

Flora & Fauna Guarantee Action Statement

#74

This Action Statement was first published in 1996 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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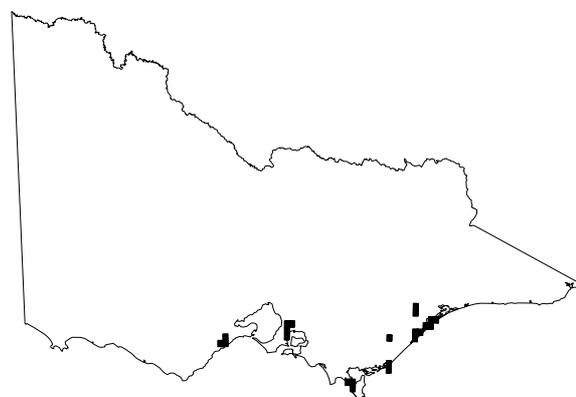
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New Holland Mouse

Pseudomys novaehollandiae



New Holland Mouse (*Pseudomys novaehollandiae*)
(Illustration by Alexis Beckett)



Distribution in Victoria (DSE 2002)

Description and Distribution

The New Holland Mouse, *Pseudomys novaehollandiae* (Waterhouse 1843), is a small, terrestrial, burrowing native rodent found in disjunct populations in coastal south-eastern Australia. It grows to a maximum head and body length of about 90 mm, is grey-brown above and has a dusky-brown tail which is 10-15% longer than the rest of the body and darker on the dorsal surface. It has relatively large eyes. These latter two features distinguish it from the House Mouse (*Mus musculus*), for which it may be mistaken.

The New Holland Mouse was thought to be extinct, no specimen having been collected since before 1887. It was rediscovered in New South Wales in 1967 (Mahoney and Marlow 1968) and was subsequently recorded at other coastal locations in New South Wales (Keith and Calaby 1968, Posamentier and Recher 1974). It was first recorded in Victoria near Tyabb on the Mornington Peninsula (Seebeck and Beste 1970).

It has since been found at a number of disjunct sites on the coastal plains east of Melbourne at Cranbourne (Braithwaite and Gullan 1978), Langwarrin (Opie 1983), Wilsons Promontory (Hyett 1977, Quin 1994), Reeves Beach and Hummock Island (Norris et al. 1979, Cockburn 1980), Mullundung State Forest (Gilmore 1977), Providence Ponds (Wilson 1993) and several sites between Golden Beach and Loch Sport (Norris et al. 1983, Atlas of Victorian Wildlife). West of Melbourne it is known only from near Anglesea on the eastern Otway plain (Kentish 1982, Wilson 1991). The New Holland Mouse also occurs in north-eastern Tasmania and on Flinders Island (Rounsevell et al. 1991). The New Holland Mouse has been recorded from heathlands, woodlands with heath understorey, open forests and vegetated sand dunes (Braithwaite and Gullan 1978, Wilson 1991, Quin 1994). In heathlands and forest areas it has a preference for habitats with soft sandy substrates, floristically rich vegetation and low vegetation cover (Fox

and Fox 1984, Wilson 1991), but sand dune habitat is less floristically rich and often lacks low cover.

At Tyabb the species was found in dry forest of *Eucalyptus radiata* (Narrow-leafed Peppermint) and *E. pryoriana* (Coast Manna Gum), with a tall dense understorey dominated by *Leptospermum continentale* (Prickly Tea-tree). At Cranbourne and Langwarrin the habitat was a *Leptospermum myrsinoides* (Heath Tea-tree) - *Hypolaena fastigiata* (Tassel Rope-rush) heath community, with scattered low *Allocasuarina pusilla* (Dwarf Sheoke) and *E. pryoriana* and a diverse low understorey. In the Mullundung State Forest the species was found in small patches of heath with emergent *E. willisii* (Shining Peppermint) and *Banksia serrata* (Saw Banksia). The habitat was similar at Providence Ponds, but *Pteridium esculentum* (Austral Bracken) was present in more recently-burnt areas. At Reeves Beach, New Holland Mouse was living in primary sand-dunes carrying tussocks of *Poa* sp. and *Ammophila arenaria* (Marram Grass) and in a *Lepidosperma* sedge-field overtopped by scattered *Acacia sophorae* (Coast Wattle), *Banksia integrifolia* (Coast Banksia), *Leptospermum laevigatum* (Coast Tea-tree), *Leucopogon parviflorus* (Coast Beard-heath), *Myoporum insulare* (Common Boobialla) and *Olearia* sp. In the Loch Sport area the vegetation was *B. serrata* / *E. willisii* woodland with a heath understorey, but the mouse also occurred in heath dominated by *L. myrsinoides*. On the Yanakie Isthmus the dunes carry a woodland of *Allocasuarina verticillata* (Drooping Sheoke) and *B. serrata*, with *L. laevigatum* and *M. insulare* also present over an open understorey of sedges and low shrubs. At Anglesea the habitat is open forest / woodland of *E. baxteri* (Brown Stringybark) with heath understorey.

The New Holland Mouse is nocturnal and constructs burrows in sandy soils for refuge (Kemper 1981, Pye 1991). Its diet consists principally of seeds (particularly of legumes) but insects and other invertebrates, leaves, flowers and fungi are also eaten (Cockburn 1980). Reproductive patterns for the species are reasonably well known. The oestrus cycle is 6 days and the gestation period about 32-39 days. First-year females can produce one litter per season and second-year females three or four litters. Litter size ranges from one to six, averaging 4.6, and young are suckled for three to four weeks. Births take place in the nest during the day. Sexual maturity is reached at 13 weeks for females and 20 weeks for males; when population density is low, a greater proportion of females mature early. Timing of breeding is related to abundance and quality of food (Kemper 1976, 1980), which in turn is related to rainfall patterns (Fox et al. 1993) and possibly to fire succession. Breeding usually occurs between August and January, but may extend into Autumn (Kemper 1976, 1980; Pye 1991; D. Carmen, pers. comm.). Kemper (1990) reported that wild female New Holland Mice lived up to two years of age; there is little information data for males.

Conservation Status

Current Status

CNR (1995) Endangered
ANZECC Proposed to be listed under *Endangered Species Protection Act 1992*

The New Holland Mouse has been listed as a threatened taxon on Schedule 2 of the Flora and Fauna Guarantee Act 1988.

Reasons for Conservation Status

The New Holland Mouse has a restricted range and occurs in disjunct populations in Victoria. The species is regarded as being under threat due to the alteration and loss of suitable habitat. This may have been caused initially by clearing but is now predominantly due to inappropriate prescribed fire frequencies, which result in unsuitable habitat. Predation by introduced feral carnivores (Red Fox and Cat) is a potential threat to the species.

Since its discovery in 1970, the species has been regarded as uncommon to rare in Victoria. Many sites at which it was once recorded no longer appear to support populations (Wilson 1993).

In its final recommendation the Scientific Advisory Committee (1991) determined that New Holland Mouse is:

- in a demonstrable state of decline which is likely to result in extinction; and
- very rare in terms of abundance or distribution.

Major Conservation Objectives

The major conservation objectives are to:

- prevent further decline of populations; and
- restore the existing distributional range of the species to its pre-European extent so that the New Holland Mouse can survive, flourish and retain its potential for evolutionary development in the wild.

In quantitative terms a target of five populations, each of at least 100 animals is desirable as a holding strategy. The long-term goal is to have a metapopulation with a 1% probability of extinction over 100 years, represented across the pre-European range of the species. (A metapopulation is the total population of a species, made up of all the separate populations that occur.)

Management Issues

Ecological Issues Specific to the Taxon

There is substantial evidence to indicate that, in some habitats, composition and diversity of the vegetation communities are important criteria in habitat selection for the New Holland Mouse (Opie 1983, Norton 1987, Wilson et al. 1990, Wilson 1991). Posamentier and Recher (1974) proposed that the optimum habitat for this species was heath which was actively regenerating after fire. The studies of Fox and McKay (1981) showed that New Holland Mouse populations survived wildfire and reached maximum abundance at 2-3 years post-fire. Coastal heath vegetation undergoing early to mid-successional regeneration as a result of habitat disturbances (e.g. fire, mining, clearing) appears to be preferred habitat in

many areas (Fox 1982, Braithwaite and Gullan 1978, Kemper 1976, Opie 1983, Wilson 1991). The capacity for New Holland Mouse to actively re-colonise such areas after disturbance is well-documented (Fox and Fox 1978, 1984; Wilson and Moloney 1985).

However, populations at Wilsons Promontory depart from this model. There, the habitat, on sand-dune systems, is much older, at least 20-30 years old, and population density of the mouse is higher than at most other Victorian sites.

However, those sites may be under threat from invasion by Coast Tea-tree *Leptospermum laevigatum* (Quin 1994). Restoration to native grassland - open woodland at some of these sites is underway (Quin 1994). Successional changes may also be occurring on Hummock Island, where the habitat is also coastal vegetation on sand-dunes.

Some populations of New Holland Mouse do not persist as vegetation ages (Wilson 1991). While this decline is related to successional changes in vegetation, it is not known whether it is due to loss of plant species diversity, loss of particular plant species, loss of low vegetation cover or a decline in productivity of the vegetation (Wilson 1991).

In later successional stages, competition with other rodents may be important (Fox and Pople 1984, Fox and Gullick 1989), but Cockburn (1980) believed that New Holland Mouse could exclude the House Mouse (*Mus musculus*) as a competitor for a granivorous diet.

Management procedures for maintaining preferred habitat have yet to be determined. It is probable that a mosaic of habitat and potential habitat will need to be maintained over adjacent areas.

There is inadequate knowledge of the diet of the New Holland Mouse in Victoria and how this relates to habitat requirements.

New Holland Mouse populations are small and localised. Opportunities for gene flow between major populations are probably non-existent because of the disjunct nature of the habitat, making the species susceptible to genetic isolation. Loss of the Anglesea population in particular could have a deleterious effect on the species' evolutionary potential, because this population has clearly been separated from those east of Port Phillip for many thousands of years. The size, stability and viability of existing populations are unknown.

A preliminary population viability analysis has been carried out using the computer modelling program VORTEX. Available population data, estimated migration rates and a 25% probability of catastrophe (wildfire or habitat clearance) were used in the model, thus allowing for patch (and hence population) destruction and recolonisation events on a realistic basis, simulated over a 25-year period. Probabilities of populations going extinct were about 11%. Those populations that did go extinct did so rapidly (1-3 years) but recolonisations were also rapid (0.6-2 years). The results suggest that the larger the number of suitable habitat patches, the better the chance of metapopulation survival (Myroniuk and Wilson 1991). Surveys at Loch Sport (Gippsland Lakes Coastal Park) in September 1978 (Norris et al. 1983) and in August 1992 (Wilson 1993) found the species to be at higher densities

and more consistently distributed than elsewhere in Victoria. Recent surveys at Yanakie Isthmus, Wilsons Promontory National Park have also revealed high densities and extensive distribution (Quin 1994, D. Carmen pers. comm.). Loch Sport and Yanakie Isthmus are the most important sites for New Holland Mouse in Victoria. The lack of recent records for New Holland Mouse at other, previously known, sites throughout South Gippsland may be related to unsuitable successional age of the vegetation rather than predation or natural mortality. The extent and mechanisms of dispersal of the New Holland Mouse are unknown. This information is needed to define distribution patterns, to allow the assessment of available refuge areas when habitat becomes unsuitable, and to enable long-term management to be properly planned.

Potential Threats to the Species

- Alteration and increasing fragmentation of habitat due to fire regimes which do not provide habitat patches of suitable successional age, size and distribution.
- Alteration of habitat due to weed invasion.
- Fragmentation and loss of habitat due to land developments and encroachment of housing.
- Infection of the habitat with Cinnamon Fungus *Phytophthora cinnamomi*. This pathogen has a significant foothold in the Anglesea area and has also been reported from the Gippsland Lakes Coastal Park. It has the potential to alter floristic diversity and structure. Its impact on available and potential habitat is yet to be determined, but the simplification of vegetation communities through the agency of Cinnamon Fungus will reduce dietary resources for New Holland Mouse.
- Predation by Cat, Dog and Red Fox.
- Competition from introduced rodents.

Wider Conservation Issues

Long-term persistence of this species will probably require well-planned fire management regimes within its habitat, throughout its range. Prescribed burning is currently conducted for a variety of reasons including protection of human life and property, and habitat management. Management for the New Holland Mouse should be incorporated into appropriate NRE fire protection plans. The New Holland Mouse occurs in association with other native mammals including the Brown Antechinus (*Antechinus stuartii*), White-footed Dunnart (*Sminthopsis leucopus*), Southern Brown Bandicoot (*Isodon obesulus*), Bush Rat (*Rattus fuscipes*), Swamp Rat (*Rattus lutreolus*) and Eastern Pygmy-possum (*Cercartetus nanus*). Activities such as prescribed burning may not always benefit these species, nor the many other vertebrates, invertebrates, plants and other organisms present. Nevertheless, regimes could be formulated to adequately cater for some specific requirements, given that there is sufficient area of habitat. Small-scale mosaic burns should not endanger other vertebrate species at a local level, and may benefit native plants.

Social and Economic Issues

As the New Holland Mouse occurs mostly on public land in Victoria, the social and economic issues associated with its

conservation relate mainly to public land management issues, in particular, fire (including public safety) and leasehold arrangements.

At Anglesea, the species is recorded from the Anglesea Flora Reserve and also from public land leased to Alcoa (Australia) and set aside for mining operations. The long-term mining strategy of Alcoa appears unlikely to have an impact on the existing sites where the New Holland Mouse has been recorded (Wilson 1991, Wilson et al. 1990). At the present rate of extraction it would be at least 75 years before mining operations threatened current known habitat.

Discussions will be held with Alcoa with a view to ensuring the long-term survival of the species on the leased area.

Wastewater disposal from the Anglesea treatment plant will be via an ocean outfall and the land-based outfall for Aireys Inlet Treatment Plant, commissioned in 1995, is inland of known New Holland Mouse sites (Barwon Water and Aireys Inlet Water Board, pers. comms 1995).

Strategies for the disposal of local wastewater from Anglesea and Aireys Inlet include land-based options to augment or replace ocean outfall. A number of potential sites have been identified throughout the region including a potential New Holland Mouse habitat site. A careful assessment of this site will be necessary before any decision is made about its use for wastewater disposal.

The heath and bushland surrounding Anglesea and Providence Ponds is a priority area for NRE fuel-reduction burning. This work is carried out principally to protect property and assets but may affect available habitat by modifying floristic structure and diversity. There exists a public concern about burning and a perception of aesthetic damage to the bush due to burning. Ecological requirements could be incorporated into such burning while maintaining the protective function of fuel-reduction burning.

Recreational activities such as horse-riding, four-wheel driving and trail-bike riding around habitat areas need to be carefully managed. These activities have the potential to modify, fragment or disturb suitable habitat through the formation of new tracks which facilitate the introduction of weeds, litter and predators, and which can alter drainage patterns causing erosion and changes to vegetation communities.

Predation by feral and domestic animals may have a large impact on local populations. Residents within and adjacent to areas of existing and potential habitat should be advised of the potential threat that unrestrained animals may have on native fauna in general and the New Holland Mouse in particular. For key sites, the banning or restraining of domestic animals through local legislation should be explored, under the provisions of the Domestic (Feral and Nuisance) Animals Act 1994.

The existing tip at Loch Sport could affect New Holland Mouse populations by attracting introduced predators and competitors, such as the House Mouse. Relocating this facility is desirable but costly. There may be conflicts with timber harvesting in the Mullundung State Forest.

Inappropriate management (broad-scale clearing, frequent burning) of the ESSO pipeline easement through Gippsland

Lakes Coastal Park may be a threat to population integrity through habitat alteration or the increase in access for predators.

Highway development at Providence Ponds could affect local habitat integrity.

Management Action

Previous Management Action

Research programs on the distribution of small mammals in Victoria have been undertaken by State Government departments, universities and others since the early 1960s. The recognition of the occurrence of New Holland Mouse in Victoria and the present understanding of the species' distribution is a result of such studies. In 1990 Deakin University received \$10,000 from the National Estate Grants Program to:

- review the current distribution and status of populations of the New Holland Mouse in Victoria; and
- identify the processes of habitat modification which threaten the species (e.g. fire regimes and clearing).

The results of this investigation are provided in Wilson (1993). At the same time, CNR staff at Yarram initiated surveys for New Holland Mouse at appropriate localities in Gippsland (Quin 1994). The recent status of each population is as follows:

Anglesea Flora Reserve

Five populations recorded from field studies in Anglesea during the period 1982-92 have apparently become extinct. Three 'new' populations were known to be extant from 1992 to 1995. Numbers at Anglesea Flora Reserve were higher in 1995 than previously recorded.

NRE's Anglesea office has commenced an assessment of the effects of trail bikes in the Anglesea habitat areas.

Providence Ponds Flora and Fauna Reserve

New Holland Mouse was first recorded at this locality in 1978 (Atlas of Victorian Wildlife). Trapping by Deakin University in 1991 did not capture New Holland Mouse. The Mammal Survey Group of Victoria trapped the species in April 1993 and again in April 1994, when 14 mice were captured. Recent trapping by Deakin University and the Mammal Survey Group of Victoria (MSGV) has confirmed the continuance of this population.

Gippsland Lakes Coastal Park (Loch Sport)

Four sites were trapped in 1990 and a single male New Holland Mouse was caught. Further trapping in May 1992 resulted in the capture of 20 animals at five sites. Trapping in August and December 1992 resulted in further captures, as did monitoring in 1996.

Reeves Beach (Nooramunga Marine and Coastal Park)

New Holland Mice were originally trapped at Reeves Beach in 1977 (Menkhorst, unpublished data). Thereafter, the species was studied extensively at that site by Cockburn (1980). In 1991, Deakin University trapped there, and the Fauna Survey Group of the Field Naturalists Club of Victoria (FCNV)

commenced a trapping program. No New Holland Mice have been captured and the species may be locally extinct. The vegetation at this site appears to be disturbed.

Hummock Is. (Nooramunga Marine and Coastal Park)

New Holland Mice were captured at the south-western point of this island in 1977 (Menkhorst, unpublished data). Some of the dunes at that point have eroded away and the nearest vegetated dunes carry unsuitable habitat. Trapping at three dune sites supporting vegetation similar to that reported in 1977 was unsuccessful in 1993 (NRE data). Additional trapping elsewhere on the island in 1991 had also been unsuccessful (FNCV/FSG data). New Holland Mice may be no longer present on this island.

Royal Botanic Gardens, Cranbourne

The most recent record for the New Holland Mouse at this site was in 1976. Subsequent trapping surveys in 1982-83 (see Lobert 1985), 1991 (Elias 1991) and 1993 (Thomson 1993), and hair-tube sampling in 1991 by Biosis Pty Ltd did not record the New Holland Mouse.

Langwarrin Flora and Fauna Reserve

New Holland Mouse was last captured at this site in 1983 (NRE data). More recent intensive surveys (Brereton et al. unpubl.; O'Neill 1991) did not capture New Holland Mouse. The heath at this site occurs in only small patches and does not appear to favour this species because of its age.

Tyabb

The most recent capture occurred in 1972 (FSG/FNCV data). No further captures have been confirmed; the most recent trapping was in 1992 (Wilson 1993). The area, which is privately owned, contains relatively old heath vegetation, which may not be suitable habitat.

Wilsons Promontory National Park

Following its discovery in 1971, New Holland Mouse was trapped north of Darby Swamp on Red Hill Track in 1973 (Hyett 1977) and in the vicinity of Five Mile Road in 1975 (MSGV data). A trapping program which targets potential heathland sites was begun in 1991 by FSG/FNCV. No New Holland Mice have been located. The Five Mile Road site was trapped by Deakin University in 1992, without success. The Red Hill Track site has been invaded by Coast Tea-tree; hair-tubing in 1993 did not detect New Holland Mouse (Quin 1994).

In 1993 New Holland Mouse was trapped at two sites in the north of Yanakie Isthmus (Quin 1994). In 1994 the species was trapped at a further 23 sites in the same area (NRE Yarram files).

Mullundung State Forest

New Holland Mice were captured at two sites in Mullundung State Forest in 1975 (Gillmore 1977). Surveys in 1992 by Deakin University recorded a single New Holland Mouse (Wilson 1993), but subsequent hair-tubing, scat analysis and trapping at 18 sites in the forest by Yarram

CNR in 1992-93 was unsuccessful. Much of the heath has been unburnt for over 10 yr and may be unsuitable habitat (Quin 1994). The identity of the Deakin specimen remains unconfirmed; measurements suggest that it may not have been New Holland Mouse.

Won Wron State Forest

The New Holland Mouse could not be found at five sites in Won Wron State forest in 1992. There are no historical records of New Holland Mouse from Won Wron State Forest and so, despite the proximity to Mullundung State Forest and the presence of apparently suitable habitat, the species may never have been present in that area.

NRE and Alcoa are jointly preparing a plan of management for this area.

Intended Management Action

Planning

- Initiate a Recovery Team consisting of representatives from Flora and Fauna Branch and relevant NRE Regions, researchers and interested bodies (e.g. Deakin University, Alcoa, Victorian National Parks Association, Zoological Parks and Gardens Board of Victoria).
- Negotiate an agreement with Alcoa to conserve the New Holland Mouse within the Anglesea leasehold, by appropriate habitat management.
- Produce a simple pamphlet to allow NRE staff and the public to distinguish the New Holland Mouse from the House Mouse.
- Advise Local Government about legislation and community education near New Holland Mouse sites at risk from Cat and Dog predation or interference, e.g. Mornington Peninsula, Anglesea, Loch Sport.
- Prepare management plans, particularly with respect to burning regimes, for the main sites.

Research

The Recovery Team should establish a timetable for coordinated research that reflects the priority needs for conservation of the species. These are:

- Investigate habitat and resource requirements so that critical habitat can be defined and identified. This will include investigation of diet and availability of dietary resources, movement and dispersal characteristics and population parameters that aid assessment of site carrying capacity.
- Devise experimental habitat restoration techniques, to include the establishment of trial mosaic burning plots, the setting of targets for age-class mosaics in different areas and mapping of degrading or ageing vegetation and the establishment of priorities for burning to improve its potential as habitat.
- Monitor populations and habitat at four current sites - Anglesea, Yanakie Isthmus, Providence Ponds and Loch Sport.
- Determine potential land-use conflicts at particular sites e.g. planned but inappropriate fire regimes, weed invasions, habitat alteration through clearing or vegetation

changes, housing sub-division development, and fungal infection.

- Survey for new sites and resurvey at previous sites to establish the status of each population and the metapopulation (NRE, Deakin University). This should include:
 - an assessment and mapping of vegetation bordering Ninety Mile Beach and ShallowInlet from aerial photographs, to detect potential habitat for ground survey; and
 - predictive modelling to determine other priority sites for survey.
- Analyse existing genetic material as soon as possible and collect additional material, so that maximum genetic variation can be preserved within the Victorian population. Compare Victorian populations with those in NSW and Tasmania.

Management

- Protect habitat at key sites, through control of fire, alienation, predation, spread of weeds and Cinnamon Fungus, and inappropriate uses.
- Collect improved ecological data so that Population Viability Analysis models can be refined to improve conservation projections for individual populations and the metapopulation.

A draft management plan has been prepared for The Lakes National Park and Gippsland Lakes Coastal Park. The draft will be released for public comment. The proposed conservation actions in the draft relating to New Holland Mouse are consistent with this Action Statement.

Other Desirable Management Actions

- Identify sites where re-introduction may be feasible and successful. Areas where the species formerly occurred, such as the Royal Botanic Gardens, Cranbourne, may be important options for consideration
- Investigate the desirability of captive breeding within a clearly defined re-introduction program.
- Determine the minimum viable colony size, for both wild populations and captive colony.

Legislative Powers Operating

Legislation

Catchment and Land Protection Act 1994 - provides for the integrated management and protection of catchments, including control of noxious weeds and pest animals.

Conservation Forests and Lands Act 1987 - provides for the management of public land under the Act, the co-ordination of legislation administered by CNR and for the preparation of codes of practice.

Country Fire Authority Act 1958 - provides for fire protection and suppression in country areas and requires that authorities take practical steps for the prevention of fires.

Crown Land (Reserves) Act 1978 - provides for reserving areas as public land and for making a specific reservation status for existing public land.

Domestic (Feral and Nuisance) Animals Act 1994 - provides for the control of cats and dogs at large in designated conservation areas.

Flora and Fauna Guarantee Act 1988 - provides for the protection of flora and fauna in Victoria and the declaration of critical habitat if so designated.

Forests Act 1978 - provides for the management of forests, and includes controls over the taking of forest produce.

Local Government Act 1958 - provides for local council by-laws and conservation regulations (e.g. permit requirement for land clearing).

Mineral Resources Development Act 1990 - provides for the management of mineral resources and includes controls over exploration and mining activities to minimise impacts on the environment.

National Parks Act 1975 - provides for the preservation, protection and management of natural areas and includes controls over taking native flora and fauna from parks.

Planning and Environment Act 1987 - provides for the protection of native vegetation through the State section, and for regional planning controls in all planning schemes.

Victorian Conservation Trust Act 1972 - provides for the establishment of conservation covenants on land titles.

Wildlife Act 1975 - provides for the management of wildlife (vertebrate animals other than fish, and Flora and Fauna Guarantee-listed invertebrates) and includes controls over the handling of protected wildlife. The status of the New Holland Mouse as protected wildlife makes the taking of it an offence under the Act unless an appropriate permit has been obtained.

Licence/Permit Conditions

All permits for mammal trapping are co-ordinated and issued by NRE Flora and Fauna Branch. Current permits to handle New Holland Mouse are held by NRE Flora and Fauna Branch, NRE Yarram, Deakin University, La Trobe University, the Fauna Survey Group of the Field Naturalists Club of Victoria and the Mammal Survey Group of Victoria.

Alcoa (Australia) mining at Anglesea is carried out under the Mines (Aluminium Agreement) Act 1961. In 1996-97 Alcoa and NRE are jointly preparing a management plan for the lease area .

Consultation and Community Participation

Deakin University will continue to undertake trapping surveys while funding continues. Funding has been sought to implement mapping of areas infected with *Phytophthora*.

Management prescriptions will be detailed in the Alcoa Lease and adjoining Public Lands Proposed Management Plan. This document is being prepared for public comment and will have input from various conservation groups and interest parties including Alcoa, NRE, local four-wheel drive clubs, local government and CFA.

Consultation will continue between Flora and Fauna Branch, Gippsland Region and Deakin University regarding the management of New Holland Mouse populations in South Gippsland, and with NRE Gippsland Region concerning the

Providence Ponds and Loch Sport populations. Consultation will continue within NRE concerning New Holland Mouse populations in those Regions. NRE will coordinate trapping surveys by FSG/FNCV and MSGV. Some interested landholders and residents of the Yarram and Foster areas assisted Yarram NRE with surveys for New Holland Mouse. Further community assistance is likely if appropriate publicity is implemented. A pamphlet containing a full and comparative description, and information about habitat requirements, threats, conservation status and contacts, will be prepared and distributed to the public.

Implementation, Evaluation and Review

The effectiveness of the management tasks in this Action Statement should be evaluated, and revised, if necessary, three years after the date of publication.

Contacts

Management

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Further information

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>

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