



2010 - 2011

Edition 6

The Egret
Victorian Wetland Working Group Newsletter



A meadow of Swamp Billy-Buttons at a wetland in northern Victoria.

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Welcome

Welcome to the 6th Victorian Wetland Working Group (formerly the CMA Wetland Network Forum) Newsletter. The newsletter aims to inform readers about the work undertaken by the Group's members over the last financial year to protect and enhance wetlands across the state, and highlight the latest wetland research and management issues.

In our last newsletter (September 2009) we reported on the significant stress wetlands and their dependent biota were under due to the prolonged drought and the tragic loss of life and property caused by Victoria's worst bushfires on record. How things have changed. The rain we were all hoping for came, and then came again. In late

2010 and early 2011 much of the State received above average rainfall, flooding metropolitan and rural areas causing widespread damage and loss. On a positive note the rain and floodwaters filled many of the State's wetlands (some for the first time in over ten years), stimulating large bird breeding events and the regeneration of wetland vegetation. With our water storages currently full and our catchments wet, further inundation of the State's wetlands is expected.

Over the last twelve months members of the Group have been busy undertaking an array of innovative and important projects, from providing incentives to landholders to protect wetlands, assessing the condition of wetlands,

delivering environmental water, investigating wetland grazing regimes, monitoring bird breeding events, and providing the community with opportunities to explore and learn about wetlands.

The Network is currently producing a 2012 wetland calendar with lots of great wetland information and pictures. Please contact a member of the Wetland Working Group (see last page for contact details) if you are interested in receiving a copy of the calendar, if you have any questions concerning any of the articles in this issue, or wish to find out more about wetland projects in your local area.

We hope to see you at a wetland soon.

Habitat Tender making good sense

By Glenn Dixon Wimmera CMA

Wetlands in the Wimmera's west that are 'wet' for the first time in many years are the focus of a tender incentive program.

Wimmera Catchment Management Authority's fourth Habitat Tender for Wetlands commenced in July and will run until the end of 2011.

People with property west of Horsham, south of the Little Desert National Park and east of the South Australian border are eligible to participate.

As part of this tender round, the CMA is keen to discover wetlands or swamps that farmers might have forgotten were there during the extended drought.

Habitat Tender for Wetlands

has achieved great success in the region's west, which contains about 20 per cent of Victoria's wetlands.

In three years the program has helped more than 50 farmers protect 75 wetlands covering 1800 hectares.

For west Wimmera farmer Mareeta Cox, one of the best

aspects of the program is the professional advice from natural resource management agencies.

"It's just so nice to have a program that's rewarding farmers for looking after their natural resources. I know I couldn't have afforded to do it otherwise," she says.

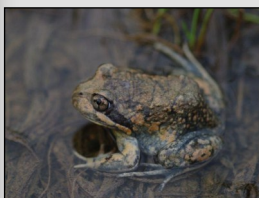


West Wimmera farmer Mareeta Cox.



Acoustic monitor being placed in the field.

“Acoustic monitoring is an efficient way to measure species diversity and composition within the landscape.”



A Banjo Frog recorded at Tahbilk Lagoon.

Tahbilk Lagoon acoustic monitoring

By Jo Wood Goulburn Broken CMA

The Goulburn Broken Catchment Management Authority along with the Department of Primary Industries in Tatura, conducted an acoustic census of Tahbilk Lagoon to determine the distribution and composition of the frog population and analyse ecosystem quality and biodiversity.

What is acoustic monitoring?

Acoustic monitoring is an efficient way to measure species diversity and composition within the landscape. Using acoustic monitors (digital recorders with a timing device) in the field allows surveyors to collect data without disturbing the site and can collect data over long periods of time.

Acoustic monitoring measures the “soundscape.” The soundscape is the complete acoustical environment (everything you hear). The soundscape is broken up into three components: human sound produced as a by-product of human activity such as machinery or a siren (Anthrophony); sound produced by the elements such as wind and rain (Geophony); and sound produced by animals and humans (Biophony).

By using acoustic monitors, you can analyse one or all of the soundscape components.

How were sounds monitored?

Four acoustic monitors were placed around the Lagoon in different habitat types. They were put out on a monthly basis for a 24 hour period to provide detailed soundscape data.

Acoustic monitors were collected after the 24 hour period and sound files uploaded to a computer. The recordings were sent to the Remote Environmental Assessment Laboratory (REAL) at Michigan State University for assessment of the soundscape.

At the Michigan State University, each individual recording and site was analysed using a computational index that compared the biological sounds (biophony) to human induced sounds (anthrophony). This index gives a value between -1 and +1.

A value of -1 indicates that the environment is full of human induced sound (anthrophony) which can be detrimental to the health of an environment. A value of +1 indicates all biological sound (biophony), which can indicate a healthier environment.

Acoustic recordings were also listened to by staff and frog species identified by their unique calls. An approximation of species populations was made also.

Results

Five frog species were heard at Tahbilk Lagoon during acoustic monitoring. These were: Spotted Marsh Frog (*Limnodynastes tasmaniensis*), Banjo Frog (*Limnodynastes dumerilii*), Perons Tree Frog (*Litoria peroni*), Common Froglet (*Crinia signifera*) and Plains Froglet (*Crinia parinsignifera*).

Two sites had an index value close to zero, indicating that human induced noise may be impacting upon the biological noise in these areas. Site one and two were close to the Café and vineyard at the winery.

The remaining two sites had an index close to +1 indicating that the soundscape in these areas were determined by a lot of biological noise and not a lot of human induced noise.

Future work on the acoustic recordings includes using the frog calls to assist with signature recognition software. This can be used to determine calls without actually listening to the recordings.



An Acoustic monitor used in the field .

Barmah Forest floods the record books

By Keith Ward Goulburn
Broken CMA

The breaking of the longest continuous drought period experienced by mid-Murray wetlands in 105 years of recorded history! The highest December flood peak in 105 years of recorded history! The second longest continuous flood duration in 105 years of recorded history! The second largest release of environmental water in Australia's history! The best floods for waterbird breeding success in at least 40 years! The worst blackwater event in known history!

OK, so not all of the records were enviable. But the story of 2010/11 flood year is certainly a valuable one. Below are a few key outcomes.

A total of 428,000 ML was released to maintain water levels in Barmah Forest to prevent waterbirds from abandoning chicks before fledging. A total of 50 waterbird species are thought to have bred including a number of threatened species. Of note:

- Approximately 2,800 Nankeen Night-heron, 75 Great Egret, 85 Intermediate Egret and 22 Little Egret nests were recorded, the largest breeding event for these species in Barmah Forest for around 40 years.
- Brolga chicks successfully fledged for the first time in Barmah Forest for around 60 years.
- Several hundred Little Black Cormorants and approximately 50 Darters were found to have nested amongst the estimated 750 nests of Little Pied Cormorants.

Wetland plant response to the prolonged flooding appears to be mixed. A number of important Moira Grass (*Pseudoraphis spinescens*) dominated plains now have increased areas of open water and bare ground. Giant Rush

(*Juncus ingens*), which had appeared to have been drowned out where the deepest flooding had occurred, is now beginning to re-sprout! Drought-stressed Red Gums (*Eucalyptus camaldulesis*) are sprouting fresh canopies, although this has come too late for some sections of the forest.



Little Pied Cormorant chicks in nest .

The flooding of the low-laying wetlands was the first for 5 years, whereas the outer floodplain was inundated for the first time in 10 years. The initial flush, occurring in September, was at a cool time of year and was useful in purging the forest of some of the accumulated leaf litter, feeding the organics to the Murray River.

However, the second major flood peak commencing in late November caused a blackwater event with extremely low dissolved oxygen levels that affected the Murray River for hundreds of kilometres downstream. Additional blackwater

events from floods in the Goulburn River, Campaspe River and Loddon Rivers only added to the Murray River problems. Spiny Freshwater Crayfish left the river in their tens of thousands, and a number of native fish deaths were reported.

The blackwater event was entirely natural and occurred

“The second largest release of environmental water in Australia's history! “



Female Darter tending to chicks in Barmah Forest



Steamer Plain in Barmah Forest flooded by natural flood events and environmental water

as a direct result of warm water (from the largest December flood peak in recorded history) inundating large accumulations of Eucalypt litter (from the largest drought sequence in recorded history), and not from environmental water releases being made at relatively low levels.

The take-home messages from this flood are basically that we need more frequent and seasonal floodplain inundation events, and targeted releases of environmental water allocations can appropriately augment natural flood events to achieve superb environmental outcomes.



Lake Moodemere, Black Swamp and Boorhaman Plains Wetland Tour .

“To date the project has delivered two community wetland events attracting 120 people...”

Protecting wetlands in the Lower Ovens floodplain and Boorhaman Plains

By Sarah Ning North East CMA

Since 2009 the North East CMA, Trust for Nature and the Department of Primary Industries have been developing projects with landholders interested in doing environmental works relating to wetlands and swamps in the Lower Ovens River Floodplain and Boorhaman Plains area of the North East CMA region.

A number of activities including a range of community and stakeholder engagement activities, educational activities and priority actions from the regional Wetland Strategy are funded through the project, to help achieve the protection, rehabilitation, management and sustainable use of high value private wetlands, as well as improve landscape connectivity.

Wetlands in the region provide habitat for native species, and also have important ecological linkages with rivers and groundwater systems. Also the regional Wetland Strategy identifies that ninety percent of the regions wetlands and most threatened wetland types, occur within, or are bounded by privately owned land.

In comparison with other parts of the region the project area contains an enormous number and area of wetlands (2,741 hectares), owing largely to the geomorphology of the area and the changes to the river course over time.

Destroying or degrading wetlands can lead to serious consequences such as increased flow rates, increased flow intensity, a decline in water quality and even extinction of species. We can avoid these consequences by maintaining the valuable wetlands we still have and restoring lost or impaired wetlands where possible.

When a wetland functions properly, it provides water quality protection, habitats for fish and wildlife, breeding sites for waterbirds, natural floodwater storage and reduction in the erosive potential of surface water. A degraded wetland is less able to perform these functions effectively.

A number of landholders have utilised the funding to control weeds and provide a fenced buffer to increase the protection of wetlands from stock grazing and weed infestation. The funding has also enabled

landholders to enhance existing native vegetation for the protection of significant waterbird populations.

To date the project has delivered two community wetland events attracting 120 people and the development of two wetland fact sheets. The project has also had 13 landholders utilise the project’s funding to protect 19 wetlands and riparian areas covering almost 360 hectares through five year agreements, of these 8 have been covenanted covering an area of 113 hectares and will now be monitored under Trust for Nature’s Stewardship program with three-yearly visits. The project has also completed a range of Whole Farm Planning activities including farm water planning, reticulation of Stock and Domestic Systems and the provision of planning advice

The project will continue in 2011-12 through extension and education, protective fencing works, revegetation works, pest plant and animal control, remnant vegetation management, implementation and management of the incentives program and management payments.



Macroinvertebrate sampling at the Discovering Black Swamp community event .

A pilot project for changed grazing regimes on floodplain wetlands

By Lachlan Farrington Glenelg Hopkins CMA

You might remember from a previous newsletter that the Glenelg Hopkins CMA, through NRIP funding, is undertaking a trial into the ecological and agricultural benefits of seasonal floodplain grazing. Floodplains are one of the most threatened natural habitats on the planet and emerging science, both in Australia and abroad, is forcing recognition of their role in maintaining healthy and viable landscapes. Not only is this important for conservation, but is increasingly being recognised as a conduit to long-term, sustainable and more prosperous agriculture.

The investigation is taking place on properties which encompass the floodplain of the Wannon River, in Western Victoria and involves land under different grazing regimes. Four properties are receiving incentive payments to seasonally exclude stock from the floodplain (*reduced grazing*), one site is being *continually grazed* and one has a history of *no grazing*. Seasonal vegetation surveys are being used to monitor the response of the floodplain plants and processes under these different management regimes. The trial is also being carried out in partnership with the Department for Primary Industries, who are measuring soil variables and pasture productivity.

Early results indicate that there has been a positive response in terms of the native vegetation which has established a foothold. This also correlates with a reduction in weeds in the *reduced grazing* trials, compared to both the *continually grazed* and *no grazing* control sites. The trial has taken place during a period that has seen some significant rain and flow events and it will be interesting to watch how the floodplain responds across the different management regimes.

Monitoring of soil condition has not detected any clear responses on the *reduced grazing* trial sites. Measurements of pH, Electrical Conductivity (EC), Cation Exchange Capacity and compaction show seasonal variation but trends over time are yet to emerge. EC has shown a slight but non-significant increase across all sites following the wet summer of 2010-2011. Soil compaction is overall higher at the *continually grazed* site but the seasonal responses are the same across all sites. Pasture measurements, expressed in terms of Food on Offer (FOO) revealed an inverse relationship with the *reduced grazing* sites having the highest FOO in

don't appear to be taking over. There also appears to be some real agricultural benefits in terms of available summer feed. And in terms of real on-ground momentum, farmers are recognising productivity benefits and the fact that the improved environmental health of the waterway greatly enhances the aesthetic appeal of their farm. The trial is providing an ideal test case to promote farmers adopt a new farming practice. Other landowners in the same area have become interested in adopting the management practices without the expectation of stewardship payments.

The project is set to launch another round of vegetation

“Floodplains are one of the most threatened natural habitats on the planet....”



Investigation site.

summer as opposed to the *continually grazed* site which showed a 50% reduction from winter to summer FOO. On average, the summer FOO at *reduced grazing* sites was twice that at the *continually grazed* site. Measurements over the recent summer have not been taken as a lot of the area has been under water.

The trial continues for another two years but already the initial results are promising. The native vegetation is re-establishing and the weeds

monitoring this Spring, with scope to take in some sites to allow an expansion into evaluating different land-uses. We will also be monitoring the recruitment of redgums and, where possible, establishing some protection from grazing. In addition we will hopefully get an additional measurement of the summer pasture and further evaluate the increases in summer feed on offer on these seasonally grazed floodplains.



Merin Merin Swamp.

“... more than 160 species of birds have been recorded at the Moolort Plains Wetlands...”

“Some of the wetlands are managed for conservation by local farmers with others used for cropping and grazing.”

Moolort Plains wetland investigation

By Joe Park and Michelle Maher North Central CMA

The catchment of the Moolort Plains Wetlands is situated on the Victorian Volcanic Plain, located in the Loddon River Catchment and is Victoria's only national biodiversity hotspot. The wetlands consist of freshwater meadows, shallow freshwater marshes and deep freshwater marshes. Within these three wetland types there are three recognised subcategories, including herb dominated, lignum dominated and Red Gum dominated wetlands.

No two wetlands in the network are the same; varying in size (ranging from 1-2ha to more than 200ha in size), shape and flora composition. These wetlands occur in a largely cleared and fragmented landscape, which provide a range of breeding, roosting and nesting sites for native fauna species. A number of the wetlands are lignum dominated providing excellent habitat for nesting waterbirds, including Brolga. Others are dominated by large old River Red Gums providing valuable roosting and nesting sites for birds and mammals. The diversity of habitat types offers many ecological niches for native species to thrive and reproduce. What is especially significant is that these wetlands form a tight cluster of different wetland types, occupied by a range of resident and migratory threatened species. Their essentially ephemeral nature means that species occurrence and breeding may be easily overlooked.

The Moolort Plains Wetlands have long been treasured and appreciated by local residents and farmers on the Moolort Plains for a range of environmental and social reasons. The wetlands are known to be valuable habitat for many native animals particularly waterbirds. In order to fill knowledge gaps on the Moolort Plains Wetlands a series of activities

were undertaken in 2010-11 to determine the number of wetlands that exist, their names, sizes and locations. On ground field inspections were undertaken at 48 wetlands between November 2010 and March 2011, including:

- mapping the location, number and extent of each wetland;
- identification of native flora and fauna species;
- identification of pest plant and animal species;
- current adjacent land uses; and
- key threats.

The other key component of this investigation was to use community engagement as a tool to obtain local knowledge of the wetlands such as:

- historical watering regimes at the wetlands; and
- significant observations made by landowners over time.

The investigation has highlighted that more than 160 species of birds have been recorded at the Moolort Plains Wetlands, including Australian Painted Snipe (*Rostratula australis*) and the Brolga (*Grus rubicunda*). The Growling Grass Frog (*Litoria raniformis*) has also been recorded in this area.

The Moolort Plains Wetlands largely occur on private land and are managed by landowners in various ways. Some of the wetlands are managed for conservation by local farmers with others used for cropping and grazing. Only two wetlands on the Moolort Plains occur on public land: Merin Merin Swamp and Middle Swamp which are managed by Parks Victoria as State Game Reserves.

While many landowners treasure their wetlands and have endeavoured to manage them for conservation, there is also evidence that during dry periods many of the wetlands have been disturbed and will continue to be used for cropping and grazing practices. Other threats present at the wetlands include pest plant and animal invasion, altered hydrology and salinity. A wide variety of management tools have been recommended to ensure the protection and enhancement of the Moolort Plains Wetlands. This investigation will help inform future potential natural resource management projects in the Moolort Plains as well as providing a key resource tool for an area where previously there was limited documented information.



Frogmore Swamp

Lake Connewarre complex INFFER project

By Donna Smithyman
Corangamite CMA

The Lake Connewarre Wetlands Complex is a 4,228 hectare coastal wetland system located on the southern Bellarine Peninsula. 3,410 ha is public land mostly managed by Parks Victoria, and the remaining 818 ha is private land. Reedy Lake is the main freshwater wetland while Hospital Swamp, Salt Swamp, the estuary of the Barwon River and Lake Murtnagurt are all saline systems. The Lake Connewarre wetland complex is one of the most valuable natural areas in the Corangamite CMA region. It is recognised at local, state, national and international levels.

The Lake Connewarre Complex is home to large numbers of migratory Shorebirds, is one of the few intact habitats left for the Orange bellied parrot, and has extensive stands of diverse coastal saltmarsh communities, however it also has significant threats that need to be mitigated.

Corangamite CMA, Parks Victoria, DSE and the Lake Connewarre Values Committee undertook a project to determine the value of the site and the cost effectiveness of management actions on the wet-

lands utilising INFFER. Investment Framework for Environmental Resource (INFFER) is a tool for planning and prioritising investment in natural resources. RMCG were engaged to deliver the project with the guidance of Geoff Park (NCCMA) and Anna Roberts (DPI) from the INFFER team.

This project highlighted the following threats to the complex:

- invasive plants and animals that impact on both flora and fauna;
- nutrients (nitrogen and phosphorus) that can severely decrease water; and quality within the system
- rapid rises or falls in the depth to groundwater across the complex.

Actions to manage the threats to vegetation from invasive species were identified. However, there is not sufficient information to identify actions for water quality or groundwater threats. Therefore they are highlighted as priorities for additional research and investigation. Because of this, the goals set for the complex focus on protecting native vegetation and important fauna. The goal for this project is to *Maintain the ecological condition of the complex for the next 10 years by:*

- Maintaining the extent of all ecological vegetation classes in the complex at 2010 levels (+/- 5% of current based on recent salt marsh mapping project).
- Protecting native fauna through addressing direct threats to fauna from invasive animals.

Two scenarios were investigated through determining the value of the asset, the intensity and extent of the threats to the asset, the types of management actions that are required to mitigate the threats, as well as the actions' feasibility and likelihood for adoption.

Scenario 1 looked at acquisition of the land and Scenario 2 examined the use of management agreements. The monetary difference between the two scenarios was significant with Scenario 1 costing \$25.0125 million whilst Scenario 2 was valued at \$5.3035 million - both costed over five years. The Benefit Cost Index, which highlights feasibility of a project as well as value for money, identifies a positive valued project if the score is one or over. In this case study Scenario 1's BCI was 0.5 and Scenario 2 had a BCI of 1.4.

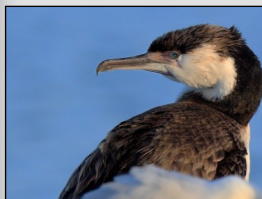


View across Hospital Swamp.

“The Lake Connewarre wetland complex is one of the most valuable natural areas in the Corangamite CMA region.”



Dog prints in the mud at Lake Connewarre.



Black-faced Cormorant

Parks Victoria's new wetland education resource

By David Ponsford Parks Victoria

The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site is adjacent to the fastest growing residential area in Australia. Parks Victoria and partner organisations have been active in engaging the local communities about the significance of the site and to educate residents about actions they can do to minimise their impacts on the wetlands.

As many of the locations are not suitable for visits by large school groups, Parks Victoria has developed an online resource to help students learn more about these wetlands.

Video footage and photographs were taken of the wildlife, habitats and impacts from throughout the Ramsar site. These can be viewed and

downloaded for free from the Parks Victoria's Enviro Activ website. Students are encouraged to make their own wildlife documentary using this footage. By sharing their movies with friends and family, the students will help spread the message about the importance of wetlands and the steps people can take to help protect them.

To support students to learn about wetlands, the website has comprehensive information about the significance of wetlands, the major impacts they face as well as actions that help protect wetlands. Worksheets and a guide to movie-making are also provided to support teachers in using this engaging resource with their students.

To further support this resource, Parks Victoria is running a series of excursions

where students visit one of the sites and participate in hands-on projects that help protect these wetlands. Training sessions have been held to engage local teachers with the resource and provide support to use it with their students. A competition is also being held to encourage students to share their videos within the school and wider community.

While the focus for the footage is on the Port Phillip region, Enviro Activ is an excellent resource for students across the state. Parks Victoria hopes to include footage from other locations and environment types over time. If your organisation has suitable footage that you would be happy to share through Enviro Activ we would love to add it to this resource.

For more information email education@parks.vic.gov.au or visit www.enviroactiv.com.au

"Students are encouraged to make their own wildlife documentary using this footage."



Sharp-tailed Sandpiper

Examples of images available for download through Parks Victoria's Enviro Activ educational resource



Yellow-billed Spoonbill



Australian Pelicans



A wetland assessed in 2010/11.

Assessing wetland condition in Victoria

By Janet Holmes DSE

In 2009/10, The Department of Sustainability and Environment and catchment management authorities undertook the first systematic assessment of high value wetlands across Victoria. Victoria has around 13,000 natural wetlands greater than 1 hectare in area. Approximately 600 of Victoria's wetlands are considered high value. They include wetlands of international importance, listed under the Ramsar Convention (Ramsar sites), wetlands of national importance, listed in *A Directory of Important Wetlands in Australia* and other wetlands identified as significant at the State level.

An assessment of a sample of the remaining 12,400 wetlands in Victoria was completed in 2010/11. The results of this second round of assessment is being used to model general wetland condition across the state and provide a benchmark for monitoring long-term trends in wetland condition.

The information on wetland condition will be used in policy formulation and prioritisation of wetlands for action in regional Strategies for Healthy Rivers and Wetlands, to be

prepared by catchment management authorities in 2013. The data will also be used to model wetland condition across the state and provide a benchmark for monitoring long-term trends in wetland condition through regular assessments at six year intervals.

The Index of Wetland Condition

Wetlands are resilient and can adapt to change but are threatened by many factors, including altered land use, drainage or infilling, physical alterations, changed water regime, salinisation and nutrient enrichment, grazing by livestock, cropping and invasive species.

The Index of Wetland Condition (IWC) is a rapid, largely field based, method which is used to assess the condition of Victoria's wetlands. It assesses the impact of the threats by systematically assessing key components of six key characteristics of wetlands that, in the IWC, are termed subindices (Table 1). These are assessed against a reference condition. This is the condition estimated at the time of European settlement and is based on scientific knowledge and expert opinion. Each subindex is scored using measures also shown in Table

1. The overall score is calculated from the weighted subindex scores. The biota, hydrology and water properties subindices are given the highest weight.

The IWC provides a consistent baseline for monitoring change but does not mean the aim of management is to return all wetlands in Victoria to their original condition. The method is designed for use at all natural wetlands, except those with a marine water source, such as mangroves and coastal salt marshes.

Many wetlands dry naturally from time to time. Their overall condition can remain healthy through a period of drying, where it occurs as part of a natural wetting and drying cycle. The wetland measures selected for the IWC were designed to detect longer term changes in condition, regardless of whether the wetland was wet or dry at the time of assessment.

Further information

Information about the Index of Wetland Condition can be found on the DSE website. The results of the condition assessment of wetlands will be available on the DSE website later in 2011.

"The IWC provides a consistent baseline for monitoring change ..."



A wetland assessed in 2010/11.

Table 1: Six sub-indices used in the Index of Wetland condition.

Wetland subindex	What was measured?	Wetland in excellent or good condition had the following characteristics
Wetland catchment	1. The intensity of the land use within 250 metres of the wetland	Land use intensity around the wetland is low (e.g. conservation or native forestry)
	2. The width of the native vegetation surrounding the wetland and whether it is a continuous zone or fragmented	There is a zone of wide and continuous native vegetation surrounding the wetland
Physical form	3. Whether the size of the wetland has been reduced from its estimated size at the time of pre-European settlement	The original wetland area and form is unmodified
	4. The percentage of the wetland bed which has been excavated or filled	
Hydrology	5. Whether the wetland's water regime (i.e. the timing, frequency of filling and duration of flooding) has been changed by human activities	There is little or no change in the wetland's water regime from its natural state.
Water properties	6. Whether activities and impacts such as grazing and fertilizer run-off that would lead to an input of nutrients to the wetland were present	There is an absence of activities such as grazing or fertilizer run-off that could result in an increased nutrient concentration in the wetland
	7. Whether the wetland has become more saline or in the case of a naturally salty wetland, whether it had become more fresh	There is no change in the wetland's salinity from that estimated at the time of pre-European settlement
Soils	8. The amount and severity of wetland soil disturbance from human activities, feral animals or livestock	The wetland soils have no or very little disturbance
Biota (vegetation)	9. The diversity, health and weediness of the native wetland vegetation	The wetland vegetation is healthy with all the expected critical life forms present and a lack of weeds



Growling Grass Frog

Dams to habitat: providing habitat for the Growling Grass Frog

By David Bryant DSE

The Growling Grass Frog (*Litoria raniformis*) is recognized as a threatened species at the state, national and international level. It was once widespread in Victoria but populations have declined. This is most likely because of degraded habitat and the fungal disease chytridiomycosis. To help address this decline, a project is under way to increase the availability of suitable habitat in rural areas by enhancing existing farm dams. The project is currently funded by the Wimmera, Corangamite and Glenelg Hopkins CMAs.

To select dams which are suitable for enhancing, frog and

tadpole surveys are conducted at wetlands, streams and dams near known Growling Grass Frog populations using spotlights and call recognition. The habitat in unoccupied dams is enhanced with the addition of aquatic vegetation and bank-side debris (such as rocks and wood). The enhancement dam together with the source population and a control dam are monitored over the following three year period to determine if the species has occupied the enhanced dam and is breeding. Fences are erected to keep livestock away from the newly vegetated areas.

Dams and adjacent waterways have been surveyed in the

Corangamite, Glenelg Hopkins, Wimmera and North Central CMA regions. Enhancements at seven dams are underway in Corangamite and Glenelg Hopkins. Landowners have provided access to their properties and have been very supportive of the project.

For more information contact : david.bryant@dse.vic.gov.au or view the project and fact sheets on the ARI website: <http://www.dse.vic.gov.au/arthur-rylah-institute/research-themes/threatened-species-and-communities#Growling>

A farm dam used by Growling Grass Frogs. Note the aquatic vegetation and surrounding areas of long grass that frogs can use as refuge.



A farm dam less suited to Growling Grass Frogs. There is no aquatic vegetation in the dam and little refuge habitat in the areas surrounding the dam.



The Egret

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The Victorian Wetland Working Group aims to conserve wetlands in Victoria by:

- progressing wetland policy;
- supporting, aligning, coordinating and communicating wetland initiatives at a State-wide level; seeking multi-regional opportunities;
- sharing experiences; and
- facilitating discussion about wetland management in its broadest sense.

The Working Group comprises representatives from each Catchment Management Authority region (see map below), the Victorian River Health Managers Forum, the Department of Sustainability and Environment (policy and research), Melbourne Water, Parks Victoria and Australian Government Facilitator.

