In 2011 the Victorian Government committed $4 million per annum to reducing the impact of weeds and pests on public land.
Introduction

The Weeds and Pests on Public Land (WPPL) Program delivers asset based, landscape scale, collaborative weed and pest management to reduce the threat to Victoria’s native biodiversity on public land in accordance with Biodiversity 2037. On-ground projects delivered through the program include predator (Arks), weed (Edens) and herbivore control (Mallee Bounceback) and capability building projects – Weeds at the Early Stage of Invasion (WESI) and the Department of Environment, Land, Water and Planning (DELWP) Statewide and Regional Weed and Pest Coordination (see Figure 1).

This report highlights the program and project achievements from 2018-19 and demonstrates progress against the actions in the WPPL Strategic Framework. In 2018-19, the WPPL Program finalised four key objectives to guide the future direction of the program:

1. Build and support partnerships including with Traditional Owners and Aboriginal Victorians to integrate weed and pest management to deliver biodiversity outcomes
2. Contribute toward the delivery of Biodiversity 2037 weed and pest targets, reducing the threat posed to at-risk native species in priority locations.
3. Improve awareness of, and capacity to manage the threats of weeds and pests impacting on biodiversity values
4. Improve management of weeds and pests through supporting research and effective monitoring, evaluation and reporting

Figure 1: Map of WPPL project areas in 2018-19
Delivery against WPPL Strategic Framework in 2018-19

1. Build and support partnerships including with Traditional Owners and Aboriginal Victorians to integrate weed and pest management to deliver biodiversity outcomes

1.1 Develop a strategic plan linking WPPL to Biodiversity 2037
The WPPL Strategic Framework was endorsed by the Biodiversity Portfolio Group in August 2018. A long-term strategic plan for the program was drafted in late 2018. Biodiversity Division, Forest, Fire and Regions (FFR) and Parks Victoria are currently developing the ‘Strategic framework for terrestrial species on public land in Victoria’ as a result of feedback on the strategic plan. The aim of the strategic framework is to provide guiding principles on invasive species management on public land in Victoria. The WPPL Strategic Framework has been updated for 2019-20 including links to the Sustainable Development Goals.

1.2 Develop an investment framework
The WPPL Investment Framework 2019-21 was endorsed by the Biodiversity Executive team in December 2018. One aim of the investment framework is to demonstrate the value of undertaking long-term foundational activities whilst aligning project delivery to Biodiversity 2037.

Total investment to deliver the WPPL program in 2018-19 was $4.1 million, $3.1 million of which was directly invested through the program and a further $1 million was provided in-kind through delivery partners Parks Victoria and the FFR Group.

1.3 Coordinate strategic approaches with other investment programs (Biodiversity Response Planning and National Landcare Program 2) to deliver multiple benefit outcomes in Victoria’s highest biodiversity areas
A measure of success in undertaking long-term foundational activities under the WPPL program is the ability to deliver integrated threat management across these landscapes through other funding mechanisms such as Biodiversity Response Planning (BRP) and the National Landcare Program.

Figure 2: Integrated threat management in the Grampians
The Grampians region is delivering an integrated whole-of-ecosystem predator (fox, feral cat) and herbivore (deer, rabbit, goat) management program through the WPPL Program and BRP (see Figure 2). This program improves habitat suitability for native flora and fauna in the Grampians and provides strong conservation outcomes for threatened species susceptible to predation, such as the Heath Mouse and the Smoky Mouse. It also improves the chances of rare or threatened plant species vulnerable to grazing persisting into the future, such as Grampians Duck Orchid, Grampians Sheoak, Candy Spider-orchid and Grampians Spider-orchid.

1.4 Develop a Weed Knowledge Centre
An outline for a Weed Knowledge Centre (WKC) has been developed through the WESI project and contributes to completion of action 17.2 in the Biodiversity 2037 Implementation Plan. Compilation of content for 20 species was completed in 2018-19 and the WKC database was uploaded onto DELWP’s Spatial Temporal and Activity Recording (STAR) system. Future development of the WKC will require consideration of additional resourcing.

1.5 Support the delivery of DELWP’s Aboriginal Inclusion Plan 2016-2020 Munganin Gadhaba ‘Achieve Together’ and;
1.6 Increase opportunities to partner with Aboriginal Victorians
The WPPL program provides opportunities for Traditional Owners and Aboriginal Victorians to be partners and leaders in the management of weeds and pests. Examples from 2018-19 include:

- The Program Working Group established in May 2018 includes Traditional Owner representation from Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC).
- Parks Victoria employed a member of the First People of the Millewa-Mallee Aboriginal Corporation (FPMMAC) to monitor rabbit control in sensitive areas in Murray Sunset National Park.
- Southern Ark partnered with the Moogji Aboriginal Council and GLaWAC to support delivery of the fox-baiting program in specific areas of the project.

2. Contribute towards the delivery of Biodiversity 2037 weed and pest targets, reducing the threat posed to at-risk native species in priority locations.

2.1 Undertake landscape scale weed and pest control in priority locations

Change in Suitable Habitat
On-ground management actions through the WPPL program in 2018-19 contributed to a 5.24% increase in suitable habitat for all native species in Victoria (based on continued management over a 50-year time period).
<table>
<thead>
<tr>
<th>Projects</th>
<th>Hectares of control</th>
<th>Alignment with priority locations*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predators (Arks)</td>
<td>1,415,000</td>
<td>43%</td>
</tr>
<tr>
<td>Weeds (Edens)</td>
<td>775,000</td>
<td>25%</td>
</tr>
<tr>
<td>Herbivores (Bounceback)</td>
<td>335,000</td>
<td>63%</td>
</tr>
</tbody>
</table>

*Alignment with priority locations figures are approximate alignment of control activities with the top 20% of cost-effective actions in Strategic Management Prospects.

Combined Ark project bait take*

<table>
<thead>
<tr>
<th></th>
<th>Baits laid</th>
<th>Baits taken</th>
<th>Bait take</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63,535</td>
<td>6,959</td>
<td>11%</td>
</tr>
</tbody>
</table>

*Southern, Glenelg and Grampians Arks

Combined Eden project weed treatment*

<table>
<thead>
<tr>
<th>Eradication**</th>
<th>Containment</th>
<th>Asset Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hectares</td>
<td>Species</td>
<td>Hectares</td>
</tr>
<tr>
<td>18.2</td>
<td>80</td>
<td>20,376</td>
</tr>
<tr>
<td>183,173.7</td>
<td>128</td>
<td></td>
</tr>
</tbody>
</table>

*Remaining hectares out of the 775,000 hectares of control made up of surveillance activities across project areas

**High risk environmental weed species being managed for eradication as per WESI protocol

Mallee Bounceback rabbit control activities*

<table>
<thead>
<tr>
<th>Hectares of treatment</th>
<th>Warrens fumigated</th>
<th>Warrens ripped</th>
<th>Km of bait trail</th>
</tr>
</thead>
<tbody>
<tr>
<td>91,249</td>
<td>5,824</td>
<td>2,601</td>
<td>50</td>
</tr>
</tbody>
</table>

*Remaining hectares out of the 335,000 hectares of control made up of surveillance activities across project area

2.2 Undertake monitoring to inform biodiversity outcomes

Monitoring is a key strategy for the WPPL Program to determine management effectiveness, assess biodiversity outcomes and report against the objectives of the program. Monitoring allows projects to test and refine key assumptions in weed and pest management and inform adaptive management where required (e.g. modification of design and/or methodologies).

All projects undertake output monitoring (see Section 2.1), while some projects undertake effectiveness and outcome monitoring to establish causation between management actions and biodiversity outcomes.

Long-term project monitoring also provides direct evidence where systems are not responding as expected to on-ground management activities. One example is the lack of response by critical weight-range mammals within the Ark project areas. Southern, Grampians and Glenelg Arks have all reported lower than expected numbers of Southern Brown Bandicoots and Long-nosed Potoroos, despite effective fox control activities.

“The lack of a significant response in Southern Brown Bandicoot and Long-nosed Potoroo is of concern. After 13 years of fox control, if the fox population has been reduced to levels low enough to allow for population growth in these species, it would be reasonable to expect a greater level of response.”

ARI Technical Report No.297
2.3 Utilise Strategic Management Prospects to support decision making
A Strategic Management Prospects (SMP) analysis was conducted in March 2019 for each on-ground WPPL project to provide a quantitative assessment of how each project benefits biodiversity in accordance with Biodiversity 2037. This analysis assisted a project review panel in April 2019 to make recommendations for a further two years of funding (until June 2021) for the WPPL Program.

2.4 Prepare landscapes for re-introductions and translocations
Ongoing predator baiting and monitoring in the Southern and Grampians Arks supports the recovery of Brush-tailed Rock Wallabies. The Little River Gorge colony in East Gippsland increased from 10 individuals in 2005 to 41 known animals in 2018. Two individual males were released into the Grampians reintroduction site in October 2019 to improve genetic viability.

3. Improve awareness of, and capacity to manage the threats of weeds and pests impacting on biodiversity values

3.1 Promote the overarching benefits of weed and pest control to the environment, community and business sector through development of a communications and engagement plan.
A draft WPPL communications and engagement plan was developed to provide overarching direction and guidance on communications and engagement across the program. A communications and engagement log was established so projects could consistently report against communication and engagement targets and activities.

Over 6,000 people engaged through WPPL project activities in 2018-19

3.2 Communicate key outputs and biodiversity outcomes against Biodiversity 2037 targets
A WPPL website and infographic were developed in 2018 to highlight program and project achievements. Project outcomes have been showcased through media releases and social media posts. A 2018-19 report card is under development to communicate key program achievements.

Figure 4: Key communications and engagement activities delivered by WPPL projects in 2018-19

753 volunteer hours
Over 7,500 social media followers
166 training attendees

Over 6,000 people engaged through WPPL project activities in 2018-19

Figure 4: Key communications and engagement activities delivered by WPPL projects in 2018-19
3.3 Investigate opportunities for environmental volunteering activities to assist in project delivery
Whilst the focus of the WPPL program is on-ground delivery, projects also looked at innovative opportunities to work with environmental volunteers. Examples include:

- Glenelg Eden partnered with the South West Woody Weeds Action Team to assist with on-ground delivery, including providing training on data capture and outcome reporting.
- Central Highlands Eden facilitated a vehicle hygiene training session, including members of 4WD Victoria.
- Mallee Bounceback has a strong working relationship with the community-led Victorian Rabbit Action Network.
- Two successful community baiting programs were delivered in the Southern Ark.
- The Panyyabur Landcare Group project, Grampians to Grasslands Fox control program, undertakes fox control on 32,000 ha of private land in the Victoria Valley to compliment the Grampians Ark.

- There are opportunities for to expand community partnerships in 2019-20, including with environmental volunteers.

3.4 Support knowledge sharing (capability building)
The WPPL Program funded two specific capability building projects in 2018-19, the WESI project and the DELWP statewide and regional weed and pest coordination delivered by FFR. The WESI team presented at the Triennial Australasian Weeds Conference where project manager Kate Blood was awarded the Council of Australasian Weed Societies (CAWS) Medal for Leadership.

Examples of capability building activities include three early invader weed workshops delivered through the WESI project to 66 participants. These workshops covered early invader weeds in the Otways, Mornington Peninsula and Opuntioid cacti in Victoria’s North East.

4. Improve management of weeds and pests through supporting research and effective monitoring, evaluation and reporting

4.1 Develop program monitoring plan
The Arthur Rylah Institute has been engaged to develop a WPPL Monitoring Plan. As part of this work, FoxNet population modelling has been completed for three Ark projects (see case study below), and a Weed Monitoring Protocol will be rolled out across the Eden projects in 2019-20.

4.2 Assist with continual improvements for SMP
Biodiversity Division utilised the WPPL Ark projects to improve calculation of effectiveness for fox baiting in the 2018 State of the Environment Report. A two kilometre buffer was placed around bait stations to give a better understanding of area of effectiveness, compared to the previous method of drawing polygons around the area being baited. This updated method improved DELWP’s ability to report on the contributing targets outlined in Biodiversity 2037.

4.3 Contribute to outcomes of Biodiversity 2037 Monitoring, Evaluation and Reporting Framework
Several university projects were involved in WPPL projects in 2018-19, including investigating the effects of fox control on feral cat densities, long-term small mammal monitoring in the Grampians, the impact of fire and predator management on Southern Brown Bandicoots and the impact of deer on...
weed dispersal. The WPPL Program will continue to provide opportunities for research institutes to address key weeds and pests knowledge gaps in alignment with the Biodiversity 2037 Knowledge Acquisition Framework.

STAR field data capture through ArcGIS collector was trialled in the Southern and Glenelg Ark projects in 2018-19. Grampians Ark has been using ArcGIS collector for several years, however work is required to link this to the STAR system. The Eden projects collect field data using various data collection methods that are similar but not consistent across all projects. Limitations with STAR mean that STAR field data capture is not currently possible for Eden projects.

4.4 Undertake biodiversity outcome monitoring to evaluate the program benefits
Refer to section 2.2.

4.5 Develop program evaluation plan
A WPPL Action Plan was developed in 2018-19 and outlines how the program will implement the 48 recommendations from the 2017 WPPL program evaluation. An evaluation plan for the WPPL Program is proposed for 2019-20.

**FoxNet Population Modelling**

FoxNet (Hradsky et al. 2019) is an individually based, spatially explicit population model that simulates predator movements throughout a landscape by incorporating parameters on dispersal and home ranges as a function of resource availability. To simulate the probability of reinvasion, the model encompasses a population over an area outside the area of conservation interest, (i.e., the area land managers are aiming to reduce the fox population over to protect some biodiversity asset(s)) that will act as source population.

FoxNet was used to predict fox density in the three WPPL Ark projects and the probable level of reduction achieved since baiting began compared to a no-baiting model. A target reduction of >65% was set as the level needed to stop fox population growth. All WPPL Ark projects exceeded this level, however reductions were most common within the core area, with lower levels of reduction predicted around the perimeter.

![FoxNet Population Modelling Figure](image)

Figure 6: Modelled reduction in fox density in Southern, Glenelg and Grampians Arks
2018-19 Project Activities and Achievements

Mallee Bounceback

The Mallee Bounceback is a rabbit control project aiming to protect and restore the biodiversity of semi-arid non-eucalypt woodlands in the Mallee. Collaboration with traditional owners, other agencies and land managers has been key to successful project delivery, ensuring a cross-tenure approach at the landscape scale to undertake effective rabbit control. The project is delivered by Parks Victoria in partnership with DELWP, Mallee Catchment Management Authority, Wimmera Catchment Management Authority, Trust for Nature, the First People of the Millewa-Mallee Aboriginal Corporation (FPMMAC) and the Barengi Gadjin Land Council.

2018-19 activities and highlights include:

- The Mallee Bounceback project was delivered across 335,000 hectares. Rabbits were treated on 91,249 hectares.
- Rabbits were maintained at less than one rabbit per spotlight kilometre on over 94% of 800km of transects.
- Ripping resumed for the first time in four years at Taparoo and Raak Plain in Murray Sunset National Park in partnership with the FPMMAC.
- Parks Victoria employed a full-time Mallee Bounceback Project Officer in January 2019 to coordinate delivery of the project.
- Parks Victoria employed a representative of the FPMMAC to monitor rabbit control in sensitive areas of Murray Sunset National Park.
- The RHD K5 virus was re-released at five locations in Murray Sunset National park in partnership with the Millewa Landcare Group, although with limited success.
- Delivered training to 27 agency staff and 20 contractors on warren fumigation and cultural heritage protection.
- Added 50 new Rapid Rabbit Assessment (RRA) monitoring sites in Millewa North Management Zone.
- Three Parks Victoria staff attended Leadership in Rabbit Management training delivered by the Victorian Rabbit Action Network at Neds Corner Station.
- Complimentary rabbit control was delivered in nearby areas through BRP projects, which will benefit restoration of semi-arid woodlands in North West Victoria over the next two years.
- Two articles were published in local and national media publications to promote the positive outcomes of sustained rabbit and other grazing control in the Mallee.
- Traditional Owner involvement increased over the last 12 months through various actions including protection of cultural values and representation on the Mallee Bounceback Working Group.
Southern Ark

The Southern Ark project in Far East Gippsland aims to reduce the number of foxes and support the recovery of native animal populations including the Long-footed and Long-nosed Potoroo, the Southern Brown Bandicoot and the Southern Brush-tailed Rock-wallaby. The project is delivered by DELWP in partnership with Parks Victoria, Moogji Aboriginal Corporation, Far East Victoria Landcare and the Field Naturalists Club of Victoria.

2018-19 activities and highlights include:

- The Southern Ark team engaged with landholders from Deddick/Tubbut/Bendoc/Bonang, Bete Bolong/Jarrahmond, Marlo Plains, Cann Valley, Wangarabell/Genoa and Gelantipy in two successful community baiting programs.
- 30 primary school students, 15 secondary school students and 70 tertiary students took part in hands-on wildlife handling experiences at Cape Conran, as well as on-site presentations about fox control and the Southern Ark project.
- Beach-baiting recommenced on the remote coastline east of Mallacoota Inlet, as part of the BRP project aimed at improving the status of the Eastern Bristlebird.
- The Southern Ark team worked closely with both the Moogji Aboriginal Council and GLaWAC in 2018-19, with both groups taking over the fox-baiting program in specific areas of land. Southern Ark will continue to look for opportunities for these Indigenous groups to collaborate with Southern Ark in 2019-20.
- Southern Ark worked in close collaboration with the Wild Dog program and deployed dog-strength baits at specified bait stations within the livestock protection barrier (9,662 baits deployed during 2018-19).
- The biennial Southern Ark monitoring program will be delivered in 2019-20.

<table>
<thead>
<tr>
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<th>Baits Laid</th>
<th>Baits Taken</th>
<th>Bait Take</th>
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<tbody>
<tr>
<td>895,000</td>
<td>28,885</td>
<td>2,308</td>
<td>8%</td>
</tr>
</tbody>
</table>

Figure 8: Snow at the Tingaringy summit
Glenelg Ark

The Glenelg Ark project is a collaborative landscape-scale fox control project in South West Victoria. The project is delivered by DELWP in partnership with Parks Victoria, Agriculture Victoria, Glenelg Hopkins Catchment Management Authority, the Arthur Rylah Institute and the University of Melbourne.

2018-19 activities and highlights include:

- All 240 monitoring cameras were deployed this financial year.
- Fox activity was 88% higher across non-treatment monitoring locations (NTMLs) than across treatment monitoring locations (TMLs).
- Population modelling through FoxNet predicts fox density to be 72.6% lower than pre-baiting densities, which was achieved after three years of simulated baiting and is predicted to remain low under the current management strategy.
- On average, Long-Nosed Potoroos occupied 19 sites across TMLs compared to 12 across NTMLs. The number of sites occupied by potoroos across NTMLs has declined from 13 in 2011 to 4 sites in 2018-19. The number of sites occupied on TMLs has remained relatively constant.
- Since baiting began in 2005, Southern Brown Bandicoots have on average occupied more sites on TMLs compared with NTMLs. Between 2015 and 2018, Southern Brown Bandicoot occupied more sites on TMLs than on NTMLs.
- Common Brushtail Possums occupied the most sites overall and showed a clear difference in occupancy. Since 2005, Common Brushtail Possum have on average occupied 52% of sites across the TMLs compared with 42.5% of sites across NTMLs. Since 2010, Common Brushtail Possums have occupied on average 16 more sites on TMLs compared with NTMLs.
- FoxNet modelling suggests that any reduction in baiting effort could easily result in a rapid loss of the gains made to date.
- Glenelg Ark has received extra funding through the BRP program to trial feral cat control and, where appropriate, integrate with fox control.
- As part of a new Memorandum of Understanding with Gunditj Mirring, the project will increase Traditional Owner engagement activities in 2019-21.

<table>
<thead>
<tr>
<th>Hectares</th>
<th>Baits Laid</th>
<th>Baits Taken</th>
<th>Bait Take</th>
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<tbody>
<tr>
<td>90,000</td>
<td>13,208</td>
<td>1,713</td>
<td>13%</td>
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</table>

Figure 9: Southern Brown Bandicoot
Grampians Ark

The Grampians Ark project delivers fox control across the Grampians National Park, Black Range State Park, Grampians State Forest and adjoining private land. The project is delivered by Parks Victoria in partnership with DELWP, the Panyyabur Landcare Group and the Victorian Brush-tailed Rock-wallaby Recovery Team.

2018-19 activities and highlights include:

- Percentage bait take has increased over 2% from 2017-18.
- Predator monitoring indicates that fox occupancy rates remain high in the Grampians. Foxes were detected at 85% of sites in spring 2018 compared to 73% of monitoring sites in spring 2017.
- High bait take rates combined with steadily high detection rates of predators suggests that the current baiting regime needs refinement to improve efficacy in the long-term.
- The Victoria Valley community baiting program, delivered by Panyyabur Landcare Group, completed 3 bait pulses.
- 31 foxes were removed in high conservation value areas during 1876 soft jaw trap nights.
- Deakin University’s long-term monitoring made 692 captures of eight species (74% native) during 9360 small mammal trap nights.
- Smoky mouse capture rates have been positive, with 12 smoky mice live captured during 300 trap nights, confirming both persistence and recruitment. 13 species were detected on camera traps, including three threatened species (Southern Brown Bandicoot, Smoky Mouse, Heath Mouse).
- Engaged with community/Landcare groups and volunteers at seven different events, including a presentation for Stawell Urban Landcare Group.
- Preparations have been made for on-ground works to be delivered by in-house staff rather than contractors.
- Established a long-range wireless camera monitoring system at the Moora Brush-tailed Rock-wallaby reintroduction site.

<table>
<thead>
<tr>
<th>Hectares</th>
<th>Baits Laid</th>
<th>Baits Taken</th>
<th>Bait Take</th>
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<tr>
<td>235,000</td>
<td>21,442</td>
<td>2,938</td>
<td>13.7%</td>
</tr>
</tbody>
</table>

Figure 10: Cellular camera monitoring hardware installed at Moora to monitor Brush-tailed Rock-wallaby population
**Central Highlands Ark**

Central Highlands Ark was funded through the WPPL program from 2011-2019. The project was a landscape-scale fox baiting project aimed at reducing the threat of introduced predators to native fauna, specifically small mammals, birds, reptiles and amphibians. The project was delivered by DELWP 2018-19 activities and highlights include:

- Fox control over 150,000 hectares of the Victorian Central Highlands.
- Central Highlands Ark partnered with the Wild Dog Control Program to jointly deliver the works programs in the same area.
- There is anecdotal evidence, such as comments on social media sites, that people are more aware and understanding of the fox baiting and are generally positive about it after approximately six years of baiting.

**Barry Mountains**

The Barry Mountains Fox Control project delivers continuous baiting of Red Foxes to maintain a low population and reduce the threat of predation on native fauna, particularly the Long-footed Potoroo. It aims to improve the sustainability and increase the population of the Long-footed Potoroo population in North East Victoria. The project is delivered by Parks Victoria in partnership with DELWP.

2018-19 activities and highlights include:

- Fox control over 45,000 hectares in the Barry Mountains.
- Creation of a Project Control Group to assist the Project Working Group with project challenges, including the ongoing tensions between members of the hound deer hunting community and the use of 1080 poison in the first 6 weeks of the hound hunting season.
- Funding is available for the design and implementation of a monitoring program, with monitoring to begin in autumn 2020.
- Four off-label reports are required due to bushfire, track maintenance, early snow and possible poisoning of a wild dog.
- Positive feedback was received about the thoroughness of the risk assessment and mitigation strategy document.
- Positive feedback from the Victorian Hound Hunting Association regarding improved communication and signage.

*Figure 11: Long-footed Potoroo*
Central Highlands Eden

Central Highlands Eden is a landscape-scale weed management project across nearly 400,000 hectares of public land in Victoria’s Central Highlands. The project aims to detect and remove high risk weeds that threaten biodiversity. It also focuses on preventing establishment of new weed species and delivers weed identification and management training for local land managers, agency staff and community groups. The project is delivered by DELWP in partnership with Parks Victoria, Melbourne Water, Baw Baw Shire, VicRoads, Yarra Ranges Shire and Lake Mountain Alpine Resort, West Gippsland Water, West Gippsland CMA, SP AusNet, Walhalla Board of Management.

2018-19 activities and highlights include:

<table>
<thead>
<tr>
<th>Total project area*</th>
<th>Eradication**</th>
<th>Containment</th>
<th>Asset Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hectares</td>
<td>Hectares</td>
<td>Species</td>
<td>Hectares</td>
</tr>
<tr>
<td>390,000</td>
<td>5</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>

*Remaining hectares of control made up through surveillance activities across the project areas.

**High risk environmental weed species being managed for eradication as per WESI protocols.

- The Central Highlands Eden team worked closely with the Bushfire Rapid Risk Assessment Team to identify priority weed control recovery work using the ‘Post-fire weeds triage manual’ following four fires impacting on the project area in 2018-19.
- WeedStop vehicle hygiene training was facilitated for a fourth year, with participants including land managers, contractors and 4WD club members.
- 15 eradication species and 14 containment species were targeted, including four biological control target species. Eradication target species are on track to achieve eradication.
- The sixth year of biodiversity monitoring was undertaken in line with the project monitoring strategy and indicated a positive increase in species diversity in some weed control areas.
- Complementary weed control works to the value of $794,765 were delivered by partner agencies.
- Central Highlands Eden hosted the annual WESI and Eden meeting and field trip.
- Coordinated the Central Highlands Eden annual field trip with Melbourne Water, who showcased their Red Cestrum eradication program.
- Central Highlands Eden recorded a 300% increase in rare or threatened species diversity within monitoring plots where weed control had occurred.
- Central Highland Eden staff presented at the biennial Victorian weeds conference
- Central Highlands Eden is working with the Department of Jobs, Precincts and Regions (DJPR) on biological control targets.

Figure 12: Eden and WESI field trip hosted by Central Highlands Eden
Otway Eden

Otway Eden is a landscape scale weed control project to protect native plants and animals and restore the biodiversity of the Otway Ranges parks and reserves. The project is delivered by Parks Victoria in partnership with DELWP, VicRoads and local government.

2018-19 activities and highlights include:

**Total project area**

<table>
<thead>
<tr>
<th>Hectares</th>
<th>Eradication**</th>
<th>Containment</th>
<th>Asset Protection</th>
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</thead>
<tbody>
<tr>
<td>160,000</td>
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<tr>
<td></td>
<td>30</td>
<td>8</td>
<td>15</td>
</tr>
</tbody>
</table>

*Remaining hectares of control made up through surveillance activities across the project areas.
**High risk environmental weed species being managed for eradication as per WESI protocols.

- Otway Eden completed a weed monitoring and mapping project in the Angahook/Bald Hills Asset area and adjoining public land over approximately 139 sites. Results will be analysed and compared with the monitoring completed in 2011.
- Results of South African Weed Orchid control have been very encouraging, although there has been identification of further sites on private property, which will require a concerted cross-tenure control program with cooperation from multiple government agencies.
- Presented to the Otway Threatened Species Network forum highlighting the Otway Eden project and the Otway Environment program.
- Produced display material about threats to the environment in the Otways, which was utilised at the Angair Show in Anglesea and the Aireys Inlet market, where project officers attended and answered questions.
- Met with Wadawurrung to discuss aspirations and opportunities for Traditional Owners across the Otway Environment Program.

Figure 13: Boneseed
Glenelg Eden

Glenelg Eden is a landscape-scale weed control project in South West Victoria. The project aims to reduce the impact of pest plants, preserve environmental values and give species, such as the vulnerable Blotched Sun-orchid and the threatened Long-nosed Potoroo, the best chance to succeed. The project is delivered by DELWP in partnership with Parks Victoria, DJPR, Glenelg Hopkins Catchment Management Authority, VicRoads and the Glenelg Shire Council.

2018-19 activities and highlights include:

- 78% of all listed infestations have been visited and/or treated in 2018-19, with a reduction in cover for most infestations.
- Glenelg Eden discovered and catalogued seven new infestations across the landscape, most of which fit a pattern of green waste dumping on Crown land.
- The season was heavily disrupted by emergency management commitments, yet the project was still able to deliver on all core activities, particularly due to starting the season early. Some aspirational tasks were postponed.
- Glenelg Eden was active in community engagement and attended two field days, made one school visit, and worked with the South West Woody Weeds Action team to deliver on mutual outcomes.

<table>
<thead>
<tr>
<th>Total project area*</th>
<th>Eradication**</th>
<th>Containment</th>
<th>Asset Protection</th>
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<td>Hectares</td>
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</tr>
<tr>
<td>225,000</td>
<td>3.2</td>
<td>35</td>
<td>281</td>
</tr>
</tbody>
</table>

*Remaining hectares of control made up through surveillance activities across the project areas.
**High risk environmental weed species being managed for eradication as per WESI protocols.
**Weeds at the Early Stage of Invasion (WESI)**

The WESI project is a capability building project that supports Victorian public land managers to identify, manage and reduce weeds that are in the early stage of invasion and a threat to biodiversity. The project is delivered by DELWP in partnership with Parks Victoria and DJPR.

2018-19 activities and highlights include:

- A significant update to the WESI web presence was achieved on the DELWP external website with the assistance of the WPPL program team. This included the Early invader manual, advisory list, newsletters, database and images. Significant effort has been made to increase the amount of information available on STAR.

- Five ‘Early Invader Update’ seasonal newsletters were distributed to approximately 443 subscribers. There were 207 new subscribers since March 2018 showing a 47% increase in subscribers over a 16-month period.

- The ‘Early Invader Manual’ was completed in March 2019 as a summary of the six existing WESI guides and has become the main ‘how to’ document of the WESI project. Digital copies are available on multiple platforms including the DELWP external website. 210 hard copies were distributed across Victoria, including a few interstate.

- The second edition of the six WESI guides were completed and are available on the DELWP external website and STAR. Associated changes were made to the Victorian environmental weed risk database.

- Three weed identification training workshops were delivered by WESI with a total of 66 participants over 3 sessions. These sessions were early invader weed identification in the Otways and Port Phillip region and Opuntioid Cacti identification at Cactus Country in Strathmerton.

- An average of 22 people attended each event, which is an increase of 3 people per event compared to 19 per event in 2016/2017.

- A fourth weed identification training session was hosted by WESI and delivered by DJPR for Weed Spotters about state prohibited weeds, which wasn’t included in WESI statistics.

- In addition to the workshops, WESI trained/mentored 37 DELWP and Parks Victoria staff on early invader management at Rushworth, Yarrawonga, Horsham, Edenhope and Wail.

- WESI, DELWP, DJPR and the Centre for Invasive Species Solutions (CISS) have been developing a Victorian Government expression of interest in the 10-year national investment plan proposed by CISS. This weeds research, development and engagement plan is planned to run from 2020 to 2030 if successful.

- WESI and DELWP contributed to a multi-participant application for the Smart Farming Partnerships Round 2 national grants program. The CISS-coordinated bid is titled “Computer Vision Weeds ID App and WeedScan Community Management and Communication System”.

- The WESI Team attended the 21st Australasian Weeds Conference in NSW in September 2018, where Bec James (former team member) presented.

[Figure 15: Opuntioid Cacti ID training in Strathmerton]