

Winner

of the 35th National Banksia
Sustainability Awards



VICTORIAN CATCHMENT MANAGEMENT AUTHORITIES

Actions & Achievements Report 2023

10th ANNIVERSARY EDITION



VIC CATCHMENTS

A Collaboration of CMAs



Acknowledgement of Victoria's Aboriginal communities

The Victorian Catchment Management Authorities acknowledge Victoria's Aboriginal community and their rich culture and pay respect to their Elders past, present and emerging.

We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land, water and biodiversity on which we rely.

We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Cover photo: Azure Kingfisher, recently fledged juvenile, Pig Swamp. Image North Central CMA.

This page: Taungurung works crew setting up equipment to monitor Bogong moths in the boulderfields on Mt Buller. Image Goulburn Broken CMA.

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Minister's Foreword



WORKING TOGETHER FOR CATCHMENTS

Year in year out, Victoria's Catchment Management Authorities (CMAs) are on the ground in their communities across the state working for catchment health.

This 2022-23 Victorian Catchment Management Authorities' Actions and Achievements Report demonstrates how our CMAs continue to protect and enhance the state's natural environments in a changing climate and in the face of emergencies and natural disasters, while contributing to social, economic, cultural and community values.

Each authority achieves an enormous amount for Victoria's waterways, catchments and communities through their solid, established partnerships, trusted networks and hard work.

This report shares the stories of this significant team. A team which, in 2022-23, engaged with 95,000 people across the state - a number that would fill the MCG with passionate catchment supporters. This is a team that keeps stepping up to the plate to deliver on ground works that benefit waterways, wildlife and communities.

At the heart of all CMAs is a strong commitment to Traditional Owner engagement in support of Traditional Owner care and love for Country, healing, and access to water and self-determination. These long-standing relationships are a treasured part of the authorities and part of everything they do.

In the state's north, Wimmera CMA is partnering with Barengi Gadjin Land Council to enhance the cultural and environmental values of Ranch Billabong near Dimboola.

In the Glenelg Hopkins catchment, the CMA is supporting Gunditj Mirring Traditional Owners in low-intensity cultural burns to protect South-eastern Red-tailed Black Cockatoo feeding areas.

As well as getting on with the jobs at hand, CMAs are forward-thinking, innovative, adaptable and resilient to change and well positioned to meet future challenges.

CMAs in each community are always prepared to support emergency services responding to natural disasters and to support and deliver recovery. Across the state, CMAs continued to rebound after adversity to rebuild community infrastructure and restore rivers.

In East Gippsland, where one million hectares were destroyed in the Black Summer bushfires, Friends of the Upper Nicholson Catchment worked with the CMA to assist the fire recovery process through targeted revegetation and habitat improvement, providing connectivity to the unburnt riparian zone.

For North Central CMA, floods were catchment-wide and in some areas, the largest in living memory and on record. Their partnership with local municipal councils helped communities better plan with their flood information tool known as Flood Eye.

Regional Catchment Strategies across the state guide the vision for future catchment management, backed by science and planning strategies.



Above: Big-bellied Seahorse on a restored shellfish reef in the Gippsland Lakes. Image Scott Breschkin, The Nature Conservancy.



Above: Birdwatching at the Western Treatment Plant. Image Sharon Blance.

In caring for our natural assets, working partnerships enabled 47,032 hectares of pest plant control, 3,000 hectares of revegetation and 368 kilometres of fencing in 2022-23. Over 9,000 hectares of improved agricultural practices were implemented and 100 new visitor facilities and nearly 1,000 partnerships were established or maintained.

Melbourne Water led the Two Great Ramsar Wetlands project to protect the ecological character of the Western Port and Port Phillip Bay (Western Shoreline) and Bellarine Ramsar sites.

West Gippsland CMA is proud to have removed the last remaining stand of willow trees from the entire length of the flagship Agnes River that runs into world-renowned Corner Inlet – a first for the organisation and a win for the environment.

CMAs also have a strong commitment to diversity and inclusion. Work to develop further opportunities for diversity within CMAs continues as part of an ongoing commitment to workplaces that are ever more representative of the communities they serve.

The Merri Connection Project is a collaborative effort between the Glenelg Hopkins CMA and the Warrnambool City Council to enhance community access to the Merri River, with an All-Abilities Kayak Launch and footpaths to allow people of differing physical capabilities to enjoy recreational opportunities.

CMAs proudly coordinate the Victorian Government's regional support for Landcare, in sync with 1,400 Landcare groups and 80 facilitators.

Threatened species remained in continual focus, with evidence of critically endangered frogs, birds and mammals benefitting from healthier catchments and waterways.

After teetering on the edge of local extinction, the future of the Mountain Pygmy Possums on Mount Buller is looking brighter, following a collaborative project led by Goulburn Broken CMA.

In Mallee, young citizen scientists from Tempy Primary School are working with the CMA to further Mallee fowl conservation.

Corangamite CMA completed the Wild Otways Initiative – a collaborative effort to protect the Otway's threatened species.

CMAs are proud to support farmers and those living on the land to adapt to a changing climate. North East CMA is working with farming businesses to make management decisions based on predicted climate scenarios through hosting workshops and field days.

This is just a short snapshot of the achievements showcased in this report that reflect the united approach that CMAs offer across Victoria. I know there are challenges ahead for Victoria's waterways and catchments, but I am confident that CMAs will work together with Traditional Owners, sector partners, industry and community to tackle them innovatively and effectively.

Harriet Shing

Minister for Water

Vic Catchments Chair Overview



We are proud to be presenting our tenth Actions and Achievements Report to showcase how Victoria's CMAs and Melbourne Water deliver for the environment and their communities.

In another dynamic year, we continued to contribute to the challenges of bushfire and flood recovery and ongoing flooding in some regions. Floods have been a major theme of the past year and CMAs are perfectly placed to be working at community level to understand, prepare for, and recover from floods. CMAs work to build resilience in waterways and this is especially important in lessening flood impacts and restoring river systems to be better able to deal with these natural events.

Our hard working and dedicated people continued to get things done side by side with their communities. A great example of the can-do and dedicated nature of our industry that we can continue to deliver outcomes and focus on forward thinking – even in times of significant disruption.

Having Melbourne Water (MW) in the fold is already demonstrating positive effects with major projects such as protecting two important Ramsar sites underway.

All of the State's CMAs have now completed the renewal of their Regional Catchment Strategies. These documents provide the foundation for integrated catchment management as a one stop shop of information, community knowledge and place based solutions. We now move to a stage of implementation, including monitoring and evaluation of outcomes.

The new strategies also closely align with Australian and Victorian Government priorities and now act as a prospectus for future investment. As always, we are proud to deliver value for money, broad reaching programs in line with government strategies. As the National Landcare Program comes to end, we are able to reflect on the broad reaching results delivered through this important program over the past five years. Unique projects have steered environmental innovation, driven sustainable solutions and showcased ground breaking ways of working in partnership for healthy catchments.

CMAs and MW are pleased to be delivering projects funded under Tranche 5 of the Victorian Government's Environmental Contribution. It is always very pleasing that we can move forward with the certainty of three years of funding with our communities as we look to implement integrated catchment management outcomes and planning for future works.

The programs Victorian CMAs and Melbourne Water deliver are future and solutions focused. Being small, local, adaptive and innovative we are always working with our partners on big thinking solutions.

We are proud to be showcasing key achievements across the State delivered by CMAs and MW in partnership with the community in one publication. There are significant benefits that come from the consistency and stability that CMAs have provided over the past 26 years. We have long term, experienced people that live within their communities and understand their needs and aspirations.

CMAs get it done and are proud that we have been meaningfully engaging with Traditional Owners for decades and are unwaveringly committed to self determination and positive outcomes for Victoria's First Peoples.

A handwritten signature in black ink that reads "C. Jenkins". The signature is fluid and cursive.

Catherine Jenkins

Chair, Vic Catchments

Board Chairs

The Vic Catchments forum was established in February 2017 to showcase Victoria's integrated catchment management framework. Each CMA region has a Ministerially appointed Board of local people responsible for setting strategic directions for regional land, biodiversity and water management and monitoring and evaluating performance.



Catherine Jenkins
CORANGAMITE



Ewan Waller
EAST GIPPSLAND



Antony Ford
GLENELG HOPKINS



Helen Reynolds
GOULBURN BROKEN



Allison McTaggart
MALLEE



Julie Miller Markoff
NORTH CENTRAL



Dr Christine
Cunningham (PhD)
NORTH EAST



John Thwaites
MELBOURNE WATER



Mikaela Power
WEST GIPPSLAND



Peter Hilbig
WIMMERA

CMA Regions

Victoria's integrated Catchment Management Framework is working to protect and enhance our rivers and landscapes while supporting productivity from our land and water resources.

MALLEE

Covers almost 40,000 km² making it the largest catchment area in Victoria. It runs along the Murray River from Nyah to the South Australian border and south through vast dryland cropping areas and public reserves.

WIMMERA

Covers 30,000 km² straddling the Wimmera River. Agriculture is the dominant land use, economic driver and employment sector. A quarter of the 50,000 people who live in the region depend directly on agriculture for their income.

GLENELG HOPKINS

Covers 26,000km², characterised by dramatic coastlines and flat volcanic plains in the south, the Grampians, Dundas Tablelands and Central Highlands in the north, and 22% of Victoria's wetlands. One of Australia's most productive farming regions with 80% used for agriculture.

MALLEE

WIMMERA

GLENELG HOPKINS

NORTH CENTRAL

CORANGAMITE

CORANGAMITE

Extends across 13,000 km² of which 78% is in private ownership. The region has rich and diverse landscapes ranging from expansive volcanic plains to coastal environments and the Otway Ranges.

Pictured: Corner Inlet, West Gippsland

GOULBURN BROKEN

Covers 24,000km² of which two thirds is under private ownership. Extends north from the outskirts of Melbourne to the Murray River. It yields 11% of the Murray Darling Basin's water despite making up only 2% of its area.

NORTH CENTRAL

Covers 30,000km² (13% of the State). It is home to 250,000 people, is valued for its internationally recognised environmental assets and supports a diverse agriculture sector.

NORTH EAST

Extends across 19,000km² between the Murray River in the north, Victorian Alps in the south and Warby Ranges in the west. The region is home to 100,000 people, provides 38% of Murray Darling Basin's water and is 55% public land.

EAST GIPPSLAND

Covers 22,000km² and approximately 80% publicly owned mainly as significant State forests, national parks and coastal parks. Features the Ramsar listed Gippsland Lakes and six declared Heritage Rivers.

WEST GIPPSLAND

Covers 18,000km² from Warragul to the Gippsland Lakes and from the Great Dividing Range to Wilsons Promontory. It provides most of Victoria's electricity, 60% of Melbourne's water storage and 20% of Australia's milk production.

PORT PHILLIP & WESTERNPORT

Spans 13,000 km² that feed into Port Phillip and Western Port. Home to over five million people whilst boasting some of Victoria's most productive farming lands and spectacular parks. Home to all four State floral and faunal emblems.



CMA's Get It Done

2022–23 achievement highlights

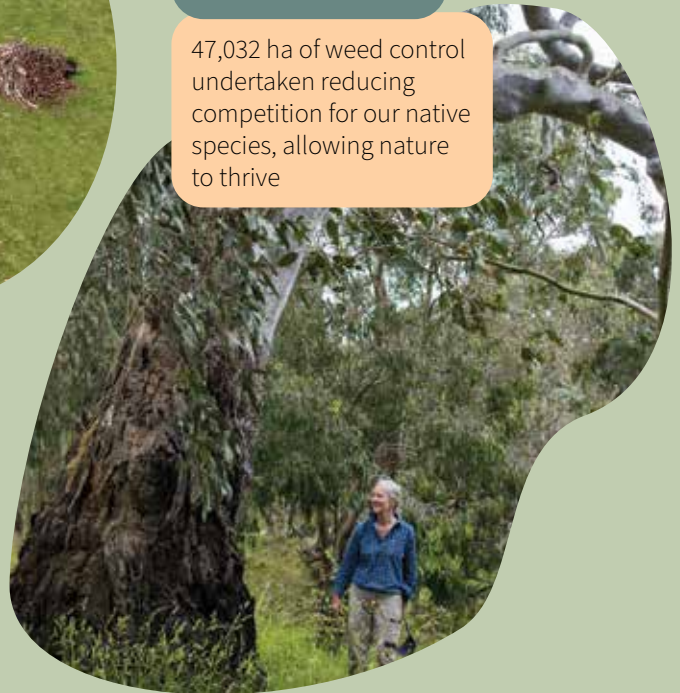
CMA's look after natural assets

368 km of fencing protecting our precious waterways for wildlife and habitat



CMA's look after natural assets

47,032 ha of weed control undertaken reducing competition for our native species, allowing nature to thrive



CMA's look after natural assets

over 3,000 ha of vegetation was re-established creating habitat for our native species



CMA's get it done

13,000 approvals and advice an average of 250 per week and 52 every business day



CMA's look after natural assets

over 9,000 ha of land is under improved management with positive agricultural changes taking place





CMAs are part of and work with our communities

close to 95,000 people engaged almost the same as the number of people at an MCG blockbuster

CMAs are part of and work with our communities

Victorian CMAs employ 421 people*



CMAs are part of and work with our communities

over 2,000 publications that's 5 for every day of the year!



CMAs support Traditional Owner Self Determination

10/10 CMA regions work closely with their local TOs in supporting self determination

CMAs are part of and work with our communities

over 100 new visitor facilities installed across Victoria, promoting and encouraging people to engage in the environment



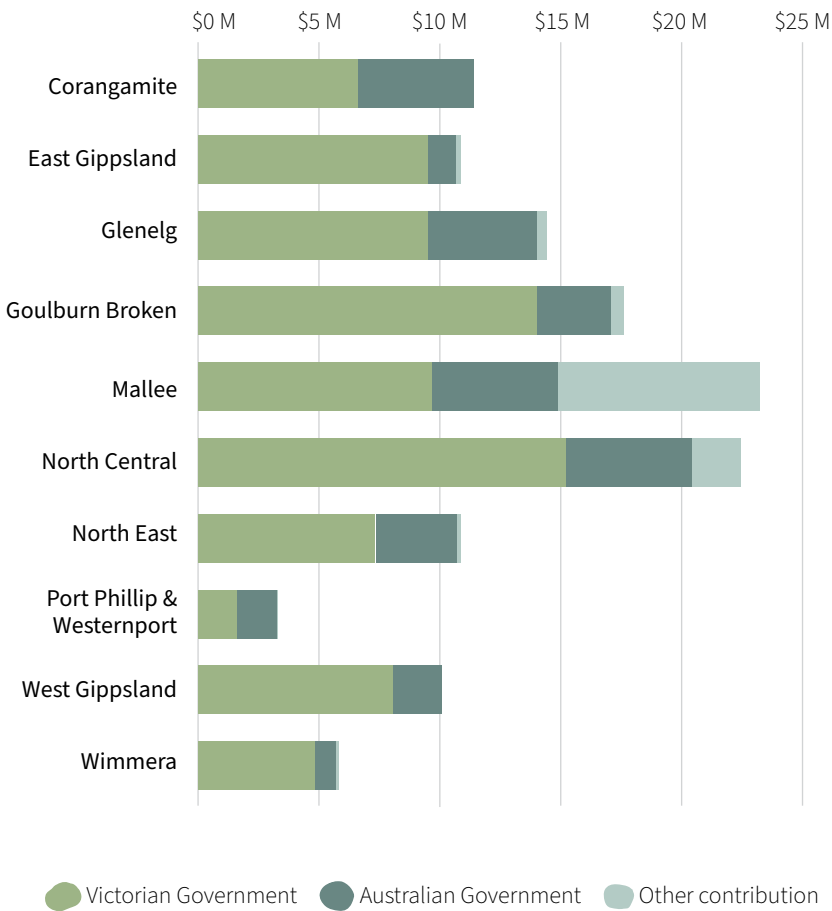
** employee data for Melbourne Water is not included due to the scope of work they undertake outside of catchment management. To view their employment data, view the Annual Report 2022-23 at melbourne.com.au*

Statewide investment 2022–23

The Victorian Government contributed 66% of CMA's total funding in 2022–23 totalling over \$85 million dollars

The Australian Government contributed 24% of CMA's total funding in 2022–23 totalling over \$31 million dollars

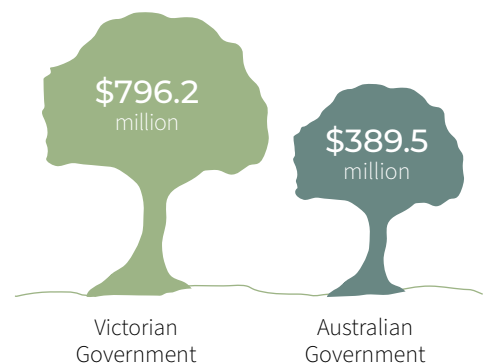
Investment by CMA by fund source



Total investment



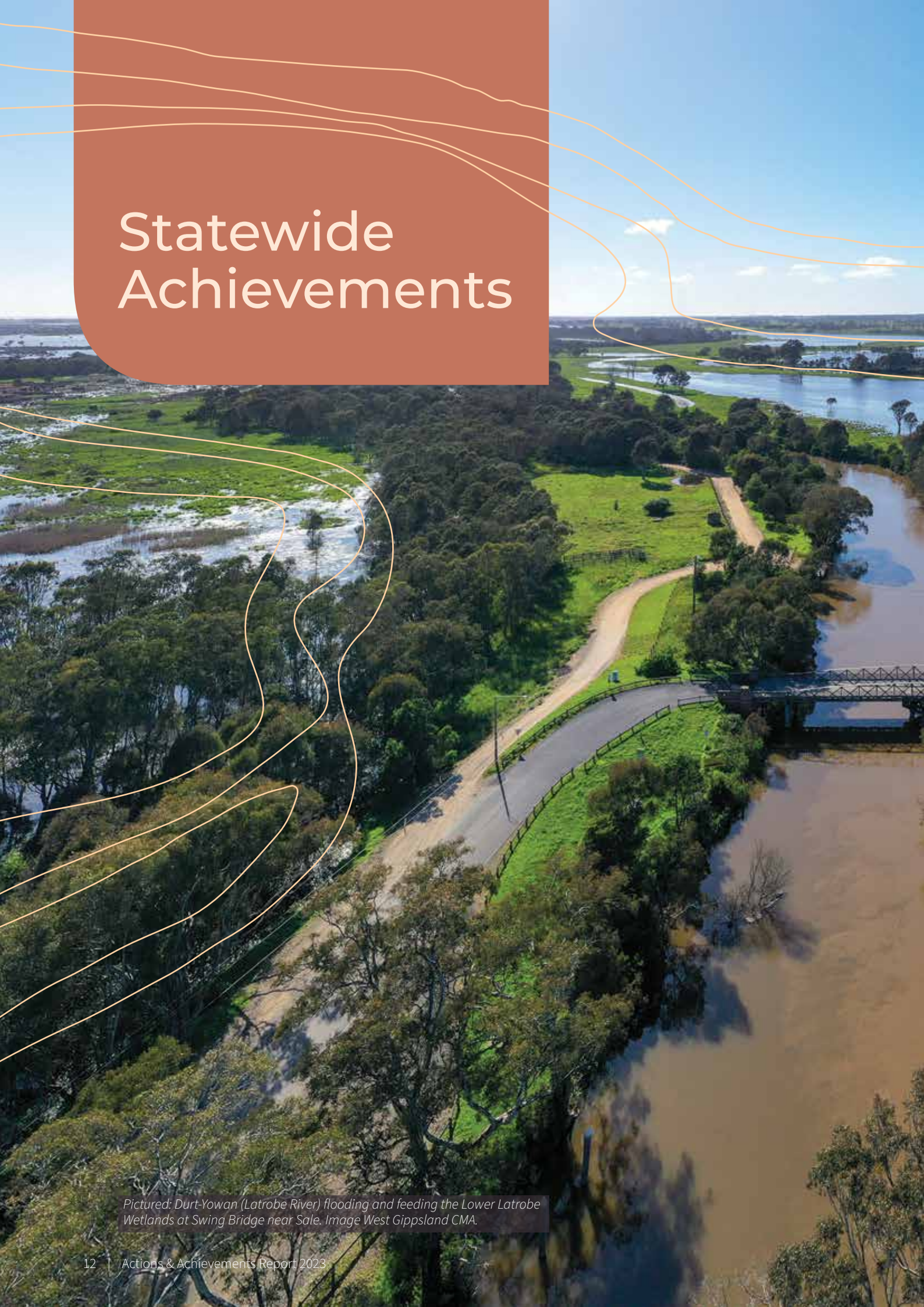
Total investment over 10 years



Combined CMA outputs for 2022–23

Output description	Unit	2022–23 Actuals			
		Victorian Government	Australian Government	Other Organisations	Actual
		Actual	Actual	Actual	
1. Structural works					
Channel	Km	122	-	-	122
Water storage	Number	26	-	-	26
Pump	Number	3	1	-	4
Irrigation Structure	Ha	191	4	-	195
Waterway structure	Number	154	50	-	204
Terrestrial Structure	Number	-	-	-	-
Terrestrial feature	Number	32	7	-	39
Monitoring structure	Number	115	203	-	318
Fence	Km	274	94	-	368
Visitor Facility	Number	98	3	-	101
Road	Km	69	-	-	69
Crossing	Number	6	1	-	7
Marine and Coastal Structure	Number	-	1	-	1
2. Environmental works					
Vegetation	Ha	1,601	1,454	3	3,058
Weed control	Ha	16,911	30,109	12	47,032
Pest animal control	Ha	90,662	265,384	66	356,112
Threatened species response	Number	8	11	-	19
Emergency Species response	Number	-	-	-	-
Soil treatment	Ha	-	-	-	-
Earth works	Number	124	5	-	129
Rubbish removal	Ha	1,235	-	-	1,235
3. Management services					
Grazing	Ha	413	874	-	1,287
Agricultural practice change	Ha	1,887	7,116	27	9,030
Water	Number	230	5	-	235
Fire Regime	Number	-	359	-	359
4. Planning and regulation					
Approval and advice	Number	12,951	11	-	12,962
Management agreement	Number	267	306	1	574
Assessment	Number	7,135	1,630	19	8,784
Engagement event	Number of participants	55,186	28,794	11,011	94,991
Partnership	Number	946	69	12	1,027
Plan	Number	277	136	2	415
Publication	Number	1,085	961	44	2,090
Information management system	Number	128	11	-	139

Statewide Achievements



Pictured: Durt-Yowan (Latrobe River) flooding and feeding the Lower Latrobe Wetlands at Swing Bridge near Sale. Image West Gippsland CMA.





STATEWIDE CASE STUDY:

Biosecurity keeping the state's waterways safe

Protecting Victoria's natural resources and ecosystems from the threats of disease and invasive species is a joint effort. Threats come in many forms including animal, plant, parasites, and disease. Victoria's CMAs take biosecurity seriously and are tackling it through a range of projects and initiatives.

INVESTMENT

Australian and Victorian governments



Corangamite - Wild Otways initiative

Community, industry, and government are working together to control the spread of dieback (*Phytophthora cinnamomi*) in the Otways. This introduced plant pathogen is one of the key threatening processes to Australia's biodiversity devastating native plant communities and wildlife.

Bushwalking, driving or field operations can spread the disease and Corangamite CMA leads the multi partner Wild Otways Initiative to stop it in its tracks. They map the pathogen, trial treatment methods and introduce hygiene training. Preventing its spread is critical, as management options are limited once dieback is introduced to an area.



Above: Dying grass tree from Dieback.
Top left: Parks Victoria cleaning a vehicle.
Left: Training Group training to treat Dieback.
Images Corangamite CMA.



East Gippsland – After the fires

Weed invasion increases substantially after a fire as it scorches the earth, creating more light and open areas for weeds to establish. After the catastrophic Black Summer bushfires, East Gippsland CMA undertook an initiative targeting new and emerging weeds throughout the region. New weeds pose a severe threat to agricultural landscapes and the natural environment. The early detection and management of weeds in the upper catchments is a priority. Willows such as crack willow (*Salix fragilis*) English broom (*Cytisus scoparius*) and cape broom (*Genista monspessulana*), pose a direct threat to high-value riparian corridors and areas adjoining the threatened Alpine Peatlands. Controlling their spread helps in the recovery of endangered flora species, vital habitats, and ecologically significant vegetation communities.

Above left: Contractor undertaking weed control on Riley Creek Gorge. Above: Contractors controlling weeds on Dargo head waters. Images East Gippsland CMA.



Glenelg Hopkins – Protecting Budj Bim

The protection of critical habitat values of the World Heritage listed Budj Bim Cultural Landscape project involves the treatment of the weed Honeybush (*Melianthus major*) in Lake Gorrie within Budj Bim National Park. Honeybush is a relatively new weed in the landscape, and the large infestation in rocky terrain is difficult to access. Gunditj Mirring Traditional Owner Aboriginal Corporation and DEECA have been working to trial large scale treatment using drones.

If successful, it could also lead to improved biosecurity outcomes by reducing opportunities to further spread weeds or disease by foot and vehicle traffic.

Above: African Honeybush. Image Glenelg Hopkins CMA.

North East – Preserving pristine headwaters

This Upper Ovens Flagship and on-ground works project is in its third year of the Victorian Government’s 4-year Environmental Contributions Program. *Salix cinerea*, commonly known as grey sallow willow, is an invasive willow species that has colonised areas of the Victorian alpine environment. The project aims to identify grey sallow willow using drone and aerial surveillance. The infestations are then identified in the landscape and specialist remote contractors go in to treat the problem areas. This project sets out to preserve our pristine headwaters and is delivered in partnership with Traditional Owner groups, DEECA, ARI, Monash University and the four CMAs spanning the Victorian Alps and Parks Victoria.



Left: Aerial surveillance of willows in the Upper Ovens headwaters at Mt Buffalo.



Right: Aerial surveillance of willows in the Upper Ovens headwaters at Mt Hotham.



STATEWIDE CASE STUDY:

Partnering to protect waterways

Victoria's CMAs are transforming landscapes through on-ground works across the State. These are supported through the Victorian Government's Waterway Program Investment Framework, from the Environment Contribution (EC). The program promotes sustainable water management and works to restore waterways. Much of this work requires access to private land and through beneficial and trusted relationships with a range of stakeholders, CMAs get it done.

INVESTMENT
Victorian Government



Installation of constructed log jams to create further habitat niches at Mayfly Rise. Image North East CMA.

North East – Upper Ovens Flagship and on-ground works project

Now in its third year, in 2022–23 the project:

- Inspected more than 40 sites of prior investment and completed inspections on 100% of river health assets.
- Established five landholder management agreements to protect 19 hectares of riparian land in the Upper Ovens.
- Completed the Mayfly Rise angler partnership project in Bright installing three constructed log jams, rock beaching and large wood installations to secure aquatic species habitat.
- Treated 356 hectares of seeding willows in the headwaters.
- To date the project has undertaken 1,712 hectares of woody weed control, held 24 events engaging 209 participants, installed 49 waterway structures and completed 11 hectares of revegetation.



Above: Indigenous vegetation planted along the Ovens River at Mayfly Rise. Image North East CMA.



Installation of large boulders, or "bed seeding" to create fish resting areas at Mayfly Rise. Image North East CMA.



Left: Hughes Creek, Avenel following the removal of exotic woody weeds

Below: Avenel Active group volunteers busy planting along Hughes Creek, Avenel



Goulburn Broken – Urban Waterway Works project

This successful project is funded through EC5, and has comprised on-ground works ideas submitted to Goulburn Broken CMA via Expressions of Interest.

In 2022-23 works to improve waterway health were undertaken in partnership with community members and local governments at sites in the townships of Mansfield, Seymour, Avenel and Kilmore. These works are mainly woody weed removal and planting streamside vegetation, with community members playing key roles in scoping, preparing and delivering works (e.g. planting days).

At one of the sites on Kilmore Creek, an electrofishing demonstration by Arthur Rylan Institute researchers provided community members the opportunity to see what native fish were present in the Creek, and learn about how restoration works along the creek improve fish habitat.

Wimmera – Protecting and enhancing waterways and wetlands

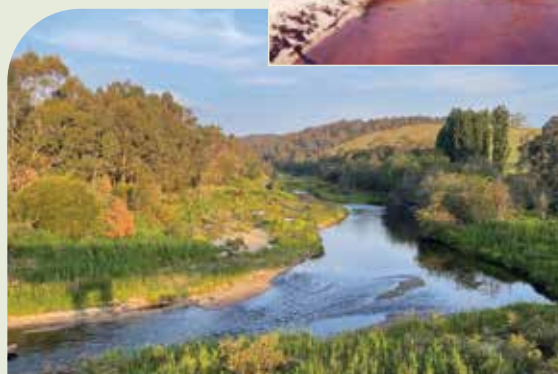
- Through the Riparian Incentives program Wimmera CMA partnered with 16 landholders to construct over 28 kilometres of fencing to protect and enhance 260 hectares of high quality river frontage along priority waterways.
- The Wetland Protection incentive program supported five landholders to protect over 300 hectares of high quality wetlands on private property with 100 hectares protected in perpetuity with a Trust for Nature Covenant.
- The Waterway Restoration works program constructed two rock chutes on private property to prevent sediment moving downstream and impacting on high value reaches. The project also worked with 11 landholders to assess and design future erosion control works.

East Gippsland – On ground works contribution

Working in partnership is what CMAs do best! East Gippsland CMA has been working with landholders to keep stock off waterways for over 25 years. This involves establishing a solid and trusted relationship which paves the way for a mutually beneficial landholder agreement. This serves as a testament to the commitment of both parties to allocate government funds for the preservation and enhancement of waterway health. Together we construct fencing to exclude stock, plant native vegetation and remove weeds along riverbanks. The CMA currently has 187 landholder agreements that have completed 613 kilometres of fencing.



Above: EGCMA on ground work, Tambo River 2000 (before)



Left: EGCMA on ground work, Tambo River 2023 (after)



STATEWIDE CASE STUDY:

Connected catchments

Integrated Catchment Management is a cornerstone of work undertaken by Catchment Management Authorities. In a nutshell, it recognises that water, land, biodiversity, coasts and marine environments are parts of connected systems.

Based on strong partnerships and collaboration, projects support innovative approaches to how we support resilient regions and healthy communities together.

INVESTMENT

Victorian Government

East Gippsland – Bridge to Bridge

This partner project focuses on increasing stewardship along the lower Mitchell River, incorporating Traditional Owner values in public spaces, improving habitat for various species, integrating wetland restoration efforts and empowering the community.

2022-23 Highlights:

- Bairnsdale Urban Landcare Group recognised at Australia Day and National Tree Day Award.
- Upgrades to assets including walking trails and fishing platforms.
- Gippsland Grammar junior campus students undertaking weeding and then planting 1,000 native plants along the Mitchell River adjacent to their school.
- Wetland improvements by Eastwood Landcare Group included large numbers of wetland species being planted by a younger demographic, sharing knowledge with specialists and community members.



Goulburn Broken – Seed funding for success

The development and renewal of the Goulburn Broken Regional Catchment Strategy 2021–27 generated many new ideas on ways to improve catchment health, prepare for and minimise the impact of climate change and work better together.

Goulburn Broken CMA provided \$30,000 seed funding to six collaborative projects.

2022-23 Highlights:

- Reintroduction and establishment of viable and resilient populations of the Growling Grass Frog in the Goulburn Broken Catchment through captive breeding at Winton Wetlands.
- Strathbogie Ranges Conservation Management Network building an online, interactive dashboard of environmental data to enable better access and understanding of current trends and changes in the Strathbogie Ranges due to climate change.

Top left: Monitoring water quality in the Strathbogie Ranges along the Seven Creeks, left: discussing decline in tree health after hottest summer on record in 2017

Right and far right: Planting was undertaken in August as part of Lower Kiewa Catchment Stewardship project. Images North East CMA.



North East – Lower Kiewa Catchment Stewardship Plan

This project involves representation from 11 organisations including community, volunteer groups, Landcare, local councils, agriculture industry and government agencies.

Following an expression of interest process to support farmers to steward the agricultural landscape, six new landholder projects were developed to support 4.2 kilometres of fencing and 15.9 hectares of both revegetation and woody weed control.

Despite extended rainfall and flooding in 2022:

- 1.6 kilometres of fencing was constructed.
- 6.3 hectares of weed control and revegetation was completed.
- 100 plants were planted and guarded at a tree planting day at Upper Gundowring with North East CMA with Duduroa Dhargal Aboriginal Corporation and the property owner to stabilise significant gully erosion along the creekline running through the property.

Wimmera – Horsham Weir Pool Activation

In partnership with Horsham Rural City Council, DEECA and private landholders, Wimmera CMA continued to implement this project to increase public access along the Wimmera River while protecting its cultural and environmental values.

2022-23 highlights:

- Construction of two pedestrian/cycling bridges across the Wimmera River and its tributary.
- Linking of 3.4 kilometres of newly opened walking tracks to create a 10 kilometre loop along the river banks.

The project across both public and private land saw a range of land management options used to achieve the common outcome of improved public access including:

- The conversion of grazing licenses to riparian management licenses with public access tracks outlined in the licence.
- Committees of management established around infrastructure to manage specific areas.
- Councils leasing private land from landholders to allow public access.



Two new river crossings established to create environmentally friendly access.



STATEWIDE CASE STUDY:

Preparing for floods

In the case of emergency flooding, CMAs provide support to government agencies with VicSES being the Control Agency.

CMAs, in conjunction with consulting hydrologists, are available to advise the VicSES on predicted flood behaviours and likely community impact.

INVESTMENT

Victorian Government

Preparing for an uncertain future

Surrounded by natural beauty, Victoria is a diverse place to live and work, however the nature of its landscape is prone to flooding every now and again.

While floods are an expected and sometimes healthy part of how environment operates, we also need to be aware of the economic and social damage they can cause.

Flooding is a natural hazard that can severely disrupt communities by causing injury, loss of life, property damage, personal hardship and disruptions to regional economies.

Understanding flood behaviour enables agencies and communities to assess the likely costs of flooding and the benefits of different options for managing the community's exposure to flood risk.

The location, scale of effects and the probability of occurrence can be estimated with reasonable accuracy for a range of floods.

Floods at Licola on the Wirn wirndook Yeerung (Macalister River) October 2023. Image West Gippsland CMA.



Effective floodplain management and flood response requires extensive planning prior to any flood event. Victoria's CMAs have a key role in flood planning and management. This includes a statutory obligation to collect and coordinate flood data and make it publicly available.

Each CMA produced a Regional Floodplain Management Strategy in 2017. The Strategies have been developed on behalf of key local stakeholders such as the SES, local government and community. The strategy identified significant flood risks across the region, analysed mitigation options and determined priority actions to be implemented over the lifetime of the strategy.

Making flood data available across the state

West Gippsland – Community Flood Portal

West Gippsland CMA maintains a large collection of flood information and provides advice on flooding, via their free service and online community flood portal.

“The CMA is the go-to-for flood advice and flood mapping info,” said Penny Phillipson, West Gippsland CMA’s Manager – Statutory Planning.

Significant progress was made during 2022-23 to produce and update flood information for the West Gippsland region through partnerships to develop flood studies and progress flood mapping for key rivers. A key function is supplying statutory services and advice and the CMA processed 984 planning permit referrals and requests for flood advice in 2022-23.

The community flood portal also provides a great resource. “We are pleased to share all the publicly available information and mapping with you in one place. So, before you build or buy, check the portal,” said Penny.



Above: Community information day.

Wimmera – Keeping communities informed

CMAs used a variety of techniques to communicate regionally relevant information to communities during the 2022 floods. For example, in conjunction with the Incident Control Centre, Wimmera CMA made their interactive maps with a range of flood scenarios available on their website. This, coupled with a drop-in session at the Wimmera River at Horsham, allowed community members to seek clarification about flooding and the risks to their properties. This was particularly important for families that were new to the region, people from non-English speaking backgrounds and friends and family members who travelled significant distances to support the aging population.

North Central – Flood Eye

North Central CMA collects information about previous flood events, monitors significant flood events, and collects real-time data to inform flood intelligence.

It has been nearly a decade since the North Central CMA introduced Flood Eye, Victoria’s pioneering online flood information tool that offers the local community unfettered access to a wealth of information such as various flood heights, floor elevations, and property planning considerations. However, it’s during flood emergencies that Flood Eye has proven to be an invaluable resource for communities, serving as a hub for flood intelligence and aiding their preparedness efforts.

Flood mapping reports and relevant information can be downloaded in less than a minute, enabling communities to ascertain whether their properties are susceptible to flooding.

In 2011, during a period when 25 per cent of the catchment experienced flooding, Flood Eye received more than 1,000 requests for information. In October 2022, when widespread flooding once again impacted a quarter of the catchment, more than 4,000 Flood Eye reports were downloaded, highlighting its continued importance and effectiveness.



Above: Widespread flooding October 2022.



Regional Actions and Achievements

Pictured: Moorabool River. Image Corangamite CMA.





“These two case studies highlight how important the collaboration between Catchment Management Authorities and communities is. Community engagement and participation in natural resource management in our region is key to achieving our vision of “healthy and productive lands and waters cared for by thriving communities.”

Cath Jenkins
Corangamite CMA Chair

Western District Lakes, image Jarrod Brood.

Corangamite

2022 – 23 ACHIEVEMENTS

- ▶ Continued our commitment to working in partnership to achieve even better catchment health outcomes. This has been formalised through the maintenance of Memorandums of Understanding with all three of our Water Corporation partners, and a partnership agreement being signed with the Wadawurrung Aboriginal Traditional Owners Corporation.
- ▶ Completed the draft masterplan for the Kitjarra-dja-bul Bullarto Langi-ut project, under the Barwon Flagship agreement. This continues the strong partnership with the Wadawurrung and other land managers to deliver a masterplan for the Barwon River corridor, further demonstrating just how important our partners are, and the contribution this important project will make to the fastest growing area in Australia.
- ▶ Successfully completed the Wild Otways Initiative – a collaborative effort made possible by the generous investment of six million dollars from the Australian Government to protect our threatened species. This initiative was a testament to the power of collaboration – it worked across land tenure, with partner agencies, project partners, and key stakeholders, each playing a vital role bringing their expertise and skills to collectively make a significant impact on some big and challenging threats to the spectacular Otways environment.

Our Future Vision

Healthy and productive lands and waters cared for and enjoyed by thriving communities.

Corangamite Regional Catchment Strategy

Below: Horse Owners Workshops project team including Upper Barwon Landcare Network with equiculture expert, Stuart Myers. Image Corangamite CMA.





CASE STUDY: SMALL BLOCKS BIG DREAMS

Small Blocks Big Dreams is an initiative to empower landholders with smaller-sized properties to become land stewards and make their own environmental management decisions for their property. Much of the landscape in the Corangamite catchment is fragmented due to agriculture. The project aims to reduce this by creating a more connected landscape and community of land stewards.

LOCATION

Ballarat to Geelong, to Colac and into the Otways and Bellarine

OUTPUTS

- 58 landholders participated
- Increased skills and knowledge resulted in planned actions such as
 - Improved grazing strategies reducing topsoil erosion and promoting rotational grazing
 - Pest plant and animal control
 - Native revegetation
 - Soil and water testing
 - Bird box establishment

INVESTMENT

Funded by the Our Catchments, Our Communities program

PARTNERS

Landcare Groups: Moorabool Catchment, Bellarine
Landcare Networks: Central Otway, Upper Barwon, Geelong, and Southern Otway

REGIONAL STRATEGIES

Corangamite Regional Catchment Strategy, Corangamite Waterway Strategy, Corangamite Landcare Support Plan

The Small Blocks Big Dreams project was launched in early 2022 and is funded by the Our Catchments, Our Communities program. The project focused on three key landholder groups: bush block owners, small producers, and horse and other livestock owners. Participants within each landholder group take part in a tailored 'Workshop Series' including four workshops, an introductory session and site visit organised by Landcare partners. The workshops provide participants with relevant information and property planning skills. Once they complete their 'My Property' report using the Corangamite CMA NRM Portal, they receive \$2,000 in incentive money to support their planned on-ground works.

The workshops

Complete:

- Bush Blocks (Round 1) – The first workshop series was run by Moorabool Catchment Landcare Group. Key topics covered included biodiversity, weed management and bush fire preparation.
- Small Producers (Round 1) – Central Otway Landcare Network enlisted the help of agroecologist David Hardwick to teach participants about rural landscape logic and other NRM practices.
- Horse Owners (Round 1 & 2) – Upper Barwon Landcare Network engaged a large group of horse owners that began making positive change on their properties shortly after the first workshop with the help of equiculture expert, Stuart Myers.

Underway:

- Small Producers (Round 2) – Bellarine Landcare Group and Geelong Landcare Network are currently working with landholders in and around their Landcare areas exploring key topics like soil health, indigenous plants, biosecurity and more.
- Bush Blocks (Round 2) – Southern Otway Landcare Network are engaging Bush Block owners in their area to educate them on environmental management best practice and empower them to make their own decisions about how they would like to improve their land.

Above left: Small Producers Round 1 participants with their completed action plans at the end of the workshops, and right: Small Producers Round 1 Workshop 2 in Colac with Becky and her son Ari doing their property planning. Images Corangamite CMA.

CASE STUDY: PHYTOPHTHORA DIEBACK MANAGEMENT PROGRAM

Phytophthora is a microscopic water mould that lives in soil, water and plants and its effect can be devastating. By invading the roots of susceptible plants, it prevents their nutrient and water uptake, causing the plant to die. This affects vegetation diversity and it becomes dominated by grasses and sedges that are resistant to the pathogen. This in turn can have devastating consequences on native animals.

LOCATION

Anglesea heath, Carlisle heath in the Eastern and Western Otways

OUTPUTS

- Mapping of priority protection areas
- Targeted hygiene measures and phosphite spraying
- Phosphite hand spraying training – DEECA, PV, contractors and TO groups

INVESTMENT

3-year funding from the Australian Governments Wild Otways Initiative

PARTNERS

Barbara Wilson Pty Ltd, Parks Victoria, DEECA, Field Air Services, WTOAC, local contractors, Department of Conservation, Biodiversity and Attractions (WA), EMAC

REGIONAL STRATEGIES

Corangamite Regional Catchment Strategy, Biodiversity 2037

In Victoria there is little accurate data or mapping of occurrence of the pathogen and few options for managing Phytophthora (apart from hygiene measures) and with a warming climate and growing population the rate of spread is increasing. The disease is prevalent in heathlands and heathy woodlands of the coastal plains and inland areas of the Otways and impacts both plants and threatened small mammals that rely on those plants for food, shelter and protection. This project aimed to map the pathogen across the Otways, trial treatment methods and introduce training in hygiene measures.

The project began by determining seven priority protection areas derived from a decision-making process involving local land managers and relevant local stakeholders. An Otways-specific Threat Abatement Plan (TAP) was written to guide future management in line with the National TAP.

In order to treat the disease, a permit for off label application of phosphite was submitted to the APVMA and several research permits allowed for trials of this treatment to test for Phytotoxicity in local species of plants as part of a PhD research project.

An aerial trial of phosphite application was undertaken once a permit was approved and this was followed up with hand spraying in Priority Protection Areas. A hygiene training program was devised and implemented across agencies and key stakeholders in the region along with the production of legacy training materials.

Below: Aerial spraying trial of phosphite across the Eastern and Western Otways, and bottom: Agency partners upskilling in Phytophthora hygiene Management. Images Corangamite CMA.





“Seeing community members who themselves were personally affected by the bushfires putting their concerns aside and helping our native flora and fauna is truly inspirational. Many stories like these have come out of East Gippsland, a community to be proud to live in.”

Ewan Waller
East Gippsland CMA Chair

Marlo Landscape, Cabbage Tree Creek and Brodribb River, East Gippsland CMA.

East Gippsland

2022 – 23 ACHIEVEMENTS

- ▶ Successful completion of a rock ramp fishway in the Buchan River, the first to be completed in East Gippsland.
- ▶ Continued support to the community and repair to waterway and catchment assets through the bushfire recovery program, completing the \$3.25 M Phase 1 initiative.
- ▶ Completion of the 5 year National Landcare Program addressing federal outcomes for East Gippsland including agricultural support, Topsoils and projects protecting Alpine Peatlands.

Our Future Vision

We are leaders in integrated catchment management, partnering with our communities to enhance East Gippsland's landscapes, biodiversity and cultural heritage.

East Gippsland Regional Catchment Strategy



Above: East Gippsland's Gro crew Jo, Sarah and Rosie with landholder Val planting seedlings on Clifton Creek. Image by East Gippsland Landcare Network.

Below: East Gippsland CMA staff at the Buchan fishway site, East Gippsland CMA.





CASE STUDY: BIODIVERSITY AFTER BUSHFIRES

The 2019–20 Black Summer bushfires were exceptional in size and impact. Over one million hectares (56 per cent) of East Gippsland was burnt.

There were runs of fire with extremely high heat intensity, burning along ridges and through gullies, resulting in significant loss of tree canopy, understory, and ground cover.

LOCATION

Nicholson River, Gunaikurnai Country

OUTPUTS

- 28 projects
- 9.15km fencing
- 56.8ha area within protective fencing
- 19,600 tubestock
- 63.77ha weed control
- 81 engagement Events
- 25 publications

INVESTMENT

Victorian Government's Biodiversity Bushfire Recovery

PARTNERS

Friends of the Upper Nicholson Catchment Incorporated, Landcare Victoria, private landholders, community groups, Landcare groups

REGIONAL STRATEGIES

East Gippsland Regional Catchment Strategy, East Gippsland Waterway Strategy, Biodiversity 2037

Part of the Victorian Government's response was providing Biodiversity Bushfire Recovery Grants to groups and individuals supported by East Gippsland CMA.

Following the fires, the landscape where Landcare group, Friends of the Upper Nicholson Catchment Incorporated (FUNCI) worked was devoid of vegetation, having suffered medium to high canopy damage with only a 500-metre stretch of riparian zone along the Nicholson River left intact.

Affected sections were known to support species under threat, including the powerful owl, greater gliders, and yellow belly gliders.

FUNCI's project was designed to assist the fire recovery process through targeted revegetation and habitat improvement, providing connectivity to the unburnt riparian zone.

This energetic and resilient group forged ahead with their project, facing challenges head-on including member fatigue, pandemic restrictions, difficulty sourcing contractors, lack of available tube stock and heavy rainfall following years of drought.

The largest exclusion area saw a one-kilometre fence built around a warm temperate rainforest gully. More than 3000 seedlings were planted, and it is now a thriving and diverse habitat. The gully has become a nesting site for a superb lyrebird that took up residence close to the river, where it is protected from predation by foxes and feral cats.

Smaller exclusion plots on surrounding properties are helping members to learn about natural levels of recruitment when browsing from pests such as deer are minimised.

The project was a success, with severely fire-impacted areas revegetated and providing habitat for ground dwelling and arboreal animals and recreating wildlife corridors in severely burnt areas.

Above left: John Hermans, FUNCI, at the site following the bushfires, and right: John Hermans, FUNCI, exclusion fence built and revegetation flourishing. Images John and Robyn Hermans.

CASE STUDY: BUCHAN FISHWAY

The first fishway in East Gippsland has been completed. The rock ramp fishway in the Buchan River was designed and constructed to address the barrier caused by a water supply log weir. Native fish can now migrate a further 127 km along the upper reaches of the Buchan River.

LOCATION

Buchan, Gunaikurnai Country

OUTPUTS

1 Waterway Structure—Fishway

INVESTMENT

Part of the \$248m investment by the Victorian Government to improve the health of waterways and catchments across regional Victoria

PARTNERS

Gunaikurnai Land and Waters Aboriginal Corporation, East Gippsland Water, Landholders, Consultants

REGIONAL STRATEGIES

East Gippsland Regional Catchment Strategy, East Gippsland Waterway Strategy, Biodiversity 2037

The log weir inadvertently posed a barrier to upstream fish migration, as the fish could not move through or swim over the weir. In addition, the weir likely increased the currents and turbulence of the water directly downstream.

Removing the barrier caused by the weir was not an option due to the impact of drinking water on the Buchan township.

The East Gippsland CMA worked with contractors to construct the fishway. The fishway comprises 174 large boulders placed at strategic points; the rock ramp now creates a series of pools and riffles in the natural stream. These pools give fish a resting spot in calmer water as they make their way upstream.

Native fish monitoring before construction provided a snapshot of fish populations close to the weir. Seven species of native fish were detected, with fewer upstream than downstream.

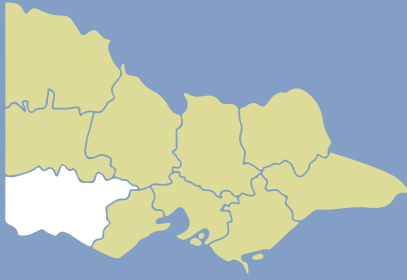
Species detected in the pre-construction monitoring included Longfin eel, Australian bass, Congoli, Common galaxias, Flat-headed gudgeon, Australian smelt, and the threatened Southern pygmy perch. Finding Southern pygmy perch in the Buchan River is particularly significant because they are listed as a threatened species.

Post-construction fish monitoring was completed with the exciting find of an Australian grayling. The fish was found at the top of the fishway, a section of the river that they wouldn't have been able to get to before the fishway was constructed.

This is inspiring news and exactly what we were hoping monitoring would prove, that fish can now migrate upstream of the weir, and the fact that a threatened species was found was even more exciting.

Below left: Buchan River weir prior to fishway construction, and right: Buchan fishway post construction. Images East Gippsland CMA.





“Urban waterways continue to be a focus for the CMA, and through a partnership with Warrnambool City Council, recreational infrastructure works have improved river access for community along a major growth corridor on the Merri River”

Antony Ford
Glenelg Hopkins CMA Chair



Hopkins River, Warrnambool, where significant urban waterway and fish habitat projects have been undertaken by Glenelg Hopkins CMA. Image: Glenelg Hopkins CMA.

Glenelg Hopkins

2022 – 23 ACHIEVEMENTS

- ▶ Released Southwest Irrigation Development Guidelines to articulate and provide consistency of approach for Take and Use Licenses for surface water and groundwater.
- ▶ Installed an all-ability kayak launch, carpark and pathways along the Merri River, Warrnambool to provide safe access for the community, in partnership with Warrnambool City Council.
- ▶ Repaired over 34 kilometres of fences, assisting 30 landholders in the Upper Hopkins, Fiery Creek and Upper Mount Emu Creek catchments since Spring 2022 floods.

Our Future Vision

Empowered communities nurturing a rich and connected landscape for all – today, tomorrow, together.

Glenelg Hopkins Regional Catchment Strategy



Above: An electrofishing demonstration to discuss river health values, hosted by GHCMA on the Glenelg River at Harrow as part of the Johnny Mullagh Cricket Championships (March 2023). Image by Glenelg Hopkins CMA.

Below: The Glenelg Hopkins CMA works crew undertook significant flood recovery works with landholders after the 2022 floods. IMAGE: Glenelg Hopkins CMA.





CASE STUDY: RED-TAILS OF THE GLENELG PLAIN - TRADITIONAL OWNER BURNING PRACTICES

The endangered South-eastern Red-tailed Black Cockatoo from south-west Victoria and south-east South Australia has a highly specialised feeding habitat, which can be compromised where hazard reduction burning practices scorch the tree canopy. To address this, low intensity burns over the cooler months were trialled as a means to reduce fire fuel without impacting feeding habitat.

LOCATION

Kentbruck Heath, on Gunditjmara Country

OUTPUTS

- 48 ha of cultural fire management
- 1 Plan (Traditional Owner Burn Plan)
- 3 assessments (flora surveys)

INVESTMENT

Australian Government National Landcare Program – Regional Land Partnerships. Total project investment of \$1.2M over 2019-2023

PARTNERS

Gunditj Mirring Traditional Owners, DEECA Forest Fire Management and Parks Victoria

REGIONAL STRATEGIES

Draft National Recovery Plan for the South-eastern Red-tailed Black-cockatoo (2016), Glenelg Hopkins Regional Catchment Strategy 2021-27

The endangered South-eastern Red-tailed Black Cockatoo occurs as a single, declining population in south-west Victoria and south-east South Australia. The species has a highly specialised feeding habit, limited to the fruit of Brown and Desert Stringybark in the Glenelg Hopkins region, and seasonally, Buloke in the Wimmera and in South Australia.

These food resources can be compromised through the practice of hazard reduction burning in instances where fire scorches the tree canopy. This can then inhibit production for up to ten years. In addition, Stringybark production is also influenced by the composition of the understorey vegetation community, which can also be influenced by the fire regime. Thus, hazard reduction burning has been considered a key threat to the species survival.

To address this, Gunditj Mirring Traditional Owners, DEECA Forest Fire Management and Parks Victoria, have been implementing low intensity burns over the cooler months of the year in known habitat of the South-eastern Red-tailed Black Cockatoo.

The Glenelg Hopkins CMA have been supporting the participation of Gunditj Mirring Traditional Owners in these burns, while also undertaking monitoring of vegetation responses to the burns, including examining changes in understorey fuel composition, and prevalence of canopy scorch. Throughout the life of the project three burns were monitored on Gunditjmara Country in south-west Victoria.

Results from the monitoring indicated that the objective to reduce understorey fuel composition, while having little impact on species composition or on sensitive feeding habitat of the South-eastern Red-tailed Black Cockatoo, was largely achieved. The burns were also patchy, leaving 12% to 30% of understorey vegetation unburnt. Sites monitored were on a general trajectory towards their pre-burn composition two years post-burn.

Above left: Kentbruck Heath site prior to burn (2021), and right: Kentbruck Heath site two years after burn (2023). Image Glenelg Hopkins CMA.

CASE STUDY: ALL-ABILITIES KAYAKING ON THE MERRI

The Merri Connection Project, is a collaborative effort between the Glenelg Hopkins CMA and the Warrnambool City Council, aimed to enhance community access to the Merri River and surrounding areas.

Enhancing community access to the Merri River, the All-abilities Kayak Launch project, under the Merri Connections initiative, demonstrates our commitment to providing high quality facilities, fostering partnerships, and collaborating with communities. This case study highlights how CMAs, in partnership with various stakeholders, contribute to both nature conservation along with community access and engagement.

The completion of the kayak launch and footpaths at Woodend Road marks a significant achievement for the Merri Connection Project. This project built on community consultation by the local Warrnambool Council and stakeholder groups to create a better living environment for residents and visitors. The kayak launch provides a safe and accessible entry point to the Merri River, encouraging water-based recreational activities such as kayaking and canoeing. The adjoining footpaths, designed to accommodate pedestrians and cyclists, now offer scenic and convenient routes through the Woodend Road precinct, enhancing connectivity within the community.

The project's foremost benefit for recreational users is the improved access to the Merri River. The new kayak launch ensures a safe and convenient entry point, encouraging both seasoned paddlers and beginners to explore the waterway. This increased access provides opportunities for leisurely kayak trips and other water-based sports and activities, fostering a more active and engaging outdoor lifestyle for residents and visitors.

The all-ability kayak launch and footpaths allows individuals of differing physical capabilities to enjoy the recreational opportunities provided by the Merri River. Families, groups, and individuals, regardless of level of mobility, can now enjoy river-based experiences and the benefits of being in the natural environment.

LOCATION

Merri River, Woodend Road, Warrnambool

OUTPUTS

- All-ability Kayak Launch, Adjoining Footpaths, seating, picnic table and signage.

INVESTMENT

State Government: Recreation and Community Values Program: \$330k

PARTNERS

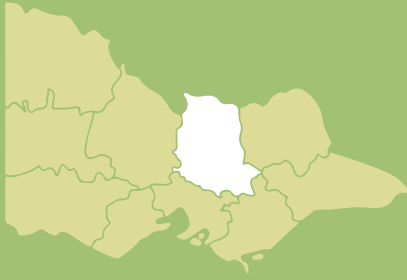
DEECA and Warrnambool City Council

REGIONAL STRATEGIES

Glenelg Hopkins Waterway Strategy 2014-2022, Glenelg Hopkins Regional Catchment Strategy 2021-27 Gippsland Waterway Strategy

Below left: Path from Woodend Rd carpark to Platypus Park playground, including a short riverside walk and All-abilities Kayak Launch, and right: Adam Bester (CEO at GHCMA) and Andrew Mason (CEO and Warrnambool City Council) test out the new all-abilities kayak launch. Images Glenelg Hopkins CMA.





“The Goulburn Broken CMA has partnered with Traditional Owners and alpine resorts to improve the trajectory of the endangered Mountain Pygmy-possum on Mount Buller.”

Helen Reynolds

Goulburn Broken CMA Chair

Looking out towards the Howqua River from the southern face of Mt Buller. Image Goulburn Broken CMA.

Goulburn Broken

2022 – 23 ACHIEVEMENTS

- ▶ Supported the community within the Goulburn Broken catchment through the October 2022 floods where our flood studies, drainage works and blackwater mitigation were invaluable.
- ▶ Completed the five-year Regional Land Partnerships program. The Woodlands Project improved 1,449 hectares of threatened Grey Box Grassy Woodlands and Derived Native Grasslands.
- ▶ Finalised and signed the 2023-2027 Goulburn Broken Catchment Partnership Agreement with all 38 proposed partners. We look forward to collaboration to support the catchment's resilience.

Our Future Vision

Resilient landscapes, thriving communities.

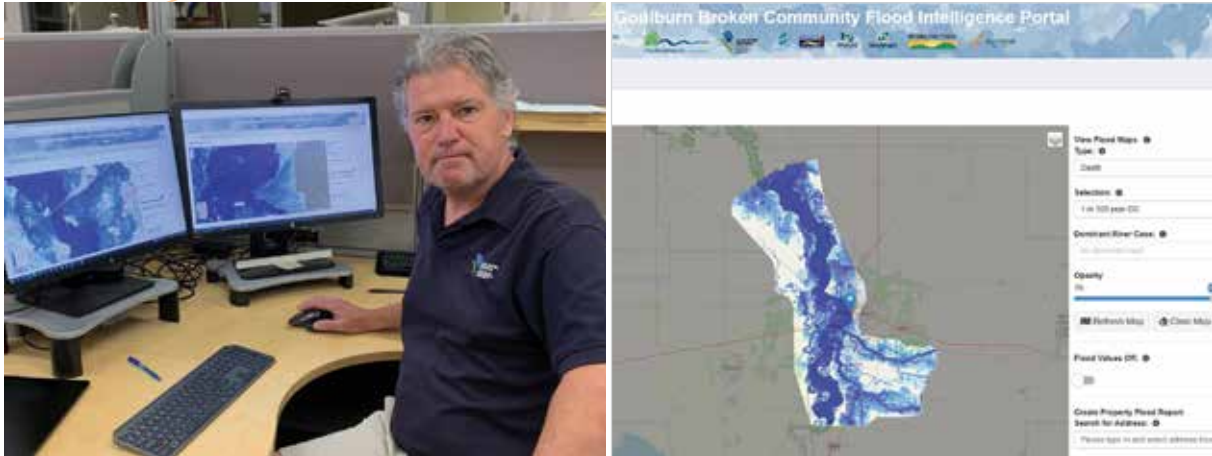
Goulburn Broken Regional Catchment Strategy



Above: Ecologist Dean Heinze weighing a Mountain Pygmy-possum during population surveys on Mt Buller. Image Goulburn Broken CMA.

Below: Goulburn Broken CMA staff at Moodie Swamp. Image Goulburn Broken CMA.





CASE STUDY: FLOOD OF INFORMATION PREPARES COMMUNITY

A partnership between the Goulburn Broken CMA and local municipal councils is helping communities better plan for flood. The Goulburn Broken Community Flood Intelligence Portal is an online tool providing residents with flood data across floodplain areas and property-specific flood information.

A key role of the Goulburn Broken CMA is to investigate how far floodwaters are likely to extend and how high they are likely to rise. Councils also have a responsibility to consider land-use and development planning permit applications within areas of land subject to flooding, in association with the CMA, as the floodplain management authority.

To help meet this obligation, Goulburn Broken CMA and the Greater Shepparton, Benalla, Moira, Strathbogje, Mitchell and Murrindindi Councils co-funded the development of the Goulburn Broken Community Flood Intelligence Portal, accessed from the Goulburn Broken CMA website.

Now, residents and businesses of properties in the areas covered by the portal can access current and predicted flood heights and property information to help them understand and plan for their property-specific flood risk. They need only enter their address and a report is generated.

The data contained in the portal became a vital source of information in Spring 2022 when the region was hit with major flooding.

Since then, upgrades to the portal have resulted in increased speed and load capability along with functionality and accessibility improvements. More data will be added over time as numerous current flood studies are completed.

Flood outlook information sessions were held due to the ongoing wet conditions and swollen waterways that persisted in parts of the catchment during winter 2023. Goulburn Broken CMA floodplain staff were in attendance at the sessions to explain how to use the portal and encourage residents to understand their flood risk and be flood ready.

As awareness increases, the portal continues to become an increasingly useful tool to assist the catchment community to prepare and plan.

Above left: Goulburn Broken CMA Floodplain Manager Guy Tierney displays the online flood mapping tool, and right: The Goulburn Broken Community Flood Intelligence Portal provides local information to help prepare for flood. Images Goulburn Broken CMA.

LOCATION

Goulburn Broken Catchment

OUTPUTS

- 28,850 people accessed the portal
- 8,407 people downloaded a report from the portal

INVESTMENT

Victorian and Local Governments

PARTNERS

- Greater Shepparton City Council
- Benalla Rural City Council
- Mitchell Shire Council
- Moira Shire Council
- Murrindindi Shire Council
- Strathbogje Shire Council

REGIONAL STRATEGIES

Goulburn Broken Regional Floodplain Management Strategy 2018-2028

CASE STUDY: HELP FOR TINY POSSUM FACING BIG PROBLEMS

After teetering on the edge of a local extinction, the future of the Mountain Pygmy-possums on Mount Buller is looking brighter thanks to a collaborative project led by Goulburn Broken CMA.

LOCATION

Mount Buller

OUTPUTS

- 50 fauna assessments conducted
- 1,000 ha (initial) and 4,000 ha (follow-up) treated for pest animals (feral cats)
- 2 site management plans developed, over an area of 41 ha
- 30 hectares of habitat revegetated
- 4 plant survival surveys
- 1 monitoring regime for key food resources established, and 25 days spent maintaining the monitoring regime
- 25 invasive species assessments
- 17 hectares (initial) and 50 ha (follow-up) treated for weeds
- 2 communication materials
- 5 engagement events, with 135 participants
- 13 agreements established

INVESTMENT

Australian Government National Landcare Program – \$1,003,500 over five years (2018-2023)

PARTNERS

Alpine Resorts Victoria – Mt Buller Mt Stirling, Taungurung Land and Waters Council & Biik Cultural Land Management, Australian Government – National Landcare Program

REGIONAL STRATEGIES

Mountain Pygmy-possum National Recovery Plan 2016
Mountain Pygmy-possum Mount Buller Recovery Plan 2013
Taungurung Country Plan 2017

The boulderfields of Mount Buller are home to an important population of the endangered Mountain Pygmy-possum.

Through the Australian Government's National Landcare Program, the five-year Mending Mountains for Pygmy-possums project has improved habitat and reduced threats to the tiny marsupial.

Goulburn Broken CMA, technical experts, Taungurung Traditional Owners and the primary land manager: Alpine Resorts Victoria – Mount Buller Mount Stirling have worked in collaboration.

With ecologist Dean Heinze, the size and genetic health of the Mount Buller Mountain Pygmy-possum population has been monitored twice a year to understand the trajectory of the population and how it responds to intervention.

The project monitored and trapped feral cats over an area of 1,000 hectares each year, successfully reducing their concentration on Mount Buller – a significant predation threat to the Mountain-Pygmy possum.

Each spring and summer, the numbers of Bogong moths, a key food resource for the possum as they emerge from their torpor in spring, were recorded, improving understanding of the connections between the two species.

The Mountain Pygmy-possum relies on alpine plants for food and shelter. Taungurung crews planted thousands of plants over 30 hectares. Revegetation provides shelter for possums travelling between boulderfield habitat, improving connectivity and ultimately genetic resilience.

Weed control has also played a critical role in improving habitat. Weeds have been removed by hand in sensitive areas such as waterways and alpine bogs to reduce chemical use and avoid harming aquatic invertebrates such as stoneflies.

Each of these activities has contributed to a stabilisation of the Mountain Pygmy-possum population at Mount Buller and a more certain future for them.

Below: The Mending Mountains for Pygmy-possums project at Mt Buller has resulted in a stabilisation of the population. Image Goulburn Broken CMA.





“The flood in the Murray River in late 2022 and early 2023 inundated the Catfish Billabong regulator — that’s just the reality of working on the Murray River floodplain. The structure is now complete and we’re looking forward to Catfish Billabong thriving again in the future.”

Allison McTaggart
Mallee CMA Chair

*Catfish Billabong, Merbein Common.
Image Mallee CMA.*

Mallee

2022 – 23 ACHIEVEMENTS

- ▶ Supported flood response and recovery actions as a key priority including supporting emergency services to provide information at community forums, undertaking flood damage and water quality assessments, removing debris from riparian areas, and repairing damaged infrastructure.
- ▶ Delivered over 140,000 hectares of targeted environmental works to enhance the region’s priority natural, cultural, and productive landscapes.
- ▶ Released the 2022-28 Mallee Regional Catchment Strategy (RCS) to provide a six-year framework for action that supports and focuses the coordinated efforts of all regional stakeholders.



Above: Victorian Water Minister Harriet Shing inspecting the Catfish Billabong Regulator during construction. Image Mallee CMA.

Our Future Vision

Healthy and resilient landscapes being cared for by connected communities.

Mallee Regional Catchment Strategy

Below: Students in front of Malleefowl mural at Tempy Primary School. Image Natalie Mitchell.





CASE STUDY: CATFISH, CORMORANTS, CANOES AND SO MUCH MORE!

From more catfish to better canoeing, there's a whole lot of benefits set to roll when natural wetting and drying cycles return to Catfish Billabong in Victoria's far north-west.

LOCATION

Merbein Common, which is the Traditional Country of the First Peoples of the Millewa-Mallee Aboriginal Corporation

OUTPUTS

- 4 engagement events
- 1 plan
- 1 publication
- 2 waterway structures

INVESTMENT

\$2 million Building Works capital stimulus package 2020 – Waterway Environmental Works component September 2020 – December 2023

PARTNERS

First People of the Millewa-Mallee Aboriginal Corporation, Parks Victoria, Department of Environment, Energy and Climate Action (DEECA)

REGIONAL STRATEGIES

Mallee Regional Catchment Strategy 2022–28, Mallee Waterway Management Strategy (MWMS)

Along the Murray River, there's countless wetlands and billabongs that no longer have healthy wetting and drying phases due to the impacts of river regulation.

Catfish Billabong is just one of these, but thanks to the installation of an environmental regulator, the surrounding River Red Gums, 29 fauna and 12 flora species that depend on this wetland will soon see wetting and drying cycles reinstated.

Catfish Billabong is a 65-hectare wetland situated within the Merbein Common Flagship Waterway Site, just 15 kilometres west of Mildura on the banks of the majestic Murray River. Not only is it a haven for native fish and birds, it's also steeped in cultural values and a much-loved destination for local community members.

An existing inlet channel had intermittently connected the billabong to the Murray River, but river regulation and weir pool levels led to saplings growing in the channel and raising its height, meaning it naturally connected less and less often to the river.

Through the installation of an environmental regulator, the flow through the inlet channel will be managed and native species will be able to thrive. The billabong will cycle between phases of inundation and drying to provide the best possible outcomes for the environment. Additional benefits will include the ability for Traditional Owners to inform ecological watering cycles to support cultural knowledge and values for the site; and everyone will be able to enjoy a healthy wetland offering great fishing, canoeing, camping, bird watching and hiking.

Additional works will also be completed at the site to complement the project, such as track improvement works, carpark areas, visitor signage and seating.

Above left: Concrete pour at Catfish Billabong, Merbein Common, and right: Native catfish. Images Mallee CMA.

CASE STUDY: YOUNG MALLEEFOWL CITIZEN SCIENTISTS AND AMBASSADORS

A small Mallee school is leading the way when it comes to protecting the much-loved native Malleefowl.

Tempy Primary School has been putting citizen science into action, thanks to an annual, auspiced grant it received from the Mallee CMA since 2021 to further Malleefowl conservation.

The Malleefowl is a ground-nesting bird listed as “vulnerable” under both national and state legislation. It is threatened by land clearing, climate change, bushfires and predation, and its populations are declining. But Tempy Primary School students aren’t letting this species fade into extinction! The school used the grant funding to help purchase five remote-sensing cameras to monitor Malleefowl creating and caring for their large nesting mounds. Students collaborated with the Victorian Malleefowl Recovery Group (VMRG), Parks Victoria and local conservationists to install the cameras at active mound sites on private properties adjoining reserves. The students gained valuable skills in using digital technologies for scientific and tracking purposes, as well as learning to collect data. They are compiling their images of the Malleefowl to share with the VMRG and add to their database.

But that’s not all Tempy students have done for the Malleefowl – they have also lobbied for larger, improved signage to warn motorists to look out for Malleefowl on local roadsides and highways, where the bird can be seen feeding on spilled grain; and they are now pushing for better management of litter and chemical spills in parking bays adjoining Bronzewing Reserve, a local hotspot for Malleefowl populations. Tempy students have also undertaken revegetation to enhance Malleefowl habitat in a local reserve adjoining a state forest.

Tempy Primary School students won the 2021 Victorian Junior Landcare award and were finalists in the 2022 National Landcare awards, both in recognition of their amazing efforts in Malleefowl conservation.

This project was supported by the Mallee CMA, through funding from the Australian Government’s National Landcare Program.

LOCATION

Central Mallee

OUTPUTS

318 Engagement Event Participants

INVESTMENT

Australian Government’s National Landcare Program

PARTNERS

Tempy Primary School

REGIONAL STRATEGIES

Mallee Regional Catchment Strategy 2022–28

Below left: Malleefowl, image David Sickerdick, DEECA, and right: Students and MCMA officer at Baring Wildlife Corridor, image Cheryl Torpey.





“The project has been developed in recognition of the importance of chain of ponds ecosystems and with an increased understanding of the impacts of climate change.”

Rohan Hogan

Executive Manager Strategy and Partnerships, North Central CMA

Ideal habitat for southern pygmy perch in a pond connected to Middle Creek. Image North Central CMA.

North Central

2022 – 23 ACHIEVEMENTS

- ▶ Launched our second Reconciliation Action Plan. Galkangu (we walk together, we learn together, DJAARA language) Stretch Reconciliation Action Plan 2022 – 2025.
- ▶ Implemented the 2023 Sustainable Soils Forum exploring emerging perspectives to grow the future of agriculture in the region. The Hon. Penelope Wensley, National Soils Advocate, highlighted the importance of conserving and improving the health of Australia's soils.
- ▶ Delivered the successful Plains Wanderer project that resulted in more than 700 hectares of privately owned high-quality grasslands permanently protected under Trust for Nature covenants.

Our Future Vision

Working in Partnership for a Healthy Catchment.

North Central Regional Catchment Strategy



Above: Kayaking, Gunbower Forest. Image Sydney Harbour Kayaks.

Below: Chicks in the Sticks, October 2022. Image Sandy Scheltema.





CASE STUDY: SAVING CHAIN OF PONDS

The Saving Chain of Ponds project is about protecting critical drought refuges for aquatic species in Mountain and Middle creeks, near Moonambel in the Pyrenees region of the upper Avoca catchment.

LOCATION

Pyrenees region of the upper Avoca catchment
Dja Dja Wurrung country

OUTPUTS

- Riparian revegetation – 3 Ha
- Aquatic vegetation (1,000 plants)
- Riparian fencing (1.5km)
- Native fish management – 2 conservation stocking events (southern pygmy perch)
- Native fish management – Instream woody habitat (3 small woody habitat clusters)
- Other – 1 baseline ecological survey

INVESTMENT

\$99k Murray Darling Healthy River grant
\$50k internal Business Development funding

PARTNERS

Dja Dja Wurrung Aboriginal Corporation,
Native Fish Australia and Australia New Guinea Fishes Association

REGIONAL STRATEGIES

The project aligns with the Upper Avoca Catchment Action Plan, North Central CMA's Regional Waterway Strategy (improving the long-term resource condition in the Upper Avoca catchment), Dhelkunya Dja Country Plan (2014 – 2034; Goal 5 – Rivers and Waterways) and more broadly, the MDBA's Native Fish Recovery Strategy.

In the upper Avoca catchment, a remarkable tale unfolds along its waterways. Here, nature has woven a rich tapestry of aquatic life, housing a treasure trove of biodiversity. Among these hidden gems are the EPBC-listed southern pygmy perch, the FFG-listed freshwater catfish, and thriving populations of river blackfish, all of which are vital threads in the ecological fabric of this landscape.

Yet, the Avoca catchment, like many others, faces challenges. Climate change looms ominously, threatening to diminish rainfall and streamflow. In such a precarious scenario, the survival of these native fish species hinges on the protection and preservation of refuge pools – oases of life amidst drier times, especially after the harsh grip of drought.

Enter a project with a noble mission: to safeguard and enhance these precious refuge pools. Building upon a study by the Arthur Rylah Institute, the project takes root in Mountain and Middle creeks. Through a combination of stock exclusion, strategic fencing, riparian revegetation, and enhancement of littoral habitats, these sanctuaries for aquatic life are fortified.

But that's not all; the project goes the extra mile. It pioneers the creation of surrogate sites, carefully crafted habitats that stand as insurance policies for the southern pygmy perch. These surrogate sites ensure that should adversity strike, a lifeline for these species remains intact.

In this endeavour, the North Central Catchment CMA stands shoulder to shoulder with remarkable partners. Native Fish Australia, the Australia New Guinea Fishes Association, Avoca Landcare, and the Dja Dja Wurrung (Djandak) join forces, uniting their passion and expertise to deliver the project.

Above left: Middle Creek refuge pool that contains southern pygmy perch and river blackfish Middle Creek refuge pool that contains southern pygmy perch and river blackfish, and right: Ideal habitat for southern pygmy perch in a pond connected to Middle Creek. Images North Central CMA.

CASE STUDY: RESPONDING TO FLOODS

The North Central CMA has a proud history of supporting communities, local government, and VicSES before, during, and after natural flooding. The events of October 2022 were no exception. These floods were catchment-wide, impacting the Loddon, Avoca, Avon Richardson, and Campaspe catchments, as well as the Murray River. For some areas, these floods were the largest on record.

LOCATION

North Central CMA catchment

OUTPUTS

- 271 site assessments
- 1 ha debris and rubbish removal
- 514 native fish species translocation

INVESTMENT

\$2.1 million provided to the CMA by Victorian Treasury Advance
The funding was provided to the end of June 2023

PARTNERS

Local governments across North Central CMA region, Vic SES, Victorian Fisheries Authority, Arthur Rylah Institute, Ecology Australia, Austral (contractor)

REGIONAL STRATEGIES

North Central Regional Catchment Strategy 2021–27, North Central Regional Floodplain Management Strategy 2018–28

In mid-October 2022, the North Central Catchment Management Authority (CMA) region experienced extensive and prolonged flooding for the second time in a decade. This flooding affected both upper catchment towns and riverine areas across the region, causing significant damage.

The North Central CMA, operating as a statutory authority, plays three critical roles in natural flood management: Preparation, Response, and Recovery. Its primary function is to support local government, VicSES, and other agencies with floodplain management expertise.

In response to the October 2022 floods, the CMA swiftly deployed staff to assist in Incident Control Centres at Bendigo, Swan Hill, and Mildura. Staff also conducted on ground flood extent marking and aerial assessments of the Campaspe, Loddon, and Avoca rivers to understand the flood extent and damage to natural assets. More than 220 flood damage submissions were also received from the community, leading to unusual natural asset protection work by CMA staff including the recovery of the Rochester All Access Fishing platform.

Native fish were another casualty of the 2022 floods with low dissolved oxygen levels in Gunbower and Pyramid creeks causing hundreds of fish deaths and Murray cray crawling onto the banks in distress.

The CMA was on hand to rescue and relocate more than 500 native fish, including Murray cod, golden perch, silver perch, and trout cod, to healthier waterways including the Campaspe River.

Additionally, the North Central CMA led a midterm review of the Regional Floodplain Management Strategy 2018-28, resulting in 141 priority actions to aid flood recovery and enhance preparedness. The review underscored the necessity of considering climate change’s real impacts in flood planning and response.

Since the 2010-11 flood events, 30 flood studies and management plans have been executed in the region, benefiting more than 50 townships. Flood mitigation efforts have been implemented in nine communities, including Donald and Quambatook, which would have suffered inundation during the 2022 flood event without these completed works.

As of June 2023, 280 Flood Damage Rapid Assessments from the 2022 flooding await further investigation and repair work will be prioritised based on available funding.

Below left: Campaspe River near Rochester – New fishing and kayaking platform washed away, and right: Releasing salvage fish from Gunbower Creek into Campaspe River. Images North Central CMA.





“We are delighted with the level of collaboration, co-design and the relationships we have with our key partners and our community. It is through working together that we achieve so much with what we have”.

Dr Christine Cunningham
North East CMA Chair

Alpine peatlands at Mt Buffalo have been the focus of the five-year Alpine Peatlands Protection Project with funding from the Australian Government. Image North East CMA.

North East

2022 – 23 ACHIEVEMENTS

- ▶ Constructed the Tea Garden Weir fishway in March 2023 to open up an additional 270 kilometres of riverine habitat between the Murray River and Porepunkah Weir. Partnership with Goulburn-Murray Water.
- ▶ Completed the final year of Australian Government's five-year Regional Land Protection Program including Mountain Pygmy-possum Recovery; Alpine Peatland Protection, Bush for Birds, Embedding Climate Change in Agriculture and Securing North East Soils Through Knowledge Exchange.
- ▶ Addressed 19 high priority sites (primarily in the Upper Murray catchment) and issued 110 works on waterways permits to landholders to undertake self-funded repairs following flooding which began in October 2022.

Our Future Vision

Diverse, healthy and connected landscapes and communities.

North East Regional Catchment Strategy



Above: Timber revetment on Corryong Creek during flooding in late 2022. Image North East CMA.

Below: A rock ramp fishway was constructed by North East CMA at the Tea Garden Weir on the Ovens River, near Everton, in partnership with Goulburn-Murray Water. Image Goulburn Murray Water.





CASE STUDY: BUSH FOR BIRDS

Bush for Birds Project assists Traditional Owner Groups to build capacity and work together for cultural burning. In 2022-23, North East CMA worked with Duduroa Dhargal and Bangerang Aboriginal Corporations to build on fire safety training previously delivered through the program. We provided grants for fire safety equipment and increased resourcing and opportunities to conduct Cultural Burning on private land to care for Country.

LOCATION

Beechworth and Wooragee, North East Victoria

OUTPUTS

- Completion of accredited Fire Safety Training for five Bangerang and six Duduroa Dhargal participants.
- 2 partnerships
- 3 workshops

INVESTMENT

Australian Government – National Landcare Program – Regional Land Partnerships, Bush for Birds – landscape-scale habitat restoration for the Regent Honeyeater and Swift Parrot, 5 years

PARTNERS

Bangerang Aboriginal Corporation
Duduroa Dhargal Aboriginal Corporation
Trust for Nature

REGIONAL STRATEGIES

North East Regional Catchment Strategy 2021–27, North East CMA Natural Resources Management Plan 2021

In early May 2023, a shared Cultural Burn was planned and conducted on five hectares of private Grassy Woodland ecosystem at Wooragee, Victoria, part of the Bush for Birds project. The event was arranged and led by Duduroa Dhargal and Bangerang Elders, and was supported by staff from North East CMA and Trust for Nature.

This is the first known shared burn between the mobs in more than 150 years and is therefore considered a highly significant event.

The Burn was the result of strong momentum developed with the Traditional Owners in the burning space. It followed:

- Completion of Fire Safety Training in May 2022.
- Practical training and certification in conducting two separate burns on private land between July and October 2022.
- Graduation event for participants of the prescribed burn training at Beechworth in April 2023.

The North East CMA offered a grant to both groups to fully equip themselves with fire safety equipment. The groups took full advantage of this opportunity to “gear up” by purchasing equipment including full firefighter personal protective equipment, a trailer-mounted water tank and firefighting pump, backpack sprayers, a gear trailer and ignition drip torches.

The equipment is highly valued by the groups and will continue to support their cultural burning activities and aspirations beyond the Bush for Birds Project.

Elders from both groups are keen to expand a shared cultural burning program to educate their younger people and provide opportunities to engage with private landowners and the community.

Above: Traditional Owners, agency staff and landowners at the shared cultural burn at Wooragee. Image Jacqui Schultz.

CASE STUDY: BEING INFORMED TO ADAPT TO CLIMATE CHANGE

North East CMA is committed to assisting farming businesses make management decisions based on predicted climate scenarios. Conferences, workshops and field days build knowledge, skills and awareness of landholders to make informed decisions on adapting to the effects of climate change. In 2023 the Farming Carbon conference drew 134 delegates and a Farming, Carbon & Productivity Field Day drew 36 participants at Mudgegonga.

LOCATION

Beechworth, Mudgegonga and other on-farm locations

OUTPUTS

- 16 field days
- 119 training/workshop events
- 6 conferences

INVESTMENT

Australian Government – National Landcare Program – Rural Land Partnerships, *Embedding Climate Adaptation in Agriculture* project, linking in with Securing North East Soils Through Knowledge Exchange project. 5 years

PARTNERS

Australian Government, Agriculture Victoria (DEECA), Dairy Australia, Gecko CLaN, Landcare Network, Mars Petcare, Meat & Livestock Australia, AgriSci, Stellar Livestock, CSBP Soil and Plant Analysis Laboratory, University of Melbourne, Delatite Station, Angus Australia, Barenbrug Seeds

REGIONAL STRATEGIES

North East Regional Catchment Strategy 2021–27, North East CMA Natural Resources Management Plan 2021

The Farming Carbon conference held in February 2023 aimed to support land managers, agriculture industry groups, Landcare participants, and industry staff in north east Victoria in building their knowledge and understanding of carbon farming systems.

In the words of one speaker – livestock seedstock producer, Julian Carroll – “The issues around measuring carbon emissions – probably one of the most widely talked about topics in producer networks now – are causing quite a bit of concern and confusion. There is a lack of understanding”.

North East CMA identified the need to promote awareness among land managers of what carbon farming is about, the opportunities available and processes required, the issues and pitfalls, and generally the keys to a successful carbon farming program.

The Embedding Climate Adaptation in Agriculture project supported land managers and local governments to develop the skills, knowledge and awareness to allow them undertake changes in land management and strategic planning for climate change.

In the final year of this five-year project, activities have been targeted to build the knowledge, skills and awareness of land managers to implement change and build resilience in their systems, including a focus on carbon emissions in response to landholder interest.

Speakers have included farmers, academics, researchers, agency staff and agricultural consultants, who have addressed subjects ranging from emerging imperatives for low emissions food production, through to the importance of healthy soil in building soil carbon and the outcomes of regional carbon projects.

Below left: Beef producer Julian Carroll speaks about carbon at a field day on his Mudgegonga property, and right: Almost 40 landholders attended a field day at Mudgegonga in June focused on reducing farm emissions and accessing low-emissions supply chains. Images Agriculture Victoria.





“This project proves that the best environmental outcomes are achieved when there is clear objective to work towards and are delivered in partnership with key agencies and community groups..”

John Thwaites

Melbourne Water Chair

Speaking about the Two Great Ramsar Wetlands project in the Port Phillip and Western Port catchment project

Balcombe Estuary. Image Christian Pearson.

Port Phillip & Western Port

2022 – 23 ACHIEVEMENTS

- ▶ Completed Melbourne Water's first full year as the Catchment Management Authority for the Port Phillip and Western Port region.
- ▶ Achieved ministerial approval for the refreshed Port Phillip and Western Port Regional Catchment Strategy.
- ▶ Received a Landscape Architecture Award for the Reimagining Tarralla Creek project from the Australian Institute of Landscape Architecture.



Above: Brolga (*Grus rubicunda*) foraging. Image Andrew Morrison.

Our Future Vision

A healthy and resilient environment in the Port Phillip and Western Port region.

Port Phillip & Western Port Regional Catchment Strategy

Below: Exploring rockpools at Rickett's Point. Image Sharon Blance.





CASE STUDY: CARING FOR LANDCARERS

Landcare Facilitators are central to the delivery of community natural resource management initiatives throughout the state. However, the role is inherently isolated with few formal peer networks for working facilitators who support a range of volunteer groups. The State Landcare team had long sought to establish a mentoring program. In 2022 the pilot of *Caring for Landcarers* – a statewide mentoring program for emerging Landcare Facilitators was launched.

The program was launched to support an influx of new Landcare Facilitators who had come into their roles during or preceding the Covid-19 pandemic. The challenging dynamic brought about by the pandemic had been identified by Regional Landcare Coordinators as a real barrier for inexperienced facilitators trying to come to grips with the Landcare Facilitator role. Opportunities to build connection and rapport with peers and group members had been greatly reduced making the roles' more isolating.

Regional Landcare Coordinators from Melbourne Water and East Gippsland CMA approached NRM professional Dr Tamara Boyd to deliver a mentoring program following a State Landcare Team commitment to support the pilot. Melbourne Water also committed additional funding from Our Catchments, Our Communities Regional Leadership Development to support venue hire, catering, Traditional Owner Engagement and further independent training to support delivery of the six-month program.

The *Caring for Landcarers* was launched with an in-person session held at the Melbourne Museum in May 2022 and paired ten mentors, predominantly current or former Landcare professionals with ten newcomers to the field. The pairings were generally inter-CMA region made commitments to meet in-person and/or by online meetings.

The trial was a reminder of the collaborative assets inherent in Landcare. The new Landcare Facilitator cohort was given an insight into the various approaches that can be effective in delivery of community NRM outcomes and instilled the and affirmations of their skills and ways of working.

An uplifting final event including an indigenous tour was held in November 2022 at the Royal Botanic Gardens where participants shared personal insights in how valuable their pairings had been.

In 2023 following a report delivered by the program DEECA again committed to the *Caring for Landcarers* concept, each CMA contributing \$2,000 to delivery.

Above left: Participants final session, and right: Mentor pairing, Kelsey Tong and Matthew Crawley. Images Barry Kennedy.

LOCATION

Melbourne

OUTPUTS

Event

- Caring for Landcarers – 14
 - Caring for Landcarers Aboriginal Tour, Royal Botanic Gardens – 14
- Training

- Get More Time, Les Watson – 14
- Empowering Volunteers – 6

INVESTMENT

\$15,000 – State Landcare Team
\$6,000 – OCOC Regional Leadership

PARTNERS

Victorian Landcare Team, Melbourne Water

REGIONAL STRATEGIES

Victorian Landcare Plan, Victorians Volunteering for Nature, Biodiversity 2037

CASE STUDY: PROTECTING TWO GREAT RAMSAR WETLANDS IN THE PORT PHILLIP AND WESTERN PORT REGION

Ramsar wetlands are recognised as being ecologically important on a global scale. The *Two Great Ramsar Wetlands* project undertakes strategic actions, in collaboration with other organisations, to protect the ecological character of the Western Port and Port Phillip Bay (Western Shoreline) and Bellarine Ramsar sites. In 2022-23 work continued to reduce key threats to these unique wetlands through the management of invasive pest plants and animals, improving hydrological regimes, and increasing community awareness and participation.

LOCATION

Melbourne, Port Phillip Bay (western shoreline), Western Port, French Island, Phillip Island, Quail Island

OUTPUTS

- Pest animal control (predators) – 2,575ha
- Weed control (woody) – 1,839ha
- Engagement events – 41
- Publications – 2
- Assessments – 22
- Water (improved hydrological regimes) – 516ha

INVESTMENT

Australian Government – Regional Land Partnerships, 2018–23, \$2.4m over 5 years

PARTNERS

Bunurong Land Council, Parks Victoria, Phillip Island Nature Parks, Hobsons Bay City Council, Nature Glenelg Trust

REGIONAL STRATEGIES

Port Phillip & Western Port Regional Catchment Strategy, Port Phillip & Westernport Healthy Waterways Strategy, Port Phillip & Western Port Region NRM Acton Plan, Western Port Ramsar Site Strategic Management Plan, Port Phillip Bay (western shoreline) & Bellarine Peninsula Ramsar Site Management Plan

In 2022-23, the Two Great Ramsar Wetlands project worked in collaboration with Bunurong Land Council, Parks Victoria, Phillip Island Nature Parks, Hobsons Bay City Council and French Island Landcare, to protect two internationally important wetlands.

Our Indigenous Ramsar Ranger traineeship partnership with Bunurong Land Council went from strength to strength, with over fifty 'on-country' days spent co-delivering projects and undertaking environmental monitoring. Highlights from this partnership included partnering with Phillip Island Nature Parks to monitor feral cat activity at Observation Point and Rhyll Inlet.

Managing risks to coastal saltmarsh, partners targeted high threat woody weeds at multiple sites to improve habitat for shorebird and waterbird species, in addition to controlling feral goat impacts at French Island National Park. Through the great work of Parks Victoria, the complex feral goat project is nearing completion, with eradication likely to be achieved in 2023-24.

Improvements to coastal saltmarsh vegetation condition at The Spit Nature Conservation Reserve near Avalon continue following the reinstatement of natural hydrological regimes. Recent flora assessments highlighted the presence of the critically endangered *Microlepidiu pilosulum* (Hairy shepherd's purse) and the endangered *Triglochin mucronata* (Prickly arrowgrass).

Hobsons Bay City Council led community engagement activities across the Port Phillip Bay (western shoreline) & Bellarine Peninsula Ramsar site, hosting several events to help inform the community of the important ecological values of the region. Events included bike rides along the coastline, kayaking adventures, and science demonstrations.

Below: Traditional Owner engagement with the Bunurong Land Council. Image Andrew Morrison.





“The Agnes is a flagship river for our region because it runs into Corner Inlet and what happens along its length has a flow on effect for the world renowned wetland.”

Mikaela Power

West Gippsland CMA Board Chair

Agnes River winding to the coast showing lines of revegetation. Image West Gippsland CMA.

West Gippsland

2022 – 23 ACHIEVEMENTS

- ▶ Removed all willows along the entire length of the flagship Agnes River.
- ▶ Delivered 7,075 hectares of vegetation enhancement and protection to support biodiversity and river health outcomes.
- ▶ Completed the five year National Landcare Program for West Gippsland including Corner Inlet, Aboriginal Partnerships, Sustainable Agriculture and Alpine Peatlands.

Our Future Vision

Catchment Health – Gippsland's Wealth.

West Gippsland Regional Catchment Strategy



Above: Our Catchments Our Communities in action: Powlett River/ Kugerungmome Partnerships Project Working Group members at their annual gathering. Image: West Gippsland CMA

Below: The flagship Agnes River runs into world renowned Corner Inlet. Image West Gippsland CMA.





CASE STUDY: LAST WILLOW GONE FROM AGNES RIVER

West Gippsland CMA is proud to have removed the last remaining stand of willow trees from the entire length of the Agnes River – a first for the organisation and a win for the environment.

LOCATION

Toora, South Gippsland – Gunaikurnai Country

OUTPUTS

- Fencing 78.5 km of river frontage at 65 sites
- Planting 235,838 trees and shrubs to restore 237.63 ha
- Undertaking weed control on 414,51 ha at 218 sites

INVESTMENT

This large-scale restoration project is one of 19 Flagship Waterway projects funded as part of the Victorian Government's \$248 million investment over four years (2020-2024) to improve the health of waterways and catchments across regional Victoria

PARTNERS

South Gippsland Landcare Network, landholders, GLaWAC, Parks Vic, HVP Plantations Greening Australia

REGIONAL STRATEGIES

West Gippsland Regional Catchment Strategy, West Gippsland Waterway Strategy 2014–2022

Agnes River, on Gunuaikurnai Country, begins in the Strzelecki Ranges, meandering its way into Corner Inlet near the town of Toora. It's well known for the Agnes Falls where the river cascades over a spectacular 59 metre drop into a deep, picturesque gorge.

"Willows are a problem for rivers and removing them from 100% of the Agnes is a special milestone for the CMA," said Board Chair Mikaela Power.

West Gippsland CMA recently celebrated 25 years and the team has been chipping away at removing willows across the catchment since it was established in 1997.

In the early days of the project, just a few landholders came on board and then the success spread like wildfire as people saw the benefits such as how much easier it is to manage stock.

The next step after removing the last willows and weeds is planting the riverbanks with native vegetation and the team has planted thousands of indigenous species linking habitat and supporting river health and wildlife.

"So far, we've fenced and revegetated over 90% of the river. By the end of 2023-24, this will be 100%."

"All the positive works along the Agnes upstream ultimately flow down to Corner Inlet. The buffer created by the weed removal, fencing and revegetation improves conditions for fish, birds and seagrass to flourish."

Above left: Members of Agnes River Landcare Group, and right: The river cascades over a spectacular 59 metre drop into a deep, picturesque gorge. Images by West Gippsland CMA.

CASE STUDY: PARTNERSHIPS BUILDING A COMMUNITY LEGACY

Powlett River/Kugerungmome Partnerships project is uniting partners across the whole catchment, to make a whole lot of difference to this much loved river.

LOCATION

Kilcunda, South Gippsland – Bunurong Country

OUTPUTS

- 11 landholders engaged
- 6.73 km of stock exclusion fencing, which protects an area of 26.55 ha
- 30.97 ha revegetated
- 58.92 ha woody weed control
- 34.31 non-woody weed control
- 162 ha pest animal (fox) control
- 2 Cultural heritage assessments

INVESTMENT

This project is funded by the Victorian Government's Our Catchments Our Communities program

PARTNERS

Led by West Gippsland CMA, partners include Bunurong Land Council, Bass Coast Landcare Network, South Gippsland Landcare Network, Birdlife Australia, Friends of Hooded Plover Bass Coast, Trust for Nature, Parks Victoria and Powlett River Primary School

REGIONAL STRATEGIES

West Gippsland Regional Catchment Strategy, West Gippsland Waterway Strategy 2014–2022

Community spirit is alive and well in Bass Coast as Traditional Owners, partners, students and longterm landholders all play their part in enhancing the catchment from the Bass Hills to Bass Strait.

“Working together in true partnership and involving community is where the power lies – we can achieve and learn so much more when we do it together and support each other. Community, wildlife and environment are the winners,” said Board Chair, Mikaela Power.

Kugerungmome, the Bunurong language name for the river, was approved by Traditional Owners to be used in the project. In its upper reaches, Trust for Nature and Landcare are working to conserve and understand the endangered Giant Gippsland earthworm through research and enhancing habitat.

Along the river and tributaries, Landcare and the CMA are partnering with landholders, community and schools to fence and revegetate waterways.

Trust for Nature is taking the opportunity to help landholders restore and protect 34 hectares of remnant vegetation on adjoining properties that have suffered years of weed invasion.

At the coast, Landcare, the CMA, BirdLife Australia and volunteers are protecting beach nesting shorebirds. Fox control, monitoring and education resulted in eight Hooded Plover chicks fledging compared with five the previous year.

The next generation of self-named ‘Kugerungmome Kids’ from Powlett River Primary School are tackling marine pollution and learning about the river’s significant cultural heritage and wildlife.

Black Swans have been seen nesting in the estuary for the first time in 20 years – a great reward for partners and community working together.

Below: Powlett River Primary School Students working as part of the Powlett River/Kugerungmome Partnerships Project. Image: West Gippsland CMA.





“As 85% of the Wimmera landscape is used for agricultural production, it is the main driver of the economy. Any changes to farming practices in the Wimmera potentially have wide reaching socio-economic outcomes”

Peter Hilbig
Wimmera CMA Chair

*Wimmera River downstream from Dimboola.
Image Wimmera CMA.*

Wimmera

2022 – 23 ACHIEVEMENTS

- ▶ Returned Mitchell's Hopping Mouse to the Little Desert region for the first time in over half a century.
- ▶ Delivered \$450,000 of flood recovery works including reinstatement of riparian fencing, protection of public infrastructure and repairs to waterway infrastructure.
- ▶ Partnered with Barengi Gadjin Land Council, ARI and DEECA to enhance the cultural and environmental values of the Ranch Billabong.



Above: Mitchell's Hopping Mouse being released into the Little Desert. Image Wimmera CMA.

Our Future Vision

A healthy Wimmera catchment where a resilient landscape supports a sustainable and profitable community.

Wimmera Regional Catchment Strategy

Below: Carapugna wetlands receive environmental watering from the WMPP Water Savings Project. Image Wimmera CMA.





CASE STUDY: MACHINE LEARNING FOR SOIL MONITORING

A joint project between Wimmera CMA and Federation University as part of the Soils Cooperative Research Centre (Soils CRC) is using an Artificial Neural Network (ANN) to determine levels of soil organic carbon for cereal farmers and land managers wanting to understand carbon sequestration potential and management.

LOCATION

Wimmera

OUTPUTS

- 1 partnership – Fed Uni
- 1 assessment – agronomic
- 1 information management system

INVESTMENT

Soils CRC is a ten-year program \$59 million cash contribution and \$108 million in-kind contribution. Our Catchment our Community has contributed resources to support 2 PhD students over a 5 year period

PARTNERS

Soils CRC, Federation University, farmers

REGIONAL STRATEGIES

Regional catchment strategy, Regional climate adaptation plan, Wimmera Carbon Ready Plan, Wimmera Waterway Strategy

Agriculture participates in the low carbon economy as both an emitter and sequester of carbon dioxide. As market and social licence to operate expectations continue to increase for climate change action it is becoming increasingly important for farmers to be able to measure soil organic carbon levels. Traditionally measuring has been an expensive and impractical task for farmers as laboratory analysis is required.

However by using free images from NASA's Landsat, the European Space Agency Sentinel satellite and machine learning it is possible to estimate where farmers can prioritise carbon sequestration.

A unique feature of the project will be the adoption of two separate computational models – a physics-based model and a machine-learning model.

The physics-based method, more commonly known as a process-based method, typically involves estimating carbon content from an image using soil science expertise and formulating an equation. Different variables from the images and other sources are put into the equation – resulting in a calculation.

The Machine learning learns by examples, you are giving it photos and telling it what the carbon content is for particular images, and the model tries to learn the equation. The more examples you give it, the more accurate it will be.

PhD candidate Mr Rahman: “these two methods have been totally different disciplines but in my research, I’ll be using a machine learning model that will take inspiration from a physics-based model. This has been done successfully in other aspects of agriculture, like estimating soil moisture, but not for carbon.”

Above left: PhD candidate Arif Rahman, undertakes crop survey with local farmer, and right: PhD candidate Arif Rahman, inspects disc seeder with local farmer. Images Wimmera CMA.

CASE STUDY: PARTNERING TO DELIVER CULTURAL AND ENVIRONMENTAL OUTCOMES AT RANCH BILLABONG

Wimmera CMA is partnering with Barengi Gadjin Land Council (BGLC), Aurthur Rylah Institute (ARI) and the Department of Energy, Environment and Climate Change (DEECA) to enhance the cultural and environmental values of Ranch Billabong, on the Wimmera River near Dimboola.

LOCATION

Ranch Billabong, Wimmera River
Dimboola

OUTPUTS

- 1 partnership
- 1 pump installed
- 1 assessment – Water quality
- 1 assessment – Invasive species – Carp
- 1 assessment – Fauna – Fish
- Pest animal control – Carp
- 1 trail maintained
- 1 publication written

INVESTMENT

Integrated water management
EC5 – Water for the Environment in the Wimmera, OCOC, and Lower Wimmera Flagship

PARTNERS

Barengi Gadjin Land Council, Wimmera CMA, Arthur Rylah Institute, VEWH, DEECA

REGIONAL STRATEGIES

Growing What Is Good Country Plan
Regional Catchment Strategy, Wimmera Waterway Strategy

In previous years this culturally significant site has been watered via pumping from the Wimmera River with the support of the Victorian Environmental Water Holder and Wimmera CMA. This has improved water quality, vegetation health and bird and fish habitat.

Wimmera CMA commissioned designs for a pipeline to provide a permanent water source to the Billabong from the Wimmera River. This will allow BGLC and Wimmera CMA to call for water when needed rather than relying on expensive and cumbersome pumping.

This year natural flows filled the Billabong without the need for pumping. Wimmera CMA supported the Land Council with water quality monitoring to assess risk of blackwater and as a result, CMA aeration devices were deployed. Dissolved Oxygen levels increased in the areas under the influence of the aerators and provided refuge for fish and prevented fish deaths.

ARI were also engaged by the Land Council under DEECA's integrated water management program to remove carp to improve native fish habitat. ARI conducted netting and, over two days, found carp, redbfin and native species such as Australian Smelt, Flathead Gudgeon and shrimp. Around 100 carp were also removed over the two days.

Wimmera CMA is also updating the Environmental Water Management Plan for the Wimmera River which will improve the recognition of cultural values including at the Ranch Billabong.

This partnership aligns with the Wimmera Regional Catchment Strategy 2021-2027 and BGLC's Nations Statement outlined in Water is Life – Traditional Owner Access to Water Road Map.

This work is supported by Aboriginal Water Officers in BGLC and Wimmera CMA and coordinated under a partnership agreement.

Below left: ARI electrofishing carp removal under supervision of BGLC, Wimmera CMA and DEECA staff, and right: Wimmera CMA installed aerator pump in operation at the Ranch. Images Wimmera CMA.



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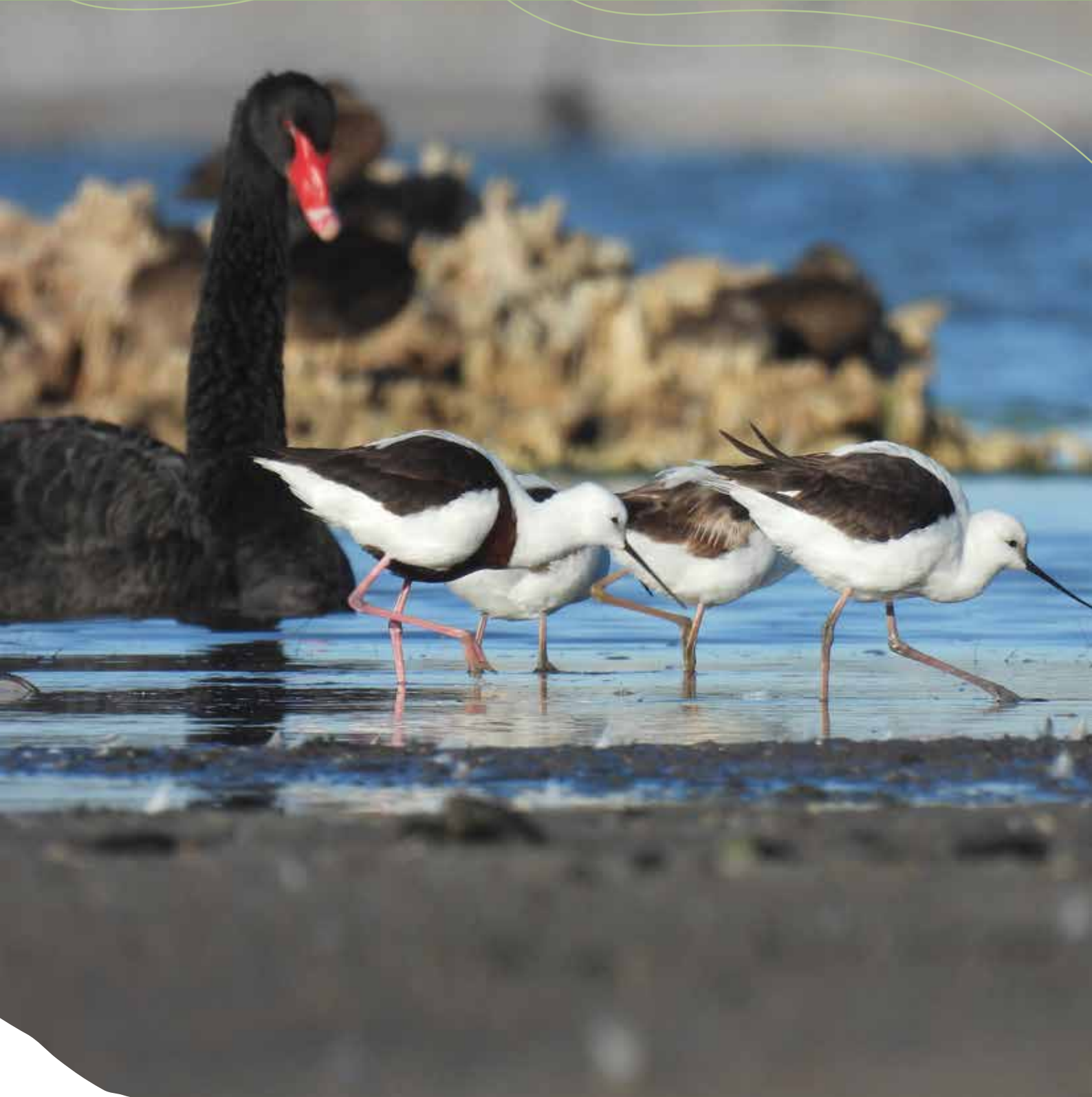
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*Banded Stilts and Black Swan at Lake White.
Image Nyil Khwaja (ARI).*



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Above: Powlett River/Kugerungmome winding into Bass Strait. Image West Gippsland CMA.