

## Conservation of the Rare Jabiru Stork in Mesoamerica

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The Jabiru is one of the world's largest storks and, with the second longest wingspan (2.4m) of any new world species, one of the largest birds in the world. Its geographic distribution extends from southern Mexico through Central America, and northern South America to northern Argentina and Uruguay. Three distinct populations occur throughout this extensive range. The Mesoamerican (southern Mexico through Panama) population, by far the smallest and most vulnerable, is considered regionally endangered and of immediate conservation concern. Regional estimates for this population range from 150 to 250 individuals, with Costa Rica and Belize supporting what may be the only two possibly sustainable sub-populations. Despite this status, very little research has been conducted on the



Omar Figueroa attaching transmitter to Jabiru nestling.

Mesoamerican population probably due to the inherent difficulties of studying such a rare and wide ranging species. In particular, seasonal movements and limiting factors have remained a mystery, thus restricting opportunities for conservation planning.

We used Microwave Telemetry's 70g solar-powered Argos/GPS PTTs to begin the first telemetry study of Jabiru Storks in Mesoamerica. Six units were deployed on juveniles in 2003 and 2004 to study post-fledging movements, to identify and define critical foraging habitats, and to map previously unknown travel routes. This work was made possible by generous contributions from the Disney Wildlife Conservation Fund, the Protected Areas Conservation Trust (PACT-Belize) and the Wildlife Conservation Society.

During the short period since deployment (April 2003 to March 2005), we have obtained highly accurate, detailed movement data for juvenile Jabiru Storks. Previous speculations that these birds undertook regular migrations from Belize to the Usumacinta drainage in Mexico may prove to be simply a myth. Instead, post fledging movement has demonstrated an exceptionally high site fidelity to the natal area. Using the GPS data in an analysis based on 100 random walk simulations, we tested the hypothesis that the storks' movements were more constrained than would be expected based on chance ( $P < .01$ ).

Moreover, 72% (6724 of 9282 fixes) of all locations were within two habitat types: short-grass savanna with shrubs; and tropical lowland tall herbaceous swamp. Additionally, 60%

(5567 of 9282 fixes) fell outside the existing protected areas network. This is a very conservative estimate because

three of the tagged birds were from nests that lay within protected areas. In short, nesting adults and juvenile storks all strongly selected specific habitats that occur mainly outside of publicly-owned protected areas. These habitats, furthermore, represent a very small portion of the total area of Belize and lie primarily within the region targeted by long-range government planning for the most rapid and intensive growth in the country.



Marcus Cakul capturing Jabiru nestling.



Young Jabirus in nest atop pine snag.

In recent years the Mesoamerican region has experienced an unprecedented rate of habitat loss, fueled primarily by the associated explosive human growth rate, ever-increasing commercial exploitation of natural resources, and accelerating tourism development. Critical habitats and unique elements of the region's flora and fauna are being degraded and lost at an alarming rate. The future of many species and their habitats now depends on our ability to provide timely recommendations to key decision-making organizations. The types of data produced by satellite/GPS telemetry provide the best information for planning the conservation of the regionally endangered Jabiru stork and a host of other threatened sympatric species. This technology now makes it feasible not only to collect the necessary data, but to do so rapidly before the window of opportunity closes.