# Arthur Rylah Institute for Environmental Research Project Map - Accessibility Text

Welcome to the accessible version of the ARI Project Map (https://www.ari.vic.gov.au/about-us/ari-project-map). The information below summarises ARI projects featured on our website and their broad locations, so you can find out what we are working on, and where.

Our researchers work across a wide variety of ecosystems, from coasts to alps, grasslands to forests, estuaries and rivers. We hope the project summaries help you to explore the science that we do, near you, right around Victoria and beyond.

All summaries provide links to the project information on our website.

## Protecting critically endangered grasslands on private land

Summary: ARI researchers are working with partner agencies to help manage grasslands on farms. Projects include monitoring to detect changes after management actions (like burning and weed control) and using modelling to identify high-priority sites for further action.

Theme: Threatened Biota

Contact: brad.farmilo@delwp.vic.gov.au

Partners: Glenelg-Hopkins CMA, The Federal Government's National Landcare Program

Region: Barwon South West, Port Phillip

Link: <https://www.ari.vic.gov.au/research/threatened-plants-and-animals/protecting-critically-endangered-grasslands-on-the-private-estate>

## Helping Platypus Recover

Summary: ARI is collaborating with conservation groups and management agencies to help protect the platypus in Victoria. These projects range from comprehensive threat analysis to state-wide mapping of instream barriers which might affect platypus movement.

Theme: Threatened Biota

Contact: Jarod.Lyon@delwp.vic.gov.au or Diane.Crowther@delwp.vic,gov.au

Partners: Australian Platypus Conservancy, DELWP, Glenelg Hopkins CMA, North East CMA, East Gippsland CMA

Region: Barwon South West, Hume, Gippsland, State-wide

Link: https://www.ari.vic.gov.au/research/threatened-plants-and-animals/helping-platypus-recover

## Understanding threats to potoroos and bandicoots

Summary: ARI is using camera trapping and computer modelling to help understand the impacts of invasive predators, and provide a baseline against which to measure the impact of the 2019-20 bushfires.

Theme: Threatened Biota

Contact: Alan.Robley@delwp.vic.gov.au

Partners: DELWP (Southern Ark, Glenelg Ark, Grampians Ark, Otways Ark and the Barry Mountains Fox control program)

Region: Gippsland, Hume, BSW, Grampians

Link: <https://www.ari.vic.gov.au/research/threatened-plants-and-animals/understanding-threats-to-potoroos-and-bandicoots>

## Discovering the secrets of Victoria’s small bats

Summary: Microbats play a vital role in our ecosystem functioning, consuming large quantities of insects, including mosquitoes and agricultural pests. However, due to their nocturnal and cryptic behaviour, they are difficult to study. To address this, ARI is using innovative approaches to shed light on these fascinating creatures.

Theme: Field Monitoring

Contact: Lindy Lumsden [lindy.lumsden@delwp.vic.gov.au](mailto:lindy.lumsden@delwp.vic.gov.au) or Amanda Bush [amanda.bush@delwp.vic.gov.au](mailto:amanda.bush@delwp.vic.gov.au)

Partners: DELWP (Barwon South West, Bushfire Recovery and Icon Species programs), Zoos Victoria and Mallee Catchment Management Authority

Region: State-wide

Link: https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/discovering-the-secrets-of-victorias-small-bats

## Assessing ecosystem condition using expert judgements

Summary: ARI researchers have been combining expert opinion and modelling techniques to measure ecosystem condition in a cost-effective and consistent way. This method has been applied across a wide variety of places, from Victorian Volcanic Plains grasslands to the Mongolian Gobi Desert.

Theme: Modelling

Contact: Steve Sinclair steve.sinclair@delwp.vic.gov.au

Partners: DELWP (Melbourne Strategic Assessment), Oyu Tolgoi (Mongolia)

Region: Port Phillip, International (Mongolia)

Link: https://www.ari.vic.gov.au/research/modelling/assessing-ecosystem-condition-using-expert-judgements

## Understanding and protecting our threatened galaxiids

Summary: For many years, researchers at ARI have been at the forefront of galaxiid research. They have led many projects to understand and conserve these small native fishes. This has included identifying new species, uncovering the details of their distribution, and helping to manage the threats of climate change, invasive species and bushfire.

Theme: Threatened Species

Contact: Tarmo Raadik tarmo.raadik@delwp.vic.gov.au

Partners: DELWP (FFR, Biodiversity)

Region: State-wide

Link: <https://www.ari.vic.gov.au/research/threatened-plants-and-animals/understanding-and-protecting-our-threatened-galaxiids>

## Artificial intelligence identifies frogs – by their calls

Summary: With a leap of innovation, ARI researchers have developed sound-recognition software to identify some of Victoria’s frogs. Using deep-learning artificial intelligence, this technology has the potential to save scientists thousands of hours by listening to recordings on their behalf.

Theme: Field Monitoring

Contact: peter.griffioen@delwp.vic.gov.au or katie.howard@delwp.vic.gov.au.

Region: State-wide

Link: <https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/artificial-intelligence-identifies-frogs-by-their-calls>

## Victorian Murray Floodplain Restoration Project (VMFRP)

Summary: VMFRP aims to restore ecologically significant wetlands and floodplains at nine sites along the Victorian Murray River floodplain. ARI has developed the Monitoring, Evaluation and Reporting Plan for the project and is working closely with CMAs to undertake the ecological monitoring.

Theme: Wetlands

Contact: Chris.Jones@delwp.vic.gov.au.

Partners: Mallee Catchment Management Authority, MDBA, North Central CMA

Region: Loddon Mallee, Hume

Link: <https://www.ari.vic.gov.au/research/wetlands-and-floodplains/ecological-monitoring-within-the-victorian-murray-floodplain-restoration-project>

## Weed control in threatened native grasslands

Summary: ARI is closely monitoring the benefit of weed control for native species in the Victorian Volcanic Plains. This collaborative cross-agency partnership has found that recovery occurs slowly and may require monitoring over a longer period to detect improvements for native species.

Theme: Pests and overabundant species

Contact: brad.farmilo@delwp.vic.gov.au

Partners: Glenelg Hopkins CMA, Corangamite CMA, Australian Government's National Landcare Programme, DELWP’s Forest Fire and Regions (Barwon South West)

Region: Barwon South West

Link: <https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/weed-control-in-threatened-native-grasslands>

## Strategic Management Prospects

Summary: Strategic Management Prospects tool is designed to help biodiversity managers consider and compare which actions to do where to protect Victoria’s environment. To deliver the Biodiversity Plan’s goals and targets and to prevent more species from becoming threatened, we need our management efforts to achieve the most benefits for the most species.

Theme: Modelling

Contact: graeme.newell@delwp.vic.gov.au

Partners: DELWP

Region: State-wide

Link: [www.environment.vic.gov.au/biodiversity/natureprint](https://www.environment.vic.gov.au/biodiversity/natureprint)

[www.ari.vic.gov.au/research/modelling/habitat-distribution-models-hdms](https://www.ari.vic.gov.au/research/modelling/habitat-distribution-models-hdms)

## Fire Analysis Module for Ecological values (FAME)

Summary:  A pioneering project that comprehensively collates all available ecological and fire data in one place! FAME creates an interactive and visual tool for fire planners to evaluate the impacts of different fire management strategies on environmental values.

Theme: Fire

Contact: josephine.machunter@delwp.vic.gov.au

Partners: DELWP (Forest, Fire and Regions), University of Melbourne, La Trobe University

Region: State-wide

Link: [www.ari.vic.gov.au/research/fire/fire-analysis-module-for-ecological-values-fame](https://www.ari.vic.gov.au/research/fire/fire-analysis-module-for-ecological-values-fame)

## Ageing and sexing game birds using feathers

Summary: ARI has published a field guide to help age and sex game bird species to better understand their population dynamics and inform game management decisions.

Theme: Field monitoring

Contact: danny.rogers@delwp.vic.gov.au

Partners: Game Management Authority

Region: State-wide

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/ageing-and-sexing-game-birds-using-feathers](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/ageing-and-sexing-game-birds-using-feathers)

## Native Fish Report Card Program

Summary: Native Fish Report Cards are brief overviews of fish populations, presenting survey summaries and three key indicators of the health of the fishery and its recreational fishing potential.

Theme: Field monitoring

Contact: jason.lieschke@delwp.vic.gov.au

Partners: DELWP (Water & Catchments), Victorian Fisheries Authority, Recreational fishing license holders

Region: State-wide

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/native-fish-report-card-program](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/native-fish-report-card-program)

## Integrated Biodiversity Values Model

Summary: Modelling habitat distribution and biodiversity priorities for forest-dependent threatened species that are considered to be susceptible to timber harvesting operations.

Theme: Modelling

Contact: cindy.hauser@delwp.vic.gov.au

Partners: DELWP (Forest, Fire and Regions)

Region: State-wide

Link: [www.ari.vic.gov.au/research/modelling/regional-forest-agreements-ari](https://www.ari.vic.gov.au/research/modelling/regional-forest-agreements-ari)

## Southern Right Whale movements

Summary: Individual whales can be identified from the unique pattern of white markings (callosities) on their head. This has been utilised to track whale movements via photographs, which are stored in a south-eastern Australian and a national catalogue of southern right whales.

Theme: Threatened biota

Contact: kasey.stamation@delwp.vic.gov.au (ARI), mandy.watson@delwp.vic.gov.au (Brwon south West)

Partners: DELWP (Forest, Fire and Regions)

Region: Barwon South West, Port Phillip, Gippsland

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/southern-right-whale-movements](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/southern-right-whale-movements)

## Tracking eel migration using satellites

Summary: We're using satellite trackers to track the migration of both Short- and Long-finned eels as they travel thousands of kilometres to fill important knowledge gaps about their lifecycle.

Theme: Field monitoring

Contact: wayne.koster@delwp.vic.gov.au

Partners: Gunditjmara Traditional Owners, Glenelg Hopkins Catchment Management Authority, Technical University of Denmark

Region: Barwon South West, Gippsland, Port Phillip

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/tracking-eel-migration-using-satellites](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/tracking-eel-migration-using-satellites)

## Index of Estuary Condition

Summary: Monitoring the health of Victoria's estuaries to improve knowledge, identify investment priorities for management and share the importance of estuaries with the community.

Theme: Rivers

Contact: phil.papas@delwp.vic.gov.au

Partners: DELWP (Water and Catchments)

Region: Gippsland, Port Phillip, Barwon South West

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/index-of-estuary-condition](https://www.ari.vic.gov.au/research/rivers-and-estuaries/index-of-estuary-condition)

## Koala translocation

Summary: A science-based investigation into how individual Koalas fare after translocation. This research will help inform future wildlife management strategies.

Theme: Pests and overabundant species

Contact: peter.menkhorst@delwp.vic.gov.au

Partners: DELWP (Port Phillip Region), Parks Victoria

Region: Barwon South West, Port Phillip

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/koala-translocation](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/koala-translocation)

## Wetland Intervention Monitoring Program (WIMP)

Summary: WIMP is a research project aimed at understanding responses of wetland vegetation to changed management of cattle and sheep grazing, determining whether responses vary depending on wetland type or location in the landscape.

Theme: Wetlands

Contact: kaylene.morris@delwp.vic.gov.au

Partners: DELWP (Water and Catchments), Glenelg Hopkins CMA, Corangamite CMA

Region: Grampians, Barwon South West, Gippsland

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/wetland-intervention-monitoring-program](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/wetland-intervention-monitoring-program)

[www.facebook.com/watch/?v=214444769602030](https://www.facebook.com/watch/?v=214444769602030)

## Monitoring native grassland grazing for conservation

Summary: Since 2001, ARI has been investigating the best way to graze native grasslands on farms within the Victorian Volcanic Plains. This research hopes to improve the quality, particularly the diversity of native herbs and wildflowers in native grasslands by informing grazing practices.

Theme: Threatened biota

Contact: claire.moxham@delwp.vic.gov.au

Partners: Glenelg Hopkins CMA, DELWP, Caring for Our Country program, Corangamite Catchment Management Authority, Grain & Graze, Trust for Nature

Region: Barwon South West

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/monitoring-native-grassland-grazing-for-conservation](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/monitoring-native-grassland-grazing-for-conservation)

## Managing invasive species in wetlands

Summary: This collaborative research project between ARI and land managers will inform the management of invasive plants and animals to protect wetland conditions and values.

Theme: Pests and overabundant species

Contact:  pam.clunie@delwp.vic.gov.au

Partners: DELWP (Water and Catchments), DEDJTR (Agriculture Services and Biosecurity Operations and Agribio) (now DJPR), Invasive Species Cooperative Research Centre, Parks Victoria, CMAs and consultant biologists

Region: State-wide

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/managing-invasive-species-in-wetlands](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/managing-invasive-species-in-wetlands)

## Fire regimes for Banksias

Summary: Research into the life-cycle of *Banksia spinulosa* var *cunninghamii* (Hairpin Banksia) is helping fire managers maintain plant diversity when applying fuel reduction burns.

Theme: Fire

Contact: annette.muir@delwp.vic.gov.au

Partners: Parks Victoria, DELWP (Forest, Fire and Regions)

Region: Gippsland, Port Phillip

Link: [www.ari.vic.gov.au/research/fire/fire-regimes-for-banksias](https://www.ari.vic.gov.au/research/fire/fire-regimes-for-banksias)

## Alpine Sphagnum bogs: if we map them we can manage them

Summary: Mapping Alpine Sphagnum bogs to better protect and manage threats such as fire, weed control and feral animals.

Theme: Wetlands

Contact: arn.tolsma@delwp.vic.gov.au

Partners: Parks Victoria, Ecology Australia

Region: Hume, Gippsland

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/alpine-sphagnum-bogs-if-we-map-them-we-can-manage-them](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/alpine-sphagnum-bogs-if-we-map-them-we-can-manage-them)

## Monitoring impacts of burning on endangered grassy ecosystems

Summary: Analysing how fire regime impacts the long-term health of critically endangered grassland and grassy woodland systems.

Theme: Fire

Contact: claire.moxham@delwp.vic.gov.au

Partners: DELWP

Region: Gippsland

Link: [www.ari.vic.gov.au/research/fire/monitoring-impacts-of-burning-on-endangered-grassy-ecosystems](https://www.ari.vic.gov.au/research/fire/monitoring-impacts-of-burning-on-endangered-grassy-ecosystems)

## Southern Right Whale identification using photos

Summary: ARI's working with Citizen Scientists to better understand the Southern Right Whale's migratory habits and monitor their numbers.

Theme: People and nature

Contact: kasey.stamation@delwp.vic.gov.au (ARI), mandy.watson@delwp.vic.gov.au (Barwon South West

Partners: DELWP (Barwon South West), SWIFFT, CeRDI

Region: Barwon South West, Port Phillip, Gippsland

Link: [www.ari.vic.gov.au/research/people-and-nature/southern-right-whale-identification-using-photos](https://www.ari.vic.gov.au/research/people-and-nature/southern-right-whale-identification-using-photos)

## Restoration thinning to recover habitat

Summary: Can restoration-focused thinning help a declining forest system? We looked at enhancing tree growth and hastening the development of old-growth characteristics with this forestry practice.

Theme: Field monitoring

Contact: geoff.brown@delwp.vic.gov.au

Partners: Parks Victoria

Region: Loddon Mallee, Grampians

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/restoration-thinning-to-recover-habitat](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/restoration-thinning-to-recover-habitat)

## Assessing benefits of water for the environment

Summary: ‘Environmental water’ is water that is specifically managed to protect and restore a healthy environment within rivers, floodplains, wetlands and estuaries. The Victorian Environmental Flows Monitoring and Assessment Program (VEFMAP) has an increased focus on intervention-based monitoring to confirm fish and vegetation responses to environmental flow events.

Theme: Rivers

Contact: zeb.tonkin@delwp.vic.gov.au (fish projects) or chris.jones@delwp.vic.gov.au (vegetation projects).

Partners: DELWP (Water and Catchments), University of Melbourne

Region: State-wide

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/assessing-benefits-of-water-for-the-environment](https://www.ari.vic.gov.au/research/rivers-and-estuaries/assessing-benefits-of-water-for-the-environment)

[youtu.be/T19Z0zsujHU](https://youtu.be/T19Z0zsujHU)

## Fire regimes, carbon levels and biodiversity

Summary: How is carbon is distributed within the forest? How do fires influence carbon levels and distribution? We're surveying birds, fire-sensitive plants, and carbon levels to answer these questions.

Theme: Fire

Contact: [matthew.bruce@delwp.vic.gov.au](mailto:matthew.bruce@delwp.vic.gov.au) or michele.kohout@delwp.vic.gov.au

Partners: University of Melbourne, DELWP (Forest, Fire and Regions)

Region: Hume, Port Phillip

Link: [www.ari.vic.gov.au/research/fire/fire-regimes,-carbon-levels-and-biodiversity](https://www.ari.vic.gov.au/research/fire/fire-regimes,-carbon-levels-and-biodiversity)

## Recovering Macquarie Perch

Summary: For decades ARI has been involved with Macquarie Perch monitoring and reintroductions. We're finally seeing some very positive signs for this much-loved species.

Theme: Threatened biota

Contact: joanne.sharley@delwp.vic.gov.au

Partners: Goulburn Broken Catchment Management Authority

Region: Hume

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/recovering-macquarie-perch](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/recovering-macquarie-perch)

## Fish spawning and recruitment

Summary: Finishing a six-year research program, we investigated the effect of varying flows and the use of environmental water, on aspects of fish breeding in the Barmah-Millewa Forest.

Theme: Wetlands

Contact: scott.raymond@delwp.vic.gov.au

Partners: Murray-Darling Basin Authority

Region: Hume

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/fish-spawning-and-recruitment](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/fish-spawning-and-recruitment)

## Salinity tolerance of Murray Hardyhead

Summary: ARI has spawned wild-caught adult Murray Hardyheads in captivity. Our research has discovered how 'hardy' the species is to salinity at different stages of its lifecycle. Our findings are helping the management of saline wetlands and long-term survival of the species.

Theme: Threatened biota

Contact: daniel.j.stoessel@delwp.vic.gov.au

Partners: DELWP, North Central Catchment Management Authority (CMA), Mallee CMA, Victorian Environmental Water Holder

Region: Loddon Mallee

Link: [www.ari.vic.gov.plainsau/research/threatened-plants-and-animals/salinity-tolerance-of-murray-hardyhead](https://www.ari.vic.gov.plainsau/research/threatened-plants-and-animals/salinity-tolerance-of-murray-hardyhead)

Funding: [Biodiversity On-ground Actions](https://www.environment.vic.gov.au/biodiversity/biodiversity-on-ground-action?_ga=2.142705718.2081166298.1583366336-167923612.1568615933#RLTA)

## Dandenong Burrowing Crayfish in Cool Temperate Rainforest

Summary:  This collaborative monitoring and weed control project supports the conservation of Cool Temperate Rainforest in the Dandenong Ranges and improves our knowledge of the elusive and threatened Dandenong Burrowing Crayfish.

Theme: Threatened biota

Contact: di.crowther@delwp.vic.gov.au

Partners: Yarra Ranges Council, Community Weed Alliance of the Dandenongs, Melbourne Water, Parks Victoria, Friends of Sassafras Creek

Region: Port Phillip

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/dandenong-burrowing-crayfish-in-cool-temperate-rainforest](http://www.ari.vic.gov.au/research/threatened-plants-and-animals/dandenong-burrowing-crayfish-in-cool-temperate-rainforest)

## Understanding threatened orchids – the dormancy puzzle

Summary: ARI is researching how prolonged dormancy is related to plant death in the threatened Leafy Greenhood (Pterostylis cucullata) and how Spider Orchids (Caladenia species) use prolonged dormancy to avoid drought conditions. Outcomes will be used to improve the conservation for Victoria’s threatened orchids.

Theme: Threatened biota

Contact: [mike.duncan@delwp.vic.gov.au](mailto:mike.duncan@delwp.vic.gov.au)

Region: Gippsland, Port Phillip, Barwon South West

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/understanding-threatened-orchids-the-dormancy-puzzle](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/understanding-threatened-orchids-the-dormancy-puzzle)

## Leadbeater’s Possum - camera surveys in trees

Summary: Through innovative survey methods, we are discovering more Leadbeater's Possums, improving our knowledge of their distribution and habitat use across the species’ range.

Theme: Threatened biota

Contact: jenny.nelson@delwp.vic.gov.au

Partners: DELWP (Forest, Fire and Regions)

Region: Port Phillip

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/leadbeaters-possum-camera-surveys-in-trees](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/leadbeaters-possum-camera-surveys-in-trees)

## Natural Values Recovery Program following the 2009 bushfires

Summary: After the devastating fires of 2009, ARI led 19 of the Natural Values Recovery Program projects. Many of these projects focussed on threatened species including [crayfish](https://www.ari.vic.gov.au/research/fire/new-survey-methods-and-fire-effects-on-rare-crayfish-in-gippsland), frogs, reptiles, fish and orchids. Others focused on dunnarts, microbats, deer, feral cats, weeds and fire-sensitive vegetation. Engaging the community in bushfire recovery and research was also an aim for some of the projects.

Theme: Fire

Partners: DELWP (Forest, Fire and Regions), Parks Victoria, Catchment Management Authorities, community members

Region: Port Phillip, Gippsland, Hume

Link: [www.ari.vic.gov.au/research/fire/natural-values-recovery-program-following-the-2009-bushfires](https://www.ari.vic.gov.au/research/fire/natural-values-recovery-program-following-the-2009-bushfires)

## Freshwater Catfish at Tahbilk Lagoon

Summary: Tahbilk Lagoon near Nagambie, central Victoria, is an important refuge for the Freshwater Catfish (Tandanus tandanus), being one of the few locations in Victoria with a relatively abundant population. ARI investigated the timing of catfish spawning by sampling for larvae and young fish of a few months in age. The results will help inform management of environmental water releases that ensure suitable breeding opportunities for species.

Theme: Threatened biota

Contact: wayne.koster@delwp.vic.gov.au

Partners: Goulburn Broken Catchment Management Authority

Region: Hume

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/freshwater-catfish-at-tahbilk-lagoon](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/freshwater-catfish-at-tahbilk-lagoon)

## Plains-wanderer and Hooded Scaly-foot habitat

Summary: ARI has undertaken a project to restore the habitat of the ground-dwelling bird Plains-wanderer (*Pedionomus torquatus*) and legless lizard Hooded Scaly-foot (*Pygopus nigriceps).*This work, which included predator baiting and carefully managed ecological grazing, was undertaken at two key reserves in north-central Victoria, Terrick Terrick National Park and Bael Bael Grassland Nature Conservation Reserve.

Theme: Threatened biota

Contact: geoff.brown@delwp.vic.gov.au

Partners: Parks Victoria

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/Plains-wanderer-and-Hooded-Scaly-foot-habitat](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/Plains-wanderer-and-Hooded-Scaly-foot-habitat)

## Smoky Mice movement across a strategic fuel break

Summary: ARI has completed a study on the movements of the threatened Smoky Mouse (Pseudomys fumeus) that aimed to see whether the strategic fuel break was acting as a barrier to this small nocturnal rodent.

Theme: Threatened biota

Contact: phoebe.macak@delwp.vic.gov.au or peter.menkhorst@delwp.vic.gov.au

Partners: DELWP (Forest Fire and Regions)

Region: Hume

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/smoky-mice-movement-across-a-strategic-fuel-break](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/smoky-mice-movement-across-a-strategic-fuel-break)

## Translocating River Blackfish in the Tarwin River Catchment

Summary: Since 2015, the WGCMA, ARI and local recreational fishers have worked together to trial the translocation of River Blackfish into rehabilitated habitat sites in the Tarwin River and investigate whether they establish new home ranges.

Contact: justin.o'connor@delwp.vic.gov.au

Partners: West Gippsland Catchment Management Authority

Region: Gippsland

Link [www.ari.vic.gov.au/research/rivers-and-estuaries/translocating-river-blackfish-in-the-tarwin-river-catchment](https://www.ari.vic.gov.au/research/rivers-and-estuaries/translocating-river-blackfish-in-the-tarwin-river-catchment)

## [Riparian Intervention Monitoring Program](https://www.ari.vic.gov.au/research/rivers-and-estuaries/riparian-intervention-monitoring-program)

Summary: The Riparian Intervention Monitoring Program (RIMP) is a state-wide, long-term program developed by DELWP that aims to assess the impact and effectiveness of riparian management. RIMP examines three common management interventions: 1. weed control, 2. replanting of native vegetation and 3. fencing to restrict livestock access.

Contact: kaylene.morris@delwp.vic.gov.au

Partners: Catchment Management Authorities

Region: State-wide

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/riparian-intervention-monitoring-program](https://www.ari.vic.gov.au/research/rivers-and-estuaries/riparian-intervention-monitoring-program)

## The frogs are calling you

Summary: Our scientists are listening and looking for frogs along the edges of wetlands as well as searching for tadpoles. We’re also using automated recorders called AudioMoths which record frog calls that can be identified later. Anyone can join the program as a citizen scientist and help improve our knowledge and increase awareness of the benefits providing water for the environment.

Theme: People and nature

Contact: lynette@frogsvic.org (Frog Citizen Science project lead, President of Frogs Victoria), pam.clunie@delwp.vic.gov.au (WetMAP communication), or geoff.brown@delwp.vic.gov.au (WetMAP frog monitoring project leader)

Region: Hume, Loddon Mallee

Partners: Frogs Victoria, FrogID, Australian Museum, Goulburn Broken Catchment Management Authority (CMA) and North Central CMA, University of Melbourne, DELWP.

Link: [www.ari.vic.gov.au/research/people-and-nature/the-frogs-are-calling-you](https://www.ari.vic.gov.au/research/people-and-nature/the-frogs-are-calling-you)

## Use of nest boxes in Victoria

Summary: Nest boxes are widely used in Victoria by community groups, researchers, and government. ARI asked for information from those involved in nest box programs to understand more about the number and distribution of nest boxes in Victoria, what animals were using them, and whether monitoring data was being collected.

Partners: DELWP

Contact: phoebe.macak@delwp.vic.gov.au

Region: State-wide

Link: [www.ari.vic.gov.au/research/people-and-nature/use-of-nest-boxes-in-victoria](https://www.ari.vic.gov.au/research/people-and-nature/use-of-nest-boxes-in-victoria)

## Fishers fishing for fish ear bones

Summary: ARI has partnered with angler citizen scientists to collect fish ear bones to understand how environmental water delivery supports native fish populations. Since 2018, anglers have been sending in ear bones for analysis to understand when the fish was born, where it travelled throughout its life and whether it was a wild or stocked fish.

Theme: People and nature

Contact: pam.clunie@delwp.vic.gov.au

Partners: DELWP (Water and Catchments), local fishers and fishing clubs, Victorian Fisheries Authority, North Central Catchment Management Authority (CMA), Goulburn Broken CMA

Region: Hume, Loddon Mallee

Link: [www.ari.vic.gov.au/research/people-and-nature/fishers-fishing-for-fish-ear-bones](https://www.ari.vic.gov.au/research/people-and-nature/fishers-fishing-for-fish-ear-bones)

[youtu.be/VDbnxX0337I](https://youtu.be/VDbnxX0337I)

## Best-practice guidelines for fox management

Summary: ARI has investigated the key characteristics of successful fox control programs. This research provides an evidence-based approach in supporting land managers to achieve the best-value wildlife outcomes.

Contact: lachlan.francis@delwp.vic.gov.au or alan.robley@delwp.vic.gov.au

Partners: DELWP (Forest Fire Regions, Biodiversity), Mallee Catchment Management Authority, Parks Victoria, Conservation Ecology Centre, Trust for Nature, NSW Forestry Service

Region: State-wide

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/best-practice-guidelines-for-fox-management](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/best-practice-guidelines-for-fox-management)

## Walking with scientists VR 360

Summary: Have you ever wondered what it’s like to be a field scientist? Our 360 VR films create virtual, first-hand experiences to bring our science to life. We’ll show you a range of field techniques we use including electrofishing, small reptile surveys, trapping turtles, bird monitoring, spotlighting for arboreal mammals and infrared-camera bat surveys.

Contact: andrew.geschke@delwp.vic.gov.au

Region: State-wide

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/walking-with-scientists-vr-360](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/walking-with-scientists-vr-360)

## Using monitoring to improve native vegetation management

Summary: ARI has developed a monitoring approach that focuses on the links between management activities, threat reduction and native vegetation condition. This approach identifies ecological indicators that can accurately evaluate the effectiveness of management activity.

Theme: Field monitoring

Contact: claire.moxham@delwp.vic.gov.au

Partners: Catchment Management Authorities

Region: Barwon South West

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/using-monitoring-to-improve-native-vegetation-management](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/using-monitoring-to-improve-native-vegetation-management)

## Victorian venom bank collaboration - snakes

Summary: ARI is contributing its expertise in venomous snakes to establish a collection of venomous terrestrial and marine animals and their venoms, to form a basis for medical research and taxonomic and biodiversity studies.

Theme: Field monitoring

Contact: Nick Clemann research.ari@delwp.vic.gov.au

Partners:  Museum Victoria, University of Melbourne's Australian Venom Research Unit

Region: Gippsland, Hume

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/victorian-venom-bank-collaboration-snakes](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/victorian-venom-bank-collaboration-snakes)

## How Victorians can act for nature

Summary: DELWP’s Biodiversity Plan states that the goal ‘Victorians value nature’ will be achieved by: “increasing the number of Victorians connecting with nature, and who act to protect or enhance biodiversity”. ARI’s working with researchers at RMIT to tells us the best actions Victorians can do to achieve this goal.

Theme: People and nature

Contact: richard.faulkner@delwp.vic.gov.au or fern.hames@delwp.vic.gov.au

Partners:  RMIT

Region: State-wide

Link: [www.ari.vic.gov.au/research/people-and-nature/how-victorians-can-act-for-nature](https://www.ari.vic.gov.au/research/people-and-nature/how-victorians-can-act-for-nature)

## Preparing carp for herpesvirus

Summary: ARI is contributing to research that will underpin the National Carp Control Plan by leading a five-state collaborative project with La Trobe University to develop an international best-practice to determine how many carp are in eastern Australia. This research will assist with the development of carp biocontrol strategies.

Theme: Pests and overabundant species

Contact: jarod.lyon@delwp.vic.gov.au

Partners:  La Trobe University, NSW Department of Primary industries, SA Research and Development Institute, QLD Department of Agriculture and Fisheries, ACT Environment and Sustainable Development Directorate

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/preparing-for-carp-herpesvirus](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/preparing-for-carp-herpesvirus)

## Deer-livestock interaction and disease

Summary: ARI is leading a national project to develop a model to predict wild deer population dynamics and calculate the risk of disease being passed from deer to livestock. This model will contribute to the state and national approaches for responding to animal disease emergencies, therefore enhancing current capabilities in controlling potential livestock epidemics.

Theme: Pests and overabundant species

Contact: carlo.pacioni@delwp.vic.gov.au or david.ramsey@delwp.vic.gov.au

Partners:  Centre for Invasive Species Solutions (CISS), La Trobe University, VIC Department of Economic Development, Jobs, Transport and Resources, NSW Department of Primary industries, QLD Department of Agriculture and Fisheries

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/deer-livestock-interaction-and-disease](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/deer-livestock-interaction-and-disease)

## Cultural conservation of freshwater turtles

Summary: ARI researchers are collaborating with Yorta Yorta people to manage freshwater turtle populations that are experiencing a high mortality rate. The project works to build upon a knowledge system that will assist in the plight of their struggling totem, the Broad-shelled Turtle (Chelodina expansa).

Theme: Wetlands

Contact: katie.howard@delwp.vic.gov.au

Partners:  Yorta Yorta Traditional Owners, Murray-Darling Basin Authorities' The Living Murray Program

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/cultural-conservation-of-freshwater-turtles](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/cultural-conservation-of-freshwater-turtles)

## Assessing wetland response to water for the environment

Summary: Wetland Monitoring and Assessment Program for environmental water (WetMAP) is measuring the response of wetland vegetation and a range of fauna to natural water regimes that are supplemented by environmental water. Numerous aspects of wetland ecology will be studied, for example, tree condition, diversity of plants, numbers and breeding activity of waterbirds, fish and frogs.

Theme: Wetlands

Contact: phil.papas@delwp.vic.gov.au

Partners:  DELWP (Water and Catchments Group), Melbourne Water, Catchment Management Authorities, Victorian Environmental Water Holder, consultant ecologists

Region: State-wide

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/assessing-wetland-response-to-water-for-the-environment](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/assessing-wetland-response-to-water-for-the-environment)

## Assessing wetland response to water for the environment

Summary: ARI is developing fish population models and modelling a range of flow conditions to allow quick exploration of likely outcomes to complex management scenarios. This will enable different management options to be compared so that the benefits to fish can be maximised.

Theme: Modelling

Contact: john.koehn@delwp.vic.gov.au or charles.todd@delwp.vic.gov.au

Partners:  Murray-Darling Basin Authority

Region: Australia

Link: [www.ari.vic.gov.au/research/modelling/population-models-for-native-fish-response-to-flows](https://www.ari.vic.gov.au/research/modelling/population-models-for-native-fish-response-to-flows)

## Melbourne Strategic Assessment Program - ARI

Summary: To protect and manage threatened ecosystems on the fringes of Melbourne, ARI has been contributing to the Melbourne Strategic Assessment program from the design of the program to its implementation.

Theme: Threatened biota

Contact: steve.sinclair@delwp.vic.gov.au

Partners: DELWP (Biodiversity)

Region: Port Philip

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/melbourne-strategic-assessment-program-ari](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/melbourne-strategic-assessment-program-ari)

## Waterbirds at the Western Treatment Plant

Summary: ARI has been monitoring waterbirds at the Western Treatment Plant for almost two decades to help guide management of this critical habitat.

Theme: Field monitoring

Contact: peter.menkhorst@delwp.vic.gov.au

Partners: Melbourne Water

Region: Port Philip

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/waterbirds-at-the-western-treatment-plant](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/waterbirds-at-the-western-treatment-plant)

## Fire ecology retrospective study looking back to learn for the future

Summary: A retrospective study that assessed how past fires influence the present occurrence and abundance of plants and animals in foothill forests of East Gippsland. Results will contribute to the planning of prescribed burns, including appropriate fire intervals to maintain species populations.

Theme: Fire

Contact: annette.muir@delwp.vic.gov.au

Partners: Hawkeye monitoring project, DELWP (Forest, Fire & Regions)

Region: Gippsland

Link: [www.ari.vic.gov.au/research/fire/fire-ecology-retrospective-study-looking-back-to-learn-for-the-future](https://www.ari.vic.gov.au/research/fire/fire-ecology-retrospective-study-looking-back-to-learn-for-the-future)

## Removing trout for Barred Galaxias conservation

Summary: ARI analysed 22 years of trout survey data to determine the effectiveness of the construction and modification of instream barriers for protecting Barred Galaxias (Galaxias fuscus) populations against predation from trout species.

Theme: Threatened biota

Contact: tarmo.raadik@delwp.vic.gov.au

Partners: DELWP

Region: Hume

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/removing-trout-for-barred-galaxias-conservation](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/removing-trout-for-barred-galaxias-conservation)

## New survey methods and fire effects on rare crayfish in Gippsland

Summary: Following the 2009 bushfires, trials were conducted in burnt and unburnt regions to determine the effect of fire on crayfish species in Gippsland and develop more effective methods for surveying these species.

Theme: Fire

Contact: phil.papas@delwp.vic.gov.au or david.bryant@delwp.vic.gov.au

Region: Gippsland

Link: [www.ari.vic.gov.au/research/fire/new-survey-methods-and-fire-effects-on-rare-crayfish-in-gippsland](https://www.ari.vic.gov.au/research/fire/new-survey-methods-and-fire-effects-on-rare-crayfish-in-gippsland)

## Citizen science – looking for Rainbow Lorikeets

Summary: Citizen scientists have been using the online tool “Where’s Lori?” to help monitor the distribution of Rainbow Lorikeets and their nesting sites across Victoria.

Theme: People and nature

Contact: fern.hames@delwp.vic.gov.au

Partners: Monash University

Region: State-wide

Link: [www.ari.vic.gov.au/research/people-and-nature/citizen-science-looking-for-rainbow-lorikeets](https://www.ari.vic.gov.au/research/people-and-nature/citizen-science-looking-for-rainbow-lorikeets)

## Electrofishing technology

Summary: ARI have helped develop a prototype boat-mounted electrofishing unit that has the capacity to operate in saline environments such as estuaries. This innovative electrofishing unit will enable more thorough studies of estuaries to be conducted and will help fill a significant gap in worldwide fish research.

Theme: Field monitoring

Contact: jason.lieschke@delwp.vic.gov.au

Partners: Hans Grassi

Region: Port Phillip, Gippsland

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/electrofishing-technology](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/electrofishing-technology)

[www.youtube.com/watch?v=PaXCutLOuJg](https://www.youtube.com/watch?v=PaXCutLOuJg)

[youtu.be/bNh6QiUI9EE](https://youtu.be/bNh6QiUI9EE)

## Extensive new knowledge on threatened species

Summary: Scientists at ARI have been investigating the status, distribution and habitat use of ten high priority threatened fauna species to provide updated information and contribute to evidence-based policy.

Theme: Threatened biota

Contact: lindy.lumsden@delwp.vic.gov.au or jenny.nelson@delwp.voc.gov.au

Partners: DELWP

Region: Gippsland, Port Phillip, Hume

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/extensive-new-knowledge-on-threatened-species](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/extensive-new-knowledge-on-threatened-species)

## Fish Friendly Stream Gauging Station Program

Summary: The Fish Friendly Stream Gauging Station Program is assessing stream gauges across Victoria to determine how much of a barrier each presents for native fish throughout Victoria’s riverine network.

Theme: Rivers

Contact: matthew.jones@delwp.vic.gov.au

Partners: DELWP (Water and Catchments), CMAs, water authorities and Bureau of Meteorology

Region: State-wide

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/fish-friendly-stream-gauging-station-program](https://www.ari.vic.gov.au/research/rivers-and-estuaries/fish-friendly-stream-gauging-station-program)

## Genetic health of native fish

Summary:  ARI is exploring how we can target environmental water delivery to enhance population connectivity to boost the genetic health of native fish populations.

Theme: Rivers

Contact: katherine.harrison@delwp.vic.gov.au or zeb.tonkin@delwp.vic.gov.au

Partners: DELWP, La Trobe University, University of Melbourne, North Central Catchment Management Authority (CMA), Goulburn Broken CMA, South Australian Research and Development Institute, and New South Wales Department of Primary Industries

Region: Hume, Loddon Mallee

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/genetic-health-of-native-fish](https://www.ari.vic.gov.au/research/rivers-and-estuaries/genetic-health-of-native-fish)

## Finbox

Summary: A Demonstration Reach is a proven river restoration model. ARI and partners have developed a river restoration toolbox, called Finbox, to provide valuable resources for all those interested in river restoration.

Theme: Rivers

Contact: pam.clunie@delwp.vic.gov.au

Partners: Murray-Darling Basin Authority

Region: Australia

Links: [www.ari.vic.gov.au/research/rivers-and-estuaries/finbox](https://www.ari.vic.gov.au/research/rivers-and-estuaries/finbox)

[www.ari.vic.gov.au/\_\_data/assets/pdf\_file/0023/37751/ARI-Technical-Report-259-A-demonstration-reach-toolbox.pdf](https://www.ari.vic.gov.au/__data/assets/pdf_file/0023/37751/ARI-Technical-Report-259-A-demonstration-reach-toolbox.pdf)

Rainforests: will they cope with a changing fire regime?

Summary:  ARI has completed a research project to determine how Cool Temperate Rainforest in the Yarra Ranges National Park had fared ten years after the fires of 2009.

Theme: Fire

Contact: arn.tolsma@delwp.vic.gov.au

Partners: Parks Victoria

Region: Port Phillip

Link: [www.ari.vic.gov.au/research/fire/rainforests-will-they-cope-with-a-changing-fire-regime](https://www.ari.vic.gov.au/research/fire/rainforests-will-they-cope-with-a-changing-fire-regime)

## Bushfire response 2020 - aquatic rescues

Summary:  ARI scientists have been closely involved in the Victorian Government’s response to the 2019/2020 bushfires. Specific actions have been taken for species such as Macquarie Perch, Murray Cod, Galaxias species, Crayfish species and freshwater mussel species. We have provided providing input and advice on appropriate actions and performing emergency extractions, translocation and ex-situ management to prevent extinctions and limit decline.

Theme: Fire

Contact: jarod.lyon@delwp.vic.gov.au

Partners: DELWP

Region: Gippsland, Hume, Barwon South West

Links: [www.ari.vic.gov.au/research/fire/bushfire-response-2020-aquatic-rescues](https://www.ari.vic.gov.au/research/fire/bushfire-response-2020-aquatic-rescues)

## Bushfire response 2020 – alpine bogs: how are they coping?

Summary:  ARI has completed an assessment of alpine bogs in eastern Victoria to determine the broad impacts of the 2019-20 bushfires and identify major risks to the bogs in the immediate post-fire period.

Theme: Fire

Contact: arn.tolsma@delwp.vic.gov.au

Partners: DELWP

Region: Hume, Gippsland

Link: [www.ari.vic.gov.au/research/fire/bushfire-response-2020-alpine-bogs-how-are-they-coping](https://www.ari.vic.gov.au/research/fire/bushfire-response-2020-alpine-bogs-how-are-they-coping)

## Bushfire response 2020 – impacts on reptiles and frogs

Summary: Within months of the fires, ARI completed surveys targeted at species particularly vulnerable to post-fire threats, such as the Gippsland Water Dragon, Alpine Tree Frog and Alpine She-oak Skink, to determine the immediate and short-term impacts of fire on these species.

Theme: Fire

Contact: Nick Clemann: research.ari@delwp.vic.gov.au

Partners: DELWP

Region: Hume, Gippsland

Link: [www.ari.vic.gov.au/research/fire/bushfire-response-2020-impacts-on-reptiles-and-frogs](https://www.ari.vic.gov.au/research/fire/bushfire-response-2020-impacts-on-reptiles-and-frogs)

## Genetic management of threatened species breeding programs and translocations

Summary: ARI has led several collaborative projects exploring genetic diversity dynamics and that aim to improve how models can inform the design of translocations, including establishing meaningful quantitative targets to measure success.

Theme: Threatened biota

Contact: carlo.pacioni@delwp.vic.gov.au

Partners: Murdoch University and the Western Australian Department of Biodiversity Conservation and Attractions

Region: Australia

Link: [www.ari.vic.gov.au/research/threatened-plants-and-animals/genetic-management-of-threatened-species-breeding-programs-and-translocations](https://www.ari.vic.gov.au/research/threatened-plants-and-animals/genetic-management-of-threatened-species-breeding-programs-and-translocations)

## Tracking turtles to determine impacts of water for the environment

Summary: ARI is studying the impact of flow regimes on turtle movement and habitat use within the floodplains of Barmah-Millewa Forest, with a focus on the threatened Murray River Turtle.

Theme: Wetlands

Contact: katie.howard@delwp.vic.gov.au

Partners: Murray-Darling Basin Authority, Goulburn Broken Catchment Management Authority, NSW Parks and Wildlife Service.

Region: Hume

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/tracking-turtles-to-determine-impacts-of-water-for-the-environment](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/tracking-turtles-to-determine-impacts-of-water-for-the-environment)

## Restoring Black Box Wetlands

Summary: Through a coordinated suite of projects, ARI scientists have been monitoring changes in Black Box woodlands in response to environmental watering and other restoration actions.

Theme: Wetlands

Contact: claire.moxham@delwp.vic.gov.au

Partners: DELWP, Murray-Darling Basin Authority, Mallee Catchment Management Authority and Parks Victoria.

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/restoring-black-box-woodlands](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/restoring-black-box-woodlands)

## MSA - Population viability analysis models for threatened species

Summary: ARI is contributing to the Melbourne Strategic Assessment (MSA) Program in multiple ways, including developing population viability analysis (PVA) models for nine priority threatened species such as the Button Wrinklewort (*Rutidosis leptorrhynchoides*) and Golden Sun Moth (Synemon plana).

Theme: Modelling

Contact: tracey.regan@delwp.vic.gov.au

Partners: DELWP, species’ experts and land managers

Region: Port Phillip

Link: [www.ari.vic.gov.au/research/modelling/msa-population-viability-analysis-models-for-threatened-species](https://www.ari.vic.gov.au/research/modelling/msa-population-viability-analysis-models-for-threatened-species)

## eDNA technology - an innovative survey method

Summary: The field of eDNA species detection is still new, and ARI is helping to develop the technique for Victorian species and conditions. eDNA has great potential for detecting species that are difficult and time-consuming to find, such as rare or cryptic species, as well as identifying outbreaks of pest species.

Theme: Field monitoring

Contact: james.shelley@delwp.vic.gov.au

Partners: N/A

Region: State-wide

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/edna-technology-an-innovative-survey-method](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/edna-technology-an-innovative-survey-method)

## Assessing the conservation benefits of revegetation

Summary: ARI has completed research to understand how revegetation contributes to nature conservation by examining bird and butterfly communities. A monitoring method to evaluate how well revegetation goals are being achieved has also been developed.

Theme: Field monitoring

Contact: tim.obrien@delwp.vic.gov.au

Partners: La Trobe University, several land managers, non-government agencies and community groups

Region: State-wide

Links: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/assessing-the-conservation-benefits-of-revegetation](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/assessing-the-conservation-benefits-of-revegetation)

## Determining the population structure of feral pigs using genetics

Summary: ARI is co-leading a project that is using genetic profiling to determine the population structure of feral pigs across south-east Australia for improved control.

Theme: Pests and overabundant species

Contact: alan.robley@delwp.vic.gov.au

Partners: Agriculture Victoria (Animal Health and Welfare Unit) and public land managers across Victoria, New South Wales and South Australia

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/determining-the-population-structure-of-feral-pigs-using-genetics](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/determining-the-population-structure-of-feral-pigs-using-genetics)

## Birding is better when we work together

Summary: In partnership with Birdlife Australia, ARI are looking for citizen scientists to help us investigate how birds respond to water for the environment. We're learning what their preferred water regime and habitat is. If you are a bird observer, help us to document birdlife in some of Victoria’s key wetlands. See the link below for how to get involved.

Theme: People and nature

Contact: pam.clunie@delwp.vic.gov.au

Partners: DELWP, BirdLife Australia, BirdLife Goulburn Broken, Goulburn Broken Catchment Management Authority (CMA) and North Central CMA.

Region: Hume, Loddon Mallee

Link: [www.ari.vic.gov.au/research/people-and-nature/birding-is-better-when-we-work-together](https://www.ari.vic.gov.au/research/people-and-nature/birding-is-better-when-we-work-together)

## Victorians Value Nature

Summary: In late 2018, DELWP conducted the first state-wide survey (the Victorians Value Nature Foundation Survey) to understand the Victorian public’s level of connection to nature, awareness of biodiversity and activity levels of pro-environmental behaviour. The results will guide our next steps includes making opportunities for people to act for nature more visible, accessible and fun for all Victorians.

Theme: People and nature

Contact: fern.hames@delwp.vic.gov.au

Partners: BehaviourWorks Australia, DELWP

Region: State-wide

Links: [www.ari.vic.gov.au/research/people-and-nature/victorians-value-nature](https://www.ari.vic.gov.au/research/people-and-nature/victorians-value-nature)

## Nature connection survey

Summary: All Victorian adults are welcome to participate in this [short survey](https://monash.az1.qualtrics.com/jfe/form/SV_6MAlZ3FvtrpkQEl), which will contribute to the ongoing protection of our environment. The is ongoing and the results will help guide what we need to do, and how, to increase our capacity to protect biodiversity together as Victorians.

Theme: People and nature

Contact: richard.faulkner@delwp.vic.gov.au

Partners: Monash University, DELWP

Region: State-wide

Link: [www.ari.vic.gov.au/research/people-and-nature/nature-connection-survey](https://www.ari.vic.gov.au/research/people-and-nature/nature-connection-survey)

## Rabbit biological control

Summary: ARI is testing new ways of analysing Rabbit Haemorrhagic Disease Virus (RHDV) molecular data and assessing how accurately the spread of different RHDV strains can be predicted. This study will be the foundation for the fine-tuning of RHDV as a method for reducing the economic and environmental impacts of feral rabbits in Australia.

Theme: Pests and overabundant species

Contact: carlo.pacioni@delwp.vic.gov.au or david.ramsey@delwp.vic.gov.au

Partners: CSIRO, University of Auckland and the Western Australian Department of Agriculture and Food

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/rabbit-biological-control](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/rabbit-biological-control)

## Weed control in threatened native grasslands

Summary: As part of a cross-agency partnership, a herbicide control program has been applied to a series of roadside and rail line grasslands for several years. During this time, ARI has been closely monitoring the grasslands to measure its effective at improving native grassland quality.

Theme: Pests and overabundant species

Contact: brad.farmilo@delwp.vic.gov.au or claire.moxham@delwp.vic.gov.au

Partners: Glenelg Hopkins Catchment Management Authority (CMA), Corangamite CMA, DELWP (Forest, Fire and Regions), CFA, local councils, VicRoads, VicRail and private contractors.

Region: Barwon South West

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/weed-control-in-threatened-native-grasslands](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/weed-control-in-threatened-native-grasslands)

## Using models to help manage the impacts of Carp

Summary: ARI has developed a population model that is being used to quantify how carp populations may respond to a variety of flows, including natural flows, environmental watering and irrigation flows.

Theme: Pests and overabundant species

Contact: john.koehn@delwp.vic.gov.au or charles.todd@delwp.vic.gov.au

Partners: Murray-Darling Basin Authority

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/using-models-to-help-manage-the-impacts-of-carp](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/using-models-to-help-manage-the-impacts-of-carp)

## National emergency response system for freshwater fish incursions

Summary: ARI has been involved in a national project reviewing current management of freshwater fish incursions and recommending ways to progress the establishment of national emergency response arrangements for freshwater fish incursions in Australia.

Theme: Pests and overabundant species

Contact: renae.ayres@delwp.vic.gov.au or pam.clunie@delwp.vic.gov.au

Partners: Invasive Animals Cooperative Research Centre

Region: Australia

Link: [www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/national-emergency-response-system-for-freshwater-fish-incursions](https://www.ari.vic.gov.au/research/pests-weeds-and-overabundant-species/national-emergency-response-system-for-freshwater-fish-incursions)

## Assessing stock management practices on remnant vegetation in the Mallee

Summary: ARI has developed and field tested a monitoring protocol and designed a long-term monitoring strategy that assesses the impact of Stock Containment Areas and stock exclusion fencing on the quality of priority remnant vegetation.

Theme: Field monitoring

Contact: claire.moxham@delwp.vic.gov.au or michael.duncan@delwp.vic.gov.au

Partners: Mallee Catchment Management Authority

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/assessing-stock-management-practices-on-remnant-vegetation-in-the-mallee](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/assessing-stock-management-practices-on-remnant-vegetation-in-the-mallee)

## Improving semi-arid non-eucalypt woodland condition

Summary: ARI has developed a long-term monitoring program to measure the progress of Parks Victoria’s grazing management plan, which aims to improve the condition of semi-arid woodlands.

Theme: Field monitoring

Contact: sally.kenny@delwp.vic.gov.au or claire.moxham@delwp.vic.gov.au

Partners: Parks Victoria, Mallee Catchment Management Authority

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/health-of-semi-arid-non-eucalypt-woodlands](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/health-of-semi-arid-non-eucalypt-woodlands)

## Camera trapping

Summary: ARI has been using automated cameras to conduct mammal surveys for many years. We have used cameras to detect the presence of threatened and introduced species, obtain estimates of detection probability and document mammal behaviour and interactions.

Theme: Field monitoring

Contact: luke.woodford@delwp.vic.gov.au

Region: State-wide

Links: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/camera-trapping](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/camera-trapping)

## Waterbird surveys in a large, tidal bay

Summary: ARI has been conducting surveys in the North Arm of Western Port to estimate how many birds, and which species, were using the area, and what habitats were important.

Theme: Field monitoring

Contact: peter.menkhorst@delwp.vic.gov.au or danny.rogers@delwp.vic.gov.au

Region: Port Phillip

Links: [www.ari.vic.gov.au/research/field-techniques-and-monitoring/waterbird-surveys-in-a-large,-tidal-bay](https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/waterbird-surveys-in-a-large,-tidal-bay)

## Population modelling software

Summary: 'Essential' modelling software provides a platform for developing stochastic population models that allow for wildlife management policies to be assessed and compared quantitatively. Essential has been used to provide management assessment on a number of terrestrial and aquatic species such as Leadbeater's Possum, Koala and Murray Cod.

Theme: Modelling

Contact: charles.todd@delwp.vic.gov.au

Region: State-wide

Link: [www.ari.vic.gov.au/research/modelling/population-modelling-software](https://www.ari.vic.gov.au/research/modelling/population-modelling-software)

## Mapping vegetation extent and condition

Summary: ARI staff have been developing a range of novel datasets to assist land managers to make informed decisions about the management of native vegetation and conservation programs.

Theme: Modelling

Contact: graeme.newell@delwp.vic.gov.au

Region: State-wide

Links: [www.ari.vic.gov.au/research/modelling/mapping-vegetation-extent-and-condition](https://www.ari.vic.gov.au/research/modelling/mapping-vegetation-extent-and-condition)

[www.youtube.com/watch?v=5PBb2V5qd-Y&feature=emb\_imp\_woyt](https://www.youtube.com/watch?v=5PBb2V5qd-Y&feature=emb_imp_woyt)

## Wetland connectivity

Summary: ARI is undertaking an assessment of wetland habitat connectivity at the state-wide scale to inform wetland policy development

Theme: Wetlands

Contact: kaylene.morris@delwp.vic.gov.au

Partners: DELWP

Region: State-wide

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/wetland-connectivity](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/wetland-connectivity)

## A guide to livestock grazing on wetlands

Summary: ARI, in collaboration with environmental consultants and wetland specialists, have developed a guide to assist wetland practitioners identify grazing options and understand the potential benefits and impacts of grazing in wetlands.

Theme: Wetlands

Contact: kaylene.morris@delwp.vic.gov.au

Partners: DELWP (Water & Catchments), Catchment Management Authorities, wetland specialists

Region: State-wide

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/a-guide-to-livestock-grazing-on-wetlands](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/a-guide-to-livestock-grazing-on-wetlands)

## Vegetation response to environmental watering at Hattah Lakes

Summary: ARI has been monitoring the response of three plant communities (Lake Bed wetlands, River Red Gum and Black Box woodlands) to environmental watering to assess the success of an environmental watering program that began in 2005, and inform future water deliveries.

Theme: Wetlands

Contact: claire.moxham@delwp.vic.gov.au or sally.kenny@delwp.vic.gov.au

Partners: DELWP, Victorian Environmental Water Holder and The Living Murray Intervention Monitoring Program on behalf of the Mallee Catchment Management Authority.

Region: Loddon Mallee

Link: [www.ari.vic.gov.au/research/wetlands-and-floodplains/vegetation-response-to-environmental-watering-at-hattah-lakes](https://www.ari.vic.gov.au/research/wetlands-and-floodplains/vegetation-response-to-environmental-watering-at-hattah-lakes)

## Native Fish Guide for Coastal Victoria

Summary: The 'Guide to the Management of Native Fish: Victorian Coastal Rivers and Wetlands' provides information on fish biology and habitat requirements for native fish. The guide supports local natural resource managers with various aspects of fish management.

Theme: Rivers

Contact: pam.clunie@delwp.vic.gov.au

Partners: The National Heritage Trust

Region: Barwon South West, Port Phillip, Gippsland

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/native-fish-guide-for-coastal-victoria](https://www.ari.vic.gov.au/research/rivers-and-estuaries/native-fish-guide-for-coastal-victoria)

## Victorian instream habitat assessment

Summary: ARI is assessing the importance of instream woody habitat for fish and river health. The results of this long-term study have guided the development of the RiverRehab decision support tool. RiverRehab helps waterway managers identify suitable reaches for instream habitat additions or protection.

Theme: Rivers

Contact: adrian.kitchingman@delwp.vic.gov.au or zeb.tonkin@delwp.vic.gov.au

Partners: DELWP, the Victorian Fisheries Authority, Catchment Management Authorities, Melbourne Water and the University of Melbourne.

Region: State-wide

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/victorian-instream-habitat-assessment](https://www.ari.vic.gov.au/research/rivers-and-estuaries/victorian-instream-habitat-assessment)

## Lower Snowy River monitoring and assessment

Summary: In 2013, ARI commenced four integrated programs to help inform and improve management of the lower Snowy River and associated wetlands. These programs will investigate environmental flows, native fish, wetland biota and habitat connectivity.

Theme: Rivers

Contact: daniel.j.stoessel@delwp.vic.gov.au

Partners: East Gippsland Catchment Management Authority, Parks Victoria

Region: Gippsland

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/lower-snowy-river-monitoring-and-assessment](https://www.ari.vic.gov.au/research/rivers-and-estuaries/lower-snowy-river-monitoring-and-assessment)

## The Native Fish Strategy

Summary: ARI was a key partner in the development of the Native fish Strategy, through a suite of research projects and working with other partners in implementing on ground actions. Research projects included new population modelling approaches, non-lethal methods to discriminate between wild and stocked fish and integrated river rehabilitation.

Theme: Rivers

Contact: fern.hames@delwp.vic.gov.au

Partners: Murray Darling Basin Authority

Region: Australia

Link: www.ari.vic.gov.au/research/rivers-and-estuaries/the-native-fish-strategy

## Murray River resnagging

Summary: ARI scientists conducted a seven-year monitoring program to assess the effectiveness of a large-scale habitat restoration program at increasing fish populations along the Murray River. To date, this is the largest resnagging and restoration project of its kind within Australia.

Theme: Rivers

Contact: jarod.lyon@delwp.vic.gov.au or zeb.tonkin@delwp.vic.gov.au

Partners: Murray-Darling Basement Authority

Region: Hume

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/murray-river-resnagging](https://www.ari.vic.gov.au/research/rivers-and-estuaries/murray-river-resnagging)

## Growth response of native fish to flows

Summary: ARI scientists examined the links between flow regimes and the growth of long-lived native fish. Research outcomes provide support and guidance for the effective use of environmental water to enhance fish populations.

Theme: Rivers

Contact: zeb.tonkin@delwp.vic.gov.au

Partners: Murray-Darling Basin Authority

Region: Hume

Link: [www.ari.vic.gov.au/research/rivers-and-estuaries/growth-response-of-native-fish-to-flows](https://www.ari.vic.gov.au/research/rivers-and-estuaries/growth-response-of-native-fish-to-flows)

## Victorian Demonstration Reach Program

Summary: A rehabilitation program targeted at specific stretches of river, referred to as a 'Demonstration Reach' has been established to increase fish populations and improve fish habitat. Another aim of the program is to involve the community in rehabilitating waterways and to show how this can improve river health.

Theme: Rivers

Contact: scott.raymond@deplwp.vic.gov.au

Partners: Murray-Darling Basin Authority

Region: Hume

Link: www.ari.vic.gov.au/research/rivers-and-estuaries/victorian-demonstration-reach-program

## Fishways and fish movement

Summary: ARI is working closely with Catchment Management Authorities, water authorities and the community to reconnect rivers across Victoria with the aim of helping to improve native fish populations.

Theme: Rivers

Contact: justin.o'connor@delwp.vic.gov.au or matthew.jones@delwp.vic.gov.au

Partners: DELWP (Water & Catchments)

Region: State-wide

Link: www.ari.vic.gov.au/research/rivers-and-estuaries/fishways-and-fish-movement

## Biodiversity Knowledge Framework

Summary: ARI’s built a network of models to describe how we understand our environment and the relationship of conservation actions to biodiversity. These models underpin a framework that will help informed decisions about what actions will deliver greater benefits, for more species, and across more landscapes in Victoria.

Theme: Modelling

Contact: [matthew.bruce@delwp.vic.gov.au](mailto:matthew.bruce@delwp.vic.gov.au)

Partners: DELWP (Biodiversity Division)

Region: Statewide

Link: <https://www.ari.vic.gov.au/research/modelling/biodiversity-knowledge-framework>

## Nature-led community recovery

Summary: This program is helping fire-impacted communities to learn about how nature is responding to the bushfires, and to lead projects that benefit local plants, wildlife and habitats. It supports the recovery of both nature and people in Victoria.

Theme: People and nature

Contact: [fern.hames@delwp.vic.gov.au](mailto:fern.hames@delwp.vic.gov.au)

Partners: Zoos Victoria, Bushfire Recovery Victoria

Region: Gippsland, Hume

Link: <https://www.ari.vic.gov.au/research/people-and-nature/nature-led-community-recovery>

## Bushfire response 2020 - impacts on gliders and owls

Summary: ARI has surveyed five priority species of gliders and owls in areas of East Gippsland to assess short-term impacts and threats associated with the Black Summer bushfires. This work supports the implementation of recovery management actions for these species.

Theme: Fire

Contact: jemma.cripps@delwp.vic.gov.au

Partners: DELWP Regional staff, Parks Victoria, Wildlife Unlimited, WWF, Zoos Victoria, Atkins Ecology

Region: Gippsland, Hume

Link: <https://www.ari.vic.gov.au/research/fire/bushfire-response-2020-impacts-on-gliders-and-owls>

## Bushfire response 2020 - impacts on native bees

Summary: ARI and Museums Victoria have partnered to survey native bees in areas burnt by the 2019/20 Black Summer bushfires. Researchers compared bee populations within the burnt areas to adjacent unburnt locations to understand how different bee species were affected.

Image credit: Ken Walker

Theme: Fire

Contact: matthew.bruce@delwp.vic.gov.au or david.bryant@delwp.vic.gov.au

Partners: Melbourne Museum

Region: Gippsland, Hume

Link: <https://www.ari.vic.gov.au/research/fire/bushfire-response-2020-impacts-on-native-bees>

## Gone Growling – listening out for the local vocal celebrity

Summary: ARI and partners are calling on Melbournians to record Growling Grass Frog calls. Community collected recordings will complement expert surveys to better understand the species distribution in urban areas.

Theme: People and Nature

Contact: christina.renowden@delwp.vic.gov.au

Partners: DELWP (Biodiversity Division- Melbourne Strategic Assessment), Melbourne Water

Region: Port Phillip

Link: <https://www.ari.vic.gov.au/research/people-and-nature/gone-growling-listening-out-for-the-local-vocal-celebrity>

## Instream Woody Habitat

Summary: ARI is leading several projects assessing the importance of instream woody habitat for fish and river health. We are helping catchment managers restore rivers and their native fish populations by identifying suitable reaches for instream habitat protection or addition.

Theme: Rivers

Contact: pam.clunie@delwp.vic.gov.au

Partners: VicRoads, DELWP, Victorian Fisheries Authority, Melbourne Water, Catchment Management Authorities

Region: State-wide

Link: <https://www.ari.vic.gov.au/research/rivers-and-estuaries/instream-woody-habitat>