

# Wollogorang and China Wall sandstone ranges

## Location and Description

This extensive area of highly dissected sandstone ranges is located in the south-east Gulf region of the Northern Territory, abutting the Queensland border, 450 km north-east of Tennant Creek. The Site includes the linear escarpments of the China Wall and the headwaters of Settlement Creek, and one of few areas that exceed 300 m elevation in the Top End. The rolling hills are covered in open eucalypt woodland with an understorey of tussock-grasses. Within the ranges, a network of gorges protects rainforest remnants and rare and endemic fauna, including many sandstone specialists. Permanent lagoons and other riparian areas add to the diversity of habitats within the Site.

## Tenure and Land Use

The Wollogorang sandstone ranges are predominantly pastoral leasehold land and lie on three pastoral properties (mostly on Wollogorang, as well as Nicholson River and Calvert Hills). The southern portion of the Site, including the China Wall, is Aboriginal freehold land (Nicholson River) held by the Waanyi / Garawa Aboriginal Land Trust. The main land use within the Site is pastoral operations, and other uses include Indigenous, tourism and mining.

## Significance Rating

National Significance

## Ecological Values

The sandstone escarpments on Wollogorang Station support a rich sandstone fauna, including the Rock Ringtail Possum, Short-eared Rock-wallaby, Sandstone Antechinus, the threatened Carpentaria Grasswren, and the highly restricted and critically endangered Carpentarian Rock-rat, which is known from only five sites on Wollogorang. Gorges and gullies within the rocky ranges contain remnants of monsoon vine thickets - which were prevalent across much of the broader Gulf region under previous wetter climates - and the vine thickets on Wollogorang are unusually rich in species, including a number of plants with restricted distributions. The gorges also offer a significant refuge from fire, and permanently available water within them provides important habitat for Freshwater Crocodile, fish, frogs and other species in an otherwise seasonally harsh semi-arid savanna environment.

## Management Issues

Hot and frequent fires, particularly in the late dry season, are a major management issue in both savanna woodland and rainforest thickets in the sandstone ranges. Frequent fires are likely to alter the age distribution and species composition of the spinifex and woodland communities, kill



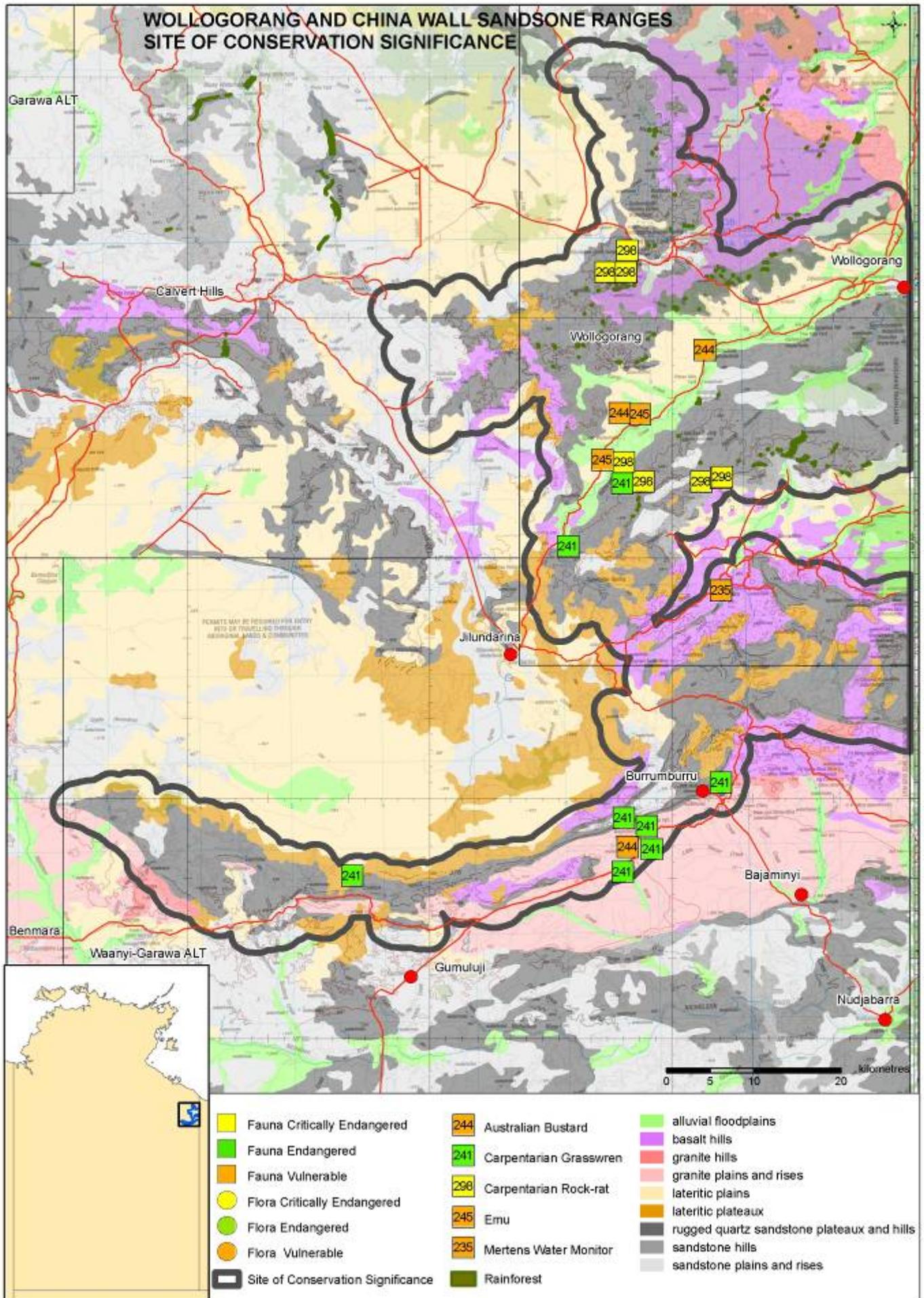
fire-sensitive rainforest species, and progressively degrade rainforest habitat. Trampling and grazing by cattle and feral animals, especially pig, is causing degradation to sensitive moist habitats, including springs, lagoon margins and rainforest.

## Condition

Monsoon rainforest patches in the Gulf region have been reported to generally have a high frequency of disturbance from fire, feral animals and weeds. About 3% of the known flora within the area of conservation significance is composed of introduced species.

## Current Conservation Initiatives

A recovery plan has been developed for the Carpentarian Rock-rat that includes population monitoring of the species and protection of habitat. Key habitat areas for this species are in areas of Wollogorang that are not generally accessible to stock, and fire is being managed in these areas under a cooperative management agreement between Parks and Wildlife Service NT and the landholder. There are plans for Indigenous rangers to implement a project on the Nicholson block to manage fire and, more generally, to build capacity to manage natural resources within the southern Gulf region.



<b>LOCATION</b>	<b>SOCS Number</b>	36 (NT Parks and Conservation Masterplan Map Number 45)
	<b>Latitude/Longitude</b>	17° 28' South, 137° 42' East (at centre)
	<b>Bioregion</b>	Gulf Fall and Upland (83%), Gulf Coastal (17%)
	<b>Description</b>	<p>This site includes the extensive sandstone ranges on the Wollogorang, Nicholson River and Calvert Hills pastoral properties. The ranges straddle the Carpentaria Highway but are mostly located south of it and east of the Calvert River.</p> <p>The site includes the linear escarpments of the China Wall in the south, the headwaters of Settlement Creek, and a number of gorges including Echo Gorge, Moonlight Gorge and Banyan Gorge. It encompasses an area of about 3485 km<sup>2</sup>.</p>
<b>THREATENED SPECIES</b>	<b>Significance Rating</b>	<b>National Significance</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>Six 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>▪ Carpentarian Grasswren <i>Amytornis dorotheae</i> (-/EN)</li> <li>▪ Emu <i>Dromaius novaehollandiae</i> (-/VU)</li> <li>▪ Gouldian Finch <i>Erythura gouldiae</i> (EN/EN)</li> <li>▪ Carpentarian Rock-rat <i>Zyzomys palatalis</i> (EN/CR)</li> <li>▪ Merten's Water Monitor <i>Varanus mertensi</i> (-/VU)</li> </ul> <p>The known distribution of the Carpentarian Rock-rat is currently restricted to five sites associated with rainforest thickets and sandstone gorges on Wollogorang Station, all within a radius of 35 km (Puckey <i>et al.</i> 2003).</p> <p>The Carpentarian Grasswren is restricted to sandstone outcrops within the Carpentarian and Adelaidean systems of the Gulf of Carpentaria (Woinarski <i>et al.</i> 2007), and in the NT is known from only a small number of sites, including in the China Wall area. Recent searches of all known sites for this species in the NT have located the species only at two sites on Wollogorang Station (Perry 2005; A. Fisher, NRETAS, pers. comm.).</p>
<b>ENDEMIC SPECIES</b>	<b>Significance Rating</b>	<b>Not significant</b>
	<b>Notes</b>	<p><b>Endemic to the NT:</b> Six plant and three vertebrate species (Sandstone Antechinus, Carpentarian Rock-rat and Alexandria Toadlet <i>Uperoleia orientalis</i>) recorded in this site are endemic to the NT. The distribution of Carpentarian Rock-rat straddles two bioregions, but the species has an extremely limited distribution (five locations, all within Wollogorang station, of which four are within this site).</p> <p><b>Other:</b> Carpentarian Grasswren is restricted to the Gulf Fall and Upland bioregion within the NT but is also found in Queensland.</p> <p>Six plant species recorded in the site are only found in the site or the Gulf Fall and Upland bioregion within the NT, but are also found in other states.</p>
<b>WILDLIFE AGGREGATIONS</b>	<b>Significance Rating</b>	<b>Not significant</b>
	<b>Marine turtles</b>	Not applicable
	<b>Seabirds</b>	No major aggregations recorded
	<b>Waterbirds</b>	No major aggregations recorded
	<b>Shorebirds</b>	No major aggregations recorded
	<b>Other aggregations</b>	None known
<b>WETLANDS</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Ramsar criteria met</b>	Not assessed
	<b>DIWA criteria met</b>	Not assessed
	<b>Notes</b>	Springs feeding into the gorges and monsoon thickets in this site are important sources of water in the semi-arid landscape and the resulting perennial pools and streams presumably support locally-important aquatic ecosystems (Trainer 1997).
	<b>Rivers</b>	
<b>FLORA</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Notes</b>	<p><b>Rainforest:</b> The gorges within the Wollogorang sandstone ranges comprise some of the best developed and richest monsoon rainforest patches in the Gulf Falls and Uplands bioregion (Woinarski 2002). Rainforest once covered much of the Gulf region (Archer <i>et al.</i> 1991), but has contracted such that only small and isolated rainforest patches in protected gorges remain, especially within the northern portion of the site.</p> <p>The rainforest patches within this site comprise an area of 860 ha and are mostly dry or spring-fed rainforest types. Patches range in size from 0.01 ha to 60 ha but most are &lt;10 ha (Russell-Smith 1991). Mapping of the distribution of individual rainforest species in the NT by Liddle <i>et al.</i> (1994) showed that Wollogorang had a floristically rich and relatively distinct rainforest flora.</p> <p><b>Restricted range species:</b> Seven plant species recorded in the site have a restricted range within the NT.</p>

OTHER ENVIRONMENTAL VALUES		<p>Wollogorang Station is proposed to be nominated by Birds Australia as an internationally-recognised <i>Important Bird Area</i> (G. Dutson in prep.).</p> <p>The ecological values of the sandstone ridges and gorges on Wollogorang Station are recognised in other reports (Morton <i>et al.</i> 1995; NT Department of Lands and Housing 1991).</p> <p>Morton <i>et al.</i> (1995) acknowledge the significant biological refuges supported in the gorges and mountain ranges on Wollogorang.</p> <p>The turtle <i>Emydura subglobosa</i> has a restricted range and is known to occur in spring habitats within the sandstone gorges on Wollogorang (Puckey <i>et al.</i> 2003).</p> <p>Nine species recorded from this site are listed under international conventions or bilateral agreements protecting migratory animals.</p> <p>Five sites within the Wollogorang sandstone ranges are listed on the Register of the National Estate for their natural values including: Bullet Creek Gorge, Twelve Mile Creek Thicket, Settlement Creek Jungle, Banyan Gorge, and the Nicholson Musselbrook Area (Australian Heritage Council).</p>
MANAGEMENT ISSUES		<p><b>Fire:</b> In the period 1993-2004, 72% of the site was burnt in more than six years. Frequent and intense fires in the region are likely to be affecting woodland and rainforest vegetation communities and populations of native fauna (McKean and Martin 1989; Russell-Smith and Bowman 1992).</p> <p><b>Feral animals:</b> Feral cats are present on Wollogorang and may be negatively affecting populations of native species (Puckey <i>et al.</i> 2003). Disturbance by feral pig is evident in many gorges and small rainforest patches are particularly vulnerable to continual disturbance.</p> <p><b>Weeds:</b> Four Category B weeds (<i>Acanthospermum hispidum</i>, <i>Alternanthera pungens</i>, <i>Sida acuta</i>, <i>Sida cordifolia</i>) are recorded from this site, but there is a lack of knowledge of the status of weeds in this area (Smith 2001).</p> <p><b>Other:</b> Grazing by cattle (either stock or feral) is causing some damage to rainforest patches and the associated springs and creeks on Wollogorang (Puckey <i>et al.</i> 2003).</p> <p>Redbank copper mine is located near Echo Gorge, but does not appear to have a major impact on the conservation values of the site (Dept of Lands and Housing 1991).</p>
MANAGEMENT INFORMATION	<b>NRM groups</b>	Waanyi Garawa Rangers (Borroloola) (Northern Land Council 2006).
	<b>Protected areas</b>	The site is not currently included within the NT system of protected areas.
	<b>Current management plans</b>	<p><b>Site-specific plans:</b> No information located.</p> <p><b>National recovery plans for threatened species:</b> Carpentaria Rock-rat (Puckey <i>et al.</i> 2003); Gouldian Finch (O'Malley 2006).</p> <p><b>Other management plans:</b> Australian Weeds Strategy (NRMMC 2007); Threat Abatement Plan for Predation by Feral Cats (Environment Australia, 1999); Threat Abatement Plan for Predation, habitat degradation, competition and disease transmission by feral pigs (DEH 2005); FIREPLAN: Fire management for the savanna community (Russell-Smith <i>et al.</i> in prep.).</p>
	<b>Monitoring programs and research projects</b>	<p>Known sites of the Carpentarian Rock-rat on Wollogorang are re-surveyed irregularly (Puckey 2003) and were surveyed most recently in September 2008 as part of a monitoring program for the species (NRETAS unpub. data).</p> <p>A survey of Carpentarian Grasswren habitat on Wollogorang Station was last conducted in September 2008 (NRETAS unpub. data).</p> <p>There are three Tier 1 rangeland monitoring points within this site (Karfs and Bastin 2001).</p> <p>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></p>
	<b>Management recommendations</b>	<p>Continue to implement management program for Carpentarian Rock-rat in conjunction with landholder (NRETA 2005).</p> <p>Investigate options for inclusion of significant areas of Wollogorang in the reserve system by agreement with landholder (NRETA 2005).</p> <p>Manage grazing and fire within the ranges to help maintain the conservation values of the area (Dept of Lands and Housing 1991).</p> <p>Survey weeds in the area and develop a management plan that identifies weed management priorities and potential resources (Smith 2001).</p>
KEY REFERENCES	<b>Papers and reports</b>	<p>McKean, J.L., and Martin, K.C. (1989). Distribution and status of the Carpentarian grasswren <i>Amytornis dorotheae</i>. <i>Northern Territory Naturalist</i> 11: 12-19.</p> <p>Perry, J. (2005). <i>Habitat and status of the Carpentarian Grasswren (Amytornis dorotheae) in the Northern Territory</i>. B.App.Sci. thesis. Charles Darwin University, Darwin.</p> <p>Puckey, H., Woinarski, J., Trainor, C. (2003). <i>Revised recovery plan for the Carpentaria Rock-rat (Zyomys palatalis)</i>. Parks and Wildlife Commission of the Northern Territory, Katherine.</p> <p>Trainor, C.R. (1997). <i>Natural and cultural heritage values of Wollogorang Station, NT</i>. A report produced with the assistance of a Queens Trust for Young Australian's Grant. Rapid Creek, NT.</p>
	<b>Contributors</b>	