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### A 10,000 MISSISSIPPI KITE FLOCK OBSERVED IN FUERTE ESPERANZA, ARGENTINA

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**Una bandada de 10 000 *Ictinia mississippiensis* observada en Fuerte Esperanza, Argentina.**

**Key words:** Mississippi Kite, *Ictinia mississippiensis*, flock, northbound migration, dry Chaco, Argentina.

#### INTRODUCTION

The Mississippi Kite (*Ictinia mississippiensis*) is a Neotropical migrant that nests singly or in loose, small colonies in North America from North Carolina and north Florida west to Kansas, southeastern Colorado, and Texas and north along Mississippi River to south Illinois and Indiana, and west locally to Arizona (Brown & Amadon 1968, Thiollay 1994, Wheeler 2003). The species migrates along the Mesoamerican Land Corridor into South America where it feeds on flying insects in rather small flocks. Wintering range is very imprecisely known but major part of population is likely to winter in central South America east of the Andes, southeastern Bolivia, Paraguay to northern Argentina, and at least to some extent, southwestern Brazil, wandering occasionally to Minas Gerais (Davis 1989, Fergusson-Lees & Christie 2001, Wheeler 2003, Kirwan *et al.* 2004).

The species is considered scarce, rare or transient in every country where it is found in South America (Hilty & Brown 1986, Sick 1997, Zalles & Bildstein 2000, Ridgely & Greenfield 2001, Hilty 2003, Kirwan *et al.* 2004). Largest numbers are supposed to be in Paraguay, although Hayes (1995) and Guyrá-Paraguay (2004) consider it rare in most regions of the country, and the same is said of the species in northern Argentina (Eisenmann 1963, Olrog 1979).

Large flocks of southbound migrating kites have been reported from watchsites as far north as Hazel Bazemore Park, near Corpus Christy, Texas (27°52'N, 97°38'W), where more than 9700 birds were tallied during the fall migration-season of 2003 (Smith 2004), and as far south as Concepción, Bolivia (Fig. 1; 16°08'S, 62°02'W), where 1000–1500 birds were counted in a single day in 2001 (Zalles & Bildstein 2000, Olivo 2004). Full-season migration count in 2002 involved c. 146,000

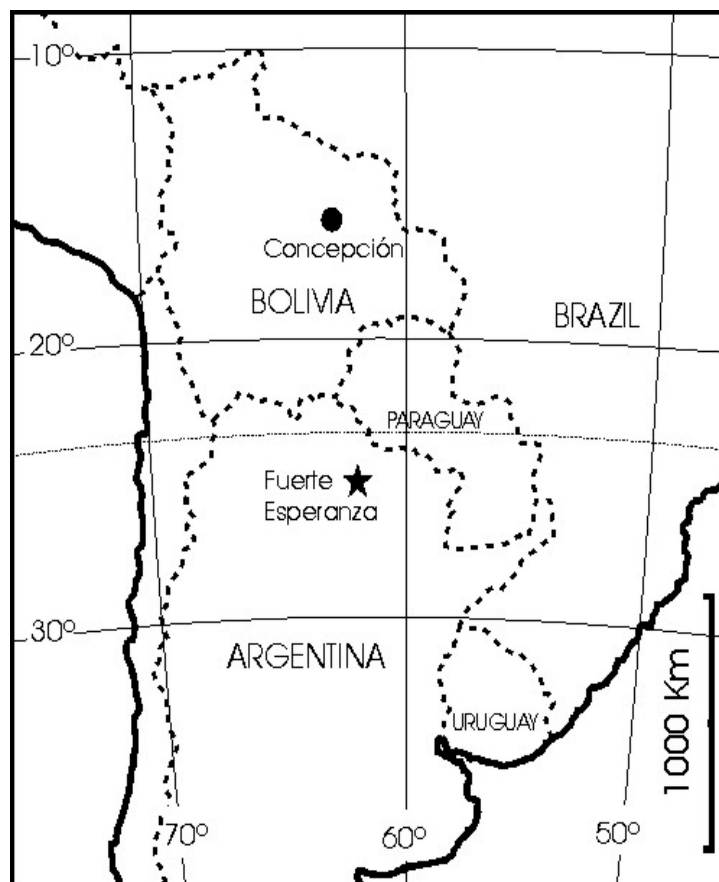


FIG. 1. Geographic location of Fuerte Esperanza in the dry Chaco of Argentina.

birds (C. Olivo pers. com.). Migration counts of 10,000 or more birds are only known from a handful of localities along its southbound migration route, including Veracruz (Mexico), Kéköldi (Costa Rica), and Southern Panama Canal Zone (Panama) (Zalles & Bildstein 2000, Olivo 2004).

#### SITE DESCRIPTION

Fuerte Esperanza (Fig. 1, 25°11'S, 61°55'W; 160 m a.s.l.) is a c. 1000-inhabitant town in northwestern extreme of Chaco Province, 130 km northwest of Castelli, placed within

the Gran Chaco biogeographical province (Udwardy 1975) and the Chaco Occidental (Cabrera & Willink 1980). The locality receives 500–800 mm of rainfall annually with precipitations unevenly distributed along the year, slowly increasing from 10–15 mm in July to a peak of 130–140 mm in December, and decreasing at a slower rate until June (data from Servicio Meteorológico Nacional, years 1978–1999). Little disturbed, dry woods dominated by quebracho colorado santiaqueño (*Schinopsis quebracho-colorado*) and quebracho blanco (*Aspidosperma quebrachoblanco*), known as “El Impenetrable”, surround the

site. This dry forest forms the matrix in which natural grasslands of aibe (*Elionurus muticus*), locally called “caños”, grow in river palaeo-cauces (for a thorough vegetational characterization, see Morello & Adámoli 1974). This landscape extends over at least 10,000 km<sup>2</sup> around Fuerte Esperanza. Land is owned chiefly by farmers, and main activities are dry-resistant cattle raising, soy, corn, pumpkin and watermelon fields. Extensive clearings of up to 500 km<sup>2</sup> have been made west of Fuerte Esperanza, and soy bean plantations replaced the woods there. No migration monitoring is currently conducted at the site.

The region is known to hold major healthy populations of Turquoise-fronted Parrot (*Amazona aestiva*) and landowners benefit economically from this resource in a sustainable framework coordinated by personnel of Proyecto Elé.

Every austral spring, unknown, but presumably high, numbers of Mississippi Kites and Swainson's Hawks (*Buteo swainsoni*) are seen migrating southwards, 30 km south of Fuerte Esperanza, in Reserva Provincial Loro Hablador. This reserve of nearly 500 km<sup>2</sup> shelters populations of at least 19 raptor species, including the threatened Crowned Eagle (*Harpyhaliaetus coronatus*; Povedano *et al.* 2001, I. Berkunsky pers. com., JIA pers. observ.).

## RESULTS AND DISCUSSION

On 20 February 2002, the weather was humid and the sky completely overcast after several rainy days in Fuerte Esperanza. Around 14:00 h, JIA observed at least 10,000 Mississippi Kites flying northwards, 80–100 m overhead, in a single, very densely packed flock estimated to be 70 m wide and 400 m in length, or about 40 kites wide and 250 long. Lateral distances between individuals were extremely short, and anteroposterior distances between birds were notably larger.

Flock size was estimated as follows: 50 individuals were counted first; the area they occupied was doubled to estimate a 100-individuals group area; this 100-ind. area was multiplied by 5 to define a 500-ind. group area; this last area was used as the counting unit.

The birds were so densely packed, and flight direction was so consistent that without doubt the birds were engaged in northbound migration. This rather unusual flock differed markedly in density and size from those observed by Olivo (2004) who reported widths of 50–150 m, and lengths ranging from 1 to 3 km for southbound migrating flocks of 50–1000 individuals. Our observation suggests that Mississippi Kites gather in big, dense flocks in early stages of northbound migration.

The birds in the flock were not using any thermal ascending current, but flying straightforward to the north. Their linear trajectory was possible due to the existence of a northern flowing air current. Long rainy periods like the one that preceded this sighting are usually associated with the southerly wind locally called “viento sur”, which brings fresh air with heavy clouds and rain. This mesoclimatic event might explain at least partially the migratory behavior in non-sunny, humid days, in which thermal currents might not be available for soaring flight. Blake (1949) mentions that, in Paraguay, the Mississippi Kite is said to appear from October to January (i.e., during the southern hemisphere spring and summer), usually after stormy weather with southern winds. Our observation of a migratory flock after a stormy week favors the idea that birds take advantage of occasional winds to migrate (see Olivo 2005).

*A potentially important migration corridor for raptors.* Fuerte Esperanza is the southernmost point where Mississippi Kite is known to gather forming immense flocks during north-

ward migration. This flock, and other raptors engaged in southbound migration during austral spring seen at Reserva Loro Hablador (see Site description) lead us to believe that the area might function as an important corridor, as well as final destination, for long distance Neotropical migrant raptors in western chaco. Further research in the area is needed to establish site-specific information such as detailed weather data, migration period, passage peak-dates, annual count, and whether other species of raptors could be monitored from these potentially important watchsites.

*Conservation implications.* World population of Mississippi Kite in early 2002 should have been at least 214,000 birds, which corresponds to full-season fall migration count for the species at Veracruz Coastal Plain watchsite in 2001 (Wheeler 2003). The flock observed in Fuerte Esperanza represented nearly 5% of the whole population at the time, and constitutes the largest concentration of the species reported for South America. Identification of similar sites, along with protection of the birds, and landscape in these gathering points can aid in Mississippi Kite conservation.

Deforestation in the chaco region is an important threat to the species because it replaces one of the wintering habitats where a substantial portion of the world population of the species might spend the austral summer (Bodrati 2005, JIA & F. Moschione unpubl. data). Since conservation is not merely a quantitative issue, but also a question about maintaining actual and historically generated relationships between organisms and their environments, the fate of the Mississippi Kite (understood as the species plus its natural interactions) might depend on actions against natural forest and grasslands disappearance in South American dry chaco.

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