

BoCP

NRF/NSF Biodiversity on a Changing Planet

Call for joint research proposals: 2023 – 2027

Closing Date: 31 March 2022

DA Closing Date: 07 April 2022

(South Africa: 23:59 SAST)

A maximum of 4 projects will be funded for this call
(2 under the Design Track and another 2 under the Implementation Track)

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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.

Please Note:

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.

1. Structure and aims of the BoCP programme

The Biodiversity on a Changing Planet (BoCP) programme builds on and expands the former Dimensions of Biodiversity program. BoCP 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 BoCP program allows for submitting 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 offers two different funding tracks both implemented on a co-funding model between participating countries. 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 next generation of scientists in a diversity of 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. The two funding tracks to apply for are:

- **The Design Track** 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 aspects of the functional axes of biodiversity.

- **The Implementation Track** 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 Track 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.

Further details on each funding scheme, including allowable research activities, are given in the following text.

The BoCP programme aims to uncover a synthetic understanding of function in the context of the constant loss, gain, maintenance, and reorganization of biodiversity on a changing planet. BoCP 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.

2. Description of the thematic area of focus

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 BoCP 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 reorganization 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 reorganization 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 re-organisation 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.

Proposals outside this thematic area will not be considered for evaluation.

3. Duration of the projects

All projects will be supported starting from 2023.

- **The Design Track** projects will be supported for a 3-year period starting from starting 2023 until the end of 2025.
- **The Implementation Track** projects will be supported for a 5-year period starting from 2023 until the end of 2027.

4. Eligibility criteria

Each proposal under the BoCP programme must have one main applicant based in South Africa and one main applicant based in the United States of America (USA); they are the **Principal Investigators (PI)** on the South African and American sides respectively. They bear the main responsibility for the project including its technical and administrative coordination as well as timely delivery of scientific and financial reports.

As indicated above, the NSF is running the same BoCP programme with the NSFC of China and FAPESP in Brazil. Therefore, both the South African and the US PIs are allowed to submit a multilateral joint project,

incorporating other research partners from China and/or Brazil into their project. PIs should however 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 directly to their funders.

The following eligibility criteria also apply to all proposals:

- Proposals for both the Design and the Implementation Tracks must be written in English.
- Each PI is allowed to submit only one proposal and apply to only one funding track, under penalty of exclusion.
- Additional research partners based in South Africa and/or USA can also participate in the joint projects.
- Applicants are allowed to collaborate with other partners such as NGOs or companies, but no funding can be applied to these.
- Former PIs are welcome to participate in the call however, the project should not be a continuation of the current/past project.

South Africa

- This call is open to working researchers residing in South Africa and affiliated with a recognised higher education or research institution such as a university, university of technology, science council, museum or other research institutions as declared by the DSI.
- The South African applicants and co-applicants must be in possession of a PhD to be eligible.
- Private higher education institutions are not eligible to apply under this programme.
- Researchers from SMEs, private companies/industries, and NGOs cannot serve as PIs but can form part of the joint projects and will be expected to meet their own costs of participation in the joint projects. The NRF grants cannot be used to support these researchers.
- Applicants in all the BoCP projects are encouraged to ensure that their research have relevance and potential for impact beyond the academic world, such as in societal, technical, economical, or cultural realms. Hence applicants are allowed to 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.
- South African PIs based at historically advantaged institutions are required to include, as part of the joint project, a research partner from any of the historically disadvantaged institutions (HDIs) in order to be eligible.
- Proposals submitted by an applicant based at a historically advantaged institution without a research partner from an HDI will be ineligible and will not be submitted for review. The research partner from an HDI in this case can serve as a co-applicant in the proposal. Please note that co-applicants are also required to be in possession of a PhD.

- Applicants based at an HDI, science council (including any of the NRF research facilities), and South Africa's two new universities (i.e. Sol Plaatje and Mpumalanga) can act as PIs and submit proposals without the involvement of and/or partnering with researchers based at historically advantaged and disadvantaged institutions if they so wish.
- Only the following eight universities will be recognised as HDI in line with the Department of Higher Education and Training (DHET) November 2021 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 of America

NSF Proposal and Award Policies and Procedures Guide (PAPPG) 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.

Reasons for Exclusion:

- Lack of any one of the eligibility requirements listed in this Section.
- Incomplete application (including additional documents where applicable - see Section 7: "application procedure").
- Proposals submitted in different priority research areas by the collaborating PIs in the two countries.
- Proposals submitted in only one of the two countries.

5. Eligible research activities

Projects must demonstrate potential for promoting human capacity 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. 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.

The Design Track

The funding under the Design Track aims to support joint research, human capacity development, mobility and research exchanges between researchers within a joint research project. From the NRF side, funding will be made available for the following 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 Track, 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 will **NOT** be funded from the **South African** side:

- Consultants' fees
- Large equipment
- Project management fees
- Overheads
- Salaries and temporary staff fees
- Educational expenses (scholarships/ bursaries/ student fees, 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 in April each year.

The Implementation Track

The funding under the Implementation 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 Guidelines*. PIs are expected to encourage their students to apply for bursaries when the call for Student Support opens in April 2023 for bursaries in 2024 - 2026. The PIs should provide the students with their grant number (***UID number***), which the NRF will provide on the letter of award. For further details on the NRF postgraduate funding support, kindly refer to the NRF Corporate website.

- Masters, doctoral and postdoctoral research placement

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 Track, 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 will **NOT** be funded from the **South African** side:

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

6. Funding regulations

Researchers should ensure that all expenses are calculated and covered in line with the rules and regulations in force in each country.

The Design Track

South Africa

The total amount requested from the NRF should not exceed R900 000 per project. Funding will be made available for a maximum of 3-years, paid in annual instalments (R300 000 per annum) and exclusively for research activities commencing in 2023.

United States of America

The total amount requested from the NSF should not exceed \$500,000 per project. Funding will be made available for a maximum of 3-years.

The Implementation Track

South Africa

The total amount requested from the NRF should not exceed R5 million per project. Funding will be made available for a maximum of 5-years, to be paid in annual instalments and exclusively for research activities commencing in 2023. The funds per project must be utilised as follows:

- R3 million (R600 000 per annum) per project for research activities, mobility costs of the research team, small equipment, and knowledge sharing costs per project.
- R430 000 for one postdoctoral position at R215 000 per annum for 2-years:
 - R155 000 non-taxable stipend;
 - R45 000 contribution towards research costs; and
 - R15 000 compulsory institutional contribution.
- R1,5 million for up to 3 doctoral positions at:
 - R511 290 per student for 3-years (R170 430 per annum) at the full cost of study.
 - R286 290 per student for 3-years (R95 430 per annum) at the partial cost of study.

United States of America

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

7. Application procedure

It is up to the applicants to find their own research partners. Proposals must be received in both South Africa (NRF) and USA (NSF) – and in the 3rd and 4th partner countries in case of multilateral projects. Proposals that have not been received in all countries will not be considered for review and/or funding. The call process is highly competitive therefore application does not guarantee funding. Funders will not be held responsible for non-submission of the application in the partner country.

South Africa

Applications must be submitted through an online application process to the NRF through the link: <https://nrconnect.nrf.ac.za>. Please make use of the 'General Application Guide 2023' for assistance on the steps to follow when applying for international research grants. The link to the guide will be published on this web page: <https://www.nrf.ac.za/funding/>.

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

- CVs of partner Principal Investigators.
- Budgets of partner Principal Investigators.
- Budget division of the South African team, in particular budget sharing between the historically advantaged and HDIs.

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

United States of America

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 Principal as indicated on the application.

8. Review process

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

- i. **Intellectual Merit:**
 - The Intellectual Merit criterion encompasses the potential to advance knowledge.
- ii. **Broader Impacts:**
 - 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.

9. Projects 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 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).

10. 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.

Please Note:

Researchers of funded projects are requested to mention the support by the funders of this call when publishing the results of the funded project.

11. 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

12. Ethical considerations

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/>.

13. Protection of personal information

The National Research Foundation 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 National Research Foundation 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>.

14. Submission deadline

- The deadline for submission to NRF is **31 March 2022**.
- The deadline for DA submission to the NRF is **07 April 2022**.
- The deadline for submission to NSF is **25 March 2022**.

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.

15. Contact details

South Africa

National Research Foundation (NRF)

For programme-content related queries

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United States of America

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