Revised Ageing and Sexing Criteria for the Blue-throated Hummingbird

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ABSTRACT

Examination of photographs and specimens confirms that male Blue-throated Hummingbirds *(Lampornis clemenciae)* in juvenal plumage have close to "full" gorgets, approaching those of males in adult-basic plumage. This is unusual in North American hummingbirds and has been essentially overlooked in the literature. Accordingly, we describe differences between juvenal and adult-basic plumage in males, and revise current ageing and sexing criteria for Blue-throated Hummingbirds.

INTRODUCTION

The "juvenal plumage" (that between hatching and the complete molt during the first year) in male Blue-throated Hummingbirds *(Lampornis clemenciae)* has not been described adequately. Ridgway (1911) described only "adult" birds, presumably those that had undergone the first complete molt and gave measurement ranges for 23 males. Bent (1940) gave a brief description of the "young" male, indicating that the blue throat is only "partially developed." Oberholser (1974) mentioned that he had not seen males in "first winter" or "first nuptial" plumage but included measurements for "adult" males and described two unrecognized northern subspecies (*L. c. bessophilus*, Oberholser 1918, and *L. c. phasmorus*, Oberholser 1974), opinions supported by Browning (1978, 1990). Howell and Webb (1995) stated that the "immature male resembles female but with some blue on the throat."

Based on this information, the lack of specimens of male Blue-throated Hummingbirds in California collections with few blue feathers in the throat, and apparently mis-sexed specimens (see Clench 1976) without blue in the throat (e.g., Moore Laboratory of Zoology [MLZ] 37499), Pyle (1997) assumed that most or all juvenile males lacked blue in the throat, either overlooking the information presented by Bent (1940) and Howell and Webb (1995) or assuming that they had examined one or more males with a few blue feathers in the throat. Thus, Pyle (1997) noted that "more study is needed on the acquisition of blue in the throat by HY/SY males; apparently, blue usually is not acquired until March-May in SYs, although occasional HY/SYs with 1-2 blue throat feathers may be found in Jul-Feb."

METHODS

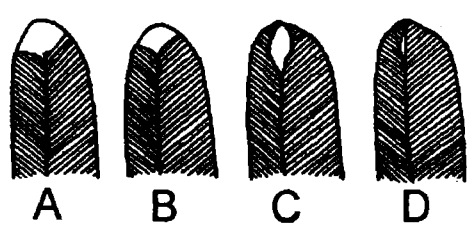
While examining photographs for an identification guide to North American hummingbirds, Howell noted that juvenile male Blue-throated Hummingbirds had extensive blue feathering in the throat, approaching that observed in adult males. A re-examination of 25 male specimens at the California Academy of Sciences (CAS) and Museum of Vertebrate Zoology (MVZ) by Pyle and Howell indicated that 10 (38%) were juveniles, 11 (41%) were adults which had completed the first-year molt, two were in transitional plumage and had apparently molted the flight feathers but not the gorget, and two were of indeterminable age (see below). Ages of the 23 determinable birds were confirmed by the extent of corrugations on the bill (Ortiz-Crespo 1972, Yanega et al. 1997). Based on these proportions, we suspect that Ridgway (1911) and Oberholser (1974) had, like Pyle, assumed that males with extensive blue on the throats were adults, a reasonable assumption based on patterns of gorget acquisition in males of other North American hummingbirds (Pyle 1997, Pyle et al. 1997).

RESULTS

Specimen examination indicated two plumage criteria useful for distinguishing juvenile from adult male Blue-throated Hummingbirds in the field. First, the gorgets of juvenile males are, on average, less extensive than those of adults. Counts of throat feathers with iridescent blue coloration revealed that 10 juveniles had 46 (MVZ101948) to 68 (MVZ137129) blue-tipped feathers (mean 58.1 ±7.3 [SD]), whereas 12 adults had 76 (MVZ78798) to 118 (CAS67138) blue-tipped feathers (mean 95.9 + 13.5). In juveniles, the relative sparcity of blue-tipped feathers often creates a gap between the gorget and the dark auricular in the malar region, which is absent or less obvious in adults. The width of this gap was generally > 2 mm in juveniles and < 2 mm in adults, although there was some overlap and a standardized measurement was difficult to obtain from specimens. In addition, the extent of blue on each feather is reduced in the juvenile relative to the adult. Thus, the gray bases of these feathers show through in the juvenile, giving the gorget an "incomplete" or less "full" appearance, as described by Pyle et al. (1997) for some males of other hummingbird species in first-basic plumage (see also Figure 99F and G in Pyle 1997).

Second, in juvenile males (as in females), r3, the third rectrix from the inside (and outside), has a distinct white tip which broadens toward the tip (Figure 1A-B), whereas in adult males the white on r3 is usually reduced to a small shaft-streak or diamond-shaped mark along the shaft (Figure 1C-D). In addition, the rectrices are slightly narrower and usually show more wear, month-to-month, in juveniles than in adults.

Fig. 1. Age-specific variation in the amount of white in r3 (the third rectrix from the inside or outside) of male Blue-throated Hummingbirds. A-B represent variation in juvenal rectrices, and C-D represent variation in adult rectrices.



DISCUSSION

We believe that there is little overlap between juvenile and adult males in plumage, at least in northern populations (see below); although the juvenile with the fullest gorget (see above) approached in appearance the adult with the least full gorget, and the plumage of the juvenile with the least amount of white on r3 (MVZ137129; Figure 1B) approached that of the adult with the greatest amount of white on r3 (MVZ129682; Figure 1C). Based on 95% confidence intervals from our data, the number of blue-tipped feathers in the throat should range from 43-73 in juvenile males and 70-122 in adult males, indicating slight overlap. Some (5-15%) bill corrugation (see Yanega et al. 1997) on adults with fewer blue-tipped feathers and larger amounts of white in the tail (e.g., 119402, 129684, 129685, and 129682 at MVZ) suggests that they were in first-basic plumage, although the reliability of identifying males in this plumage needs to be researched further.

Two specimens of the nominate subspecies collected in Veracruz, Mexico, in early July 1965 (CAS87712 and CAS87713) were in indeterminable plumage. Respectively, these had 5% and 15% bill corrugations, 73 and 70 blue-tipped feathers in the throat, and white patches on r3 resembling Figure 1B but on rectrices that were very broad, fresh, and adult-like in appearance. It is possible that these two birds were in first-basic plumage and/or that males of the tropical, nominate subspecies (which could breed at varying times of the year; cf. Howell and Webb 1995) are more difficult to age by plumage. Examination of 18 male Amesthyst-throated Hummingbirds *(L. amethystinus)* by Pyle at MVZ, aged by bill corrugations, indicates that juvenile and adult males of this congener are virtually indistinguishable by plumage.

Based on the two plumage differences described above, we present revised criteria and bar graph for ageing and sexing Blue-throated Hummingbirds of northern (including Texas and Arizona) populations (Appendix).

ACKNOWLEDGMENTS

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LITERATURE CITED

Bent, A.C. 1940. Life histories of North American cuckoos, goatsuckers, hummingbirds, and their allies. U.S. Natl. Mus. Bull. 176.

Browning, M.R. 1978. An evaluation of the new species and subspecies proposed in Oberholser's bird life of Texas. *Proc. Biol. Soc. Washington* 91:85-122.

Browning, M.R. 1990. Taxa of North American birds described from 1957 to 1987. *Proc. Biol. Soc. Washington* 103:432-451.

Clench, M.H. 1976. Possible pitfalls in museum specimen data. *N. Am. Bird Bander* 1:20-21.

Howell, S. N. G. and S. Webb. 1995. A guide to the birds of Mexico and northern Central America. Oxford University Press, Oxford, UK.

Oberholser, H.C. 1918. Description of a new subspecies of *Cyanolaemus clemenciae*. *Condor* 20:181-182.

Oberholser, H.C. 1974. The bird life of Texas. Vol. 1. University of Texas Press, Austin.

Ortiz-Crespo, F.I. 1972. A new method to separate immature and adult hummingbirds. *Auk* 89:851-857.

Pyle, P. 1997. Identification guide to North American birds. Part 1. Slate Creek Press, Bolinas, CA.

Pyle, P., S.N.G. Howell, and G.M. Yanega. 1997. Molt, retained flight feathers and age in North American hummingbirds. Pp. 155-166 *in* R.W. Dickerman, comp., The era of Allan Phillips: A Festschrift. R.W. Dickerman, Albuquerque, NM.

Ridgway, R. 1911. The birds of Middle and North America. Part V. Bull. U.S. Natl. Mus. 50.

Yanega, G.M., P. Pyle, and G.R. Geupel. 1997. The timing and reliability of bill corrugations for ageing hummingbirds. *Western Birds* 28:13-18.

The next page is the appendix to this ms. It is perforated on the left margin and can be removed and trimmed to fit Peter Pyle's *Identification Guide to North American Birds.* Part I, 1997, replacing page 129.

HY/SYs; the gorget feathers of SY ♂♂ probably are the last feathers to be replaced. The timing of breeding and molt may differ in populations of Mex. Look for SY/TYs rarely to retain a few flight feathers until the 2nd PB, as in other hummingbirds.

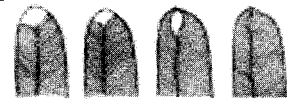
Skull—Experience by species is required for the use of pneumaticization in ageing (see Family account).

Age/Sex—Juv (May-Nov) has a soft and corrugated bill (Fig. 92**A**), feathers of the upperparts tinged golden and distinctly edged pale gray, and mandible flesh-colored or pink at the base; sexes are readily distinguished by lack (♀♀) or presence (♂♂) of blue in the throat. CP and BP apparently are not well developed. Measurements (especially tl) are useful: ♀ wg(n21) 67.1-74.1, tl(n20) 40.4-45.5; ♂ wg(n30) 71.9-78.5, tl(n30) 43.5-51.1.

Juv-HY/SY ♀ (Jun-Mar): Bill soft (through Jul-Sep) with deep to shallow corrugations covering > 10% of culmen (Fig. 92**A-B**; through Dec-Mar); throat brownish-gray without iridescent blue feathers (Fig. 99**A**); mandible pinkish at base (through Nov?).

AHY/ASY ♀ (Feb-Jan): Bill hard with shallow to no corrugations covering < 10% of culmen (Fig. 92**C-D**); throat gray, without iridescent blue (Fig 99**A**) or (occasionally) with 1-2 blue feathers; mandible dark at base. **Note: Look for retained flight feathers on occasional SY/TYs (see AHY/ASY ♂).**

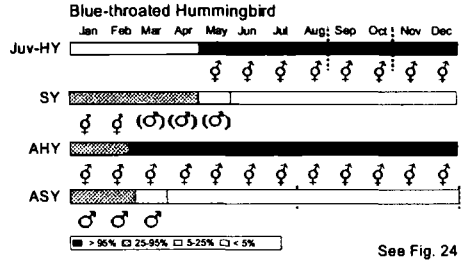
Juv-HY/SY ♂ (Jun-Mar): Bill as in Juv-HY/SY ♀; throat with blue feathers but gorget incomplete (Fig. 99**F-G**), with 43-73 blue-tipped feathers and distance between the closest blue-tipped feather and the auricular usually > 2 mm; r3 with broad, triangular, white terminal patch (Fig. 94.5**A-B**); mandible pinkish at base (through Nov?). **Note: Beware of occasional AHY/ASY ♀♀ with a few blue feathers (but not a complete patch) in the throat.**



A B C D

FIGURE 94.5.

AHY/ASY ♂ (Mar-Feb): Bill as in AHY/ASY ♀; throat uniformly iridescent blue (*cf.* Fig. 99**H**), with 70-122 blue-tipped feathers and distance between the closest blue-tipped feather and the auricular usually < 2 mm; r3 with a small irregular or diamond-shaped patch along the shaft (Fig. 94.5**C-D**); mandible dark at base. **Note: Occasional ♂♂ with intermediate gorget or r3 characteristics, or with retained flight feathers, may be reliably aged SY/TY; more study is needed.**



See Fig. 24

Hybrids reported—Probably with Anna's Hummingbird. Possibly with Black-chinned Hummingbird.

References—Ridgway (1911), Bent (1940), Wagner (1957), Phillips *et al.* (1964, 1984), Oberholser (1974), Phillips & Chase (1982), Baldridge *et al.* (1983).

MAGNIFICENT HUMMINGBIRD

Eugenes fulgens

MAHU
Species # 4260
Band size: X-0A

Species—From most hummingbirds of N.Am by large size (wg 66.1-77.5, tl 37.4-51.1; see **Age/Sex**); bill black without red. ♀ from ♀ Blue-throated Hummingbird by nares covered