Crassula helmsii

Taxon	Family / Order / Class / Phylum
Crassula helmsii (Kirk) Cockayne	Crassulaceae / Rosales / Magnolopsida

COMMON NAMES (English only)
New Zealand pigmyweed
Australian stonecrop
Swamp stonecrop

SYNONYMS
Crassula recurva (Hook. F.) Ostenf. Non N/E. Br.
Tillaea recurva (Hook F) Hook F.

SHORT DESCRIPTION
A small succulent flowering perennial that grows rapidly to form an extensive lush-green 'carpet' that floats on freshwater or may be submerged. Growth can extend from margins of sheltered waterbodies to completely cover the water surface with tangles of stems and shoots. Plants may range from 10-130cm in length. In deeper water, plants are more elongate and have narrower leaves. Flowers are <4mm and white to pale pink.

***Crassula helmsii* from the Glastry Clay Pits, Northern Ireland**

Photo: Dan Minchin

BIOLOGY/ECOLOGY

Dispersal mechanisms
Plant fragments or buoyant shoots (turions) carried by birds and mammals, downstream movements and from flooding. May also be moved with mud. Fragments may also be moved with mud. Seeds are *ca* 0.5mm, but no seeds are known to be produced in northern Europe.

Reproduction
It can propagate from small fragments containing a node, from <5mm, and has a high growth rate. Reproduces mainly by vegetative reproduction from small stem fragments. Grows for most of the year without serious winter die-back. Seeds are not known to be produced in Europe.

Known predators/herbivores
No specific grazers.

Resistant stages (seeds, spores etc.)
May overwinter as turions.

HABITAT

Native (EUNIS code)
C1: Surface standing waters, C3: Littoral zone of inland surface waterbodies. Slow-flowing water, ponds, ditches, canals, reservoirs, lakes and wetlands.

Habitat occupied in invaded range (EUNIS code)
C1: Surface standing waters, C3: Littoral zone of inland surface waterbodies. A freshwater succulent aquatic perennial that occurs on wet ground or as a marginal plant or submerged to ~3m.

Habitat requirements
Acidic to alkaline nutrient rich water-bodies. Tolerates temperatures from –6 to 30°C.

DISTRIBUTION

Native range

Australia, Tasmania and New Zealand.

Known Introduced Range

Occurs in much of Europe, Russia, and in the south-eastern United States. Introduced to Europe in 1911 from Tasmania.

Trend

Spreading.

MAP (European distribution)

Legend

	Known in country		Known in CGRS square		Known in sea

INTRODUCTION PATHWAY

Ornamental plants, sold in garden centres and for aquaria. May be carried overseas with leisure craft or with fishing gear.

IMPACT

Ecosystem impact

Forms dense marginal and floating mats that can shade-out other water plants and result in oxygen depletion of the underlying water causing a decline in invertebrates, frogs, newts and fishes.

Health and Social Impact

Floating mats can be mistaken for dry land.

Economic Impact

Reduces opportunities for angling and interferes with navigation.

MANAGEMENT

Prevention

Legislation and inspections of ornamental plants are needed to prevent its sale in vulnerable regions.

Mechanical

Physical removal results in many small viable fragments being left in the water, which may spread the plant downstream or elsewhere within lakes and reservoirs. Removal may be practical for small water-bodies. Shading out with dark-plastic sheeting has been successful.

Chemical

It has been shown to be resistant to many available herbicides. Efficacy depends of the density of the plants to be managed. Mechanical removal followed by chemical treatments using diquat have been shown to be effective. Application of diquat is most effective in the autumn and winter with water temperatures >12˚C, below 8˚C absorption is poor. For emergent plants glycophosphate may be used but could be a hazard for grazing animals. More than one application may be needed spaced about three weeks apart. Complete eradication is often difficult. There are regulations on the use of chemicals in many countries.

Biological

Unknown.

REFERENCES

Dawson FH (1996) *Crassula helmsii:* Attempts at elimination using herbicides. Hydrobiologia, 340(1-3): 241-245

Dawson FH (1994) Spread of *Crassula helmsii* in Britain. *In* L. C. de Waal, L. E. Child, P. M. Wade, and J. H. Brock, eds. Ecology and Management of Invasive Riverside Plants. New York: J. Wiley. pp 1–14

Weber E, Gut D (2004) Assessing the risk of potentially invasive plant species in Central Europe. J Nat Conser 12 (3): 171-179

OTHER REFERENCES

Brouwer E, Den Hartog C (1996) *Crassula helmsii* (Kirk) Cockayne, an adventive species on temporarily exposed sandy banks. Gorteria. 22(6), 149-152

Dawson FH, Warman EH (1987) *Crassula helmsii* (T. Kirk) Cockayne: is it an aggressive alien aquatic plant in Britain? Biol Conser 42:247–272

Dawson FH, Caffrey JM, Barrett PRF, Murphy KJ, Wade PM (1996) *Crassula helmsii*: attempts at elimination using herbicides. Management and ecology of freshwater plants. Proceedings of the 9th international symposium on aquatic weeds, European Weed Research Society, Dublin, Irish Republic, 1994. *Hydrobiologia*, 340(1/3). pp 241-245

Dawson F, Waal LCde, Child LE, Wade PM, Brock JH (1994) Spread of *Crassula helmsii* in Britain. In: *Ecology and management of invasive riverside plants*, 1-14. John Wiley & Sons Ltd; Chichester; UK

Weber E (2003) Invasive plant species of the world. *A reference guide to environmental weeds*. CABI Publishing, UK, p 548

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