

## Victoria River middle reaches and Gregory area

### Location and Description

The Victoria River middle reaches and Gregory area is located 215 km south-west of Katherine, in the Victoria River district, and lies in the transition between the semi-arid zone and the wet-dry tropics of northern Australia. This Site straddles the gap between the eastern and western sections of Gregory National Park and includes tracts of rugged terrain comprising sandstone escarpments and gorges, mesas, rolling hills, and alluvial plains associated with the Victoria River and its tributaries. The Site also includes significant karst features associated with the carbonate deposits in the Limestone Creek area. The vegetation is open eucalypt woodland with a hummock grassland understorey, and the Victoria River channel supports dense vegetation, often including rainforest-associated species.

### Tenure and Land Use

About half of this Site is Crown leasehold land and much of the remaining land is Aboriginal freehold owned by four Aboriginal land trusts (Ngaliwurru / Nungali, Wanimiyn, Mayat and Menngen). Considerable portions of these lands are used for pastoralism, and they also support traditional Indigenous uses. Some small portions of the Site are pastoral leasehold land used for pastoral operations, and include two pastoral properties (Avergne and Willeroo). Approximately 38% of this Site is managed as conservation reserves, used for conservation and tourism. North of the Victoria River, a section of the Site is on the Bradshaw Field Training Area (Department of Defence), and is used for military training purposes.

### Significance Rating

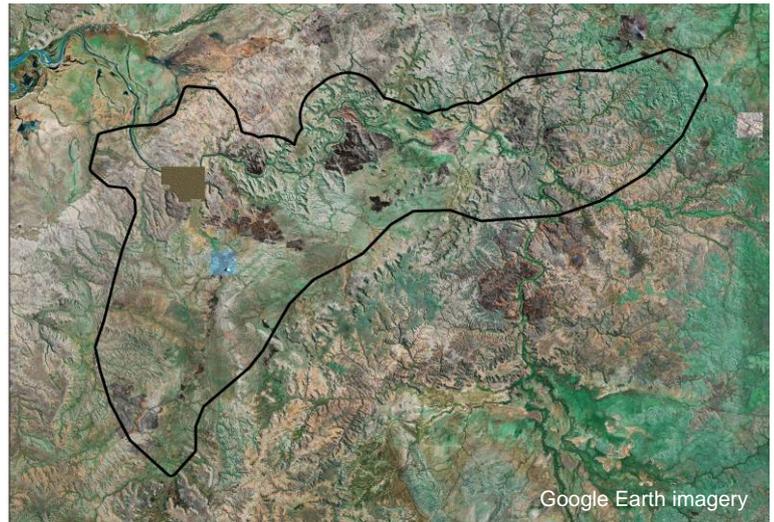
International Significance

### Ecological Values

The diverse habitats of the Gregory area support 15 threatened species including three plants (two ferns and a grass), five birds (Gouldian Finch, Australian Bustard, Northern Shrike-tit, Partridge Pigeon, Purple-crowned Fairy-wren), and two reptiles (Merten's Water Monitor and Yellow-spotted Monitor). Three species of threatened fish are reported from the stretch of the Victoria River within the Site, and two invertebrates, both land snails, are known only from limestone habitats within the Site. The fauna associated with the karsts system at the Site is not well surveyed, but is likely to be significant.

### Management Issues

Several feral animal species occur in the Site, the most abundant and damaging being donkey and horse. Numbers of these feral herbivores need to be reduced and controlled. Black Rats have been recorded in canegrass areas along the Victoria River and may be impacting on nesting Purple-crowned Fairy-wrens. The riparian zone is



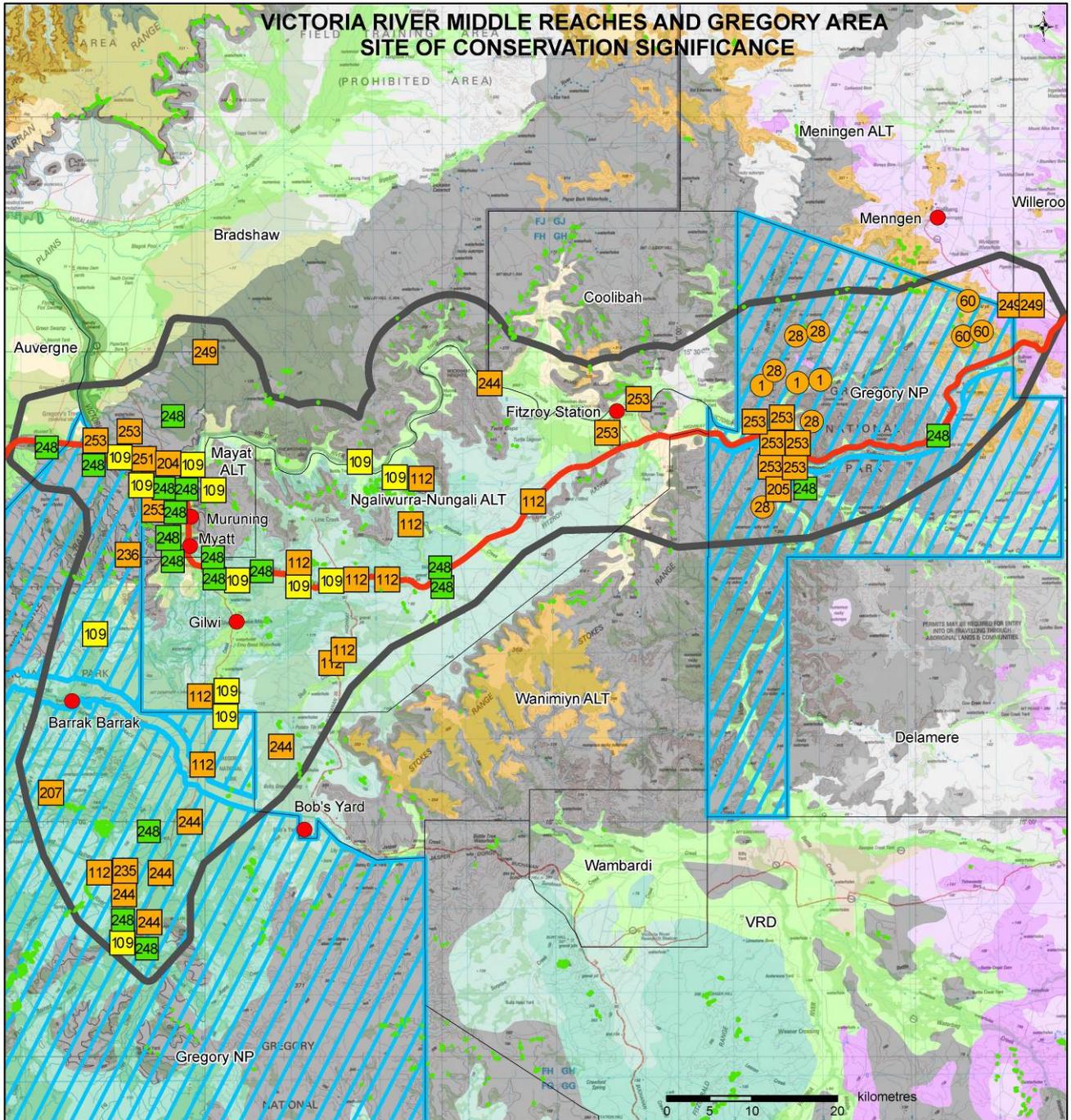
badly degraded by weeds and by cattle accessing the river. Fire regimes are also a problem in the area.

### Condition

Riparian vegetation, particularly along the Victoria River, has been heavily degraded by weeds and trampling by herbivores. The hills are generally in better condition, but will deteriorate if numbers of donkey and horse remain high.

### Current Conservation Initiatives

A plan of management is available for the Gregory National Park and a new plan is currently being prepared by the Parks and Wildlife Service NT. Park rangers are managing weeds, feral animals, erosion and fire in the park. Feral herbivores have been recently surveyed in the region and strategies are being developed for their control. The Victoria River District Conservation Association (VRDCA) is working on a number of other projects within the Site, including surveys of the distribution of canegrass, which provides habitat for the Purple-crowned Fairy-wren. Similar surveys are being conducted in the Bradshaw Field Training area, carried out under the Heritage Environment Management Plan for that property. Indigenous rangers based at Timber Creek are involved in periodic surveys of flora and fauna in Gregory National Park with the Parks and Wildlife Service NT, and also undertake weed control on pastoral leases and in Gregory National Park. Landholders of Avergne and Willeroo Stations are actively managing weeds, fire, feral animals and erosion on their properties, in conjunction with NRETAS Weeds Branch and the VRDCA.



<b>LOCATION</b>	<b>SOCS Number</b>	29 (NT Parks and Conservation Masterplan Map Number 35)
	<b>Latitude/Longitude</b>	15° 41' South, 130° 44' East (at centre)
	<b>Bioregion</b>	Victoria Bonaparte (62%), Ord Victoria Plain (38%)
	<b>Description</b>	This site straddles the Victoria Highway and extends east to just beyond the Victoria River crossing area, west to just beyond the community of Timber Creek, south to Bullita Outstation. The site encompasses an area of 4127 km <sup>2</sup> and includes a range of habitats but is predominantly limestone plains and hills (1651 km <sup>2</sup> ) in the west of the site, rugged sandstone plateaux and hills (1494 km <sup>2</sup> ) (including parts of the Newcastle, Fitzroy, and Stokes Ranges) in the east and north of the site, and alluvial floodplain along the Victoria River (486 km <sup>2</sup> ). The boundary of this site has been delineated based on records of threatened species and their associated habitat.
<b>THREATENED SPECIES</b>	<b>Significance Rating</b>	<b>International 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)	15 threatened species are reported from this site. <b>Plants</b> <ul style="list-style-type: none"> <li>▪ <i>Adiantum capillus-veneris</i> (-/VU)</li> <li>▪ <i>Gleichenia</i> sp. Victoria River (I.D.Cowie 9193) (-/VU)</li> <li>▪ <i>Triodia fitzgeraldii</i> (-/VU)</li> </ul> <b>Vertebrates</b> <ul style="list-style-type: none"> <li>▪ Australian Bustard <i>Ardeotis australis</i> (-/VU)</li> <li>▪ Gouldian Finch <i>Erythrura gouldiae</i> (EN/EN)</li> <li>▪ Northern (crested) Shrike-tit <i>Falcunculus (frontatus) whitei</i> (VU/VU)</li> <li>▪ Partridge Pigeon <i>Geophaps smithii</i> (VU/VU)</li> <li>▪ Purple-crowned Fairy-wren (western subspecies) <i>Malurus coronatus coronatus</i> (VU/VU)</li> <li>▪ Mertens Water Monitor <i>Varanus mertensi</i> (-/VU)</li> <li>▪ Yellow-spotted Monitor <i>Varanus panoptes</i> (-/VU)</li> <li>▪ Dwarf Sawfish <i>Pristis clavata</i> (-/VU)</li> <li>▪ Freshwater Sawfish <i>Pristis microdon</i> (VU/VU)</li> <li>▪ Angalrri Grunter <i>Scortum neili</i> (-/VU)</li> </ul> Within the NT, the western subspecies of the Purple-crowned Fairy-Wren is mostly restricted to the Victoria River (and tributaries) and has a patchy distribution in well-vegetated riparian habitat (Woinarski et al. 2007). <b>Invertebrates</b> <ul style="list-style-type: none"> <li>▪ Fitzroy Land Snail <i>Mesodontrachia fitzroyana</i> (EN/CR)</li> <li>▪ Land Snail <i>Prototrachia sedula</i> (-/VU)</li> </ul> Both these species of Land Snail are known only from a few records in limestone areas east of Timber Creek (Woinarski et al. 2007).
<b>ENDEMIC SPECIES</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Notes</b>	<b>Endemic to the site:</b> Two species of threatened Land Snail, the Fitzroy Land Snail ( <i>Mesodontrachia fitzroyana</i> ) and Land Snail ( <i>Prototrachia sedula</i> ) are only known from limestone areas east of Timber Creek (Woinarski et al. 2007). <b>Endemic to the bioregion:</b> Two plant species recorded from this site are restricted to the Victoria Bonaparte bioregion ( <i>Melaleuca triumphalis</i> and <i>Stenostegia congesta</i> ) and both are known only from the Victoria River Gorge (Crase et al. 2006) <b>Endemic to the NT:</b> 32 plant and three vertebrate species recorded from this site are endemic to the NT. <b>Other:</b> Two vertebrate and nine plant species found in this site are restricted to the site or the Victoria Bonaparte or Ord Victoria Plain bioregions within the NT, but are also recorded in other states. The karsts system at the site is not well surveyed (but see Bannik 1996) and is likely to harbour endemic species.
<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>	The middle reaches of the Victoria River provide a permanent flowing river system used by a variety of water-dependent animals. However, there are no known large aggregations or nesting colonies of waterbirds, shorebirds or seabirds in the site.
<b>WETLANDS</b>	<b>Significance Rating</b>	<b>Regional Significance (possible National)</b>
	<b>Ramsar criteria met</b>	Not assessed
	<b>DIWA criteria met</b>	Not assessed
	<b>Notes</b>	This site does not include extensive above-ground wetland habitat and surface water away from the Victoria River is limited. The karst field and cave system in the Limestone Creek area of the site includes a range of features such as tufa dams, karst pavement, and stromatolites, and is believed to be more complex and with more passages per square km than any other system recorded in Australia (PWCNT 2001).

	<b>Rivers</b>	The Victoria River is the NT's longest river and it has a number of significant tributaries (Sample 2004). The headwaters of the Victoria River lie to the south-east of the site but the middle reaches of the river cross the site from east to west and numerous tributaries drain the ranges and hills and feed into it.
<b>FLORA</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Notes</b>	<b>Rainforest:</b> About 620 ha of mostly dry rainforest occurs as small (<10 ha) scattered patches associated with protected gorges within the sandstone escarpment in this site (Russell-Smith 1991). <b>Restricted range species:</b> At least 22 plant species recorded from this site have restricted ranges within the NT.
<b>OTHER ENVIRONMENTAL VALUES</b>		Four sites in the Gregory area are listed on the Register of the National Estate for their natural values including: Timber Creek Jungle, Big Horse Creek Jungle, Bradshaw Defence Area, Big Horse Thicket East, and the Victoria River at 8 Mile Yard (Australian Heritage Council). 23 species recorded from this site are listed under international conventions or bilateral agreements protecting migratory animals. The site links the eastern and western sections of Gregory National Park. Gregory National Park is proposed to be nominated by Birds Australia as an internationally-recognised <i>Important Bird Area</i> (G. Dutson in prep.).
<b>MANAGEMENT ISSUES</b>		<b>Fire:</b> In the period 1993-2004, 25% of the site was burnt in fewer than three years, and 8% was burnt in more than six years. <b>Feral animals:</b> 11 introduced species are known to inhabit Gregory National Park (PWCNT 2001) including: Water Buffalo, feral cattle, donkey, feral dog, House Mouse, feral horse, feral pig, feral cat, camel, Black Rat, and Cane Toad, and many of these species are likely to occur in this site. Donkeys can reach extremely high densities in the Victoria River District (R. Delaney, NRETAS, pers. comm.). <b>Weeds:</b> One Weed of National Significance ( <i>Parkinsonia aculeata</i> ), 12 declared Category A and B weeds, and four undeclared but problematic environmental weeds (high priority weeds: Smith 2001) are recorded from this site including bellyache bush <i>Jatropha gossypifolia</i> , castor oil plant <i>Ricinus communis</i> , noogoora burr <i>Xanthium strumarium</i> and devil's claw <i>Martynia annua</i> . Some environments within the region and site (notably riparian strips) are now grossly modified by weed invasion (Woinarski undated). <b>Other:</b> Some environments are subjected to high grazing pressure and there is heavy pressure on riparian areas from stock accessing water, resulting in erosion. Erosion resulting from historical Defence land-use is a problem in some areas (K. Harvey, Department of Defence, pers. comm.). There is limited knowledge of the conservation values in the site and the management issues affecting them.
<b>MANAGEMENT INFORMATION</b>	<b>NRM groups</b>	Victoria River District Conservation Association (Katherine), Ngaliwurru Wuli Land Management (Timber Creek), Mulayee Women Rangers (Timber Creek).
	<b>Protected areas</b>	Gregory National Park (1585 km <sup>2</sup> / 38% of site), Victoria River Depot Historical Reserve (0.4 km <sup>2</sup> / <1% of site), Gregory's Tree Historical Reserve (.02 km <sup>2</sup> / <1% of site).
	<b>Current management plans</b>	<b>Site-specific plans:</b> Gregory National Park Draft Plan of Management May 2001 (PWCNT 2001); The Victoria River District Natural Resource Plan 2004 (Sample 2004); Heritage Environment Management Plan for the Bradshaw Training Area (Department of Defence 2006); Purple Crowned Fairy Wren Management Plan (van Doorn and VRDCA 2007).. <b>National recovery plans for threatened species:</b> Gouldian Finch (O'Malley 2006); shrike-tit & partridge pigeon (Woinarski 2004a); Camaenid land snails of the East Kimberley (Pearce in prep.). <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.).

<b>KEY REFERENCES</b>	<b>Monitoring programs and research projects</b>	<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> <p>Permanent plots have been established in Gregory National Park to monitor plant species and vegetation structure in relation to fire regime (C. Yates, Bushfires NT pers. comm.).</p> <p>A wildlife survey of the East Baines River area and the Baracc Baracc Creek Valley helped to establish baseline data on fauna within Gregory National Park (Palmer <i>et al.</i> 2006).</p> <p>Fauna has been sampled around Jasper Gorge under different fire regimes (Nash 2002) and fauna in other parts of Gregory National Park are sampled periodically as part of the fire plot monitoring and ranger training camps (A. Griffiths, NRETAS, pers. comm.).</p> <p>There are permanent plots for fauna and flora surveys on the Bradshaw Training area (1 plot for each within the Site) (K. Harvey, Department of Defence, pers. comm.).</p> <p>Insectivorous bats have been sampled in sandstone escarpment habitat in Gregory National Park as part of a survey of bat assemblages in the Top End (Milne <i>et al.</i> 2005).</p> <p>A survey of Land Snails is planned for the wider Victoria River region, including the Gregory area, in 2007/08 to establish an inventory of species and further information on their distribution and threats (M. Braby, NRETAS, pers. comm.).</p> <p>A monitoring program is currently being developed in the Gregory area for the Fitzroy Land Snail <i>Mesodontrachia fitzroyana</i> and Land Snail <i>Prototrachia sedula</i> to establish baseline data and trends in populations of these species (M. Braby, NRETAS pers. comm.).</p> <p>Baseline data on the Purple-crowned Fairy-wren population and its habitat and threats has been collected along the Victoria River as part of a research project on the species (Van Doorn 2007).</p> <p>The Bradshaw Training area is one of several sites in northern Australia where health of Gouldian finches was monitored in 2007/08 (K. Harvey, Department of Defence, pers. comm.).</p> <p>Crocodile numbers have been monitored in the Victoria River in recent years (M. Letnic, University of Sydney, pers. comm.).</p> <p>There are six Tier 1 rangeland monitoring points within this site (Karfs and Bastin 2001).</p> <p>Research has been conducted on the distribution and conservation status of two rare sandstone shrubs <i>Melaleuca triumphalis</i> and <i>Stenostegia congesta</i> which occur in the Victoria River gorge (Crase <i>et al.</i> 2006) and the impact of fire on their populations is being monitored by park rangers.</p> <p>Fire monitoring plots in Gregory National Park incorporate stands of Lancewood <i>Acacia shirleyi</i> which are at the edge of their range in the Gregory area and are small and prone to destruction by fire (C. Yates, Bushfires NT pers. comm.).</p> <p>Erosion mapping in the area by ENSR Australia in 2007 (K. Harvey, Department of Defence, pers. comm.).</p> <p>Annual water quality monitoring on Bradshaw Training Area (one point in the Site) (K. Harvey, Department of Defence, pers. comm.).</p>
	<b>Management recommendations</b>	<p>In cooperation with the Northern Land Council and landholders, develop and implement appropriate natural resource management programs (NRETA 2005).</p> <p>Provide landholders with financial assistance and extension services in implementing conservation management program (NRETA 2005).</p> <p>Establish joint management arrangements including support for indigenous land management activities (NRETA 2005).</p> <p>Extend boundaries of Gregory National Park to include Jasper Gorge area in accordance with the Parks and Reserves (Framework for Future) Act and by agreement with landholders (NRETA 2005).</p>
	<b>Papers and reports</b>	<p>Crase, B., Cowie, I.D. and Michell, C.R. (2006). Distribution and conservation status of the rare plants <i>Melaleuca triumphalis</i> and <i>Stenostegia congesta</i> (Myrtaceae), Victoria River district, northern Australia. <i>Australian Journal of Botany</i>, 54, 641–653</p> <p>PWCNT (2001). <i>Gregory National Park Draft Plan of Management, May 2001</i>. Parks and Wildlife Commission of the Northern Territory, Darwin.</p> <p>Palmer C, Brennan K, Anderson M, Schmidt C, Ledgard A, Arnott R, Crompton L and Caddel D (2006). <i>Wildlife Survey of East Baines River and Baracc Baracc Creek Valley August 2005</i>. Biodiversity Conservation Unit &amp; Gregory National Park, Department of Natural Resources, Environment and the Arts, Darwin.</p>
<b>Contributors</b>		