



# **Eastern Sierra Education and Outreach Project**

**Three year summary of results  
2002 - 2004**



H. River Gates, Sacha K. Heath  
and Sarah Warnock

December 2004

PRBO Conservation Science  
4990 Shoreline Highway  
Stinson Beach, CA 94970  
415-868-1221  
[www.prbo.org](http://www.prbo.org)

PRBO Contribution # 837

## EXECUTIVE SUMMARY

The Eastern Sierra Education and Outreach project is a growing success. Since 2002, we have successfully complimented our songbird monitoring efforts with quality experiential education. Through the strengthening of partnerships, we have expanded our capacity to work effectively with agencies, non-profits and local education institutions. Most importantly, we have brought our research and monitoring work to the public to demonstrate the importance of long-term ecological monitoring for efficient conservation and management of birds.

PRBO's research presence in the Eastern Sierra attracted the attention of local schools, visitors, and residents alike, and for the past three years PRBO biologists and educators have actively engaged nearly 3,000 people in conservation science learning. Nearly 1,700 visited our banding stations and 150 joined us on bird walks; more than 300 K-12 students participated in in-class visits, and 100 campers enjoyed casual campfire presentations. Additionally, over 650 people participated in the Mono Basin Bird Chautauqua, a festival celebrating birds, bird research, and bird conservation. PRBO volunteers contributed over 900 hours to support local education and songbird monitoring efforts in the Eastern Sierra. These hours include: 200 hours to support the annual Mono Basin Bird Chautauqua and 715 hours to support the monitoring of riparian songbirds in the Eastern Sierra. PRBO biologists also authored seven articles and five scientific publications, and presented more than a dozen oral presentations for the public at different local venues.

## INTRODUCTION:

In 2002, PRBO Conservation Science (PRBO) implemented an outreach and education project designed to complement ongoing songbird monitoring and conservation activities in the Eastern Sierra. Through broad public education and outreach, PRBO has been successful in accomplishing its goals and is especially proud to have provided high quality science-based educational opportunities to local students. The Eastern Sierra Education and Outreach project is a multifaceted program which works with local educational institutions to supplement their science curricula and provides a multitude of activities for seasonal visitors.

## PROJECT GOALS:

- Provide educational opportunities for local students (e.g. in-class visits and field trips to mist-netting stations)
- Promote citizen science opportunities in the community by recruiting and engaging individuals and local birding groups in volunteer opportunities (e.g. Fall Mono Lake Shorebird and Waterbird Census and Christmas Bird Count)
- Facilitate educational partnerships between PRBO, the local public education community, Inyo National Forest, Humboldt – Toiyabe National Forest and Devils Postpile National Monument interpretive staff and local environmental groups
- Increase public awareness about birds and bird conservation, highlighting the importance of birds and riparian habitat and ways individuals can help protect songbirds
- Participate in organizing local bird festival (e.g. Mono Basin Bird Chautauqua)
- Publish non-technical summaries of PRBO's research results
- Publish original research results in scientific journals

## SUMMARY OF ACTIVITIES:

The Eastern Sierra Education and Outreach project engaged a diverse audience in a variety of educational and outreach activities. In three years, contact has been made with many age groups spanning from small children to retirees. The project's activities change seasonally; with more field-based activities including bird banding demonstrations and bird walks offered in the summer while most of the classroom visits occurred during fall and winter. These activities are listed in Table 1 below.

Table 1: Summary of activities by year, 2002 – 2004.

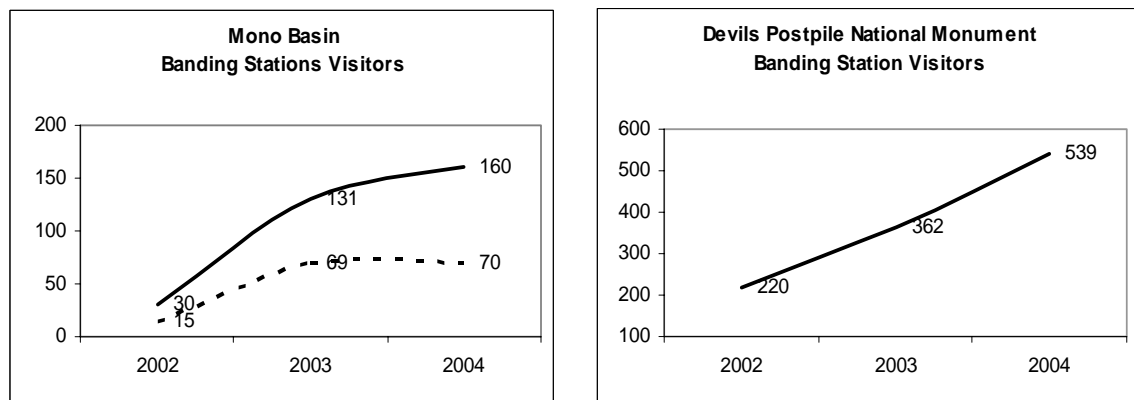
<b>Activity</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Songbird banding demonstrations	X	X	X
Bird walks	X	X	X
In-class visits and presentations	X	X	X
Campfire programs			X
Mono Basin Bird Chautauqua	X	X	X
Golondrinas de las Americas	X	X	X
Volunteer organizing	X	X	X
Outreach articles and newsletter pieces	X	X	X
Scientific publications		X	X
Oral presentations	X	X	X
Curriculum design		X	
Informational materials sent to partners		X	X

## Songbird Banding Demonstrations

For three years, songbird banding demonstrations were offered to the public from mid May to mid August at four tributary creeks in the Mono Basin and from early June to mid August at Devils Postpile National Monument (DEPO). Flyers were posted at local markets, Mammoth and Lee Vining Forest Service Visitor Centers, the Mono Lake Committee (MLC) Information Center and Bookstore and DEPO. In 2003 and 2004, both PRBO and MLC websites hosted the banding schedule and maps to the Lee Vining and Rush Creek banding stations ([www.prbo.org/easternsierra](http://www.prbo.org/easternsierra) and [www.monolake.org/birdcounts](http://www.monolake.org/birdcounts), respectively). Additionally, in 2003 and 2004, an email list was developed including partners, educators, local residents, bird enthusiasts, agency biologists and land managers. Members of the list received a schedule of all banding demonstrations, accompanying maps and contact information to schedule an organized group visit.

Visitation to the banding demonstrations dramatically increased from 2002 to 2003 and slightly increased from 2003 to 2004 in the Mono Basin (Figure 1). In addition, visitation to the Devils Postpile banding station increased considerably each year, increasing 165% and 149% in 2003 and 2004, respectively (Figure 1).

Figure 1: Summary of visitor attendance for two Mono Basin banding stations and Devils Postpile National Monument. Broken line in left figure represents Rush Creek and solid line represents Lee Vining Creek 2002 – 2004.



More organized groups visited the Mono Basin banding stations particularly Lee Vining and Rush Creek (Table 2). Groups included participants in outdoor education programs, public and charter schools, land management agencies, a Boy Scout troop, college field ecology courses and the Mammoth Board of Supervisors. The Devils Postpile banding station received larger numbers of drop-in visitors (PRBO data). Additionally, the Youth Conservation Corp were able to complete their required environmental education component by visiting the banding station at Devils Postpile.

Table 2: List of organized groups attending banding stations, level of education, years of attendance and location.

<b>Group Name</b>	<b>Level of education</b>	<b>Year of attendance</b>	<b>Location</b>
<b><i>Mono Lake Committee Outdoor Experiences Program Groups</i></b>			
Monroe High School	9-12	2002	Lee Vining Creek
Outward Bound	9-12	2004	Lee Vining Creek
Roosevelt High School	9-12	2004	Lee Vining Creek
Los Angeles Environmental Charter School	9-12	2003	Rush Creek
Church in Ocean Park	9-12	2004	Rush Creek
<b><i>Mono County Schools</i></b>			
Lee Vining Healthy Start Program	primary	2004	Devils Postpile
Bridgeport Elementary School	2 <sup>nd</sup>	2003	Lee Vining Creek
Lee Vining High School	9-12	2003	Lee Vining Creek
Lee Vining Elementary School	5/6 <sup>th</sup>	2003 and 2004	Wilson and Lee Vining Creeks
<b><i>Agencies</i></b>			
National Park Service: Law Enforcement , Sequoia -Kings Canyon Resources and DEPO Staff	adult	2002 - 2004	Devils Postpile
California Conservation Corp	10-12	2004	Devils Postpile
Yosemite Conservation Corp	adult	2003 and 2004	Devils Postpile
Yosemite National Park Interpretive Staff	adult	2004	Lee Vining Creek
California Fish and Game Wildlife Biologist	adult	2003	Lee Vining Creek
<b><i>Other</i></b>			
Arizona Western College	college	2004	Devils Postpile
Mammoth Lakes Parks and Recreation Summer Program	primary	2004	Devils Postpile
Mammoth Lakes Board of Supervisors	Adult	2003 and 2004	Devils Postpile
Southern California Boy Scout Troop	5-7	2003	Lee Vining Creek
Emeritus Ornithology Class	Adult	2004	Lee Vining Creek
Music and Ecology Camp at Mono Lake	2-6	2003 and 2004	Mill and Lee Vining Creeks
University of California at Santa Cruz	college	2003	Mill Creek
Natural History Field Quarter			
Valentine Eastern Sierra Reserve Outdoor Science Education Program	5	2004	Rush Creek

A total of 1,663 people visited PRBO banding stations in three years including 541 in the Mono Basin and 1,121 at Devils Postpile (Table 3). In 2004, 300 under 18 and 483 adults visited the banding stations totaling 783 visitors to all banding stations (PRBO data).

Table 3: Summary of visitor attendance by location, 2002 – 2004.

<b>Year</b>	<b>Devils Postpile</b>	<b>Rush Creek</b>	<b>Lee Vining Creek</b>	<b>Mill Creek</b>	<b>Wilson Creek</b>	<b>Total</b>
<b>2002</b>	220	15	30	4	4	<b>273</b>
<b>2003</b>	362	69	131	30	15	<b>607</b>
<b>2004</b>	539	70	160	14	0	<b>783</b>
<b>Total</b>	<b>1,121</b>	<b>154</b>	<b>321</b>	<b>48</b>	<b>19</b>	<b>1,663</b>

Figure 2: Photographs of visitors at Mono Basin and Devils Postpile banding stations (2002 – 2004).



5 year-old Alex, helps release an American Robin. Janet Carle 2004



PRBO biologist, River Gates talks with young students from Mammoth's Summer Outdoor Recreation Program. Sacha Heath 2004



PRBO biologists, Sacha Heath and River Gates show the California Conservation Corp crew the wing of a Red-breasted Sapsucker. Lisa Bassani 2004

### ***Bird walks***

In three years, ten bird walks were hosted by PRBO biologists at Mono Lake County Park and the Mono Village Campground. Each group contained approximately 15 - 25 people. Several secondary students including groups from the Mono Lake Committee Outdoor Experiences program and a California charter high school participated in local bird walks. Biologists taught students the basics of bird watching, observation skills, and discussed the role of birds in the ecology and conservation of Mono Lake.





PRBO biologist, Chris McCreedy shows a Mono Lake Outdoor Experience student a Great-horned Owl roosting in nearby cottonwood trees. Santiago Escruceria 2003

### ***In-class Visits and Presentations***

Five classes (128 students) in 2004 and five classes (176 students) in 2003 participated in in-class presentations. Kindergarten through 12<sup>th</sup> grade teachers were given the choice between several activities that were then tailored to the grade level and topics of interests. All activities engaged students in observation, bird identification, scientific inquiry, ecological monitoring, habitat and simple ways people can help birds and other wildlife everyday. Activities included a study skins activity, nest building activity and informal presentations on PRBO's Eastern Sierra Riparian Bird Monitoring Project.

### ***Campfire Program***

In 2004, we gave two summer campfire programs at Silver Lake Campground and Mammoth Lakes Ranger Station. Both were sponsored by the Rocky Mountain Recreation Company and were attended by over 100 people. The presentations covered topics including bird evolution and PRBO's songbird monitoring work on local public lands.



PRBO intern, Heidi Black delivers a campfire program at Mammoth Lakes Forest Service Visitor's center amphitheater. Diane Chesterman 2004



Campfire program guests gather around the study skins collection to examine the feathers of local birds. Diane Chesterman 2004

### ***Mono Basin Bird Chautauqua***

For three years, PRBO has partnered with local non-profits and agencies to organize and facilitate the Mono Basin Bird Chautauqua. The Mono Basin Bird Chautauqua is a birding festival with a mission to enhance the appreciation and understanding of the Mono Basin's diverse and abundant bird life and to educate the public about the area's value to birds and people. The Chautauqua takes place annually during the summer solstice weekend (third weekend in June) when bird activity in the Basin is at its height. Through field trips, evening presentations by Mono Basin expert biologists, seminars, and special kids' activities, many levels of bird enthusiasts can find something of interest.

The event is both volunteer operated and cooperatively organized by several agencies and non profit partners including Inyo National Forest, Mono Lake Tufa State Reserve, MLC, PRBO and the Eastern Sierra Audubon Society. Interest and attendance has increased 30% each year with 170, 219 and 258 people in attendance in 2002, 2003 and 2004, respectively. The Mono Basin Bird Chautauqua is an excellent example of a bird-focused event that targets a diverse audience and provides a powerfully informative and affective experience for visitors. For more information about the event please visit the website: (<http://www.birdchautauqua.org/>).

PRBO assisted in each of the three years in the following ways: event pre-planning, interpretation of our scientific findings about birds in the Mono Basin through evening presentations, providing a Songbird Monitoring Techniques Workshop, conducting two bird banding demonstrations, and staffing an outreach display. PRBO also provided over 200 volunteer hours for general festival support.

In three years, seventy-five people (25 participants each year) participated in the Songbird Monitoring Techniques Workshop led by PRBO. Additionally, two demonstrations were offered each year on Lee Vining and Rush Creeks with 115 people attending six days of bird banding demonstrations.

In 2002, PRBO staff delivered an evening presentation titled "*Eastern Sierra Riparian Songbird Conservation Project*", reviewing the current work of PRBO in the eastern Sierra. In 2003, PRBO staff delivered an evening presentation titled "*Add water and they will come? The restoration of Mono Basin's riparian songbird community*", focusing on a description of pre, during and post water diversion conditions of riparian habitats and associated songbirds on Mono Lake's restoring creeks. By describing the condition of these creeks over a 95-year period, we presented some of the PRBO's new results, research, and recommendations. In 2004, PRBO staff delivered an afternoon presentation titled "*Restoration Success on Mono Lake's Tributaries: The Willow Flycatcher comeback on Rush Creek.*" This presentation focused on the current monitoring of Willow Flycatchers, a State Endangered Species, a formally extirpated species in the Mono Basin who has recently returned to breed on Rush Creek. In each of three years, PRBO staff delivered an evening presentation focusing on the foraging ecology and reproductive success of Mono Lake's California Gulls. All presentations were attended by over



30 people each. Additionally, over 250 people dropped by and explored the PRBO outreach display to gather materials and talk with PRBO education staff.



On Sunday afternoon, presenters and participants gather to celebrate the weekend. The bird song and call contest has been growing each year with participants getting downright feisty. Arya Degenhardt 2004



Participants of all ages enjoy the diversity of field trips at the Chautauqua. A. Degenhardt 2004



Don Banta and PRBO's Chris Tonra and Sue Abbott discuss the relationship between birdfeeders, cowbird parasitism and songbird declines. A. Degenhardt 2004

### *Golondrinas de las Americas*

In cooperation with Cornell University, the Golondrinas de las Americas project engages interns, volunteers and students in an international research program examining the breeding biology of tree swallows across North and South America. Participants work closely with PRBO biologists to learn about study design, assist in collecting real data and summarize seasonal results. In three years, 15 PRBO biologists and volunteers have worked on the project and three local high school students



David Winkler, Principal Investigator of the Golondrinas de las Americas Program shows visitors the Lee Vining Canyon study site. A. Degenhardt 2003

### ***Volunteers***

Volunteers have become increasingly essential for the success of long-term monitoring programs. The recruiting and training of volunteers is mutually beneficial and provides the volunteers an opportunity to learn new skills. Local volunteers participated in a variety of bird monitoring techniques including mistnetting and bird banding, vegetation assessments, education and outreach and data entry. In 2002, four students from the White Mountain Research Station's Eastern Sierra Institute for Collaborative Education donated approximately 256 hours of work. In 2003, four volunteers donated a total of 81.5 hours of service to the PRBO's eastern Sierra bird monitoring projects. In 2004, seven volunteers donated 121 hours totaling 714.5 volunteer hours in three years.

### ***Outreach Articles and Newsletter Pieces***

Gates, R. 2004. "A Veery good day of bird banding" p 6 The Sierra Wave: Eastern Sierra Audubon Society Newsletter Sept/Oct 2004. ([http://www.esaudubon.org/wv23\\_2.pdf](http://www.esaudubon.org/wv23_2.pdf))

Gates, R. 2004. "Teaching about birds in the Mono Basin and beyond" p 9. Observer. Quarterly journal of PRBO Conservation Science. Number 137. Summer 2004. ([http://www.prbo.org/obs\\_cms](http://www.prbo.org/obs_cms))

Gates, R. 2003. "Eastern Sierra Songbird Outreach Project." p. 4 Flight Log 12: CalPIF Newsletter Winter/Spring 2002 – 2003 (<http://www.prbo.org/calpif/flightlog/Flightlog12.pdf>).

Gates, R. 2003. "Bird Migration in the Basin" pp. 13 and 17. Mono Lake Committee Newsletter: Spring 2003. (<http://www.monolake.org/newsletter/03spring/index.html>).

Gates, R. 2003. "Help PRBO Survey Our Birds." p. 4. The Sierra Wave: Eastern Sierra Audubon Society Newsletter March/April 2003. ([http://esaudubon.org/wv21\\_4.pdf](http://esaudubon.org/wv21_4.pdf))

Gates, R. 2003. "Mono Basin Bird Chautauqua" section RHJV 2003(Riparian Habitat Joint Venture). Version 2.0. The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian associated birds in California. California Partners in Flight. ([http://www.prbo.org/calpif/pdfs/riparian\\_v-2.pdf](http://www.prbo.org/calpif/pdfs/riparian_v-2.pdf))

Heath, S.K. 2003. "Mono's Tributary Streams as Songbird Habitat: What is the Appropriate Measure of Restoration Success?" pp. 12-13. Mono Lake Committee Newsletter: Spring 2003. (<http://www.monolake.org/newsletter/03spring/index.html>).

### *Oral Presentations*

Gates, R. August 2004. Mono Lake Shorebird Monitoring: citizen science in the eastern Sierra. Power point presentation to annual fall shorebird census participants. Lee Vining, CA.

Gates, R. August 2003. Mono Lake Shorebird Monitoring: citizen science in the eastern Sierra. Power point presentation to annual fall shorebird census participants. Lee Vining, CA.

Heath, S.K., G. Ballard, C. McCreedy, and V. Toniolo. June 2004. Songbird monitoring workshop. 3rd Annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Heath, S.K. June 2003. Add water and they will come? The restoration of Mono Basin's riparian songbird community. Power point presentation. 2nd annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Heath, S.K., G. Ballard, C. McCreedy, and V. Toniolo. June 2003. Songbird monitoring workshop. 2nd Annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Heath, S.K. June 2002. Eastern Sierra Riparian Songbird Conservation Project. Power point presentation. 1<sup>st</sup> Annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Heath, S.K., G. Ballard, C. McCreedy, Q. Latif, V. Toniolo. June 2002. Songbird monitoring workshop. 1<sup>st</sup> annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Latif, Q. July 2003. The fate of fresh eggs and juicy featherballs: Nest predation at Mono Lake. Power point presentation at "Willow Flycatchers, Brown-headed Cowbirds and the critters who eat them: An evening of slides, science and wine - or - refreshments with refreshing biologists". Hosted by PRBO and the Mono Lake Committee.

McCreedy, C. June 2004. Restoration success on Mono Lake's tributaries: The Willow Flycatcher come-back on Rush Creek. PowerPoint presentation. 3rd Annual Mono Basin Bird Chautauqua. Lee Vining, CA.

McCreedy, C. 2003. Atypical Willow Flycatcher nesting sites in a recovering riparian corridor at Mono Lake, CA. Power point presentation at "Willow Flycatchers, Brown-headed Cowbirds and the critters who eat them: An evening of slides, science and wine - or - refreshments with refreshing biologists". Hosted by PRBO and the Mono Lake Committee.

McCreedy, C. and S.K. Heath. Atypical Willow Flycatcher nesting sites in a recovering riparian corridor at Mono Lake, CA. Western Section of the Wildlife Society meeting. Irvine, CA.

Tonra, C., S. Abbott and D. Banta. June 2004. Feeder café: An afternoon of bird watching and study of cowbird ecology. Avian ecology workshop. 3rd Annual Mono Basin Bird Chautauqua. Lee Vining, CA.

Tonra, C. July 2003. Parasites in Paradise: Brown-headed Cowbirds in the Mono Basin. Power point presentation at “Willow Flycatchers, Brown-headed Cowbirds and the critters who eat them: An evening of slides, science and wine - or - refreshments with refreshing biologists”. Hosted by PRBO and the Mono Lake Committee.

### ***Scientific Publications***

Heath, S. K. and G. Ballard 2003. Patterns of breeding songbird diversity and occurrence in riparian habitats of the eastern Sierra Nevada. Proceedings of the Riparian Habitat and Floodplains Conference. Sacramento, CA. PRBO contribution # 767.

Heath, S. K. and G. Ballard 2003. Bird species composition, phenology, nesting substrate and productivity for the Owens Valley alluvial fan, Eastern Sierra Nevada, California 1998-2002. Great Basin Birds 6(1): 18- 35.

Heath, S.K. *In review*. Yellow Warbler (*Dendroica petechia brewsteri* and *D.p.sonorana*) species accounts for California Bird Species of Special Concern: Draft List and Solicitation of Input, 2001.

McCreedy, C. and S. K. Heath. *In press*. Atypical Willow Flycatcher nesting sites in a recovering riparian corridor at Mono Lake, CA. Western Birds.

Richardson, T. W. and S. K. Heath. *In review*. Effects of conifer on aspen-breeding bird communities in the Sierra Nevada. Transactions of the Western Section of the Wildlife Society.

### ***Informational materials dissemination to local partners***

In 2003 and 2004, PRBO sent local partners informational packets with materials regarding bird feeding, songbird and owl nest box maintenance and creating backyard bird-friendly habitat (Table 2). Partners were encouraged to distribute materials to visitors, staff and other partners.

Table 2: List of organizations or agencies receiving outreach packet (2003 and 2004).

Bureau of Land Management, Bishop Field Office  
Devils Postpile National Monument  
Eastern Sierra Audubon Society  
Friends of the Inyo  
Humboldt-Toiyabe National Forest, Bridgeport Ranger District  
Interagency Visitor's Center, Lone Pine  
Inyo National Forest, White Mountain, Lee Vining and Mammoth Ranger Districts  
Mono Lake Committee Information Center and Bookstore  
Mono Lake Tufa State Reserve

### *Evaluation*

Teachers were asked to evaluate the effectiveness of PRBO's in class visits by rating them on a scale of 1 to 10 as well as answering a few questions regarding the quality of context and content. A total of 7 teachers provided feedback in 2003 and 2004. Teachers were overwhelmingly in support of the project and gave constructive feedback on how to improve the project's activities to meet their needs. In summary, teachers gave high ratings averaging 9 on a 10 point scale.



## *Acknowledgments*

Financial and logistical support for this effort was provided by United States Forest Service Region 5 Partners in Flight, Inyo National Forest, Devils Postpile National Monument, National Park Service's Natural Resource Park Preservation-Small Parks Grants program, Humboldt-Toiyabe National Forest, Bureau of Land Management Bishop Field Office, Mono Lake Committee, Eastern Sierra Audubon, Mono Lake Tufa State Reserve, California Department of Fish and Game and Neotropical Migratory Bird Conservation Act funds. Melissa Pitkin provided crucial support in initiating this project. Special thanks to PRBO biologists Yen Luc, Noah Hamm, Gernot Huber, Heidi Black, Leslie Slavin and Sue Abbott, who's interpretive expertise was essential to the success of this project. Other PRBO biologists who provided their biological expertise and interpretation of their work include Grant Ballard, Leah Culp, Kiera Freeman, Justin Hite, Jennifer Kendrick, Quresh Latif, Chris McCreedy, Kristie Nelson, Viola Toniolo, Brian Scavone, Ben Snead, Carin Sorisio, Tamathy Stage, Chris Tonra, Simone Whitecloud and Colin Woolley. Margina Rhyne, Miguel Berrios, Nick Clark, Jean Dillingham, Deanna Lloyd, Ralf Gottschalk, Megan Harns, Marcy Protteau, Emilie Strauss and Ben Winger offered their valuable time and energy as volunteers. This is PRBO contribution # 837.

### *Photo Credits-Cover page:*

Heidi Black and Leslie Slavin during the Chautauqua. Arya Degenhardt 2004.

Spotted Sandpiper wing. Kelly Grady 2004.

River showing Alex robin wing. Janet Carle 2004.