

Management Plan for Blunt-leaf *Pomaderris helianthemifolia* ssp. *minor* in Big River State Forest, Eildon, Victoria



Prepared for the Department of Sustainability and
Environment

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Cover image: Blunt-leaf Pomaderris foliage, Big River State Forest, Eildon, Victoria (photo: G. Scott-Walker).

1 Summary

The Department of Sustainability and Environment commissioned Abzeco Pty Ltd in April 2011 to undertake a site assessment and prepare a management plan for the Victorian rare and endemic Blunt-leaf Pomaderris *Pomaderris helianthemifolia* ssp. *minor*. The study was conducted as part of the recovery effort for Victoria's February 2009 bushfires under the umbrella of a broader project dealing with issues associated with environmental weeds.

Blunt-leaf Pomaderris was located at one of two GPS locations provided for field survey. At the location where it was relocated, one dead parent plant was observed with at least 25 regenerating plants scattered within a small (~20 m²) area of understorey within herb-rich foothill forest vegetation. That location may represent marginal habitat for the species and no high threats were detected, particularly considering the site was effectively protected from roads and tracks by a hill and at least 100 m of intact bushland. Blackberry occurred at the site at low cover (<1 % cover). Ongoing monitoring would be adequate to ensure the stand successfully reaches maturity and to evaluate potential future threats (e.g. further ingress of Blackberry).

Where the plant was not located, further assessments including a broader survey area are required to make a more conclusive evaluation of subspecies *minor*'s status.

New Records

Two new locations that support Blunt-leaf Pomaderris were recorded, which occurred along roadside-riparian margins of the Big and Taponga rivers, centred around their junction on Eildon-Jamieson and Big River roads. These occurrences are outside of the GPS layer 'Fire100-2009' (representing the extent of 2009 wildfires) and provide useful insights into the species' distribution and ecology and highlighted notable threats to the Big River State Forest population. Inadvertent herbicide treatment of Blunt-leaf Pomaderris resulting from roadside weed control operations should be avoided through an awareness and education program targeted to weed control operators servicing the Shires of Murrindindi and Mansfield. It is also recommended that improvements to weed control monitoring and assessment procedures are made, for example applying stronger contractor selection criteria based on contractor suitability to work in close proximity to indigenous vegetation.

Further studies into subspecies *minor*'s distribution and ecology within Big River State Forest and elsewhere would service the species' conservation prospects well and could be relatively cost-effective to undertake based on the output of this project. Recommendations resulting from this project could be applied to other populations of Blunt-leaf Pomaderris.

2 Background

In April of 2011, the Department of Sustainability and Environment (DSE) commissioned Abzeco Pty Ltd to prepare a Management Plan for Blunt-leaf Pomaderris *Pomaderris helianthemifolia* ssp. *minor* at Big River State Forest, Eildon, Victoria. The work was conducted as part of a broader project on post-bushfire recovery associated with the February 2009 Victorian wildfires and focussed on issues associated with environmental weeds. Abzeco were provided two GPS locations for Blunt-leaf Pomaderris within the study area, sourced from herbarium records (Royal Botanic Gardens Melbourne [RBG]) available through the Flora Information System (FIS). DSE also provided additional GIS layers including 'Fire100-2009', which indicates the extent of the Victorian 2009 wildfires.

This report is intended to provide management guidelines to protect and enhance the population of Blunt-leaf Pomaderris occurring at Big River State Forest.

State Forest Management

Victorian State Forests have in the past been termed as land set aside for hardwood timber production or as uncommitted land (LCC 1994); State Forest management is generally overseen by DSE and State Forests have a multiplicity of land uses and values including, but not limited to:

- Supply of water and protection of catchments
- Production of hardwood timber
- Conservation of native plants and animals
- Provision of opportunities for open-space recreation such as hunting and education
- Production of honey, forage, gravel, sand, road-making materials and other forest products (LCC 1994).

2.1 Study Area

The study area encompasses a small, restricted extent of Big River State Forest encompassing the junction between the Taponga and Big rivers, both of which form part of the Lake Eildon catchment. The regional context and local features of the study site are depicted in Figure 1.

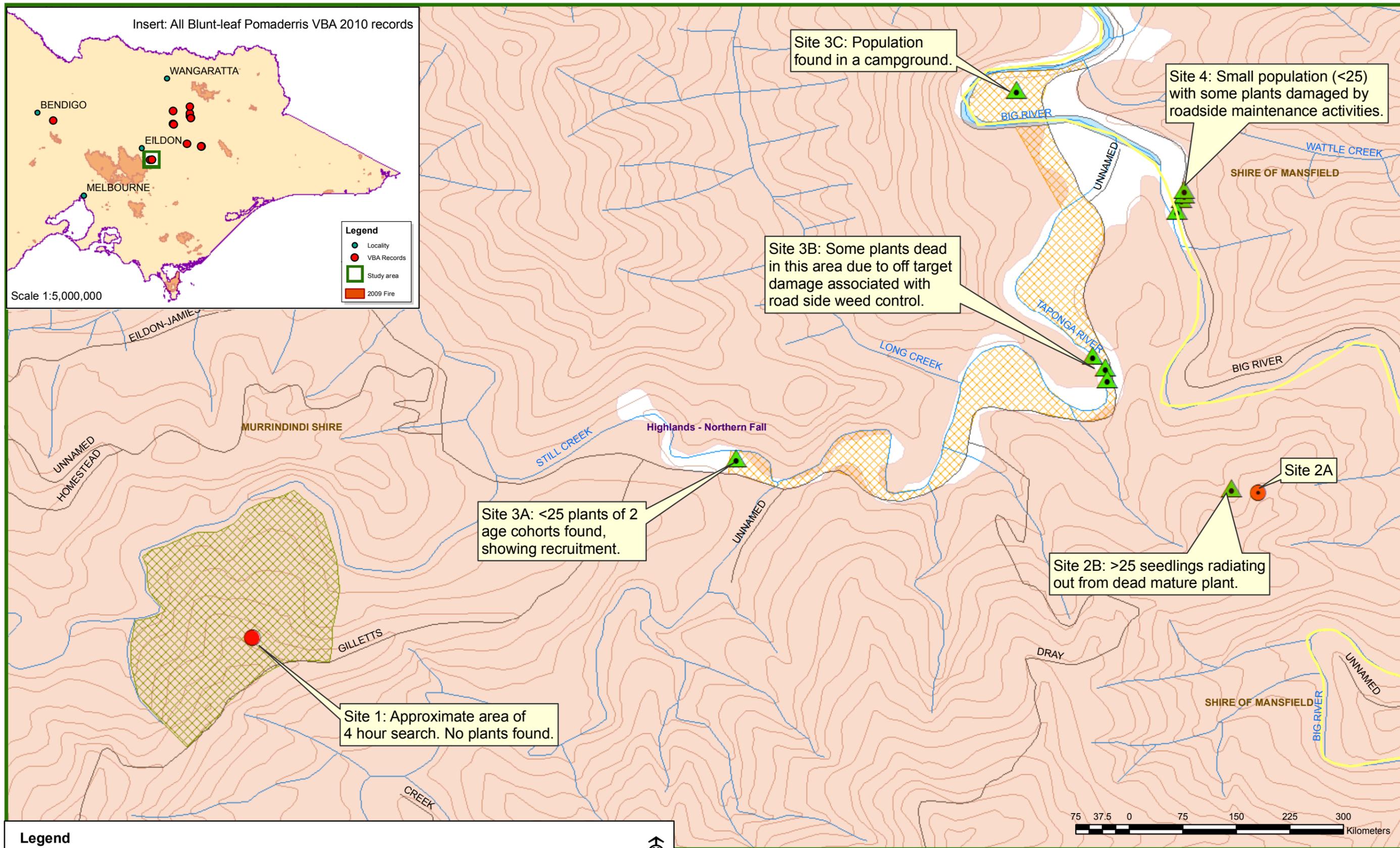
Big River State Forest is located within the Goulburn-Broken Catchment Management Region, Highlands – Northern Fall bioregion and the South Eastern Highlands IBRA region (Thackway & Cresswell 1995). The study site is within close vicinity to the boundaries of the Murrindindi and Mansfield Shires and Jamieson and Eildon and the closest townships. Blunt-leaf Pomaderris occurrences are known to occur within Murrindindi Shire.

The study site is near to Lake Eildon National Park. Other nearby public land parcels include Alpine National Park, Delatite State Forest, Yarra Ranges National Park, Cathedral Range State Park, Mount Skene Natural Features and Scenic Reserve (NFSR), Lake Mountain Alpine Resort, Mount Terrible NFSR, Mount Torbreck NFSR and Mount Bullfight Nature Conservation Reserve.

DSE's 'Biodiversity Interactive Map'¹ indicates the study site occurs within the East Victorian Dissected Uplands, characterised by mountainous landform (relative relief >300 m), sedimentary rocks (i.e. sandstone, mudstone) with a temperate climate of > 700 mm/year and generally having 'shallow stony earth' and 'friable earth' soils.

¹ <http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim>

Figure 1: Extent of study area and *Pomaderris helianthemifolia* sbsp. *minor*, Big River State Forest, Eildon, Victoria



Legend

Field data

- Pomaderris helianthemifolia* sub. *minor*

Blunt-leaf Pomaderris VBA 100 records

- Herbarium Record 2003
- Herbarium Record 1960

- Area of potential habitat
- Search area
- Water area
- Local Government Boundary
- Contours
- Waterway
- 2009 Fire

Scale 1:11,000

Survey Date: 18th & 19th of April, 2011

Created by : Kathy Himbeck

File: J:\Jobs\2011_Jobs\11029-DSE-PostfireVegetationSurvey\PomaderrisManagementAbzecoFigure1-StudyAreaPomaderris V1.0

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Note: location of property boundaries, watercourse and topography indicative only.

3 Blunt-leaf Pomaderris Profile

The Blunt-leaf Pomaderris *Pomaderris helianthemifolia* ssp. *minor* (Family: Rhamnaceae) is a pubescent shrub to 2 m that typically flowers between October and November. It is endemic to north-east Victoria and known from Big River in the south-west of its range to Buffalo River in the north east. Subspecies *minor* occurs in dense riparian shrubland/stream banks and dry, sometimes rocky, escarpments and open forests in an altitude range of 300-600 m. It was once recorded near Bendigo but through the construction of Lake Eppalock is thought to be extinct (Walsh 1999 and Walsh & Coates 1997).

The species is listed as 'rare' in Victoria (DSE 2005) but has no other conservation listing. The expanded definition of this treatment as per DSE (2005, p. 4) is "rare but not otherwise threatened – there are relatively few known populations or the taxon is restricted to a relatively small area".

Three other subspecies are known from Victoria and formal treatment of the Victorian species of *Pomaderris helianthemifolia* can be found in Walsh & Entwisle (1999) and Walsh & Coates (1997).

3.1 Occurrences at Big River State Forest

Two GPS locations of historical Blunt-leaf Pomaderris occurrences were provided by DSE, sourced from the FIS but based on herbarium records. Plants were only observed at one of these two sites (represented by red circles in Figure 1). Two additional occurrences were incidentally located during the course of field surveys, which are understood to be known by local DSE officers but not formally recorded (R. Sakkara pers. comm.). These additional stands were located outside the 'Fire100-2009' GIS layer in riparian vegetation along roadsides within relatively close proximity to the historical records.

The following section briefly describes the occurrence of the species within the study area at approximately four locations, as represented in Figure 1 & Table 1.

Table 1. The locations of four Blunt-leaf Pomaderris assessment locations during a brief survey at Big River State Forest, Eildon, Victoria, conducted in April 2011

ASL = Above Sea Level; NA – Not Available.

Site #	Datum: GCS_GDA_1994		Accuracy	Altitude (m ASL)	Present (P) / Absent (A)	Approx. plant numbers
	Latitude	Longitude				
1	37°22'54.522" S	146°2'4.646" E	3.6 km	NA	A	NA
2A	37°22'39.991" S	146°3'44.989" E	0.9 km	350	P	Found at location 2B
2B	37°22'39.568" S	146°3'42.278" E	±5 m	406	P	One dead mature plant; >25 seedlings
3A	37°22'36.588" S	146°2'52.89" E	±5 m	NA	P	2 age cohorts, <25 plants
3B	37°22'27.534" S	146°3'29.712" E	±5 m	NA	P	<10 plants
3C	37°21'59.892" S	146°3'20.892" E	±5 m	NA	P	1 found at campground
4	37°22'10.71" S	146°3'37.344" E	±5 m	NA	P	<25 plants

3.1.1 Site 1 – Herbarium Record 1 of 2

The first record is dated to 1960 and has no altitude recording and a maximum accuracy to 3.6 km. Two field botanists searched, by foot, sedimentary dry and riparian forests from crest to gully flats for approximately 4 hours and failed to locate Blunt-leaf Pomaderris. The vegetation was mapped as EVC Grassy Dry Forest and a number of floristic communities were apparent across the range of areas explored, including damper and shrubby communities associated with sheltered aspects and damper, more fertile gully flats. The record was notable for its inaccuracy and further survey work would be required to confidently determine the status of subspecies *minor* at the location.

3.1.2 Site 2 – Herbarium Record 2 of 2

The second record is dated to 2003 at 350 m Above Sea Level (ASL) and has a maximum accuracy of 0.9 km (site 2A). The site was accessed by foot and subspecies *minor* found approximately 50 m downslope of the target GPS location in herb-rich foothill forest (site 2B). One dead parent plant was observed with at least 25 regenerating plants to (max. 1 m) scattered within a small (~20 m²) area of understorey. Seedlings are suspected to have germinated following the 2009 wildfires. The response to fire of this occurrence of Blunt-leaf Pomaderris suggests the species is an obligate seeder with a fire-related germination cue. The stand was small and the habitat potentially marginal however sheltered from potential disturbances associated with close proximity to roads and tracks. No exotic species appeared to represent a high threat to the stand, including a low cover (<1 %) of Blackberry *Rubus fruticosus* spp. agg.

3.1.3 Site Three – Eildon-Jamieson Road

Blunt-leaf Pomaderris was observed along the northern margin of Eildon-Jamieson Road, parallel with Taponga River and a small extent of Big River on riparian land between the road and rivers (Figure 1). Plants were observed during this study occurring between Gillets Track and Big River Road, however further survey work is likely to result in more observations of the plant inside this area and along further reaches of the river and its tributaries. The margin between the road and waterway is in several locations relatively broad (3B & 3C), and subspecies *minor* was observed growing on river flats rather than the steeper slopes where it occurs close to the roadside (3A). At location 3B two age cohorts were observed and the stand consisted of less than 25 plants. Only one plant was observed growing close to a camping/public access area (3C Figure 1 & Table 1), however the area was not thoroughly surveyed. No high threat weeds were observed growing in close proximity to Blunt-leaf Pomaderris however roadside herbicide treatment of vegetation, presumably targeting Blackberry (*Rubus fruticosus* spp. agg.) had impacted the plant (Figures 3 & 4), amongst other indigenous flora.



Figure 3. Herbicide impact on Blunt Pomaderris on Eildon-Jamieson Road, Eildon #1

Dead graminoids are Spiny-headed Mat-rush *Lomandra longifolia*.



Figure 4. Herbicide impact on Blunt Pomaderris on Eildon-Jamieson Road, Eildon #2

Complete spray coverage has resulted in plant mortality; field observations indicate plants have potential to recover from partial herbicide treatment.

3.1.4 Site Four – Big River Road

Blunt-leaf Pomaderris was observed on the western margin of Big River Road for an approximate 100 m extent. Less than 25 plants grow directly adjacent to the roadside and no plants were found growing within adjacent dense riparian vegetation (Figure 5). Evidence of plant damage was observed due road grading works (Figure 6). Blackberry was observed in the area at low abundance but was not considered a high threat. The full extent of Blunt-leaf Pomaderris at this location was not determined and further surveying is likely to detect more plants.



Figure 5. Blunt-leaf Pomaderris occurs in riparian forest on Big River Road, Eildon

Subspecies *minor* occurs between the road and river, restricted to the road margin and was not within adjacent dense riparian vegetation.



Figure 6. Road grading impact on Blunt Pomaderris on Big River Road, Eildon

Grading impacts include soil and root disturbance.

4 Threats and Management Recommendations

To ensure known stands of Blunt-leaf Pomaderris remain intact and viable it is paramount that the management of Big River State Forest is sensitive to the ecology of the species. This is particularly important within close proximity to areas likely to support its habitat since the species' distribution across the local landscape is poorly known. The following topics have been included for discussion since they represent potentially threatening management processes.

4.1 Fire Management

The recent February 2009 wildfires are likely to be the cause of Blunt-leaf Pomaderris mortality at site 2B. Recruitment showed no evidence of reproductive maturity as was similarly observed in other 2009 wildfire affected populations of subspecies minor (A. Tolsma pers. comm.). One population impacted by the 2006 wildfires on the Buffalo River (i.e. 4-5 years post-fire) has reached reproductive maturity and shows evidence of a second age cohort, suggesting the post-fire environment may provide opportunities for population density increases for subspecies minor (A. Messina & G. Scott-Walker pers. obs.). It is uncertain if the second age cohort is derived from seed produced by post-fire recruits or from a secondary pulse germination event, and the species' seed bank dynamics and vital attributes data appear unreported or otherwise poorly known.

Targeted investigations of the response of Blunt-leaf Pomaderris to fire frequency and intensity would enhance understanding of the species' tolerance to various fire regimes, thus providing a more scientific basis to inform fire management of Blunt-leaf Pomaderris sites. A detailed vital attributes analysis of the species at locations with known fire histories would assist in such management.

Recommended actions

- Continue monitoring Big River State Forest Blunt-leaf Pomaderris in the short-term to assess changing population demographics at both burnt and unburnt sites
- Consider targeted investigation/s into the fire response / vital attributes of Blunt-leaf Pomaderris across all known occurrences where fire-history data is available
- Report findings of Blunt-leaf Pomaderris monitoring and vital attribute results into fire-history databases (e.g. ARGUS).

4.2 High Threat Weed Management

Blackberry represented the only weed considered high threat during field assessments within the study area. There were no situations where Blackberry was considered an immediate threat to the Big River State Forest Blunt-leaf Pomaderris population. It is likely that Blackberry does represent a significant threat to locally occurring plants that were not observed during field work. It is also possible that Blackberry could become a threat over time at the sites assessed in this study, necessitating ongoing monitoring to ensure this outcome is prevented.

Blackberry was prevalent across the local landscape and the post-fire disturbed environment is likely to provide opportunities for the species to expand its abundance across the local landscape. Few Blackberry plants were observed growing near to Blunt-leaf Pomaderris and were considered to be at such low abundance to defer immediate control in preference for monitoring, at least for the next 12 months. At site 2B, post-fire recruitment was relatively successful in the

presence of a low cover of regenerating Blackberry, and competitive interactions with other indigenous species are more likely to have influenced recruitment success at this location (e.g. competition from other densely regenerating plants such as Bracken *Pteridium esculentum* and Silver Wattle *Acacia dealbata*). Monitoring this stand would provide more useful data for management of the species and could be undertaken by operators qualified to undertake weed control in tandem, if Blackberry control is required following future site visits.

Other species are likely to represent high threat weed issues at other locations, particularly perennial grasses (e.g. Sweet Vernal-grass **Anthoxanthum odoratum*) and dense regeneration of highly competitive herbs and shrubs that may hinder recruitment. St. John's Wort **Hypericum perforatum* and Broom species **Genista monspessulana*, *G. linifolia* and *Cytisus scoparius* may colonise new areas as a result of road works and Montpellier Broom (*G. monspessulana*) has been observed not far from Blunt-leaf Pomaderris [G. Hendy pers. comm.).

Recommended actions

- Conduct ongoing monitoring of known Blunt-leaf Pomaderris stands to maintain low risk status of current high threat weeds
- Assess burnt and unburnt sites to evaluate potential high threat weeds not observed in this study

4.3 Roadside Management

Roadside management practices were observed to have impacted on Blunt-leaf Pomaderris through two major activities, weed control and road grading.

4.3.1 Weed Control

Mortality and foliar damage to Blunt-leaf Pomaderris was observed in this study as a result of roadside herbicide treatment applied for weed control operations. Overspray and spray drift are the most likely means by which weed control works impact on indigenous roadside flora. In some instances lack of knowledge and/or training of operators regarding identification of indigenous species may also be a factor.

Weed control practices represented the most significant threat to roadside stands of Blunt-leaf Pomaderris observed during the course of this study. Preventative action could be taken through awareness and education programs targeted to works contractors. Other actions such as improved contract management via monitoring and assessment of weed control operations, where protection of indigenous flora is a stated management and contractor goal as part of a weed control program could also prevent future adverse outcomes. In the event that roadside herbicide treatment is designed to target all plants on a roadside (e.g. hazard management), the responsible management agency should consult with DSE on the suitability of such a regime in areas where sensitive indigenous species are at risk and evaluate the suitability of alternative options.

On-site discussions with local land managers during field assessments addressed the potential for using signage to improve contractor awareness of the presence of rare plants along the roadside. Contrasting opinions regarding the suitability of this option suggests other solutions may be preferable. Clear, prominent and descriptive signage, as is often the case in roadside rare flora signs, potentially attracts unwanted attention. Alternative techniques might include the use of visual signals restricted to use by local land managers (i.e. non-written markers of rare flora

occurrence that weed control operators are trained to use) or improved contractor awareness and education and appropriate contractor selection may be suitable alternatives.

4.3.2 Road Grading

Road grading was observed as having impacted on Blunt-leaf Pomaderris through soil and root disturbance at a location where the stand is restricted to roadside margins (Site 4). Although extensive works on roadside margins may represent a threat to small stands of the plant, in instances where grading encroachment onto the bank is minor it may constitute a disturbance event that could provide recruitment opportunities. This would be the case in long-unburnt environments typical of sheltered, damp riparian areas, characterised by dense canopy cover (e.g. Tea-tree *Melaleuca* spp. thickets) that may suppress understorey species and reduce opportunities to regenerate from seed. Road grading is not considered a significant threat provided that at known locations of Blunt-leaf Pomaderris it does not deviate from long-term practices.

Recommended actions

- Undertake awareness and education program targeted to weed control operators
- Investigate local solutions for informing contractors of environmentally sensitive areas, such as unique markers to signal start and end-points of Blunt-leaf Pomaderris occurrences
- Improve management of weed control operations through monitoring and assessment against key performance indicators that include protection of indigenous flora values
- Periodically review contractor selection against a suitability criteria for working within close proximity of native vegetation

In potential Blunt-leaf Pomaderris habitat, prior to an assessment of the site for the occurrence of the species, adhere to the following guidelines:

- Ensure bank disturbance events do not exceed >0.5 m in from existing alignments
- Do not use roadside flats for roadworks such as equipment store, stockpiling or any other activity that may result in vegetation or soil disturbance

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