



NRF-NSF Biodiversity on a Changing Planet (BoCP)

Joint Research Programme

2024 Call for Joint Research Proposals

Available funds make allowance for a maximum of 2 joint projects to be funded under each Funding Track (total of 4 projects)

The United States of America's National Science Foundation (NSF) Directorate of Biological Sciences and the National Research Foundation (NRF) have formed a partnership to promote opportunities for collaboration between researchers of the United States and South Africa. This collaboration offers United States and South African researchers an opportunity to apply for funding for Joint Research in the Biodiversity on a Changing Planet (BoCP) programme.

BACKGROUND

The Biodiversity on a Changing Planet (BoCP) programme is an interdisciplinary programme that invites the submission of proposals to address grand challenges of biodiversity science in relation to functional biodiversity and its response to climate and environmental change. The programme allows for the submission of proposals studying biodiversity in a wide variety of locations and habitats, including terrestrial, freshwater, subsurface, anthropogenic, marine, and polar environments. Proposals studying changing functional biodiversity during Earth history may also be submitted.

The BoCP programme introduces two submission tracks: **Design and Implementation Tracks.**

THEMATIC AREA OF COOPERATION

The BoCP programme invites the submission of interdisciplinary proposals addressing grand challenges in biodiversity science within the context of unprecedented environmental change. Environmental change takes many forms, including climate change. Biodiversity is one of the most complex features of our planet and is critical for the survival of our species. Current rates of rapid and permanent species loss require new knowledge about how the functional diversity of organisms interacts with and responds to environmental change. The programme supports a comprehensive and integrative approach to understanding biodiversity from a functional perspective, and it encourages the use of new technology and team science approaches. Research supported by this programme will improve modeling and forecasting of the consequences of functional change in biodiversity in response to environmental change. The programme addresses the study of functional biodiversity within the context of a changing and dynamic environment. *Functional biodiversity* includes both the role and impacts of any traits that vary

amongst or within organisms, species, populations, communities, and ecosystems in the environment. The different components of function can also be thought of as addressing questions of pattern, analyses of functional traits across spatial scales, and questions of process, which explicitly consider functional trait change over time. The programme emphasises proposals that integrate pattern and process-based approaches in understanding functional biodiversity.

Examples of research areas addressed by this programme include but are not limited to:

- Understanding how functional biodiversity change may trigger population, community, ecosystem level responses in aboveground, aquatic, or subsurface environments.
- Improving forecasting models to address functional responses to climate, land use, or other environmental change that may result in the loss, gain, and reorganisation of biodiversity at different biological scales.
- Understanding the interrelation of ecosystem level events, climatic and geological processes, and their relationship to biodiversity functional changes.
- Understanding principles of how functional diversity arises and how phylogenetic and spatial distribution patterns interact with ecological and evolutionary processes.
- Understanding how novel physiological, developmental, morphological, or behavioral traits may result in the loss, gain, and reorganisation of biodiversity at different biological scales.
- Identifying how defensive and/or offensive traits in synergistic and antagonistic interactions among organisms may result in the loss, gain, and reorganisation of biodiversity at different biological scales.

Successful BoCP proposals will test hypotheses about functional biodiversity on a changing planet by integrating organismal, ecological, evolutionary, geological, and/or paleontological perspectives. It requires an integrative approach to address the functional role of biodiversity in response to changing environmental conditions.

AIMS OF THE PROGRAMME

The BoCP programme aims to uncover a synthetic understanding of function in the context of the constant loss, gain, maintenance, and reorganisation of biodiversity on a changing planet. It allows predictions of functional consequences across temporal and spatial scales, considering the linkages between past, present, and future biological, climatic, and geological processes. The Programme aims to;

- build on existing, outstanding, and established research partnerships;
- support the advancement of basic research;
- contribute to scientific advancement in both countries through the funding of joint research activities in specified research fields;
- provide an opportunity for young researchers in the two countries to meet and interact through the funding of researchers' exchange programmes in the frame of joint research projects in specified research fields; and
- contribute meaningfully to research capacity development.

IMPACT

Applicants are encouraged to ensure that their research has relevance and potential for impact beyond the academic world, including societal, technical, economic, or cultural realms. In line with this, applicants may include societal or industry partners within their projects or consider how relevant stakeholders can be involved in, or benefit from, the design and realisation of the proposed research project. These stakeholders, however, must cover their costs of participation in the joint projects. In this regard, the NRF aims to facilitate sustainable institutional links between partnering countries by building on existing, outstanding, and established research partnerships and fostering new linkages and engagements with small cohorts of young and emerging researchers for new linkages.

CAPACITY BUILDING

Projects must demonstrate potential for promoting human capital development, equity, and redress through the involvement of young, early-stage, and/or mid-career researchers, historically disadvantaged individuals (female and disabled), and the participation of historically disadvantaged higher education institutions.

ELIGIBILITY CRITERIA

South Africa:

Working researchers/scientists residing in South Africa and affiliated with a recognised South African public higher education or research institution such as a university, university of technology, or science council are eligible to apply. South African Principal Investigators (and HDI-based co-applicants) must be in possession of a PhD. South African researchers are not allowed to serve as Principal Investigators (or research partners) on more than one (1) project proposal.

It is "**mandatory**" for South African PIs based at historically advantaged institutions (and science councils) to include a research partner from a historically disadvantaged institution as part of the consortium. Proposals submitted by an applicant based at a historically advantaged institution without a research partner from a historically disadvantaged institution will be ineligible (and will not be submitted for review). The research collaborator from the historically disadvantaged institution, in this case, will serve as a co-applicant in the proposal.

Applicants based at historically disadvantaged institutions, including those based at the two new universities, i.e., the Sol Plaatje University (SPU), the University of Mpumalanga (UMP), and those based at NRF facilities, can act as PIs and submit proposals without the involvement of and/or partnering with researchers based at historically advantaged institutions if they so wish.

Please note that only the following eight universities are currently recognised as historically disadvantaged in line with the Department of Higher Education and Training Ministerial Statement on university funding: University of Limpopo (UL), University of Fort Hare (UFH), University of Venda (Univen), Walter Sisulu University (WSU), University of the Western Cape (UWC), University of Zululand

(UniZulu), Mangosuthu University of Technology (MUT), and Sefako Makgatho Health Sciences University (SMU).

United States:

NSF Proposal and Award Policies and Procedures Guide (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at:

https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

Please note that the NSF is running the same BoCP Programme with two other countries, i.e., China – in partnership with the National Natural Science Foundation of China (NSFC) and Brazil – in partnership with the São Paulo Research Foundation (FAPESP). Therefore, the US and South African PIs are allowed to submit a multilateral joint project, incorporating other research partners from China and/or Brazil into their project, bringing added value. PIs should ensure that all the partners in their joint projects are eligible to receive funds from their funders (i.e., NSF, NSFC, and FAPESP) to cover their costs of participating in the project. It is also important to ensure that both the Chinese and Brazilian partners apply to their funders.

APPLICATION PROCEDURE

The onus is on applicants to find their research partners. Proposals must be received in South Africa (NRF) and the United States (NSF) – and in the third and fourth partner countries in a multilateral project. Proposals that have not been received in all countries will not be considered for funding. Funders will not be held responsible for non-submission of the application in the partner countries.

South Africa:

Applications must be submitted through an online application process to the NRF on the NRF Online Submission System at <https://nrfconnect.nrf.ac.za>.

PIs **must** attach the required **compulsory** documents in PDF format in the following order:

- CVs of partner Principal Investigators,
- Budgets of partner Principal Investigators, and
- Budget division of the South African team.

Failure to submit compulsory documents will result in the disqualification of the application and will make the entire project consortium ineligible.

Applicants are further advised to consult the NRF General Application Guide 2025 available at <https://www.nrf.ac.za/wp-content/uploads/2024/03/General-Application-Guide-2025-Ver-1.0-11-March-24.pdf> for further details on applying for this opportunity and for making use of the online submission system NRF Connect.

United States:

Details on how to apply for funding from NSF 22-508:

<https://beta.nsf.gov/funding/opportunities/biodiversity-changing-planet-bocp>

This call requires an endorsement letter from the South African Institution's Research Office (Designated Authority) to confirm that the application was submitted to the NRF in South Africa. This letter should be sent to the US Partner PI as indicated on the application.

The call process is highly competitive; therefore, submitting an application does not guarantee funding. The evaluation of applications from all countries should have positive ratings before consideration for funding. The NRF and the NSF will not be held responsible for non-submission, administration, or application evaluation in the partner countries.

FUNDING TRACKS

Proposals submitted under this call must be responsive to one of the tracks described below. ***Proposals will be considered for funding only within their selected track.*** A proposal cannot attempt to respond to more than one track. Both tracks should provide opportunities to train a diverse group of the next generation and emerging researchers utilising different approaches and to engage society more generally in topics related to biodiversity responding to a changing planet. Both tracks are strongly encouraged to provide an organisational structure that supports collaborative involvement in leadership and broad participation in activities by all team members.

Design Funding Track

Design proposals are aimed at building new teams with no prior collaborative track record and must combine team building with the development of creative research and technical approaches that start to address critical, but perhaps untested, novel, or high-risk aspects of the functional axes of biodiversity in the context of a changing planet. Therefore, projects are not expected to be funded first in the Design track prior to being considered in the Implementation track.

The project description must describe how building a new team is combined with the development of creative research and technical approaches that address critical but perhaps untested, novel, or high-risk aspects of the functional axes of biodiversity.

Projects in this funding track will be supported for a maximum period of **three years (2025 to 2027)**. This funding track aims to support joint research, human capacity development, mobility, and research exchanges between researchers, Postdoctoral, Doctoral, and Masters' students within the joint projects. From the NRF side, funding will be made available for the following joint research activities undertaken as part of the joint research project:

- **Research Related Costs:** Activities to be supported may include expenses relating to field work such as conducting interviews/surveys/laboratory experiments, research-related trips of the research teams between the partnering countries, etc. Airfare, accommodation, ground transport, subsistence, visa, and health insurance costs should be calculated using rates as stipulated in institutional travel policies.
- **Knowledge Sharing Costs (science engagement):** In support of activities organised by the partners, such as joint workshops, seminars, conferences, symposia, lecture presentations, capacity building sessions, meetings, local/regional dissemination of results aimed at involving stakeholders, and/or end-users from outside the consortium with a minimum of 10% of the grant budget

- **Small Equipment, Consumables and Accessories:** Up to a maximum of 20% of the budget may be budgeted for this item.

In the case of meetings, research visits, and exchanges of scientists, personnel, and experts, as well as reciprocal visits undertaken as part of joint research projects and the attendance of seminars, symposia, and other meetings funded under this programme, the sending side will be responsible for financing international travel, visas, medical insurance, accommodation, and living expenses. Fees relating to the organisation of events (venue, catering, audio-visual equipment, etc.) will also be the host investigator's financial responsibility, which is to be paid from their allocation of the joint funding.

The following may **NOT** be funded from the **South African** side:

- Consultant's fees
- Large equipment
- Project management fees
- Overheads
- Salaries and temporary staff fees
- Educational expenses (scholarships/ bursaries/ student fees/ educational expenses, etc.). Masters and Doctoral students in need of financial support are advised to apply for a scholarship through the NRF call for student support which opens at the beginning of April each year.

The total amount requested from the NRF should not exceed **R900 000 per project**. Funding will be made available for a maximum of three (3) years, paid in annual instalments (R300 000 per annum) and exclusively for research activities commencing in 2025. The total amount requested from the NSF should not exceed \$500,000 per project. Funding will be made available for a maximum of three (3) years.

Implementation Funding Track

Implementation proposals are suitable for diverse collaborative teams at a more developed research stage, ready to implement a large-scale project addressing functional biodiversity on a changing planet. Projects should tackle research themes that have a high potential to engender substantial research advances in understanding functional biodiversity on a changing planet and must clearly articulate a compelling vision of advances beyond existing efforts. **Submission or award of a Design Track is not required to participate in the Implementation proposal submission.**

The project description must describe how the proposed research has a high potential to engender substantial research advances in understanding functional biodiversity on a changing planet and clearly articulate a compelling vision of advances beyond existing efforts.

Projects in this funding track will be supported for a period of **five years (2025 to 2029)**. This funding track aims to support joint research, human capacity development, mobility, and research exchanges between researchers, Postdoctoral, Doctoral, and Masters' students within the joint projects. From the NRF side, funding will be made available for the following joint research activities undertaken as part of the joint research project:

- **Research Related Costs:** Activities to be supported may include expenses relating to field work such as conducting interviews/surveys/laboratory experiments, research-related trips of the research teams between the partnering countries, etc. Airfare,

- accommodation, ground transport, subsistence, visa, and health insurance costs should be calculated using rates as stipulated in institutional travel policies.
- **A 2-Year Postdoctoral Position:** The funds provide one postdoc position equivalent to the NRF Freestanding postdoctoral fellowships. The responsibilities of this position may also include the management and administration of this project.
 - **Up to 3 (3-year) doctoral positions:** For further details on the eligibility and funding criteria, refer to the *[NRF Postgraduate Funding Policy](#)*. PIs are expected to encourage their students to apply for bursaries when the call for Student Support opens on 1 April 2024 for bursaries in 2025. The PIs should provide the students with their NRF/NSF application reference number to include in their applications. When new students want to apply for support from 2025, they must use the PI's grant number (***UID number***), which the NRF will provide on the letter of award. For further details on the NRF Postgraduate Funding policy, kindly refer to the NRF Corporate website.
 - **Masters, Doctoral, and Postdoctoral Research Placements:** The placements should enable the postgraduate students within the project to (1) learn valuable new skills or techniques; (2) access facilities or resources not readily available at home; (3) build relationships with potential new collaborators; and (4) advance complementary collaborative research. The duration of each placement is expected to be 3-6 months, with the flexibility to split the placement into several shorter visits. Longer placements may be undertaken where this would add value, and these should be justified within the application. Placements must enhance, not replace, the standard training and study support that the postgraduate students receive. These placements must be managed to fit within the original funded period of the studentship. Additional funding will not be made available through this call to support studentship extensions for those undertaking international placements. Applicants should include information about how these exchanges will be managed within their proposal.
 - **Knowledge Sharing Costs (science engagement):** In support of activities organised by the partners, such as joint workshops, seminars, conferences, symposia, lecture presentations, capacity building sessions, meetings, local/regional dissemination of results aimed at involving stakeholders, and/or end-users from outside the consortium with a minimum of 10% of the grant budget.
 - **Small Equipment, Consumables and Accessories:** Up to a maximum of 20% of the budget may be budgeted for this item.

In the case of meetings, research visits, and exchanges of scientists, personnel, and experts, as well as reciprocal visits undertaken as part of joint research projects and the attendance of seminars, symposia, and other meetings funded under this programme, the sending side will be responsible for financing international travel, visas, medical insurance, accommodation, and living expenses. Fees relating to the organisation of events (venue, catering, audio-visual equipment, etc.) will also be the host investigator's financial responsibility, which is to be paid from their allocation of the joint funding.

The following may **NOT** be funded from the **South African** side:

- Consultant's fees
- Large equipment
- Project management fees
- Overheads
- Salaries and temporary staff fees

The total amount requested from the NRF should not exceed **R5mil per project**. Funding will be made available for a maximum of five (5) years, to be paid in annual instalments and exclusively for research activities commencing in 2025. The funds per project must be utilised as follows:

- R2 560 000 (R512 000 per annum) per project for research activities, mobility costs of the research team, small equipment, and knowledge sharing costs per project.
- R740 000 for 1 postdoctoral position at R370 000 per annum for 2-years (R320 000 non-taxable stipend, R50 000 contribution towards research costs, and R15 000 compulsory institutional contribution).
- R1,7 mil for up to 3 doctoral positions at:
 - R566 460 per student for 3-yrs (R188 820 per annum) at the full cost of study.
 - R393 960 per student for 3-yrs (R131 320 per annum) at the partial cost of study.

The total amount requested from the NSF should not exceed \$2.5 mil per project. Funding will be made available for a maximum of five (5) years.

EVALUATION OF ELIGIBLE APPLICATIONS

Reviews will be conducted jointly with NSF, and reviewers will be requested to evaluate all proposals against two main criteria, as follows:

1. **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge.
2. **Broader Impact:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements will be considered in the review for both criteria:

- What is the potential for the proposed activity to:
 - advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - benefit society or advance desired societal outcomes (Broader Impacts)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- Is the plan for carrying out the proposed activities well-reasoned, well-organised, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- How well-qualified is the individual (and team) identified to conduct the proposed activities?
- Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

Applicants are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Please note:

Although all Parties undertake to execute the evaluation and selection process as quickly as possible to notify applicants of the results as soon as possible, the nature of the multilateral process requires the alignment of the commencement of each phase of the process with the partnering countries, whose schedules may differ significantly.

PROJECT FOLLOW-UP AND REPORTING

- Principal Investigators are expected to submit progress reports to the NRF annually. Scientific and financial reporting on the project is an **obligatory** condition of funding in subsequent years.
- A final scientific and financial report should be submitted by both the South African and the US project Principal Investigators no more than three (3) months after the end of the project.
- The report should mention the outputs of the projects compared with the objectives and aims of the proposal.
- The joint publications by the researchers should mention the support from all the funders (e.g., NRF and NSF).

SCIENCE ENGAGEMENT

Science engagement refers to scientific and initiative activities, events, interventions, or interactions characterised by mutual learning and dialogue among people of varied backgrounds, scientific expertise, and life experiences, who articulate and discuss their perspectives, ideas, knowledge, and values. It is an overarching term for all aspects of public engagement through suitable communication channels with science, science awareness, science education, science communication, and science outreach, aiming to develop and benefit individuals and society. The NRF supports science engagement by coordinating and implementing the Department of Science and Innovation's Engagement Strategy. The strategy embraces a broad understanding of science, encompassing systematic knowledge spanning (natural and physical sciences, engineering sciences, medical sciences, agricultural sciences, mathematics, social sciences and humanities, technology) all aspects of the innovation chain and indigenous knowledge. Therefore, researchers funded through the NRF programmes must contribute to science engagement and report the related outputs in their project's progress report.

INTELLECTUAL PROPERTY

The researchers of each country, particularly the leaders, must take adequate steps to ensure the protection and sharing of the intellectual property that could result from the joint projects.

ETHICAL CLEARANCE

In conjunction with the institution, it is the responsibility of the grant-holder to ensure that all research activities carried out in or outside South Africa comply with the laws and regulations of South Africa and/or the foreign country in which the research activities are conducted. These include all human and animal subjects, copyright and intellectual property protection, and other regulations or laws, as appropriate. A research ethics committee must review and approve the ethical and academic rigor of all research prior to the commencement of the research and acceptance of the grant. The awarded amount will not be released for payment if a copy of the required ethical clearance certificate, as indicated in the application,

is not attached to the Conditions of Grant. Please also refer to the "Statement on Ethical Research and Scholarly Publishing Practices" on the NRF website <https://www.nrf.ac.za/statement-on-ethical-research-and-scholarly-publishing-practices/>

PROTECTION OF PERSONAL INFORMATION Act (POPI Act)

The NRF ensures compliance with the Protection of Personal Information Act (POPIA), Act 4 of 2013, committing to ensure the privacy of those submitting applications and proposals to the NRF on the NRF Online Submission System (<https://nrfconnect.nrf.ac.za/>). The NRF will protect the personal information provided by applicants or the third party against misuse, loss, unauthorised access, modification, or disclosure. The Privacy Policy of the NRF outlines the practices relating to the protection of personal information and can be accessed on the NRF website at <https://www.nrf.ac.za/privacy-policy>.

Applications received after the closing dates will not be considered for funding. Please note that neither the NRF, NSF, nor other funders will be held responsible for applications not received. Researchers are also advised to ensure that their research partners' applications are submitted and received in the partner country.

CLOSING DATES:

South African Applicants: **5 September 2024**

Designated Authorities: **12 September 2024**

CONTACT DETAILS FOR QUERIES

| For NRF South Africa | For NSF USA |
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