Gymnocoronis spilanthoides 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name Senegal teaplant (English), temple plant (English)

Synonym *Alomia spilanthoides* , D. Don ex Hook. & Arn.

Similar species *Alternanthera philoxeroides*

Summary Gymnocoronis spilanthoides is a freshwater or marsh-growing emergent perennial herb. It has been introduced through the aquarium trade. It grows very quickly and can rapidly cover water bodies with a floating mat that excludes many animals and plants from native vegetation. Localized flooding increases because *G. spilanthoides* blocks drainage channels. Recreational activities, irrigation and navigation may also be affected. And if large-scale die-offs of this species occur, water quality may decline.

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Species Description
PIER (2005) describes *Gymnocoronis spilanthoides* as a freshwater or marsh-growing emergent perennial herb which can form rounded bushes up to 1 metre tall or scrambling mats of tangled stems along the edges of waterways. Young stems are 5 to 10mm in diameter, mature stems 20mm in diameter. Larger stems are hollow between the nodes (the joints between segments of stem) and float on water, reaching lengths of 1.5 metre. The leaves are dark green, 50 to 200mm long and arranged in opposite pairs along the stem. The edges of the spearhead-shaped leaves are serrated. The numerous, white, ball-shaped flowers, 15 to 20mm in diameter, occur at the ends of stems (The Department of the Environment and Heritage, 2003). The ribbed seeds are yellow-brown and 0.8-1.2mm in length (Vivian-Smith *et al*., 2005). Thin, fibrous roots can develop from leaf veins or from any node in contact with moist soil or water.

Lifecycle Stages
Australian region: Flowering in *G. spilanthoides* commences in late spring or early summer and continues until the cooler weather of late autumn. Seed formation occurs about one month after flowering. Plants become dormant during winter and new growth reshoots from the crown and nodes during the following spring. Most seeds germinate in spring, although some germination may continue into summer. Seedling growth is rapid, and plants quickly reach the surface if submerged in shallow water. *G. spilanthoides* is a perennial that lives for at least several years (The Department of the Environment and Heritage, 2003).

Uses
This species is used in the aquarium trade.

Habitat Description
PIER (2005) states that, \"*Gymnocoronis spilanthoides* grows over the surface of slow-moving or stationary water bodies. It can form dense floating mats and is usually rooted in damp soil.\" The Department of the Environment and Heritage (2003) states that, \"*G. spilanthoides* grows in wetlands, particularly degraded waterways. It can flourish in still or slow-moving fresh water, rooted in the bank and floating out into the waterway. It survives and continues growing even when completely inundated. It also grows on wet marshy soils near water.\"

Reproduction
The Department of the Environment and Heritage (2003) states that, \"*G. spilanthoides* can reproduce by seeds and vegetation. The seeds can be spread by flowing water. Seeds are approximately 0.20 mg (air dried) (Vivian-Smith *et al*. 2005). They are small and quite light and germinate readily under light conditions. Vivian-Smith *et al*. (2005) reported 83% germination. Seeds can also be spread in mud attached to animals or machinery. Vegetative spread occurs when any part of the stem that includes a node breaks away from the main plant, e.g. in fast flowing water. When the stem fragment settles on the streambed it sends out fine roots from the node, and can grow into an entire new plant. This new plant can spread quickly and create a colony by producing roots where nodes come in contact with moist soil. Stem fragments can also be accidentally spread by transport of machinery (e.g. boats, trailers, lawnmowers) or in animals' hooves.\" *G. spilanthoides* stem fragments can enabling the plant to regrow when broken up and dislodged by floodwater or other disturbance (PIER, 2005).

General Impacts
G. spilanthoides grows very quickly, and is known to rapidly cover water bodies with a floating mat, excluding other plants and the animals that rely on them. The effects of flooding are made much worse because infestations block drainage channels. Recreational activities, irrigation and navigation may also be affected. Water quality may decline if large amounts of *G. spilanthoides* die off and rot under water.\" The authors also report that, \"*G. spilanthoides* poses a significant risk to the health of wetland ecosystems. It can quickly take over wetlands and detract from their environmental value, natural beauty and recreational potential. It is also very difficult to control because it can spread by both seed and vegetative reproduction. Even tiny pieces of vegetation can give rise to new colonies. Because it is found mainly in water, the potential impacts of herbicides on nontarget plants and animals must also be carefully managed (The Department of the Environment and Heritage, 2003). Land Protection (2004) reports that, \"*G. spilanthoides* will invade and degrade natural wetlands, competing strongly with slower growing native plants and affecting wetland birds and other animals dependent upon them.\"

Management Info
Mechanical: *Gymnocoronis spilanthoides* is very hard to kill and herbicides effective on similar plants kill only the upper parts of the plant. Any material that is below the water line is not killed, and can regrow. Hand pulling often results in regeneration and further spread. Mechanical removal has been used in conjunction with de-silting operations. First, herbicide was applied, then, 7 to 10 days later, all silt and plant material to a 1 metre depth was removed by machinery, taken away and spread out and dried. Weed material should always be dried out and treated like this, and, if possible, burnt. Alternatively it could be placed in a sealed plastic bag, left in the sunlight to rot and decompose and then disposed of at an approved land fill tip (Land Protection 2004).
Cultural: As with all weed management, prevention is better and more cost effective than control. In Australia it is illegal to cultivate *G. spilanthoides* in most states and territories as it is a declared noxious weed. However, Senegal tea has been cultivated as both an aquarium plant and as a garden/ornanmental pond plant that attracts butterfly species. Vendor , state or territory weed control contacts should be contacted if *G. spilanthoides* is found to be for sale. Early detection and eradication are also important to prevent the spread *G. spilanthoides*. Small infestations can be eradicated if they are detected early but an ongoing commitment is needed to ensure new infestations do not establish (The Department of the Environment and Heritage, 2003). One should avoid buying seeds on the internet or from mail order catalogues to ensure they are free of weeds like *G. spilanthoides* (The Department of the Environment and Heritage, 2003). A statement of uses should also be included in here. In Australia, Senegal tea has been cultivated as both an aquarium plant and as a garden/ornamental pond plant that attracts butterfly species. Senegal tea is a resilient ornamental plant, it is also eaten by stock and has been noted as providing winter grazing in wet areas.
Chemical: Long-term experience with glyphosate has shown it is not an effective eradication tool in south east Queensland. Some of the problems arise from the problem that it is non-selective and also kills native species such as swamp grasses and sedges. It also has no residual effect which means it creates a gap which is flooded by light, an ideal seedbed for senegal tea to re-grown. In addition, the plant fragments after toxin application, resulting in leaf abscission and propagule formation.

Principal source: Department of the Environment and Heritage, 2003 Senegal tea plant *Gymnocoronis spilanthoides*

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Summary: This report is the first stage in a three-stage development of a Border Control Programme for aquatic plants that have the potential to become ecological weeds in New Zealand.
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