

FFI / NatureMetrics South-east Liberia case study

Fauna & Flora International (FFI) is the first implementing partner for eBioAtlas. They have been carrying out eDNA testing in Liberia and Guinea since 2019 and will expand this to more survey sites in Africa to contribute data to the eBioAtlas.

Angelique Todd, Senior Programme Manager, West and Central Africa for Fauna & Flora International, said:

“The use of eDNA surveys to document the diverse species that inhabit the landscapes we work in has been a gamechanger. Quickly and cheaply, we can generate volumes of biodiversity data from just a few containers of water or soil.

“It’s not just fascinating to learn about the presence of animals that we never knew were there, or that might have taken years to discover with traditional methods; it also builds a case for greater protection of these landscapes and helps us to understand the particular conditions that allow a species to thrive.

“eDNA’s usefulness will only grow over time, as more and more data become available to allow comparisons and cross-referencing between scientists around the world, so FFI is delighted to support the eBioAtlas project. The data we generate at our growing number of survey sites in Africa will now contribute to a global biodiversity map of the world’s river systems. Such a resource will not only capture the dazzling variety of species that inhabit these vital landscapes; it will also be a key foundation of our efforts to protect them.”

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The pygmy hippopotamus (*Choeropsis liberiensis*) is not just smaller than its better-known relative; it’s also rarer.

Listed as endangered on the IUCN Red List, there are estimated to be fewer than 3,000 mature individuals remaining in the wild. This cryptic and elusive species is found in four countries – Côte d’Ivoire, Guinea, Liberia and Sierra Leone. They are nocturnal forest-dwellers and unlike their larger relatives, live alone or in pairs, never in conspicuous herds. This makes direct sighting difficult and while their presence can be detected from footprints, dung and feeding signs, their current population status and distribution needs to be updated, to support targeted conservation of this unique species.

So, in October and November 2020, as part of a national population survey, Fauna & Flora International, along with Liberia’s Forest Development Authority, conducted a NatureMetrics eDNA survey in the south-east of Liberia. The survey was carried out along the Dubo and Dugbe Rivers, which flow through Sapo National Park and the Grand-Kru River Gee Proposed Protected Area.

Engagement with local communities through questionnaires and focus group discussions had revealed that pygmy hippos might be present in the area. But we needed a quick, affordable, reliable and efficient way to be sure. The FFI technical team, with the support of the Sapo National Park Biologist and two of the national park’s community biomonitoring auxiliary, collected eDNA samples derived from filtered water samples at 20 sites.

The result was a wealth of biodiversity data. Pygmy hippos were detected at 10 of the sites and the DNA of no fewer than 166 species of mammal, bird, reptile, amphibian and fish was uncovered.

This included the first record of the endangered Tai toad (*Sclerophrys taiensis*) in Liberia, plus the presence of a critically endangered species of killifish (the brightly-coloured *Scriptaphyosemion schmitti*) as well as four other endangered species: the African grey parrot (*Psittacus erithacus*), the Diana monkey (*Cercopithecus diana*), the Western red colobus (*Piliocolobus badius*) and the rarely-seen Jentink's duiker; a black and white forest antelope.

To build so comprehensive an account of the wildlife present in this important area would have been expensive and time-consuming using traditional methods. With a NatureMetrics eDNA survey, it was possible in a fraction of the time, with minimum training and technical supervision and achieved by simple testing methods.

ENDS

Photos (Credit: FFI):

1. **Group on boat:** eDNA survey team en-route to survey point along Dubo River. Seated: Left – Ben Tally (SNP Park Biologist), Right – Ruth Barseh (FFI Research Assistant).
2. **Man with moustache:** Ben Tally, SNP Park Biologist, filtering water sample to collect genetic material at Dubo River.
3. **Man wearing 'PROTECT BIODIVERSITY' cap:** Matthew Varney, FFI Biodiversity Officer, Sapu Landscape, filtering water sample to collect genetic material at Dubo River
4. **Pygmy hippopotamus** photo captured on camera trap in Wonegizi PPA, 2020 (*not at the sites mentioned in the case study*)