really began developing as a major recreational activity following the publication of the first Peterson Field Guide (Peterson 1934), we've gone from the fourth edition to the seventh, and there have been huge changes in the level of knowledge about North American birds, the taxonomic philosophy used to determine relationships and define species, and the technology used to study them.

A number of factors drive the changes in the taxonomy of North American birds. Here I discuss two major categories: changes in taxonomic philosophy and the advent of new technology.

The basic taxonomic philosophy that has guided the AOU checklist committee since at least the 1940s is a school of thought called the evolutionary school of taxonomy. Since the fifth edition (AOU 1959), defining species has been explicitly based on the biological species concept. Both of these approaches have been challenged by other ideas and those other ideas have greatly influenced how bird taxonomy is done and what the checklist presents as the accepted taxonomy of North American birds.

Taxonomic philosophy

Taxonomic philosophy is one of the great sleep aids ever invented. Just read a page or two about the epistomological basis of phylogenetic reconstruction, and I guarantee your insomnia will be cured. However, these philosophical discussions have been crucial in our increasing understanding of the relationships among different types of organisms, in this case, among birds. I will try to make this discussion as painless as possible.

Three main schools of taxonomic philosophy exist.

* The phenetic school bases the classification of organisms on overall similarity. It does not specifically try to discern relationships, but the more vocal practitioners would claim that, in practice, it usually does.

* Phylogenetic systematics explicitly attempts to reconstruct the evolutionary history of a group and then transfer that to the classification. In this school, historical knowledge is the crucial element, and the classification should strictly represent that history. The crucial difference from a practical standpoint is that phylogentic systematics views only shared derived characters as providing information about the evolution of the group. An example of shared derived character is feathers in birds relative to reptiles. We join all birds into one group, because they share a characteristic " feathers" that developed early in their evolution, but after they split from reptiles.

This is contrasted with shared primitive characteristics. These are characters that were already present in the group and never changed through evolutionary time. An example of this is flight in birds, relative to flightless birds. Flying is the primitive condition, flightless birds have developed from flying relatives, so we would not join together all the flying birds as a group because flight is a shared primitive character. Flightlessness has evolved multiple times in birds, so even shared derived characters can give false information.

* Evolutionary systematics essentially classifies birds according to their relationships (like the phylogenetic school), but does not provide a clear methodology for either determining the relationships or classifying the organisms. The flavor of evolutionary systematics is provided by the perhaps apocryphal quote that "a genus is defined as whatever the expert in that group of organisms says it is." Essentially, phylogenetic systematics now completely dominates taxonomic work in birds, but many groups of birds still have not been thoroughly studied from this perspective. So, many of the changes, reversals, and questionable decisions you'll encounter below result from the fact that we are still in a transition period from one taxonomic philosophy to another.

Species concepts

How we define species is an issue that is gathering importance among taxonomists. In the AOU checklist, we use the biological species concept. The checklist is based on whether populations interbreed. Traill's Flycatcher was split into Alder Flycatcher and Willow Flycatcher because the two song–types "fitz–bew" and "fee–bee–o" do not interbreed where they occur together. Yellow–shafted and Red–Shafted Flickers have been lumped into one species because, where they come into contact (the Great Plains), they breed with one another and hybridize broadly. In the 1960s and 1970s, in the name of biological species, many species were lumped because of hybridization occurring to some degree. I remember as a high school student in 1973 losing 9 species from my life list (a heron, a goose, a hawk, 2 flickers, a warbler, an oriole, and 2 juncos; I lost a third junco two years later) based on the decisions of the checklist committee (AOU 1973). In return, I got a new grackle (Great–tailed Grackle), and the chance to add Thayer's Gull and Alder Flycatcher to my life list. Life seemed very unfair. Since then, though, I've gotten the oriole back, as Bullock's and Baltimore Oriole were resplit, and one flicker, with Gilded Flicker being returned to specific status. The biological species concept is still being used, but new studies, and especially genetic studies, are documenting that massive interbreeding was required in order to keep populations from diverging, and that this was not occurring in many of the populations that we have considered subspecies recognizable in the field. The Solitary Vireo is just the latest bird to be split as the extent of genetic differences among the populations was recognized. Now we are gaining