

Invasive alien aquatic and riparian plant species

Identification guide



RIPAR IAS

Reaching Integrated and Prompt Action
in Response to Invasive Alien Species

Editing

Liège University - Gembloux Agro-Bio Tech

Marie Patinet & Arnaud Monty

Service Public de Wallonie

Etienne Branquart, Melissa Delaporte & Adrien Latli

Brussels Environment

Xavier Vermeersch

Contrat de rivière Dyle-Gette

Jérémie Guyon

Contrat de rivière Senne

Dido Gosse

Supervision

Arnaud Monty

Lecturer

Université de Liège - Gembloux Agro-Bio Tech

Biodiversité et Paysage

Florence Limet

LIFE RIPARIAS Project Coordinator

Brussels Environment

Citation

Monty A., Patinet M., Gosse D., Guyon J., Delaporte M., Latli A., Branquart E., Vermeersch X., et Limet F (2022) Invasive Alien Plants of Aquatic and Riparian Environments - Identification Guide. LIFE RIPARIAS Project, 36p.

Acknowledgements

Tim Adriaens, Lucie Biscaro, Bram D'hondt, Gaëtan De Baene, Valentin Derbaix, Antoine Deryck, Amélie Juckler, Kevin Scheers, Sonia Vanderhoeven, Ben Van der Wijden, Stijn Van Onsem, Helmut Van Poelvoorde, Quentin Wathez.

SUMMARY

Introduction	4
How to use this guide ?	6
Species of Union concern	7
<i>Cabomba caroliniana</i>	8
<i>Elodea nuttallii</i>	9
<i>Heracleum mantegazzianum</i>	10
<i>Hydrocotyle ranunculoides</i>	11
<i>Impatiens glandulifera</i>	12
<i>Koenigia polystachya</i>	13
<i>Lagarosiphon major</i>	14
<i>Ludwigia grandiflora</i>	15
<i>Ludwigia peploides</i>	16
<i>Lysichiton americanus</i>	17
<i>Myriophyllum aquaticum</i>	18
<i>Myriophyllum heterophyllum</i>	19
LIFE RIPARIAS alert list species	20
<i>Aponogeton distachyos</i>	21
<i>Crassula helmsii</i>	22
<i>Egeria densa</i>	23
<i>Erythranthe guttata</i>	24
<i>Houttuynia cordata</i>	25
<i>Petasites japonicus var. giganteus</i>	26
<i>Pontederia cordata</i>	27
<i>Saururus cernuus</i>	28
<i>Zizania latifolia</i>	29
Glossary	30
Photo credit	32
Notes	34

INTRODUCTION

The LIFE RIPARIAS project

Invasive Alien Species (IAS) are species that are accidentally or intentionally introduced outside their natural range, and which may cause many issues due to their rapid spread. In Europe, IAS are a growing threat to ecosystems and biodiversity. The presence of IAS can also have socio-economic implications and adversely affect human health.

Nevertheless, responses to address the issue of biological invasion have often been insufficient and actions have had varying and sometimes limited results. The diversity of actors involved in IAS management alongside the fragmented nature of available IAS data sources impede the implementation of concerted and coherent management actions. Moreover, the number of IAS and associated costs are constantly increasing. It has therefore become essential to take efficient and coordinated decisions in order to determine which species and sites should be considered as a priority for management actions.

To address these challenges, Belgian authorities and their partners have joined forces through the LIFE RIPARIAS project, which aims to optimise the management of IAS in aquatic and riparian environments. To do so, a scientific evidence-based workflow setting up priorities for action has been developed. This efficiently guides decision-makers and managers through the IAS management decision-making process.

The project targets riparian and aquatic plant species that are listed as IAS of EU concern under the EU Regulation No 1143/2014. Other species included in an alert list are also targeted for early detection and rapid eradication.

The LIFE RIPARIAS project is developing and testing its innovative approach in the Dyle, Senne and Marcq river basins in the Scheldt river basin district. This pilot area covers 263,103,000 ha across the three regions of Belgium (the Walloon Region, the Flemish Region and the Brussels-Capital Region). This project is co-funded by the European Union as part of the LIFE Programme.

INTRODUCTION

Species of Union concern

IAS listed as "species of Union concern" are species representing a major threat to biodiversity and ecosystems. Since 2015, a European Regulation on invasive alien species (No 1143/2014) compels Member States to take measures to address the issue of IAS. This Regulation was established with the aim to curb the phenomenon on a continental scale.

The regulation aims to prevent the introduction and establishment of listed species, while minimising and mitigating the adverse effects associated with their spread. The Union list entered into force in July 2016 and was updated in 2022 with a total of 88 species. Listed species are subject to restrictions which include restrictions on introducing, keeping, breeding, growing, transporting, selling, exchange and use.

LIFE RIPARIAS alert list species

Alert lists can be defined as lists of alien species that are not yet present in a certain area, or with a very limited distribution, and that pose a threat to biodiversity.

Active surveillance and monitoring are recommended for a prompt response in the event of introductions and spread in the wild.

An alert list of freshwater aquatic and riparian plant and crayfish species was established for the LIFE RIPARIAS territory. This list was developed using information such as species availability on the Belgian market, the risk of establishment, spread and impact on biodiversity (assessment made via the Harmonia+ risk scoring system).

The alert list includes 9 plant species native to various regions of the world.

HOW TO USE THIS GUIDE?

This identification guide has been designed to help field managers to recognise species targeted by the project, so that they can actively participate in the enhanced surveillance of IAS.

The guide is made of handy identification sheets. The sheets are divided into two groups: the first group concerns species of Union concern targeted by the LIFE RIPARIAS project*; the second one involves LIFE RIPARIAS alert list species.

For each group, species are listed in alphabetical order by scientific name (latin name).

In order to facilitate the recognition of species in the field and to prevent identification errors, look-alike species (indigenous or exotic) are frequently presented for comparison. This look-alike species list is not exhaustive and only provides information on species found in the wild in Belgium.

Identification sheets have been designed using information based on morphological characteristics observed in Belgian populations. In their natural range, some species may present characteristics that are not observed in Belgium, such as the presence of flowers.

For identification, it is recommended to collect sufficient plant material during the growing season. Ideally, several organs (stems, leaves, flowers, etc.) should be observed before making a diagnosis, by comparing the collected specimen with the criteria illustrated in the sheets. In case of doubt, it is recommended to refine the identification with the help of more detailed works. In order to avoid the dispersion of IAS in aquatic environments, it is important to:

- **Check** the equipment and clothing to ensure the absence of mud, plant fragments and seeds.
- **Clean** the equipment, shoes and clothing with clean water.
- **Dry** the equipment and clothing for at least 48 hours.

**Elodea nuttallii* is a species of EU concern that is not targeted by the project due to its low detectability and the low effectiveness of containment measures. The species is however included in this guide as it is widespread in Belgium.



Species of Union concern



Fanwort

Cabomba caroliniana

Species of Union concern



©alexis_orion (1)



Invasive species native to America. **Not very common** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** waters often **rich in nutrients**



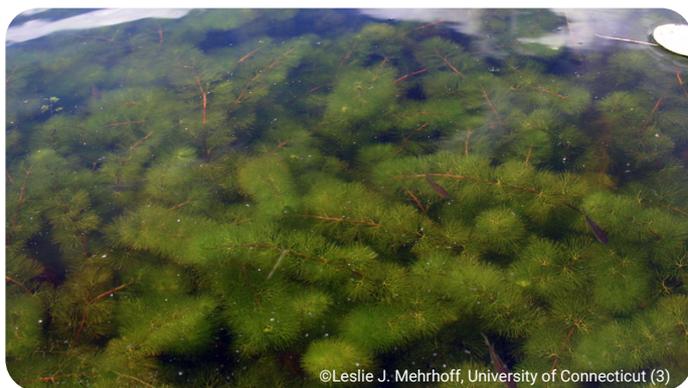
Aquatic or **semi-aquatic** plant, entirely **submerged**, except for the flowers. Stems can be up to 10 m long

Fan-shaped leaves (dichotomous branching) with a long petiole



©Kieft Ben (2)

Forms **dense mats**



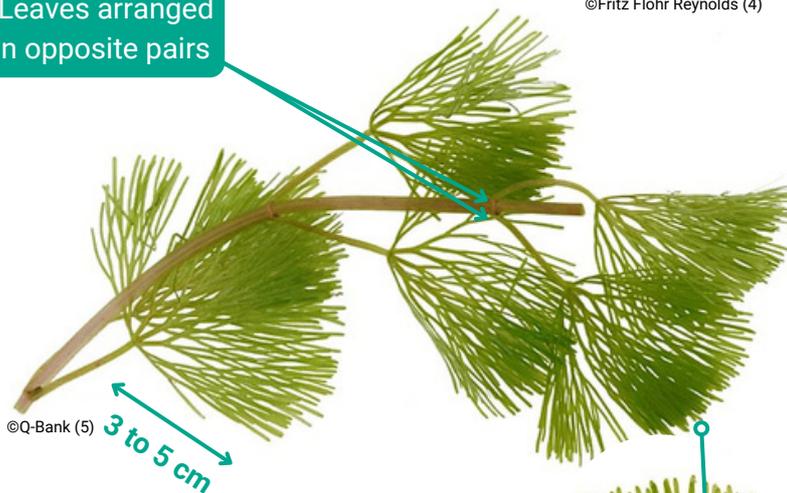
©Leslie J. Mehrhoff, University of Connecticut (3)

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Leaves arranged in opposite pairs



©Q-Bank (5)

Small flowers (0,5 to 2 cm in diameter) of variable colours, but yellow in the center



©Fritz Flohr Reynolds (4)

Forked leaves with rounded tips



©Kieft Ben (6)

Not to be confused with



©GB Non-native species (7)

Myriophyllum spp. - Exotic

- Leaves arranged in whorls
- Pinnate leaves

Ranunculus spp. - Native

- Alternate leaf arrangement
- Short petioles



©Kieft Ben (8)



©Kieft Ben (9)

Ceratophyllum spp. - Native

- Leaves arranged in whorls
- "Fork-shaped" leaves
- Leaves slightly thorny, rough to the touch



Nuttall's waterweed

Elodea nuttallii

Species of Union concern



©LIFE RIPARIAS



Invasive species native to North America. **Widespread** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** waters



Submerged aquatic plant. Can measure a **few centimeters** to **several meters** long

Forms **dense mats** just below the surface of the water



©Christian Fischer (1)

Elongated, soft leaves bent like claws towards the stem with a sharp tip and wavy margins



©Christian Fischer (2)

Leaves in whorls of 3 (2 to 4)

Leaves measuring 10 to 25 mm

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Not to be confused with

Egeria densa - Exotic

- Soft elongated strap-shaped leaves, up to 4 cm long
- Leaves are in whorls of 4 to 5, very close to each other
- Large white flowers



©LIFE RIPARIAS



©LIFE RIPARIAS

Elodea canadensis - Exotic

- Short rigid leaves (< 2 cm) with rounded tips and finely serrated margins
- Leaves occur in whorls of 3 (sometimes 2 to 4), fairly spaced along the stem

Lagarosiphon major - Exotic

- Alternate and spiral leaf arrangement along the stem
- Leaves are curved towards the stem and numerous at its top
- Elongated leaves (up to 3 cm) with sharp tip



©LIFE RIPARIAS



©Robert Vidéki, Doronicum Kft., Bugwood.org (3)

Hydrilla verticillata - Exotic

- Sharp leaves with marked serrated margins, up to 2 cm long
- Leaves occur in whorls of 5 (sometimes 4 to 8)



Giant hogweed

Heracleum mantegazzianum



Species of Union concern

©Etienne Branquart



Invasive species native to western Caucasus. **Widespread** in the wild in Belgium

Found **along waterways, roads** or in **gardens**



Terrestrial plant that can grow to heights of 3 to 4 m

Large toothed leaves which are deeply divided and dissected.
Glossy appearance due to the absence of hair



©Leslie J Mehrhoff (1)

Forms **dense monospecific stands**



Toxic sap which can cause severe burns

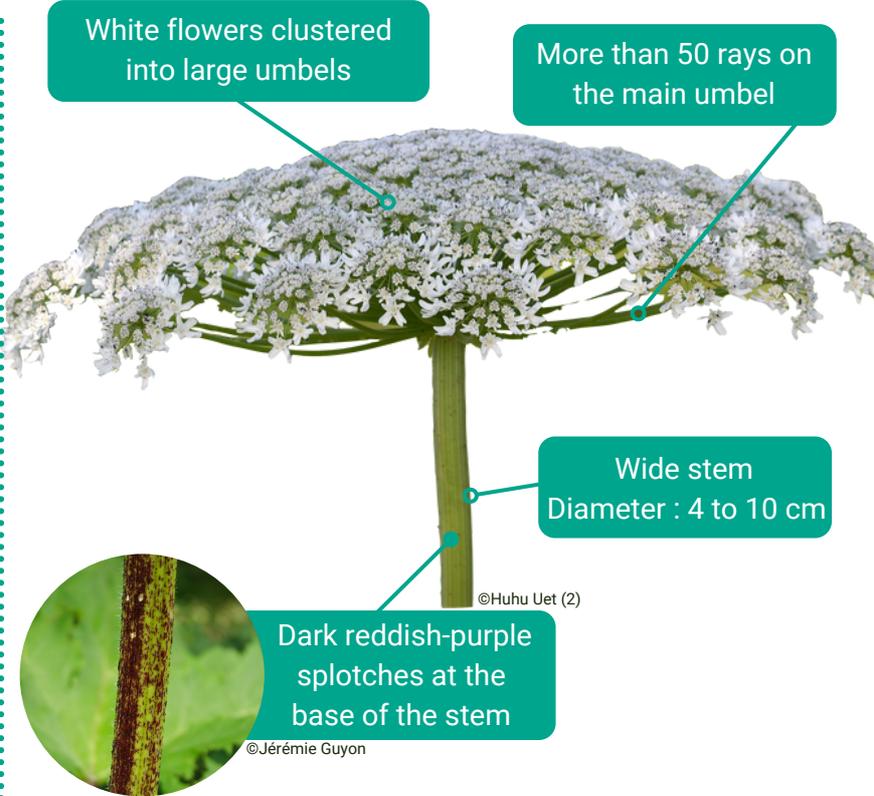


©Etienne Branquart

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



White flowers clustered into large umbels

More than 50 rays on the main umbel

Wide stem
Diameter : 4 to 10 cm

Dark reddish-purple splotches at the base of the stem

©Huhu Uet (2)

©Jérémie Guyon

There are 2 other invasive alien species of giant hogweed that can be differentiated through genetic analysis

Not to be confused with

Heracleum sphondylium - Native



©Júlio Reis (3)

- Less than 30 rays on the main umbel
- Round and hairy leaves giving a matt appearance
- Smaller size (<2m)
- Ridged hollow stem with diffuse red spots

Angelica archangelica - Native

- Round umbels
- Greenish-white flowers
- Finely toothed leaves
- Smaller size (<2m)



©Wouter Hagens (4)



Floating pennywort

Hydrocotyle ranunculoides

Species of Union concern



©Etienne Branquart



Invasive species native to America. **Widespread** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** waters



Aquatic plant, **floating** or **emerged**, rooted in banks and shallow mud

Round and shiny leaves with toothed lobes and a deep cut at the base



©Marie Patinet

Forms **dense mats** up to 40 cm above the water surface



©Etienne Branquart

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



Petiole measuring 5 to 40 cm, inserted at the base of the cut

©Kieft Ben (1)



up to 7 cm

Long, floating stem



Roots at the nodes

©Kieft Ben (2)

Not to be confused with

Glechoma hederacea - Native



©Marie Patinet

- Terrestrial plant
- Small, heart-shaped leaves with fine fuzzy hair
- Mint smell when leaves are crushed

Hydrocotyle vulgaris - Native

- Rarely found in water
- Small, umbrella-shaped leaves (< 5 cm) with no cut at the base



©Saxifraga-Jasenka Topic (3)



©Stefan.lefnaer (4)

Ranunculus sceleratus - Native

- Leaves clustered at the base of the plant
- Well-defined triangular lobes



Himalayan balsam

Impatiens glandulifera

Species of Union concern



©Etienne Branquart



Invasive species native to the Himalayas. **Widespread** in the wild in Belgium

Found in **alluvial forests** and **open areas** along streams, sometimes **far from rivers in the alluvial plain**



Terrestrial plant that can grow to heights of 2,5 m

Toothed leaves measuring 5 to 20 cm long in whorls of 3 or opposite.
Seed pods opening by explosion.

Flowering from June to October



©Jérémy Guyon

Forms **dense stands**



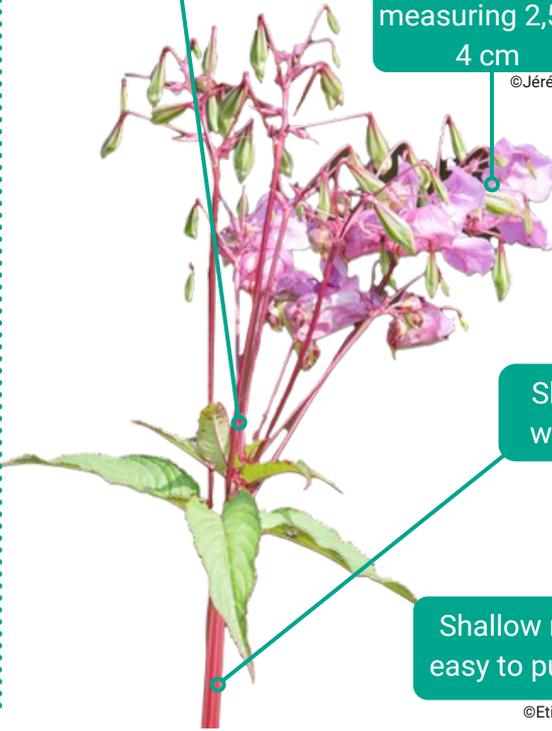
Reddish petioles with two glandular structures at their base

©MurielBendel (1)



Pink flowers measuring 2,5 to 4 cm

©Jérémy Guyon



Shiny hollow stems with a reddish color

Shallow roots easy to pull out



©Etienne Branquart

©James T M Towill (2)

Not to be confused with



©Atman274 (3)

Impatiens balfourii - Exotic

- Alternate leaf arrangement with 40 to 50 teeth on each side
- Bicoloured flowers with a white upper part

Senecio ovatus - Native

- Alternate leaf arrangement
- Deep roots difficult to pull out
- Yellow flowers



©Patrice78500 (4)

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



Himalayan knotweed

Koenigia polystachya

Species of Union concern



©Frank Vincentz (1)



Invasive species native to the Himalayas. **Widespread** in the wild in Belgium

Found along **waterways, roadsides and railroads**, as well as in **vacant lots**



Terrestrial plant that grows to a height of 40 to 120 cm

Oblong to lanceolate leaves with marked tip, glabrous on the upper face and hairy on the lower face



©Rens Hendrickx (2)

Rhizomatous plant forming dense colonies

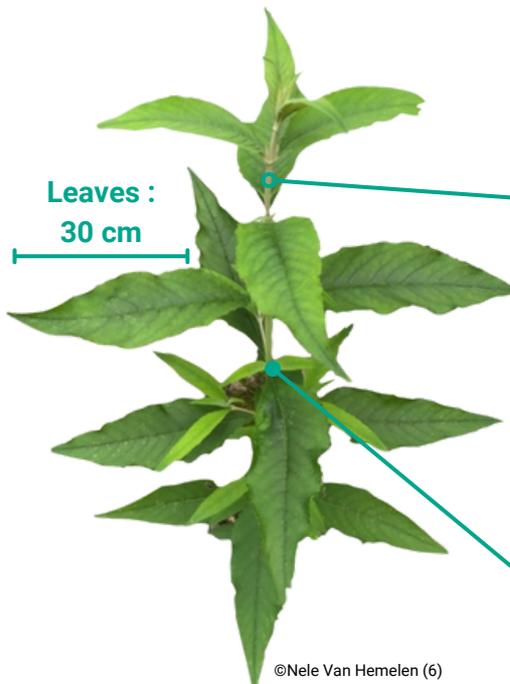


©Gilles San Martin (3)

Creamy-white or pinkish flowers in leafy panicles, with blue stamens



©Vinayaraj (4)



Leaves : 30 cm

Brown stipules



©Paul en Marianne (5)

Reddish, hollow and erect stems

©Nele Van Hemelen (6)

Not to be confused with

Bistorta officinalis - Native

- Simple light green leaves, narrowed at the base
- Pink flowers, in oblong-cylindrical and compact terminal spike



©Agnieszka Kwiecień, Nova (7)

Rumex obtusifolius - Native

- Very large oval leaves with petioles and slight wavy edges
- Green flowers in very close whorls, in clusters



©Saxifraga-Jasenska Topic (8)

Fallopia japonica - Exotic

- Alternate leaf arrangement with ovate-triangular leaf blades, truncated at the base



©Michael Gasperl (9)

If you spot that species, record your observation on

You will contribute to the protection of our ecosystems against invasive alien species



Curly waterweed

Lagarosiphon major

Species of Union concern



©Saxifraga-Peter Meininger (1)



Invasive species native to South Africa. **Not very common** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** waters



Submerged aquatic plant. Can measure **a few centimeters** to **several meters** long

Forms **dense mats** just below the surface of the water



©Saxifraga-Peter Meininger (2)



©LIFE RIPARIAS

Alternate and spiral leaf arrangement, only visible at the base of the stem

leaves are densely crowded at the top of the stem

Elongated leaves (up to 3 cm) with a sharp tip

©LIFE RIPARIAS

If you spot that species, record your observation on

 [Observations.be](https://observations.be)  [iNaturalist](https://www.inaturalist.org)

You will contribute to the protection of our ecosystems against invasive alien species

Not to be confused with

Egeria densa - Exotic

- Soft elongated strap-shaped leaves, up to 4 cm long
- Leaves are in whorls of 4 to 5, very close to each other
- Large white flowers



©LIFE RIPARIAS

Elodea canadensis - Exotic

- Short rigid leaves (< 2 cm) with rounded tips and finely serrated margins
- Leaves occur in whorls of 3 (sometimes 2 to 4), fairly spaced along the stem



©LIFE RIPARIAS

Elodea nuttallii - Exotic

- Leaves occur in whorls of 3 (sometimes 2 to 4)
- Elongated leaves (up to 2.5 cm), soft and curved, with a sharp tip



©LIFE RIPARIAS

Hydrilla verticillata - Exotic

- Sharp leaves with marked serrated margins, up to 2 cm long
- Leaves occur in whorls of 5 (sometimes 4 to 8)



©Robert Vidéki, Doronicum Kft., Bugwood.org (3)



Water-primrose

Ludwigia grandiflora

Species of Union concern



©Marie Patinet



Invasive species native to South America. **Widespread** in the wild in **Northern Belgium**

Found in **fresh, stagnant or slow-moving waters and wet meadows**



Aquatic and semi-aquatic plant, with submerged or emerged stems. Stems emerge **up to 80 cm** above the water surface

Alternate leaf arrangement. Elliptic leaves with matt appearance (floating leaves) or lanceolate leaves (leaves of emerged stems)

©Etienne Branquart



©Marie Patinet

Forms **dense mats** on the surface of the water



Glabrous and elliptic floating leaves with petioles, growing in rosette-like shape



©Etienne Branquart

Marked white leaf veins

Slightly hairy leaves with a short petiole

Pubescent and rigid stems freely branching

Triangular stipules

©Marie Patinet



©Traumrune

Not to be confused with



Ludwigia peploides - **Exotic**

- Smaller flowers
- Petals do not overlap
- Rounded stipules
- Glabrous erected leaves and stems

©Jardín Botánico Nacional, Viña del Mar, Chile (1)

Veronica beccabunga - **Native**

- Blue flowers
- Opposite leaf arrangement. Toothed leaves with very short petioles



© Arnaud Monty

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



Floating primrose-willow

Ludwigia peploides

Species of Union concern



©Arnaud Monty



Invasive species native to South America. **Widespread** in the wild in **Northern Belgium**

Found in **fresh, stagnant or slow-moving waters**. Prefers **sunny areas**



Semi-aquatic or aquatic plant. **Stems emerge** up to 50 cm above the water surface

Alternate leaf arrangement. **Rounded to lance-shaped** leaves that range from 3 to 6 cm long



©Jérémie Guyon

Forms **dense mats** on the surface of the water



©M. Ravez

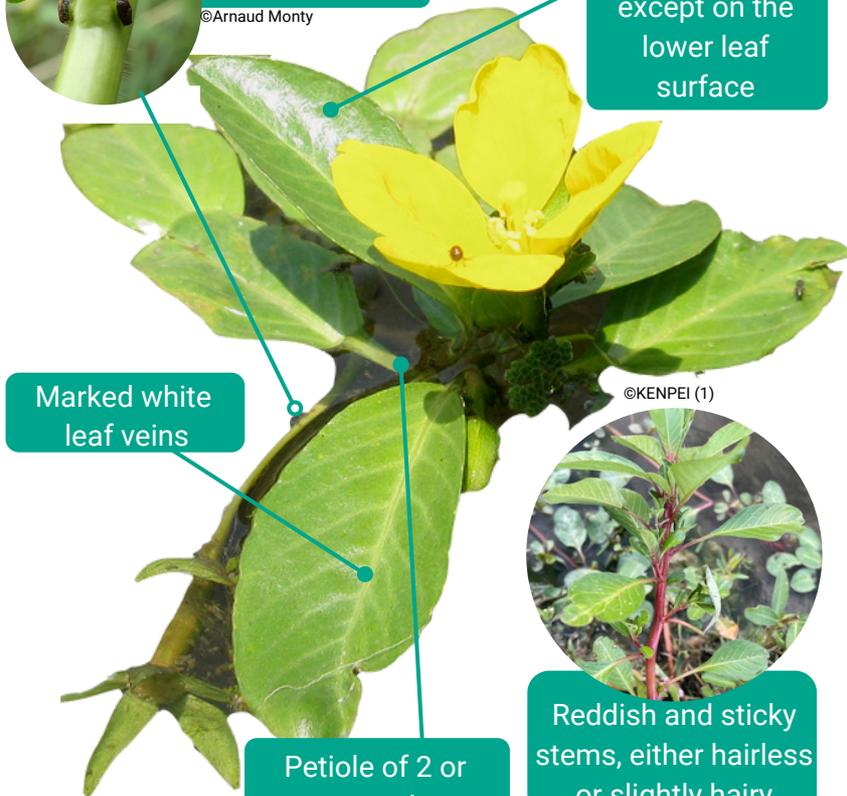


Round stipules

©Arnaud Monty

Shiny and glabrous leaves, except on the lower leaf surface

Marked white leaf veins



©KENPEI (1)



Reddish and sticky stems, either hairless or slightly hairy

©morganalston (2)

Petiole of 2 or more cm long

Not to be confused with



©Etienne Branquart

Ludwigia grandiflora - Exotic

- Emerged leaves are lanceolate and hairy
- Overlapping petals
- Triangular stipules

Veronica beccabunga - Native

- Blue flowers
- Opposite leaf arrangement. Toothed leaves with very short petioles



© Arnaud Monty

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



American skunk cabbage

Lysichiton americanus

Species of Union concern



Invasive species native to North America. **Rare** in the wild in Belgium

Found in **peat bogs, marshes, near rivers and waterbodies**



Semi-aquatic and aquatic plant. From 30 to 100 cm high

Musty like odour when flowers and leaves are **crushed**. Flowering from April to May



©Jérémié Guyon

Forms **large and dense clumps** of vegetation



©David Knott

Bright yellow bract at the base of the inflorescence (spathe)

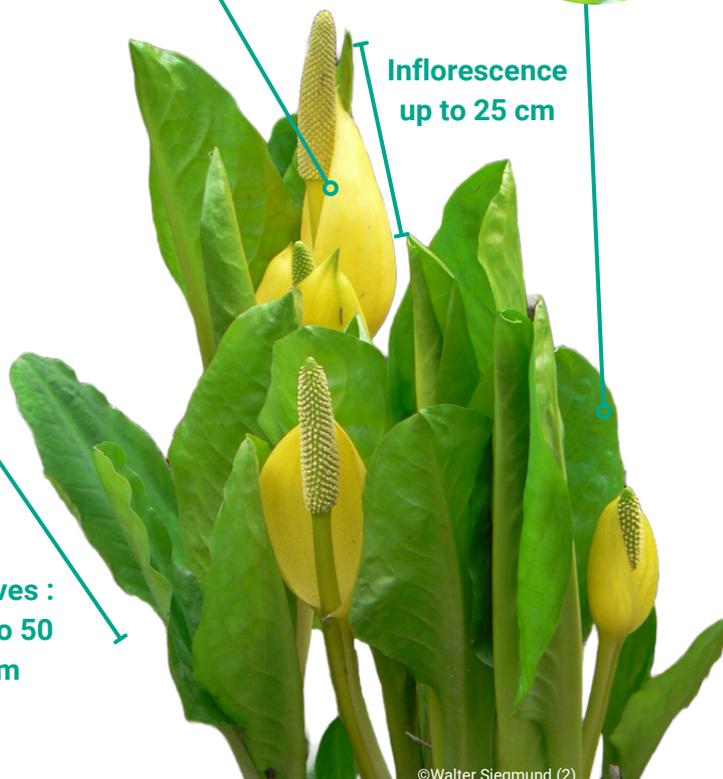
Shiny, thick, leathery leaves with dark spots

©Jérémié Guyon



Inflorescence up to 25 cm

Leaves : up to 50 cm



©Walter Siegmund (2)

Not to be confused with

Lysichiton camtschatcensis - Exotic

- Matt leaves, absence of dark spots
- White spathe
- Odourless plant
- In Belgium, presence of hybrids between *L. americanus* and *L. camtschatcensis*.



©Wendy Cutler (3)

Calla palustris - Native

- Leaf blades are cordate at the base and acuminate at the top
- Bright red berries



©Anneli Salo (4)

If you spot that species, record your observation on

You will contribute to the protection of our ecosystems against invasive alien species

Parrot's feather

Myriophyllum aquaticum

Species of Union concern



©Dido Gosse



Invasive species native to Central and South America. **Widespread** in the wild in Belgium

Found in **stagnant or slow-moving freshwater**. Prefers **shallow waters and muddy substrates**



Aquatic and semi-aquatic plant, entirely submerged in spring and forming **emergent stems** in summer

Pectinate leaves occurring in whorls. Emergent leaves are blue-green in colour



©Jérémie Guyon

Forms **dense mats**



©Dido Gosse

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



Emergent part: 14-40 cm

©Q-Bank (1)

Submerged light-green leaves which appear feather-like. From 2,5 to 3,5 cm long



©Q-Bank (2)

Tiny white flowers occurring on the leaf axils on the emergent stem



©Darrel Brown (3)

Robust stem, green at the top and reddish at the base

Not to be confused with



©Etienne Branquart

Myriophyllum rubricaulum - Exotic

- Less robust plant
- Stem is entirely red
- Pink flowers

Hippuris vulgaris - Native

- Entire leaves in whorls of 6 to 12
- Stem emerging up to 30 cm above the surface
- Looks like miniature Christmas trees



©Christian Fischer (4)



©Miguel Porto (5)

Myriophyllum spp. - Native

- Entirely submerged plant
- Leaves divided into 3 to 14 leaflet pairs
- Internodes of the same length as leaves or of half of the leaf length

Broadleaf watermilfoil

Myriophyllum heterophyllum



Species of Union concern

©Leslie J. Mehrhoff, University of Connecticut (1)



Invasive species native to Southeastern United States.
Rare in the wild in Belgium

Found in **fresh, stagnant or slow-moving** water often rich in nutrients



Aquatic and semi-aquatic plant, entirely **submerged** in spring and forming **emergent stems** in summer and fall.

Leaves occurring in whorls. Submerged leaves are pinnate. Internodes about $\frac{1}{4}$ of the leaf length



©Klaus van de Weyer (2)

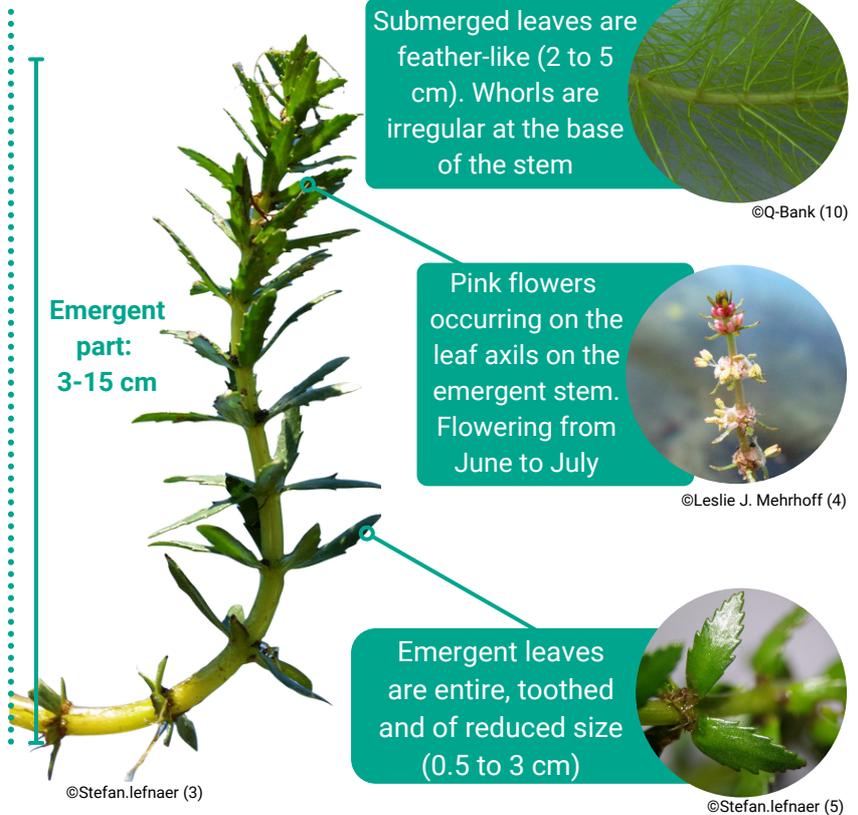
Covers the whole water body



© Evan W. (9)

If you spot that species, record your observation on

You will contribute to the protection of our ecosystems against invasive alien species



Not to be confused with



©Miguel Porto (6)

Myriophyllum spp. - Native

- Entirely submerged plant
- Leaves divided into 3 to 14 leaflet pairs
- Internodes of the same length as leaves or of half of the leaf length

Hippuris vulgaris - Native

- Entire leaves in whorls of 6 to 12
- Stem emerging up to 30 cm above the surface
- Looks like miniature Christmas trees



©Christian Fischer (7)



©Stefan.Iefnaer (8)

Ceratophyllum spp. - Native

- Whorled leaves
- "Fork-shaped" leaves



LIFE RIPARIAS alert list species



Cape-pondweed

Aponogeton distachyos

LIFE RIPARIAS alert list species



©Cillas (1)



Invasive species native to South Africa. **Uncommon** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** water often **rich in nutrients**



Aquatic plant with semi-persistent **floating leaves**, developing from a tuber. From 50 to 120 cm

Oval or narrow-lanceolate leaves with a colouration going from pale to dark green, with a pale distinctive central vein measuring from 5 to 30 cm



©H. Zell (2)

Can form **dense mats** on the surface of the water



©Dwergenpaartje (3)

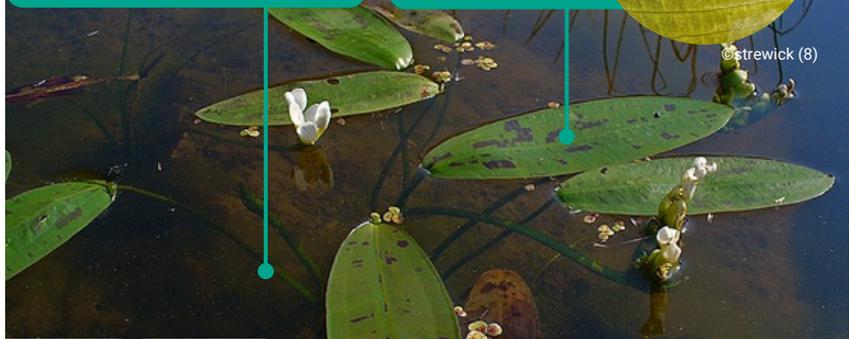
If you spot that species, record your observation on

[Observations.be](https://observations.be) [iNaturalist](https://www.inaturalist.org)

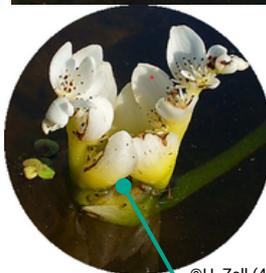
You will contribute to the protection of our ecosystems against invasive alien species

The petioles and the peduncle are developed from a tuber buried in the mud

Veins arranged in marked perpendicular networks



©strewick (8)



©H. Zell (4)

Forked inflorescence bearing white and vanilla-scented flowers

Tough, elongated and floating leaves, often with purple spots and with a very long petiole

Not to be confused with

Potamogeton spp. - Native

- Green to brownish flower spikes
- Oval, round or cordate leaf base. From 2 to 10 cm long
- Parallel veins



©Vladimir Bryukhov (6)

Persicaria amphibia - Native

- Pink flower spikes
- Oval or elongate leaves measuring from 5 to 15 cm



©Stefan Iefnaer (7)



New Zealand pigmyweed

Crassula helmsii

LIFE RIPARIAS alert list species



© Jérémie Guyon



Invasive species native to Australia and New Zealand. **Widespread** in the wild in Belgium

Found on **the bottom** (up to 3 m deep) and on the **banks of ponds**



Aquatic and semi-aquatic plant, **submerged or partly emerged**. From 10 to 20 cm high

Linear fleshy leaves with acute tips, arranged in opposite pairs. Up to 2 cm long



©Q-Bank (1)

Creeping plant forming **dense mats**



© Jérémie Guyon

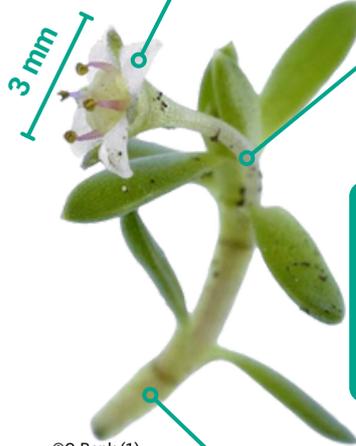
If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Very small flowers, often absent, with 4 white petals

Emerged plants: fleshy leaves growing in opposite pairs, joined around the stem forming a collar



©Q-Bank (1)

Round and rigid stem

Submerged plants: long stem carrying thin leaves



©Q-Bank (1)

Not to be confused with



©Richard Lansdown (2)

Callitriche spp. - Native

- Petiolate leaves, flexible and not fleshy
- Obtuse and indented leaf tips
- Tiny golden flowers

Lythrum portula - Native

- Round and opposite leaves which are not fleshy
- Tiny flowers placed at the base of the leaves



©Miguel Porto (3)



©Mike Pennington (4)

Montia fontana - Native

- Fleshy, opposite and oval leaves not joining at the base
- Small white flowers with 5 petals

Greater pondweed

Egeria densa

LIFE RIPARIAS alert list species



©LIFE RIPARIAS



Invasive species native to South America. **Widespread** in the wild in Belgium

Found in **fresh, stagnant** or **slow-moving** waters



Submerged aquatic plant. Stems up to 2 m long (or more), producing roots at regular intervals

Forms **dense mats** just below the surface of the water



©Harum.koh

Leaves are in whorls of 4 to 5 (sometimes 3 to 8)

©LIFE RIPARIAS

Strap-shaped leaves with fine saw teeth on the margins, that fall down on each other once out of water



©LIFE RIPARIAS

If you spot that species, record your observation on

[Observations.be](https://observations.be) [iNaturalist](https://www.inaturalist.org)

You will contribute to the protection of our ecosystems against invasive alien species

Not to be confused with

Elodea nuttallii - Exotic

- Leaves occur in whorls of 3 (sometimes 2 to 4)
- Elongated leaves (up to 2.5 cm), soft and curved, with a sharp tip



©LIFE RIPARIAS

Elodea canadensis - Exotic

- Short rigid leaves (< 2 cm) with rounded tips and finely serrated margins
- Leaves occur in whorls of 3 (sometimes 2 to 4), fairly spaced along the stem



©LIFE RIPARIAS

Lagarosiphon major - Exotic

- Alternate and spiral leaf arrangement along the stem
- Leaves are curved towards the stem and numerous at its top
- Elongated leaves (up to 3 cm) with sharp tip



©LIFE RIPARIAS

Hydrilla verticillata - Exotic

- Sharp leaves with marked serrated margins, up to 2 cm long
- Leaves occur in whorls of 5 (sometimes 4 to 8)



©Robert Vidéki, Doronicum Kft., Bugwood.org (1)



Monkeyflower

Erythranthe guttata

LIFE RIPARIAS alert list species



©newtpatrol (1)



Invasive species native to North America. **Widespread** in the wild in Belgium

Found in **wetlands** and along **waterways**



Emerged plant that can grow to heights of 80 cm

Ovate or suborbicular coarsely toothed leaves, strongly ribbed



©damontighe (5)

Can form **dense stands**



©newtpatrol (4)

If you spot that species, record your observation on

Observations.be **iNaturalist**

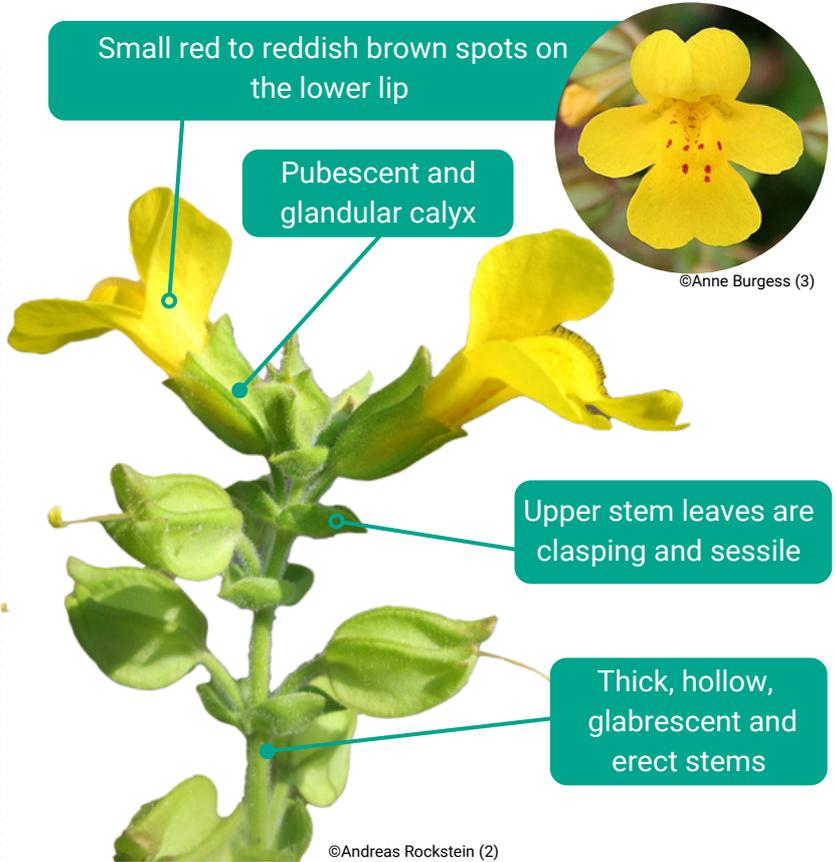
You will contribute to the protection of our ecosystems against invasive alien species

Small red to reddish brown spots on the lower lip

Pubescent and glandular calyx

Upper stem leaves are clasping and sessile

Thick, hollow, glabrescent and erect stems



©Anne Burgess (3)

©Andreas Rockstein (2)

Not to be confused with

Ludwigia spp. - **Exotic**



©Marie Patinet

- Lanceolate emerged leaves with sharp tips
- Flower with 5 similar petals
- No flower on floating stems but flowering erect stems

Mimulus spp. - **Exotic**

Mimulus luteus

Hairless flowers with one spot



©Dick Culbert (7)

Mimulus moschatus

Hairy plant. No spot on the flowers



©Kyle Brine (8)



Chinese lizard tail

Houttuynia cordata

LIFE RIPARIAS alert list species



©Dinkum (1)



Invasive species native to Asia.
Rare in the wild in Belgium

Found in **wetlands** and **cool forest environments**, in partially shaded sites



Terrestrial or submerged semi-aquatic perennial plant.
Grows to heights of 30 to 40 cm

There is a cultivar with tricolour leaves which has, however, not been observed in the wild yet



©Deb Nystrom (2)

Fast growing rhizomatous species forming **dense stands**



©zmp (3)

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Heart-shaped leaves arranged alternately (length < 1.5 width) along the stem

Small yellow flowers crowded into a short spike



©Σ64 (4)

Leaves : 4 to 10 cm

Strong, peppery, lemon-like scent

4 white, petal-like bracts at the base. Can have double flowers

Not to be confused with

Saururus cernuus - Exotic



©Eric Hunt (5)

- Flowers aggregated in long spikes curved downwards
- Light green lower leaf surface
- Larger plant size

Seedlings of *Fallopia* spp. - Exotic

- Alternate leaf arrangement with leaves not or slightly cordate at the base and straight edges
- Reddish stems with marked nodes



©Etienne Branquart



Giant butterbur

Petasites japonicus var. *giganteus*

LIFE RIPARIAS alert list species



©Joi'ito (1)



Invasive species native to Asia.
Rare in the wild in Belgium

Found along **streams, riverbanks, wet meadows** and **shady forests**



Dioecious terrestrial herbaceous plant. (Only male individuals in Europe).

Can reach more than 1 m high and 3 m wide



Very large kidney-shaped leaves up to 150 cm in diameter, irregularly toothed



©Krzysztof Ziarnek, Kenraiz (2)

Rhizomatous plant forming **dense stands**



©Jérémie Guyon



©Etienne Branquart

Flower clumps emerge before the leaves in February-April and quickly fade away afterwards



©urasimaru (4)



©Dominicus Johannes Bergsma (5)

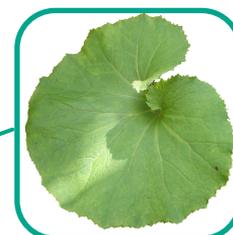
Inflorescences in spike made up of small fragrant cream-coloured flowers

Pale-green bracts

Rosettes appear in April-May and remain until the end of summer



©Christian Grenier (6)



Not to be confused with

Petasites hybridus - Native



©Zeynel Cebeci (6)



©caspermollering (7)

- Large toothed heart-shaped leaves
- Pink odourless flowers

Tussilago farfara - Native

- Rounded, smaller and tougher leaves
- Leaves with black edges and white-felted underneath



©Robert Flogaus-Faust (7)

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



Pickerelweed

Pontederia cordata

LIFE RIPARIAS alert list species



©Cephas (1)



Invasive species native to America. **Rare** in the wild in Belgium

Found in **marshes** and shallow **stagnant waters**



Aquatic perennial plant. From 60 to 100 cm high

Lanceolate to heart-shaped leaves that can grow up to 12 cm wide and 25 cm long



©Frank Vincentz (2)

Rhizomatous plant forming **dense mats** along banks



©Dido Gosse

If you spot that species, record your observation on

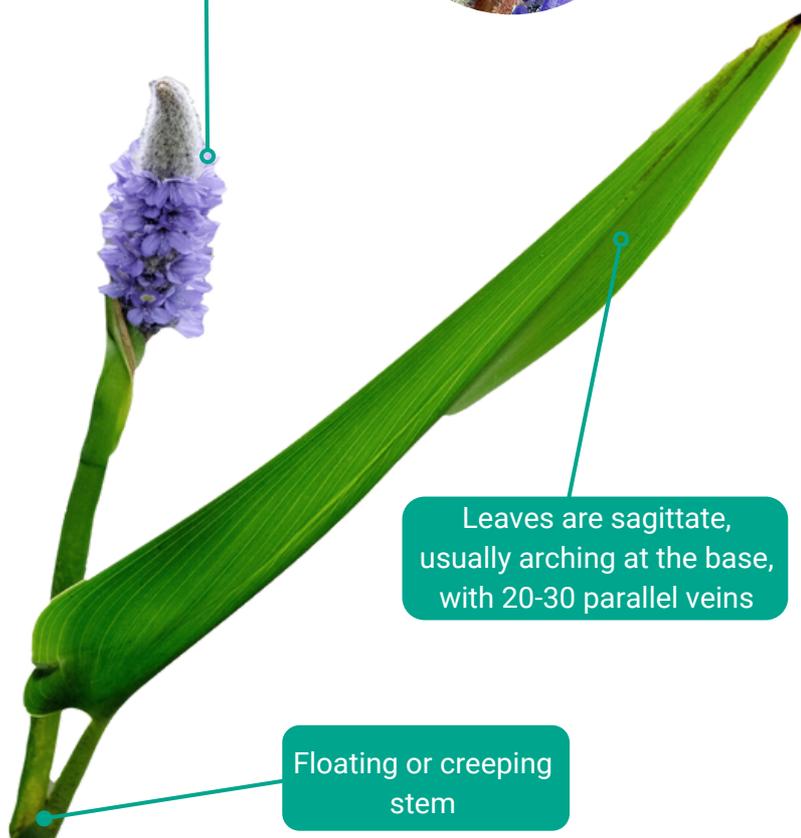
Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Blue flowers (sometimes white) aggregated in dense spikes (June-September)



©Bob Peterson (3)



Leaves are sagittate, usually arching at the base, with 20-30 parallel veins

Floating or creeping stem

Not to be confused with



©Algirdas at Lithuanian Wikipedia (4)

Sagittaria spp. - Native

- White flowers gathered in a bunch
- Arrow-shaped leaves which are acutely indented



Lizard's tail

Saururus cernuus

LIFE RIPARIAS alert list species



©Dido Gosse



Invasive species native to North America. **Rare** in the wild in Belgium

Found in **marshes, streams** and **stagnant waters**



Aquatic and semi-aquatic perennial plant, submerged or emerged. Grows to heights of 50 to 60 cm



©Jo Packet

The plant can live on the bottom of water bodies in a vegetative form. Fragile appearance

Species with very long rhizomes (up to 5 m) forming **dense mats**



©Etienne Branquart

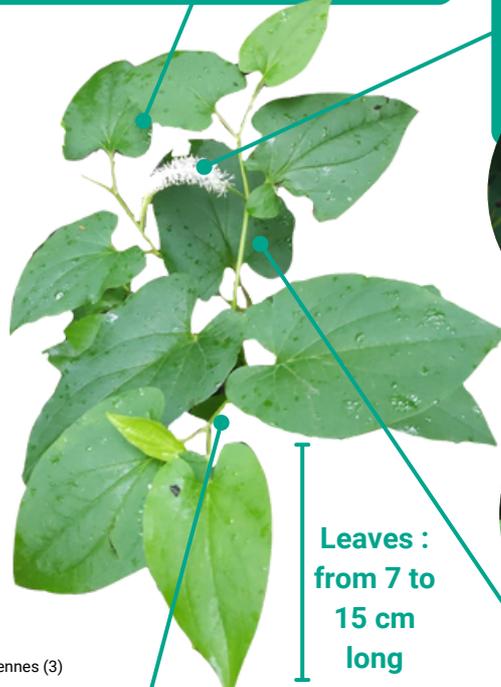
If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species

Elongated, heart-shaped leaves (length > 1,5 x width). The upper leaf surface is dark green while the lower surface is light green

White flowers aggregated in spikes, curved downwards, 10-30 cm long



©ihennes (3)

Leaves : from 7 to 15 cm long



©Corey Lange (1)

©Ashley M Bradford (2)



Green to reddish stems that are zigzag branched

Young stem sometimes pubescent which becomes glabrous

Not to be confused with

***Houttuynia cordata* - Exotic**



©Σ64 (4)

- Orange scent
- 4 white, petal-like bracts at the base

***Lysimachia clethroides* - Exotic**

- Lanceolate, alternately arranged leaves measuring 6 to 11 cm long
- Arching flower spikes. Star-shaped flowers with 5 petals measuring 1 cm wide



©Dominicus Johannes Bergsma (5)



Manchurian wildrice

Zizania latifolia

LIFE RIPARIAS alert list species



©Forest and Kim Starr (1)



Invasive species native to China.

Uncommon in the wild in Belgium

Found in **shallow stagnant waters** (edge of water bodies, swamps...)



Aquatic or semi-aquatic emerged perennial plant. Can grow to heights of 4 m

Long, dull grey-green leaves with a stout midrib on the leaf underside



©Trevor James (2)

Rhizomatous plant forming dense long-lived stands. Does not produce flowers in Belgium



©Etienne Branquart



©anna_efimova (3)

Leaves up to 1 m long and 2 cm wide



©An Leysen

Smooth, shiny, hollow stem with flattened section



©Kevin Scheers

Black spots and large ligule at the base of the leaves

Not to be confused with



©MM (4)

***Iris pseudacorus* - Native**

- Stem slightly compressed
- Yellow flowers (between April and July)
- Dark-green basal leaves (10 to 20 mm) with a raised midrib

***Typha* spp. - Native** Absence of midrib on the leaves.

Flowering between June and August

Typha angustifolia

Leaves are 1cm wide

Typha latifolia

Leaves are 1 to 2cm wide



©Mike Patterson (5)



©Amadej Trnkoczy (6)



©Kyle Brine (7)

If you spot that species, record your observation on

Observations.be **iNaturalist**

You will contribute to the protection of our ecosystems against invasive alien species



GLOSSARY

A

Acuminate: leaf that tapers into a long point

Alien species: species accidentally or intentionally introduced outside their natural range

Alternate leaf arrangement: leaf inserted at different levels on the stem, as opposed to opposite leaves

B

Bract: leafy body in the vicinity of the flowers, unlike normal leaves and floral parts (sepals, petals)

C

Clasping: said of a leaf without a petiole whose blade entirely or partially embraces the stem

Cordate: botanical term which means "heart-shaped".

Corolla: inner part of the perianth, often brightly colored, formed by petals

D

Denticulated: which has small fine teeth on the margin

Dichotomous: which divides by bifurcation into branches of similar importance

G

Glabrous: hairless

Glabrescent: which loses its hair over time

H

Heart-shaped: leaf or other organ whose base is indented in the shape of a heart

I

Internode: interval between two nodes of the stem

In whorls: arranged in whorls

L

Lanceolate: in the shape of a spearhead; narrowed from the middle to the two ends

Ligule: membranous appendage appearing at the junction of the leaf blade and the leaf sheath, in the Poaceae

N

Native species: species naturally present in a specific geographical area (Belgium in this case)

GLOSSARY

O

Opposite: said of 2 leaves inserted at the same level on the stem, one facing the other

P

Panicle: inflorescence in the form of an assembled cluster

Pectinate: is said of a simple, pinnate leaf, cut symmetrically on each side of the central vein, whose indentations reach half the width of the leaf blade

Peduncle: axis of an inflorescence supporting the pedicels

Petiole: thinned part of the leaf connecting the blade to the stem

Pinnate: said of a leaf whose secondary veins or leaflets are arranged in two rows on either side of the main vein or rachis, like the barbs of a feather

Pubescent: which has a fluffy appearance, covered with hair

R

Rhizomatous: provided with a rhizome, that is to say an underground stem carrying adventitious roots and aerial stems

Rosette: group of spreading leaves generally at ground level

S

Sepal: part of the calyx of a flower, usually green

Sessility: attached directly to the stem

Spathe: large bract enveloping an inflorescence

Spatulated: spatula-shaped, wide at the top, narrow and elongated at the base

Stipule: appendage most often foliaceous or membranous, at the junction of the petiole and the stem

Suborbicular: which is almost round, which describes a quasi-circumference

U

Umbel: inflorescence in which the flower pedicels are all inserted at the same point of the stem, and the flowers are all arranged on the same surface (spherical or flat)

W

Whorls: leaves arranged in a circle, at the same level, around an axis

PHOTO CREDITS

Cabomba caroliniana

- 1: <https://www.inaturalist.org/observations/98290635> ©alexis_orion
- 2,5,6,7,8 and 9: https://q-bankplants.eu/page/OrganismsIncluded_table ©Kieft Ben, ©Q-Bank, ©Kieft Ben, ©GB Non-native species, ©Kieft Ben, ©Kieft Ben
- 3: https://commons.wikimedia.org/wiki/File:Cabomba_caroliniana_5447113.jpg ©Leslie J. Mehrhoff, University of Connecticut
- 4: <https://www.flickr.com/photos/fritzflohreynolds/14743386247> ©Fritz Flohr Reynolds

Elodea nuttallii

1. https://commons.wikimedia.org/wiki/File:ElodeaNuttallii_Flowering.jpg ©Christian Fischer
2. <https://commons.wikimedia.org/wiki/File:ElodeaNuttallii2.jpg> ©Christian Fischer
3. <https://www.ipmimages.org/browse/detail.cfm?imgnum=5399498> ©Robert Vidéki, Doronicum Kft., Bugwood.org

Heracleum mantegazzianum

- 1: <https://www.invasive.org/browse/detail.cfm?imgnum=5452682> ©Leslie J Mehrhoff
- 2: https://commons.wikimedia.org/wiki/File:Heracleum_mantegazzianum_07.JPG ©Huhu Uet
- 3: https://commons.wikimedia.org/wiki/File:Heracleum_sphondylium_flower.jpg ©Júlio Reis
- 4: [https://fr.wikipedia.org/wiki/Fichier:Angelica_archangelica_in_a_garden_\(Belgium\)_-_B.jpg](https://fr.wikipedia.org/wiki/Fichier:Angelica_archangelica_in_a_garden_(Belgium)_-_B.jpg) ©Wouter Hagens

Hydrocotyle ranunculoides

- 1 et 2: https://q-bankplants.eu/page/OrganismsIncluded_table ©Kieft Ben
- 3: <http://www.freenatureimages.eu/plants/Flora%20D-I/Hydrocotyle%20vulgaris%2C%20Marsh%20Pennywort/index.html> ©Saxifraga-Jasenka Topic
- 4: <https://www.inaturalist.org/observations/76028256> ©Mehdi Chetibi

Impatiens glandulifera

- 1: https://commons.wikimedia.org/wiki/File:Impatiens_glandulifera_flower3.jpg ©MurielBendel
- 2: <https://www.geograph.org.uk/photo/5504589> ©James T M Towill
- 3: https://commons.wikimedia.org/wiki/File:Impatiens_balfouri.jpg ©Atman274
- 4: https://commons.wikimedia.org/wiki/File:Sene%CC%A7on_de_Fuchs.jpg ©Patrice78500

Lagarosiphon major

- 1: <http://www.freenatureimages.eu/Plants/Flora%20J-N/Lagarosiphon%20major/index.html> ©Saxifraga-Peter Meininger
- 2: <http://www.freenatureimages.eu/Plants/Flora%20J-N/Lagarosiphon%20major/index.html> ©Saxifraga-Peter Meininger
- 3: <https://www.ipmimages.org/browse/detail.cfm?imgnum=5399498> ©Robert Vidéki, Doronicum Kft., Bugwood.org

Ludwigia grandiflora

- 1: <https://www.flickr.com/photos/fjbn/3643068156/> ©Jardín Botánico Nacional, Viña del Mar, Chile

Ludwigia peploides

- 1: https://commons.wikimedia.org/wiki/File:Ludwigia_peploides_subsp_stipulacea1.jpg ©KENPEI
- 2: <https://www.inaturalist.org/observations/113517375> ©morganalston

Lysichiton americanus

- 1: [https://commons.wikimedia.org/wiki/File:British_Columbia_IMG_2522_\(14625728253\).jpg](https://commons.wikimedia.org/wiki/File:British_Columbia_IMG_2522_(14625728253).jpg) ©Maciej
- 2: https://commons.wikimedia.org/wiki/File:Lysichiton_americanus_38261.JPG ©Walter Siegmund
- 3: <https://tinyurl.com/2p8njdmp> ©Wendy Cutler
- 4: https://commons.wikimedia.org/wiki/File:Calla_palustris_water_arum_VI08_C_H5478.jpg ©Anneli Salo

Myriophyllum aquaticum

- 1, 2 and 3: https://q-bankplants.eu/page/OrganismsIncluded_table ©Q-Bank
- 4: <https://www.inaturalist.org/observations/25197151> ©Darrel Brown
- 5: <https://commons.wikimedia.org/wiki/File:HippurisVulgaris.jpg> ©Christian Fischer
- 6: <https://flora-on.pt/#/hSWHJ> ©Miguel Porto

Myriophyllum heterophyllum

- 1: https://commons.wikimedia.org/wiki/File:Myriophyllum_heterophyllum_5457858.jpg ©Leslie J. Mehrhoff, University of Connecticut
- 2: <http://biodiversite.wallonie.be/servlet/Repository/?ID=28300> ©Klaus van de Weyer
- 3: https://commons.wikimedia.org/wiki/File:Myriophyllum_heterophyllum_sl4.jpg ©Stefan.lefnaer
- 4: https://commons.wikimedia.org/wiki/File:Myriophyllum_heterophyllum_5457833.jpg ©Leslie J. Mehrhoff
- 5: https://commons.wikimedia.org/wiki/File:Myriophyllum_heterophyllum_sl35.jpg ©Stefan.lefnaer
- 6: <https://flora-on.pt/#/hSWHJ> ©Miguel Porto
- 7: <https://commons.wikimedia.org/wiki/File:HippurisVulgaris.jpg> ©Christian Fischer
- 8: https://commons.wikimedia.org/wiki/File:Ceratophyllum_demersum_s._str._sl2.jpg ©Stefan.lefnaer
- 9: <https://www.inaturalist.org/observations/121432842>
- 10: https://q-bankplants.eu/page/OrganismsIncluded_table ©Q-Bank

Aponogeton distachyos

- 1: https://commons.wikimedia.org/wiki/File:Aponogeton_distachyos_HRM.jpg ©Cillas
- 2: <https://www.inaturalist.org/observations/47720908> ©H. Zell
- 3: https://commons.wikimedia.org/wiki/File:Aponogeton_distachyos_Flipphi_3.jpg ©Dwergenpaartje
- 4: https://commons.wikimedia.org/wiki/File:Aponogeton_distachyos_003.JPG ©H. Zell
- 5: https://commons.wikimedia.org/wiki/File:Aponogeton_distachyos_001.JPG ©H. Zell
- 6: <https://www.inaturalist.org/observations/56650494> ©Vladimir Bryukhov
- 7: <https://www.inaturalist.org/observations/87863390> ©Stefan.lefnaer
- 8: <https://www.inaturalist.org/observations/47557436> ©strewick

Crassula helmsii

- 1: https://q-bankplants.eu/page/OrganismsIncluded_table ©Q-Bank
- 2: <https://flora-on.pt/#/hXJJT> ©Richard Lansdown
- 3: <https://flora-on.pt/#/hdJaA> ©Miguel Porto
- 4: <https://www.geograph.org.uk/photo/4492943> ©Mike Pennington

Egeria densa

- 1: <https://www.ipmimages.org/browse/detail.cfm?imgnum=5399498> ©Robert Vidéki, Doronicum Kft., Bugwood.org

Erythranthe guttata

- 1: <https://www.inaturalist.org/observations/79066497> ©newtpatrol
- 2: <https://www.flickr.com/photos/74738817@N07/43658513972/in/photostream/> ©Andreas Rockstein
- 3: [https://commons.wikimedia.org/wiki/File:Monkey_Flower_\(Mimulus_guttatus\)_-_geograph.org.uk_-_550652.jpg](https://commons.wikimedia.org/wiki/File:Monkey_Flower_(Mimulus_guttatus)_-_geograph.org.uk_-_550652.jpg) ©Anne Burgess
- 4: <https://www.inaturalist.org/observations/11856177> ©newtpatrol
- 5: <https://www.inaturalist.org/observations/5497420> ©damontighe
- 6: [https://commons.wikimedia.org/wiki/File:Mimulus_luteus_\(8435450333\).jpg](https://commons.wikimedia.org/wiki/File:Mimulus_luteus_(8435450333).jpg) ©Dick Culbert
- 7: https://commons.wikimedia.org/wiki/File:Mimulus_moschatus_1.jpg ©Kyle Brine

Houttuynia cordata

- 1: https://commons.wikimedia.org/wiki/File:Houttuynia_cordata_-_Parc_floral.JPG ©Dinkum
- 2: <https://www.flickr.com/photos/stella12/19845376322> ©Deb Nystrom
- 3: <https://www.inaturalist.org/observations/85510539> ©zmp
- 4: https://commons.wikimedia.org/wiki/File:Houttuynia_cordata_03.jpg ©Σ64
- 5: <https://www.drta-archiv.de/amerikanischer-eidechschwanz/> ©Eric Hunt

Koenigia polystachya

- 1: https://commons.wikimedia.org/wiki/File:Persicaria_wallichii_02_ies.jpg ©Frank Vincentz
- 2: <https://observations.be/media/photo/28903945.jpg> ©Rens Hendrickx
- 3: https://commons.wikimedia.org/wiki/File:Persicaria_wallichii_20111008_115628.JPG ©Gilles San Martin
- 4: [https://commons.wikimedia.org/wiki/File:Persicaria_wallichii_-_Himalayan_knotweed_at_Chelela_Pass_during_LGFC_-_Bhutan_2019_\(1\).jpg](https://commons.wikimedia.org/wiki/File:Persicaria_wallichii_-_Himalayan_knotweed_at_Chelela_Pass_during_LGFC_-_Bhutan_2019_(1).jpg) ©Vinayaraj
- 5: <https://observations.be/media/photo/43260826.jpg> ©Paul en Marianne
- 6: <https://observations.be/media/photo/38724260.jpg> ©Nele Van Hemelen
- 7: https://commons.wikimedia.org/wiki/File:Bistorta_officinalis_syn._Polygonum_bistorta_Rdest_w%C4%99C5%BCownik_200905-24_01.jpg ©Agnieszka Kwiecień, Nova
- 8: <http://www.freenatureimages.eu/Plants/Flora%20R/Rumex%20obtusifolius%2C%20Bitter%20Dock/index.html> ©Saxifraga-Jasenska Topic
- 9: <https://commons.wikimedia.org/wiki/File:Fallopia-ja> ©Michael Gasperl

Petasites japonicus var. giganteus

- 1: <https://tinyurl.com/mujs9rp2> ©Krzysztof Ziarnek, Kenraiz
- 2: <https://tinyurl.com/r6mtzmek> ©urasimaru
- 3: <https://tinyurl.com/5n925unm> ©Dominicus Johannes Bergsma
- 4: <https://www.inaturalist.org/observations/66386153> ©Christian Grenier
- 5: https://commons.wikimedia.org/wiki/File:Tussilago_farfara_3_RF.jpg ©Robert Flogaus-Faust
- 6: <https://tinyurl.com/ynrdk74a> ©Zeynel Cebeci
- 7: <https://www.inaturalist.org/observations/74614326> ©caspermollering

Pontederia cordata

- 1: https://commons.wikimedia.org/wiki/File:Pontederia_cordata_4_PP.jpg ©Cephas
- 2: https://commons.wikimedia.org/wiki/File:Pontederia_cordata_02_ies.jpg ©Frank Vincentz
- 3: <https://tinyurl.com/4725dewv> ©Bob Peterson
- 4: https://commons.wikimedia.org/wiki/File:Sagittaria_sagittifolia,_2006-07-22.JPG ©Algirdas at Lithuanian Wikipedia

Saururus cernuus

- 1: <https://www.inaturalist.org/observations/3484942> ©Corey Lange
- 2: <https://www.inaturalist.org/observations/7717011> ©Ashley M Bradford
- 3: <https://www.inaturalist.org/observations/50475002> ©ihennes
- 4: https://commons.wikimedia.org/wiki/File:Houttuynia_cordata_03.jpg ©Σ64
- 5: https://commons.m.wikimedia.org/wiki/File:Lysimachia_clethroides,_met_zijn_karakteristieke_bloeiwijze._Familie_Primulaceae_02.jpg ©Dominicus Johannes Bergsma

Zizania latifolia

- 1: <https://tinyurl.com/ukknr7mm> ©Forest and Kim Starr
- 2: <https://www.weedbusters.org.nz/what-are-weeds/weed-list/manchurian-rice-grass/> ©Trevor James
- 3: <https://www.inaturalist.org/observations/39883769> ©anna_efimova
- 4: <https://www.inaturalist.org/observations/72537953> ©MM
- 5: <https://www.inaturalist.org/observations/3930117> ©Mike Patterson
- 6: <https://www.flickr.com/photos/atrnkoczy/3406470969> ©Amadej Trnkoczy
- 7: <https://www.inaturalist.org/observations> ©Kyle Brine

LIFE RIPARIAS

Reaching Integrated and Prompt Action in Response to Invasive Alien Species

Coordinator:

Brussels Environment
Tour & Taxis
Avenue du Port 86C/3000
1000 Brussels
Belgium

Communication:

Gembloux Agro-Bio Tech
Université de Liège
Passage des Déportés, 2
5030 Gembloux
Belgique

E-mail: info@riparias.be
Website: www.riparias.be



LIFE RIPARIAS, 2022

© 2022 LIFE RIPARIAS. Invasive alien aquatic and riparian plant species - Licensed work, commercial use of this identification guide is not permitted.

RIPARIAS

Reaching Integrated and Prompt Action
in Response to Invasive Alien Species



This identification guide reflects the views of the LIFE RIPARIAS consortium only. CINEA is not responsible for any use that may be made of the information it contains.

This project has received funding from the LIFE Programme of the European Union.

Copyright cover picture: ©Adrien Latli

© LIFE RIPARIAS 2022. Licence CC-BY-NC