

## Mini data sheet on *Sesbania punicea* (Fabaceae)

Added in 2008 - Deleted in 2012

### Reasons for deletion:

*Sesbania punicea* was added to the EPPO Alert List in 2008 but as no immediate risk was perceived, it was transferred to the Observation List in 2012.

### Why

*Sesbania punicea* (Fabaceae - common name is 'rattlebox') originates from South America and has been introduced as an ornamental plant to other parts of the world. Within the EPPO region, its distribution is still limited. Because this plant has shown invasive behaviour in North America and in Africa and is still limited in the EPPO region, it can be considered as a potential emerging invader in Europe.

### Geographical distribution

**EPPO region:** Italy (only in Sardinia).

**North-America:** USA (Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, Virginia).

**South-America:** Argentina, Brazil, Paraguay, Uruguay.

**Africa:** Lesotho, Mauritius (including Rodrigues), South Africa, Swaziland, Zimbabwe.

**Oceania:** Australia (Queensland).

*Note:* in Sardinia, the species is locally naturalised in very limited coastal areas in the North-East (near Siniscola), and in the South of the island (G Brundu, pers. comm., 2008). In South Africa, the species has invaded watercourses throughout the country, except in the arid interior.

### Morphology

*S. punicea* is a deciduous shrub or small tree that can grow up to 4 m tall. The composite leaves are 100-200 mm long and are made of 10-40 small dark-green leaflets, placed in opposite pairs along the leaf rachis (Graaff, 1983). Each leaflet is oblong in shape, tapering to a pointed tip. The flowers are bright red, shaped like pea flowers, and measure 2-3 cm long. *S. punicea* is very easily identifiable by its pods, longitudinally four-winged and oblong in shape. Pods are approximately 6-8 cm long and 1 cm wide, and contain on average 5 to 7 seeds. The number of pods per plant varies with the age and growing conditions of the plant, but a mature plant can produce 100-300 pods per season. Pods are green or yellow early in the season, eventually turning dark brown, and remain on the plant during winter.

### Biology and ecology

Clusters of red bright flowers emerge in late spring and are produced until the autumn (from June to September in California (US), or November to January in South Africa). The hundreds of pods produced are released around the base of the parent plant. They may fall directly into rivers, floating kilometres downstream to start new populations. Because of the seed's toxic nature, they are not spread by animals. *S. punicea* is also common along roadsides and it is hypothesized that these plants probably originate from seeds brought in with soil used for road construction. Seeds have impermeable seed coats that require scarification before germination. The water-impermeable seed coat allows survival of the seeds when spread along waterways.

Seedlings sprout in moist areas along rivers and creeks. The species is relatively shade-tolerant, and seedlings can grow in the shade. Three month old seedlings can flower and produce seeds, but flowering usually occurs when plants enter their second year of growth. The plant can survive a hard freeze, but probably not if this exceeds a few days.

### Habitats

*S. punicea* prefers areas with high rainfall or damp habitats. It is commonly found along rivers and in areas that are frequently inundated. In the USA, it is also found in wastelands. According to the Corine

Land Cover nomenclature, the following habitats are invaded: banks of continental water, riverbanks/canalsides (dry river beds), other artificial surfaces (wastelands).

### Pathways

The species has been introduced for ornamental purposes, probably because of its long flowering period and its profuse flowers. For example in California (US), it was introduced as an ornamental prior to 1930 but was not documented in riparian vegetation until 1987.

### Impacts

*S. punicea* rapidly forms dense stands along rivers and creeks. It can completely cover (100% cover) areas of up to several thousand square meters. It displaces native plants that provide essential food and shelter for a wide variety of wildlife species.

*S. punicea* contains saponine which is toxic to both humans and animals (birds, reptiles and mammals). As little as 6 doses of 100 mg of the plant ingested per day can kill a sheep and as few as 6 seeds can kill a chicken. Several cases of cattle poisoning have been reported in South Africa. However in California (US), it causes moderate impacts on bird or reptile populations.

Stands formed by *S. punicea* are often so thick that access to rivers is impossible. Tall stands can also reduce water flow and flood conveyance in rivers, increasing the risk of flooding after heavy rains and contributing to erosion.

### Control

*S. punicea* can be removed manually. In California (US), community volunteers in the Sacramento area conduct manual weed removal with hand tools (e.g. loppers, saws and shovels). The root system is not very large - especially in waterlogged situations - pulling is therefore relatively easy. Along rivers, tarpaulins can be used to remove the cut vegetation from the water in order to reduce seed dispersal. Larger trees can be cut, and the stump should be treated with triclopyr. Glyphosate has been used unsuccessfully in Florida (US) either alone (1% as a foliar spray) or with triclopyr (1% glyphosate, 1% triclopyr). Flooding is not effective, but plants standing in water could be cut below the water line (without an herbicide application) which stops regrowth.

In South Africa, biological control has been used successfully. Three host-specific insect species have been released and no other control measures are required where these insects are present: *Trichapion lativentre* (Coleoptera: Apionidae), *Rhysomatus marginatus* (Coleoptera: Curculionidae), *Neodiplogrammus quadrivittatus* (Coleoptera: Curculionidae).

Considering the invasive behaviour of *S. punicea* in California and South Africa, the aquatic ecosystems of the Mediterranean part of the EPPO region is considered to be the most at risk.

### Sources

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