

THE Fledgling

3rd Issue

ABA 2023 Bird of the Year Reveal!

See artwork from young
birders showing their
guesses for the ABA Bird of
the Year!

Young Birder Camps

Read about the adventures several
young birders had this summer
at both Camp Colorado and Camp
Delaware Bay!



The Mentor's Corner

By Peter Pyle



THE MENTOR'S CORNER

Peter Pyle

I was lucky growing up to have scientifically minded parents (dad was a meteorologist, mom an ethnobotanist) who encouraged me to pursue ornithology from a young age. My dad was also an avid birder (for the time) and a backyard bander, and he got me started holding birds at the age of four. An early memory was of him sending me out to get the male Northern Cardinal (*Car-*

dinalis cardinalis) out of the potter trap, which bit me and got away. Despite the great pain (I think it almost bit my finger off), I was undeterred.

I'm a great fan of puzzles and brain teasers, and as I continued on with bird banding in Maryland, Hawaii, and California, a great puzzle came to light: How does bird molt work, and how can it be

used to age birds in the hand? This was a challenge I could not resist. Back then, the subject was basically a bowl of spaghetti tossed within a briar patch, with diverse and conflicting molt and plumage terminologies largely to blame. To many, bird molt is still an intimidating subject, though I think we are slowly making it less so.

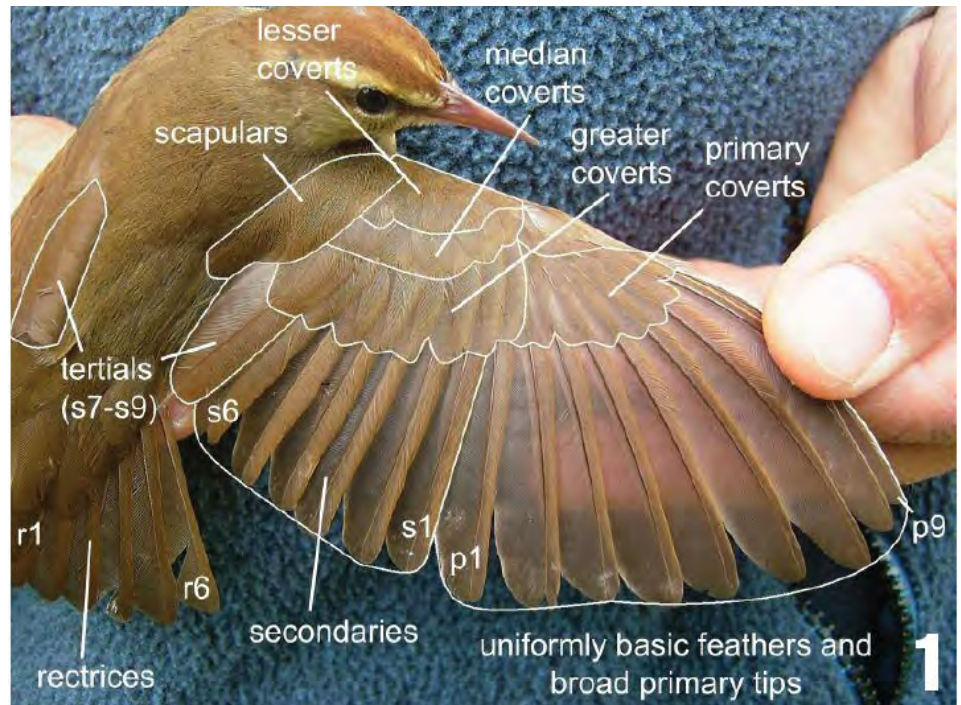
There are some basics that I'm sure you know already: feathers are keratinous ("dead") structures that get worn out and therefore need to be replaced to maintain their functionality. All birds undergo a complete (or near-complete) replacement of feathers annually, most often following breeding at northern latitudes, in July-September. Yes, all birds. This is an important first step in understanding molt strategies. It is best to think of this complete ("prebasic") molt as having evolved from the molts of reptiles and maintained evolutionarily along all avian lineages. It forms the foundational structure to understand



California Gull: Don't neglect taking images of "trashed" birds! They are the most informative regarding molts and plumages. California Gull (*Larus californicus albertaensis*), 21 June 2021, San Francisco, California. Photo: Peter Pyle.

additional “inserted molts.” During the first year of life, birds also undergo a (usually) less-than-complete, inserted, “preformative” molt, which replaces juvenile plumage with more durable formative feathering. This molt may also be ancestral, having evolved from growing young reptiles, as it is found in most, if not all, bird species today.

Some species (but not that many worldwide) have also evolved an extra inserted molt, almost-always partial, the “prealternate” molt (usually in March-April in our northern species) to replace feathers that get particularly abraded. Prealternate molts are more prevalent in species of tough environments (like Marsh Wrens, *Cistothorus palustris*) and especially in migratory species of sunny environments that, by “following the sun,” experience extra solar exposure throughout the year to head and upperpart feathers. Males of some species, like wood-warblers, American Goldfinches (*Spinus tristis*), and Scarlet Tanagers (*Piranga olivacea*), have taken advantage of prealternate molts to replace dull feathers with brighter ones for courting prior to breeding. In any case, thinking of molts in these evolutionary terms will greatly help you grasp their strategies, as opposed to simply comparing the tim-



SWWA: Wing-feather terminology in a Swainson’s Warbler (*Limnothlypis swainsonii*), captured for banding in North Carolina, 6 May 2006. Learning these tracts will greatly help you analyze your digital images for molt strategies and age. [From *Birding by Feather: A Molt Primer*](#), published in *Birding* magazine in 2008. Photo: Peter Pyle.

ing, extents, and locations of molts we see today among the world’s diverse bird species in two-dimensional or “flattened” manner. Once you get away from northern latitudes, you might as well dissect your iPhone to see how it works.

When considering molt and its importance in aging birds, the action occurs among the wing feathers. I therefore encourage you to learn the feather tracts of the upperwing surface! It really isn’t that hard, and once you learn these six or seven feather tracts, an entirely new world opens up. You can look for “molt limits” between juvenile and formative feathers

among the secondary (lesser, median, and greater) coverts or between the greater and primary coverts. You can count and number the primaries and secondaries and become familiar with the molting sequences followed by a great majority of birds: from the innermost (p1) to the outermost (p9 or p10) primary, from the middle tertial (s8) in both directions, and from the innermost secondary inward (s1). Many larger birds also replace the fifth secondary (s5) early during molt, followed by inward replacement from this feather as well as from s1, resulting in s4 and a feather between s7 and s9 being the last ones replaced,



Black-and-chestnut Eagle: I help edit the Plumage and Molt sections of [Birds of the World](#), and the other day I was working on Black-and-chestnut Eagle (*Spizaetus isidori*) of South America. Although I had barely heard of this species, there are already over 650 images of it in the [Macaulay Library catalogue](#)! Sifting through these images, I was able to delineate molt strategies in this species. Images of flying birds and those in molt are particularly useful, such as this one undergoing the Second Prebasic Molt, in which basic feathers are replacing juvenile feathers. Using the feather-numbering and molt-sequence information above, can you identify which feathers are juvenile and which are basic? *Image © David Ascanio (ML170160231, Antioquia, Colombia; date undisclosed) through License Agreement from the Macaulay Library.*

and allowing aging of birds throughout their second year (see [this essay in Birding](#) for more information).

Digital imagery, of course, has opened up an entirely new world of avian molt study (see [here](#)). I highly encourage you to study the images you take in the field for molting clues and, hence, for age. It is especially fun on birds that are flying, and don't shy away from taking images of "trashed" birds in June through August; these tell us the most about molts and plumages. The Macaulay Library has become

an unbelievable resource for studying molt (see [here](#)). There are still about 8,000 bird species in the world for which our knowledge of molt strategies are rudimentary at best, but the clues are often there among the Macaulay catalogue, for those inspired to look.

I was also lucky in that, when I graduated from college, biology and ornithology were not the most promising or sought-after careers, being pursued only by a few of us misfits that prioritized following our passions over making more money than we really needed. But this changed in the few years after I graduated in 1979, as environmental and conservation issues rose in prominence, so I had little trouble finding work.

Unfortunately, it is a bit different now. For the many young birders I meet that are interested in a career studying birds, my advice now is to develop a secondary discipline, whatever you are good at (besides birds!): math, creative writing, statistics, engineering, computer programming, scientific writing, graphics. Having a strong secondary skill will not only help you get better jobs in ornithology, it will allow you to contribute to the important work we all need to do to help reverse declining trends in bird numbers that we are now experiencing. The study of molts and resultant determination of age is part of this important work (e.g. [here](#) and [here](#)), and there are still some entirely new worlds to explore. I encourage you to go for it!