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Selected Avian Systematic Problems in the Northwest: The 1983 A. O. U. Check-list

The sixth edition (1983) of the American Ornithologist's Union (A. O. U.) Check-list of North American Birds has recently been published and contains numerous systematic changes from the fifth edition (1957). The biological justification for such changes has been presented elsewhere (Mayr 1970, Selander 1971, Ratti 1980), and Arbib (1983) provided a general critique of the new Check-list. The purpose of this discussion is to consider several systematic problems with species in the Northwest that were not solved by changes in the new Check-list. In some cases, such problems were not addressed by the Committee on Classification and Nomenclature due to insufficient data prior to deadlines for revision and publication of the new Check-list. The 1983 edition does not present subspecies; consequently, discussion of subspecific populations will reference the 1957 Check-list edition.

Western Grebe (*Aechmophorus occidentalis*)

Two color morphs of Western Grebe, referred to as "light-phase" and "dark-phase" (Storer 1965, Ratti 1981) were originally described as separate species by George Lawrence (*in* Baird 1858:894-895). Lawrence named the dark form the Western Grebe (*Podiceps occidentalis*) and the light form Clark's Grebe (*P. clarkii*). However, they were later considered color phases of the same species (Coues 1874, Henshaw 1881) and A. O. U. (1886, 1931, 1957) classified the forms as a single species. Recent research has clearly disclosed that sympatric populations of these color morphs function as separate biological species (Ratti 1979, Nuechterlein 1981). Interbreeding (hybridization) occurs at a very low rate and isolating mechanisms have been identified. Regardless of this information, the new A. O. U. (1983) Check-list classifies only one *Aechmophorus* species, the Western Grebe. Arbib (1983:835) noted that "the [A. O. U.] committee has been alternately, even simultaneously, criticized for being too radical in its revisions and for being much too conservative." I feel this case is an example of being too conservative. Although existing data (prior to the 1983 revision) adequately addressed the criteria necessary for classifying the forms as two distinct species (Mayr 1963, 1970), recent research provides additional information important to this problem. Unpublished research (Alquist, Bledsoe, Ratti and Sibley) has revealed DNA differences between Western and Clark's grebes comparable to other closely related, but clearly distinct avian congeners. Ratti (1984) reports morphological differences between Western and Clark's grebes, especially with mandible morphology. Additional unpublished data (Ratti) supports the hypothesis by Nuechterlein (1981:344) that Western and Clark's grebes are ecologically segregated by feeding at different water depths (i.e.,

water depth niche partitioning). None of these later factors (e.g., DNA, morphology, niche) are primary criteria of the biological species concept, but such differences are consistent with those commonly observed for most closely related distinct species.

Harlan's Hawk (*Buteo jamaicensis harlani*)

The Harlan's Hawk has been subjected to several classification changes. The second edition of the A. O. U. (1895) classified Harlan's Hawk as a subspecies; in 1957 (A. O. U. 1957) this hawk was considered a distinct species, but was again assigned subspecific status in 1973 (A. O. U. 1973). The new Check-list (A. O. U. 1983) is consistent with the 1973 supplement and the Harlan's Hawk is considered a subspecies of the Red-tailed Hawk (*B. jamaicensis*). The present subspecific classification is based on reports of frequent interbreeding between *B. c. harlani* and other Red-tailed Hawk subspecies (Taverner 1927, Godfrey 1966, Lowe 1978). The taxonomic category of subspecies has three criteria: 1) discrete geographic range during reproductive periods, 2) phenotypic or morphological divergence, and 3) insufficient isolating mechanisms in zones of contact with other conspecific subspecies (Mayr 1970, Ratti 1980). Classification of *harlani* was based on criteria 2 and 3, and knowledge of a discrete geographic range did not exist. However, this problem has been solved by the recently published work of Mindell (1983). Mindell (1983:163) reports "The Alaskan breeding range found to be exclusive to Red-tailed Hawks of the *harlani* subspecies ran from Farwell at the east slope of the Alaskan range, north to Tanana and the Yukon River, west to Norton Sound, and south to St. Marys and Aniak." These data eliminate a previously existing problem and substantiate the subspecific status of the Harlan's Hawk.

Thayer's Gull (*Larus thayeri*)—Iceland Gull (*L. glaucoides*)

Although Thayer's and Iceland gulls are classified as distinct species, available biological evidence suggests that a systematic change is likely with a future A. O. U. Check-list supplement. A detailed taxonomic discussion of these closely related gulls (including the subspecies *L. g. kumlieni*) is presented by Weber (1981a). The A. O. U. (1983) classification of *L. thayeri* and *L. glaucoides* as separate species appears to be based largely on the research by Smith (1966). However, even Smith (1966:69-70) seems uncomfortable with his data regarding assortative mating between *thayeri* and *kumlieni*. Weber (1981a) also noted reservation with the data and analysis, and concluded that "his [Smith's] treatment of *kumlieni* and *thayeri* as different species is open to question." Weber (1981a) suspected greater rates of interbreeding between *kumlieni* and *thayeri* than indicated by existing data, and was "inclined to favor merging *thayeri* with *L. glaucoides*" (Weber 1981b). These suspicions are supported by Godfrey (unpublished data), whose field party, contrary to Smith (1966), found no evidence of assortative mating among individuals of the *thayeri-kumlieni* complex at Home Bay, Baffin Island, Northwest Territories. He now considers these taxa to be conspecific under *L. glaucoides* (W. E. Godfrey, pers. comm.).

Western Gull (*Larus occidentalis*)—Glaucus-winged Gull (*L. glaucescens*)

Hoffman *et al.* (1978) report extensive interbreeding and a high frequency of intermediate morphs in sympatric breeding populations of *L. occidentalis* and *L. glaucescens*.

However, they recommend continued recognition of *occidentalis* and *glaucescens* as distinct species due to hypothesized introgression stability by the two forms. Weber (1981b:81) disfavors the scenario offered by Hoffman *et al.* (1978) and believes there is "no convincing reason for assuming equilibrium in the hybrid zone;" he discusses evidence suggesting that the zone of contact "is imperceptibly being driven toward complete intergradation." Weber (1981b) also notes the very narrow interpretation of the biological species concept by Hoffman *et al.* (1978), and favors merging *L. glaucescens* with *L. occidentalis* to become *L. o. glaucescens*. The A. O. U. (1983:222) Check-list committee also appears uncomfortable with the present classification of *occidentalis* and *glaucescens* as distinct species and notes that "these two will probably prove to be conspecific."

An associated problem is the relationship of Western Gull subspecies, *L. o. occidentalis*, *L. o. wymani*, and *L. o. livens*. Weber (1981b) notes geographic isolation of *livens* from *wymani* and nominate *occidentalis*, and mentions clear morphological characters that separate *livens* from the latter two subspecies. He suggests that *livens* might be a distinct species (*L. livens*). Hand (1981) has disclosed distinct vocalization of *livens* and also believes *livens* should be classified as a separate species. LeValley (1980) has reported a similar conclusion based on his data that indicate *livens* to be distinct in color, morphology, and voice from *L. o. occidentalis* and *L. o. wymani*. These data indicate significant divergence by *livens*, but unfortunately, sympatric populations do not exist to examine the effectiveness of isolating mechanisms. However, available data do suggest that it may be appropriate to classify *livens* a superspecies, i.e., an allopatric population so different that effective isolating mechanisms are *assumed* to exist that would prevent interbreeding with closely related populations in sympatry. Mayr (1970) noted that over 30 percent of the breeding birds in North America meet the classification criteria of a superspecies.

Sapsuckers (*Sphyrapicus* spp.)

The 1983 A. O. U. Check-list classifies three sapsucker species, the Yellow-bellied (*Sphyrapicus varius*), Red-breasted (*S. ruber*), and Williamson's (*S. thyroideus*). *S. ruber* was previously considered a subspecies of *varius* (A. O. U. 1957). An additional subspecies, the Red-naped Sapsucker (*S. v. nuchalis*, A. O. U. 1957) may also be elevated to distinct species status with future revisions. Johnson and Zink (1983) studied sympatric nesting populations of *ruber*, *nuchalis*, and *thyroideus* in south-central Oregon and northeastern California. They report assortative mating between *ruber* and *nuchalis* and note that "although infrequent hybridization between *ruber* and *nuchalis* occurs, there is no evidence of either a hybrid swarm or of the species losing their phenotypic identity" (Johnson and Zink 1983:881). Johnson and Zink (1983) conclude that the Red-naped Sapsucker (*nuchalis*) is specifically distinct.

Western Flycatcher (*Empidonax difficilis*)

The Western Flycatcher has three designated subspecies (A. O. U. 1957), two of which breed in northwestern states. *E. d. difficilis* occurs along the Pacific Coast, and *E. d. bellmayri* occurs throughout the interior highlands; their range is reported to be sharply divided by the Cascade Mountains (Johnson 1980). Johnson (1980:111) reports that "in view of their [*difficilis* and *bellmayri*] profound differences in size, color, and

voice, these groups approach the species-level of differentiation." However, this conclusion is complicated by limited evidence of interbreeding by sympatric populations in the Siskiyou region of northern California. Johnson (1980) acknowledges that additional research is needed to resolve this problem, but prefers to consider *hellmayri* a "megasubspecies." Johnson uses this term to reference subspecies approaching species status. Mayr (1970) classifies such cases as "semispecies"; i.e., populations that have acquired some attributes of species rank but remain borderline cases between species and subspecies. Future research must concentrate on the sympatric populations in the Siskiyou region to more clearly examine rates of interbreeding and potential isolating mechanisms.

Northwestern Crow (*Corvus caurinus*)

The A. O. U. (1983) Check-list acknowledges that the Northwestern Crow and American Crow (*C. brachyrhynchos*) are closely related, and they are classified superspecies (defined above). A. O. U. (1983:509) also notes that *caurinus* and *brachyrhynchos* are "considered conspecific by some authors." This particular systematic controversy is especially difficult. Unlike most superspecies, zones of sympatry between *caurinus* and *brachyrhynchos* do exist, but field identification is a difficult problem. Northwestern and American crows are phenotypically very similar, and are separated primarily by voice, habitat, behavior, and morphology. Unfortunately, these factors are subject to variation and interpretation, and field identification is much less discrete than with other closely related species having distinct recognizable phenotypic characteristics. Consequently, it is difficult to obtain a large number of field observations on hybridization rates. Johnston (1961) studied the relationship between *caurinus* and *brachyrhynchos*, and has concluded that the forms are conspecific. Johnston (1961:31) studied voice patterns in Washington and reported:

- a. Birds of extreme mid-southwestern Washington and those east of the Cascades are of the *hesperis* [voice] type [i.e., *C. b. hesperis*, A. O. U. 1957].
- b. Birds of the Olympic Peninsula, mid- and probably much of northwestern Washington are of intermediate voice types, sometimes resembling *caurinus* and sometimes *hesperis*.
- c. Birds of the San Juan Islands, and perhaps from this locality northward, are of the *caurinus* [voice] type.

Johnston (1961) also studied habitat use and measurements, and based on evidence of intergradation, considers the Northwestern Crow a subspecies of the American Crow, and recommends calling the Alaska and coastal British Columbia crows *C. b. caurinus*, those in Washington west of the Cascade range intermediates, and those in California, Oregon, interior Washington and British Columbia and Idaho *C. b. hesperis*. Before this problem can be resolved, additional data are needed. Johnston's reports of voice pattern were subjective, i.e., did not include analysis of sonograms, and are equivocal. Additional morphological data are also needed, especially from birds with voice recordings. Also, if frequent mixed breeding by pairs having distinct calls of American and Northwestern crows (i.e., vocal type *C. b. hesperis* x vocal type *C. caurinus*) were documented, there would be evidence to support Johnston's (1961) recommendation for reclassification. Although Johnston's data strongly indicate a need for additional research, they do not warrant action by the A O U. committee at this time.

Townsend's Warbler (*Dendroica townsendi*)—Hermit Warbler (*D. occidentalis*)

The taxonomic category of superspecies is based on the assumption that adequate isolating mechanisms exist to prevent interbreeding should congeneric populations become sympatric. Consequently, as new information is obtained in zones of sympatry for superspecies, we should expect some systematic changes. Townsend's and Hermit warblers (along with *D. virens* and *D. chrysoparia*) are considered superspecies (A. O. U. 1983). Sympatric populations of *occidentalis* and *townsendi* occur in restricted areas of Oregon and Washington. Morrison and Handy (1983) have recently reported an analysis of *Occidentalis* x *townsendi* hybrids based on both phenotypic characteristics and song (via sonographic analysis). Their data indicate that hybridization has advanced beyond the first generation, i.e., several "backcrosses" were described. These data indicate a need for additional research that will disclose rates of hybridization and determine if assumed isolating mechanisms exist. Due to recognizable phenotypic characteristics, these data will be obtained more easily than for the previously described problem with crows.

Rosy Finch (*Leucosticte arctoa*)

The Gray-crowned Rosy Finch (*Leucosticte tephrocotis*), Black Rosy Finch (*L. artrata*), and Brown-capped Rosy Finch (*L. australis*) (A. O. U. 1957) are all now considered conspecific with the Asiatic Rosy Finch (*L. arctoa*). No literature is cited to support this sweeping merger of species (A.O.U. 1983), but recommendations by French (1969), Vaurie (1956, 1959), and Mayr and Short (1970) were probably considered. French (1959) provides limited evidence of intergrades between the Black and Gray-crowned Rosy finches, but these data are not sufficient to warrant a systematic change. Future research may prove this change to be correct, but the main point is that necessary data are not available to justify this action. Richard E. Johnson (pers. comm.) has studied rosy finches extensively for many years, and although his data are not completely analyzed, he also feels this change is premature. The systematic lumping of the rosy finches provides another extreme in interpretation by the Committee on Taxonomy and Nomenclature. We began this discussion with an example (i.e., Western Grebes) of no action despite much data that indicate the present classification is incorrect. In this last case, we see a fairly radical change with little supporting data from field research.

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