

Protect the giant ibis through the pandemic

The giant ibis (*Thaumatibis gigantea*), Cambodia's national bird, is edging toward extinction. The ibis's historical range stretched across Southeast Asia, but only 194 critically endangered individuals remain, constrained to the northeastern region of Cambodia (1). The small population suffers from habitat loss and disturbance caused by human activities, and tensions between humans and wildlife have escalated during the coronavirus disease 2019 (COVID-19) pandemic. In April, 3 giant ibises and more than 100 other birds were poached in Cambodia's Chhep Wildlife Sanctuary (2). To save the giant ibis, conservation efforts must continue, even during the pandemic.

Giant ibises nest in forests and frequent nearby wetlands, where they prey on frogs, insects, and larvae (3), all historically plentiful in their habitats. However, extensive clearance of Cambodia's lowland dry forest for agro-industry coupled with widespread wetland agricultural drainage has disrupted the ecosystems on which the ibises depend. Under China's Belt and Road Initiative (4), new roads are planned to run through the Siem Pang District in northeast Cambodia, as well as protected forests in the Keo Seima Wildlife Sanctuary in eastern Cambodia, further disrupting the ibis's habitats (5). Hydroelectric dams on the Mekong River and its tributaries will change water levels in riverine wetlands, potentially decreasing habitat quality and affecting ibis prey species (6, 7).

As their habitats diminish, ibises are also vulnerable to climate fluctuations. Prolonged drought in the 2009-2010 dry seasons decreased ibis breeding rates by about 50% (4). Potential increases in drought severity due to climate change could replicate these declines (8).

To conserve the giant ibis population, we must protect key habitats, enforce environmental regulations, and reconcile conservation and agricultural development through trade-offs between land-sparing, wildlife-friendly farming and intensification to increase yields from smaller farmland area (9). It is also essential to ensure that local people benefit from conservation, especially during uncertain times such as the COVID-19 pandemic. International tourists spent more than US\$100,000 visiting Cambodia to view giant ibises in the past decade (2). With global tourism in decline for an indeterminate period of time, this income will decrease, and pressure on the environment may increase. Planning for the return of tourists should focus on community-based eco-tourism initiatives, such as those developed at some Cambodian wetland protected areas (10). With financial and institutional support from international nongovernmental organizations, local communities can build the infrastructure they will need to host future domestic and international tourists. By preparing to provide eco-tourism services, these communities can benefit from alternative income sources once tourism resumes, thereby allowing them to continue their support for the conservation of the giant ibis and the region's other endangered species.

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