

# Draft Revision (2009)

## Flora and Fauna Guarantee Action Statement No. 20

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### Mallee Worm-lizard *Aprasia aurita*

#### Description

The Mallee Worm-lizard (*Aprasia aurita*) belongs to the reptile family Pygopodidae, the legless lizards or snake-lizards. Pygopodids are long, slender and snake-like, with no eyelids, a fleshy tongue, smooth to keeled, overlapping scales, generally a visible ear opening, a fragile tail, no forelimbs, and vestigial hindlimbs reduced to a scaly flap. The genus *Aprasia* differs from other pygopodids because it has a short blunt tail, a tiny hindlimb flap, and no visible external ear opening. Four species of *Aprasia* occur in Victoria.

The Mallee Worm-Lizard is a small, very slender species, with a snout-vent length of about 110 mm, and a total length of about 180 mm. It is brown on the upper surface fading to grey on the sides. The under surface is off-white. The centre of each dorsal and lateral scale has a dark mark, the marks forming a series of faint to prominent longitudinal lines. There is a dark streak extending from the eye to the tip of the snout. The Mallee Worm-lizard is distinguishable from all other species of *Aprasia* by having an external ear opening, although this is small and partially covered by a notched scale.

#### Distribution

The Mallee Worm-lizard is apparently confined to a small area in northwestern Victoria, between Woomelang and Ouyen, centring on the Wathe Flora and Fauna Reserve (FFR) and extending into the NE and SE areas of Wyperfeld National Park. The Wathe FFR, which is approximately 6000 ha, lies east of Wyperfeld National Park (NP) and is near the town of Lascelles on the Sunraysia Highway in northwestern Victoria. A vegetated corridor links Wathe FFR with Wyperfeld NP and surveys have failed to locate Mallee Worm-lizards within the corridor.

#### Habitat

The Mallee Worm-Lizard is found in mallee heaths and hummock grasslands on a sandy substrate, and has been recorded in sand beneath mallee roots and decomposing leaf litter.

#### Life history and ecology

There is very limited biological information available on the Mallee Worm-lizard, and little on the genus as a whole. Some species of *Aprasia* are described as crepuscular or nocturnal, and subterranean, favouring moist substrates under rocks and debris, around embedded rotting stumps and in ant nests. Their diet was found to comprise eggs, larvae and pupae of small ant species measuring between 1.5 and 3 mm in length. The slender, elongate body of *Aprasia* facilitates access into galleries of ant nests.

The Mallee Worm-lizard is believed to be diurnal, but is a burrowing species that rarely comes to the surface. It has not yet been found in ant nests or *Triodia* hummocks, although it is likely to be associated with small ants, and uses their tunnels and galleries for at least part of its life-cycle.

#### Conservation status

##### Victorian conservation status

The Mallee Worm-lizard has been listed as “threatened” under the *Flora and Fauna Guarantee Act 1988*.

Mallee Worm-lizard (*Aprasia aurita*) is considered “near threatened” in Victoria according to DSE’s *Advisory List of Threatened Vertebrate Fauna in Victoria - 2007* (DSE 2007).

#### Threats

Human induced threats, most notably, road and track construction and maintenance can be addressed with management plans sympathetic to this species. Protocols for construction of fuel breaks and their rehabilitation following wildfire

events are required. Targeted control of introduced animals around known colonies of Mallee Worm-lizards is required as a priority.

<i>Standard threat</i>	<i>Source Of Threat</i>	<i>Explanation</i>
Carnivory.	Animals – foxes.	Foxes will prey upon any small reptile found on the surface of the ground and Mallee Worm-lizards are known to be active on the surface during the warmer seasons of the year.
Habitat damage or loss.	Construction/maintenance - fuel breaks.	Soil disturbance through creating tracks and fuel breaks will destroy ant colonies and the open and compressed ground will prevent subterranean passage of worm-lizards.
Herbivory.	Animals - introduced herbivores.	Rabbits can impact on regenerating plants and cause soil disturbance at higher population levels.
Inappropriate fire regimes.	Fire – frequency.	It is unknown how fire regimes affect the Mallee Worm lizard. Evidence suggests that altered fire regimes have resulted in a decline of this species.
Inappropriate fire regimes.	Fire – wildfire.	Too frequent large scale, high intensity wildfires will have a negative impact on this species and its habitat.
Soil disturbance (physical).	Animals - domestic stock.	Stock grazing within the Wathe Corridor impacts on soil stability and vegetation cover.
Soil disturbance (physical).	Construction / maintenance - road, rail or utility.	Soil disturbance through creating tracks will destroy ant colonies and the open and compressed ground will prevent subterranean passage of worm-lizards.

### Important populations

<i>Location name</i>	<i>Land manager</i>	<i>Catchment</i>	<i>Bioregion</i>
Wathe Flora and Fauna Reserve	Parks Victoria	Mallee	Lowan Mallee
Wyperfeld National Park	Parks Victoria	Mallee Wimmera	Lowan Mallee
Big Desert State Forest	DSE	Mallee	Lowan Mallee

Other populations occur in Paradise FFR and the Wathe Corridor.

### Past management actions

<i>Action</i>	<i>Result explanation</i>
Conduct survey to determine abundance/extent	Surveys were undertaken in and near Wyperfeld NP in 2005/06 and 18 specimens were found in pitfall traps.
Undertake research to identify key biological functions	Ecological relationships between the Mallee Worm-lizard, ants and fire, may be determined in the Mallee Fire Project undertaken by Deakin and La Trobe Universities.  Survey reports (Robertson and Edwards (1993), Robertson (2006) and Robertson <i>et al.</i> (in prep.)) have included details on reproductive state of individuals captured, and females are thought to lay up to two eggs only once per year.  The diet of Mallee Worm-lizard was investigated from scats (Robertson <i>et al.</i> 2008). The Mallee Worm-lizard eats small ant species and their eggs.
Realign tracks and roads	Actions were undertaken to avoid track works or other soil disturbance works in or near sites where the Mallee Worm-lizard occurs.  Some soil disturbance works have been undertaken as part of fire control works. Liaison with DSE Fire section is on-going.

	The impact of the 2007 wildfire may have impacted on potential track works. A detailed track management plan is reliant upon the results of surveys and habitat assessments.
Protect habitat from fire suppression activities	Wildlife Atlas records were consulted in considering fire protection plans, and fuel reduction burns were restricted in areas occupied by Mallee Worm-lizard via Fire Management Plans.  Approximately 75% of Wathe FFR was burnt in a wildfire in November 2007 and the whole fire edge was tracked with a dozer line. These control lines were rehabilitated in the summer following the fire. A fuel reduction burn had been planned for a longitudinal break running north south down the centre of the reserve. This wildfire negates the need for a fuel reduction burn.
Conduct survey to locate suitable habitat.	Suitable habitat has been identified in several survey reports (Robertson and Edwards 1993, Robertson (2006) and Robertson <i>et al.</i> (in prep.)).
Develop or amend planning scheme overlays and schedules.	Existing planning controls provide some protection for existing stands of native vegetation which provide habitat for Mallee worm-lizards..
Undertake periodic surveillance monitoring of populations.	A survey was conducted (GHD 2008) in SE Wyperfeld NP and Paradise FFR. No Mallee Worm-lizards were found; this may be because the survey was conducted relatively late in the season.
Undertake detailed population monitoring and collect demographic information.	Some demographic and reproductive data has been collected in recent surveys (Robertson 2006 and Robertson <i>et al.</i> (in prep.)). A full demographic study is dependant upon longer term investigations. A long term monitoring grid was established at Wathe FFR in 2007.  Initial surveys have been conducted determining locations of some individuals and some demographic data has been collected from these surveys. More detailed population surveys are pending the results of further presence/absence surveys.
Undertake research to determine habitat.	Various habitat parameters, particularly fire history, were recorded at each site where the species was surveyed to determine the habitat preferences of the species. Detailed analyses of these data are yet to be completed.

## Conservation objectives

### Long term objective

To ensure that the Mallee Worm-lizard can survive, flourish and maintain its potential for evolutionary development in the wild.

### Objectives of this Action Statement

- To improve condition of habitat.
- To secure populations or habitat from potentially incompatible land use or catastrophic loss.
- To increase knowledge of biology, ecology or management requirements.

### Intended management actions

*The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.*

<i>Standard objective</i>	<i>Targets</i>	
To improve condition of habitat.	<ul style="list-style-type: none"> <li>• Habitat structure improved within the Wathe Corridor and thereby the connectivity of the Wathe FFR population with those in Wyperfeld NP.</li> </ul>	
<i>Action</i>	<i>Details</i>	<i>Responsible agents</i>
Erect/maintain fence to exclude introduced animals.	Erect and maintain fences to exclude stock and rabbits from Wathe Corridor.	DSE Statewide Services – North West

Protect habitat from fire suppression activities.	Where fire suppression or exclusion works are required, minimise the areas of soil disturbance near known Mallee Worm-lizard colonies.	DSE Statewide Services – North West
Realign tracks and roads.	Avoid track works or other soil disturbance works in or near sites where the Mallee Worm-lizard occurs. Rationalise road and track networks in known Mallee Worm-lizard colonies.	Parks Victoria

<i>Standard objective</i>	<i>Targets</i>	
To secure populations or habitat from potentially incompatible land use or catastrophic loss.	<ul style="list-style-type: none"> <li>None of the four existing populations are lost due to wildfire or other incompatible land use activities.</li> </ul>	
<i>Action</i>	<i>Details</i>	<i>Responsible agents</i>
Develop or amend planning scheme overlays and schedules.	Protect suitable habitat on freehold land in the vicinity of Wathe FFR through application of planning controls such as Vegetation Protection Overlays.	DSE Statewide Services – North West
Develop/revise management prescriptions and/or zoning for State forest.	Manage the habitat corridor linking Wathe FFR to Wyperfeld NP for conservation purposes and develop a plan including track rationalisation and fencing proposals.	DSE Statewide Services – North West

<i>Standard objective</i>	<i>Targets</i>	
To increase knowledge of biology, ecology or management requirements.	<ul style="list-style-type: none"> <li>Knowledge of habitat and fire ecology requirements, distribution and extent of populations and long term population trends improved.</li> <li>The genetics of existing isolated populations understood.</li> <li>Knowledge of the most sympathetic management regime improved.</li> </ul>	
<i>Action</i>	<i>Details</i>	<i>Responsible agents</i>
Conduct survey to determine abundance/extent.	Accurately determine the distribution of Mallee worm-lizards within Wathe FFR and Paradise FFR and nearby areas of mallee vegetation.	Parks Victoria
Conduct survey to locate suitable habitat.	Undertake survey of suitable habitat for Mallee Worm-lizard.	DSE Statewide Services – North West
Map habitat.	Undertake digital air photography for the whole of the Park to 0.3 m accuracy and create an ortho-registered layer on the DSE corporate GIS library. Digitise tree density stands and storm damage as separate GIS layers.	DSE Statewide Services – North West
Undertake detailed population monitoring and collect demographic information.	Estimate the size of all populations and determine their demography. Undertake regular surveillance monitoring of all populations. Monitor Wathe and Wyperfeld populations every two years.	DSE Statewide Services – North West
Undertake genetic research.	Identify the genetic relatedness and therefore the degree of isolation of the four known geographically distinct populations.	DSE Statewide Services – North West
Undertake research to determine habitat.	Investigate the ecological requirements of this species, particularly soil type, composition and structure of ground vegetation and litter, vegetation community and land system. Document various habitat parameters, particularly fire history, at each site to determine the habitat preferences of the species.	DSE Statewide Services – North West
Undertake research to identify key biological functions.	Investigate the ecological relationships between the Mallee Worm-Lizard, ants and fire, preferably in conjunction with a broader investigation of fire ecology.	DSE Statewide Services – North West

	Sample terrestrial invertebrates for comparison with the dietary items of the Mallee Worm-Lizard to determine the distribution of possible prey species.	
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## References

- DSE (2007) *Advisory List Of Threatened Vertebrate Fauna In Victoria – 2007*. Department of Sustainability and Environment, East Melbourne
- GHD (2008) Surveys for the Mallee Worm-lizard *Aprasia aurita*. Report to the Mallee Catchment Authority and the Department of Sustainability and Environment.
- Robertson, P. & Edwards, S. (1993) Conservation Biology of the Mallee Worm-lizard (*Aprasia aurita*) - An Initial Investigation. Wildlife Profiles P/L. Report to the Department of Conservation and Natural Resources
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- Robertson, P., Wainer, J. & Yen, A. (2008) Diet of the threatened Mallee Worm-lizard (*Aprasia aurita*). Wildlife Profiles P/L. Report for the Mallee Catchment Management Authority.
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