

Action Statement

Flora and Fauna Guarantee Act 1988

No. 115

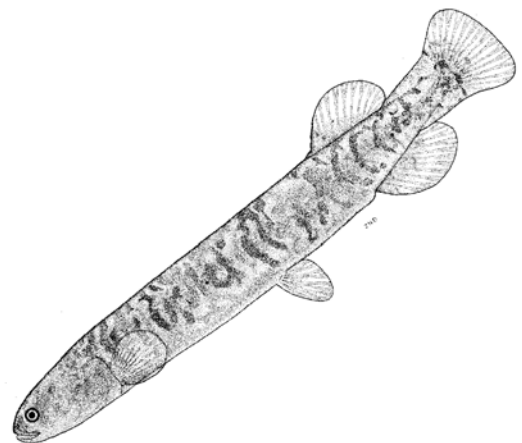
Australian Mudfish *Neochanna cleaveri*

Description and distribution

The Australian Mudfish, *Neochanna cleaveri* (Scott 1934) is a small scaleless, tubular fish. The head is short, rounded and broad with small eyes. Fins have fleshy bases and are generally rounded. The dorsal fin is situated well back and above the anal fin. The colour of the adult is greenish brown, brown or blackish above changing to grey or greyish green below. It can be distinguished from other *Galaxias* by small pelvic fins, very small eyes and large tubular nostrils. Adults are usually about 80mm in length but can reach 140mm (McDowall 1980). The species was previously known as the Tasmanian Mudfish *Galaxias cleaveri* (McDowall 1997, Waters 1997)

The Australian Mudfish has a patchy distribution in coastal areas of northern, southern and western Tasmania (Merrick & Schmida 1984). In Victoria it has been recorded from the south east side of Wilsons Promontory, the Yarra River below Dights Falls near Melbourne, Wye River and Glen Aire within the Otway Ranges (Koehn and Raadik 1991) and the Barwon River near Geelong (NRE Aquatic Fauna Database). The taxon has been recorded from one location on a small swampy tributary of Freshwater Creek on the south-eastern side of Wilsons Promontory on two occasions in 1980 (Jackson and Davies 1982).

In November 1992 one juvenile Mudfish was found among approximately 3 000 galaxiid whitebait samples during a survey on the impact of Dights Fall Barrier (Tarmo Raadik pers. comm.). In 1990 eleven specimens were collected from three sites on private land in the Aire and Calder River valleys (Glen Aire) (Koehn & Raadik 1991), 35km west of the locality on the Wye River where the species was recorded by Koehn & O'Connor 1990.



Australian Mudfish *Neochanna cleaveri*
(Actual size - up to 14cm)

(illustration by Jeff Davies from Jackson & Davies 1983)



Distribution in Victoria

+ before 1970, ■ since 1970

[source: Victorian Fish Database, NRE 2000a]

An adult Mudfish was located in a small drain leading to the Barwon River on the Belmont Common in September 1998 (Tarmo Raadik pers. comm.).

The location of specimens at three sites on private land and no records from public land at Glen Aire does not necessarily reflect the distribution of the taxa across these land categories. Much of the potential habitat on public land is relatively inaccessible and will require considerable survey time and effort. Surveys on public land are required to ascertain the relative importance of such areas to the species conservation at Glen Aire.

Current conservation status

NRE (2000) endangered (Vic.)

SAC (1991) threatened (Vic.)

The Australian Mudfish has been listed as a threatened taxon under the **Flora and Fauna Guarantee Act 1988**. Australian Mudfish have been located at only seven sites in Victoria. A total of 29 adult specimens have been found: at two sites in Wilson's Promontory; the Yarra River; Belmont Commons; and; at four locations in the Otway Ranges. Three of these sites have been discovered in the Otway Ranges west of Cape Otway (SAC 1991). Large areas of suitable wetland habitat have been lost due to drainage and development. Wetlands of the type suitable as Mudfish habitat have declined by 99% in South Gippsland (Koehn & Raadik 1991). Draining, clearing of swamps and stock access to habitat still remain a threat and can result in habitat degradation. Introduction of exotic species, application of herbicides and fertilisers may cause a significant threat to the health of habitat and continuation of species (SAC 1991).

Major conservation objectives

- To protect and enhance known populations and their habitat. To ensure the long term viability of Australian Mudfish through habitat protection and enhancement particularly at Glen Aire and Wilsons Promontory.
- To determine the location of any new sites containing populations of Australian Mudfish and provide protection for any new populations found.
- Protect and restore habitat at locations likely to have previously supported populations of Australian Mudfish.

Decline and threats

Wetland drainage and further degradation of wetland habitat is likely to remain a threat to Australian Mudfish. Habitat on public land in the Glen Aire area is contiguous with wetland systems

on private land so management impacts are likely to be transferred across private and Crown land boundaries. Wetlands on other public land require protection as Australian Mudfish habitat (for example, Barwon Common).

Upstream Barriers, either natural or artificial, could limit fish access to suitable swampy habitat. Fish ladders, whilst efficient with normal water flow, may not work 100% during high or low water flow.

Survey is difficult due to the nature of the species habitat and the cryptic nature of the fish. Electro-fishing has been used successfully and enables release of fish after collection and identification. Use of this technique is likely to be the best available but will require a significant amount of time to conduct surveys. Removal of quantities of aquatic vegetation to aid sampling may be necessary in small isolated patches although this may impact on its preferred habitat.

Predation from exotic fish such as Brown Trout *Salmo trutta* may also impact on population size and therefore viability. No stockings of exotic species such as Brown and Rainbow Trout *Oncorhynchus mykiss*, or Redfin *Perca fluviatilis* should be allowed in Mudfish streams or catchments.

The breeding ecology of the taxon is not well known. It appears spawning occurs in the winter (Koehn and Raadik 1991). The spawning sites in Victoria are unknown. It is likely that juveniles spend at least part of their early life at sea and return to freshwater at approximately two months of age (Koehn and Raadik 1991). Artificial manipulation of estuarine water levels by opening the mouth of the river to drain low lying land for cattle grazing in the Glen Aire system may have an adverse impact on its life cycle.

The species is capable of at least partial aestivation (Koehn and Raadik 1991) and is therefore likely to survive some natural drying of its wetland habitat. This should be considered in management of billabongs and isolated swamps. Temporary exclusion of stock during summer months will avoid trampling of fish and maintain suitable habitat.

The preferred habitat of the fish contains dense aquatic or inundated terrestrial vegetation and a mud or silt substrate. Maintenance of these characteristics is necessary. One specimen has been collected from a recently excavated drain with little vegetation, however, it is likely that the fish were recolonising the area as vegetation re-established. In this case dense vegetation had re-established within four months (Koehn & Raadik 1991).

Wider Conservation Issues

The Aire River system and associated wetlands contain a variety of aquatic habitats and a high diversity of fauna. The Aire River has been listed as a Heritage River (LCC 1991). Land Conservation Council (LCC) approved recommendations for the Aire River include protection of Australian Mudfish habitat and native fish diversity. The estuary and wetland system is an important fish nursery. Estuarine wetlands play a key role in the life of many fish including Black Bream *Acanthopagrus butcheri*, Yellow-eye Mullet *Aldrichetta forsteri*, Short Finned Eels *Anquilla australis*, Common Galaxias *Galaxias maculatus* and Estuary Perch *Macquaria colonorum*.

Fencing to exclude stock may be difficult or inconvenient to landholders in many cases, particularly where habitat occurs in isolated swamps or billabongs within pasture paddocks. Temporary electric fences could be used to exclude stock from receding ephemeral wetlands where aestivating fish are likely to be at risk from trampling.

A number of other fish species have been recorded in association with Australian Mudfish. In habitat surveyed in Victoria associated *Galaxias* are free swimming, whereas Australian Mudfish are benthic therefore protection of the whole riverine habitat is necessary to conserve the whole aquatic community (Koehn and Raadik 1991).

Previous management action

Surveys have been conducted at a number of locations containing suitable habitat. In 1980, 15 specimens were captured at Freshwater Creek, Wilsons Promontory (Jackson & Davies 1982). In 1983 one specimen was recorded from Wye River (Koehn & O'Connor 1990a). In 1990 eleven specimens were collected from three sites in the Aire and Calder river valleys (Koehn and Raadik 1991).

Research efforts have consisted of studying aestivation behaviour under captive, controlled conditions and collection of information from specimens captured during surveys (Koehn & Raadik 1991). No management has been undertaken to determine accurately the distribution and abundance of the Australian Mudfish.

Potential habitat has been protected on public land at Glen Aire by excluding grazing from the Lake Horden Wildlife Reserve and by some fencing of permanently reserved river frontage on the west bank of the Aire River between the Ocean Road and Lake Horden.

Under the **Heritage River Act 1992** the heritage river corridor of the Aire River is to be retained

free from impoundments, artificial barriers, or structures that impede in-stream fauna unless agreed to by the Governor in Council and any new diversions of water are only to be permitted if their volumes, timing and off-take do not significantly impair native fish habitat conditions.

Intended management action

Research, survey and monitoring

1. Conduct research into the life cycle of Australian Mudfish. Specifically determine more precisely the sequence and timing of events, and what adaptability the fish may have to environmental variations.

Responsibility: NRE (PFF)

2. Undertake intensive, targeted surveys at Wilsons Promontory, Yarra River, Belmont Commons and Wye River and Glen Aire for Australian Mudfish.

Responsibility: NRE (PFF), Parks Victoria

3. Identify appropriate habitat in data gap areas and conduct targeted surveys for Australian Mudfish, for example, between Geelong and Melbourne, Melbourne and Wilsons Promontory.

Responsibility: NRE (PFF)

Habitat Protection

4. Continue to liaise with landholders to protect Australian Mudfish habitat on private land, especially protection and restoration of streamside vegetation. Provide information and advice to landholders as appropriate, including opportunities for assistance via grants programs, etc.

Responsibility: NRE (SW Region), Corangamite Catchment Management Authority

5. Negotiate with the Committee of Management (City of Greater Geelong) to secure habitat on public land in Barwon Common.

Responsibility: NRE (Port Phillip Region)

6. Where possible, include Australian Mudfish protection areas in Local Government Planning Schemes under Victorian Planning Provisions through the use of Environmentally Significant Overlays.

Responsibility: NRE (SW Region, Port Phillip Region, Gippsland Region), relevant local government authorities

7. Fence remaining permanently reserved river frontage on the west bank of the Aire River between the Ocean Road and Lake Horden. The general area in which the species occurs at Glen Aire contains a complex layout of land

parcels of various status and tenure. There are a number of continuing planning and conservation issues which need to be linked in with actions for the Australian Mudfish.

Responsibility: NRE (SW Region), adjoining landholders

8. Protect Wilsons Promontory site from all forms of heavy machinery used for the purpose of fire protection works.

Responsibility: Parks Victoria

Education

9. Prepare, display and distribute information on Australian Mudfish, including brochures and displays. Include information on Australian Mudfish in general information and extension materials prepared for relevant areas, including Wilsons Promontory National Park and Glen Aire.

Responsibility: NRE (PFF, Regions), Parks Victoria

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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>

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