

## AN INTERNATIONAL SCHEME FOR MONITORING RAPTOR POPULATIONS AT MIGRATION SITES

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### Summary

Brett, J.J. and Bildstein, K. 1993. An international scheme for monitoring raptor populations at migration sites. Proc.VIII Pan-Afr.Orn.Congr. 367-370.

Preliminary but important results of an international survey and literature review of sites at which birds of prey concentrate when on migration are provided. The Raptor Registry is gathering information on locations and characteristics, monitoring effects, environmental threats, and species abundance and diversity at migration concentrations. Data have been obtained via direct mail enquiries, newsletter appeals and ICBP contacts. A panel of internationally recognized authorities on raptors acts as an Advisory Committee. Hundreds of sites encompassing 6 continents, many not previously recorded, have been identified and documented. Sites are classified in terms of biological importance and conservation status. Data are being compiled as a major publication, to be published in 1995, to provide an unprecedented overview of raptor migration. An appeal is made for information additional to that included in this survey.

Key words: migration, atlas, census, monitoring, conservation

### Introduction

The Raptor Migration Atlas Project aims to locate and characterize important migration points and to develop a network of scientists to maintain activity at the sites. Participation is voluntary. The project is supported by the World Wildlife Fund, the Laurel Foundation and the Hawk Mountain Sanctuary.

It is hoped that the identification of important raptor migration concentration points will achieve at least 4 goals. These goals are to:

- \* provide a network of sites useful in the global monitoring of all of the world's 133 migratory species of diurnal raptors;
- \* produce an atlas of the sites which will assist conservationists in attempts to ensure their protection in much the same way as the designation of a wetland as a Ramsar site does;
- \* create a network of researchers to share data and to develop scientifically-based conservation strategies for raptors; and
- \* use the network for collaborative expertise in the development of local monitoring, research and education programmes.

### Achievements

In 1991, questionnaire requests for information (Appendix A) were sent to more than 200 individuals on 6 continents. To date, 1 or more people from 50 countries have provided information: 50 other countries -- including 15 in Africa -- have not responded (Appendix B).

Much new information has been acquired and processed including identification of:

- \* significant spring and autumn migrations of 14 species in Slovenia, just north of Zagreb;
- \* spring migrations of 7 species over Ho Chi Minh City in Vietnam;
- \* migration of at least 10 species on Honshu island, Japan;
- \* at least 25 000 birds of 17 species migrating near Taif in Saudi Arabia;
- \* 50 000 roosting Red-Footed Falcons *Falco vespertinus* north of Harare in Zimbabwe; and
- \* sites used regularly by at least 1000 Kestrel *Falco subbuteo* or Common Buzzard *Buteo buteo*, including El-Bab el-Mandeb between Yemen and Djibouti.

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Knowledge tends to be greatest, in both the New and Old Worlds, where large numbers of people are studying them. In the United States, for example, there is a large cluster of sites in the heavily-populated north-east.

Hawk Mountain Sanctuary staff spent 45 d during Spring 1991 training biologists in Vera Cruz, Mexico. This site was chosen as its geography suggested it would be a significant concentration point for migrating raptors. Observations during that period resulted in a count of more than 400 000 migrating raptors of 18 species (Table 1). These include significant proportions of the North American populations of Broad-winged *Buteo brachypterus* and Swainson's *B.swainsonii* Hawks.

Activities at Vera Cruz include provision of scientific information and training of biologists

in monitoring and research techniques. More important still they enable an education programme to be fostered, based on the Hawk Mountain model.

#### The future

More observers and more information are needed before the Atlas can be published. All participants providing information on significant concentration sites will be listed as contributing authors and will receive a free copy of the Atlas.

The bibliography of raptor migration which is currently being compiled in conjunction with the Atlas will also be provided free to all persons contributing to the Atlas Project.

Manuscript received: 26 September 1992

Table 1 Daily raptor migration observations near Vera Cruz, Mexico in Spring 1991

Species	Site				Totals
	Xalapa	Cerro Gordo	Rio Escondido	La Antigua	
Black Vulture	110	442	1 460	283	2 295
Turkey Vulture	12 140	32 713	30 447	8 141	83 441
Osprey	225	135	148	84	592
Swallow-tailed Kite	0	0	0	1	1
Black-shouldered Kite	1	1	1	0	3
Mississippi Kite	2 013	626	903	27	3 569
Northern Harrier	27	21	29	0	86
Sharp-shinned Hawk	833	340	738	163	2 074
Cooper's Hawk	177	67	94	7	345
Zone-tailed Hawk	3	9	7	3	22
Red-shouldered Hawk	4	12	14	1	31
Broad-winged Hawk	11 392	76 640	93 457	39 160	220 649
Swainson's Hawk	20 345	23 484	32 354	5 230	81 413
Red-tailed Hawk	38	24	31	8	101
White-tailed Hawk	1	7	4	1	13
American Kestrel	472	622	937	507	2 538
Merlin	9	7	9	5	30
Peregrine Falcon	13	5	14	15	47
Unidentified	3 294	1 434	3 397	5 277	13 402
Totals	51 097	136 589	164 044	58 922	

# MIGRATORY RAPTOR SITE REGISTRY DATA-SHEET

Project coordinated by  
HAWK MOUNTAIN SANCTUARY ASSOCIATION

Sponsored by  
INTERNATIONAL COUNCIL FOR BIRD PRESERVATION

Please complete as many sections as possible for each raptor migration site. On completion return the data-sheets to Raptor Registry, Hawk Mountain Sanctuary Assn., Route 2, Kempton, PA 19529, USA. **PRINT**

1. SITE NAME	Site Code #: (Official use)
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2. SITE LOCATION

Country: \_\_\_\_\_ State/Province: \_\_\_\_\_  
 Nearest City: \_\_\_\_\_  
 Geographic coordinates (Lat/Long to nearest minute): \_\_\_\_\_  
 MAP (Sketch or attach photocopy separately)

3. SITE CHARACTERISTICS

- a. What season (months) are used by migratory raptors?
- b. Ownership/Land tenure:
- c. International protection status:
- d. National/local protection status:
- e. Land use (cover type) - immediately around site:  
- of surrounding country- side:
- f. Elevation of observation points(s):
- g. Visibility orientation (Degrees from North):
- h. Best migration during what winds?
- i. Access (Distance that must be walked on foot):
- j. What topographical/geographical formation makes this important for migratory raptors? (Name mountain ridge, water body, etc.)
- k. Other description: (Site characteristics, importance of site. Use additional sheets if necessary)

4. MONITORING

- a. Is site regularly monitored? Y N If yes, continue:
- b. Average effort
  - Hours of observation/day:
  - Number of days/year monitored:
  - Number of observers/week:
  - How many years has this site been monitored?
  - What organization, if any, compiles observations?
- c. Published records? List:

5. THREATS

Describe degree and type of threat to habitat or birds at this site (such as shooting, habitat loss, etc.):

6. SURVEY COMPILER

Name: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Date completed: \_\_\_\_\_

7. CONTACTS: Please provide name and address of private organization or individual below, if other than the data-sheet compiler, which oversees raptor migration studies at this site:

**IMPORTANCE OF SITE TO RAPTOR MIGRATION**

SITE NAME: \_\_\_\_\_

SUMMARY: Please indicate the number of raptors reported, per year on average at this site:

Number of raptor species: \_\_\_\_\_ Total number of individuals: \_\_\_\_\_

Are nocturnal migratory raptors monitored at this site? Y N If so,

How many species: \_\_\_\_\_ Individuals: \_\_\_\_\_

**SPECIES REPORTED**

Please list all raptor species (subspecies if distinct) that are regularly reported at this site. For each species provide the average number (#) observed per year since 1980 and the number of years used to compute the average (n); the date (day/month) of **normal** peak numbers; the maximum single-day count since 1980 and the date of that count; and the highest annual count since 1980 and the year of that count. If data is available from only one year, leave "Average #/year" blank.

RAPTOR SPECIES (Scientific name) Genera species subspecies	AVERAGE #/year.n	DATE OF PEAK # (d/m)	AVERAGE COUNT	
			One day (#,d/m/y)	Annual (#,yr)

**Appendix B****Countries having responded**

ASIA: Bangladesh; China (People's Republic); Indonesia; Japan; Pakistan;

Sri Lanka; Taiwan; Thailand; Vietnam (Socialist Republic).

AUSTRALASIA: Australia; New Guinea.

SOUTH AMERICA: Argentina; Colombia; Ecuador; Colombia.

CENTRAL AMERICA: Costa Rica; Honduras; Mexico.

CARIBBEAN: Cuba; Jamaica.

EASTERN EUROPE: Albania; Bulgaria; Czechoslovakia; Hungary; Rumania; (Former) Yugoslavia Republics.

WESTERN EUROPE: Austria; France; Gibraltar; Iceland; Italy; Norway; Netherlands; Portugal; Spain; Sweden; Switzerland.

MIDDLE EAST: Djibouti; Egypt; Israel; Lebanon; Oman; Saudi Arabia.

AFRICA: Botswana; Kenya; Namibia; South Africa; Zambia; Zimbabwe.

**Countries not having responded**

ASIA: Hong Kong; India; Kuala Lumpur; Malaysia; Mongolia; Nepal; Singapore; South Korea; Philippines.

SOUTH AMERICA: Bolivia; Brazil; Chile; Paraguay; Peru; Uruguay.

CENTRAL AMERICA: Belize; Guatemala; Panama.

EASTERN EUROPE: Greece; Poland; Turkey; USSR.

WESTERN EUROPE: Belgium; Cyprus; Denmark; Finland; Germany; Liechtenstein; Luxembourg; Malta.

MIDDLE EAST: Bahrain; Jordan; Kuwait; United Arab Emirates.

AFRICA: Cameroon; Gambia; Ghana; Mali; Malawi; Morocco; Nigeria; Rwanda; Senegal; Sierra Leone; Sudan; Swaziland; Tanzania; Tunisia; Uganda; Zaire.