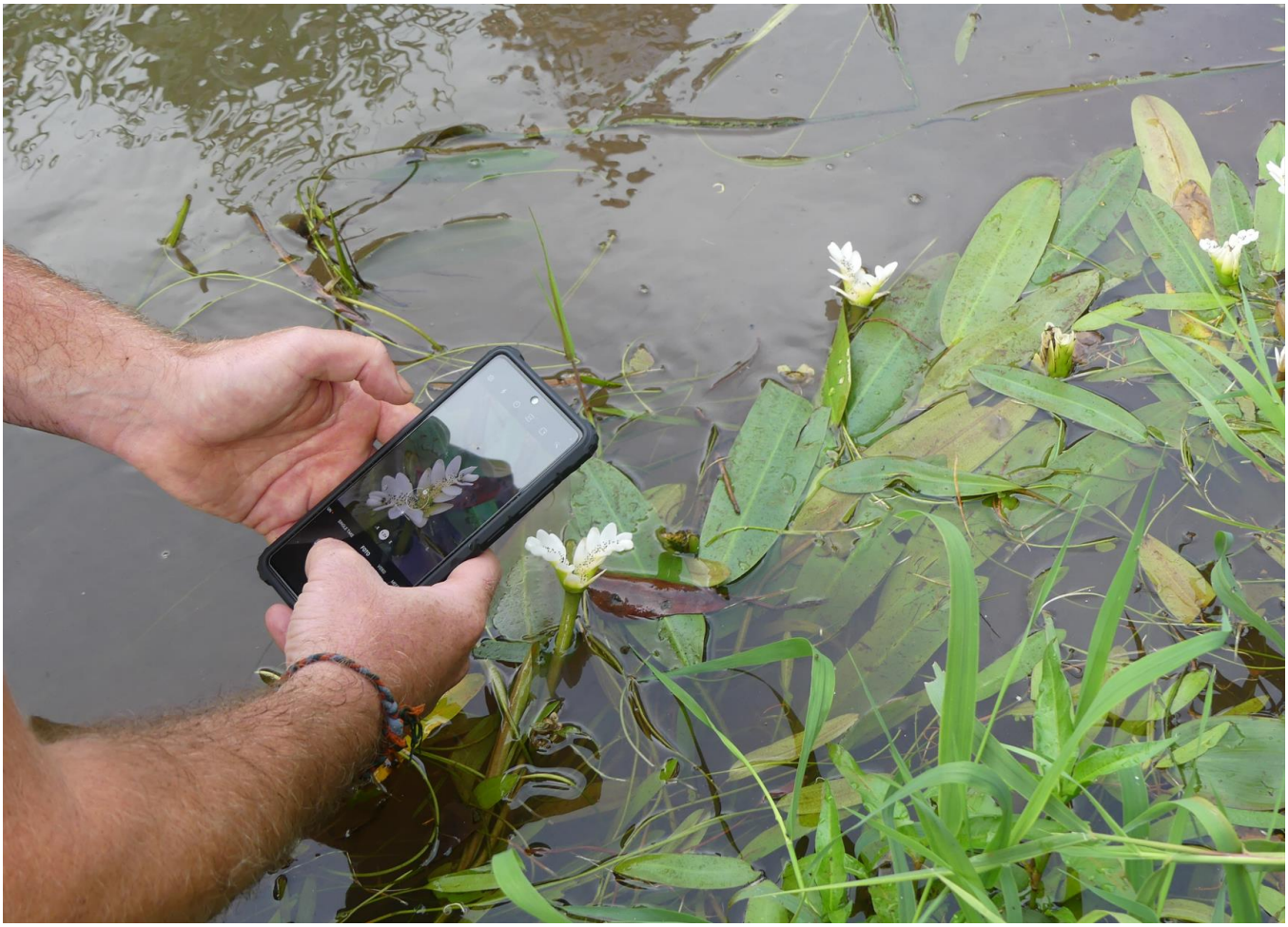
Annual review of observations in 2023

Action C1 : enhanced IAS surveillance



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RIPARIAS

Reaching Integrated and Prompt Action in Response to Invasive Alien Species

Beneficiaries responsible for the implementation of action C1:

Main action responsible: SPW-ARNE.

Other beneficiaries directly involved in IAS field surveillance: BE (Brussels), ANB & VMM (Flanders), CRD, CRDG & CRS (Wallonia).

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EXECUTIVE SUMMARY

22 LIFE RIPARIAS target plant species were actively searched for in aquatic and riparian habitats through field surveillance conducted by LIFE RIPARIAS regional focal points and naturalists within the Dijle-Dyle, Mark-Marcq and Zenne-Senne river basins in 2023. It includes 13 plant species listed under EU Regulation No 1143/2014 and 9 plant species from the LIFE RIPARIAS alert list[1], on which this report focuses. The results of crayfish surveillance carried out in 2023 will be addressed in the next review of observations in 2024.

In 2023, the surveillance was organised as a follow-up of the enhanced surveillance conducted in 2021-2022 to detect additional populations of the LIFE RIPARIAS target species with a focus on emerging ones. As previously, surveillance was based on the LIFE RIPARIAS surveillance plan (Branquart *et al* 2021)[2], but surveillance intensity decreased compared to previous years due to a progressive shift towards management actions.

1376 plant observations were collected and recorded in Invasive Alien Species (IAS) databases. 16 out of the 22 target plant species were detected in 2023 and no additional IAS was found on top of the species list established during the enhanced surveillance period 2021-2022. *Egeria densa, Ludwigia grandiflora, L. peploides, Koenigia polystachya* and *Pontederia cordata* were recoreded more often in 2023 than in 2021-2022, suggesting either a potential expansion of their populations or a better detection rate.

The data harvested by the field survey allowed the project team to update species distribution maps to be used to identify management priorities and to assess the effect of future management actions.

[1] These species were listed in a report "Belgian alert lists of alien aquatic & riparian plants and crayfish Improving data flow for early detection (A1)" available on https://www.riparias.be/358/

[2] Branquart E., Adriaens T., Beck O., Colard F., De Jonghe C., D'hondt B., Dumortier A., Goffette J., Gosse D., Guyon J., Latli A., Monty A., Scheers K., Stas M., Van Onsem S. & Vermeersch X. (2021) LIFE RIPARIAS surveillance plan – Partim Life team enhanced surveillance (C1.2 & C1.3). Report prepared in support of implementing action C1 of the LIFE RIPARIAS project LIFE19 NAT/BE/000953, version 1.3, 21 pages.

1. Introduction

This observation review focuses on 22 LIFE RIPARIAS target alien plants (2023) from the list of Invasive Alien Species (IAS) of Union concern and the LIFE RIPARIAS alert list.

Target species from the IAS list of Union concern pertaining to EU Regulation No 1143/2014 are as follows:

- Aquatic plants: *Cabomba caroliniana*, *Hydrocotyle ranunculoides, Lagarosiphon major, Ludwigia grandiflora, Ludwigia peploides, Myriophyllum aquaticum* and *Myriophyllum heterophyllum;*
- Riparian plants: *Heracleum mantegazzianum, H. persicum, H. sosnowskyi, Impatiens glandulifera, Koenigia polystachya* and *Lysichiton americanus.*

Alert list species were identified through a horizon scanning exercise based on plant catalogues of aquatic plant producers and retailers in Belgium (Branquart *et al* 2022)[3]. They are detrimental species with a limited distribution within the LIFE RIPARIAS territory, for which dedicated surveillance and monitoring are recommended to foster prompt response in the case of detection in natural environments. Alert list plant species identified are as follows:

- *Aquatic plants: Aponogeton distachyos, Crassula helmsii, Egeria densa, Pontederia cordata, Saururus cernuus* and *Zizania latifolia;*
- Riparian plants: *Erythranthe guttata, Houttuynia cordata* and *Petasites japonicus.*

The results of crayfish surveillance carried out in 2023 will be addressed in the next review of observations as crayfish sampling was limited in 2023 and must be completed by additional survey to be carried out in the field in 2024. Also the e-DNA sampling results collected in 2023 have to be validated by field trapping in 2024 before being published and correctly interpreted.

2. Methodology

A surveillance plan was designed to identify priority areas for surveillance within the LIFE RIPARIAS territory (Branquart *et al* 2021). They include:

1/ **historical sites** where project target species were observed between 2000 and 2020,

2/ **priority river sub-units** wherein management of widespread IAS is likely to be conducted during the RIPARIAS project, due either (i) to high conservation value (extent of riparian zones benefiting from an official protection status greater than 10% of river linear within individual RSU) or (ii) to upstream location within river basins

According to this plan, surveillance was focused on the riparian zone covering all habitats included in floodplains, rivers and riverbanks as well on remote ponds where historical observations were recorded.

[3] Branquart E., Adriaens T., Devisscher S., D'hondt B., Denys L., Dumortier A., Latli A., Packet J., Scheers K., Vanderhoeven S. & Willeput R. (2022) Belgian alert lists of alien aquatic plants and crayfish. Report prepared in support of implementing action A1 of the LIFE RIPARIAS project LIFE19 NAT/BE/000953, 15 pages.

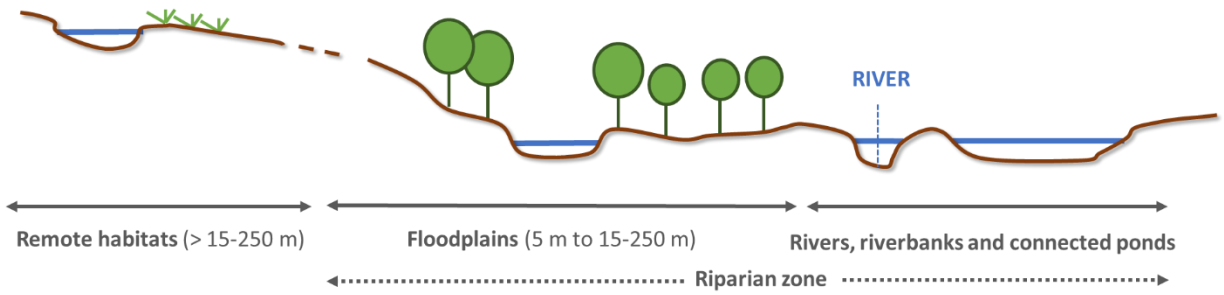

Figure 1 - Spatial units considered in the LIFE RIPARIAS surveillance

Regional focal points were designated to prepare field maps, coordinate data acquisition from the field, play the role of regional contact point for citizen science activities, coordinate data recording and produce regional reports. These focal points are as follows: Brussels Environment for the Brussels-Capital Region, Agentschap Natuur en Bos and Vlaamse Milieu Maatschappij for Flanders and Contrat de Rivière Senne for Wallonia.

Two identification guide including species fact sheets[4] were produced to help with the determination of the 22 plant species and the 8 crayfish species. These fact sheets are available in three languages (Dutch, English and French) on the LIFE RIPARIAS website. Training sessions dedicated to naturalists and field managers were also organised in June 2021 and 2022 to increase their capacity to recognise the different invasive species targeted by the project.

In 2023, the surveillance was organised as a follow-up of the enhanced surveillance conducted in 2021-2022 to detect additional populations of the LIFE RIPARIAS target species with a focus on emerging ones. Surveillance intensity decreased compared to previous years due to a progressive shift towards management actions. It was carried out by the LIFE team and by naturalists and field managers who recorded their observations on citizen science smartphone applications such as iNaturalist, Obsidentify and Obsmapp. Depending on the target groups, surveillance was initiated in different steps within the priority areas defined in the surveillance plan to maximise the probability of species detection in the field, i.e. from 01/04 for giant hogweed, from 01/06 for aquatic plants and from 01/07 for Himalayan balsam.

Observation data were recorded in different databases including dedicated professional systems and citizen science platforms. All the collected data were published afterwards on the Global Biodiversity Information Facility (GBIF) and are available on the LIFE RIPARIAS early alert tool.

3. Results

A total of 1376 observations of target plant species were recorded in 2023, out of which 745 (54%) came from citizen science and 631 (46%) from the RIPARIAS consortium. The 2023 detection rate of target IAS across the LIFE RIPARIAS territory is much higher than the rate linked to the baseline period (2015-2020) but lower than the rate corresponding to the enhanced surveillance period (2021-2022), especially for widespread riparian plants (figure 2).

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

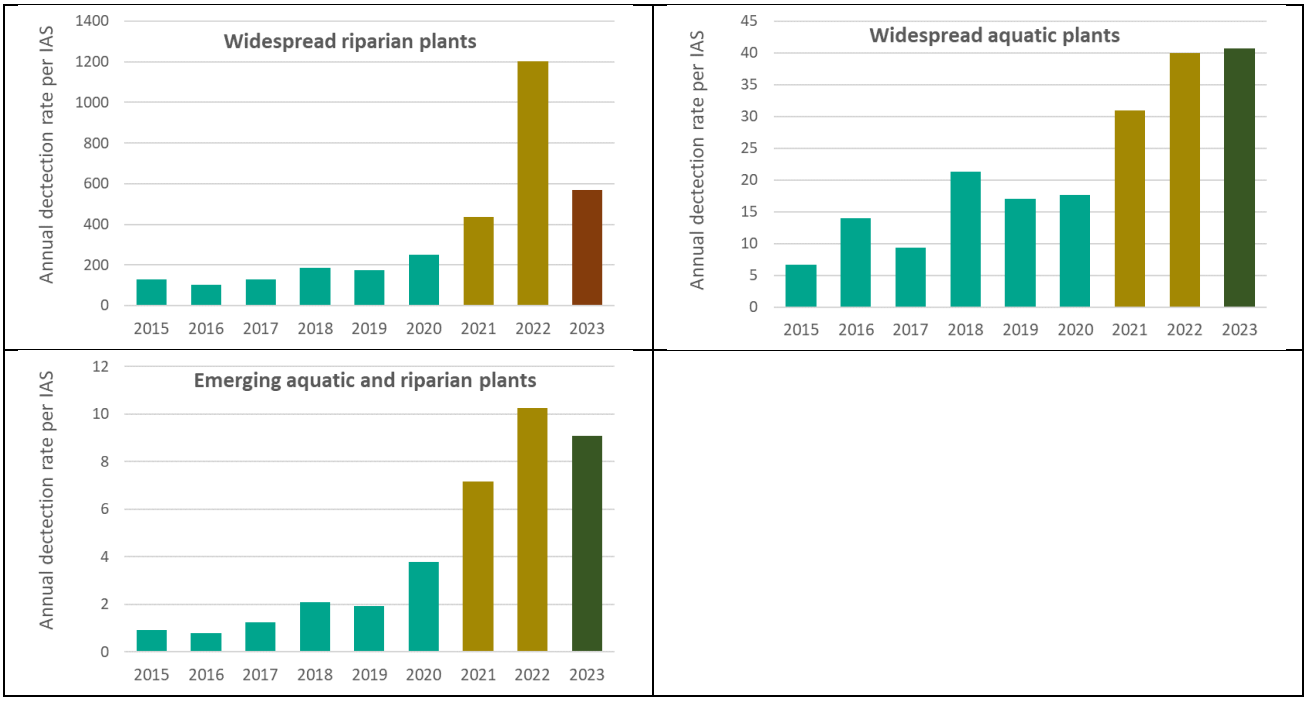

Figure 2 – Evolution of the annual detection rate per species of the 3 plant groups targeted by the LIFE RIPARIAS project from 2015 to 2023. Enhanced surveillance period runs from 2021 to 2022. Data source: (source: https://alert.riparias.be).

The watercourse network was surveyed extensively except for areas outside priority RSUs like the western part of the Zenne-Senne river basin (figure 3). The map also shows that most of the observations were concentrated along the river system. Downstream sections of rivers are usually more heavily invaded than upstream areas.

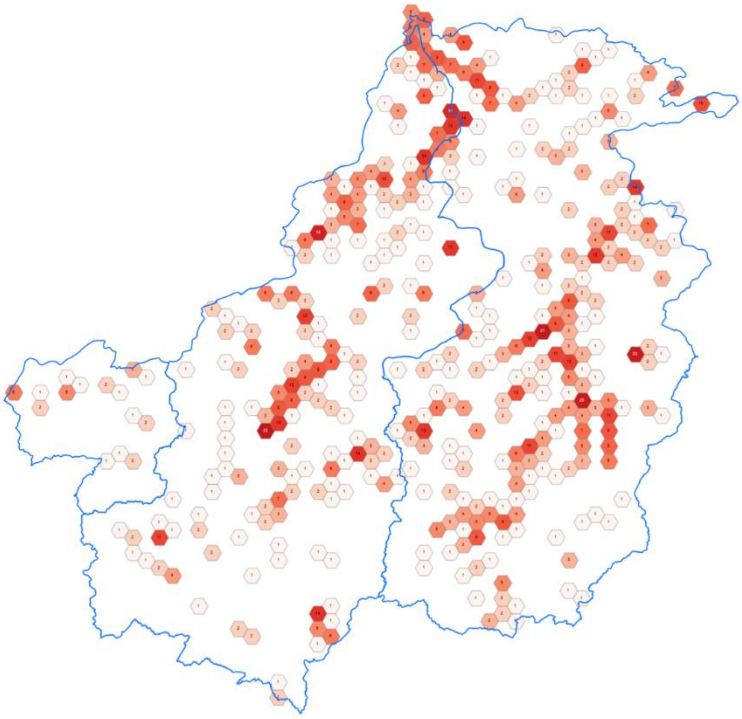

Figure 3 – Density of observations of target plants in 2023 across the LIFE RIPARIAS territory. Source: LIFE RIPARIAS early alert tool.

16 out of the 22 target plant species were detected in the RIPARIAS territory in 2023. Only 4 species without any historical observation, i.e. *Cabomba caroliniana, Heracleum persicum, H. sosnowskyi* and *Myriophyllum heterophyllum* were not found. Also, 2 species observed in 2021-2022 were not detected in 2023, i.e. *Lagarosiphon major* and *Saururus cernuus*. No new species was found in 2023. The 2023 detection rate of *Egeria densa*, *Ludwigia grandiflora*, *L. peploides, Koenigia polystachya* and *Pontederia cordata* slightly increased compared to the detection rate corresponding to the 2021-2022 period, suggesting a potential expansion of their populations.

Riparian plants were the most frequently observed species; Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) alone accounted for 83% of the observations. On the contrary, detection of most submerged secretive species like *Elodeas* was also rather low.

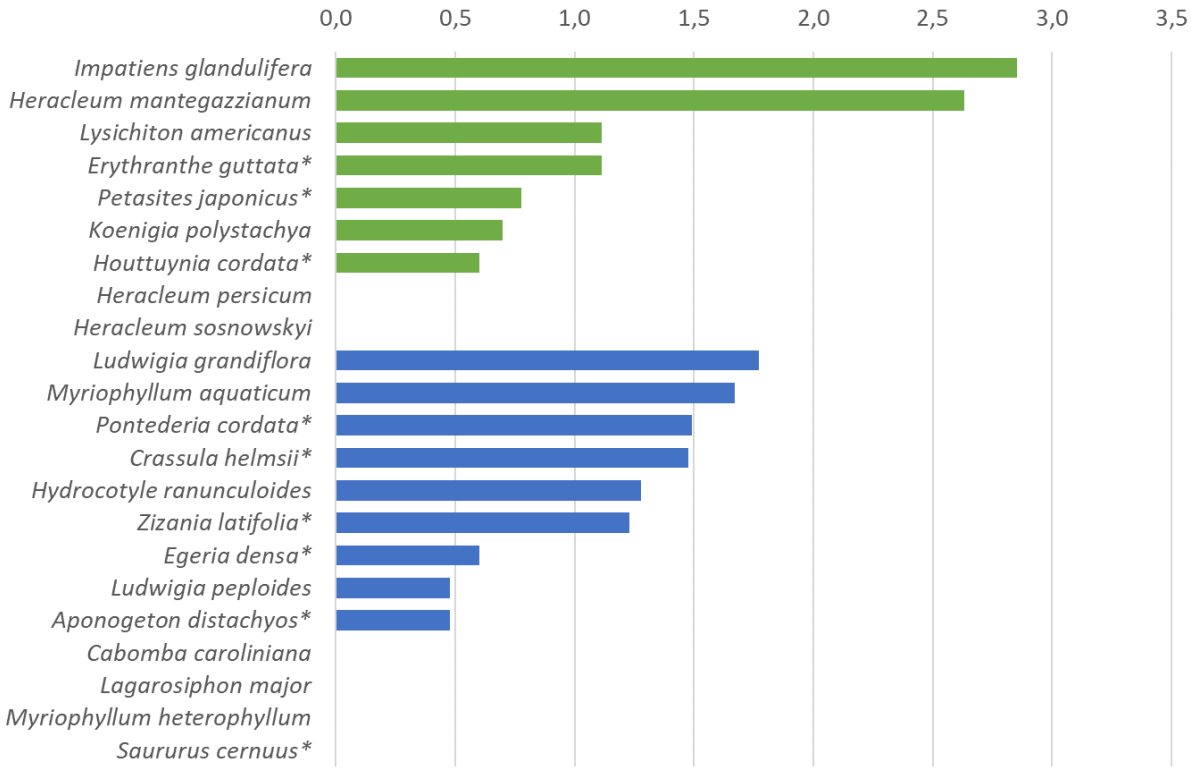

Figure 4 – Observation frequency of the LIFE RIPARIAS target plant species during the enhanced surveillance period 2023 (in green: riparian plants, in blue: aquatic plants). Alert list species are marked with an asterisk.

Figure 5 – Pontederia cordata, Ludwigia peploides and Egeria densa; three alert list species for which new localities have been detected in 2023. Pictures: Pauline Ducarme and Jérémie Guyon.

4. Conclusions

Despite a progressive shift of the LIFE RIPARIAS workload towards management actions, there was only a limited decline in annual species detection rate in 2023 compared to the enhanced surveillance period 2021-2022. It mostly affects the most common target species, i.e. the Himalayan balsam *Impatiens glandulifera*. The surveillance carried out in 2023 allowed to detect new sites occupied by emerging plant species like *Egeria densa*, *Koenigia polystachya, Ludwigia peploides* and *Pontederia cordata*, thanks e.g. to the maintenance of citizen science activities.

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