



Site 244 Infrastructure Area

Table 9 Site 244 Summary

Site 244 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	23
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD bluegrass, creeping bluegrass
Dominant Weed Species	Nil
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 244 Photos



Site 245 Infrastructure Area

Table 10 Site 245 Summary

Site 245 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	27
Landform Element	Floodplain
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Roly poly
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 245 Photos



Site 246 Infrastructure Area

Table 11 Site 246 Summary

Site 242 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	35
Landform Element	Floodplain
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar Box
Dominant Pasture Species	QLD bluegrass, panic grass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	Yes
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 246 Photos



Site 247 Infrastructure Area

Table 12 Site 247 Summary

Site 247 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	35
Landform Element	Floodplain
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	Yes
2010	No
2011	Yes
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 247 Photos



Site 248 Infrastructure Area

Table 13 Site 248 Summary

Site 248 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	37
Landform Element	Floodplain
Soil Type	Black Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD bluegrass, wire grass
Dominant Weed Species	Nil
Groundcover	70%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 248 Photos



Site 259 Infrastructure Area

Table 14 Site 259 Summary

Site 259 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	33
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Native grass pasture
Dominant Vegetation Type	Nil
Dominant Pasture Species	QLD Bluegrass, panic grass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated >10 years ago

Site 259 Photos



Site 260 Infrastructure Area

Table 15 Site 260 Summary

Site 260 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	31
Landform Element	Flat
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	Panic grass, QLD bluegrass
Dominant Weed Species	Nil
Groundcover	40%
Historical Cultivation	
2009	No
2010	Yes
2011	Yes
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 260 Photos



Site 261 Infrastructure Area

Table 16 Site 261 Summary

Site 261 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	18
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	30%
Historical Cultivation	
2009	Yes
2010	Yes
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 261 Photos



Site 264 Infrastructure Area

Table 17 Site 264 Summary

Site 264 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	34
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	Chloris, QLD bluegrass, wire grass
Dominant Weed Species	Prickly pear
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 264 Photos



Site 265 Infrastructure Area

Table 18 Site 265 Summary

Site 265 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	33
Landform Element	Mid hillslope
Soil Type	Brown Chromosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	Chloris, wire grass, QLD bluegrass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 265 Photos



Site 266 Infrastructure Area

Table 19 Site 266 Summary

Site 266 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	28
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	QLD bluegrass, chloris, Rhodes grass
Dominant Weed Species	Nil
Groundcover	90%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 266 Photos



Site 267 Infrastructure Area

Table 20 Site 267 Summary

Site 267 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	28
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia, Poplar box
Dominant Pasture Species	Chloris, wire grass, panic grass
Dominant Weed Species	Prickly pear
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 267 Photos



Site 268 Infrastructure Area

Table 21 Site 268 Summary

Site 268 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	24
Landform Element	Lower hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Acacia
Dominant Pasture Species	QLD bluegrass, panic grass
Dominant Weed Species	Nil
Groundcover	80%
Historical Cultivation	
2009	Yes
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	Cultivated <10 years ago

Site 268 Photos



Site 269 Infrastructure Area

Table 22 Site 269 Summary

Site 269 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	40%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 269 Photos



Site 271 Infrastructure Area

Table 23 Site 271 Summary

Site 271 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Mid hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	60%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 271 Photos



Site 272 Infrastructure Area

Table 24 Site 272 Summary

Site 272 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	50%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 272 Photos



Site 273 Infrastructure Area

Table 25 Site 273 Summary

Site 273 Infrastructure Area	
Inspection Type	Soil pit observation
Paddock	17
Landform Element	Upper hillslope
Soil Type	Brown Vertosol
Current Land Use	Cattle grazing grass pasture
Dominant Vegetation Type	Poplar box, acacia
Dominant Pasture Species	QLD bluegrass
Dominant Weed Species	Nil
Groundcover	50%
Historical Cultivation	
2009	No
2010	No
2011	No
2012	No
2013	No
2014	No
2015	No
2016	No
2017	No
2018	No
2019	No
Assessed PALU	No
Field Cultivation Observation	No evidence of previous cultivation

Site 273 Photos



APPENDIX F

Common and Botanical Plant Names



Common and Botanical Plant Names

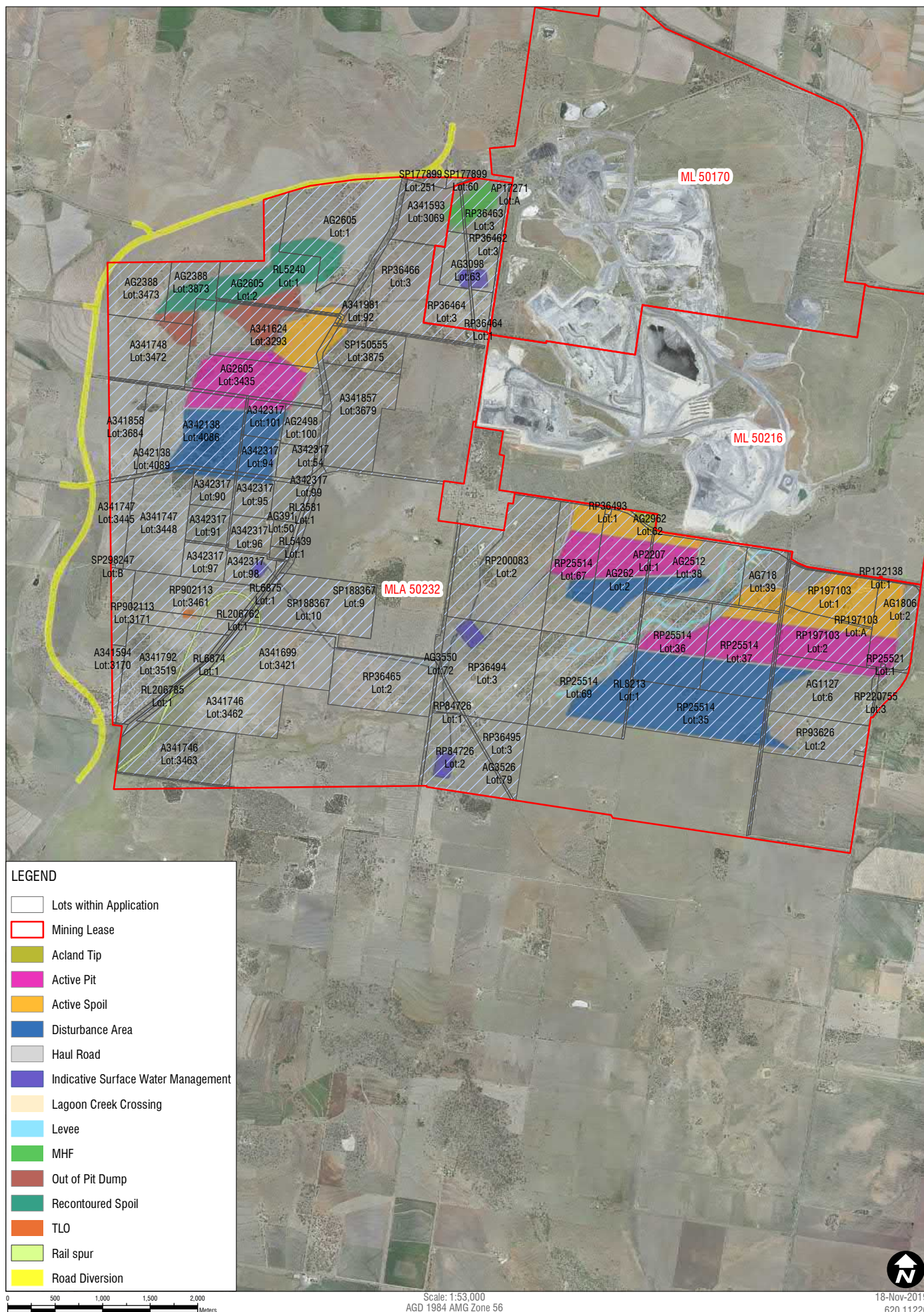
Acacia <i>Acacia</i> spp	Lovegrass <i>Eragrostis cilianensis</i>
African boxthorn <i>Lycium ferocissimum</i>	Mayne's pest <i>Glandularia aristigera</i>
Annual saltbush <i>Atriplex muelerri</i>	Marshmallow <i>Malva parviflora</i>
Balloon cotton bush <i>Gomphocarpus physocarpus</i>	Milk thistle <i>Sonchus oleraceus</i>
Barley <i>Hordeum vulgare</i>	Moreton bay ash <i>Corymbia tessellaris</i>
Belah <i>Casurina cristata</i>	Mountain coolabah <i>Eucalyptus orgadophylla</i>
Bathurst burr <i>Xanthium spinosum</i>	Mung bean <i>Vigna radiata</i>
Blackberry nightshade <i>Solanum nigrum</i>	Noogoora burr <i>Xanthium strumarium</i>
Black thistle <i>Cirsium vulgare</i>	Panic grass <i>Panicum</i> spp
Blue grass <i>Bothriochloa</i> spp	Pigeon grass <i>Setaria</i> spp
Bottle tree <i>Brachychiton rupestris</i>	Poplar box <i>Eucalyptus populnea</i>
Brigalow <i>Acacia harpophylla</i>	Prickly lettuce <i>Lactuca serriola</i>
Burr medic <i>Medicago polymorpha</i>	Prickly pear <i>Opuntia</i> spp
Carrot weed <i>Daucus glochidiatus</i>	Purple top <i>Verbena officinalis</i>
Catheads <i>Tribulus terrestris</i>	QLD bluegrass <i>Dichanthium sericeum</i>
Chloris <i>Chloris tuncata</i>	Rhodes grass <i>Chloris gayana</i>
Cobblers peg <i>Bidens pilosa</i>	Roly poly <i>Sclerolaena muricata</i>
Copperburr <i>Sclerolaena lanicuspis</i>	Sorghum <i>Sorghum vulgare</i>
Cotton bush <i>Maireana microphylla</i>	Soursob <i>Oxalis pes-caprae</i>
Couch <i>Cynodon dactylon</i>	Turnip weed <i>Rapistrum rugosum</i>
Fat hen <i>Chenopodium album</i>	Variegated thistle <i>Silybum marianum</i>
Feathertop grass <i>Pennisetum villosum</i>	Vetch <i>Vicia sativa</i>
Fleabane <i>Conyza bilbaoana</i>	Wallaby grass <i>Austrodanthonia bipartita</i>
Hairy panic <i>Panicum effusum</i>	Wheat <i>Triticum aestivum</i>
Horehound <i>Marrubium vulgare</i>	Wild radish <i>Raphanus raphanistrum</i>
Kidney weed <i>Dichondra repens</i>	Wilga <i>Geijera parviflora</i>
Johnson grass <i>Sorghum halepense</i>	Wireweed <i>Polygonum aviculare</i>
Lamb's tongue <i>Plantago lanceolata</i>	Yellow burr daisy <i>Calotis lappulacea</i>
Liverseed grass <i>Urochloa panicoides</i>	

APPENDIX G

Application Area Cadastral Data



H:\Projects\SLR\610-SWS\VD\620-B\VE\620 12454 New Islands\620 12226 New Island Soils Stage 3\Map Data\SLR\620 12226 Appendix C Application Area Indicative disturbance ML 50232 working.mxd



Sheet Size : A4

Application Land

The figures included in this **Appendix G** include the real property descriptions as set out in **Table 1** to the extent legibility allows.

Table 1 Lots

#	Lot	Plan	Lot/Plan	Tenure	Owner
1.	100	AG2498	100AG2498	Freehold	Acland Pastoral Co. Pty Ltd
2.	101	A342317	101A342317	Freehold	Acland Pastoral Co. Pty Ltd
3.	1	AG2605	1AG2605	Freehold	Acland Pastoral Co. Pty Ltd
4.	1	RP197103	1RP197103	Freehold	Acland Pastoral Co. Pty Ltd
5.	1	RP25521	1RP25521	Freehold	Acland Pastoral Co. Pty Ltd
6.	1	RP36493	1RP36493	Freehold	Acland Pastoral Co. Pty Ltd
7.	251	SP177899	251SP177899	Freehold	Acland Pastoral Co. Pty Ltd
8.	2	AG1806	2AG1806	Freehold	Acland Pastoral Co. Pty Ltd
9.	2	AG2605	2AG2605	Freehold	Acland Pastoral Co. Pty Ltd
10.	2	AG262	2AG262	Freehold	Acland Pastoral Co. Pty Ltd
11.	2	RP197103	2RP197103	Freehold	Acland Pastoral Co. Pty Ltd
12.	2	RP200083	2RP200083	Freehold	Acland Pastoral Co. Pty Ltd
13.	2	RP93626	2RP93626	Freehold	Acland Pastoral Co. Pty Ltd
14.	3069	A341593	3069A341593	Freehold	Acland Pastoral Co. Pty Ltd
15.	3170	A341594	3170A341594	Freehold	Acland Pastoral Co. Pty Ltd
16.	3171	RP902113	3171RP902113	Freehold	Acland Pastoral Co. Pty Ltd
17.	3293	A341624	3293A341624	Freehold	Acland Pastoral Co. Pty Ltd
18.	3421	A341699	3421A341699	Freehold	Acland Pastoral Co. Pty Ltd
19.	3435	AG2605	3435AG2605	Freehold	Acland Pastoral Co. Pty Ltd
20.	3445	A341747	3445A341747	Freehold	Acland Pastoral Co. Pty Ltd
21.	3448	A341747	3448A341747	Freehold	Acland Pastoral Co. Pty Ltd
22.	3461	RP902113	3461RP902113	Freehold	Acland Pastoral Co. Pty Ltd

#	Lot	Plan	Lot/Plan	Tenure	Owner
23.	3462	A341746	3462A341746	Freehold	Acland Pastoral Co. Pty Ltd
24.	3463	A341746	3463A341746	Freehold	Acland Pastoral Co. Pty Ltd
25.	3472	A341748	3472A341748	Freehold	Acland Pastoral Co. Pty Ltd
26.	3473	AG2388	3473AG2388	Freehold	Acland Pastoral Co. Pty Ltd
27.	3519	A341792	3519A341792	Freehold	Acland Pastoral Co. Pty Ltd
28.	35	RP25514	35RP25514	Freehold	Acland Pastoral Co. Pty Ltd
29.	3679	A341857	3679A341857	Freehold	Acland Pastoral Co. Pty Ltd
30.	3684	A341858	3684A341858	Freehold	Acland Pastoral Co. Pty Ltd
31.	36	RP25514	36RP25514	Freehold	Acland Pastoral Co. Pty Ltd
32.	37	RP25514	37RP25514	Freehold	Acland Pastoral Co. Pty Ltd
33.	3873	AG2388	3873AG2388	Freehold	Acland Pastoral Co. Pty Ltd
34.	3875	SP150555	3875SP150555	Freehold	Acland Pastoral Co. Pty Ltd
35.	38	AG2512	38AG2512	Freehold	Acland Pastoral Co. Pty Ltd
36.	39	AG718	39AG718	Freehold	Acland Pastoral Co. Pty Ltd
37.	3	RP220755	3RP220755	Freehold	Acland Pastoral Co. Pty Ltd
38.	3	RP36466	3RP36466	Freehold	Acland Pastoral Co. Pty Ltd
39.	4086	A342138	4086A342138	Freehold	Acland Pastoral Co. Pty Ltd
40.	4089	A342138	4089A342138	Freehold	Acland Pastoral Co. Pty Ltd
41.	49	AG391	49AG391	Freehold	Acland Pastoral Co. Pty Ltd
42.	50	AG391	50AG391	Freehold	Acland Pastoral Co. Pty Ltd
43.	54	A342317	54A342317	Freehold	Acland Pastoral Co. Pty Ltd
44.	62	AG2962	62AG2962	Freehold	Acland Pastoral Co. Pty Ltd
45.	67	RP25514	67RP25514	Freehold	Acland Pastoral Co. Pty Ltd
46.	69	RP25514	69RP25514	Freehold	Acland Pastoral Co. Pty Ltd
47.	6	AG1127	6AG1127	Freehold	Acland Pastoral Co. Pty Ltd
48.	90	A342317	90A342317	Freehold	Acland Pastoral Co. Pty Ltd

#	Lot	Plan	Lot/Plan	Tenure	Owner
49.	91	A342317	91A342317	Freehold	Acland Pastoral Co. Pty Ltd
50.	92	A341981	92A341981	Freehold	Acland Pastoral Co. Pty Ltd
51.	94	A342317	94A342317	Freehold	Acland Pastoral Co. Pty Ltd
52.	95	A342317	95A342317	Freehold	Acland Pastoral Co. Pty Ltd
53.	96	A342317	96A342317	Freehold	Acland Pastoral Co. Pty Ltd
54.	97	A342317	97A342317	Freehold	Acland Pastoral Co. Pty Ltd
55.	98	A342317	98A342317	Freehold	Acland Pastoral Co. Pty Ltd
56.	99	A342317	99A342317	Freehold	Acland Pastoral Co. Pty Ltd
57.	9	SP188367	9SP188367	Freehold	Acland Pastoral Co. Pty Ltd
58.	2	RP36465	2RP36465	Freehold	Acland Pastoral Co. Pty Ltd
59.	60	SP177899	60SP177899	Freehold	Acland Pastoral Co. Pty Ltd
60.	3	RP36494	3RP36494	Freehold	Acland Pastoral Co. Pty Ltd
61.	1	RP84726	1RP84726	Freehold	Acland Pastoral Co. Pty Ltd
62.	2	RP84726	2RP84726	Freehold	Acland Pastoral Co. Pty Ltd
63.	3	RP36495	3RP36495	Freehold	Acland Pastoral Co. Pty Ltd
64.	72	AG3550	72AG3550	Freehold	Acland Pastoral Co. Pty Ltd
65.	79	AG3526	79AG3526	Freehold	Acland Pastoral Co. Pty Ltd
66.	3	RP84726	3RP84726	Freehold	Acland Pastoral Co. Pty Ltd
67.	4	RP84726	4RP84726	Freehold	Acland Pastoral Co. Pty Ltd
68.	1	RP36464	1RP36464	Freehold	Acland Pastoral Co. Pty Ltd
69.	63	AG3098	63AG3098	Freehold	Acland Pastoral Co. Pty Ltd
70.	3	RP36464	3RP36464	Freehold	Acland Pastoral Co. Pty Ltd
71.	3	RP36462	3RP36462	Freehold	Acland Pastoral Co. Pty Ltd
72.	1	RP36462	1RP36462	Freehold	Acland Pastoral Co. Pty Ltd
73.	3	RP36463	3RP36463	Freehold	Acland Pastoral Co. Pty Ltd
74.	64	AG3113	64AG3113	Freehold	Acland Pastoral Co. Pty Ltd

#	Lot	Plan	Lot/Plan	Tenure	Owner
75.	1	RP36463	1RP36463	Freehold	Acland Pastoral Co. Pty Ltd

Subterranean Lots

Table 2 Subterranean Lots

#	Lot	Plan	Lot/Plan	Tenure	Owner	Depth
1.	138	RP25514	138RP25514	Below the Depth Plans	Willis Lynn Haenke,	Below the depth of 40 ft (12.192m)
2.	169	RP25514	169RP25514	Below the Depth Plans	Laura Lydia Haenke	Below the depth of 40 ft (12.192m)
3.	6	RP218459	6RP218459	Below the Depth Plans	Acland Pastoral Co. Pty Ltd	Below the depth of 15.240m
4.	7	RP218459	7RP218459	Below the Depth Plans	Acland Pastoral Co. Pty Ltd	Below the depth of 15.240m
5.	8	RP218459	8RP218459	Below the Depth Plans	Roy Bernard Jack Barnes	Below the depth of 15.240m
6.	10	SP188367	10SP188367	Subterranean volumetric	Kaye Barbara Brown	Between the depths of 33.045m and 1,033.045m
7.	13	RP36463	13RP36463	Below the Depth Plans	Oceanic Coal Australia Limited	Below the depth of 40 ft (12.192m)
8.	11	RP36463	11RP36463	Below the Depth Plans	Oceanic Coal Australia Limited	Below the depth of 40 ft (12.192m)

Roads and Road Licenses

Government spatial information indicate that part or all of the following roads are located within the application land:

- Acland Road
- Acland Muldu Road
- Campbells Road
- Conroys Road
- Greenwood School Road
- Jondaryan Muldu Road
- Mclaughlins Road
- Muldu Brymaroo Road
- O'Sheas Road
- Temporarily Closed Road
- Willeroo Mine Road
- Woods Road

A list of the spatial objects indicated by government mapping pertaining to roads to be partly or wholly within the application land is provided in Table 3 below. Lagoon Creek is also located within the application area.

Table 3 Roads

#	Feature Name	Alias Name	Locality	Object ID
1.	Acland Road		Acland	1560522
2.	Temporarily Closed Road	Acland Muldu Road	Muldu	Unknown
3.	Road		Acland	1560527
4.	Road		Acland	1561281
5.		Road Jondaryan Muldu Road Temporarily Closed Road	Acland	1561832
6.	Temporarily Closed Road		Acland	1570304
7.		Jondaryan Muldu Road O'Sheas Road	Acland	1591547
8.	Jondaryan Muldu Road		Acland	1591548
9.	O'Sheas Road		Acland	1591549
10.	Temporarily Closed Road		Acland	1592591

#	Feature Name	Alias Name	Locality	Object ID
11.	Temporarily Closed Road		Acland	1596912
12.	Temporarily Closed Road		Acland	1596918
13.	Temporarily Closed Road		Acland	1596919
14.	Woods Road		Devon Park	1598291
15.	O'Sheas Road		Acland	1599225
16.	Temporarily Closed Road		Acland	1604222
17.		Temporarily Closed Road Jondaryan Muldu Road	Muldu	1604223
18.	Jondaryan Muldu Road		Acland	1604224
19.	O'Sheas Road		Jondaryan	1607256
20.		Road Temporarily Closed Road	Muldu	1607257
21.	Temporarily Closed Road		Muldu	1607808
22.		Jondaryan Muldu Road Temporarily Closed Road	Acland	1607809
23.		Campbells Road Jondaryan Muldu Road	Muldu	1607810
24.	Road		Acland	1612748
25.		Road Conroys Road Jondaryan Muldu Road Temporarily Closed Road	Acland	1613322
26.	Road		Acland	1613323
27.		Temporarily Closed Road Acland Road	Silverleigh	1621446
28.	Campbells Road		Acland	1623193
29.	Woods Road		Acland	1623792
30.	Temporarily Closed Road	Willeroo Mine Road	Acland	1624720
31.	Willeroo Mine Road		Acland	1646257
32.	Conroys Road		Acland	1650933
33.	Acland Road		Greenwood	1558677

#	Feature Name	Alias Name	Locality	Object ID
34.		Acland Road	Acland	1560524
35.	Acland Road		Acland	1560525
36.	Jondaryan Muldu Road		Acland	1561283
37.	Road		Greenwood	1561593
38.	Temporarily Closed Road		Acland	1593146
39.	Temporarily Closed Road		Acland	1593147
40.		Road	Greenwood	1593682
41.	Road		Greenwood	1593684
42.	Temporarily Closed Road		Acland	1596915
43.		Road O'Sheas Road	Acland	1599797
44.	Jondaryan Muldu Road		Muldu	1600166
45.	Jondaryan Muldu Road		Muldu	1607811
46.	Campbells Road		Muldu	1607812
47.	Road		Acland	1612750
48.	Jondaryan Muldu Road		Acland	1613321
49.		Muldu Brymaroo Road Jondaryan Muldu Road	Muldu	1618424
50.		Acland Road Mclaughlins Road Temporarily Closed Road	Acland	1619969
51.	Acland Road		Acland	1619970
52.	Greenwood School Road		Acland	1620897
53.		Greenwood School Road Acland Road	Greenwood	1621441
54.		Temporarily Closed Road Greenwood School Road	Acland	1622863
55.	Acland Road		Acland	1623789
56.	Road		Acland	1624156
57.	Acland Road		Silverleigh	1624910

#	Feature Name	Alias Name	Locality	Object ID
58.		Acland Road Jondaryan Muldu Road Temporarily Closed Road	Acland	1625727
59.	Jondaryan Muldu Road		Acland	1625728
60.	Temporarily Closed Road	Willeroo Mine Road	Acland	1646258
61.	Mclaughlins Road		Acland	1646612
62.		Road Mclaughlins Road	Acland	1649092
63.		Acland Road Willeroo Mine Road	Acland	1649670
64.	Greenwood School Road		Greenwood	1650202
65.		Campbells Road Jondaryan Muldu Road	Acland	1599799

Table 4 Road Licenses

#	Lot	Plan	Lot/Plan	Tenure	Licensee
1.	1	AP2207	1AP2207	Lands Lease	Acland Pastoral Co. Pty Ltd
2.	1	RL206762	1RL206762	Lands Lease	Acland Pastoral Co. Pty Ltd
3.	1	RL206785	1RL206785	Lands Lease	Acland Pastoral Co. Pty Ltd
4.	1	RL3581	1RL3581	Lands Lease	Acland Pastoral Co. Pty Ltd
5.	1	RL5240	1RL5240	Lands Lease	Acland Pastoral Co. Pty Ltd
6.	1	RL5273	1RL5273	Lands Lease	Acland Pastoral Co. Pty Ltd
7.	1	RL5439	1RL5439	Lands Lease	Acland Pastoral Co. Pty Ltd
8.	1	RL6874	1RL6874	Lands Lease	Acland Pastoral Co. Pty Ltd
9.	1	RL6875	1RL6875	Lands Lease	Acland Pastoral Co. Pty Ltd
10.	1	RL8213	1RL8213	Lands Lease	Acland Pastoral Co. Pty Ltd
11.	A	AP17271	AAP17271	Lands Lease	Acland Pastoral Co. Pty Ltd

Easements

Searches of government mapping indicate that there are two easements located within the application land:

1. Easement A on RP197103 (Easement A)
2. Easement B on SP298247 (Easement B)

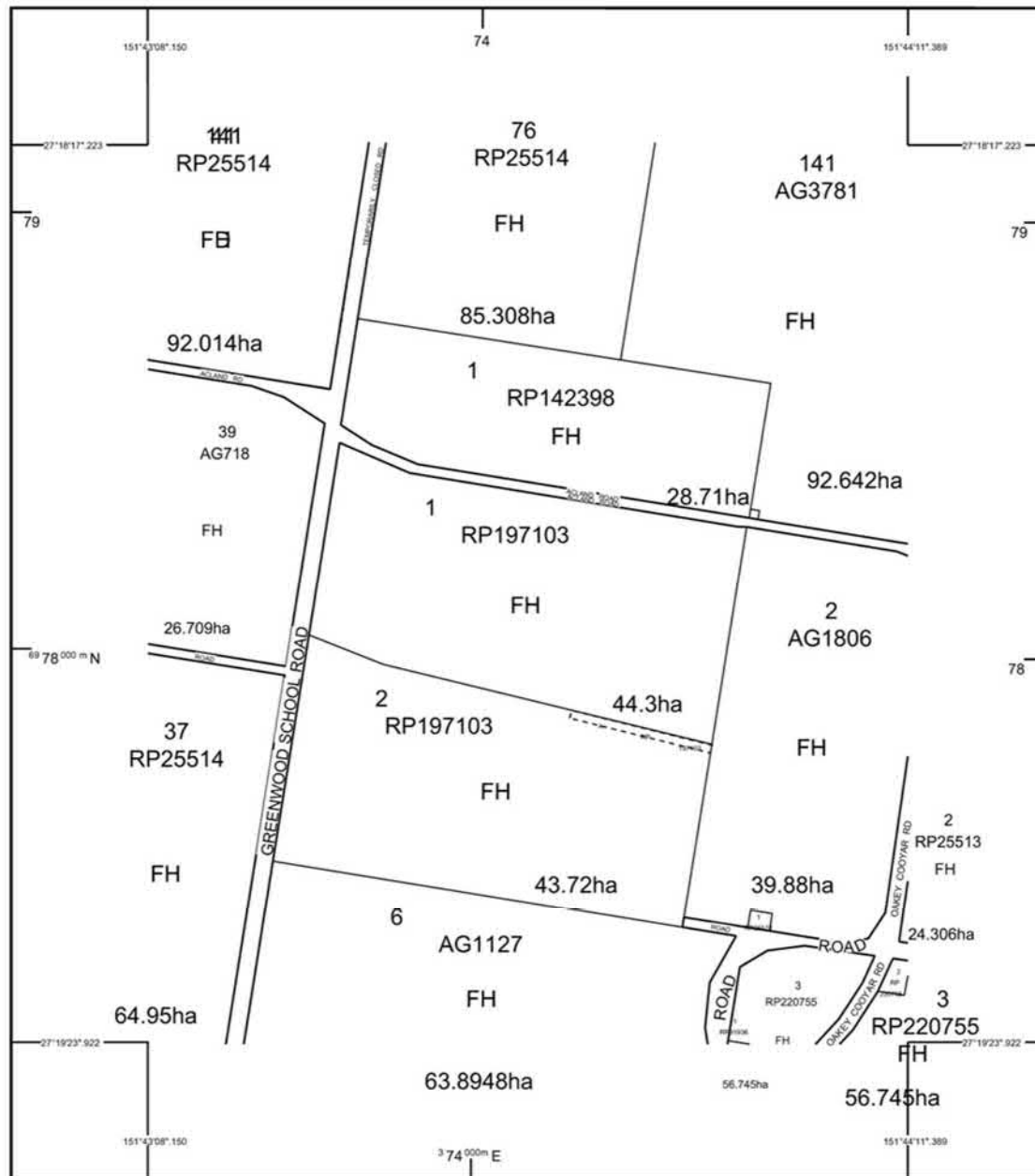
Table 5 contains information relevant to Easement A and Easement B

Table 5 Easements

#	Easement	Plan	Servient Tenement	Dominant Tenement / Grantee	Purpose
1.	Easement A	RP197103	Easement A in Lot 2 on RP197103	Lot 1 on RP197103	Drainage
2.	Easement B	SP298247	Easement B in Lot 3445 on A341747	Easement in Gross benefitting Ergon Energy Corporation Limited ACN 087 646 062	Electrical Works Purposes

Plans depicting Easement A and Easement B are included below.

Plan showing Easement A



STANDARD MAP NUMBER
9243-31214

MAP WINDOW POSITION & NEAREST LOCATION

GDA

SUBJECT PARCEL DESCRIPTION

DCDB	1/197103
Lot/Plan	44.3ha
Tenure	FREEHOLD
Local Government	TOOWOOMBA REGIONAL
Locality	GREENWOOD
Segment/Parcel	43553/117

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 02/08/2019

DCDB 01/08/2019 (Lots with an area less than 1500m² are not shown)

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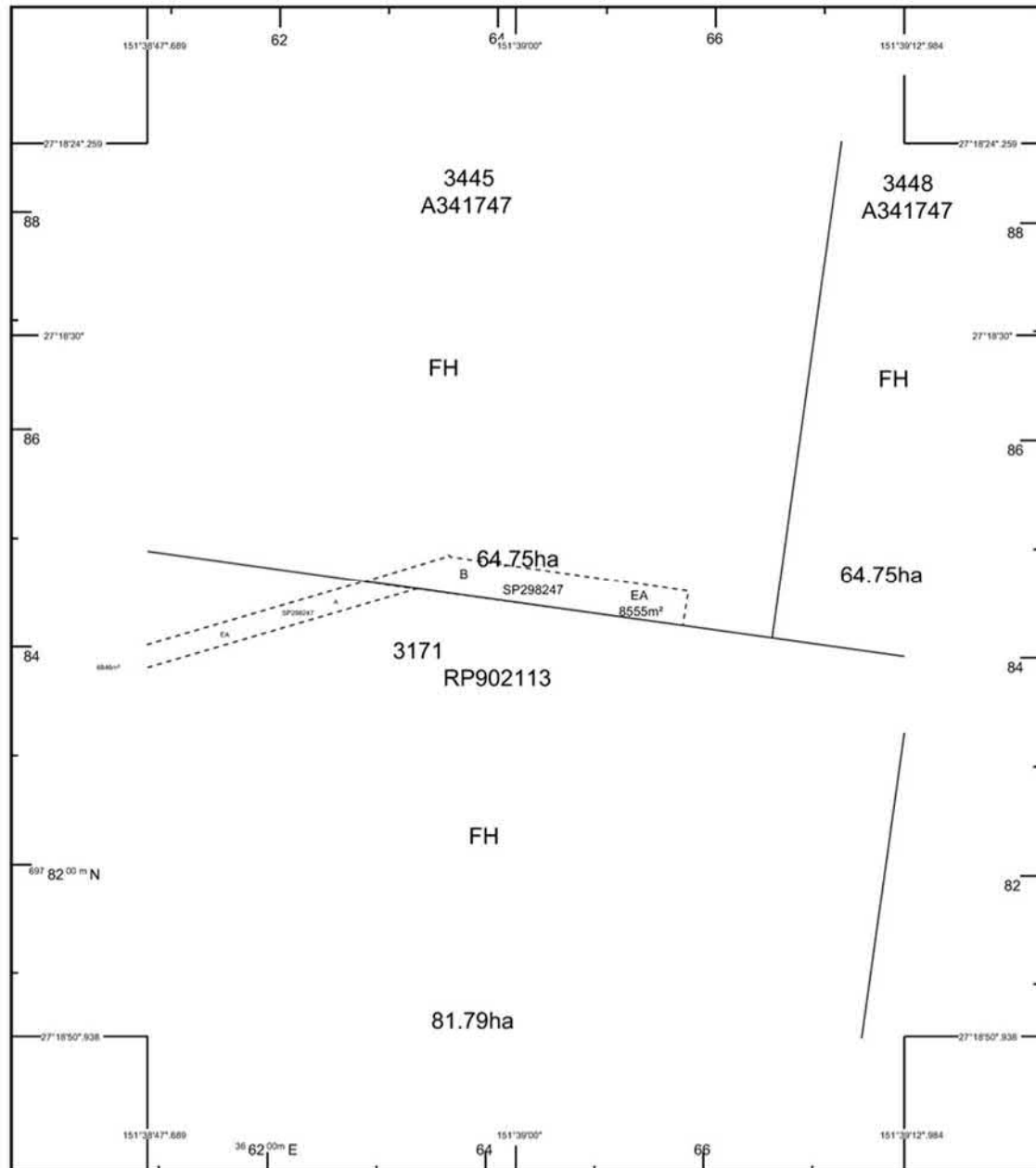
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Digital Cadastral Data Base

Queensland Government
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Natural Resources,
Mines and Energy) 2019.

Plan showing Easement B



STANDARD MAP NUMBER
9243-31432

MAP WINDOW POSITION & NEAREST LOCATION

151°30'07" E
27°18'50" S
4.02 KM

GDA

SUBJECT PARCEL DESCRIPTION

DCDB	B/SP298247
Lot/Plan	8555m²
Area/Volume	EASEMENT
Tenure	TOOWOOMBA REGIONAL
Local Government	ACLAND
Locality	43886/259
Segment/Parcel	

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 02/08/2019

DCDB 01/08/2019

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618845

Search Date: 18/11/2019 11:37

Title Reference: 13917163

Date Created: 05/10/1966

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 100	CROWN PLAN AG2498
	Local Government: TOOWOOMBA
LOT 101	CROWN PLAN A342317
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11094206 (POR 9V)
(POR 10V)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618846

Search Date: 18/11/2019 11:37

Title Reference: 13917163

Date Created: 05/10/1966

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 100	CROWN PLAN AG2498
	Local Government: TOOWOOMBA
LOT 101	CROWN PLAN A342317
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11094206 (POR 9V)
(POR 10V)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618847

Search Date: 18/11/2019 11:37

Title Reference: 13917166

Date Created: 05/10/1966

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 CROWN PLAN AG2605
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10623104 (POR 3434)
Deed of Grant No. 10677121 (POR 3535)
Deed of Grant No. 10677122 (POR 3534)
2. COVENANT No 709843946 10/08/2006 at 12:11
restricts dealings over
LOT 1 ON AG2605 AND LOT 1 ON RL5240

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618848

Search Date: 18/11/2019 11:37

Title Reference: 16676193

Date Created: 26/10/1984

Previous Title: 12183109
15558085

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 197103
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)
2. EASEMENT No 602545494 (H926385) 24/07/1986
BENEFITING THE LAND
OVER EASEMENT A ON RP197103

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618849

Search Date: 18/11/2019 11:37

Title Reference: 11142143

Date Created: 16/06/1910

Creating Dealing: 602243842

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 25521
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618850

Search Date: 18/11/2019 11:37

Title Reference: 11108108

Date Created: 04/12/1908

Creating Dealing: 602746775

REGISTERED OWNER

Dealing No: 712846181 06/11/2009

ACLAND PASTORAL CO PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 36493
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292068 (POR 747)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618851

Search Date: 18/11/2019 11:37

Title Reference: 50550935

Date Created: 26/04/2005

Previous Title: 40047055

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 251 SURVEY PLAN 177899

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40047055 (Lot 251 on SP 177899)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618852

Search Date: 18/11/2019 11:37

Title Reference: 12406186

Date Created: 06/12/1948

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 CROWN PLAN AG1806

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618854

Search Date: 18/11/2019 11:37

Title Reference: 13917164

Date Created: 05/10/1966

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 CROWN PLAN AG2605
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10623104 (POR 3434)
Deed of Grant No. 10677121 (POR 3535)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922718	CON COM AGMT	27/03/2017 11:40	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618856

Search Date: 18/11/2019 11:37

Title Reference: 12772059

Date Created: 25/08/1953

Previous Title: 12116232

REGISTERED OWNER

Dealing No: 710106704 17/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 CROWN PLAN AG262
Local Government: TOOWOOMBA

For depth restrictions refer to Plan CP AG262

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12116232 (POR 747)
2. COVENANT No 710106699 17/11/2006 at 09:29
restricts dealings over
LOT 1 ON AP2207 AND LOT 2 ON AG262

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618861

Search Date: 18/11/2019 11:37

Title Reference: 16676194

Date Created: 26/10/1984

Previous Title: 12183109

REGISTERED OWNER

Dealing No: 710800176 11/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 197103
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)
2. EASEMENT No 602545494 (H926385) 24/07/1986
BURDENING THE LAND
TO LOT 1 ON RP197103
OVER EASEMENT A ON RP197103

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618862

Search Date: 18/11/2019 11:37

Title Reference: 16839151

Date Created: 26/11/1985

Previous Title: 14074148

REGISTERED OWNER

Dealing No: 710850543 27/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 200083
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 200083

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292068 (POR 747)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618863

Search Date: 18/11/2019 11:37

Title Reference: 50089696

Date Created: 15/09/1995

Previous Title: 14807065
14807066

REGISTERED OWNER

Dealing No: 710539704 30/04/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2 REGISTERED PLAN 93626
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618871

Search Date: 18/11/2019 11:37

Title Reference: 14413085

Date Created: 20/02/1970

Previous Title: 10616047

REGISTERED OWNER

Dealing No: 710987658 11/09/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3445 CROWN PLAN A341747

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10616047 (POR 3445)
2. EASEMENT IN GROSS No 718112800 27/06/2017 at 11:27
burdening the land
ERGON ENERGY CORPORATION LIMITED A.C.N. 087 646 062
over
EASEMENT B ON SP298247

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922474	CON COM AGMT	27/03/2017 11:27	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618869

Search Date: 18/11/2019 11:37

Title Reference: 13639090

Date Created: 07/02/1964

Previous Title: 10657210

REGISTERED OWNER

Dealing No: 711330388 09/01/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3421 CROWN PLAN A341699

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10657210 (POR 3421)
2. COVENANT No 707053555 06/10/2003 at 10:20
restricts dealings over
LOT 3421 ON A341699
LOT 3462 ON A341746
LOT 1 ON RL6874

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618864

Search Date: 18/11/2019 11:37

Title Reference: 11282091

Date Created: 10/07/1914

Creating Dealing: 602719830

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3069 CROWN PLAN A341593

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10558098 (POR 3069)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618867

Search Date: 18/11/2019 11:37

Title Reference: 13666123

Date Created: 24/06/1964

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3293 CROWN PLAN A341624

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10592205 (POR 3293)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618866

Search Date: 18/11/2019 11:37

Title Reference: 50230489

Date Created: 13/08/1998

Previous Title: 11737085
11737087

REGISTERED OWNER

Dealing No: 710559674 04/05/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3171 REGISTERED PLAN 902113
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10562185 (POR 3171)
Deed of Grant No. 10641151 (POR 3461)
2. COVENANT No 710564601 08/05/2007 at 16:19
restricts dealings over
LOTS 3171 AND 3461 ON RP902113 AND LOT 1 ON CP RL206762
3. EASEMENT IN GROSS No 718112800 27/06/2017 at 11:27
burdening the land
ERGON ENERGY CORPORATION LIMITED A.C.N. 087 646 062
over
EASEMENT A ON SP298247

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922460	CON COM AGMT	27/03/2017 11:25	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618870

Search Date: 18/11/2019 11:37

Title Reference: 13917165

Date Created: 05/10/1966

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3435 CROWN PLAN AG2605

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10623181 (POR 3435)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618865

Search Date: 18/11/2019 11:37

Title Reference: 11737086

Date Created: 01/05/1928

Previous Title: 10551235

REGISTERED OWNER

Dealing No: 710625502 29/05/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3170 CROWN PLAN A341594

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10551235 (POR 3170)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922441	CON COM AGMT	27/03/2017 11:25	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618874

Search Date: 18/11/2019 11:37

Title Reference: 14413086

Date Created: 20/02/1970

Previous Title: 10612170

REGISTERED OWNER

Dealing No: 710987658 11/09/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3448 CROWN PLAN A341747

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10612170 (POR 3448)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618875

Search Date: 18/11/2019 11:37

Title Reference: 50230490

Date Created: 13/08/1998

Previous Title: 11737085

REGISTERED OWNER

Dealing No: 710559674 04/05/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3461 REGISTERED PLAN 902113

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10641151 (POR 3461)
2. COVENANT No 710564601 08/05/2007 at 16:19
restricts dealings over
LOTS 3171 AND 3461 ON RP902113 AND LOT 1 ON CP RL206762

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618878

Search Date: 18/11/2019 11:37

Title Reference: 15815092

Date Created: 05/10/1978

Previous Title: 10859170

REGISTERED OWNER

Dealing No: 711330388 09/01/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3463 CROWN PLAN A341746

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10649143 (POR 3463)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618877

Search Date: 18/11/2019 11:37

Title Reference: 13353184

Date Created: 02/12/1960

Previous Title: 10859169

REGISTERED OWNER

Dealing No: 711330388 09/01/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3462 CROWN PLAN A341746

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10649147 (POR 3462)
2. COVENANT No 707053555 06/10/2003 at 10:20
restricts dealings over
LOT 3462 ON A341746
LOT 3421 ON A341699
LOT 1 ON RL6874

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618880

Search Date: 18/11/2019 11:37

Title Reference: 11861219

Date Created: 18/08/1932

Previous Title: 11762017
11762018

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3472 CROWN PLAN A341748
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10637114 (POR 3472)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
719004392	CON COM AGMT	21/09/2018 13:53	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618881

Search Date: 18/11/2019 11:37

Title Reference: 13627180

Date Created: 05/03/1964

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3473 CROWN PLAN AG2388
Local Government: TOOWOOMBA
LOT 3873 CROWN PLAN AG2388
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10653242 (POR 3473)
Deed of Grant No. 10716086 (POR 3873)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922726	CON COM AGMT	27/03/2017 11:41	CURRENT
	MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014		
717922791	CON COM AGMT	27/03/2017 11:44	CURRENT
	MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014		

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618882

Search Date: 18/11/2019 11:37

Title Reference: 11737088

Date Created: 01/05/1928

Previous Title: 10637173

REGISTERED OWNER

Dealing No: 710625502 29/05/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3519 CROWN PLAN A341792

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10637173 (POR 3519)
2. COVENANT No 710625500 29/05/2007 at 09:13
restricts dealings over
LOT 3519 ON CROWN PLAN A341792, LOT 98 ON CROWN PLAN A342317
AND LOT 1 ON RL206785

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618883

Search Date: 18/11/2019 11:37

Title Reference: 11036223

Date Created: 18/10/1904

Creating Dealing: 602254610

REGISTERED OWNER

Dealing No: 710800187 11/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 35 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10452190 (POR 1038)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618884

Search Date: 18/11/2019 11:37

Title Reference: 11633143

Date Created: 03/09/1925

Previous Title: 10695107

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3679 CROWN PLAN A341857

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10695107 (POR 3679)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618890

Search Date: 18/11/2019 11:37

Title Reference: 50415158

Date Created: 15/11/2002

Previous Title: 11740091

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3875 SURVEY PLAN 150555

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10725112 (POR 3875)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618887

Search Date: 18/11/2019 11:37

Title Reference: 11036224

Date Created: 18/10/1904

Creating Dealing: 602254610

REGISTERED OWNER

Dealing No: 710800187 11/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 36 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10452190 (POR 1038)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618892

Search Date: 18/11/2019 11:38

Title Reference: 12183110

Date Created: 06/08/1942

Previous Title: 12131045
12131046

REGISTERED OWNER

Dealing No: 710478210 04/04/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 39 CROWN PLAN AG718
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12131045 (POR 1038)
Deed of Grant No. 12131046 (POR 1038)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618885

Search Date: 18/11/2019 11:37

Title Reference: 16691197

Date Created: 04/12/1984

Previous Title: 13172214

REGISTERED OWNER

Dealing No: 711909184 09/09/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3684 CROWN PLAN A341858

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10777169 (POR 3684)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922802	CON COM AGMT	27/03/2017 11:45	CURRENT

MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618888

Search Date: 18/11/2019 11:37

Title Reference: 16007237

Date Created: 23/06/1980

Previous Title: 14807063
14807064

REGISTERED OWNER

Dealing No: 710539701 30/04/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 37 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10452190 (POR 1038)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618891

Search Date: 18/11/2019 11:38

Title Reference: 13787065

Date Created: 08/10/1965

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 38 CROWN PLAN AG2512

Local Government: TOOWOOMBA

For depth restrictions refer to Plan CP AG2512

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292141 (SEL 901)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618889

Search Date: 18/11/2019 11:37

Title Reference: 13627180

Date Created: 05/03/1964

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3473 CROWN PLAN AG2388
Local Government: TOOWOOMBA
LOT 3873 CROWN PLAN AG2388
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10653242 (POR 3473)
Deed of Grant No. 10716086 (POR 3873)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
717922726	CON COM AGMT	27/03/2017 11:41	CURRENT
	MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014		
717922791	CON COM AGMT	27/03/2017 11:44	CURRENT
	MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014		

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618895

Search Date: 18/11/2019 11:38

Title Reference: 14635078

Date Created: 08/09/1971

Previous Title: 10865119

REGISTERED OWNER

Dealing No: 709682489 15/06/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 4086 CROWN PLAN A342138

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10865119 (POR 4086)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618894

Search Date: 18/11/2019 11:38

Title Reference: 12061115

Date Created: 19/01/1939

Previous Title: 11243209
11243210

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36466
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10623178 (POR 3450)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618893

Search Date: 18/11/2019 11:38

Title Reference: 17243111

Date Created: 12/01/1989

Previous Title: 16028095

REGISTERED OWNER

Dealing No: 709778299 18/07/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 220755
Local Government: TOOWOOMBA

For exclusions / reservations for public purposes refer to
Plan RP 220755

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10568208 (POR 1988)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618896

Search Date: 18/11/2019 11:38

Title Reference: 16691196

Date Created: 04/12/1984

Previous Title: 13172213

REGISTERED OWNER

Dealing No: 711909184 09/09/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 4089 CROWN PLAN A342138

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10865120 (POR 4089)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618898

Search Date: 18/11/2019 11:38

Title Reference: 13608164

Date Created: 02/10/1963

Previous Title: 12086199
12086200

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 50 CROWN PLAN AG391
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11079023 (POR 50)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618897

Search Date: 18/11/2019 11:38

Title Reference: 14385042

Date Created: 08/12/1969

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 49 CROWN PLAN AG391

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 14385042 (POR 49)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618900

Search Date: 18/11/2019 11:38

Title Reference: 51011448

Date Created: 06/11/2015

Previous Title: 40070758

REGISTERED OWNER

Dealing No: 716868930 06/11/2015

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 62 CROWN PLAN AG2962

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40070758 (Lot 62 on CP AG2962)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618902

Search Date: 18/11/2019 11:38

Title Reference: 12981150

Date Created: 31/07/1956

Previous Title: 11743127

REGISTERED OWNER

Dealing No: 710800141 11/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 69 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 25514

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292067 (POR 799)
2. COVENANT No 710800153 11/07/2007 at 09:39
restricts dealings over
LOT 69 ON RP25514 AND LOT 1 ON RL8213

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618899

Search Date: 18/11/2019 11:38

Title Reference: 18432249

Date Created: 04/02/1993

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 54 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 94 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 18432249 (Lot 54 on CP A342317)
(Lot 94 on CP A342317)
2. COVENANT No 707630280 08/04/2004 at 10:29
restricts dealings over
LOT 94 ON A342317 AND LOT 1 ON RL5273

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618901

Search Date: 18/11/2019 11:38

Title Reference: 14069086

Date Created: 01/09/1967

Previous Title: 12843214

REGISTERED OWNER

Dealing No: 710850543 27/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 67 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 25514

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292068 (POR 747)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618903

Search Date: 18/11/2019 11:38

Title Reference: 12535211

Date Created: 11/01/1951

Previous Title: 11481015

REGISTERED OWNER

Dealing No: 709822448 02/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 6 CROWN PLAN AG1127
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11481015 (POR 1988)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618905

Search Date: 18/11/2019 11:38

Title Reference: 11275216

Date Created: 09/07/1914

REGISTERED OWNER

Dealing No: 710068507 03/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 90	CROWN PLAN A342317
	Local Government: TOOWOOMBA
LOT 91	CROWN PLAN A342317
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11275216 (POR 1V)
(POR 2V)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618904

Search Date: 18/11/2019 11:38

Title Reference: 11275216

Date Created: 09/07/1914

REGISTERED OWNER

Dealing No: 710068507 03/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 90	CROWN PLAN A342317
	Local Government: TOOWOOMBA
LOT 91	CROWN PLAN A342317
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11275216 (POR 1V)
(POR 2V)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618906

Search Date: 18/11/2019 11:38

Title Reference: 12210227

Date Created: 07/03/1944

Previous Title: 12086203
12086204

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 92 CROWN PLAN A341981
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10493123 (POR 1A)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618944

Search Date: 18/11/2019 11:39

Title Reference: 18432249

Date Created: 04/02/1993

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 54 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 94 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 18432249 (Lot 54 on CP A342317)
(Lot 94 on CP A342317)
2. COVENANT No 707630280 08/04/2004 at 10:29
restricts dealings over
LOT 94 ON A342317 AND LOT 1 ON RL5273

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618945

Search Date: 18/11/2019 11:39

Title Reference: 13608165

Date Created: 02/10/1963

Previous Title: 13607061
13607062

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 95 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 96 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12602122 (POR 4V)
(POR 5V)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618946

Search Date: 18/11/2019 11:39

Title Reference: 13608165

Date Created: 02/10/1963

Previous Title: 13607061
13607062

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 95 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 96 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12602122 (POR 4V)
(POR 5V)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618947

Search Date: 18/11/2019 11:39

Title Reference: 13422106

Date Created: 30/08/1961

Previous Title: 12950226
12950227

REGISTERED OWNER

Dealing No: 710625502 29/05/2007

ACLAND PASTORAL CO.PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 97 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 98 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11113221 (POR 3V)
(POR 6V)
2. COVENANT No 710625500 29/05/2007 at 09:13
restricts dealings over
LOT 3519 ON CROWN PLAN A341792, LOT 98 ON CROWN PLAN A342317
AND LOT 1 ON RL206785

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618948

Search Date: 18/11/2019 11:39

Title Reference: 13422106

Date Created: 30/08/1961

Previous Title: 12950226
12950227

REGISTERED OWNER

Dealing No: 710625502 29/05/2007

ACLAND PASTORAL CO.PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 97 CROWN PLAN A342317
Local Government: TOOWOOMBA
LOT 98 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 11113221 (POR 3V)
(POR 6V)
2. COVENANT No 710625500 29/05/2007 at 09:13
restricts dealings over
LOT 3519 ON CROWN PLAN A341792, LOT 98 ON CROWN PLAN A342317
AND LOT 1 ON RL206785

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618949

Search Date: 18/11/2019 11:39

Title Reference: 13608163

Date Created: 02/10/1963

Previous Title: 12086201
12086202

REGISTERED OWNER

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 99 CROWN PLAN A342317
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10999050 (POR 7V)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618950

Search Date: 18/11/2019 11:39

Title Reference: 50603629

Date Created: 04/04/2006

Previous Title: 15873025

REGISTERED OWNER

Dealing No: 709765116 12/07/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 9 SURVEY PLAN 188367
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10653178 (POR 3422)
2. COVENANT No 709861634 18/08/2006 at 08:53
restricts dealings over
LOT 9 ON SP188367 AND
LOT 1 ON RL6875

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618951

Search Date: 18/11/2019 11:39

Title Reference: 13078096

Date Created: 17/12/1957

Previous Title: 12883239
12883240

REGISTERED OWNER

Dealing No: 712299236 24/03/2009

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3655 CROWN PLAN A341856
Local Government: TOOWOOMBA
LOT 2 REGISTERED PLAN 36465
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10653226 (POR 3655)
Deed of Grant No. 10657132 (POR 3424)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618952

Search Date: 18/11/2019 11:39

Title Reference: 50550934

Date Created: 26/04/2005

Previous Title: 40047055

REGISTERED OWNER

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 60 SURVEY PLAN 177899
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40047055 (Lot 60 on SP 177899)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618953

Search Date: 18/11/2019 11:39

Title Reference: 12809204

Date Created: 04/03/1954

Previous Title: 11179139

REGISTERED OWNER

Dealing No: 712846199 06/11/2009

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36494
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292067 (POR 799)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618954

Search Date: 18/11/2019 11:39

Title Reference: 14096136

Date Created: 30/10/1967

Previous Title: 12809203

REGISTERED OWNER

Dealing No: 712846199 06/11/2009

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA
LOT 4	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292067 (POR 799)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618956

Search Date: 18/11/2019 11:39

Title Reference: 14392159

Date Created: 16/12/1969

Previous Title: 11181213

REGISTERED OWNER

Dealing No: 711280116 17/12/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA
LOT 3	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292066 (POR 801)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618957

Search Date: 18/11/2019 11:39

Title Reference: 11181214

Date Created: 25/09/1911

Creating Dealing: 602727950

REGISTERED OWNER

Dealing No: 713836059 05/05/2011

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36495
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292066 (POR 801)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618958

Search Date: 18/11/2019 11:39

Title Reference: 15694044

Date Created: 03/10/1977

REGISTERED OWNER

Dealing No: 712846199 06/11/2009

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 72 CROWN PLAN AG3550

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 15694044 (POR 72)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618960

Search Date: 18/11/2019 11:39

Title Reference: 15656207

Date Created: 19/07/1977

REGISTERED OWNER

Dealing No: 711280116 17/12/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 79 CROWN PLAN AG3526

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 15656207 (POR 79)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618963

Search Date: 18/11/2019 11:39

Title Reference: 14392159

Date Created: 16/12/1969

Previous Title: 11181213

REGISTERED OWNER

Dealing No: 711280116 17/12/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 2	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA
LOT 3	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292066 (POR 801)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618965

Search Date: 18/11/2019 11:39

Title Reference: 14096136

Date Created: 30/10/1967

Previous Title: 12809203

REGISTERED OWNER

Dealing No: 712846199 06/11/2009

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA
LOT 4	REGISTERED PLAN 84726
	Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292067 (POR 799)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618966

Search Date: 18/11/2019 11:39

Title Reference: 11189007

Date Created: 21/11/1911

Creating Dealing: 602739515

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 36464
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10558194 (POR 3152)
2. COVENANT No 711194699 20/11/2007 at 09:27
restricts dealings over
LOT 3 ON RP36463, LOT 3 ON RP36462, LOT 1 ON RP36464 AND LOT A
ON CP AP17271

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618968

Search Date: 18/11/2019 11:39

Title Reference: 14708004

Date Created: 15/02/1972

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 63 CROWN PLAN AG3098

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 14708004 (POR 63)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618969

Search Date: 18/11/2019 11:40

Title Reference: 11189008

Date Created: 21/11/1911

Creating Dealing: 602739515

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36464
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10558194 (POR 3152)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618970

Search Date: 18/11/2019 11:40

Title Reference: 11187223

Date Created: 20/11/1911

Creating Dealing: 602727171

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36462
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483131 (POR 2635)
2. COVENANT No 711194699 20/11/2007 at 09:27
restricts dealings over
LOT 3 ON RP36463, LOT 3 ON RP36462, LOT 1 ON RP36464 AND LOT A
ON CP AP17271

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618971

Search Date: 18/11/2019 11:40

Title Reference: 11187222

Date Created: 20/11/1911

Creating Dealing: 602727171

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 36462
Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483131 (POR 2635)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618972

Search Date: 18/11/2019 11:40

Title Reference: 11380234

Date Created: 23/10/1917

Previous Title: 11282094

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 3 REGISTERED PLAN 36463
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 36463

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483135 (POR 2636)
2. COVENANT No 711194699 20/11/2007 at 09:27
restricts dealings over
LOT 3 ON RP36463, LOT 3 ON RP36462, LOT 1 ON RP36464 AND LOT A
ON CP AP17271

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618974

Search Date: 18/11/2019 11:40

Title Reference: 14708222

Date Created: 24/03/1972

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 64 CROWN PLAN AG3113

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 14708222 (POR 64)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32618975

Search Date: 18/11/2019 11:40

Title Reference: 11380233

Date Created: 23/10/1917

Previous Title: 11282093

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 36463
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 36463

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483135 (POR 2636)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605154

Search Date: 15/11/2019 10:35

Title Reference: 12853157

Date Created: 15/09/1954

Previous Title: 11030016

REGISTERED OWNER	Interest
------------------	----------

WILLIS LYNN HAENKE	TENANT IN COMMON	1/2
--------------------	------------------	-----

ESTATE AND LAND

Estate in Fee Simple

LOT 138 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 25514

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292141 (SEL 901)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605155

Search Date: 15/11/2019 10:35

Title Reference: 12853158

Date Created: 15/09/1954

Previous Title: 11030016

REGISTERED OWNER	Interest
SYBIL MAIDA DIXON	TENANT IN COMMON
	1/2

ESTATE AND LAND

Estate in Fee Simple

LOT 138 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 25514

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292141 (SEL 901)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605156

Search Date: 15/11/2019 10:35

Title Reference: 11743127

Date Created: 12/07/1928

Previous Title: 11169019
11169020

REGISTERED OWNER

LAURA LYDIA HAENKE

ESTATE AND LAND

Estate in Fee Simple

LOT 169 REGISTERED PLAN 25514
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 25514

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292067 (POR 799)
2. LEASE No 602822138 (A964955) 15/09/1950
TO EDWARD LIONEL DIXON, SYBIL MAIDA DIXON, HELEN JOYCE
HAENKE
OVER MINES, BEDS, VEINS AND SEAMS OF COAL FROM THE SURFACE
DOWNWARDS
ORIGINAL TERM: 21 YEARS
COMMENCING 01 JULY 1950
AND OPTIONS AS MAY BE STATED

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32619085

Search Date: 18/11/2019 11:44

Title Reference: 12843215

Date Created: 03/08/1954

Previous Title: 11036248
11036250

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 6	REGISTERED PLAN 218459 Local Government: TOOWOOMBA
LOT 7	REGISTERED PLAN 218459 Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 218459

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292068 (POR 747)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32619086

Search Date: 18/11/2019 11:44

Title Reference: 12843215

Date Created: 03/08/1954

Previous Title: 11036248
11036250

REGISTERED OWNER

Dealing No: 709562196 04/05/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

ESTATE AND LAND

Estate in Fee Simple

LOT 6	REGISTERED PLAN 218459 Local Government: TOOWOOMBA
LOT 7	REGISTERED PLAN 218459 Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 218459

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10292068 (POR 747)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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HISTORICAL TITLE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605169
Search Date: 15/11/2019 10:35

Title Reference: 12775032
Date Created: 07/09/1953

Previous Title: 12116232

REGISTERED OWNER

ROY BERNARD JACK BARNES

ESTATE AND LAND

Estate in Fee Simple

LOT 8 REGISTERED PLAN 218459
 Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 218459

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 12116232 (POR 747)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
AS2311E	ROAD CLOSURE	01/09/1987 00:00	NOT CURRENT

LAND ACT 1994

UNREGISTERED DEALINGS - NIL

** End of Historical Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605157

Search Date: 15/11/2019 10:35

Title Reference: 50603630

Date Created: 04/04/2006

Previous Title: 15873025

REGISTERED OWNER

Dealing No: 709487931 03/04/2006

KAYE BARBARA BROWN

ESTATE AND LAND

Estate in Fee Simple

VOLUMETRIC LOT 10 SURVEY PLAN 188367

Local Government: TOOWOOMBA

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10653178 (POR 3422)

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605158

Search Date: 15/11/2019 10:35

Title Reference: 11380204

Date Created: 22/10/1917

Previous Title: 11282094

REGISTERED OWNER

Dealing No: 701125742 25/01/1996

OCEANIC COAL AUSTRALIA LIMITED A.C.N. 003 856 782

ESTATE AND LAND

Estate in Fee Simple

LOT 13 REGISTERED PLAN 36463
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 36463

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483135 (POR 2636)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

** End of Current Title Search **

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CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32605159

Search Date: 15/11/2019 10:35

Title Reference: 11380203

Date Created: 22/10/1917

Previous Title: 11282093

REGISTERED OWNER

Dealing No: 701125742 25/01/1996

OCEANIC COAL AUSTRALIA LIMITED A.C.N. 003 856 782

ESTATE AND LAND

Estate in Fee Simple

LOT 11 REGISTERED PLAN 36463
Local Government: TOOWOOMBA

For depth restrictions refer to Plan RP 36463

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10483135 (POR 2636)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

** End of Current Title Search **

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624703
Search Date: 18/11/2019 16:43

Title Reference: 40016841
Date Created: 27/08/1998

DESCRIPTION OF LAND

Tenure Reference: RL 0/210831

Lease Type: NO TERM

LOT 1 CROWN PLAN AP2207
 Local Government: TOOWOOMBA

Area: 1.800000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
 AGRICULTURAL

COMMENCEMENT DATE

Commencement Date: 01/07/1997

REGISTERED LICENSEE

Dealing No: 710106704 17/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

CURRENT STATE TENURE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624703

Search Date: 18/11/2019 16:43

Title Reference: 40016841

Date Created: 27/08/1998

CONDITIONS

- A46
- (1) The licensee shall use the licensed area for agricultural purposes namely grazing or for cultivation only.
 - (2) In the event of the licensee ceasing to use the licensed area as provided for in Condition A46 clause (1) above, the licence may be forfeited or cancelled.
 - (3) The annual rent shall be paid yearly in advance and shall be determined in accordance with the provisions of the Land Act 1994.
 - (4) The licensee shall pay the cost of any required survey.
 - (5) The licensee must keep any noxious plants, on the licensed area, under control.
 - (6) The licensee has the responsibility for a duty of care for the licensed area.
 - (7) The licensee shall ensure that the use and development of the licensed area conforms to the Town Planning Scheme By-Laws and requirements of the Rosalie Shire Council.
 - (8) The licensee must give the Minister administering the Land Act 1994, the information the Minister administering the Land Act 1994 asks for about the licence.
 - (9) The licensee shall not destroy any trees on the licensed area unless in accordance with a tree clearing permit under the provisions of the Land Act 1994 or the provisions relating to the clearing for routine management purposes as prescribed in the Land Regulation 1995. (NOTE:- Routine Management provisions of the Land Act do not apply on leases over State Forests and Timber Reserves)
 - (10) No compensation for improvements or developmental work shall be payable by the State at the cancellation of the licence or surrender of the licence but the licensee shall either have the right to remove the licensees moveable improvements within a period of three (3) months from the cancellation of the licence or surrender of the licence, provided all moneys due by the licensee to the State on any account whatsoever have been paid, or be required to remove those improvements as specified in any further condition of licence.

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624703

Search Date: 18/11/2019 16:43

Title Reference: 40016841

Date Created: 27/08/1998

CONDITIONS

- A47 (1) The licensee shall allow any person authorised under the Forestry Act 1959 access to the licensed area for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the licensed area.
- (2) Except as hereinafter provided the licensee shall not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the licensed area without the permission of the Minister administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements of a permit, licence, agreement or contract granted or made under the Forestry Act 1959 .
- L81 The licensee shall not effect any structural improvements other than boundary fencing on the licensed area.

ENDORSEMENTS

1. COVENANT No 710106699 17/11/2006 at 09:29 restricts dealings over LOT 1 ON AP2207 AND LOT 2 ON AG262

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624705
Search Date: 18/11/2019 16:43

Title Reference: 40004343
Date Created: 15/04/1996

DESCRIPTION OF LAND

Tenure Reference: RL 0/206785

Lease Type: NO TERM

LOT 1 CROWN PLAN RL206785
 Local Government: TOOWOOMBA

Area: 4.920000 Ha. (ABOUT)

Area Description:

Strips of varying width road abutting the eastern and south-eastern boundaries of Lot 98 on plan A342317 and Lot 3519 on plan A341792 situated westerly and north-westerly of a line 15 metres westerly and north-westerly of and parallel to the centre line of the constructed road.

No Forestry Entitlement Area

Purpose for which granted:
PRIMARY INDUSTRY (AGRICULTURE & GRAZING)

COMMENCEMENT DATE

Commencement Date: 19/03/1996

REGISTERED LICENSEE

Dealing No: 710625502 29/05/2007

ACLAND PASTORAL CO.PTY LTD A.C.N. 009 888 395

CONDITIONS

- A28 The licensee shall use the licensed area for primary industry (agriculture and grazing) purposes only .
- B37 The annual rent shall be paid yearly in advance and shall be determined in accordance with the provisions of the Land Act 1994.
- C281 No compensation for improvements shall be payable on determination of this Licence but the Licensee shall have the right to remove them within a period of one (1) month, except that where notification of the cancellation of this Licence is issued in terms of section 106(1) of the Land Act 1994, such period for removal of improvements shall expire at the date of cancellation as specified in the notification.

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624705

Search Date: 18/11/2019 16:43

Title Reference: 40004343

Date Created: 15/04/1996

CONDITIONS

- C291 The licensee shall not destroy any trees on the licensed area unless in accordance with a tree clearing permit under the provisions of the Land Act 1994 or the provisions relating to the clearing for routine management purposes as prescribed in the Land Regulation 1995.
- K19 The licensee must keep any noxious plants, on the licensed area, under control.
- L40 The licensee shall not erect any structural improvements, other than fencing, on the licensed area during the currency of the licence.
- M314 The licensee must give the Minister administering the Land Act 1994, the information the Minister administering the Land Act 1994 asks for about the licence.
- Z75 The licensee has the responsibility for a duty of care for the licensed area.

ENDORSEMENTS

1. COVENANT No 710625500 29/05/2007 at 09:13
restricts dealings over
LOT 3519 ON CROWN PLAN A341792, LOT 98 ON CROWN PLAN A342317
AND LOT 1 ON RL206785

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624704
Search Date: 18/11/2019 16:43

Title Reference: 40004174
Date Created: 15/04/1996

DESCRIPTION OF LAND

Tenure Reference: RL 0/206762

Lease Type: NO TERM

LOT 1 CROWN PLAN RL206762
 Local Government: TOOWOOMBA

Area: 2.280000 Ha. (ABOUT)

Area Description:

A strip of road of varying width abutting the south-eastern boundary of Lot 3461 on plan A341745 situated north-westerly of a line 15 metres north-westerly of and parallel to the centre line of the constructed road.

No Forestry Entitlement Area

Purpose for which granted:

PRIMARY INDUSTRY (AGRICULTURE & GRAZING)

COMMENCEMENT DATE

Commencement Date: 19/03/1996

REGISTERED LICENSEE

Dealing No: 710559674 04/05/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

- A28 The licensee shall use the licensed area for primary industry (agriculture and grazing) purposes only .
- B37 The annual rent shall be paid yearly in advance and shall be determined in accordance with the provisions of the Land Act 1994.
- C281 No compensation for improvements shall be payable on determination of this Licence but the Licensee shall have the right to remove them within a period of one (1) month, except that where notification of the cancellation of this Licence is issued in terms of section 106(1) of the Land Act 1994, such period for removal of improvements shall expire at the date of cancellation as specified in the notification.

CURRENT STATE TENURE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624704

Search Date: 18/11/2019 16:43

Title Reference: 40004174

Date Created: 15/04/1996

CONDITIONS

- C291 The licensee shall not destroy any trees on the licensed area unless in accordance with a tree clearing permit under the provisions of the Land Act 1994 or the provisions relating to the clearing for routine management purposes as prescribed in the Land Regulation 1995.
- K19 The licensee must keep any noxious plants, on the licensed area, under control.
- L40 The licensee shall not erect any structural improvements, other than fencing, on the licensed area during the currency of the licence.
- M314 The licensee must give the Minister administering the Land Act 1994, the information the Minister administering the Land Act 1994 asks for about the licence.
- Z75 The licensee has the responsibility for a duty of care for the licensed area.

ENDORSEMENTS

1. COVENANT No 710564601 08/05/2007 at 16:19
restricts dealings over
LOTS 3171 AND 3461 ON RP902113 AND LOT 1 ON CP RL206762

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624706
Search Date: 18/11/2019 16:43

Title Reference: 17697189
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/3581

Lease Type: NO TERM

LOT 1 CROWN PLAN RL3581
 Local Government: TOOWOOMBA

Area: 3.238000 Ha. (ABOUT)

Area Description:

A strip having a maximum width of three chains of the road
abutting the western boundaries of portions 3058 and 2740.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 11/09/1962

REGISTERED LICENSEE

Dealing No: 709765121 12/07/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

- M76 The licensee shall not erect any structural improvements other than
fencing on the land during the currency of the license.
- M76 Employees of the Postmaster-General's Department shall at all times
have the right of free and unrestricted access to, from and across
the land for the purpose of constructing, maintaining and/or
repairing telephone lines on the land.

ENDORSEMENTS

1. COVENANT No 709861637 18/08/2006 at 08:54
restricts dealings over
LOT 1 ON SP188363,
LOT 3 ON SP188364 AND
LOT 1 ON RL3581

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624706

Search Date: 18/11/2019 16:43

Title Reference: 17697189

Date Created: 21/10/1995

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624707
Search Date: 18/11/2019 16:43

Title Reference: 17700026
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/5240

Lease Type: NO TERM

LOT 1 CROWN PLAN RL5240
Local Government: TOOWOOMBA

Area: 3.670000 Ha. (ABOUT)

Area Description:

The road abutting the southern boundary of subdivision 2 of portions 3434 and 3535, exclusive of a strip two chains in length at its western end.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 10/10/1968

REGISTERED LICENSEE

Dealing No: 709843906 10/08/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

M76 The Licensee shall not erect any structural improvements, other than fencing, on the land during the currency of the License.

ENDORSEMENTS

1. COVENANT No 709843946 10/08/2006 at 12:11 restricts dealings over LOT 1 ON AG2605 AND LOT 1 ON RL5240

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624707

Search Date: 18/11/2019 16:43

Title Reference: 17700026

Date Created: 21/10/1995

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

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section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624708
Search Date: 18/11/2019 16:43

Title Reference: 17700055
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/5273

Lease Type: NO TERM

LOT 1 CROWN PLAN RL5273
 Local Government: TOOWOOMBA

Area: 0.809400 Ha. (ABOUT)

Area Description:

The road separating portion 8V from portion 4086.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 19/12/1968

REGISTERED LICENSEE

Dealing No: 710072720 06/11/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

M76 The Licensee shall not erect any structural improvements, other than
 fencing, on the land during the currency of the License.

ENDORSEMENTS

1. COVENANT No 707630280 08/04/2004 at 10:29
 restricts dealings over
 LOT 94 ON A342317 AND LOT 1 ON RL5273

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624708

Search Date: 18/11/2019 16:43

Title Reference: 17700055

Date Created: 21/10/1995

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624710
Search Date: 18/11/2019 16:43

Title Reference: 17704024
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/5439

Lease Type: NO TERM

LOT 1 CROWN PLAN RL5439
 Local Government: TOOWOOMBA

Area: 3.602000 Ha. (ABOUT)

Area Description:

A strip three chains wide along the eastern alignment of the
road abutting the western boundaries of portions 2768 and 3272.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 04/09/1969

REGISTERED LICENSEE

Dealing No: 709765121 12/07/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

- M76 The Licensee shall not erect any structural improvements, other than
fencing, on the land during the currency of the License.
- M76 Employees of the Postmaster-General's Department shall at all times
have the right of free and unrestricted access to, from and across
the land for the purpose of constructing, maintaining and/or
repairing telephone lines on the land.

ENDORSEMENTS

1. COVENANT No 709861639 18/08/2006 at 08:54
restricts dealings over
LOT 5 ON SP188365,
LOT 7 ON SP188366 AND
LOT 1 ON RL5439

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624710

Search Date: 18/11/2019 16:43

Title Reference: 17704024

Date Created: 21/10/1995

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

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section 281 Land Act(1994)

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624711
Search Date: 18/11/2019 16:43

Title Reference: 17706057
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/6874

Lease Type: NO TERM

LOT 1 CROWN PLAN RL6874
Local Government: TOOWOOMBA

Area: 8.220000 Ha. (ABOUT)

Area Description:

Strips of varying width of the road abutting the north-western boundary of portions 3421,3462 and 3463 situated south-easterly of a line 10 metres south-easterly of and parallel to the centre line of the constructed road.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 26/10/1978

REGISTERED LICENSEE

Dealing No: 711330388 09/01/2008

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

M76 The Licensee shall not erect any structural improvements, other than fencing, on the land during the currency of the License.

ENDORSEMENTS

1. COVENANT No 707053555 06/10/2003 at 10:20
restricts dealings over
LOT 1 ON RL6874
LOT 3421 ON A341699
LOT 3462 ON A341746

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624711

Search Date: 18/11/2019 16:43

Title Reference: 17706057

Date Created: 21/10/1995

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

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CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624713
Search Date: 18/11/2019 16:43

Title Reference: 17706058
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/6875

Lease Type: NO TERM

LOT 1 CROWN PLAN RL6875
Local Government: TOOWOOMBA

Area: 2.890000 Ha. (ABOUT)

Area Description:

A strip of varying width of the road abutting the north-western boundary of portion 3422, situated south-easterly of a line 10 metres south-easterly of and parallel to the centre line of the constructed road.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 26/10/1978

REGISTERED LICENSEE

Dealing No: 709765116 12/07/2006

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

M76 The Licensee shall not erect any structural improvements, other than fencing, on the land during the currency of the License.

ENDORSEMENTS

1. COVENANT No 709861634 18/08/2006 at 08:53
restricts dealings over
LOT 9 ON SP188367 AND
LOT 1 ON RL6875

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624713

Search Date: 18/11/2019 16:43

Title Reference: 17706058

Date Created: 21/10/1995

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624714
Search Date: 18/11/2019 16:43

Title Reference: 17712076
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: RL 42/8213

Lease Type: NO TERM

LOT 1 CROWN PLAN RL8213
 Local Government: TOOWOOMBA

Area: 2.000000 Ha. (ABOUT)

Area Description:

Lot 1 on plan RL8213 being the road abutting the eastern
boundary of Lot 69 on RP25514.

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

COMMENCEMENT DATE

Commencement Date: 23/02/1989

REGISTERED LICENSEE

Dealing No: 710800141 11/07/2007

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

- M76 This licence commences on 23rd February, 1989.
- M76 The Licensee shall not erect any structural improvements, other than
fencing, on the land during the currency of the Licence.
- M76 The Licensee shall clear the land of noxious plants within 6 months
from the commencement of the licence and shall thereafter maintain
the land free from noxious plants.
- M76 The Licensee shall not ringbark, cut down or destroy any timber on,
or remove any soil or other material from the land without a prior
Permit in writing from the Land Commissioner.

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624714
Search Date: 18/11/2019 16:43

Title Reference: 17712076
Date Created: 21/10/1995

CONDITIONS

M76 No compensation for improvements shall be payable on determination of the licence but the Licensee shall have the right to remove them within a period of 3 months, except that where notification of the cancellation of this licence is issued in terms of section 366(10) of the Land Act such period for removal of improvements shall expire at the date of cancellation as specified in the notification.

ENDORSEMENTS

1. COVENANT No 710800153 11/07/2007 at 09:39
restricts dealings over
LOT 69 ON RP25514 AND LOT 1 ON RL8213

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT STATE TENURE SEARCH
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624619
Search Date: 18/11/2019 16:38

Title Reference: 40055267
Date Created: 02/11/2007

DESCRIPTION OF LAND

Tenure Reference: RL 0/231881

Lease Type: NO TERM

LOT A CROWN PLAN AP17271
 Local Government: TOOWOOMBA

Area: 4.700000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
 COMMERCIAL/BUSINESS

COMMENCEMENT DATE

Commencement Date: 26/10/2007

REGISTERED LICENSEE

ACLAND PASTORAL CO. PTY LTD A.C.N. 009 888 395

CONDITIONS

CURRENT STATE TENURE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 32624619

Search Date: 18/11/2019 16:38

Title Reference: 40055267

Date Created: 02/11/2007

CONDITIONS

- A80
- (1) The licensee must use the licence area for commercial/business purposes .
 - (2) This licence may be cancelled if not used for the purpose stated above.
 - (3) The licence may be cancelled after giving the licensee reasonable notice in writing, in accordance with the Land Act 1994.
 - (4) The annual rent must be paid in accordance with the Land Act 1994.
 - (5) The Parties acknowledge that GST may be payable in respect of a supply made under this licence. Where GST becomes payable in respect of a supply made under this licence, the State (lessor) may recover the GST from the licensee by increasing the consideration payable by the licensee to the State by an amount equal to that which the State is obliged to remit to the Commonwealth as GST on the supply and that amount may be recovered from the licensee as part of the money payable to the State under this licence. The State will upon request by the licensee, issue to the licensee a valid GST tax invoice in respect of any taxable supply made under this licence. (NOTE: For the purpose of this condition "GST" means the goods and services tax which results from the enactment of A New Tax System (Goods and Services Tax) Act 1999 and the related Acts which constitute the Commonwealth Taxation Reform (as amended from time to time)).
 - (6) The licensee must pay the cost of any required survey or re-survey of the licence area.
 - (7) The licensee must control pest plants and animals, on the licence area, in accordance with the Land Protection (Pest and Stock Route Management) Act 2002 and the Local Laws and requirements of the Rosalie Shire Council.
 - (8) The licensee has the responsibility for a duty of care, to take all reasonable and practicable measures to sustainably manage the licence area by conserving the physical, biological, productive and cultural values, either on the licence area or in areas affected by the management of the licence area.
 - (9) The licensee must ensure that the use and development of the licence area conforms to the Planning Scheme, Local Laws and requirements of the Rosalie Shire Council, binding on the licensee.
 - (10) The licensee must give the Minister administering the Land Act 1994, information about the licence, when requested.
 - (11) The licensee must not clear any vegetation on the licence area, unless in accordance with the Integrated Planning Act 1997.
 - (12) The licensee must not effect any structural improvements on the licence area.
 - (13) No compensation for improvements or developmental work is

Request No: 32624619

Search Date: 18/11/2019 16:38

Title Reference: 40055267

Date Created: 02/11/2007

CONDITIONS

payable by the State at the cancellation or surrender of the licence, but the licensee has the right to remove its moveable improvements within a period of three (3) months from the cancellation or surrender of the licence, provided all money due by the licensee to the State on any account whatsoever has been paid or be required to remove those improvements as specified in any further condition of licence.

(14) This licence is subject to the Land Act 1994 and all other relevant State and Commonwealth Acts.

H126 The licensee must, at all times during the currency of the license, allow any person authorised by Telstra and Ergon Energy free and unrestricted access to from and across the land for the purposes of constructing, maintaining and/or repairing their installations upon the land.

I66 The licensee indemnifies and agrees to keep indemnified the Minister administering the Land Act 1994, and the State of Queensland, Rosalie Shire Council, Telstra and Ergon Energy (the "Indemnified parties") against all actions, suits, proceedings, claims, demands, costs, losses, damages and expenses ("Claim") arising out of or in any way connected to or resulting from the granting of this license to the licensee or which is connected to or resulting from the licensees' use and occupation of the licensed area (all of which are referred to as "the indemnified acts or omissions") save to the extent that the Claim arises as a result of any negligent act or omission of the Indemnified parties, however, any negligent act or omission of one of the Indemnified parties does not negate the indemnity to any of the other Indemnified party/ies. The licensee hereby releases and discharges the Indemnified parties from any Claim relating to the indemnified acts or omissions which may be made against the Indemnified parties.

ENDORSEMENTS

1. COVENANT No 711194699 20/11/2007 at 09:27
restricts dealings over
LOT 3 ON RP36463, LOT 3 ON RP36462, LOT 1 ON RP36464 AND LOT A
ON CP AP17271

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Request No: 32624619
Search Date: 18/11/2019 16:38

Title Reference: 40055267
Date Created: 02/11/2007

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: D-ENQ INFOTRACK PTY LIMITED

EASEMENT

MEMORANDUM OF ENCUMBRANCES
LIENS AND INTERESTS

BETWEEN:

JOHN ALEXANDER McWILLIAM and

ELIZABETH JESSIE McWILLIAM

Grantor

AND:

GREGORY JOSEPH LEE and

ADA MARIA LEE

Grantee

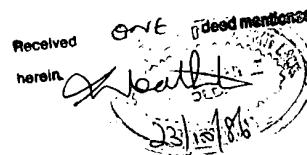


602545494

H926385

EASEMENT

6076-193
CDB



Plan noted

Particulars entered in the Register

Book Volume 6676 Folio 193/4

at Brisbane this day of

1986

at 4.50p
20 OCT 1986

REGISTRAR

6676-194
Hill & Taylor

Received here in. One deed mentioned.

Hill & Taylor
Meynham
23.10.86
Sol for Grantor & Grantee

e17 Vol 6676 F194 should be recorded

4 1030 57

86 JUL 24
RECEIVED
REGISTRATION
HILL & TAYLOR
Solicitors
6th Floor,
BNZ Building,
410 Queen Street,
BRISBANE Q. 4000

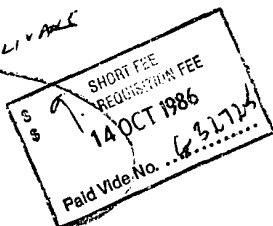
Tel: (07) 221 3072.

JWS13DEC3/1-3

JWS27JUN11/1-3:DW

07 SULLIVAN

6676-193
CDB



PAID ON CONTRACT 10/12/86
VIDE REOM. No. 27/86

GRANT OF EASEMENT

16.10.86

THIS INDENTURE made this 23rd day of June 1986 is made between JOHN ALEXANDER McWILLIAM and ELIZABETH JESSIE McWILLIAM of 16 Bluemeadow Court, M/S 103, Toowoomba in the State of Queensland (hereinafter together with their successors in title called "the Grantor") of the one part

AND GREGORY JOSEPH LEE and ADA MARIA LEE of "Aroona", M2907/88 R/N1500294 Jondaryan in the State of Queensland (hereinafter with their successors in title called "the Grantee") of the other part

STAMP DUTIES OFFICER
\$0.00

WHEREAS:

SERVIENT

DOMINANT

- (a) The Grantor is the registered proprietor as joint tenants, of an estate in fee simple SUBJECT HOWEVER to such encumbrances, liens and interests as are notified by memorandum endorsed hereon in all that piece of land situated in the County of Aubigny Parish of King containing an area of 6581 square metres being Easement A in Lot 2 on Registered Plan No.197103 being part of the land contained in Certificate of Title Volume 6676 Folio 194 (being hereinafter called "the servient tenement");
- (b) The Grantee is the registered proprietor as joint tenants of an estate in fee simple SUBJECT HOWEVER to such encumbrances, liens and interests as are notified by memorandum endorsed thereon in all that piece of land situated in the County of Aubigny Parish of King containing an area of 44.30 hectares and being Lot 1 on Registered Plan No.197103 being the whole of the land contained in Certificate of Title Volume 6676 Folio 193 (being hereinafter called "the dominant tenement");
- (c) The Grantor has agreed to grant to the Grantee a drainage easement over the servient tenement.

NOW THIS INDENTURE WITNESSETH THAT, in consideration of the payment to the Grantor by the Grantee of the sum of ONE DOLLAR (\$1.00), the receipt of which sum is HEREBY ACKNOWLEDGED, the Grantor DOES HEREBY grant, transfer and confirm unto the Grantee as registered proprietor of the dominant tenement the following easement namely the full and free right and liberty at all times to use the servient tenement for the purpose of drainage by contour on the servient tenement and freely to run and pass rain, storm and floodwater on the same including the right to enter upon the servient tenement to inspect, cleanse, repair and maintain the said contour drainage system when and where necessary SUBJECT TO the following terms, conditions and restrictions that is to say:-

1. The Grantor covenants with the Grantee that the Grantee for the purpose of the full enjoyment of the aforesaid rights shall have full, free and uninterrupted right and liberty at all times and from time to time to enter upon and to go, pass and re-pass over and along the servient tenement with workmen and other agents and to mow the grass and other vegetation growing on the servient tenement or any part thereof and to bring and use upon the servient tenement and remove such materials, machinery, tools and other articles and to do such other things in the premises as the said Grantee shall in its discretion think fit SUBJECT TO as hereinafter provided.
2. The Grantor further covenants that they shall not permit the said land to be used in such a way as to obstruct or interfere with the said contour drainage system and the effective use thereof by the Grantee as provided herein.
3. The Grantee HEREBY COVENANTS with the Grantor that the Grantee will at all times hereafter exercise the rights and privileges hereby granted in a proper and workmanlike manner and so as to cause as little inconvenience as possible to the owners and their agents of the servient tenement and to do as little damage as practicable to the servient tenement.

4. The Grantor and the Grantee AGREE that the benefit and burden of this Grant of Easement and of the covenants, agreements and stipulations contained herein shall pass with and bind the dominant and servient tenements so as to enure for the benefit of and bind all persons deriving title thereto from or under the Grantor and the Grantee and that on ceasing to be registered proprietors of the dominant and servient tenements, the Grantor and the Grantee shall be under no further liability for any event or occurrence thereafter nor will be entitled to the benefits hereof thereafter but without prejudice to the rights and obligations of either party in respect of any antecedent breach.

IN WITNESS WHEREOF the Grantor and the Grantee have executed these presents on the days and year hereunder written.

SIGNED on the 23rd day of)
JUNE 1986 by the said)
JOHN ALEXANDER MCWILLIAM and)
ELIZABETH JESSIE MCWILLIAM as)
Grantor in the presence of:-)

John A. McWilliam
E. J. McWilliam

John J.P.
A Justice of the Peace

SIGNED on the 30th day of)
JUNE 1986 by the)
said GREGORY JOSEPH LEE and)
ADA MARIA LEE as Grantee in)
the presence of:-)

Gregory Lee
Ada M. Lee

John J.P.
A Justice of the Peace

Hill & Taylor
.....
Solicitors for the Grantee

Hill & Taylor
.....
Solicitors for the Grantor

CORRECT FOR THE PURPOSES OF REGISTRATION

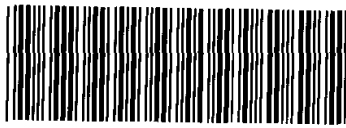
Michael Lee
Proprietor for grantee

QUEENSLAND TITLES REGISTRY
Land Title Act 1994 and Land Act 1994

EASEMENT

FORM 9 Version 4

Page 1 of 1



718112800

TE 601

\$175.00
27/06/2017 11:27

Client No:	1052647	Duty Imprint	7	Duties Act 2007
Transaction No:	514-036-235			
Duty Paid \$	NIL		<input type="checkbox"/>	Exempt
UTI \$	NIL			
Date:	14/6/17	Signed:	<i>[Signature]</i>	

1. Grantor

ACLAND PASTORAL CO. PTY LTD
A.C.N. 009 888 395

Lodger (Name, address, E-mail & phone number)

Ergon Energy Corporation Limited
PO Box 1090
TOWNSVILLE QLD 4810
Email: Kim.priory@ergon.com.au
Ph: 07 4432 8346

Lodger
Code
022

2. Description of Easement/Lot on Plan

Servient Tenement (burdened land)
EASEMENT A IN LOT 3171 ON RP902113
ON SP298247
EASEMENT B IN LOT 3445 ON A341747
ON SP298247

Title Reference

50230489
14413085

*Dominant Tenement (benefited land)

not applicable if easement in gross

N/A

3. Interest being burdened

Fee Simple

*4. Interest being benefited

N/A

not applicable if easement in gross

5. Grantee Given names

Surname/Company name and number

(include tenancy if more than one)

ERGON ENERGY CORPORATION
LIMITED A.C.N.087 646 062

6. Consideration

\$1.00

7. Purpose of easement

Electrical Works Purposes

8. Grant/Execution

The Grantor for the above consideration grants to the Grantee the easement over the servient tenement for the purpose stated in item 7 and the Grantor and Grantee covenant with each other in terms of document no. 710384570.

* delete if not applicable

Witnessing officer must be aware of his/her obligations under section 162 of the Land Title Act 1994

ACLAND PASTORAL CO. PTY LTD
A.C.N. 009 888 395

.....signature

.....full name

.....qualification

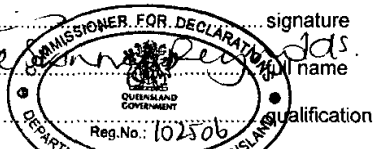
Witnessing Officer

(Witnessing officer must be in accordance with Schedule
of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

[Signature]
kristen kate
.....
.....

Witnessing Officer

(Witnessing officer must be in accordance with Schedule 1
of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)



5/6/17
Execution Date

[Signature]
Director
Grantor's Signature

[Signature]
Director / Secretary

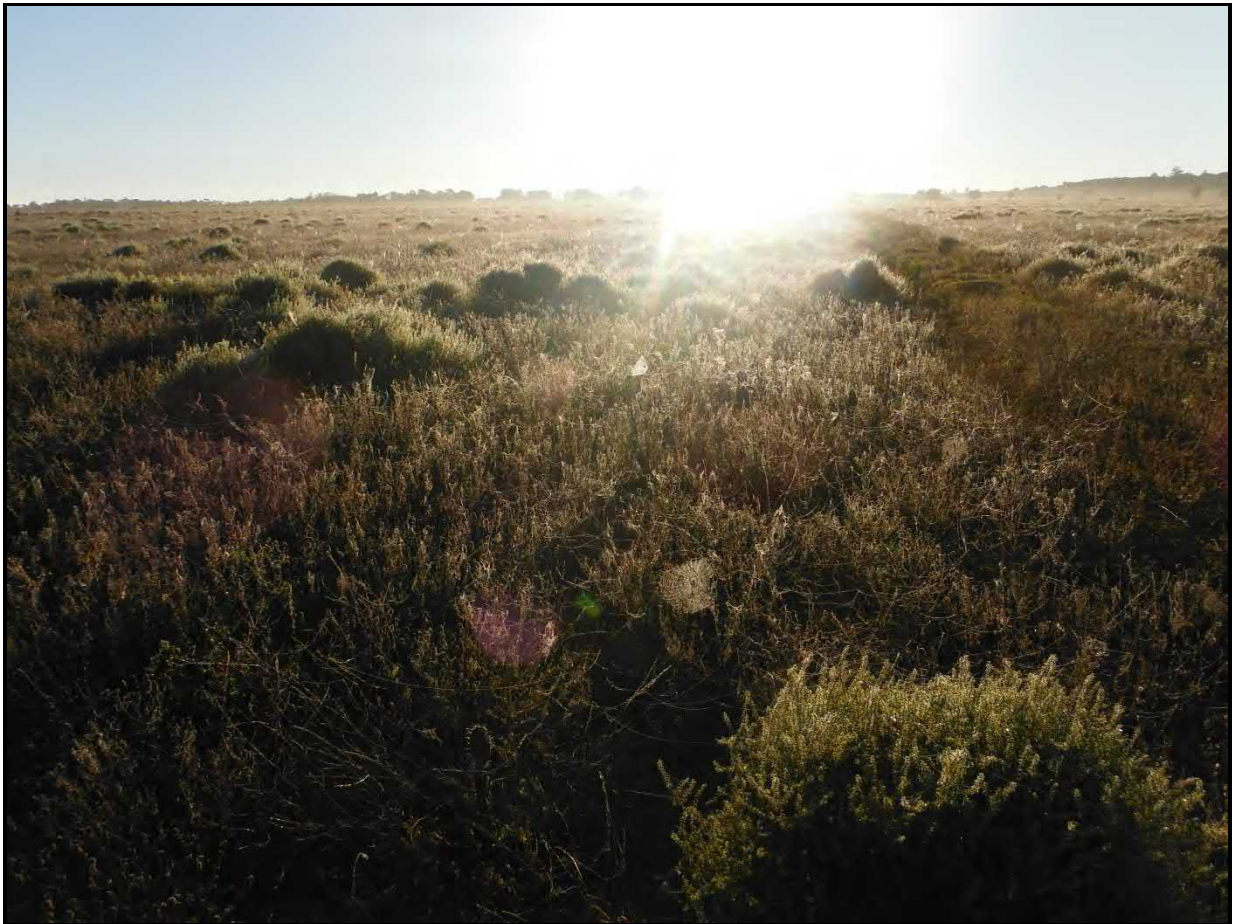
14/6/17
Execution Date

[Signature]
Grantee's Signature

Ergon Energy Corporation Limited
ACN 087 646 062 by its duly constituted
attorney Rodney Gordon Williams under
registered Power of Attorney No 716200749

APPENDIX H

APC Land Ownership



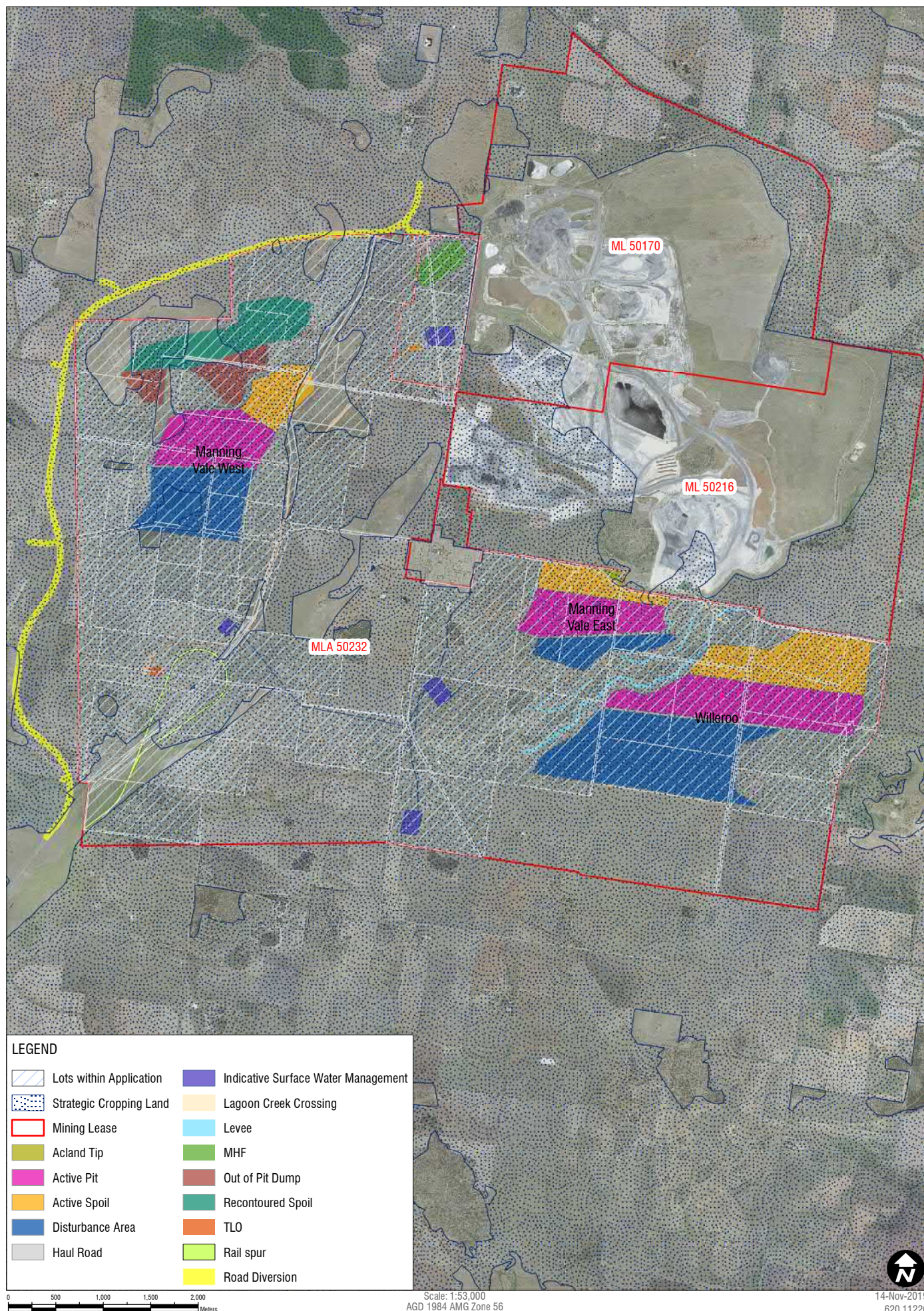


APPENDIX I

Strategic Cropping Land Trigger Map & Regional Locality



\\AU.SLR\Local\Corporate\Projects\SLR\610\S\SV\2020-BN\620 12454 New Island\620 1226 New Island\620 1226 Strategic Cropping Land.mxd



New Acland Coal Mine

Locality Map

27°12'35"S 151°31'44"E

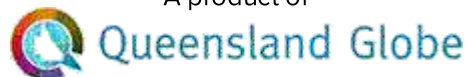
27°12'35"S 151°48'55"E



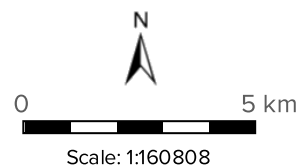
27°27'51"S 151°31'44"E

27°27'51"S 151°48'55"E

A product of



Legend located on next page



Printed at: A4

Print date: 21/8/2019

Datum: Geocentric Datum of Australia 1994
Projection: Web Mercator EPSG 102100

For more information, visit
<https://qldglobe.information.qld.gov.au/help-info/Contact-us.html>



Department of Natural Resources, Mines and Energy

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New Acland Coal Mine

Locality Map

Legend

Attribution

DigitalGlobe, Earthstar Geographics

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ML Permit Application



ML Surface Area Application



ML Access Application



ML Permit Granted



ML Surface Area Granted



ML Access Granted



Contour

- Index
- Intermediate

Road

- Highway
- Main
- Local
- Private

Railway



Cities and Towns



APPENDIX J

Assessment Against Darling Downs Regional Plan



ASSESSMENT AGAINST DARLING DOWNS REGIONAL PLAN

New Acland Mine Stage 3

Prepared for:
New Acland Coal Pty Ltd
Cherrys Road
Muldu QLD 4401

SLR Ref: 620.11226
Version No: -v1.1
October 2019



PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
2 Lincoln Street
Lane Cove NSW 2066 Australia
(PO Box 176 Lane Cove NSW 1595 Australia)
T: +61 2 9427 8100
E: sydney@slrconsulting.com www.slrconsulting.com

BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

EXECUTIVE SUMMARY

SLR Consulting (SLR) was commissioned by New Acland Coal Pty Ltd to undertake a Priority Agricultural Land Use (PALU) Assessment for the initial (5 years) of mining for the New Acland Coal Mine Stage 3 Project (the Project). The Project is located north-west of Oakey in South-East Queensland.

This report has been prepared in support of an application for a regional interests development approval (RIDA) under section 29 of the Regional Planning Interests Act 2014 (RPI Act) for the New Acland coal mine Stage 3 project (the Project). The application seeks approval to allow the construction and operation of a resource activity over MLA 50232, mapped within the priority agricultural area (PAA) and partly within a strategic cropping area (SCA) to the RPI Act.

This report represents the assessment of the Project against Chapter 4 of the Darling Downs Regional Plan, including the two stated regional outcomes and the supporting regional policies 1-4.

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2	REGIONAL PLANNING INTERESTS.....	6
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2.1.1	Regional Planning Interests Regulation 2014	6
2.2	Darling Downs Regional Plan.....	6
2.2.1	Regional Outcomes and Policies	7
3	SUMMARY AND CONCLUSION	11
4	REFERENCES	12

DOCUMENT REFERENCES

APPENDICES

Appendix A Darling Downs Regional Plan Priority Agricultural Areas Map
Appendix B Coordinator General Report – Imposed Conditions 6-9
Appendix C EA Conditions – Schedule H

1 Introduction

This report has been prepared in support of an application for a regional interests development approval (RIDA) under section 29 of the Regional Planning Interests Act 2014 (RPI Act) for the New Acland coal mine Stage 3 project (the Project). The application seeks approval to allow the construction and operation of a resource activity over MLA 50232, mapped within the priority agricultural area (PAA) and partly within a strategic cropping area (SCA) to the RPI Act.

This report represents the assessment of the Project against Chapter 4 of the Darling Downs Regional Plan, including the two stated regional outcomes and the supporting regional policies 1-4.

2 Regional Planning Interests

2.1 Regional interests defined by the Regional Planning Interests Act 2014

The RPI Act was passed on 20 March 2014 and commenced on 30 June 2014. The RPI Act identifies and protects areas in Queensland that are of regional interest. Four areas of regional interest are identified:

- a priority agricultural area (PAA)
- a priority living area (PLA)
- the strategic cropping area (SCA)
- a strategic environmental area (SEA).

The RPI Act is supported by the RPI Regulation. The RPI Act creates the requirement for a Regional Interests Development Application (RIDA) for resource activities carried out in areas of regional interest other than exempt resource activities.

2.1.1 Regional Planning Interests Regulation 2014

The PALU assessment report undertaken by SLR Consulting (2019) and submitted with the RIDA application has addressed the Required Outcomes and Prescribed Solutions sets out in Schedule 2 of the RPI Regulation. Required Outcome 1 is satisfied where the activity is in the PAA but not located on land that is used for a PALU (Prescribed Solution 1). For land to be used for a PALU, it must have been used for a PALU for at least three years during the ten years immediately before the assessment application is made.

In the case of the PAA, there will be no material impact on the PAA as the PALU report (SLR Consulting, 2019) demonstrates that the activities will not be located on land that is used for a PALU and therefore satisfies Required Outcome 1 from Schedule 2 of the RPI Regulation.

In particular, based on findings made after reviewing all available information during the PALU assessment, the following conclusion has been determined for the study area:

- There is no PALU within the application area.
- The application area is used for non-PALU activities, predominantly cattle grazing native vegetation.

2.2 Darling Downs Regional Plan

The Darling Downs Regional Plan (DD Regional Plan) is one of the Queensland Government's statutory regional plans providing strategic direction and policies to deliver regional outcomes which align with the State's interests in planning and development.

The DD Regional Plan's role is to manage competing State interests on a regional scale by delivering regional policy aimed at achieving specific regional outcomes. The plan provides policy responses to resolve the region's most important issues affecting the economy and the liveability of its towns. The regional plan specifically provides direction to resolve competing State interests relating to the agricultural and resources sectors, and to enable the growth potential of the region's towns.

The purpose of the plan is to identify the State's interests in land use planning for the region. Specifically, the DD Regional Plan identifies:

- two regional outcomes
- regional policies for achieving the regional outcomes
- the State's intent for the future spatial structure of the region, including PAA, PLA and priority outcomes for infrastructure. The plan's regional policies address the emerging regional issues of land use competition between the agricultural and resources sectors, and the need to protect areas required for the growth of towns.

The regional outcomes and policies contained in Chapter 4 of the DD Regional Plan align with and advance the achievement of the State's interest in relation to:

- supporting the long-term viability and growth of the agricultural sector
- maximising the productive use of key mining resources, and
- providing for liveable communities.

Specifically, the DD Regional Plan sets out regional outcomes and policies which aim to:

- protect PALU while supporting co-existence opportunities for the resource sector
- provide certainty for the future growth of towns.

The mapping associated with the Regional Plan identifies the Project as being located within PAA (refer to Appendix A).

2.2.1 Regional Outcomes and Policies

The first Regional Outcome states that "agriculture and resource industries within the Darling Downs region (will) continue to grow with certainty and investor confidence".

The regional outcome is supported by the regional policies, whereby the policies aim to protect PALU while supporting co-existence opportunities for the resources sector. These are stated as follows:

- Regional policy 1: Protect Priority Agricultural Land Uses within Priority Agricultural Areas.
- Regional policy 2: Maximise opportunities for co-existence of resource and agricultural land uses within Priority Agricultural Areas.

PAA's are identified in the plan and comprise the region's strategic areas containing highly productive agricultural land uses. PALUs within the PAA are recognised as the primary land use and given priority over any other proposed land use.

The assessment within the PALU report (SLR Consulting, 2019) states there will be no material impact on the PAA as the report demonstrates that the activities will not be located on land that is used for a PALU and therefore satisfies this policy. The total mapped PAA in the Darling Downs region is 4,292,740 hectares and PAA within the Project Area comprises 0.07% of that area.

The coexistence of resource and agricultural land uses will be maximised with the Project occupying a fraction of the land available for agricultural use within the region. The Project site and land surrounding is predominantly used for grazing purposes. NAC supports these land uses, whereby the landholder is the Acland Pastoral Company Pty Limited (APC).

The Project footprint has been reduced as far as practicable, including by excluding Acland Town from the Mining Lease (ML) area, minimising the disturbance footprint to the 3 new resource areas and co-locating the infrastructure with the existing mine infrastructure. The distance from the township of Oakey was increased to over 10 km from the original proposed 7 km.

NAC has a very unique business model that combines mining and farming on the rehabilitated land by APC. APC operates a grazing enterprise on various land parcels around the Mine, which complement NAC's rehabilitation. Innovative grazing trials have been undertaken on the rehabilitated pasture, the Cattle Grazing Trial is industry leading in its approach and the results have been well received by agricultural groups such as Agforce, government agencies including the Department of Environment and Heritage Protection, the community, both sides of politics and Industry.

The results from the Cattle Grazing Trial indicate that the rehabilitated mined land performs as comparable to or exceeded unmined land. The performance of the cattle grazing rehabilitated land remains sustainable as the pasture ages. It has been concluded from the results that livestock grazing on rehabilitated mined land at Acland is economically sustainable, environmentally sustainable and ultimately produces safe meat of a high eating quality standard for the consumer.

New Hope is a winner of multiple awards in recognition of New Hope's excellence in mining and environmental management:

- the Queensland Premier's Award for Environmental Excellence in the Queensland mining industry awarded to New Hope (1993),
- the Queensland Premier's Awards Commendation in recognition of innovative rehabilitation practice awarded to New Hope (1994),
- New Hope was a finalist in the Australian Mining Prospect Awards in the category of "Excellence in Environmental Management" (2015),
- on 12 August 2016, New Hope was awarded the 2016 ABA100 Winner of the Australian Business Awards for Sustainability in recognition of its unique approach to achieving a sustainable, economically productive and environmentally healthy post mine landscape.

The Coordinator General's report (CG report) on the NAC Stage 3 Environmental Impact Statement (EIS), acknowledges the progressive rehabilitation of the Project and returning the land to suitable grazing land postclosure. The CG report imposed conditions 6, 7 and 9 (refer to Appendix B), to specifically address the land uses and rehabilitation, these conditions must be adhered to in order for the project to proceed. Following the granting of Environmental Authority (EPML00335713) for the Project, the CG conditions have been replaced with Schedule H of the EA, specifically Conditions H9-H13, H16, H26-H29 and Tables H4-H6 (refer to Appendix B).

The conditions require pre-mining soil surveys to confirm the values of the land to be disturbed. The rehabilitated land will have to meet criteria such as soil attributes, plant density, yield of harvestable material and botanical composition. The land will be rehabilitated to support the best post-disturbance land use possible.

The second Regional Outcome states “the growth and potential of towns within the Darling Downs region is enabled through the establishment of Priority Living Areas. Compatible resource activities within these areas which are in the communities’ interests can be supported by local governments”.

The regional policies which support this outcome are as follows:

- Regional policy 3: safeguard the areas required for the growth of towns through the establishment of PLAs.
- Regional policy 4: provide for resource activities to locate within a PLA where it meets the communities’ expectations as determined by the relevant local government.

The Project is located outside PLAs established through the DD Regional Plan and thus this Regional Outcome is not applicable to the Project. However, the Project is considered compatible with the planned future for the PLA of both Oakey and Goombungee given the distance the proposed mine is located from these settlements.

The Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017, confirms there are significant benefits to the local community because of the Project. NAC has a strong connection with the local community and has a number of initiatives that provide support to the community. Estimated payments over the life of Project to these initiatives include an estimated:

- \$3.6 million to the Community Investment Fund which provides community groups with funding for a range of projects;¹
- \$3.9 million in grants, direct payments and donations;²
- \$60.5 million to private land owners;³ and
- in-kind contribution through community events.⁴

Further, the Project will contribute substantially to the future economic welfare of the townships through the creation 260 jobs during peak construction and up to 136 during operations. It is intended to use local employment options where possible. The Ernst & Young report sets out details of employee numbers that are anticipated to support the mine expansion, these are set out in Table 1.

Table 1 Employees of New Hope Group

Estimated Employees	2018	2020	2025	2031
New Acland Mine	288	325	428	433
QBH	36	36	36	36
Corporate office	97	97	97	97
Total	421	458	561	566

¹ Table 12, p. 14 and Appendix A, p.25, Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017.

² Table 13, p. 14, Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017.

³ Table 13, p. 14, Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017.

⁴ p. 14, Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017.

The coal resource at the Mine has unique properties that make small boilers highly efficient. The Project will continue to produce a moderate, in-situ ash content coal, with a calorific value of approximately 6750 kcal/kg energy for the export market. The relatively low sulphur content of Queensland coals helps to ensure that sulphur dioxide emissions are minimised in combustion processes. In addition NAC has 34 current domestic coal customers including 12 abattoirs, farms, a major hospital, food suppliers, nurseries and other industries that are reliant on NAC for energy supplies.

The regional policies in the DD Regional Plan aim to protect PALUs while supporting co-existence opportunities for the resources sector, and provide certainty for the future of towns. The Project is consistent with these policies.

3 Summary and Conclusion

This report sets out the assessment of the Project against the assessment criteria contained in Schedule 2, Part 2 of the RPI Regulation.

In summary:

- The coexistence of resource and agricultural land uses will be maximised with the Project occupying a fraction of the land available for agricultural use within the region
- NAC's Cattle Grazing Trial is industry leading in its approach and the results have been well received by agricultural groups such as Agforce, government agencies including the Department of Environment and Heritage Protection, the community, both sides of politics and Industry. The initial results from the Cattle Grazing Trial indicate that the rehabilitated mined land will perform in a comparable way to unmined land.
- The Project footprint has been reduced as far as practicable, including by excluding Acland Town from the ML area, minimising the disturbance footprint to the three new resource areas and co-locating the infrastructure with the existing mine infrastructure.
- NAC has a strong connection with the local community and has a number of initiatives that provide support to the community.
- The Project will contribute substantially to the future economic welfare of the townships through the creation 260 jobs during peak construction and up to 136 during operations.

This report has addressed the two stated regional outcomes and the supporting regional policies 1-4 of the DD Regional Plan, accordingly the Project is deemed not to have a regional impact on the mapped PAA.

4 References

Darling Downs Regional Plan 2013

Department of Environment and Science, Environmental Authority (EPML00335713) New Acland Coal Mine, 12 March 2019.

Department of State Development, Infrastructure and Planning (2014) New Acland Coal Mine Stage 3 project Coordinator-General's evaluation report on the environmental impact statement, December 2014.

Ernst & Young, "New Acland Coal Mine Stage 3 Project: Financial Impact Study", 27 September 2017.

Outcross Pty Ltd, "New Acland Cattle Grazing Trial: Optimising Rehabilitated Grazing Pastures for Sustainable and Economically Viable Beef Production, Annual Report 2013/2014", December 2014.

Outcross Pty Ltd, "Acland Cattle Grazing Trial: Key Performance Indicators – Summary of Stage 2 Years 1 and 2", December 2015.

Outcross Pty Ltd, "New Acland Cattle Grazing Trial – Annual Cattle Grazing Report – Year 3", September 2016.

Outcross Pty Ltd, "New Acland Cattle Grazing Trials: Optimizing rehabilitated grazing pastures for sustainable and economically viable beef production", October 2017.

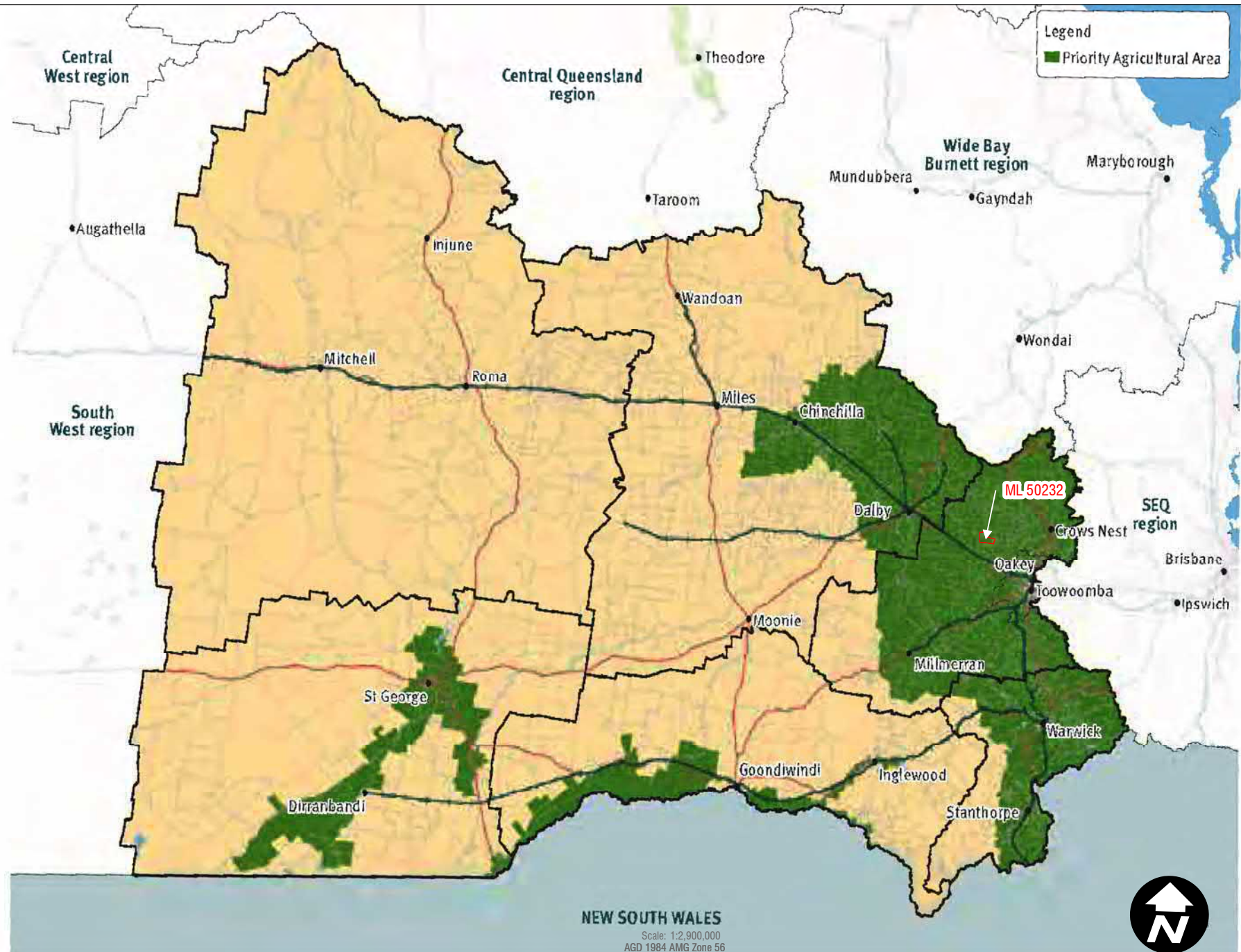
Regional Planning Interests Act 2014

Regional Planning Interests Regulation 2014

SLR Consulting (2019) Priority Agricultural Land Use Assessment, prepared for New Acland Coal Pty Ltd, August 2019.

APPENDIX A

Darling Downs Regional Plan Priority Agricultural Areas Map



APPENDIX B

Coordinator General Report – Imposed Conditions 6-9

- (c) Land owners, residents, asset owners likely to be impacted by changes to the existing flooding/drainage system, and, at a minimum, Toowoomba Regional Council and the Queensland Reconstruction Authority must be consulted prior to completion of the final rail spur design.
- (d) Where the rail spur cannot be designed, constructed and maintained so as not to cause or increase flood damage at residential premises or at a commercial premises, compensation is to be negotiated with affected land owners, residents, and asset owners.

DNRM is to have jurisdiction for this condition.

Disturbance areas

Condition 6. Land resource survey

- (a) Prior to the commencement of operations for the project, for all mining lease areas associated with the project, the proponent must undertake a detailed land resource survey of the proposed mining disturbance areas (being pits, elevated landforms and slope batters) identified in the August 2014 *Additional information to the EIS: New Acland Coal Mine Stage 3 Project*.
- (b) The field survey of the disturbance areas is to meet the following requirements:
 - (i) be undertaken by an appropriately qualified person
 - (ii) have a minimum investigation site density of 1 site/10 hectares
 - (iii) provide a detailed description of the investigation site and associated soil profile at a minimum of 1 in 3 of the investigation sites
 - (iv) provide the results of the survey graphically on a map with a cartographic scale of 1:20,000 (i.e. 1cm² = 5 hectares)
 - (v) the descriptions of investigation sites and soil profiles are to be made in accordance with the *Australian soil and land survey field handbook* (NCST, 2009), with photographs of both the exposed soil materials and the sites to be included
 - (vi) the soil profile is to be described to the shallower of the following:
 - (A) a soil depth of 1m, or
 - (B) the depth where bedrock, a natural hardpan, weathered rock or a continuous gravel layer (any of which would ordinarily preclude penetration by plant roots) are intercepted
 - (vii) at those investigation sites where detailed soil profile descriptions are not undertaken, the investigation site is to be described and photographed, and the soil profile examined and described to a depth sufficient to:
 - (A) allow the soil to be assigned to an order and suborder under the Australian Soil Classification (Isbell 1996); and
 - (B) be accurately assigned to a soil unit represented in the disturbance area.
 - (viii) soil samples are to be collected at a minimum of 50 per cent of the investigation sites where detailed soil profile descriptions are made, with those samples to be:
 - (A) collected at the following profile depths:
 - (1) 0.0–0.1m
 - (2) 0.2–0.3m
 - (3) 0.5–0.6m; and
 - (4) 0.8–0.9m

- (ix) packaged, transported and stored in accordance with recommendations in Brown, A.J., (1999), *Soil sampling and sample handling for chemical analysis, in Soil Analysis: An interpretation manual*, eds. Peverill, K.I., Sparrow, L.A. & Reuter, D.J., CSIRO; or any specific advice provided by the laboratory that will be analysing the samples; and
- (x) analysed at a soil analysis laboratory providing NATA or ASPAC accredited analyses for the analytes and laboratory methods specified in Table A1 (below).
- (c) Concurrent with the preceding survey conditions, in order to establish reference sites (being, sites that will not be, or have not been, disturbed by mining activities) in line with the requirements of Condition 6(b), the following requirements are also to be met:
 - (i) detailed soil profile descriptions must be provided for at least three reference sites characterising each soil map unit identified in the land resource survey; and
 - (ii) soil samples must be analysed for at least three reference sites representing each soil type identified in the land resource survey.
- (d) Each of the land units identified in the land resource survey is to be assigned a land suitability classification.

The assigned land suitability classification is to be consistent with the relevant limitation description or criteria in the following publications:

- (i) where land units have historically supported cropping*:
the suitability framework for the Eastern Downs area provided in the *Regional Land Suitability Frameworks for Queensland* (DNRM & DSITIA, 2013), with the candidate crops for the classifications to include dryland cereal and grain crops (i.e. wheat, oats, barley and sorghum), sunflower and chickpeas.
- (ii) where land units have historically been used for grazing*:
the suitability framework for beef cattle grazing provided in Table 2.2 in the Land suitability assessment techniques, in Part B of *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME, 1995).

(*Historic land use is to be determined on the basis of the dominant land use for that land unit depicted in the 1999 mapping produced for the *Queensland Land Use Mapping Program* (i.e. QLUMP99.)

- (e) Following the completion of the land resource survey, and prior to the commencement of the project's operations, a detailed report, including land resource and land suitability maps of the disturbance area, is to be produced and provided to the Coordinator-General.

That report and its associated maps must:

- (i) be prepared and certified by an appropriately qualified person
- (ii) document the data and information relating to the above listed items (a) to (d); and be submitted to the Coordinator-General for review and approval.

The Coordinator-General is to have jurisdiction for this condition.

Condition 7. Rehabilitation of disturbed land

- (a) Rehabilitation is to be undertaken so as to establish discrete land units (that is, no unjustified mixing of soil material from different land units) in the disturbed areas to be rehabilitated ('rehabilitation area'), each capable of ultimately being assigned a specific post-disturbance land use suitability.

- (b) The rehabilitation of disturbed land is to result in the affected land units being able to support the best post-disturbance land use possible. The post-disturbance land suitability of each land unit is to:
 - (i) represent that achievable on an ongoing basis
 - (ii) be obtainable without the use of irrigation; and
 - (iii) be such that collectively at least 50 per cent of the total area of disturbed land originally meeting or exceeding the criteria for either Class 3 grazing land or Class 4 cropping land still meet or exceed those classifications.
- (c) Prior to commencement of mining operations, the project proponent must:
 - (i) identify parcels of land, unaffected by mining operations (the land can be land owned by the proponent/associated company), that are able to provide at least three separate reference sites for each land suitability class to be represented in rehabilitated areas; and
 - (ii) Undertake investigations at each reference site, consistent with the requirements in Condition 6(b): Land resource survey, and sufficient to demonstrate that each reference site satisfies the criteria for the applicable suitability class.
- (d) Within nine months of the commencement of project operations, the proponent is to submit for approval by the Coordinator-General a set of rehabilitation success criteria.
- (e) The set of rehabilitation success criteria is to include elements specific to each land suitability class identified in the land resource survey undertaken in accordance with Condition 6: Land resource survey.
- (f) Rehabilitation success criteria should include measures related to the following:
 - (i) landform
 - (ii) soil physical and chemical attributes
 - (iii) erosive soil loss (estimated using the Revised Universal Soil Loss Equation (RUSLE))
 - (iv) vegetative cover
 - (v) plant density
 - (vi) dry matter yield of harvestable material; and
 - (vii) botanical composition (pasture) or weed population characteristics (crops).
- (g) The rehabilitation and restoration of the disturbed land is to be subject to ongoing and regular monitoring. At a minimum, the monitoring program is to:
 - (i) require monitoring twice in a calendar year (in spring and autumn in areas sown to pasture and at early flowering and at harvest in cropped areas)
 - (ii) provide a statistically valid sampling intensity for assessing compliance with the rehabilitation success criteria in each land unit (note: a sampling intensity providing 95 per cent confidence level that the sample mean values reported for a land unit are within ± 20 per cent of the true mean for that unit.)
 - (iii) Include relevant climatic data, including rainfall, for both the rehabilitation and reference sites; and
 - (iv) by way of comparison with the corresponding reference sites, determine progress in meeting restoration success criteria, including identifying any failings; and proposing means to rectify those failings.

The Coordinator-General is to have jurisdiction for this condition.

Condition 8. Reports and management plans

- (a) One year after commencement of rehabilitation works required by Condition 7, and then annually from that date, the proponent must publish the results of the monitoring program for the rehabilitation areas, which were obtained over the preceding year, in an annual report, with that report to be:
- (i) submitted to the Coordinator-General
 - (ii) available for download on the project proponent's website or a similar publicly-accessible internet portal, and
 - (iii) made available in a printed form.
- (b) Subsequent to complying with Condition 6: Land resource survey, and prior to the commencement of project operations, the proponent must submit to and have approved by the Coordinator-General, the following documents:
- (i) Final Land Use and Rehabilitation Plan; and
 - (ii) Topsoil Management Plan.

Table A1. Soil chemical and physical analytes and recommended methods

Analyte	Units	Methodology
pH _{1:5}		Method 4A1 in Rayment & Lyons (2011)
EC _{1:5}	dS/m	Method 3A1 in Rayment & Lyons (2011)
Chloride	mg/kg	Method 5A1, 5A2, 5A3 or 5A4 in Rayment & Lyons (2011)
Soil organic carbon	%	Method 6A1 in Rayment & Lyons (2011)
Total nitrogen	%	Method 7A1, 7A2, 7A3, 7A4 or 7A5 in Rayment & Lyons (2011)
Nitrate nitrogen	mg N/kg	Most appropriate method with 7B or 7C prefix in Rayment & Lyons (2011)
Total phosphorus	mg/kg	Method 9A1 in Rayment & Lyons (2011)
Bicarbonate phosphorus	mg/kg	Method 9B1 or 9B2 in Rayment & Lyons (2011)
Cation exchange capacity	cmol _c /kg	Most appropriate method in Table 15.2 in Rayment & Lyons (2011)
Exchangeable Ca, Mg, K and Na	cmol _c /kg	Most appropriate method in Table 15.2 in Rayment & Lyons (2011)
Soil particle size distribution for size ranges of >2, 2 – 0.2, 0.2 – 0.02, 0.02 – 0.002, and <0.002 mm diameters	% mass	Most appropriate method in Chapter 17 in McKenzie et al. (2002)
Soil moisture @ -1500 kPa	%	Method 504.01, 504.02 or 504.03 in McKenzie et al. (2002)
Exchangeable sodium percentage	%	Calculation from exchangeable Ca, Mg, K and Na
Exchangeable Ca: Exchangeable Mg		Calculation from exchangeable Ca, Mg, K and Na
Emerson aggregate stability	class	Method 513.01 in McKenzie et al. (2002)

Impacted land

Condition 9.

- (a) The proponent (or an associated entity) for the project is to secure land equivalent to the amount of land that will be permanently lost to agricultural use as a result of residual mine voids ('equivalent land').
- (b) The base-case total equivalent land amount required is 457 hectares, being the mine void area estimated to remain post-mining described in the August 2014 *Additional information to the EIS: New Acland Coal Mine Stage 3 Project*. The total equivalent land amount area may be further refined as mine planning progresses.
- (c) The equivalent land required is to be like for like; so that:
 - (i) the amount of permanently impacted land in the void areas defined as priority agricultural land use (PALU) (e.g. cropping); and
 - (ii) the amount of permanently impacted land in the void areas defined as non-PALU (e.g. grazing)
—is the amount of equivalent PALU and non-PALU land required to be secured elsewhere.

The equivalent land may be secured across separate parcels of land.

(Note: PALU and non-PALU are as mapped in the State Government Queensland land use mapping program (QLUMP).

- (d) Each equivalent land area must be legally secured by registration of a covenant on the land title.
- (e) Commencement of covenants may be staged, with covenants for all equivalent land for each of the mine pits to be in place within one year from the start of operations for that pit.
- (f) The proponent is to notify the Coordinator-General within 20 business days of commencing operations in each of the mining pits. The notification is to include the predicted final void area for the pit/pits as the measure for the amount of equivalent land required.
- (g) The proponent is to notify the Coordinator-General within 20 business days of securing all covenants for the equivalent land areas for each mining pit.
- (h) Concurrent with conditions 9 (f) and (g), a report on secured equivalent land is to be submitted to the Coordinator-General for approval. The report is required to confirm how the land areas satisfy the equivalent land requirements of this condition.
- (i) The equivalent PALU land areas are to be maintained as PALU until surrender of the mining lease for the project is approved.
- (j) The equivalent non-PALU land areas are to be maintained as non-PALU until surrender of the mining lease for the project is approved.
- (k) The proponent is required to ensure the equivalent land areas are improved from the time of securement to enhance the productivity of the land uses (for example: soil erosion, pest and weeds, management, use).

The Coordinator-General is to have jurisdiction for this condition.

APPENDIX C

EA Conditions – Schedule H

Environmental authority EPML00335713 — New Acland Coal Mine

G8	Sewage effluent used for dust suppression or irrigation must not exceed sewage effluent release limits defined in Table G1 - Sewage Effluent Quality Targets for Dust Suppression and Irrigation .
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Agency interest: Land and Rehabilitation	
Condition number	Condition
H1	Buffer Zone The holder of the environmental authority must not cause any disturbance within 50 metres of the high bank of Lagoon Creek (buffer zone) as shown on Figure 3 - Lagoon Creek, buffer and levee unless in accordance with Condition H2 and H3 .
H2	The holder of the environmental authority is authorised to construct and maintain a flood protection levee and access road for inspection purposes, with the tow of the levee being no closer than 50 metres from the high bank of Lagoon Creek as shown on Figure 3 - Lagoon Creek, buffer and levee
H3	The holder of the environmental authority is authorised to access the 50 metre buffer zone as shown on Figure 3 - Lagoon Creek, buffer and levee , for the purposes of maintaining the integrity of the flood protection levee, riparian conservation and weed management purposes.
H4	The flood protection levee must be designed and inspected by a suitably qualified and experienced person. The final design level of the levee crest must be above the predicted 1,000 year ARI event flood level.
H5	Any section of the outside face of the levee must be treated with cover material and grass seeded (unless rock armoured) within three months of completion of the earthworks for that section of the outside face of the levee.
H6	The condition of the levee must at a minimum be assessed: a) by the environmental authority holder within 1 week of any storm of such intensity that greater than 25mm of rain falls in less than 3 hours; and b) by a suitably qualified and experienced person at least once per year between the months of May and October inclusive (i.e. during the 'dry' season and before the onset of the 'wet' season).
H7	Remedial works identified as necessary during assessments conducted under Condition H6 must be commenced within 30 days unless delayed by inclement weather.
H8	Any actions and incidents on site that may impact upon the integrity of the levee bank must be notified to the administering authority in accordance with Condition H4 .
H9	For Stage 3 New Acland Mine Project, land disturbed by mining must be rehabilitated in accordance with Table H4: Rehabilitation Requirements Stage 3 New Acland Mine Project , Table H5: Rehabilitation Acceptance Criteria — Grazing Lands Stage 3 New Acland Mine Project and Table H6: Rehabilitation Acceptance Criteria — Treed Areas Stage 3 New Acland Mine Project .

Environmental authority EPML00335713 — New Acland Coal Mine

H10	<p>Final Land Use and Rehabilitation Plan</p> <p>Within twelve (12) months upon the grant of ML50232 and ML700002 the holder of this environmental authority must develop and implement a Final Land Use and Rehabilitation Plan to ensure that all areas disturbed by mining activities will be suitably rehabilitated in accordance with Table H1 – Final Land Use and Rehabilitation Approval Schedule – ML50170 and ML50216, Table H2 - Landform design criteria for New Acland Coal Mine – ML50170 and ML50216, Table H3: Residual Void Design – ML50170 and ML50216, Table H4: Rehabilitation Requirements Stage 3 New Acland Mine Project, Table H5: Rehabilitation Acceptance Criteria — Grazing Lands Stage 3 New Acland Mine Project and Table H6: Rehabilitation Acceptance Criteria — Treed Areas Stage 3 New Acland Mine Project.</p> <p>The Plan must include, but is not limited to the following:</p> <ul style="list-style-type: none"> a) disturbance type; b) disturbance area; c) pre and post mine land descriptions; d) pre and post mine land capability; e) analogue site(s) identification; f) a description of rehabilitation management techniques incorporating works and monitoring programs and timetables; g) indicators for success; and h) keeping of appropriate records or rehabilitation measures implemented including taking of photographs demonstrative of rehabilitation achieved and the preparation of annual rehabilitation progress reports. <p>NOTE: The Final Land Use and Rehabilitation Plan is to be managed through the Plan of Operations.</p>
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Environmental authority EPML00335713 — New Acland Coal Mine

Table H1: Final Land Use and Rehabilitation Approval Schedule — ML 50170 and ML50216

Disturbance Type							
	Residual Voids	Tailings Dams	Recontoured spoil area	Waste Rock Dumps	Infrastructure & ROM Areas	Roads and Tracks	Water Supply and Sediment Dams
Tenure ID	ML50216	ML50170	ML50170 ML50216	ML50216	ML50170	ML50170 ML50216	ML50216
Projective Surface Area (ha)	55	70	740	100	5	5	40
Post mine land use	Possible water storage	Grazing	Grazing	Grazing	Grazing	Grazing	Possible water storage
Post mine land suitability classification	5	5	3-4	4	4	4	5

NOTE: The Final Land Use and Rehabilitation Plan will be managed through the Plan of Operations.

Table H2: Landform design criteria for New Acland Coal Mine – ML50170 and ML50216

Disturbance Type	Slope Range (%)	Projective Surface Area (ha)
Residual Voids (high wall)	0 - 214 % or 65°	55
Residual Voids (low wall)	0 - 100 % or 45°	
Tailings Dam Top	0 - 20 % or 11.5°*	60
Tailings Dam Wall	0 - 20 % or 11.5° *	10
Recontoured Spoil Area	0 - 20 % or 11.5° *	740
Waste Rock Dumps	0 - 20 % or 11.5° *	100
Infrastructure and ROM areas	0 - 18% or 10°	5
Roads and Tracks	0 - 10 % or 5.7°	5

NOTE: *= The slope depends on the vertical height and slope length. See Landform Acceptance Criteria.

Environmental authority EPML00335713 — New Acland Coal Mine

Table H3: Residual Void Design – ML50170 and ML50216

Void Identification	Void wall - competent rock slope (%)	Void wall - incompetent rock slope (%)	Void maximum surface area (ha)
Central Pit/South Pit Void	65° or 214%	45° or 100%	55

Table H4: Rehabilitation Requirements Stage 3 New Acland Mine Project

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Solid Waste Rock Disposal	Safe	Site safe for humans and animals	Structurally safe and shallow slopes (geotechnically stable). No hazardous materials (geochemically benign).	Monitoring / observation demonstrates safe site
	Non-polluting	No environmental harm attributed to adverse chemical conditions within the waste rock dumps	Minimise erosion (to at least <10t/ha/yr) through selective placement of mine waste, adequate vegetation cover. Runoff and seepage does not cause environmental harm	Suitable for low intensity grazing. Runoff and discharge water (including seepage) meets specified limits.
	Stable	Minimise erosion	Wastes selectively placed above and below original ground level to agreed slopes. Adequate ground cover established to control erosion. Runoff control measures (contour banks, etc) effective in controlling erosion.	Suitable for low intensity grazing
	Self-sustaining	To return to agreed grazing land capability	Slope and other landform design criteria achieved. Establish adequate vegetation cover.	Refer Table H5 and Table H6
Tailings Dams	Safe	Site safe for humans and animals	Structurally safe (geotechnically stable). Adequate capping. Accessibility to voids is permanently removed.	Monitoring / observation demonstrates safe site
	Non-polluting	Acid mine drainage will not cause environmental harm	Adequately capped. Minimise erosion through adequate vegetation cover to less than 10t/ha/yr. Runoff and seepage controlled by water management.	Monitoring meeting release limits. Suitable for low intensity grazing

Environmental authority EPML00335713 — New Acland Coal Mine

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	Stable	Minimise erosion	Stored in both pits below natural surface level and in dams above natural surface. Establish adequate vegetation cover.	Monitoring demonstrates revegetation success. No structural erosion present. Suitable for low intensity grazing
	Self-sustaining	To return to agreed grazing land capability	Monitoring demonstrates successful revegetation.	Refer Table H5 and Table H6
Mine Infrastructure Areas	Safe	Site safe for humans and animals	Hazardous materials removed.	Monitoring / observation demonstrates safe site
	Non-polluting	Undertake contaminated land assessment.	Remediate contamination so that runoff and seepage are of good quality.	Monitoring meeting release limits.
	Stable	Minimise erosion	Remove infrastructure or allow continued use of useful infrastructure. Establish adequate vegetation cover.	Slope will be a maximum of 17° (30%)
	Self-sustaining	To return to agreed grazing land capability	Return to previous use (grazing). Establish adequate groundcover.	Refer Table H5 and Table H6
Linear Infrastructure areas	Safe	Site safe for humans and animals	Structurally safe (geotechnically stable).	Monitoring / observation demonstrates safe site
	Non-polluting	No environmental harm attributed to adverse chemical conditions within the rehabilitation areas.	Runoff and seepage controlled by water management (e.g. dams).	Monitoring meeting release limits.
	Stable	Minimise erosion	Remove infrastructure, rip reshape and revegetate or allow continued use of useful infrastructure.	Suitable for low intensity grazing

Environmental authority EPML00335713 — New Acland Coal Mine

Mine Domain	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	Self-sustaining	To return to agreed grazing land capability	Remove infrastructure or allow continued use of useful infrastructure. Establish adequate vegetation cover.	Refer Table H5 and Table H6

Environmental authority EPML00335713 — New Acland Coal Mine

Table H5: Rehabilitation Acceptance Criteria Stage 3 New Acland Mine Project — Grazing Lands

Land Suitability Class	Acceptance Criteria — Grazing Land						
	Non-polluting	Stability and Sustainability Land Use					
	Active Rill / Gully Erosion	Vegetation Cover	Native and Exotic Grass Species Diversity (spp./ha)	Slopes	Geo-technical Stability	Active Rill / Gully Erosion	Declared Weeds
2 to 5	Absence (<10t/ha/yr)	> 50%	≥4	Maximum 17°	stable	absence	absence

Table H6: Rehabilitation Acceptance Criteria Stage 3 New Acland Mine Project — Treed Areas

Land Suitability Class	Acceptance Criteria — Grazing Land Treed Areas						
	Non-polluting	Stability and Sustainable Land Use					
	Active Rill / Gully Erosion	Vegetation Cover (including tree / shrub canopy)	Native Tree / Shrub & Native / Exotic Grass Species Diversity (spp./ha)	Slopes	Geo-technical Stability	Active Rill / Gully Erosion	Declared Weeds
2 to 5	Absence (<10t/ha/yr)	> 50%	Eucalyptus spp. ≥2 Acacia spp. ≥2 Other tree / shrub spp. ≥2 Grass ≥3	Maximum 17°	stable	absence	absence

H11	All areas significantly disturbed by mining activities must be rehabilitated in accordance with the Mine Closure Plan outlined in Condition H13 .
H12	Rehabilitation must commence progressively in accordance with the plan of operations.

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H13	<p>Closure and post closure</p> <p>The environmental authority holder must submit a Mine Closure Plan to the administering authority at least five years prior to the surrender of this environmental authority.</p>
H14	<p>When the deposition of tailings ceases, the holder of this Environmental Authority must install a final cover system to the Tailings Storage Facility, which effectively minimises:</p> <ul style="list-style-type: none"> a) infiltration of water into the Tailings Storage Facility; and b) the likelihood of any erosion occurring to either the final cover system, dumped spoil material or deposited tailings.
H15	<p>The final cover system must include an inert layer to reduce infiltration and an upper/final layer of earthen material that is capable of sustaining plant growth.</p>
H16	<p>Sustainable final land use outcomes</p> <p>Areas that are to be progressively rehabilitated must comply with, but not be limited to, the following outcomes:</p> <ul style="list-style-type: none"> a) All areas disturbed by mining activities must be rehabilitated to the landform design criteria defined in the Final Land Use and Rehabilitation Plan required by Condition H10 to H13; and b) The final landforms must be stable with erosion rates comparable to a suitable analogue site.
H17	<p>Grazing pasture outcome for ML50170 and ML50216</p> <p>Areas which are to be progressively rehabilitated to grazing pasture must comply with the following outcomes;</p> <ul style="list-style-type: none"> a) generate a self-sustaining vegetation with projective cover, species composition and species distribution comparable with that of analogue sites to be determined by the study detailed in Condition H10 e.g. planting local native grass and shrub species where possible. These vegetation species must be listed in the Final Land Use and Rehabilitation Plan; b) all areas disturbed by mining activities must be rehabilitated to the landform design criteria defined in Table H2 - Landform design criteria for New Acland Coal Mine – ML50170 and ML50216; c) a measure of productivity (e.g. sustainable dry matter production, stock live weight gain) are comparable to the selected analogue sites detailed in Condition H18.
H18	<p>Complete an investigation into rehabilitation of disturbed areas and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in Condition H17 and landform design criteria in Table H2 - Landform design criteria for New Acland Coal Mine – ML50170 and ML50216 within twelve months of the issue of the Environmental Authority.</p>

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H19	<p>Residual void outcome</p> <p>Residual voids must comply with the following outcomes:</p> <ul style="list-style-type: none"> a) residual voids must not cause any serious environmental harm to land, surface waters or any recognised ground water aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this Environmental Authority; and b) residual voids must comply with Table H3 - Residual Void Design – ML50170 and ML50216.
H20	Complete an investigation into residual voids and submit the findings in the Mine Closure Plan outlined by Condition H13 to the administering authority proposing acceptance criteria to meet the outcomes in Condition H19 and landform design criteria in Table H3 — Residual Void Design – ML50170 and ML50216 .
H21	All areas within the mining lease will be managed to reduce the spread of declared plants including both disturbed and undisturbed areas.
H22	<p>Topsoil</p> <ul style="list-style-type: none"> a) The environmental authority holder must ensure that topsoil is removed and stockpiled prior to carrying out any disturbance activities such that topsoil must be strategically stripped ahead of mining activities, including the establishment of spoil dump areas; and, b) Topsoil must not be disposed of in a pit or otherwise sterilised from reuse.
H23	<p>Contaminated land</p> <p>Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.</p>
H24	Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use in accordance with Condition F10 .
H25	Minimise the potential for contamination of land by hazardous contaminants.
H26	<p>Impacted land</p> <p>The holder of the environmental authority must provide the approved report required by Imposed Condition 9, of Appendix 1, of the CG's report, to the administering authority, within 20 business days of it being approved.</p>
H27	The holder of the environmental authority must provide a report demonstrating fulfilment of the requirements of Imposed Condition 9(i) — (k) in the CG's report, to the administering authority with any surrender application.

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H28	<p>Land resource survey</p> <p>The holder of the environmental authority must provide the approved report required by Imposed Condition 6, of Appendix 1, of the CG's report, to the administering authority, within 20 business days of approval.</p>
H29	<p>Rehabilitation of disturbed land</p> <p>The holder of the environmental authority must provide the approved rehabilitation success criteria required by Imposed Condition 7, of Appendix 1, of the CG's report, to the administering authority within 20 business days of approval.</p>

Agency interest: Biodiversity	
Condition number	Condition
I1	<p>The holder of the environmental authority must ensure that staff induction and environmental awareness programs include reference to <i>Anomalopus mackayi</i> (Five-clawed Worm-skink, Long-legged Worm-skink) and <i>Tympanocryptis pinguicolla</i> (Grassland Earless Dragon, South-eastern Lined Earless Dragon) to ensure that any individuals that might be present in the project area are identified and reported to the mine site environmental officer for recovery and release into suitable habitat.</p>
I2	<p>The holder of this Environmental Authority must develop a Conservation Management Plan for the riparian area of Lagoon Creek and existing stands of regional ecosystems RE11.8.5 and RE11.8.3 located on Bottle Tree Hill and submit the Plan to the Administering Authority and the Department of Natural Resources, Mines and Water within twelve months of the date this environmental authority takes effect. The Plan must for the two proposed conservation areas (Lagoon Creek and Bottle Tree Hill):</p> <ol style="list-style-type: none"> ensure the combined surface area to be protected and enhanced is no less than the surface area of the regional ecosystems proposed to be cleared by mining activities on Mining Leases 50170 and 50216; develop appropriate conservation/rehabilitation objectives; outline suitable conservation/rehabilitation techniques (including those areas where local native plant species/communities are to be re-established and/or enhanced); develop an action plan/rehabilitation schedule for the planned conservation/rehabilitation activities; propose specific conservation/rehabilitation acceptance criteria (including those areas where local native plant species/communities are re-established and/or enhanced); detail a suitable monitoring program to quantify conservation/rehabilitation success (including those areas where local native plant species/communities are re-established and/or enhanced); and propose appropriate remedial actions for conservation/rehabilitation areas not achieving the required conservation/rehabilitation objectives.

APPENDIX K

Photo Time & Date Stamp Data



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