NEW FRONTIERS IN HAWKWATCHING: HAWK MIGRATION CONFERENCE IV

by H. Christian Floyd, Lexington

During March 24-27, 1983, approximately four hundred hawkwatching enthusiasts, including leading raptor authorities from the United States, England, Israel, and Panama, gathered in Rochester, New York, for the presentation of forty papers at Hawk Migration Conference IV, sponsored by the Hawk Migration Association of North America and Hawk Mountain Sanctuary Association.

This report summarizes some of the presentations that were most interesting to me in addressing the frontiers of hawkwatching and raptor migration study: the new geographical areas being studied, new efforts to assess the significance of hawkwatching data, and new applications of technology to this area. These summaries just scratch the surface of what was presented at the conference. Having heard all of the presentations first-hand, I am eagerly awaiting the publication of the conference proceedings some time next year and hope that this report will lead you to share my anticipation.

The western United States is indeed still a frontier with respect to what is known about hawk migration through this region, but much has been learned recently through the efforts of pioneering hawkwatchers like Steve Hoffman. According to Steve, only six fall sites in the West receive over one hundred hours of hawkwatching. The relatively low level of hawkwatching activity in the West was explained by four main factors: few birders, difficult access to sites, dispersed migration due to the lack of natural barriers and leading lines, and only recent knowledge of the timing and weather correlations of western flights. Steve offered some generalizations about hawk migration in the West to compare it with hawk migration in the East. In the West, most fall sites are on isolated ridges over 8,000 feet above sea level, and most spring sites are in the lower foothills of mountain ranges. Thermals are more important to migration in the West and more reliable on account of drier soil, drier air, and clearer sky. A lower concentration of birds results from use of updrafts along ridges because the birds are more spread out over the slope of the much larger western ridge. Fall migration in the West tends to occur about ten days earlier than in the East. Migration activity correlates differently with the passage of a cold front. In the East, activity peaks shortly after passage of the front as migrating raptors use the lift of strong winds up the slopes of ridges. In the West, activity picks up more gradually after passage of the front as the strength of thermals rebuilds.

In a separate paper, Steve Hoffman discussed the fall migration of Cooper's Hawks through the Wellsville Mountains in

northern Utah and through the Goshute Mountains in northeastern Nevada. Cooper's Hawks migrate two to three weeks earlier in the West than in the East. This may be explained by the facts that winter comes earlier in the West, particularly at higher altitudes, and that most western Cooper's Hawks come from mountain forests. In the West, the peak of Cooper's Hawk migration occurs before the Sharpshin peak, while in the East, the peaks for these two accipiters occur at the same time. Perhaps because of their heavier wing loading, Cooper's Hawks fly later in the day than Sharpshins. The birds arrive later in the day at the Goshutes than at the Wellsvilles. This was explained by the greater extent of arid, inhospitable land to the north of the Goshutes. The birds would avoid resting for the night in this land, would tend to cross it only from an early start, and would have to cross it in its entirety before reaching the Goshutes.

The technical problems of counting the large numbers of hawks that migrate through Panama (945,000 counted this past fall) were discussed by Neal Smith. He described in particular the photographic counting technique that he used for the rainy season (fall) migrations from 1977 to 1981. Long-range photographs were taken of a large flock while it was in a glide (rather than in a kettle). The photographs were blown up and the birds in each photograph were counted with the aid of a marking pen and a hand-held mechanical counter. In 1979, many birds passed in the clouds and were missed in the count. Radar would be useless for counting birds in clouds. In the dry season (spring) migration, counting would be even more difficult, since the flight is more spread out, not in a narrow corridor as in the rainy season. In summary, Neal doubted that accurate counts of the population of migrant hawks could be made, even in Panama.

The results of an experiment performed at Cape May to determine the impact of observer numbers on raptor counts were described by Rene Kochenberger. In this experiment, raptor counts were taken by four physically separated parties of observers: three isolated parties of one, two and three observers, and the official counter, who may be aided by the sightings of other hawkwatchers at the official observation post. The four parties were separated by distances of a few hundred yards, separate enough that they would not influence each other in their observations, but close enough that they would be observing essentially the same flight. The counts taken by the four parties were compared by species. Generally, the counts agreed closely, within 20% of each other. Most of the significant differences in counts could be explained by the route preference of the species. For example, the party of two observers at the bunker, which is on the beach, recorded more Peregrine Falcons than the other parties, which were well away from the beach. The species for which the counts correlated positively with the number of observers were "broad-front"

migrants, specifically the following: Turkey Vulture, Merlin, Bald Eagle, Golden Eagle, and Northern Harrier. The data also supported the common-sense conclusion that with more observers, more of the uncommon species will be seen, particularly during generally large flights.

At a migration trap such as Cape May, there is always speculation concerning the extent to which repeat birds contribute to the count. The results of a telemetry study that provided a measure of the repetition potential at Cape May were presented by Mark Fuller for the authors, A.M.A. Holthuijzen and L. Oosterhuis. In this study, captured female Sharp-shinned Hawks were fitted with transmitters, released, and tracked until they permanently departed the area. One sample of 63 birds broke down with respect to the number of days in the area as follows: 43 birds in area one day, 16 birds in area two days, 3 birds in area three days, and 1 bird in area four days. A significant question raised was whether the capturing of the birds affected their behavior. Mark noted that banders at Cape May had observed that birds captured and released in the afternoon tended to stay over another day, presumably to recover from the shock of capture.

Imagine trying to track and keep pace with a Peregrine Falcon as it migrates from north to south across the United States! That is what Bill Cochran tried to do with the aid of radio telemetry and any means of transportation he could borrow or hire. In each of several wild chases, a captured Peregrine was fitted with a long-range radio transmitter and was then released and tracked by means of a mobile direction-finding receiver. Some of the birds that Bill tracked spent much of their time migrating offshore over the Atlantic Ocean. Bill speculated from his observations that Peregrines migrating southward along the Atlantic Coast tend to fly over water simply as a result of flying due south. The birds tend to turn toward land at sunset, resulting in concentrations of Peregrines at outward projecting coastal locations. However, one of the birds was twice observed (by telemetry) just soaring for much of the night over the open ocean!

Advanced radar methods that could be used for the study of hawk migration were described by Kenneth Able. In general, radar can be used to locate major movements of birds in an area and to measure their altitude of flight. One major limitation of radar is its lack of discrimination for identification or counting. A single radar blip might be caused by one goose or a hundred Broad-winged Hawks. So radar observations need to be correlated with visual observations. Ken proposed the following setup for observing hawk migration: a long-range radar to locate concentrations of birds moving through an area, a mobile team of visual observers to dispatch to the locality of the concentration, and a mobile marine radar for the use of the visual observer team.

The widespread National Weather Service radar WSR-57 was noted as a good long-range radar for observing migrating birds and one which might be available for such use on a non-interference basis.

A unique mobile laboratory for the radar-aided observations of avian migration was described by Sid Gauthreaux. The major equipment items of this mobile-home laboratory include a surveillance radar, a fixed-beam vertical radar, a closed-circuit TV system, a visual image intensifier and a video recorder. The fixed-beam radar and the visual image intensifier are aligned to look at the same airspace, and the signals from the two can be recorded in parallel for later playback. With this system, altitude data from the radar can be correlated with the visual images of birds passing overhead. The laboratory was sponsored by the Electric Power Research Institute for the purpose of monitoring movements of birds near power transmission lines. It has been used to observe hawk migration in New Jersey and in Texas.

The "noonday lull," an apparent decrease in hawk migration activity around midday, is a puzzling phenomenon familar to most hawkwatchers. Based upon his work with Sid Gauthreaux in the mobile laboratory, Paul Kerlinger offered an explanation of this phenomenon. In work done at Cape May, Paul had been able to determine that Sharp-shinned Hawks were "difficult to see overhead" when they flying at altitudes greater than 400 meters and that they were "easy to see overhead" when they were flying at altitudes less than 300 meters. Work done in the spring at Santa Ana Refuge in Texas provided quantitative information on the altitude distribution of migrating hawks during various periods of the day. From 7 a.m. to 10 a.m., 77.5% of the birds were at altitudes less than 200 meters. From 11 a.m. to 3 p.m., only 2.5% of the birds were at less than 200 meters, and 85.0% were between 200 and 800 meters. These data supported Paul's theory that the noon lull is just a counting bias caused by the hawkwatcher's inability to see birds flying high at midday. For Paul, however, the more important questions on the daily rhythm of hawk migration were the following: when do they take off, and when do they land?

In addition to the very full program of papers, the conference included a variety of other attractions. In one evening program, Richard Porter, author of Flight Identification of European Raptors, presented a slide lecture on Old World raptors with a comprehensive overview of their migrations, noting in detail the remarkable counts of raptors of various species that occur in migration at critical land mass junctures in the Old World. On the following evening, Yossi Leshem, of the Israel Raptor Information Center, described the richly varied raptors of Israel and showed a feature film on the spectacular spring migration of raptors and other birds at Elat. In a panel discussion entitled

"Sticky Problems of Hawk Identification," five authorities in raptor identification reviewed the standard field marks for distinguishing the various species within the the major raptor families and added a few new twists for even the most experienced hawkwatchers to consider. The concluding attraction was a field trip to Braddock Bay, a site on the south shore of Lake Ontario where 30,000 hawks pass every spring and where a good flight of Red-shouldered Hawks was expected at the time of the conference. Bad weather ruined the hawk flight but didn't dampen the spirits of the hawkwatchers, who, after the non-stop intensity of the conference program, enjoyed this special opportunity to make new acquaintances, tell old stories, and work up plans for hawkwatching and raptor study in the future.

H. CHRISTIAN FLOYD, a devoted hawk-watcher, began watching birds in Atlanta at the age of twelve. Chris is a systems engineer for the MITRE Corporation and has been on the staff of Bird Observer since 1980. He will be acting editor of the forthcoming issue which will focus on the subject of migration.

HAWK MOUNTAIN SANCTUARY ASSOCIATION

announces two tours to

OUTSTANDING RAPTOR AREAS

Each tour will include interesting side trips and evening presentations, and will be conducted at a comfortable pace. Both tours will be guided by international raptor expert, Bill Clark.

TOUR 1: Fall Migration at Gibraltar and the Bosporus
September 16 - October 2, 1983
TOUR 2: The Migrating and Breeding Raptors of Israel
April 8 - April 22, 1984

For the detailed itinerary and information, write to HAWK MOUNTAIN SANCTUARY, Route 2, Kempton, PA 19529.

FOR SALE: $235 NIKON 9x30 BINOCULARS

Roof prism; field, 350' at 1000 yards; focus, 12' to infinity; length, 118 mm (4 5/8 in.); width, 113 mm (4½ in.); weight, 430 g (15.2 oz.); fully coated optics. Complete with leather carrying case, neckstrap, lens caps, eyecups. CONTACT: George Gove, 5 Copley Street, Winchester, MA Tel. 729-1343