

## Conserving Dampier Peninsula's Vulnerable vine thickets

### 1 Introduction

The Dampier Peninsula, located between Broome and Derby in the Kimberley region of WA, contains significant communities of native vine thickets, remnant of monsoonal rainforests more often restricted to the wetter parts of northern Australia. Many species in the Peninsula's thickets are located at the southern limits of their range. The vine thickets are renowned for their high biodiversity value and provide important habitat for native fauna and valuable food sources and cultural significance for Aboriginal people. About 90% of the total 1,000 ha of thickets occurs on Aboriginal reserves and grazing leases, and it is critical to engage Indigenous communities in the protection and conservation of the vine thickets.

The vine thickets occur as discrete and discontinuous patches of dense semi-deciduous vegetation situated on the leeward slopes of coastal sand dunes. The patches increase in species diversity and structural composition progressively towards the northern end of the Peninsula and can range in size from a stand of several trees to a patch greater than 60ha. The network of patches ensures species migration and gene flow, and the loss and degradation of a single patch can leave isolated patches vulnerable to local species extinction. Vine thickets are increasingly threatened by the combined effects of frequent hot wildfires, weed infestation, impacts of off-road driving, camping, and damage from cattle. Increasing development on the coast is also adding to these pressures.

Dampier Peninsula's vine thickets are recognised as Threatened Ecological Communities under State legislation, and are listed as '*Vulnerable*', facing a high risk of total destruction in the medium to long term. In 2005, the WA TEC Scientific Committee reassessed the plight of the vine thickets and recommended that the communities be upgraded to '*Endangered*', which means that they face a very high risk of total destruction in the near future.

Comprehensive survey work conducted in 2001 through the Broome Botanical Society (Black *et al.* in prep) obtained additional data on the occurrences of the vine thickets, the degree of threatening pressures and prioritisation for their management. The survey work identified townsites and areas along the Peninsula as a priority for immediate protection and management action.

#### 1.1 Project description and objectives

Currently the project is a relatively small pilot project which seeks to address threatening processes to monsoonal vine thickets, and provide training and employment opportunities for remote Indigenous communities. It receives NHT funding, administered by the Rangelands NRM Coordinating Group, and delivered by the Department of Environment and Conservation and Environs Kimberley, supported by Traditional Owner groups, the Kimberley Land Council, Kimberley TAFE and the Shire of Broome. The project began in early 2007 and is currently funded through until September 2008.

The project focusses on the management of weeds in a number of vine thickets that were identified as priority areas for management in the 2001 surveys near Quandong Point, James Price Point, Djardindjin/Lombadina and One Arm Point. Different weed management strategies are adopted depending on the condition, location and cultural requirements of individual vine thicket patches. The project's objectives are to:

- implement key recommendations for on-ground management of threatened vine thickets patches from Black *et al.* (in prep) at Quandong Point, James Price Point, Djardindjin/Lombadina and One Arm Point, including weed control, further weed surveys, and basic fire prevention strategies; and

- train and employ Traditional Owners to manage vine thickets and reduce risk of weed infestations from adjoining vegetation and townsites.

## 2 James Price Point and Quandong Point

James Price Point and Quandong Point are popular recreational and camping sites located on the western coast of the Dampier Peninsula approximately 70km and 60km north of Broome respectively. The vesting is Determined Native Title Claim with the Traditional Owner group, the Goolarabooloo Association. The Jabir Jabir Traditional Owner group is also close to this area.

Four vine thickets patches vary in size from 7ha to 206ha, to a total of 300ha of vine thickets, all of which are classified as TECs. High public usage and uncontrolled vehicle and pedestrian access is restricting their range and condition and contributing to further threatening processes. Weed spread and altered fire regimes contribute to frequent hot burns, affecting the recruitment and persistence of native vine thicket species. Encouraged by fire, *Cenchrus* spp. regenerate rapidly and encroach further into the vulnerable vine thicket communities, their increased fuel load and flammability, incrementally destroying the vine thickets and sustaining further weed spread.

Exotic vines introduced for gardens and pasture smother native vine thicket tree and vine species, while woody weeds form dense thickets and prevent native seed germination. Particularly problematic weed species are the siratro or black pea vine (*Macroptilium atropurpureum*), hairy merremia vine (*Merremia dissecta*), lead tree (*Leucaena leucocephala*) and passionvine (*Passiflora foetida*). Of medium priority for management are buffel grass (*Cenchrus ciliaris*) and birdwood grass (*Cenchrus setigerus*). The TEC listing recommends urgent weed surveys and control.

### 2.1 On-ground management action

After visiting these areas and assessing their current condition, the first step was to establish a relationship with Goolarabooloo and seek support for the project from the local Indigenous community. Several Goolarabooloo representatives with very good species identification and land management skills were employed to carry out weed control activities consistently during the control season.

Demonstration sites were then established at two highly visual sites close to the well-used tourist route. One is located at a traditional camping area called Walmadanj, and the other at the northern end of James Price Point near eroded coastal cliffs. An open shelter is located at Walmadanj where some interpretative signage is already present.

Together with logistical support and professional expertise from Environs Kimberley, site boundaries and zones were mapped at both sites to trial various different methods of integrated weed control. Most of the weedy vegetative material growing through trees and smothering native vegetation was removed by hand and piled and burnt to avoid spread from fragmentation. At the northern end of James Price Point, lead tree was also removed by cut stumping. A light surface burn was used to flush the weed seed bank and a cautious and selective application of herbicide followed germination. An unscheduled herbicide with surfactant and envirodye was applied as a low foliage spray on remaining weedy vegetative material. Acetic acid will also be trialled to prevent weed regeneration. The land management consultants have continued follow up control from September to November, and will begin again following the wet season.

The project also aims to work jointly within a coastal and marine education program to increase interpretative signage and lessen the impacts of uncontrolled vehicular and pedestrian access near these well-utilised areas.

Figure 2.1: Northern James Price Point control site, prior to works commencing. [Attached JPG '1 JPPPoint North']

Figure 2.2: Northern James Price Point control site, following initial control and burn. [2 JPPPoint North]

### **3 Djarindjin/Lombadina and One Arm Point**

Located on the north western end of Dampier Peninsula 200km north of Broome, are the adjacent Lombadina and Djarindjin Aboriginal communities. One Arm Point is located a further 20km north, at the north eastern tip of the Peninsula. Control in these townsites is a priority as weed spread is facilitated by escaped garden plants and human movement from and to these centres.

These town sites are all situated within or adjacent to the TECs. Three TEC patches are located at the Lombadina and Djarindjin communities, a total of 80ha. To the south, the vine thicket community is not often frequented and only spot infestations of grassy weeds occur along tracks and in areas where cattle move. Risk of weed encroachment, fire, and uncontrolled cattle access are the major threats to the vine thicket patches in this area. High priority weeds are siratro, passionvine, bellyache bush (*Jatropha gossypifolia*), Neem (*Azadirachta indica*) and lead tree.

Around One Arm Point are four vine thicket patches, a current total of 240ha. The townsite is located entirely within a vine thicket patch, which surrounds the town and extends to nearby coastal dunes. Land clearing is an issue only in this vine thicket patch. Other impacts include frequent hot fires, weed infestations and stock impacts. Problematic weed species are Darwin pea (*Clitoria terneata*), snake weed (*Stachytarpheta* sp.), lead tree, and horehound (*Hyptis suaveolens*) while gardens containing rubber vine (*Cryptostegia madagascariensis*) are cause for concern.

#### **3.1 Consultation with Elders and engagement of Indigenous Ranger groups**

Through this project, the Indigenous Bardi Jawi Rangers, whose employment is administered by the Kimberley Land Council, support weed control work at the equivalent of one day per week through the control season. The project aims to establish at least one demonstration weed control site within each town; Lombadina, Djarindjin and One Arm Point. The control works are visible to the broader community who can encourage the participants and become involved if they wish.

Much of the vine thicket areas are located in significant Law Grounds. DEC and EK consulted with senior community members about progressing the project in a sensitive manner. Widespread support was given for the control of weeds and protection of the vine thickets. In some areas Elders have approved the Bardi Jawi Rangers to work without female assistance.

At Lombadina a control site has been established where the Bardi Jawi Rangers have worked hard to control the many weeds present with a range of physical, mechanical and chemical techniques. Training in the correct use of herbicide and equipment was conducted by EK and Kimberley TAFE.

In addition to the demonstration sites, the Rangers will undertake early detection and monitoring activities within high quality vine thickets, using the identification and mapping skills learnt during control and training in the demonstration sites.

### **4 Conclusion**

The success of the project will depend on how well it is supported by Traditional Owners and at this early stage the project has been well-received, with strong community support and participation. Those employed within the project are already acting as advocates by educating the broader community about the threat of local weeds and garden plants to the vine thickets. Education from within the community has the greatest chance of success. Continuation of the project is necessary to maintain the community momentum for action on weeds and to address other management concerns for vine thickets such as access management and restored traditional fire regimes.