

has had its biggest impact among closely related genera and species within genera. The changes in the

seventh checklist only reflect DNA sequence studies to a very limited degree, but I suspect that by the eighth

edition, they will have had a huge impact on our understanding of bird relationships.

Taxonomic changes in the seventh edition of the AOU checklist

The changes in the seventh edition that affect birds north of the Mexican border are discussed below. I don't discuss changes in the order of species within genera. These changes tend to be ephemeral, and are often based on little evidence. For Illinois species, the soon to be published Illinois State Checklist will provide the correct order. However, I do discuss changes in order at a higher level. The

taxonomic sequence of birds is supposed to provide information on relationships. Basically, the more closely related things are, the closer they are to one another in the list. See as an example below the change in location of shrikes and vireos.

In addition, the sequence of birds is supposed to go from the most primitive birds to the most advanced. This means that loons, at the start of the list

for North America are viewed as the most primitive birds in North America, while European Tree Sparrow, as the last species, is in theory the most advanced. Kind of sad that the pinnacle of avian evolution is thought to be European Tree Sparrow and House Sparrow. I have problems with both aspects of taxonomic order, but they are beyond the scope of this article, amazing as that might seem.

For most of the changes discussed below, you should look at the checklist to get more details and references.

**Cathartidae* (New World Vultures) moved from Falconiformes (diurnal raptors) to Ciconiiformes (storks and herons). This is perhaps the most controversial change made by the Checklist. It makes New World Vultures the nearest relative of the storks rather than their traditional location as a family among the diurnal raptors; note that Old World Vultures remain as true raptors, being considered members of the family Accipitridae, which includes hawks and eagles. This change has a long history, and was first suggested in print in the 1960s. A number of features of vulture morphology have been used to support this view, but the data that finally seemed to corroborate this idea involved DNA hybridization (Sibley and Alquist 1990)

However, in 1994, Carole Griffiths upset the applecart (Griffiths 1994). She examined the morphology of the syringes (these are the structures that birds use to make sounds, analogous to the larynx in humans; birds have two of these structures, which enables them to make two unrelated sounds at the same time, something the human larynx can't do) of raptors and other types of large non-passerine birds. Syringeal morphology has been used successfully to understand relationships of groups of birds several times, most notably in flycatchers, where results have been consistent with those gathered from DNA studies. Griffiths found that syringeal morphology supported the traditional placement of New World Vultures among the raptors. She further analyzed the characteristics that had been used to support the strong relationship between vultures and storks, and concluded that the evidence was equivocal, in large part because these studies had not distinguished between shared derived characteristics and shared primitive characteristics. She also reanalyzed the DNA hybridization data and concluded that they actually supported the traditional placement of vultures, rather than the previously reported support for a close relationship between vultures and storks. To be frank, I think this change is definitely premature, and likely is wrong.

**Falconidae* divided into 3 subfamilies instead of 4, the forest-falcons (represented in north Mexico by a vagrant record in southern Texas of Barred Forest-Falcon), the caracaras, and the true Falcons (only group in Illinois). Note that this is based on the same work of Griffiths that the checklist does not follow for the placement of vultures.

*The order of Anatidae has been changed based on analysis of the skeletons in the group, and more subfamilies recognized. In North America, the subfamilies in order are the Whistling-Ducks, Geese and Swans, and True Ducks. The swans have been placed after the geese, Steller's Eider is placed in front of rather than after the other eiders, and Oldsquaw is placed in front of the scoters rather than after. In addition, Masked Duck moved out of the genus *Oxyura* (which it shared with Ruddy Duck, among others, into monotypic genus *Nomonyx*.

*Gray Hawk moved out of Buteo into monotypic genus *Asturina*. The basis for this move is extremely weak and I am surprised that it has been adopted.

*Spruce Grouse moved out of *Dendrogapus* into genus *Falcipennis*. This species was placed in *Dendrogapus* with Blue Grouse in the sixth checklist (AOU 1983; it had previously been placed in the monotypic genus *Canachites*). It turned out that, when grouse were studied in detail using DNA sequencing, these species were not particularly closely related and for that grouping to make sense, one would also have to include the ptarmigans and prairie-chickens (Ellsworth et al 1996).

*New World Quail joined together in subfamily within Phasianidae.

*Long-billed Murrelet (*Brachyramphus perdix*) split from Marbled Murrelet (*Brachyramphus marmoratus*). The Long-billed Murrelet replaces Marbled Murrelet in Asia, but interestingly nearly all or perhaps all of the specimens of vagrant "Marbled" Murrelets in the interior of North America have been actually Long-billed Murrelets.