

RESTORING THE DEGRADED RIPARIAN CORRIDOR AND SILT PLUG AT POPES GLEN

overview of the project

Popes Glen Reserve is a small strip of bush located between the township of Blackheath and Blue Mountains National Park. Over many years, erosion of the soil from unsealed roads adjacent to the Reserve resulted in the development of a one hectare silt plug within Popes Glen Creek. A silt plug is a build up of silt in the river bed that impedes the flow of the stream. The silt plug had become heavily infested with willow and other weeds that were threatening to spread downstream into the National Park.

Popes Glen has a well established Bushcare group that undertook the challenge of rehabilitating the willow and weed dominated silt plug. They effectively managed to remove 80 percent of the willows, all the mid-storey weeds, which included privet, holly and cotoneaster and reduce ground cover weeds to a level that can be managed through regular visits to the site by the group. In addition to weed removal, the Bushcare group planted over 6,500 small trees, shrubs, ferns and sedges to recreate a swamp environment. This has resulted in the return of native fauna to what was a barren wasteland.



PHOTO COURTESY: ALAN LANE

Planting out the rehabilitated areas

how the project was carried out

This project required a staggered and tactical approach to the removal of the willows as their roots were stabilising the silt plug. There was also the potential for an explosion of the ground cover weed species if the canopy species were cleared too quickly, as it would leave the existing weed seed bank exposed to increased light and moisture which are good conditions for germination.

The approach taken to rid the area of weeds consisted of eradication of ground and mid-storey weeds species through hand weeding or cutting back and painting with herbicide. The mature willows were tackled next and they had one or two trunks poisoned and removed at a time. The total removal of some trees through



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Workers removing silt

this progressive approach took a number of years, this allowed light to enter while leaving the root structure in place to stabilise the area. The site was divided into sections and one section was worked on at a time.

To revegetate the site, seed from surrounding native bushland was collected and

propagated by the local community nursery. Planting of a diverse mix of species occurred once the weeds were removed from each section of the silt plug. The plantings were done at a high density in order to prevent the reoccurrence of weeds.

As a member of Streamwatch, Popes Glen Bushcare group regularly carried out water testing to monitor the effect of the revegetation program on the health of the stream. Both physio-chemical testing and macro invertebrate surveys were carried out. There was a significant reduction in pollution levels for water that was diverted to flow across the plantings.

outcomes now and in the future

The Popes Glen Bushcare group is well on its way to realising its long-term vision of converting the weed infested silt plug into an intermittently-flooded wetland, populated by native ferns, sedges and bushes, and inhabited by a diverse range of frogs, birds and insects.

The revegetated silt bed will eventually become a wetland that assists in the purification of the creek before it flows into the National Park. There has already been a 75–85 percent decrease in coliforms and 70–87 percent decrease in nitrates across the sites under low flow conditions.

benefits, challenges & lessons learned

The new environment created at this site has seen the return of a wide variety of native fauna to the area, including Superb Wrens, Eastern Spinebills, Satin Bower Birds, Maned Ducks, and a Tawny Frogmouth. On summer evenings, approximately five different species of frogs can be heard at the site.

Some of the early plantings met with a low success rate due to drought conditions in the region. To increase survival rates a temporary sandbag wall was built to divert some of the creek flow over the young plantings to maintain semi-permanent water inundation during this important establishment phase.

Acacia melanoxyton (Blackwood) was chosen as the main tree species to repopulate the silt plug, as it is a locally occurring species suitable for that environment. Initial plantings with this species suffered very high failure rates. The reasons for the failure was unclear and this has prompted the Bushcare group to conduct on going trials on whether animals, insects, microclimate or soil conditions are the cause.