

# Eyes on the Sky

## Counting for Conservation



# The Raptor Population Index

## 2008 Annual Report



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## Counting for Conservation: A Message from the Partners

We are pleased to report that this year, the Raptor Population Index Project (RPI) published *State of North America's Birds of Prey* (Nuttall Ornithological Club and American Ornithologists' Union Series in Ornithology No. 3, available at <http://buteo-books.com>).

This groundbreaking work is the culmination of a four-year pilot study to test the feasibility of the RPI concept: a continental-wide program to monitor migratory raptors. In this annual report, we present a brief summary of the book's major findings and invite you to explore its contents in depth. You will learn not only how migrating raptor populations are faring and their status, but discover the value of high quality, consistent count data from individual sites and how this complex system works. This synthesis of a massive dataset spanning several decades, collected by citizen-scientists at dozens of migration monitoring sites across the continent would not have been possible without the dedicated support of front-line hawkwatchers, matched with the expertise of RPI staff, and the backing of several funding agencies. Together we did what none of us could have done alone.

This book also marks the launch of a new phase: to establish the Raptor Population Index as a permanent monitoring program producing timely and regularly updated information on the status of North America's raptors. Earlier this year, the RPI partnership's Management Committee produced a Strategic Plan that outlines RPI's mission, vision, and goals and looks ahead to how RPI can move towards achieving its goals in this new stage of its development.

RPI is a truly collaborative effort. As we have done in the past, we thank all RPI supporters for your contributions to this initiative, in whatever way, and invite you to read the full report and continue your support for raptor conservation.

Ernesto Ruelas Inzunza  
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Hawk Migration Association  
of North America

Keith L. Bildstein  
*Sarkis Acopian Director*  
*of Conservation Science,*  
Hawk Mountain Sanctuary

Jeff P. Smith  
*Conservation Science Director,*  
HawkWatch International

## The RPI Team

### Management Committee

Jeff P. Smith, Chair; Keith L. Bildstein, Stephen W. Hoffman, David J.T. Hussell, Iain C. MacLeod, and Will Weber.

### Science Advisory Committee

Keith L. Bildstein, Chair (Hawk Mountain Sanctuary), Erica Dunn (Canadian Wildlife Service), Allen Fish (Golden Gate Raptor Observatory), Charles M. Francis (Canadian Wildlife Service), Mark R. Fuller (United States Geological Survey), Laurie J. Goodrich (Hawk Mountain Sanctuary), Stephen W. Hoffman (Montana Audubon Society), David J.T. Hussell (Ontario Ministry of Natural Resources), Steven T. Kelling (Cornell Lab of Ornithology), David Mizrahi (New Jersey Audubon Society), Bruce Peterjohn (United States Geological Survey), John Smallwood (Montclair State University), Jeff P. Smith (HawkWatch International), and Phil Taylor (Bird Studies Canada).

### RPI Staff

Ernesto Ruelas Inzunza, RPI Project Manager, HMANA, [ruelas@hmana.org](mailto:ruelas@hmana.org)  
Christopher J. Farmer, North American Monitoring Coordinator, HMS, [farmer@hawkmtn.org](mailto:farmer@hawkmtn.org)  
Jason Sodergren, HawkCount Database Specialist, HMANA [jason@taiga.com](mailto:jason@taiga.com)

### Organization Support

Laurie J. Goodrich (HMS) and Iain C. MacLeod (HMANA). Data entry staff and volunteers: Leticia Cruz Paredes, Mary-Therese Grob, Eleanor Kline, Chuck Kuttruff, Ann Lessel, Jon Levin, Jim Morris, Laurie Conlon, and HMS Interns.

# The Raptor Population Index Project

RPI is a joint endeavor of Hawk Mountain Sanctuary, HawkWatch International, and Hawk Migration Association of North America.

**RPI's Mission** is to contribute to conservation, knowledge, and public understanding of raptors and raptor migration through a collaborative population monitoring program that produces conservation assessments and scientifically defensible population trends derived from counts of migrating raptors.

**RPI's Vision** is to become an essential component of raptor monitoring, migration research, and conservation planning in North America.

## The First Four Years

During its first four years, RPI (1) coordinated the collection and safe archiving of data from nearly 200 raptor migration monitoring sites in an on-line database, HawkCount.org, (2) performed analyses of datasets that met the standards required for proper application of current methods, and (3) produced syntheses of these results and, combined with data from other sources, generated conservation status reports for as many species as possible, and (4) summarized its findings in the *State of North America's Birds of Prey*.

The book *State of North America's Birds of Prey* is the first continental-scale assessment of population status of raptors and provides a comprehensive synthesis of the first four years of RPI work.

## Praise for *State of North America's Birds of Prey*

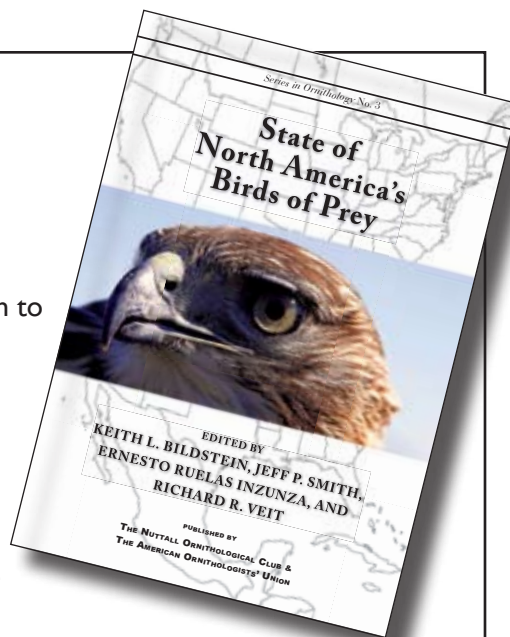
"This book is an invaluable contribution to our current understanding of raptor migration and the population status of raptors in North America... the most exciting outcome of this collaborative effort is the emergence of the Raptor Population Index as a quantitative tool that can be used to improve our ability to more accurately assess the status of raptor populations."

Michael W. Collopy, Academy for the Environment, University of Nevada.

"It provides a valuable assessment of the continental population trends and conservation status of different species, and highlights some recent changes in migratory behavior associated with climate change and other factors. The authors and editors are to be congratulated in producing such a readable and fascinating account that will help stimulate further expansion of this branch of 'citizen science'."

Ian Newton, Centre for Ecology and Hydrology, United Kingdom.

"Bildstein et al. demonstrate how science, statistics, public participation, and continental coordination, acting together, can lead to the effective dissemination of monitoring results. It is a wonderful example that must be followed."  
Miguel Ferrer, Estación Biológica de Doñana, Spain.



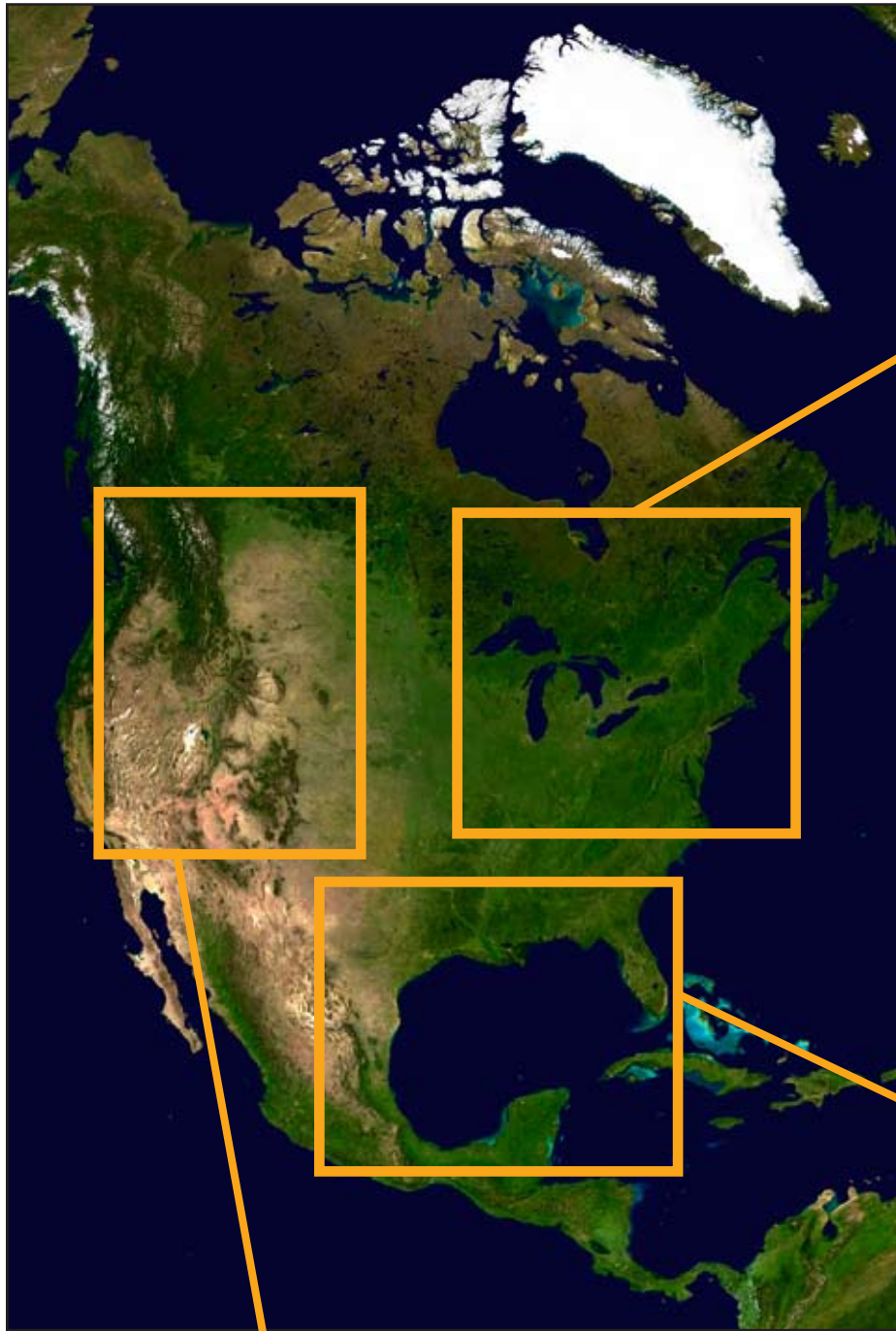
## HawkCount.org Top-50 sites

We thank the following sites for submitting at least 300 site-days of hawk counts in hourly format, over five years or more, for RPI.

Allegheny Front PA  
Barre Falls MA  
Beamer Conservation Area ON  
Bentsen Rio Grande Valley State Park TX  
Blueberry Hill MA  
Bonney Butte OR  
Borrego Valley CA  
Braddock Bay NY  
Bridger Mountains MT  
Cape May NJ  
Chelan Ridge WA  
College Creek VA  
Corpus Christi Raptor Migr. Proj. TX  
Eagle Crossing, QC  
Fort Smallwood Park MD  
Franklin Mt. NY  
Goshute Mountains NV  
Hamburg Hawk Watch NY  
Hawk Cliff Hawkwatch ON  
Hawk Mountain Sanctuary PA  
Hawk Ridge MN  
Holiday Beach ON  
Illinois Beach State Park IL  
Jacks Mountain PA  
Kiptopeke Hawkwatch VA  
Kittatinny Mountain NJ  
Lake Erie Metropark MI  
Lighthouse Point CT  
Lipan Point, Grand Canyon AZ  
Mahogany Rock NC  
Manzano Mountains NM  
Militia Hill PA  
Montclair Hawk Lookout NJ  
Montreal West Island Hawkwatch QC  
Peak Mountain CT  
Pocatiny Peak NJ  
Pilgrim Heights MA  
Quaker Ridge CT  
Ripley Hawk Watch NY  
Rose Tree Park PA  
Second Mountain PA  
Smith Point TX  
Snicker's Gap VA  
Stone Mt. PA  
Turkey Point MD  
Tuscarora Summit PA  
Waggoner's Gap PA  
Washington Monument State Park MD  
Wellsville Mountains UT  
Yaki Point, Grand Canyon AZ

# State of North America's Birds of Prey

Key findings from this 466-page book are summarized on the following three pages



## Trends in the Northeast and Great Lakes

Hawk Mountain's North American Monitoring Coordinator Chris Farmer and collaborators calculated annual indexes and trends for 16 species at seven monitoring sites with 30 or more years of counts (1974 to 2004) and for one site, with 11 years of data (1994-2004). Several species that increased significantly during the 1980s (Merlin, Osprey, and Peregrine Falcon) ceased to do so in the 1990s. A few species showed geographic patterns in trend, suggesting either that different source populations were monitored in the eastern and western portions of the study area, or that migration geography changed over the course of the study period (Table 1).

## Trends in the Gulf Coast

Jeff Smith and collaborators also calculated and assessed trends of raptors counted at four watchsites around the Gulf of Mexico, covering various periods from 1995 to 2005. Northern Harriers and Sharp-shinned Hawks were the only species for which negative rates of change were detected at all sites, with both showing significant declines in Florida and harriers also declining significantly in Veracruz (Table 2).

## Trends in the West

HawkWatch International's Conservation Science Director Jeff Smith and collaborators assessed trends in counts of migrating raptors from 10 sites in western North America. Counts spanning variable periods between 1983 and 2005, involved 16 species (Table 3).

Turkey Vulture was the only species for which there was at least a slight positive rate of change in the annual indices at 6 analyzed sites over the periods of record, whereas Northern Goshawk was the only species for which at least a slight negative rate of change occurred at all 6 analyzed sites. Since the late 1980s, count trends for many species correlate well with variation in regional precipitation levels and drought severity, especially within the Great Basin-Intermountain region.

Table 1. Percentage of annual change in populations of some species of migratory raptors, from eastern North America, 1990-2000.

Trends for Tadoussac are for the period 1994-2004.

Results marked (-) have decreasing populations;

results not marked indicate positive change.

	Cape May NJ	Hawk Mountain PA	Hawk Ridge MN	Holiday Beach ON	Lighthouse Point CT	Montclair NJ	Tadoussac QC	Waggoner's Gap PA
Turkey Vulture	1.5	7.0*	3.9*	7.1*	6.9*	8.5*	--	29.8*
Osprey	-0.7	-2.6*	3.6	2.0*	-9.0*	-1.2	-4.7	-0.9
Bald Eagle	10.8*	5.9*	16.1*	3.8	8.8*	9.2*	3.3	4.4*
Northern Harrier	-0.7	-3.0*	0.6	-8.2*	-1.9	0.7	-0.6	-0.8
Sharp-shinned Hawk	3.0	-3.3*	2.3	-1.8	-3.3*	0.2	-1.0	-0.6
Cooper's Hawk	3.3	4.1*	8.1*	-1.2	-4.0	10.2*	--	5.1*
Red-shouldered Hawk	-0.3	-0.6	-0.7	-5.0*	-2.1	1.3*	--	1.0
Broad-winged Hawk	-1.4	-3.1*	1.1	-2.2	-2.3	-6.4*	-1.7	4.1
Red-tailed Hawk	0.3	-1.9*	6.1*	-3.4	3.1*	-2.8	1.6	4.3*
Golden Eagle	0.2	2.1*	5.7*	1.1	4.7*	1.1	-3.2	3.0*
American Kestrel	-4.5*	0.1	5.3*	-2.6	-7.1*	-3.3*	-5.8	3.1
Merlin	0.2	4.1*	3.7*	3.0	-3.7	4.0	-3.7	11.0*
Peregrine Falcon	3.4	1.6	7.8*	4.6*	-0.5	3.3	3.5	2.1

Table 2. Percentage of annual change in populations of some species of migratory raptors around the Gulf of Mexico, 1995/1998-2005.

	Corpus Christi TX	Florida Keys FL	Smith Point TX	Veracruz MX
Black Vulture	1.9	--	0.3	--
Turkey Vulture	16.9	--	0.0	5.7
Osprey	7.2	9.0*	4.7*	2.8
Swallow-tailed Kite	13.1	--	7.6	7.3*
Mississippi Kite	5.4	--	10.0	15.4*
Northern Harrier	-2.9	-8.4	-6.2	-8.4
Sharp-shinned Hawk	-2.6	-12.8*	-4.2	-7.5
Cooper's Hawk	3.2	7.3	-1.0	1.9
Red-shouldered Hawk	-8.6	--	1.4	--
Broad-winged Hawk	-6.7	6.1	8.2	3.1
Swainson's Hawk	18.5*	--	10.0*	13.6*
Red-tailed Hawk	-2.6	--	-0.4	-3.3
American Kestrel	6.7	-8.8	-2.9	0.0
Merlin	2.3	-13.4*	4.6	0.4
Peregrine Falcon	3.2	6.9	5.8	3.2

Table 3. Percentage of annual change in populations of some species of migratory raptors in western North America 1998-

2005. Mount Lorette AB, reports a Golden

Eagle decrease of -2.2% per year over

the same period.

	Boise Ridge ID	Bonney Butte OR	Bridgers MT	Chelan Ridge WA	Goshutes NV	Grand Canyon AZ (combined)	Manzanos NM	Wellsvilles UT
Turkey Vulture	18.3*	5.5	--	5.0	2.3	--	-12.9	0.3
Osprey	4.4	2.2	--	-6.0	-2.3	-4.4	-1.1	-10.0*
Northern Harrier	0.3	-3.3	-2.4	-10.1	-10.6*	-10.6*	-8.2*	0.3
Sharp-shinned Hawk	0.7	-0.1	-6.3	-12.8*	-8.3	-5.6	2.2	-5.7
Cooper's Hawk	2.1	-0.9	-5.6	-6.3	-9.3*	-16.0*	4.5*	-14.3
Northern Goshawk	-3.9	-2.3	-4.6	-12.9	-13.9*	--	--	-0.2
Swainson's Hawk	-2.3	--	--	--	5.4*	8.7	-7.3	-13.1
Red-tailed Hawk	7.3*	-1.7	-2.2	-5.0	2.0	-6.2	2.1	-6.1
Golden Eagle	1.2	-3.8	1.3	4.5	-12.6*	-11.6	-9.6*	-5.3
American Kestrel	-1.9	-7.9*	-13.8	-11.7	-8.2*	-2.8	0.1	-10.5*
Merlin	6.3	2.1	--	-0.4	-11.6*	-5.7	-1.7	--

Several species show mostly population increases, such as Bald Eagle, Osprey, Merlin, and Peregrine Falcon.



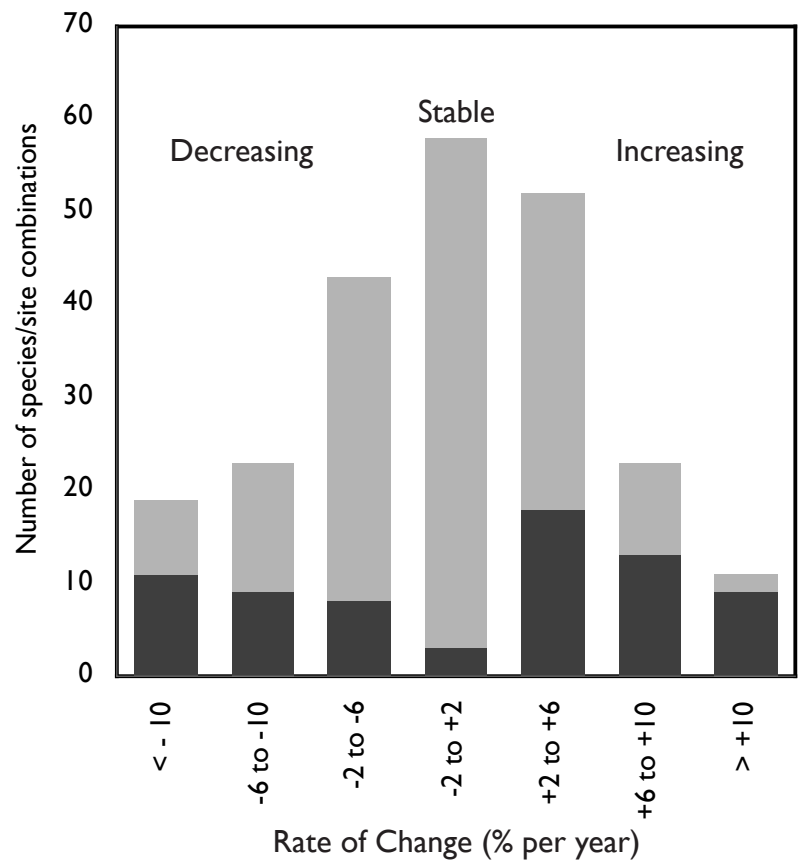
Photo: Steve Byland



Photo: Joseph Kennedy

As noted in last year's report the American Kestrel has experienced consistent and widespread declines at nearly all of the 20 sites analyzed across the North American continent.

The continental, grand-scale picture of raptor population trends since the 1990s (from previous page), looks moderately balanced. Fifty-eight species/site combinations were relatively stable (3 of them with statistically significant trends, depicted in dark gray). We found fewer species/site combinations showing declines (n=85, 28 of them significant) than increases (n=86, 40 of them significant).

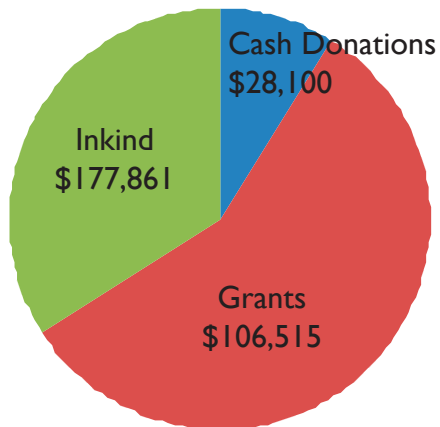


The results of these and other analyses, described in *State of North America's Birds of Prey*, demonstrate both the technical feasibility and value of using migration counts to track changes and assess the health of populations of migratory raptors. By providing current site-specific, region-specific, and continent-wide population trends, RPI aims to be a valuable tool for use by federal, state, and local resource management and conservation agencies, as well as a source of vital information for non-government conservation and environmental organizations.

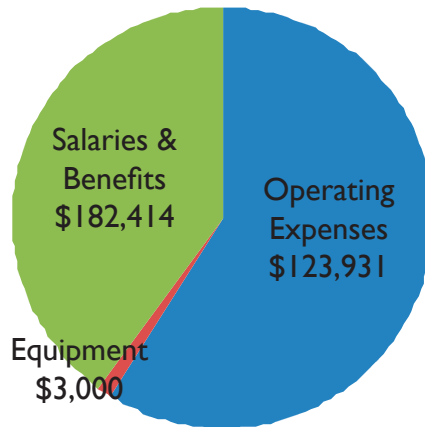
## Financial Summary

(Year Ending 31 July 2008)

**Income**  
**\$312,476**



**Expenses**  
**\$309,345**



Donations include \$94,749 contributed to staff time and expenses by HMS and \$28,100 cash donated by members and friends of HMANA. In-kind contributions include value of time and other expenses donated by committee members and other volunteers.  
(Unaudited financial summary based on RPI project accounts)

## RPI: The Next Three Years

In February 2008 the RPI Management Committee approved a three year Strategic Plan to guide the next steps of the RPI Project.

RPI's primary goal over the next 3 years is to establish itself as a permanent monitoring program producing timely and regularly updated information on the status of North America's raptors, in order to achieve its vision of becoming an essential component of raptor monitoring, migration research, and conservation planning in North America.

To that end, RPI will focus on improving scientific and monitoring output and contributing results to conservation. RPI's research agenda will be centered on improving our understanding of raptor migration to better interpret migration count data.

RPI's Strategic Plan also outlines several specific objectives for the 2008-2011 period, designed to move RPI towards its goals. These include objectives designed to strengthen the network of independent watch sites, to develop new analysis methodologies, to improve reporting to effectively meet the needs of the conservation community, hawkwatchers and the public, and to build organizational capacity.

The complete RPI Strategic Plan may be viewed at <http://RPI-project.org>. Copies may also be obtained from HMANA' RPI Project Manager (contact info on page 2).

## Funding Development

In 2007-2008, funding came from a third-year challenge grant from the National Fish and Wildlife Foundation (NFWF), requiring a 2:1 match from other sources, and from a U.S. Fish and Wildlife Service grant derived from the Neotropical Migratory Bird Conservation Act, which required a 3:1 match. A big part of the matching funds came from Hawk Mountain's very significant commitments, particularly to the position of North American Monitoring Coordinator. Nevertheless, despite these and valuable contributions from the other two partners, we were dependent on cash donations from individuals and organizations to meet the match requirements and to fully access the grants. Thanks to all who helped make this possible – we could not have done it without you!

## Sponsors

### Grants:

#### Golden Eagle (\$5,000+)

American Bird Conservancy  
National Fish and Wildlife  
Foundation  
U.S. Fish and Wildlife Service -  
Neotropical Migratory Bird  
Conservation Act

### Organizations:

#### Broad-winged Hawk (\$100-\$499)

Eastern Massachusetts Hawk  
Watch  
Presque Isle Audubon Society

### Individuals:

#### Golden Eagle (\$5,000+)

Jennifer P. Speers  
David P. McNicholas

#### Northern Goshawk (\$1,000-\$4,999)

Janet E. Sidewater  
Jason Sodergren

#### Peregrine Falcon (\$500-\$999)

Leonard DeFrancisco  
Andrew Francis  
Stephen W. Hoffman  
David J.T. Hussell and Erica Dunn  
Iain and Susan MacLeod  
R. Gilbert Randell  
Chandler S. Robbins  
Will Weber  
John Weeks  
Joseph E. Wojtanowski

#### Broad-winged Hawk (\$100-\$499)

George N. Appell  
David W. Babington  
Robert Barnhurst

## Sponsors (continued)

### Broad-winged Hawk

(\$100-\$499)

Peter H. Bloom

David and Catherine A. Brandes

Judith C. Cinquina

Russell D. and Ann F. Edmonds

Wavell W. and Susan A. Fogleman

David M. and Ursula P. Godine

Laurie J. Goodrich

Patricia Ann Howell

Barton D. Kamp

Marian L. and Angelo C. Mincone

Benjamin Olewine IV

Stephanie P. Parkinson

Paul M. and Julia S. Roberts

Ernesto Ruelas Inzunza

Jane M. and Bernard W. Schaaf

Greg Septiem

Susan K. Simovich

### American Kestrel (up to \$99)

Francine Cantor

Philip Dunn

Cynthia D. Ellis

Norval Fairman

Michael D. Fitzpatrick

Gregory W. and Deborah Shuey  
Grove

Lloyd F. Kiff

William C. Latta

Stuart Mackenzie

Dan A. Sherman

Michael Street

Jeanne Emery and Alex C. Velto

### RPI Partner Websites:

[www.hmana.org](http://www.hmana.org)

[www.hawkmountain.org](http://www.hawkmountain.org)

[www.hawkwatch.org](http://www.hawkwatch.org)

## New Grant, New Challenge!

We are pleased to report that RPI has been awarded a new challenge grant from NFWF *Legacy Funds* in the amount of \$197,920 over a 2-year period starting on January 1, 2009. This grant represents a strong endorsement by NFWF of RPI's performance under the previous grant. Moreover, with your support it will ensure that RPI can continue to expand and develop as outlined in this report. Once again, this grant requires a 2:1 match and this time we are depending even more on you, our supporters, to meet our goal of \$80,000 in cash donations, both this year and next year. Remember, each dollar you donate will be worth \$1.50 to RPI. Please make your commitment now at as high a level as possible.

## Collaboration with RPI

We thank all hawkwatchers and watchsite organizations who continue to help to make RPI possible and invite others to join us.

### Benefits of being part of RPI include:

- Safe storage of your counts in HawkCount.org, with options for making data visible and available for use by other researchers
- RPI provides statistically valid assessments of trends of raptors that get your counts into the hands of raptor conservations everywhere
- Through RPI counting hawks at your site counts for raptor conservation

### What you can do to help raptor conservation through RPI

- Collect data systematically using the current standardized data-collection protocol and report it to HawkCount.org in hourly format
- Enter historical hourly counts from your site into HawkCount.org
- Promote awareness of RPI among your hawkwatch community and encourage membership in one or more of the RPI partner organizations
- Help keep RPI aloft by making a donation (see below)

## Become a RPI Sponsor

Generous support of individuals and hawk watches has been critically important to the successful launching of RPI. Help us expand and consolidate RPI by becoming an Annual Sponsor at a level that suits your means and commitment. Each and every dollar counts as \$1.50 to RPI's contribution to raptor conservation.

<b>Golden Eagle</b>	<b>\$5,000 or more</b>
<b>Osprey</b>	<b>\$2,500 - \$4,999</b>
<b>Northern Goshawk</b>	<b>\$1,000 - \$2,499</b>
<b>Peregrine Falcon</b>	<b>\$500 - \$999</b>
<b>Broad-winged Hawk</b>	<b>\$100 - \$499</b>
<b>American Kestrel</b>	<b>&lt;\$100</b>

Please make checks payable to: "HMANA" and send them to:

**Ernesto Ruelas Inzunza**

**Raptor Population Index Project Manager,**

**HMANA, P.O. Box 721, Plymouth, NH 03264.**

Alternatively, you may contribute on line at <http://www.hmana.org/rpi>

All contributions are tax deductible to the extent allowed by law.