

## 1.0 Organism description

### Scientific name

*Oldenlandia corymbosa* (L.), Rubiaceae.

### Common names

Old World diamond flower (PIER).

### Synonyms (PIER)

*Hedyotis corymbosa* (L.) Lam.

### Cultivars, strains, or variants (APNI).

*Oldenlandia corymbosa* var. *caespitosa*

*Oldenlandia corymbosa* var. *corymbosa*

### Previously recorded in New Zealand

No (Ministry of Agriculture and Forestry, Landcare Research).

## 2.0 Summary

- The identification of this plant was not confirmed at the time this assessment was prepared. Therefore it is a provisional assessment only. It relies on a limited number of sources and some sections are not fully assessed.
- *O. corymbosa* is a prostrate to decumbent, annual (possibly perennial) herb, sparsely to densely branched near the base, growing up to 30cm tall. Propagation is by seed.
- It is mostly restricted to humid tropical and sub-tropical regions of Africa, North America, Central America, South America, Caribbean, Asia, Australia and the Pacific. In general it is a minor weed in crops, turf grass and ruderal situations. It is reportedly an environmental weed but impacts appear to be minor.
- It is a plant of mesic, disturbed, open areas below 1500m including roadsides, gardens, lawns, cultivated and fallow fields, grassland, open forest, foreshores, and riparian areas.
- In New Zealand, it is only likely to establish in the northern North Island, with a low probability of extending through coastal and lowland areas as far south as the northern South Island.
- Economic impacts, if any, are likely to be negligible. Crops, nurseries and turf in warm areas only may be affected. It is unlikely to pose any environmental risk in New Zealand.

### 3.0 Basic biology and ecology

#### 3.1 Overseas distribution

- Pantropical; it appears to be mostly restricted to tropical and sub-tropical regions of Africa, North America, Central America, South America, Caribbean, Asia, Australia and the Pacific (PIER, W3TROPICOS, USDA).
- Australia (tropical/sub-tropical); West Australia [Kimberley], Northern Territory [Arnhem Land], Queensland [Cape York to Brisbane] and New South Wales [north from about Port Macquarie] (AVH, PlantNET, FloraBase). There is one recorded collection near Adelaide, South Australia (AVH).

#### 3.2 Ecology/habitat

- *Oldenlandia* consists of c. 300 species, predominantly from tropical regions (Mabberley 1997).
- *O. corymbosa* is a prostrate to decumbent, annual (possibly perennial) herb, sparsely to densely branched near the base, growing up to 30cm tall (PIER). Primarily tap-rooted but can form weak adventitious roots along the stolon nodes (University of Florida).
- It appears to be a plant of mesic, disturbed, open areas below 1500m including roadsides, base of walls, gardens, lawns, cultivated and fallow fields, grassland, open forest, foreshores, flooded lake shores and stream sides (Soerjani et al. 1987, ALUKA<sup>1</sup>, FloraBase, ANHSIR, PIER). It is listed as a facultative wetland plant in North America (USDA).
- It is recorded as growing on a variety of substrates including hard or stony soil, calcareous sand, sandy clay loams, limestone rubble, and bare clay soils (Soerjani et al. 1987, ANHSIR, ALUKA<sup>1</sup>, FloraBase).
- It flowers throughout the year in Indonesia and from February-June in Western Australia (Soerjani et al. 1987, FloraBase). Propagation is by seed. Seeds are pale brown, small (0.3mm long) and numerous, contained in a didymous capsule about 2 x 2mm (PIER).
- In one study, seeds germinated at relatively high temperatures (26-31° C). However, tests were not done to ascertain germination success at lower temperatures. There appears to be polymorphism in dormancy characteristics. Some seeds germinate rapidly in continuous light and high temperatures, while others require low temperatures and moisture to break dormancy. Most seeds germinated within 36 weeks, with variation between batches derived from different individual donor plants (Tan & Corlett 1987).

- It is not listed as toxic in Randall (2002).
- The sap, bark, leaves and roots have medicinal uses (ALUKA<sup>2</sup>).

## **4.0 Likelihood of establishment and spread**

### **4.1 Environmental tolerances overseas and comparison with New Zealand**

#### *4.1.1 Environmental tolerances overseas*

- It appears to be mostly confined to relatively low altitudes in the humid tropics and sub-tropics of Africa, America [North, South and Central], Caribbean, Asia, Australia and the Pacific.

#### *4.1.2 Comparison with New Zealand*

- The warm and humid northern North Island is the most likely climate match, with a low probability of establishment in coastal and lowland areas as far south as the northern South Island.

### **4.2 History of spread in other countries**

- Doubtfully naturalised in Western Australia (Hussey et al. 1997).
- Naturalised in some Hawaiian Islands and recently naturalised in Honolulu. Widely naturalised in other Pacific Islands (PIER).
- Increasing in abundance on Florida golf courses during the 1990's (University of Florida).

### **4.3 Natural dispersal mechanisms and human assisted means of spread**

#### *4.3.1 Natural dispersal mechanisms*

- Not fully assessed.
- No information found specific to *O. corymbosa*. The seed is very small and is likely to be gravity/wind dispersed. Other means of dispersal are not known.

#### *4.3.2 Human dispersal*

- Human mediated dispersal is possible as a result of transport of seeds in contaminated machinery, produce and soil.

#### **4.4 Distribution of potential habitat in New Zealand**

- Potential habitats in New Zealand are roadsides, waste areas, gardens, lawns, cultivated fields, grasslands, forest margins, foreshores, stream sides and other riparian areas in the northern North Island, with a low probability of establishing in the same habitats as far south as the northern South Island.

#### **4.5 Constraints to spread and predicted rate of spread in New Zealand**

##### *4.5.1 Predicted rate of spread*

- Rate of spread by natural dispersal not assessed, but probably slow.
- It could form widespread populations quickly via human vectors as seed in contaminated soil, produce and machinery.

##### *4.5.2 Constraints to spread*

- Climate is likely to limit its establishment and spread to warmer areas of the northern North Island, or to the areas outlined above in section 4.1.2.
- In one study, germination occurred at relatively high temperatures (26-31° C), although tests were not done to ascertain germination success at lower temperatures (see section 3.2).
- Other constraints to spread (e.g. pests and diseases) were not assessed.

### **5.0 Consequences**

#### **5.1 Overseas impacts**

##### **5.1.1 Economic impacts**

- In general it appears to be a minor weed in crops, turf grass and ruderal situations.
- Asia; it is listed as a weed of rice, orchards and vegetables. Widespread and important in Malaysia and Singapore, but a minor weed elsewhere in South East Asia (Waterhouse 1993). In Indonesia it is a weed of minor importance in rainfed, upland and lebak rice fields (Soerjani et al. 1987).
- Pacific; listed as a major weed of dryland crops in the Philippines and Palau. Elsewhere it has intermediate importance in gardens, and minor impacts in plantations and wastelands (Swarbrick 1997). Not listed in Waterhouse (1997).

- Australia; it is listed in Groves et al. (2003) but is unranked - either because it is not a problem, or it is not yet recorded in agricultural areas.
- It is a turf weed in the southern United States (University of Florida).

### **5.1.2 Environmental impacts**

- Listed as an environmental weed in Randall (2002) but impacts appear to be minor.
- In Australia, it is reportedly a minor problem at four or more locations within a state or territory. However, it was also noted to be primarily an agricultural and ruderal weed (Groves et al. 2003). Listed as naturalised but not an environmental problem in tropical Australia (Werren 2001).
- Long established, but integrated into the natural system without causing damage, on the Galapagos Islands (Tye 2001).

### **5.1.3 Other impacts**

- None known.

## **5.2 Potential impacts in New Zealand**

### **5.2.1 Economic**

- Economic impacts are likely to be negligible, although this will depend on where it establishes, and its growth rate and seeding habit. However, it has limited impacts overseas in more favourable environments. Impacts, if any, may be in crops, nurseries, and turf in warm areas only. It should be controlled by existing weed management practices.

### **5.2.2 Environmental**

- It is unlikely to pose any environmental risk in New Zealand. Environmental impacts overseas are minor or non-existent, its growth habit is of no major concern, and it is unlikely to invade undisturbed areas. Impacts, if any, may be in disturbed grassland, open forest, foreshores, and riparian areas.

### **5.2.3 Other impacts**

- May be a nuisance weed in home gardens and lawns in warm, moist areas.

## 6.0 Control techniques

- Not fully assessed.
- Hand weeding is relatively easy. In turf, phenoxy herbicides (e.g. 2,4-D) alone are not effective, while carfentrazone combinations are moderately effective (University of Florida).

## 7.0 Uncertainty summary

- The identification of this plant was not confirmed at the time this assessment was prepared. Therefore it is a provisional assessment only. It relies on a limited number of sources. Some sections are not fully assessed.
- The potential New Zealand distribution is uncertain. It is likely to be limited by climate to the northern North Island, with a low probability of establishing as far south as the northern South Island.

## 8.0 References

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