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Planning Manager
ESS
PO Box 156
Carrington, NSW 2294

14SYDPLA-0034

27 March 2015

Dear Shannon,

Hydro Aluminium Kurri Kurri Masterplan – key biodiversity findings within Cessnock LGA

This letter provides the summary of results of flora and fauna survey within the portion of the Hydro Aluminium Kurri Kurri Masterplan Bio certification Assessment Area that falls within the Cessnock Local Government Area (LGA). The entire Assessment Area has been subject to detailed flora and fauna survey both from previous monitoring surveys (FloraSearch 2004; Greg Richards and Associates 2004; Cenwest Environmental Services 2004; Cenwest Environmental Services 2009) as well as more targeted surveys (ELA 2015). The methods employed in the targeted surveys (ELA 2015) were discussed and developed in consultation with the Office of Environment and Heritage (OE&H) and are in line with the Biocertification Assessment Methodology (BCAM). The intention of the project is to undertake an assessment and gain Biocertification of the project area pursuant to Biodiversity Certification Assessment Methodology (BCAM) (DECCW 2011).

Overview of Biocertification

The BCAM was developed by the NSW Office of Environment and Heritage (OE&H) and was gazetted by the NSW government in February 2011. The methodology may be applied to land for which biocertification is sought, and conferred by the Minister for the Environment if the conservation measures proposed in the biocertification application result in an overall improvement or maintenance in biodiversity values, according to the rules established. This is referred to under the methodology as satisfying the 'improve or maintain test' (IoM test).

To obtain Biodiversity Certification (or 'biocertification') the 'planning authority' (i.e. Cessnock Council) must submit a biodiversity certification application and Biodiversity Certification Strategy (BCS); both of which are required to be publicly exhibited. The ecological values are also to be assessed in accordance with the gazetted methodology (BCAM).

For the purposes of the TSC Act, biodiversity values include (but are not limited to) threatened species, threatened populations and threatened ecological communities (EECs), and their habitats. Biodiversity values listed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) are also assessed, though Biodiversity Certification does not, at the time of writing this report, grant Commonwealth EPBC Act approval. The definition of biodiversity values does not include fish or marine vegetation within the

meaning of Part 7A of the NSW Fisheries Management Act 1994, unless that fish or marine vegetation has been the subject of an order under section 5A of the TSC Act.

If the Minister confers biocertification on land, under Part 7AA of the TSC Act, a consent/approval authority does not have to take biodiversity issues into consideration when assessing future development applications, i.e. for the purpose of s.5A of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the development or activity is not subject to an Assessment of Significance for threatened species, populations or ecological communities.

Under the BCAM, the impact of development and conservation measures on biodiversity values is quantified using biodiversity credits which are defined by each of the vegetation types (ecosystem credits) and threatened species present (either via ecosystem credits for threatened fauna species or via species credits). In this regard, the methodology determines the number of credits that are 'required' to offset the adverse impacts of development on biodiversity values, and, the number of credits that can be 'generated' by undertaking recognised conservation measures as outlined in s126L of the TSC Act that will improve biodiversity values within the BCAA. Where the number of credits that are created is equal to, or exceeds the number and type of credits required, the 'improve or maintain' test described under the methodology is considered to be satisfied, provided 'Red Flags' have been avoided, or a Red Flag Variation has been approved by the Director General of OEH.

Red Flags are areas of high biodiversity conservation value, and include vegetation types that are >70% cleared, Endangered Ecological Communities (EECs) or Critically Endangered Ecological Communities (CEECs) listed under the TSC Act and/or EPBC Act, certain threatened species (where the loss is greater than a threshold level), and areas that are recognised as biodiversity corridors of state or regional significance. Further details on Biodiversity Certification can be found on the Office of Environment and Heritage website at: <http://www.environment.nsw.gov.au/biocertification/index.htm>

Vegetation and flora survey

Four plant community types have been identified within the assessment area. Each of these types is equivalent to an individual Endangered Ecological Community (EEC). This is summarised below in **Table 1**. **Figure 3** illustrates the extent of these community types within the portion of Hydro landholdings that falls within Cessnock LGA.

Table 1: Plant community types, equivalent EEC's and areas mapped within Hydro landholdings in Cessnock LGA.

Plant Community Type (PCT)	Condition	EEC	Area within the Cessnock LGA (ha)
Cabbage Gum-Rough-barked Apple grassy woodland on alluvial floodplains of the lower Hunter	Intact	River-Flat Eucalypt Forest on Coastal Floodplains EEC	55.03
	Underscrubbed/grazed		55.12
	Weedy drainage line		5.00
Forest Red Gum - Grey Gum dry open forest on hills of the lower Hunter Valley, Sydney Basin Bioregion	Intact	Hunter Lowlands Redgum Forest EEC	21.34
	Underscrubbed/grazed		24.30
Parramatta Red Gum - Narrow-leaved Apple - Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area	Intact	Kurri Sands Swamp Woodland EEC	340.21
	Regenerating		14.42
	Underscrubbed/grazed		13.02
	Ground layer only- Power easement		23.07

Plant Community Type (PCT)	Condition	EEC	Area within the Cessnock LGA (ha)
Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter	Intact	Lower Hunter Spotted Gum - Ironbark Forest EEC	363.06
	Underscrubbed/grazed		60.14
	Low/mostly cleared		21.72
Water/Swamp			24.80
Cleared			414.10
Grand Total			1435.34

The entire Biocertification Assessment Area was subject to detailed targeted threatened flora surveys to identify the extent and estimate the numbers of threatened flora species. Four threatened flora species have been recorded within Hydro landholdings (**Table 2**). Direct counts of number of individuals or stems were completed for areas proposed for Biocertification. Estimates of numbers of *Grevillea parviflora* and *Eucalyptus parramattensis* were completed for land proposed as biodiversity offset. Several 50 x 20 m plots were randomly placed within suitable habitat and were used to estimate the number of stems of *G. parviflora* and *E. parramattensis* within Kurri Sand Swamp Woodland. The location of these threatened flora species are represented spatially in **Figure 2**

Table 2: Threatened flora species recorded within Hydro landholdings.

Species Name	Common Name	Status	
		TSC Act	EPBC Act
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	Drooping Red Gum	✓	✓
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Small-flowered Grevillea	✓	✓
<i>Acacia bynoeana</i>	Bynoe's Wattle	✓	✓
<i>Callistemon linearifolius</i>	Netted Bottle-brush	✓	-

Threatened fauna survey

Several threatened fauna species have been recorded within Hydro landholdings, including records within the Cessnock LGA. **Table 3** provides a summary of these results and these are presented spatially in **Figure 1**.

Table 3: Listed threatened and migratory fauna recorded within Hydro landholdings

Species Name	Common Name	Status		Comments on recorded occurrence
		TSC Act	EPBC Act	
<i>Miniopterus australis</i>	Little Bent-wing Bat	V	-	Recorded by ELA 2015
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-wing Bat	V	-	Recorded by ELA 2015
<i>Myotis macropus</i>	Large-footed Myotis	V	-	Recorded by CENWEST 2004
<i>Mormopterus norfolkensis</i>	East-coast Freetail Bat	V	-	Recorded by ELA 2015
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	Recorded by ELA 2015
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-	Recorded by ELA 2015
<i>Petaurus norfolkensis</i>	Squirrel Glider	V	-	Recorded by ELA 2015 in the buffer lands
<i>Pteropus poliocephalus</i>	Grey Headed Flying Fox	V	V	Recorded by ELA 2015
<i>Litoria brevipalmata</i>	Green-thighed Frog	V	-	Recorded by CENWEST 2004 in the buffer lands 700m north of the smelter site
<i>Varanus rosenbergi</i>	Heath Monitor	V	-	Recorded by CENWEST 2004 in the buffer lands 700m north of the smelter site
<i>Chthonicola sagittata</i>	Speckled Warbler	V	-	Recorded by CENWEST 2004 in the buffer lands
<i>Climacteris picumnus</i>	Brown Treecreeper	V	-	Recorded by ELA 2015
<i>Stagonopleura guttata</i>	Diamond Firetail	V	-	Recorded by CENWEST 2004 in the buffer lands
<i>Melanodryas cucullata</i>	Hooded Robin	V	-	CENWEST 2004 in the buffer lands
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	Recorded by ELA 2015 in Wentworth Swamp
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	-	M	Recorded by ELA 2015 in Wentworth Swamp
<i>Gallinago hardwickii</i>	Latham's Snipe	-	M	Recorded by ELA 2015 in Wentworth Swamp
<i>Ardea modesta</i>	Eastern Great Egret	-	M	Recorded by ELA 2015 in Wentworth Swamp
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	Recorded by ELA 2015 and CENWEST 2004 at the smelter and buffer lands

Species Name	Common Name	Status		Comments on recorded occurrence
		TSC Act	EPBC Act	
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	V	-	Recorded by ELA 2015 and CENWEST 2004 in the buffer lands
<i>Limosa limosa</i>	Black-tailed Godwit	V	M	Recorded by CENWEST 2004 in Wentworth Swamp within the buffer lands
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	-	M	Recorded by ELA 2015 and CENWEST 2004 nesting and foraging in the buffer lands and foraging over water storage ponds to north of the smelter
<i>Merops ornatus</i>	Rainbow Bee-eater	-	M	Recorded by ELA 2015 and by CENWEST 2004 in the buffer lands and smelter site

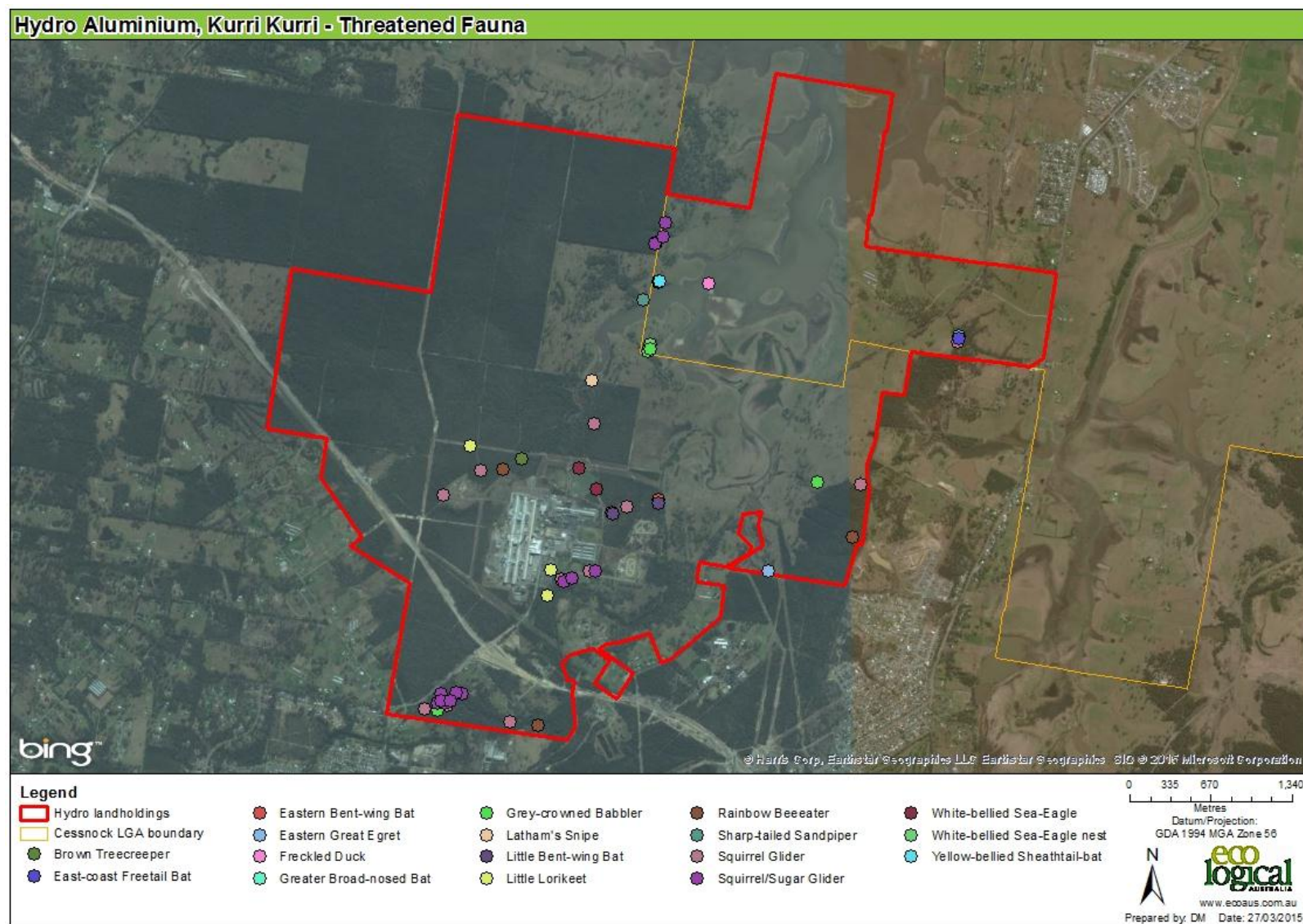


Figure 1: Threatened fauna records (ELA 2015) within Hydro landholdings

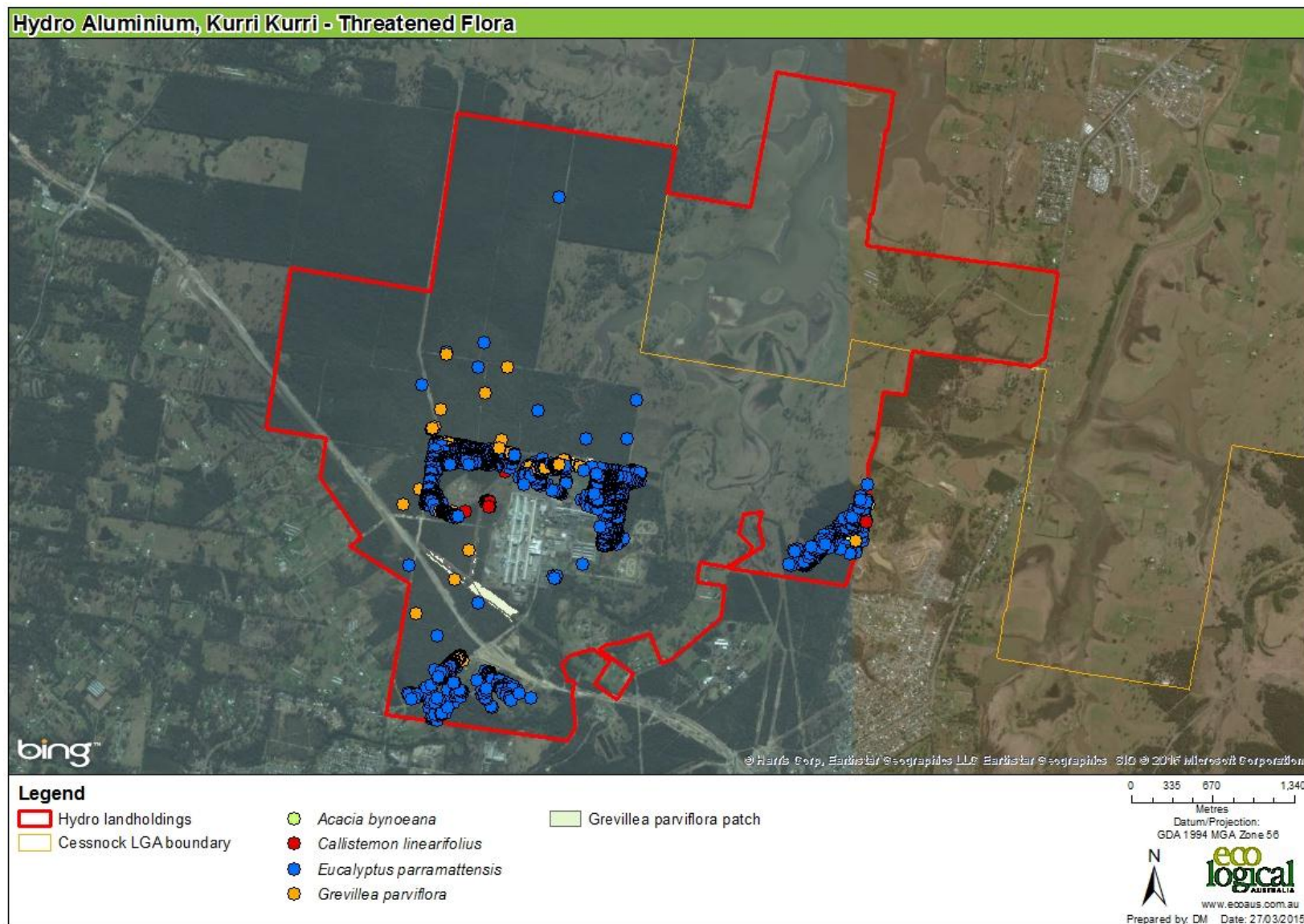


Figure 2: Threatened flora records (ELA 2015) within Hydro landholdings

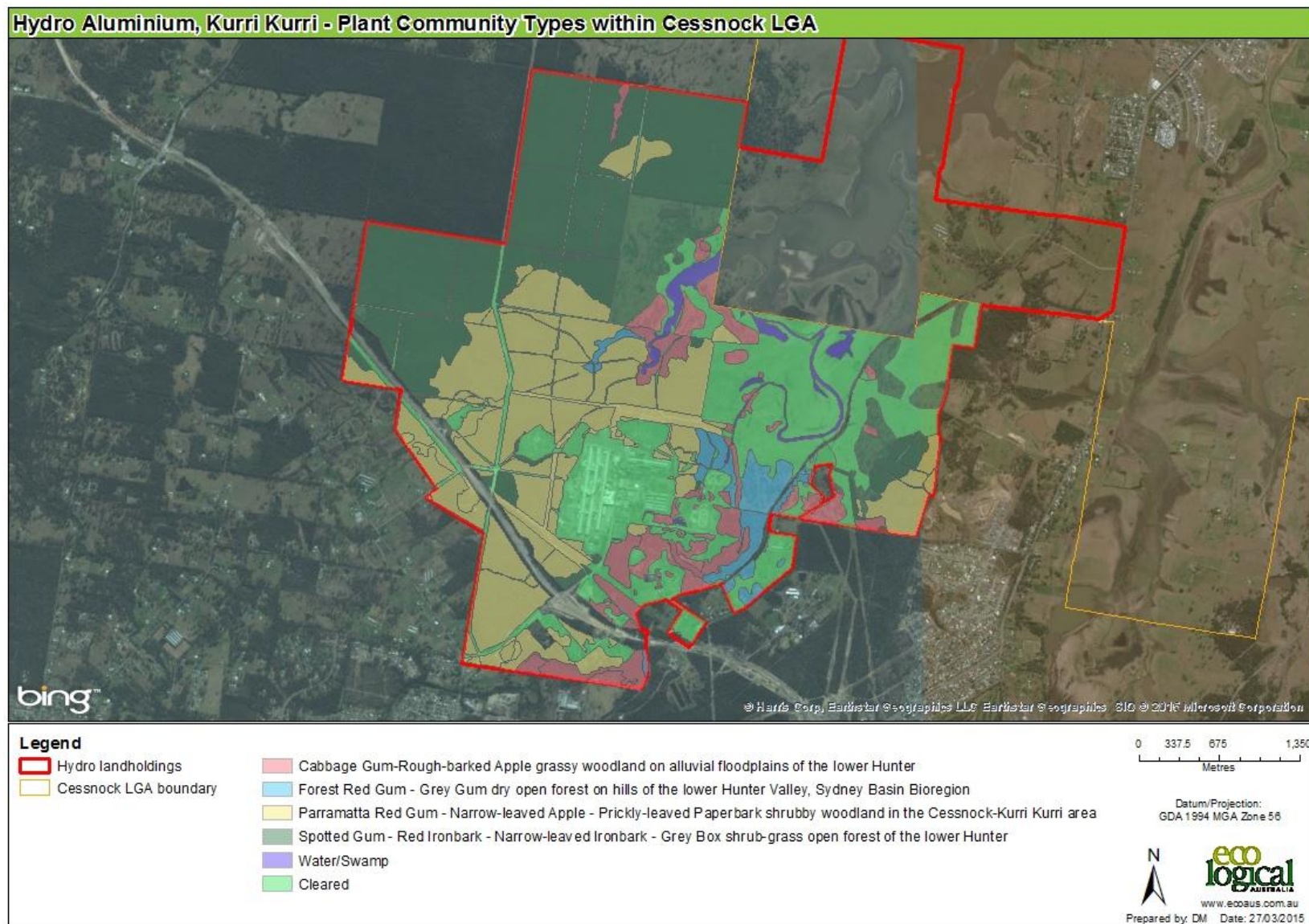


Figure 3: Plant community types (PCT's) within Hydro landholdings and Cessnock LGA

If you have any questions relating to the above information or wish to discuss anything please feel free to contact me on (02) 4910 3403 or 0423520195.

Sincerely,

A handwritten signature in black ink, appearing to read 'Antony von Chrismar', with a stylized, cursive script.

Antony von Chrismar

Senior Ecologist