



## Championing the Southern Bell Frog

Ecologist Dr Skye Wassens monitors the Southern Bell Frog. Photo: Catherine Scougall.

*By Margrit Beemster, Institute for Land, Water and Society, Charles Sturt University*

The Southern Bell Frog (*Litoria raniformis*) has its own band of “champions” doing their utmost to ensure the survival of this internationally endangered species. An informal group of landholders, scientists and staff from the NSW Department of Environment and Climate Change (DECC) has successfully secured an allocation of environmental water, funding for research projects and drought refuges for the frogs.

Thirty years ago the Southern Bell Frog - a pretty frog with 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 endangered Green and Golden Bell Frog.

Today, the frog is rare in New South Wales with populations known at a few locations along the Murrumbidgee and Murray Rivers. Southern Bell Frogs have been hit hard by changes to their natural 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 NSW Minister for Climate Change, Environment and Water agreed to deliver 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) to save the frogs, which were in dire straits due to the drought and subsequent halt to all environmental water allocations in NSW for the 2007-08 season.

Dr Skye Wassens, an ecologist with Charles Sturt University’s Institute for Land, Water and Society, said the frogs were “weeks away from disaster”. Dr Wassens had been asked by the DECC to assess the Lowbidgee region and the impact of the drought on Southern Bell Frogs in September 2007. “The numbers were extremely low,” she said. “All the wetlands were dry. We were unable to find the frog in sites that used to have thousands.”

With the release of a small amount of environmental water, Dr Wassens (with input from State Waters, landholders, DECC and Yanga National Park staff) determined which sites were still likely to have Southern Bell Frogs and could be watered. Between December 2007 and January 2008 six key wetlands were flooded: Warwaegae Dam, Avalon Swamp, Eulimbah Swamp within the Nimmie-Caira System, and Two Bridges, Mercedes and Pocock’s Swamps within Yanga National Park. “We were able to save four populations,” Dr Wassens said. “But by the time we watered Avalon Swamp it was too late.”

In the process of monitoring the key populations, landholder Steve Blore identified a large group of Southern Bell Frogs in a farm dam used for watering stock. “That dam had hundreds if not thousands of Bell Frogs in it,” Dr Wassens said. “It was

basically a refuge site for the frogs but the dam was beginning to dry up. We were able to get some water into a channel between it and another site so the frogs could move.”

Dr Wassens first became concerned about the Southern Bell Frog’s fate when working in consulting after graduating in 1997. “I realised that even though they were an endangered species, nothing was really known about them,” she said. In 2001 she commenced a PhD study looking at how Southern Bell Frogs responded to flooding and used different parts of the landscape at different times of the year. Since completing her PhD in 2005 Dr 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 a really sensitive group to altered flooding,” she said. “A lot of my work has been trying to identify what the requirements are for different groups of frogs.”

A lot has been learned from the emergency watering in 2007-08 and the follow-up monitoring and surveys. While there was good frog breeding in Yanga National Park in the open River Red Gum wetlands, the responses were poor in some of the Black box-lignum wetlands in the Nimmie-Caira system, which is on private farmland.

“We had a lot of adults calling but didn’t get many tadpoles,” Dr Wassens said. “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.”

In 2008, a group of Lowbidgee landholders wanting to save the frogs left on their properties successfully applied for a



Southern Bell Frog (*Litoria raniformis*).

\$50,000 Threatened Species Network Community Grant to exclude carp from stock and domestic dams. The funding, matched by a similar contribution from the landholders, will be used to modify existing dams, build turkey nest dams, put in pumps to exclude carp, and eradicate carp from existing dams.

The monitoring carried out after the emergency watering showed that the Southern Bell Frog was 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,” Dr Wassens said.

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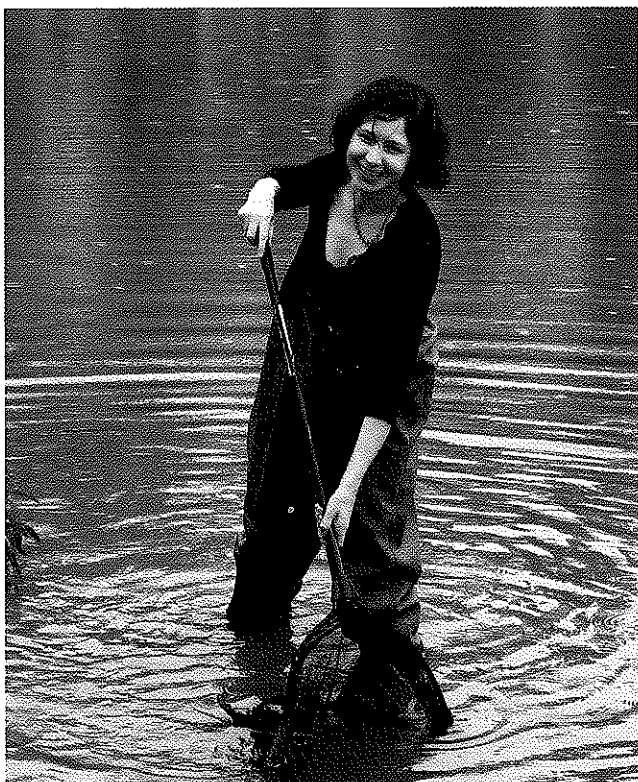
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With this in mind, for the 2008-09 season, the landholders will use some of their stock and domestic water allowance to manage their Southern Bell Frog sites. Landholders were not able to do this in 2007-08 as there was very limited stock and domestic water allocation.

“We also 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,” Dr Wassens said. “We will be working to do a much more detailed assessment of fish and frog interactions in the wetlands. At the same time we will do a much more comprehensive study of the stock and domestic system to work out where the Southern Bell Frog is. We need to find out the best way to use environmental water.”

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Dr Wassens has studied how the Southern Bell Frog responds to flooding. Photos: Sascha Healy.