

Vegetation Assessment of Jumrum Estate
Lot Plan 72RP903071 Fallon Road, Kuranda QLD 4881



Prepared for:

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1. Background

The Jumrum estate, Lot Plan 72RP903071 is located in the Wet Tropics Bioregion, two and a half kilometres south of Kuranda. It is bordered by Jallon Road on the north and the Kennedy highway on the west, at 16° 50' 10" South; 145° 37' 25" East.

In association with much of the surrounding landscape, the estate has been logged in the past. A Property Map of Assessable Vegetation (PMAV) has been certified by the Department of Environment and Resource Management (DERM). The PMAV identifies the majority of the property as previously cleared "non-remnant", category x vegetation. The PMAV, Regrowth and Regional Ecosystem maps are provided as an appendix to this report.

A patch of "remnant" regional ecosystem 7.11.1 is officially recognised in the south-east corner of the estate. RE 7.11.1 is defined by DERM as:

"Simple-complex mesophyll to notophyll vine forest on moderately to poorly drained metamorphics". While this remnant vegetation can not be cleared without approvals from DERM, RE 7.11.1 has a "Least Concern" Vegetation Management Act (November 2009) status and a "No concern at present" Biodiversity status with DERM.

While much of the estate has been previously cleared, the regrowth and remnant vegetation in the south-east corner contain significant ecological and visual values. The ecological values include habitat for a range of Wet Tropics species, with several from the broader Kuranda area listed as threatened under the federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the Queensland Nature Conservation Act (NCA).

In order to ensure the retention of significant habitat values of the estate, and to address the requirements of possible threatened species in the vicinity, a site inspection of the estate was undertaken on 9 February 2011.

Specific vegetation issues evaluated during the field inspection were:

1. Documentation of the vegetation in order to provide a vegetation map of the estate;
2. Inspection and mapping of the remnant forest in the south-east corner of the estate;
3. An assessment of the habitat values for a range EPBC Act threatened species that are known to occur in the Kuranda area.

2. Field Assessment – Vegetation

The site inspection was carried out by two staff of Vegetation Management Science, a flora and a fauna expert. The survey was undertaken one week following cyclone Yasi. Although Yasi crossed the coast at Mission Beach, approximately 130 km south of Kuranda, quite a few small to medium-sized branches had been blown to the ground across the estate.

Fifty geographically referenced waypoints were recorded while walking across the estate (Figure 1). Vegetation and habitat features were documented and a photograph was taken at each waypoint.

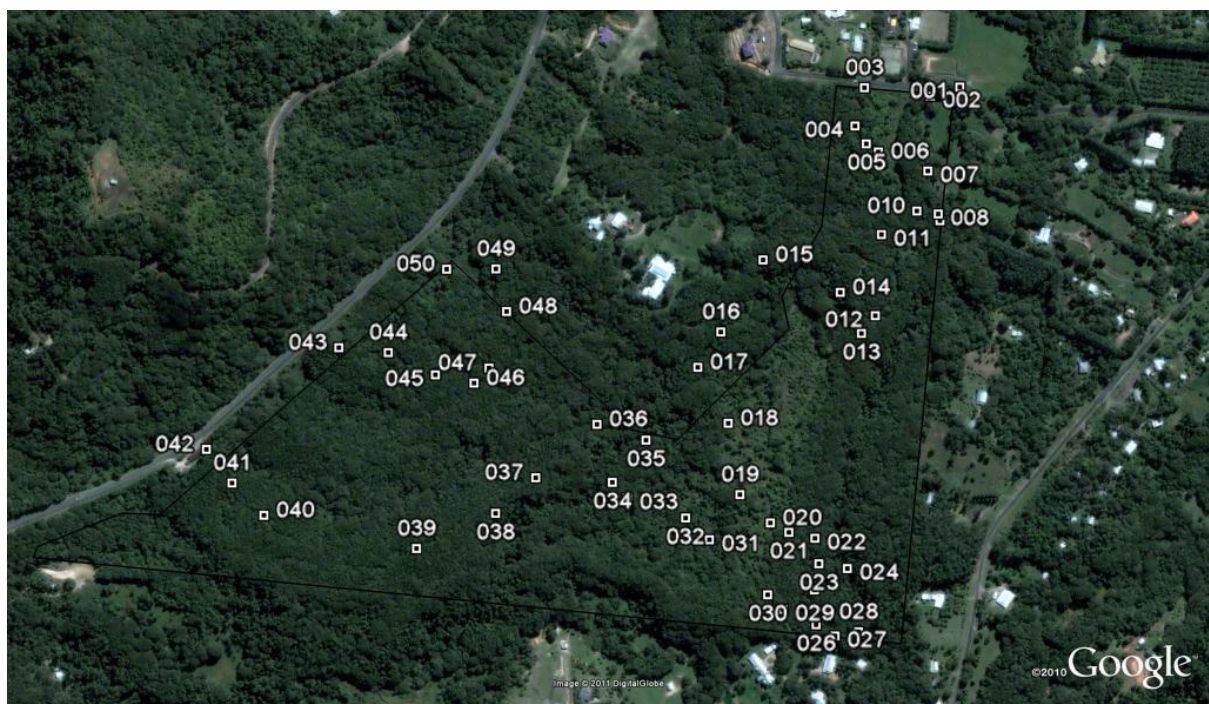


Figure 1. The location of numbered waypoints across the estate, overlain onto a 2006 satellite image, which were used to document vegetation attributes.

The dominant soils throughout the estate are of metamorphic origin and are a heavy pale-coloured clay. Three broad vegetation types were documented: Regrowth, Remnant and Riparian forest along major creek banks (Figure 2).

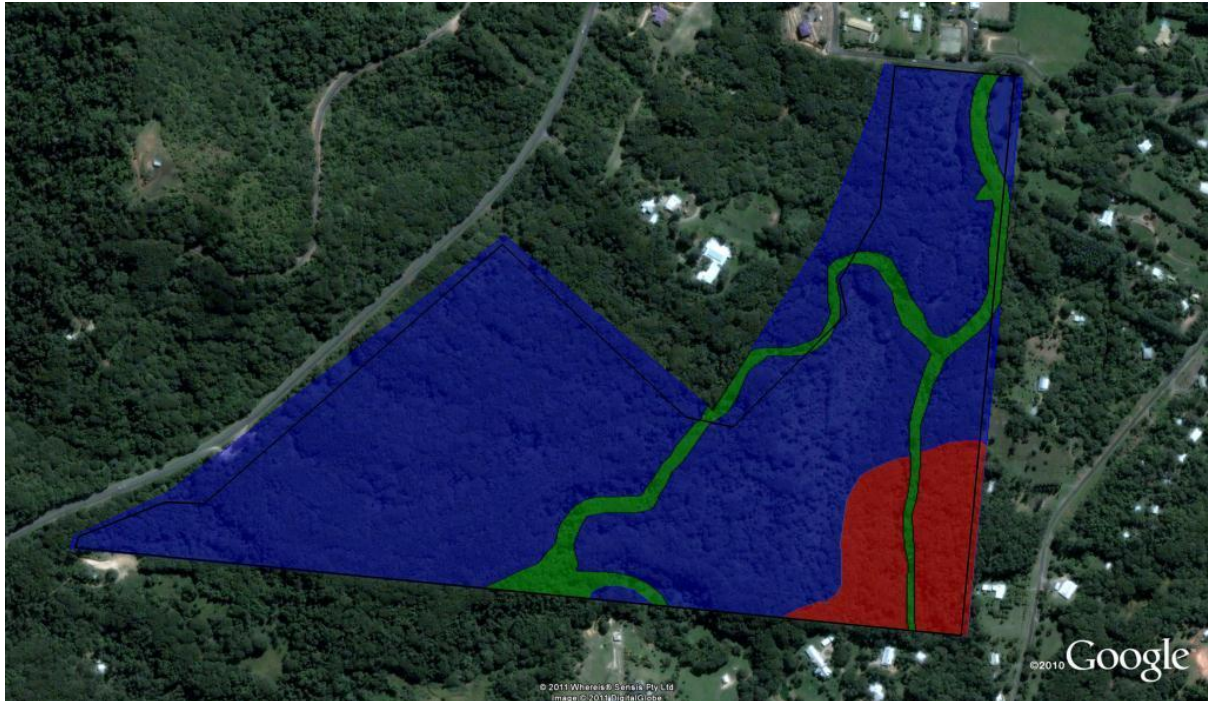


Figure 2. The three broad vegetation types across Jumrum Estate: Regrowth (blue), Remnant (red) and Riparian (green). The boundary of Jumrum estate is represented by the black line. Note the Riparian forest is mapped through the remnant forest simply to show the creek line location. The entire south-east corner should be considered remnant forest.

Regrowth forest



Figure 3: Regrowth forest at waypoint 38.

The majority of the approximately 45 hectare estate is covered by forest that has regrown following past clearing (Figures 2 & 3). The regrowth forest has attained a typical height of 12 to 18 metres. The canopy cover varies between locations but can be up to 70% foliage cover.

The regrowth forest throughout the estate is dominated by four common trees: *Acacia celsa* (Wattle or Brown salwood), which are typically the tallest trees, *Alphitonia petrei* (Sarsparilla), *Polyscias australianum* (Celerywood or Ivory basswood) and *Alstonia muelleriana* (Hairy milky pine). These trees are common Wet Tropics regrowth “pioneers” species, reflecting the past disturbance.

Other common trees and shrubs of the regrowth forest are: *Acacia cincinnata* (Wattle or Circle-fruit salwood), *Darlingia darlingiana* (Brown silky oak), *Guioa acutifolia* (Glossy tamarind), *Grevillea baileyana* (Bailey’s silky oak), *Litsea leafeana*

(Bollywood), *Melastoma malabathricum* (Native lasiandra), *Neolitsea dealbata* (White Bollywood) and *Pittosporum rubiginosum* (Hairy red pittosporum).

As is typical of regrowth forests, many vines were common. These included *Calamus moti* (Wait-a-while), *Flagellaria indica* (Supplejack), *Melodinus* sp. (Birdvine), and *Palmeria scandens* (Anchorvine).

Several exotic species and significant weeds were present in the regrowth forest but typically on the margins of regrowth, along tracks and in grassy clearings. These were primarily *Cyperus aromaticus* (Navua sedge), *Lantana camara* (Lantana), *Megathyrsus maximus* (Guinea and Hamil grass), *Pinus caribaea* (Caribaea pine), *Rubus alceifolius* (Giant bramble) and *Sphagneticola triolobata* (Singapore daisy).

The regrowth forest will provide habitat for generalist wet forest and rainforest edge species, due to the > 12 metre tall, moderately dense canopy. However, the regrowth forest lacks large trees that would provide buttresses for habitat diversity, and the common species are typically dry or small-fruited, limiting the carrying capacity for the many rainforest fleshy-fruit eating species, such as the Southern cassowary and various other frugivores. The regrowth forest is also fairly simplistic in terms of species diversity, compared to intact rainforest, again reducing its ability to support a range of fauna.

Remnant forest



Figure 4: Remnant forest at waypoint 25

The remnant forest mapped by DERM is located in the south-east corner of the estate (Figures 2 & 4). The remnant forest covers approximately 4.6 hectares (about 10% of the estate). The remnant forest is officially described by DERM as RE 7.11.1a: Simple-complex mesophyll to notophyll vine forest (i.e. a rainforest dominated by medium to large leaved trees, with simple to complex species diversity). However, the site actually contains an old forest of 25 to 30 metre tall *Eucalyptus pellita* (Red-stringybark or large fruited red mahogany) that emerge above a 10 – 18 metre tall rainforest canopy. The rainforest element consists of small, young trees which appear to have invaded the eucalypt forest, perhaps half a century ago. In addition to the Red stringybark, *Corymbia torelliana* (Cadaghi) is present, primarily near adjacent houses.

Many of the common species that make up the 12 to 18 metre rainforest strata within the remnant forest are similar to the regrowth forest, with *Acacia celsa*, *Alphitonia petreii*, *Alstonia muelleriana* and *Polyscias australianum* quite common.

However, the remnant forest is more species diverse than the regrowth forest and additional canopy and sub-canopy species include *Cardwellia sublimis* (Northern silky oak), *Mackinlaya confusa* (Blue umbrella shrub), *Pandanus* sp. (Pandanus) and *Syncarpia glomulifera* (Turpentine). Vines, especially *Calamus moti* are present.

The remnant forest is most likely to provide greater fauna habitat values, having large eucalypt trees, a broader range of rainforest species and being dissected by a creek.

Riparian forest



Figure 5: Riparian forest at waypoint 34.

Jumrum Creek and associated tributaries are lined by forest. Much of this forest is likely to have been cleared in the past. The riparian forest has a fairly similar tree composition to the rest of the property, with trees that are common in the surrounding forest, such as *Acacia celsa*, *Alphitonia petrei*, *Alstonia muelleriana*.

Litsea leafeana, *Melastoma malabathricum*, *Neolitsea dealbata* and *Polyscias australianum*.

The riparian forest is different in having a greater abundance of tree ferns (*Cyathea* sp.), *Freycinetia* sp. (Climbing pandanus), *Pandanus* sp. (Pandan trees), Figs (*Ficus* sp.) and Palms. Several of these riparian forest species will provide abundant moderate sized fleshy fruit (e.g. figs, pandanus and palms), so that the combination of water and fleshy fruits makes the riparian forest the most valuable fauna habitat.

The palms that are scattered along the creek banks in the north-east of the estate are of particular interest in that they are either the common *Archontophoenix alexandrae* (Alexandra palm) or *Archontophoenix myolensis* (Myola palm) which is listed as Endangered under Federal (EPBC Act) and State (NR Act) legislation. The Myola palm is only known from the Kuranda area (principally Myola). Unfortunately no palm fruit were observed, despite searching, and fruit are necessary to be certain of the identification (pers. com. Dr John Dowe, the expert on north Queensland palms). A further search will need to be made to find fruit and identify the palms growing along Jumrum Creek.

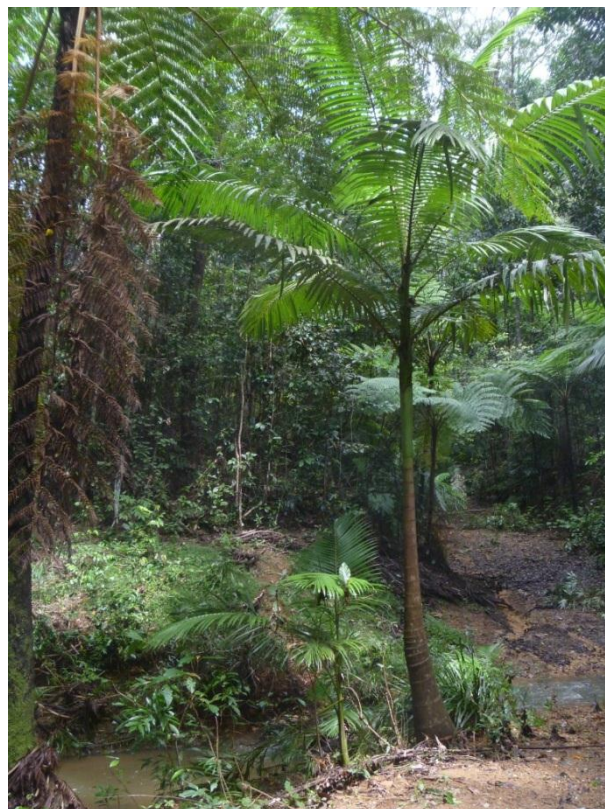


Figure 5. *Archontophoenix* palms and tree ferns on Jumrum Creek (waypoint 14)

3. Threatened species habitat

Ensuring a buffer along the edge of the riparian forest will be an important action that provides a useful corridor for fauna, linking the estate with forest to the south and north. Many of the potential threatened species known from the broader Kuranda area, such as frogs, will benefit from a forest refuge remaining along creeks.

Of the EPBC Act listed threatened species known from the Kuranda region (a 5 kilometre buffer around the centre of the estate; Table 1), the animals with real potential to maintain a population or use Jumrum estate to traverse between surrounding forest are the frogs and perhaps the Southern cassowary. As mentioned above, due to the limited abundance of fleshy fruited rainforest trees and the poor diversity, Jurum estate is very unlikely to permanently support cassowaries, but cassowaries may travel along the creek corridor to access neighbouring forest. However, no evidence of cassowaries (neither the very obvious scats or tracks) were seen during the survey.

Maintaining a buffer along the creeks should allow the ongoing populations of frogs, whether those present are common species or include some threatened species. For example, the endangered *Myola* frog uses rainforest streams as breeding habitat with the protection rainforest connections in the Kuranda area being the most important management action for this frog (Hoskin 2007).

While “vulnerable” Spectacled flying foxes and Red goshawks may fly through the estate, it is very unlikely that they nest or roost in the block. In the case of the flying foxes, the absence of large fleshy fruited trees would deter their residence. While the larger Red stringy barks near the creek in the south-east corner could support Red goshawks, the presence of the dense mid canopy of rainforest trees makes it less suitable habitat for them. In any case, the remnant forest can not be cleared.

Of the EPBC Act listed threatened plants, *Archontophoenix myolensis* (Myola palm) may be present in the north-eastern corner of the estate, along Jumrum creek and tributaries. As discussed above, palms were observed during the survey but an additional search for fruit to determine identification is required. Irrespective of

whether the palm that is present is the common Alexandra or the endangered Myola palm, the protection of the riparian forests along the creek is an important action for a range of species and habitat values.

Of both potential fauna and flora threatened species, the key habitats are the riparian forest corridor along major creeks, and the remnant forest in the south-east corner. The most important action is to reduce development impacts and benefit threatened (and common) species by ensuring the remnant forest is uncleared and by maintaining a buffer of uncleared forest on the edges of the creeks, with minimal disturbance.

Table 1. Threatened species under the state (NCA) and federal (EPBC) legislation that have been recorded within a 5 kilometre buffer around the centre of the estate (data from DERM “Wildnet”).

Scientific Name	Common Name	QLD NCA ¹	EPBC Act ²	Comments
Fauna				
<i>Litoria myola</i>	Kuranda treefrog	NT	E	Very possibly on estate in riparian forest
<i>Litoria rheocola</i>	Common mistfrog	E	E	Very possibly on estate in riparian forest
<i>Nyctimystes dayi</i>	Australian lacelid	E	E	Very possibly on estate in riparian forest
<i>Litoria nannotis</i>	Waterfall frog	E	E	Very possibly on estate in riparian forest
<i>Casuaris casuaris johnsonii</i> (southern population)	Southern cassowary	E	E	Unlikely but may traverse the estate through riparian forest
<i>Turnix olivii</i>	Buff-breasted button-quail	V	E	Unlikely
<i>Melanotaenia eachamensis</i>	Lake Eacham Rainbowfish		E	Unlikely
<i>Taudactylus acutirostris</i>	sharp Snouted dayfrog	E	EX	Unlikely
<i>Erythroriorchis radiatus</i>	Red goshawk	E	V	Unlikely
<i>Pteropus conspicillatus</i>	Spectacled flying-fox	C	V	Unlikely
Flora				
<i>Alpinia hylandii</i>	Hyland’s ginger	R		Possibly, known nearby
<i>Archontophoenix myolensis</i>	Myola palm	E	E	Probably
<i>Diplazium pallidum</i>		E	E	Perhaps
<i>Sauropus macranthus</i>		V	V	Possible

- 1 Codes for Queensland Nature Conservation Act: NT = Near Threatened (equivalent to previous “Rare” category; C = Common (i.e. not listed as threatened); V = Vulnerable; E = Endangered.
- 2 Codes for Environment Protection and Biodiversity Conservation Act: V = Vulnerable; E = Endangered; EX = Presumed extinct

Reference

Hoskin C. J. (2007) Description, biology and conservation of a new species of Australian tree frog (Amphibia: Anura: Hylidae: *Litoria*) and an assessment of the remaining populations of *Litoria genimaculata* Horst, 1883: systematic and conservation implications of an unusual speciation event. *Biological Journal of the Linnean Society* **91**, 549–563.

List of Appendices:

Appendix 1: DERM maps: Regional ecosystem map, regrowth map and PMAV

Appendix 2: Labelled photos, including photos from each of the 50 waypoints

Appendix 3: List of the dominant plants at each waypoint