

Critically endangered species should be left to breed in the wild

June 4 2015



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Some near-extinct species should be encouraged to breed in the wild rather than in captivity - according to new research from the University of East Anglia (UEA).

Captive breeding programmes offer a last resort to guard against extinction of [critically endangered species](#) such as Sumatran tigers and Arabian oryx.

But a new study published today in the *Journal of Applied Ecology* shows more should be done to prevent extinction in the wild.

Lead researcher Dr Paul Dolman, from UEA's School of Environmental Sciences, said: "Our research challenges the assumption that when a species is perilously close to extinction in the wild, it is always a good idea to set up a [captive breeding](#) population.

"Captive breeding can offer a last chance when species face imminent extinction, but ultimately depends on re-establishing a population in the wild. This has proved successful for some high-profile species, but in many cases it has not.

"Programmes can fail for many reasons, including delays in achieving successful breeding, failure to build up a self-sustaining population, domestication and loss of genetic diversity, and poor performance after releases into the wild.

"Captive breeding can reduce motivation and resources for [conservation](#) in the wild, with disastrous consequences.

"Our research reveals the importance of objectively weighing up potential outcomes of captive breeding and comparing them with efforts to support species in the wild."

The study, carried out in collaboration with BirdLife International, looks at the critically endangered Great Indian Bustard (*Ardeotis nigriceps*).

Once widespread in peninsular India, this majestic rare bird is now

restricted to a few areas - where it faces major threats from agriculture, powerlines and hunting. Numbers have declined from more than 1,000 in 1970 to as few as 100-200 today. Although effective conservation in the wild has yet to be implemented, a captive breeding programme has been advocated.

The research team used population models to evaluate the potential effectiveness of a captive-breeding and release programme compared to an alternative strategy of conservation in the wild.

Dr Dolman said: "We show that only urgent and effective action to protect and extend the Great Indian Bustard's natural habitat can prevent extinction in the wild.

"Ten years of effective habitat conservation measures, leaving eggs in the wild and not attempting captive breeding, would result in more adults in the wild than if those eggs were harvested to set up a captive breeding population.

"Our predictive models show no guarantee that a captive population could be established, and a high chance it would fail.

"Successful captive breeding with surplus juveniles released back into the wild would first require the collection of many wild eggs and a consistently 'best possible' performance across all aspects of the programme that would be almost impossible to achieve.

"But even the best possible captive breeding programmes need effective wild conservation to ensure released birds survive and thrive.

"Without conservation in the wild there is no point in captive breeding - as the birds would be trapped in captivity with no hope of returning to nature. Effective conservation offers a better chance to save this species,

without diverting energy and funds away from the urgent action needed in its last remaining habitats.

"This type of modelling is very useful to see whether captive breeding really benefits critically endangered species.

"Importantly, it shows that conservation interventions in the wild, such as habitat restoration, should not be delayed. And if such action is taken early enough, it may remove the need for captive breeding programmes altogether."

Prof Nigel Collar, from BirdLife International and also an honorary professor at UEA's School of Biological Sciences, said: "Bustards are particularly difficult to keep and breed in captivity. It can be done, but it is extremely expensive and, in trying to establish a stock of birds that breed, you are guaranteed to lose a very large number of individuals. But India cannot now afford to lose a single bird or egg in this cause. The only option is to implement a rigorous programme of habitat conservation and associated management measures, to give the species the chance to increase its numbers in the wild."

"A basic premise of captive breeding is that you have somewhere to put the animals back once you have been successful. However, if India does not immediately save the last places where the bustard survives, there will be nowhere suitable left, meaning that there is no point in captive breeding. On the other hand, if the last places are saved, the bustard could recover of its own accord—meaning that once again there is no point in captive breeding."

More information: 'Arc or park: the need to predict relative effectiveness of ex situ and in situ conservation before attempting captive breeding' is published in the *Journal of Applied Ecology* on June 5, 2015.

Provided by University of East Anglia

Citation: Critically endangered species should be left to breed in the wild (2015, June 4)
retrieved 25 April 2024 from

<https://phys.org/news/2015-06-critically-endangered-species-left-wild.html>

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