ManaIAS

A tool supporting the management of invasive alien species

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https://www.biodiversity.be

Life RIPARIAS

The RIPARIAS project has received funding from the LIFE Programme of the European Union

RIPARIAS

Reaching Integrated and Prompt Action in Response to Invasive Alien Species

Through the Life RIPARIAS project, the Belgian authorities responsible for IAS management are collaborating and pooling their resources to optimise the management of aquatic and riparian invasive species at river basin level.

- RIPARIAS is developing an innovative evidence-based workflow for IAS management decision-making, translating national management objectives into concrete actions and maximising the cost-effectiveness of management, piloted for plant and crayfish species in the Scheldt basin.
- The project is based on interdisciplinary cooperation between practitioners, the general public and policy makers.

Life RIPARIAS - Objectives

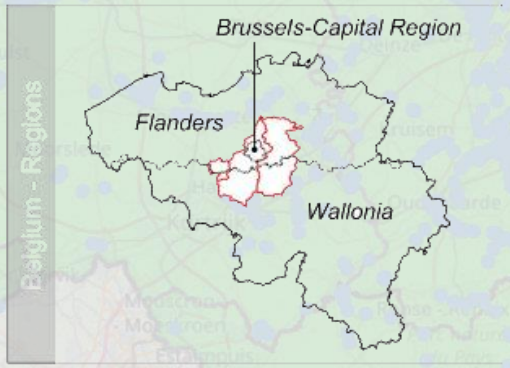
I. Improve data flow from monitoring systems to regional IAS managers by ensuring interoperability of systems and strengthening surveillance. This enables rapid eradication of emerging species and cost-effective containment of widespread species.

II. Develop clear guidelines and objective criteria for prioritising aquatic and riparian IAS management actions and implement priority actions in 3 pilot river basins.

III. Evaluate the efficiency of the actions taken.

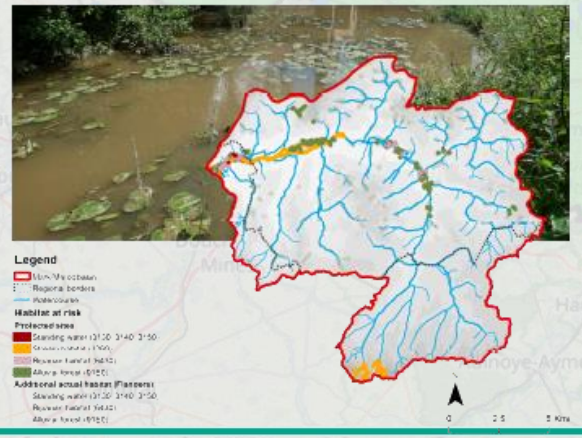
IV. Promote the replication of the evidence-based workflow for IAS management decision-making in Europe.

Life RIPARIAS - The Pilot Region

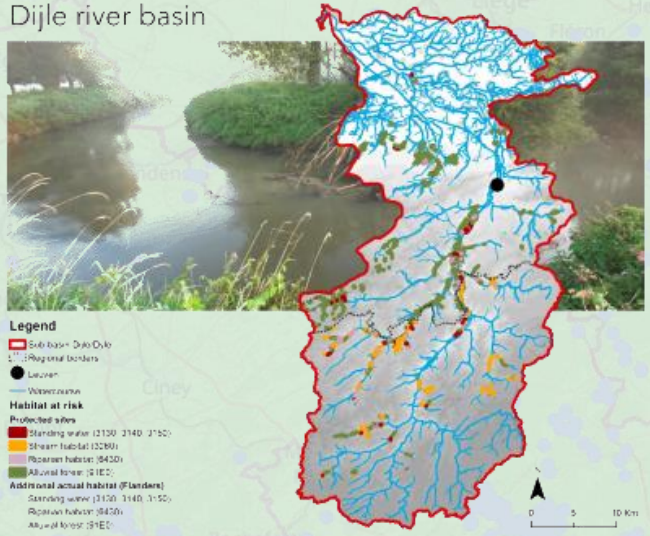


Zenne river basin

Mark river basin



Dijle river basin



https://www.riparias.be

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Life RIPARIAS - Some Facts

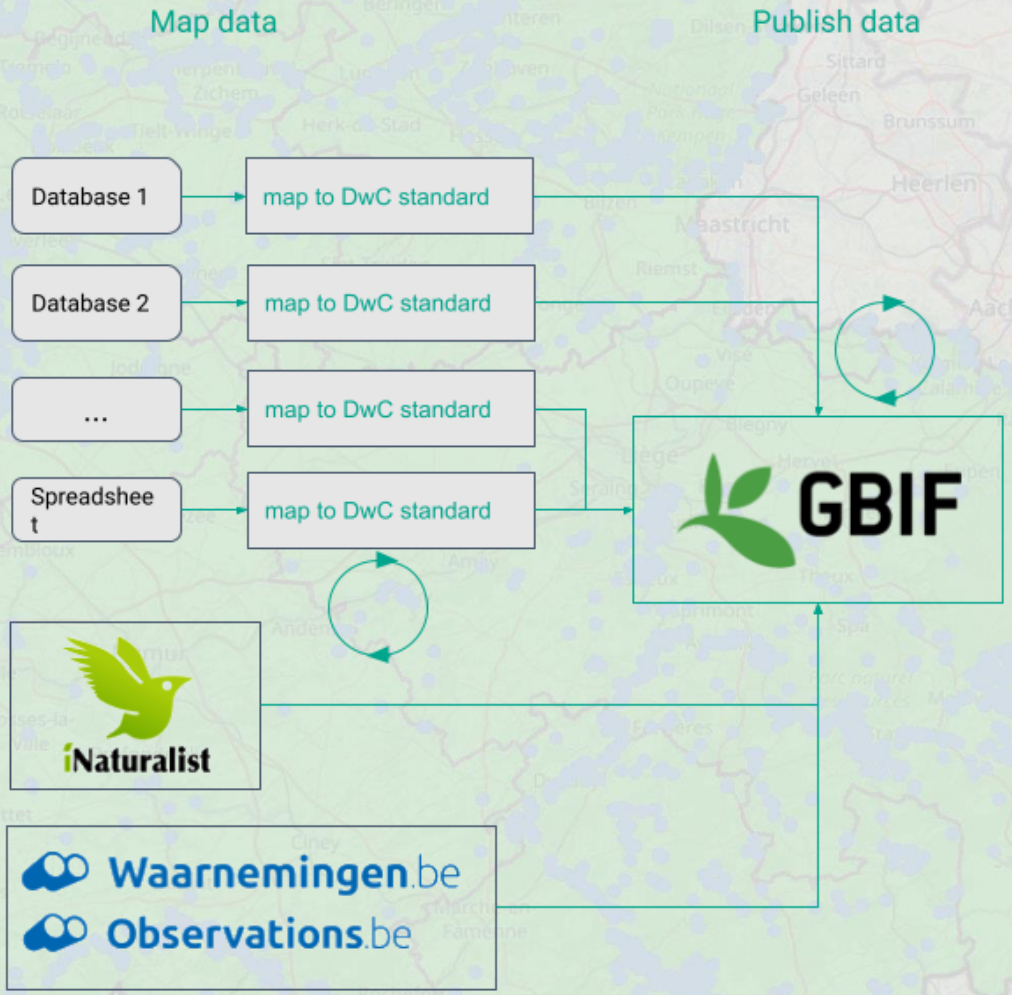
- Project duration : 6 years (1/1/2021 – 31/12/2026)
- Estimated total budget : 7,010,389.00 €
- Envisaged EU contribution : 3,855,714.00 €
- Software developments should be completed by the end of April 2025
- Among the developed software tools, two were designed to be generic and adaptable to other conditions : GBIF Alert and ManaIAS

Life RIPARIAS - The Data Flow

GBIF—the Global Biodiversity Information Facility—is an international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth.

It was chosen as the source of standardized data.

Occurrences records are downloaded and fed into LIFE RIPARIAS tools databases every night.



https://github.com/riparias

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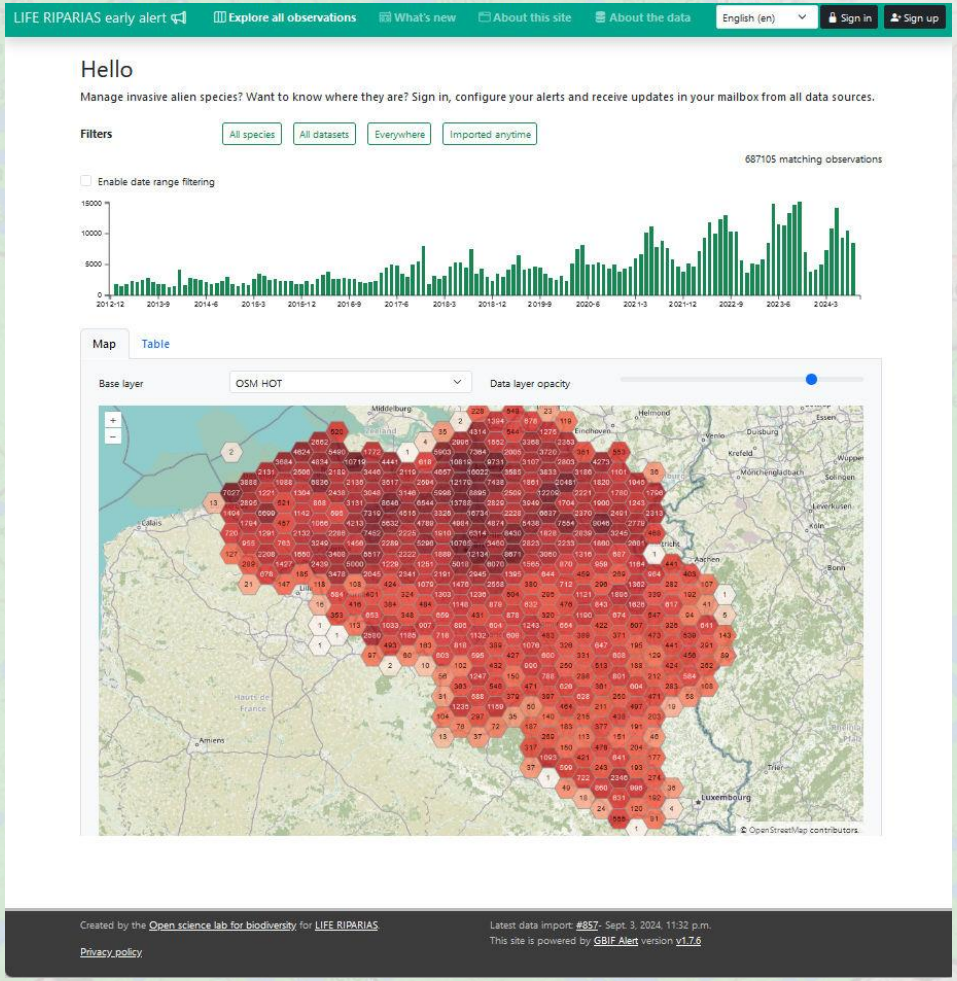
Life RIPARIAS - GBIF Alert

- Users can register to receive alerts by e-mail when new occurrences are added to the database
- Creates occurrence maps with data imported from GBIF and serves them as MVT tiles directly generated by the database



https://alert.riparias.be

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Life RIPARIAS - ManaIAS

A **spatially explicit decision support system to assist program managers and policy makers in establishing priorities** for IAS management programs and actions:

- Definition of management **objectives** at the river basin scale
- **Species** and **site** prioritization
- Choice of cost-effective **management techniques** adapted to site conditions

ManaIAS - Architecture

- Backend is written with django
- Frontend is technically written in two parts :
  - Entry-point of the software is part of the django project
  - The GIS part is written as a 

SPA

ManaIAS – Backend Architecture

- Backend is written with django
- It is used for users authentication, project creation and result visualisation and export
- It includes a REST API and a PDF report generator
- Some APIs use GeoPandas to compute statistics
- PDF report generator is using ›weasyprint

ManaIAS – SIG SPA Architecture

- It is written on top of the Wegue framework
- It manages local data using Dexie.js
- It uses  to do some chromatic computations and to visualise data histograms

Wegue Framework

- Wegue (**We**b**G**IS with OpenLayers and V**ue**) combines the power of 

and 

to make lightweight webmapping applications.
- For styling and pre-defined UI-components the Material Design Component Framework 

is used.
- It acts as a template to reduce boilerplate work for browser-based mapping applications.

https://wegue-oss.github.io/wegue

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Wegue Framework

- Project created by Christian Mayer from Meggsimum – Büro für Geoinformatik
- Initial import made the 4th September 2017
- Includes reusable UI components
- Configurable through JSON files
- Optimized for all devices
- Licence: BSD-2-Clause

https://wegue-oss.github.io/wegue

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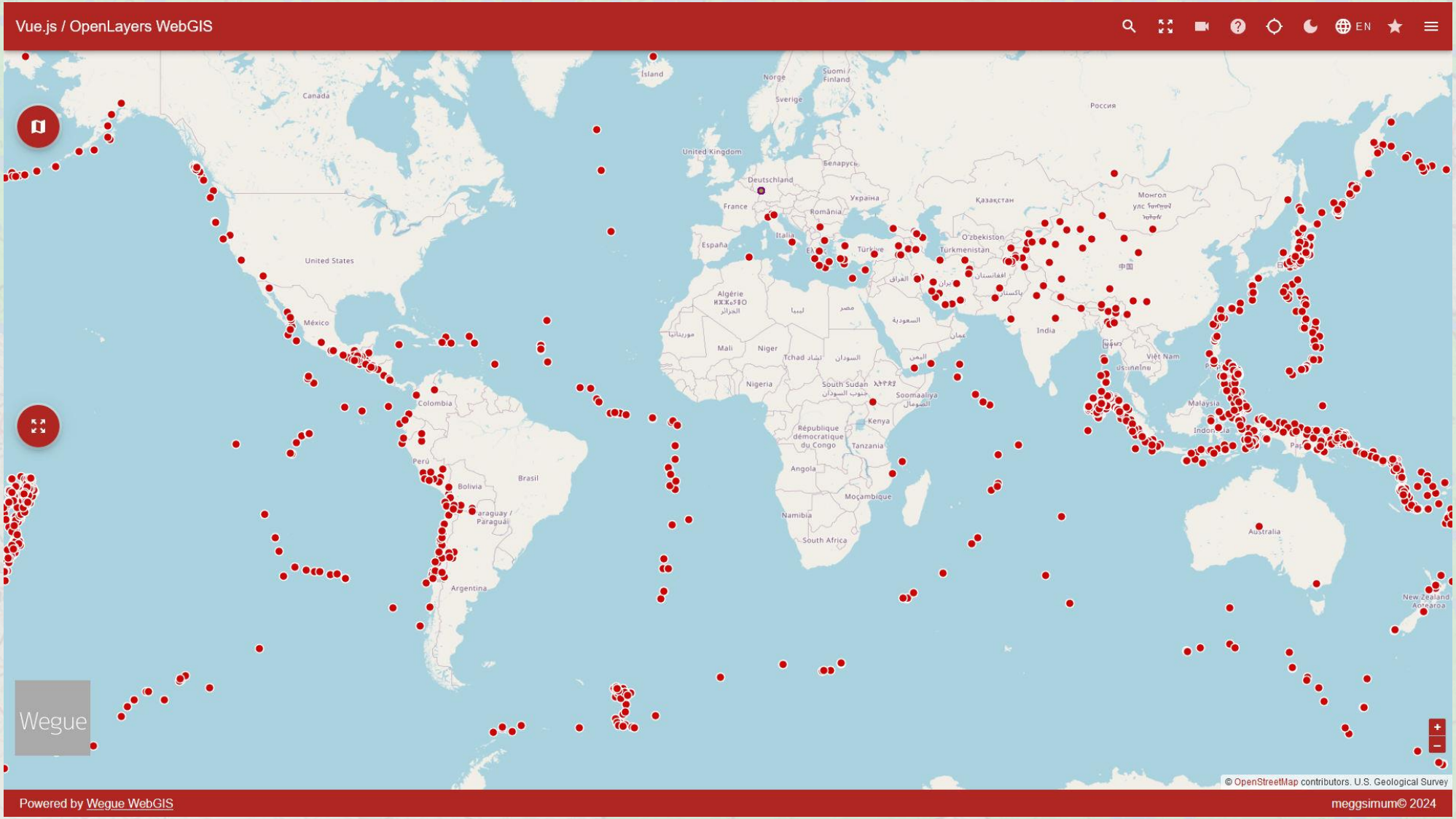
Wegue Framework - It is NOT

- A pure library
- A full Desktop-GIS application
- Feature creep

Wegue – The Demo App



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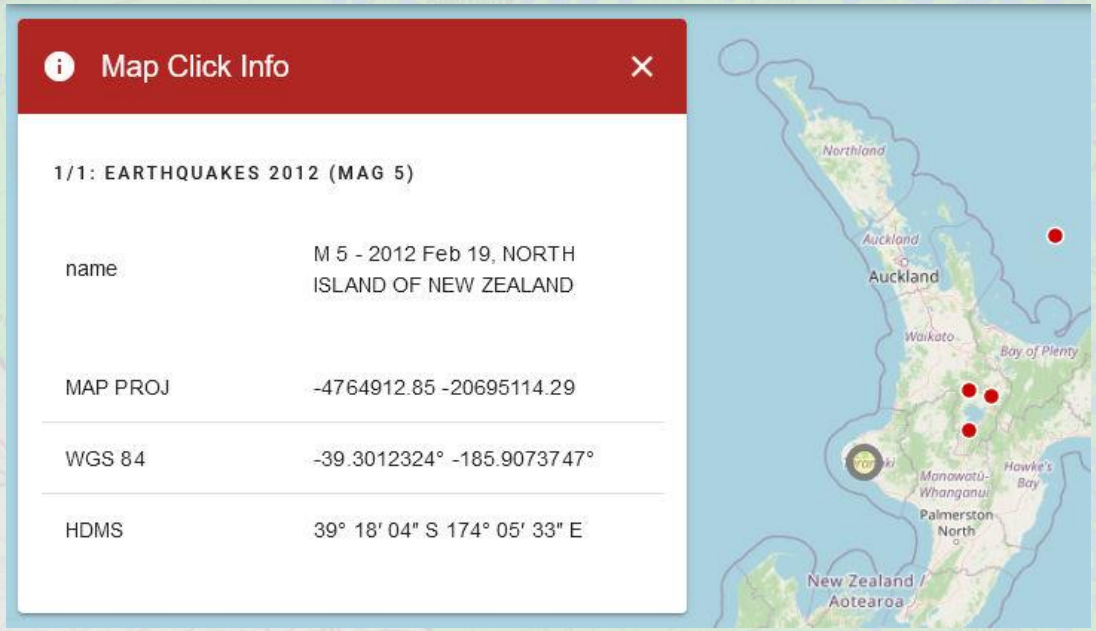
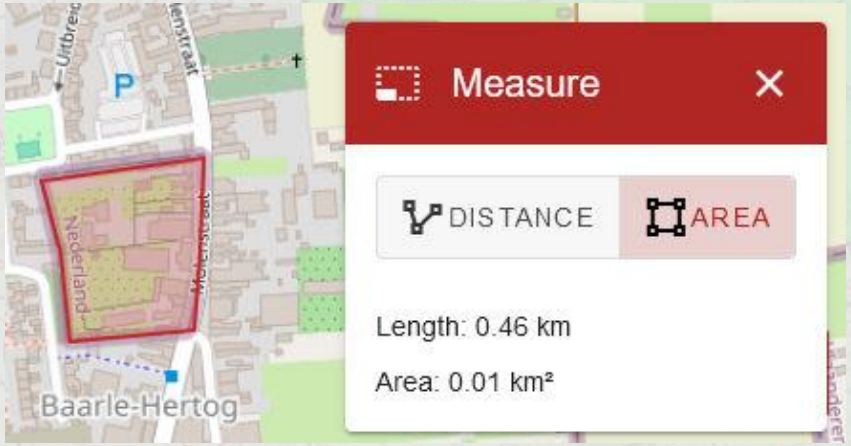
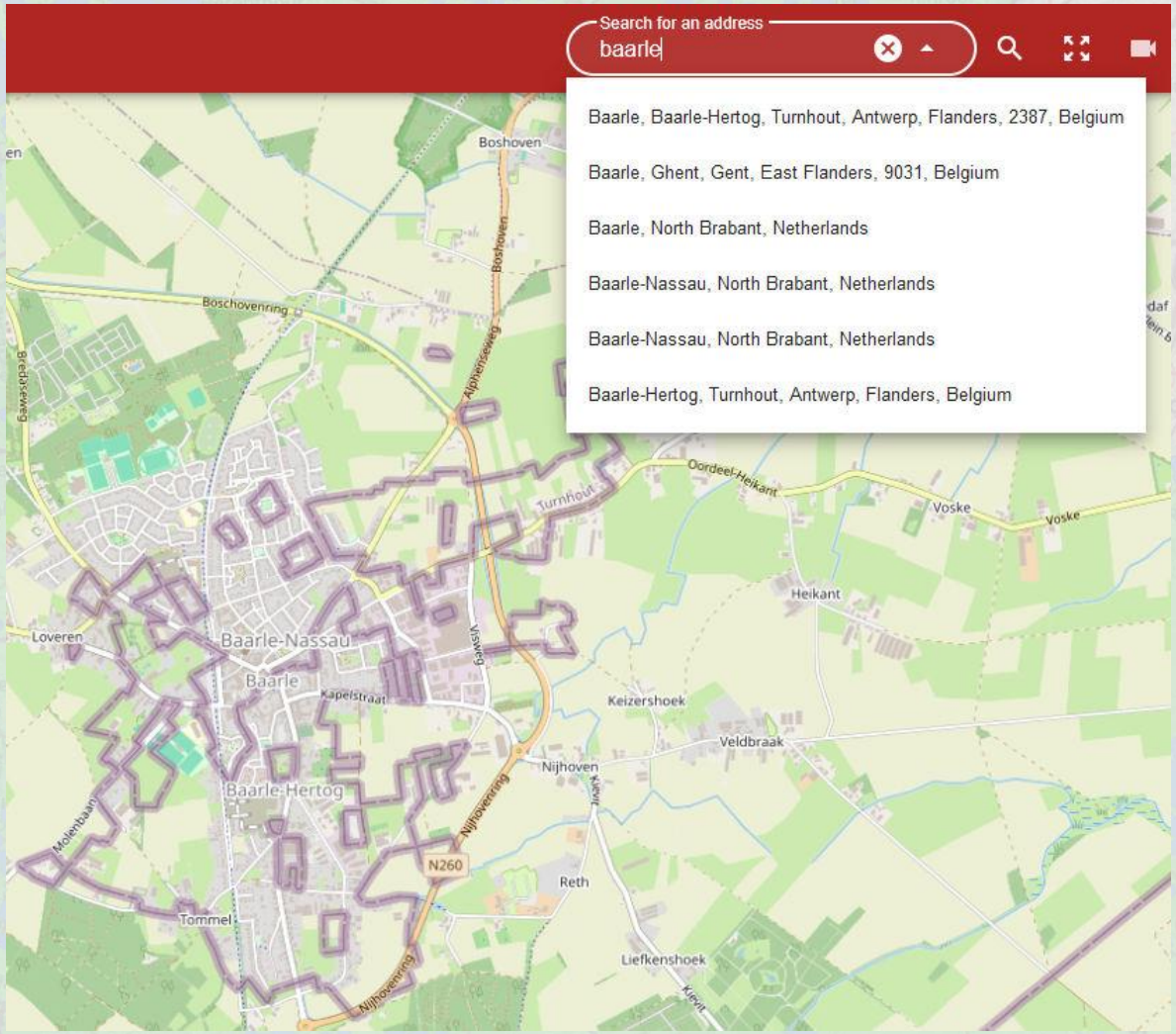
Wegue – Some Reusable UI Components







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Time for a demo

ManaIAS - Wrap Up

- Still a WIP
- Currently available to project partners only
- Should be publicly available end of December 2024 or beginning of January 2025
- Source code will be available on https://github.com/riparias

Thank you for your attention

For more information:

https://www.riparias.be
https://www.biodiversity.be/

If you have questions: s.ronveaux@biodiversity.be