

## Motivation

Biological invasions are on the rise, and their global impact on ecosystems, economies and human health are a major challenge. Invasion science is critical to mitigate invader impacts, yet due to the strong increase of publications, data and information in this area, it has become difficult to acquire and maintain an overview of the field. Additionally, relevant

information is often hidden behind paywalls. As a result, existing evidence is not found, knowledge is too rarely transferred to practice, and research is sometimes conducted in pursuit of dead ends. With an ongoing project, we aim to address these challenges by developing an interactive atlas of invasion science that can be extended to other disciplines in the future.

## The enKORE Project

In our ongoing project, we aim at developing an evolving KnOwledge REsource, providing FAIR information for researchers. We are applying cutting-edge visualization techniques, artificial intelligence and novel methods for knowledge synthesis in creating this tool. It builds on the interactive hypothesis network at [hi-knowledge.org](https://hi-knowledge.org) (Fig. 1), visualizing results of two large review studies [1, 2] and covering results of empirical tests of major hypotheses in invasion biology published in more than 1.000 scientific papers. For further information, see also [enkore.hi-knowledge.org](https://enkore.hi-knowledge.org) and [3].

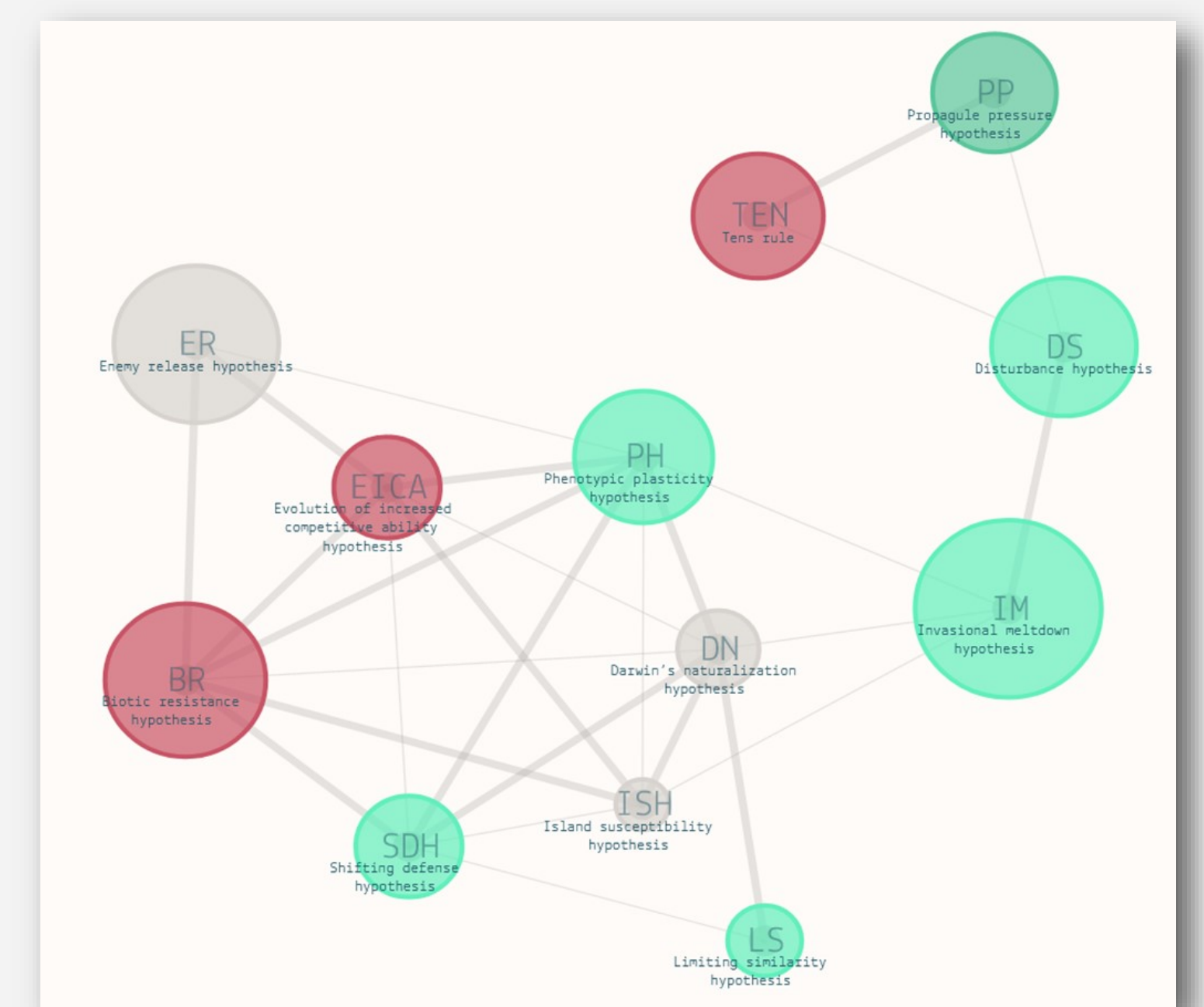


Fig. 1: Screenshot of hi-knowledge.org

### Aim 1: FAIR data corpus

- Versioned corpus in [Wikidata](https://wikidata.org), containing enriched metadata for as many papers as possible published on invasion biology
- Final enKORE tool will provide access to this extended invasion biology literature database
- Semi-automated annotations of this corpus will allow incorporation into enKORE's basic structure
- Publications without a paywall will be directly accessible via DOI



### Aim 2: Zoomable visualizations

Thanks to the functionalities developed by [Open Knowledge Maps](https://openknowledge-maps.org), users will be able to (Fig. 2):

- Get an overview of major research questions and hypotheses
- “Zoom in” to find refined versions of these, and
- Discover relevant studies connected to them



Fig. 2: Basic structure of the enKORE tool

### Aim 3: Interactive On-Demand Analyses

- Users can select studies per country, ecosystem or studied taxon
- Interactive summaries can be produced on demand
- Services provided by Scholia and Open Research Knowledge Graph (ORKG) will be tailored for application within the enKORE tool



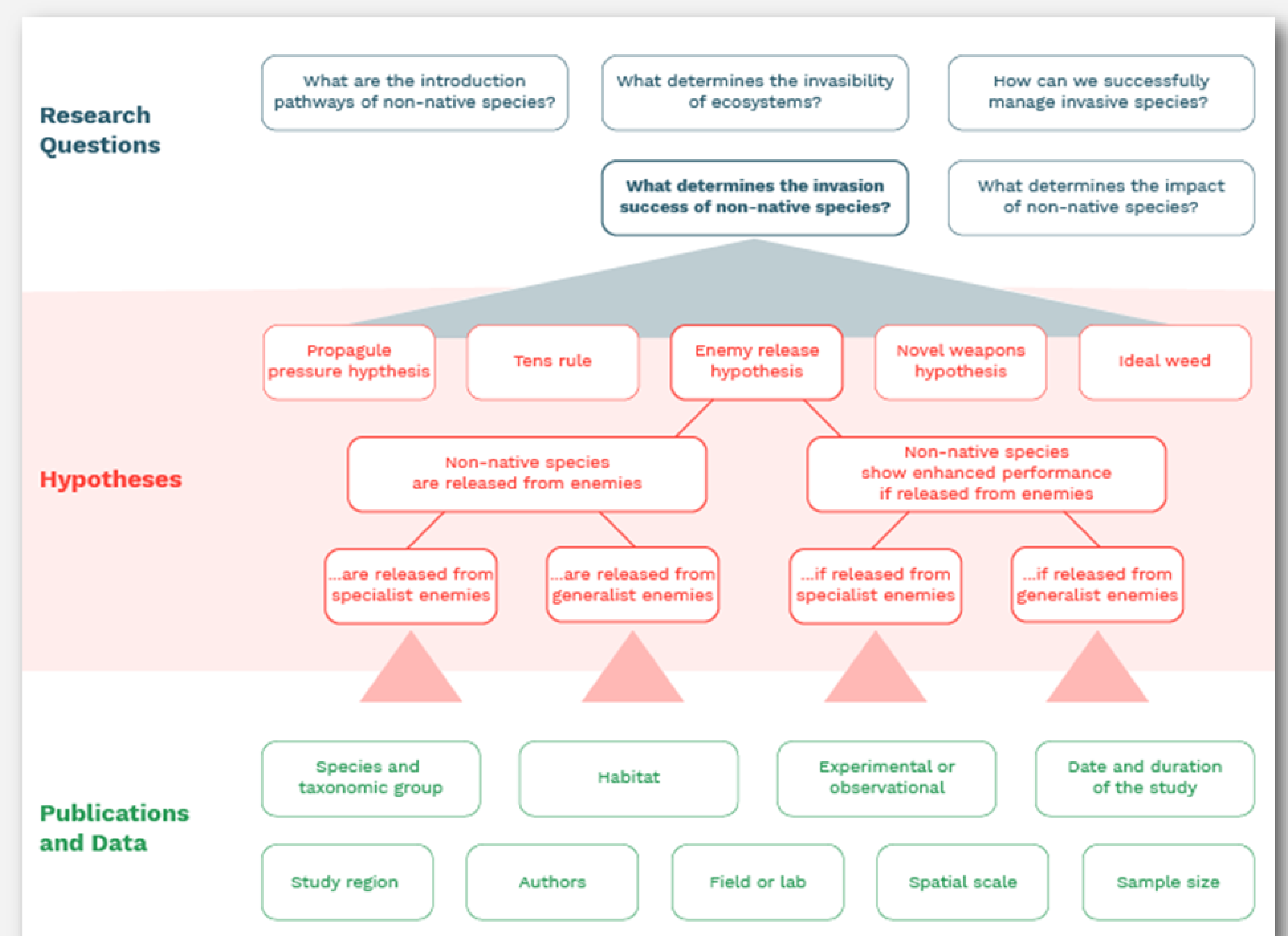
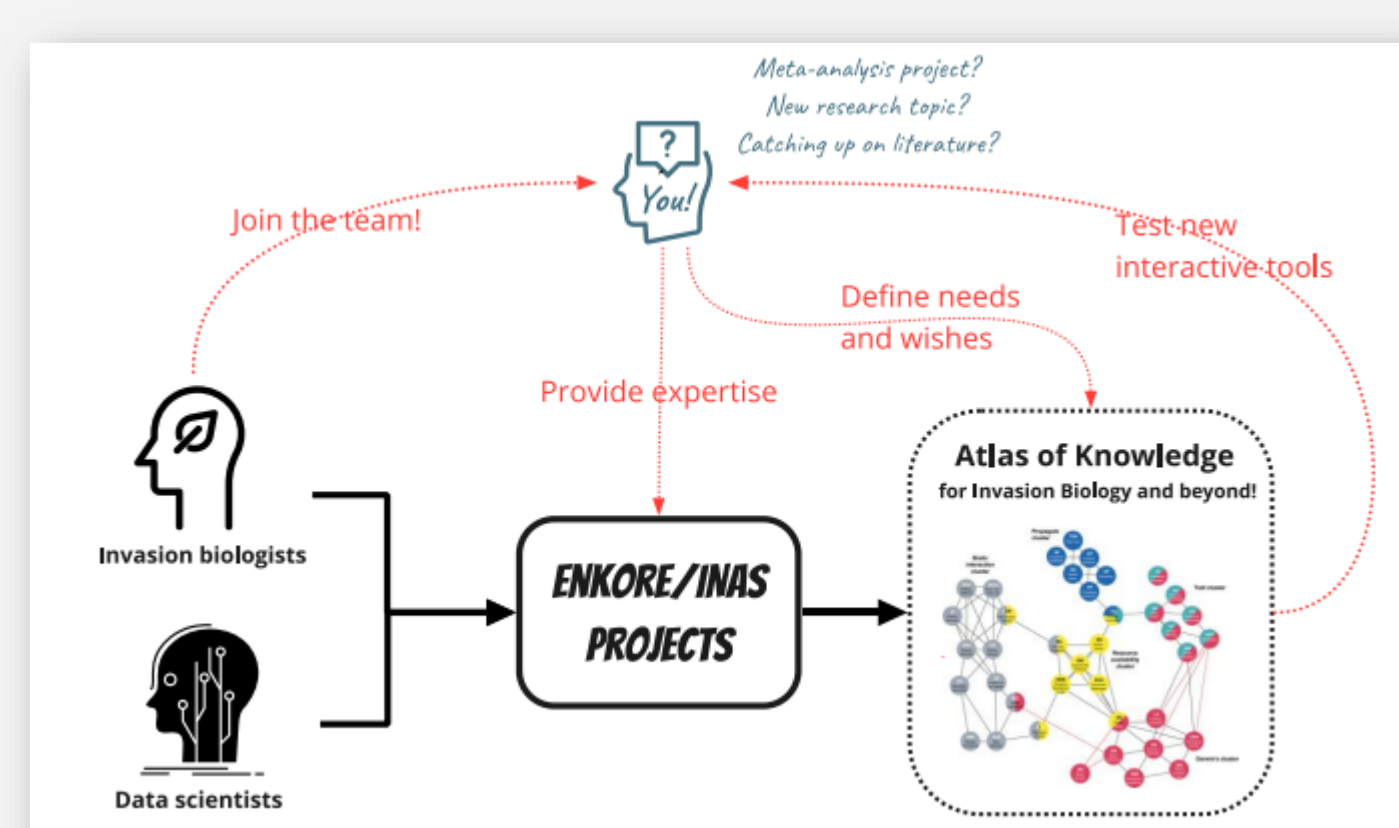
### Aim 4: Community Engagement

- Invasion biology community is invited to provide feedback and actively contribute
- Engaging with the Wiki community at the [WikiProject Invasion Biology](https://wiki.invasionscience.org)

Join the team!

Contact us via [enkore@hi-knowledge.org](mailto:enkore@hi-knowledge.org)

Fig. 3: Outline for first enKORE Workshop in May 2022



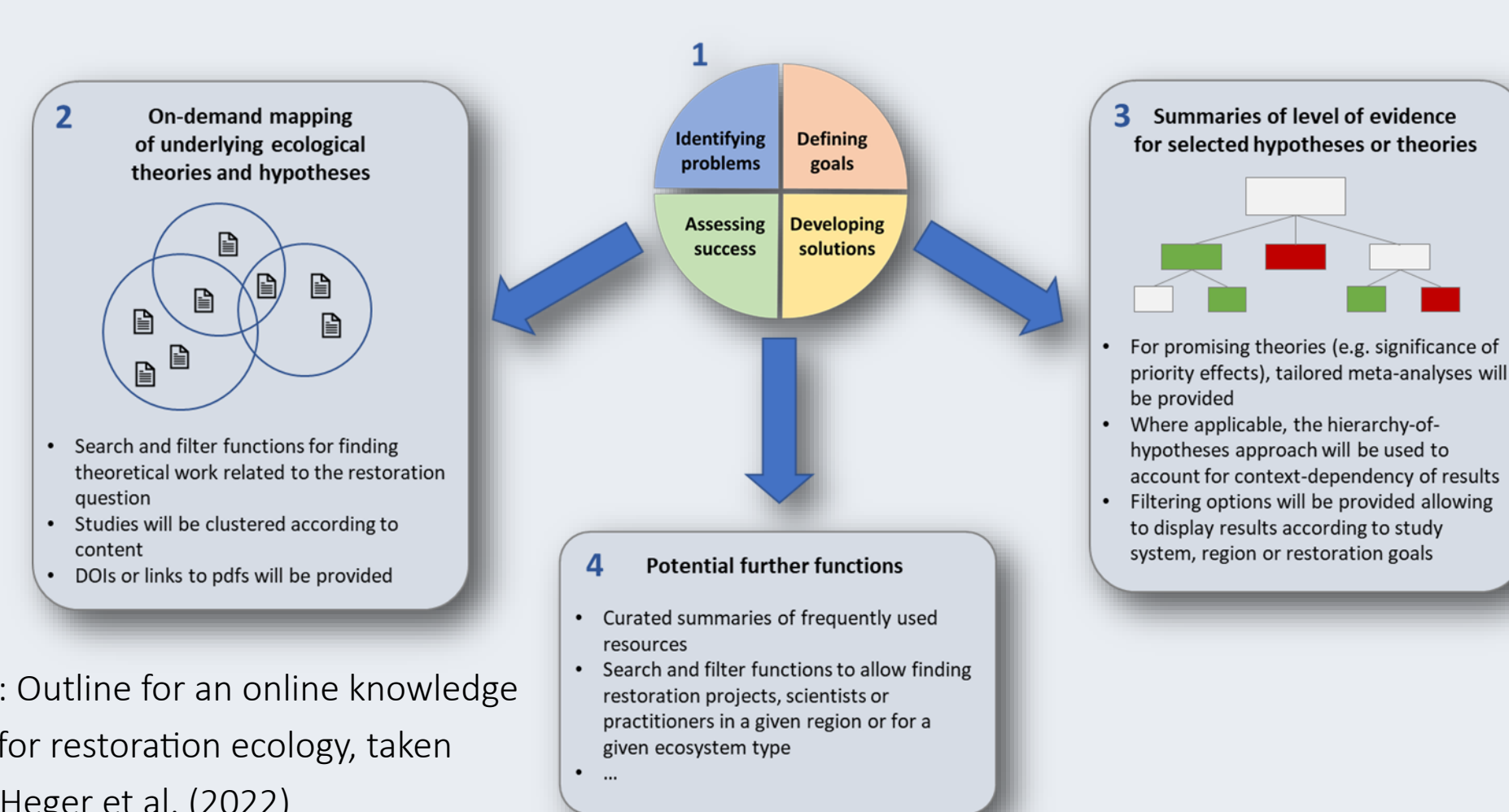
## Future Plans

### Restoration Ecology

Publication summarizing future plans:

Heger T, Jeschke JM, Febria C, Kollmann J, Murphy S, Rochefort L, Shackelford N, Temperton VM, Higgs E (2022) Mapping and assessing the knowledge base of ecological restoration. Restoration Ecology: e13676. [doi:10.1111/rec.13676](https://doi.org/10.1111/rec.13676)

Fig. 4: Outline for an online knowledge base for restoration ecology, taken from Heger et al. (2022)



### Urban Ecology

Ongoing project:

- Collection of hypotheses in urban ecology
- Organization of these hypotheses in a network
- Publication in preparation
- [WikiProject Ecology / Task Force Urban Ecology](https://wiki.invasionscience.org)