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News, Notes, Comments

History of Hummingbird Banding in the United States

ABSTRACT

Personal account and recollection of hummingbird banding and research over the past 30 years. The author's involvement in the development of hummingbird bands, tools, traps, and the establishment of Hummingbird Research Group is discussed.

INTRODUCTION

Protocols for banding hummingbirds are unique. Hummingbird banders must obtain a special permit, cut and shape individual bands from printed sheets, and construct their own traps. A perceived problem with hummingbird bands led me to establish a newsletter, *Hummingbird Hotline*, where banders could collaborate to resolve specific issues and share research. This effort at communication among hummingbird banders transformed a few independent researchers in the early 1980s into the cohesive Hummingbird Research Group that exists today.

BACKGROUND

The earliest located account of hummingbird banding is that of Walter Deane, Shelburne, Coos County, NH (Deane 1925). On 1 Aug 1923, Deane trimmed the smallest sized band and thought it still too large when placed on a female Ruby-throated Hummingbird (*Archilochus colubris*) hand-captured in a neighbor's shed. Deane banded two more female hummingbirds on 19 and 31 Aug 1923. In 1925, he banded a female on 10 Jul and a male on 21 Jul.

Eleanor S. Morgan, Asticou, Northeast Harbor, ME, also used a cut-down band on a Ruby-throated Hummingbird hand-captured at her home on 3 Aug 1924 (Morgan 1925). Morgan banded six more hummingbirds in 1924 and four in 1925.

Hummingbird recapture data from the US Bird Banding Laboratory (BBL) reveals two early same-site encounters: O. L. Austin, Sr., banded a Ruby-throated Hummingbird on 24 May 1932 in Massachusetts, which he recaptured exactly one year later, and Mrs. A. McAlister banded a Ruby-throated Hummingbird on 13 Jun 1938 in New Hampshire, which she recaptured on 22 May 1939.

Charles Blake, Lincoln, MA, placed 3-digit bands (source undetermined) on seven Ruby-throated Hummingbirds in 1950 and 1952; C. S. Robbins, Laurel, MD, used size 0 or 1 bands with first and/or last digits trimmed or removed on nine Ruby-throated Hummingbirds from 1952 to 1954; Agnes Romig, Pacific Palisades, CA, and Don Bleitz, Hollywood, CA, each banded a hummingbird in 1954.

Bird banding records were first computerized at BBL in 1955 (see Houston et al. 2008). The earliest banded hummingbird among computer records is that of an Anna's Hummingbird (*Calypte anna*) banded Mar 1955 in California by K. Legg.

Late in 1995, I requested from the BBL all hummingbird banding data in order to compile a 40-year summary. Data were entered into a table with columns for Location (State, Province, Country or Possession), Species, Year of Banding, Permit No., number of birds in each Age-Sex code, and Total number of birds. These records were then summarized three ways: by Location showing the number of each species banded; by Species with the number banded at each location; then by Year showing the number banded each year (Womack 1996b). This tabulation revealed 77,323 hummingbirds banded in the United States from 1955 through most of 1995 and 2,164 hummingbirds banded in Canada (British Columbia, Manitoba, New Brunswick, Ontario and Quebec), Belize, Costa Rica, Guatemala, Jamaica, Mexico, Puerto Rico or the West Indies. In 1955, 25 hummingbird bands were recorded. The first spike (more than 1,000 hummingbirds banded) occurred in 1972 with 1,529. The "thousand" mark was not surpassed again until 1979 and 1980, with drops in 1981 - 1983. Beginning in 1984, annual numbers increased significantly to a high for the study period of 9,467 in 1989. Of the United States total, 14,289 (18.48%) were banded from 1955 through 1979, with the remaining 63,034 (81.52%) banded 1980 through most of 1995. The up-trend continues, with 247,635 banded hummingbirds on the BBL website for 1955 - 2004, an increase of 168,148 since my tabulation in 1995.

EARLY BANDS

Recognizing the unsuitability of cut-down size 0 or size 1 bands for hummingbirds, the late Don Bleitz (1915 - 1986) began experimenting with appropriate materials and design for species-specific bands. In the 1950s Bleitz obtained permission from Allen Duvall, then Chief of the Bird Banding Laboratory, to develop bands specifically for hummingbirds. Duvall assigned "X for experimental" to the number. Bleitz and friend William K. Kirsher collaborated on the design, with Kirsher producing the first "run" and Bleitz continuing thereafter.

"The bands were produced by first typing the numbers on sheets to an exact format and later producing these original sheets on a computer. These original sheets were then photographed on a high contrast film, reduced to the proper size so that they could be contact-printed onto .016" dead soft aluminum which I had black anodized and then sensitized with a photo resist emulsion. After the anodized aluminum was exposed in sunlight and the photo resist developed, the anodized aluminum sheets were etched in sodium hydroxide, removing the anodization everywhere except where it was protected by the photo resist, after which the photo resist itself was removed, leaving a very durable, black, anodized number which wears remarkably well." (D. Bleitz, pers. comm., Jan 1985)

The resultant aluminum sheets of bands measured approximately 5-11/16" x 4-7/16" including borders. Each sheet contained 30 rows of bands (with blank separating rows) and each row contained 14 bands, for a total of 420 bands per sheet. The first Bleitz X band to appear in BBL's database was on 16 Jul 1957.

Originally intended for personal use, Bleitz began to share X bands with other banders, always notifying the Banding Office the series numbers and the name of the bander. Bleitz eventually released all his bands to the Banding Office for record keeping and distribution, but continued to produce them without charge until the early 1980s, when he stopped filling orders.

While hummingbird studies increased, the supply of bands diminished and, at times, was non-existent. In the fall of 1980, William A. Calder, Professor of Ecology and Evolutionary Biology at University of Arizona, wrote the Bird Banding Laboratory expressing concern that valuable data were being lost due to the scarcity of hummingbird bands. Calder proposed changing band identification from "X plus 5 numbers" to a four-letter system. George Jonkel, then BBL Chief, suggested that Calder have some four-letter bands manufactured for his personal use. Calder, his sub-permittees, and associates, used about 1900 letter bands in and around Tucson, AZ, and Rocky Mountain Biological Laboratory, Gothic, CO, during 1981 - 1986. Letter band records are filed at BBL but are not computerized due to incompatibility with the system.

HUMMINGBIRD HOTLINE

My interest in Ruby-throated Hummingbirds was spawned by the sheer number of hummers attracted to feeders at our rural Claremore, OK, home. I maintained, eventually, 30 feeders of which many were refilled daily. An article in *Outdoor Oklahoma* (Pollard 1982), led me to Frederick M. and A. Marguerite Baumgartner, Jay, OK. During the spring and summer of 1982, I spent time with the Baumgartners watching "Mrs. B" as she was called, band hummingbirds. In addition to mist nets for capture, Mrs. B also used a trap designed by James C. Johnson of Hollister, MO (Johnson 1970). I visited Johnson many weekends in 1982 - 1983 learning how to cut, shape, and apply hummingbird bands. It is unclear when the requirement for "special" hummingbird permits was instigated at BBL, but when Mrs. B requested hummingbird bands in 1976, she learned she would need a special permit and project although she had banded songbirds for many years. Her amended permit was received in 1977.

In December 1983, I was issued a sub-permit under Johnson. I asked BBL where other hummingbird banders were located. In May 1984 I received a printout containing 56 names. From 52 contacts I received 40 replies. Several said they had never, or had not for many years, banded hummingbirds. Many said hummingbirds were banded only when netted with other birds. From the list, 12 emerged as active hummingbird banders: W. H. Baltosser, Santa Fe, NM; A. M. Baumgartner, Jay, OK; D. L. Bleitz, Hollywood, CA; W. A. Calder, Tucson, AZ; Carnegie Museum of Natural History, Pittsburgh, PA; S. E. Den, Bellvue, CO; T. H. Goldsmith, New Haven, CT; D. W. Inouye, College Park, MD; J. C. Johnson, Hollister, MO; N. L. Newfield, Metairie, LA; F. V. Strnad, Faribault, MN; and N. M. Waser, Riverside, CA.

I banded Ruby-throated Hummingbirds under Johnson's permit in 1984 and part of 1985 using Bleitz original X bands. Mid-season, to replenish his supply, Johnson received X bands which were obviously different. The aluminum sheet was slightly heavier, it did not have black backing, and the band outline was larger. Johnson determined that cutting inside the outline close to the number produced an acceptable band, similar in size to the original. Birds retrapped wearing new bands showed no ill effects. The BBL, however, had received objections to the new bands and Johnson was requested to return the unused portion of that series.

When my Master Permit was issued January 1986, I requested a personal supply of bands. BBL Chief George Jonkel replied, "..we have a serious problem with the bands. We are in the process of obtaining a new supply under different specifications and will send bands to you when we receive them. It may be some time, possibly later this summer, before we can get an order and get it filled." (G. Jonkel, pers. comm., Mar 1986)

In July 1986, still awaiting bands, I approached George Jonkel, offering myself as "communications central" for exchanging ideas and solving problems unique to hummingbird banders. Without official approval, in September I mailed to known banders and the BBL copies of *Hummingbird Hotline*, No. 1, with a cover letter outlining its intent. That brief issue described a method of

cutting and shaping bands, a sketch of pliers drilled and modified by my husband, and instructions for using a cloth bird restraint (see Womack 1986).

Over the next 16 years (Sep 1986 - Jan 2002), 64 issues of *Hummingbird Hotline* were mailed to hummingbird banders, always without charge. At the outset, distribution was limited to Master Permit holders, but in 1993 Mitch Ericson, then General Manager of Perky Pet Products, pledged support of the *Hummingbird Hotline* which enabled me to include Sub-Permittees and selected individuals or institutions with a connection to hummingbird research. Perky Pet contributed additional funds for printing booklets from the first three bander conferences.

The following lists were included as attachments to *Hummingbird Hotline* and updated periodically:

Rosters. – Contact information for all who received the *Hummingbird Hotline*.

Albinos. – Inaccurately titled, as few pure albino hummingbirds are documented, this list attempted to record all hummingbirds exhibiting forms of this rare trait. Prior to 1984 I located only seven, but sightings seem to increase each year. When last updated in 2008, the list contained thirty-eight banded white hummingbirds, all hatching year birds: 1 Calliope (*Stellula calliope*) male, 1 Black-chinned (*Archilochus alexandri*), and 3 Broad-tailed (*Selasphorus platycercus*) females, plus 33 Ruby-throated (28 female, 5 male). There are no confirmed records of returning leucistic hummingbirds, but photographic records suggest that a possible non-migrating leucistic Anna's was present at least four years.

Recoveries. – BBL printouts of hummingbird encounters include same-site recoveries and those entered for age as well as recoveries away from original banding site. Only "foreign" recoveries were included on this list. Distance between captures was calculated at http://indo.com/distance/

Longevity. – Age records separated from the BBL printout of hummingbird encounters were included on this list by species. As the list expanded, birds younger than four years were eliminated, unless the age was a record for the species. The birds on this list are "outliers" offered as evidence of survivability, not an indicator of average life span. An abridged example of the most recent longevity list (Table 1; Womack 1997) gives much of the same detail as on the BBL website (Lutmerding and Love 2009).

Table 1. Abridgment of longevity list most recently published in *Hummingbird Hotline* (Womack 1997). Bird Banding Laboratory web site (Lutmerding and Love 2009) gives similar data; *-listed record same as on BBL's web page; **- listed record greater than recorded longevity on BBL's current web page.

Species	Age/Sex at Banding	Band No.	Bander/ Permit No.	Date Banded	Location Lat/Long	Date Last Encounter	Encounter Location	Minimum Age
* *Allen's*	HY-F	7000-24569	Pt.ReyesBird Obs - 09316	6 Jun 1981	CA, Pt. Reyes - 375-1224	18 Jun 1985	Same	4 yr 00 mo
** **Anna's**	HY-M		Bill Calder - 08081	2 Oct 1986	Tucson, AZ - ?	19 Nov 1994	Same	8 yr 05 mo
Black-chinned	HY-F	8000-51629	Susan Wethington - 22901	29 Aug 1992	AZ, 6 mi from Patagonia	29 Aug 2001	Same	9 yr 02 mo
Blue-throated	AHY-F	70000-44860	Tom Wood - 21001	28 Jul 1986	AZ, Ramsey Canyon	22 May 1992	Same	6 yr 11 mo
* *Broad-tailed*	AHY-F	7000-18025	N.M. Waser - 20527	21 Jun 1976	CO, Gothic 385-1065	12 Aug 1987	Same	12 yr 02 mo
Buff-bellied	U-U;Adult later AHY-M	8000-79926	Nancy Newfield - 21179	19 Feb 1993	LA, LaPlace	23 Jul 2000	Same	9 yr 07 mo
**Calliope	AHY-F	28991	Kay Burk - 09825	6 Jul 1990	MT, Troy	22 Jun 1998	Same	8 yr 11 mo
Costa's	AHY-F	8000-93740	B. Carlson - 22251	5 Jul 1998	CA, Morongo Valley	30 Jun 2001	Same	4 yr 01 mo
Lucifer	AHY-M	?	Ruth Russell - 21896	4 Jun 1988	AZ, Sonoita Santa Cruz Co.	17 Jul 1991	Same	4 yr 01 mo
Magnificent	AHY-M	7000-44854	Tom Wood - 21001	25 Jul 1986	AZ, Ramsey Canyon	14 Jul 1992	Same	7 yr 01 mo
** **Ruby-throated**	AHY-F	7000-20239	A.M.Baumgartner - 05199	2 Sep 1976	OK, Jay 362-0944	11 Jun 1986	Same	9 yr 00 mo
* *Rufous*	AHY-F		Betty McGinnis - 10689	17 Jun 1996	Fanny Bay, BC	16 May 2004	Same	8 yr 11 mo
Violet-crowned	AHY	8000-69163	S. Williamson - 21001	22 Aug 1993	AZ, Ramsey Canyon	2 Jul 1995	Same	3 yr 01 mo

When I resigned as *Hummingbird Hotline* editor in January 2002, hummingbird bander ranks had swelled to 66 Master Permit holders and more than 36 Sub-Permittees. We had held four Hummingbird Bander Conferences, the first near Little Rock, AR, in 1995, where we named ourselves "Hummingbird Research Group." We agreed to continue without officers or formal organization and to hold biennial conferences hosted by volunteers.

A new era began with *Hummingbird Hotline*, No. 65, May 2002, the first issue to be published by Stacy Jon Peterson. Peterson's second issue, *Hummingbird Hotline*, No. 66, July 2002, took us online as the issue was converted to a full-color PDF file with assistance from Maryland bander, David Inouye. Craig Zalk, a Texas bander, distributed hard copies to those without computers, while Avinet, Inc. contributed money for stamps.

In *Hummingbird Hotline*, Peterson (2002) announced he had set up HUMBAND, a password-protected listserv for hummingbird banders on the Yahoo Groups forum. Peterson continued to publish *Hummingbird Hotline* through No. 78, July 2005, and issues 65 - 78 are archived on HUMBAND, which now provides the accepted method of communication among hummingbird banders. Earlier issues of *Hummingbird Hotline* are not now readily available. (To my knowledge only three complete sets of issues 1 through 64 exist– mine and copies made for Bill Hilton, Jr. and Stacy Peterson.)

REISSUED BANDS

With communication opened by *Hummingbird Hotline*, banders began offering suggestions for restyled hummingbird bands. Nancy Newfield and non-bander husband Skip shared the techniques they used to design the "new style" bands, while David M. Ferry supplied measurements for three sizes of bands required for various species. William A. Calder and Ruth Ogden Russell made valuable comments.

In March 1987, Jonkel at BBL gave our group permission (Womack 1987) to apply for hummingbird bands as needed. The bands were assigned from recalled stock and, to justify their issuance, Jonkel asked us to note that we were aware of the problems and understood how to overcome them.

Still, with no major progress on finding the aluminum Bleitz used, in May 1987, BBL approved my preparing detailed instructions for cutting and shaping new style bands. Guided by illustrations and descriptions included in a Bleitz Wildlife Foundation pamphlet, the revised instructions were included when bands were shipped to banders.

By October 1987, hummingbird band supplies were again in crisis. BBL ordered additional bands, this time with a "T" prefix, from Ernie Jelek, Graphics Unlimited, Inc. in New Orleans, LA. The 0.020" aluminum was the same Jelek used to produce the first "new style" bands. Although slightly heavier than the 0.016" black anodized aluminum Bleitz used, the format was essentially the same and, with revised instructions, banders adapted.

When John Tautin succeeded George Jonkel as Chief at BBL in 1988, I summarized for him the status of hummingbird bands and proposed that bands be printed ten bands per row in units of 100. This was done at the next band printing.

BANDING TOOLS

Unlike other bird bands supplied already formed, hummingbird bands are issued in sheets. Cutting and shaping individual bands is tedious and accuracy is imperative. In the beginning, Jim Johnson and I formed each band by rolling it around a #50 drill bit, partially reopening it with a small awl, then closing it on the bird with pliers also drilled with a #50 drill bit.

"A Device for Forming Hummingbird Bands" (Lloyd and Clench 1969) described a tool for shaping individual hummingbird bands into neat circles. I reprinted this paper in *Hummingbird Hotline*, No. 7, July 1988.

I also contacted Roger MacDonald whose ad for banding pliers appeared regularly in Bander's Marketplace, *North American Bird Bander*. He had none for hummingbirds at that time. I sent the Lloyd-Clench paper, some unnumbered band strips, and the challenge of making tools for two sizes of bands using flat band measurements of 6.0 mm and 7.8 mm recommended by bander David R. Ferry.

By September 1998, I had prototypes requiring some refinement. Jack Murray, a banding assistant of David and Linda Ferry and neighbor of MacDonald, made hands-on suggestions, then wrote and illustrated instructions for using the tools. The finished set was first offered in *Hummingbird Hotline*, No. 9, Jan 1989 (see Womack 1989). Roger MacDonald died 11 May 2001. At this writing there is no supplier for hummingbird banding tools.

NETS AND TRAPS

When Donald L. Bleitz first sought to capture hummingbirds, there were no mist nets suitable for the purpose. He hand made some of very fine silk, and from these came the 30 denier, 2 ply, nylon nets, and later the 40 denier, single ply monofilament nets now in use.

Bleitz purchased an automatic knot tying machine for net production and hired "home workers" to assemble nets in the U.S. This led to hiring personal representatives in Japan to oversee production and shipping from there. Bleitz Wildlife Foundation, "a rather substantial, essentially profitless, world-wide business" was formed to distribute nets and banding supplies. (D. Bleitz, pers. comm., Jan 1985)

Following Bleitz' death, Avinet, Inc. was established in 1987 to absorb the inventory of Bleitz Wildlife Foundation. Avinet, Inc., Dryden, NY, remains our major source for hummingbird-suitable mist nets and Pesola scales.

Mist nets are used by many hummingbird banders, especially if they band other birds, but traps are popular. Hummingbird traps are not available commercially, so banders construct their own. These traps fall into three basic styles: Wire traps, the Hall trap, and the Russell trap.

Wire Traps. – A hummingbird feeder is hung inside a wire trap and the door is operated by a hand-held pull-string. First in print was Jim Johnson's previously cited hardware cloth (wire) cylindrical, hanging trap, followed by Nancy Newfield's directions for a free-standing wire trap (Newfield 1988), variations of which are used widely. The door is operated by a hand-held pull-string or a battery-operated closer.

Hall Trap. – The next trap innovation was developed by Jim Johnson's sub-permittee, William Coughenour. This hanging trap resembles a 21" round net circus tent. Two narrow wood strip circles covered with net form the top and bottom; three vertical wood strips are the sides. The side curtain is a length of net glued around the top circle and to a smaller third circle at the bottom. With the pull-string curtain raised, birds have almost unobstructed access to the feeder inside. When bander Janet Hall's husband Mike introduced his PVC version of the trap (Womack 1996a), it was dubbed "the Hall trap" and future revisions carry that name.

Russell Trap. – The Russell Trap is an adaptation of mist net placement devised by David and Linda Ferry. Four poles are erected in a modified U-shape and net is tethered around three sides, leaving one side open. A second net is placed over the top and feeders are placed near the back. This walk-in trap is observed constantly so birds trapped in the net can be removed promptly. It is especially effective in areas with an abundance of hummingbirds.

THE VISION

Hummingbird banding now extends north into Canada and Alaska and south to Mexico, Costa Rica, and South America. Studies are underway using isotopes and DNA. Radio telemetry is under

investigation. Foreign recaptures confirm long-distance flights and add to the knowledge of migration. Project details are beyond the scope of this paper and belong to the banders involved. Banding is a key to the future knowledge and understanding of hummingbirds.

RESOURCES

The *North American Banders' Manual for Banding Hummingbirds* (Russell and Russell 2001) contains instructions for building traps, cutting and shaping bands, proper handling of birds and should be used in conjunction the *North American Banders' Study Guide* (North American Banding Council 2001). North American Banding Council has developed an optional bander certification program through which banders may be certified on three levels: Assistant, Bander, or Trainer.

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