

**Hummingbird Research Group
Banding Conference
15 - 18 August 2001, Gray Feathers Lodge
Silver City, New Mexico**

Summary of Banding

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Hummingbird banders from across the nation met at Grey Feathers Lodge along Sapillo Creek in northeastern Grant County, New Mexico, 15-18 Aug 2001, for the bi-annual hummingbird banding conference. The mornings of 16-18 Aug were devoted to banding while the afternoons were filled with presentations and lectures. This is a report of the banding activity that took place during that period.

According to the information provided to me, 1086 hummingbirds were banded by about 25 banders between 14 & 18 Aug in the area along Sapillo Creek between Grey Feathers Lodge and Spirit Canyon Resort. This includes banding data from outside the "official" conference period (the mornings of 16-18 Aug) Fifty-one (51) birds were banded at Spirit Canyon outside this "official" period, the majority by banders seeking certification by the North American Banding Council (NABC) the day before the conference began. A few birds were banded there on 18 Aug after the conference had officially concluded, as were an additional 20 birds adjacent to the Lake Roberts store. So this report will differentiate between the OVERALL banding totals between 14 & 18 Aug, and the OFFICIAL banding totals for the conference on the mornings of 16-18 Aug.

I encountered several data-integrity issues that I attempted to resolve before sending out this final report. In a few cases, recaptured birds were listed as different age, sex, and/or species by the bander who recaptured them. In cases where I was unable to reconcile these differences, I have arbitrarily chosen to base the results on the data supplied by the initial bander.



Four species of hummingbirds were banded: Black-chinned (BCHU), Broad-tailed (BTLH), Calliope (CAHU) and Rufous (RUHU).

OVERALL breakdown — 1086 birds banded

Number of hummingbirds banded by date:

14 August - 8	16 August - 347
15 August - 40	17 August - 439
	18 August - 252

Number of hummingbirds banded by species (SY included in AHY):

Rufous: 666
 206 HY-F + 241 HY-M + 166 AHY-F + 49 AHY-M *

Broad-tailed: 269
 41 HY-F + 64 HY-M + 88 AHY-F + 73 AHY-M **

Calliope: 94
 21 HY-F + 37 HY-M + 29 AHY-F + 7 AHY-M

Black-chinned: 57
 18 HY-F + 10 HY-M + 20 AHY-F + 9 AHY-M
 * — plus 3 HY-U & 1 U-U
 ** — plus 2 HY-U & 1 U-F

OFFICIAL conference breakdown — 1015 birds banded

Number of hummingbird banded by date:

16 August: 347
205 RUHU + 95 BTLH + 31 CAHU + 16 BCHU
17 August: 439
290 RUHU + 97 BTLH + 35 CAHU + 17 BCHU
18 August: 229
132 RUHU + 61 BTLH + 15 CAHU + 21 BCHU

Number of hummingbirds banded by species (SY included in AHY):

Rufous: 627
197 HY-F + 223 HY-M + 156 AHY-F + 47 AHY-M *
Broad-tailed: 253
38 HY-F + 64 HY-M + 84 AHY-F + 65 AHY-M **
Calliope: 81
19 HY-F + 31 HY-M + 25 AHY-F + 6 AHY-M
Black-chinned: 54
18 HY-F + 10 HY-M + 17 AHY-F + 9 AHY-M
* — plus 3 HY-U & 1 U-U
** — plus 2 HY-U

Number of HY vs. AHY birds by species:

Rufous: 423 vs. 203
Broad-tailed: 104 vs. 149
Calliope: 50 vs. 31
Black-chinned: 28 vs. 26
**Overall = 605 HY, 409 AHY, 1 unknown

Number of FEMALES vs. MALES by species:

Rufous: 353 vs. 270
Broad-tailed: 122 vs. 129
Calliope: 44 vs. 37
Black-chinned: 35 vs. 19
**Overall = 554 females, 455 males, 6 unknowns

Abstracts of Papers

HUMMINGBIRD MIGRATIONS: WHY AND HOW.

Bill Calder, 1322 Condesa Primera, Tucson, AZ 85718, calderwa@email.arizona.edu

Hummingbird migrations are navigation marvels. A Rufous Hummingbird can migrate as precisely with 0.0002 kg of brain as a 747, with 68 kg of navigation electronics!

Migrations maintain hummingbird biodiversity at >30° North. In habitats used for breeding, migratory stopovers, and wintering, migrant Rufous Hummingbirds use - and likely pollinate - plant species important in re-vegetation and watershed restoration after deforestation of public lands for

below-cost timber sales. In Jul-Aug 2001, our standardized effort 1.5 miles east of Sapillo Jct in SW New Mexico, banded 1410 hummingbirds (69% RUHU). There were a few interesting recaptures, but it was mostly like tossing notes in bottles into the sea. Will anyone find them, completing the connection?

For banding to be effective for hummingbird migration studies, we must recruit more hummer banders. Hummingbird banders can join as volunteers to promote inclusion of hummingbirds in their program. You couldn't find more careful banders than those we had the privilege of working with in the Juneau District, Tongass National Forest.

BBL deserves a better budget to cope with more hummingbird banders and increased activity. We need more readable bands in Arial bold font as large as will fit within band lines (R bands will be misread), programming to bypass false limitation of alpha prefixes and numbers of bands limited only by how many birds we can capture.

POST-BREEDING MIGRATION OF COSTA'S (CALYPTE COSTAE) AND BLACK-CHINNED (ARCHILOCHUS ALEXANDRI) HUMMINGBIRDS AT THREE SITES IN SOUTHERN CALIFORNIA.

Barbara A. Carlson, Motte Rimrock Reserve, Biology Dept., University of California, Riverside, CA 92521, bcarlson@citrus.ucr.edu

Post-breeding migration of Costa's (COHU) and Black-chinned (BCHU) hummingbirds was monitored at 3 sites from 1998 to present. The 3 sites were southern-most Motte Rimrock Reserve, 1,600' elev., coastal sage; eastern-most Big Morongo Preserve, 2560' elev., desert oasis; and Bear Paw Sanctuary, San Bernardino Mountains, 4400' elev., transition zone.

COHU were captured primarily at Motte and Big Morongo, with southbound migration starting from 1 May to 1 Jul and ending by 15 Aug. AHY migrated first with overlap with the beginning of HY. Variation of HY:AHY ratio was 1.65 to 3.17 at Motte and .68 to 2.23 at Big Morongo. BCHU were captured at all three sites with Bear Paw increasing captures from one in 1998 to 27 in 2000. Captures at Big Morongo were from 67 in 1999 to 93 in 2000, while Motte varied from 17 in 1999 to 83 in 2000. Southward migration usually began by 1 Jul and finished by the end of Sep. Variation of HY:AHY

ratio was .04 to .50 at Bear Paw (sample size small), .54 to 1.00 at Big Morongo, and .42 to 2.03 at Motte.

NEAR-REAL-TIME MAPPING OF NORTHWARD RUBY-THROATED HUMMINGBIRD MIGRATION USING THE INTERNET. Lanny Chambers, 1336 Remington Oaks Terrace, Fenton, MO 63026-7028, lanny@hummingbirds.net

In 1996, I wanted to do something novel with my then-new hummingbird website, combining visitor interactivity with real usefulness for hummingbird watchers. I decided to solicit dates of first arrivals in northward migration, then plot the dates (submitted via email) on a map to illustrate the advance of the migration and help people hang their feeders in a timely manner. The maps were updated daily on my website and quickly proved to be the site's most-visited pages. As participation increased over the years, I had to narrow the focus to Ruby-throated alone, to avoid falling behind and losing the real-time appeal. The web maps became the basis for the migration maps in the forthcoming Peterson hummingbird field guide. Visit the site at www.hummingbirds.net.

BASIC STATISTICS FOR A RUBY-THROATED HUMMINGBIRD POPULATION: Survival Statistics and Population Estimates for Central Missouri. Troy Gordon, PO Box 58, Columbia, MO 65205, GordonM@missouri.edu

Ruby-throated Hummingbirds (*Archilochus colubris*) were banded in central Missouri from 1998-2001. Birds were separated into resident and transient categories based on date of capture and signs of nesting. Of the almost 500 hummingbirds banded, 172 were classed as residents. Females were observed to move up to 1.2 km to feed. Preliminary analysis provides a mean estimate of the resident population size of 98.2 (SE = 19.1) using the JOLLYAGE program. MARK was used to estimate the mean apparent survival rate at 50.0 (SE = 24.5) for resident males and 53.5 (SE = 12.6) for resident females. The mean recapture rate was 76.7 (SE = 14.4) for resident males and 72.0 (SE = 15.0) for resident females. Survival rate appeared constant for females and varied for males. Recapture rate varied for both. Further research is needed to make estimates more precise and to insure the accuracy of the statistical models.

Oct -Dec.

PATTERNS OF POST-BREEDING MIGRATION OF RUFIOUS AND ALLEN'S HUMMINGBIRDS AT THREE SITES IN SOUTHERN CALIFORNIA. Cin Greyraven, Dept. of Biology, San Bernardino Valley College, 701 S. Mt. Vernon Avenue, San Bernardino, CA 92410, greyraven@hotmail.com, Project leader: Barbara A. Carlson, Natural Reserve System and Dept. of Biology, University of California, Riverside.

Post-breeding migration of Rufous (RUHU) and Allen's (ALHU) hummingbirds was monitored at 3 sites in S. California. In 1998, 6 individuals were captured vs. 243 in 1999 and 359 in 2000. RUHU outnumbered ALHU 28:1 (N=176) at Morongo, a desert oasis. The RUHU/ALHU ratio was 11:1 (N=367) at Bearpaw, a forested site 25 miles NWW of Morongo. The RUHU/ALHU ratio was 2:1 (N=65) at Motte, 28 miles SW of Bearpaw in coastal scrub.

AHY birds arrived before HY birds. AHY-F ALHU appeared two periods before AHY-F RUHU. RUHU appeared first at Morongo, a period later at Bearpaw, and a further period later at Motte. Both RUHU and ALHU were first captured in late June.

RUHU were present through the end of the study in early October. No ALHU were captured after mid-September.

Age/sex ratios were similar between species, sites, and years. HY sex ratios were 1:1. AHY-F outnumbered AHY-M 10:1. Age ratios averaged 1:7 AHY/HY.

Results paralleled 1992-1996 data from alpine meadow MAPS stations (7500' elevation, 10 miles N of Bearpaw). The 2:1 ratio of RUHU to ALHU from MAPS matches ratios from Motte, indicating westerly migration. MAPS' AHY sex ratios of 1:1 contrast with current results.

EMERGENCY CARE FOR HUMMINGBIRDS. Jan Hall, 1514 Woodland Tr., Pittsburg, KS 66762, hummerbender@hotmail.com

Banders occasionally encounter hummingbirds with leg injuries, including swelling around band. Apply Preparation H hemorrhoid cream to reduce swelling. Confine bird for one or two hours or until swelling decreases. Band should then be removed. Wing injuries, often seen as fluttering along the ground, can result from netting, bagging or other handling of hummingbirds. Place bird in holding

cage with a feeder and periodically check its recovery. Contact author for description of how to immobilize the bird safely. More severe wing injuries require attention of veterinarian or licensed rehabilitator.

Watch for signs of stress or shock (which can be fatal) such as closed eyes, feathers fluffed, limp body, and a protruding tongue. When stress is suspected, immediately stop the banding process. Cradle the bird in your hands with the head upright and gently blow on its head. Offer sugar water in tiny amounts at frequent intervals. If bird is slow to recover, place it in a warm (80°F), dark holding cage, check every 15 minutes and offer sugar water.

To free a hummingbird trapped indoors, darken room except for exit location; place feeder near exit. If the bird perches, it may be caught in a small mesh fish or butterfly net. Use net carefully to avoid injuring bird.

When in doubt about how to treat a hummingbird, consult veterinarian or rehabilitator. Discuss potential hummingbird emergencies in advance and carry the appropriate telephone numbers as part of your banding kit.

RUFIOUS HUMMINGBIRDS (*SELASPHORUS RUFUS*) IN MIGRATION. Karen Krebbs, Conservation & Science Department, Arizona-Sonora Desert Museum, 2021 N. Kinney Road, Tucson, AZ 85743, krebbs@desertmuseum.org

In the fall of 1998, the Arizona-Sonora Desert Museum launched a five-year research and education outreach effort to monitor migratory pollinator species along the nectar corridors of western Mexico and the southwestern United States. One of the species being monitored is the Rufous Hummingbird *Selasphorus rufus*. This binational collaborative research and educational effort incorporates participation from local communities in an effort to monitor and conserve migratory pollinators and major migratory stopovers. One of the goals of this project is to identify and develop stewardship along these migratory nectar corridors. The project will devise conservation and management strategies through the collaboration of biologists, educators, communities, and policy-makers to maintain

biodiversity and healthy ecosystems. Fifteen trips to northern Mexico have been carried out from 1999 to the summer of 2001 for Rufous Hummingbirds. Arizona-Sonora Desert Museum biologists, volunteers, and Mexican scientists participate in these trips and help to obtain data for the project. Workshops and presentations are being made to communities in Mexico and southwestern Arizona. Rufous Hummingbirds are trapped and banded, and pollen is collected during these trips. This research is on-going.

BUFF-BELLIED HUMMINGBIRD BILL COLOR VARIATION BY AGE, SEX AND SEASON.

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Measurements of color variation in upper mandible of Buff-bellied Hummingbird (*Amazilia yucatanensis*) were taken from a population of 500 banded and 450 recaptured Buff-bellied Hummingbirds at Raisin, Victoria County, Texas, from Aug 1995 through Jun 2001. This population was male dominated and was made up of 83% males. Adult Buff-bellied Hummingbirds normally have a red base and distal black tip on the upper mandible. The variation of color between sexes and ages has not been reported in the literature. Adult males in this study had at least 80% of upper mandible red during breeding season while adult females had 50-60% red. During winter there was overlap of percent red with adult males having from 40-60% and adult females 40-50%. Young of both sexes typically had no red until Aug with gradual increases until about 20% in Nov when the amount of red advanced fairly rapidly to where second-year males had 40% red in Jan as compared to 60% in adult males. The color of second-year birds was the same as adults by Apr. The sample size for second-year females was too small to draw conclusions. Another difference between bill coloration in the sexes was that the upper mandible color of adult males was typically bright red while that of females was a duller blood red.

THE NEW MEXICO HUMMINGBIRD CONNECTION. Lorraine Schulte, New Mexico Hummingbird Connection, 1740 Mariposa, Las Cruces, NM, mljs@zianet.com

The goal of this five-year project was to collect information about hummingbirds in New Mexico

and to educate the public about hummingbirds. We believe we have met this goal to a great degree.

For the most part, this study was all volunteer and self-supporting. Over 900 people signed up. We asked participants to observe and report bird behavior in addition to taking a weekly census of number by species and gender. We also encouraged participants to supplement their hummingbird feeders with native plants, to provide a water source, and to provide a sugar-water ratio of 1:4 with no food coloring.

We learned a lot about hummingbirds in New Mexico. Magnificent Hummingbirds are more numerous and wide ranging in this state than previously believed. Rufous Hummingbirds sometimes migrate through New Mexico in spring. We have learned that hummingbird populations peak at about the same time in northern and southern New Mexico, during late Jul and early Sep; but they appear to linger later in the southern part of the state. We also learned of some different plants hummingbirds seem to use, and about the relative occurrences of hummingbird "predators" and nectar "thieves."

OCCURRENCE, DISTRIBUTION, AND STATUS OF THE HUMMINGBIRDS OF NEW MEXICO.

Sartor O. Williams III, New Mexico Department of Game and Fish, P. O. Box 25112, Santa Fe, NM 87504; sowilliams@state.nm.us

As of Jul 2001, 16 species of hummingbirds have been verified, by specimen or photograph, as occurring in New Mexico. Of these 16 species, seven breed in the state, with two (Black-chinned and Broad-tailed) nesting widely, while five (Broad-billed, Violet-crowned, Magnificent, Lucifer, and Costa's) are largely or entirely confined as breeders to the southwestern corner of the state. Of the seven known breeding species, five occur and presumably breed regularly, while Magnificent has been found nesting only once and Costa's is of irregular occurrence, going unreported in some years. Another three species (White-eared, Blue-throated, and Anna's) may breed, at least irregularly, but to date no nests or other conclusive evidence of local breeding has been obtained. Six species occur as transients only, two commonly (Calliope and Rufous) and four rarely (Berylline [1 record], Cinnamon

[1 record], Ruby-throated [5 records], and Allen's [8 records, but perhaps overlooked]). A 17th species (Plain-capped Starthroat) is hypothetical, having been reported twice but not confirmed. Another species (Buff-bellied) was attributed erroneously to New Mexico on the basis of an 1881 specimen of questionable origin. All species are considered Neotropical migrants that typically leave the state in the colder months, but occasional individuals of several species linger late or attempt to over-winter, and one (Anna's) now winters regularly. Because of identified threats to New Mexico populations, five species (Broad-billed, White-eared, Violet-crowned, Lucifer, and Costa's) are listed as threatened under New Mexico's Wildlife Conservation Act.

HUMMINGBIRD HYBRIDS. Sheri Williamson, Southeastern Arizona Bird Observatory, P. O. Box 5521, Bisbee, AZ 85603-5521, sabo@sabo.org

The polygamous nature of hummingbirds and the tendency of migratory species to push the geographic envelope contribute to the frequent occurrence of hybrids. Twenty-four different hybrid combinations have been reported involving 17 species recorded in the United States; 20 of these pairings are intergeneric. Most combinations involve similar species in closely related genera, and it has been argued from the frequency of hybridization that these genera are not all valid. However, many intergeneric pairings involve species exhibiting dramatic differences in size, plumage, behavior, even habitat. Hybridization can explain some, but certainly not all, ambiguous hummingbirds. Typical hybrids blend elements of the two parent species in both physical and behavioral attributes, but the results are not always predictable. Identification has traditionally been scholarly but speculative, based on comparisons of characteristics observed in the hybrid with those of possible parent species. Modern techniques for analyzing genetic material promise to verify these tentative identifications; but even if this technology becomes widely available, suspected hybrids should continue to be documented carefully by a combination of more traditional techniques, including still photography, video graphy, audio recording, and in-hand measurements taken during banding.