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Houttuynia cordata

Species description

Chinese lizard tail (*Houttuynia cordata*) is a terrestrial and semi-aquatic perennial and rhizomatous plant native to Asia. The species was introduced to Europe, including Belgium, through the horticultural trade as a popular ornamental plant for gardens and ponds. In some other parts of the world, the species was also introduced for medicinal and culinary purposes. The first records of Chinese lizard tail in the environment in Belgium remain rather uncertain. Disposal of garden waste, along with natural escape from cultivation are probably at the origin of its current presence in the wild. Today, while emerging and uncommon in Belgium, the plant might become a problematic invasive species in the near future. It has therefore been included in the LIFE RIPARIAS alert list. Although easily detectable, its presence on the Belgian territory is probably underestimated due to a lack of recorded observations and monitoring efforts.

Fig 1. *Houttuynia cordata*. Photo : Σ64

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Houttuynia cordata

Chinese lizard tail grows in moist habitats such as wetlands, on the banks of ponds and waterways but also in shaded sites such as cool forest environments. As an emerging invasive species in Belgium, the plant might soon cause diverse environmental, social and economic impacts. In some parts of its introduced range (North America and New-Zealand), the plant has already displayed some invasive tendencies. This invader forms dense groundcovers that can have detrimental effects on the ecosystem and biodiversity by displacing native plant species. Economic effects include costs associated with management as the species appears to be extremely complex to manage.

Biological characteristics, reproduction and spread

In western Europe, flowering of Chinese lizard tail occurs in early summer. The plant, which resists well to frost, dies back to the rootstock during winter months. In warmer regions, the species can be semi-evergreen. A cultivar with tricolor leaves is also currently available via the horticultural trade in Europe. It has, however, not yet been observed in the wild in Belgium.

Reproduction in western Europe is principally vegetative through the cutting or division of rhizomes and creeping stems. When the plant breaks into fragments, either naturally or because of human activity, those small fragments can form a new plant, and therefore, a new population away from the initial invaded area. The species can also reproduce by seeds, which are contained in fruits (4 to 18 in each fruit). As the fruits are apomictic, no fertilisation is required for seed development. Whether Chinese lizard tail produces viable seeds in Europe and permanent seedbanks remains uncertain and requires further research. Spread mainly occurs through fragments being transported by water courses or human activities. The species' high regeneration and dispersal abilities highlight the importance of implementing effective management measures.

Fig 2. Invasion of Chinese lizard tail forming dense canopy. Photo : Meneerke bloem

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General considerations about management

Few management options have been implemented so far to control and eradicate the species, with manual removal and the application of herbicides being the dominant methods. However, the use of chemical control options to manage invasive plant species is not recommended due to the risk of side effects on the natural environment, and is even legally prohibited in some regions. There is also a lack of available literature on management measures for this species. Local eradication of Chinese lizard tail is considered hardly achievable, even for small infestations, due to its impressive propagation abilities and high resistance to herbicides. The feasibility of eradicating populations must, therefore, be assessed on a case by case basis, considering site specificities, and be thoroughly discussed within the management team.

Due to the species' ability to reproduce vegetatively through fragmentation, precautionary measures must be implemented before initiating management to prevent fragment spread within the managed area or to uninvaded. The harvested plant material must be safely disposed of far away from water and moist areas, and is destroyed (incinerated). Material that has been in contact with the plant and the contaminated soil should be checked, cleaned and dried before being taken to another site. It is recommended to restrict public access to the managed area in order to isolate the infestations as much as possible and limit the risk of spread.

Managed and surrounding areas must remain under enhanced surveillance for a period of 5 years after the implementation of the last treatment.

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Manual removal

- v Control and potential local eradication can be achieved
- v Manual removal is highly selective and will have minimal impact on ecosystems and other organisms
- x The method is only practical for small and early-detected populations
- x Manual removal is time-consuming and labor intensive

Method description

The principle is to remove the whole plant from the ecosystem. Plants are dug out in a way that all plant material is removed from the soil, including roots and rhizomes. This management strategy is conducted at the beginning of the regrowth phase, which occurs in spring. Operators must ensure that all parts of the plant are removed as the species cn regrow from fragments. Manual removal is repeated at regular intervals over multiple years to progressively eliminate regrowth from fragments and rhizomes. This process is continued until no further regrowth is observed.

Material

Management: Spades, gloves and garden forks

Transport: Bags and buckets

References

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DID YOU KNOW?

Terrestrial plastic covers as a management measure

Light deprivation using black plastic or polythene sheets is one possible option to manage small areas invaded by Chinese lizard tail. The principle is to install covers that both compress vegetation and exclude sunlight, causing the death of the plants. All plants must be cut prior to covering. It is really important that no light reaches the plants from any adjacent area, gaps or the edges of the sheeting. Operators must, therefore, ensure the adequate placement of the sheeting and that strips overlap correctly. The use of large continuous pieces of sheeting is recommended whenever possible. Additionally, the sheets should be properly secured and firmly fixed to the ground. Regular inspections to check for any damages or breaches are highly recommended.

It is important to note that there is limited literature available regarding the use of terrestrial covers for managing Chinese lizard tail. Consequently, there is a lack of information regarding management outcomes and specific technical details, such as adequate time period during which covers must remain in place.

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Fig 3. It is necessary to check for any damages that would allow the plant to grow through the sheeting. Photo: Marijke Thoonen

The impact of management actions on ecosystem services

While the adverse effects of IAS are well-known and provide strong incentives for implementing management actions, the impacts of these management actions on ecosystems and the services they provide are less considered. The matrices are the result of expert assessments of the evolution of relevant ecosystem services (ES) from a highly invaded situation towards a managed situation. ES evolution is considered over 2 given periods of time: 1 year and 5 years after the initiation of management.

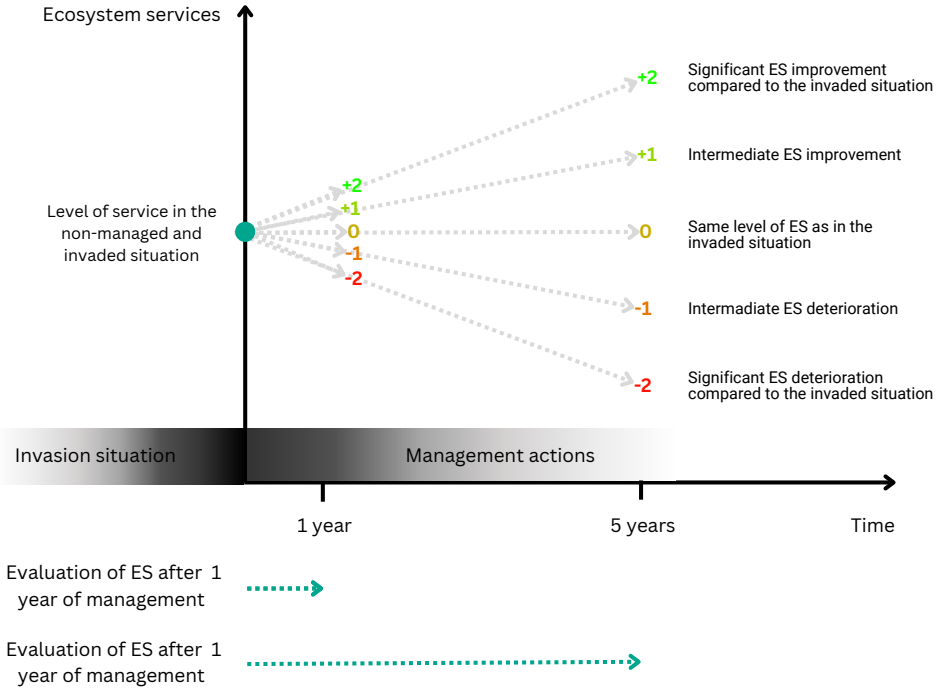

Fig 4. Representation of the survey process

Each matrix displays the average impact scores of management methods on ecosystem services. These scores have been associated to colours to facilitate the visualization of the impacts of every method on every relevant ecosystem service. Green indicates a significant improvement in the ecosystem services (ES) due to management, orange represents no or minimal effect, and red signifies a negative impact of the method on the ES.

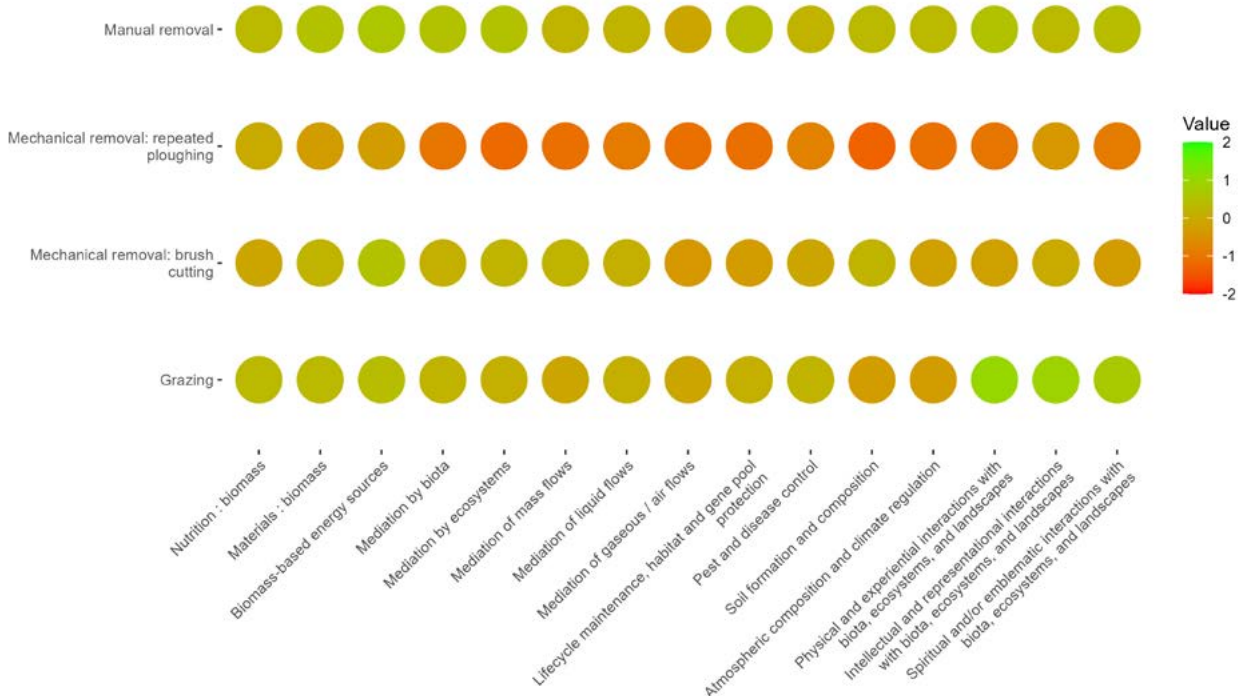

Fig 5. Matrix displaying the impact of management methods for riparian plant species on ecosystem services after 1 year

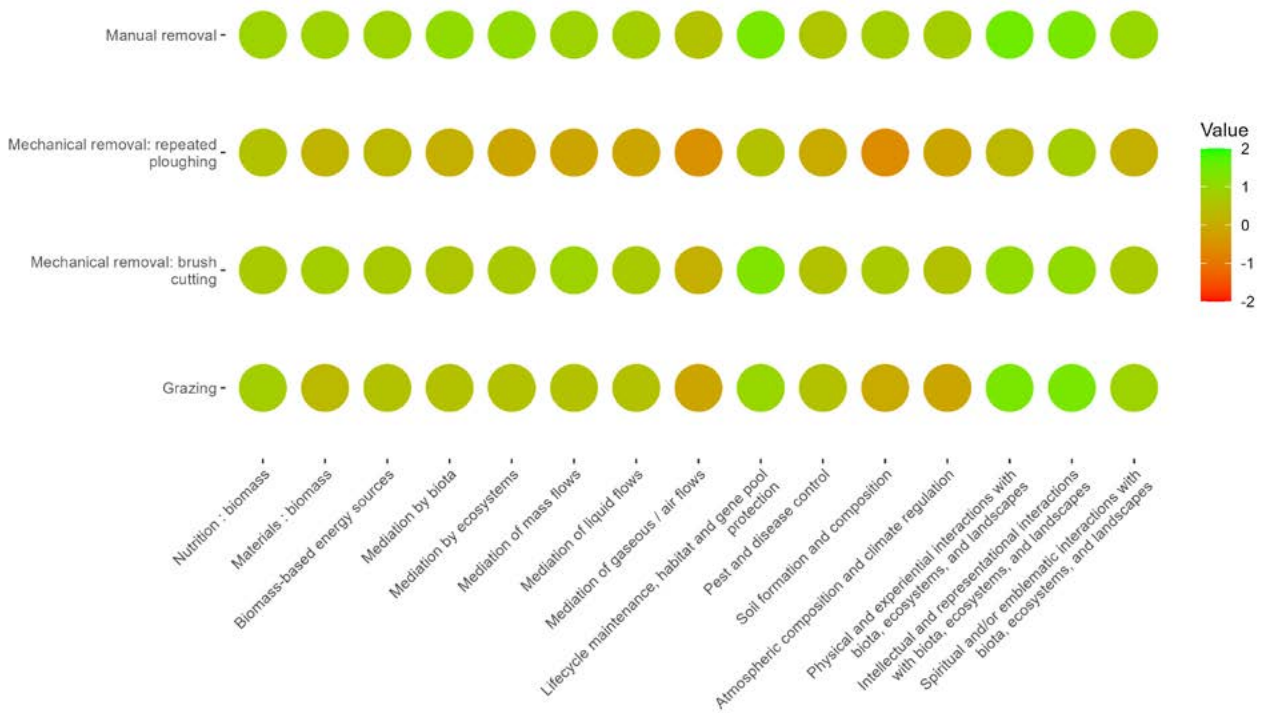

Fig 6.. Matrix displaying the impact of management methods for riparian plant species on ecosystem services after 5 years

LIFE RIPARIAS

Reaching Integrated and Prompt Action in Response to Invasive Alien Species

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www.riparias.be

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