Friends of the Great Western Tiers
kooparoona niara

Western Creek Spurge laurel (Daphne laureola) Report

Laurie Goldsworthy 16th February 2025

Aim:

To eradicate the Spurge laurel (Daphne laureola) outbreak at Western Creek.

Background:

Spurge laurel is a recently emergent weed which can potentially be eradicated before it spreads further and becomes widely established. It has the potential to invade native forest and dominate the understory. All parts of the plant are toxic. The Western Creek outbreak is about 1 km from the Tasmanian Wilderness World Heritage boundary and so has received welcome attention from Tasmanian Parks and Wildlife Service and Biosecurity Tasmania.

History of control measures at Western Creek and records of plant development and location:

Small plants of Daphne laureola were first identified on a private property at Western Creek in mid-2023. By late 2023 large outbreaks of well-established bushes were found on two adjoining properties. The clump of Spurge laurel in Figure 1 was the largest clump in the centre of the main outbreak (primary cluster). This outbreak extended over an area of about 5ha of semi open E. obliqua forest on fertile soils in good condition with a variety of understory native plants. As well as the central clump this area had perhaps 100 plants of varying sizes from well-established bushes to young plants. We removed all found plants between late December 2023 and May 2024 but unfortunately most of the fruit had set seed and fallen by the time this outbreak was discovered in late December 2023. Any remaining fruit was bagged. Initially we used cut and paste, cutting off at soil level then applying glyphosate. Eventually we either pulled small plants or grubbed out larger plants using a pick, having received reliable information that this approach is effective.

The full known extent of the outbreak covers a further 36ha, mainly to the west and north of the 5ha block. We removed about 50 plants of varying sizes from well-established bushes to young plants, some of which had set seed, in between late December 2023 and May 2024. Much of this area is degraded E. amygdalina forest with Pinus radiata, many Hollies (Ilex aquifolium) large and small and large expanses of blackberries. The Spurge laurel doesn't tend to occur amongst the thickest blackberry areas, more on the margins or in areas of semi open forest in reasonable condition, however some well-established bushes were found amongst significant blackberry cover, with evidence of layering.

Further surveying in September/October 2024 found numerous missed plants over the whole area previously treated including a further cluster of established plants (secondary cluster) along a small side stream. All found plants were removed and any branches with berries (green and purple) cut off and bagged.

From this time on, survey tracks and removed plants were recorded on Avenza Maps on an Android mobile phone (Blackview 8900 Pro) including photos. The Tasmaps 1:25000 maps in Avenza maps use WGS84, as does Google Earth. The location coordinates measured on the mobile phone were spot checked against a Garmin etrex 30 GPS set to WGS84. Lat/Lon coordinates have been rounded to 4 decimal places assuming a GPS accuracy of around 10m.

The events described above as well as further developments are listed in Table 1.

Figure 1 Central clump, E. obliqua forest on fertile soils. Most berries had ripened and fallen or were eaten by the end of December 2023

Lat, Lon -41.6395, 146.5081, 340m ASL

Table 1 Timeline of control measures as well as records of various stages of plant development.

Date	Event	Location	Figure
mid 2023	Some plants found; sample identified	Private land block PID 3277179 (Goldsworthy/Nicklason)	
mid Dec 2023	Central clump found, further scouting around central clump, most fruit had set seed and fallen, remaining branches with ripe fruit cut and bagged. Semi-open E. obliqua forest on fertile soils, no blackberries. Numerous Hollies were cut down and the stumps painted with glyphosate, berries bagged.	Private land block PID 7411929 (Curwen) Primary cluster	Figure 1 21st Dec 2023
mid Dec 2023	Further occurrences found on neighbouring property, well-established bushes	Private land block PID 3277187 (Atkins)	

Date	Event	Location	Figure
	Degraded E. amygdalina forest with Hollies, Pinus radiata, many blackberries, Poa species		
Dec 2023 to May 2024	**A team of volunteers searched and removed all found plants over a wide area (3 private properties); perhaps 200 plants ranging from large bushes to young plants.**	**Primary control area**	**Figure 2 Google Earth map**
May 2024	Flower buds formed		Figure 3
May 2024	Coloured 2-page flyer produced and distributed locally		
Sept/Oct 2024	Further surveying found numerous missed plants over the whole area previously treated including a further cluster of established plants. All found plants were removed and any branches with berries (green and purple) cut off and bagged. Survey tracks and removed plants recorded on Avenza Maps including photos	Primary control area Secondary cluster	Figure 1 Figure 4 Google Earth tracks and placemarks
20th Sept 2024	Flowers present		Figure 5
20th Sept 2024	Many new seedlings were found directly under previously removed bushes, mainly in the area of highest bush concentration on Curwen's, in Obliqua forest with no blackberries, but also on the other two properties.	Primary control area	Figure 6 Figure 7
30th Sept 2024	Statewide online information session, report available		
7th Oct 2024	Field Day, some new seedlings pulled, further searching and removal on Curwen's, large bushes removed from amongst blackberries on Atkins'		Figure 8
21st Oct 2024	Isolated plant found on island in the Western Creek, not yet producing berries, fairly open patch of sand and gravel	Approx. 1 km SW from the central clump in Figure 1	Figure 6
29th Oct 2024	Second Field Day with trial plots established for control methods for new seedlings (Glyphosate works well as do heavy mulching and hand pulling.; further searching and removal	Curwen's	
18th Nov 2024	Green berries turning purple, some bushes with many purple berries, evidence that some berries eaten or dropped (bare stems at base of bunch Figure 4.2)		Figures 9, 10, 11 18th Nov 2024
21st Dec 2024	Virtually all berries gone		Figure 12 21st Dec 2024
21st Dec 2024	More advanced seedlings		Figure 13
17th and 19th Dec 2025	Grant funding (Meander Valley Council $3000, 2A4 $2500) obtained to employ professional weed experts to search and assess a wider area		

Date	Event	Location	Figure
13th Jan 2025	Survey by Island Regen. Survey tracks recorded on Garmin GPS. Further outlier found (not yet producing berries). Island Regen report submitted 27th Jan 2025, further surveying recommended.	Outlier approx. 700m SE from the central clump shown in Figure 1	Figure 14 Google Earth map

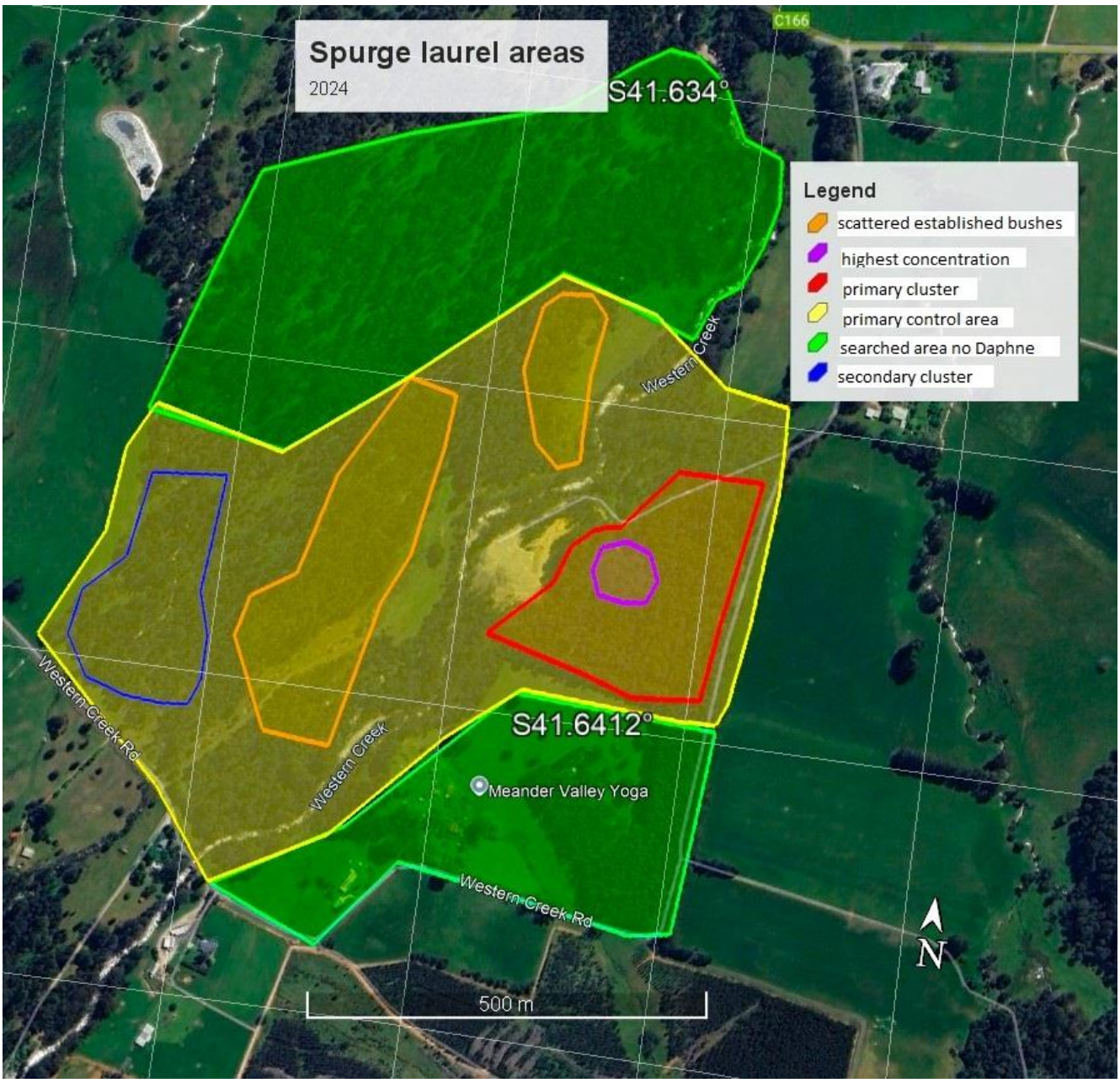

Figure 2 Spurge laurel activity areas Western Creek as at December 2024
Plants were found throughout the primary control area. The zoning is notional only, to illustrate the density of infestation.
Primary control area ~41ha
Primary cluster ~5ha
Secondary cluster ~4ha
Scattered established bushes ~7ha

Figure 3 Flower buds 9th May 2024

-41.6386, 146.5045, 330m

Figure 4 next page

Figure 5 Flowers 20th Sept 2024
-41.6386, 146.5045, 330m

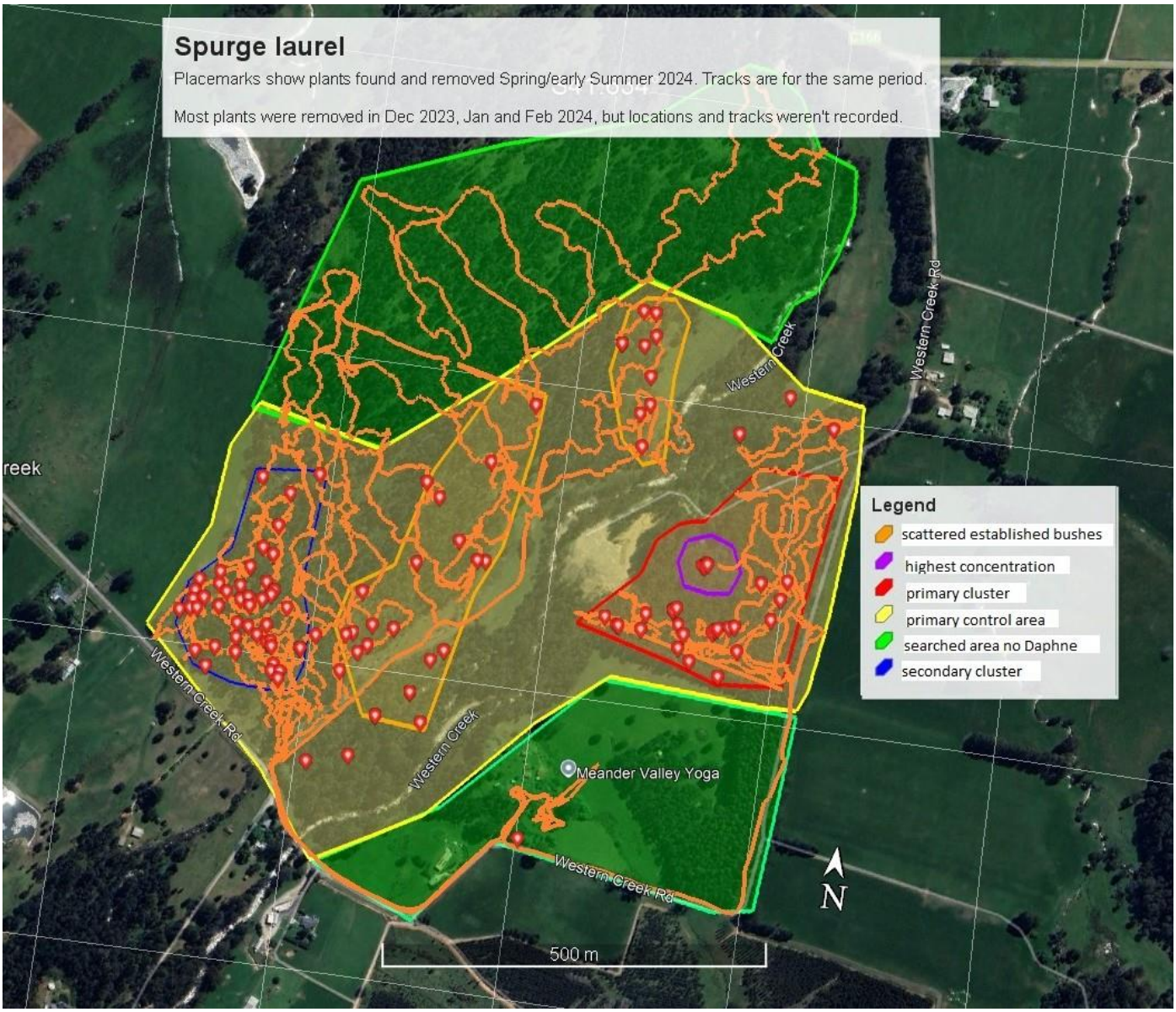

Figure 4 Placemarks show plants found and removed Sept 2024 to Dec 2024 (Spring/ Summer). Some placemarks represent multiple plants.

The orange tracks are for the same period and show much of the ground covered on foot. Some surveys tracks were not recorded.

Most plants were removed between Dec 2023 and May 2024 (Summer/Autumn) but their locations and the search tracks were not recorded

Figure 6 New seedlings 20th Sept 2024 -41.6396, 146.5080, 340m

Figure 7 Seedlings, two ages in same location 23rd Sept 2024 -41.6417, 146.5039, 340m

Figure 8 Well established bushes amongst blackberry, 7th Oct 2024, some layering under blackberries apparent in this patch

Mixed E. amygdalina, Pinus radiata forest with blackberry understory

-41.6396, 146.5041, 330m

Figure 9 green berries turning purple 18th Nov 2024, some signs of browsing of leaves, edge of forest, area where cattle graze occasionally
-41.6406, -146.5001, 330m

Figure 10 Many purple berries as well as green berries 18th Nov 2024
-41.6405, 146.5006, 330m

Figure 11 Green berries, purple berries, some berries dropped/eaten (bare stems at base of bunch) 18th Nov 2024 -41.6405, 146.5006, 330m

Figure 12 Few purple berries left 21st Dec 2024, note stems of fallen or eaten berries -41.6402, 146.5083, 330m

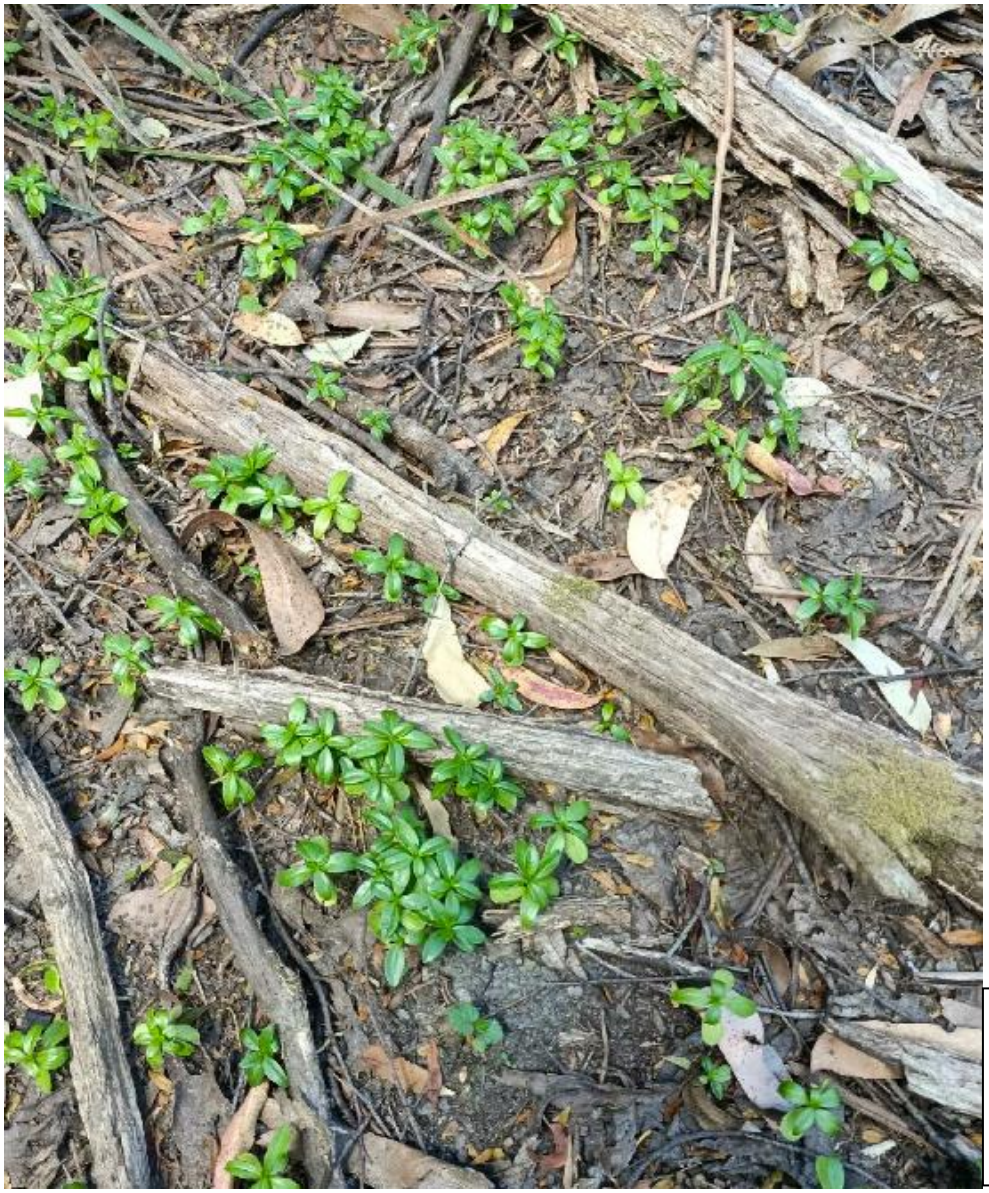

Figure 13 more advanced first year seedlings 21st Dec 2024
-41.6402, 146.5082, 340m

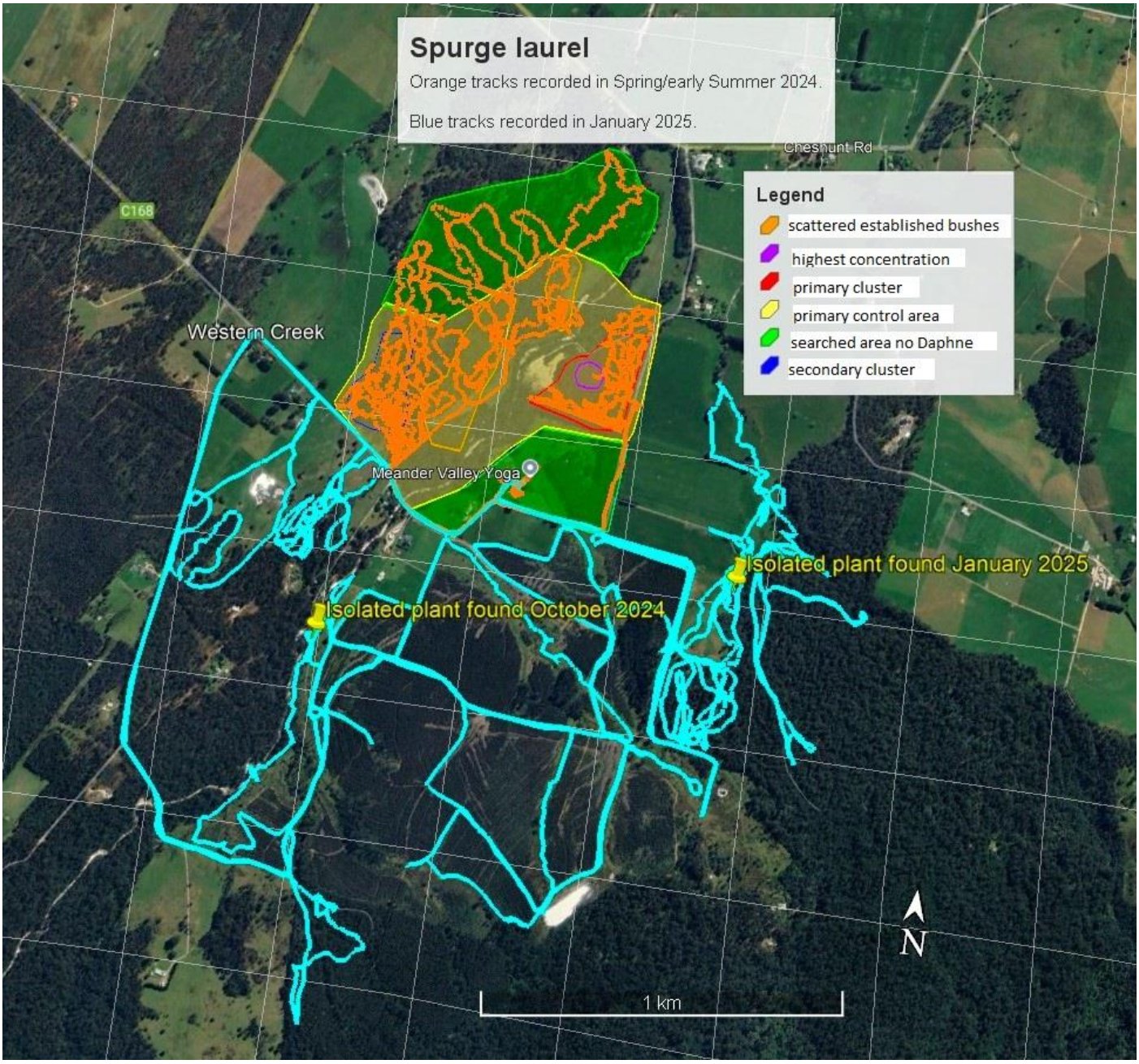

Figure 14 Tracks and Isolated plants.

Two isolated plants found, not yet producing fruit.

Blue tracks show area covered by the Island Regen team of two. The area covered by the blue tracks is larger than apparent in the figure as only one member of the team carried the GPS. Also, some searches were not recorded by GPS. In the Forico plantation area central to the blue tracks it was not possible to walk every row but there was reasonable visibility along the rows. Forico ground staff have been alerted to the weed.

The approx. 70ha block of private land immediately west of the isolated plant found in October 2024 is apparently being searched diligently by the owners. The owners didn't want the Island Regen contractors on their land.

Wider Views of Habitat:

Figure 14 Established plants in open E. amygdalina forest with Pinus radiata, Hollies, Poa species, blackberries, ferns, etc.

Figure 15 Small plant hiding

E. Amygdalina forest with Pinus radiata, Hollies, Poa species, blackberries, ferns, etc.

14-11-2024, -41.6415, 146.5016, 340m

Figure 16 Isolated plant with berries; possibly E. ovata

14th Nov 2024

-41.6413, 146.5015, 343m

Figure 17 Plants migrating into E. nitens plantation adjacent to primary cluster, green berries 6th Nov 2024

-41.6405, 146.5079, 340m

Figure 18 Apparently sterile plant (no sign of berries or berry stems), Open E. obliqua forest, some Hollies and Pinus Radiata 21st Dec 2024, -41.6396, 146.5089, 350m

Figure 19 Plant which has lost all berries, E. obliqua forest, 21st Dec 2024,

-41.6377, 146.5097, 330m

Figure 21 Outlier found 14th Jan 2025, below perching branch on dead tree at boundary of paddock and wet forest

-41.6444, 146.5139, 380m

Figure 20 Plant with green berries, E. obliqua forest, 20th Sept 2024,

-41.6402, 146.5077, 355m

Figure 22 Open E. obliqua forest 4th Nov 2024

-41.6403, 146.5068, 348m

See also Figure 1 for wider view of E. obliqua forest area

Published information on plant behaviour

Seeding

"…trials removing dense stands of daphne on southern Vancouver Island showed a large germination event in year one and two following removal of mature plants, with hundreds of seedlings per square meter germinating in year one alone and at most a few tens of seedlings in year three…"

"…On Vancouver Island, daphne can first produce seed in its fourth year…"

Strelau et al 2018 The Biology of Canadian Weeds: 156. Daphne laureola L.
https://cdnsciencepub.com/doi/10.1139/cjps-2017-0247

"…Plants can begin flowering during their second year, but more often seed production will not occur for at least four years…"

https://emswcd.org/on-your-land/weeds/weeds-to-know/spurge-laurel/ (East Multnomah Soil & Water Conservation District, 5211 N. Williams Avenue, Portland, Oregon 97217)

Figure 23 Youngish plant not yet producing berries. Rated 2 out of 5 on a qualitative height scale, 5 being the height of a fully mature bush. 26th November 2024.

Similar sized plants were found with berries. See also Figure 18 for a more advanced plant with no berries.

-41.6407, 146.5033, 330m

Hollies

The three private properties on which Spurge laurel has established have, or have had, a significant population of Hollies. The author, with occasional assistance, has spent many weeks removing Hollies from our own property as well as the Atkins land to the west and the Curwen land to the north. Hollies thoroughly colonised these properties over many years, with numerous mature trees often embedded in copses of Hollies of various ages. Trees/plants were cut at soil ground level with chainsaws, loppers and secateurs, then painted with glyphosate. While the author's property is now essentially clear of Hollies, the great extent of the weed on the Atkins' land has been beyond the author's capabilities to control completely and numerous specimens remain, some producing prolific crops of bright red berries. The infestation on the Curwen land has been largely controlled for now but up to December 2023 (when remaining trees were cut and painted and berries bagged, see Table 1) there were numerous substantial trees producing red berries.

Figure 24 Holly in fruit in Primary Control Area

9th May 2024

-41.6378, 146.5045, 330m

It is thought that at Western Creek at least, Hollies and Spurge laurel coexist, with the large crops of red berries standing high above the understory being a significant bird attractor, encouraging interest in the Spurge laurel berries. Further, Axel Meiss of Island Regen, who conducted the extended survey at Western Creek in January 2025, found a number of small hollies about 800m from the TWWHA boundary, along the creek lines near where they found the Spurge laurel outlier.

It is proposed that future funding be allocated to engaging professional weed contractors to deal with any Hollies in the primary control area. There are also patches of Spanish heath, mainly on the Atkins land. The author has been attempting to contain this weed by pulling and spraying near our property boundary over a number of years, but there are significant patches further in that need to be tackled. At this stage it is controllable.

This contractor work would best be done in Winter/Spring 2025, to catch the Hollies before the fruit drops and the Spanish heath before the seed sets. Time should be allowed for the contractors to actively search for Spurge laurel while doing the work on the other weeds. They will be covering all the ground of the Primary Control Area to discover all the Hollies and Spanish heath, and so will hopefully also find any Spurge laurel present.

Conclusions

A concerted effort has been made at Western Creek to control the outbreak of Spurge laurel.

Recording of flowering and fruit development showed that, at Western Creek in 2024:

- Flower buds appeared by early May
- Flowers were present in early September
- Many green berries turned purple by mid November
- Most berries were fully ripe and had either fallen or been eaten by late December. The same was apparent in late December 2023
- New seedlings appeared by early September
- September/October/early November is the best time to look for plants – young plants putting on new growth so easier to see, ground soft for pulling, low likelihood of snakes, catch fruit before it ripens.

Other important information:

- From seedling stage to the point of producing ripe fruit takes 2 to 4 years
- Seed germination from under removed bushes can be prolific for the first two Spring seasons after fruit drop
- It takes up to 5 or 6 years after initial weeding for seedlings to stop emerging (reported Hobart experience)
- Hollies attract birds which then may move onto the Spurge laurel
- The work of the volunteers needs to be supplemented by professional weed contractors.

Acknowledgements

The core team of local volunteers consists of Laurie Goldsworthy, Neil Smith, Laura McKew and Deb Lynch. much appreciated assistance was also provided Greg Taylor, Shanna Souvlis, Chloe Stead, Gray McKinnel and Richard Chin.

The work of Amber Travica of the Tasmania Parks and Wildlife Service, assisted by Olivia Murray, is pivotal in raising awareness of the weed throughout government agencies, organising field days and the statewide information session, as well as practical on-ground action and encouragement.

Other members of government agencies, whose interest and participation in field days is much appreciated, include Clinton Downing and Lisa Edwards of Biosecurity Tasmania, Alison Hugo of Meander Valley Council and Daniel Bowden of Parks and Wildlife Service.

Matthew Baker of Tasmanian Herbarium has provided valuable advice and is the primary scientific reference.

Kylie Tune and Paul Spillane from the Lorinna community have shared their knowledge of the weed through their experiences with the Lorinna outbreak, as well as providing valuable assistance pulling weeds on a field day.