



Volunteers make a difference



With invasive weeds appearing and habitat destruction occurring on their doorsteps, a passionate group of Perth hills residents decided enough was enough. They banded together, threw their hearts and souls into a rehabilitation effort and have restored much of the Piesse Brook valley to its former state.

By John and Linda Stanley

The Piesse Brook runs through a valley in the Perth hills to the east of Kalamunda. Orchards and residential properties surround the brook upstream before it runs through Kalamunda Shire reserve and the Kalamunda National Park into the Helena River. The brook is an important part of the Helena River Catchment that serves Perth with its water supply via the Mundaring Weir reservoir.

Ten years ago the habitat in the national park and reserve in the Piesse Brook valley was heavily infested with introduced plant species including watsonia, cotton bush (*Gomphocarpus physocarpus*), giant reed (*Arundo donax*), blackberries (*Rubus laudatus*) and pampas grass (*Cortaderia selloana*). The natural habitat in the valley had been destroyed.

Today, however, the picture is different.

Restoring Piesse Brook

In 2000, a handful of Piesse Brook locals, aware of the continued degradation of the wildlife habitat taking place on their doorstep, formed the Friends of Piesse Brook group. Their bold plan was to clean up the Piesse Brook valley and restore its natural habitat. Their target area comprised the banks of the brook from the entrance of Kalamunda National Park in Schipp Road, to where the brook entered the Helena River—a stretch of five kilometres.

The group's first challenge was to convince other local residents that the project was achievable. A plan was developed where weed eradication and revegetation would take place in stages over eight years. A street barbecue was organised, the plan was outlined, discussions took place and a committee was formed. The committee, led by group founder Linda Stanley, then approached the Shire of Kalamunda and the Department of Environment and Conservation (DEC) for advice and help.

What was at stake?

Piesse Brook valley is a flora-rich region home to an unusually diverse mix of eucalypts. The various soil types and changing topography of the valley harbour species including

jarrah (*Eucalyptus marginata*), marri (*Corymbia calophylla*), WA flooded gum (*Eucalyptus nidis*), wandoo, (*Eucalyptus wandoo*) and WA blackbutt (*Eucalyptus patens*). In addition, there is WA sheoak (*Allocasuarina fraseriana*), WA Christmas tree (*Nuytsia floribunda*), the four-sided sedge (*Lepidosperma tetraquetrum*) and the snottygobble (*Persoonia elliptica*).

Fauna in the valley includes the brushtail possum, southern brown bandicoot, echidna and grey kangaroo while bird life features the Carnaby's cockatoo, red-tailed black-cockatoo, red eared fire tailed finch, red-capped parrot, red wattlebird, Port Lincoln parrot, boobook owl and many more.

The survival of these species was at risk of being compromised if something was not done in the valley to remove the invasive weeds that had destroyed the natural habitat. The main problem was watsonia, a bulb native to South Africa that was introduced to Western Australia as an ornamental garden plant. The plant had taken over native vegetation in most of the valley, choking out the native understorey and creating a monoculture. Watsonia multiplies at an alarming rate. Two varieties of watsonia occur at Piesse Brook. *Watsonia meriana* var. *meriana* produces seeds and *W. meriana* var. *bulbifera* is sterile but produces stem-borne vegetative reproductive organs

referred to as 'bulbils'.

One plant produces an average of 15 cormils around its main corm as well as an average of 15 bulbils along its flower stem. That means that each year one plant can reproduce itself by a factor of 30. As such, a single plant can transform to 30 plants in a year, 900 plants in two years, 27,000 in three years, 810,000 in four years and 24,300,000 in just five years.

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Tackling the weed invasion

The technique used in Piesse Brook to bring the devastating watsonia weed under control involved dividing the working area into manageable segments to be targeted each year. Each segment had to be worked on as a primary zone in year one and then continue to be managed each following year. It was crucial to make sure that each zone was of a manageable size for the group to handle. The work plan began with the group going out during bud and



Previous page

Main Piesse Brook.

Photo – Alex Graham/Sallyanne Cousans Photography

Inset Friends of Piesse Brook collecting watsonia.

Photo – Linda Stanley

Above WA Christmas tree blossoms.

Photo – Sallyanne Cousans Photography



Above Collecting rubbish from Piesse Brook.

Photo – Linda Stanley

Above right *Watsonia* weed was introduced from South Africa.

Photo – Dennis Sarson/Lochman Transparencies



flowering periods to cut off the buds and flowers to prevent further seeding. Next, a contractor was employed to spray the foliage in September during the bud stage and before the flowers bloomed. The contractor used the frog-friendly variety of the chemical Roundup BioActive. The group then went into the selected working area and removed any seed corns that had survived to make sure they didn't seed any further.

The next growing season, the group returned to the previous year's working area and spot treated plants that had survived. The maintenance of each zone was important as the work progressed through the valley. In addition, the group progressed to the next working area needing primary control.

Near the water course, the stream was clogged with what is commonly known as bamboo. This species, introduced to Australia as an ornamental plant, is in fact giant reed, a form of tall grass, and not a true bamboo. The challenge with giant reed was different—to tackle this weed, the group had to cut down tall clumps of grass and then spray with poison. Each year there is a little regrowth

that again needs to be cut and sprayed until control is achieved. The good news is that once the main plant has been controlled there is hardly any problem with regrowth. What regrowth does come through can be killed off within three years of using this control method.

Blackberry from Europe was introduced into the Perth hills as a fruiting plant to remind new arrivals of home. However, the plant is well suited to the hills climate and quickly spread from gardens into the surrounding bush at an alarming rate. Friends of Piesse Brook controlled the spread of blackberry by spraying in summer with Trounce and then undertaking touch-up spraying using Roundup BioActive. Once sprayed, the plants needed to be checked each year and re-treated where necessary to control and prevent regrowth.

Once the main spraying has occurred, the work of the group intensifies. The bare soil is an ideal propagation area and the seeds of *watsonia* that have been dormant for years come to life and need to be controlled with a vigilant spray program.

Other weeds such as the large-leaved plantain (*Plantago major*) from Europe also enjoy the new environment. This is a plant that was probably introduced into the State by accident when early nursery owners brought in exotic plants.

Another weed that emerges is cotton bush. This can be controlled by hand weeding before it starts to flower.

If left until after flowering, the problem can intensify.

The use of chemicals

Using chemicals in the bush to control weeds caused concern for some residents who felt the problem should be tackled in a more natural way. Although one can agree with the principle of hand weeding noxious weeds in the valley, hand weeding a five-kilometre stretch of bush extending 30 metres wide was a task that none of the group was prepared to take on. They would have been fighting a losing battle as the weeds would have proliferated faster than they could be pulled. Plus, with hand weeding some bulbils would have been left in the ground and would have continued to multiply at a rapid rate.

The replanting effort

The part of the rehabilitation process that most people seem to enjoy is the planting stage. Native plants were purchased from the Shire of Kalamunda and provided by DEC. They were grown from local seed to ensure the natural stock of the valley was maintained. Planting first took place in winter 2001, two years after Friends of Piesse Brook cleared the land of weeds. Since then, some 15,000 seedlings have been planted. The group organised a Bushland Care Day where locals were invited to join in a planting day and a barbecue lunch. Together they planted tubes of more than 20 plant species including devil's pin (*Hovea pungens*), coral vine (*Kennedia coccinea*),



Left This juvenile red wattlebird is one of the species that occurs at Piesse Brook.
Photo – Sallyanne Cousans



Below left Rocky Pool, Piesse Brook.
Photo – Alex Graham/Sallyanne Cousans
Photography

two-leaf hakea (*Hakea trifurcata*) and prickly bitter-pea (*Daviesia horrida*). The Bushland Care Day was made as much fun as possible with novelty ideas introduced by the group to keep the day light and entertaining.

However, the real challenge was keeping the young seedlings alive during the hot summer months of the first two growing seasons. Many early plantings were lost due to lack of watering during summer. As a result, the group sought and obtained funding to set up a water tank and trailer that could be towed behind a vehicle. Two members of the group took on the arduous task of watering the seedlings throughout summer. Such watering increased the survival rate of the young plants enormously.

The group is now in the last stages of clearing weeds at the point where the Piesse Brook flows into the Helena

River. The initial objectives of the Friends of Piesse Brook have now been met, but the maintenance carries on. If maintenance is not carried out for a year, this can result in months if not years of weeding out new weed seedlings. This in turn could result in a huge loss in motivation for members.

Future plans

The group has been criticised for starting its work midstream in the national park as opposed to further upstream where weed growth begins on private properties. Some argued it would have been better to tackle the weed at its source before seeds were brought downstream in the flow of the river. However, the group felt it would be too big an ask to start on private property to solve the problem in the national park without any track record.

The example the group has since created in the national park has shown what can be done and this year the group has started work on private land upstream with the help of private landholders. A meeting was held in early 2006 to show private landholders with properties along the Piesse Brook what had been and could be achieved. To the group's surprise and delight, all but one resident attended the meeting and they agreed to start a weed clean-up program in which the group is involved. This meeting made the original objective of cleaning the brook of weeds from its source an achievable goal.

Friends of Piesse Brook continues to meet on the second Sunday of every month from April to November to work on the project. During the summer months, the bush is left to nature while the group enjoys the rewards of its hard work.

If you're interested in developing a friends group then our advice is to start now. Have a vision, sketch out a basic business plan, talk to your local shire and DEC about your goals, then just do it and enjoy the experience. Remember, it only takes a couple of people to make a big difference.

Linda Stanley is the instigator and secretary of Friends of Piesse Brook. She has a background in business development and is a keen gardener and conservationist.

John Stanley is a qualified horticulturist and consultant and speaker to horticultural and retail businesses around the world. He is a member of the Friends of Piesse Brook.

For more information on the Friends of Piesse Brook visit www.friendsofpiessebrook.org.au.

- 46 Bernier and Dorre: islands of marsupials, mice and men
Two islands off Carnarvon provide the last naturally remaining refuges for several native mammal species.
- 53 Marine Futures: pulling back the blue curtain
Ocean secrets are revealed by mapping and video surveys.
- 58 Close to home: fire management around the Perth metropolitan area
Managing fires in a biologically important area with high population density presents unique challenges.

Regulars

- 3 Contributors and Editor's letter
- 9 Bookmarks
François Péron: An Impetuous Life
Field Guide to Eucalypts Volume 2 South-western & Southern Australia
ANZANG Nature and Landscape Photographer of the Year
- 23 Endangered
Drummond's frankenia
- 30 Feature park
Kennedy Range National Park
- 62 Urban Antics
The *hib*

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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.
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