2026 Murray Darling Basin Plan Review

Submission by the
Invasive Species Council

May 2026

Document details

Invasive Species Council. 2026. Submission in response to the 2026 Murray Darling Basin Plan Review.

About the Invasive Species Council

The Invasive Species Council was formed in 2002 to advocate for stronger laws, policies and programs to keep Australian biodiversity safe from weeds, feral animals, exotic pathogens and other invaders. It is a not-for-profit charitable organisation, funded predominantly by donations from supporters and philanthropic organisations.

Intellectual property rights

Inquiries

Invasive Species Council

Contact: Dr Carol Booth

Address: PO Box 818, Katoomba NSW 2780, Australia

ABN: 27 101 522 829

Web: invasives.org.au

Email: contact@invasives.org.au

Contents

Introduction

The Murray–Darling Basin (MDB) is one of Australia's most ecologically and economically significant regions. Stretching across 4 states and one territory, it encompasses approximately one million square kilometres – about one-seventh of the Australian continent – and supports extraordinary biodiversity, including dozens of water-dependent threatened species and ecological communities. It also underpins Australia's most productive agricultural region and is of deep cultural significance to First Nations peoples.

Yet the MDB is also one of the world's most degraded and biologically invaded river systems. Decades of water extraction, habitat modification, cold water pollution and the unimpeded spread of invasive species have left the Basin's ecosystems in a profoundly diminished state. The listing in 2026 of the River Murray downstream of the Darling River and associated aquatic and floodplain systems as a critically endangered threatened ecological community (TEC) is a stark signal of how severe conditions have become [1].

The Murray-Darling Basin Plan (the MDB plan) is built principally around recovering environmental water – restoring some of the flows taken from rivers over many decades. Environmental water is essential, and progress under the MDB plan has been meaningful. However, water alone cannot restore the MDB's ecological integrity. As the discussion paper for this review acknowledges – and as is confirmed by the conservation advice for the listed TEC [1], the Native Fish Recovery Strategy [2], and the 2025 MDB assessment of resilience, adaptation and drivers of change [3] – restoring environmental flows must be integrated with addressing the non-flow drivers of ecological degradation. That assessment is explicit [3]:

> In over-utilised or degraded river systems, the restoration of natural e-flows must be integrated with other river system recovery measures, such as improving water quality, restoring habitats and their connectivity and reducing the impacts of invasive species.

Among the non-flow drivers of ecological degradation, invasive species stand out as particularly significant – and particularly neglected in the current MDB plan and the discussion paper. Invasive species have been rated as one of the 4 most important drivers for the management of MDB water assets, alongside climate change, water quality and the cumulative effects of multiple stressors [3].

This review provides a critical opportunity to embed the integrated management of invasive species into the revised MDB plan – to the extent permissible under the *Water Act 2007* – and to secure complementary commitments from Basin governments that go beyond the MDB plan's formal scope. Our submission:

- documents the scale and diversity of invasive species threats in the MDB and their interactions with water management
- identifies key gaps in the current MDB plan's treatment of invasive species
- sets out specific recommendations to strengthen the MDB plan and secure complementary actions by Basin governments.

Recommendations

Recommendation 1. To inform the revision of the MDB plan:

- identify the known and suspected interactions between management and use of MDB water resources and invasive species
- identify gaps in knowledge of these interactions and commission research to address these gaps.

Recommendation 2. Optimise the capacity of the MDB plan to drive the prevention and mitigation of invasive threats, to the extent that is feasible under the Water Act, by:

- placing greater emphasis in the MDB plan on giving effect to the Biodiversity Convention
- including an objective and a target relevant to prevention and mitigation of non-flow threats, including invasive species
- requiring monitoring of and reporting on invasive species populations.

Recommendation 3. To achieve the integrated management of threats needed to restore MDB ecological integrity and resilience, commit to a suite of measures complementary to the MDB plan, including the following relevant to invasive species:

- an MDB biosecurity plan, with a strong focus on prevention, surveillance and responses to new incursions
- action plans on priority invasive threat groups, including invasive fish, plants and ungulates
- a research plan to address priority gaps in the knowledge of invasive threat impacts, including under future climate change, and methods for threat mitigation.

1. Invasive species and the MDB

As well as being one of the world's most exploited river systems, the MDB is one of the river systems most damaged by biological invasions. A recent assessment of priority drivers of change for the MDB rated invasive species as one of the 4 'most important drivers for the management of water assets now and into the near-future to mid-century' – alongside climate change and variability, water quality, and the cumulative effects of multiple drivers [3].

1.1 Invasive fish

Due to a multitude of threats, native fish populations in the MDB have declined by an estimated 90% or more since European colonisation, and about half the species are recognised as threatened [4, 5]. Now-dominant introduced fish are one of the major causes, rated as the highest of non-flow threats across the basin [5]. The MDB is a global 'hotspot' for invasive fishes [6], with introduced species accounting for about a fifth of MDB fish species (12 species), two-thirds of fish biomass and more than half the fish abundance [5,7]. In some valleys a third or more of fish species are introduced – for example, 67% in the Paroo, 64% in the Goulburn, and 46% in the Campaspe [8]. Among the most ecologically damaging are European carp (present in every valley), gambusia and redfin perch (present in most valleys), and brown and rainbow trout [5, 8].

New invasive fish species also pose an extreme future threat to the MDB. Mozambique tilapia, present in nearby catchments in Queensland, could spread through up to 50% of the Basin (or more under predicted climate warming scenarios) and dramatically impact native fish and plant species and reduce water quality [25]. The disposal or release of other exotic aquarium fish has the potential to give rise to further invasions.

1.2 Invasive plants

More than 100 introduced plant species have been recorded from riparian, floodplain and wetland vegetation communities in the MDB, most of which are regarded as invasive in the MDB or potentially so based on their impacts elsewhere [9]. About a third of the Murray River floodplain flora is introduced (an estimate from 1990) [10]. Species of major concern include willows, lippia, cabomba, dense waterweed, arrowhead and yellow water lily.

The disposal or release of exotic garden plants, aquarium and pond weeds continue to pose a real threat of future invasions throughout the MDB.

1.3 Invasive mammals

At least 11 terrestrial invasive mammal species pose a major and increasing threat to the MDB floodplain ecosystems [1]. Feral cats, foxes, black rats, feral pigs and dogs are significant predators of native animals in MDB floodplains – including reptiles, small marsupials and birds. Fox predation on freshwater turtles and their eggs is driving declines of the broad-shelled, eastern long-necked and Murray River turtles, all of which are now rare in the lower Murray River [1, 23].

Feral pigs, goats and deer are causing major damage to the MDB ecosystem by wallowing, digging, herbivory, trampling, ring-barking and bank erosion [1]. They can also lead to ecosystem-wide changes including by impacting the recovery of sensitive habitats after disasters like droughts, fires and floods and by exacerbating the invasion of weeds, diseases and pathogens.

1.4 Invasive pathogens

Chytrid fungus in frogs and introduced fish pathogens and parasites pose ongoing and increasing threats to native wildlife in the MBD [1]. There are also a number of looming invasive threats that warrant particular attention including the arrival of H5 bird flu, a threat to many native and migratory birds that use MDB habitats; the spread of polyphagous shot-hole borer and its associated fungi from Western Australia, which can impact and kill native trees found in the MDB including South Australian blue gum (Eucalyptus leucoxylonssp. leucoxylon) and river redgum [24]; and the continued introduction of aquarium fish and associated diseases, which are a significant threat to the ecology and sustainability of native aquatic fauna and to dependent fisheries and aquaculture industries [26].

Box 1. The River Murray south of the Darling River – a critically endangered ecological community [1]

The highest rated threats to this ecological community – extreme (severity), ongoing (timing), whole (scope) and increasing (trend) – include invasive fish as well as aspects of climate change and hydrology.

The second highest rated threats – major or potentially major, ongoing, whole and increasing – include invasive plants, invertebrates, mammals and pathogens as well as other aspects of climate change and hydrology.

For plants, fish and mammals in this ecological community, introduced species often represent about a third of the total number of species recorded in surveys. And for fish, invasive species often make up more than 50% of the catch, particularly after flooding.

1.5 Need for further research

While we know invasive species are a major driver of ecological decline in the Basin, important gaps in our knowledge remain. The TEC conservation advice calls for the following research to inform biosecurity, mitigation and adaptation planning [1]:

- investigation of the abundances and distribution of invasive species and their impacts (e.g. competition, predation, habitat disturbance) on key native flora and fauna – including micro-biota, plants, invertebrates, fish, reptiles, birds, bats and marsupials
- support for ongoing research on the biology, ecology (including genetics) and integrated management of invasive animals and plants, including carp and willows
- investigation of the presence, abundance, distribution and impacts of pathogens and parasites that cause disease or health decline in key species.

1.6 Invasive species and water management in the MDB

To provide for integrated management of Basin resources under the MDB plan – as far as is possible under the Water Act – it is necessary to understand and act on the 2-way relationship between water management and invasive species. Water management decisions affect invasive species – sometimes amplifying their spread and impact. And invasive species, in turn, affect water flows, water quality and the condition of water-dependent ecosystems. This bidirectional relationship means that effective water management and effective invasive species management are inseparable.

Box 2 illustrates this relationship in detail. A 2025 Sustainable Rivers Audit noted the apparent relationship between water regulation and invasive fish, but acknowledged this relationship has not been comprehensively characterised [11]. A 2009 review of research priorities for environmental watering also identified the lack of knowledge about weed species biology, ecology, propagule bank dynamics and flood tolerances as a significant gap that remains inadequately addressed today [10].

Box 2. Examples demonstrating the relevance of invasive species management to the use and management of MDB water resources

Water management and use in the MDB often favour invasive species:

- Stable, slow-flowing aquatic habitats, such as weir pools in the lower Murray, disadvantage native fish such as Murray cod while favoring European carp [12].
- Cold water pollution affecting 3,000 km of the MDB would favour invasive fish with lower breeding temperature thresholds such as redfin perch, trout and carp [13]. One consequence of installation of a dam on the Mitta Mitta River was a shift from a

warm-water native fish population to one dominated by invasive cold water species, particularly brown trout [14].

- Networks of irrigation channels and inter-basin transfer schemes offer dispersal pathways for invasive species, including aquatic weeds such as salvinia, water hyacinth and sagittaria and introduced fish [4,9].
- The suppression of natural flooding on floodplains benefits invasive plants such as willow and blackberry species [11].
- Restoring floodplain flows and improving lateral connectivity, while important for native fish and potentially beneficial for suppressing some weeds, can also stimulate spawning and recruitment of invasive fish, including carp, by enabling them to access resource-rich floodplain habitats [15].

Invasive species impact waterways, water flows and water quality:

- Invasive species are not passive occupants of MDB waterways; some such as carp and willows act as ecosystem engineers by modifying waterways, water flows or water quality.
- Willows dominate 30,000 km of the 68,000 km of river frontage in Victoria [16]. Their thick root mats spread into the bed of waterways, altering flows, clogging channels, and causing stream bank erosion as water is diverted outside the natural stream channel [17].
- Aquatic weeds such as cabomba, dense waterweed and arrowhead can form dense monocultures that alter flows within streams, wetlands and irrigation channels [9].
- European carp can seriously degrade water quality. Their feeding method of sucking up substrate, filtering out benthic invertebrates, and expelling mud and water increases turbidity and nutrient levels, reducing light penetration and smothering plants and fish eggs [18,19].

Water management can also be used to reduce invasive threats:

- Water delivery can be targeted towards attaining suitable salinities at critical times for critically endangered Murray hardyhead (to aid spawning, egg development and larval and juvenile survival), and to the detriment of exotic fish competitors and predators [5].
- Water delivery or flow management can be timed or otherwise managed to minimise the spread of invasive plant propagules (e.g. control activities prior to water delivery) [20].
- The timing of water delivery and weed control can be integrated to enable applications of herbicide on aquatic weeds at appropriate stages of growth and to prevent reductions in water quality (e.g. through blackwater events associated with the decay of dead plant matter) – e.g. for yellow water lily control [21,22].

Recommendation 1. To inform the revision of the MDB plan:

- identify the known and suspected interactions between management and use of MDB water resources and invasive species
- identify gaps in knowledge of these interactions and commission research to address these gaps.

2. MDB plan objectives and targets for invasive species

2.1 Constraints under the Water Act

The Water Act imposes important constraints on the scope of the MDB plan. Section 22(9) stipulates that MDB plan provisions 'have effect only to the extent to which they relate to a matter that is relevant to the use or management of Basin water resources'. Section 22(10) provides that the MDB plan has no effect on the direct regulation of land use or land use planning, the management of other natural resources, or pollution control.

Within these constraints, however, there remains substantial room for a stronger focus on invasive species – particularly where invasive species affect or are affected by water use and management. The revised MDB plan can and should go further than the current version in exercising this available scope. The interactions between water management and invasive species documented in Box 2 make clear that invasive species management is directly relevant to the use and management of Basin water resources.

2.2 International agreements

The MDB plan is required, by virtue of section 20(a) of the Water Act and its own objective at section 5.02(1)(a), to give effect to relevant international agreements through the integrated management of Basin water resources. The Convention on Biological Diversity (CBD) – listed in section 4 of the Act – is one of those agreements. Article 8(h) of the CBD requires Australia to prevent the introduction of, and control or eradicate, alien species that threaten ecosystems, habitats or species.

The current MDB plan does not give adequate practical effect to this obligation. The MDB is one of the world's most biologically invaded river systems, and invasive species are the highest-rated threat to the Basin's recently listed TEC. A plan that contains no targets, no monitoring requirements and no management obligations relating to invasive species cannot credibly be said to give practical effect to Article 8(h).

The revised MDB plan should rectify these omissions, by embedding concrete obligations that give genuine effect to Australia's obligations under the CBD, including as outlined in section 2.4 below, by adopting Target 6 of the Kunming-Montreal Global Biodiversity Framework as a Schedule 7 target.

2.3 Environmental objectives and outcomes

Several objectives outlined in the current MDB plan provide a sound legal basis for stronger attention to invasive species, including:

- to optimise social, economic and environmental outcomes arising from the use of Basin water resources in the national interest (section 5.02(1)(d))
- healthy and resilient ecosystems with rivers and creeks regularly connected to their floodplains and, ultimately, the ocean (section 5.02(2)(c))
- to protect and restore water-dependent ecosystems and their functions (sections 5.03(1)(a)–(b))

- to ensure that water-dependent ecosystems are resilient to climate change and other risks and threats (section 5.03(1)(c))
- to maintain appropriate water quality for environmental, social, cultural and economic activity in the MDB (section 5.04(1)).

The MDB plan's overall environmental objectives for water-dependent ecosystems also require management that ensures these systems are 'resilient to climate change and other risks and threats' (section 8.04(c)). The MDB plan further clarifies that achieving this resilience requires the Authority and Basin states and territory to 'mitigate human-induced threats,' specifically listing 'the impact of alien species' alongside water management activities and degraded water quality as primary threats to be addressed (section 8.07(5)).

Because of the interactions between water resource management and invasive species, these objectives provide a clear rationale for ensuring that water management: (a) avoids exacerbating invasive threats, and (b) where feasible, aids in their mitigation. In practice, this means:

- managing water resources and infrastructure to minimise the risks of distributing invasive species or stimulating their recruitment and survival
- taking opportunities to use water management as a tool to prevent or mitigate invasive species threats
- managing invasive species populations to prevent them from being spread by or benefiting from water releases, and to prevent adverse impacts on water flows, volumes or quality
- preventing the establishment of new invasive species that could undermine water management objectives
- undertaking targeted research and monitoring to improve the management of water in relation to invasive species threats.

The revised MDB plan should include an explicit objective addressing the prevention and mitigation of non-flow threats – including invasive species – to give full effect to these existing provisions and remove any ambiguity about the MDB plan's scope.

2.4 MDB plan targets

The targets set out in Schedule 7 of the MDB plan serve as the essential metrics by which the MDB Authority must measure progress toward the high-level objectives outlined above. They are designed to track whether management actions are successfully protecting and restoring the biological integrity, condition, and community structure of the Basin's priority environmental assets and ecological functions in water-dependent ecosystems. Although one of the core environmental outcomes in the current MDB plan is to ensure that water-dependent ecosystems are resilient to climate change and other risks and threats including the impact of alien species, the MDB plan contains no specific targets for mitigating invasive species or other non-flow threats.[1]

[1] Several Schedule 7 targets already create an implicit mandate for action on invasive species, including improvements in: 'river, floodplain and wetland types including the condition of priority environmental assets and priority ecosystem functions'; 'condition, diversity, extent and contiguousness of native water-dependent vegetation'; 'recruitment and populations of native water-dependent species, including vegetation, birds, fish and macroinvertebrates'; and 'the community structure of water-dependent ecosystems'. None of these targets can be met without addressing invasive species.

To rectify this, the revised MDB plan should include explicit, measurable targets related to invasive species conditions. Given Australia's international commitments under the CBD, these water-dependent ecosystem targets should adapt and reflect Target 6 of the Kunming-Montreal Global Biodiversity Framework which requires parties to eliminate, minimise, reduce and/or mitigate the impacts of invasive alien species by managing introduction pathways, preventing the establishment of priority invasive species, reducing introduction rates by at least 50 per cent by 2030, and eradicating or controlling invasive species in priority sites.

Further monitoring is also required to measure the achievement of this target. For example, the conservation advice for the listed TEC calls for [1]:

- monitoring for new invasive species incursions (linked to biosecurity plans at national and state levels)
- long-term monitoring of native and non-native fish abundance and distribution at key locations, consistent with the Native Fish Recovery Strategy
- long-term monitoring of invasive plant and animal species throughout the ecological community, with associated risk management plans
- specific long-term monitoring of common carp at all life-history stages, and of all alien fish and feral mammal species within the ecological community.

This monitoring framework should be embedded in the revised MDB plan and funded accordingly.

2.5 Complementary measures

The MDB plan's formal scope is constrained by the Water Act, and many of the most important actions needed to address invasive species in the Basin arguably fall outside what the MDB plan can directly require. This contrasts with other risks to Basin water resources that have specific strategies under the MDB plan– for example, the water quality and salinity management plan. This makes complementary commitments by Basin governments – operating through the MDB governance arrangements and beyond them – essential to achieving the ecological outcomes the MDB plan is intended to deliver.

The TEC conservation advice provides clear guidance on what is required to address invasive species impacts on the MDB. It calls for the development of a strategic invasive species plan for the ecological community – developed in consultation with farmers, conservation area managers, fisheries managers, Traditional Custodians and other authorities – 'potentially as part of a broader Murray–Darling Basin-wide initiative' [1]. It identifies the need to prioritise prevention and management actions, establish regular monitoring of trends, and take into account existing threat abatement plans.

We recommend that Basin governments act on this guidance and commit, through the MDB Ministerial Council or equivalent mechanism, to the following complementary measures.

- **MDB Biosecurity Plan:** Prevention is the most cost-effective form of invasive species management, and the Basin faces significant and growing biosecurity risks – including the potential expansion of tilapia from Queensland catchments, the spread of polyphagous shot-hole borer, and the possible arrival of highly pathogenic avian influenza. A Basin-wide biosecurity plan, developed in consultation with affected stakeholders – including First

Nations peoples – should establish shared surveillance systems, agreed rapid-response protocols, and clear responsibilities for preventing and responding to new incursions. It should take into account existing threat abatement plans and align with national biosecurity frameworks.

- **Action plans for priority invasive species groups:** Strategic planning for invasive fish, aquatic and riparian weeds, and feral ungulates should be developed or strengthened, with clear targets, management responsibilities and funding commitments. These plans should identify priority prevention and management actions consistent with the TEC conservation advice, and be integrated with water management planning to drive the use of environmental flows as a tool for invasive species management.
- **A research and monitoring plan:** As detailed in sections 1.5 and 1.6, significant knowledge gaps remain regarding the interactions between water management and invasive species, and the impacts of invasive species on the Basin's ecological values. A dedicated research and monitoring plan should address these gaps, with particular attention to how invasive species threats may intensify under future climate scenarios. Long-term monitoring of invasive species populations – including at all life-history stages for priority species such as common carp – should be funded and coordinated across jurisdictions.

Recommendation 2. Optimise the capacity of the MDB plan to drive the prevention and mitigation of invasive threats, to the extent that is feasible under the Water Act, by:

- placing greater emphasis in the MDB plan on giving effect to the Biodiversity Convention
- including an objective and a target relevant to prevention and mitigation of non-flow threats, including invasive species
- requiring monitoring of and reporting on invasive species populations.

Recommendation 3. To achieve the integrated management of threats needed to restore MDB ecological integrity and resilience, commit to a suite of measures complementary to the MDB plan, including the following relevant to invasive species:

- an MDB biosecurity plan, with a strong focus on prevention, surveillance and responses to new incursions
- action plans on priority invasive threat groups, including invasive fish, plants and ungulates
- a research plan to address priority gaps in the knowledge of invasive threat impacts, including under future climate change, and methods for threat mitigation.

References

1. DCCEEW. Approved Conservation Advice for the River Murray downstream of the Darling River, and associated aquatic and floodplain systems. Australian Government Department of Climate Change, Energy, the Environment and Water; 2026. Available: https://www.environment.gov.au/biodiversity/threatened/communities/pubs/92-conservation-advice-2026.pdf

2. Murray Darling Basin Authority. Native fish recovery strategy. Working Together for the future of native fish. 2020. Available: https://www.mdba.gov.au/node/5971/

3. Pearson L, Mummery J. Resilience, adaptation and drivers of change in the Murray-Darling Basin. University of Canberra; 2025. Available: https://www.mdba.gov.au/sites/default/files/publications/sra-resilience-adaptation-drivers-change-mdb.pdf

4. Lintermans M. Fishes of the Murray-Darling Basin: an introductory guide. Murray-Darling Basin Commission; 2007.

5. Koehn JD, Raymond SM, Stuart I, Todd CR, Balcombe SR, Zampatti BP, et al. A compendium of ecological knowledge for restoration of freshwater fishes in Australia's Murray–Darling Basin. Mar Freshw Res. 2020;71: 1391–1463.

6. Leprieur F, Beauchard O, Blanchet S, Oberdorff T, Brosse S. Fish invasions in the world's river systems: when natural processes are blurred by human activities. PLoS Biol. 2008;6: e28.

7. Murray Darling Basin Authority. Sustainable Rivers Audit 2. Australian Government; 2012.

8. 2025 Sustainable Rivers Audit. Murray–Darling Basin Authority; 2025. Available: https://www.mdba.gov.au/sites/default/files/publications/2025-sustainable-rivers-audit-sra.pdf

9. Haby N, Romanin L, Nielsen D. Can we better mitigate against weed (aquatic and terrestrial) invasions through tailoring flow events in the Murray-Darling Basin? Centre for Freshwater Ecosystems and the CSIRO; 2020. Available: https://opal.latrobe.edu.au/articles/journal_contribution/Can_we_better_mitigate_against_weed_aquatic_and_terrestrial_invasions_through_tailoring_flow_events_in_the_Murray-Darling_Basin_/8379278

10. Capon SJ, James CS, Mackay SJ, Bunn SE. Environmental watering for understorey and aquatic vegetation in The Living Murray icon sites. A literature review and identification of research priorities relevant to the environmental watering actions of flow enhancement and retaining floodwater on floodplains. Murray–Darling Basin Authority; 2009.

11. Gawne B, Brandis K, Bino G, Lyon J, Holt G, Dwyer G, et al. Sustainable Rivers Audit 3 – Contribution of the Basin Plan to the condition of selected environmental values. EcoFutures; 2025.

12. Koehn JD, King AJ, Beesley L, Copeland C, Zampatti BP, Mallen-Cooper M. Flows for native fish in the Murray-Darling Basin: lessons and considerations for future management. Ecol Manag Restor. 2014;15: 40–50. doi:10.1111/emr.12091

13. Lugg A, Copeland C. Review of cold water pollution in the Murray–Darling Basin and the impacts on fish communities. Ecol Manag Restor. 2014;15: 71–79. doi:10.1111/emr.12074

14. Tonkin Z, Koehn J, Commens S, Hackett G, Harris A, Kitchingman A, et al. Using multiple lines of evidence to assess recovery potential of a warm water fish population in a cold water impacted river. Front Conserv Sci. 2023;4: 1103256.

15. Baumgartner L, Zampatti B, Jones M, Stuart I, Mallen-Cooper M. Fish passage in the Murray-Darling Basin, Australia: Not just an upstream battle. Ecol Manag Restor. 2014;15: 28–39. doi:10.1111/emr.12093

16. What is the problem with willows? In: Rivers of Carbon [Internet]. 18 Aug 2017. Available: https://riversofcarbon.org.au/resources/willows-willow-management/

17. Doody T, Benyon R. Quantifying water savings from willow removal in Australian streams. J Environ Manage. 2011;92: 926–935.

18. Koehn J, Brumley AR, Gehrke PC. Managing the impacts of carp. Bureau of Rural Sciences; 2000. Available: https://www.academia.edu/download/46302877/Managing_the_Impacts_of_Common_Carp20160607-10826-t3wfgw.pdf

19. Technical Paper 1. Carp biocontrol background. National Carp Control Plan. Fisheries Research & Development Corporation; 2022. Available: https://www.agriculture.gov.au/biosecurity-trade/pests-diseases-weeds/pest-animals-and-weeds/carp-biological-control-plan/national-carp-control-plan#daff-page-main

20. Cherry H, Bosse P. Across borders and basins: reducing the risk of aquatic weed spread in Australia's Murray-Darling River system. 2014 [cited 24 Mar 2026]. Available: https://caws.org.nz/old-site/awc/2014/awc201412631.pdf

21. Goulburn-Murray Water. Management of Yellow Waterlily in the Goulburn River Weir Pool. Fact sheet. 2009. Available: https://www.g-mwater.com.au/downloads/gmw/FACT_SHEET_WATER_LILY_INFESTATION_AT.pdf

22. North Central Catchment Management Authority. Battling the pale yellow water lily. In: North Central CMA [Internet]. 2014. Available: https://www.nccma.vic.gov.au/media-events/news/battling-pale-yellow-water-lily/

23. Van Dyke JU, Spencer R-J, Thompson MB, Chessman B, Howard K & Georges A. Conservation implications of turtle declines in Australia's Murray River system. Scientific Reports. 2019:9, 1998. https://doi.org/10.1038/s41598-019-39096-3

24. Department of Primary Industries and Regional Development. Western Australian Euwallacea fornicatus, Polyphagous Shot-Hole Borer (PSHB) Host List. State of Western Australia (Department of Primary Industries and Regional Development). 2025. Available: https://www.dpird.wa.gov.au/siteassets/documents/biosecurity/incidents/pshb/pshb-wa-host-list.pdf [393 KB]

25. Hutchison M, Sarac Z, Norris A. Mozambique tilapia: The potential for Mozambique tilapia Oreochromis mossambicus to invade the Murray-Darling Basin and the likely impacts. Murray-Darling Basin Authority. 2011. Available:

https://www.mdba.gov.au/publications-and-data/publications/potential-mozambique-tilapia-invade-murray-darling-basin-and

26. Corfield J, Diggles B, Jubb C, McDowall RM, Moore A, Richards, A. Rowe, DK. Draft final report for the project 'Review of the impacts of introduced aquarium fish species that have established wild populations in Australia'. Prepared for the Australian Government Department of the Environment and Water Resource. 2007. Available: https://www.dcceew.gov.au/environment/invasive-species/publications/review-impacts-introduced-aquarium-fish-species