



CESAB
CENTRE FOR THE SYNTHESIS AND ANALYSIS
OF BIODIVERSITY

Call for proposals Systematic reviews FRB - CESAB



Themes: Marine biodiversity and agricultural transition

Opening of the call: 04th June 2020

In partnership with



I. CONTEXT AND OBJECTIVES OF THE CALL

This call aims to support research on biodiversity through the use of the systematic review approach. It covers two themes: marine biodiversity and agricultural transition (in partnership with Agropolis Foundation) and finances two projects.

Systematic review - also called "evidence synthesis" - is an approach to knowledge synthesis. It consists in gathering as much knowledge as possible in response to a structured research question by following rigorous, predefined steps¹. It makes it possible to assess the current state of knowledge on a given theme, but also to highlight knowledge gaps and the disparity of results and methods, using explicit and reusable criteria.

Above all, it seeks to identify the most robust knowledge by indicating the degree of confidence in the results provided through a critical evaluation. Finally, it enables a synthesis to be produced which should give the user an idea of the state of knowledge and help him/her to decide: the systematic review can be used by decision-makers in sectoral or territorial policies in order to inform the final decision.

The systematic review benefits from a network of experts but also from a "label" of its quality using the criteria defined by the *Collaboration for Environmental Evidence* (CEE).

In a number of cases, systematic review appears to be a relevant approach, particularly in the following cases:

- When knowledge gaps are identified on a topic (e.g. assessing the cumulative impact of several pressures on a taxon);
- When a research question appears controversial;
- Prior to the launch of a research project, in order to best target its orientation.

The method used for a systematic review differs from those of a traditional state of the art or synthesis in several respects:

- The ambition to collect all published knowledge or at least to estimate the proportion of collected/missing publications;
- Maximum transparency of the method;
- The publication of the protocol with a peer review and its application before the review is started.
- And finally, the critical evaluation of the documents examined on the basis of explicit criteria, meta-analyses if possible, publication of the systematic review and all its appendices and data in an open-access format.

The resources availability and "density" will define whether a systematic review is the best option. The project leaders are asking a question that will need to be structured to best meet the criteria defined by CEE.

The **FRB** was created in 2008 and brings together public research organizations, environmental protection associations, space and biological resource managers and companies. The mission of the Foundation for Biodiversity Research is to support and act with research to increase and transfer knowledge on biodiversity. It is a focal point between science and society for the challenges facing biodiversity research today. The FRB is the French focal point of the Collaboration for Environmental Evidence (CEE), a reference organization that promotes the conduct of systematic reviews in the environmental field, and of the European EKLIPSE project.

The **CESAB** (Centre for the Synthesis and Analysis of Biodiversity) was created in 2010 by the FRB to promote high-level research activities dedicated to the synthesis of ideas and data analysis in the field of biodiversity. Located in Montpellier, the CESAB provides a place and time for experts of all nationalities, to collaborate and capitalize on existing data to answer a major scientific question. The CESAB supports groups of international experts who synthesize ideas, concepts and data to significantly advance the knowledge front on key questions posed at all spatial or temporal scales in

¹ European Knowledge and Learning mechanism to Improve the Policy-Science-society interface on biodiversity and Ecosystem services. More information : <https://www.eclipse-mechanism.eu>

the general thematic field of biodiversity. Members of the CESAB groups share their expertise and pool available data to answer these questions.

Agropolis Foundation is a scientific foundation dedicated to research, training and innovation for the benefit of stakeholders in agriculture and sustainable development. Since 2011, it is hosting the Laboratory of Excellence "Labex Agro", supported by the "Investment Program of the future", renewed for five years (2020-2024). It relies on a scientific network of international reputation, with more than 40 research units divided into five disciplinary fields: plant biology; biology of plants' biotic interactions; agronomy and management of agro-ecosystems; sciences of food and non-food transformations; and human and social sciences: agriculture-society interactions.

Its main mission is to promote, through its network and its multi-stakeholder and international partnership, the agro-ecological transition in tomorrow's agriculture through three federating axes, in line with international conventions: climate change: adaptation and mitigation; conservation and sustainable use of biodiversity; and sustainable production and consumption.

II. EXPECTED RESULTS

In this context, the FRB calls on scientific community to submit proposals of systematic reviews. The submitted project should lead to the realization of a systematic mapping, a critical evaluation and finally a narrative synthesis of the corpus of selected texts. The project will then lead to a completed lexicographical analysis or the extraction of statistical data from the corpus and their analysis (meta-analysis), for a maximum total duration of 18 months.

In order to estimate the best as possible the feasibility of the project and its various stages within the allotted time, a preliminary bibliometric analysis (scoping) is requested in the submitted project. This will enable the number and type of documents relevant to the question to be estimated. If the estimation includes less than 5000 articles, the review (mapping and evaluation) can, in general, be produced in 8 to 10 months and, for less than 20,000 articles, in 12 to 14 months.

Expected deliverables are: 

- The protocol of the systematic review, if possible validated by peers at the international level.
- Scientific publications and all other forms of dissemination of knowledge resulting from the project - the critical synthesis may also be published in the UNECE journal - participation and presentations at conferences.
- A database: list of collected bibliography and descriptors, list of identified experts, data if extracted, meta-analysis data.
- The promotion of the results to the « Comité d'orientation stratégique » (COS) of the FRB.
- A presentation of the systematic mapping (as an interim report) (10 months), the submitted article(s) (as a final report) (maximum 18 months) and a project valorization document according to a template provided.

The datasets used and produced by the projects funded under this call must be made public and accessible to the widest possible scientific community within a reasonable period of time, subject to the constraints of statistical confidentiality for data relating to persons and enterprises. To this end:

- The intellectual property rights relating to the data sets used will be respected when their data are used.
- The raw datasets used to generate scientific outputs should be documented (metadata) as far as possible and made accessible in the National Biodiversity Data Centre (PNDB), a national research infrastructure.
- The datasets produced during the project will be documented (metadata) and made available in the National Biodiversity Data Centre (PNDB), a national research infrastructure.
- The FRB may not be held responsible for any misuse of the research data thus deposited. The CESAB will provide links to organizations to facilitate the deposit of data.

III. THEMATIC FRAMEWORK

The two themes of the call will benefit from multi- and interdisciplinary approaches, in particular by opening up to the approaches of the human and social sciences.

Theme 1: State and future of marine biodiversity in a time of global change

The oceans alone cover more than 70% of the planet's surface and account for more than 90% of the habitable volume for the living world. As one of the Earth's main carbon stocks, the oceans absorb more than 90% of the heat generated by human activities and thus play a major role as a climate regulator, having absorbed more than a third of anthropogenic CO₂ emissions.

In addition, billions of people around the world depend on marine and coastal biodiversity for food resources. This is not without consequences for ocean biodiversity and the functioning of ecosystems. Marine biodiversity is today under threat due to numerous pressures: chemical and physical pollution on land and at sea, overexploitation of resources (fisheries and aquaculture), the effects of climate change, etc.

However, knowledge about the ecology of marine environments, marine biodiversity and ecosystem services is still incomplete, in particular because observations and experiments are complex and costly (for example, it is estimated that only 10% of marine species have been described to date). Therefore, it appears necessary to consolidate our knowledge of marine biodiversity and the functioning of marine and coastal ecosystems (species, habitats, ecosystems) in the context of global changes, particularly with regard to three major issues: deep oceans (meso- and bathypelagic and benthic biodiversity) and seamounts, governance outside waters under national jurisdiction, and land-sea continuum or coastal interface environments.

Projects may focus on these three issues, with the exception of subjects relating to the enhancement and/or improvement of resource exploitation systems.

Theme 2 in partnership with Agropolis Foundation: Solutions for agro-ecological transition that conserve biodiversity

Agriculture plays a major role for our societies by providing for the food needs of populations. At the same time, it is also one of the main human activities that threaten biodiversity at all scales (from genetic diversity to species and ecosystem diversity) through the high rates of land use change, intensive use of chemical inputs, large-scale mechanization, etc. It tends to accelerate global changes, in particular through the significant production of greenhouse gases. Unsustainable agricultural practices also threaten the sustainability of agriculture: degradation of soil fertility, loss of pollinators, decrease in the genetic diversity of cultivated and farmed species, etc.

In this context, the question arises of the transition towards sustainable agricultural systems, based on ecological processes and biodiversity, generating less impact on biodiversity and ecosystems, reconciling production and economic performance, also preserving landscapes, and strengthening ecosystem services other than those of supply (water and air purification, recycling of organic matter, carbon capture, etc.) that support human well-being and socio-cultural identities.

A systemic vision of the agro-ecological transition is thus encouraged in the proposals, in particular by addressing the issue of interactions between agriculture and its related issues (e.g. integration of food issues, the relationship between agricultural and non-agricultural biodiversity, the question of preserving existing sustainable practices, or sectoral interactions (health, water, energy, etc.)).

Projects should address this integrated approach to agro-ecological transition options or scenarios, their links and consequences on biodiversity, the different functional facets and socio-economic aspects of agricultural transition.

IV. RESEARCH TEAM

The team research will consist in:

- A **project coordinator**. He/she will be a recognized scientist, affiliated to a French research organization;
- A group of **eight researchers** constituted as a **monitoring committee** around the post-doctoral fellow and the coordinator. For this, the group will be made up of 6 researchers identified by the applicants, supplemented by 2 researchers proposed by the FRB and its CESAB;

- A **post-doctoral fellow**. The selection of the post-doc will be made by the project coordinator, the working group and the executive of the FRB and its CESAB. He (she) will have at least skills in bibliographic reference management software and knowledge, to be modulated according to the objectives of the submitted projects, in R and Python programming. The post-doctoral student will have a double affiliation (host laboratory/FRB).

V. ASSESSMENT AND SELECTION CRITERIA

Research proposals will be evaluated and selected according to the following criteria:

1. Relevance of the issue:
 - Innovative nature and scientific challenge of the question posed.
 - Interest of the approach through systematic review to answer it.
 - Adequacy with the themes of the call.
2. Scientific quality of the proposal and the team:
 - Scientific excellence of the proposal and quality of the initial question.
 - Quality of the research team set up: relevance of the competences gathered and level of expertise with regard to the subject. Knowledge of the systematic review method will be an asset.
3. Feasibility:
 - Relevance of the question posed and the expected results (systematic mapping, critical evaluation, completed lexicographical analysis or systematic mapping, critical evaluation, meta-analysis) with regard to the preliminary bibliometric analysis (scoping).
 - Access to bibliographic search engines and publications.
 - Consistency of the timetable and planned operating budget with the proposed work programme.
4. Valorization and dissemination
 - Quality of the proposed activities.

To evaluate the projects received and eligible, the FRB will set up an *ad hoc* evaluation and selection committee composed of members of its Scientific Board, members of the CESAB's Scientific Committee and members of the Agropolis Fondation scientific committee. It will also rely on external evaluators. Applicants are requested to propose evaluators.

VI. FUNDING

Projects dealing with Theme 2 "Solutions for the agro-ecological transition that conserve biodiversity", which will involve at least one researcher from the Agropolis Fondation network, will receive co-funding from Agropolis Fondation.

The financial support will include:

- Post-doc salary for a duration of 18 months (max).
- Methodological support throughout the project, in particular at three key moments.
 - For systematic mapping: a 5-days meeting at CESAB with the post-doc and the project coordinator. They will build and stabilize their research equation, and carry out their research on dedicated search engines, in order to obtain their initial bibliographic database. On this occasion, they will benefit from training in the different tools to carry out the project.
 - For the critical evaluation: a 1-day meeting at CESAB with the whole research team. On this occasion, the team will finalize the criteria for critical evaluation of the collected articles.
 - For the completed lexicographical analysis or for the meta-analysis: a 5-days meeting at CESAB with the post-doc and the project coordinator. On this occasion, they will receive support for the analysis, either with textual or statistical data.
- Publication cost, up to € 3000.
- A presentation to a non-scientific public at the end of the project.

The systematic mapping (interim report) (10 months) will be submitted to the FRB. Once approved by the monitoring committee of the project, the mapping, will validate the continuation of the funding.

In addition, the FRB will provide:

- The local logistical organization (planning of meetings, transport, accommodation and catering) and workspaces at CESAB.
- Support for communication of project results.
- Administrative support for project management.

The project coordinator will host the post-doc in his (her) laboratory and to provide all the material conditions necessary, as well as any other travel at the request of the laboratory.

The setting up of the project is a commitment for the coordinator: any change in the list of team members, the schedule, etc... must be approved by the FRB.

As a general rule, expenditure will have to comply with the financial regulation of the National Research Agency (ANR).

VII. ELIGIBILITY CONDITIONS

To be eligible, proposals must:

- Be complete, submitted in the requested format, before the closure date of the call, 16:00 CEST on the online platform "Sciencecall" <https://frbcesabsr.sciencescall.org>
- Be coordinated by a researcher affiliated to a French scientific organization

Applicants will have to submit their proposal in French or in English. The proposal's sections are detailed below:

1. General information about the project
2. The project description containing all of the following elements:
 - Context, prior bibliometric analysis (scoping) and proposed activities
 - Description of the monitoring committee
 - Expected results and intended project' schedule
 - Planned valorization and dissemination.
3. Names of potential reviewers are expected but not mandatory

The submission form should be submitted sent via the online platform "Sciencecall".

VIII. SCHEDULE

Opening of the call:	04 th June 2020
Deadline for submission of proposals:	1 st September 2020, 16:00 CEST (Paris)
Announcement of results:	Late October / early November 2020
Start of the post-doc contract:	As soon as possible from early November 2020

The proposal, including all the requested documents indicated in Part VII, should be sent as a single document in .pdf format via the online platform "Sciencecall": <https://frbcesabsr.sciencescall.org/>

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