

Action Statement

Flora and Fauna Guarantee Act 1988

No. 108

Hooded Scaly-foot *Pygopus nigriceps*

Description and Distribution

The Hooded Scaly-foot *Pygopus nigriceps* belongs to the reptile family Pygopodidae, the legless or flap-footed lizards. Legless lizards are superficially snake-like; they lack forelimbs, and the hind limbs are reduced to a scaly flap just above the vent. Whilst their eyes are lidless and snake-like, there are several features that distinguish legless lizards from snakes. Most legless lizards have an obvious ear aperture, lacking in all snakes, and a broad fleshy tongue, compared to the deeply forked tongue of snakes. Most legless lizards also have a tail that, when unbroken, is considerably longer than their body. In contrast, the tail of snakes is considerably shorter than their body. The genus *Pygopus* differs from other legless lizards on the basis of the combination of the following features: head covered with enlarged, symmetrical scales; smooth (compared to keeled) ventral scales; and the possession of eight or more preanal pores. Two species of *Pygopus* occur in Victoria.

The Hooded Scaly-foot is a large legless lizard, attaining a total length of 475mm, and a snout-vent length of about 180mm. Females reach larger sizes than males. Variable in colour, the Hooded Scaly-foot may be pale grey to reddish-brown on the dorsal surface and whitish on the ventral surface. The dorsal scales may be dark-edged, forming a reticulated pattern, or individual pale and dark scales may form a vague longitudinal pattern. The head is usually darker than the body, and this colour may consist of two dark cross-bands. In older specimens these bands may become obscure or merge into a single dark hood (Cogger 1996).



Hooded Scaly-foot, *Pygopus nigriceps*
Illustration by Peter Robertson Wildlife Profiles P/L ©



Distribution in Victoria

+ before 1970, ■ since 1970

[source: Atlas of Victorian Wildlife, NRE 2000a]

Little is known about the ecology of the Hooded Scaly-foot. Like most legless lizards, this species lays a clutch of two eggs once a year. Gravid females have been reported in January and February (Ehmann 1992). The species is thought to be largely crepuscular or nocturnal, but may be active during the day at southern latitudes or on cooler days, although they are probably inactive during the winter months. The Hooded Scaly-foot feeds mainly on surface-active insects and arachnids (Patchell and Shine 1986). No information is available on the age to sexual maturity or longevity of the species.

The Hooded Scaly-foot has a broad distribution across continental Australia (Cogger 1996), where it inhabits tropical to temperate chenopod shrublands on compacting and deeply cracking clay soils, and hummock grasslands on sand hills, plains and sandy loams (Ehmann 1992). Within Victoria the species occurs in the north of the state and generally inhabits areas of clay and clay-loam soils, with Black Box *Eucalyptus largiflorens*, chenopod, grassland and Buloke *Casuarina luehmannii* vegetation (Robertson 1999). Fallen timber, rocks, mats of dead vegetation, grass tussocks, burrows and soil cracks are used as shelter sites (Wilson and Knowles 1988; Ehmann 1992). The Hooded Scaly-foot is thought to forage both on the surface and in soil cracks and burrows (Robertson 1999).

Within Victoria there have been very few records of the Hooded Scaly-foot. Old records (pre-1900) exist from Kerang and near Kewell, south of Warracknabeal. There is also an old record of uncertain date from the vicinity of Ouyen, an unconfirmed record from Ulupna Island west of Tocumwal (mid-1970s), and records from Quambatook (1986), Lake Ranfurly, west of Mildura (1992), and 11 records from Terrick Terrick National Park since 1995 (NRE 2000a; Robertson 1999; J. Coventry *pers. comm.*). The population in Terrick Terrick National Park is the only known extant population in a conservation reserve, and is only known with certainty from a small area of habitat (Robertson 1999).

Current status in Victoria

NRE (2000b) critically endangered (Vic.)

The Hooded Scaly-foot has been listed as a threatened taxon under the **Flora and Fauna Guarantee Act 1988**.

Reasons for conservation status

The Hooded Scaly-foot has an extremely restricted distribution in Victoria; the records from Terrick Terrick National Park represent the only known extant population in a conservation reserve in the state. The few disjunct records from other localities in the state probably represent extinct

populations (very old records from Kewell and Kerang) or, at best, populations whose status must be considered extremely precarious (records from Lake Ranfurly, Quambatook and Ulupna Island). Systematic surveys targeting this species have not been conducted in these areas, although Robertson *et al.* (1989) note that the Quambatook area may be particularly important for the Hooded Scaly-foot.

The most serious threat to the Hooded Scaly-foot in Victoria is the destruction, degradation and fragmentation of its habitat (Robertson 1999). The paucity of records, and their disjunct nature, is undoubtedly a function of these processes since European settlement. Within the Terrick Terrick National Park the species is only found in largely undisturbed native grassland containing numerous holes and burrows. It is unlikely to persist in modified habitats, and the effects of clearing, heavy trampling by stock and/or cultivation probably exclude it (Robertson 1999). The species may be dependent on ground litter for cover and food resources. Consequently, activities such as grazing, timber harvesting and firewood collection which disturb or destroy this layer may threaten this species (Scientific Advisory Committee 1994). Clearing of vegetation removes the source of ground litter. The population at Terrick Terrick is the only one for which habitat characteristics have been examined. Robertson (1999) identified several threats to this population. The species relies on subterranean micro-environments, and any serious disturbance to the soil structure, by processes such as cultivation or excessive trampling by stock, may eliminate it from an area. Weed invasion may modify vegetation structure to the detriment of the species. The population has persisted in the long-term absence of fire, and it is unknown how this population, or any other, will respond to differing fire regimes. Similarly, the impact of exotic predators such as cats and foxes on the Hooded Scaly-foot is unknown. Robertson (1999) suggests this impact may be considerable given the open habitat occupied by the lizards, and the fact that they are predominantly nocturnal, as are these predators. The use of insecticides in or near areas where the species occurs may reduce the amount of available prey.

The Hooded Scaly-foot has an extremely restricted distribution and occurs in low numbers, making it vulnerable to catastrophes such as wildfire and disease. In its final recommendation the Scientific Advisory Committee (SAC 1994) determined that the Hooded Scaly-foot is:

- significantly prone to future threats which are likely to result in extinction, and
- very rare in terms of abundance or distribution.

Major Conservation Objective

The major conservation objectives for the Hooded Scaly-foot are to:

- conserve, and where possible enhance, the current extent and quality of existing habitat
- investigate and refine our understanding of the species' biology and ecology within three years
- determine the distribution of the species within its Victorian range
- locate and preserve a second population (after Terrick Terrick) of the species.

Management Issues

Ecological issues specific to the taxon

Further research on the Hooded Scaly-foot is an urgent priority. Because so little is known of its specific habitat requirements and population dynamics it is important that studies are undertaken so that appropriate conservation management can be implemented. Clearing of this species' habitat is believed to have drastically reduced the size and number of populations (LCC 1983).

Robertson (1999) has highlighted management issues specific to the Hooded Scaly-foot within Terrick Terrick National Park. These include the urgent need to determine the distribution of the species. To this end, specific survey techniques need to be employed; the common survey technique of pitfall trapping for terrestrial reptiles may be inappropriate inasmuch as there is evidence that the species may be wary of such traps, and the traps may be disruptive to the lizard's habitat. Alternative survey techniques suggested by Robertson include spotlight searching on foot during warm summer nights, and methodical searching of the ground surface and tussocks for sloughs (shed skin) during spring. Monitoring for Plains Wanderer *Pedionomus torquatus* using vehicles may result in mortality of the Hooded Scaly-foot (Robertson 1999; M. Tscharke *pers. comm.*).

Other management issues highlighted by Robertson (1999) include the need to conduct research to determine optimal management strategies for grazing, fire, weed control and, possibly, vegetation rehabilitation. Considering the management history of the land from which the species has been recorded in Terrick Terrick, Robertson (1999) recommends that a carefully-applied grazing regime continue in the area to control weeds and maintain vegetation structure. Feral predator control is likely to benefit the Hooded Scaly-foot, as well as other fauna in the area.

The use of steel pickets as markers to delimit study plots or boundaries in the Terrick Terrick National Park may threaten the Hooded Scaly-foot or its habitat in several ways. Firstly, these pickets create perching sites for predatory birds. Few perches naturally exist in the area known to contain the Hooded Scaly-foot, and the addition of these pickets is likely to increase predation on the lizards and other small vertebrates occurring in the grasslands (Robertson 1999; M. Tscharke *pers. comm.*). Secondly, the pickets attract sheep, creating a focus for increased grazing and trampling pressure (M. Tscharke *pers. comm.*). Finally, the pickets channel rainwater towards their base, encouraging the establishment of weeds (M. Tscharke *pers. comm.*).

Very few Victorian records exist for this species outside of Terrick Terrick National Park, so it is possible the species occupies different habitat elsewhere in the state. Thus, optimum habitat for any other Victorian populations of the Hooded Scaly-foot is largely unknown, and only generalised habitat information is available for Australia (eg. Ehmann 1992, Cogger 1996).

Wider conservation issues

A suite of vertebrate fauna listed as threatened in Victoria by NRE (1999) occurs in Terrick Terrick National Park. Many of these species will benefit from conservation measures employed for the Hooded Scaly-foot, such as habitat and fire management, and weed and pest predator control. These species include: Carpet Python *Morelia spilota variegata* (Endangered), Striped Legless-lizard *Delma impar* (Endangered), Bush Stone-curlew *Burhinus grallarius* (Endangered), Grey-crowned Babbler *Pomatostomus temporalis* (Endangered), Plains Wanderer (Endangered), Curl Snake *Suta suta* (Vulnerable), Brolga *Grus rubicunda* (Vulnerable), Tessellated Gecko *Diplodactylus tessellatus* (Lower Risk - Near Threatened), Fat-tailed Dunnart *Sminthopsis crassicaudata* (Data Deficient) and Little Button-quail *Turnix velox* (Data Deficient). In addition to these species, the Lined Earless Dragon *Tympanocryptis lineata lineata* (Endangered), which has not been recorded from the Park, occupies similar habitat to the Hooded Scaly-foot, Curl Snake and Tessellated Gecko, and may occur in this region (Robertson 1999).

Fallen fence posts within the National Park are used as shelter by several reptile species, and the addition of comparable shelter may benefit the Hooded Scaly-foot, as well as the Curl Snake, Fat-tailed Dunnart and the Striped Legless-lizard (M. Tscharke *pers. comm.*). Deliberate placement of such shelter along transects may facilitate monitoring of these species.

Though relatively small in area, Terrick Terrick National Park is probably the largest area of high quality remnant grassland in the state, and contains at least 26 species of rare or threatened plants (Robertson 1999). Effective management of the Hooded Scaly-foot may benefit some of these species, although care must be taken that the local status of threatened plants are not compromised as a result of survey and management activities.

Survey techniques suitable for the Hooded Scaly-foot may also be used for the Curl Snake and Tessellated Gecko, allowing concurrent survey and monitoring of these species (Robertson 1999).

Previous Management Action

There have been no previous management actions specifically targeting the Hooded Scaly-foot. Records of the species have tended to be gathered incidentally. In 1998 the Terrick Terrick grassland was added to the Terrick Terrick State Park to form the Terrick Terrick National Park. This park contains perhaps the only viable population of the Hooded Scaly-foot in Victoria (Robertson 1999).

A fox-baiting program is conducted both in the National Park and surrounding private property (M. Tscharke *pers. comm.*). Dead foxes, presumably killed by the baits, are periodically noted in the National Park. Within the Park management staff opportunistically shoot foxes and cats. Despite these measures, foxes continue to be a problem in the area (M. Tscharke *pers. comm.*).

Mark Tscharke, Ranger at the National Park, is endeavouring to develop a cost-effective replacement for the steel pickets used to delimit study plots and boundaries in the Park. The replacement marker, a spring-loaded aluminium pole, is being designed to prevent its use as a perch for birds, and lessen its attraction for sheep (M. Tscharke *pers. comm.*).

Intended Management Action

The Department of Natural Resources and Environment Parks, Flora and Fauna Division Division, NRE North West Region and Parks Victoria are responsible for all actions.

Surveys in Northern Victoria

1. Conduct surveys in northern Victoria to more accurately determine the distribution of the species in the state, with the specific aim of locating and protecting a second population.

Survey of the Terrick Terrick population

2. Conduct a detailed survey to determine the precise distribution of the Hooded Scaly-foot within Terrick Terrick National Park. As part of this survey the habitat associations and preferences of the species, such as substrate

requirements, vegetation structure and aspect, should be examined.

Investigate the ecology and biology of the Hooded Scaly-foot at Terrick Terrick

3. Investigate the life history and demographic characteristics of the Hooded Scaly-foot at Terrick Terrick National Park. Such an investigation could examine density, sex ratio, home range and dispersal and activity patterns.

Investigate the ecology of the Hooded Scaly-foot, including diet and response to fire and grazing. Document the fire and grazing history of the national park to determine the habitat succession preferences of the species within the park. One of the key aims of such an investigation should be to determine the optimum grazing regime for habitat occupied by the species. Until the species' response to fire is known, fire should be excluded as a management option.

Determine the impact of predation by foxes and cats on the Hooded Scaly-foot. This may be achieved through the analysis of predator scats and/or analysis of the stomach contents of these predators.

Monitoring

4. Monitor the population annually (using standardised techniques) to detect variation in abundance and demography. Encourage the development of alternative survey marker poles for use in grassland habitat. The ranger at Terrick Terrick National Park has already initiated such development.

Management of the population at Terrick Terrick

Continue and, where necessary, expand control programs for exotic predators and weeds in the national park and on surrounding properties. Minimise soil disturbance from activities such as track works and human visitation in the vicinity of known Hooded Scaly-foot habitat.

Community education and liaison

5. Provide education and interpretation materials regarding the value of the national park's biota and responsible cat ownership to landholders in the Terrick Terrick region. Facilitate effective liaison between the collective land managers and researchers working in the national park to ensure that conflict in the research and management of different species and habitats is minimised.

Other Desirable Management Action

Encourage scientific research into the ecology of the Hooded Scaly-foot.

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Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website: <http://www.dse.vic.gov.au>

This Action Statement was first published in 2000 and remains current. This version has been prepared for web publication. It retains the original text of the action statement, although contact information, the distribution map and the illustration may have been updated.

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