New Hampshire
Bird Records

SUMMER 2018 Vol. 37, No. 2

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NEW HAMPSHIRE BIRD RECORDS
VOLUME 37 NUMBER 2
SUMMER 2018

IN MEMORY OF

Chandler S. Robbins

The 2018 issues of *New Hampshire Bird Records* are sponsored by George C. Robbins in memory and honor of his father, Chan Robbins. Each issue has an article by George about his father, highlighting his father's phenomenal accomplishments in the field of ornithology and connections to New Hampshire.

In This Issue

Cover Photos: Least Bittern by Jason Lambert, 7-12-18, Madbury, NH (bottom). Lark Sparrow by George Welch, 6-23-18, Loudon, NH (top left) – the first summer record for the state. Royal Tern by Leo McKillop, 7-6-18, Great Boars Head, Hampton, NH (top right).

New Hampshire Bird Records is published quarterly by NH Audubon's Conservation Department. Thank you to the many observers who submit their sightings to NH eBird (www.ebird.org/nh), the source of data for this publication. The published sightings typically represent the highlights of the season. Not all species reported will appear in the issue. All records are subject to review by the NH Rare Birds Committee and publication here does not imply future acceptance by the RBC.

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now has an accessible trail leading to an observation point at its edge, although the dirt road leading there from the town of Jefferson is only seasonally accessible. It is a shallow lake with an adjoining marshy area that attracts moose. The pond borders the northern edge of the Randolph Community Forest and is actually in the section of the White Mountain National Forest north of Mounts Crescent and Randolph. RMC trails lead from the Randolph village area through the woods and around Mount Randolph to this site.

At the Pond of Safety, you may find migrating ducks and frequently, both Common and Hooded Merganser. Other species include Pied-billed Grebe, Solitary Sandpiper, Belted Kingfisher, Common Loon and many woodland songbirds in the surrounding forest. There are various birding sites along the way to the pond and along the road continuing about a mile past the pond. There is a meadow opening maintained for American Woodcock and deer about halfway to the pond, as well as wetlands near the pond, and more open meadow areas along the road just beyond the pond.

Black-and-white Warbler.

The route to the Pond of Safety starts in the town of Jefferson. From Rt. 115, turn left (west) on Rt. 2 and proceed 0.4 mile to a right (north) at Ingerson Road. After 1.0 mile, the dirt road called either the Pond of Safety Road or Stag Hollow Road (depending on the map source) heads off to the right as Ingerson Road turns left. (Logging roads can make the route a little confusing at times, but there are a couple of significant corners where keeping left keeps one on track.) Follow the Pond of Safety Road about 4 miles to a left entrance to a small parking area for the pond.

Doves Near Ducks, What the Heck?

The Changing Taxonomic Order

by Pamela Hunt

It's been a while since I've written an article on taxonomic changes in North American birds, but when I did there were some pretty significant revisions afoot. In "A Shrubful of Warblers and Other Taxonomic Stories" (Summer 2011, Vol. 30, #2), I talked about rearrangement of pelicans and herons, separation of falcons from hawks, and spent a fair bit of time trying to explain how warblers were reclassified. In the years since, the American Ornithological Society (AOS) has adopted some even more dramatic changes to how species are ordered in our lists and it's high time I tried explaining them to the readers of *New Hampshire Bird Records* (*NHBR*). This is particularly timely because the changes I'm about to discuss were only just adopted by eBird, whose species order we use in *NHBR*. If you're unclear what "taxonomic order" is all about, you're encouraged to read "The Order of Things" in the Fall 2005 issue of *NHBR* (Vol. 24 #3 by Kathie Palfy).

But first, a bit of a refresher. Birders like to joke about how changes in the taxonomic order are part of a plot to sell more field guides, but it's a lot more fascinating than this. The order we list birds is meant to reflect their evolutionary relationships, with groups that have more recently diverged from the main path of avian history placed toward the end. There was a time when birds near the beginning were mistakenly considered "more primitive," but this is far from the case – their branches of the tree simply split off closer to the roots. If a species is around today, be it an ostrich or a tanager, by definition it has been evolving for the same amount of time. The difference is that the ostrich lineage has been ostrich-like for a ***lot*** longer than the tanager one has been tanager-like. They *both* date back to the first dinosaur that discovered feathers were a pretty neat idea.

Two of my older articles for *NHBR* discussed earlier attempts to sort out the avian family tree. Way back in Winter 1998-99, I talked about DNA-DNA hybridization, at the time the first effort to look at all of bird diversity using the same technique (Vol. 17, #4, "Dump Storks and Other Rearrangements"). Until then, much of our thinking was based on structural differences rather than molecular ones, although the latter was increasingly used to help sort out things at the species level. Then, in the Summer 2003 issue, I discussed the then-radical change, involving molecular genetics, that moved ducks and chickens to the front of the list (Vol. 31 #2, "Ducks and Chickens to the Front"). Genetic techniques continue to improve and in the last ten

years, several researchers have applied these techniques to no less a puzzle than "how has avian evolution proceeded since the demise of the dinosaurs?"

In case you're getting a little nervous, I don't intend to spend any time in this article trying to explain the various methodologies used in the studies that informed the new arrangement. Suffice it to say that these authors are employing techniques that are widely recognized as the best thing we currently have and that, while their results don't always line up with each other exactly, they've tended to point in the same direction. The resulting relationships of orders and families is getting close to being a good representation of how these groups actually evolved, although there is still room for some fine tuning as I point out below. To help keep everything in perspective, I'm going to cover all major groups of birds in this article, not just those that have been rearranged most recently or that occur in New Hampshire. With the exception of the songbirds at the very end, I'll also not dig deeper than the order level. So with all that behind us, let's buckle our seat belts and get ready for the ride!

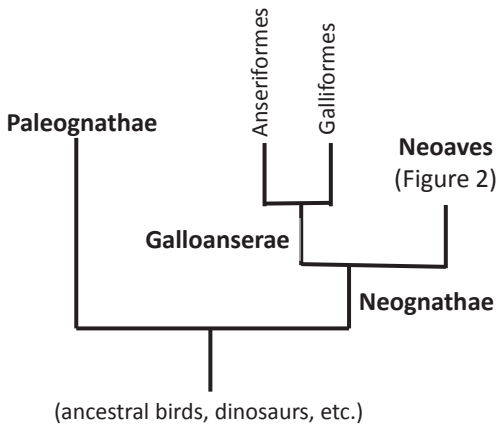

Figure 1. Evolutionary tree showing the relationships among the three main groups of living birds.

Long ago, the family tree of "modern" birds (i.e., those that survived the extinction of their dinosaur ancestors) diverged into two main branches. The smaller branch is the Paleognathae, comprising things like ostriches, emus, kiwis, and tinamous. All these birds are either flightless or have limited capacity for flight (the tinamous). The second branch, the Neognathae, in turn has two main branches. One, called the Galloanserae, includes two orders: Anseriformes (ducks, geese, and swans) and Galliformes (quail, pheasants, grouse, and turkeys). All other birds are in the second branch of the Neognathae: the Neoaves. These three groups (Paleognathae, Galloanserae, and Neoaves) had already formed prior to the catastrophic extraterrestrial impact that caused the extinction of the dinosaurs 66 million years ago. When the dust settled (literally!), surviving lineages diversified into the 10,000 or more species of birds we know today. The relationships among these three core groups are represented in Figure 1 and from now on I'll be focusing entirely on the Neoaves, since that's where all the recent taxonomic changes have occurred.

Long-time readers of *NHBR* have been used to seeing grebes near the head of the list, following waterfowl, grouse, and loons. They've held that position for some time and until this most recent shake-up were still considered closely related to loons (which are now much later in the list). But while they might remain next to loons in your field guides (at least for a while), the two groups are not really that similar after all and the closest living relatives of grebes turn out to be – wait for it – *flamingos*! This relationship appears pretty solid, and is borne out by multiple studies, but this is just the tip of the iceberg when it comes to the Neoaves. Although there are two well-defined groups of slightly more recent origin (see below), the rest of the Neoaves is a relatively messy grouping (often called the "basal Neoaves") that started splitting off quite early in the initial evolutionary history of modern birds. In this new classification, the closest relatives of the flamingo/grebe group are the doves, and along with a few additional taxa not in North America, these comprise the "Columbea," which probably split off the rest of the Neoaves just before the end of the Cretaceaous. All remaining birds are in the group "Passerea."

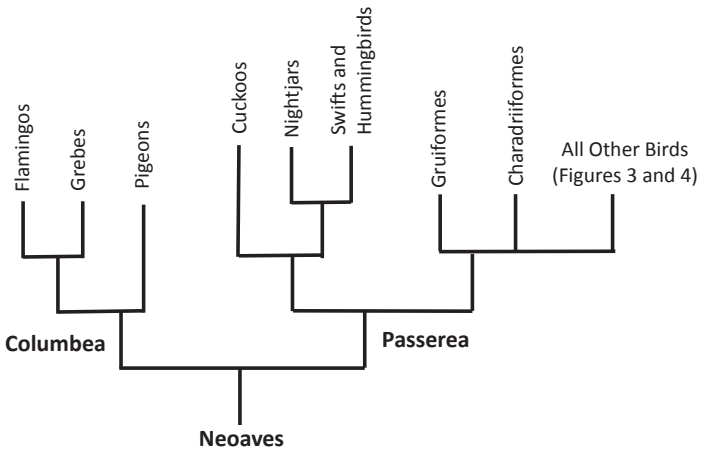

Figure 2. Evolutionary tree showing relationships among the "basal Neoaves."

Within the Passerea, most evidence indicates that cuckoos (Cuculiformes) are most closely related to a group that includes both nightjars (Caprimulgiformes) and swifts and hummingbirds (Apodiformes). Harder to pin down are two fairly large groups: the Gruiformes (rails, coots, and cranes) and Charadriiformes (plovers, sandpipers, auks, and gulls).

Both are believed to be of more recent origin, but where exactly they fall in the tree varies among studies. For our purposes I've placed them as sequential divergences just before we get to the final two large groupings of birds, as shown in Figure 2.

Next up are two groups that are *much* more understood, and which can also be conveniently labeled according to their general ecology. They appear to have diverged slightly *after* the Cretaceous extinction event, and include roughly three quarters of living birds. First up is what we now refer to as "core waterbirds," a group containing loons, tubenoses, cormorants, pelicans, and herons. The broad relationships among these groups are shown in Figure 3, along with a couple of smaller groups just for fun. These latter two – the Sunbittern and tropicbirds – are *usually* considered closely related to the core waterbirds, but in some classifications are placed closer to the rails or pigeons. As I noted in an earlier article (Summer 2011, Vol. 30, #2), pelicans are now in the same order as herons, whereas historically they were with cormorants and gannets. All in all, the actual *order* of the remaining core waterbirds hasn't changed, it's just that grebes, rails, shorebirds, and gulls have all been moved much earlier in the list.

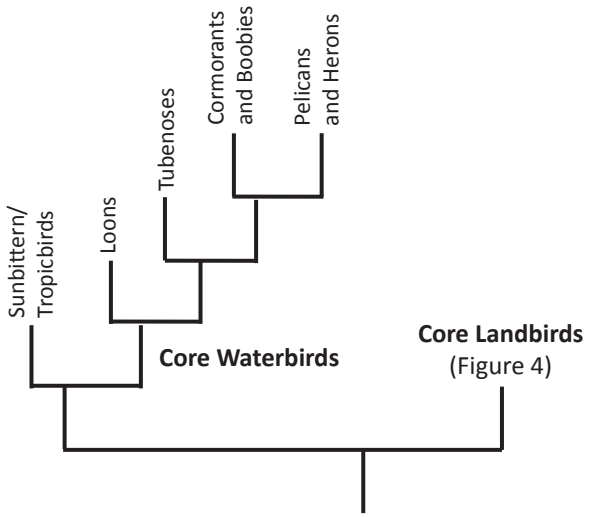

Figure 3. Evolutionary tree showing relationships among the "core waterbirds" and their close relatives.

Finally we come to the landbirds, or more accurately the "core landbirds." Once doves, cuckoos, nightjars, swifts, and hummingbirds have been moved out, we're left with two final major radiations (Figure 4). One, often named "Afroaves" because many of its groups have high diversity in Africa, includes hawks, owls, trogons (not in the figure), and two large diverse groups that contain kingfishers and woodpeckers. In the new arrangement, hawks and vultures are now in two separate orders that diverged earlier than the rest (Figure 4), although as a fortuitous bonus the owls directly follow them, resulting in most birds of prey now being in one part of the list.

The exception to the latter is the falcons, which are part of the "Australaves" rather than the "Afroaves." This huge group is believed to have evolved when Australia, Antarctica, and South America were still joined and many groups within it (e.g., parrots, songbirds) are particularly diverse in Australia or South America. As noted in my Summer 2011 and Summer 2012 articles (Vol. 30, #2; Vol. 31, #2), falcons were the first major lineage to split off within the Australaves, followed by the parrots (Figure 4). What's left are the passerines, sometime called "songbirds" (although some non-passerines can sing) or "perching birds" (although *most* non-passerines can perch). This single order is thus the most recently evolved major group of birds (40-50 million years ago) and also the most diverse, containing roughly 60% of all living species.

I could write an entire article on passerine evolution (so watch this space!), but for our current purposes will only dwell on two key things. For starters, passerines split very early on into two large lineages, the suboscines and oscines, which differ in the structure of their vocal apparatus (among other things). The suboscines are incredibly diverse in South America, but only one family, the tyrant flycatchers, is well represented north of Mexico. Other groups will be more familiar to those who've travelled south: antbirds, mannakins, woodcreepers, ovenbirds (not the same as our Ovenbird!), and cotingas. Within the oscines, there is a complicated early radiation of groups now largely restricted to Australia – and loosely called the "Corvida." Only three of these families made it to the Western Hemisphere: vireos, shrikes, and jays and crows. All other passerines are in the Passerida, which still contains over a third of the world's birds, some 3,500 species. Relationships among the Passerida are complicated and still not well understood, but you will still notice some changes in the order (finches before sparrows, blackbirds before warblers). But that story is best saved for another time.

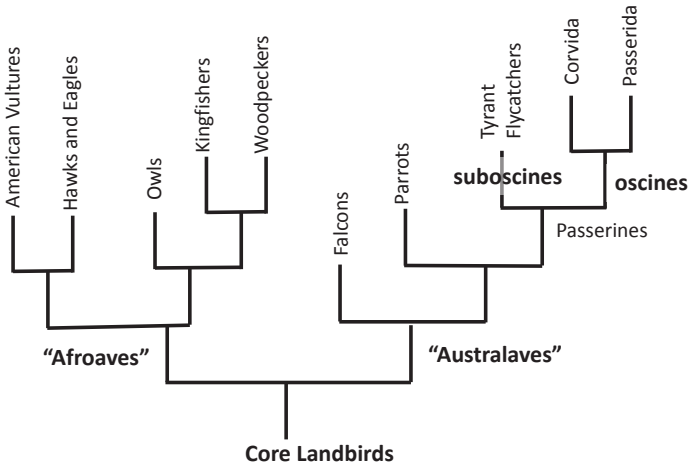

Figure 4. Evolutionary tree showing relationships among the "core landbirds."

If you followed all that, congratulations, you're well on your way to becoming a bird systematics geek. If you tried, but got bogged down in jargon and family trees, my apologies. The bottom line is that the new order in which species appear in *NHBR* is based on a rapidly consolidating view of avian evolution and reflects how we think each major group arose over time. If converted to a linear order (such as we use in this publication), you get the list below. If you get familiar with this, you'll soon be able to find the species you're looking for in any list of birds that follows it. I'm sure there'll be a few tweaks now and then as we continue to learn, but current trends suggest these will be minor. I make no promises about where everything is going to appear in the next version of your favorite field guide!

Ducks and Geese
Quail and Grouse
Grebes
Doves
Cuckoos
Nightjars
Swifts and Hummingbirds
Rails and Coots
Shorebirds, Alcids, and Gulls
Loons
Shearwaters and Petrels
Cormorants and Boobies
Herons and Ibises
Vultures and Hawks
Owls
Kingfishers
Woodpeckers
Falcons
Tyrant Flycatchers
Shrikes, Vireos, and Crows
Larks, Swallows
Titmice, Nuthatches, Creepers
Wrens, Gnatcatchers, Kinglets
Thrushes, Mimics, Starlings
Waxwings, Pipits, Longspurs
Sparrows, Blackbirds
Warblers, Cardinals, House Sparrow

End Note

Not all recent taxonomic changes have been in the sequence of orders and families. The major species-level change to affect birders in New Hampshire was the "loss" of Thayer's Gull (a rarity in the state). Many years ago, Thayer's had been split off from Herring Gull, but increasing amounts of data, and the reevaluation of old data, indicated that it is more closely related to Iceland Gull. In fact, the latter relationship is so strong that the two have been lumped, and Thayer's Gull relegated to subspecies status. In other words, you need to take it off your lists (unless you didn't have Iceland Gull!).

Annotated List of References

American Ornithological Society. North American Checklist Committee website: http://www.americanornithology.org/content/north-american-classification-committee. This site contains links to all annual updates to the "*Checklist of North and Middle American Birds.*" At the bottom of the home page are links to other valuable resources.

Boyd, J. III. 2007-2016. Aves: A Taxonomy in Flux. http://www.jboyd.net/Taxo/taxo1.html. This is a very well-researched and well-organized website, although the taxonomic decisions made by its author are not necessarily the same as those by other authorities such as the AOS (above) and Clements (below).

Cornell University. 2012. The eBird/Clements Checklist. http://www.birds.cornell.edu/clementschecklist/. This is the checklist order used by eBird. It differs slightly from that of the American Ornithological Society, partially because it needs to account for all the world's birds, not just those of the Americas.

A very good overview of the recent major changes is available at the website for the AOS's "South American Checklist Committee." This document references the original molecular studies and includes several examples of the phylogenies generated by those studies. http://www.museum.lsu.edu/~Remsen/SACCprop723.htm

Previous articles in *New Hampshire Bird Records:*

Hunt, P. 1996. The return of the Baltimore Oriole. *New Hampshire Bird Records*. Winter 1995-95, 14(4):30-31.

Hunt, P. 1997. The AOU strikes again. *New Hampshire Bird Records*. Spring 1997, 16(1):36.

Hunt, P. 1999. Dump storks and other rearrangements: Recent AOU changes explained. *New Hampshire Bird Records*. Winter 1998-99, 17(4):36-37.

Hunt, P. 2004. Ducks and chickens to the front: The latest taxonomic changes from the AOU. *New Hampshire Bird Records*. Summer 2003, 22(2):38-39.

Palfy, K. 2006. The Order of Things. *New Hampshire Bird Records*. Fall 2005, 24(3):59-60.

Hunt, P. 2012. A shrub full of warblers and other taxonomic stories. *New Hampshire Bird Records*. Summer 2011, 30(2):43-46.

Hunt, P. 2013. Kestrel want a cracker? More messing with the order of things. *New Hampshire Bird Records*. Summer 2012, 31(2):41-42.

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Great Egret by Len Medlock, 4-13-18, Hampton, NH.

Abbreviations Used

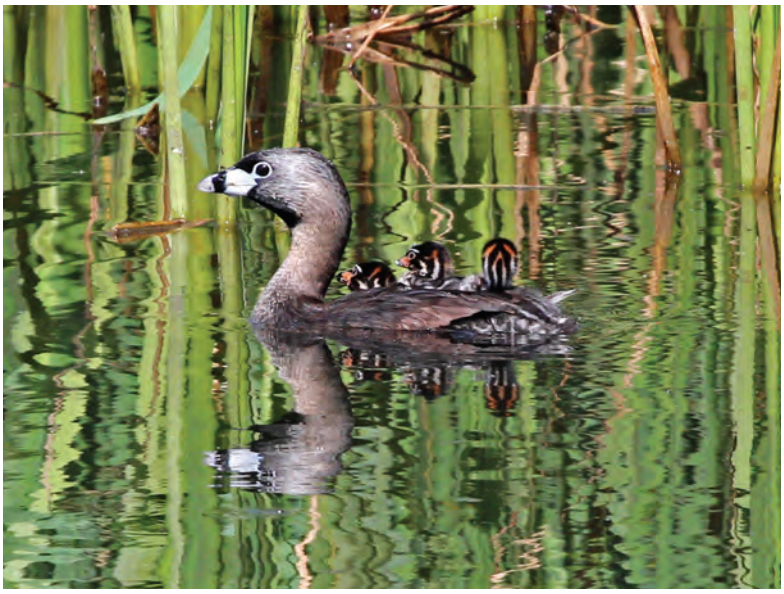
AMC	Appalachian Mountain Club
BBC	Brookline Bird Club
BBS	Breeding Bird Survey
CA	Conservation Area
CC	Country Club
CFT	NH Audubon Chapter Field Trip
FT	Field Trip
IBA	Important Bird Area
L.	Lake
LPC	Loon Preservation Committee
NA	Natural Area
NHA	New Hampshire Audubon
NHBR	New Hampshire Bird Records
NHRBC	NH Rare Birds Committee
NWR	National Wildlife Refuge
PO	Post Office
R.	River
Rd.	Road
RO	Raptor Observatory
Rt.	Route
SF	State Forest
SP	State Park
SPNHF	Society for the Protection of NH Forests, Concord
T&M	Thompson & Meserves (Purchase)
TNC	The Nature Conservancy
WMA	Wildlife Management Area
WMNF	White Mountain National Forest
WS	NHA Wildlife Sanctuary
~	approximately
WTP	Wastewater Treatment Plant

Photo Quiz

Can You Identify This Bird?

We are once again able to offer a color Photo Quiz, thanks to George Robbins' sponsorship of all four 2018 issues. See inside for the answer. Photo by Jason Lambert.

Summer 2018 Highlights



Lori Charron photographed this Pied-billed Grebe family on 7-5-18 in Colebrook, NH. See more photos and her article inside.

An orange Scarlet Tanager? Aren't they supposed to be red? Read inside for what causes orange variants like this one photographed by Jennifer McKown.

Green Heron by Debra Powers, 7-2-18, Newmarket, NH.

This robin's nest was discovered in a backyard bush with both eggs and blueberries in it. We can only speculate on why! Photo by Vicki LaPorte, 07-23-18, Peppermint St., Goffstown, NH.