

Working Group “Reference Libraries”

Chair: Dr. Georgi Bonchev

Summary based on current feedbacks from

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Objective:

Development and validation of protocols for the generation and curation of **high-quality** standardized marker-specific *DNA barcoding and metabarcoding reference databases*

- Enhanced enrichment
- Taxonomic accuracy and confidence
- Sequence quality control
- Metadata harmonization with major global platforms
- Transparent provenance and FAIR data principles

Current status of WG: broad representation as countries and taxonomic groups expertise

27 people

Representative countries in the WG (14): Austria, Belgium, Poland, United Kingdom, Bulgaria, Germany, Portugal, Bulgaria, Slovakia, France, Ukraine, Italy, Turkey, Croatia

1. Taxonomic group of priority/collections/environment



Group of experts

"Act locally, contribute globally"



Priority (following region, taxon-specific and end-user interest approach):

1. *Under-studied taxa groups*
 - a/ Small organisms (e.g microfungi, microalgae, microinvertebrates),
 - b/ Endemic and ecologically significant and diverse taxa
2. *Underrepresented regions of Europe*
3. *To meet the needs of society and end-users*

2.

Prepare a wide **Check list** for Europe based on region-specific lists



Gap analysis

- Identify gaps in reference library for the country
- Evaluate 'low-hanging fruit' material



3.

Standardization of the metabarcoding data generation

Markers& Primer Evaluation , Taxon-specific Protocols

Data analysis & Management Standards

Databases and software tools used for metabarcoding data taxonomic assignment

Work with data aggregators, taxonomists, and bioinformatics platforms (e.g., QIIME, BOLD, GBIF systems) will facilitate early testing and integration.

4.

Taxonomic and geographic gap analysis report

Database/guidelines of best taxon-specific protocols

Outcomes



Biodiversity reference datasets – foster community-wide adoption

- Review papers of best practices recommendations
- Community-facing documentation
- Workshops/webinars and training modules for capacity building across institutions

- Liaison with national BOL nodes,
- Communication and collaboration with WGs – Citizen Science, Stakeholder Engagement
- Contribution to the iBOL Europe knowledge portal with a dedicated page

- Early involvement of stakeholders to enable adoption across regions and sectors (e.g., science, agriculture, curators, environmental agencies, NGOs),
- Integration pathways into national and EU-level biodiversity strategies.

Activities will span **18–24 months (perhaps initial phase)**, with milestones, distributed sub-tasks (e.g., validation protocols, region- or clade-specific case studies), quarterly updates and collaborative workshops, leading to pilot datasets and manuscripts.

Short-term activity plan of WG “Reference Libraries” (by the beginning of 2026)

(Monthly meetings with the WG members to meet our deadlines and stay connected)

1. Prioritization schema for taxonomic/regional biological groups, tasks and assigning responsible people experts

Core group of **~10–15 members (taxonomic and regional coverage)** with diverse expertise in taxonomy, bioinformatics, data standards, and applied biodiversity research. Ideally at least ***2 members experts/per taxonomic group or ecogeographic region***

2. Database of methodological protocols for priority taxonomic groups (based on literature review and personal protocols)

Preliminary suggestions for priority taxonomic groups exist but need to be structured in next meetings

3. First drafts of checklists/gap lists for priority taxonomic groups

(structure of the check list, nomenclature to be used?)

4. Early networking with stakeholders