

Arthur Rylah Institute for Environmental Research

Research Strategy 2012-2016

Scope of the ARI Research Strategy

The Arthur Rylah Institute (ARI) is the Victorian government's biodiversity research institute. The purpose of this strategy is to outline the research priorities and directions for ARI for the next five years. It includes broad research themes, principles and future directions. The strategy is supported by sub-strategies, action plans and our Operational Plan.

ARI's Vision

Our science underpins high-quality, evidence-based decision-making by governments and communities.

ARI's Objective

To generate and disseminate knowledge, through world-class, applied, ecological research, which supports and guides sustainable ecosystem policy and management to ensure healthy, resilient ecosystems in south-eastern Australia.

Principles underpinning the Research Strategy

ALIGNMENT TO GOVERNMENT: We align our work to State and Federal Government strategies and priorities.

RESPONSIVENESS: We understand our stakeholder's needs and maximise the value of our work by conducting and bringing together projects of mutual strategic value.

QUALITY: We are nationally and internationally recognised for conducting applied ecological research that fills critical knowledge gaps to address important issues.

LEADERSHIP: We provide high level science leadership and facilitate quality research across the biodiversity sector.

INFLUENCE: Our research findings are widely distributed in scientific, management, policy arenas and to stakeholders and the broader community in order to influence biodiversity outcomes.

TEAMWORK: We work collaboratively, to share knowledge and resources, support each other and enhance learning.

This Research Strategy will assist:

ARI staff by guiding the development of new projects in consultation with clients, and helping to re-align existing work.

ARI management by guiding future project selection and management decisions that link to the delivery of our objective, including capability development, recruitment, strategic partnerships and risk management.

Stakeholders by providing a framework for State and Federal Government agencies, authorities, non-government organisations, universities and others to engage with ARI and to access our range of science capabilities.

ARI'S Objective

To generate and disseminate knowledge, through world-class, applied, ecological research, which supports and guides sustainable ecosystem policy and management to ensure healthy, resilient ecosystems in south-eastern Australia.

Victoria's Biodiversity Targets	Public land is managed as the core of resilient ecosystems	Rivers, wetlands & estuaries are managed so they continue to provide ecosystem services	Riparian lands protect waterways, and increase productivity and connectivity	Coastal & marine environments are healthy and productive	Urban, peri-urban & green wedge areas host diverse values and resilient ecosystems	Rural & agricultural landscapes contribute to ecosystem resilience and biolinks
--	--	---	--	--	--	---

Research Themes

Our three Research Themes provide the framework for understanding where ARI's current and future project work fits into a larger ecosystem picture. While some projects may address just a single theme, many projects will have elements of two or all three themes.

Ecological processes "How ecosystems function"	Disturbance ecology "How disturbed ecosystems function"	Protection and recovery "How to protect and recover ecosystems"
<p>Rationale</p> <p>Understanding ecosystems and species' biology is the foundation of ecological knowledge and provides a sound basis for interpreting effects of natural and human-induced disturbances, as well as making informed decisions about ecosystem protection and recovery.</p> <p>ARI Research Goals</p> <ul style="list-style-type: none"> To improve knowledge of how and why populations, communities and ecosystems change through time and space. To improve knowledge of species' habitat requirements, distribution and population processes (such as growth, reproduction, dispersal and recruitment) through modelled and empirical information. To refine knowledge on optimal techniques to detect species to inform the development of standards, guidelines and protocols. 	<p>Rationale</p> <p>Knowledge of ecosystems' disturbances such as response to fire, drought, flood, climate change, habitat loss and degradation, harvesting of native species, and impact of invasive species will indicate how to mitigate the adverse effects of these disturbances.</p> <p>ARI Research Goals</p> <ul style="list-style-type: none"> To improve understanding of responses of flora and fauna to human-induced and natural disturbances. To enhance knowledge of changes in abundance, biomass, distribution and ecological processes associated with disturbances. To generate and interpret ecological information at a wide range of spatial scales to help in landscape planning and management. To better understand the role of refugia, linkages and connectivity in ecosystem resilience. To enhance knowledge that facilitates sustainable development while conserving biodiversity. 	<p>Rationale</p> <p>Evaluating whether intervention leads to ecological improvements will inform future choices of management and lead to increased knowledge of ecological thresholds, and an increased ability to promote ecosystem resistance, resilience and new, desirable ecosystem-states.</p> <p>ARI Research Goals</p> <ul style="list-style-type: none"> To increase application of knowledge of adaptive ecological management processes. To test and evaluate practices of restoration ecology including habitat enhancement and control of introduced species on native species. To predict landscape responses to revegetation and other restoration interventions through novel spatial and historical analyses. To improve threatened species and communities recovery through greater understanding of the causes of decline and effective recovery actions.

Our future directions

We will expand our efforts in:

- Forming large projects of strategic importance;
- Positioning ARI as a consortium leader for large strategic projects and as a research broker;
- Setting standards, methods and approaches for collecting ecological information;
- Making decisions on allocating ARI resources based on the ability to influence biodiversity outcomes.

We will consolidate our efforts in:

- Enhancing our expertise, influence and ability to provide ecological knowledge to improve biodiversity conservation;
- Focusing on south-eastern Australia, especially Victoria, as this is where our corporate responsibility lies. However, we will undertake studies interstate and overseas if the projects enhance our capabilities and provide relevance to Victoria;
- Enabling innovation – the ability to create, facilitate and foster new thinking and ideas is critical to the development of new approaches to the management of our ecosystems.

OUR CAPABILITIES

We will enhance our skills in:

- translating research into policy and management;
- ecological analysis and spatial modelling to support the prioritisation of conservation decisions and investments;
- developing and testing standards, methods and approaches for biodiversity assessments and monitoring;
- developing and implementing monitoring programs;
- developing robust indicators and decision support systems.

Future Capabilities:

- Our technical expertise in ecological field based research on flora, vertebrate fauna and aquatic invertebrates is the strength of ARI. As new issues and priorities emerge, we will grow our capabilities through a range of mechanisms including skills development and re-training of existing staff.
- We will align our supervision of university students with this strategy and the needs of our clients, with the intent of extending our capabilities and developing capabilities for the future.
- New and emerging areas requiring expertise not currently held at ARI will be considered in line with this strategy, the ARI Capability Plan and our strategic partnerships with other organisations.

COLLABORATION AND PARTNERSHIPS

Influencing biodiversity outcomes through:

- Increased efforts in building strategic science relationships with stakeholders who have substantial capacity to influence and deliver outcomes in biodiversity conservation and sustainability.

OUR SCIENCE

Enhancing science quality and influence through:

- Greater knowledge sharing between disciplines and partners;
- Continuous improvements in the quality and impact of all our publications;
- Encouraging innovation in staff development;
- Engaging effectively with the broader scientific community;
- Rigorous evaluation of our research outputs.

BUSINESS EXCELLENCE

Our scientists are supported in the management of science projects through improvements in:

- Systems and processes for project management;
- Knowledge management systems;
- Infrastructure and the efficient management of assets;
- Knowledge of how we perform as a business (performance measures).



Photo: Michele Kohout