



The Louisiana
Winter Hummingbird Project
2012-2013 Annual Report

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Echo of a Boom

In the bird world, when a larger than usual number of a wintering species shows up one year, there is often a smaller but significant number of that same species the following year. This phenomenon is referred to as an “echo,” and given the incredible number of wintering hummingbirds banded over the 2011-2012 season, we thought an echo year might be in the works. In addition, we guessed the number of returning birds might soar, given the number of immature birds banded during the season.

The echo definitely happened; Louisiana Winter Hummingbird Project banders experienced their second-best year ever. Surprisingly, we did not see a huge increase in the number of returnees - at least, not in line with the dramatic increase in the number of banded birds the previous season.

Many hosts reported as many, or nearly as many, hummingbirds as last year, and some sites saw their numbers grow even higher. Once again, the banders were pushed to their limits visiting both well-established sites and new sites brought into the network. In total, 609 new birds were banded in the 2012-2013 winter season, almost 100 more than the previous second-best tally of 510 back in the winter of 2003-2004.

This report summarizes the activity of the past winter season by Nancy Newfield, Linda Beall, Dave Patton, Steve Locke, Paul Dickson, Marty Floyd, and Erik Johnson, continuing a project begun in 1979 to investigate the phenomenon of hummingbirds wintering in Louisiana. When Newfield began the study, wintering hummingbirds anywhere in the southeastern U.S. were believed either to be “vagrants,” hopelessly lost, or else Ruby-throated Hummingbirds that somehow ‘forgot’ to migrate, with a further assumption that any such hummingbird was likely doomed to die when freezing temperatures arrived. Years of study have proven that many of these birds not only survive the winters, but return year after year to the same sites. Moreover, breeding season and migration studies show virtually all of our local breeding populations have

left by mid to late August, so the hordes of Ruby-throated Hummingbirds swarming at feeders and in our gardens in September are migrants from elsewhere, presumably points north and east. Until recently, none of our winter-banded Ruby-throated Hummingbirds had ever been re-encountered during the breeding season. However, we recently learned that one banded by Beall in Covington in 2005 was found dead later that same year in Manitoba, Canada - suggesting some of our wintering Ruby-throated Hummingbirds come from quite a distance!

The 1974 edition of *Louisiana Birds* by George H. Lowery, Jr. listed five species of hummingbirds known to occur in the state, including only a single record for Broad-tailed, three records of Buff-bellied, and only eight records for Black-chinned. At the time the project was initiated, two other species (Allen’s and Anna’s) had been documented; today, the state list stands at thirteen species of hummingbirds.

Methodology

This study differs from most passerine banding studies, which usually rely on mist-netting birds in a given area, often with strict protocols for running the nets on a set schedule and for fixed durations. Because the project targets specific birds, remote-controlled cage or mesh traps are used with hummingbird feeders inside to catch the birds for banding. Most birds are color-marked with water-soluble Liquid Paper, tinted in various colors; marked birds usually need not be recaptured during the same season to verify their identity.

Location

Nearly all birds were handled in the southern third of the state, from the Interstate-10 /12 line south. Patton covers the western part of the state, centered on Lafayette but extending to Baton Rouge. Beall covers the Florida Parishes east from Baton Rouge, concentrating primarily in the St. Tammany Parish area. Newfield covers much of Baton Rouge, the River Parishes, the New

Orleans metropolitan area, and the Houma/Thibodaux region. Locke primarily bands with Newfield at sites in her area. Dickson covers the northern portion of the state when wintering hummingbirds are reported there. Floyd is a long-time bird bander from central Louisiana who has agreed to help monitor parts of the state that are traditionally less covered by the group. Johnson is training as a hummingbird bander and he assists in the area from Lafayette to Baton Rouge.

From previous years, we know that these wintering hummingbirds do not necessarily stay in the same yard or even its immediate environs all season. Nor do returning birds always seek out the same yard, though they often do, sometimes even preferring a feeder in the same location.

The Season

We define the “winter season” as beginning with the arrival of the first hummingbird of a species other than Ruby-throated, usually in late July or early August, with previous first reported dates ranging from July 22 to August 6. In most years the first report is of a Rufous Hummingbird, often a returnee from a prior season, though on occasion the first arrival is a Buff-bellied. Because the season overlaps much of Ruby-throated Hummingbird southward migration (and indeed, it

extends into spring migration), we arbitrarily define any Ruby-throated Hummingbird seen after November 15 as a winter-season bird, and we include any identifiable young of the previous year in the winter tally as the first migrant Ruby-throated Hummingbirds return in the early spring. The season peaks in January and early February, when the majority of the banding takes place. However, when a season is good, as the last two have been, we begin a heavy schedule early and kept it going into March. While our last new birds are usually banded in March, winterers are sometimes present into April and on rare occasions as late as early May.

Effort

Seasonal effort varies with the number of birds reported to us for possible banding; in years when there are fewer birds reported, total hours expended and miles driven may be considerably fewer than in seasons like this. Over this winter, the various banders spent more than 150 bander-days in the field catching and banding birds. They drove in excess of 6,000 miles (not including separate driving by assistants) between home and the various banding sites, and they visited a total of 115 different banding sites, many more than once.

Banding By the Numbers

	Newly Banded	Returnees	Foreign Re-Encounters	Foreign Reports	Species Total
Ruby-throated Hummingbird (<i>Archilochus colubris</i>)	65	10	0	0	75
Black-chinned Hummingbird (<i>Archilochus alexandri</i>)	75	8	2	1	86
Broad-tailed Hummingbird (<i>Selasphorus platycercus</i>)	15	1	0	0	16
Rufous Hummingbird (<i>Selasphorus rufus</i>)	449	82	3	4	538
Allen’s Hummingbird (<i>Selasphorus sasin</i>)	7	1	0	0	8
Calliope Hummingbird (<i>Selasphorus calliope</i>)	34	0	0	0	34
Buff-bellied Hummingbird (<i>Amazilia yucatanensis</i>)	8	4	1	0	13
Total	653	106	6	5	770

Definitions: “Newly Banded” means a bird banded for the first time this season. “Returnees” are birds that were banded in previous seasons and returned to the original banding site (or elsewhere in the state) and that were recaptured by the original bander. “Foreign Re-Encounters” are birds banded at another site by another bander, but caught this season at one of our sites. “Foreign Reports” are those birds that were banded by the Louisiana team, either this season or in a prior year, but that were recaptured elsewhere this season outside the bander’s own area.

In addition, scores of man-hours were spent by both banders and assistants alike in preparing for site visits: contacting homeowners, delivering “dummy” traps to acclimate the hummingbirds to the appearance of an enclosure around the feeder, and so forth. Furthermore, unlike larger bird bands, hummingbird bands are supplied to the banders in sheets, and they must be individually cut and rolled by the bander ahead of time.

General Findings

In keeping with percentages from previous seasons when the number of hummingbirds was high, Rufous Hummingbirds made up the bulk of the catch. In those years, Rufous accounted for nearly 66% of the total number of birds handled. Two years ago, that percentage had fallen to just over 33% of newly banded birds, even though a solid majority of returnees were Rufous. This season, Rufous accounted for 69% of both all birds handled and newly banded birds.

As noted in the species accounts, Black-chinned Hummingbirds were a solid second place, with 11.5% of both all birds handled and newly banded birds. We do see fluctuations in the proportions of Black-chinned to Ruby-throated in the winter population, but in recent years the trend has been in the western species’ favor. The

75 newly banded Black-chinned and 86 total handled is tied with two winters ago for second-best season for the species.

Like last year, Ruby-throated numbers were up over the previous year, but not enough to move the species into second place. The total of 75 birds handled with 65 being newly banded marks the third consecutive season with a positive trend for that species.

Until recently, Buff-bellied was usually a solid fourth-place finisher. This year, however, marked a continuing decline in both reported and banded Buffies, keeping them in sixth place for abundance overall. Calliope Hummingbirds again took the fourth-place spot, increasing their share of total birds handled to 5.2%. Broad-tailed, last year’s least commonly handled species, moved up to the fifth-place spot at 2.3% of total birds handled. The number of Allen’s Hummingbirds varies widely, with this season’s numbers considerably down over the last, moving them from 5th to 7th (and last) place overall in terms of birds handled.

Both Broad-billed and Anna’s Hummingbirds occur periodically in Louisiana, though not every winter. This season saw no reports of Anna’s and only a single report of a Broad-billed, a female in St. Tammany Parish confirmed by photographs but which could not be caught for banding.

Seasonal Comparisons

<i>Season</i>	<i>New Birds</i>	<i>Returning Birds</i>	<i>Foreign Birds</i>	<i>Total</i>
2012-2013	653	106	6	765
2011-2012	815	61	7	883
2010-2011	240	74	3	317
2009-2010	231	81	4	316
2008-2009	210	63	3	276
2007-2008	319	77	7	403
2006-2007	456	57	11	524
2005-2006	301	77	7	385
2004-2005	355	111	11	477
2003-2004	510	85	7	602
2002-2003	481	53	9	543
2001-2002	482	55	2	539
2000-2001	416	32	3	451

Note: these numbers do not include Louisiana-banded hummingbirds reported elsewhere.

Broad-taileds Continue a Good Showing

Broad-tailed Hummingbird
Selasphorus platycercus

Louisiana's first Broad-tailed hummingbird, documented in the winter of 1952-53, was the state's sole record for more than twenty years. Never found in numbers, the last two winter seasons have been good for Broad-taileds. In the boom year of 2011-2012, the banders handled 12 individuals, including one adult female returning for a second season to the same site in Algiers. This year, there were 15 newly banded birds and one returnee, an adult male banded the past season as a young bird in Baton Rouge. One Baton Rouge yard hosted two immature male Broad-taileds the entire winter, along with two Calliopes and several Rufous - the first time in our memory that one site has had multiple individuals of these three species. Another Baton Rouge yard briefly hosted what was probably another adult male returnee from last season, but after it was observed during a banding session, it disappeared and was not seen again.

Like Allen's Hummingbirds, Broad-tailed females and immatures can easily be confused with their Rufous counterparts, and adult males superficially resemble adult male Ruby-throateds. It is not uncommon for the banding team to arrive at a site prepared to band mostly Rufous only to find a Broad-tailed in the mix.

The bird depicted above spent most of the winter in Louisiana at a home in Lafayette, although it did not complete its molt before departing. In such cases, it is possible the bird wandered to other sites in the area while continuing to replace its feathers, as it is believed that most of our wintering hummingbirds complete their molt on the wintering grounds before beginning migration.



Two Populations Spanning the Year

Ruby-throated Hummingbird
Archilochus colubris

To most people in Louisiana, "hummingbird" means the abundant Ruby-throated Hummingbird, our only documented breeding species and the only one present year-round in Louisiana. The year-round presence, however, masks the fact that our population of wintering birds is apparently completely separate from our population of breeding birds.

In addition to banding wintering hummingbirds, several of the banders are engaged in long-term banding studies of our breeding population of Ruby-throats. To date, despite years of study, not a single Ruby-throated banded in the breeding season has ever been recorded in the winter, nor has any Ruby-throated banded during the winter ever been recorded after the breeding season is well under way. Indeed, the only connection between our wintering Ruby-throats and another location is a bird banded in January several years ago that was subsequently found dead in Manitoba, Canada.

This dovetails with a theory that our wintering Ruby-throats mostly come from distant locations and simply do not (or cannot) migrate as far as the main population. In particular, it may be that our winter birds are late-hatched and have not matured enough to complete migration into southern Mexico or Central America. Young Ruby-throats banded in their first winter here often seem to be at the same stage of development as Ruby-throats banded in migration in September, and they frequently seem to complete their molt on the wintering grounds after the first returning Ruby-throats have already shown up, resplendent in their spring breeding plumage which no doubt was completed weeks earlier.

Notable Ruby-throats this year included an adult male (right) returning for its fourth winter to a Harahan yard. The bird was first confirmed as a returnee by the homeowner managing to photograph its band repeatedly until the entire sequence could be determined.



A Strong Second Again

Black-chinned Hummingbird
Archilochus alexandri

In one sense, this is the species that kicked off the Louisiana Winter Hummingbird Project. As of 1974, there were only eight state records of this western counterpart to our abundant Ruby-throated Hummingbird, and yet, in the first year in which Nancy Newfield began attracting winter hummingbirds to her Metairie yard, she hosted no fewer than seven immature male Black-chinned Hummingbirds, separable by different patterns to the unfinished gorget. Convinced that many of the reports of “Ruby-throats that forgot to migrate” were, in fact, this or other western species coming to us for the winter, instead of failing to leave after the summer, she undertook what was originally proposed to be a five-year study. The 2012-2013 winter marks the thirty-fourth year of this project.

In Louisiana, sites that host Black-chinned Hummingbirds often host several at a time. A garden below Houma had at least six, as did one yard in Thibodaux; meanwhile, a house in Baton Rouge and another in Thibodaux hosted at least five each. Because of the marked similarity between female Black-chinned and Ruby-throated Hummingbirds, it is possible that many sight reports of Ruby-throated Hummingbirds in winter may actually be Black-chinned. Careful study over the years has provided several visual clues, however, that help the experienced observer distinguish the two in the field.

Like their Ruby-throated cousins, wintering Black-chinned sometimes wander from site to site during the winter. One banded in a yard in Baton Rouge went back and forth between the banding site and another homeowner’s garden more than a mile away multiple times during the course of the winter. Another banded in



the same yard eventually took up residence at a public park several miles away. The bird depicted above, meanwhile, had been banded in February 2012 at a house in St. Gabriel but on its return to Louisiana this winter took up residence in Lafayette, remaining until at least mid-April.

In recent years, Black-chinned has claimed a solid spot as the second-most commonly banded or handled wintering hummingbird in Louisiana.

From Near and Far

Notable foreign-banded birds, foreign reports, and distance movements



Our banding team now regularly re-encounters “foreign” birds - hummingbirds banded by another bander. As noted previously, we were treated to a repeat return of a foreign-banded Buff-bellied Hummingbird (left). Originally banded in September 2010 along the Texas coast, this bird spent much of the winter of 2010-2011 in a garden in Harahan, returning to the same site in November of 2011. Again this winter, the bird made its appearance in the same garden, though it proved more difficult to catch and confirm the band this time (which is frequently the case with this species).

In mid-January, an adult male Rufous captured at a home in Baton Rouge proved to be a bird banded the previous winter as an immature bird in

Foley, Alabama. Over many years, Louisiana banders have encountered numerous Hummingbirds banded elsewhere along the Gulf Coast, from Mississippi into the panhandle of Florida. The banders working in that area have also encountered birds banded in Louisiana by our team. Some of these birds were banded in one area and later found in the other region during the same season. Based on the limited data gathered so far, it appears some birds may move west to east in late fall or early winter, returning from east to west in late winter, possibly as the birds begin their migration west and north.

Within the state, too, there is often movement from one site to another, so the banders sometimes handle each others’ birds. A Rufous Hummingbird banded in January of 2012 at a Covington home turned up this year at a site monitored by another bander. He later showed up at the original banding site, several miles away.

A Black-chinned Hummingbird banded in St. Gabriel in 2011-2012 spent the next winter in Lafayette, where it was recaptured by the original bander. Another Black-chinned, banded in Thibodaux in 2011, also turned up in Lafayette this winter. A Rufous banded in Harahan later moved to another bander’s site in Baton Rouge.

Reports of birds banded in Louisiana being reencountered elsewhere were more numerous this season. The most exciting was a female Rufous banded in January 2012 in Donaldsonville that turned up in October at a site in New Wilmington, Pennsylvania, where she was recaptured in December. This is the second Rufous banded in winter in Louisiana that was recaptured in Pennsylvania in a subsequent year. Both were birds banded in January here one year but recaptured in November the following year. Whether these birds had passed through Pennsylvania on their initial trip to Louisiana, or whether they continued to Louisiana after handling in Pennsylvania the next year, we simply don’t know.

Meanwhile, in January, a bander working in Tallahassee trapped a Black-chinned Hummingbird banded as a youngster in February of 2012 in Destrehan. A Rufous banded in Baton Rouge in January of 2012 was caught in Nederland, Texas in February of 2013.

Sadly, not all of our foreign reports are of birds recaptured by other banders. A Rufous banded in Metairie in January 2012 was found dead in Durango, Colorado in late July, presumably on its southbound migration. Another Rufous banded in New Orleans in September of 2011 was found dead in Texas in August of 2012. A third banded in January 2012 was found dead in Wyoming in December of 2012. Regrettable as these losses are, they still nonetheless provide valuable data points as we gradually get a clearer picture of the migratory travels of these hummingbirds.

New Name, Same Powerhouse

Calliope Hummingbird
Selasphorus calliope



For more than a century, the Calliope Hummingbird was the sole member of the genus *Stellula*, meaning “Little Star” - an appropriate name for North America’s smallest bird, with streamer-like gorget feathers. But as science advances and more is learned about the relationships between birds, things sometimes change. Observers have long noticed that the species shares a number of common traits with members of the genus *Selasphorus* (to which our Rufous, Allen’s, and Broad-tailed belong, as do three other small hummingbirds of the tropics). Genetic evidence now places Calliope in the same genus.

Calliope continued their strong showing of recent years, with 34 individuals banded. Several sites hosted multiple individuals of this species, including an unheard-of six in a garden in Harahan, four at one house in Metairie, three in a yard in Baton Rouge and two at several other sites. Not all of these birds were banded, but often with one or more individuals color-marked at banding, it’s possible to determine that there are in fact several more present.



Left: These two Calliope Hummingbirds, nicknamed “Calvin” (left) and “Opie” (above) spent the winter at Bluebonnet Swamp Nature Center in Baton Rouge. Above: Many people have no idea that hummingbirds enjoy bathing in fountains and misters, as this Calliope in Harahan is demonstrating for us.

A Troubling Decline Continues

Buff-bellied Hummingbird
Amazilia yucatanensis



Until a couple of years ago, Buff-bellied Hummingbirds were becoming one of the more common winter species, sometimes the third-most commonly banded. The last few winters, however, have seen a precipitous decline in the number banded (and even in the number reported that the banders were unable to catch). This species is poorly-studied and we have no solid evidence for any reason why the number of wintering individuals has dropped. We do know that a good part of their breeding range, from south Texas into Mexico, has been in drought for a few years, which may be interfering with reproductive success and/or migration.

This year, only 13 were handled, including eight newly banded birds, four

returnees, and one multi-year returning “foreigner”. The long-term average has been about 25 new Buffies annually.

Despite their low numbers, several were notable individuals for their history with us. One bird returned for its sixth consecutive winter in the same yard in Metairie, and another returned for its sixth winter in a yard in LaPlace. Both birds still have a ways to go before reaching the nine-winter record for the species, set many years ago at a different LaPlace residence.

Another notable Buffy was “Rocky” (shown above), who returned for a third winter in a Harahan yard after being initially banded along the Texas coast in the fall of 2010. Another Buff-bellied Hummingbird, noted two winters ago for moving between a home in Baton Rouge and another in Lafayette (and back), returned for its third winter at the Baton Rouge site, much to the delight of the homeowner.

In addition to these banded birds, more than one house hosted at least two of this species, but except for two at the Harahan site (of at least three), we were unable to catch more than one Buff-bellied at any site this year.

Despite, or perhaps because of, their difficult and feisty nature, the Buff-bellied Hummingbird has become the symbol and mascot of the Louisiana Winter Hummingbird project, memorialized on our new “uniform” shirts, designed by banding assistant Joan Garvey from her original artwork.



Flashes of Copper

Rufous Hummingbird
Selasphorus rufus

While Rufous Hummingbirds have always been the singlemost common species found in Louisiana in winter, much of the first decade of this century hinted at a sharp decline in those numbers. For years, Louisiana hummingbird banders had noted ever-smaller numbers of Rufous Hummingbirds within our winter population. At one time more than sixty percent of winter reports were of this species, but in recent years it had declined to as low as one-third the total “catch” for the season. It’s unclear whether the species is declining on its breeding grounds, as traditional breeding bird surveys, focused on singing birds, can easily overlook hummingbirds.

Last season, however, saw a dramatic surge in the numbers of Rufous Hummingbirds banded, rising from a historic low of 80 in 2010-11 (representing 33% of newly banded hummers), to 564 in 2011-12 (more than 69% of the newly banded birds). A huge proportion of those birds were immatures, suggesting that at least among the population of Rufous that come here for the winter, the breeding season must have been successful.

Based on those numbers we were optimistic for both another banner year of



freshly banded birds as well as a huge uptick in the number of returnees. On the first count, we were not disappointed, with a second-best-ever total of 449 newly banded Rufous, including multiple birds in the Shreveport area for the first time in years. But although returnee numbers of Rufous did go up significantly (slightly more than doubling), the rise did not seem proportional to the vast increase in new birds the year before.

As expected, the majority of returnees were birds originally banded in 2011-12, but there were a few notable exceptions. Four returnees were originally banded in the winter of 2009-10, one of which was an adult at that time, meaning she hatched no later than the summer of 2008. Using the Bird Banding Lab’s standard of a hatching date of June 1, she was at least

four years, six months old at the time of her handling this past November. The others were all banded as young birds, making them all somewhat over 3 years old at their handling this winter.

A number of sites hosted a large number of Rufous, including 24 handled at a single site in LaPlace (of which 21 were newly banded). Other sites at which large numbers of Rufous were handled include a Covington site with 20; three (in Donaldsonville, in Thibodaux, and in Baton Rouge) with 12 each; and ones in Gonzales and Thibodaux with 10 each. The Gonzales site was especially interesting in that



during the previous winter season, we had banded six Rufous, four of which returned this year. A return rate of 66% of birds banded the previous year is exceptionally high. At least ten other sites recorded six or more Rufous handled by the banding teams. It's worth noting in this context that not every bird at a site can be caught for banding, and that some birds disappear before we show up to band, or only appear after we've banded, so it's quite possible more sites hosted large numbers of Rufous than we were able to document by banding.



Facing page, top: This adult Rufous was photographed at Bluebonnet Swamp Nature Center in Baton Rouge in late March. Center, "Antsy", a Rufous banded at Bluebonnet Swamp Nature Center. This page, top: A returnee adult male Rufous at a house in Harahan sports a distinctive white cap of liquid paper, marking him as banded. Center, another view of "Antsy" at Bluebonnet Swamp Nature Center. Below, a female Rufous at the Harahan site.

Overlooked Beauty

Allen's Hummingbird
Selasphorus sasin

So similar is this species to the Rufous Hummingbird that it was not described as a separate species until 1920. While most adult male Rufous present no identification problem even for a casual observer, the similarity between the females and young males of this species make identification a difficult task. Compounding the problem is that even some adult male Rufous apparently have a largely greenish back (as opposed to the standard coppery brown we expect). As a result, while we expect most wintering *Selasphorus* hummingbirds to be Rufous (and indeed, most of them do prove to be, on close examination), a small number are Allen's; while on occasion, a bird which visually clearly seems to be an Allen's is in fact a green-backed Rufous. Since the first unquestionable Allen's Hummingbird was documented in Louisiana in 1976, its numbers have never been high here.



Last year's surge in the winter hummingbird population included a dramatic increase in the number of confirmed Allen's, pushing the species into fifth place for the season. This year, a much smaller number of recorded birds dropped it back to least-commonly banded bird.

In Gratitude and Recognition

Beyond the fact that this project is a team effort among several banders, it simply could not take place without the active participation and help of scores of people. From the dozens of hummingbird hosts who opened their houses and yards to us, sometimes at the crack of dawn, often feeding us along the way, to the assistants who wrangled equipment, trapped birds, recorded data and helped us locate new banding sites, to those who financially supported the team's efforts - none of this would be possible without you.

Erik Johnson maintained the annual database and tally of wintering hummingbirds across the state, reporting weekly on new birds. His efforts made it possible to keep tabs on newly arriving wintering birds. Kevin Morgan coordinates banding coverage for Baton Rouge and has also taken over data management for Newfield and her subpermittees. Beth Maniscalco coordinated banding coverage for Thibodaux and Lynn Becnel did the same for the Donaldsonville area. Frank Arthur, Sue Broussard, Sindy & Joel Chaky, Paul Conover, Eric Daigre, Tim Daigre, Miriam Davey, Vladimir Dinets, John Hartgerink, Hans & Angela Holbrook, Joan Garvey, Sammy Maniscalco, Craig, Sandra, & Megan Mineo, Dan Mooney, Rose & Jack Must of Wild Birds Unlimited, Lafayette, Carol & Jeff Newell, the Northshore Bird Club, John & Margaret Owens, Lisa Robichaux, Cheryl Stanbury, Ron Stein, Melanie & Pat Stephens, Gene & Edna Street, Tom Trenchard, Tom & Gerry Verburg, Marilyn and René Viosca, and Lizette Wroten all invested many hours in this project. We appreciate their special help very much.

The Louisiana Winter Hummingbird Project is especially grateful to Kevin Morgan, who prepared this report.

Photo Credits

Cover: Rufous Hummingbird by John Hartgerink. Page 5: Broad-tailed Hummingbird by Dave Patton. Page 6: Ruby-throated Hummingbird by Craig Wroten; Black-chinned Hummingbird by Dave Patton. Page 7: Buff-bellied Hummingbird by Craig Wroten. Page 8: Left, Calliope Hummingbirds, both by John Hartgerink; Right: Calliope Hummingbird by Craig Wroten. Page 9: Buff-bellied Hummingbird by Craig Wroten; Logo design and photograph by Joan Garvey. Page 10: Rufous Hummingbirds by John Hartgerink. Page 11: Top and Bottom, Rufous Hummingbirds by Craig Wroten; Center: Rufous Hummingbird by John Hartgerink. Page 12: Allen's Hummingbird by Dave Patton