

## Birrindudu wetlands

### Location and Description

The Birrindudu wetlands, located about 540 km south-west of Katherine, are based on a flood-out in the middle reaches of the Sturt Creek and have a maximum flooded area of about 340 km<sup>2</sup>. They are particularly notable for the prominent fan-like network of channels extending from the Birrindudu Waterhole to an extensive swamp area. There is a diversity of habitats, including an open lake, an extensive eucalypt-acacia wooded swamp, and bluebush and lignum shrub and grass-sedge swamps.

### Tenure and Land Use

The Birrindudu wetlands are on pastoral leasehold land across two pastoral leases (Birrindudu and Wallamunga). The main land use within the Site is pastoral operations.

### Significance Rating

International Significance

### Ecological Values

The Birrindudu wetlands periodically support large aggregations of waterbirds, with over 20 000 waterbirds being observed during major flood events. When inundated, the wetlands support one large mixed species waterbirds breeding colony and several smaller colonies. Some of the wetland habitats, such as the extensive acacia wooded swamp and extensive stands of Australian Rice, are otherwise rare in inland wetlands.

### Management Issues

The wetland areas are potentially sensitive to overgrazing, although they appear to be well protected by current management. Grazing pressure on the surrounding catchment may have some effects on water regimes and quality. Invasion of the wetlands by weeds such as *Parkinsonia aculeata* could have a significant impact on the ecological values. There is a lack of comprehensive data and information on the conservation values of this Site.

### Condition

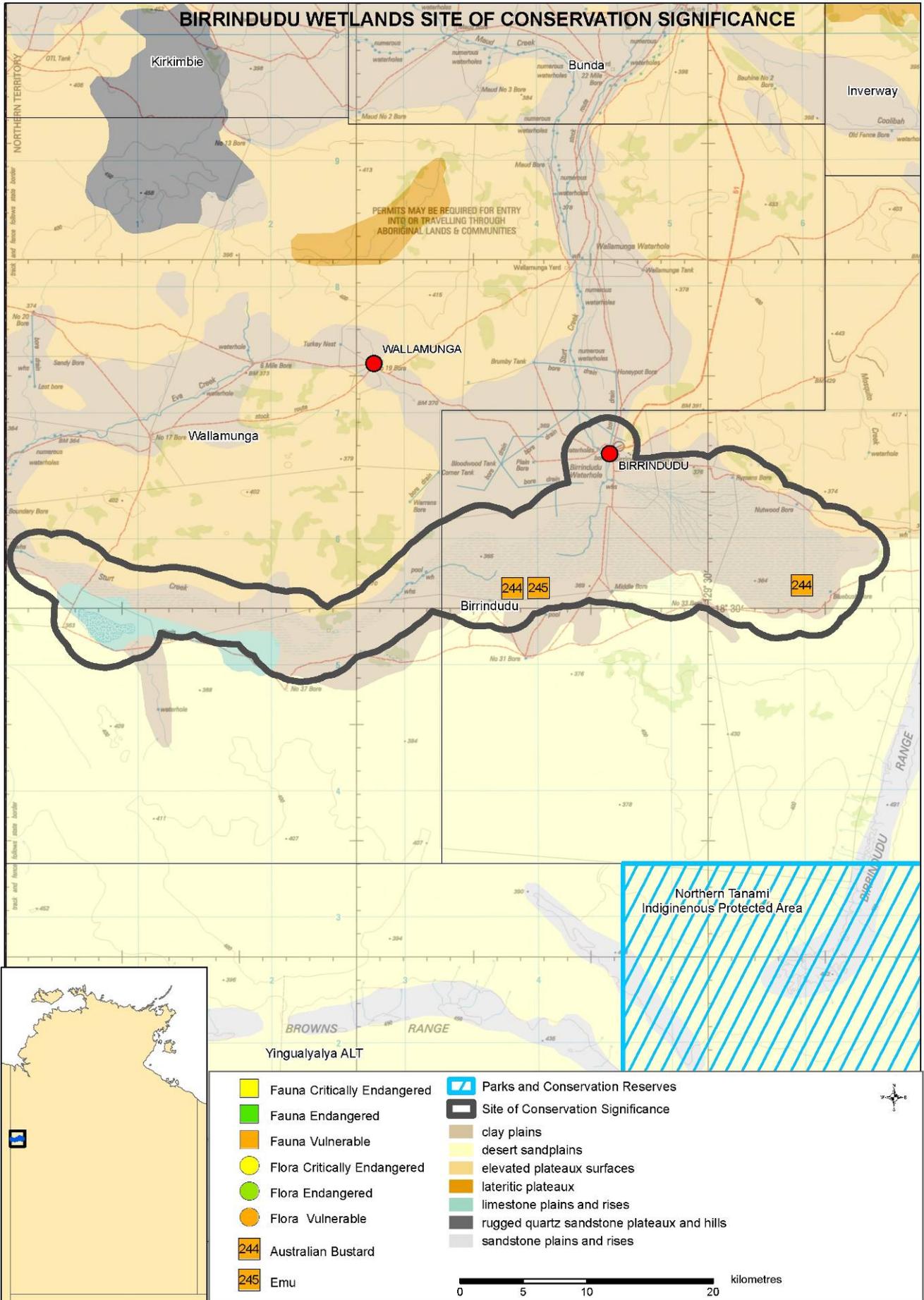
The condition of the Birrindudu wetlands appears generally good with a range of native perennial and annual grasses and other wetland plant species still present.



### Current Conservation Initiatives

The Victoria River District Conservation Association project received funds to fence the Birrindudu Waterhole in 2003, and most of the swampy floodplain is also fenced in one or two paddocks. It is understood that the landholder excludes cattle from these paddocks during wet periods, and also manages *Parkinsonia aculeata* on the property. Surveys of waterbirds are conducted opportunistically by Wetlands International after major flood events.

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LOCATION	<b>SOCS Number</b>	37 (NT Parks and Conservation Masterplan Map Number 54)
	<b>Latitude/Longitude</b>	18° 28' South, 129° 21' East (at centre)
	<b>Bioregion</b>	Ord Victoria Plain
	<b>Description</b>	<p>This site includes the Birrindudu Waterhole and the watercourse, marshes and associated wetlands that extend from east of the Birrindudu homestead west to the Western Australia border.</p> <p>The area of the inner main marshes (the largest area of persistent water) is about 140 km<sup>2</sup>. The less frequently inundated marshes and western watercourse comprise an area of 190 km<sup>2</sup> and Watts Lake in the margins of the Sturt Creek is 10 km<sup>2</sup>. The boundary of this site is delineated based on the maximum flooded area of the wetlands with a 2 km buffer, and encompasses an area of 575 km<sup>2</sup>.</p> <p>Surface inflow is from Sturt Creek and some water enters via creeks in the east and south. A fan-like network of flood out channels (a type of inland delta) extend from Birrindudu Waterhole for up to 10 km within the floodplain and link to an extensive swamp area to the south-east. The wetlands partially drain to the west via the multiple channels of the Sturt Creek, which includes a small lake (Watts Lake).</p> <p>Inundation of the wetlands is variable but major flooding occurs perhaps once every 5-10 years (1993, 2001 and 2006) with moderate flooding more frequently. All water bodies are relatively shallow and it is unlikely that there is any permanent water in the site. Water in the wetlands is initially milky in colour, but does clear as dense aquatic vegetation proliferates.</p> <p>Nongra Lake, located 40 km north-east of the Birrindudu wetlands, is also recognised as a site of high conservation significance in the NT.</p>
THREATENED SPECIES	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Threatened plants and animals</b> (Listings at National/NT level <b>CR</b> - Critically Endangered, <b>EN</b> - Endangered, <b>VU</b> - Vulnerable, <b>NT</b> - Near Threatened, <b>LC</b> - Least Concern, <b>DD</b> - Data Deficient)	<p>Two threatened species are reported from this site.</p> <p><b>Vertebrates</b></p> <ul style="list-style-type: none"> <li>▪ Australian Bustard <i>Ardeotis australis</i> (-/VU)</li> <li>▪ Emu <i>Dromaius novaehollandiae</i> (-/VU)</li> </ul> <p>Both these bird species occur widely in the NT and remain relatively common in some areas, but are listed as threatened due to population declines.</p> <p>There are currently no records of the secretive and threatened Australian Painted Snipe (VU/VU) at this site, but suitable habitat is extensive and the lack of records is more likely to reflect the lack of survey effort.</p>
ENDEMIC SPECIES	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Notes</b>	Two plant species recorded from this site are endemic to the NT ( <i>Gomphrena conica</i> and <i>Harpullia leichhardtii</i> ).
WILDLIFE AGGREGATIONS	<b>Significance Rating</b>	<b>International Significance</b>
	<b>Marine turtles</b>	Not applicable
	<b>Seabirds</b>	No major aggregations recorded
	<b>Waterbirds</b>	<p><b>Total numbers of waterbirds:</b> After major flooding events this site often supports large aggregations of many waterbird species. About 13 700 waterbirds were present during ground surveys of part of the site in 2006, and counts from aerial surveys include 14 000 in April 1993 and over 30 000 in May 2006 (Wetlands International unpubl.).</p> <p>Given the area of this wetland, and the consistent finding that waterbird densities in similar habitats are at least 1.0 bird per hectare (Morton <i>et al.</i> 1990; Costelloe <i>et al.</i> 2004 p. 480), it is likely that these wetlands support &gt; 20 000 waterbirds after major flooding.</p> <p><b>Counts of individual species:</b> A record of 14 500 Plumed Whistling-Duck (estimated from aerial counts in 2006; Wetlands International unpubl.) is nationally significant (&gt;1% total population; Wetlands International 2006), and further surveys of the site are likely to show that it is also significant for other species (R. Jaensch, Wetlands International, pers. comm.).</p> <p>The Freckled Duck is uncommon in the NT but small numbers (3) were recorded in 1995 (A. Fisher, NRETAS, pers. comm.) and 2006 (Wetlands International unpubl.).</p> <p><b>Breeding records:</b> This site offers a range of waterbird nesting habitat (trees, shrubs, floating-mats, and islands), but breeding opportunities vary according to the extent and depth of inundation after flood events.</p> <p>A mixed species colony comprising Great and Intermediate Egret, Glossy Ibis, Royal Spoonbill, Nankeen Night Heron and other species was reported from the wooded swamp in the south-east of the marshes in 1993 (500 nests) and 2006 (1900 nests) (Wetlands International unpubl.). The colony is isolated from other large colonies and is likely to be active during most major flood events.</p> <p>Islands and lignum shrubland support small breeding colonies of tens to hundreds of pairs of Australian Pelican, Australian White Ibis and Straw-necked Ibis, and Magpie Geese and Great Crested Grebe also breed in the wetlands (Wetlands International unpubl.).</p> <p><b>Diversity of species:</b> A relatively high number of waterbird species (55) and breeding species (27) are recorded from the limited surveys of this site (Jaensch 1994a; Wetlands International unpubl.).</p>

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	<b>Shorebirds</b>	Small numbers (tens to hundreds) of Sharp-tailed Sandpiper, Black-tailed Godwit and Little Curlew are reported from this site (Jaensch 1994a; Wetlands International unpubl.) but further surveys are required to fully determine the significance of the wetlands for shorebirds.
	<b>Other aggregations</b>	None known
<b>WETLANDS</b>	<b>Significance Rating</b>	<b>National Significance (possible International)</b>
	<b>Ramsar criteria met</b>	This site has not been formally assessed against Ramsar criteria but is likely to satisfy at least waterbird-based criteria (criterion 4: provides refuge or supports a critical life-cycle stage for wetland species; criterion 5: important waterbird aggregation site with >20 000 waterbirds; criterion 6: regularly supports >1% of the individuals in a population) for listing as a wetland of international importance.
	<b>DIWA criteria met</b>	This site is listed as a wetland of national significance in the Directory of Important Wetlands in Australia (DIWA ID: NT015 Birrindudu Waterhole and Floodplain). The site meets criteria 1, 2, 3 and includes DIWA wetland types B6, B4, B10, B13, and B14.
	<b>Notes</b>	This is part of a site that has been nominated as a national High Conservation Value Aquatic Ecosystem (the finalised list of HCVAE will replace the DIWA list). The Birrindudu wetlands area is notable for its prominent fan-like networks of flood out channels, its extensive coolibah-acacia wooded swamp (one of the largest such areas in the NT), and the diverse vegetation in the shrub swamps and marshes (DIWA).
	<b>Rivers</b>	None known
<b>FLORA</b>	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Notes</b>	There are no patches of rainforest recorded for the site, nor are there records of restricted vegetation communities or restricted range species. However, there have been few ecological surveys of the area and information for the site is limited.
<b>OTHER ENVIRONMENTAL VALUES</b>		<p>Yellow Chats occurs patchily in shrublands and grasslands in semi-arid areas of northern Australia and small numbers are reported from the Birrindudu wetlands, including breeding records in 1993 (Wetlands International unpubl.).</p> <p>The Birrindudu wetlands support the largest known stands of Australian Rice <i>Oryza australiensis</i> in the drier savanna regions of the NT (R. Jaensch, Wetlands International, pers. comm.). Other uncommon species such as Channel Millet <i>Echinochloa turneriana</i> can also be relatively common in this site and this reflects a favourable wet season grazing regime.</p> <p>The Birrindudu Floodplain is listed on the Register of the National Estate for its natural values (Australian Heritage Council).</p> <p>The Birrindudu wetlands and floodplain are recognized as having outstanding value for waterbirds by Jaensch (1994a).</p> <p>Sub-humid wetlands are likely to become increasingly important in the coming decades if global climate change drives rises in sea level, and saltwater inundation occurs on the vast floodplain wetlands of coastal northern Australia.</p> <p>At least 11 species recorded from this site are listed under international conventions or bilateral agreements protecting migratory animals (DIWA).</p>
<b>MANAGEMENT ISSUES</b>		<p><b>Fire:</b> In the period 1997-2005, 83% of the site was burnt in fewer than two years, and none was burnt in more than four years. Pastoral management generally seeks to suppress fire.</p> <p><b>Feral animals:</b> The site is within the relatively intensively managed pastoral estate, and numbers of feral grazers are low.</p> <p><b>Weeds:</b> One declared Category B weed (rubber bush <i>Calotropis procera</i>) is recorded from this site and one Weed of National Significance <i>Parkinsonia aculeata</i> is understood to occur in the broader area around the wetlands.</p> <p><b>Other:</b> Valuable native perennial grasses occur widely in the wetlands and indicate that grazing pressure has not been excessive in the past, although surrounding areas are more heavily impacted by livestock. A paucity of information and biological data for this site means that the ecological values are likely to be understated. Limited knowledge and awareness of the conservation values and significance of the wetlands may hinder appropriate management planning and achievement of conservation outcomes. Additional surveys of waterbirds are likely to greatly improve knowledge of the conservation values of this site.</p>
<b>MANAGEMENT INFORMATION</b>	<b>NRM groups</b>	Victoria River District Conservation Association.
	<b>Protected areas</b>	The site is outside the network of formal protected areas in the NT.
	<b>Current management plans</b>	<b>Site-specific plans:</b> None known. <b>Other management plans:</b> Australian Weeds Strategy (NRMCC 2007).
	<b>Monitoring programs and research projects</b>	Aerial and ground surveys of waterbirds are conducted opportunistically by Wetlands International after major flood events (R. Jaensch, Wetlands International, pers. comm.). There are six Tier 1 rangeland monitoring points within this site (Karfs and Bastin 2001). Fire in the tropical savannas is mapped continuously under the North Australia Fire Information Project <a href="http://www.firenorth.org.au/nafi/app/init.jsp">http://www.firenorth.org.au/nafi/app/init.jsp</a>

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	<b>Management recommendations</b>	<p>Conduct a comprehensive assessment of the threats to the site and develop a formal management plan to address significant threats, including weed control and management of grazing pressure.</p> <p>The management plan may also investigate opportunities for stock exclusion areas and appropriate management of the site to maintain conservation values.</p> <p>Continue to support the landholders to implement conservation management programs (NRETA 2005).</p> <p>Investigate the options for establishing a conservation agreement in cooperation with the landholder (NRETA 2005).</p> <p>Control priority weeds in the site.</p> <p>Conduct detailed surveys and ongoing monitoring of waterbird populations, vegetation condition and weeds within the site.</p>
<b>KEY REFERENCES</b>	<b>Papers &amp; reports</b>	<p>DIWA (A Directory of Important Wetlands in Australia). <i>Australian Wetlands Database</i>. Department of Environment, Water, Heritage &amp; the Arts, Canberra ACT (accessed December 2007).</p> <p>Jaensch, R.P. (1994a). <i>An inventory of wetlands in the sub-humid tropics of the Northern Territory</i>. Report to the Australian Nature Conservation Agency. Conservation Commission of the Northern Territory, Darwin.</p>
	<b>Contributors</b>	<p>Roger Jaensch, Wetlands International - Oceania, Brisbane</p> <p>Alaric Fisher, Biodiversity Conservation, NRETAS, Darwin</p>



**Egret breeding colony, Birrindudu (Photo: Roger Jaensch)**



**Australian rice, Birrindudu Marshes (Photo: Roger Jaensch)**