Biology, Ecology and Dispersal Vectors of Bridal Veil (*Asparagus declinatus*)

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Introduction

- Native to the Western Cape region of South Africa
- Similar climate to southern Australia
- Introduced into Australia as an ornamental plant during the late 1800's
- Has 'jumped' the garden fence and spread into bushland
- Is now considered to be a highly invasive and aggressive environmental weed
- Similar impacts to Bridal Creeper – proven more difficult to control

Biology: morphology & life cycle

- Bridal Veil is a fern like climbing plant with blue-green needle like leaves or cladodes
- Produces scrambling and weakly climbing annual shoots of 2-3 metres in length

Biology: morphology & life cycle

- Shoots emerge during the first Autumn rains (April-May)
- Grows vigorously during winter and produces small (5-8 mm in diameter) white flowers during July-August

Biology: morphology & life cycle

- Green ovoid berries (7-12mm) are produced in August-September
- Berries ripen to a translucent light green in late spring/early summer
- Fruit can stay on the plant through to mid summer

Below ground morphology

- Bridal Veil senesces (dies off) back to the rhizome over the summer months
- Bridal Veil forms an extensive underground root system consisting of branching rhizomes which bear numerous bulb like tubers
- This ensures the plant can survive unfavorable conditions (eg. drought seasons) by drawing on moisture and nutrients within the storage organs
- In mature plants the root mass inhibits germination of native plants and can account for 85% of the total mass of the plant

Below ground morphology

Ecology

- Bridal Veil has a wide soil and climatic range. In SA for example:
  - 493mm/year at Milang/Finniss (300mm-autumn/winter)
  - 628mm/year at Kangaroo Island (430mm-autumn/winter)
- Grows well in rocky outcrops, pine forests and native vegetation (roadsides), often found under *Exocarpus* sp. and other key perching sites
- Presence of Bridal Veil is strongly correlated with canopy cover

Distribution

- South Australia
  - Bridal Veil is found on all of the Peninsulas – Eyre, Yorke and Fleurieu
  - Severe infestations on eastern Kangaroo Island
  - Minor infestations around Adelaide metropolitan area
- Western Australia
  - Infestations in Kings Park (Perth)
  - Bunbury (180 kms south of Perth CBD)
- Victoria
  - One infestation near Horsham eradicated

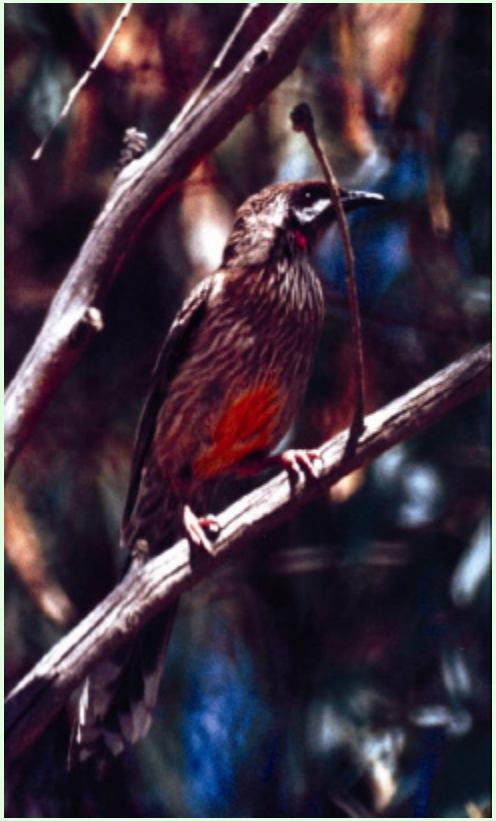
Fruit and Seed Production

- Fruit size shown variation between sites
  - KI: 11.3 ? 8.2 mm and mass 0.49g
  - VH: 10.4 ? 8.0 mm and mass 0.41g
  - Mil: 9.6 ? 7.0 mm and mass 0.29g
- Fruit size has also varied between seasons (smaller, lighter in low rainfall year)
- Average 5-8 seeds/fruit – range 2-14 seeds
- Fruit production range of 100-800 fruit/m^2
- Seed load reaching ~4800 seeds/m^2

Dispersal Vectors

- 26 birds have been observed at Bridal Veil sites since 2001
- Of the birds, main dispersers are likely to include:
  - Currawongs
  - Wattlebirds
  - Ravens
  - Magpies
  - Blackbirds
  - Silvereyes
  - Honeyeaters

  medium-large gregarious birds
- Possums, foxes, rodents and lizards are also potential dispersers



Dispersal Patterns

- Larger birds can disperse seeds up to a distance of 10km and some might consume up to 15 fruit, equivalent of 90 seeds
- Smaller birds are more important for shorter dispersal from 0-100m
- Flight and feeding behaviours are important determinants of future spread – often with links to vegetation associations
- Fruit removal rates have been observed between 69-80% during the months of October and November

Bridal Veil Summary

- A highly invasive weed with potential for further spread throughout southern Australia
- Similar life cycle and impacts as Bridal Creeper but has different morphological characteristics
- Grows in an array of environments but varies in fruit and seed production
- Dispersed mostly by large birds over long distances
- More difficult to control at this stage than Bridal Creeper

Bridal Veil tubers removed 2004 in SHR