

***A Supplemental Guide to
Hummingbird Species Identification, Aging, and Sexing
West Texas Data Set (as of December 2011)***

Peter Pyle's *Identification Guide to North American Birds* has been accepted by the BBL as the definitive identification, aging and sexing authority for birds banded in the United States. In some cases the complexity of the species accounts in this monumental work has increased the learning curve for banders, especially those new to the trade. However, for many species supplemental information has been distributed among banders to help clarify specific criteria used for identification, aging and sexing. This is especially true for hummingbirds. Materials circulated by the informal hummingbird research group are a point in fact. Also, hummingbird banders now rely, in part, on the information presented in two popular field guides published by Steve Howell and Sherri Williamson. Both books are particularly useful for identification purposes. The tail-spread pictures provided by Williamson in her volume are of great value to banders and are not found elsewhere.

The collection of data is the most important aspect of any banding operation. All recorded data must have integrity, no exceptions. When any measurement is out of the norm and falls near (or beyond) the extreme edge of known data ranges, comments are warranted on the field data sheet. Otherwise, when you go back to enter, analyze and PUBLISH those data there is no way of knowing 1) whether or not the measurement was properly taken and is accurate, 2) whether or not the bander knew it was out of range, 3) if the abnormal measurement was double-checked and/or 4) why no comments were noted on the field sheet. Such is the importance of the information presented below, a guide to know when to pay attention to abnormal values and comment on a field sheet or to question a species ID and take a second look.

This document also summarizes the primary characteristics used to determine species ID and, where definitive, age and sex. In most cases a combination of factors provided below must be used to properly determine these factors. This guide is provided to banders as supplementary information to be used in combination with similar available documents and references cited above. Although it is geographic specific, it is applicable to many areas of the US and the hummingbirds found there. Be advised that these data were obtained from living birds banded in the field and include sample sizes much larger than most other printed material. With careful study, this guide could also prove useful to birders confronted with an ID challenge in the wild.

Finally, presented below is a new statistic for banders, 'SI' or size index (simply a combination of the three basic measurements; wing+tail+culmen). I believe this value provides an additional tool to help separate difficult species. By combining these figures, the odds of separating similar species are statistically increased, a substantial improvement over reliance on only one factor. I originally intended for the SI to raise a flag when trying to determine ALHU vs. small RUHUs; however, there appear to be other useful purposes such as RUHU vs. BTLH and possibly BCHU vs. RTHU. Listed below are eleven species of hummingbirds, their expected occurrence in the west Texas Region, basic identification criteria, aging and sexing information, morphometric data and other important notes. This is a work in progress; comments are welcome.

BROAD-BILLED HUMMINGBIRD (BBLH) – March through October

References/pages: Pyle, pp. 121-123; Howell, pp. 53-59; Williamson, pp. 80-81, 92-93, 104-105, 136-140.

- **AHY/ASY M** – adult bird, complete male plumage w/ full gorget, no bill corrugations, adult tail and extensive red to the base of the bill. Age SY M (with caution) if the bird exhibits no bill corrugations, shows incomplete male plumage especially in the gorget, crown area and body, and/or has contrasting primaries from an incomplete post-juvenile molt the previous fall.

- **AHY F** – adult bird, non-adult male plumage with no bill corrugations, red/orange color in the bill confined to the basal 1/3 of the lower mandible, and dingy white tips to R3-5.
- **HY M** – female looking bird with bill corrugations, a small patch of blue gorget feathers in the center of the throat, red/orange in the lower mandible near its base and very pale narrow tips to R3-5. HY individuals exhibit very broad buffy edges to the crown and lower back/rump feathers, in combination with tan underparts giving them a very tan overall coloration to the body.
- **HY F** – female looking bird with bill corrugations, no gorget feathers, a small amount of reddish/orange color in the lower mandible near its base and dingy white tips to R3-5. Tan coloration as in HY M.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY/ASY M	4	50.75 (49.28-52.72)	31.3 (30-33)	20.02 (18.76-20.62)	102.02 (98.04-104.75)
AHY F	4	49.90 (49.21-51.11)	31.6 (30-36)	21.24 (19.73-22.72)	102.76 (98.94-106.63)
HY M	1	50.31	30.5	21.49	102.30
HY F	1	50.96	31.0	21.38	103.34

NOTE: Adult males still present in fall after completion of their prebasic molt would be aged AHY.

WHITE-EARED HUMMINGBIRD (WEHU) – May through mid-September

References/pages: Pyle, pp. 123-124; Howell, pp. 60-65; Williamson, pp. 78-79, 92-93, 104-105, 141-144.

- **ASY M** – adult bird, complete male plumage w/ full gorget and crown, and no bill corrugations. Extensive red to the base of the bill extending out halfway to the tip of the bill.
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations and distinct white tips to R3-5. Red (pinkish) color in the bill confined to the basal half of the lower mandible.
- **SY M** – adult bird in sub-adult plumage with no bill corrugations. These individuals exhibit an incomplete gorget and crown, restricted red to the base of the bill, narrow white tips to R3-5, and can have contrasting primaries due to an incomplete molt the previous fall.
- **SY F** – female looking bird in sub-adult plumage with no bill corrugations. These individuals usually exhibit little to no reddish color in the bill (base of the lower mandible only), dull white tips to R3-5 and can have contrasting primaries due to an incomplete molt the previous fall. Age SY F with caution.
- **HY M** – female looking bird in fresh plumage with bill corrugations, a few scattered green gorget and purple chin and crown feathers, basal bill color is more pink than red, extensive rusty feathers in the crown and nape, and very narrow white tips to R3-5.
- **HY F** – female looking bird with bill corrugations, no color in the bill and dull white tips to R3-5.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
ASY M	4	55.77 (54.67-57.40)	34.9 (33-36)	17.99 (16.90-18.49)	108.63 (104.57-111.68)
AHY F	1	51.83	32.5	17.11	101.44
SY M	4	54.53 (53.01-55.08)	33.7 (32-35.5)	17.64 (16.53-18.24)	105.87 (103.54-108.20)
SY F	5	51.21 (50.21-52.04)	31.9 (30-33)	18.82 (16.92-21.93)	101.93 (99.06-105.14)
HY M	2	56.41 (55.87-56.94)	35 (35-35)	18.16 (17.40-18.91)	109.56 (109.34-109.78)

MAGNIFICENT HUMMINGBIRD (MAHU) – March through November

References/pages: Pyle, pp. 129-131; Howell, pp. 94-101; Williamson, pp. 68-69, 94-95, 106-107, 174-177.

- **ASY M** – adult bird, male plumage w/ full gorget and crown, no bill corrugations and adult tail.
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations. Separate from BLUH by the color of the back (bright green), rump (green) and tail (R1s upper surface entirely bright green), and the extent of white in the rectrices (normally about 1/3 that of BLUH). SY F, with caution, for individuals showing distinct contrasting primaries due to an incomplete molt the previous fall.

- **SY M** – an adult male bird in sub-adult plumage lacking bill corrugations. These individuals exhibit incomplete gorgets and crowns, restricted white tips to R3-5, and usually show contrasting new/old primaries from an incomplete post-juvenile (prebasic) molt the previous fall.
- **HY M** – female looking bird with bill corrugations, a few gorget and/or crown feathers and narrow white tips to R3-5. These individuals usually exhibit dark (grayish) centers to the breast feathers and extensive buffy edges to the crown, back and rump feathers giving them a very mottled appearance overall.
- **HY F** – female looking bird with bill corrugations, no color in the gorget and crown, and distinct white tips to R3-5. HY individuals exhibit extensive buffy edges to the crown, back and rump feathers giving them a mottled appearance.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
ASY M	35	71.07 (67.71-75.07)	43.4 (39.5-55)	26.22 (23.15-30.56)	140.74 (134.23-159.50)
AHY M	4	72.85 (71.86-73.83)	45.7 (44-48)	24.85 (22.77-26.56)	142.90 (n/a)
AHY F	43	66.87 (63.42-69.97)	40.6 (37.5-46.5)	28.30 (25.46-31.40)	135.75 (129.62-140.97)
SY M	13	70.77 (68.80-73.94)	43.1 (40-48)	25.62 (23.45-26.98)	139.51 (135.77-143.39)
HY M	45	71.46 (67.68-75.08)	43.5 (40-46.5)	26.10 (23.18-30.18)	141.02 (135.46-147.66)
HY F	31	67.16 (62.06-69.40)	40.9 (38-43)	28.03 (24.42-30.46)	136.13 (129.28-140.33)

NOTE: Any adult male individual completing its prebasic molt in fall would be aged AHY.

LUCIFER HUMMINGBIRD (LUHU) – mid-March through mid-October

References/pages: Pyle, pp. 131-133; Howell, pp. 112-116; Williamson, pp. 66-67, 92-93, 104-105, 184-188.

- **AHY M** – adult bird, male plumage with full gorget and no bill corrugations.
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations. Some adult females (~5%) can have centrally weighed gorget feathers that are purple and/or brown in color. One gravid adult female had an amazing 23 purple gorget feathers; when recaptured a year later her gorget was unchanged.
- **HY M** – female looking bird with a few gorget feathers (especially on the sides of the throat), bill corrugations, and/or R1≤19mm. Other measurements can be helpful to separate from HY F.
- **HY F** – female looking bird with no gorget feathers, bill corrugations present, and/or R1≥20mm. Other measurements can be helpful to separate from HY M.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	126	37.28 (35.28-39.32)	31.2 (29-34)	20.96 (17.64-23.01)	89.41 (84.41-93.08)
AHY F	126	41.21 (39.05-43.70)	25.6 (23-28.5)	21.95 (19.58-24.08)	88.80 (84.60-92.74)
HY M	71	39.43 (36.31-43.37)	25.4 (23.5-29.5)	20.93 (19.41-22.91)	85.79 (81.49-90.27)
HY F	26	42.06 (40.16-44.23)	25.8 (24-28)	21.60 (20.30-23.25)	89.38 (86.52-94.16)

NOTE: We undoubtedly made some mistakes when trying to sex HY birds in 2008 and early 2009. Those figures have been corrected based on recapture data and have been included above. Please note length of R1 on AHY F and HY M/F birds in the comments section of the field data sheet.

RUBY-THROATED HUMMINGBIRD (RTHU) – mid-August through October

References/pages: Pyle, pp. 134-138; Howell, pp. 122-133; Williamson, pp. 64-65, 88-91, 100-103, 188-193.

- **AHY M** – adult bird, male plumage with full gorget and no bill corrugations.
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations. Separate from BCHU by smaller measurements, bright green back, inner web width of P10 and/or outer web shape of P6.
- **HY M** – female looking bird separated from BCHU and female RTHUs by presence of a few red gorget feathers, smaller measurements, bill corrugations, shape/extent of white in R3, shape of R3-5, inner web width of P10 and/or outer web shape of P6.

- **HY F** – female looking bird with bill corrugations and no gorget feathers. Separated from BCHU F by smaller measurements, bright green back, inner web width of P10 and/or outer web shape of P6. From HY M RTHU by larger measurements, the lack of gorget feathers and the characteristics of P6.

Morphometrics (West Texas Data Set):

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	42	38.19 (36.41-42.11)	28.8 (25-31.5)	15.63 (13.54-17.42)	82.65 (79.36-87.29)
AHY F	53	43.20 (41.52-45.61)	26.7 (25-28.5)	17.34 (15.18-19.43)	87.26 (84.11-90.32)
HY M	98	41.02 (36.90-44.61)	26.4 (24.5-28.5)	15.74 (13.45-17.84)	83.11 (79.34-87.13)
HY F	70	43.96 (41.21-46.19)	26.7 (25-29)	17.29 (14.46-19.83)	88.00 (83.76-91.43)

Morphometrics (Rockport Data Set-September 2011):

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	39	38.09 (36.21-40.76)	27.6 (25-30)	16.48 (14.02-18.10)	82.13 (77.62-86.33)
AHY F	27	43.60 (41.30-45.72)	26.1 (24-29)	18.66 (17.43-21.10)	88.34 (84.79-91.68)
HY M	112	40.67 (37.58-43.50)	25.8 (23-28)	16.41 (14.34-19.59)	82.86 (77.39-87.73)
HY F	69	44.05 (41.25-46.81)	26.5 (25-29)	18.06 (16.51-20.37)	88.56 (85.39-92.63)

BLACK-CHINNED HUMMINGBIRD (BCHU) – March through October

References/pages: Pyle, pp. 134-135, 138-140; Howell, pp. 134-145; Williamson, pp. 62-63, 88-91, 100-103, 194-199.

- **AHY M** – adult bird, male plumage w/ full gorget and no bill corrugations.
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations. Separate from RTHU by larger measurements, dull green back, inner web width of P10 and outer web shape of P6.
- **HY M** – female looking bird with or without a few purple gorget feathers and bill corrugations. Juvenile birds usually exhibit prominent buffy edges to the back, rump feathers and coverts. Separated from female BCHU by smaller measurements, the shape of P6, the shape of R3-5 and/or the extent of white in R3. Individuals lacking gorget feathers and exhibiting intermediate measurements will have to be sexed by the latter three characteristics. From RTHU by one or more of the above combinations and the inner web width of P10 and/or outer web shape of P6.
- **HY F** – female looking bird with bill corrugations and no gorget feathers. Separated from RTHU by larger measurements, inner web width of P10 and/or outer web shape of P6; from HY M BCHU by larger measurements, shape of P6, extent of white in R3 and/or the shape of R3-5.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	842	40.96 (37.83-45.53)	25.3 (22-29.5)	18.06 (14.01-20.76)	84.34 (78.25-91.87)
AHY F	1091	45.15 (41.91-49.03)	26.6 (24-30)	19.65 (16.45-22.81)	91.41 (84.26-98.18)
HY M	827	42.86 (38.69-46.12)	25.4 (23.5-29)	17.96 (14.29-20.33)	86.24 (80.82-93.37)
HY F	434	45.53 (41.98-50.25)	27.0 (25-30)	19.54 (16.18-22.22)	92.04 (83.16-98.24)

NOTE: Some HY birds will lose all bill grooving by late August and many birds will lose their juvenile crown and back feathers. I find it reliable to use the buffy tips to the primary coverts and greater coverts in late summer and early fall, if clear and concise, to judge HY birds lacking other juvenile characteristics.

ANNA'S HUMMINGBIRD (ANHU) – September through January

References/pages: Pyle, pp. 134-135, 140-142; Howell, pp. 146-155; Williamson, pp. 60-61, 88-91, 100-103, 199-204.

- **AHY M** – adult bird, male plumage w/ full gorget and crown, and adult tail.
- **AHY F** – adult bird, non-adult male plumage without bill corrugations. Females usually have center weighed gorget feathers, same color as a male's; however, some individuals exhibit only a few green gorget feathers. Occasionally, older females can have a few gorget feathers on the sides of the throat and in the crown (the pattern of white in R5 will separate these birds from HY Ms).

- **HY M** – female looking bird usually with incomplete gorget and crown, bill corrugations and juvenile tail. Separate from female birds by the pattern of white in R5.
- **HY F** – female looking bird with bill corrugations, with or without center weighed gorget feathers. Separate from HY M individuals by the pattern of white in R5.
- **U F** – female looking bird in November and December with no bill corrugations and completed prebasic molt.

Morphometrics:

<i>AGE/SEX</i>	<i>N</i>	<i>WING</i>	<i>TAIL</i>	<i>CULMEN</i>	<i>SI</i>
AHY M	36	48.15 (44.90-50.07)	32.4 (31-34)	16.81 (15.03-18.80)	97.39 (93.92-101.15)
AHY F	63	48.84 (47.07-51.18)	27.9 (26-30.5)	17.59 (15.87-19.47)	94.37 (90.09-99.30)
HY M	36	48.72 (44.23-51.27)	27.8 (24.5-30)	17.30 (14.48-19.35)	93.98 (86.34-97.95)
HY F	19	48.09 (45.20-49.41)	27.3 (26-29)	17.83 (16.66-19.11)	93.19 (89.05-96.23)
U F	17	49.13 (47.58-50.76)	27.5 (26-29)	17.45 (16.31-18.76)	94.19 (91.92-97.55)

CALLIOPE HUMMINGBIRD (CAHU) – mid-July through September

References/pages: Pyle, pp. 134-135, 142-144; Howell, pp. 165-172; Williamson, pp. 56-57, 84-87, 96-99, 208-212.

- **AHY M** – adult bird, male plumage w/ full gorget
- **AHY F** – adult bird, non-adult male plumage with no bill corrugations. Separate from juvenile birds by lack of corrugations and/or worn plumage. Some adult female CAHUs can have gorget feathers.
- **HY M** – female looking bird in fresh plumage with bill corrugations, separated from females by presence of a few lilac gorget feathers, smaller measurements, rufous edgings at the base of R2-5, and/or characteristics of R1 (shorter than tail tip, club shaped, dark gray/green, and rufous edging near the base).
- **HY F** – female looking bird in fresh plumage with bill corrugations; usually without gorget feathers. Separated from HY M by larger measurements, no rufous edgings to R2-5, and characteristics of R1 (equal to tail tip, symmetrical, usually green, and without rufous edgings at base).

Morphometrics:

<i>AGE/SEX</i>	<i>N</i>	<i>WING</i>	<i>TAIL</i>	<i>CULMEN</i>	<i>SI</i>
AHY M	76	37.93 (35.65-39.98)	21.12 (19.5-23)	13.87 (11.71-15.83)	72.96 (69.73-75.80)
AHY F	40	41.39 (39.63-44.41)	21.95 (20-24)	15.19 (13.30-17.25)	75.54 (75.33-83.11)
HY M	134	40.76 (37.79-43.27)	21.96 (20.5-24.5)	13.89 (11.92-15.72)	76.59 (72.28-80.45)
HY F	53	42.51 (39.92-44.66)	23.48 (21-26)	14.93 (13.26-16.68)	80.91 (75.68-85.34)

BROAD-TAILED HUMMINGBIRD (BTLH) – March through December

References/pages: Pyle, pp. 134-135, 146-148; Howell, pp. 177-186; Williamson, pp. 54-55, 84-87, 96-99, 216-220.

- **AHY M** – adult bird, male plumage w/ full gorget, adult tail and no bill corrugations.
- **AHY F** – adult bird, non-adult male plumage lacking bill corrugations. Separate from RUHU by larger measurements including SI (particularly a longer wing and tail), all green R1 and R2 with only a small amount of rufous on the outer web near its base. A small percentage of adult females will have gorget feathers usually in the center of the gorget. In late summer and fall most adult females will exhibit worn plumage and flight feather molt.
- **HY M** – female looking bird in fresh plumage with bill corrugations. Separated from HY RUHUs by larger measurements (particularly the wing and tail), presence of rose-colored gorget feathers, and/or tail characteristics. Separated from HY F BTLH, with caution, by smaller bill, presence of gorget feathers, extent of white in R3-5 (very restricted in R3), and/or heavier spotting in the throat.

- **HY F** – female looking bird in fresh plumage with bill corrugations. Separated from HY RUHUs by larger measurements and the tail characteristics. Separated from HY M BTLH, with caution, by larger bill, lack of gorget feathers, extent and shape of white in R3-5, and/or less dense spotting in the throat.
- **HY U** – female looking bird in fresh plumage with bill corrugations. Individuals exhibiting intermediate measurements (particularly in the bill), intermediate characteristics in the extent and shape of white in R3-5 (particularly in R3) and intermediate throat characteristics should be sexed U. The extent of black vs. rufous color in the basal portions of R3-5 is mostly unreliable. Further explanation is warranted for this category. The first indicator of the bird's sex is the bill measurement (shorter is likely a male; longer a female; intermediate either); then look for gorget feathers and/or the extent of throat spotting (gorget feathers, especially on the sides of the throat = male; just a few in the center = male or female; if none then the heavier the throat spotting the more likely it is a male; lighter throat spotting is likely a female; intermediate is either); finally, look for very restricted white in R3 indicating it is likely a male, a large rounded spot is likely a female and intermediate can be either. HY birds should be sexed U if a combination of the above characteristics are in conflict and/or intermediate characteristics exist for all.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	328	48.35 (45.20-51.70)	33.0 (30-36.5)	17.31 (14.78-19.40)	98.62 (92.19-105.92)
AHY F	426	48.98 (4-52.35)	31.6 (29-35.5)	18.55 (16.01-20.97)	99.16 (88.79-104.95)
HY M	577	48.39 (45.62-52.30)	32.0 (29.5-35)	17.11 (14.59-19.83)	97.47 (92.33-103.31)
HY F	330	48.41 (44.42-51.72)	31.7 (29-35)	18.07 (15.57-21.37)	98.16 (92.77-105.59)
HY U	34	48.07 (45.11-49.66)	31.7 (30-33.5)	17.57 (15.18-18.89)	97.34 (94.82-100.18)

NOTE: Less than 1% of BTLHs from this data set have a tail that measures less than 30 mm. Combination of longer wing and tail, color pattern of R2 and a large SI should separate 99.9% of BTLHs from RUHUs. From the above data it is clear that more HY individuals should be sexed U.

RUFOUS HUMMINGBIRD (RUHU) – July through December

References/pages: Pyle, pp. 134-135, 148-150; Howell, pp. 187-198; Williamson, pp. 52-53, 84-87, 96-99, 221-226.

- **AHY M** – adult bird, male plumage w/ full gorget and no bill corrugations. Separate from ALHU by larger measurements (use SI), mostly rufous back, shape and characteristics of R2 (broad and notched near the outside tip), and /or width of R5.
- **AHY F** – adult bird, non-adult male plumage lacking bill corrugations. Separate from ALHU F with caution. Use larger measurements including SI and width of R5. Adult females usually have mostly green R1s, center weighed gorget feathers and show feather wear and/or molt in fall (after August).
- **HY M** – female looking bird in fresh plumage with bill corrugations. Separated from RUHU Fs by the color pattern of R1 (~3/4 rufous with diamond shaped tip black/green). Separated from HY M ALHU by larger measurements (use SI), shape and characteristics of R2 (broad and notched), and /or width of R5 (usually greater than **3.00mm**).
- **HY F** – female looking bird in fresh plumage with bill corrugations; usually with or without a few center weighed gorget feathers. Separated from HY M by color pattern of R1 (normally all green; can have a bit of rufous at the base of the feather near the quill). Separated from ALHU Fs with caution using smaller measurements (SI) and width of R5 (usually greater than **3.50mm**).

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	241	39.94 (37.37-41.87)	28.9 (26-32)	16.22 (13.69-19.49)	85.02 (80.89-89.35)
AHY F	491	43.73 (41.20-46.30)	27.5 (25-29)	17.62 (15.03-20.24)	88.84 (84.22-92.95)
HY M	685	42.04 (38.87-45.43)	26.9 (25-29.5)	16.30 (14.10-19.13)	85.25 (80.69-90.28)
HY F	560	44.57 (41.56-47.60)	27.1 (25-29)	17.49 (14.61-19.47)	89.12 (83.68-93.87)

NOTE: Please measure the width of R5 on all HY M individuals with an SI of less than 83.5, 84 in HY Fs and 86 in AHY Fs and note the shape of R2 (notched/un-notched); please estimate the percentage of green on the backs of adult males and note that in your comments (if 20% record G20; if none record G0).

ALLEN'S HUMMINGBIRD (ALHU) – Late-July through November

References/pages: Pyle, pp. 134-135, 150-152; Howell, pp. 199-209; Williamson, pp. 50-51, 84-87, 96-99, 226-230.

- **AHY M** – adult bird, male plumage w/ full gorget and no bill corrugations. Separate from RUHU by smaller measurements (use SI), green back, shape and characteristics of R2 (narrow and un-notched), and /or width of R5.
- **AHY F** – adult bird, non-adult male plumage lacking bill corrugations. Separate from RUHU F with caution. Use smaller measurements including SI and width of R5. Adult females usually have mostly green R1s, center weighed gorget feathers and show feather wear and/or molt in fall.
- **HY M** – female looking bird in fresh plumage with bill corrugations and a few gorget feathers. Separated from ALHU Fs by the color pattern of R1 (~3/4 rufous with diamond shaped tip black/green). Separated from HY M RUHU by smaller measurements (use SI), shape and characteristics of R2 (narrow and un-notched), and /or width of R5 (see notes below).
- **HY F** – female looking bird in fresh plumage with bill corrugations; with or without a few center weighed gorget feathers. Separated from HY M by color pattern of R1 (normally all green). Separated from RUHU Fs with caution using smaller measurements (SI) and width of R5.

Morphometrics:

AGE/SEX	N	WING	TAIL	CULMEN	SI
AHY M	5	37.81 (37.33-38.27)	25.1 (22.5-27.5)	15.81 (15.35-16.60)	78.75 (75.84-81.59)
AHY F	7	42.04 (39.82-44.54)	24.3 (23.5-25)	16.65 (14.68-17.93)	82.98 (78.94-85.82)
HY M	62	39.74 (37.66-41.70)	24.5 (22-26)	16.19 (14.42-17.92)	80.45 (75.11-83.49)
HY F	3	40.68 (39.72-41.58)	24.7 (24.5-25)	17.68 (17.56-17.79)	83.03 (82.51-83.64)

NOTE: Please measure the width of R5 on all individuals and note the shape of R2 (notched/unnotched) in the comments. On the HY M individuals above, the R5 average was 1.95mm (1.42-2.46mm). Be advised that HY individuals can begin their pre-basic molt (including flight feathers) in mid-fall.

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