



# Shooting Galleries

**Each spring and fall, the shooters of Malta in the Mediterranean engage in a disastrous ritual. Using repeating firearms, and shooting mainly for pleasure, 16,000 so-called sportsmen slaughter more than 10,000**

**SHOT FROM THE SKY** are thousands of Marsh Harriers (*Circus aeruginosus*), Honey Buzzards (*Pernis apivorus*), Hobbies (*Falco subbuteo*), and kestrels—including the endangered Lesser Kestrel (*F. naumanni*)—together with hundreds of individuals of at least eight other species of raptors (Portelli 1992, Magnin 1985).

Situated in the Mediterranean between Sicily and Libya, the Maltese Archipelago is stepping-stone and roosting stop for raptors funneling between European nesting sites and African wintering grounds (Beaman and Galea 1974, Galea and Massa 1985). Many birds

are shot entering or leaving Buskett Gardens, a forested sanctuary and traditional roosting site. Local breeding populations of Peregrine Falcons (*F. peregrinus*), Eurasian Kestrels (*F. tinnunculus*), and Barn Owls (*Tyto alba*), have already been extirpated (Portelli *op. cit.*, Magnin *op. cit.*).

The International Council for Bird Preservation (ICBP) and the Malta Ornithological Society are working together to promote stronger legislation to protect the

birds, while alerting authorities to the activities of individuals organizing shooting tours for foreigners (Salathe 1990, Anonymous 1991).

Unfortunately, Malta is not the only gauntlet Mediterranean raptors must run. Altogether, the region's gunners claim an estimated 100,000 raptors annually (Magnin 1991). Hunting pressure continues when the raptors arrive in Africa as well, where the birds are dispatched, not so much for sport, but as agricultural pests and for food (Thiollay 1989).

And the fusillade takes place throughout the world, in spite of numerous laws restricting the hunting of raptors. Obviously, legislation alone is not enough to protect the birds. In large part, the shooting persists—either for pleasure or for profit—because of the beliefs and values of the local inhabitants. Only when those attitudes change will the shooting stop.

Consider, for example, Asia's Grey-faced Buzzard Eagles (*Butastur indicus*): Each fall, hundreds of the birds are killed while congregating at the species' largest known migratory stopover site in Taiwan's Kenting National Park (L. Severinghaus, pers. comm.). The shooters are local residents for whom hunting the exhausted and easily approached migrants represents a long-standing tradition.

A similar scenario plays out each spring

**migratory raptors annually. Many of these magnificent birds end up as taxidermy trophies placed atop television sets in living rooms.**





**A Honey Buzzard (left) shot in Malta's Buskett Gardens. Below, mounted Osprey and Honey Buzzard are destined for sale by Maltese taxidermists.**

in northwestern South America, where thousands of Swainson's (*Buteo swainsoni*) and Broad-winged hawks (*B. platypterus*) migrate along the slopes of the Colombian Cordillera. Many of the raptors stop over for the night in the Combeima Canyon between Cali and Bogota. The birds are awakened by armies of local farmers who

of 15 species — 27% of Mexico's diurnal raptor diversity — were offered for sale in Mexico City's Sonora market during a two-year period in the mid-1980s. In 1984 a smuggled shipment of 16 Peregrine Falcons with "legal" Mexican papers was intercepted in the Netherlands *en route* to the Middle East (E. Inigo Elias 1986).

## MIGRATING RAPTORS IN JEOPARDY

trek to the canyon's traditional roosting sites, where by lantern light they shoot the half-asleep hawks.

Colombia's campesinos are motivated by local legends suggesting that killing the birds advances the passage of Lent, and that fat rendered from their carcasses cures everything from arthritis and asthma to cataracts (T. Ross, pers. comm.). Regardless of the rationale, thousands of raptors never complete their journey. Farther south, sheep ranchers on the Argentine pampas routinely kill and display Andean Condors (*Vultur gryphus*) and Peregrine Falcons (Ellis and Smith 1986).

Likewise, Mexican farmers and local entrepreneurs habitually hunt and kill raptors, both as pests and for use as decorative taxidermy (Ramos 1986). A largely unregulated trade in live raptors also thrives in Mexico (E. Inigo Elias and E. Ruelas Inzunza, pers. comm.). Hundreds of birds

Conservationists estimate that 100 Peregrine Falcons are trapped each fall in the Mexican state of Veracruz alone (E. Ruelas Inzunza, pers. comm.)

Hunting is particularly problematic in the Caribbean, where declines in two species listed in the recent ICBP/IUCN Red Data Book—Cuba's Gundlach's Hawk (*Accipiter gundlachi*) and Hispaniola's Ridgway's Hawk (*B. ridgwayi*)—have been linked to indiscriminate shooting (Wiley 1986, Collar *et al.* 1992).

The pervasive nature of the problem is strikingly illustrated with U.S. Fish and Wildlife Service banding data. Between 1972 and 1984, more than 90% of the Ospreys banded in the United States and recovered as shot birds came from the Caribbean (Poole and Agler 1987).

Although shooting and trapping appear to be most severe in developing nations, problems exist in Europe and the United



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**Raptors funnel through Mexico and Central America on the way to wintering grounds in South America. Below right, Colombian children view a wounded Broad-winged Hawk.**

States as well. In Portugal, where taxidermy remains unregulated, 15 species of raptors comprised 29% of the mounted animals reported in a recent survey of taxidermy shops (Abreu 1989).

Shooting as a source of mortality among raptors banded in the United States has declined significantly since earlier this century (Robbins 1986), yet it remains the leading cause of death for post-fledged Bald Eagles (Stalmaster 1987). In the early 1980s, between 200 and 300 Bald Eagles were killed in South Dakota alone (Anonymous 1983).

Systematic efforts to exterminate raptors can be traced to 17th-century England. Historical documents suggest that early crusades against the birds were instigated by the aristocracy, which feared that raptors competed for game. Initially, all predatory birds were targeted (Gensbol 1984); later, as the diet of species became known, so-called harmful raptors—principally bird-eaters—were marked for control. Today, evidence of the significant role raptors play in functioning ecosystems has

Smith 1973, 1980; Lesham 1985) furnish es shooters with predictable and a seemingly endless sources of quarry.

Yet the same attributes that make raptors vulnerable to shooters and trappers also make them eminently watchable as wildlife (Broun 1949). Migrating raptors provide an unparalleled opportunity to introduce the public to large numbers of these normally secretive and widely dispersed birds of prey.

Throughout most of the world, the marvel of raptor migration remains a untapped resource for local conservationists. Migration is an extraordinary phenomenon, and it carries considerable potential for stimulating environmental awareness and concern.

Raptor migration also offers considerable potential as a basis for development of sustainable ecotourism (Robinson and Redford 1991). Survey data from two heavily visited hawk-watching sites in North America—Pt. Pelee, Ontario, and Cape May, New Jersey—suggest net economic value associated with birding and

## STILL, THE SHOOTING CONTINUES

produced legislation designed to protect these birds. Yet while most, if not all, of the countries mentioned above have enacted such laws, the shooting continues.

### A Silver Lining?

Each year millions of predatory birds travel along the world's major migratory corridors. A third of all diurnal raptors—more than half of those living outside of the tropics—migrate on a regular basis (Kerlinger 1989).

Raptors are targeted by humans for a number of reasons. Their large size not only increases the ease with which they can be shot, but also their value as taxidermy specimens or for food. Second, for many, the image of raptors as fierce predators adds to their allure as trophies. Third, migratory corridors are often narrow funnels that concentrate raptors during their travels and stopovers (Haugh 1972). The daily passage of thousands or even tens of thousands of birds at single sites (e.g.,



PHOTOGRAPHS LEFT COLUMN TO RIGHT: HAWK MOUNTAIN SANCTUARY; TIMOTHY ROSS/PICTURE GROUP; OPPOSITE PAGE: TIMOTHY ROSS/PICTURE GROUP

ecotourism in excess of five million dollars per site annually (Wiedner and Kerlinger 1990). The potential economic value of live raptors seen in migration can provide significant local incentive for protecting and sustaining raptor populations.

### **An Opportunity: *Hawks Aloft Worldwide***

Over the years, Hawk Mountain Sanctuary, in Kempton, Pennsylvania, has helped protect North America's raptors by educating the public and by developing support for anti-shooting and habitat protection initiatives (Senner 1984). Historically, conservation efforts like Hawk Mountain's have focused on single sites. Although such efforts are often successful locally, many of the threats facing migratory raptors—which acknowledge no borders—transcend political boundaries.

At present, very little international coordination exists among raptor conservationists working at different sites along the world's major migratory corridors. Although most conservationists are interested in protecting raptors throughout their ranges, many have experienced difficulties in reaching beyond their own backyards. Data collected by these individuals, while extensive and valuable, are largely unorganized and inaccessible.

Hawk Mountain Sanctuary is responding to this situation with *Hawks Aloft Worldwide*, an international conservation initiative designed to protect raptors throughout their migratory journeys. Using the Sanctuary's scientific and conservation activities as a role model, *Hawks Aloft Worldwide* is mobilizing an extant, but unorganized, group of local conservation organizations and grass-roots activists into an international network of centers in wildlife conservation that will better protect raptors throughout their ranges (Senner and Brett 1989).

*Hawks Aloft Worldwide* will protect raptors in several ways. Specifically, it will:

**COLLECT** scientific data upon which to base practical and effective international conservation efforts.

**PUBLISH** the first global atlas of raptor migration watch sites.

**STRENGTHEN** local conservation efforts

and enhance a site's ecotourism potential, when appropriate.

**FORGE** a global network of conservationists that will use its combined expertise to develop local monitoring, research, and education programs at selected watch sites.

**DEVELOP** training materials, and offer project internships.

**SPONSOR** workshops for conservationists overseeing watch sites.



The best way to describe the potential of *Hawks Aloft Worldwide* is to detail the initiative's current activities in coastal Veracruz, Mexico. Hawk Mountain Sanctuary launched the Veracruz Migration Project in the spring of 1991, in cooperation with HawkWatch International of Albuquerque, New Mexico, and ECOSFERA of Chiapas, Mexico.

The coastal lowlands of Veracruz were chosen because of preliminary reports suggesting substantial fall and spring migrations of several North American *buteos* (Thiollay 1980; Smith 1985; F. Tilly, pers. comm.). In addition, Hawk Mountain Sanctuary had contacts in the area as a result of its student-internship program.

The Veracruz project had five well-defined objectives:

**ASSESS** the area's value as a monitoring site for continental populations of Swainson's and Broad-winged hawks.

**ASCERTAIN** habitat use by migrants locally.

**DEVELOP** a local-based conservation edu-

**A Broad-winged Hawk wounded in the Colombian Andes is tethered and displayed by a local hunter. Hundreds of hawks are shot during migration.**



education program focused on the spectacle of raptor migration.

**BUILD** links with conservation organizations in Mexico.

**TRAIN** local conservationists to take over the project in 1993.

By the fall of 1992, the project had achieved its first four objectives, and was well on its way toward achieving the fifth.

During 45 days of preliminary work in

workshop guides, and were offering programs in environmental education for primary school students, as well as workshops for their teachers. By late 1993, ECOSFERA and a second Mexican conservation organization, Pronatura, should be overseeing the effort.

Hawk Mountain will use Veracruz to test bilingual training materials that, eventually, will be made available to network participants throughout Latin America.

*Hawks Aloft Worldwide* is gathering information on geographic locations, environmental characteristics, monitoring efforts, and threats to raptors wherever they concentrate along the world's major migration corridors.

To date, details of hundreds of sites encompassing six continents, many of which were previously unpublished, have been submitted. Those interested in providing information on potentially important raptor migration bottlenecks and watch sites, especially unpublished sites in remote areas, should contact the authors of this report at the address below.

## EDUCATING THE PUBLIC IS A GOAL

the spring of 1991, researchers in Veracruz monitored the northward migrations of more than 400,000 raptors representing 17 species, including 80,000 Swainson's and 200,000 Broad-winged hawks.

Numbers from the fall of 1992 were even more spectacular. Project personnel counted more than 2.5 million raptors, including more than 900,000 Broad-winged Hawks, close to half-a-million Swainson's Hawks, and 12,000 Mississippi Kites (*Ictinia mississippiensis*).

In addition to raptors, the southward movements of tens of thousands of Anhingas (*Anhinga anhinga*), White Pelicans (*Pelecanus erythrorhynchos*), Wood Storks (*Mycteria americana*), and Scissor-tailed (*Muscivora forficata*) and Fork-tailed (*M. tyrannus*) flycatchers were also recorded, establishing Veracruz as a crucial site along one of the world's most important migratory corridors.

By 1992, project participants had developed educational brochures, posters, and

### Acknowledgments

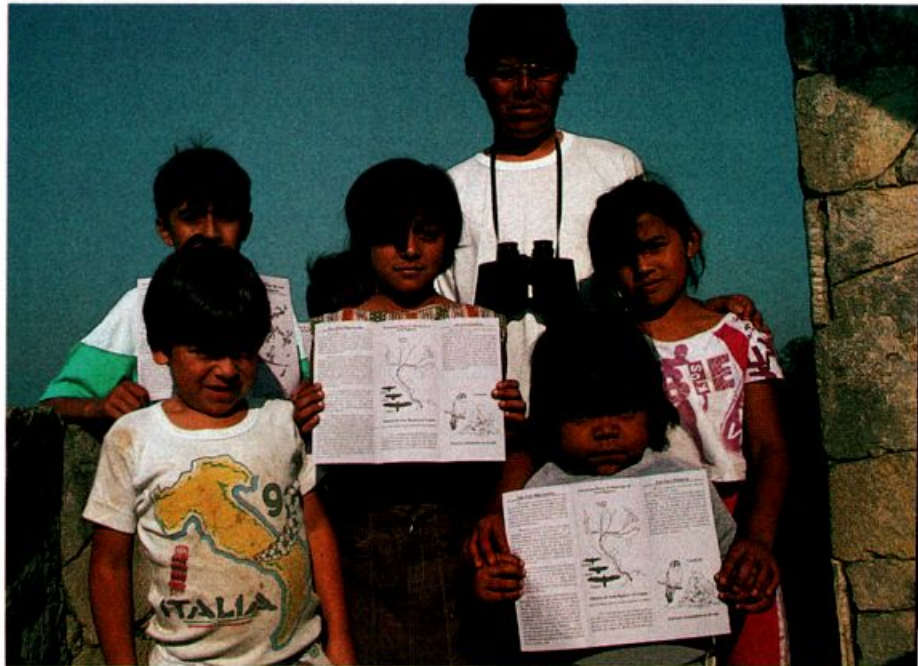
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In Mexico, children receive pamphlets on raptor migration. Above, anti-shooting activist Fernando Cespedes works to educate Colombian campesinos.

## Literature Cited

- ANONYMOUS. 1983. 200-300 Bald Eagles reported killed. *Eyas* 6:3.
- ANONYMOUS. 1991. Maltese court case. *World Birdwatch* 13(3):3
- BEAMAN, M., AND C. GALEA. 1974. The visible migration of raptors over the Maltese Islands. *Ibis* 116:419-431.
- BROUN, M. 1949. *Hawks aloft: the story of Hawk Mountain*. Cornwall Press, Cornwall, New York.
- COLLAR, N.J., L. P. GONZAGA, N. KRABBE, A. MADRONO NIETO, L. G. NARANJO, T.A. PARKER III, AND D.C. WEGE. 1992. *Threatened birds of the Americas*. Smithsonian Institution Press, Washington, D. C.
- ELLIS, D.H., AND D.G. SMITH. 1986. An overview of raptor conservation in Latin America. Pp.21-25 in *Birds of Prey Bulletin No. 3* (R. D. Chancellor and B.-U. Meyburg, eds.). World Working Group on Birds of Prey and Owls, Berlin, Germany.
- GALEA, C., AND B. MASSA. 1985. Notes on the raptor migration across the central Mediterranean. Pp. 257-261 in *Conservation studies on raptors* (I.C.B.P. Technical Publication No. 5). I.C.B.P., Cambridge, England.
- GENSBOL, B. 1984. *Birds of prey of Britain and Europe, North Africa and the Middle East*. Collins, London, England.
- HAUGH, J. R. 1972. A study of hawk migration in eastern North America. *Search* 2:1-60.
- INIGO ELIAS, E. 1986. Active trade threatens Mexican avifauna. *Traffic (U.S.A.)* 6(4):6-7.
- KERLINGER, P. 1989. Flight strategies of migrating hawks. University of Chicago Press, Chicago, Illinois.
- MAGNIN, G. 1985. Assessment of illegal shooting & catching of birds in Malta. International Council for Bird Preservation, Study Report No. 13. I.C.B.P., Cambridge, England.
- MAGNIN, G. 1991. Hunting and persecution of migrating birds in the Mediterranean region. Pp. 63-76 in *Conserving migratory birds* (I.C.B.P. Technical publications No. 12). I.C.B.P., Cambridge, England.
- POOLE, A. F., AND B. AGLER. 1987. Recoveries of Ospreys banded in the United States 1914-1984. *Journal of Wildlife Management* 51:148-55.
- PORTELLI, P. 1992. Large-scale killing of migrating raptors on the Maltese Islands. Pp. 29 in *Abstracts of the IV world conference on birds of prey*. World Working Group for Birds of Prey and Owls, Berlin, Germany.
- RAMOS, M. A. 1986. Birds in peril in Mexico: the diurnal raptors. Pp. 26-42 in *Birds of Prey Bulletin No. 3* (R. D. Chancellor and B.U. Meyburg, eds.). World Working Group on Birds of Prey and Owls, Berlin, Germany.
- ROBBINS, C. S. 1986. Conservation of migratory raptors: an overview based on fifty years of raptor banding. Pp. 26-34 in *Raptor conservation in the next 50 years*. Raptor Research Reports 5. The Raptor Research Foundation, Hastings, Minnesota.
- ROBINSON, J. G., AND K. H. REDFORD. 1991. *Neotropical wildlife use and conservation*. University of Chicago Press, Chicago, Illinois.
- SALATHE, T. 1990. Conserving migratory birds. *World Birdwatch* 12(3):6-7.



**Children in Mexico display materials from Hawks Aloft Worldwide's Veracruz Project.**

- SENNER, S. E. 1984. The model hawk law— 1934 to 1972. *Hawk Mountain News* 62:29-36.
- SENNER, S. E. 1988. Saving birds while they are still common: an historical perspective. *Endangered Species Update* 5:1-4
- SENNER, S. E., AND J. J. BRETT. 1989. A proposal to create a registry of sites of international importance to raptors, especially on migration. Pp. 33-37 in *Raptors in the modern world* (B.U. Meyburg and R. D. Chancellor, eds.). World Working Group on Birds of prey and Owls. Berlin, Germany.
- SMITH, N. G. 1973. Spectacular Buteo migration over Panama Canal Zone. *Am. Birds* 27:3-5.
- SMITH, N. G. 1980. Hawk and vulture migrations in the neotropics. Pp. 50-61 in *Migrant birds in the neotropics* (A. Keast and E.S. Morton, eds.). Smithsonian Institution Press, Washington, D.C.
- STALMASTER, M. 1987. *The Bald Eagle*. Universe Books, New York.
- WIEDNER, D., AND P. KERLINGER. 1990. Economics of birding: a national survey of active birders. *Am. Birds* 44:209-213.
- WILEY, J. W. 1986. Status and conservation of raptors in the West Indies. Pp. 57-70 in *Birds of Prey Bulletin No. 3* (R. D. Chancellor and B.U. Meyburg, eds.). World Working Group on Birds of Prey and Owls, Berlin, Germany.