

EMBARGOED to 0001 BST, Thursday June 17

Global atlas of freshwater life will use DNA to tackle the extinction crisis

The eBioAtlas programme will gather data at scale to support conservation, unlock investment and inform world biodiversity policy

The [International Union for Conservation of Nature](#) (IUCN) and [NatureMetrics](#) today announce a partnership to combat the extinction crisis by using cutting-edge DNA technology to create a global atlas of the state of life in rivers and wetlands of world importance.

The [eBioAtlas programme](#) will target areas threatened by climate change and development, and rapidly fill in critical gaps in knowledge to support conservation efforts, unlock business investment to protect the natural world, and build a rich databank to inform global policy to reverse the rapid decline in biodiversity.

The first three years will see 30,000 water samples collected from dozens of areas of critical conservation importance, such as the Amazon, Ganges, Mekong Delta, and the Niger Delta. NatureMetrics will analyse environmental DNA – traces of DNA left in the water by fish, birds, amphibians and land animals – to identify the range and distribution of species in each ecosystem.

IUCN and conservation organisations like Flora and Fauna International will work together with local partners and citizen scientists to conduct sampling. One of the first projects will be funded by the **Footprint Coalition, founded by actor/entrepreneur Robert Downey Jr.**, which supports adoption of environmental technology.

Freshwater habitats are disproportionately important for biodiversity and communities worldwide. They cover 1% of the earth's surface but are home to 10% of known animals, 30% of vertebrates and over 50% of fish. Freshwater fish are a crucial source of protein for over 200 million people and provide jobs for around 60 million. Yet they are among the world's most threatened habitats.

Action to protect the world's rivers and wetlands and the life they support is urgent, but there is limited knowledge about the status and distribution of species. Building a clear picture is vital in order to raise conservation funding, target action effectively and measure progress.

“eDNA is a game changer because it allows surveys to be done much faster and it has the potential to pick up much more information than through conventional sampling,” said **Will Darwall, Head of IUCN's Freshwater Biodiversity Unit**. “A third of the world's freshwater fish are threatened. If nothing changes in the way we manage freshwater environments these species are headed for extinction. We need a full-scale bio-blitz using eDNA to rapidly get new and updated information about where freshwater fish live all over the world so we can bring it into the mainstream of conservation and environmental management and policy efforts.”

The Footprint Coalition is funding a survey of the Malagarasi-Moyovosi wetland in Tanzania. It drains into Lake Tanganyika, and is a recognised centre of world biodiversity second only in scale to Botswana's Okavango delta. The project will provide the knowledge base to develop a plan to protect its wildlife from the pressures of hydropower development, agriculture, and deforestation.

IUCN will manage the eBioAtlas programme. Sampling will be coordinated by its own offices in 50 countries around the world and by international NGOs with strong presences in areas that are priorities for conservation. Over 1,000 local people will be trained to carry out sampling.

NatureMetrics will supply its easy-to-use sampling kits which allow non-specialists to collect high-quality samples. All they need to do is pump water by hand through a filter to extract traces of DNA and record field

data on a mobile phone app. The kit stabilises the DNA in a preservative solution so it can be sent for sequencing at NatureMetrics' lab and then be matched against species data held in DNA reference libraries.

The technology greatly reduces the time and cost of traditional biodiversity surveys and produces robust and replicable results in a standardised format. No expertise is needed to collect samples, so monitoring can be carried out by more people, more often and over wider areas, building local ownership and awareness.

NatureMetrics has used eDNA to carry out surveys for more than 200 businesses, governments and conservation organisations. It analysed 160 samples of water collected over 1,000 kilometers of the Peruvian Amazon for WWF Peru, which had originally aimed to only focus on manatees and pink river dolphins. However, for the same effort and cost the project used eDNA to create a rich picture of life in the rivers and forests, identifying 675 further species and their distributions, from jaguars and monkeys to catfish and bats.

eBioAtlas aims to focus on rivers and wetlands with the greatest number of threatened species, the biggest threats from development, and where the most people are dependent on inland fisheries. Comprehensive surveys will produce a biodiversity baseline, allowing the impact of conservation or development to be monitored in each area. IUCN will also use this to inform species assessments on the IUCN Red List of Threatened Species™, and help identify sites in need of protection as Key Biodiversity Areas.

eBioAtlas will also provide data that meets growing demand from companies to understand their dependency and impact on nature so they can manage their biodiversity risk. A Credit Suisse survey found that 84% of investors were very concerned about biodiversity loss, and 70% said lack of data was the biggest barrier to making investments to support biodiversity.¹

The eBioAtlas database is designed to interface with national and global environmental databases and make data freely available for non-commercial use in research and conservation. Leftover DNA will be archived to create the world's largest biobank of georeferenced and timestamped samples. This will be available for further analysis, for example to create risk maps of parasites such as schistosomiasis, which affects more than 240 million people worldwide.

IUCN and NatureMetrics intend eBioAtlas to become self-financing over time with businesses paying to access its data and funding long-term monitoring of areas that are important to their operations or supply chain.

IUCN and NatureMetrics are now jointly approaching funders as well as conservation organisation partners that can help implement the sampling. Where possible they will seek to integrate with existing conservation projects to build up a broad picture quickly and cost-effectively.

Dr Kat Bruce, NatureMetrics founder and Chief Technology Officer, said: "We face a biodiversity crisis and we've been running blind. We know we have to act to protect threatened species and their habitats, but the lack of data makes it hard to set tangible targets and monitor progress, or to incentivise businesses and governments to take meaningful action. We end up spinning in circles and going nowhere, while the loss of nature continues to accelerate.

"eDNA is totally transformative. It's a tool we can put in the hands of ordinary people all over the world to capture biodiversity data at a previously unthinkable scale – and from those simple water samples, we will generate the knowledge base that can underpin effective action for the protection and restoration of nature. Nothing is more important."

ENDS

¹ [Unearthing investor action on biodiversity](#), Credit Suisse and Responsible Investor, Jan 2021

For further information and to arrange interviews, please contact:

Rachel Parkes	rachel.parkes@greenhousepr.co.uk	+44 (0)7775 652919
Maria Dolben	maria.dolben@greenhousepr.co.uk	+44 (0)7408 809839
Charlie Dakin	charlie.dakin@greenhousepr.co.uk	+44 (0)7861 530357

NOTES TO EDITORS

The Footprint Coalition will fund one of the first eBioAtlas projects. Rachel Kropa, Managing Director, said: “How can we protect the planet without first knowing what we need to protect? We have done a poor job of tracking biodiversity and the impact humans have had on it. NatureMetrics is pioneering one of the first technologies that can give us the ability to quickly and easily quantify and analyze the diversity of species that exist in the world so we can better understand them and prevent their extinction.”

Flora & Fauna International is an eBioAtlas implementation partner. Angelique Todd, Senior Programme Manager, West and Central Africa, said: “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 programme.”

Mining group Anglo American has made a corporate-level commitment to achieve a net positive impact on biodiversity and **the first company to make a commitment to share their data in the eBioAtlas.** Warwick Mostert, Biodiversity Principal, said: “eDNA analysis enhances the way we evaluate risk and meet – or even exceed – environmental regulations, track progress towards biodiversity targets, and reduce monitoring cost and efforts. Anglo American strongly supports the eBioAtlas initiative and looks forward to working with its partners and collaborators to deliver this programme.”

Link to the eBioAtlas website (will go live when embargo lifts): www.ebioatlas.org

About IUCN (www.iucn.org)

IUCN is a membership Union uniquely composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

Created in 1948, IUCN is now the world’s largest and most diverse environmental network, harnessing the knowledge, resources and reach of more than 1,400 Member organisations and some 18,000 experts. It is a leading provider of conservation data, assessments and analysis. Its broad membership enables IUCN to fill the role of incubator and trusted repository of best practices, tools and international standards.

IUCN provides a neutral space in which diverse stakeholders including governments, NGOs, scientists, businesses, local communities, indigenous peoples organisations and others can work together to forge and implement solutions to environmental challenges and achieve sustainable development.

Working with many partners and supporters, IUCN implements a large and diverse portfolio of conservation projects worldwide. Combining the latest science with the traditional knowledge of local communities, these projects work to reverse habitat loss, restore ecosystems and improve people’s well-being.

About NatureMetrics (www.naturemetrics.co.uk)



NatureMetrics is a world leader in using eDNA for biodiversity assessment. It was founded in 2014 by Dr Kat Bruce, Prof. Doug Yu and Prof. Alfried Vogler – molecular ecologists who were among the pioneers of DNA-based biodiversity assessment. Their research provided some of the earliest demonstrations of the power of molecular methods for species and ecosystem monitoring, showing how these tools could revolutionise the world of environmental management. However, they became increasingly certain that this potential would only be realized if the tools were accessible to environmental managers in a standardised way through a commercial service.

Thus, NatureMetrics was born to bridge the gap between molecular ecologists and environmental managers. Our diverse team of specialists now straddles the worlds of applied ecology, academic research, environmental policy, industry standards and biodiversity conservation. We see ourselves as playing a major role in developing a new industry – laying robust foundations for growth by working collaboratively with all stakeholders to demonstrate and validate our methods, building trust, confidence and understanding so that we can accelerate collective understanding and protection of the natural world.