**Crassula helmsii in the Flemish-Dutch 2 Seas Region: an overview**

RINSE aimed to advance management of INS in the 2 Seas Region and stimulate cross-border collaboration in this field. Risk assessment, prioritization of measures and effective control require knowledge of current status, invasion biology and potential impacts of INS, as well as of stakeholder conduct and best practice. One of the targeted species was the highly problematic amphibious Australian swamp stonecrop. This is an outline of our work in Flanders (Belgium) and the adjoining part of the Netherlands.

### Extent of invasion

A detailed survey revealed considerable spread in the last decade.

### Means of dispersal

So far, spread and survival in the non-native range were considered to depend on vegetative parts, with overland dispersal occurring mainly by man or animals.

### Site characteristics and impact on vegetation

General abiotic features and vegetation of colonized sites provide clues on where future invasion may be expected most. Standardized vegetation relevés allow to assess changes in species richness, composition and trait representation as the cover of *C. helmsii* increases; a selection of quadrats will also be followed in time.

### Attitudes and actions of site managers

Structured personal interviews probed Flemish site managers confronted with *C. helmsii* for their opinion on impacts, main sources of information, presumed ways of introduction, preventive measures, control actions and experiences.

### Interaction with rare species

Its efficient carbon metabolism, allows *C. helmsii* to grow strongly in soft-water conditions where it may outcompete the low-growing species of endangered shoreweed communities. Sometimes, however, its development remains quite modest. Controlled multi-species experiments can elucidate interspecific interactions and help to identify conditions posing higher risk for strong growth.

### Demonstration project Huis ter Heide (NL): heathland restoration jeopardized by extensive invasion

Prolific growth of *C. helmsii* occurs above as well as below the water line and minute fragments enable rapid recolonization. Complementary control measures and a collective effort of statutory managers, consultants and volunteers are required to tackle complex situations. They also provide opportunities for learning and training in the field.

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In a low-density replacement set-up, where only percolating water was supplied, *Littorella uniflora* and *Hypericum elodes* developed considerably better alongside *C. helmsii*. The latter was only slightly influenced by neighbours from another species. All species were slightly stimulated if nitrogen was increased to the current level in regions with high N-deposition.

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Invasion by *C. helmsii* does not necessarily mean that loss of native species is eminent.

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