



## Reintroducing the Japanese Crested Ibis in Sado, Japan

**Short title:** Reintroducing the Japanese Crested Ibis in Sado, Japan

**Key Message:** Success of the plan to reintroduce the Japanese Crested Ibis (Toki) is related to encouragement by the government, through the introduction of economic incentives such as certification of Toki- friendly farming methods and higher prices for the resulting certified rice for the farmers.

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Photo.1: Crested Ibis

*Courtesy: Sado city government*



Photo.2: Crested Ibis

*Courtesy: Sado city government*

### What is the problem?

The Sado Island is about 850 km<sup>2</sup>, the fourth largest island in Japan. It belongs to Niigata Prefecture, which is one of the most rice-productive prefectures of all 47 prefectures in Japan.

The Toki (Japanese crested ibis; *Nipponia nippon*) is one species of the resident middle-size ibis group. At the moment, the wild population only remains in a small part of the central

China and is listed under the Endangered category in the IUCN Red List. This species is highly dependent upon the agricultural wetland landscapes, particularly on rice paddy fields, to obtain its prey such as frogs, loaches, river snails, and other aquatic beetles<sup>1</sup>.

In Japan, as was the case in most other countries, until 1908, Toki (Japanese crested ibis) was not included in protected birds under Japanese hunting law, this species was intensively hunted. The other reason for the wild extinction is the destruction of suitable foraging habitats in the conversion to a more intensive rice-producing system, especially by the use of agrochemicals<sup>2</sup>.

The last five wild-born Japanese Toki (Japanese crested ibis) were caught in 1981 and brought under a captive breeding effort<sup>3</sup>. In 2003, however, the last wild-born Toki died and the Toki became extinct in Japan. A couple of pairs transferred from China have now contributed to reproduce the individuals for reintroduction to Japanese field at Sado. The first reintroduction was made in 2008 and they are making efforts to breed in the wild.

As mentioned above, the one of the main causes of extinction of the Toki (Japanese crested ibis) is highly related to human agricultural activities as well as hunting. Farmers changed their way of rice production in order to get more yield with less labor. In Sado, in order to restore suitable foraging habitats for Toki (Japanese crested ibis) and its prey, farmers are trying to introduce methods to enhance biodiversity<sup>4</sup>.

### **Which ecosystem services were examined? And how?**

Sado city government is encouraging the farmers to change their ordinary rice producing method to a more Toki-friendly way of farming<sup>5</sup> and to make additional efforts to produce more biodiversity in paddy fields. It focuses mainly on creating ecosystems with high biodiversity in rice paddy fields, which also become suitable foraging habitats for Toki. In this case the habitat of Toki (Japanese crested ibis) is produced in a way that some ecosystem services related to rice paddy production are provided.

### **What policy uptake resulted from examining the ecosystem services?**

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<sup>1</sup> Current situation of Crested Ibis was summarized in the web site of Sado Japanese Crested Ibis Conservation Center. Last accessed in 2 Oct 2010, <http://www4.ocn.ne.jp/~ibis/01ibis/index.html>, (in Japanese)

<sup>2</sup> The background information of this paragraph is provided for example in Niigata prefecture Toki Reintroduction Promotion Division (2005) and Sado Japanese Crested Ibis Conservation Center web site, last accessed in 2 Oct 2010, <http://www4.ocn.ne.jp/~ibis/01ibis/history.html> and above web site (in Japanese).

<sup>3</sup> The history of conservation of Crested Ibis was summarized for example in the Sado Japanese Crested Ibis Conservation Center web site, last accessed in 2 Oct 2010, <http://www4.ocn.ne.jp/~ibis/01ibis/history.html>, (In Japanese) and Ministry of the Environment Government of Japan web site, last accessed in 2 Oct 2010, <http://www.env.go.jp/nature/toki/>, (in Japanese).

<sup>4</sup> The Information was provided by personal communication with Sado city government.

<sup>5</sup> The detailed information of Toki friendly method was provided in the Sado city web site, last accessed in 2 Oct 2010, <http://www.city.sado.niigata.jp/eco/info/rice/index.shtml>, (in Japanese)

Obviously, farmers are required to pay more costs for rice crop by employing Toki-friendly methods. In order to balance this cost-benefit ratio, the Sado city government introduced a certification system for a Toki-friendly farming method<sup>6</sup>, which could lead additional value and price to the certified rice.

In fact, the methods introduced for keeping high biodiversity are costly in the economic and physical aspect, but the farmers could get the same or similar benefits from recovered biodiversity as ordinary agricultural methods.

For example<sup>7</sup>, the paddy fields get fertile soil. One is from the decomposing of organic materials by aquatic organisms such as sludge worms and other is from feces of migratory birds which stay for foraging in the winter, which can compensate for the effects of reducing chemical fertilizer. Established puddles can secure the growing stage of aquatic creatures from the dry-time of the paddies. The natural predators keep the number of pest insects very low, so that they do not need to be killed with pesticides.

Also certified rice is sold at almost twice the price of the average market price: 2,980 JYen<sup>8</sup> for 5 kg of rice grown using half the amount of pesticides conventionally used and 4,000 JYen for the same amount of organically grown rice<sup>9</sup>. Farmers were entitled to a government grant of 27,000 JYen per 1,000 m<sup>2</sup> to compensate for lost profits and to promote no-tilling farming<sup>10</sup>. Also a national grant for the compensation of lost profits has started since 2010.

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### **References**

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Ministry of the Environment Government of Japan web site, last accessed in 2 Oct 2010, <http://www.env.go.jp/nature/toki/>, (in Japanese).

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<sup>6</sup> The detailed information of Toki friendly method is provided in the Sado city web site, same as above.

<sup>7</sup> The explanation of this paragraph was summarized in Living with Toki Promotion Committee and Sado city government: Guiding Principles for Harmonious Coexistence with Biodiversity.

<sup>8</sup> Exchange rate was as of 2 Sep 2010; 1US\$=84.1874JPY

<sup>9</sup> The information was provided by Sado city government by personal communication.

<sup>10</sup> The information was provided by Sado city government by personal communication.

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