

The Gorongosa Project

A World Leader in Biological Research,
Ecological Restoration and Science Education



Gorongosa Park is training conservation scientists for the world.



*"Gorongosa is the most successful wildlife restoration on the continent of Africa."
- National Geographic*

In 2008, the Government of Mozambique signed a co-management agreement with the US-based Greg Carr Foundation to restore Gorongosa National Park. The Carr Foundation then created the "E.O. Wilson Biodiversity Laboratory" at the Park headquarters.



"Professor E.O. Wilson Collecting Ants in 2012"



The Wilson Laboratory has created an environment for advanced scientific research. It provides local and international scientists and students with facilities that rival those of premier academic institutions.

Facilities at the Wilson Lab Include:

- a molecular and chemical ecology laboratory,
- a biological synoptic collection,
- an ambient lab for experimental work,
- a facility dedicated to paleontological excavations.



We are the only national park in Africa creating a comprehensive inventory of our biodiversity, "The Gorongosa Map of Life." This baseline exploration and documentation of the biological diversity of the Park provides us with the information we need to protect it and restore it. The next step (after knowing what we have) is to understand the ecological processes and biological interactions of these species. We achieve this through long-term surveys and monitoring.



The Scientists of Gorongosa

We combine the best of the global scientific community with the best of Mozambique. Since 2014, a total of 70 universities and 18 advanced research institutions from 20 different countries have had researchers and students in the park. This includes top science institutions such as Princeton, Harvard, Stanford, Cambridge, and Oxford University. Research topics explored by scientists range from soil microbiome to animal evolution and behavior to landscape ecology and climate change.

Our 'Gorongosa Map of Life' project has documented nearly 8,000 species of animals and plants that occur in and around the Park. We have discovered 200 species new to science.



Species new to science
(Approximately 200 discovered)



Rhinolophus gorongosae

Afroedura gorongosa



Afroagraecia muagurai



Potamonautes gorongosa



Pedaria jossoi



Proceratium carri



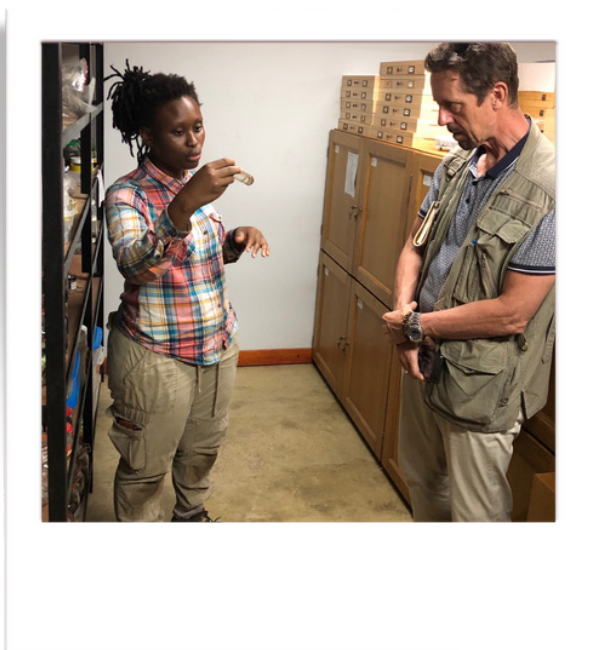
Impatiens wursteni

The Science Students of Gorongosa Park

We are training the next generation of Mozambican scientists. This includes internships for young people from communities near the Park. Our flagship program is an 18-month long Master's in Conservation Biology that allows twelve Mozambican students per cohort to earn a higher degree in cutting-edge conservation science. This academically accredited program is part of a consortium that includes three Mozambican universities and the University of Lisbon. Others teach at Mozambican universities or pursue doctoral degrees.

Alumni of the first two cohorts are now working in five of Mozambique's national parks and at the Ministry of Environment. Others teach at Mozambican universities.

We also offer science workshops to university students and new graduates in advanced topics and techniques that are not available in other Mozambican institutions.



Goals for increasing science in Gorongosa



- We want to expand our facilities to be able to host more foreign researchers and Mozambican trainees.
- We want to investigate the linkages between carbon, climate, and biodiversity.
- We need to better understand local agro-ecological systems to help farm families improve their productivity and livelihoods.



- We want to establish satellite research facilities on Mount Gorongosa where monitoring is essential to guide the reforestation efforts of this unique rainforest.

- Northeast of the park, we need facilities to support research in the extensive and unique Inhamitanga Sand Forest and limestone cave system.



Universities and research institutions in Gorongosa National Park--natural science, social science, health care and agronomy.

Seventy universities and 18 advanced research institutions from 20 different countries have had a student or staff member physically in the Park, involved in a survey or research activity since 2014.

Universities and other research institutions in Gorongosa National Park

To be included on this list the institution must have had a student or staff member physically in the Park, involved in a survey or research activity since 2014. The total is 70 universities and 18 advanced research institutions from 20 different countries.

Belgium

Ghent University
University of Liège

Brazil

Universidade Federal do Espírito Santo

Canada

MacEwan University
The University of British Columbia

Croatia

University of Split

Chile

Universidad Catolica, Santiago

Denmark

University of Copenhagen

eSwatini

University of eSwatini

France

University of Montpellier



Germany

Freie Universität Berlin
Friedrich-Alexander-Universität (FAU)
Erlangen-Nürnberg
Humboldt University Berlin
University of Marburg
University of Osnabrück
University of Tübingen
University of Würzburg

Ireland

Trinity College

Italy

Università di Parma

Mozambique

Instituto Superior Politécnico de Manica
Licungo University
Universidade Eduardo Mondlane
Universidade Lúrio
UniZambeze

Norway

University of Oslo

Poland

Adam Mickiewicz University
Poznań University of Life Sciences

Portugal

University of Algarve
University of Coimbra
University of Lisbon
Universidade Nova de Lisboa
University of Porto

South Africa

University of the Witwatersrand
University of Cape Town
University of Pretoria
University of Limpopo

Spain

University of Girona

Sweden

Swedish University of Agricultural Sciences

United Kingdom

University of Cambridge
University of Edinburgh
University of Kent
University of Oxford
University of Reading

USA

Boise State University
Butler University
Columbia University
Cornell University
Duke University
George Washington University
Harvard University
New York University
Princeton University
Purdue University
Rhodes College
Rutgers University
Stanford University
University of California – Berkeley
University of California – Los Angeles
University of Central Florida
University of Chicago
University of Colorado – Boulder
University of Idaho
University of Maryland
University of Massachusetts
University of North Carolina
University of Rochester
University of San Diego
Virginia Tech
Yale University



Additional advanced institutes

African Natural History Research Trust (UK)

Canadian National Collection of Insects and Arachnids Agriculture and Agri-Food Canada (Canada)

CENIEH, Spanish National Research Centre for Human Evolution (Spain)

CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos (Portugal)

CIRAD (France)

Ditsong National Museum of Natural History (South Africa)

Instituto de Investigação Agrária de Moçambique (Mozambique)

German Research Centre for GeoSciences (Germany)

Max Planck Institute for Chemistry (Germany)

Max Planck Institute for Evolutionary Anthropology (Germany)

Museu de História Natural (Mozambique)

Mt. Sinai Hospital. (USA)

National Botanical Garden of Belgium (Belgium)

National Museum, Bloemfontein (South Africa)

Senckenberg Biodiversity and Climate Research Centre (Germany)

Smithsonian Institute (USA)

South African Institute for Aquatic Biodiversity (South Africa)

The Natural History Museum (UK)



Summary:

We want to create the best scientific infrastructure of any national park in the world and generate cutting-edge scientific knowledge – to advise our own management of the Park’s ecosystems and to advance biodiversity, ecological, and paleontological knowledge broadly. We aim for Gorongosa to become the leading scientific hub in Africa for research and education in nature conservation, ecology, and climate science. We already produce cutting-edge, peer-reviewed research of the highest international visibility.

Selected Publications in Peer-Reviewed Literature..

Cassamo C.T., Draper D., Romeiras M.M., Marques I, Chiulele R., Rodrigues M., Stalmans M., Partelli F.L., Ribeiro-Barros A. & Ramalho J.C. 2023. Impact of climate changes in the suitable areas for *Coffea arabica* L. production in Mozambique: Agroforestry as an alternative management system to strengthen crop sustainability. *Agriculture, Ecosystems and Environment* 346
<https://doi.org/10.1016/j.agee.2022.108341>

Pringle R. & Gonçalves D. 2023. Rewilding case study: Gorongosa National Park, Mozambique. Pp 180-190 In Hawkins S., Convery I., Carver S. & Beyers R. (Eds) *Routledge Handbook of Rewilding*. Routledge. DOI: 10.4324/9781003097822-20

Baehren, L.; Carvalho, S. 2022. Yet Another Non-Unique Human Behaviour: Leave Taking in Wild Chacma Baboons (*Papio ursinus*). *Animals* 2022, 12, 2577.
<https://doi.org/10.3390/ani12192577>

Campbell-Staton Shane C., Arnold Brian J., Gonçalves Dominique, Granli Petter, Poole Joyce, Long Ryan A., Pringle Robert M. 2021. Ivory poaching and the rapid evolution of tusklessness in African elephants. *Science* 374, 483–487.
<https://www.science.org/doi/epdf/10.1126/science.abe7389>

Guta R., Macamo, L. & Naskrecki P. 2021. A new *Gonamytta* katydid from central Mozambique (Orthoptera: Tettigoniidae: Meconematinae). *Zootaxa*, 5027(1), 120–126. <https://doi.org/10.11646/zootaxa.5027.1.6>

Becker, J. A., M. C. Hutchinson, A. B. Potter, S. Park, J. A. Guyton, K. Abernathy, V. F. Americo, A. G. da Conceição, T. R. Kartzinel, L. Kuziel, N. E. Leonard, E. Lorenzi, N. C. Martins, J. Pansu, W. L. Scott, M. K. Stahl, K. R. Torrens, M. E. Stalmans, R. A. Long, and R. M. Pringle. 2021. Ecological and behavioral mechanisms of density-dependent habitat expansion in a recovering African ungulate population. *Ecological Monographs* 00(00):e01476. [10.1002/ecm.1476](https://doi.org/10.1002/ecm.1476)

Matos A., Barraza L. & Ruiz-Mallén I. 2021. Linking Conservation, Community Knowledge, and Adaptation to Extreme Climatic Events: A Case Study in Gorongosa National Park, Mozambique. *Sustainability*. 13(11):. 6478. DOI 10.3390/su13116478.

Gaynor K.M., Daskin J.H., Rich L.N. & Brashares J.S. 2020. Postwar wildlife recovery in an African savanna: evaluating patterns and drivers of species occupancy and richness. *Animal Conservation*. 1-13. <https://doi.org/10.1111/acv.12661>.

Bobbe R., Martínez F.I. & Carvalho S. 2020. Primate adaptations and evolution in the Southern African Rift Valley. *Evolutionary Anthropology*. 1–8. DOI: 10.1002/evan.21826

Guyton, J.A., Pansu, J., Hutchinson, M.C. , Kartzinel T.R., Potter A.B., Coverdale T.C., Daskin J.H., da Conceição A.G., Peel M.J.S., Stalmans M.E. & Pringle R.M. 2020. Trophic rewilding revives biotic resistance to shrub invasion. *Nature Ecology & Evolution* doi:10.1038/s41559-019-1068-y

Branco PS, Merkle JA, Pringle RM, King L, Tindall T, Stalmans M & Long RA. 2019. An experimental test of community based strategies for mitigating human–wildlife conflict around protected areas. *Conservation Letters*. <https://doi.org/10.1111/conl.12679>

Stalmans ME, Massad TJ, Peel MJS, Tarnita CE, Pringle RM. 2019. War-induced collapse and asymmetric recovery of large mammal populations in Gorongosa National Park, Mozambique. *PLoS ONE* 14(3): e0212864. <https://doi.org/10.1371/journal.pone.0212864>

Atkins J.L., Long R.A., Pansu J., Daskin J.H., Potter A.B., Stalmans M.E., Tarnita C.E. & Pringle R.M. 2019. Cascading impacts of large-carnivore extirpation in an African ecosystem. *Science* 10.1126/science.aau3561

Taylor P.J., Macdonald A., Goodman S.M., Kearneys T., Cotterill F.P.D., Stoffberg S., Monadjem A., Schoeman C., Guyton J., Naskrecki P. & Richards L.R. 2018. Integrative taxonomy resolves three new cryptic species of small southern African horseshoe bats (*Rhinolophus*). *Zoological Journal of the Linnean Society* 20:1–28.

Gaynor K.M., Branco P.S., Long R.A. , Gonçalves D.D., Granli P.K. & Poole J.H. 2018. Effects of human settlement and roads on diel activity patterns of elephants (*Loxodonta africana*). *African Journal of Ecology* 56:872–881.

Bouley P., Poulos M., Branco R. & Carter N.H. 2018. Post-war recovery of the African lion in response to large-scale ecosystem restoration. *Biological Conservation* 227: 233–242.

Jörg M. Habermann, Matthias Alberti, Vera Aldeias, Zeresenay Alemseged, Will Archer, Marion Bamford, Dora Biro, David R. Braun, Cristian Capelli, Eugénia Cunha, Maria Ferreira da Silval, Tina Lüdecke, Hilário Madiquida, Felipe I. Martinez, Jacinto Mathe, Enquye Negash, Luis M. Paulos, Maria Pinto, Marc Stalmans, Frederico Tátá Regala, Jonathan G. Wynn, René Bobe & Susana Carvalho. 2018. Gorongosa by the sea: First Miocene fossil sites from the Urema Rift, central Mozambique, and their coastal paleoenvironmental and paleoecological contexts *Palaeogeography, Palaeoclimatology, Palaeoecology*. 514:723-738.

Janssens S.B., Ballings P., Mertens A. & Dessein S. 2018. A new endemic *Impatiens* species on Mount Gorongosa (Mozambique) demonstrates the conservation importance of montane areas in Africa. *Phytotaxa* 333 (1): 73–85.
<https://doi.org/10.11646/phytotaxa.333.1.5>

Correia Marta, Timóteo S., Rodriguez-Echeverria S., Mazars-Simon A. & Heleno R. 2016. The refaunation and the re-instatement of the seed-dispersal function in Gorongosa National Park. *Conservation Biology* DOI: 10.1111/cobi.12782.

Daskin J.H., Stalmans M. & Pringle R.M. 2015. Ecological legacies of civil war: 35-year increase in savanna tree cover following wholesale large-mammal declines. *Journal of Ecology* doi: 10.1111/1365-2745.12483.

