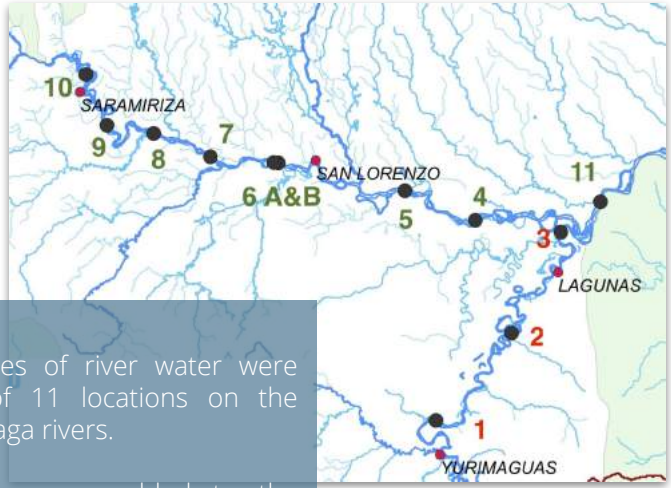
eDNA surveys in the Peruvian Amazon

WWF Peru collected 44 eDNA samples from the Marañon River basin in Northern Peru



Four 500ml samples of river water were filtered at each of 11 locations on the Marañon and Huallaga rivers.

Preservative solution was added to the filters, which were sent to the NatureMetrics lab for analysis.

In particular, the WWF team wanted to find out if eDNA could help to monitor river dolphins (*Inia geoffrensis* & *Sotalia fluviatilis*), which are indicators of healthy ecosystems in this area, as well as the Amazon manatee (*Trichechus inunguis*) and assemblages of migratory catfish (Siluriformes).

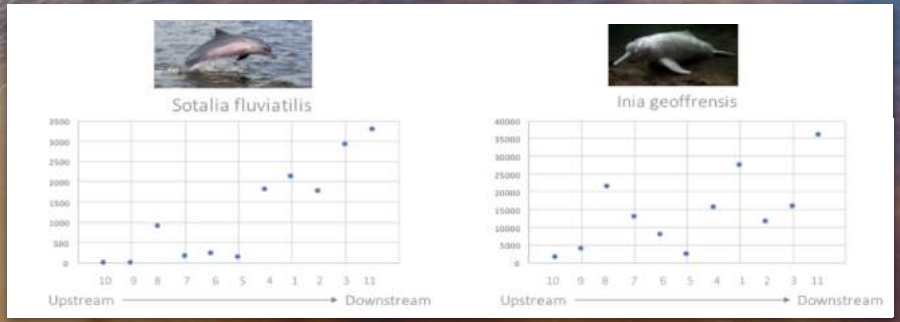
In the lab, DNA was extracted from the filters and amplified using primers that target the 12S gene for mammals, fish, birds & amphibians.

The amplified DNA was then sequenced and processed using our custom bioinformatics pipeline to identify the species present in each sample.

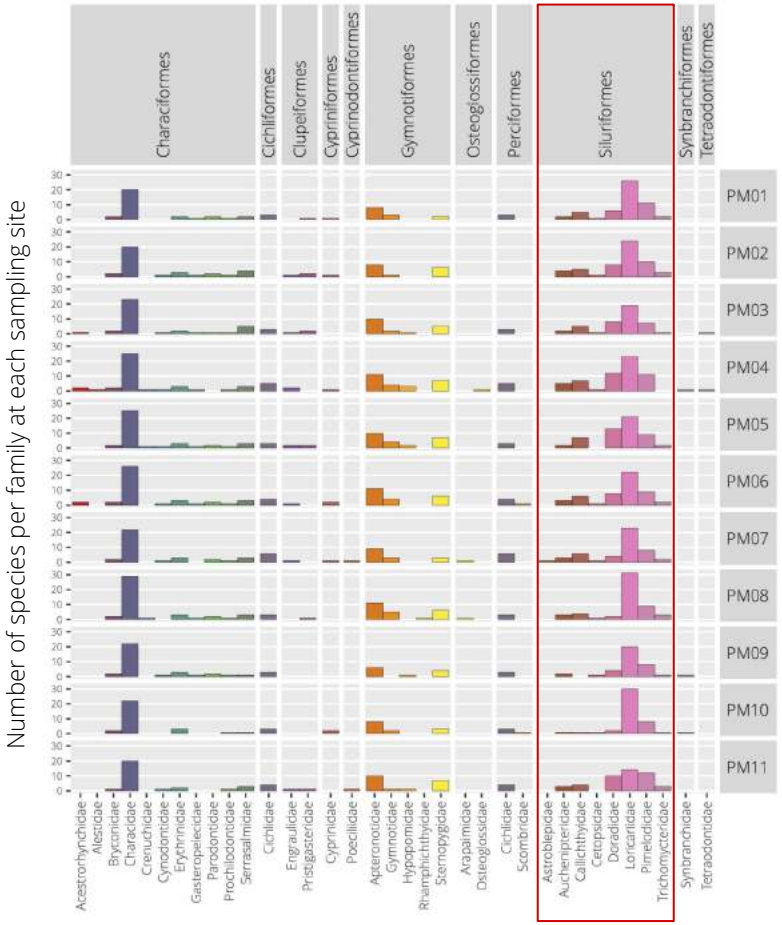
River dolphin DNA (both species) was more concentrated at downstream sampling locations

Group	'Species'
Fish	273
Mammals	81
Birds	23
Amphibians	12

In total, over 375 species of vertebrates were detected



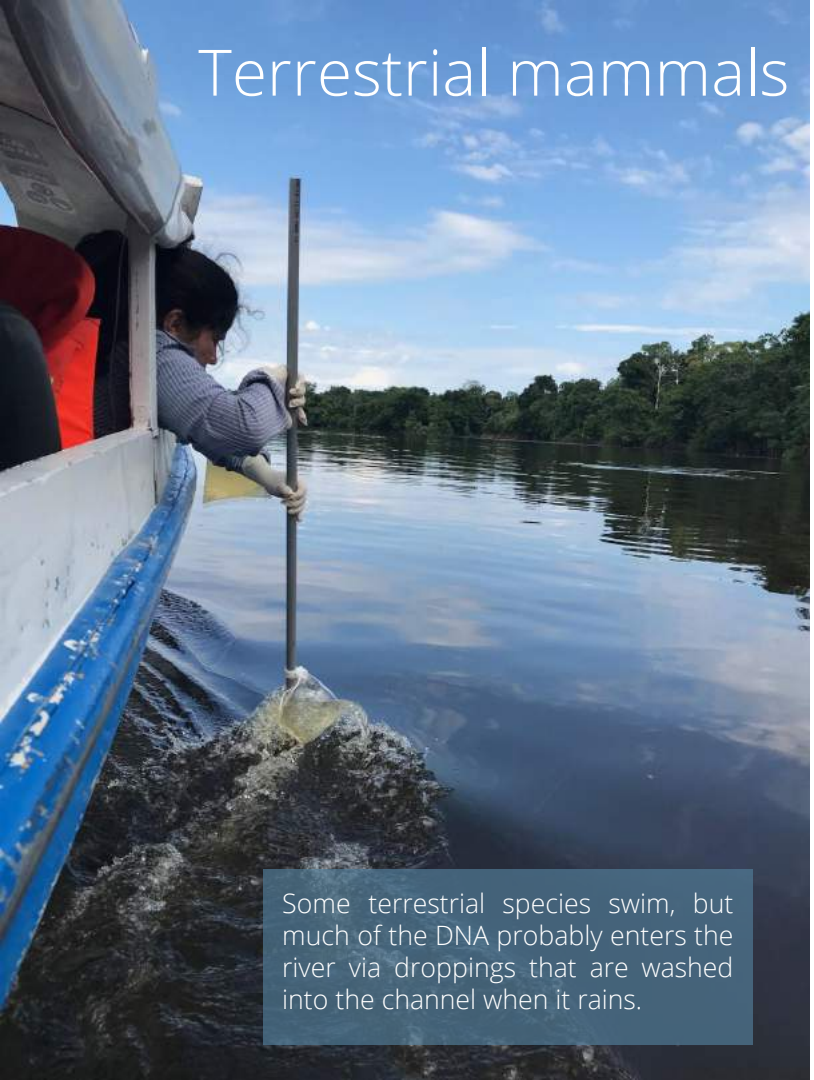
Most mammals could be identified to species but many of the fish could only be identified at family level due to gaps in the reference database, which will hopefully be filled in over time.



Commercially important species of migratory catfish were detected throughout the survey area, including paiche (*Arapaima gigas*), doncella (*Pseudoplatystoma sp.*) dorado (*Brachyplatystoma sp.*) & bocachico (*Prochilodus nigricans*).

Many fish species showed strong associations with particular sections of the sampling area

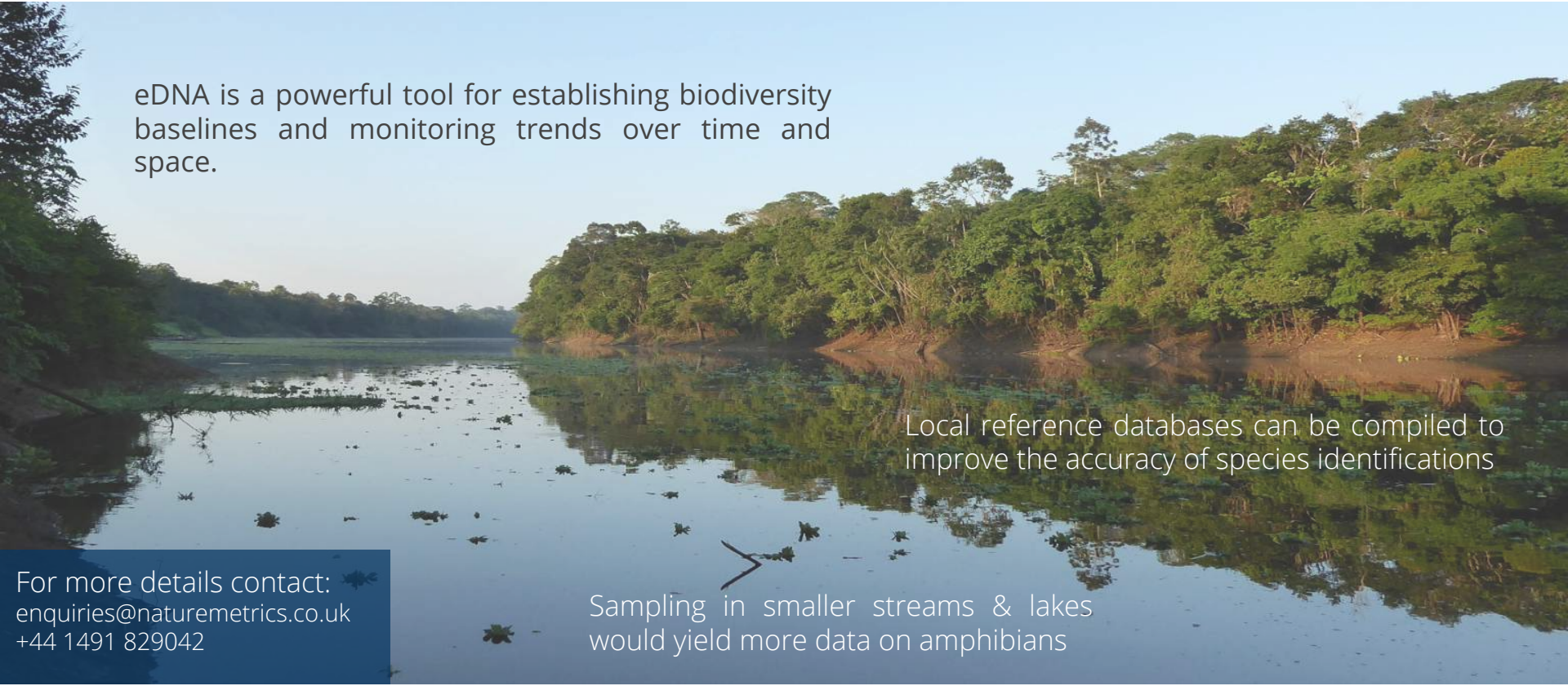
Terrestrial mammals



Some terrestrial species swim, but much of the DNA probably enters the river via droppings that are washed into the channel when it rains.

eDNA detected aquatic mammals such as dolphins, manatee & otters, but also terrestrial species including anteaters, armadillos, tapirs, peccaries, deer, monkeys, rodents, opossums, and even 12 species of neotropical bats.

Species that are rarely seen - like night monkeys and kinkajous - were detected by eDNA in the water samples.



For more details contact:
enquiries@naturemetrics.co.uk
+44 1491 829042