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REFORESTING THE MANGROVES

Mangrove forests that once lined the shores in most of the tropical and subtropical areas are decreasing. The main threats are industrial development, land reclamation and increasing coastal pollution, and probably the greatest contributor to mangrove forest destruction today is the prawn aquaculture industry. Not only have the mangroves been lost but entire human settlements of indigenous coastal farmers and fishermen have been displaced and ruined. The impact on coastal ecology, including wildlife and entire coastal fisheries, has been devastating.

In many cases, prawn ponds are abandoned after only four to five years of operation, the land is often left barren and poisoned by prawn pond contaminants such as additives from the prawn feed, anti-biotics, and the massive amounts of prawn excrement itself. In addition, the prawn farms also cause salinisation of surrounding lands and sub-surface aquifers and the activation of acid-sulphate in the soils. The surrounding lands and waterways are often ruined for farming and any future fishery is curtailed.

Short-term Profits for Long-term Ruin

Literally millions of once self-sufficient coastal fishermen and farmers are left without a sustainable livelihood. In Thailand and Ecuador over half the prawn farms have been closed down because of insurmountable

pollution after a few years in operation. The prawn industry has never been responsible for rehabilitation of the land following operations. They simply move their short-term but very profitable business operations elsewhere usually to unspoiled coastlines to begin anew.

By and large, governments have not taken the initiative requiring prawn farmers to recondition damaged terrain and replant the mangroves. Many small-scale attempts by local villagers, working in coordination with non-governmental organisations, scientists and/or government officials have been made, but it is a formidable task. To return the newly created wasteland back into its formerly healthy and productive state provides enormous challenge.

Reforestation of the Mangroves in Ecuador

Ecuador's devastated mangrove coastline provides an excellent opportunity for an ambitious cooperative international effort to replant degraded mangrove forests. The coastal regions near both Muisne and Machala offer the opportunity to attempt cooperative reforestation projects which could act as working models for future attempts elsewhere. The Mangrove Action Plan (MAP) is presently coordinating efforts to organize an international team of youth from North and South America to participate in the reforestation efforts. MAP is working with the Ecuadorian NGO, Accion Agua, based in

Machala. In addition Houston, Texas based, educational organisation, Earth Foundation has joined our coalition to help implement an effective programme. We are now at the early stage of organizing for this project and hope to begin the reforestation effort by May or June 1995.

We plan to invite high school and college youths from North and Latin America, Europe and elsewhere to participate in Ecuador. This voluntary youth corp of perhaps 30 to 40 persons would be directed by the local NGOs in the reforestation work. They also would have the opportunity to work and play with local Ecuadorian volunteers. An informative educational tour of Ecuador would be included in the two to three week programme.

The reforestation effort will be advertised locally, through both the media and by word of mouth, in order to inspire the local people to participate in this work. It will need cooperative effort on a grand scale and through such a programme, we believe we can positively influence future mangrove reforestation efforts, if you or your organisation would like to be involved, please write to us at the MAP address:

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WATERBIRD STUDIES

THE SIBERIAN CRANES' LAST INDIAN WINTER

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WWF-India

The winter of 1992-93 could be remembered as the last Indian vacation for the Siberian Crane. While optimists may hope otherwise, the writing is clear in the sky.

The number of Cranes sighted at the Keoladeo National Park in Bharatpur, Rajasthan state, dwindled from a healthy 77 in 1971-1972 to a disturbing 33 in the year 1979-80. Shock was in store for bird watchers and experts, when only five touched down last winter. This winter was worse as none came.

Meenakshi Nagendran of the International Crane Foundation (ICF), fears that the time has come when the extinction of the Siberian Cranes in India will be declared.

Siberian Cranes (*Grus leucogeranus*) receive their name from two widely separate areas in eastern and western Siberia. The eastern population breeds in the tundra of Yakutia while the other group breeds 2,000 km further west along the River Ob.

It was the small western population that regularly travelled to India's warmer wetlands with the approach of winter in Siberia. The larger eastern group, numbering a few thousand, winters in Lake Poyang and along the Yangtze River in China.

Naturalists wonder if at all these birds will ever return to India! The prospects seem bleak,

as reasons for their decline appear to be numerous and continuing.

Cranes are hunted by nomadic tribes around the Caspian Sea and in Afghanistan and Pakistan on their 5,000 mile migration route from Siberia to Bharatpur. Rakesh Fauzdar, an official of the Keoladeo Park believes another factor responsible for the decline of the Cranes is the inhospitable late summer/ autumn climate in Siberia. If the snow comes early in Siberia, the birds are forced to fly south either abandoning their chicks or if possible taking them on the difficult flight. Either way, survival rate of the immature is low.

In addition, the cranes are known to be poor breeders. Adults mate for life and produce only two eggs per pair each spring of which only one survives. Each pair requires a large territory (about 20 to 30 sq km) for successful breeding and will desert their nesting sites at the first signs of disturbance.

With the rapid decline of the western Siberian Crane population, reproduction has slowed. ICF research indicates adults take months or years to replace partners lost to hunting, drought or accidents.

ICF has tried to augment the wild population through captive breeding but so far all is in vain. In 1991, eggs from captive birds in USA, Germany and Russia were artificially incubated, hatched and reared in isolation at a camp in the

Kunovat river basin in Siberia. Three chicks were successfully reared at the camp by a team of crane-costumed attendants who simulated natural conditions by using crane hand-puppets and taped calls. The chicks were also trained to tear humans.

In February 1993, ICF transported two of them, named White and Bugle, to Bharatpur where they were released among the five wintering cranes. The visitors tolerated the captive-reared chicks, however the interaction period was probably too short and, disappointingly, the wild flock returned to Siberia, leaving the chicks behind. Under natural conditions it is believed the young cranes need an adult guide to show the way during migration. Some believe that the captive-bred birds lack strength to make the arduous 5,000 miles migration back to Siberia.

This winter, four more captive-bred Cranes were brought to Bharatpur but the wild flock themselves never arrived. Even if they had, nobody is sure whether the result would have been any different to that of 1993.

The question remains as to whether Siberian Crane will ever winter at Bharatpur again. Of they do not, the captive bred cranes will probably never learn to fly to Siberia and return to India. As a result, knowledge of their migration route and breeding areas will be lost forever. Watch this space for more news next winter!