



The Southern bell frog. Annual flooding of key habitat may be necessary to ensure its survival. Photo Sascha Healy

Saving the Southern Bell Frog

By Margrit Beemster

THE Southern Bell Frog has its own band of champions, doing their best to ensure the survival of this endangered species.

The informal group, made up of landholders, scientists, and Department of Environment and Climate Change (DECC) staff, have been successful in getting an allocation of environmental water; in attracting funding for research projects and for creating drought refuges for the frogs.

Thirty years ago the Southern Bell Frog, a pretty frog, iridescent green with splotches of gold and black, was found throughout south-eastern Australia. Its call sounds like a motorbike and it is closely related to the Green and Golden Bell Frog, another endangered species found at Sydney's Homebush Bay.

Now, the frog is rare in NSW with populations known from a few locations along the Murrumbidgee and Murray Rivers.

Southern Bell Frogs have been

hit hard by changes to their environment caused by river regulation and altered flooding regimes. Recent successive dry years have further reduced and fragmented the wetlands on which the frog depends.

In 2007 the group successfully lobbied the NSW Minister for Climate Change, Environment and Water for an emergency wetland watering allocation of 10 gigalitres of environmental water (from water that had been set aside in the Water Sharing Plan for the Murrumbidgee River). It was a desperate bid to save the frogs, in dire straits because of the drought and a halt to all environmental water allocations in NSW for the 2007/8 season.

"We were weeks away from disaster," says Dr Skye Wassens, an ecologist with Charles Sturt University's Institute for Land, Water and Society.

"The numbers were extremely low. All the wetlands were dry. We were unable to find the frog in sites that used to have thousands," she says.

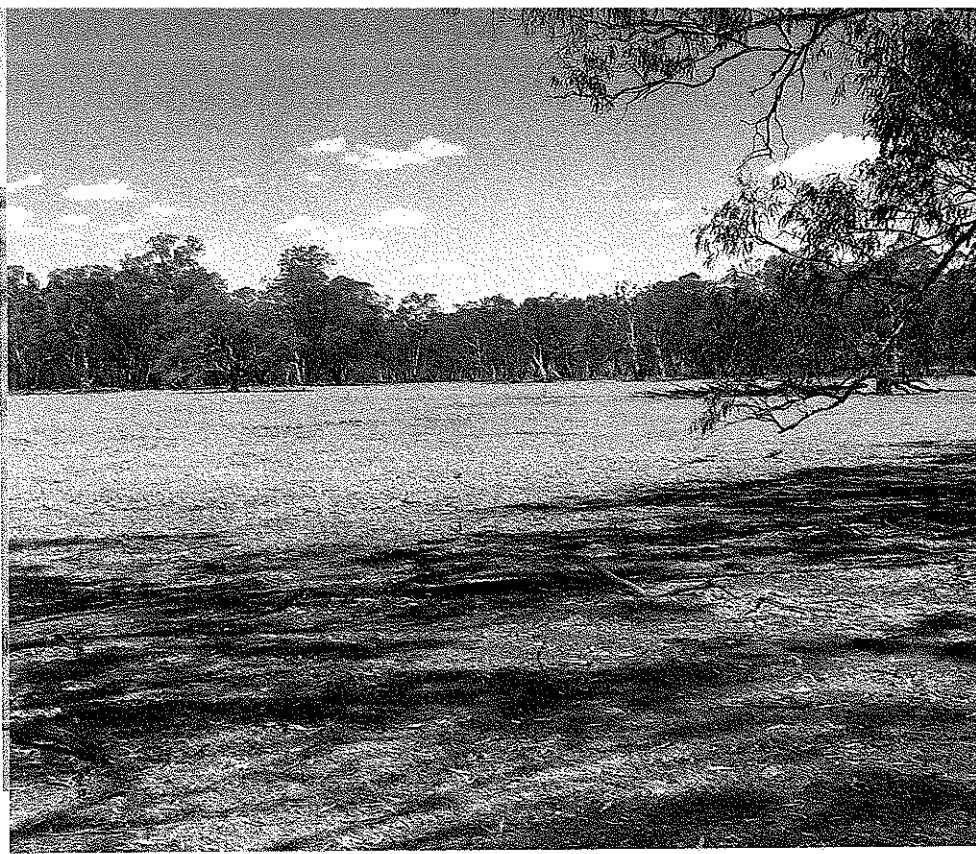
With the Minister's go-ahead for the release of a small amount of environmental water, Wassens (with input from State Waters Tom Davy, landholders, DECC and Yanga National Park staff) put together a decision making framework to decide which sites were likely to still have Southern Bell Frogs and should be watered. Between December 2007 and January 2008 six wetlands were flooded.

"We were able to save four populations," says Wassens "but by the time we watered Avalon Swamp it was too late."

In farm dam

In the process of monitoring the key populations, land holder Steve Blore identified a large group of Southern Bell Frogs in a farm dam used for watering stock.

"That dam had 100s if not 1000s of bell frogs in it – it was basically a refuge site for the frogs – but the dam was beginning to dry up and we were able to get some water into a channel between it and another site so the frogs could move," says Wassens.



ABOVE: Mercedes swamp prior to flooding with environmental water. Four populations of frogs were saved by the flooding (below).

Since completing her PhD in 2005, Wassens has continued her research into flooding responses and the impacts of altered flooding regimes on frogs in general.

“Frogs have just been ignored in planning for environmental flows even though we know they are really sensitive to altered flooding. A lot of my work has been trying to identify what the requirements are for different groups of frogs.”

One of her current projects, funded by the NSW Murray Wetlands Working Group, is “Optimising frog breeding responses to flooding in managed wetlands” looking at frog populations along the Murray to the South Australian border.

She says a lot was learnt from the emergency watering in 2007/08 and the follow-up monitoring and surveys. While there was good frog breeding at sites in Yanga National



Park in the open River Red Gum wetlands, some of the Black box-lignum wetlands in the Nimmie-Caira system, on private farmland had poor responses.

Carp eating tadpoles

"We had a lot of adults calling but didn't get many tadpoles. This seems to have been caused by the high density of carp which eat the frog's eggs and probably the tadpoles as well. The carp would also be competing for food."

With Wassens' assistance, the Nimmie-Pollen League, a group of Lowbidgee landholders wanting to save the frogs left on their properties, successfully applied for a \$50,000 Threatened Species Network Community Grant from the World for Wildlife Fund in 2008 to exclude carp from stock and domestic dams.

Frank Old, president of the Nimmie-Pollen League, said the funding the group had received would be matched by a similar contribution from concerned landholders.

"From our research we were able to identify the habitat required to get good frog recruitment and how farmers could change water management to get good outcomes. The funding will be used to modify existing dams, build turkey nests, dams, put in pumps so carp can be excluded, and to eradicate carp from existing dams," says Wassens

She says the monitoring done after the emergency watering indicates that the Southern Bell Frog is more sensitive to changing flooding frequency and to drought periods than previously thought.

"Annual flooding of key sites is essential for the frogs to survive," she says.

With this in mind, for the 2008/9 season, the landholders will use some of their domestic and stock water allowance to manage their Southern Bell Frog sites – they weren't able to do this 2007/08 as there was very limited stock and domestic water allocation.

"And we have a small environmental water allocation of 500 megalitres to try and hold the populations in Yanga National Park ... which may not be quite enough," says Wassens who has received a second grant from DECC to continue her research work in the area.

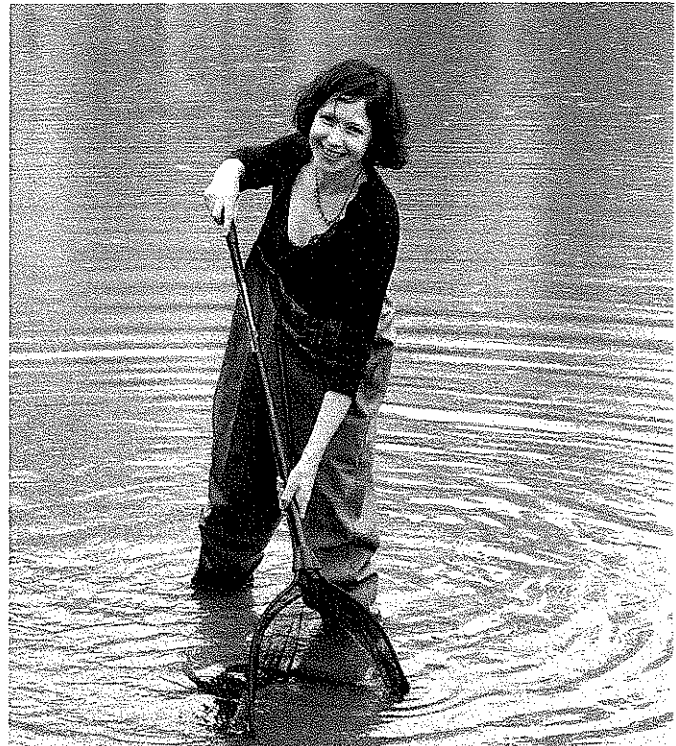
"We will be working with Jennifer Spencer and other DECC researchers to do a much more detailed assessment of fish and frog interactions in the wetlands. At the same time we will do a comprehensive study of the stock and domestic system to work out where the Southern Bell Frog is.

"We need to find the best way to use environmental water."

Wassens says the projects were a good opportunity to work with landholders "whose can-do attitude means that things can happen quickly ... and it's good to see all the research we've done over the last seven or eight years being really useful; coming together and solving problems".

Find out more:

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Skye Wassens searches for southern bell frogs.
Photo: Sascha Healy

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