The RPI Project, 70 Years of Evolution

Ernesto Ruelas Inzunza

Just like you, I have spent many hours scanning the sky through my old pair of Zeiss 10x40s, searching for the next migrating raptor to come by. I have done that sitting atop the Goshute Mountains in Nevada with wild horses down in the valley west of the monitoring site. I have also done it from the rocks of Hawk Mountain's North Lookout, the legendary place where hawkwatching was born. I did it too from the wooden deck of Cape May, N.J., from atop a small hill in Tonalá, Chiapas, from the side of a narrow but busy highway in Chiquimulilla, Guatemala, and from Ancon Hill in Panamá.

The scene is similar at all these sites. People carefully search, identify, quantify and record both the number of migrants and hourly weather data. What links us is the fact that we belong to some sort of secret clan, where people from different localities, who speak different languages, and who are attracted by raptors for different reasons, witness the same event from different geographic areas with a common goal.

Tracking raptor migration everywhere has its ups and downs – there are times with very heavy flights, when one has to stay very sharp in order to record the flow of migrants in the most precise way. Other times, when no bird is in sight, are times many of us use to reflect on what we are doing. What are these data good for? Am I discovering something new? Is there a truly scientific use for the information I am collecting and reporting to HMANA? What is my contribution in this large, continent-wide system? And, how can I help to conserve these wonderful birds?

A few weeks ago, I was hired as the new Raptor Population Index project manager. During these few weeks, I have learned more about each part of this collective initiative and its ambitiously wide, yet clearly defined, scope. I am sure you have read the reports that David Hussell, Laurie Goodrich, Iain MacLeod and Will Weber have written in previous issues of *Hawk Migration Studies* to present this project and its goals, so in this article I will simply present a brief dissection of the system we are building and a personal vision of the RPI project we are collectively creating.

Monitoring Birds Today: What We Have and What We Don't

In a recent issue of *The Auk*, Jonathan Bart presented an updated, large scale picture of bird monitoring in North America. One by one, he covered different ecologic/taxonomic groups and the monitoring methodologies we use to make assessments of their populations. He mentioned widespread surveys such as the Breeding Bird Survey, Christmas Bird Counts, and the Monitoring Avian Productivity and Survivorship stations, among many others. Because of the complexity of the task, birds inhabiting different regions, scattered across different habitats, and many others, no single survey seems to cover even its target group, and Bart acknowledges his picture presents some spots where the image is fuzzy.

Bart praises the far-sighted work of the individuals and organizations who have participated in creating such monitoring systems, including the ideas of its creators, the efforts of volunteers and professional scientists, the skill necessary to synthesize its outcomes at large geographic scales. He also identifies several gaps in the coverage, such as most raptors, for which only the window of migration seems to offer the opportunity to monitor their populations. Bart recognizes that a survey to monitor raptors is something we don't have.

The Pieces of the RPI System

The pieces needed to develop the Raptor Population Index project have been crafted in different sites at different times. It's a story of evolution and development of complexity – a series of successful elements that fit into one another and are becoming a community only possible today.

The solid foundations of this process were developed much earlier than the following elements. At the base of this system are volunteer and professional naturalists collecting data in raptor monitoring sites. From Alaska to Bolivia, citizen scientists follow a comparable protocol to the one developed by Maurice Broun in Hawk Mountain over 70 years ago.

But, one site alone is not enough to cover the monitoring needs of a region, nor would it be able to tell us much about the demographics of a single species across its entire range. Achieving such goals requires a network, and although other sites were established during the following decades, their numbers did not increase dramatically until some 30-35 years ago. Even today, many regions such as the west, thinly covered by the network of HawkWatch International sites, are underrepresented, and species for which the number of monitoring sites are insufficient.

It took some time to develop another element, a centralized entity to compile the data collected at multiple sites, and to attempt to standardize the operation of all these individual sites. HMANA has played a key leadership role in developing a standardized methodology to collect data at raptor monitoring sites, but that only happened 27 years ago when HMANA was founded. Now HMANA operates HawkCount, the on-line information system crafted by Jason Sodergren, to evolve from the paper archive to a fully functional electronic data clearinghouse for more than 100 sites across North America. HawkCount would have not been possible only ten years ago; the technology and skill to operate such a system affordably wasn't here just yet.

With an expanding number of successfully operating raptor monitoring sites and an electronic information system comes

the need of a complicated task: analysis and synthesis. This step has involved figuring out a way to process the information available. The scientific committee of the RPI, lead by David Hussell, has developed a rigorous statistical method to process the most robust data sets available as a trial. Chris Farmer, David Hussell and David Mizrahi are currently preparing the first manuscript with a population trend analysis of over a dozen species of raptors from Hawk Mountain and Cape May, using statistical techniques not available only five years ago.

The machinery necessary to accomplish RPI's goal is here: a strong constituency of citizen scientists in multiple sites collecting good quality data; a functional, centralized information system; a scientific methodology to extract the most out of the data available. The product we envision is a powerful tool to provide wildlife management agencies, the scientific community, and perhaps more importantly, the general public, with the information necessary for effective migratory raptor conservation.

A Vision of the RPI Project

Turning the RPI project into a system that provides useful information on the population status of raptors has some serious challenges. These are related to the flow and quality of information and ways to integrate the different dimensions of data sets.

Count methodology standards

We need to make sure a rigorous protocol for season-long data collection is observed at all sites. The potential number of sites from which we could be obtaining data is close to 300 across the United States and Canada, but only about a third of them conduct season-long observations and even fewer enter their data in the HawkCount on-line information system. The most basic protocol for data collection is good as it is, but there is lots of additional information we could obtain by raising the standards of data collection itself – more information on variables affecting flights such as weather and conditions for data recording, more data that could help us to understand other demographic parameters such as the structure of populations of species that can be sexed and aged.

Species Coverage

We are working on a detailed, range-wide, individual assessment of the value of migration counts to monitor species. We have clear ideas about for which species migration counts work, but many questions remain. Why are Northern Harrier counts so erratic? Why are Bald Eagle counts from some sites good for inferring population trends and but not from other sites? Are recent declines reported in Red-tailed Hawk migration counts truly a reflection of population declines? These and many more questions need to be solved for each species to give appropriate weight to conclusions derived from count data.

About HMANA

The Hawk Migration Association of North America (HMANA) was founded in 1974 and incorporated as a 501(c)(3) nonprofit organization in the State of New York. Its mission is "**To preserve raptor populations and their environments across the hemisphere through programs of monitoring, recreation, education, science and conservation**."

HMANA has served as a coordinating organization of hawk watches across the Americas, maintaining a central archive of 75,000 standardized daily-count data sheets from 1,800 sites accumulated since 1974.

HMANA Committees

Data Policy: Kirk Moulton (Chair), Kim Van Fleet, Laurie Goodrich, Mark Blauer
Education: Joel Simon (Chair)
Finance: Will Weber (Chair), Jason Sodergren, Doug Wood
Fund Raising: Steve Hoffman (Chair), Mark Blauer, Susan Fogleman, Kim Van Fleet, Iain MacLeod
Membership: Mark Blauer (Chair), Vic Berardi, Steve Hoffman, Paul Roberts, Susan Fogleman, Will Weber
Publication: Iain MacLeod (Chair), Carolyn Hoffman (editor), Steve Hoffman, Fran McDermott, Paul Roberts
Sales: Vic Berardi (Chair), Seth Kellogg
Website: Jason Sodergren, Webmaster

You need not be a HMANA director to serve on a HMANA committee. If you are interested in serving on any of our committees, please contact the chair or any member of that committee for more details.

HMANA Data Release Policy

HMANA maintains a library of data on hawk migration which has been collected by many persons, organizations and agencies ("watchsite coordinators"). These data have been gathered at significant cost to and effort by those watchsite coordinators, who have certain proprietary interests in the data they produce. Watchsite coordinators retain the right to publish the data they have collected. To the extent that the data have been published in the journal of *Hawk Migration Studies*, those data are further protected by copyright law.

The collection is maintained at a central library by a data curator appointed by the Hawk Mountain Sanctuary. Requests for release of HMANA data should be directed to the HMANA data curator, in writing. For more information, please visit our web-site at: http://www.hmana.org/data.doc

Hawk Migration Studies

The Publication of the Hawk Migration Association of North America
Volume XXXI, No. 1— Fall 2004 Migration Report