Site Management Plans for Travelling Stock Reserves
- Murray Rural Lands Protection Board

Monaro Vale TSR No. 38012

Date: October 2004

Key Reserve Features

Reserve size
~ 88 Ha.
Area of reserve where active conservation management will occur: ~ 88 Ha

Budget
The three year indicative costings below include both active management (e.g. environmental weed control) and monitoring for the whole reserve, which will be on-going. RLPB staff will maintain an activity record for this reserve so that a more accurate costing may be determined, in the future, for the long term management of the site.

- Year 1 68ha* $1360
- Year 2 88ha $1760
- Year 3 88ha $1760

* Only 68 ha's will be managed for conservation in year one due to budgetary constraints.

Location
Monaro Vale TSR adjoins the Berrigan-Barooga Road, roughly 8 kilometres south of Berrigan. (see map 55 in 'The Long Paddock: A Directory of Travelling Stock Routes and Reserves in NSW').

Vegetation
The major vegetation type on the TSR is Grassy Box Woodland as described by the Murray Catchment Blueprint. The tree species on the reserve include: Western Grey Box (*Eucalyptus microcarpa*), Yellow Box (*E. melliodora*), Bulloak (*Allocasuarina luehmannii*) and White Cypress Pine (*Callitris glaucophylla*). The tree cover varies across the reserve from open grassland, grassland with scattered mature box trees, to dense forest of mainly regrowth Cypress Pine. There is a sparse shrub layer that includes: Wedge-leaf Hopbush (*Dodonea cuneata*), Gold-dust Wattle (*Acacia acinacea*) and Mallee Wattle (*A. montana*). The ground cover is mostly grassy, being most common, in the more open woodland areas, with native perennial grasses dominant. Native forbs are common throughout. A large swamp (part of the Monaro Vale Swamp) is a feature of the TSR. The swamp contains the occasional tree (Western Grey Box), indicating that the wetland was originally timbered, and probably held water for 2-3 months in wet years. Wetland shrubs, including Lignum *(Muehlenbeckia florulenta)* and Nitre Goosefoot (*Chenopodium nitrariaceum)* are scattered across the wetland along with Drumsticks *(Pycnosorus globosa)*, rushes (*Juncus* spp.) and Broughton's Pea *(Swainsona procumbens)*. Annual pasture grasses and flatweeds are common in parts of the reserve, in particular where leakage from the adjoining quarry flows onto the reserve and in the bed of the wetland, due to

the absence of flooding. A more complete species list is attached or is available upon request from the Murray Rural Lands Protection Board.

Grazing History
Pre 1990: Heavily grazed by sheep.

1990-present: Intermittent grazing by travelling stock (cattle).

Conservation Rating
Monaro Vale TSR was rated as being of **High** conservation status by Ecosurveys in the 1999 study titled Flora and Fauna Habitat assessment of TSR's in the Murray RLPB.

Landform(s)
The reserve includes an important wetland in the north, it rises slightly towards a low granite knoll in the south west, where the quarry is located.

Landscape Location
The TSR connects with a tree covered roadside and scattered smaller woodland remnants on the granite rises nearby.

Threatened species
No threatened plants have been recorded to date, but the TSR represents a very diverse example of grassy box woodland which may contain threatened plants.

A pair of Brolga (*Grus rubicundus*) often utilise Monaro Vale Swamp when wet.

During the national bird count weekend in August 2002 a group of around 40 endangered Swift Parrots (*Lathamus discolour*) were observed feeding on Yellow Box blossom and lerp on the foliage of Western Grey Box trees within the TSR. They stayed for at least a week.

The threatened woodland bird the Grey-crowned Babbler (*Pomatostomus temporalis*) has been recorded on the TSR.

Areas of habitat on the TSR where large box trees dominate and a sparse native grass layer is present appear to be suitable for the endangered Bush Stone-curlew (*Burhinus grallarius*), although none have been recorded to date. The TSR is within the recorded range of the Superb Parrot (*Polytelis swainsonii*) in southern NSW, although none have been recorded to date.

Cultural Heritage
An aboriginal scar tree was recorded on this TSR during the assessment conducted by Ecosurveys in 1999.

Reserve Management Objectives

Primary Management Objective

- **Re-establish native plant community in the swamp.**
- **Locate a division fence between the swamp and the woodland.**
- **Establish holding yard to control stock camping.**
- **Minimise tree dieback on the reserve.**
- **Maintain shrub cover and abundance for habitat and seed collection purposes.**

Other Management Objectives

- Minimise run-off of waste water from the adjoining quarry into the reserve.

- Fill in the dam, adjacent to the roadside in the wetland, because it acts as a sump draining water away.

- Control foxes.

- Control Horehound (*Marrubium vulgare*) and Bathurst Burr (*Xanthium spinosum*).

Reserve Management Recommendations

Grazing

- Swamp. Periodic summer grazing; may also require crash graze to reduce the organic mass of annual grasses and weeds, prior to flooding.

- Woodland. Undertake strategic grazing targeting annual grasses and weeds during late winter and early spring. If practicable a second grazing episode would be ideal, to coincide with the annual seed set in October. This short sharp grazing episode is aimed at reducing the amount of annual grass seed set and stock are to be removed prior to the native perennial grass seed set.

All stock should be held in holding yards overnight to reduce ground cover disturbance on the reserve.

Watering

Water (~300ML) is available this year (2004) from the Murray Wetlands Working Group to fill the swamp through the Environmental Water Project. The water will have the effect of drowning most of the annual weeds and grasses and promoting the growth/regeneration of native aquatic plants (e.g. Drumsticks,

Canegrass [*Eragrostis australasica*], Lignum and Swamp Wallaby Grass [*Amphibromus* sp.] in the areas inundated. The preferred watering strategy is to fill the wetland in wet years (naturally) and top up occasionally to supplement rainfall run-off now excluded by channels. It is believed that the swamp should fill almost 50% (3 years out of 7) of the time.

At the time of inspection (17-8-2004) the reserve had recently received effluent water from the adjoining quarry. This water appeared to have relatively high salinity levels and continuation of this practice could threaten the health of the wetland and should be stopped forthwith. As well, at one of the discharge locations on a low ridge of sandy soils there has been major tree and shrub dieback, along with the establishment of weeds in the ground layer. This dieback should be investigated to see if there is a link between the effluent run-off and the poor health of the native vegetation. The status of the health of the vegetation at this site should be monitored and remedial action taken as required, restoring the health of the woodland. **Effluent disposal should not occur on the reserve**.

Tree and Shrub Regeneration

Good tree and scattered regeneration of all shrubs occurs across the reserve where the native ground layer is dominant, with plenty of spaces for plants to germinate between the perennial grass tussocks. New regeneration should continue to occur as the targeted grazing reduces the dense swards of annual grass which inhibit regeneration.

Revegetation

No active revegetation is required at this time, however this should be reviewed in the light of the monitoring of the woodland dieback site and the effects of the wetland watering on the vegetation.

Fencing

Erect a dividing fence, along the line of best fit, to separate the wetland from the woodland portion of the reserve to improve grazing management.

The holding yards need to be re-established to control overnight stock camping on the reserve.

Weed Control

Spot spray Horehound and Bathurst Burr as required.

Timber Removal

Continue to implement the Murray RLPB strategy of banning the removal of timber from high conservation rated TSR's.

Pest Animal Control

Undertake active fox control (baiting) on this reserve, to minimise the threat of predation to wildlife (including the Brolga and potentially the Bush Stone-curlew), and promote this activity with reserve neighbours.

Control rabbits as required.

Reserve Monitoring

Site 1: Wetland.
Establish a step point transect (100 metres) in the wetland to identify annual grasses and weeds versus native plants. Use three 1m x 1m permanent photo points along the transect to assess ground flora composition changes. Establish a photo point, from one end of the transect showing the wetland shrubs to compare their abundance and health over time

Site 2: Bulloak Regeneration.
Establish a photo point (vista) through the Bulloak regeneration to monitor the development of this grazing sensitive species.

Site 3: Tree Dieback.
Establish a transect (100m x 4m) to score the health of trees using the modified Grimes method.

Site 4: Shrubby Area.
Establish a step point transect (100 metres) through the shrubby area to determine changes in the ground layer condition (shrubs/forbs versus weeds) over time. As well establish a photo point (vista) through the shrub regeneration to monitor the development of these grazing sensitive species.

Timing

- ~August — Undertake step point survey to assess the condition of the vegetation in the wetland prior to inundation.

  Take Bulloak regeneration photo.

  Undertake step point survey to determine status of annuals versus native plants in the woodland.

- ~November — Undertake step point survey to assess the condition of the vegetation during peak spring growing conditions.

- ~December — Undertake step point survey after watering to assess the response of the vegetation in the wetland to inundation.

  Undertake tree health monitoring.

Other opportunistic monitoring (e.g. waterbirds), should be undertaken whenever possible.

As well as this formal monitoring, rapid assessments are undertaken regularly to assess the suitability for grazing of the reserve in spring/summer, whenever travelling stock are passing through the Board.

Monitoring Methodology

1. Photo Points

The following steps should be undertaken when establishing a photo point:

a. Permanently mark a point (star-picket/plug of concrete).
b. Take a waypoint reading at this point.
c. Take the photo so that it includes a feature (another star-picket/tree etc) to help align future photo's for comparison purposes.
d. Include in the photo a black board identifying the site and including the date (this may be included on photo by the camera).
e. Landscape photos should have the minimum horizon showing.
f. Quadrat photos are taken from above and showing the whole quadrat (this of course will be dependent on the size quadrat being used)

2. Transect (used mostly for tree and shrub monitoring or for step to point monitoring of perennial vs annual grasses).

The following steps should be undertaken when establishing a transect:

a. Permanently mark a point (star-picket/plug of concrete).
b. Take a waypoint reading at this point and a bearing.
c. Mark a point (star-picket/ plug of concrete) at a second point 200m away from the first point on bearing taken in step b.

3. Quadrat (used for monitoring ground layer grass type composition or overall species composition).

The following steps should be undertaken when establishing a quadrat:

a. To determine broad plant types (e.g. perennial vs. annual vs. weed) and density use several (at least 3) small (1mx1m) quadrats along a transect.
b. To determine plant composition permanently mark a large quadrat, e.g. 5mx5m on the transect.
c. Record presence (% cover, number of butts, species, etc) of grass and/or forb. Actual measurements taken will be determined by the Ranger in line with the primary management objective of the reserve.

4. Recording Data

The following points should be kept in mind:

a. All transect and quadrat monitoring should be recorded on a specific data sheet and kept with the reserve file for future analysis and auditing.
b. All photos should be similarly kept on the reserve files

c. Note due to the variation in monitoring types the consultants have not developed a single monitoring sheet, but rather left it to each board to decide the preferred format. If the rangers would like assistance to develop the appropriate data sheets please discuss with the consultants prior to beginning monitoring.

Attachments

The following flora and fauna lists are not considered to be complete and will be added to as management works are undertaken on the Reserve.

Flora List

Common Name	**Scientific Name**
Barley Grass*	*Hordeum* sp.
Bathurst Burr*	*Xanthium spinosum*
Blown Grass	*Agrostis avenacea*
Bluebell (2 types)	*Wahlenbergia* spp.
Broughtons Pea	*Swainsona procumbens.*
Brush Wiregrass	*Aristida behriana*
Bulloak	*Allocasuarina luehmanii*
Buttercup	*Runuculus* sp.
Capeweed*	*Arctotheca calendula*
Chenopod (x5)	
Cherry Ballart	*Exocarpos cupressiformis*
Chocolate Lily	*Dichopogon strictus*
Common Wheatgrass	*Elymus scaber*
Creamy Candles	*Stackhousia monogyna*
Creeping Saltbush	*Atriplex semibaccata*
Cumbungi	*Typha* sp.
Daisy (x3)	
Drumsticks	*Craspedia globosa.*
Eastern Cotton Bush	*Maireana microphylla*
Feathery Spear Grass	*Austrostipa elegantissima*.
Fireweed	*Senecio* sp.
Giant Brome*	*Bromus* diandrus
Gold Dust Wattle	*Acacia acinacea*
Goodenia (x2)	*Goodenia* spp.
Grey Box	*Eucalyptus microcarpa*
Grey Germander	*Teucrium racemosum*
Ground Fern	*Cheliathes* sp.
Haresfoot Clover*	*Trifolium arvense*
Horehound*	*Marrubium vulgare*
Kurrajong	*Brachychiton populneus*
Lignum	*Muehlenbeckia cunninghamii*
Lovegrass	*Eragrostis* sp.
Mallee Wattle	*Acacia montana*
Mat-rush	*Lomandra* sp.
Medic*	*Medicago* sp.
Nardoo	*Marsilea drummondii*

Common Name	**Scientific Name**
Native Geranium	*Geranium* sp.
Native Millet	*Panicum* sp.
Nitre Goosefoot	*Chenopodium nitrariaceum*
Pale Sundew	*Drosera peltata*
Patterson's Curse*	*Echium plantagineum*
Pink Bind Weed	*Convulvulus erubescens*
Plains Spear Grass	*Austrostipa aristiglumis*
Ptilotus	*Ptilotus* sp.
Purple Wiregrass	*Aristida ramosa*
Quandong	*Santalum acuminatum*
Rat's Tail Fescue*	*Vulpia myuros*
Red-leg Grass	*Bothriacloa macra*
Rough Spear Grass	*Austrostipa scabra*
Rush (x2)	*Juncus* sp.
Rye Grass*	*Lolium* sp.
Sida	*Sida* sp.
Spike Rush	*Eliocharis sp.*
Stinking Pennywort	*Hydrocotyle laxiflora*
Tall Flax Lily	*Dianella longifolia*.
Vanilla Lily	*Arthropodium strictum*
Variable Glycine	*Glycine tabacina*
Wallaby Grass	*Austrodanthonia* spp.
Wedge-leaf Hopbush	*Dodonea cuneata*
White Cypress Pine	*Callitris glaucophylla*
Wild Oats*	*Avena* sp.
Windmill Grass (x2)	*Enteropogon sp.*
Wood Sorrell	*Oxalis perennans*
Yellow Box	*Eucalyptus melliodora*
Yellow Rush Lily	*Tricoryne elata*

*- Introduced species.

Fauna List

Birds

Common Name	**Scientific Name**
Apostlebird	*Struthidea cinerea*
Australian Magpie	*Gymnorhina tibicen*
Australian Raven	*Corvus coronoides*
Australian Wood Duck	*Chenonetta jubata*
Brolga#	*Grus rubicundus*
Common Starling*	*Sturnus vulgaris*
Crested Pigeon	*Ocyphaps lophotes*
Dusky Woodswallow	*Artamus cyanopterus*
Eastern Rosella	*Platycercus eximius*
Galah	*Cacatua roseicapilla*
Grey Butcherbird	*Cracticus torquatus*
Grey Teal	*Anas gracilis*
Grey-crowned Babbler#	*Pomatostomus temporalis*
Laughing Kookaburra	*Dacelo novaeguineae*
Magpie-lark	*Grallina cyanoleuca*
Noisy Miner	*Manorina melanocephala*
Pacific Black Duck	*Anas superciliosa*
Rainbow Bee-eater	*Merops ornatus*
Red-rumped Parrot	*Psephotus haematonotus*
Rufous Songlark	*Cinclorhamphus mathewsi*
Rufous Whistler	*Pachycepahla rufiventris*
Sacred Kingfisher	*Todiramphus sanctus*
Striated Pardalote	*Pardalotus striatus*
Swift Parrot#	*Lathamus discolor*
Tree Martin	*Hirundo nigricans*
Wedge-tailed Eagle	*Aquila audax*
Welcome Swallow	*Hirundo neoxena*
Western Gerygone	*Gerygone fusca*
White-plumed Honeyeater	*Lichenostomus penicillatus*
White-winged Chough	*Corcorax melanorhamphos*
Willie Wagtail	*Rhipidura leucophrys*

* - Introduced species
#- Threatened Species

Mammals

Common Name	**Scientific Name**
Eastern Grey Kangaroo	*Macropus giganteus*
Echidna	*Tachyglossus aculeatus*