SEPTEMBER 2020 ISSUE 5

THE BIDGEE BULLETIN

Quarterly Newsletter of the Murrumbidgee Monitoring Program

SPRING WATERING

As the days get longer and the nights warmer we're looking forward to escaping the office and the endless 'Zoom' meetings which have been a feature of the past months. Although we won't be venturing back into the field until wetland monitoring commences in mid-September, others have been busy, with environmental watering actions well underway in several locations. With the positive noises coming from the weather Bureau and expectations of wetter than average rainfall conditions we are looking forward to a busy and productive season across the Murrumbidgee River, creeks, wetlands and floodplains.

REDBANK AND YANGA WATERING

The taps were opened in early July with the first flows of Commonwealth and NSW environmental water released to wet the full North Yanga system to Tala Lake, with a possible expansion into South Yanga depending on conditions. Researchers conducting surveys of resident golden perch in Tala Creek had to move quickly as the flow moved through rapidly, spilling into Tala Lake by late August.

Welcome to Issue 5 of The Bidgee Bulletin. In this issue we give an update on happenings through this quiet 'off-season' time of the year and anticipate the monitoring season just ahead. We check in with CSU Honours student Eva Moore and get an update on her work evaluating the use of artificial bark covers to monitor lizard populations in the Murrumbidgee. And in this issues 'Who's Who in the Zoo' we feature Luca Ferla, one of our colleagues from the Commonwealth Environmental Water Office.

The Bidgee Bulletin is a quarterly newsletter designed to provide updates on our progress as we monitor the ecological outcomes of Commonwealth environmental water flows in the Murrumbidgee Selected Area. The 2019-2022 program builds on the previous five year monitoring period (2014-2019) and uses many of the same methods.

From top: Young-of-year golden perch, Australasian bittern chicks (photo: Matt Herring).

The golden perch study is following up on earlier research that suggested that the fish, contrary to current thinking, had spawned in wetlands and lakes in still water conditions that technically should be unsuitable for golden perch spawning. Breeding is believed to be triggered by rising water levels and moderate flow velocities, thus golden perch are assumed to spawn in the main river channel before drifting as larvae or juveniles into floodplain wetland habitats to feed when river and floodplains connect during high flow periods. However, recently we have recorded juvenile 'young-of-year' fish in floodplain wetlands that are disconnected from the main river channel. This study aims to identify fish movement patterns during the breeding season and evaluate the success of both spawning and recruitment into the adult population, information that can help direct future watering strategies to improve outcomes for this iconic native fish species.

GAYINI NIMMIE-CAIRA WATERING

Watering is also underway at Gayini Nimmie-Caira as flows move through and inundate the floodplain and important wetlands including monitored sites at Telephone Creek, Nap Nap Swamp, Eulimbah Swamp and Avalon Dam. This action aims to provide movement and dispersal opportunities for water-dependent animals to complete their life-cycles and move into new habitats. We are hoping to see waterbirds taking advantage of abundant habitat and food resources to breed and raise their young. If conditions trigger colonial waterbird breeding additional flows may be used to maintain water levels at rookery sites.

MID-MURRUMBIDGEE WATERING

Targeted wetlands in the mid-Murrumbidgee are expected to receive top up flows of CEWO environmental water in spring. Many of these wetlands have retained some water and even had in-flows from rainfall events over the winter, and these top up flows will ensure that they continue to provide a diverse range of refuge habitats for water-dependent species. In some instances wetlands fill naturally with relatively low river levels, and this is likely to occur at two MER monitored wetlands - Yarradda Lagoon and Gooragool Lagoon.

UPDATES FROM THE INDOORS

Below: The MER team posing for a feature video of the Sunshower Lagoon restoration (photo: Vince Bucello).

Since the arrival of COVID-19 we've all been spending more time gazing into video cameras than is entirely normal. Even the June EWAG meeting turned to the 'Zoom' video hosting platform. There were some great presentations shared and James gave an encouraging outlook for environmental water actions leading into the 2020-21 water year.

The installation of pumping infrastructure and subsequent watering of Sunshower Lagoon in the mid-Murrumbidgee has been in the spotlight recently. A feature article has been published on the Flow-MER website with some stunning images. Visit flow-mer.org.au to see the article.

All things froggy and scaly were the topic of discussion at a recent one-day workshop sponsored by the Institute of Land, Water and Society at Charles Sturt University. Over 40 scientists, researchers and agency staff came together to discuss frog and reptile responses to environmental water management across the Murray-Darling Basin. Four key themes and areas for collaboration emerged from the workshop - the role of carp management in improving wetland health and frog breeding; water management for floodplain

From top: Grey snake foraging on cracking clay soil; Damian weighs and microchips a grey snake; Eva checks beneath an artificial bark cover for arboreal lizards.

snakes; audio data management; and supporting freshwater turtles.

With community field days and workshops deferred as we continue social-distancing, we are exploring the use of podcasts as a new means of communication. A series of podcasts is planned, with Project Leader Skye Wassens first up to the microphone. We are currently finalising details of the hosting platform and will release details once the first podcast is good to go.

SNAKES ON THE PLAINS

Generally the MER Program focuses on fish, frogs, tadpoles, wetland vegetation and waterbirds, but water planners as well as scientists acknowledge that environmental water can also influence and benefit non-aquatic species. With this in mind, MER research scientist and herpetologist Dr Damian Michael is looking at how certain terrestrial animals respond to environmental water. One of the key groups is reptiles, particularly semi-aquatic and wetland dependent snakes.

While we do have freshwater aquatic snakes in northern Australia there aren't any truly aquatic snakes in the Murray-Darling Basin. There are 12 species of snake that are common or restricted to the floodplain regions of the Basin and we know very little about their ecology. One of these is the IUCN listed endangered grey snake (*Hemiaspis damelii*). This small frog-eating specialist has a core range in the Northern Basin with an isolated population in the Lower Lachlan (Great Cumbung swamp) that hasn't been sighted for about 65 years. So its recent rediscovery in the Lowbidgee region is not only extremely exciting but scientifically significant.

Damian recently provided conservation listing advice to the Federal Government that may see the species listed under Federal threatened species legislation, the EPBC Act. The species satisfies a number of criteria for being listed as threatened, particularly in having an extremely fragmented distribution and small area of occupation across its entire range. Additionally, the grey snake is likely to be impacted by cane toads as they move into its northern range, meaning that the Murrumbidgee population may be the only population that is unlikely to encounter cane toads for at least two decades.

The species is considered terrestrial. While it has been sighted swimming, it forages for frogs on land during warm nights and lives in soil cracks during the day. "Basically it is only found when water levels are high, frogs are abundant and weather conditions are suitable" says Damian. "Interestingly, we have not yet recorded the species when the wetlands are in a dry phase, suggesting that its ecology and conservation could be linked to historical watering regimes as well as current watering actions."

THE BIG REVEAL - BENEATH THE BARK COVERS

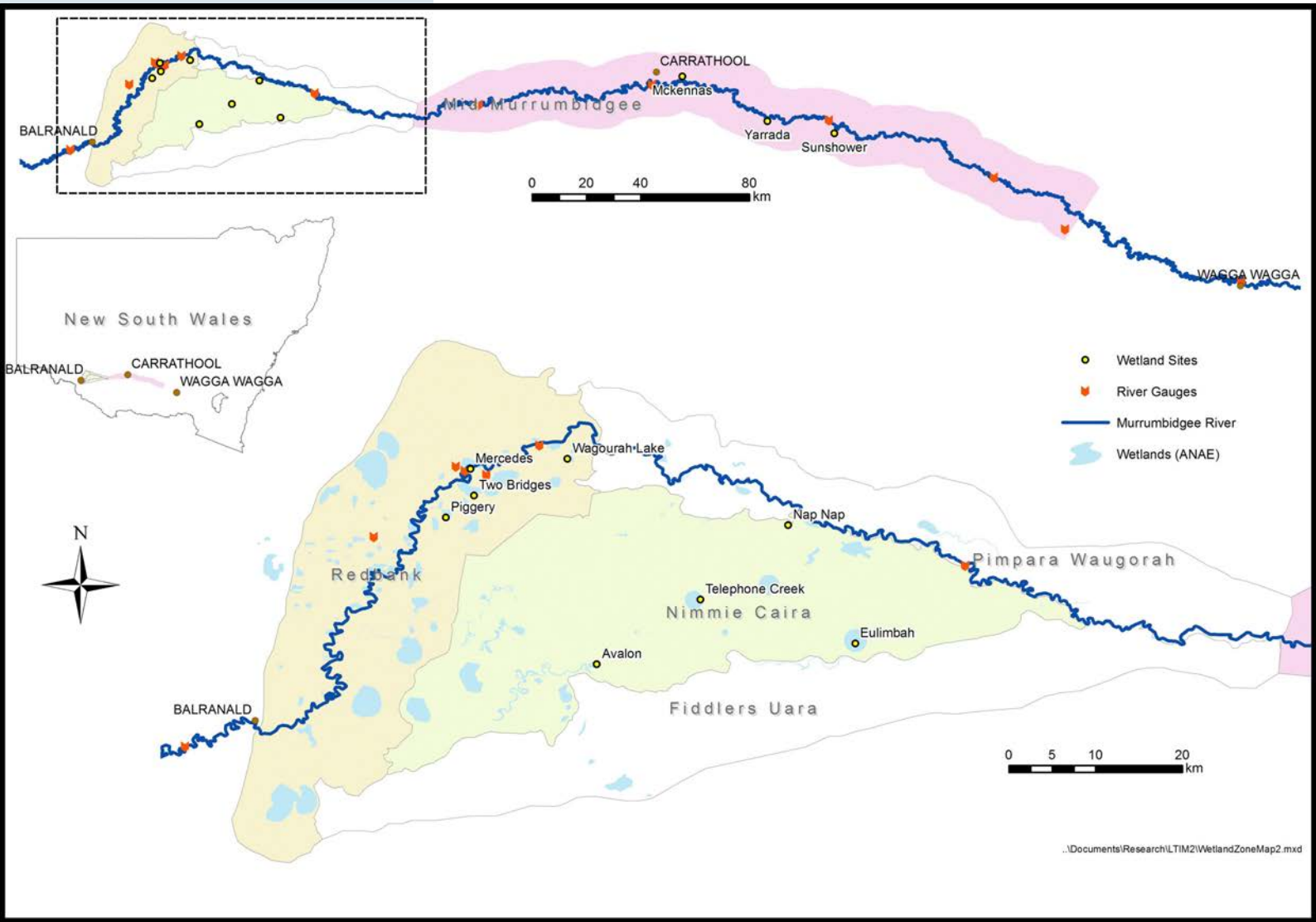
Charles Sturt University Honours student Eva Moore has been spending a lot of time hanging around the edges of wetlands across the mid and lower Murrumbidgee recently. Her research project is exploring the use of artificial bark covers to detect lizards in wetland habitats across the Murrumbidgee.

After wrapping 112 river red gum and black box trees in sheets of foil backed

Above left to right: tree skink; ragged snake-eyed skink; marbled gecko; southern bell frog; tree dtella; Peron's tree frog.

insulating foam, she returned on multiple occasions to check beneath and document what she found. She found four species of lizard, two frog species, one microbat and some fairly intimidating spiders had all been using the covers. The covered trees were split into those expected to remain dry, and those that had historically been flooded when water entered the wetlands. Not surprisingly tree frogs (Peron's tree frog and southern bell frogs) had found the covers in wet areas. Interestingly, adult geckos and large huntsman spiders were sometimes found beneath the same cover - suggesting that neither has an advantage over the other and they can cohabit successfully. However, both large huntsman spiders and lizards were more likely to be detected separately from one another than together. Overall, detections were more likely during the winter months, suggesting that the insulating properties of the closed cell foam might be favourable in cooler conditions but less desirable in warmer conditions.

Map showing monitored wetlands within the three Murrumbidgee zones: Redbank, Gayini Nimmie-Caira and the mid-Murrumbidgee.



WHO'S WHO IN THE ZOO?

This issue we find out a little more about one of our colleagues from the Commonwealth Environmental Water Office ...

Name: *Luca Ferla*
Organisation: *Commonwealth Environmental Water Office*
Position: *Assistant Director, Central Basin Delivery Section, working on the Murrumbidgee*
I studied at: *University of Sydney gaining an Honours Degree in Engineering majoring in Aeronautical Engineering and then at Monash University gaining an Honours Degree in Science majoring in Zoology – many, many years apart*
In my previous job I: *spent 5+ years conducting strategic environmental assessments of major projects under the Environment Protection and Biodiversity Conservation Act 1999*
Food attitude: *Anything and everything*
Beverage of choice: *Beer, wine, single malts and double-shot espresso – not all in the same glass!*
How would you describe your work to a child?
I'm giving water to the plants and animals in and along the river that need water to help them survive and grow
What's the best thing about your work?
Knowing that our work results in great outcomes for threatened species... and people
Your work in three words?
always learning, satisfying
Is your career your parent's fault?
I guess so as I share my dad's love of animals and the natural world
It's now 2030, where are you?
Still working to protect the environment
Flashback to 1999 – where were you then?
Taking a year off from engineering to travel in Italy
Given the chance, who would you like to be for a day?
Santa Claus - how does he deliver all those presents in a single night?
What's your favourite sign off?
See ya

The Murrumbidgee MER team would like to acknowledge the consortium partners and local landholders with whom we work.

Australian Government
Commonwealth Environmental Water Office

FLOW Monitoring Evaluation Research

Charles Sturt University

We respectfully acknowledge the Wiradjuri, Nari Nari and Muthi Muthi peoples, traditional owners of the lands on which this publication is focused