

GWYDIR FLOWS



Welcome to Issue 3 of Gwydir Flows, a newsletter in which we will bring you updates of work we are doing to monitor the outcomes of Commonwealth environmental water management in the Gwydir Selected Area, as part of the Commonwealth Environmental Water Office's Long Term Intervention Monitoring (LTIM) Project. In this issue we would like to share outcomes from vegetation monitoring.

The Lower Gwydir and Gingham watercourses support a number of water dependent vegetation communities. The area occupied by these communities has declined since river regulation as a result of both restricted flows and clearing for agriculture. Maintaining the current extent and then improving and maintaining the health of these communities has become a target for environmental water management in the Gwydir catchment.

Communities occurring in the Gingham and Gwydir include flood dependent woodlands (supporting ecological vegetation communities with dominant tree species such as coolibah and black box), floodplain wetland communities (supporting river red gum, coolibah woodlands and river cooba and lignum shrubland species) and semi-permanent wetlands (supporting species such as water couch, marsh club-rush, spike rush, tussock rushes, sedges and cumbungi), sometimes referred to as the 'core' wetland.



Dec 2014



March 2015



Oct 2015



March 2016

Vegetation sampling plot at Munwonga in the Gingham watercourse over the duration of the LTIM project

Environmental flows and lippia

Monitoring sites that were dominated by lippia, a serious environmental weed, benefited from inundation. The cover of water couch and flat spike-rush increased to an extent where they appeared to out compete lippia and reduced its coverage at sites that were inundated. The December 2014 image, above, shows a monitoring plot prior to inundation with lippia (with white flowers) being the dominant groundcover species. The remaining images were taken after inundation and show a dominance of water couch and flat spike-rush.



2014

Old Dromana - post fire

Recovery from fire – Old Dromana

In late March 2014 a wildfire burnt through Old Dromana in the Gwydir State Conservation Area, leaving the earth bare and scalded. Heavy follow-up rain and small inflows shortly after the fire increased the amount of bare ground and litter. Subsequent good rainfalls and delivery of environmental water resulted in a reasonably rapid recovery with marsh club-rush, tall spike-rush and budda pea tending to characterize these communities at the end of the water year. Interestingly more species of groundcover were recorded after recovery from the fire than were recorded before the fire swept through the area.



2014

Old Dromana - recovery from fire



2015



Water couch in foreground forming an abundant meadow across the wetland



White-necked heron

Water couch

Water couch is a widespread creeping perennial grass that doesn't mind getting its feet wet. It grows best in water up to 15 cm deep but can tolerate short-term flooding, thereby helping to stabilise riverbank and floodplain soils during times of inundation. When widespread and forming a floodplain meadow, water couch and other grasses such as swamp wallaby grass and barnyard grass, help dissipate and distribute floodwaters from the catchment. When these meadows are inundated they also provide important feeding habitat for waterbirds such as egrets, ibis, herons, spoonbills and some ducks.



Chestnut-breasted manikin. Photo by Pete Knock.

Sedges and rushes

Sedges and rushes are common in the Gwydir Wetlands and along the Gingham Watercourse, with species present including; flat spike-sedge, tall spike rush, tussock rush (Rushes are shown in background of main image above). They occur in high densities where water is ponded such as wetlands, depressions and floodplains. These communities provide important habitat for waterbird breeding, and unfortunately feral animals such as pigs.

Sedges and rushes play an important role in improving wetland water quality – their roots bind the soil and their stems and leaves slow the passage of water, trapping sediment. Many species also draw nutrients from the water, accumulating them in their stems and rhizomes (underground stems), providing longer term nutrient storage in the wetlands. Sedges and rushes also help to oxygenate the water and sediments, creating a healthy habitat for insects.

Christmas spiders and little grass birds also find shelter in sedges and rushes, these are particularly important mosquito predators.

Lachlan Copeland

SENIOR BOTANIST AND ECOLOGIST



Describe your role:

As a botanist I get out into the bush and document various aspects of the vegetation including the distribution and abundance of both native and introduced plants. I've had two trips to the Gingham Watercourse where my role has been to record all the plant species in a series of quadrats that have already been established a few years ago. I've also been lucky enough to have a trip much further west to the Warrego where I targeted frogs and waterbirds.

What does a regular day on the LTIM Project look like?

Early starts to beat the heat if it's going to be a hot one, and late nights if going frogging! We always try to leave room for a bit of down time though where I might sneak away with my camera for 20 mins to photograph some birds.

What's your most memorable LTIM Project moment so far?

Probably wading through mud up to

my knees in 35 degree heat and steamy humidity, all to get to the pre-established veg sites. On a brighter note it was also great to observe the difference in vegetation between my first and second trips to the Gingham Watercourse where it was super-wet and dry respectively. The water had all receded and water plants like tall Spike-rush and Azolla Fern had given way to small daisies and other annual herbs that were taking advantage of the drier, fertile soil.

What do you wish other people knew about the LTIM Project?

Just how dynamic the vegetation is in these wetlands and how quickly plants adapt to a change in the water regime. The different water levels also support a different suite of birds and other animals so anyone visiting just once may not be able to fully appreciate how diverse these systems can be.

Sharon Bowen

SENIOR ENVIRONMENTAL SCIENTIST



Describe your role:

I am an ecologist with the NSW Office of Environment and Heritage. I specialize in the health of wetland plant communities and their response to different watering strategies.

What does a regular day on the LTIM Project look like?

An early start and then a full day out in the beautiful wetlands counting plants and working with my colleagues. After driving to the site we set off on foot or on quadbike to our study plots where we mark out the plots with measuring tapes and record the numbers and health of the plants there.

What's your most memorable LTIM Project moment so far?

I think the most memorable LTIM moment was when we all got together for a group photo last autumn.

What do you wish other people knew about the LTIM Project?

I wish that more people knew that they can be involved in this work as we always need people to come and assist us. I also wish that people could see how beautiful the coolibah's are at sunset in the wetlands.



Department of Primary Industries



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