POSTDOCTORAL RESEARCHER
Protected-Areas as a Nature Based Solutions to mitigate the effects of climate change on biodiversity

Location: FRB –195 rue St Jacques 75005 Paris and Laboratoire Ecologie, Société & Evolution, Univ Paris Saclay, (12 month)
FRB-CESAB, 5, rue de l'École de Médecine, 34000 MONTPELLIER (17 month)

Salary: Between 2822 and 2974 € (gross per month, according to the FRB salary scale, commensurate with experience, plus benefits (including social insurance)).
Contract: 29 months fixed term, full time

Application deadline: 5th January
Starting date: Between mid-February and April

Job information

The Knowledge-Hub (KH) Protected Areas is part of a large French Priority Exploratory Research Program entitled SOLU-BIOD (Biodiversity and Nature-based Solutions) emanating from France 2030. SOLU-BIOD is managed by the CNRS and INRAE, and structured around several programs. One of these programs is devoted to KHs (including Protected Areas), managed by the University of Montpellier over the 2025-2029 period with KHs being hosted at FRB-CESAB. As part of the partnership with SOLU-BIOD, the post-doctoral researcher is recruited by the FRB.

It has been clearly established that protected and conserved areas (PAs) are a major vehicle of Nature based Solutions(Lipka et al., 2023). PAs can mitigate the effects of climate change through both protectionist and interventionist approaches. Specifically, NbS may lead to increased extent of PAs (or design new ones), improve representation of biodiversity within PAs, improve management and restoration measures of PAs to facilitate resilience, protect (or create) movement corridors, and refugia (Mawdsley et al., 2009). NbS encouraged us to consider PAs not only as areas of protection preserving what already exists, but also as areas of high adaptation and resilience of biodiversity facing global warming. In this context, there are several opportunities identified in the literature for NbSto facilitate resilience. They include the conservation of PAs with a focus on free-ranging management to preserve the resilience of ecosystems and the importance to protect all facets of biodiversity within PAs (functional and phylogenetic diversities). Moreover the designation of thermal corridors in peripheral and between PAs are implemented to

facilitate the movement of species and the preservation of micro-habitats and micro-climatic refuges to promote the persistence of species at the edge of their range (Dowals et al., 2014, Chausson et al., 2020, Elsen et al., 2020). Yet, a quantitative analysis on how the current network of PAs may contribute as a NbS to protect biodiversity in a context of climate change is still lacking.

Despite the growing number of reviews synthesizing the evidence of the effectiveness of Nature-based Solutions (NbS) for climate change adaptation that have been published lately, no quantitative assessment of the models and scenarios exists to date. The aim of the post-doc project will be to fill this gap and:

- **Objective 1**: review the models and scenarios based on Solutions for Nature-Protected Areas (SfN-PAs) to enable biodiversity to cope with climate change at the global scale;
- **Objective 2**: use this knowledge to model how the current network of protected areas (PAs) in France may or may not protect multiple facets of diversity in the context of climate change, and thus build scenarios of PAs to facilitate the movement of species and preserve biodiversity;
- **Objective 3**: transfer and test the framework developed from the global to the local scale by relying on the network of PEPR SOLU-BIOD living labs.

By addressing these objectives, the ultimate goal is to provide guidelines to design robust and resilient NbS that address the urgent challenges of climate change and biodiversity loss, following the recommendations of Seddon et al. (2021).

Qualifications

The successful candidate will be a rigorous and motivated researcher with a solid background in data analyses and modeling with strong programming skills. A strong sense of critical thinking, scientific curiosity, autonomy, and openness to interdisciplinary approaches are key assets for this position.

The project will involve different approaches to address the objectives above, with a review and/or meta-analysis of already published literature to address objective 1. CESAB facilities and training courses in meta-analyses and systematic review will be offered to the hired post-doc if necessary. Objective 2 will require to extract and collect data on species' (occurrences, phylogeny and ecological traits), climate and protected areas network from existing database, run multiple model and scenarios of diversity distributions under protected areas using macro-ecological approaches which include big data analyses and modeling. To tackle objective 3, we will set up close collaborations with living labs to explore how protected areas may be implemented at a local scale as a NbS to mitigate the effects of climate change.

The postdoctoral researcher (and the PIs) will be responsible for coordinating a consortium of 14 researchers, as well as leading work on Objectives 1, 2, and 3 described above. The candidate is therefore expected to be capable of engaging an international team of researchers—together with the PI—and to work independently when required. The position will be based in Paris, with an initial schedule of two days per week at the FRB and three days per week at the University of Paris-Saclay. This will allow the post doc to have regular meetings with one of the PI (Céline Bellard) to launch the project, after a year there will be a possibility for the post doc to join the CESAB in Montpellier for the rest of the contract depending on their personal preferences. The post doc will regularly visit Montpellier during the first year (at CESAB during the duration of the WS) and to visit the co-PI of the project (Olivier Gimenez). Then s.he could be based at the CESAB to conduct WP3 and work in collaboration with the local living labs. It is also envisaged to hire two master students to work on specific issues related to the project. Four workshops will be organized during the project, including 2 WS with the 15 researchers and 2 WS with the core group of the 5 participants (*more details on the participants on the group's page*).

Application instructions:

Applications must be sent no later than 05/01/2026 to the PIs: Céline Bellard (celine.bellard@cnrs.fr) and Olivier Gimenez (olivier.gimenez@cefe.cnrs.fr), and must include

- A cover letter motivating your interest for this position (no more than 700 words)
- Your curriculum vitae (including 2/3 references who might be contacted).

Host structure and context

About FRB

The **Foundation for Biodiversity Research (FRB)** was launched in 2008 after the "Grenelle de l'Environnement" by the Ministries for Research and for Ecology, it was created by eight public research institutions (BRGM, CIRAD, CNRS, IFREMER, INRA, IRD, IRSTEA and MNHN), joined in 2014 by LVMH and in 2017 by the University of Montpellier. It gathers public research institutions, environmental NGOs, land and genetic resources managers and the private sector. It provides a forum where science meets society in order to address the current challenges related to biodiversity research.

About CESAB

The Centre for Synthesis and Analysis of Biodiversity (CESAB) is FRB's main programme and a leading research organization in Europe, and is renowned internationally.
Its aim is to implement the innovative work of synthesis and analysis of existing data in the field of biodiversity. Advancing knowledge, developing culture and collaboration, facilitating links between scientific disciplines and with the stakeholders, are the main objectives of CESAB, which welcomes every year a large number of researchers from all continents.
For more information about CESAB: *https://www.fondationbiodiversite.fr/en/about-the-foundation/le-cesab/*

References

Chausson A, Turner B, Seddon D, et al. Mapping the effectiveness of Nature-based Solutions for climate change adaptation. Glob Change Biol. 2020; 26: 6134–6155. https://doi-org.inee.bib.cnrs.fr/10.1111/gcb.15310

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Lipka, O.N.; Andreeva, A.P.; Shishkina, T.B. Protected Areas as Nature-Based Solutions for Climate Change Adaptation. *Environ. Sci. Proc.* 2023, *27*, 34. https://doi.org/10.3390/ecas2023-15659

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Watson JE, Dudley N, Segan DB, Hockings M. The performance and potential of protected areas. Nature. 2014 Nov 6;515(7525):67-73. doi: 10.1038/nature13947. PMID: 25373676.