



Department of Primary Industries

Weed Risk Management: Spanish broom (*Spartium junceum*)

Area: Greater Sydney

Management Area: Region: GREATER SYDNEY LLS REGION. Coast to Slopes; Disturbed bushland

Landuse: 1. CONSERVATION AND NATURAL ENVIRONMENTS

Assumptions: Little to no average weed management in natural areas. (Inv Q2.)

Feasibility Category: Very High

Weed Risk Category: High

Management Priority: DESTROY INFESTATIONS

Invasiveness

Q1. What is the ability of the weed to establish amongst existing plants?

Medium ("Seedlings" establish after moderate disturbance)

Comments: *It is typically a weed of disturbed sites such as roadsides and railway lines, as well as disturbed urban bushland, streams, and roadside drains (DSEWPC, 2013).*

Q2. What is the weed's tolerance to average weed management practices in the land use?

Very High (95%+ weeds survive common management)

Comments:

Q3. What is the reproductive ability of the weed in the land use?

- (a) Time to seeding: >1-3 yrs
- (b) Annual seed production: High
- (c) Vegetative reproduction: Frequent

Comments: *In the United States of America, plants of Spanish broom usually do not produce seeds until at least two or three years old, and a single plant can produce 7 000 to 10 000 seeds in one season (DSEWPC, 2013). Spanish broom is "an effective stem sprouter," suggesting that Spanish broom may sprout from stumps or root crowns following damage or destruction of aboveground biomass (Nilsen, 2000; Zouhar, 2005).*

Q4. How likely is long-distance dispersal (>100m) by natural means?

- (a) Flying animals: Unlikely
- (b) Other wild animals: Occasional
- (c) Water: Common
- (d) Wind: Unlikely

Comments: *Spanish Broom is dispersed solely by seeds, which are ejected explosively as the pods dry out on warm, sunny days in summer. Data from the United States of America indicates that most of the seeds fall within a few metres of the parent plant, and are subsequently dispersed by erosion, rain wash, and possibly ants (Nilsen 2000; DSEWPC, 2013).*

Q5. How likely is long-distance dispersal (>100 m) by human means?

- (a) Deliberate spread by people: Common
- (b) Accidentally by people and vehicles: Common
- (c) Contaminated produce: Unlikely
- (d) Domestic/farm animals: Common

Comments: *Ornamental species (Parsons & Cuthbertson, 2001; Blood, 2001; Hosking et al., 2011). Allegedly sterile hybrid forms of brooms are still sold in nurseries. These have been observed to produce seed and revert to the wild type (STSCNPC, 2013). Seeds spread in dumped garden waste (Blood, 2001; STSCNPC, 2013) or movement of seed-contaminated soil (STSCNPC, 2013). Seed can become entangled in the wool of sheep feeding on infested pasture or be spread in soil in the hooves of other livestock (STSCNPC, 2013).*

Total Invasiveness Score: 12.00

Impacts

Q1. Does the weed reduce the establishment of desired plants?

10 - 50% reduction

Comments: *Brooms, and the closely related gorse, are very bad weeds of cooler areas, where they can come to dominate the understorey of otherwise undisturbed open forest and woodland*

(STSCNPC, 2013). In the USA Spanish broom rapidly colonizes disturbed habitats and develops thick shrub communities that prevent colonization by native species (Zouhar, 2005)

Q2. Does the weed reduce the yield or amount of desired vegetation?

25 - 50% reduction

Comments:

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

High

Comments: *Broom species primarily threaten natural habitats such as conservation areas at present, although they may also compete with favourable species in pasture land. Native flora and fauna are threatened when native plants are out-competed and natural habitat*

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

Medium

Comments:

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

High

Comments: *Seeds and leaves are poisonous, especially to children (Richardson et al., 2011; DSEWPC, 2013).*

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

- (a) food/shelter: Major negative effect
- (b) fire regime: Major negative effect
- (c) altered nutrient levels: Major negative effect
- (d) soil salinity: Do not know
- (e) soil stability: Do not know
- (f) soil water table: Do not know

Comments: *Native flora and fauna are threatened when native plants are out-competed and natural habitat is replaced by infestations of Broom species (DSEWPC, 2013). Being legumes, the brooms fix nitrogen, and can increase soil fertility, encouraging other weeds to invade (STSCNPC, 2013). Spanish broom stands should be considered a fire hazard during the dry season, because patches can be dense and may contain a large amount of dead wood (Zouhar, 2005).*

Total Impacts Score: 16.00

Potential distribution

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

10-20% of land use

Comments: *Potential distribution in southern and south-eastern NSW, along Great Dividing range to Northern Tablelands (Wilson, 2013).*

Total Potential Distribution score: 2.00

Weed Risk Score: 135

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: *Large deciduous shrub to 3 m. Similar to other yellow broom species but easily distinguished by waxy, cylindrical, almost leafless stems and lack of spines. Flowers fragrant, yellow with prominent pointy keel in open spike (Blood, 2001; Richardson et al., 2011).*

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

High

Comments: *Naturalised on South Coast (Braidwood) and North Western Slopes (Inverell) (Hosking et al., 2011; AVH, 2013). More than 100 plants recorded growing in a garden at Candelo and over 100 plants of all ages on a riverbank at Inverell (Hosking et al, 2011).*

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

- (a) Chemical costs/ha: High (\$250-\$500/ha)
- (b) Labour costs/ha: Medium (\$100-\$249/ha)
- (c) Equipment costs: Low

Comments: *Large plants can be cut and painted with herbicide to prevent resprouting. Seedlings and smaller plants can be hand pulled or dug out. As the seed is long-lived in the soil, follow up work is needed to control seedling growth after removal of the parent p*

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

Medium

Comments:

Total Control costs score: 5.00

Persistence

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

Medium

Comments: *Large plants can be cut and painted with herbicide to prevent resprouting. Seedlings and smaller plants can be hand pulled or dug out. As the seed is long-lived in the soil, follow up work is needed to control seedling growth after removal of the parent p*

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

>2 years

Comments:

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

2-5 years

Comments: *With large infestations, the most effective control will probably be achieved by applying herbicides, as part of an integrated management plan, to gain initial reduction of the weeds as a first step. It is best to apply the herbicides when the plants are*

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: Frequent

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

Comments: *Spanish Broom is dispersed solely by seeds, which are ejected explosively as the pods dry out on warm, sunny days in summer. Data from the United States of America indicates that most of the seeds fall within a few metres of the parent plant, and are subsequently dispersed by erosion, rain wash, and possibly ants (Nilsen 2000; DSEWPC, 2013). Ornamental species (Parsons & Cuthbertson, 2001; Blood, 2001). Allegedly sterile hybrid forms of brooms are still sold in nurseries. These have been observed to produce seed and revert to the wild type (STSCNPC, 2013). Seeds spread in dumped garden waste (Blood, 2001; STSCNPC, 2013) or movement of seed-contaminated soil (STSCNPC, 2013). Seed can become entangled in the wool of sheep feeding on infested pasture or be spread in soil in the hooves of other livestock (STSCNPC, 2013).*

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?

0% of area

Comments: *Naturalised on South Coast (Braidwood) and North Western Slopes (Inverell) (Hosking et al., 2011; AVH, 2013). More than 100 plants recorded growing in a garden at Candelo and over 100 plants of all ages on a riverbank at Inverell (Hosking et al, 2011).*

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

Not present

Comments: *not known to be present in Sydney*

Comment added by M. Sheehan 12/03/2019: Original assessment stated 'restricted' and was revised to 'not present to reflect the comment above. this does not affect score.

Total Current Distribution score: 0.00

Comparative Feasibility Score: 0

Feasibility Category: Very High

Positive impacts:

References / Other comments

Family: Fabaceae

Common names: Spanish Broom, Weaver's Broom.

Origin: Mediterrean region, North Africa

References:

Blood, K (2001). Environmental Weeds: A Guide for SE Australia. CH Jerram

Department of Sustainability, Environment, Water, Population and Communities (2013). *Spartium junceum*. http://www.environment.gov.au/cgi-bin/biodiversity/invasive/weeds/weeddetails.pl?taxon_id=9399# (accessed 2 May, 2013).

Hosking, J.R., Conn, B.J., Lepschi, B.J. & Barker, C.H. (2011). Plant species first recognised as naturalised or naturalising for New South Wales in 2004 and 2005. *Cunninghamia* 12, 85-114.

Nilsen, E.T. (2000). *Spartium junceum* L. in: Bossard, C.C., Randall, J.M. & Hoshovsky, M.C. (Eds.). *Invasive Plants of California's Wildlands*. Berkeley, CA: University of California Press.

Parsons, WT, Cuthbertson, EG (2001). *Noxious weeds of Australia*. 2nd edition, CSIRO, Melbourne, pp.464.

Richardson, FJ, Richardson, RG, Shepherd, RCH (2011). *Weeds of the South-East*. RG and FJ

Richardson, Victoria, Australia.

Southern Tablelands and South Coast Noxious Plants Committee (2013). *Spanish Broom*.

<http://www.southeastweeds.org.au/index.pl?page=185> (accessed 2 May, 2013)

Wilson, P.D. (2013). OZPNG Weeds. *Spartium junceum* Family Fabaceae.

http://www.peterwilson.id.au/sdm/ozweeds/ozweeds_SpeciesAccounts/Spartium_junceum.html (accessed

2 May, 2013).

Zouhar, K. (2005). *Spartium junceum* in Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. Available at Available: <http://www.fs.fed.us/database/feis/> (accessed 2 May, 2013).

Risk assessment done by Leigh Martin (PEMU, NSW NPWS) 2 May 2013. Checked 6/11/14
Reviewed and approved with minor adjustments (see potential dist Q2 comments) by Matt Sheehan,
12/03/2019.