

NEOTROPICAL RAPTORS

**Proceedings
of the
Second Neotropical Raptor Conference
Iguazú, Argentina, 2006**

**Edited by
Keith L. Bildstein
David R. Barber and Andrea Zimmerman**

**Hawk Mountain Sanctuary
Raptor Conservation Science Series No. 1**



Preferred citation:

Bildstein, K.L., D.R. Barber, and A. Zimmerman. 2007. Neotropical Raptors. Hawk Mountain Sanctuary, Orwigsburg, Pennsylvania, USA.

©2007 Hawk Mountain Sanctuary

All rights reserved. No part of this book may be reproduced in any form, or by any electronic, mechanical, or other means, without permission in writing from the publisher, unless by nonprofit groups, which may reproduce portions in non-electronic form, provided they credit Hawk Mountain Sanctuary.

Published by:
Hawk Mountain Sanctuary
1700 Hawk Mountain Road
Kempton, Pennsylvania 19529 USA
www.hawkmountain.org

Manufactured in the United States.

ROLE OF FALCONERS IN NEW WORLD RAPTOR CONSERVATION AND THE LAW

*Frank M. Bond, Simons and Slattery, LLP, P.O. Box 5333,
Santa Fe, NM 87502-5333 U.S.A.*

Abstract

Falconry has played a significant role in the conservation programs, legal protection, and ethical considerations relevant to birds of prey in Canada, the United States, and Mexico. From leadership roles in government agencies to advancements in technology and propagation techniques, falconers have played a major role in bird of prey legal protection, conservation and restoration programs, and the general concern for raptor welfare. New World falconers have expanded their "sport" to yet a higher level in its significant role in raptor conservation. They have provided the essential leadership for everything positive done on behalf of raptors.

Neotropical Raptors (Bildstein et al., Eds.) 2007. Pages 193-203.

EL ROL DE LOS CETREROS EN LEGISLACION Y CONSERVACION DE LAS RAPACES DEL NUEVO MUNDO

Resumen

La cetrería ha jugado un significante rol en los programas de conservación, protección legal y en las consideraciones éticas relacionadas con las aves de presa en Canadá, Estados Unidos y México. Desde posiciones de liderazgo en agencias gubernamentales hasta progresos en las tecnologías y técnicas aplicadas para propagación de aves rapaces, los cetreros han tenido un rol destacado en la protección legal, conservación, programas de restauración y bienestar de estas aves. Los cetreros del nuevo mundo han llevado su "deporte" a un nivel muy alto e importante en cuanto a su rol en la conservación de las rapaces, aportando un liderazgo esencial en muchas acciones que benefician a las aves de presa.

Introduction

Today, Canada, the United States, and Mexico have one of the largest concentrations of falconers in the world. The practice of falconry in North America dates back only to mid-20th century, by comparison to the age old traditions of Asia, Europe and the Middle East. However, with the fundamental contributions, the level of sophistication, the advancement of technology, and the recognition in law, falconry in North America rivals all other parts of the world for its relevance to society, its contributions to conservation and science, and its importance to the cultural pastime of falconers. Therefore, like many other nations and regions, falconry and the falconers of North America deserve recognition for their important contributions in the protection, conservation and restoration of birds of prey.

A Brief History

While there are some interesting early references to falconry particularly in the U.S. and Mexico, as researched and described below by Kent Carnie, falconry did not gain a practical foothold into North American society until the mid-20th century.

Falconry in colonial America

The nature of those early American settlers, and their struggles to establish themselves, certainly militated against the practice of falconry. Despite their desperate struggle just to survive, we do find at least one record of falconry among initial settlers (Morton 1637). In June 1622, Thomas Morton, an attorney, arrived in New England for what was to be a 10-year residence. In his writings, Morton was the first of the colonists to give any attention to the hawks except as fearsome birds of prey. Morton further describes the "hawkes" he encountered as the "*Fawcons, and tassell gentles*", "*Goshawkes and Tassels*", and also "*Marlins*" and "*Sparhawkes*."

By way of his qualifications regarding hawks and hawking, Morton recounts "*having bin bred in so genius a way, that I had the common use of them in England.*" Modern American ornithologists value Morton's observations, because he was more than casually experienced with the birds. Further, he had brought to the New World "*whoods, bels, luers, and all things fitting.*" Having a desire to try his hand with those birds locally available to him in his new home, Morton "*at my first arrival in those parts practiced to take a Lannaret, which I reclaimed, trained, and made flying in a fortnight, the same being a passenger at Michuelmas.*" Obviously, this "Lannaret" was a male tundra Peregrine Falcon (*Falco peregrinus tundrius*).

Subsequently, "*in the 1650's Jan Baptist sent back to Holland for his falcon, and flew her at quarry in the Hudson Valley, where she was 'king' of the New Netherlands*" (unidentified author in Spofford 1942).

An early illustration of falconry in the colonies is, of course, De Bry's classic engraving of colonial sport, which accompanied his rendition of Captain John Smith's account of the early (circa 1619) discoveries in Virginia. Pictured in the illustration are one falconer (with a hooded goshawk [?]) on a horse, another walking with a hawk on his fist approaching a hawk bound to a heron (?) on the ground, a third falconer with his dog is luring, and a fourth falconer is approaching a falcon or hawk on the ground on it's quarry. Although clearly illustrated, there is much about that illustration that raises skepticism. Despite all the claims of accuracy in De Bry's art (Alexander 1976), it would appear that the engraver's imagination, or at least local experience, far exceeds Smith's actual text.

The first tangible evidence we have that hawking may have been practiced is in the wording of an unpublished deed signed by Lieutenant Governor William Gooch of Virginia, on 25 July 1746, "at Williamsburg" (AAF 95-66). That deed in the Roanoke Valley of Virginia explicitly conveys all rights to "Hunting, Hawking, and Fishing."

Falconry and the Spanish conquest

Even farther south, there is an allusion to the hawk trained by one of Cortes' captains early in their stay in the Valley of Mexico--an incident that would qualify it as falconry in "Colonial America." Of all those early Europeans in North America, falconry might most logically have been found among the Spanish in Mexico. If Cortes and his Conquistadors were more adventurers than nobility, certainly once in power

they would have behaved similar to the nobility with which they were familiar. Falconry, on the wane in Spain, still represented a legitimate and "noble" pastime for these nouveau elite in Mexico.

Among these noble activities, falconry was perhaps the most important one. Medieval lore got a new impetus in America, just at the time that falconry was quickly becoming out of fashion in Europe. The first Viceroy of New Spain, Luis Velasco, had a falcon so tame, the story goes, that he rode with the bird unhooded on his fist. Velasco also had neblies (Peregrine Falcons), sakers (perhaps Prairie Falcons [*Falco mexicanus*]), and haliets (*Micrastur* spp.). His son, Luis de Velasco II, employed a royal falconer to look after his birds.

Another account provides an early (1609-1617) description of Spanish post-conquest activities in Peru:

"When not engaged in warfare, many soldiers of noble blood avoided idleness by trading for Indian textiles and coca in Potosi. Llamas were used to carry these burdens, and the round trip required four months. Many of these men liked to accompany their possessions; and, since their llamas moved slowly, they would provide themselves a pair of hawks [emphasis added], some retrievers and greyhounds, and harquebuses so that during the day they could separate from their herds and hunt. They would overtake their llamas again at nightfall, often bearing with them a dozen partridges, a deer, guanaco or a vicuna... These journeys were really more of a diversion and an excuse for hunting than a matter of commerce, which to a noble Spaniard would be more degrading than idleness" (unidentified author in Varner and Varner 1983).

Included in the latter work is an illustration from Poma de Ayala, believed to have been written between 1583-1613. This portrait clearly depicts a local hunter with both dogs and a "falcon." Poma de Ayala, describing post-conquest Peru, indicated:

"the Indians, in order not be lazy and slothful or gamblers and thieves, became hunters of doves, deer, and other animals and that they used firearms, arrows, slings, lassos, traps, falcons, and hunting dogs."

Falconry in the 20th century

Colonel R. L. "Luff" Meredith is recognized as being the "father" of American falconry (Meredith 1999). A number of young men in New York City, Philadelphia, and Washington, D.C. gravitated toward him. Among the notable figures, were Dr. Robert M. "Doc" Stabler, Alva Nye, Frank and John Craighead, and Halter Cunningham. In the 1940s, they formed the Falconers' Association of North America, which published seven high quality journals until it ceased due to the World War II.

These men possessed the traditional bird of falconry, the Peregrine Falcon. The peregrines were taken from local eyries of the now extirpated population known as the "Rock anatum." Falconry for them, in those early years, was mere possession of hawks, because they did not advance to the stage of hunting game until later. Their countryside was not suitable for longwing falconry. Even though Meredith had visited British and European falconers, and the Craigheads spent several months hawking and hunting with an Indian prince (Craighead and Craighead 2001), actual hawking for the most part escaped these men as the next logical step after training a bird. There were, however, early exceptions in the West and Canada. In Idaho, World War II veteran, Morlan Nelson began hawking with his Golden Eagles (*Aquila chrysaetos*), Prairie Falcons and Peregrine Falcons. Frank Beebe recorded early successful hawking in British Columbia. In the 1950s, John Campbell emigrated from Scotland to Alberta where he became a successful early game hawk on his ranch in Black Diamond. At

about the same time Tom Cade was finishing his graduate studies in California and Alaska and was beginning some initial game hawking.

In the 1960s, after the founding of the North American Falconers Association (NAFA), true game hawking exploded across the continent. By then the ubiquitous Red-tailed Hawk (*Buteo jamaicensis*) had become a mainstay for the rabbit hawker and a decade later the Harris's Hawk (*Parabuteo unicinctus*) was "discovered," and is now the species of choice for the majority of falconers in North America and Europe.

In Mexico, Guillermo José Tapia was the president of the Asociación Mexicana de Cetrería, formed in the 1940s. Its existence is confirmed by a letter in The Archives of Falconry dated 23 December 1951 from Mexico City addressed to Dr. Robert Stabler mentioning other members, including Col. R. L. Meredith, Gilbert Blaine (Great Britain), Otto Kals (Germany), and Peter Asborno (USA). The association disappeared leaving no other trace.

Later in 1964 when Robeto Behar became involved in falconry, he had the opportunity to travel and contact international falconers such as Renz Waller (Germany), Kinya Nakajima (Japan), and Félix Rodríguez de la Fuente (Spain), whose treatise, *El Arte de Cetrería*, became the leading falconry text for falconers in Latin America (Fuente 1965).

In the 1980s, the number of Mexican falconers increased because of their introduction to falconry by a popular television advertisement for "brandy" depicting a Harris's Hawk flying to the fist. By the end of the 1980s there were 200 falconers in 10 organized groups.

North American Falconry Organizations

The North American Falconers Association (NAFA) is, perhaps, unique in the world, because it represents individual falconers from three nations. NAFA was founded in 1961 in Colorado by well-known falconers, Harold Webster and Frank Beebe (of Canada) along with many others (Cade and Burnham 2003). Mexican falconers were added to the membership in the late 1990s. Besides the regular voting members of the three nations, NAFA has non-voting associate member organizations, which are the local, state, and provincial falconry clubs, and many foreign members. Generally NAFA's membership is between 2,000-3,000 falconers and associations. NAFA also is known for its publications: *Hawk Chalk*, a newsletter that is published three times per year, and *Journal*, a larger glossy publication with articles on the sport and related activities that is published annually. NAFA has an annual field meet that is attended by 300-400 falconers. In the early days the meets were held for several years in South Dakota, but for the last 20 years the meets have rotated among Colorado, Texas, Kansas, Nebraska, Oklahoma, and Utah. NAFA members and guests attend these meets from nations throughout the world.

All of the state clubs affiliated with NAFA have annual meets and other social activities throughout the year. The California Hawking Club is particularly significant because its annual meet, often held in Bakersfield, California, has similar attendance as the NAFA meet. There are approximately 600 falconers in California alone.

Canada has falconry associations in virtually every province where falconry is permitted. Canadian falconers meet each year in October in Alberta arranged by the Alberta Falconers Association.

Mexico has 25 falconry associations. They meet annually at several locations in central Mexico. In 2004, 114 falconers attended their national meet in Zacatecas.

In Canada, there are likely fewer than 500 falconers. There are approximately 4500 falconry permit holders in the U.S. Mexico has approximately 300 practitioners.

NAFA is governed by a board of directors elected regionally by the members, officers selected by the board, and others with special assignments. Membership on the board is completely voluntary, but because of the significant efforts of the board, NAFA has been extraordinarily successful in promoting and securing protective falconry and captive propagation regulations, and the continued use of wild harvested raptors. This is significant, as falconers are the only people in North America permitted to harvest live wild animals for a sporting use. And in the U.S., the number of species of raptors that can be used for falconry continues to expand.

NAFA is a member organization of the International Association for Falconry and Conservation of Birds of Prey (IAF) but, on its own, it has participated in the Convention on International Trade of Endangered Flora and Fauna (CITES) Conference of the Parties, the North American Flyway Councils for the setting of waterfowl seasons, and in the annual meetings of the International Association for Fish and Wildlife Agencies. National and local conservation, wildlife and natural resources agencies acknowledge NAFA as perhaps the most effective single purpose sportsmen's group at political and policy levels of government in America. NAFA maintains significant political contact with all federal agencies, which may have any impact on the sport of falconry. For example, with the successful recovery of the Peregrine Falcon, harvest of eyass peregrines is now permitted in the western states and trapping of passage peregrines is anticipated within the next couple of years. This contrasts significantly with most of the rest of the world where wild harvest of peregrines is prohibited, as are all other raptors for falconry. As discussed above, virtually all other raptors in the U.S. may be taken as eyass and passage birds. It surprises many non North Americans that a number of passage Gyrfalcons (*Falco rusticolus*) are trapped annually and successfully flown at quarry primarily in the northern tier states and provinces.

North American Law on Raptors

This region of the world may be unique in terms of the depth of protection in law for birds of prey and the sport of falconry. During the first half of the 20th century, the U.S. entered into a series of international migratory bird treaties which included, after subsequent amendment, the protection of birds of prey with exceptions made by national governments for specific purposes, such as hunting, scientific research, subsistence cultures, and for more limited purposes including falconry and raptor propagation for conservation release programs and falconry. These treaties are the International Convention for the Protection of Migratory Birds between the U.S. and Great Britain on behalf of Canada of 1916 (39 Stat. 1702, T.S. No. 628), and the U.S. and Mexico (50 Stat. 1311, T.S. No. 912). Additionally the United States concluded other similar treaties with the former USSR (29 U.S.T. 4647, T.I.A.S. No. 9073) and Japan (25 U.S.T. 3329). These international treaties caused the parliaments and congresses to enact organic acts to administer the treaty obligations.

The U.S. Congress enacted the Migratory Bird Treaty Act (MBTA) (16 U.S.C. Secs. 703-711 [1976 & Supp. V 1981]) to administer the provisions of the international

bird treaties. From this law, raptor propagation and falconry are specifically permitted nationally by an extensive set of regulations. The U.S. Fish and Wildlife Service (USFWS), a division of the cabinet level Department of the Interior, whose secretary reports directly to the President, oversees the MBTA. Other laws that have some direct or indirect implications for the conduct of raptor propagation and falconry are the CITES (27 U.S.T. 1087, T.I.A.S. No. 8249), the Endangered Species Act (16 U.S.C. Secs. 1531-1543 [1976 & Supp. V 1981]), and the Wild Bird Conservation Act (16 U.S.C. Secs. 4901-4916).

Both Canada and Mexico have similar organic laws implementing their respective migratory bird treaties with the U.S. Similarly, both nations are signatories to CITES, and they have national laws protecting endangered species.

The Current Legal Status of Falconry in North America

Based on recognition under international treaty, falconry is recognized and permitted in many provinces of Canada and in all states but Hawaii in the U.S. Canadian provinces regulate falconry disparately by province because there are no uniform national standards. Consequently, the ability to harvest various species of wild birds and the seasons for falconry are determined by provincial authorities.

The U.S. has a uniform set of federal falconry regulations to which each state must subscribe (50 CFR 21.28-29 for falconry standards, 50 CFR 22.24 for eagle falconry). The states then may impose stricter standards but few do, except for limitations on harvest of some local populations of wild birds and to comply with state wide hunting seasons. Many falconers around the world recognize that the American system is highly structured by level of experience (apprentice, general and master class), the birds which can be used by falconers at the three levels and the numbers of birds which can be kept for falconry purposes at each level. For example, an apprentice falconer must be sponsored and guided by a general or master class falconer for 2 years; the general class falconer must practice the sport with selected species for 5 years; and, the falconer achieves master class after 7 years of active practice, which then permits him to fly all classes of raptors, including Golden Eagles. The purpose of the rather rigorous system is to discourage the casually interested person from attempting to begin falconry without a rather serious interest. The beginning falconer (i.e., "apprentice") is required to trap their first bird (Red-tailed Hawk, American Kestrel [*Falco sparverius*], and in Alaska only, a Northern Goshawk [*Accipiter gentilis*]) from the wild, pass a falconry and basic raptor biology examination and build a mews (falconry housing) which meets humane housing standards.

Captive propagation is integrated into the American falconry system and is governed by a separate set of regulations (50 CFR 21.30). Obviously, it is an outgrowth of the Peregrine Falcon conservation program where all husbandry techniques were developed. Captive propagators are themselves licensed falconers and may only give or sell their progeny to licensed falconers or other propagators. It is interesting to note that a very high percentage of the American falconry community uses wild harvested eyass and passage birds rather than captive bred birds, and there is virtually no captive propagation of Red-tailed Hawks, Northern Goshawks, Merlins (*Falco columbarius*) and Prairie Falcons. However, the raptor propagation regulations provide the basis by which raptor breeders may commercially sell their annual production to other falconers within the U.S. and to the international falconry

community. The propagation regulations require banding by a seamless USFWS band for birds sold into commerce, and significant reporting requirements on eggs, chicks hatched, and young raised to fledging. There also is a separate report for each bird transferred to a falconer or other raptor propagator. While the reporting requirements, banding and other record keeping may seem burdensome, it is precisely because of this rigorous regulatory scheme that American falconers may breed birds in captivity, while simultaneously harvest the same species from the wild. A goal of the American regulatory system for birds of prey used in falconry demands use of wild birds and incorporates use of captive bred birds as a supplement to the wild harvest.

There are separate regulations, which set standards for people engaged in raptor rehabilitation (50 CFR 21.31), scientific study and collection (50 CFR 21.23), and falconry education (50 CFR 21.27). There also are special purpose permits (50 CFR 21.27) which cover all activities not otherwise covered by the regulations noted above. These include such activities as bird control with falconry raptors at airports or special bird show permits.

Mexico does not have any national or state regulations governing falconry. Yet, there are no efforts to prohibit it. In fact, national wildlife authorities are encouraging Mexican falconers to begin to work into the national hunting system to develop a set of regulations. Mexican falconers harvest most of their birds from the wild, including passage peregrines. There is some very limited captive propagation of some of the commonly used raptors (Harris's Hawks and Peregrine Falcons).

Falconers in Raptor Conservation

Because there is neither a sociological nor cultural basis for falconry in North America, most practitioners became falconers because of their interest in hunting, the outdoors, or an abiding curiosity in natural history. It is noteworthy that many significant North American raptor biologists began their careers as falconers. Many of them, including Tom Cade, continue to be avid game hawkers.

Papers and abstracts in this proceeding describe innovative and important conservation efforts to study and restore Neotropical raptors throughout their historic range. In North America, the Peregrine Falcon restoration program focused on the middle latitude peregrine, *Falco peregrinus anatum*. The Canadian effort was not led principally by private organizations, but by Canadian Wildlife Service personnel most of which were falconers. Within the U.S., besides The Peregrine Fund, two other organizations assisted in the recovery efforts, the Santa Cruz Predatory Bird Research Group, lead by Brian Walton, a falconer, at the University of California at Santa Cruz for release efforts in California and the peregrine recovery team at the University of Minnesota lead by Drs. Bruce Tordoff and Patrick Redig, a falconer, for the upper Midwest.

The Peregrine Fund is recognized as the lead organization that sought to recover *P. f. anatum* throughout its range. The Peregrine Fund is foremost a conservation organization dedicated to the scientific study and restoration of raptors, yet, it began as a necessity by five falconers who saw the need to restore the peregrine for the public purpose of endangered species recovery and for the self-interested purpose of preserving this archetypical long wing for falconry. The founders, all falconers, are Tom J. Cade, Robert B. Berry, James D. Weaver, William A. Burnham, and Frank M. Bond. The Peregrine Fund President, J. Peter Jenny; raptor propagation specialist, Cal

Sandfort; and species restoration manager, Bill Heinrich; are practicing falconers. These men understand that raptor conservation and falconry go hand in hand. Falconry is rooted in the culture of The Peregrine Fund.

Tom Cade credits The Peregrine Fund's early successes to falconers for several reasons. When The Peregrine Fund began in 1970 there was almost no understanding of raptor propagation. The falconers applied their handling and management techniques to scientific research and management. Finally, the zealous passion falconers have for their birds translated into the discipline to persevere in propagation, release and recovery efforts for the Peregrine Falcon when non-falconers predicted failure.

In North America, the Peregrine Falcon is the most comprehensively studied raptor. The best treatise on this species, both scientific and anecdotal, is *Return of the Peregrine: A North American Saga of Tenacity and Teamwork*, edited by Drs. Cade and William Burnham. It provides a global view of the magnitude of the North American peregrine restoration (Cade and Burnham 2003). In it, I prepared a chapter on the contributions of falconers in the recovery effort, as they were the "essential leaders" for its success. In the U.S., the successful peregrine recovery is often referred to as the greatest conservation biology success story of the 20th century.

Renz Waller recorded early successful captive propagation in Germany during World War II and in the U.S. almost 20 years later by Larry Schramm in Oregon. However, it was not until the early successes of The Peregrine Fund that captive propagation became predictable and routine. With early artificial insemination efforts at The Peregrine Fund's facility at Cornell University, Jim Weaver produced the first artificially inseminated hybrids, crossing Gyrfalcons with Peregrine Falcons. A private breeder, Les Boyd of Washington State, developed the earliest technique to induce imprinted males to deposit semen on a hat for insemination of imprinted and naturally laying females. From these efforts we see the proliferation of pure and hybrid raptors throughout the world.

In terms of raptor health, many scientists and veterinarians from all across the globe have contributed to the welfare of falconry birds. In the U.S., Dr. Stabler, a professor of zoology at Colorado College whose specialty was parasitology, isolated the cause and developed, in association with a pharmaceutical company, the drug, enheptin, to cure frounce (*Trichomoniasis gallinae*). He was responsible for the later development of the drug, emtryl, as well.

Veterinarian falconers have dramatically increased falconers' knowledge of proper raptor husbandry. There are many veterinarian falconers of note from the U.S. including Dr. Kenton E. Riddle. Ken has lived in Abu Dhabi for many years where he worked on the staff of the late and beloved, HH Sheikh Zayed bin Sultan al Nahyan, and developed the first falcon hospital in the world. Dr. Patrick Redig, a professor of veterinary science at the University of Minnesota, is recognized for his outstanding contributions to treat many raptor diseases, including aspergillosis in Gyrfalcons and West Nile virus. He now leads the raptor community's efforts to be prepared for the potential wide spread epidemic of avian flu within birds of prey populations.

The Peregrine Fund is best known for its work on the Peregrine Falcon, but it is known throughout the world for other conservation programs too. Nationally, we are undertaking the restoration of the Aplomado Falcon (*Falco femoralis*) and the California Condor (*Gymnogyps californianus*). The Aplomado Falcon is a species found only along the U.S. border with Mexico, however, it occurs widely in the Neotropics. We have reestablished the species through south Texas, and in 2006 began

similar releases in New Mexico. Future releases are planned for Arizona. The magnitude of our production and work is surprising to some. For example, in 2006, 132 young were produced from 37 pairs and 126 were released at eight sites in Texas and one site in New Mexico. Overall, 1, 268 young Aplomado Falcons have been released in New Mexico and Texas, with now more than 45 pairs nesting naturally.

Similarly, our program for the California Condor is large scale as well. The condor population plummeted to a few individuals in California during the 20th century. The Peregrine Fund took over the captive propagation for the recovery effort in Arizona. We have released 91 birds in Arizona; now we have 5 pairs nesting; and, chicks have hatched and fledged naturally in the last 3 years. In 2006, we had 14 pairs laying eggs, with 14 eggs laid, and 12 hatched.

Falconry Equipment as Applied To Science

Some of the finest artisans of falconry equipment are found in Canada, the U.S. and Mexico. The single most important advance in falconry equipment is radio telemetry, which originated in the U.S. Perhaps some of these great advancements in equipment come from this part of the world because of advanced technology efforts where North Americans are not hide bound with tradition. From this attitude, we see now that falconers and other raptor researchers from other parts of the world are more adventurous in approaching and solving falconry problems than they would be if they followed the traditions of their forbears.

Radio telemetry

Virtually all of the origins of radio telemetry and the continued advancements in radio telemetry come from various manufacturers in the U.S. The earliest telemetry receiver developed at Cornell University and was cobbled together from large amateur radio communications equipment (known as the "Drake") mounted on a backpack peg-board. It weighed about 10 kg and was very cumbersome because of the large batteries required to operate it. The first transmitters were equally crude. They were hand soldered on copper circuit boards and then "potted" in ChapStick® (lip balm) tubes. The batteries used were large hearing aid batteries. And, of course, the transmitters were originally attached only to the leg.

The breakthrough in radio telemetry came when Robert Berry, the well-known American falconer and captive propagator (particularly of Gyrfalcons) teamed up with an electrical engineer living in Champaign-Urbana, Illinois to work simultaneously on a newly designed receiver and transmitter. Tony Szelpal, a radio technology technician, developed a relatively compact receiver that could be hand carried in a water resistant proof aluminum box which when opened, revealed the switches, dials and antenna connector; this was known as the "RB 4" (for Robert Berry). Tony Szelpal used basically the same circuitry for his early transmitters, but he made them smaller by "potting" them in an epoxy with flat copper plates protruding to accept the batteries, held in place with electrical tape.

Stability of Falconry in North America

Falconry does not have a high profile throughout North America. Except for the occasional appearances of falconers in news articles and on television, it is to some

degree an "insiders'" activity. When viewed by the public in the media, few realize that it is an age-old hunting activity, but it is not associated with any social or historical context from the American continent. In the public's mind that association is with European royalty or Middle Eastern Arab sheikhs. Yet for a smaller portion of the public, particularly public officials, natural resources agency personnel and some conservation and environmental organizations, falconers are viewed as a human resource to assist with raptor conservation programs.

There are a considerable number of "bird shows" at some of the well-known tourist theme parks (e.g., Disney World) and at zoos where the public sees the employment of falconry techniques. There are two so-called falconry schools housed at luxurious, retreat destination hotels, which are intended only for the guests to get a glimpse of falconry with a day's program. By recent policy of the USFWS (see <http://www.fws.gov/permits/PoliciesHandbook/FalconryEducation.pdf>), these "schools" fall outside of the falconry regulations and cannot substitute for or be used for any type of experience in place of the American apprentice class program. Finally, there are several bird control programs at national and international airports and for pest control in agricultural areas operated by falconers under separate special purpose permits (50 CFR 21.27) issued by the USFWS.

Challenges to North American Falconry

North American falconry has had its challenges in both Canada and the U.S. In 1984, the Canadian and American wildlife authorities undertook the now infamous Operation Falcon. This was an initial threat to falconry by authorities, however, from it grew stronger falconry and captive propagation regulations and to a great extent, a better working relationship between the falconry community and officials at natural-resources agencies. This was most evident by the leadership of Brian Millsap, a former NAFA president and active falconer, who was the Chief of the Migratory Birds Management Office of the USFWS, the office, which regulates and manages all falconry and captive propagation programs in the U.S.

More recently, we have been faced by challenges to the recently initiated peregrine eyass harvest program. Several local and state Audubon Society chapters sought to stop the USFWS's decision to harvest eyass peregrines in U.S. District Court (*Portland Audubon Society et al. v. United States Fish and Wildlife Service, et al*, Case No. 04-670-KI, USDC [Oregon] 2004). NAFA intervened on behalf of falconers in the case through its general counsel (the author) to support the harvest plan. The judge, who heard the case, confirmed the USFWS's decision to permit the harvest to continue in the western states. NAFA expects a similar challenge (and with similar results) when the USFWS promotes a program to permit harvest of passage peregrines.

Presently, Canada appears not to face any similar challenges. While not all provinces permit falconry, there does not appear to be any concerted effort to undermine the secure position falconry has in Canada.

Mexico, on the other hand, continues to work towards legal recognition of falconry. In a large country with relatively few falconers, the Mexican government in 1998 invited falconers and associations to participate in several meetings to regulate falconry. This created a cooperative effort between governmental wildlife officials and falconers to monitor "black market," illegal raptor harvest in an attempt to stop

poaching. With this limited recognition, Mexican falconers are permitted to harvest non-endangered, passage birds.

Conclusion

While falconry has a much longer history in other parts of the world, it has played a significant role in the conservation programs, legal protection, and ethical considerations relevant to birds of prey in Canada, the U.S., and Mexico. North American falconry comes from naturalist origins. And from those beginnings, bird of prey legal protection, conservation and restoration programs, and general concern for raptor welfare have without exception come from falconers. North American falconers, by example, have expanded the "sport" to yet a higher level in its significant role in raptor conservation. They have provided the essential leadership for everything positive done on behalf of raptors.

Acknowledgments

I thank Mr. S. Kent Carnie, Curator of The Archives of Falconry of The Peregrine Fund for the sections related to history, and Juan Carlos Rojo, NAFA-Mexico delegate to the Council of the IAF for history and background information on falconry in Mexico.

References

- Alexander, M. (Ed.). 1976. *Discovering the New World*, based on the works of Theodore de Bry. Harper & Row, New York, NY U.S.A.
- Cade, T. J. and W. A. Burnham, (Eds.). 2003. *Return of the peregrine: a North American saga of tenacity and teamwork*. The Peregrine Fund, Boise, ID U.S.A.
- Craighead, F. and J. Craighead. 2001. *Life with an Indian Prince*. TAF Heritage Publ. Series Vol. II, The Peregrine Fund, Boise, ID U.S.A.
- Fuente de la, F. R. 1965. *El Arte de Ceteria*. Ediciones Nauta S.A., Barcelona, Spain.
- Meredith, R. L. 1999. *American Falconry in the Twentieth Century*. TAF Heritage Publ. Series Vol. I, The Peregrine Fund, Boise, ID U.S.A.
- Morton, T. 1637. *New English Canaan or New Canaan containing an abstract of New England*, composed in three books....Jacob Frederick Stam., Amsterdam. 188 pp. (as reprinted facsimile 1969, #140 in "The English Experience" series; Theatrum Orbis Terrarum Ltd., Amsterdam, & Da Capo Press, New York, NY U.S.A.)
- Spofford, W. R. 1942. The falconer's place in conservation. *Am. Falconer* 1(3):3.
- Varner, J. G and J. J. Varner. 1983. *Dogs of the conquest*. University of Oklahoma Press, Norman, OK U.S.A.