

## **F-2 Study on the conservation of forests, wetlands and biodiversity in Asian Pacific region**

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Russian boreal forest, Amur basin wetlands

### **1. Satellite Observation of Migration Routes and Habitats of Migratory Birds in Asian Pacific Region**

#### **1.1 Investigation of Distribution and Environmental Conditions of Wetlands using Satellite Imagery**

Movements and habitats of Red-crowned Cranes (*Grus japonensis*) and Oriental White Storks (*Ciconia boyciana*) were studied in East Asia using two kinds of satellite-based observation techniques, i.e., satellite tracking and remote sensing techniques. A satellite tracking system is used to automatically obtain bird location data, from which migration routes, local movements within habitat, and important places for breeding, stopover and wintering can be identified. Satellite remote sensing was used to investigate the distribution and environmental condition of wetlands. By combining these two techniques we analyzed the relationship between wetland ecosystems and bird habitation patterns.

#### **1.2 Study on the Migration Route Selection and Habitat Characteristics of Migratory Birds**

We satellite tracked the fall migration of Red-crowned Cranes *Grus japonensis*, White-naped Cranes *G. vipio* and Oriental White Storks *Ciconia voyciana* from the middle part of the Amur River, southern Siberia in 1998 to 2000, and the spring migration of Common Cranes *G. grus* from western India in 1999 to 2001. In one Red-crowned Crane and two Oriental White Storks, the round trip migration was successfully tracked.

### **2. Studies on Analysis of Biological Diversity and Effects of Forest Disturbance on Symbiosis in Russian Boreal Forest**

A history of forest disturbance, institutional and economic analysis of forestry in the Russian Far East, and influences of forest disturbance on ecosystem were surveyed in the boreal forest, near Khabarovsk. Forest disturbances occurred on the lowland in 1980's, while on the backland in 1990's. Forest cutting seemed to be the main cause of the disturbance. Although timber export had increased in 1990's, the profit was rarely reinvested with both forest production and industry sector. Although methane was taken up by the soil in natural forest, methane emission was observed at a high moist area in the felling site.  $\text{SO}_4^{2-}$  fluxes indicates that there was much input of artificial acidic deposition at forest ecosystems at Khabarovsk, Russia. A kind of fungus, *Patella scutella*, could be an indicator of disturbance of forest floor. Soil animal population increased in felling site due to an addition of organic matter supplied by the residue of wood litter. In contrast, rodents contributing seed dispersal were not recorded in the center of disturbed areas. Methane uptake was significantly related to soil temperature and moisture.