

## Non-adult Plumages: Terminology Matters

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Birds in plumages other than adult plumage are often confusing to birders for multiple reasons. The primary reason is that many just do not look like adults, which can cause identification uncertainty. The other is the uncertainty engendered when reporting birds to others, such as via listserves, Facebook groups, text messages, or eBird. More critically on the second reason is that uncertainty often lies with the receiver of that information: “What did that person mean by ‘immature Sabine’s Gull’ or ‘juvenile Golden-crowned Sparrow?’ If I chase it, what is the appearance of that bird?”

Ever since language was invented, and it was invented solely to impart information to others, the onus of clarity and precision has been on the conveyor of information, not on the recipient. That is because the recipient probably did not previously know the information being imparted (else, why tell that person?), so if that information is unclear, the recipient cannot know exactly what the conveyor of information meant. This essay is intended to assist in clarifying the language that we birders use when conveying information to others on the appearance of a bird or birds of interest, as that information can be critical to others in finding such birds.

### GLOSSARY

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As is typical in the English language, we have a plethora of words to describe immaturity in humans. Some of these are not particularly useful or used when describing or labeling birds, but there are still quite a few terms for immature birds. One of the problems created by borrowing terms to describe birds that were originally intended to describe humans is that most or all of those terms come loaded with human-centric shadings, intonations, and nuances that are not relevant to birds. Thus, to become comfortable with using age terms for birds, we need to consciously jettison those human-centric nuances when discussing birds. As an example, describing a human as “juvenile” is nearly always a negative comment, typically used in response to behavior of that individual. In birds, it is simply a term used to describe a bird that is wearing its first set of “hard feathers;” there is no subjective nuance to it. Note that the below terms are presented in rough order of bird age, not alphabetically.

*Juvenile* – As noted above, a juvenile bird is one that is wearing its first non-downy plumage, **and it is used for birds in that plumage only**. In most birds, juvenile plumage is grown in the nest. However, for bird species with young that leave the nest shortly after hatching, while still wearing their fluffy down, e.g., ducks, quail, shorebirds (technical term is “precocial,” with the converse being “altricial”), this plumage is grown after leaving the nest. Additionally, in most bird species, particularly smaller bird species, this plumage is held for only a short time before much (in some species, all) of it is replaced in its next molt. In fact, Canada Warblers can begin – and even come close to completing – that next molt even before leaving the nest (Reitsma et al. 2009), and the average time in the nest before young Canada Warblers fledge (defined as leaving the nest) is only 8.1 days! Most smaller bird species that fledge in juvenile plumage (see Leukering 2010, 2013) usually retain that plumage for 1-3 weeks before initiating that next molt. Many large bird species hold juvenile plumage for much longer periods, often approaching a year. Once it becomes apparent that an individual bird has initiated molt out of juvenile plumage, this term is no longer of correct usage to describe that bird. Indications that a bird has initiated such a molt include patches of body feathers of different color or pattern and symmetrical gaps in flight feathers on both wings. Note that an alternate spelling – “juvenal” – is often used in the ornithological literature to indicate the plumage, while “juvenile” is used to indicate the bird.

*Fledgling* – This term is even more precise than is “juvenile,” as it describes a bird that has left the nest (fledged), but which has done so only recently. The recentness of that fledging is generally indicated by the rectrices (tail feathers) and remiges (flight feathers on the wings) being not fully grown, rendering the bird at least somewhat clumsy in flight, if it can fly at all. Of course, many precocial young fledge while still in downy plumage and are completely incapable of flight. Most such birds are in full juvenile plumage, though as noted above about Canada Warblers, some may have initiated molt out of juvenile plumage. Once such a bird has become reasonably proficient at flight and all of its flight feathers are fully grown, this term no longer applies. This distinction is critically important when reporting bird-atlas data (e.g. that of Wickersham 2016), as fully-flighted birds in juvenile plumage may no longer be near their natal location. This is particularly true of terns, as families – or partial families (one adult, one or more progeny) – often travel large distances as a unit.

*Immature* – Unfortunately, this term has two accepted uses, so is not as precise a term as is “juvenile.” **1**) The first use of this term is to indicate a bird that is in a plumage that is not wholly (or even partly) in juvenile plumage **and** not wholly (or even partly) in adult plumage. That is, the bird is somewhere betwixt the two plumage endpoints. Thus, this usage can be applied to birds of differing plumages, the first being a bird in the process of molting directly from juvenile plumage to adult plumage (e.g., Cooper’s Hawk and many other of the less-than-huge raptor species), the second to a bird that is in a distinct plumage intermediate between juvenile plumage and adult plumage (e.g., in most gull species, eagles, and many other long-lived species) (again, see Leukering 2010 and “sub-adult,” below) **2**) The other accepted use of “immature” is to describe a bird seen well enough to know that it is not an adult, but not well enough to distinguish whether the bird is a juvenile or in some other non-adult plumage state (See Non-adult).

*Non-adult* – This term is, essentially, identical to the second type of usage of “immature.”

*Sub-adult* - This term is similar to the first type of usage of “immature,” but it is particularly used to describe a bird of a species with many distinct non-adult plumages, that is, not in juvenile plumage **and** not in adult plumage (e.g., first alternate, third basic; see Leukering 2010, Pyle 2008). Thus, this term is used especially to describe gulls and eagles.

## EXAMPLES

The remainder of this essay presents photos with extensive captions in order to illustrate the points made in the glossary terms (above) and to explain the rationale behind my encouragement to use these terms accurately. Some of these photographs are those on the back cover of this issue (Figures 1-4), while the others follow after this introduction (Figures 7-9).

**FIGURE 1 (BACK COVER).** This Sabine's Gull is in full juvenile plumage, which it has worn since fledging and which it will wear until some time after arriving in winter quarters in the Southern Hemisphere. Note the bicolored head (white front half, gray-brown back half), entirely black bill, upperparts feathers with thin white fringes and subterminal black band, and black in tail, among other features typical of juvenile plumage in the species. The vast majority of Sabine's Gulls found in Colorado are **juveniles** (wearing juvenile plumage) and should be called such. There are no fall records of immatures, in the sense of intermediate between juvenile and adult (see Fig. 2), in the state; all other individuals of the species noted in Colorado at that season have been adults. *Elevenmile Reservoir, Park County, Colorado; 29 October 2005*. Photograph by Tony Leukering.

**FIGURE 2 (BACK COVER).** This Sabine's Gull is on winter grounds and presents a very odd appearance for those used to the species as it appears in the Northern Hemisphere. It is transitioning out of juvenile plumage and sports a mixture of features that is only very rarely seen in the ABA Area. This individual has the entirely black bill of juvenile and wintering older birds. It has replaced the bicolored juvenile head plumage with white feathering and a kittiwake-like black nape patch (also typical of winter adults). Its back plumage comprises un-fringed, adult-like gray feathering; most of its greater secondary coverts (the only other gray feathers on the bird) have also been replaced. It still holds most of its other juvenile secondary coverts and retains at least a bit of its juvenile tail (note the bit of black there). By the date of this photo, an adult would not only have completed its prebasic molt, it would also be well into its prealternate molt, beginning to obtain the dark gray alternate head plumage. This bird is correctly termed an "**immature**," being in a plumage state intermediate between that of juvenile and adult. *Off Capetown, South Africa; 31 March 2009*. Photograph by Ken Behrens.

**FIGURE 3 (BACK COVER).** While very adult-like, this Sabine's Gull lacks the yellow tip to the bill typical of adults and its orbital ring seems dull, thus this is probably a **sub-adult**. As this species' molt strategy is poorly known because it conducts all molts on winter quarters where it is primarily pelagic, being certain of the age of this bird may not be possible. However, given the appearance of the first-cycle bird depicted in Fig. 2 (in March), it seems unlikely that the bird in this figure is a one-year-old. Instead, this bird is probably of about two years of age. *North Slope, Alaska; 13 June 2012*. Photograph by Ian Davies.

**FIGURE 4 (BACK COVER).** Unlike the bird presented in Fig. 3, this Sabine's Gull has a bright yellow tip to the bill and an obviously bright red orbital ring; it is an **adult**. *North Slope, Alaska; 13 June 2012*. Photograph by Ian Davies.



**FIGURE 5.** The very streaky appearance of this White-crowned Sparrow identifies the bird as a **juvenile** – in juvenile plumage. White-crowns wear this plumage for only a short while after fledging, so to see this plumage, one needs to be in the bird’s high-elevation breeding habitat (Opler 2016) in mid- to late-summer. By the time that Colorado-produced White-crowned Sparrows (of the subspecies *oriantha*; see Leukering and Mlodinow 2017) are headed south for the winter, they have replaced much of their juvenile plumage (via the preformative molt; see Leukering 2010, 2013), losing the streakiness that is so much a part of this bird’s appearance. *Tennessee Pass, Eagle County, Colorado; 13 July 2017.* Photograph by JoAnn Potter Riggle.



**FIGURE 6.** This White-crowned Sparrow is properly termed an **immature** (it is not a juvenile; see Fig. 5). While the wing and tail plumage is comprised of juvenile feathers, most of the rest of the feathering is formative plumage (produced by the preformative molt conducted in summer by young of the year). However, this bird has also obviously begun its first prealternate molt (see Leukering 2010, 2011), as evidenced by much of the lateral crown stripes being black, rather than the formative-plumage brown. Even after this bird’s first prealternate molt is completed, it will still, technically, be an immature, as it is still wearing its juvenile flight feathers. However, determining such in the field would be quite difficult, as most views of it would not permit determination of whether those flight

feathers are juvenile feathers or not. Because of this difficulty, actually identifying White-crowned Sparrows as adults in the field after mid-spring is nearly impossible (and I avoid it). This Gambel's White-crowned Sparrow, which is the wintering subspecies in Colorado (see Leukering and Mlodinow 2017), is readily differentiated from immatures of Mountain White-crowned Sparrow (Colorado's breeding subspecies) by the orange bill and pale loreal area (pink and dark, respectively, in Mountains). *Behrens Reservoir, Weld County, Colorado; 16 March 2015*. Photograph by Steven G. Mlodinow.



**FIGURE 7.** This Red-tailed Hawk is feathered entirely in juvenile plumage; hence, it is termed a “**juvenile.**” The plumage can be determined by the relative lack of a distinct blackish trailing edge to the wing, by the relatively pointed aspect of the tips of the flight feathers (primaries, secondaries, rectrices), and by the rectrices that are heavily barred but lack the typical wider dark subterminal band of adults. The pale eyes also assist in age determination. *Sanilac County, Michigan; 5 April 2014*. Photograph by Tony Leukering.



**FIGURE 8.** This Red-tailed Hawk is a mess! It is obviously in molt (note the mix of feather types in the back, wings, and tail), thus, by definition, is not a juvenile (see Glossary). As can be seen most readily in the mix of adult and juvenile tail feathers (rectrices), this bird is transitioning between juvenile and adult plumages; thus it is termed an “immature.” Some time in fall, this molt (which probably started in mid-spring) will have completed and the bird will be very adult-like. Its eye color may not have completed the change to the dark brown of adults and it may not have replaced all of its juvenile primaries, but it will otherwise look like an adult. *Logan County, Colorado. 16 June 2018*. Photograph by Steven G. Mlodinow.



**FIGURE 9.** Many birders have difficulty identifying eagles, particularly non-adult eagles. However, the fact that this bird has white in the plumage other than at the bases of the primaries and rectrices is sufficient to eliminate Golden Eagle from identification consideration. While ageing Golden Eagles is a bit tricky, ageing Bald Eagles is mostly straightforward. The extensive white on the belly indicates that this bird is not a juvenile and not an adult. Because we know that Bald Eagles go through many plumages between juvenile and adult plumages, we can call this bird a **sub-adult**. However, if we want, we can be more precise as to the bird's age. The bird's bill is a mix of yellow and black; there is something of a white supercilium; and there are no pointed, juvenile primaries or secondaries remaining; thus the bird is older than two years of age. However, as the head is still mostly brown, the belly is mostly white, and there is, essentially, a brown frame to the white on the tail, this bird is less than four years old. So, given the date, this bird is about three years old and in its fourth calendar year of life (hatched in early 2013, but living through all or parts of 2014, 2015, and 2016). *Winter Garden, Orange County, Florida; 16 March 2016.* Photograph by Tony Leukering.

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Figure 1



Figure 2



Figure 3



Figure 4

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