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Endangered ecological communities in NSW

Lowland Darling River aquatic ecological community

Threatened Species Unit

Fisheries Conservation and Aquaculture Branch, Port Stephens Fisheries Centre

Introduction

The aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River has been greatly modified since European settlement, through activities such as river regulation, the introduction of non-native species, agricultural practices and over-fishing. Many aquatic habitats are now degraded, and many native species have experienced declines in their numbers and distribution – some to the point where they are now listed as threatened.

This ecological community is listed as an **endangered ecological community** in NSW, meaning that it is likely to become extinct in nature in this state, unless the circumstances and factors threatening its survival and evolutionary development cease to operate.

The listing of the lowland Darling River aquatic ecological community has several legal implications, including the establishment of heavy penalties for harming (without appropriate authority) species or habitats that form part of the community (see 'Legal implications').

Potential impacts on the ecological community must be considered during development assessment processes, and NSW Department of Primary Industries may prepare a recovery plan for the community.

Description

The aquatic ecological community of the lowland Darling River includes all native fish and aquatic invertebrates within all natural creeks, rivers, streams and associated lagoons, billabongs, lakes, anabranches, flow diversions to anabranches and floodplains of the Darling River within NSW. The listing includes:

- the Menindee Lakes
- the Barwon River
- the main Barwon-Darling channel from Mungindi (Qld-NSW border) to the convergence with the Murray River
- the arid zone intermittent intersection streams (Warrego, Culgoa, and Narran rivers)
- the border rivers (Macintyre, Severn and Dumaresq rivers)
- the regulated tributaries (Gwydir, Namoi, Macquarie, Castlereagh, and Bogan rivers).

Artificial canals, water distribution and drainage works, farm dams and off-stream reservoirs are excluded from the aquatic ecological community.

The community has a diverse assemblage of native species, including 21 native fish species and hundreds of species of native invertebrates, many of which have not been comprehensively studied.

Habitat and ecology

The Darling River aquatic ecological community

Darling River, upstream of Menindee. Photo: Mark Hauser, NSW DPI

occurs in a lowland riverine environment, characterised by meandering channels and a variety of habitats, including deep channels, pools, wetlands, gravel beds and flood plains.

The complex river morphology provides a multitude of habitats that play a critical role in the life cycles of the species comprising the community.

In their natural state, many of the water bodies in this area are characterised by variable and unpredictable patterns of high and low flows. This variability in environmental conditions has led to adaptations in native aquatic flora and fauna; for example, many fish species rely on the seasonal flow pattern to trigger spawning and create suitable breeding habitats.

The lowland Darling River provides a wide range of habitats for fish and invertebrates, including pools, runs or riffles, backwaters and billabongs, in-stream woody habitats and aquatic plants.

The floodplains also provide a mosaic of habitat types, including permanent and temporary wetlands, as well as terrestrial habitats.

Why is the aquatic ecological community threatened?

- Modification of natural flows as a result of river regulation (dams, weirs etc.), leading to reduced habitat quality and complexity, loss of spawning cues, and reduced opportunities for dispersal and migration of aquatic species.
- Spawning failures and habitat loss resulting from cold water releases from dams.
- Degradation of the riparian (riverbank) zone through clearing of native vegetation and stock trampling, leading to loss of shelter and increased sedimentation. Clearing of floodplain vegetation for agriculture also increases sedimentation, and reduces carbon inputs to the river, which are an important food source for in-stream invertebrates.
- Removal of in-stream large woody debris, which is an important habitat component and territory marker for many fish and invertebrates.
- Predation, competition, diseases and habitat modification associated with introduced fish species, such as carp, goldfish, redfin perch, mosquitofish and the snail *Physa acuta*.
- Agricultural practices, such as irrigation, clearing, grazing and the use of fertilisers and pesticides, which affect water quality.
- Over-fishing has probably contributed to declines in some fish species, such as Murray cod and golden perch. Illegal fishing activities, together with hooking injuries in accidentally caught fish, still pose a threat to some species.
- Five native finfish species in the community are listed as threatened species: olive perchlet, purple spotted gudgeon, southern pygmy perch, silver perch and trout cod. Serious declines in at least two other finfish species (eel tailed catfish and river blackfish) have been documented. One invertebrate, the river snail, is listed as endangered.

Illegal fishing activities are a threat to the EEC and should be reported to Fishers Watch on ph: 1800 043 536

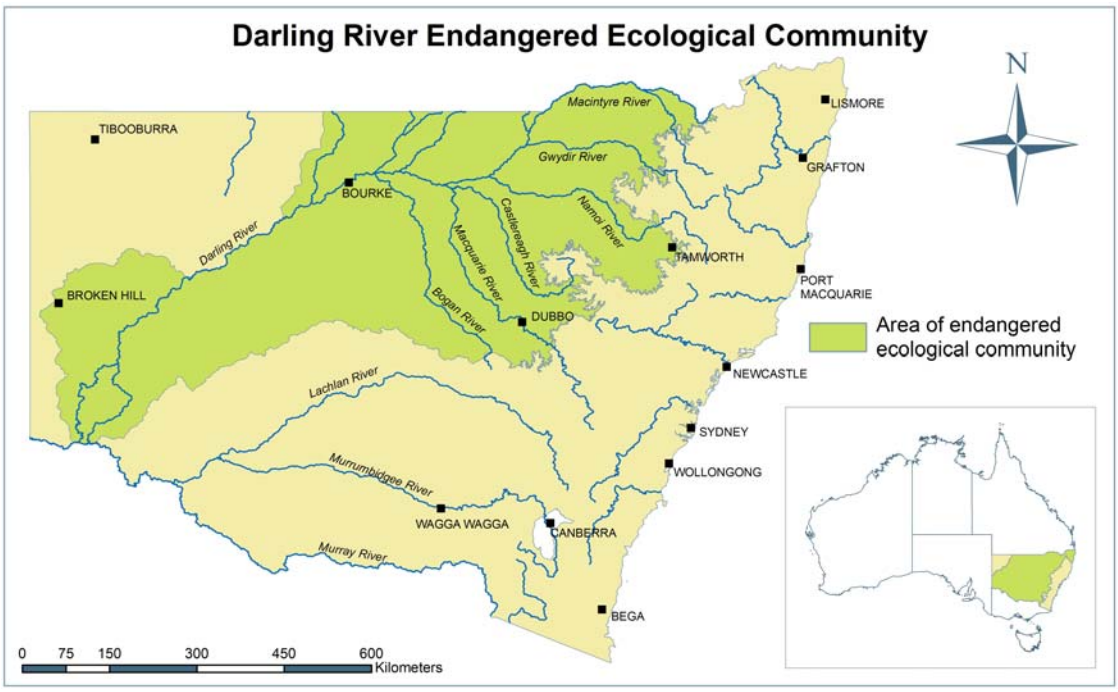
Conservation and recovery actions

- Allocate and manage environmental water flows in regulated rivers to lessen the impacts of unseasonal flow and temperature patterns.
- Conserve and (where possible) restore habitats by protecting aquatic and riparian vegetation and encouraging the use of effective erosion control measures.
- Mitigate the impact of cold water pollution from major regulating structures.
- Develop and implement control programs for introduced species.
- Reinstate large woody debris where appropriate.
- Manage fishing activities to ensure sustainable fisheries are maintained.
- Provide fish passage by removing barriers or installing fishways in consultation with affected stakeholders.

Legal implications

The listing of the lowland Darling River aquatic ecological community has given all native fish and other aquatic animal life within its boundaries the status of endangered species.

Harming a member of an endangered ecological community is an offence. Penalties can include fines of up to $220,000 and up to two years imprisonment.



Harming, buying, selling, or possessing a threatened species is also an offence. Penalties can include fines of up to $220,000 and up to two years imprisonment.

Severe penalties also apply for damaging the habitat of an endangered ecological community without approval. Damage includes actions such as dredging riverbeds and constructing in-stream or floodplain barriers that block the free passage of fish.

Clearing activities authorised by property vegetation plans approved under the *Native Vegetation Act 2003* are permitted, provided the native vegetation reform package had the benefit of biodiversity certification at the time the property vegetation plan was approved.

Clearing that constitutes a routine agricultural management activity is permitted, as are certain routine agricultural activities other than clearing – provided the activities are to the minimum extent reasonably necessary, and all other relevant statutory approvals or authorities have been obtained.

The impact of developments or activities that require consent or approval (in accordance with the *Environmental Planning and Assessment Act 1979*) must be assessed and considered by consent or determining authorities. Where such actions are likely to result in a significant impact on a threatened species or its habitat, a detailed species impact statement must be prepared.

Strategies to be adopted for promoting the recovery of the lowland Darling River endangered ecological community must be set out in the NSW DPI Priorities Action Statement.

A recovery plan may be prepared for the ecological community, in accordance with the provisions of the *Fisheries Management Act 1994*, to promote the recovery of the community.

Arrangements are in place to allow continued recreational fishing for some of the popular native species, including:

- Murray cod (*Maccullochella peelii peelii*)
- golden perch (*Macquaria ambigua*)
- bony bream (*Nematalosa erebi*)
- yabbies (*Cherax destructor*)
- freshwater shrimps
- freshwater prawns.

Licensed inland commercial fishers with an appropriate endorsement may also continue to take yabbies and carp.

All existing bag, size and possession limits, closures and other fishing restrictions continue to apply.

Darling River in drought, downstream of Wilcannia. Photo: Mark Hauser, NSW DPI

Darling River, upstream of Pooncarrie. Photo Mark Hauser, NSW DPI

Darling/Murray River Junction, Wentworth. Photo: NSW DPI

Darling River, upstream of Menindee. Photo: Mark Hauser, NSW DPI

Bibliography and further reading

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For further information

Phone the Fisheries Information and Advisory Line: 1300 550 474

For more information on general fishing regulations check with your local fisheries office, or on the NSW DPI website, at www.dpi.nsw.gov.au

Contact the NSW DPI Threatened Species Unit

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