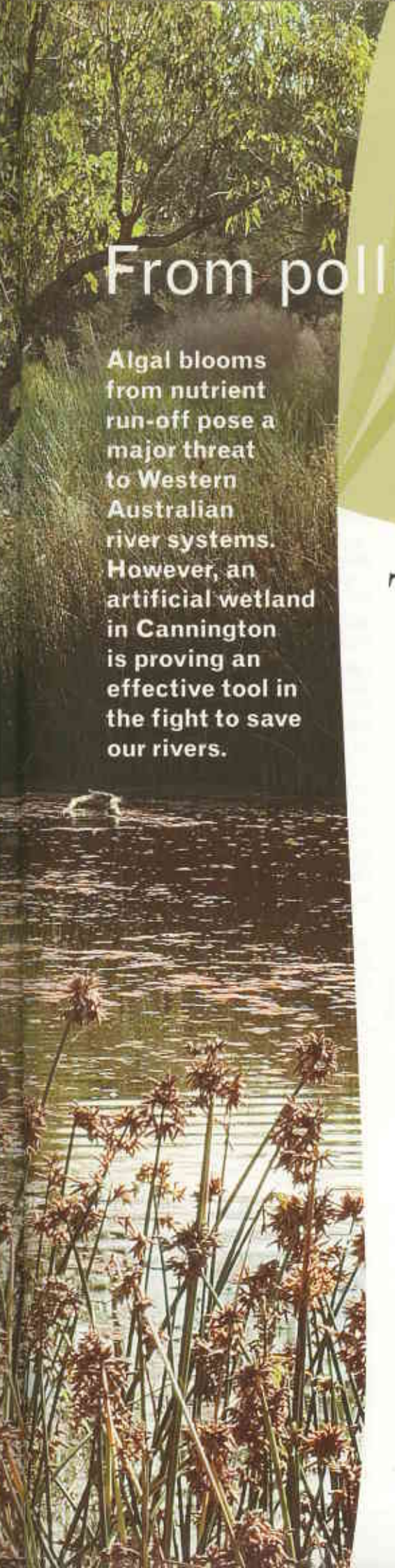

From polluted drain to healthy wetland

Algal blooms from nutrient run-off pose a major threat to Western Australian river systems. However, an artificial wetland in Cannington is proving an effective tool in the fight to save our rivers.

By **Rachel Spencer** and **Amanda Thomas**

The Swan–Canning river system, Western Australia's first official heritage icon, is a highly valued environmental, social and economic asset. However, since European settlement large sections of land surrounding Perth's rivers have been cleared and replaced with urban developments, industry and agriculture. Nutrient-rich run-off enters the river system through the drainage network, contributing to a decline in river health including regular algal blooms and seasonal fish kills.

Saving our rivers

In order to protect the environmental health of the Swan and Canning rivers by improving water quality, the Swan River Trust developed the Healthy Rivers Program. The program works towards reducing nutrients and other contaminants, minimising sediment loads entering the rivers, increasing oxygen levels and protecting and rehabilitating the river foreshores. The Healthy Rivers Program focuses on eight key areas, one of which is the Drainage Nutrient Intervention Program (DNIP).

DNIP sets the framework for onground works that strip nutrients from known nutrient-enriched drains before water is discharged into the rivers. Intervention works include the restoration of drains, re-establishment of tributary vegetation, wetland creation and the use of scientific products that remove nutrients.

The Liege Street Wetland in Cannington, 10 kilometres south-east of Perth city, is the DNIP's most significant project to date. It is a good example of how well-planned and constructed wetlands can tackle nutrients in a more natural way, provide ecological habitat and restore species diversity.

Creating an artificial wetland

Previously, three degraded drainage channels at the Liege Street site discharged high levels of nutrients directly into the Canning River, contributing to summer and autumn algal blooms. These drains were only a few metres wide, with little habitat, low water quality and limited aesthetic value. What little remnant vegetation remained was infested with weeds. Through the DNIP, the unsightly drains were converted into a diverse and attractive wetland, with the system acting as a filter to stop pollutants entering the Canning River.

The first step in creating the wetland was to install pollutant traps at each major drain outlet to trap floating litter. A bay was also constructed at the main inlet to collect, and allow removal of, sediment entering the wetland. A series of natural clay-lined ponds was then established to trap more sediment and improve aesthetics, while densely vegetated sumplands were created to filter nutrients. A weir at the wetland outlet was installed to recreate the floodplain and two internal weirs were added to enable water

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Main White ibis in restored habitat at Liege Street Wetland.
Photo – Alex Bond

Top Restored wetland.
Photo – Terrace Photographers

Left Birds like the mountain duck are returning to the restored Liege Street Wetland.
Photo – Amy Kimber

level manipulation. These steps created a system that removed nutrients and pollutants from water travelling through the wetland towards the Canning River. Islands were also added to the wetland, providing a refuge for nesting fauna from feral animal predation.

In addition, more than 70,000 native plants including 34 additional local native species were planted and weeds that were strangling native vegetation and destroying native fauna habitat were eradicated from the site. More than 144 volunteers contributed a total of about 76 days' work to help with the restoration works.

Now that the construction and planting stages of the project have been completed, education and monitoring strategies will be carried out. These will include the implementation of a visitor management plan and the installation of interpretative signage.

A new habitat

The development of the $700,000 Liege Street Wetland has been critical to restoring and protecting the Canning River and the bushland of the Canning River Regional Park. Preliminary monitoring shows the wetland has already reduced the amount of nitrogen and phosphorus flowing into the river waters by 33 and 45 per cent respectively. In addition, extensive planting has created 1.2 hectares of active wetland and 3.2 hectares of restored floodplain habitat.

Sightings of nesting turtles such as the oblong turtle (*Chelodina oblonga*) and evidence of increased bird life including the great egret (*Ardea alba*), purple swamphen (*Porphyrio porphyrio*) and the mountain duck (*Tadorna tadornoides*) demonstrate the environmental benefits of the project.

The project's success was recognised with two awards in 2006—a Western Australian Environment Award in the Bush, Lands and Waterways Category, and the National Award for Excellence in Stormwater Management from the Stormwater Industry Association.

Rachel Spencer manages the Swan River Trust's Drainage Nutrient Intervention Program.

Amanda Thomas was an Environmental Officer with the Swan River Trust.

The Liege Street Wetland project was developed in partnership with the Swan River Trust, South East Regional Centre for Urban Landcare, Two Rivers Catchment Group, the Department of Environment and Conservation, the City of Canning and the Water Corporation.

For more information on the project contact the Swan River Trust on (08) 9278 0900.

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Publishing credits
Executive editor Kaye Verboon.
Editors Rhianna King, Samille Mitchell, Carolyn Thomson-Dans.
Scientific/technical advice Kevin Kenneally, Paul Jones, Keith Morris.
Design and production Natalie Jolakoski, Tiffany Taylor, Gooitzen van der Meer.
Illustration Gooitzen van der Meer.
Cartography Promaco Geodraft.
Marketing Cathy Birch
Phone (08) 9334 0296 *Fax* (08) 9334 0432.
Subscription inquiries
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