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Disclaimer

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Cover images
Front cover: Wetlands provide important habitats for waterbirds, such as this adult great egret (Ardea modesta) at Leichhardt Lagoon in Queensland (© Copyright, Brian Furby)

Back cover: Inland wetlands, like Narran Lakes Nature Reserve Ramsar site in New South Wales, support high numbers of waterbird breeding and provide refuge for birds during droughts (© Copyright, Dragi Markovic)

Contents

Introduction to *Wetlands Australia* August 2014

Waterbirds depend on wetlands. Biologically productive wetland habitats support a variety of life cycle stages, including feeding, breeding, nesting and moulting, for many resident and migratory waterbirds.

This edition of *Wetlands Australia* will highlight the important role wetlands play in supporting waterbirds. It includes stories of successful wetland restoration and conservation works, waterbird monitoring and research programs and community projects within wetlands that benefit waterbirds.

If you would like to contribute to future editions of *Wetlands Australia*, please contact wetlandsmail@environment.gov.au

Coastal estuaries, such as Moulting Lagoon Ramsar site in Tasmania, provide important staging areas for waterbirds. The name Moulting Lagoon is derived from when black swans (Cygnus atratus) shed their flight feathers which can be seen piled up along the shoreline (© Copyright, Michelle McAulay)

Pied heron at Marlgu Billabong on the Ord River Floodplain, Western Australia (© Copyright, Jim Mollison)

Ramsar wetlands support waterbirds and their habitat

Ashmore Reef: A tropical paradise for seabirds

Rohan Clarke, Monash University

Ashmore Reef is a Commonwealth Marine Reserve situated some 630 kilometres north of Broome, Western Australia and 145 kilometres south of the Indonesian island of Roti. The reserve supports outstanding marine life including vast areas of shallow coral reefs.

Four small islands provide critical breeding and roosting sites for exceptional numbers of seabirds. With 16 species of seabird and huge numbers of individuals, Ashmore Reef is listed as both a Ramsar site and an Important Bird Area.

To facilitate effective management, especially given the extensive oil and gas developments in the region, a team from Monash University led by Dr Rohan Clarke run a large-scale research programme at Ashmore Reef and other nearby islands. Seabirds are of particular interest, with research focused on monitoring population trends at the breeding sites and identifying foraging ranges and essential food resources procured from the surrounding oceans.

Experienced ornithologists equipped with spotting scopes, binoculars and 'clickers', and small drones that gather high resolution images of nesting seabird colonies from low altitudes without disturbing the birds are the two techniques used to monitor seabird populations. Monitoring has shown that more than 100 000 seabirds

A small drone fitted with a high resolution camera returns to the landing site after photographing crested tern (Thalasseus bergii) and lesser frigatebird (Fregata ariel) colonies from above. Aerial photos provide another tool to maximise accuracy of monitoring efforts

A male great frigatebird (Fregata minor) in full display mode with his throat pouch inflated. Great frigatebirds are just one of 16 species of seabird that breed at Ashmore Reef (© Copyright, Rohan Clarke)

breed at Ashmore Reef in any year, with tens of thousands of additional seabirds making use of the islands as a nighttime roost site. The drone flights provide a completely new perspective—not only are they streamlining the counting process, but for the first time they are also allowing the team to assess the accuracy of the more traditional ground counts.

Research on seabird movements at Ashmore Reef includes the deployment of small GPS devices on frigatebirds, boobies and tropicbirds. Recovered tags allow researchers to determine where seabirds go to obtain their food. Most boobies undertake daily foraging trips involving flights of 80 to 140 kilometres from the breeding islands, whereas frigatebirds undertake trips lasting 3 to10 days that take them up to 400 kilometres from the islands before they return.

Away from the islands, the team also maintains a continuous record of marine fauna (seabirds, whales, dolphins, turtles and sea snakes) when transiting to and from study sites. This data is especially valuable to identify the needs of seabirds that breed elsewhere, yet routinely forage in the oceans surrounding Ashmore Reef.

In combination, these and other research approaches will provide the insight needed to best manage this very special place.

More information on this research can be found at www.researchecology.com.au

A female great frigatebird (Fregata minor) fitted with a small solar powered GPS tag. These tags record the bird's position at regular intervals through the day and when it next returns to the island the data is automatically downloaded to a small base station without having to capture the bird. Such technology provides important insight into seabird movements with minimal disturbance
(© Copyright, Rohan Clarke)

Banrock Station's record bird numbers

Tim Field and Christophe Tourenq, Banrock Station, South Australia

Wetland bird surveys have revealed record bird numbers and increasing diversity at Banrock Station Wetland Complex Ramsar site in South Australia.

In 1993, the Banrock Station wetland, downstream of Kingston on Murray in the Riverland of South Australia, went through its first of several human-induced drying phases since the construction of Lock 3 in the 1920s. Since 2007, the implemented hydrological regime means the cycle of wet and dry now takes place every three years or so. This allows us to reduce water needs through the summer months and provide a pulse of water in the spring to mimic what once would have happened along the river prior to construction of dams, weirs and locks.

As part of the monitoring of wetland health and diversity at Banrock Station, monthly wetland bird surveys began in 2007 so that changes in bird diversity, abundance and seasonal variations could be recorded. Record annual numbers of several species of waterbirds have been recorded in the first quarter of 2014, including Australasian shovelers *(Anas rhynchotis)*, black-winged stilts *(Himantopus himantopus)*, red-necked avocets (Recurvirostra novaehollandiae), black swans *(Cygnus atratus)* and the four species of cormorants (little black *(Phalacrocorax sulcirostris)*, little pied (*Microcarbo melanoleucos*, pied *(Phalacrocorax varius)* and great *(Phalacrocorax carbo)*).

During winter 2013 when the wetlands were dry, Banrock Station welcomed a group of volunteers from the International Student Volunteers (ISV) programme for a two week period. Amongst all the projects they assisted with, their lasting legacy was to help the Banrock Station rangers construct an artificial island to create additional refuge for bird life, giving visitors the opportunity to observe the birds from the nearby bird hide.

The refuge has proven a winner with the four species of cormorants now using the new island as a roost along with coots, ducks, swans and pelicans. Since the construction of the island, cormorant numbers have surpassed the 2013 figures by 64 per cent (189 birds) and the previous highest count by 47 per cent (154 birds).

Birdlife enjoy the new refuge island that was constructed during the 2013 dry phase at Banrock Station Wetland Complex Ramsar site, South Australia

In the last 12 months, nine new bird species visited the area, including the great crested grebe *(Podiceps cristatus)*. The blue-billed duck *(Oxyura australis)*, which had not been observed since 2001 at Banrock Station, was also sighted and recorded. Several new species have been added to the site list, with notable recordings of a spotless crake *(Porzana tabuensis)* and a banded stilt *(Cladorhynchus leucocephalus)* viewed from several of the bird hides located around the wetland. A new and unusual observation was the oriental plover *(Charadrius veredus)*, seen late last year amongst samphire floodplains adjacent to the 8 kilometre walking trail circuit around the Banrock wetlands.

Currently, 176 species of birds have been recorded across the wetland, floodplain, black box *(Eucalyptus largiflorens)* and mallee habitats of Banrock Station Wetland Complex.

For further information on Banrock Station Wetland Complex and the waterbirds it supports, please visit www.banrockstation.com.au

An oriental plover (Charadrius veredus) was recorded late 2013 at Banrock Station Wetland Complex Ramsar site, South Australia (© Copyright, Tim Field, Banrock Station)

One of the many red-necked avocets (Recurvirostra novaehollandiae) seen on the wetlands at the Banrock Station Wetland Complex Ramsar site, South Australia (© Copyright, Tim Field, Banrock Station)

Delivering biodiversity dividends for the Barratta Creek Catchment, and for the Bowling Green Bay Ramsar Wetland in Queensland

Hanna Kogelman, Regional Manager Townsville, WetlandCare Australia

The Barratta Creek Catchment is located in the Burdekin Shire and the Burdekin Dry Tropics Natural Resource Management region approximately 50 kilometres south-east of Townsville in North Queensland.

Barratta Creek forms the main artery of the Ramsar-listed Bowling Green Bay wetlands. The estuarine reaches of Barratta Creek are also part of the Great Barrier Reef World Heritage Area, making this particular creek catchment a significant and highly important ecosystem in North Queensland.

Along the coastal plains of Queensland, a large number of seasonal wetlands have been lost due to development. Unlike other coastal areas of Queensland, Barratta Creek remains a relatively intact floodplain creek system with a wide variety of environmental values including vegetation connectivity from rangelands to the ocean. The Barratta Creek remnants provide habitat for nationally endangered and locally threatened wildlife including the northern quoll *(Dasyurus hallucatus)*, squirrel glider *(Petaurus norfolcensis)*, greater glider *(Petauroides volans)*, spectacled hare-wallaby *(Lagorchestes conspicillatus)*, bare-rumped sheathtail bat *(Saccolaimus saccolaimus nudicluniatus)*, black-throated finch *(Poephila cincta)*, squatter pigeon *(Geophaps scripta)* and rufous owl *(Ninox rufa)*.

In July 2012 Barratta Creek Catchment Management Group and WetlandCare Australia developed a monitoring and evaluation programme designed to measure the success of the projects and other activities such as community events, extension, communications and project management. Project baseline and monitoring information will be documented and stored by WetlandCare Australia and reviewed periodically to determine achievements against key performance indicators relevant to activities in the project. For example, monitoring will involve measuring the percentage of open water in wetlands, wetland bird species, woodland bird species, and arboreal and ground mammal counts.

The activities are also designed to engage the local community, including to mentor and provide traditional owner Natural Resource Management work teams with appropriate training and adequate resources to enable them to become a viable long term professional resource.

Black-throated finches (poephila cincta) utilise remnant habitat along Barratta Creek, Queensland (© Copyright, Brian Furby)

The team will also conduct flora and fauna surveys of high value remnant vegetation as well as develop local programmes to preserve habitat for nationally endangered and locally threatened wildlife. The project itself covers a total of 125 000 hectares, of which 30 000 hectares will be revegetated, 30 000 hectares will be restored and 3000 hectares will be managed for invasive species. On ground monitoring, training programmes, research partnerships and restoration initiatives will protect, manage and enhance the high ecological values of the Barratta Creek Catchment.

For more information, please contact Hanna Kogelman (hannakogelman@wetlandcare.com.au) or visit www.wetlandcare.com.au

Squatter pigeons (Geophaps scripta) are one of the endangered species that could benefit from local programmes to preserve habitat in the Barratta Creek catchment, Queensland (© Copyright, Brian Furby)

Protecting Ramsar values at Little Llangothlin Lagoon

Laura White and Eli Dutton, WetlandCare Australia, Ballina, New South Wales

Located near Guyra on the New England Tablelands of New South Wales, Little Llangothlin Lagoon Nature Reserve is a Ramsar listed wetland, noted for its waterbird habitat values, unique ecological character and the threatened species and communities it supports.

This permanent freshwater lake represents one of the last remaining Upland Wetlands, a nationally Endangered Ecological Community (EEC). The site also supports the nationally endangered New England Peppermint Woodland ecological community and the nationally threatened herb Austral toadflax *(Thesium australe)*.

Little Llangothlin Lagoon is a waterbird habitat refuge, regularly supporting over 20 000 birds. Nearly 50 waterbird species rely on the permanent water, food and shelter that the lake provides, including the nationally endangered Australasian bittern *(Botaurus poiciloptilus)*. Many migratory birds also seasonally feed and roost at the lagoon.

Land uses in the surrounding catchment, such as grazing, can result in excessive sediment and nutrients entering the lagoon, causing infilling and water pollution. Loss of native vegetation in the wider area reduces habitat connectivity for waterbirds and other fauna.

The following catchment management actions are implemented to promote catchment health to keep the lake clean and flourishing with birdlife:

- Confine stock to drier areas to prevent sediment and nutrient run-off.
- Maintain healthy pastures and avoid overgrazing.
- Control noxious weeds to stop their spread.
- Restore areas of native vegetation to provide habitat for wildlife.
- Promote wetland vegetation to capture soil and nutrients.

WetlandCare Australia and the Northern Tablelands Local Land Services are currently delivering a project funded by the Australian Government, to assist farmers in the Lagoon's catchment to improve wetland health. The project aims to increase productivity and farm health, while protecting habitat values through the provision of livestock fencing, alternative watering options and revegetation. The project will also assist farmers with the control of noxious weeds in the catchment and work with New South Wales National Parks and Wildlife Service (NSW NPWS) to undertake revegetation around the lagoon. Over 200 hectares of native vegetation will be improved, benefiting lagoon health and bird habitat.

Over 20 farmers attended a field day at the Lagoon in February 2014 to learn more about the wetland and many are now engaged in on-farm works to improve management practices. Project partners, including fifteentrees and the NSW NPWS, have donated their advice, materials and services to the project to boost outcomes. On-ground works will assist to maintain the ecological character of this Ramsar wetland by improving water quality within the lake, reducing the threat of weed incursion and expanding key habitat and corridors within the region.

For more information on the project, please contact WetlandCare Australia on 02 6681 6169 or visit www.wetlandcare.com.au. For more information on the Little Llangothlin Nature Reserve Ramsar site, please visit www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=47

Little Llangothlin Lagoon Ramsar site supports endangered ecological communities, threatened species and provides key waterbird habitat (© Copyright, Laura White)

Unmanaged stock can significantly decrease wetland health and catchment wide water quality (© Copyright, Laura White)

Hooded plovers and hypersaline pink lakes — a possible symbiosis?

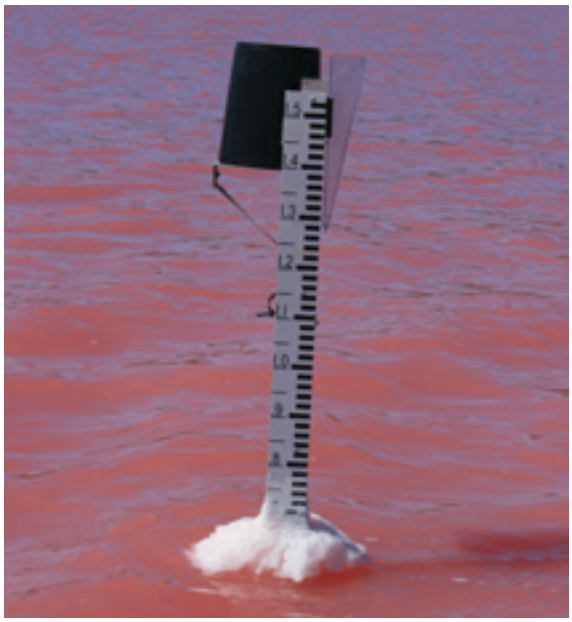
Don Cater, Recovery Catchment Technical Officer, Western Australian Department of Parks and Wildlife

The Lake Warden Wetland System in Esperance, Western Australia, was listed as a wetland of international importance (Ramsar wetland) in 1990. The system consists of numerous interconnected lakes, including the iconic Pink Lake.

Extensive land clearing activities over the past three decades have resulted in an altered hydrological regime. Consequently, Pink Lake no longer has its namesake colour and shorebird habitat has been drastically reduced.

In August 2009, engineered dewatering of the system began with the aim of reducing current water levels to optimise shorebird habitat and vegetation recovery. For further information on this project, please refer to the article by John Lizamore and Michael Coote in *Wetlands Australia, Issue 24*, 'To wade or not to wade — hydrological management effects on species composition', found at: www.environment.gov.au/resource/wetlands-australia-national-wetlands-update-february-2014.

Following this dewatering, weekly bird surveys at Lake Warden indicate that shorebirds have returned in record numbers during the early summer, but move on in late summer despite there being optimal nesting habitat available. New evidence suggests that the reduced water



Salt crystals form on the gauge plate at the Lake Hillier monitoring station in Middle Island, part of the Pink Lakes project (© Copyright, Don Cater)

Hanson 3, part of the Pink Lakes project, is a small pink lake situated on private property at Speddingup (© Copyright, Don Cater)

Hooded plovers (Thinornis rubricollis) feeding at Lake Warden where Dunaliella salina cysts with accumulated carotenoid (red colouration) have washed ashore (© Copyright, Don Cater)

levels have increased salinity values above those that invertebrates can survive—the food source of waders. At saturation point, salt crystals form either as an underwater crust or as crystals above the water line. It is at this point that pink colouration changes are usually observed.

Interestingly, hooded plovers *(Thinornis rubricollis)* appear to favour these conditions as they are recorded in greater numbers than usual, while other shorebird numbers decline drastically from this point forward (Figure 1). The pink colouration of hypersaline lakes is produced by various organisms, including the algae Dunaliella salina when it assimilates beta carotene, and the carotenoid and retinal pigments of halophylic (salt-loving) micro-organisms. Current speculation is that hooded plovers are able to procure food resources at pink lakes that are not available to other species.

In an attempt to better understand this ecological trait, the recovery catchment program has established a monitoring program to find correlations between shorebird species richness and water chemical parameters specifically in hypersaline lakes that exhibit pink colouration changes.

The results will be used to adaptively manage the Lake Warden Wetland System in an attempt to restore the ecological integrity of the system. This includes the provision of optimal nesting and feeding habitat for shorebirds and a suitable explanation, and possible remedy, to the Pink Lake colour dilemma.

For more information and research opportunities, contact John Lizamore (Western Australian Department of Parks and Wildlife, john.lizamore@wa.gov.au, (08) 9083 2109).

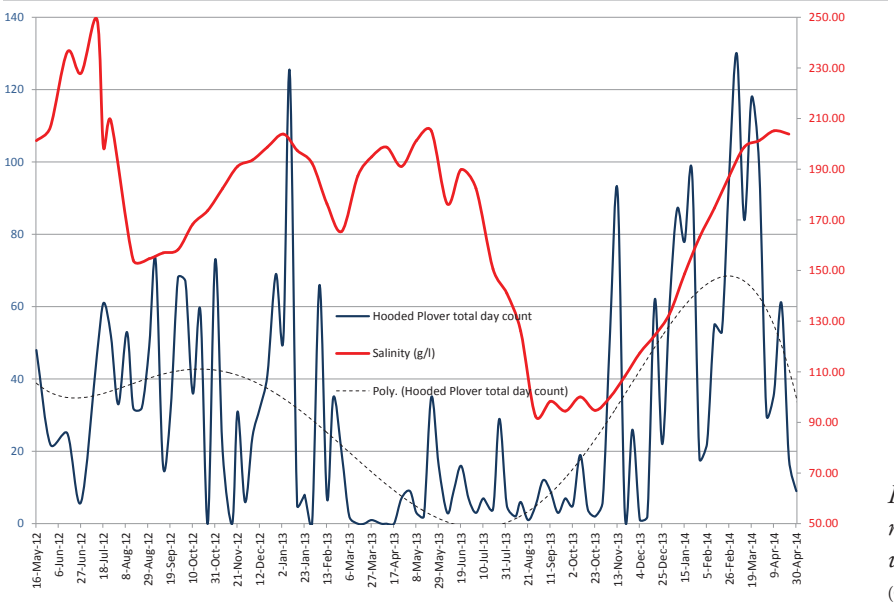


Figure 1: Hooded plover (Thinornis rubricollis) weekly counts verses salinity values at Lake Warden, Western Australia
(© Copyright, John Lizamore)

Restoring the upstream catchment of a Ramsar listed wetland

Louise Duff, Manager Hunter Region, WetlandCare Australia

Think of the city of Newcastle in New South Wales and chances are coal will immediately spring to mind. Think again.

Newcastle's wetlands have been identified as the most significant migratory shorebird habitat in New South Wales, and an important drought refuge for waterbirds. The assemblage of wetlands on the city's doorstep includes the nationally listed Hexham Swamp, and the Hunter Wetlands National Park. Set amidst this assemblage is the community-owned Hunter Wetlands Centre, a component of the Hunter Estuary Wetlands Ramsar site. The site provides habitat for 67 species of waterbirds. The deeper ponds are used by teal, swans and even a resident flock of magpie geese *(Anseranas semipalmata)* who punctuate the peace with their sing-song cackles and squawks.

The site's freshwater swamp forest is a breeding colony for egrets and an evening roost for thousands of Australian white ibis *(Threskiornis molucca)* and straw-necked ibis *(Threskiornis spinicollis)*. During droughts, the wetlands are welcome refuge for threatened species. At WetlandCare Australia's Hunter office, located at the Centre, we were recently delighted by a flock of wandering whistling ducks *(Dendrocygna arcuata)* on the pond outside, all in couples, courting.

Sharon Claydon MP (Federal Member for Newcastle), Louise Duff (Manager Hunter Region, WetlandCare Australia) and Ken Conway (Chief Executive Officer, Hunter Wetlands Centre) at the Hunter Wetlands Centre, New South Wales

For Novacastrians, these wetlands are a haven — a place for birdwatching, photography, bushwalking, fishing, boating and barbecues. Recognising their value, community organisations including WetlandCare Australia work in every aspect of conservation, from advocacy and research to education and on-ground works.

WetlandCare Australia has commenced a major project funded by the Australian Government to restore Boatman Creek, which flows into the Hunter Wetlands Centre. The Newcastle Riparian-Ramsar Connections project recognises that urban impacts in the upstream riparian zone threaten the water quality and biodiversity at the Ramsar listed wetlands downstream.

Led by WetlandCare Australia, a consortium of five land owners and 13 partners are tackling threats including pollution, sedimentation and weeds. The project places a high emphasis on stakeholder engagement and building the capacity of Indigenous Australians to manage natural resources.

Stakeholder activities to date include the establishment of a new Landcare group at the University of Newcastle and a workshop on Water Sensitive Urban Design hosted by the Tom Farrell Institute. A team of three Indigenous trainees managed by Conservation Volunteers Australia have commenced bush regeneration at five of the project's 14 sites, and preparation has commenced for revegetation projects that will plant over 30 000 local native plants in parks owned by the City Of Newcastle, a major partner in the project.

To find out more about the project, please contact Louise Duff (WetlandCare Australia Manager Hunter Region, 02 4951 1425, hunter@wetlandcare.com.au) or visit: www.wetlandcare.com.au/index.php/our-work/current-projects/newcastle-riparian-ramsar-connections-program. You can also visit the MERIT site on the Atlas of Living Australia and search for the 'Newcastle Riparian-Ramsar Connections project'.

Fox on the run: Integrated fox control key to protecting waterbirds

Andrew Morrison, Port Phillip and Western Port Catchment Management Authority, Victoria

The Western Port Ramsar site in southern Victoria is a complex and dynamic wetland of international importance.

The diverse ecosystem comprises sensitive saltmarsh and mangrove vegetation communities and supports a broad range of native fauna. Waterbirds, including red-necked stint *(Calidris ruficollis)*, pied oystercatcher *(Haematopus longirostris)*, red-capped plover *(Charadrius ruficapillus)*, double-banded plover *(Charadrius bicinctus)* and eastern curlew *(Numenius madagascariensis)* make use of the extensive network of tidal mudflats and fringing riparian zones, to roost, nest and feed along the spectacular shoreline.

Although ecologically diverse, the area surrounding the narrow shoreline consists of peri-urban and rural land tenure, comprising private and public land managers. This fragmented landscape provides ideal roaming territory for many feral animals, especially foxes.

Foxes are a major predatory threat to waterbird populations as they disturb and attack waterbirds, often displacing chicks and adults from nests which reduces breeding success.

Foxes are a predatory threat to waterbirds. Regular monitoring of fox populations is a critical component of integrated pest management

This threat is being addressed through the Ramsar Protection Program and delivered via the Port Phillip and Western Port Catchment Management Authority (PPWCMA) with funding from the Australian Government. The Ramsar Protection Program aims to protect the ecological values of Ramsar sites in Victoria by undertaking natural resource management activities, including pest plant control, pest animal management and exclusion fencing to enhance and protect site values and characteristics.

An integrated fox control program is being implemented across Western Port Bay priority areas between Tooradin and Somers, in collaboration with City of Casey, Mornington Peninsula Shire Council, Parks Victoria and private land managers.

Integrated fox control provides the framework to deliver broad-scale pest management efficiently and effectively in partnership with a range of public and private land managers. This approach ensures greater impact at the landscape level through delivering a sustained reduction of foxes. Integrated fox control benefits delivery partners by:

- gaining efficiencies in implementation of fox control works
- identifying consistent control methods including baiting and trapping techniques
- coordinating timing and sequencing of control activities
- prioritising areas for control and management
- rationalising monitoring requirements.

In order to maximise the effectiveness of fox control, activities such as exclusion fencing, rabbit and feral cat management will also be undertaken by a range of other program delivery partners. Throughout the implementation phase, delivery partners will also engage with private landholders whose properties adjoin Ramsar sites. This engagement will help increase the awareness and understanding of the site values and encourage participation in actively managing threats on private land.

Working collaboratively to tackle this important issue will significantly benefit waterbird populations within the Western Port Ramsar site.

For more information on the Ramsar Protection Program, please visit: www.ppwcma.vic.gov.au

Western Port Ramsar site supports the Eastern curlew (Numenius madagascariensis) (© Copyright, Dean Ingwersen)

Red-capped plover (Charadrius ruficapillus) testing the waters (© Copyright, Dean Ingwersen)

Celebrating World Wetlands Day 2014 at two Ramsar sites in Victoria

North Central Catchment Management Authority

World Wetlands Day was celebrated around the world on 2 February 2014. To acknowledge this significant day, the North Central Catchment Management Authority (CMA) hosted two events showcasing Northern Victoria's wetland diversity and habitat values.

Hird Swamp, part of the Kerang Wetlands Ramsar site, was the perfect setting for 'Breakfast with the Birds'. An early 6.30 am start didn't worry the 75 participants who travelled from all over the state to visit the amazing wetland. Thousands of birds had been observed at Hird Swamp since the delivery of spring-summer environmental water and a self-guided tour gave community members an opportunity to explore.

Project Officers Heidi Kleinert and Kathryn Stanislawski hosted the event and received overwhelmingly positive feedback.

"Attendees appreciated the sights and sounds of a productive wetland. Many said the wetland was amazing and breathtaking. Some attendees live in close proximity and hadn't realised that Hird Swamp was on their doorstep".

The wetland is a multi-use site and representatives from birdwatching groups, duck rescue groups and Field and Game discussed their respective wetland values. All agreed that birds were the reason they value the Ramsar Wetland.

Three weeks later, 40 enthusiastic and passionate people attended a second event celebrating World Wetlands Day with a bus tour of several Gunbower

Aunty Esther Kirby showcasing the traditional yam stick during World Wetland Day celebrations (© Copyright, Tess Grieves, North Central Catchment Management Authority)

Forest Ramsar site wetlands. The tour started in the timber milling town of Koondrook at the junction of the Gunbower Creek and the Murray River, heading into the Gunbower Forest. The guest speaker for the day was wetland ecologist, Michelle Casanova. Michelle discussed the function, threats and values present at each wetland. Local landholders, several living adjacent to the wetlands, also had an opportunity to share knowledge, history and their perspective of the management at each site.

The cultural importance of wetlands was a prominent theme of the day. Barapa Barapa Elder Aunty Esther Kirby and her daughter Laura Kirby thrilled guests with stories, artefacts and demonstrations showcasing the importance of wetland plant diversity. Aunty Esther presented her art, possum skin cloaks and traditional weaponry, to demonstrate the intrinsic connection to the landscape which provided all the services of a supermarket, a pharmacy, a kitchen and a home.

The large attendance at both of these World Wetlands Day events demonstrates community thirst for wetland knowledge and appreciation. The North Central CMA will continue to deliver exciting events and materials celebrating the significance of the wetlands in the North Central region of Victoria.

Brolgas (Grus rubicunda) at Hird Swamp put on a display for the Breakfast with the Birds event (© Copyright, Kathryn Stanislawski)

Birdwatchers enjoyed Breakfast with the Birds at Kerang Wetlands Ramsar site to celebrate World Wetlands Day 2014
(© Copyright, Kathryn Stanislawski)

Waterbirds and environmental water

Waders in the wetlands

Commonwealth Environmental Water Office

The Macquarie Marshes, located in the heart of the Murray-Darling Basin, is an internationally listed Ramsar wetland and one of Australia's most significant waterbird breeding areas.

At the end of May 2014, staff from the Commonwealth Environmental Water Office visited the Macquarie Marshes in central-west New South Wales. Technically, they were assisting the New South Wales Office of Environment and Heritage on a vegetation survey, but while there, they were able to snap some shots of the local waterbird life — in this case, glossy ibis *(Plegadis falcinellus)*, straw-necked ibis *(Threskiornis spinicollis)* and spoonbills — colonially nesting species that depend on healthy wetland vegetation in order to breed.

On a similar survey in 2013, swamp hens, egrets, crakes, terns and the red-kneed dotterel *(Erythrogonys cinctus)* were also recorded. The threatened Australian painted snipe *(Rostratula australia)* was also recorded at Macquarie Marshes over the 2011–12 summer.

Since 2009, the Commonwealth has delivered 3450 gigalitres[1] of environmental water to protect and restore rivers, wetlands and other environmental assets in the Murray-Darling Basin. As a result, wetlands within the Basin are providing refuges for woodland birds such as the threatened hooded robins *(Melanodryas cucullata)*, little eagles *(Hieraaetus morphnoides)* as well as emus (*Dromaius novaehollandiae novaehollandiae)*.

Waterbirds have diverse habitat and foraging requirements and respond differently to climate and catchment conditions. Colonially nesting ibis, spoonbills and herons require large and stable flows and the iconic brolga *(Grus rubicunda)* is dependent on freshwater meadows and graze on the annual herbs and rushes. Some waterfowl can breed in marginal conditions, but most require seasonal flows to get them really going.

The Commonwealth Environmental Water Office is working hard to improve our understanding of the varying ecological requirements of waterbird species, in particular how they respond to changing hydrological, habitat and food resource conditions. Improving the waterbird knowledge base will help to ensure that our environmental water delivery is efficient and effective in supporting waterbirds.

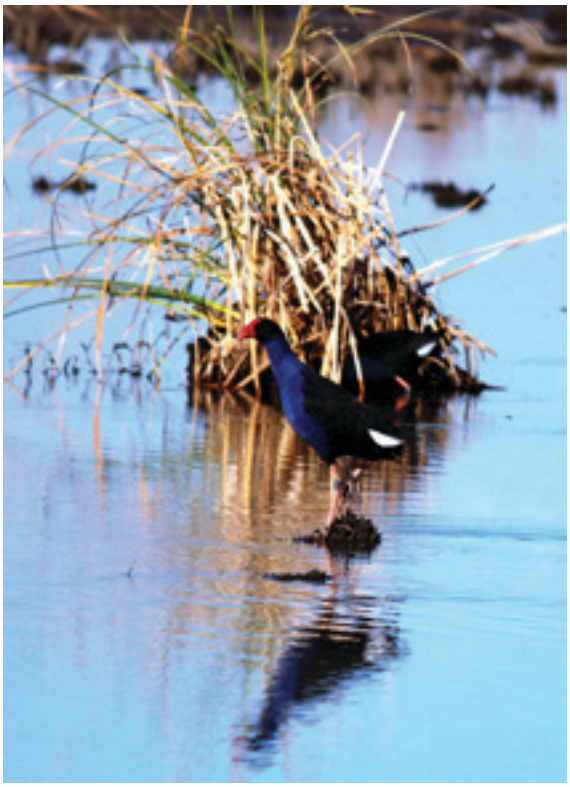
However, as the Basin continues to experience a drying climate, we can't be complacent.
The importance of having environmental water in reserve is becoming more evident — just in case....

[1] Commonwealth environmental water delivered as at 30 April 2014 (www.environment.gov.au)

Around 30 glossy ibis (Plegadis falcinellus) flying over Buckinguy Swamp at Macquarie Marshes, May 2014
(© Copyright, Hayley Behnke, Commonwealth Environmental Water Office)

Black-winged stilts (Himantopus himantopus) in the Gwydir Wetlands, March 2013 (© Copyright, Bruce Campbell, Commonwealth Environmental Water Office)

Yellow-billed spoonbills (Platalea flavipes) and Royal spoonbills (Platalea regia) in a dead tree at Willancorah Swamp in the Macquarie Marshes, May 2013
(© Copyright, Dave Straccioni, Commonwealth Environmental Water Office)



Swamp hens nesting at Willancorah Swamp in the Macquarie Marshes, May 2013
(© Copyright, Dave Straccioni, Commonwealth Environmental Water Office)

Rehabilitating lost lakes in western New South Wales

Paula D'Santos and James Maguire, New South Wales Office of Environment and Heritage

After 105 years of being disconnected from Murrumbidgee River flows, the Paika Lakes-Penarie Creek system is now playing host to a raft of waterbirds.

In May 2011, the first environmental water allocation flowed into the system inundating Paika Lake (400–550 hectares). Over the following two years, additional environmental flows were successfully managed for Cherax Swamp (18 hectares), Hobblers Lake (30 hectares) and Penarie Creek (130 hectares), collectively using 33 000 megalitres of New South Wales and Commonwealth environmental water.

Despite a century of dry conditions, thousands of waterbirds flocked back to the lakes, including the threatened freckled duck *(Stictonetta naevosa)*, blue-billed duck *(Oxyura australis)* and Australian painted snipe *(Rostratula australis)*. Following the installation of carp screens, aquatic vegetation recovery has been particularly promising in Cherax Swamp and Hobblers Lake which have supported a diverse waterbird population of up to 35 species.

The Paika Lakes-Penarie Creek system is a low-lying floodplain wetland complex within the Murrumbidgee catchment, approximately 20 kilometres north of Balranald in western New South Wales. This wildlife corridor connects semi-arid mallee country to the west with the river red gum forested floodplains and wetlands to the east. Under natural conditions the system regularly filled with floodwaters from the Murrumbidgee River, however in 1906 a series of levee banks and roads were constructed which disconnected the system from the river.

Since 2008, New South Wales Office of Environment and Heritage (OEH) environmental water managers have worked closely with local landholders to develop and implement a restoration project for the Paika Lake-Penarie Creek system. Funding from the Australian Government has supported installation of culverts, revegetation works, ecological monitoring and change to grazing and cropping practices to maximise the wetlands' biodiversity values.

CSIRO ecologists have been engaged to monitor ecological responses to the environmental flows. One of the interesting tools used has been time-lapse photography to document lake inundation and vegetation, and faunal response. Images captured provide a useful insight into how the local fauna populations have utilised the lake. Images include cormorants roosting, emus *(Dromaius novaehollandiae)* crossing Paika Lake, as well as feral cats, pigs and foxes. As a consequence of the monitoring, feral pest eradication measures have been conducted by landholders to help maximise the native fauna response.

Through the commitment of local landholders and with management advice and support from OEH, CSIRO and Australian Government agencies, the rehabilitation of this unique wetland complex has been implemented to help restore some of the region's lost biodiversity values.

For further information, please contact Paula D'Santos (Senior Team Leader, OEH, 03 5051 6234, Paula.Dsantos@environment.nsw.gov.au) or visit www.environment.nsw.gov.au/environmentalwater/index.htm

The installation of carp screens has helped the recovery of aquatic vegetation at the Western Lakes System near Balranald, New South Wales (© Copyright, Paula D'Santos, New South Wales Office of Environment and Heritage)

A CSIRO Reconyx monitoring camera captures bird life at Cherax Swamp in western New South Wales
(© Copyright, Dr Heather McGinness, CSIRO)

Environmental water supports waterbirds in Murray River Ramsar wetlands

Paul Childs, New South Wales Office of Environment and Heritage and Rick Webster, New South Wales National Parks and Wildlife Service

For the first time since major fires in 2008, Coppingers Swamp near the Mathoura township in New South Wales, has seen the return of waterbird breeding thanks to environmental watering in the Murray River.

In the spring of 2013, a colonial waterbird rookery formed within the 2000 hectare Gulpa Creek Wetland Complex at Reed Beds Swamp (North and South) and Coppingers Lagoon within the Murray Valley National Park (part of the Central Murray Forests Ramsar Wetland).

Adult waterbirds would have abandoned their nests as a result of dramatic variations to water height, so environmental water was diverted to maintain water levels to ensure waterbird chicks reached fledgling stage, and to maintain foraging grounds.

The rookery consisted of:

- 1267 pairs of Australian white ibis *(Threskiornis molucca)*
- 290 pairs of straw-necked ibis *(Threskiornis spinicolis)*
- 141 pairs of royal spoonbills *(Platalea regia)*.

Based on regular field observations by the New South Wales National Parks and Wildlife Service, large numbers of nestlings and fledglings were present throughout January 2014. Environmental watering was extended into early February 2014 because of extremely high temperatures and evaporation rates.

All waterbird nestlings had fledged by mid-February, and were observed foraging on habitat which became exposed as water levels receded.

This event also provided habitat for Australian little bittern *(Ixobrychus dubius)*, a nearby egret colony, juvenile white-bellied sea-eagles *(Haliaeetus leucogaster)* and swamp harrier *(Circus approximans)*. Straw-necked ibis were observed nesting within Reed Beds North for the first time since regular records have been kept.

The Reed Beds Swamp Birdhide is located along the sealed Picnic Point Road from Mathoura and gives panoramic views of the wetland. The site is easily accessible and provides interpretive displays and amenities. Nearby is the Edward River Day Use Area for visitors who wish to stop for a picnic or barbecue. Please visit www.nationalparks.nsw.gov.au/murray-valley-national-park/reedbeds-bird-hide-boardwalk/walking for more information on Reed Beds Swamp.

The environmental water was provided by the Commonwealth Environmental Water Office, the Murray-Darling Basin Authority through The Living Murray program and the New South Wales Office of Environment and Heritage.

Australian white ibis (Threskiornis molucca) and straw-necked ibis (Threskiornis spinicolis) with chicks at Reed Beds Swamp (© Copyright, Emma Wilson, New South Wales Office of Environment and Heritage)

Australian white ibis (Threskiornis molucca), royal spoonbills (Platalea regia) and straw-necked ibis (Threskiornis spinicolis) building nesting platforms on Reed Beds Swamp (© Copyright, Emma Wilson, New South Wales Office of Environment and Heritage)

Egrets observed foraging from the Reed Beds Swamp Birdhide (© Copyright, Emma Wilson, New South Wales Office of Environment and Heritage)

2011: A good year for Lower Murray black box regeneration

Anne Jensen, Nature Foundation South Australia's Water For Nature Committee

Nature delivered life-saving floods in 2010–2012, ending 10 years of severe drought for the River Murray and triggering mass germination in river red gums *(Eucalyptus camaldulensis)*, black box (Eucalyptus largiflorens) and lignum *(Duma florulenta)*.

Below the Darling junction, in the regulated Lower Murray River, tens of thousands of black box seedlings are thriving in black box woodlands that flooded in February 2011 (peak flows reached 90 000 megalitres per day). This is great news, since ecologists are reporting a lack of regeneration of black box further upstream.

These 2011 black box seedlings are very special, as the previous phase of successful black box regeneration in the Lower Murray dates back to the 1955–56 floods. There have been two large flood periods since then, however no black box regeneration from 1989–93 survived, and only a few pockets survived from 1973–5.

Scientists have reported that black box on Lower Murray floodplains are regenerating at less than one-third of the rate required to maintain current populations. Conditions in the Lower Murray in 2011 met the prescribed requirements for regeneration of black box, with flows over 80 000 ML/d and annual rainfall of over 300 millimetres (George *et al.*, 2005).

To ensure the survival of the current seedlings, Nature Foundation South Australia's Water For Nature Initiative is delivering environmental water to selected sites in the region, giving priority to sustaining the benefits of the floods, ensuring the survival of mass germination of seeds and building their resilience in floodplain ecosystems. The focus is on supporting black box seedlings through their first two summers by maintaining soil moisture (Jensen *et al.* 2008).

In a joint project between the Australian Government, landholders, irrigators, local government, community groups and regional agencies, various irrigation techniques are being used to apply water efficiently. The water is provided by the Commonwealth Environmental Water Holder, and the costs of delivery (energy, fuel, equipment, deploying of sprinklers and pipes, operation of pumps, and monitoring) are met by a crucial mix of very generous sponsors and supporters. More details of the black box watering, and other watering sites through the South Australian Riverland, can be found on the Water For Nature website (www.waterfornature.org.au).

The survival of the 2011 black box seedlings will be monitored closely, with environmental water added as required to give them their best chance of survival, to ensure the maintenance of healthy black box communities on the Lower Murray floodplain.

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Lay-flat hose delivering environmental water in April 2014 to hundreds of black box (Eucalyptus largiflorens) seedlings under stressed black box woodland at Clarks Floodplain (© Copyright, Anne Jensen)

For further information, please contact Ian Atkinson, CEO of Nature Foundation SA (ian.atkinson@nfsa.org.au) or visit:

Water for Nature website: www.waterfornature.org.au

Nature Foundation SA website: www.naturefoundation.org.au

Water for Nature Initiative youtube video: www.youtube.com/watch?v=VNLFgtNW4kI

Water for Nature Clark's Floodplain launch Feb 18 2013 youtube video: www.youtube.com/watch?v=qXd8dsJxoMY

A miniature forest of healthy black box (Eucalyptus largiflorens) seedlings at Loxton Riverfront Reserve was watered by using pumps to fill a lagoon in November 2013 (© Copyright, Anne Jensen)

On-ground works improving creek and wetland management in the Murray and Murrumbidgee valleys

Paula D'Santos, New South Wales Office of Environment and Heritage

Achieving future goals often requires incremental steps forward.

It is this approach that New South Wales environmental water managers are taking to help maximise biodiversity values and improve environmental water management for a number of ephemeral creeks and wetlands within the Murray and Murrumbidgee valleys.

The New South Wales Office of Environment and Heritage (OEH) recently committed $250 000 to support small-scale on-ground works ranging from the installation of carp screens and the upgrade of regulators to investigative studies.

Ephemeral creek systems such as Tuppal, Jimaringle, Cockrans and Gwynnes Creeks, located in the mid-Murray region near the township of Deniliquin, have had investigative studies completed to help identify and prioritise future on-ground works. The creeks support a diversity of native fauna and flora, including some threatened species, and are highly valued by local communities. The investigations included the development of an inventory of current structures within the systems that impede flow, and looking at options to help improve the efficiency and effectiveness of future environmental water delivery. Local landholder support and advice, and the engagement of local contractors to undertake the work, has been key to the outcomes of these studies.

Minimising carp impacts is something that is important to OEH environmental water managers. Consequently, a number of carp screens have been installed in lower Murrumbidgee wetlands and at Thegoa Lagoon on the Murray River. By preventing carp movement into wetland areas targeted to receive environmental water, aquatic vegetation response is expected to improve and recruitment of frog species, including the endangered southern bell frog *(Litoria raniformis)*, to be maximised.

Funding has also helped support improved connectivity between the floodplain and the main rivers at select locations through the upgrade of existing water delivery infrastructure. The replacement of a regulator at Horseshoe Lagoon, in Millewa National Park on the Murray, will help increase inflow rates and improve fish passage between the river and the lagoon, which is used as a drought refuge by small-bodied native fish including the endangered flathead galaxias *(Galaxias rostratus)* and southern pygmy perch *(Nannoperca australis)*. This work, which was project managed by the New South Wales National Parks and Wildlife Service, is an important component of the Southern Pygmy Perch Recovery Plan currently under development.

Although small in scale, these on-ground works are important steps in moving forward towards improved management of our wetlands and rivers.

For further information, please contact Paula D'Santos (Senior Team Leader, OEH, 03 5051 6234, Paula.Dsantos@environment.nsw.gov.au) or visit www.environment.nsw.gov.au/environmentalwater/index.htm

Funding was obtained to upgrade existing water delivery infrastructure, like this regulator at Horseshoe Lagoon in the Millewa National Park, New South Wales (© Copyright, Paul Childs, New South Wales Office of Environment and Heritage)

The new regulator will help to improve connectivity between Horseshoe Lagoon and the River Murray in New South Wales
(© Copyright, Paul Childs, New South Wales Office of Environment and Heritage)

Waterbird monitoring in inland New South Wales

Dr Jennifer Spencer and Tim Hosking, New South Wales Office of Environment and Heritage

Ground surveys for waterbirds are being undertaken in significant floodplain wetlands across New South Wales including the Macquarie Marshes, Gwydir Wetlands, Narran Lakes, Murray Wetlands, Mid-Murrumbidgee and Lower Murrumbidgee Wetlands.

The surveys are being conducted by the New South Wales Office of Environment and Heritage (OEH) and are part of monitoring activities that OEH undertakes to support environmental water management by the New South Wales and Commonwealth governments.

The ground surveys are conducted in spring (October–November) to coincide with the survey dates of annual aerial waterbird surveys conducted by the Centre for Ecosystem Science, University of New South Wales (www.ecosystem.unsw.edu.au/list-program-projects/waterbirds) with additional surveys conducted in selected wetlands in summer and autumn months alongside the delivery of environmental water.

Bird observers conducted ground surveys at Bunnor, Gwydir Wetlands

Aerial surveys provide a rapid cost-effective assessment of relative abundance and information on the locations of waterbird breeding colonies, while ground surveys are more effective for estimating the abundance and diversity of smaller and more cryptic waterbird species. Both survey programmes provide information on waterbird population trends and the ecological outcomes of specific flow events, supporting environmental water management and planning.

Surveys to date have detected more than 64 waterbird species across 120 survey sites in inland New South Wales. This includes two nationally endangered species (the Australasian bittern *(Botaurus poiciloptilus)* and Australian painted snipe *(Rostratula australis)*), seven threatened waterbird species listed in New South Wales and 11 waterbird species listed under one or more Australian migratory bird agreements with Japan (JAMBA), China (CAMBA) and the Republic of Korea (ROKAMBA). This survey programme is ongoing with further surveys planned for 2014–15.

The New South Wales Office of Environment and Heritage manages a portfolio of discretionary environmental water licenses and allowances for the Murrumbidgee, Gwydir, Macquarie, Lachlan, Murray and Lower Darling catchments.

For further information see: www.environment.nsw.gov.au/environmentalwater/manageenvwater.htm

The Monkey Lagoons is an established ground survey site in the Macquarie Marshes Southern Nature Reserve

Waterbirds, wetlands and rehabilitation

The Green Army Programme

Australian Department of the Environment

The Green Army is the Australian Government's flagship environmental programme.

The programme is a hands-on, practical, grassroots environmental action programme that supports local environment and heritage conservation projects across Australia.

With up to $525 million allocated over five years, projects will be guided by local community needs and involve cleaning up riverbanks and creek beds, revegetating degraded land, sand dunes and mangrove habitat, and restoring and conserving heritage places and landscapes.

The programme will recruit young Australians aged 17–24 who are interested in protecting their local environment, gaining hands-on practical skills and experience that will equip them well for the future in professional or voluntary capacities.

Teams of 10 will be deployed across the country to help communities deliver local conservation outcomes and during the next few years you will see more and more Green Army teams working in your local community.

Weed control, replanting and revegetation activities will help maintain the health of wetlands and local fauna and flora, encourage biodiversity and give local residents better access to wetland environments.

Some activities may also involve constructing picnic amenities and pathways to attract more visitors to the wetland areas as well as constructing fencing to keep cattle out of water bodies.

Projects will aim to increase community awareness and education about wetland environments including the important cultural significance of certain areas.

The Green Army will become Australia's largest-ever team of young Australians supporting environmental action in our history, building to a 15 000 strong 'Green Army' ready to help communities with local level conservation projects.

Local councils, community groups or natural resources management organisations will have the chance to develop and submit project proposals that will make a real difference in their local communities. Projects may be carried out across urban, regional and remote Australia on public land, Indigenous-held lands, or private land where there is a clear community and environmental or heritage benefit.

For more information on the Green Army visit www.environment.gov.au/green-army or subscribe to the Green Army mailing list (greenarmy@environment.gov.au) to keep up-to-date on the programme.

Removing unwanted trees in Bagdad, Tasmania (© Copyright, Nick Rains)

Restoration trial underway in Long Swamp, south-west Victoria

Mark Bachmann, Nature Glenelg Trust

In a previous edition of *Wetlands Australia* (Issue 22, February 2013), readers were introduced to Long Swamp, a nationally recognised wetland of significant public interest in Discovery Bay Coastal Park in south-west Victoria.

Wetland birds are a key attribute of Long Swamp, and are just one of many ecological values underpinning the Nature Glenelg Trust's support for its designation as a Ramsar site. The swamp is home to the western-most known population of the eastern ground parrot *(Pezoporus wallicus)*, which became extinct in nearby South Australia where no confirmed sightings have been recorded since 1945.

Based on the findings of the intitial investigative work, the Trust has been awarded grant funding from the Victorian Department of Environment and Primary Industries (DEPI) to undertake a hydrological restoration trial at Long Swamp, in conjunction with an aquatic ecology monitoring program.

The trial will involve raising the water level in one part of the swamp to increase the water volume and surface area. The location for the trial is at Nobles Rocks, the site where the last remaining artificial outlet drains from Long Swamp. The natural site for discharge from the swamp to the sea is several kilometres away to the west via the Glenelg River mouth and estuary.

The aims of the trial are to address a decline in the wetland values of Long Swamp at the artificial outlet by:

1. increasing wetland habitat diversity in the vicinity of the Nobles Rocks drain outlet
2. increasing the seasonal connectivity of wetland habitats throughout the system
3. re-creating additional habitat for the most sensitive indicator freshwater aquatic species.

The trial will progress in stages over the next 2 years, enabling the Trust to progressively record and measure the impacts of hydrological restoration in real time, and providing the information necessary for determining a future permanent solution.

The first stage of the restoration trial involved 45 willing volunteers from the local community getting together on 9 May 2014 to construct a low-level temporary sandbag structure at Nobles Rocks, initially at the most accessible and technically feasible section of drain in this rugged coastal environment. A few hours and 600 sandbags later, the trial structure was in place and operating as planned, with water spilling down the drain at the new trial retention height. The initial upstream effects on the drain and swamp will now be assessed, before progressing with the next stages of the trial which are likely to involve further incremental increases in the operating height of the trial structure over the next 12 months, and full implementation of the hydrological and ecological monitoring program for the project.

A big thanks to DEPI, the Glenelg Hopkins Catchment Management Authority, Parks Victoria, Nelson Coastcare and the wide range of the other community groups that helped us get the trial and this important restoration project underway.

Nature Glenelg Trust will keep you up to date on the progress of the restoration trial and our upcoming ecological monitoring of Long Swamp through its website (natureglenelg.org.au) and future editions of *Wetlands Australia*.

Forty five local volunteers help to construct the first stage of a hydrological restoration trial at Long Swamp, south-west Victoria
(© Copyright, Mark Bachmann)

When mermaids return... so do egrets!!

Malcolm Fisher

Mermaid Pool is a hauntingly beautiful natural area, nestled discreetly within Sydney's expansive sprawl.

It sits on Manly Creek, hidden upstream from Manly's surfing beaches, and comes complete with waterfall, rainforest fragments and surrounding bushland. The site's rich Indigenous history goes back many thousands of years. Captain Arthur Phillip explored these then almost impenetrable marshy reaches in 1788. It was named 'Mermaid Pool' after local residents who used to live in a nearby Squatters Camp during the Great Depression reportedly swam here naked.

As suburbia encroached in the 1930's, Mermaid Pool sadly went the way of many urban waterways. It was used as a dumpsite, sewage overflowed here and invasive weeds choked the fragile bushland. This magical jewel became a tarnished gem.

In 2002, the local community became tired of seeing dumped shopping trolleys and floating debris in their treasured waterway. They organised a huge 'Clean Up Australia Day' working session which removed two large truck loads of rubbish from the area. But that was just the start. Next came monthly bush regeneration activities to peel back smothering weeds such as morning glory and privet. People in waders removed exotic water plants which were clogging the creek and many new endemic seedlings were planted in degraded areas. The rehabilitation activities became known as the 'Return of the Mermaids' project.

Andrew Lo, a native fish expert, advised that the 'real' mermaids were the native fish that had migrated up the creek to spawn for millions of years. Surveys were subsequently conducted and measures carried out to improve water quality and fish access. The results confirm there are still a number of iconic fish species in the waterway including Australian bass *(Macquaria novemaculeata)*. Amazingly, the area still provides habitat for water dragons, lace monitors *(Varanus varius)*, echidnas, tree snakes and the occasional wallaby. Bandicoots have also returned to the area after a 40 year absence.

When a great egret *(Ardea modesta)* was seen delicately wading through Mermaid Pool, framed by majestic rocky outcrops, the rehabilitation of this sacred place somehow seemed endorsed by nature.

The restoration continues with 'Bushcare' every month, a programme to install a range of wildlife nesting boxes in the locality and a campaign to get Manly Creek formally recognised as a wildlife corridor with associated protective zoning.

Our volunteers used to say, "conservation is a tough job but they have no egrets". Now, even that issue has been fixed!

More information on the rehabilitation of Mermaid Pool, including a short video, can be found at the following links:

Clean Up Australia page: www.cleanup.org.au/au/Whatelsewesupport/mermaid--s-pool-fix-up-project.html

Blog article: thegreenmanly.blogspot.com.au/2013/09/how-to-revive-mermaid.html

Short film: www.youtube.com/watch?v=vXwO-oLW__U

A great egret (Ardea modesta) enjoys Mermaid Pool which is being restored thanks to the efforts of the local community in Manly Vale, New South Wales (© Copyright, Malcolm Fisher)

Mermaid Pool contains a variety of environments that support local wildlife, including rainforest habitat
(© Copyright, Malcolm Fisher)

Working together to restore Grassdale Lagoon on Kangaroo Island

Natural Resources Kangaroo Island

Grassdale Lagoon in Kelly Hill Conservation Park on Kangaroo Island, South Australia, now teems with wildlife.

Historic clearing for farming around the lagoon not only destroyed habitat, but allowed Kangaroo Island kangaroos *(Macropus fuliginosus fuliginosus)*, Tammar wallabies *(Macropus eugenii)* and common brushtail possums *(Trichosurus vulpecular)* to flourish. Their over-browsing had further impact on the quality of habitat available to other native species, including threatened water birds such as the musk duck *(Biziura lobata)* and freckled duck *(Stictonetta naevosa)*, Latham's snipe *(Gallinago hardwickii)* and the Australasian shoveler *(Anas rhynchotis)*. But in 2012, Natural Resources Kangaroo Island (the agency responsible for delivering projects and programmes on Kangaroo Island on behalf of the regional Natural Resources Management Board and the South Australian Department of Environment, Water and Natural Resources) developed a project to improve the quality of Grassdale Lagoon and the surrounding habitat.

The project aims to control weeds and feral animals, and restore habitat through biodiverse plantings. A recent partnership between Nature Resources Kangaroo Island, neighbouring farmers and tourist operators has successfully reduced feral pig numbers. The removal of more than 60 feral pigs has significantly reduced their erosive diggings. Regular monitoring using remote cameras and tracks recently detected just four feral pigs near the lagoon.

The exclusion fence is preventing native wildlife and feral pigs from grazing on and digging up seedlings that are an important part of restoring vegetation in the area

An isolated, but expanding population of the invasive bridal creeper (Asparagus asparagoides) has been tackled by the project and local volunteers, decreasing the area of the weed's distribution and therefore its pressure on native groundcovers and understorey plants. To manage the spread of the deadly water mould (Phytophthora cinnamomi), bridal creeper corms have been wrapped in black plastic and left to bake in the sun on-site.

Native habitat has been planted to restore and connect 26 hectares of remnant vegetation with over 30 plant species, including a significant number of understorey species. All plants have been protected from voracious native browsers, such as kangaroo's, wallabies and possums. New seedlings were planted near existing understorey plants and then protected by tree guards. Larger areas were fenced off temporarily to exclude native herbivores and feral pigs from damaging the newly establishing plants.

Quarterly water monitoring is recording water quality and aquatic invertebrates within the lagoon to detect any changes as the quality of habitat around the lagoon improves.

The project was made possible with funding from the Australian Government.

For more information about the project: www.naturalresources.sa.gov.au/kangarooisland/land-and-water/water-management/wetlands-project

All seedlings have to be guarded, either by an individual tree guard, or the exclusion fence, to prevent prolific populations of Kangaroo Island kangaroos (Macropus fuliginosus fuliginosus)) browsing on them (© Copyright, Andrew Schofield)

The exclusion fence is preventing native wildlife and feral pigs from grazing on and digging up seedlings that are an important part of restoring vegetation in the area (© Copyright, South Australian Department of Environment, Water and Natural Resources)

Revegetation connects remnant vegetation creating larger forests for animal communities to live in (© Copyright, South Australian Department of Environment, Water and Natural Resources)

Grassdale Lagoon, Kangaroo Island is being restored through the control of invasive pests and habitat restoration activities

Farm Dam Blitz!

Matthew Herring, Murray Wildlife Pty Ltd, Marion Benjamin, Murrumbidgee Landcare Inc. and Nathan Smith, NJ Productions

Farm dams have enormous potential to support more waterbirds.

There are hundreds of thousands of farms dams across Australia, but most of them lack the habitats that many waterbirds require. *Farm Dam Blitz* is a new short film that aims to help unleash that potential.

It's not unusual to see common duck, heron, ibis and cormorant species using farm dams, or perhaps some black-fronted plovers *(Elseyornis melanops)* or masked lapwings *(Vanellus miles)*, but there are dozens of waterbird species that haven't yet taken advantage of the proliferation of these agricultural wetlands.

Farm Dam Blitz showcases some of the inspiring Landcare projects in New South Wales and Victoria that enhance farm dam habitat. Landholders from a range of agricultural systems talk about the simple changes they've made and how easy it is to have multi-functional farm dams. This work is enabling a wide variety of waterbird species to also make farm dams their home. From migratory sharp-tailed sandpipers *(Calidris acuminate)* to Baillon's crakes *(Porzana pusilla)*, farm dams can play a huge role in waterbird conservation, complementing natural wetlands.

When considering establishing farm dam habitat to attract waterbirds, some key elements are necessary: waterplants, ephemeral (short-lived) shallows and mudflats. The impacts of concentrated grazing and the typically steep sides of farm dams usually prevent such habitats from forming. The encouraging news is that many of the methods being used to benefit waterbirds and other wildlife in farm dams are also good for the farm anyway. For example, stock on the farm also have access to cleaner drinking water—and are healthier for it.

Farm Dam Blitz contains aerial footage taken by a drone of the habitat enhancement sites. It features more than 20 waterbird and frog species, including the endangered Australasian bittern *(Botaurus poiciloptilus)* and Australian painted snipe *(Rostratula australis)*. Among the different habitat enhancement ideas highlighted in the 12 minute film are earthworks to create shallows, mudflats and reed beds, fencing to exclude stock from all (or part) of the dam, adding logs and planting natives around the dam.

Farm Dam Blitz was created with the intention of being as engaging as possible, presented with the use of visual metaphors. It was a joint production between Murrumbidgee Landcare, Murray Wildlife and NJ Productions with funding from the Australian Government. It can be viewed on YouTube (www.youtube.com/watch?v=clxfkq_NjTY) and the Murrumbidgee Landcare website (www.murrumbidgeelandcare.asn.au/farmdamblitz).

Earthworks to create shallow waters and promote waterplants in farm dams is welcome news for waterbirds
(© Copyright, Allan Perkins)

Waterbirds like the purple swamphen (Porphyrio porphyrio) are quick to benefit from new waterplant habitat in farm dams
(© Copyright, Matthew Herring)

The mobility of waterbirds like the yellow-billed spoonbill (Platalea flavipes) mean they can respond rapidly to the creation of new habitat in farm dams
(© Copyright, Matthew Herring)

Shorebirds flock to the Samphire Coast

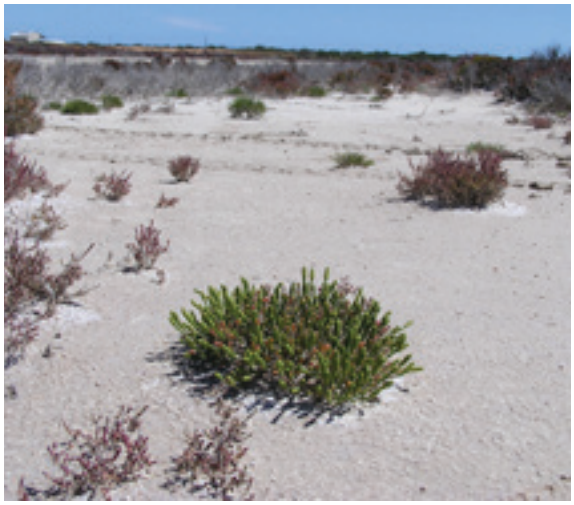
Jean Turner and Aleisa Lamanna, BirdLife Australia

Dubbed the 'Samphire Coast' for its extensive samphire saltmarshes and shrublands, the low energy coast of Upper Gulf St Vincent in South Australia is a significant remnant coastal corridor north of Adelaide and is amongst the most important areas in Australia for migratory and resident shorebirds.

Of the 52 shorebird species recorded on the Samphire Coast, 11 are resident species and 26 are migratory. Thirteen species, including the red knot *(Calidris canutus)*, red-necked stint *(Calidris ruficollis)*, and sharp-tailed sandpiper *(Calidris acuminate)* occur in internationally significant numbers, and a further five in nationally significant numbers, reinforcing the significance of this area as valuable feeding habitat for shorebirds.

The diversity and abundance of birds results from the extent and variety of saline and freshwater habitats, both natural and artificial throughout the Samphire Coast. Tidal mudflats, mangrove forests, samphire saltmarshes, sabkha claypans and river estuaries, are complemented by artificial freshwater wetlands, effluent treatment ponds and salt production systems. Each supports a different mix of birds.

These Samphire Coast habitats are significant for other reasons as well. The tidal saltmarshes and sabkah claypans are part of the nationally threatened Sub-tropical and Temperate Coastal Saltmarsh ecological community. Sabkah claypans are also the stronghold of the nationally threatened bead samphire *(Tecticornia flabelliformis)*. In adjoining shrublands on low sand dunes, other significant fauna, including the painted dragon *(Ctenophorus pictus)*, elegant parrot *(Neophema elegans)* and samphire thornbill *(Acanthiza iredalei)*, find refuge.



The nationally vulnerable bead samphire (Tecticornia flabelliformis) on a sabkha clay pan at Thompson Beach, South Australia (© Copyright, Jean Turner)

Samphire at St Kilda, South Australia (© Copyright, David Potter)

While only a small proportion of the Samphire Coast is formally protected in reserves, much of it has been protected by default, due to natural restrictions to public access. Even so, these remnant habitats are subject to a variety of threats including invasive species and human impacts, particularly from off-road vehicles and urban development. Climate change and sea level rise also threaten the nature of the Samphire Coast, with increased risk of inundation and habitat squeeze. Recently, the South Australia State Government committed to the establishment of an Adelaide International Bird Sanctuary which will create an internationally important conservation area on the fringes of Adelaide for migratory shorebirds.

The Adelaide and Mount Lofty Ranges Natural Resources Management Board (the Board) is managing the Samphire Coast Icon Project, with funding from the Australian Government, to tackle key threats to the nationally listed saltmarsh community and other conservation priorities in the area from Port Adelaide to Port Parham.

BirdLife Australia staff coordinate the project on behalf of the Board, liaising with project partners, and oversee monitoring in the project area. Staff also run free community events to increase awareness and appreciation of the area's value for shorebirds.

For more information on the Samphire Coast Icon Project, please visit www.birdlife.org.au/projects/samphire-coast-icon-project

Black-winged stilts (Himantopus himantopus) roosting at St Kilda, South Australia (© Copyright,David Potter)

Sabkha clay pan with samphire shrubs at Port Prime, South Australia (© Copyright, Jean Turner)

The first season at a newly restored wetland — Gooseneck Swamp, Victoria

Lachlan Farrington, Nature Glenelg Trust

As the smoke haze from a bushfire wafted along the eastern flank of the Grampians National Park in Victoria's south-west this summer, there was an unfamiliar croaking and squabbling of waterbirds and frogs.

For the first time in several decades during a dry summer, a pool of water still rippled against the green sedges of Gooseneck Swamp.

In 2013, the Nature Glenelg Trust in partnership with the Hamilton Field Naturalists Club, Glenelg Hopkins Catchment Management Authority, Parks Victoria and neighbours of the site began a staged process of restoration at Gooseneck Swamp in the far south-eastern corner of the Grampians National Park. Initial works, including the installation of a temporary sandbag weir at the site of an artificial drainage cutting, kicked off in August 2013 and were funded through a Victorian Department of Environment and Primary Industries' Communities for Nature Grant.

By the time summer came, and on the back of a rapidly drying spring, the water was still holding at a level 45 centimetres higher than it would have been without intervention. Despite it being an especially hot and dry summer, the wetland still managed to hold water until March and the concentration of wetland birds up to this point was a remarkable demonstration of the merits of restoring wetland hydrology.

While these casual on-ground observations were rewarding, it is robust, repeatable datasets that can tell a more powerful story. Bird monitoring at Gooseneck Swamp has been undertaken monthly by local Hamilton Field Naturalist Club members Dr. Rod Bird and Steve Clarke, both of whom have a long-term affiliation with the site. Their observations have provided preliminary indicators of the success of the restoration.

Based on opportunistic surveys undertaken since 2011, a total of 14 wetland dependent bird species have been recorded. This list has grown to 25 since the installation of the weir and the shift to regular monthly monitoring. Notable additions include the Australasian shoveler *(Anas rhynchotis)*, black-winged stilt *(Himantopus himantopus)*, Latham's snipe *(Gallinago hardwickii)* and musk duck *(Biziura lobata)*. Aside from new species observations, the most dramatic result was the observation of significant numbers of spoonbill, swans, teal, heron and duck species in February, a month when, in similar dry summers past, the wetland would have long before dried out.

In addition to these observations, we also trialled the use of a field camera to record changes in water levels and, quite coincidentally, have managed to compile a stunning visual appraisal of the increase in bird abundance as the wetland dried over February (see vimeo.com/79938328). Beyond sharing the evolving story of the site with neighbours and community groups through involvement in restoration activities, flora and fauna monitoring and field days, we now have a great collection of sights and sounds from this first year of biological monitoring and we will continue to track progress into the future.

Gooseneck Swamp information day participants atop the trial restoration structure (© Copyright, Lachlan Farrington)

Water persisting in Gooseneck Swamp, February 2014, and growth of reeds (© Copyright, Rod Bird)

The value of commercial saltfields for shorebird conservation in Australia

Chris Purnell, BirdLife Australia

Although an artificial construct, the conditions created by the predictable manipulation of water depth and salinity involved in commercial salt production regularly support internationally significant populations of shorebirds and waterbirds across the world.

In Australia, the habitats created often provide greater ecosystem services than natural sites and have some of the highest abundances and diversities of shorebirds in the nation, with 52 species recorded at one site in South Australia.

Beginning with marine salinity ponds and ending with highly hypersaline solution, the salt production process not only creates variations in salinity but also hydrology, sedimentation and habitat structure. These variations in abiotic features result in distinct invertebrate, algal and vegetation communities that represent reliable yet diverse feeding areas and roosting habitats for birds.

Red-capped plovers (Charadrius ruficapillus) utilise undisturbed levees to raise their precocial young

Saltfields are regularly constructed in low energy coastal areas which already support large intertidal and near coastal bird communities. Studies into several populations associated with saltfields have identified an increase in the number of birds that a region can sustain and a reduction in the detrimental impacts of the loss of intertidal habitats. This can be attributed to the following features:

- Saltfields successfully mimic a wide variety of natural wetlands over a small area, thereby providing suitable feeding sites within proximity to numerous roosting sites.
- Ponds in active saltfields provide large areas of shallow water (less than 25 centimetres deep) for foraging shorebirds to wade in.
- They are tide independent, therefore providing stable feeding, roosting and breeding sites throughout the tide cycle and in the case of sea level rise. Stable water depths and levees also preclude colonisation by vegetation that may otherwise deter shorebirds.
- Saltfields typically abut natural shorebird habitat. The proximity provides secure roosting and supplementary feeding for birds foraging in these areas.
- They provide open, treeless habitats, decreasing the chance of ambush by predators.
- An active operation has little to no human disturbance.

The suitability of saltfields for shorebirds can deteriorate quickly without active management, as ponds with insufficient water flow become hypersaline or dry out, with a risk that acid sulphate soils will be oxidised.

Operations in Australia include five saltfields currently listed as:

- Important Bird Areas (IBA) by BirdLife International
- Wetlands of international significance for shorebirds by Wetlands International
- Wetlands of National Importance by the Australian Government.

Three of these are active operations (Price Saltfields in South Australia, and Dampier Saltworks and Port Headland Saltworks in Western Australia), one is a decommissioned site managed for conservation (Cheetham Wetlands at Point Cook in Victoria) and the final (Dry Creek in South Australia) is newly decommissioned, with its future the subject of a cross-departmental state taskforce.

With an increase in the detrimental impacts to natural intertidal habitats and a decrease in the commercial demand for Australian salt, land managers must begin to devise contingencies for significant shorebird populations in the case of decommissioning.

For further information, please contact chris.purnell@birdlife.org.au or visit www.birdlife.org.au/projects/samphire-coast-icon-project

Eruptive populations of up to 30 000 banded stilts (Cladorhynchus leucocephalus) feed on brine shrimp which occur in the hypersaline ponds of saltfields, like the Dry Creek Saltfields in South Australia (© Copyright, Chris Purnell)

Constructed wetlands offer opportunities for biodiversity to thrive

Orange City Council

Although the impacts of drought are most often seen as devastating and soul destroying, climatic conditions like this can sometimes provide a window of opportunity by forcing current land management practices to be revised and closer consideration given to how we use available natural resources.

In 2010 after experiencing prolonged dry periods, Orange City Council took the initiative to change its water management practices and developed four wetlands that harvested stormwater from the local urban areas.

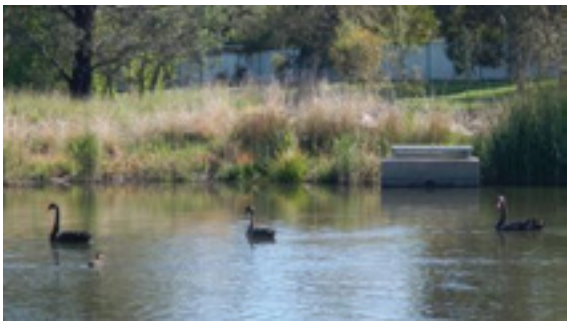
Four years on, these wetlands have evolved into biodiversity hubs, enhanced by native plantings of both terrestrial and aquatic species which provide habitat and food sources for a wide range of native waterbirds and migrating species like the Latham's snipe (Gallinago hardwickii).

Dense plantings of aquatic species like jointed twig rush (Baumea articulata) offer a platform for waterbird species to move around the wetland and establish breeding sites protected from predators, while simultaneously filtering sediments and nutrients out of the water and improving the overall local catchment's water quality.

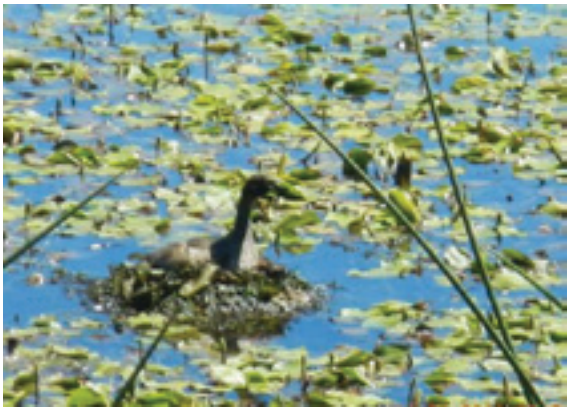
This project has resulted in a strong sense of community pride as bird watchers enthusiastically monitor these sites on a regular basis and report back about new sightings. Schools and other local groups attend field days and educational events to learn more about improving these important ecosystems.

We look forward to every seasonal change that takes place knowing that with it comes new species either visiting or making a home at our wetlands. We hope our experience encourages other councils in Australia to develop constructed wetlands to help increase biodiversity and improve our overall environment.

For further information on the Orange City Council's constructed wetlands, please visit our facebook page 'Orange Wetlands, Weeds & Wildlife'.



Family of black swans (Cygnus atratus) at Somerset wetlands (© Copyright, Maryanne Smith)



Australasian grebe (Tachybaptus novaehollandiae) at Somerset wetlands (© Copyright, Maryanne Smith)

Funding available for conservation works in the Lower Blackwood, Western Australia

South West Catchments Council

Private landholders in the McLeod and Rushy Creek catchment of Western Australia are encouraged to apply for funding for conservation and restoration works through the Lower Blackwood Land Conservation District Committee (LCDC).

The call for expressions of interest follows the development of the McLeod and Rushy Creek River Action Plan (RAP) in 2013, developed thanks to the help and valuable contribution of local landowners.

Lower Blackwood LCDC Project Officer, Yasaman Mohammadi, explains the benefits of a River Action Plan.

"The purpose of the River Action Plans is to provide ideas to landholders interested in improving the condition of the creek on their property, and the health of the catchment overall," Ms Mohammadi said.

"The funding for the project here in the Lower Blackwood has been secured because of the nationally recognised biodiversity values of the catchment, including several rare and threatened plants and animals in the area."

Since 2011, the Lower Blackwood LCDC has helped more than 75 landowners in the Lower Blackwood region with planting over 210 000 native seedlings on over 100 hectares of land, 49 kilometres of fencing to protect over 850 hectares of native vegetation, as well as promoting soil testing, fertiliser management and improving soil health.

"The role of the Lower Blackwood LCDC is to work with landholders, including farmers and agribusiness owners, not only on projects to protect and enhance biodiversity, but to encourage farm productivity and economic viability through the promotion of sustainable farming practices," Ms Mohammadi said.

Funded works could include fencing, revegetation, weed control, stock crossings or off-stream watering points. River Action Plans are not legally binding.

This project is supported by the South West Catchments Council, through funding from the Australian Government and the Government of Western Australia.

Further information on the Lower Blackwood River Action Plan is available here: swccnrm.org.au/work/biodiversity/lower-blackwood

For more information, please contact Yasaman Mohammadi at the Lower Blackwood LCDC on (08) 9758 4021 or lowerblackwood@bigpond.com

As nature intended: Discovering Albury's hidden secret

Albury City Council

From a reclaimed water system to an environmental haven, home to 154 bird species, Wonga Wetlands has established itself as one of Australia's premier birdwatching sites and Albury City Council has a long term vision to make it even better.

Wonga Wetlands is located a short distance from the cities of Albury/Wodonga, sitting on the border between north-east Victoria and southern New South Wales.

Since the late 1990s Wonga Wetlands has operated as a reclaimed water wetland, serviced by the council's nearby wastewater treatment plants. But the intricate network of lagoons and waterways has since become its own unique ecology, attracting birdlife and eventually tourists.

In summer the reclaimed water irrigates 150 hectares of pine and hardwood plantations and nearby pasture. In winter however, the wetlands are flooded, attracting vast birdlife.

It's this unique approach that site supervisor John Hawkins says has helped Wonga Wetlands become such a popular tourist destination.

"It's an ephemeral wetland and we operate it in the way mother nature intended," he says. "In the summer it's dry, but in the winter it's flooded which attracts all kinds of migratory birds looking for wetlands."

Today the wetlands are visited by more than 8000 people annually, including school groups and tertiary students, keen to learn more about birdlife and wetland ecology. Meanwhile six bird hides cater to birdwatching enthusiasts who are given access to approximately one-third of the entire wetlands, ensuring a great view of the wildlife in its natural environment.

On any given day a keen birdwatcher can spot pelicans *(Pelecanus conspicillatus)*, black swans *(Cygnus atratus)*, freckled ducks *(Stictonetta naevosa)*, cormorants of all varieties, whistling kites *(Haliastur sphenurus)* and the white-bellied sea eagles *(Haliaeetus leucogaster)* which all call the wetlands home.

Wonga Wetlands has become an unexpected tourist destination in Albury, and council has plans to capitalise even further.

Community consultation has recently finished on the Draft Wonga Wetlands Tourism Product Development Masterplan. The ambitious plan identifies nine strategies aimed at enhancing one of Albury's great assets.

They include:

- development of an interpretive centre and functions/events space
- improved trails and viewing platforms
- a themed mountain bike course
- ropes and flying fox course
- better access points for canoeing
- other water based activities and improvements to the lagoon ecology.

With careful management and a continued focus on conservation, Wonga Wetlands is set to continue its transformation from one of Albury's great assets to a regional tourism and birdwatching treasure.

For further information on the Wonga Wetlands, please visit www.alburycity.nsw.gov.au/leisure-and-culture/wonga-wetlands

As nature intended: Wonga Wetlands is wet in winter, dry in summer (© Copyright, Albury City Council)

A black swan (Cygnus atratus) and cygnets glides through the intricate Wonga Wetlands network (© Copyright, Albury City Council)

Wonga Wetlands has become one of Albury's most spectacular tourist destinations (© Copyright, Albury City Council)

A white plumed honeyeater (Ptilotula penicillata) is one of the 154 bird species found at Wonga Wetlands (© Copyright, Albury City Council)

Wetlands and waterbird research

Inventory update highlights conservation progress and priorities in Pacific Island countries

Roger Jaensch and Doug Watkins

There has been significant change for the better when it comes to the understanding, conservation and management of wetlands in many developing countries in Oceania.

Aware that two decades had passed since *A Directory of Wetlands in Oceania* was published, in 2013 the Secretariat of the Pacific Regional Environment Programme (SPREP) commissioned an update of wetland inventories for Kiribati, Palau and Vanuatu. Funding was granted by the Australian Government and the Convention for the Protection of Natural Resources and the Environment of the South Pacific Region, while the Ramsar Convention on Wetlands of International Importance contributed technical support. Capacity building, consultations and data collation were conducted in-country during the first half of 2014.

A highly significant change since 1993 has been the establishment of 'conservation areas' in these countries, arising from involvement with the Convention on Biological Diversity. Community-managed conservation areas, in land and sea under customary ownership and established under legislation, now exist in many of the wetlands already identified as nationally and globally important. Two of the countries have joined the Ramsar Convention, with Palau designating Ngardok Lake and Kiribati the mangroves of Nooto–North Tarawa, as Ramsar sites.

Another major advance has been increased understanding of the ecosystem services and biodiversity values of important wetlands. For example, economic valuation of ecosystem services provided by mangroves was recently completed for the Crab Bay area in Vanuatu, sponsored by the International Union for the Conservation of Nature. In freshwater streams, surveys by local and international experts have documented endemic fish species, some new to science, in several of the important wetlands.

Priorities for the management of important wetlands in Kiribati, Palau and Vanuatu include adaptation to climate change, a critical issue for atolls and for coastal communities generally. Invasive fish and plant species are a growing concern. Agencies responsible for wetlands desperately need sufficient resources and trained personnel to integrate wetland management across relevant agencies and organisations. Palau is leading the way on mechanisms for sustaining conservation actions by introducing a Green Fee payable by all visitors to the country which is directed to site management through its Protected Area Network.

The SPREP project has updated datasets for known important wetlands, boundary maps have been created, and descriptions of several new sites meeting criteria for international importance have been compiled. Subject to securing additional resources, many more sites could be documented, broadening the scope of inventory to include subterranean karst waterways, geothermal spring systems and shallow marine wetlands involving coral reefs.

Ngardok Lake Ramsar site is the Republic of Palau's first designation under the Convention on Wetlands of International Importance (© Copyright, Roger Jaensch)

We'd like to order some more bitterns and rice, please

Matthew Herring, Murray Wildlife Pty Ltd, Neil Bull, Rice Growers' Association of Australia, Andrew Silcocks, Birdlife Australia and Mark Robb, Coleambally Irrigation.

The word is out. Not only are there large numbers of the endangered Australasian bittern (Botaurus poiciloptilus) using rice crops—it's an ideal breeding environment too!

Since the 2012–2013 rice-growing season, and as a result of the Bitterns in Rice Project, we've known that the rice fields of the Riverina in New South Wales can support large numbers—not dozens, but hundreds—of bitterns. There was also some suggestion of widespread breeding, but until January this year, we'd been unable to find conclusive evidence.

The first nest for the 2013–2014 season was a glowing beacon of bittern reproduction: three chicks and two eggs. In total, we found four nests including three found in randomly selected rice farms (with aerial or spreader-sown crops), giving us some confidence in extrapolating our results. For bitterns, incubation is approximately 24 days and then it's another seven or eight weeks before the chicks are flying. All four breeding sites had ample time before harvest, although one was close. In this study we learnt that the chicks leave the nest within two weeks of hatching. They then clamber about in the rice and hide on the banks, making it difficult to determine breeding success, although all indications so far are positive.

It's quite extraordinary that the production of food can directly support one of Australia's most threatened species. The annual creation of surrogate, agricultural wetlands—rice fields—presents a rare opportunity to combine agriculture and conservation. The need for increased food production is inevitable and has sparked debate among conservation scientists. How well can biodiversity conservation be incorporated into farming ('land-sharing') compared to the reservation of protected land alongside more intensive farming ('land-sparing')?

Potentially, this is a success story for wildlife-friendly farming. We are slowly but surely uncovering what it is about rice crops (and their management) that attract the bitterns. The sowing method and water management are important along with the presence of Cumbungi in the toe furrows, and weedy banks as cover for roaming chicks. In future seasons, we're planning to trial some alternative rice field designs and test the effectiveness of bittern-friendly rice-growing techniques.

In the 2013-2014 season, we were also thrilled to find several eastern grass owls *(Tyto longimembris)* roosting in the crops, big numbers of Baillon's crake *(Porzana pusilla)* and discovering that golden-headed cisticolas *(Cisticola exilis)* probably breed in their tens of thousands in the rice.

The Bitterns in Rice Project is a collaboration between the Rice Growers' Association of Australia and Birdlife Australia, with key support from the Norman Wettenhall Foundation, the Riverina and Murray LLS, the Rural Industries Research and Development Corporation, Coleambally Irrigation, Murrumbidgee Irrigation, Murray Irrigation, Murrumbidgee and Coleambally Landcare, the Murrumbidgee Field Naturalists Club, and the New South Wales National Parks and Wildlife Service.

Further information on the Bitterns in Rice project can be found here: www.murraywildlife.com.au/major-projects/bitterns-in-rice

Golden-headed cisticolas (Cisticola exilis) are among a range of other wetland dependent bird species that use the rice crops as habitat (© Copyright, Matthew Herring)

Recent research in the Riverina suggests that there is widespread and regular breeding of the Australasian bittern (Botaurus poiciloptilus) in rice crops
(© Copyright, Matthew Herring)

At approximately 18 days of age, this Australasian bittern (Botaurus poiciloptilus) chick has left the nest and is using the cover of barnyard grass on a bank between rice bays
(© Copyright, Matthew Herring)

Conserving Seasonal Herbaceous Wetlands in the South East of South Australia

Steve Clarke, Wetland Conservation Ecologist, South Australian Department of Environment, Water and Natural Resources

Seasonal Herbaceous Wetlands have recently been listed as a critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999*.

They are usually less than one hectare in size and between 30 to 50 centimetres deep. They are generally only wet over spring and early summer (hence 'seasonal') and characterised by sedges and grasses growing in the water along with a rich array of herb plant species (hence 'herbaceous'). These wetlands are only filled from rainfall and runoff from the local catchment, and have fresh water (salinity of around 1000 parts per million).

Seasonal Herbaceous Wetlands were once abundant through Victoria and eastern parts of the Lower South East of South Australia, as well as extending into southern New South Wales. However, these wetlands occur on soils which are often used for crop, pastureland or plantation forest. This means hydrological and biological changes have often resulted in the loss of wetlands or change in their character. Nevertheless while many Seasonal Herbaceous Wetlands have been lost, many have been lightly grazed or treated gently and still retain much of their former character.

The South Australian Department of Environment, Water and Natural Resources is currently working in the south-east of South Australia to conserve this wetland community by first surveying, mapping, assessing its condition, entering the data into the South Australia Wetland Database and then implementing conservation techniques. Since work started in November 2013, over 150 potential Seasonal Herbaceous Wetlands have been surveyed and 98 have been determined to fit the listing advice. These wetlands have now been found to have an extent of occurrence in the south east of South Australia of 7500 square kilometres and are located on public and private land. Work has also started on raising community awareness of these unique wetlands.

The surveyed wetlands have been found to vary in condition from almost pristine to completely degraded and work has commenced on conservation based on condition rating and accessibility. This work includes fencing to exclude stock or to manage a grazing regime conducive to restoration, track closure, weed control and restoring hydrology. Over 30 Seasonal Herbaceous Wetlands have undergone varying forms of conservation work since the start of 2014.

The Seasonal Herbaceous Wetlands Project is funded by the Australian Government.
For further information on the project, please contact Steve Clarke (steve.clarke@sa.gov.au).

Surveys of the recently listed threatened Seasonal Herbaceous Wetland ecological community are being done to establish their condition (© Copyright, South Australian Department of Environment, Water and Natural Resources)

A seasonal Herbaceous Wetland near Tarpeena in the South East of South Australia (© Copyright, South Australian Department of Environment, Water and Natural Resources)

Bladderworts (Utricularia sp.) are often prolific in these types of wetlands (© Copyright, South Australian Department of Environment, Water and Natural Resources)

Dances with cranes

Tim Nevard, Wildlife Conservancy of Tropical Queensland and Charles Darwin University

Thousands of brolgas *(Grus rubicunda)* and Australian sarus cranes *(Grus antigone gilliae)* flock to the Atherton tablelands in the dry seasons creating a 'brolga and sarus central' for up to six months.

Their roosts are well known, with many of the largest ones (such as the Mareeba Wetlands, Lake Tinaroo and General Plains Swamp) being man-made, while others (such as the Bromfield Swamp volcanic crater) are natural wetlands. All sites are stunningly evocative, with bugling cranes flying in to their evening roost at dusk to dance. Movements to and from these roosts to foraging areas and how these movements are triggered are still poorly understood, and this knowledge gap is a critical element of the research being conducted by Charles Darwin University and the Wildlife Conservancy of Tropical Queensland.

Although at least 98 per cent of Australia's brolgas and all our sarus are found north of the Tropic of Capricorn, their interactions, movements and behaviour are not well understood.

Both species are under increasing pressure from expanding agricultural cropping, recent advances in harvesting efficiency and plans to further expand irrigated agriculture in the region. Also, the expansion of wind, solar, hydro and other energy projects are potentially problematic in areas critical to cranes. These practices potentially impact not only crane foraging behaviour but also critically important wetland breeding and roosting habitats.

While it is well known that cranes readily adopt new feeding strategies in response to agricultural change, this adaptability brings risks and there are already emerging conflicts with agricultural interests.

In the near future the Australian sarus population could be critical to the survival of world sarus populations (which have an overall IUCN 'Vulnerable' classification) due to serious declines in Asia. We therefore need to safeguard existing Australian breeding and roosting wetlands used by cranes and better understand the ecology and behaviour of brolgas in northern Australia.

Conducting research in to the ecology of the sarus and brolgas will provide the necessary background to make sure appropriate conservation measures are established to protect the future of these magnificent creatures and ensure their wetland nesting and roosting sites remain protected, understood and appreciated by the community. In addition to research, the Conservancy works with the Tablelands Regional Council, the community, business and other non-government organisations on initiatives such as the annual September Crane Week (www.craneweek.org) on the Atherton Tablelands, sharing the mystery and magic of sarus and brolgas with a wider audience.

Australian sarus cranes (Grus antigone gilliae) are iconic species of the savannas and wetlands in northern Queensland (© Copyright, Wildlife Conservancy of Tropical Queensland)

During the dry season, brolgas (Grus rubicunda) and Australian sarus cranes (Grus antigone gilliae) roost at wetlands like Pandanus Lagoon at the Mareeba Wetlands near Cairns, Queensland (© Copyright, Wildlife Conservancy of Tropical Queensland)

Rangers raise the profile of waterbird breeding and migration in Gulf wetlands

Roger Jaensch and Paul Richardson

Recent activities of Land and Sea Rangers based in Normanton, north Queensland, have raised awareness of the exceptional importance of wetlands in the Gulf Plains bioregion for breeding and migration by waterbirds.

Seasonal inundation, limited ground access, difficult fieldwork conditions and sparse human population have constrained the development of comprehensive knowledge of waterbirds in freshwater and intertidal wetlands in this region.

The Normanton Rangers, managed by the Carpentaria Land Council Aboriginal Corporation, started documenting breeding colonies of egrets, ibises and spoonbills in 2009, with technical support from Wetlands International. Subject to available funding, this has continued annually as a wet season activity, using aerial surveys. Remarkably, 33 colonies collectively including 12 waterbird species and often with several thousand breeding pairs per colony, have been found over this six year period. Many of the colonies meet criteria for international importance. Colonies are located from the Leichhardt River in the west to the Gilbert River in the north and up to 100 kilometres inland. Some colonies in estuarine mangroves were already known, but the majority, many in wooded waterholes far inland, were previously unknown. The number of active colonies has been highest in the years of river flooding that creates vast areas of feeding habitat, which has implications for future water management in these catchments. Preliminary results have been published (Jaensch and Richardson 2013) while ongoing work is attempting to better define the ecological requirements of these waterbirds for breeding in the Gulf Plains, to inform site and catchment management.

The South-East Gulf of Carpentaria has been identified as an internationally important area for migratory shorebirds. Count data from occasional expeditions by volunteer-based wader study groups indicate that it is one of the most significant sites in Australia (Driscoll 2001; Bamford *et al.* 2008). In 2014, the Normanton Rangers received training and mentoring on waterbird migration, shorebird ecology, field survey methods and criteria for international importance and have started spreading the amazing migration story to their communities. This has sparked considerable interest among Indigenous people of the area, especially in regard to the connections these birds make with wetlands far overseas. Possible nomination of part of the Gulf to the Flyway Site Network of the East Asian — Australasian Flyway Partnership has been discussed with stakeholders. If funding and technical support can be arranged, the Rangers may eventually engage in research activities on shorebirds in their country, to determine exact migration routes and possibly establish contact with connected 'sister sites' in the Flyway.

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Egrets breeding in a freshwater wetland, Gulf Plains region (© Copyright, Normanton Land and Sea Rangers)

Flocks of migratory shorebirds on the Gulf Plains coast (© Copyright, Roger Jaensch)

Informed decision making for the conservation of wetland birds and their habitats

Queensland Department of Environment and Heritage Protection

The Queensland Government, along with non-government organisations, private consultancies and universities, is working on a project to improve decision making relating to the management of wetland birds and their habitats.

Today, more than ever, policy makers, planners and managers working in the public and private sectors need efficiency in decision making. To do this, it is extremely important that the data and information required to support decision making can be easily accessed and understood.

A large volume of data and information is available for wetland birds, including shorebirds and other waterbirds. Some is published literature, but much is in unpublished reports and datasets and not in the public domain. Some data can be found in systems such as Eremaea eBird, the Atlas of Living Australia and the Atlas of Australian Birds, while other data have yet to be collated, analysed and summarised.

This project aims to deliver coordinated data and information to inform policy and planning initiatives, management activities and assist with meeting objectives under international agreements, conventions and partnerships, such as the Ramsar Convention.

A centralised, web-based portal will provide links to existing data and information, management tools and guides, monitoring programmes, assessment techniques, as well as education tools and initiatives. It will also identify critical data and information gaps to inform future research and broaden our understanding of wetland birds and their habitats.

The initial stages of the project will provide readily available data and information. Future stages will create a spatial representation of this information to enable swift and site-specific interrogation. All products will be made available through Queensland's primary portal for wetland management resources, WetlandInfo: www.wetlandinfo.ehp.qld.gov.au.

For more information on the project, please contact wetlands@ehp.qld.gov.au

As a Matter of National Environmental Significance, migratory shorebirds like the great knot (Calidris tenuirostris) are a focus of the enhancements to WetlandInfo (© Copyright, Roger Jaensch)

The project will enhance access to information on the ecology of waterbirds, such as pied heron (Egretta picata), which breeds in colonies (© Copyright, Roger Jaensch)

Wetland eBook launched

Dr Swapan Paul, Sydney Olympic Park Authority, New South Wales

On 28 November 2013, the Sydney Olympic Park Authority published the eBook *Workbook for Managing Urban Wetlands in Australia*.

It is a summary of the contents, partnerships, collaboration and research that was invested in the development of the Wetland Education and Training (WET) Program at Sydney Olympic Park. It is both a culmination and celebration of the WET Program, which has been developed and delivered by the Authority for nearly 12 years.

The eBook has five sections and 28 chapters written by eminent wetland scientists, practising ecologists and other dedicated professionals. The chapters contain useful hands-on information about managing both freshwater and estuarine wetlands in urban Australia. The publication was edited by Dr Swapan Paul, the Wetlands Manager at the Authority, who also coordinates the WET Program.

The eBook can be accessed for free on the Authority's website: www.sopa.nsw.gov.au/resource_centre/wet_ebook_workbook_for_managing_urban_wetlands_in_australia.

While officially launching the eBook, the Authority's Chairman Mr Michael Knight AO said that he hoped the eBook would enormously benefit the wetland sector in Australia and beyond, particularly because of its hands-on approach. He was joined for the launch of the publication by wetland professionals attending a regular WET Workshop and authors of the eBook.

Enjoy reading this eBook and making a difference in the wetland that you care for. Also, please encourage your peers to access this eBook and make use of it.

Happy reading!

For further information, please contact
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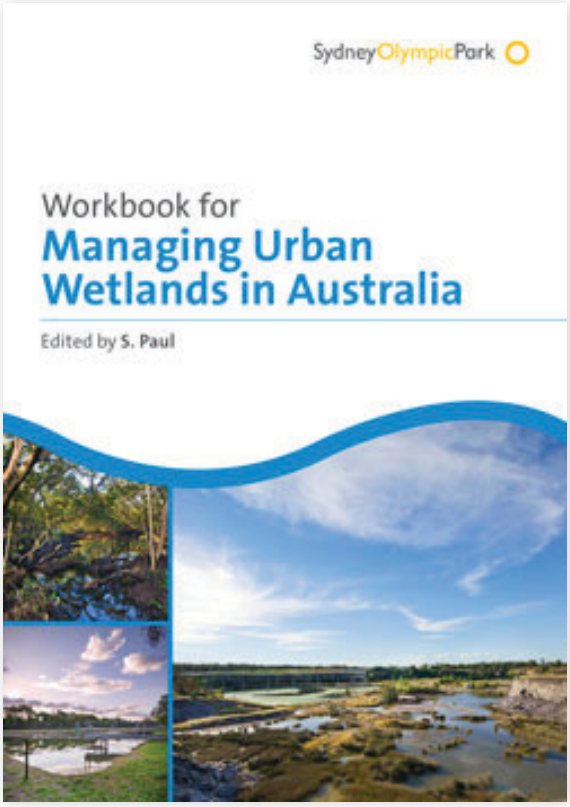

The Workbook for Managing Urban Wetlands in Australia, produced by the Sydney Olympic Park Authority, is a practical field guide aimed at enhancing wetland conservation and management in Australia

Wetlands and climate change

Coastal wetlands help us adapt to sea-level rise

Kerrylee Rogers, ARC Future Fellow, School of Earth and Environmental Science, University of Wollongong, Craig Copeland, Manager Aquatic Habitat Rehabilitation, Fisheries New South Wales, Catherine Lovelock, Professor, Global change Institute, University of Queensland and Neil Saintilan, Water and Wetlands Team Leader, New South Wales Office of Environment and Heritage

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change projects a rise in global mean sea level of between 0.40 metres and 0.63 metres by 2100.

Limited recognition of the dynamic nature of our coastlines has left us with a legacy of existing assets and infrastructure being vulnerable to erosion and inundation. We do have the capacity to adapt to this challenge, but there are financial, technological and cultural limits to our capacity to adapt. Delaying action increases the eventual cost of intervention. We need a new approach to coastal climate change adaptation, and scientific evidence indicates that coastal wetlands are crucial to sustainable coastal adaptation.

The value of working with coastal wetlands is being recognised by coastal engineers, particularly in the USA and Europe, who are harnessing the capacity of coastal wetlands to increase the resilience of shorelines undergoing erosion and to accommodate inundating floodwaters. Known as 'living shorelines', coastal wetlands are being constructed as an alternative to traditional engineering structures such as seawalls. The cost of living shorelines is estimated to be approximately 30–80 per cent lower than hard structures, and once established, living shorelines are a cost effective mechanism for protecting shorelines that have minimal ongoing maintenance costs.

There may also be significant economic gains in facilitating coastal wetlands to retreat and accommodate sea-level rise. The tidal wetlands of the Hunter River in New South Wales, where floodgates once held back tidal waters from coastal floodplains, are a beacon for sustainable coastal adaptation. Tidal exchange is being reinstated to the coastal floodplain resulting in the conversion of marginal farmland and freshwater wetlands to mangrove and saltmarsh. This will provide considerable gain in fish nursery habitat which may contribute over $14 000 per hectare per annum to commercial fisheries, and waterbird habitat for an internationally recognised wetland (Hunter Estuary Wetlands Ramsar site). In addition, as coastal wetlands are also amongst the most efficient ecosystems at sequestering carbon from the atmosphere, expansion of coastal wetlands across the floodplain will contribute to Australia's climate change mitigation efforts.

Rogers et al. (2014) estimated that an additional carbon sequestration of up to 280 000 tonnes by 2100 may occur on the Lower Hunter River when floodgates are open and coastal wetlands are able to adapt to sea-level rise by building accommodation and retreat strategies. Based on the historic carbon price of the European Union Emissions Trading Scheme, which has fluctuated between €5 (AU$7.73) and €30 (AU$46.40) per tonne of carbon since 2008, the carbon sequestered in the Hunter wetlands by 2100

could have a current value ranging between AU$2 million and $13 million in a carbon sensitive economy. Irrespective of a mandated emissions trading scheme, this sequestered carbon may potentially provide financial incentives for coastal wetland restoration and conservation through programs such as REDD+ and voluntary carbon markets like Voluntary Carbon Standard (VCS).

Sustainable coastal zone planning is essential if we are going to maximise the benefits gained from coastal wetlands. Appropriate planning would acknowledge the multiple benefits that coastal wetlands provide. It is imperative that local, state and federal governments begin discussions on protecting land that will accommodate the migration of natural coastal wetlands in the future. Natural coastal wetlands exist in four dimensions that include a location and elevation, and a trajectory through time. Planning needs the vision to encompass the changing boundaries coastal wetlands will have over time. Importantly, coastal zone planners, managers and researchers need to recognise that coasts are dynamic and that our coastal future will be different to the status quo. Working with coastal wetlands to adapt to sea-level rise is not only cost effective, but may also provide multiple economic gains for Australia.

For further information, please contact Kerrylee Rogers, University of Wollongong (Kerrylee@uow.edu.au).

Example of a living shoreline along Haslams Creek, Homebush Bay, Australia. The revetment was revegetated with coastal saltmarsh in 2006 (top image), and by 2013 (bottom image) the area was supporting a range of saltmarsh species including the threatened Wilsonia backhousei

References

Kerrylee Rogers, Neil Saintilan and Craig Copeland (2014) 'Managed Retreat of Saline Coastal Wetlands: Challenges and Opportunities Identified from the Hunter River Estuary, Australia', *Estuaries and Coasts*, January 2014, Vol 37(1), pp 67–78 doi: 10.1007/s12237-013-9664-6

Staged opening of floodgates has commenced at Tomago Swamp (foreground) to reinstate tidal exchange between the swamp and the Hunter River estuary (background)

Riparian restoration mitigates the impacts of climate change

Chrystal Mantyka-Pringle, ARC Centre of Excellence for Environmental Decisions

Freshwater habitats are critically important to a broad range of animals and plants, and they are in trouble.

Globally, these habitats are experiencing declines in biodiversity far greater than those being experienced in other terrestrial and marine ecosystems. New research involving the Australian Research Council's Centre of Excellence for Environmental Decisions (CEED) aim to help managers identify how this decline might best be dealt with.

Freshwater habitats face many problems.
A combination of multiple stressors in freshwater ecosystems have resulted in population declines and range reductions of freshwater species all around the world, yet our understanding of the combined effects of climate change and land-use change on freshwater biodiversity is limited. For example, large uncertainties remain regarding which processes (such as biophysical processes like water temperature or nitrogen enrichment) will have the greatest impact on biodiversity in freshwater ecosystems and whether the sum of the individual stressor effects are greater than any stressor alone.

Working with the University of Queensland, CSIRO, Griffith University and the Queensland Government, CEED researchers modelled the independent and combined effects of climate change and land-use change on freshwater macroinvertebrates and fish using South East Queensland and the Ecosystem Health Monitoring Program as a case study (Mantyka-Pringle *et al.* 2014).

The first step involved building a conceptual model to identify the major causal links between land-use (for example, the amount of hard impervious surfaces and the amount of riparian vegetation) and climate (for example, air temperature, precipitation and rainfall variability) on freshwater biodiversity. The team then used this conceptual model to build a Bayesian Belief Network enabling the researchers to predict the effect of future land-use and climate change on the richness of macro-invertebrates and fish.

One of the key effects they identified through this modelling was that high nutrients and high runoff from urbanisation interacted with higher water temperatures as a result of climate change.
This was the leading driver of potential declines in macro-invertebrates and fish at finer scales.

By identifying the mechanisms behind biodiversity loss, the researchers were able to identify management strategies that can simultaneously tackle both climate change and land-use change. The good news coming out of this study is that the restoration of riparian vegetation was identified as an important tool for adaptation that can mitigate the negative effects of climate change and land-use change on freshwater biota.

Riparian restoration has been transformed over the last few decades from engineer-based to ecosystem-based approaches. As a result, planting of native riparian buffers has become a priority for restoration projects as it improves ecological conditions in streams without negatively impacting riparian soils.

For more information on the research, please contact Chrystal Mantyka-Pringle (c.mantykapringle@uq.edu.au).

Reference

Mantyka-Pringle CS, TG Martin, DB Moffatt, S Linke and JR Rhodes (2014), 'Understanding and Predicting the Combined Effects of Climate Change and Land-Use Change on Freshwater Macroinvertebrates and Fish', *Journal of Applied Ecology*, March 2014 doi: 10.1111/1365–2664.12236

New research is showing that riparian restoration is an important buffering tool for reducing the negative effects of climate change and land-use change on freshwater biodiversity

CSIRO's Coastal Carbon Cluster project

Trisha B Atwood, University of Queensland, Daniel Alongi, Australian Institute of Marine Science, Rod Connolly, Griffith University, Carlos Duarte, University of Western Australia, Stuart Phinn, University of Queensland, Peter Ralph, University of Technology, Sydney, Andy Steven, CSIRO and Catherine Lovelock, University of Queensland

Coastal wetlands cover less than 0.5 per cent of Australia's land surface, yet provide vital services to humans and associated ecosystems.

The mangroves, tidal marshes and seagrass that make up a coastal wetland provide habitat for water birds and fish, protect our coasts from flooding and erosion, and create a natural form of carbon sequestration.

Over the last year CSIRO's Coastal Carbon Cluster have collected sediment samples from over 120 sites (40 tidal marsh, 30 mangrove, and 50 seagrass sites), and made many important discoveries. The samples gathered and subsequent testing suggests that Australia's coastal wetlands have carbon sequestration rates that are 60 times greater than terrestrial forests.

The $3 million Cluster began in early 2013 and combines multidisciplinary expertise from CSIRO, the Australian Institute of Marine Science, and nine Australian universities. The aim of the Cluster is to determine the role coastal wetlands play in the storage of carbon across Australia, quantifying the capacity of these wetlands to trap and store carbon. The enormous potential of coastal wetlands to store carbon in sediments for millennia, termed 'blue carbon', provides prospects and opportunities to help mitigate human-induced climate change.

The Cluster is measuring the carbon content of sediments collected from coastal wetland sites across the whole of Australia. As part of the surveying and sampling, the researchers are refining area estimates for each coastal wetland type with the goal of producing detailed continental coastal maps. This information is critical for coastal managers and governments tasked with making decisions about the future of Australia's coastal wetlands.

Globally, coastal wetlands are being removed (for industrial and community development) four times faster than tropical forests. It is hoped that the research outcomes of the Cluster will assist coastal managers and governments to support the sustainable management of wetlands.

For further information on the project, please visit www.csiro.au/Coastal-Carbon-Cluster or contact the following project members:

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Mangrove-salt marsh interface at Amity Point on Stradbroke Island, Queensland (© Copyright, Trisha Atwood)

Jeff Kelleway conducts sediment sampling in mangroves at Towra Point Nature Reserve, New South Wales
(© Copyright, Trisha Atwood)

Networking

Australia to host World Parks Congress

"When one tugs at a single thing in nature, he finds it attached to the rest of the world".

These words from the Scottish born naturalist, John Muir, a man hailed as the father of National Parks in the United States, aptly captures the importance of the upcoming IUCN World Parks Congress.

Conserving the earth's most valuable natural places and promoting nature's solutions to global challenges is the focus of the Congress taking place in Sydney from 12–19 November.

The world's 200 000 protected areas, covering 14 per cent of land and nearly three per cent of oceans, conserve threatened wildlife, boost our food, water and climate security and help people reconnect with nature. In an era where we face an untold biodiversity extinction crisis, grapple with the effects of climate change and a burgeoning human population, an expanded connected network of well managed conservation areas is the most robust proven solution to confronting global problems.

The role of our national and global protected area network shouldn't be underestimated. Did you know that:

- one third of the 105 world's largest cities, including Sydney, derive drinking water from protected areas
- protected areas conserve populations of wild species, pollinators, and crop wild relatives safeguarding species and populations vital for food security and agriculture
- protected areas contribute to health by protecting intact ecosystems and supplies of medicinal plants and genetic material for pharmaceuticals.

With its theme, "People, Parks, Planet: Inspiring Solutions", the Congress will bring together 160 countries and global experts from organisations including UNESCO, the United Nations Environment Program and the Intergovernmental Panel on Climate Change. It will also involve many different sectors, community groups, agencies, industries and of course the future custodians of the planet—our youth.

Topic areas being covered will include nature's role in human health and wellbeing, responding to climate change, reconciling development challenges and respecting Indigenous knowledge and culture.

Registrations for this once in a decade event are now open.

More information about the IUCN World Parks Congress can be found at:
www.worldparkscongress.org.au

IUCN
WORLD PARKS CONGRESS
SYDNEY 2014

Parks, people, planet: inspiring solutions
www.worldparkscongress.org

Australian and World Wetland Network news

Louise Duff, Manager Hunter Region, WetlandCare Australia

The Australian Wetland Network (AWN), established in 1994, is a national network of Non-Government Organisations (NGOs) involved in conservation and wise use of wetlands. It provides 30 member organisations across Australia with the opportunity to contribute to policy development, share knowledge and coordinate World Wetland Day activities.

AWN is administered through a Secretariat hosted by WetlandCare Australia.

In 2013, AWN received funds from the NSW Environmental Trust to prepare a Strategic Plan 2013–2015. One of our strategic objectives is to facilitate NGO participation in national Ramsar reporting and the Ramsar triennial Conference of Contracting Parties.

To this end, we recently coordinated member contributions for Australia's National Report to the Ramsar Convention Secretariat in the lead-up to the 12th Conference of Contracting Parties (COP12), to be held in Uruguay in June 2015.

The submissions from our members had some common themes. We agreed that being a signatory to the Ramsar Convention has raised awareness of wetland values in Australia, and helped protect wetlands through international listing.

Members identified the need for more wetlands to be designated as Ramsar sites, additional resources for managing Ramsar-listed wetlands and dedicated funds for managing and monitoring of all wetlands. Members also saw value in creating a greater understanding of the benefits wetland conservation has on migratory birds and agriculture.

Unlike other multi-lateral environmental agreements, the Ramsar Convention was established by NGOs and is hosted by the International Union for the Conservation of Nature (IUCN). AWN recognises that NGOs make a significant contribution to wetland advocacy, rehabilitation, education and research, and our members look forward to being involved in Ramsar COP12.

WetlandCare Australia is also the Oceania representative for the World Wetland Network (WWN). They have two projects currently underway. Firstly, the WWN organise the Wetland Globe Awards, which calls on NGOs around the world to identify and vote for both outstanding wetlands that are well managed, and wetlands threatened by negative impacts. The Wetland Globe Awards will be launched later this year and announced at Ramsar COP12. WWN's second project is an online tool to support NGOs in their efforts to have local wetlands added to the Ramsar list.

To find out more about the AWN or the WWN, please contact the Secretary, Louise Duff, WetlandCare Australia, via email louiseduff@wetlandcare.com.au or telephone 02 49511425.

Louise Duff, WetlandCare Australia, is the Australian Secretary for the Australian Wetland Network and Oceania representative for the World Wetland Network (© Copyright, Verity Robson)

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