Fit for porpoise: Gene changes made 'river pig' unique

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The finless porpoise, a cousin of the baiji dolphin, has proved it can survive and breed in China's mighty but polluted and traffic-choked Yangtze—however, numbers are shrinking to the degree it is being added to the most endangered species list

China's critically endangered Yangtze River porpoise is a distinct

species, meaning it cannot interbreed with other porpoise types to pass on its DNA, a major analysis of the creature's genome revealed on Tuesday.

The finless, dolphin-like creature, which sports a permanent, almost human grin on its snub-nosed face, is the world's only freshwater porpoise.

But there are only about 1,000 individuals left in the wild—a number shrinking by 14 percent per year—and conservationists warn the critter is poised to follow the long-snouted Yangtze River dolphin, or baiji, into extinction.

For the latest study, intended to spur conservation efforts, an international research team analysed the genome of the Yangtze River porpoise and compared it to 48 other finless porpoises from different regions.

The exercise revealed that the animal known as "river pig" in China was a "distinct" species and "genetically isolated from other porpoise populations", the experts wrote in the journal *Nature Communications*.

Previously, finless porpoises were classified as a single species with three sub-species, of which the freshwater Yantze River group was one.

The new data showed the three main groups had, in fact, "not shared gene flow for thousands of years," the study said.

And each group shows "unique, individualised signatures of genetic adaptation to different environments."

In Nature, cross-species mating results in sterile offspring, if any at all. No such obstacles exist for mating between members of two different

sub-species.

'Stop the destruction'

Porpoises form part of the marine mammal family known as cetaceans, which also includes whales and dolphins.

Though they look somewhat alike, dolphins have longer noses, pointier teeth, and longer, leaner bodies than porpoises, with a curvier, backward-pointing dorsal fin, according to America's National Ocean Service.

All finless porpoises, said the researchers, originated from an ocean-dwelling ancestor.

The Yangtze River group split from its seawater cousins some 5,000-40,000 years ago, Nielsen told AFP, and "rapidly adapted to their new environment."

This required genetic alterations.

The team found evidence for changes to genes regulating kidney function as well as the blood water-salt balance.

The Yangtze River dolphin had a "unique, individualised" signature of genetic adaptation for living in freshwater, said the team.

"The authors hope that the genetic data, illustrating the distinctive genetic makeup of the Yangtze population, will spur ongoing efforts to prevent habitat destruction," a Nature summary added.

The Yangtze River porpoise is listed as endangered on the International Union for the Conservation (IUCN) of Nature's "Red List".

The biggest threats are pollution from riverside industry, boat strikes, and getting caught in gillnets or other fishing gear.

In 2015, China relocated a number of the creatures, which are rarer than pandas, to reserves in a species conservation bid.

More information: Xuming Zhou et al. Population genomics of finless porpoises reveal an incipient cetacean species adapted to freshwater, *Nature Communications* (2018). DOI: 10.1038/s41467-018-03722-x