



# NETWORKS, CENTERS, OBSERVATORIES, AND FIELD STATIONS

## Biological Field Stations in the Heart of the Congo Basin Rainforest

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It is hard to miss the call<sup>1</sup> of the Western tree hyrax at Bouamir Research Station in Cameroon. Even amid the complex nightly soundscape of this moist, tropical broadleaf forest, the persistent hyrax calls are remarkable. It is a wonder that a mammal the size of a large guinea pig can be so loud. Even more perplexing is how different the hyrax is from an elephant, its closest living relative.

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The call of the Western tree hyrax is a distinctive part of the soundscape at Bouamir Research Station.

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Located in the middle of the 526,000-ha Dja Faunal Reserve in southern Cameroon, Bouamir is home to more than 100 mammal species, 400 bird species, and 2,000 plant species. In addition to the Western tree hyrax (*Dendrohyrax dorsalis*), mammals include threatened African forest elephant (*Loxodonta cyclotis*), western lowland gorilla (*Gorilla gorilla*), chimpanzee (*Pan troglodytes*), and mandrill (*Mandrillus sphinx*). The Reserve also hosts many vulnerable species such as black colobus (*Colobus satanas*), Bates's Weaver (*Ploceus batesi*), the largest known breeding colony of Grey-necked rockfowl (*Picathartes oreas*), and three different pangolin species.



Grass-covered inselbergs rise out of the dense tropical forest around Bouamir Research Station, offering an eye level view of the canopy, and an opportunity to see some of the more elusive creatures that make their home in the dense crown. Photo credit: Thomas B. Smith.

Bouamir is one of very few biological field stations in the rainforests of Central Africa, providing a critical platform for conducting research of this vast and under-studied ecosystem. The site started as a research camp in 1993 to support a single project focused on vertebrate seed dispersal and forest ecology and was rebuilt and expanded in 2016 by the Congo Basin Institute (CBI). With a capacity of 30, the station is now open to both researchers and classes and offers screened platform tents for research, dining and cooking facilities, and open-sided covered platforms for sleeping. Visitors also get the valuable opportunity to work with indigenous Baka Research Assistants, who come from a community of hunter-gatherers that has called the forests of Central Africa home for at least 40,000 years.

Walking through the forest, Baka companions will often pause and motion for you to smell, look, or listen. It can be hard to understand at first what they are sensing, but then a flying squirrel will glide from one branch to the next in exactly the spot they are pointing to, or you will realize they smell a gorilla sleeping in a nest a dozen yards away. In addition to making the experience at Bouamir richer, the Baka and their knowledge are often essential for researchers. A team researching giant pangolin credited their collaboration with Baka Research Assistants as critical to their success in capturing the first known camera trap video<sup>2</sup> of the species in the wild (Bruce et al. 2018). Working with Baka guides also preserves and values traditional ecological knowledge, while providing Baka with employment and a fair wage.



A guide leads a research team studying orchids at Bouamir. Photo credit: Chris Sorenson.

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State of the art scientific equipment also facilitates research at the site. CBI has partnered with Conservify, a conservation technology NGO, to create a network of FieldKit sensors throughout the site that share data in real time using a low frequency radio wave (LoRa) network. Devices like camera traps, acoustic monitors, and environmental sensors can be linked to the LoRa network and monitored from camp. The FieldKit system is open-source, and Conservify plans to build out a series of tools to visualize, communicate, and share the data. Weather data from the station are now available online (Deblauwe et al., n.d. (a), (b)).

Congo Basin Institute has a strong commitment to building local scientific capacity, and works with all visitors to ensure local students or researchers are included in research teams. CBI can assist visitors in finding relevant and qualified local collaborators or student researchers.

The Somalomo Research Station, which is located in a village on the edge of the Dja Reserve, serves as a support base for teams traveling to Bouamir and offers opportunities for conducting research in secondary rainforests and riverine habitats. Somalomo is located a day's drive from the capital city of Yaoundé and hosts its own research on agriculture, anthropology, and anthropogenic effects on ecology. Sitting at the interface between human settlement and the protected area, it offers an important comparative site to Bouamir's mature tropical rainforest.

Visitors reach Bouamir by foot, first walking from Somalomo Research Station to the Dja River. Following a short boat trip across the river with local market ladies, tradesmen, and the occasional chicken, it is a 30-km hike to Bouamir. The well-maintained single-track path winds through villages and cacao plantations and then through rainforest. CBI supports logistics, permits, and provides advice for trip planning. CBI can also coordinate porters to carry gear from Somalomo to Bouamir, as well as cooks and cleaners, ecoguards to accompany teams, and Baka Research Assistants.

Congo Basin Institute is using the break in visitors due to the COVID-19 pandemic to make upgrades to the site. New solar systems at both locations will increase electricity available for research equipment, eliminating the need for gas generators, and powering lighting and outlets. New plumbing and other site upgrades are making the site more comfortable for visitors and better able to accommodate support staff. The addition of gravity fed showers at Bouamir and a new bathroom at Somalomo will provide some basic pleasures at the end of a long day of field work or after the 30-km trek between stations.

Hopefully, by then you will be tired enough to sleep through the nocturnal calls of the tree hyrax.



Researchers and staff outside Bouamir's research, dining, and kitchen tents. Photo credit: Vincent Deblauwe.

Researchers and educators interested in using the sites can find more information online,<sup>3</sup> or contact Dr. Kevin Njabo (kynjabo@ucla.edu). A Google Earth Explorer tour of CBI's facilities in Cameroon is also available online.<sup>4</sup>

### Notes

<sup>1</sup> <http://www.wildsolutions.nl/vocal-profiles/hyrax-vocalizations/>

<sup>2</sup> <https://www.cbi.ucla.edu/giant-pangolin-caught-on-camera-in-the-dja/>

<sup>3</sup> <https://www.cbi.ucla.edu/field-stations/>

<sup>4</sup> <https://earth.google.com/web/data=MicKJQojCiExdmxwaU9uZGo2aEd6ZTNlYIVYTEw5QVhRNlFyUWg3N1c>

### Literature Cited

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