

# The Rectrix

A seasonal newsletter of the Missouri River Bird Observatory    Volume 3 No. 3 - October 2013



rectrix [rek-triks] noun. (pl. -trices) any of the larger feathers in a bird's tail, used for steering in flight.





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#### ON THE COVER

A LeConte's Sparrow  
at Paintbrush Prairie  
Conservation Area.

Photographed by  
Nic Salick.

# Letter from an assistant

Dear MRBO members,

May was a very busy month for me this year. I spent countless hours prepping for my semester finals, the last I would take for my B.S. at the University of Wisconsin – Stevens Point. At long last graduation day came, but mine felt extra special. After the lengthy ceremony, and a quick lunch with my family, I hoped in the car for my journey to Missouri. I started my new job the next day, and I had to be 500 miles away. The whole drive down was filled with thoughts of what my new job with MRBO might bring. Now months after that, I feel like I could never have imagined how far it would take me.

My summer was filled with adventures on the prairie, working as a technician for MRBO's grassland bird monitoring efforts. My first week was nothing short of magical, spending it on Dunn Ranch: where singing Bobolinks out-numbered Red-winged Blackbirds on our surveys, Greater Prairie Chickens could be heard booming, and bison still roam. After a quick week at Dunn Ranch, I hit the road for an action packed six-week field season. Over that time I made it to prairies all over Missouri and Kansas, each one had its own unique composition of birds and different spring flowers.

With putting over 150 miles on my boots marching transects through tall grass, hip-high creeks, and every draw of poison ivy, it was very apparent just how deeply MRBO was committed to grasslands and conservation. Over 40,000 acres were surveyed as part of our 2013 grasslands monitoring project, recording and physically mapping locations of 8,237 grassland birds. Using our maps of bird locations, along with knowledge of burning and grazing that has taken place, land managers are able to see the effects those practices have on the birds on those properties. This type of research allows management strategies of conservation areas surveyed to be highly adaptable: a crucial quality. This study has opened my eyes as a young researcher to the value of exploring new techniques and methods that help research and management organizations work together towards common goals.

For most technician jobs in the wildlife field, after collecting data for weeks or months, the tech hands their work over to a lead researcher for analysis. With aspirations of pursuing a Master's degree in the near future, I was very excited to get my hands on the raw numbers. I gained valuable experience working my way through complicated computerized modeling with the large data set, something that will surely prove itself useful in my future research endeavors.

Just as we completed the grasslands project for 2013, we started to gear up for next year. Together with our partners we continue to identify and implement improvements to this project. As this monitoring effort progresses over the coming years it will represent the commitment to the long-term success of bird conservation that MRBO strives for.

I felt very fortunate to get a chance to come back to MRBO for the fall season. I've been marching prairies in the Cole Camp and Green Ridge areas assessing what birds may be using these habitats during their autumn migrations. In stark contrast to having a little brown bird dart away and down into the grass on surveys, I've gotten a chance to get a good look at many birds right up close during our bird banding portion of fall migration monitoring. It's taken my appreciation of birds to a new level; there's something very special about getting to see some of the incredibly subtle features of intricate plumages and feathers.

Even now it's hard for me to believe that this is my job, and I consider myself very fortunate. When you strip away the data recording and computer modeling, my job is simply to go birding. I'm having a blast! I have the opportunity to observe and become very familiar with our grassland obligate birds, as well as see many species for my first time. Each and every one of my days in the field is its own adventure; I never have the exact same experience twice.

I have great hope for the future when I see an organization with such a great outlook on outreach, conservation, and protecting our feathered friends. I hope to continue to soak up as much of that mentality as possible, and carry it forward to my future work.

Sincerely,

Nic Salick





# Upcoming Events

Winter is Backyard Banding season for MRBO! All of the following events, unless otherwise noted, are bird-banding demonstrations that are free and open to the public. Join us to see our Missouri winter birds in the hand and learn about their ecology and conservation! These events are great for kids and families. As more dates are planned, they will appear on our home page at [www.mrbo.org](http://www.mrbo.org).

**November 2<sup>nd</sup> in Joplin:** Wildcat Glades Audubon Conservation & Nature Center. 201 Riviera Drive. 12 p.m. – 3 p.m.

**November 14<sup>th</sup> in Washington:** Hillerman's Nursery & Florist. 2601 E. 5<sup>th</sup> Street. 2:30 – 4:00 p.m.

**November 16<sup>th</sup> in Blue Springs:** Burroughs Audubon Library. 7300 SW Park Road. 10 a.m. – 1 p.m.

**November 23<sup>rd</sup> in Arrow Rock:** State Historic Site Visitors Center. 10 a.m. – 12 p.m. An hour presentation on "Woodpeckers!" followed by target-trapping and banding of these charismatic carpenters.

**December 13<sup>th</sup> in Jefferson City:** Birds-I-View, 512 Ellis Boulevard. 2:00 – 4:30 p.m.

**December 14<sup>th</sup> in Blue Springs:** Burroughs Audubon Library. 7300 SW Park Road. 10 a.m. – 1 p.m.

**January 4<sup>th</sup> in Arrow Rock:** State Historic Site Visitors Center. 10 a.m. – 1 p.m. Winter Bird Workshop. Learn identification of Missouri's winter birds, build a bird feeder or nest box, and view birds in hand!

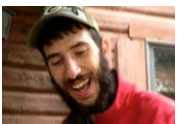
**January 10<sup>th</sup> in Jefferson City:** Birds-I-View, 512 Ellis Boulevard. 2:00 – 4:30 p.m.

**January 11<sup>th</sup> in Blue Springs:** Burroughs Audubon Library. 7300 SW Park Road. 10 a.m. – 1 p.m.

**February 15<sup>th</sup> in Blue Springs:** Burroughs Audubon Library. 7300 SW Park Road. 10 a.m. – 1 p.m.

**March 1<sup>st</sup> in Springfield:** Springfield Conservation Nature Center. 4600 S Chrisman Avenue. 1:30 – 4:30 p.m.

## Inside This Issue



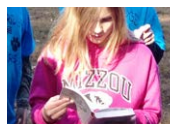
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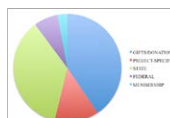
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# Fall Migration 2013

This fall season, MRBO has undertaken several different migration monitoring projects. Beginning in late August we continued our investigation of passerine migration at Van Meter State Park and at our home office site outside the town of Marshall, MO. Recently, we opened our third season of Northern Saw-whet Owl banding efforts, which will continue until late November. Also, thanks to support from the Missouri Conservation Heritage Foundation, we have been able to implement grassland bird surveys in the Cole Camp Prairies area throughout the fall; these surveys will continue into November.

## *Passerine Migration*

We had two main goals in operating our fall migration banding stations this year: 1) to provide mist-netting and banding experience to four interns, and 2) to compare a natural site (Van Meter State Park) with a residential site (Home) in terms of bird diversity and abundance. We operated these sites from late August to late October.

Unfortunately, the fall migration here in central Missouri seemed unusually sparse this year, especially for woodland and shrubland songbirds. Consistent with reports from birders and other banding stations throughout the Midwest, passerine migration at our banding stations exhibited the slowest fall in four years of operation. Captures at Van Meter State Park numbered just over 160 in 1050 net hours (14 birds/100 net hours). For comparison, in Fall 2012 we captured an average of 30 birds/100 net hours. Most of the recent season's captures came in mid- to late-October when White-throated Sparrows and Dark-eyed Juncos arrived. Numbers and diversity of warblers and thrushes were extremely low.

Our Home site was even slower in terms of not just captures but also observations. Resident birds, such as Northern Cardinals, Red-bellied Woodpeckers, and American Robins were consistently observed throughout the season, but migrants, with the exception of Yellow-rumped Warblers, were scarce. One Ovenbird was captured early in the season, as was a small mixed flock containing other warblers. No thrushes or American Woodcock were captured, contrary to previous years when Swainson's, Grey-cheeked, and Hermit Thrushes, as well as Woodcock were both observed and captured.

One positive aspect of the low capture rates was that each bird could be safely examined and discussed, providing some ageing and sexing experience for our crew. Though experience through repetitive example (e.g., viewing the ageing criteria for many different warblers) was not possible, our interns were able to extract and band at least 10 birds each. Hopefully this provides a foundation for learning further banding techniques in the future, at MRBO and elsewhere.

Though migration was slow here in central Missouri we did have some neat highlights, including:

- ✧ A Blue-winged Warbler (our third ever banded) at Van Meter State Park.
- ✧ A female Bay-breasted Warbler (our first ever banded) at Van Meter State Park.
- ✧ A late-migrating Mourning Warbler captured on October 6<sup>th</sup> at Van Meter State Park.
- ✧ A mixed flock containing Yellow-throated Vireos, Nashville and Tennessee Warblers, and a Chestnut-sided Warbler at the Home site.
- ✧ Large (>80) flocks of Chimney Swifts observed travelling south over the Home site every morning in early September.

## *Northern Saw-whet Owl Migration*

At the time of this writing our Northern Saw-whet Owl (NSWO) station has only been in operation for four nights. We opened a little bit earlier this year, with a start date of October 21<sup>st</sup>. On Saturday October 26<sup>th</sup> we captured our first owl, an After Second Year female, at 11 p.m.! According to the many NSWO banders on the Project OwlNet list-serve ([www.projectowl.net](http://www.projectowl.net)), these little owls are being captured in lower numbers this year than in 2012, which was a big "invasion" year. Nonetheless, we are hoping that the NSWOs are just going to be late this year and we plan to run the MRBO station until the end of November. In previous years, our peak period has been approximately October 28<sup>th</sup> – November 15<sup>th</sup>. It is still a mystery where these little guys are headed when they come through central Missouri. Several attempts in the Missouri Ozarks have shown that a few birds do end up farther south; hopefully we will continue to shed light on the phenomenon of NSWO migration and wintering habits here in Missouri with banding attempts planned at other locations in the state through December.

## *Grassland Bird Migration*

The MRBO Grasslands Project has become our biggest monitoring effort and this year we expanded it to include fall migration surveys. Though still in the pilot phase, this is ground-breaking work because extremely little is known about the migratory pathways, stopover time, and habitat use by migrant prairie birds. We do know that in 10 seasons of operating migration banding stations here in Missouri, grassland obligate species (unlike forest interior, shrub, or edge species) are almost never documented at traditional migration stations. They appear to utilize similar habitat – open prairie or savanna – during migration as well as the breeding season.

The main impetus for expanding our grasslands project is the concept of full life-cycle conservation. Grassland birds are declining more quickly than any other guild of birds in North America. It is important to maintain and restore available breeding habitat for these species, but just as important to provide ample habitat to support migrating and wintering populations. In keeping with our breeding-season transect surveys (read more about this at [http://www.mrbo.org/downloads/pdfs/MRBO\\_Grasslands\\_Public\\_2013.pdf](http://www.mrbo.org/downloads/pdfs/MRBO_Grasslands_Public_2013.pdf)), we established fall migration surveys at several prairie Conservation Areas (CAs) near Cole Camp and Green Ridge. Thanks to funding from the Missouri Conservation Heritage Foundation and to the work of survey technicians Nic Salick and Josh Smith, MRBO has logged almost 3,500 detections of grassland birds to date. Preliminary results for each CA are presented in the following table.

Species	Conservation Areas									Grand Total
	Bruns Tract	Bryson	Grandfather	Hartwell	Hi Lonesome	Ionia	Kearn	Mora	Paint-brush	
American Crow									2	2
American Goldfinch	3	169	55	18	13	187	122	15	280	885
American Kestrel						1	2			3
American Pipit		2							1	3
American Robin				2				1	1	4
American Tree Sparrow						1				1
Barn Swallow		23		6	4	10	26	1	13	83
Bell's Vireo					1				4	5
Bluejay				2		1	2	1	28	34
Bobolink		14				4	4		2	24
Brown Thrasher				1				1	2	4
Canada Goose	1									1
Cedar Waxwing		1							2	3
Chimney Swift					20					20
Cliff Swallow	3				16	4	9		5	37
Common Yellowthroat		1	5	2	1	45	5	2	27	88
Cooper's Hawk		2				3			2	7
Dickcissel	2	41	1	8	43	72	54	18	33	272
Double-crested Cormorant		2								2
Downy Woodpecker								1		1
Eastern Bluebird						4				4
Eastern Kingbird							1			1
Eastern Meadowlark	16	174		2	4	35	45	1	41	320
Eastern Towhee									3	3
Eastern White-crowned Sparrow		2	5			4	5			16
European Starling		25					2	1	53	81
Field Sparrow			15		2	11	7	3	28	66
Grasshopper Sparrow							1		5	6
Gray Catbird							2			2
Henslow's Sparrow		1	1		3				1	6
Horned Lark	10	17					4			31
House Wren		1				6			2	9
Indigo Bunting			3					1	2	6

Species	Conservation Areas										Grand Total
	Bruns Tract	Bryson	Grandfather	Hartwell	Hi Lonesome	Ionia	Kearn	Mora	Paint-brush		
Junco Sp.			1								1
Killdeer		3				10	5				18
Lark Sparrow									1		1
LeConte's Sparrow		1	2			1	3		3		10
Lincoln's Sparrow			9			12	6		4		31
Loggerhead Shrike		1									1
Mallard						1					1
Marsh Wren		3				2	6		6		17
Morning Dove					3	4	1	1	6		15
Nashville Warbler									1		1
Nelson's Sparrow							1				1
Northern Bobwhite						10			13		23
Northern Cardinal				1				1	1		3
Northern Flicker		4	1	1			1		2		9
Northern Harrier						2					2
Northern Mockingbird									1		1
Northern Rough-winged Swallow		8				8	3				19
Red-bellied Woodpecker				1							1
Red-headed Woodpecker					1						1
Red-tailed Hawk			1		1	1					3
Red-winged Blackbird		225				18	27		19		289
Ruby-throated Hummingbird					7			6	12		25
Savanna Sparrow		82				153	60		2		297
Sedge Wren		2		2		11	11		12		38
Sharp-shinned Hawk						1					1
Song Sparrow		42				11	5		6		64
Sparrow Sp.	4	105	18	2		123	108		91		451
Swamp Sparrow			3			1	2				6
Tree Swallow						17			22		39
Tufted Titmouse			1								1
Turkey Vulture		1	1	3	6	2			14		28
Vesper Sparrow									1		1
White-throated Sparrow						1			3		4
Wilson's Snipe						1					1
Winter Wren							1				1
Wood Duck		1							8		9
Yellow Rail									1		1
Yellow-shafted Flicker									1		1
Grand Total	39	953	122	51	125	778	531	54	767		3451



# A Close Look at Hummingbirds

## by Veronica Mecko



**Veronica Mecko** has worked for MRBO seasonally since 2011. As a bander, she carries three different permits, one for hummingbirds in Missouri, one for hawks and raptors in Iowa, and one for all passerines and near-passerines in Missouri. Veronica headed all of MRBO's grasslands banding projects in 2013 as well as performing thousands of acres of grassland bird surveys. After operating her own Saw-whet Owl project in Iowa and hummingbird project in Costa Rica this winter, she will return to MRBO full-time in spring 2014.



It is not unusual for Ruby-throated Hummingbirds to get caught in mist nets. MRBO has had many hummingbirds in nets during spring and fall migrations and at the MAPS prairie sites in the summer. This past spring, even the grassland migration sites at Mora and Hi Lonesome Conservation Areas had hummingbirds in

the nets! Because a separate federal permit is required to band hummingbirds, any hummingbirds captured have been identified to age and sex but were released without a band and noted as a unbanded capture.

By late August 2013, however, MRBO was able to band hummingbirds for the first time. In July, I attended an intensive training workshop in Arkansas to learn to band hummingbirds and make hummingbird bands. Thanks to Missouri hummingbird bander Lanny Chambers, I was then was able to get a subpermit to band hummingbirds for MRBO.

### *Hummingbirds in Research*

A pilot study was done at fall migration sites to compare stopover sites of Ruby-throated Hummingbirds. The Ruby-throated Hummingbird is a long-distance migrant and requires nectar, insects, and other food to feed on as it migrates southward. A stopover is a place where a bird will rest from its flight and spend

time feeding and storing fat for the long migration. Jewelweed is one of the fall blooming plants with nectar that hummingbirds rely on during fall migration. I wanted to observe hummingbirds at a natural site with abundant jewelweed and at a site close to an urban setting with an artificial feeder as well as some flowering plants.

The natural study site was at Van Meter State Park (VMSP) near the Oumissourit Marsh where two species of jewelweed grow: Spotted Jewelweed (*Impatiens capensis*) and Pale Jewelweed (*I. pallida*). I ended up banding hummingbirds at two different urban sites, one near Marshall and another at Arrow Rock. At both urban sites we also used a trap in addition to mist nets to capture hummingbirds. I marked each banded hummingbird with a spot of paint in order to be able to resight them to see how long they stayed in an area.

Of the 48 Ruby-throated Hummingbirds banded this fall, seven of them were at VMSP. Four of these were adult females, two were hatch-year females and one was a hatch-year male. Neither I nor the rest of the MRBO crew were able recapture or resight any hummingbirds at VMSP this season. This may be due to the late start I got in banding hummingbirds at VMSP, the low numbers caught, or possibly that their stopover time in the Oumissourit Marsh was relatively short.



At the Marshall site, I banded 36 hummingbirds, 16 of them were hatch-year males, 14 were hatch-year females and six were adult females. An adult female that was captured by mist net on September 15<sup>th</sup> was recaptured in the trap on September 22<sup>nd</sup>. Her weight had increased from 2.83 grams to 3.85 grams (a small paperclip weighs about 1 gram); this is quite a substantial increase, percentage-wise, for such a tiny bird! A hatch-year male was captured in the trap on September 25<sup>th</sup>, was resighted at the feeder the same evening and then recaptured at the trap the following evening. His weight increased from 3.01 grams to 4.52 grams (about 50%) in a 24-hour period.

I captured four hummingbirds at Arrow Rock, two hatch-year females and two hatch-year males. One of the females was captured in a mist net on September 7<sup>th</sup> and then recaptured in a trap a week later and her weight increased from 3.15 to 3.85 grams.

An interesting result from the pilot year is that there were no adult male hummingbirds captured. Adult males are known to be the first to migrate north in the spring and then the first to begin the migration south, as early as late July. My study did not begin until August 30<sup>th</sup>, which may have been too late to capture adult males. However, three adult males were observed defending different jewelweed patches throughout VMSP until September 9<sup>th</sup>. Also interesting was that during the last half of September and into October only one adult female was captured compared to 13 hatch-year males and eight hatch-year females.

I also observed that hummingbirds were captured at the Marshall site more than a week longer than at VMSP. The last hummingbird captured at VMSP was on September 25<sup>th</sup>, and the last one observed was on September 26<sup>th</sup>. At the Marshall site there were four hummingbirds banded as late as October 4<sup>th</sup>.



In 2014 I will start banding hummingbirds in early August in order to include adult males in the sample. At VMSP, I will be target-trapping territorial males at the various jewelweed patches; I'd like to see if the hummers that are defending the patches are the same individuals throughout the late summer and migration season. From observations this season, it seemed that the adult males were defending the largest jewelweed patches, and hatch-year males or females had smaller patches. I hypothesize that the same birds stay at these jewelweed-rich patches as long as they can, and that there may be some advantage to staying at a known nutrient-rich food site as long as possible even if it means arriving at the winter grounds later than other hummingbirds.

#### *Hummingbirds in Education*

On Saturday September 14<sup>th</sup>, MRBO and the Arrow Rock State Historic Site hosted over 40 visitors from Missouri, Kansas, and as far as Oklahoma who came to learn about the diversity of hummingbirds and observe hummingbird banding. The day was cool and sunny and the hummingbirds were active at the feeders around the visitor's center. I gave a presentation on hummingbirds of the Americas, and then proceeded to work with hummingbird bander Lanny Chambers to provide banding demonstrations to the crowd.

Lanny has been banding for about 13 years. He and his wife Linda do several banding presentations each spring and summer at Montauk and Onondaga State Parks. I visited them at Montauk State Park during their May presentation and then in August I was able to join Lanny in banding hummingbirds there. It was exciting to have Lanny and Linda come to Arrow Rock and share their knowledge of hummingbirds.

We banded 11 Ruby-throated Hummingbirds during the morning, including a young male with just one bright red, iridescent feather in his throat. By next spring, this bird will have replaced his throat feathers with a full gorget of red feathers. During the Arrow Rock event, I also recaptured the hummingbird that I had banded the previous Saturday. This particular female had gained some weight during the week and would need to gain more before finishing the long journey south. The hummingbird banding is part of a project to study hummingbirds during migration, comparing their stopovers at different sites as they move south, so it was interesting to know that this female had remained in the area for at least a week.

The best thing about the day was the awe and wonder of everyone in the audience for these special birds. All who attended got to see hummingbirds in the hand, and several attendees even got to release hummingbirds from their own hands. You can tell by the joy on their faces what a special experience this was. I hope to continue the educational events as well as the research part of my hummingbird banding in 2014!



# ~Education & Outreach~



*By MRBO Educator Alie Mayes*

MRBO has been staying busy with a variety of education and outreach events this fall. The following is a summary of these events by location.

## Arrow Rock State Historic Site

- ✂ On September 7<sup>th</sup>, we held a public banding demonstration at the AR Visitor Center.
- ✂ A hummingbird outreach program held on September 14<sup>th</sup> at the AR Visitor Center was attended by more than 40 people from all over Missouri and even other states! Our hummingbird bander Veronica Mecko gave a presentation on her work in North and Central America that was followed by a banding demonstration with assistance from fellow hummingbird bander Lanny Chambers. Together Veronica and Lanny banded 11 Ruby-throated Hummingbirds.
- ✂ On October 5<sup>th</sup>, we held a public banding demonstration at the Arrow Rock Visitor Center. Due to poor weather, Veronica Mecko gave a presentation about the many species of hummingbirds she worked with during her time in Central America. The weather cleared up and we were able to go ahead with our banding demonstration. This was followed by a presentation from Dana Ripper on the Wonders of Migration.
- ✂ On October 13<sup>th</sup> we took a step back in time at the 45<sup>th</sup> Annual Arrow Rock Heritage Craft Festival with hands-on bird house building demonstrations for children and families. We were able to provide many free wren, bluebird, and kestrel boxes, as well as information about habitat suitability and placement.



Alie Mayes began work with MRBO in 2012 on our spring migration and MAPS projects. Since that time, she spent several seasons performing environmental education work in California with the US Fish & Wildlife Service, in Pennsylvania with a summer youth camp, and in Washington D.C. with the Smithsonian Migratory Bird Center. Alie has returned to MRBO to provide much-needed help in the development and operation of our education program.

## Van Meter State Park

- ✂ Our fall migration banding station at Van Meter opened in late August. We have had the opportunity to speak with park visitors throughout the season about our monitoring techniques and the species that utilize the state park.

## Warrensburg

- ✂ September 10<sup>th</sup> was our “Gardening with Recyclables” program at the Trails Regional Library



in Warrensburg. Attendees learned earth-friendly, attractive ways of reusing materials, the benefits of gardening with native plants, and tips on how to make their yards more attractive to birds.

#### Columbia

- ✎ October 9<sup>th</sup>-11<sup>th</sup> MRBO participated in the fall “Band with Nature” field trip program hosted by the Columbia Missouri Audubon Society. Over 1000 second graders from across Columbia attended the event held at the Columbia Audubon Nature Sanctuary. The energetic students were engaged in discussions about what separates birds from other species and how we can study birds. The bird banding demonstrations captured their attention and fueled their enthusiasm and wonder.

#### Cole Camp

- ✎ On October 12<sup>th</sup> we took part in the annual Prairie Days in Cole Camp with morning and evening bird banding demonstrations at Doc Morton’s restored prairie, adjacent to Hi-Lonesome Conservation Area. Though the morning started out windy, we were able to catch birds at both sessions. Species banded included Field Sparrow and Northern Mockingbird.

#### Centralia

- ✎ On October 23<sup>rd</sup>, we headed to the City Recreational Park in Centralia to provide a banding demonstration station as part of Chance Elementary second grader’s field day. The students were able to learn about the birds in their area. Due to cold weather, the field trip moved back to the school for the afternoon sessions.

#### Knob Noster

- ✎ On October 28<sup>th</sup> we joined Green Ridge 5<sup>th</sup> and 6<sup>th</sup> grade classes to take part in their field trip at Knob Noster State Park. The students participated in bird hikes, learned about monitoring methods, and were able to see a variety of birds banded (highlights included a Winter Wren, Red-headed Woodpecker, many Tufted Titnice, a Carolina Wren, and a Slate-colored Junco).



Clockwise from top:

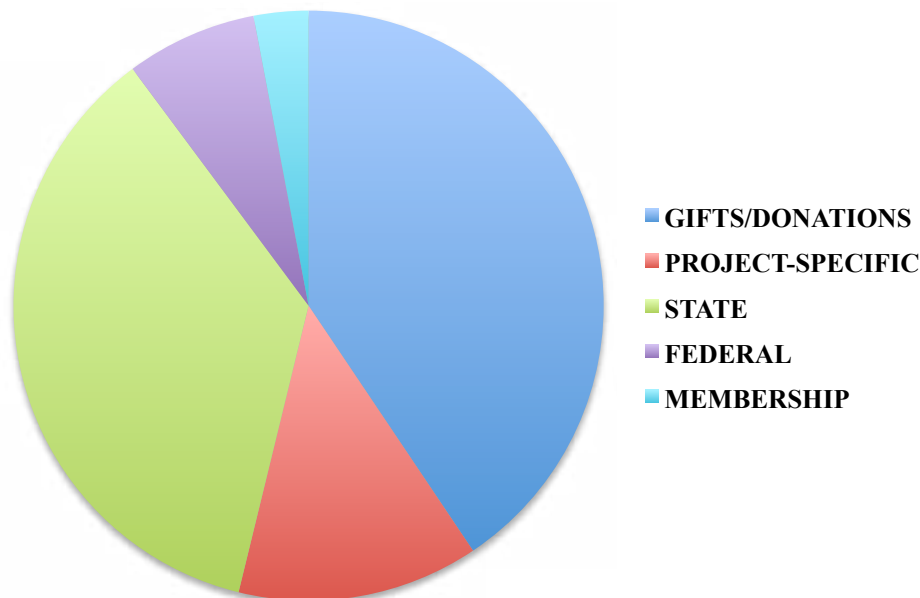
- ✎ Bander Lanny Chambers about to place a hummingbird in a young man’s hand to release.
- ✎ Alie Mayes shows students a female Northern Cardinal in hand.
- ✎ Centralia students examining the yearly range of the Orange-crowned Warbler.



# MRBO by the Numbers: Fiscal Year 2013

Income Type	Amount
Research & Monitoring Grants/Contracts	\$60,053.72
Education Grants/Program Income	\$8,117.16
Unrestricted Gifts/Donations	\$43,282.41
Remaining Assets FYE2012	\$11,056.10
<b>Total</b>	<b>\$122,509.39</b>

Expense Type	Amount
Permanent & Seasonal Staff Salaries/Fringe	\$69,226.13
Research & Monitoring Projects	\$12,187.03
Education Programs	\$2,034.79
Assistant Housing	\$6,546.03
Administrative Expenses (Utilities, printing, meetings, etc).	\$5,190.10
<b>Total</b>	<b>\$95,184.08</b>
<b>Remaining Assets FYE2013</b>	<b>\$27,325.31</b>



# Please join the Missouri River Bird Observatory in conserving Missouri's birds and their habitats.

*Your membership is a direct contribution to MRBO's avian conservation projects, environmental education program, and internship opportunities for young biologists in Missouri. MRBO membership provided the majority of funding for our education and outreach work, fall migration monitoring, and Northern Saw-whet Owl research in 2012, and allowed us to run at full capacity in all other projects.*

## Membership Level

- ☐ Student \$20
- ☐ Individual or Family \$50
- ☐ Supporter \$100
- ☐ Contributor \$250
- ☐ Steward \$500+

## Includes

MRBO e-newsletter & water bottle

MRBO e-newsletter & hat or mug

MRBO printed newsletter  
your choice of T-shirt, mug or hat

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all above gifts, plus custom field program  
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*Please send this sheet with check addressed to: Missouri River Bird Observatory  
27331 Highway WW, Marshall MO 65340. Or join via Paypal at <http://www.mrbo.org/Pages/membership.html>*

**Thank you to our new members! The following individuals have joined or renewed their membership with MRBO since the publication of our summer newsletter:**

### Stewards

Bob & Pat Perry, Rolla MO

### Supporters

Kathy Borgman, Arrow Rock MO

Nathaniel Peters, Colorado Springs CO

### Individuals & Families

Marilyn Vreeland, Shelburne VT

Senator David & Mrs. Teresa Pearce,  
Warrensburg MO

### Students

Sara Cheek, Springfield MO



Left to Right: Alie Mayes, Ethan Duke, and Dana Ripper turned out in period clothing to construct nest boxes with families who attended the 45th Annual Arrow Rock Heritage Craft Festival. Many thanks to the Friends of Arrow Rock for including MRBO in this great event!

*Photo by Valerie Vreeland.*