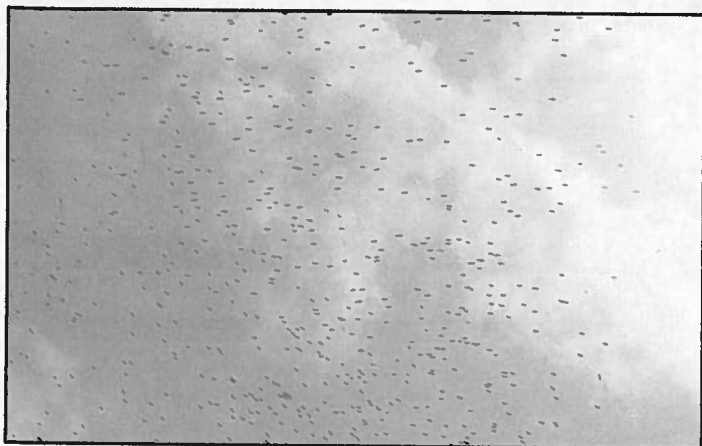


More than Three Million Migrating Raptors Counted Ocean-to-Ocean in Panama, Autumn 2004

Chelina Batista, Rosabel Miro, George Angehr and Keith Bildstein



Part of a typical day's flight as seen from Cerro Ancon.

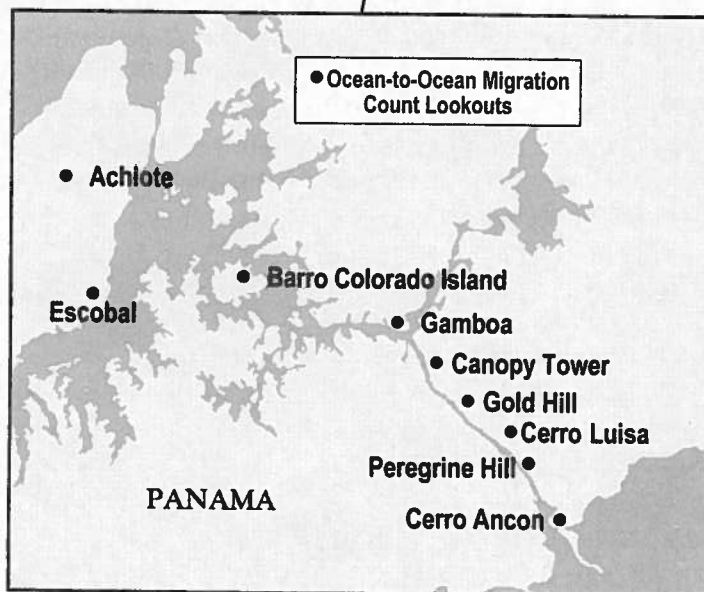
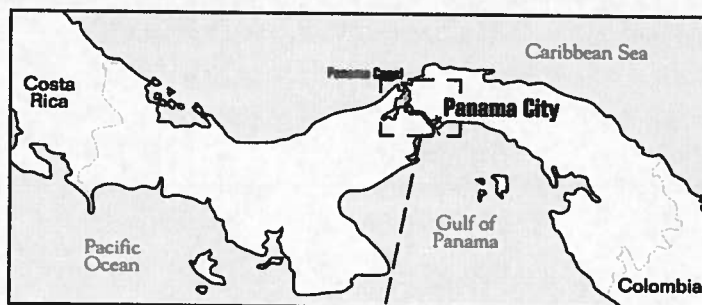
More than 3.1 million migrating raptors were recorded during the first annual "Raptors Ocean-to-Ocean" transect count held in central Panamá in October and November 2004 (Table 1). The event was organized by the Panamá Audubon Society with the support of Hawk Mountain Sanctuary. The Panamá transect count joins only two other watchsites in the Western Hemisphere at which more than one million raptors can be expected in a single season (see Sutton and Sutton 1999 and Porras et al. 2004).

Nine observation points spanning most of the width of the Isthmus of Panamá from the Atlantic to the Pacific were operated between October 4 and November 14, 2004 (Figures 1-5). Forty-five observers participated in the count, including 10 international volunteers from the United States, Canada, Mexico, Costa Rica and Argentina, together with international scientists, students from the University of Panamá and residents of rural communities near the Caribbean coast. Local partner organizations helping to support the count included the Smithsonian Tropical Research Institute, the Peregrine Fund's Neotropical Raptor Center, the Canopy Tower Hotel, Gamboa Rainforest Resort, and the Panamanian Center for Research and Social Action.

Although raptor counts have been conducted in Panamá before (Smith 1985), this was the first attempt to carry out simultaneous counts at a string of lookouts spanning the width of the Isthmus. Panamá is the narrowest landmass along the route of raptors migrating between breeding areas in North America and wintering grounds in South America, making it the easiest place to monitor their numbers. The most numerous species passing through the region were Turkey Vultures, Broad-winged Hawks and Swainson's Hawks, all of which rely mainly on thermal soaring on their migrations and therefore travel almost entirely over land (Bildstein and Zalles 2001).

Truly spectacular numbers of birds passed along the Isthmus on some days. The highest single-day count occurred on October 22, when 450,242 raptors were recorded at all nine sites combined. This day also saw the top single-day count for an individual site, with 238,616 birds recorded at the Canopy Tower, with more than 150,000 of them passing in a single hour.

One of the more interesting results of the count was the discovery that the three species used somewhat different routes through the Isthmus. About 70% of Turkey Vultures and 67% of Swainson's Hawks passed through within 8 km of the Pacific coast, many directly over Panamá City. In contrast, about 70% of the Broad-wings migrated farther inland, over more heavily forested areas. This difference seems to be related to ecological differences among the species, as Broad-winged



Map of the Isthmus of Panamá connecting southern Central America to northeastern South America, together with an insert of the locations of the nine lookouts used during the "Raptors Ocean-to-Ocean" count, October 4-November 14, 2004.

Hawks are primarily forest birds while Turkey Vultures and Swainson's Hawks are more partial to open country.

"Raptors Ocean-to-Ocean" already has provided important data for the conservation of the remaining forests of the Panamá Canal area, some of which are presently designated for development. The Panamá Audubon Society and Hawk Mountain Sanctuary hope to make the count an annual event, not only to improve scientific understanding of these migrations but also to promote conservation, environmental education and economic development through ecotourism.

Individuals interested in volunteering for this year's count should contact Chelina Batista or Keith Bildstein.

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Chelina Batista showing local volunteer counters how to collect weather data. Batista, who logistically coordinated the count, was a conservation science intern at Hawk Mountain Sanctuary in spring 2003.

The Miraflores Locks near the Pacific end of the Panamá Canal seen from the lookout atop Cerro Ancon (Ancon Hill) on the outskirts of Panamá City.



Species	Number seen
Turkey Vulture	1,399,847
Osprey	545
Swallow-tailed Kite	58
Mississippi Kite	2510
Plumbeous Kite	41
Northern Harrier	2
Sharp-shinned Hawk	12
Zone-tailed Hawk	39
Broad-winged Hawk	934,232
Swainson's Hawk	724,578
American Kestrel	41
Merlin	32
Peregrine Falcon	801
Unknown raptor	62,428
All raptors	3,125,486

Table 1. Species totals for the "Raptors Ocean to Ocean" transect count, central Panamá, October 4-November 14, 2004.

Lookout	Number of raptors seen
Cerro Ancon	1,111,878
Peregrine Hill	665,270
Cerro Luisa	224,555
Gold Hill	170,214
Canopy Tower	573,189
Gamboia Rainforest Resort	109,413
Barro Colorado Island	37,383
Escobal	225,444
Achiote	8,140

Table 2. Count totals for individual lookouts along the "Raptors Ocean to Ocean" transect count, central Panamá, October 4 -November 14, 2004. (See map for locations of lookouts.)