

Weed Risk Assessment: *Hypericum tetrapterum*

1. Plant Details

Taxonomy: *Hypericum tetrapterum* Fries. Family: Clusiaceae (or Hypericaceae).

Common names: square stalked St John's wort, St Peter's wort.

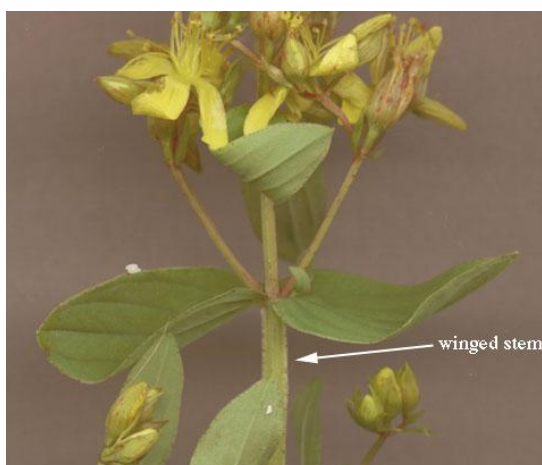
Origins: Native to Europe, Western Asia and North Africa.

Naturalised Distribution: Naturalised in New Zealand and Australia (Victoria, Tasmania).

Description: *H. tetrapterum* is an erect, hairless, perennial herb that grows to 1 m high. Stems are square in cross section, winged, green to reddish brown and with black glands. Lower nodes capable of giving rise to roots. The leaves are light green, opposite, ovate, stem clasping with entire margins. Numerous translucent oil glands and black glands are present, especially around the edges. Flowers are bright yellow and occur in small, dense terminal clusters. Oil glands occur along the edges of petals and these take the appearance of small black dots. The fruit is an ovoid capsule that contains many seeds which are small, light brown, cylindrical and pitted. Roots are extensive and include numerous rhizomes capable of forming new plants (Parsons and Cuthbertson, 2001).



Biology and ecology:



Habitat. *H. tetrapterum* prefers moist areas and is found growing along stream sides and around natural soaks and marshy areas (Flora of Northern Ireland website, Parsons and Cuthbertson, 2001). It also occurs in wetter pastures.

Life cycle. Germination occurs mostly after autumn rains. Flowering begins in late spring and continues into summer. The woody stems die back after flowering but may remain standing for months or even years. Rhizomes produce new shoots in spring (Parsons and Cuthbertson, 2001).

Reproduction and dispersal. Reproduction occurs via seeds or rhizomes. Stems may also develop roots and so form individual plants. Seeds are dispersed by water but movement of contaminated soil, or produce may also assist spread (Parsons and Cuthbertson, 2001).

Hybridisation. Under experimental conditions, *H. tetrapterum* is known to be able to hybridise with *H. perforatum*, St John's wort (Schulte et al, 1999) though the implications of this for weed potential are uncertain.

Competition. *H. tetrapterum* may form a thick mat prior to flowering and in so doing can smother and exclude other vegetation, especially in wetter cropping and grazing situations (Parsons and Cuthbertson, 2001).

Harmful properties. Flowers and leaves are toxic as they contain hypericin, a compound that can induce photo-sensitivity in humans and animals.

Economic benefit: *H. tetrapterum* has little economic benefit. Check

2. Weed Risk

World weed status

H. tetrapterum is a weed in Canada (?) and New Zealand.

Australian weed status

H. tetrapterum is naturalised in one area in Victoria where it is also regulated. It is not regulated in any other state or territory. It is permitted entry to Australia. Cunningham et al. (2003) list it as one of 17 potentially significant weeds of Australian agriculture for which eradication is feasible. Groves et al., (2003) list it as a major weed in three or fewer Australian locations.

Weed potential in Tasmania.

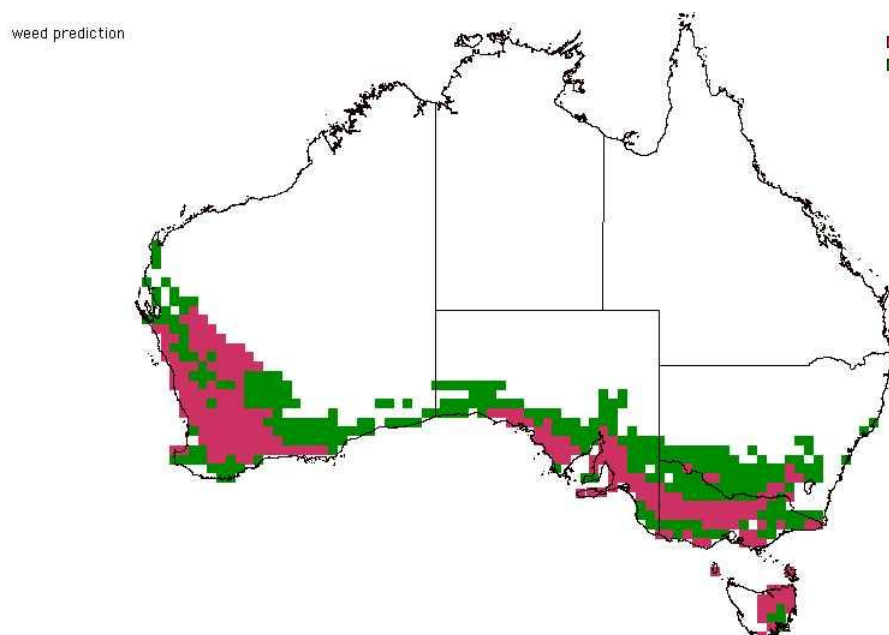
H. tetrapterum is not naturalised in Tasmania.

Climate matching indicates the plant is likely to grow well in a range of Tasmanian environments, The following analyses describe the weed potential of *H. tetrapterum* in Tasmania.

Weed risk assessment

Weed risk assessment undertaken by DPIWE involves use of a point scoring system devised by Pheloung (1996). *H. tetrapterum* scores 22 on a scale that is positively correlated to weediness. The nominal score for rejection of a plant on this scale is 7 or greater (see Appendix 1 for risk assessment scoring).

Potential distribution of *Hypericum tetrapterum* in Australia using CLIMATE (Pheloung, 1995)



3. Weed Impact Assessment

Weed impact assessment is based on the DPIWE scoring system designed for that purpose. *H. tetrapterum* scores 4 points on a scale where 4 points or more indicates a plant has significant potential impact. The impact scoring system requires that questions be answered with a particular land use and potential density in mind. *H. tetrapterum* was assessed for its potential impacts upon agriculture at moderate densities.

Economic impact. The economic impact of *H. tetrapterum* in Tasmania is mostly relevant to agriculture. Whilst unlikely to establish in regularly cultivated areas, it has already demonstrated a capacity to invade pasture in the State's south ?? Whilst this effect is likely to be limited to poorly maintained pastures, the consequence of land owners failing to control the plant would include a larger source of seed for potential distribution to natural areas. The plant is also toxic so as well as reducing carrying capacity by competing with desirable pasture species, it may cause injury to stock.

Environmental impact: *H. tetrapterum* is not commonly described as invasive in natural environments but may displace native riparian species in disturbed situations. This is cause for concern. Groves et al, (2003) list it as an environmental weed.

Social impact. *H. tetrapterum* is unlikely to have significant social impacts in Tasmania.

4. Management Feasibility.

Since this plant is not naturalised in Tasmania at this time, management feasibility is not an issue. However, maintaining freedom from *H. tetrapterum* is highly dependent upon effective import prohibition, early detection and reporting of any occurrences and, community and industry education.

5. Declaration Recommendation.

H. tetrapterum appears to have potential to establish, reach moderate densities and cause significant harm to agricultural enterprises in Tasmania and may also infest riparian areas. Therefore it should be nominated for declaration under the *Weed Management Act 1999*. This will support import prohibition of the plant and timely eradication of existing infestations. It will also assist national efforts to reduce the extent of this plant.

6. References.

Cunningham, D.C, Woldendorp, G, Burgess, M.B. and Barry, S.C., 2003, *Prioritising sleeper weeds for eradication: Selection of species based on potential impacts on agriculture and feasibility of eradication*. Bureau of Rural Sciences, Canberra.

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Groves, R.H. (Convenor), Hosking, J.R., Batianoff, G.N., Cooke, D.A., Cowie, I.D., Johnson, R.W., Keighery, G.J., Lepschi, B.J., Mitchell, A.A., Moerkerk, M., Randall, R.P., Rozefelds, A.C., Walsh, N.G. and Waterhouse, B.M., 2003, *Weed categories for natural and agricultural ecosystem management*. Bureau of Rural Sciences, Canberra.

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Pheloung, P.C., 1996, *Climate. A system to predict the distribution of an organism based on climate preference*. Agriculture Western Australia.

Schulte, J., Schaffner, W., Buter, B. and Buter, K.B., 1999, Hybridisation experiments with different species of the genus *Hypericum*. *Zeitschrift für Arznei- & Gewürzpflanzen* 4(3): 126-133.

USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN), online database at www.ars.grin.gov/cgi-bin/ngps/html, National Germplasm Resources Laboratory, Beltsville, Maryland.