

# Flora & Fauna Guarantee Action Statement

#42

This Action Statement was first published in 1993 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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## Variegated (Ewen's) Pygmy Perch

### *Nannoperca variegata*



Variegated (Ewen's) Pygmy Perch  
(*Nannoperca variegata*)  
(Illustration by John Las Gourgues)



Distribution in Victoria (DSE 2002)

### Description and Distribution

The Variegated (Ewen's) Pygmy Perch (*Nannoperca variegata* Kuitert & Allen 1986), like other Australian pygmy perches, is a small, moderately compressed freshwater fish. The name Ewen's Pygmy Perch has been used to describe the species, but the species is becoming more commonly known as the Variegated Pygmy Perch. The latter name is more consistent with its scientific name, and will be used in this action statement.

The Variegated Pygmy Perch is 38-48 mm long and resembles the Southern Pygmy Perch (*Nannoperca australis* Gunther). Australian pygmy perches have a single, deeply-notched dorsal fin and an irregular lateral line that is generally not continuous along the body (Cadwallader & Backhouse 1983).

Kuitert & Allen (1986) fully described the Variegated Pygmy Perch in their classification of the group, together with an overview of the Australian pygmy perches. Their paper should be consulted for an

accurate description of the species and the identification of differences between these closely related taxa.

There are two other species of pygmy perch in Victoria. The Southern Pygmy Perch (*Nannoperca australis*) is considered common and widespread, but the Yarra Pygmy Perch (*Edelia obscura*) has also been listed under the Flora and Fauna Guarantee Act 1988.

According to current records, the Variegated Pygmy Perch is restricted to south-western Victoria and adjacent areas of south eastern South Australia. Despite intensive collecting efforts between 1983 and 1985, the species was found at only two localities; Glenaulin Creek (the type locality) at Winnap, Victoria, and Ewen's Ponds in South Australia (Kuitert & Allen 1986).

A 1990 survey of the waters in the Crawford River and Glenaulin Creek area undertaken by the then Department of Conservation and Environment identified seven locations where the species exists in tributaries of the Crawford River and Glenelg River. Three

locations were in Glenaulin Creek, near the location previously surveyed by Kuitert and Allen. It also appears that the population has returned to a healthy state in the streams feeding Ewen's Ponds.

## Conservation Status

### Current Status

Koehn & Morison (1990)	Endangered in Victoria
Jackson (1991)	Vulnerable in Australia
SAC (1991)	Threatened

The Variegated Pygmy Perch has been listed as a threatened species on Schedule 2 of the Flora and Fauna Guarantee Act 1988.

The classification of 'vulnerable' used by Jackson (1991) defines 'taxa which have suffered a population decline over all or most of their range, whether the causes of this decline are known or not, and which are in danger of extinction in the near future. Special management measures are required if the taxa are to continue to survive.'

### Reasons for Conservation Status

The species remains vulnerable to extinction due to its small and disjunct distribution, habitat disturbance, and lack of habitat which can be considered secure from disturbance.

The 1990 survey found the species at only seven sites from over 35 surveyed. The Crawford River and the Glenaulin Creek sites had the highest population densities, suggesting that these two streams are the most likely to hold a large and viable population. As only one or two specimens were collected at the other sites, the status of these sites and viability of these populations is less certain.

All populations of the Variegated Pygmy Perch in Victoria are in the Glenelg catchment but use only a small proportion of the total stream length. All known sites are within a 20-km radius of Glenaulin Creek.

Glenaulin Creek is bordered by private land for much of its length and is highly degraded, due mostly to the removal of riparian vegetation and clearing of adjacent land for agriculture. The sub-catchment of the Crawford River is used predominantly for agricultural purposes and forestry. Trampling of the stream bed by unrestrained stock is also likely to cause degradation of the Variegated Pygmy Perch's habitat. Other threats to the species include the presence of introduced predatory fish such as Rainbow Trout (*Oncorhynchus mykiss*), the alteration of temperature regimes, and sediment input to streams, all of which have been listed as potentially threatening processes under the Flora and Fauna Guarantee Act 1988.

In its final recommendations, the Scientific Advisory Committee (SAC 1991) determined that the Variegated Pygmy Perch is:

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

## Major Conservation Objectives

The major conservation objectives are to:

- improve the water quality in the catchment and the quality of existing riparian vegetation adjacent to the Crawford River and Glenaulin Creek;
- protect all known populations and take immediate action to ensure that suitable habitat is appropriately managed in at least three locations;
- rehabilitate streamside vegetation adjacent to private property by 1995; and
- improve water quality by developing catchment management and protection guidelines.

## Management Issues

### Ecological Issues Specific to the Taxon

The Variegated Pygmy Perch's survival rests with implementing catchment management for the Glenelg catchment, particularly Glenaulin Creek and the Crawford River, and maintaining and enhancing habitat within that catchment.

Little is known about the habitat requirements of the Variegated Pygmy Perch. There is also little known about the impact of potentially threatening processes such as increased sediment input, altered temperature regimes and the introduction of non-native fish. However, it is reasonable to infer from the threats to other small native fish that the major threats to the species come from destruction and alteration of habitat, and predation by non-native species.

The condition of the streams suggests that unrestricted access of stock to streams is seriously disturbing and degrading the streambed and stream banks. Fencing streambanks and providing protected watering points can benefit habitat as well as improve stock management. Incentives and farm planning advice should be used to achieve both objectives. The riparian strip is essential for maintaining a healthy stream fauna. Damage to stream habitat is also being inflicted by the (legal) taking of Glenelg River Crayfish (*Euastacus bispinosus*). The water quality requirements of the Variegated Pygmy Perch are unknown. However, processes which threaten to degrade the existing quality include the introduction of agricultural chemicals and increased sediment loads from private land and forestry operations within the catchment. Inflows that may adversely effect the water quality of the stream may also threaten the Variegated Pygmy Perch.

Forestry practices and farming operations should be assessed to predict possible conflicts with the protection of the stream and where possible arrangements that minimise or avoid the conflict should be sought. Adequate stream and filter buffers in different terrain and types of logging operations will need to be set.

The level of threat to the long-term viability of the Variegated Pygmy Perch posed by introduced fish species that are known to prey on small native fish needs to be assessed. Rainbow Trout, Brown Trout (*Salmo trutta*) and Redfin (*Perca fluviatilis*), which have been introduced for recreational fishing, are threats to small native fish (Koehn & Morison 1990). A widespread concern is that they may move up into the smaller tributaries such as Glenaulin Creek. Evidence seen during the recent surveys shows that this is already occurring.

The migration of trout into the Glenelg and the Crawford Rivers from stocking points further upstream is also of concern.

Fishing in the main rivers in south western Victoria is a substantial recreational activity and, in these waters, relies on both introduced and native species. The Glenelg and Crawford Rivers contain self-supporting populations of Redfin. While this is of concern for species such as Variegated Pygmy Perch, it is impossible to eliminate introduced predators without new techniques.

The predation of native fish by introduced species has yet to be formally accepted by angling clubs as a management concern. Consequently, requests to stock waters with trout and other non-indigenous species are still received by Portland Region of the Department of Conservation and Natural Resources (CNR), the managing authority. The issue has been raised in the management recommendations of the Land Conservation Council's Rivers and Streams Special Investigation (LCC 1991). The issue has also been raised in discussions with angling groups but they remain to be formally incorporated in management statements for waters where the Variegated Pygmy Perch occur.

Most of the lower reaches and the upper catchment of the Crawford River are private land or unreserved Crown Land. The reservation of areas could help protect the riparian vegetation and ensure the long-term viability of stream habitat. Priority also needs to be given to the protection of the stream habitat within the context of managing the Crawford River Regional Park.

To date, priority has been given to managing larger populations of the Variegated Pygmy Perch, which are also the most readily managed. However, because the processes which threaten the species are not fully understood and may continue unchecked for some time before detection, there is a need to survey and assess all populations and assign management priorities accordingly.

### Wider Conservation Implications

The achievement of the major conservation objectives will benefit other in-stream values and biota in the Region. The replanting and regeneration of native vegetation along the creek will reduce bank and stream erosion, and reduce flooding of low-lying land adjacent to the creek. These effects in turn should decrease the potential for salting and water logging, especially in the lower end of the catchment. The presence of the listed species Yarra Pygmy Perch in these and other local waters in the catchment means that the protection measures proposed will protect both listed taxon at the same time.

Retaining and revegetating streamside vegetation will extend and link areas of remnant vegetation which are often small, isolated and disjunct. Retaining vegetation and rehabilitating cleared banks of streams where the Pygmy Perch remains will provide an opportunity to establish a corridor between large blocks of native vegetation and the Glenelg River. The value this will have for other wildlife species will be substantial through the improvement of faunal movement corridors and the development of contiguous areas of habitat.

### Social and Economic Issues

Several important social and economic issues arise in protecting this species. The management actions mostly involve protecting habitat and water quality, which will require changes to land-use practices in the catchment. The protection of habitat on private land may improve farm management. Small areas may be lost to production and reducing unlimited access of stock to streams will require fencing and possibly the provision of alternative watering points. The development of whole farm plans and the development of a co-ordinated whole catchment management strategy will benefit landholders. The benefits flow not only from the greater efficiency in farm operation and management but in the greater level of production through the protection of land and resources such as streams. The capital input by farmers can be managed as a tax deductible investment. This can achieve the benefits of land protection and greater farm efficiency while at the same time protecting habitat for this threatened species. Contact with landholders has received a favourable response.

Cost-sharing arrangements for fencing high-priority areas will need to be negotiated with farmers to ensure that the objective is achieved. Existing incentive and extension programs will be used to encourage this activity. There may be a perception that the fencing of waterways will reduce productive area and the access to water for stock. Careful planning will ensure that these losses do not occur and that a net gain is realised in farm productivity through improved stock shelter and water quality.

Although local angling clubs still request stockings of local streams with introduced species, CNR has not approved trout releases in these areas in recent years. This has been based primarily on the marginal suitability of these waters for trout, and is now reinforced by the presence of the Variegated Pygmy Perch and the Yarra Pygmy Perch. CNR aims to protect the populations and habitat of several native fish species -Tupong (*Pseudaphritis urvillii*), Short-finned Eel (*Anguilla australis*) and Freshwater Blackfish (*Gadopsis marmoratus*)-which also improves the quality of angling for these species, which are popular with anglers. Co-ordinated local management by the Department and angling clubs will ensure that critical habitat and populations are protected.

### Management Action

#### Previous Management Actions

- Stocking of Rainbow Trout and Brown Trout was discontinued in the Crawford River after 28 years (1950-78) because the water was considered marginal habitat for these species. Requests for stocking since 1989 have been rejected due to the presence of the Variegated Pygmy Perch and other significant native fish populations.
- Stocking of Golden Perch was discontinued in most areas in the 1980s because of the threat this would pose to the Variegated Pigmy Perch and other native fish populations.

- Plans for softwood establishment in the upper reaches of the Glenaulin catchment were modified 1990 to minimise impact on streamside vegetation.

## During 1991 to 1992

- Logging coupes in the catchment were reviewed to minimise the impact on the Variegated Pygmy Perch from sediment inflow from logging operations.
- Hardwood Utilisation Plans were reviewed to increase streamside buffers so that siltation from logging operations would be minimised.
- Seismic exploration permits have been assessed with the aim of minimising the impact of line clearing and traversing on the vegetation of the catchment and the streams.
- Habitat works, including fencing, revegetation with indigenous species and some weed control were conducted to protect river frontage vegetation along the Crawford River, between the Crawford River Regional Park and the confluence with the Glenelg River, using the Commonwealth JobSkills program.
- Liaison with landholders on the Crawford River and the Glenaulin Creek has encouraged rehabilitation, revegetation and protection of stream frontages from stock. Some incentives were provided for specific works on private land.

## Intended Management Action

### Research, Survey and Monitoring

- CNR Portland Region and Freshwater Ecology Branch to survey and monitor the status of the species in known and possible locations in Victoria to determine changes to populations and likely threats to the fish at these sites.
- Liaise with South Australian National Parks and Wildlife Service to initiate surveys of South Australian waters, including the location at Ewen's Ponds.
- Survey other sites to identify suitable habitat with the consideration of developing other populations in the future if required.
- Begin the research phase for a recovery plan in 1993-94 with ANPWS funds (\$4500).

### Planning and Reservation

- Identify specific conservation objectives for streams and rivers within the area of the current distribution of the species and incorporate them into a management statement.
- Identify waters supporting Variegated Pygmy Perch which should be designated as Regional reference areas, including a section of the Crawford River within the Regional Park. Designation as a regional reference area will clarify the status of the area for the various interest groups and highlight its value in studying fluctuations in native fish numbers to be compared between sites.

## Habitat Protection on Private Land

- Initiate a program of habitat protection on private land in 1993, involving approximately 30 landholders. Areas targeted will be properties along the Glenaulin Creek and the Crawford River.
- Liaise with landholders to encourage habitat retention and restoration activities through Land for Wildlife, Landcare, Tree Victoria and Land Protection Incentives Scheme grants. Works to concentrate on:
  - fencing or other forms of stock management to protect aquatic habitat;
  - providing alternative stock watering points, or constructing well-protected access points to the creeks;
  - protecting the remaining riparian vegetation in sub-catchments where the Pygmy Perch occur; and
  - revegetating and rehabilitating the riparian zone and areas in the catchment which are sediment sources for the creeks.
- Target grants for land protection works at riparian vegetation protection and enhancement in areas important for Variegated Pygmy Perch.
- Investigate cost-sharing arrangements for fencing works with farmers.

## Management of Recreation Fishing

- Prepare policy to prevent any stocking of introduced or non-indigenous fish into the waters of the Glenelg River below Casterton, the length of the Glenaulin Creek, and the Crawford River below Dartmoor. Monitor movement of the Trout released in the Glenelg River and Crawford River through techniques such as fin-clipping or tagging.
- Assess, by 1994, the use of bait nets, as permitted by the Fishing Regulations, to determine the impact on the Variegated Pygmy Perch.
- Liaise with local angling groups to encourage protection of Variegated Pygmy Perch habitat and populations.

## Forestry Operations

- Continue to plan the softwood and hardwood logging activities in co-ordination with the Ecological Management Unit of the Portland Region to avoid threats to the fish populations. The guidelines in the Code of Forest Practice will be strictly adhered to as a minimum set of standards and increased where required to ensure protection of the habitat. In addition, where harvesting occurs, a buffer of 40 metres from the extended bank will be established to protect streams. Drainage lines will be protected by minimising crossings and disturbance during log removal and falling. Construction of stream crossings and proposed works within streams will be planned so as to minimise sedimentation and point-source pollution.

## Other Works

- Other developments in the area and applications to conduct works or activities in the subcatchments which support Variegated Pygmy Perch habitat will be assessed by the CNR to minimise impacts on the species. Actions likely to pose a threat to the species will be prevented or modified.

## Liaison and Extension

- Landholders, angling clubs and local community groups will be consulted and involved in improving management of these areas.

## Other Desirable Management Actions

CNR will aim to:

- Identify the planning issues involved in protecting this species. This will be addressed with the development of a management statement for the Crawford River State Park.
- Produce whole catchment plans for the Crawford River and Glenaulin Creek catchments. Issues addressed will include the use of agricultural chemicals and their introduction to waterways; sedimentation of creeks; and protection and maintenance of a continuous corridor of riparian vegetation. Encourage whole catchment management and whole-farm planning principles and practices will be encouraged through the extension activities associated with the Land Protection Schemes in the Portland Region.
- Reassess the forestry and fire protection activities in the catchment to ensure that harvesting or burning programs do not have a negative impact on the habitat of this species.
- Determine whether crayfish collecting activities are damaging Variegated Pygmy Perch habitat.
- Work towards ensuring that local angling groups accept that predation by Trout and other non-indigenous fish is an issue of concern, and that they take this into account in their requests to CNR to stock waters with non-indigenous species.

## Legislative Powers Operating

### Legislation

Flora and Fauna Guarantee Act 1988: provides for the protection of listed species and the declaration of critical habitat.

Forests Act 1958: provides for the management of State forests.

Land Conservation Act 1970: provides for the determination of best uses and reservation of Crown Land.

Planning and Environment Act 1987: provides for the protection of native vegetation through the State Section of all planning schemes.

Conservation, Forests and Lands Act 1985: provides for the proper management of public land and co-ordination of

legislation administered by CNR and codes of practice e.g. Code of Forest Practice.

Vermin and Noxious Weeds Act 1958: provides for the control of pest plants and animals on public and private land.

Crown Land (Reserves) Act 1978: provides for the creation and protection of reserves on public land.

National Parks Act 1975: provides for the reservation, protection and management of national parks.

Wildlife Act 1975: provides controls on the taking and keeping of protected wildlife.

Fisheries Act 1968: provides controls for the management of fisheries.

## Licence/Permit Conditions

Stocking with introduced fish or non-indigenous species in the adjacent areas of the Glenelg River and the whole of the Crawford River should not be allowed due to the conflict between these introduced fish and small native fish such as the Variegated Pygmy Perch (Koehn & Morison 1990).

Taking, trading or keeping this species is prohibited without a licence under the Flora and Fauna Guarantee Act 1988 or an authorisation by Order of the Governor-in-Council. No collection of this species will be allowed under commercial, private or scientific permit unless some benefit to the management of the species can be identified. As the population is endangered, no collection will be permitted unless a benefit can be shown and is required for the management of the species.

## Consultation and Community Participation

CNR will seek to:

- involve all landholders in the catchment in the protection of the species. This will include both private farmers and a number of Government departments such as CNR and VicRoads;
- encourage the development of a Landcare group in the area to foster support for the protection of riparian vegetation and the management of land degradation associated with clearing and erosion; and
- inform local conservation groups and naturalist groups of the status of the species so that they may become aware of the importance of small areas of streams on private land.

## Implementation, Evaluation and Review

The Regional Manager of the Portland Region will be responsible for overseeing the implementation of this action statement. The Flora and Fauna Officer will be responsible for on-ground works, liaising with landholders and local groups, and evaluating the effectiveness of the action statement.

Advice on management of the habitat and the species will be sought from biologists. Survey assistance will be provided by the Freshwater Ecology Section of Flora and Fauna Branch with the aim of training regional staff in the survey methodology for future monitoring and assessment.

Review of the action statement will be undertaken by both Regional and Freshwater Ecology Section staff in September 1995. This review should be carried out by field inspection and by a formal review meeting in the Region. This will enable the

review to analyse the achievements and the problems encountered in the program and to identify strategies and opportunities for the future.

## **Contacts**

### ***Biology***

Freshwater Ecology Section, Flora and Fauna Branch.

### ***Management***

Flora and Fauna Guarantee Officer, Portland.

## Compiler

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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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