

## SPECIES INFORMATION SHEET

*Hippuris tetraphylla*

English name: <b>Fourleaf Mare's Tail</b>	Scientific name: <b><i>Hippuris tetraphylla</i></b>	
Taxonomical group: Class: Magnoliidae Order: Lamiales Family: Hippuridaceae	Species authority: Linnaeus f.	
Subspecies, Variations, Synonyms: –	Generation length: Not known	
Past and current threats (Habitats Directive article 17 codes): Overgrowth of the open areas (A04.03, K01.03), Eutrophication (H01.05), Construction (D01, D03, J02.02.02), Competition (with <i>Hippuris x lanceolata</i> , K04.01)	Future threats (Habitats Directive article 17 codes): Overgrowth of the open areas (A04.03, K01.03), Eutrophication (H01.05), Construction (D01, D03, J02.02.02), Competition (with <i>Hippuris x lanceolata</i> , K04.01), Climate change (reduction of ice scouring, J03.03)	
IUCN Criteria: <b>B2ab(i,ii,iii,iv,v)</b>	<b>HELCOM Red List Category:</b>	<b>EN Endangered</b>
Global / European IUCN Red List Category : NE / LC	Habitats Directive: Annex II species	
Protection and Red List status in HELCOM countries: Denmark –/–, Estonia –/–, Finland Protected under the Nature Conservation Decree/ <b>EN</b> , Germany –/–, Latvia –/–, Lithuania –/–, Poland –/–, Russia –/–, Sweden protected by law/ <b>CR</b>		

### Distribution and status in the Baltic Sea region

*Hippuris tetraphylla* has historically occurred along the whole coastline of Finland. The species has been strongly declining in its previously most abundant areas of occurrence along the Finnish coasts, and at the moment it is only known to exist in the Bothnian Bay and the Bothnian Sea. From the Gulf of Finland it has disappeared. In Sweden it is known only from Ångermanland's coast, where two known occurrences are closely situated. The species has also disappeared from the Swedish coasts of the Western Gotland Basin and the Northern Baltic Proper.



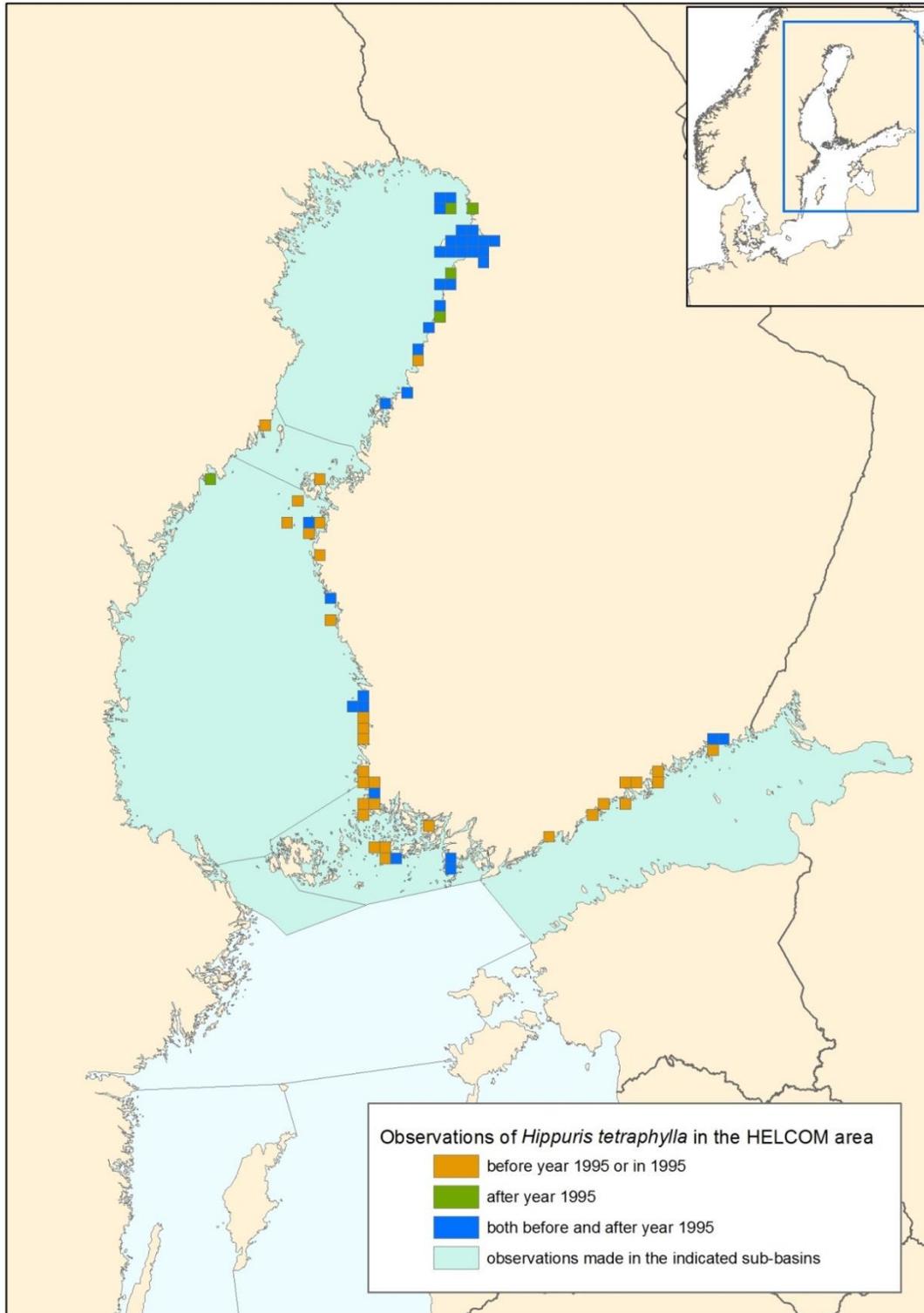
*Hippuris tetraphylla*. Photo by: Terhi Rytteri, Finnish Environment Institute

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### Distribution map

The records of the species compiled from the Finnish database of threatened species (Hertta) and from the Swedish Species Gateway. The species does not occur in inland waters. It should be noted that all the occurrences in the southern and southwestern coast of Finland are currently regarded extinct, although some of the records are rather recent and were made after 1995 (Rytttäri et al. 2012).



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### Habitat and ecology

*Hippuris tetraphylla* is a perennial aquatic plant with size of 15–40 cm. It grows in shallow water with its upper part often emergent. It is able to spread vegetatively by its horizontal rhizome. It can be confused with *H. x lanceolata*, which is a hybrid originated from *H. vulgaris* and *H. tetraphylla*. However, these taxa have some ecological differences. *H. vulgaris* grows in fresh water or in brackish water in extremely low salinities. The hybrid inhabits open patches among reed and sedge vegetation in slightly salty brackish water, and small ponds on grazed seashore meadows. The largest and most viable current populations of *H. tetraphylla* are on wide and open shallow bays, typical e.g. to the Finnish land uplift coast, with at least partly soft bottoms, nearly always on more or less exposed islands or peninsulas. The plant reproduces by both seeds and vegetatively by pieces of its rhizome.

### Description of major threats

*Hippuris tetraphylla* grows near the shore in shallow waters which are susceptible to be overgrown by reeds (*Phragmites australis*) that propagate effectively through their root system and block other aquatic plants. The expansion of reed belts has been accelerated by anthropogenic eutrophication, post-glacial land upheaval and the lack of grazing on coastal meadows and attached shallow water areas. The effects of eutrophication also include increased turbidity which negatively affects the growth of submerged aquatic plants such as *Hippuris tetraphylla*. It does this both by decreasing the amount of available light and by increasing silting and sedimentation which covers aquatic vegetation. Human induced threats also include construction of shipping lanes and ports and estuarine and coastal dredging. These measures cause direct habitat destruction. In addition, increased boat traffic in shallow areas causes resuspension of sediments resulting in increased turbidity and acceleration of eutrophication. The species also suffers from competition with *Hippuris x lanceolata*, a species that is the result of hybridization between *Hippuris tetraphylla* and *Hippuris vulgaris*. It has been suggested that the reduction of ice-scouring by rising temperatures may affect the species negatively in the future, since ice-scouring is a process that keeps the habitat open (Ryttäri et al. 2012).

### Assessment justification

*Hippuris tetraphylla* was included in the previous HELCOM list of threatened and/or declining species (HELCOM 2007). The geographic range of the species is restricted in the form of the area of occupancy (AOO estimated to be only 200–300 km<sup>2</sup>), and the population is considered to be continually declining and fragmented. It has been declining strongly in the areas where it previously occurred most abundantly along the Finnish coasts. It has apparently disappeared totally from the Gulf of Finland. The continuing decline of the population is assumed to concern EOO, AOO, the area, extent or quality of the habitat, number of locations and number of mature individuals. The number of locations, the number of mature individuals, and also the extent of occurrences (EOO) still exceed the thresholds in the Red List criteria. The species meets the criteria for Endangered (B2ab(i,ii,iii,iv,v)).

### Recommendations for actions to conserve the species

The species would probably benefit from cattle grazing of coastal meadows, which would create suitable open patches in shallow waters. In Finland, 76% of the known occurrences are already included in Natura 2000 areas. Other actions for conservation could include protection of as large a portion of the remaining distribution areas as possible and controlling urbanisation in areas where the species can be found.

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### Common names

Denmark: –, Estonia: –, Finland: nelilehtivesikuusi, Germany: –, Latvia: –, Lithuania: –, Poland: (przędzka), Russia: Хвостник четырёхлистный, Водяная сосенка четырёхлистная, Sweden: ishavshästsvars

### References

- Aronsson, M. & Jonsell, L. (1996). *Hippuris tetraphylla* ishavshästsvars. Revised by M. Edqvist 2006. Artfaktablad (Species Fact Sheet), Swedish Species Information Centre. Available at: [http://www.artfakta.se/Artfaktablad/Hippuris\\_Tetraphylla\\_777.pdf](http://www.artfakta.se/Artfaktablad/Hippuris_Tetraphylla_777.pdf)
- Aronsson, M., Edqvist, M., Andersson, U.-B., Bertilsson, A., Ericsson, S., Mattiasson, G. & Ståhl, P. (2010). Kärlväxter – Vascular Plants. Tracheophyta. In Gärdenfors, U. (ed.) Rödlistade arter i Sverige 2010 – The 2010 Red List of Swedish Species. ArtDatabanken, SLU, Uppsala. P. 201–221. Red List categories available also at <http://www.artfakta.se/GetSpecies.aspx?SearchType=Advanced>
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- Ilmonen J., Rytteri T. & Alanen A. (eds.) (2001). Finnish plants and invertebrate animals in the EU Habitats Directive. A scientific evaluation of the Finnish Natura 2000 –proposal. – The Finnish Environment 510: 1–177. (in Finnish)
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