

Action Statement

Flora and Fauna Guarantee Act 1988

No. 3 (revised in 2000)

Dandenong Freshwater Amphipod *Austrogammarus australis*

Description and distribution

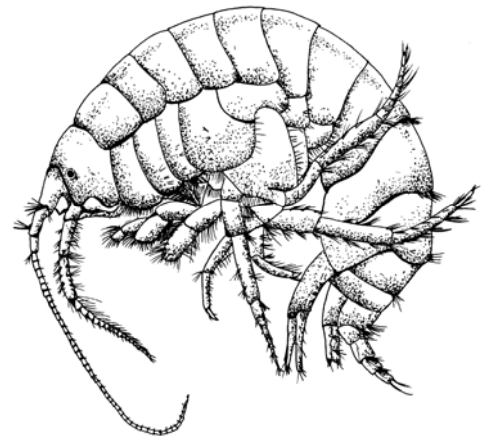
Amphipods are small, laterally flattened crustaceans, growing to between 1 and 1.65cm long (Williams 1980). The Dandenong Freshwater Amphipod, *Austrogammarus australis* Sayce 1901 (Amphipoda: Paramelitidae), was first described by Sayce (1901) and re-described by Williams & Barnard (1988).

The amphipod was originally described from creeks in the foothills of the Dandenong Ranges: in Dandenong Creek near Bayswater (the type locality); in a tributary of Monbulk Creek; and in a gully halfway to Sassafras (Williams & Barnard 1988). The type locality, Dandenong Creek, has been heavily modified, and now functions as an urban stormwater drain (Horwitz 1990). The exact location of the second record is unknown, but is probably in Sassafras Creek.

Attempts in the 1980s to collect the amphipod at its type locality were unsuccessful (Williams & Barnard 1988), leading to the belief that it was presumably extinct. An Action Statement under the **Flora and Fauna Guarantee Act 1988** was produced in 1991 (DCE 1991a).

The major action under that Action Statement was to 'Survey creeks draining the Dandenong Ranges to determine whether the species still exists in the area'.

A survey of 46 sites in the Dandenong Ranges was subsequently conducted in 1995, specifically for the Dandenong Amphipod (Doeg *et al.* 1996). The species was located at nine sites in the upper reaches of the Olinda, Dandenong and Monbulk Creeks.



Dandenong Freshwater Amphipod
Austrogammarus australis
(illustration by John Las Gourgues x 8 approx.)



Distribution in Victoria
[+ before 1901, ■ since 1901]
[source: *Atlas of Victorian Wildlife*, NRE 1998]

A second survey was conducted for the amphipod and *A. haasei* (a second less common species) in 1999 (Papas *et al.* 1999). The Dandenong Amphipod was found at 12 sites, in the upper reaches of Dandenong, Sassafras, Emerald and Monbulk Creeks.

Current conservation status

Horwitz (1990).....presumed extinct (Aust.)

The Dandenong Freshwater Amphipod has been listed as a threatened taxon in Schedule 2 of the **Flora and Fauna Guarantee Act 1988**.

Note that the Horwitz (1990) status was produced prior to the most recent survey. Following the rediscovery of the taxon, CNR (1995) revised the conservation of the species from Presumed Extinct (CNR 1993) to Insufficiently Known (suspected rare, vulnerable or endangered). The Dandenong Freshwater Amphipod has a very restricted distribution in Victoria. Until recent surveys, it had not been collected since 1911. The type locality has been heavily modified and many other creeks in the vicinity have been degraded as a result of urban development. In its final recommendation (SAC 1991), the Scientific Advisory Committee determined that the Dandenong Freshwater Amphipod:

- may be extinct, as it is known to have occurred in Victoria after European settlement and has not been sighted in the state for 40 years; and
- is rare in terms of distribution or abundance.

Note that the SAC (1991) final recommendation was produced prior to the most recent survey.

Major Conservation Objective

The major objectives are to:

- determine the conservation status of the species and, if rare, vulnerable or endangered, to prevent further decline in the range of the species;
- refine the knowledge of the ecological requirements of the species;
- protect the current known sites from deleterious activities; and
- identify and manage likely threats to the survival and evolutionary development of the species and its habitat.

Management Issues

Ecological issues specific to the taxon

The species still exists in a number of headwater creeks in the Dandenong Ranges. The range of the species has clearly declined since 1911, being absent from the type locality and Sassafras Creek.

It is unknown whether the population has stabilised, or is subject to further decline. Recent information from Papas *et al.* (1999) suggests the known range of the species has increased slightly. It is not known, however, if the species is present in neighbouring areas of similar habitat.

Little is known of the specific ecological requirements of the species. The creeks in which it currently exists have been retained in good condition, particularly those in the Dandenong Ranges National Park. These all had native riparian vegetation with a relatively closed canopy with greater than 75% shading (Doeg *et al.* 1996). Papas *et al.* (1999) found most amphipods amongst indigenous organic debris and stressed the importance of indigenous riparian vegetation in supplying this organic load to the stream. The species was absent from, or not recorded at, other sites with similar riparian flora and stream beds, possibly due to other factors such as silt contained in road runoff or nutrient contamination from sillage.

There is a need to further refine knowledge of the ecological requirements of the species. This will assist in identifying key components of the stream environment that need protection and may identify other areas where remediation works will allow the species to recolonise and expand the current range.

Wider conservation issues

Conservation of the species will involve protecting key in-stream and riparian habitat elements, which will also protect the environmental qualities of the creeks. This will assist in the protection of other stream fauna, including a wide variety of invertebrates and some fish species.

Protection of the in-stream and riparian environments will also assist in the conservation of a recently listed amphipod *Austrogammarus haasei*, found in Sherbrooke Creek, Hardy Creek, Clematis Creek and Sassafras Creek in the Dandenong Ranges.

Previous Management Action

The creation of the Dandenong Ranges National Park in 1987 (although the park is an amalgamation of forest reserves and the Fern Tree Gully National Park created in 1927) has allowed some creeks to be retained in a relatively good condition, and thus some habitat suitable for the amphipod has survived.

A survey in 1995 (Doeg *et al.* 1996) established the continued existence of the species. This survey along with Papas *et al.* (1999) defined its known range.

In 1996, a public talk in the City of Knox by T. Doeg and a local newspaper article raised awareness of the species.

A variety of on-going management actions in the Dandenong Ranges outlined in the Dandenong Ranges National Park Management Plan (DCE 1991b) such as track restoration, road and sewer drainage improvements are likely to add to the protection and improvement of the habitat for the species.

A working party comprising Yarra Valley Water, Melbourne Water, NRE, Parks Victoria, Shire of Yarra Ranges, City of Knox and the Victorian EPA has been established to assist in the protection of the species.

Intended Management Action

Determination of Conservation Status

1. Staff of NRE's Arthur Rylah Institute will periodically survey all sites to monitor the distribution of the species. Conduct sampling in neighbouring areas of similar habitat to determine more accurately the range of the species.

Protection of the species

2. By collecting habitat data in conjunction with Action 1, NRE will increase knowledge of the ecological requirements of the species. NRE Parks, Flora and Fauna Division will consult with and advise relevant local authorities e.g. City of Knox, Shire of Yarra Ranges, VicRoads, Melbourne Water, Parks Victoria and the Victorian EPA of the presence of the Dandenong Amphipod, its ecological requirements and the importance of maintaining healthy native riparian vegetation; and reducing road and track run-off (sediment, toxicants and nutrients).

Other Desirable Management Action

Information and Public Awareness

NRE's Arthur Rylah Institute will endeavour to publish a Technical Report on the 1995 and 1999 surveys and conduct public seminars on the findings of the 1999 survey.

References

- CNR (1993) *Threatened Fauna in Victoria - 1993*. Department of Conservation and Natural Resources, Melbourne.
- CNR (1995) *Threatened Fauna in Victoria - 1995*. Department of Conservation and Natural Resources, Melbourne.
- DCE (1991a) Dandenong Freshwater Amphipod *Austrogammarus australis*. Action Statement No. 3. Department of Conservation and Environment, Melbourne.

DCE (1991b) *Dandenong Ranges National Park Management Plan*. Department of Conservation and Environment, Melbourne.

Doeg, T. J., Tsyrlin, E. & Van Praagh, B. (1996) A survey for the Dandenong Freshwater Amphipod *Austrogammarus australis* (Sayce). Freshwater Ecology Section, Flora and Fauna Branch. Department of Natural Resources and Environment, Melbourne (unpublished).

Horwitz, P. (1990) The conservation status of Australian freshwater crustacea. *Report No. 14*, Australian National Parks and Wildlife Service, Canberra.

NRE (1998) *Atlas of Victorian Wildlife* (electronic fauna database). Department of Natural Resources and Environment, Heidelberg.

Papas, P. J., Crowther, D. & Kefford, B. J. (1999) Second survey for the Dandenong Freshwater Amphipod *Austrogammarus australis* (Sayce) with observations on the effect of the William Ricketts Sanctuary carpark oil spill on the amphipod. Freshwater Ecology, Parks, Flora and Fauna. Department of Natural Resources and Environment: Heidelberg.

SAC (1991) Final recommendation on a nomination for listing: Dandenong Freshwater Amphipod *Austrogammarus australis* (Nomination No. 126). Flora and Fauna Guarantee. Department of Conservation and Natural Resources.

Sayce, O. A. (1901) Description of some new Victorian freshwater Amphipoda. *Proc. Roy. Soc. Vic.* 13: 225-42.

Williams, W. D. (1980) *Australian Freshwater Life*. Macmillan, Melbourne.

Williams, W. D. & Barnard, J. L. (1988) The taxonomy of crangonyctoid Amphipoda (Crustacea) from Australian freshwaters: foundation studies. *Records of the Australian Museum, Supplement No. 10*.

Compiled by Tim Doeg and Phil Papas, Arthur Rylah Institute, Department of Natural Resources and Environment.

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 prepared under section 19 of the Flora and Fauna Guarantee Act 1988 under delegation from Chloe Munro, Secretary, Department of Natural Resources and Environment, July 2000.

© The State of Victoria, Department of Sustainability and Environment, 2003

Published by the Department of Sustainability and Environment, Victoria. 8 Nicholson Street, East Melbourne, Victoria 3002 Australia

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

ISSN 1448-9902