Weed Risk Management: Blackberry *(Rubus fruticosus species aggregate)*

Area: All of NSW
Management Area: Region: All of NSW. Mainly conservation areas considered here although the weed is a problem for primary production.
Landuse: 1. CONSERVATION AND NATURAL ENVIRONMENTS
Assumptions: European species Rubus, Rosaceae. Standard weed management limited - some site treatment with herbicides & labour-intensive tools. Wide use of fire. Biocontrol. Density in land use - moderate.

Feasibility Category: Negligible
Weed Risk Category: Very high
Management Priority: MANAGE WEED

Invasiveness

Q1. What is the ability of the weed to establish amongst existing plants?
Medium ("Seedlings" establish after moderate disturbance)
Comments: *Inferred from Amor et al. (1998), pg. 229, but could even be 'low'.*
Additional comments following Nov 2018 Review (Matt Sheehan):
The Victorian WRA cite P & C 2012) and stating "Blackberry rarely invades virgin bushland but establishes most readily on disturbed sites".

Q2. What is the weed's tolerance to average weed management practices in the land use?
Very High (95%+ weeds survive common management)
Comments: *NSW DPI (2009).*

Q3. What is the reproductive ability of the weed in the land use?
(a) Time to seeding: >3 yrs/never
(b) Annual seed production: High
(c) Vegetative reproduction: Frequent

Comments: *a. Amor et al. (1998), pg. 230 - for seedlings only. b. and c. Amor et al. (1998), pg. 233; DPI (2009), pg16.*

Q4. How likely is long-distance dispersal (>100m) by natural means?
(a) Flying animals: Common
(b) Other wild animals: Common
(c) Water: Occasional
(d) Wind: Unlikely

Comments: *a. and b. Amor et al. (1998), pg. 233. c. NSW DPI (2009), pg. 16. Wind not mentioned*

Q5. How likely is long-distance dispersal (>100 m) by human means?
(a) Deliberate spread by people: Occasional
(b) Accidentally by people and vehicles: Occasional
(c) Contaminated produce: Occasional
(d) Domestic/farm animals: Occasional

Comments: *NSW DPI (2009), pg. 16. Deliberate spread is probably quite limited as is sale due to a National ban. Domestic and farm animals not mentioned by either reference but may be occassional.*

Total Invasiveness Score: 10.00

Impacts

Q1. Does the weed reduce the establishment of desired plants?
> 50% reduction
Comments: *Unclear from Amor et al. (1998). Assumed >50% from personal observation (S. Johnson). The management manual (DPI, 2009) states that blackberry casues 'substantial displacement' of native plants (pg. 11-12.). While this is not quantified, it supports the personal observation.*

Q2. Does the weed reduce the yield or amount of desired vegetation?
> 50% reduction
Comments: *Unclear from Amor et al. (1998). Assumed >50% (from personal observations). Note NSW DPI pg. 11-12.*

Q3. Does the weed reduce the quality of products, diversity or services available from the land use?

High

Comments: *Coutts-Smith and Downey (2006).*

Q4. What is the weed's potential to restrict the physical movement of people, animals, vehicles, machinery and/or water?

High

Comments: *NSW DPI pg. 11-12.*

Q5. What is the weed's potential to negatively affect the health of animals and/or people?

Low

Comments: *NSW DPI pg. 11-12 - but could be closer to medium.*

Q6. Does the weed have major positive or negative effects on environmental health?

(a) food/shelter: Major positive effect
(b) fire regime: Major negative effect
(c) altered nutrient levels: Minor or no effect
(d) soil salinity: Minor or no effect
(e) soil stability: Minor or no effect
(f) soil water table: Minor or no effect

Comments: *NSW DPI (2008), pg. 11-12 a. Food and shelter to many native animals in the absence of any other, but also a habitat for invertebrate pests such as rabbits and foxes. b. Fire hazard - also blocks fire trails and water access points. Once promoted for soil stability (Amor et al. 1998) but will increase erosion in heavily trafficked areas.*

Total Impacts Score: 14.00

Potential distribution

Q1. Within the geographic area being considered, what is the percentage area of land use that is suitable for the weed?

60-80% of land use

Comments: *Estimate (based on NSW DPI (2008), pg. 13.*

Total Potential Distribution score: 8.00

Weed Risk Score: 393

Control costs

Q1. How detectable is the weed?

(a) Distinguishing features: Always distinct
(b) Period of year shoot growth visible: > 8 months
(c) Height at maturity: > 2 m
(d) Pre-reproductive height in relation to other vegetation: Below canopy

Comments: *Personal observations - large thickets are generally > 2m high even though young plants are not. Below tree canopy.*

Q2. What is the general accessibility of known infestations at the optimum time of treatment?

Low

Comments: *Personal observations (S. Johnson) - there are accessible infestations but many in riparian areas are difficult to access.*

Q3. How expensive is management of the weed in the first year of targeted control?

(a) Chemical costs/ha: Medium ($100-$249/ha)
(b) Labour costs/ha: Very high (>$500/ha)
(c) Equipment costs: Low

Comments: *NSW DPI (2008), pg 44-57.*

Q4. What is the likely level of participation from landholders/volunteers within the land use at risk?

Low

Comments: *Personal observations.*

Total Control costs score: 9.00

Persistence

Q1. How effective are targeted management treatments applied to infestations of the weed?

Low

Comments: *NSW DPI (2009).*

Q2. What is the minimum time period for reproduction of sexual or vegetative propagules?

1-2 years

Comments: *Amor et al. (1998), pg. 232-233.*

Q3. What is the maximum longevity of sexual or vegetative propagules?

< 2 years

Comments: *Amor et al. (1998), pg. 233.*

Not sure how birds as a vectir are capture in this question.

Q4. How likely are new propagules to continue to arrive at control sites, or to start new infestations?

(a) Long-distance (>100m) dispersal by natural means: Occasional
(b) Long-distance (>100m) dispersal by human means : Frequent

Comments: *Amor et al. (1998), pg. 233. Not sure how birds as a vector are capture in this question.*

Total Persistence score: 6.00

Current distribution

Q1. What percentage area of the land use in the geographical area is currently infested by the weed?

40-60% of land use

Comments: *Estimate (based on NSW DPI (2009), pg. 13.*

Q2. What is the number of infestations, and weed distribution within the geographic area being considered?

Widespread

Comments: *Estimate (based on NSW DPI (2009), pg. 13).*
Supported by personal observations (S. Johnson).

Total Current Distribution score: 8.00

Comparative Feasibility Score: 273
Feasibility Category: Negligible

Positive impacts: *Fruit and honey production - NSW DPI (2008) pg 12. Amor et al. (1998) - some species have been used as parents of commercial varieties. Wild fruit has been widely collected and made in jam in the past.*

References / Other comments

Original assessment by S. Johnston (2010) was reviewed by Matt Sheehan in Nov 2018. Some additional comments were made, but no change to scoring were required.

References

Amor, R. L., Richardson, R. G., Pritchard, G. H. and Bruzzese, E. (1998). Rubus fruticosus L. agg.. In, Biology of Australian Weeds, Volume 2. F. D. Panetta, R. H. Groves and R. C. H. Sheppard. R. G. and F. J. Richardson, Melbourne. pp. 225-246.
Coutts-Smith, A. J. and Downey, P. O. (2006). The impact of weeds on threatened biodiversity in NSW. Technical series no.11. CRC for Australian Weed Management Systems, Adelaide. 100 pp.
NSW DPI (2009). Blackberry control manual: Management and control options for blackberry (Rubus species) in Australia. Department of Primary Industries, Victoria. 96 pp.

Assessment by Dr Stephen Johnson, Weed ecologist, I&I NSW, 3 May 2010.

This assessment only covers species in the former Rubus fruticosus aggregate - see NSW DPI (2009), pg. 20, Table 2.1.

Species not covered by this assessment include
native Rubus species (see NSW DPI (2009), pg. 21, Table 2.3) and
the following exotic species
Rubus laudatus (Bundy berry) - in the Sydney region.
Rubus philadelphinicus (Lawton berry) - in Cooma region.....continues below
Rubus loganobaccus (Logan berry) - in Canberra region.
Rubus ellipticus (yellow Himalaya raspberry) - North east and Blue mountains regions of NSW.
Rubus idaeus (raspberry) - in cooler areas.
Rubus rugosus (keri berry) - Comboyne ara of NSW.
Rubus roribaccus (dew berry, young berry and boysen berry) - central coast and Sydney areas.
Rubus alceifolius - not in NSW, only known from Cape Tribulation area of Qld (a this stage).
Rubus odoratus - not in NSW, questionably naturalised in Australia.
Rubus niveus - NSW North Coast - a separate risk assessment has been done for this species.

Harbor for vermin.