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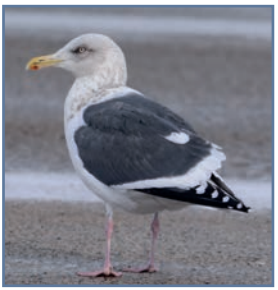

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IDENTIFICATION

Gull identification is best achieved using the two-pronged approach of, first, attending to size and structure and, second, evaluating plumage and bare-part patterns. We rely on size and structure to quickly narrow down possibilities while simultaneously using plumage and bare-part details to resolve an identification. Size and structure are sometimes confused with one another. Although related, they are different ideas. A Great Black-backed Gull can be characterized as being massively large (size) with a flat, blocky head (structure). Ivory Gull is a smaller bird (size) with compact wings and pigeon-like body (structure). A Glaucous-winged Gull may be described as having beady eyes (size) with a bulbous-tipped bill (structure). Two species may have identical body lengths but appreciably different structures. As with plumages, there are some patterns that are highly distinctive and unique to certain taxa, while other features show considerable overlap from one species to the next. From an identification standpoint, it is unsatisfactory to obsess over plumage without attending to size and structure. But similarly, it is not prudent to commit to size and structure without learning plumages. They are individually valuable but should be employed together.

DISTRIBUTION AND EXPECTATIONS

There are a few steps we can take to increase our potential in the field. First, a mixed-species flock will be daunting without a proper set of expectations. Range maps heavily shape our expectations, and knowing which species to expect goes a long way. Studying seasonal distributions and peak migration timings prepares us for arriving and departing birds. Most regions throughout the continent have no more than four common gull species in a given season, often differing in size and favoring slightly different niches. Gull flocks are seldom segregated by species in the nonbreeding season, although it's not uncommon for smaller species to cluster together and larger species to cluster together.

Recognize the great propensity of gulls to stray, and develop an inkling for those which are uncommon but regularly occurring versus those which are truly rare. Assume a rare gull can be found just about anywhere you set foot, as they can. From parking lots to fish markets to agricultural fields, rarities appear without notice when you least expect them. But as tempting as it is to concentrate on rarities, making this our sole focus becomes limiting, especially if the objective is to improve identification skills. Hoping to turn every other gull into a rarity is distracting and, frankly, is a backward approach to identification, especially for beginners.

It is our common gulls, often taken for granted, that provide the reference points needed to recognize and identify more-unusual species. In fact, when we use descriptions such as "paler," "longer winged," or "daintier," we are often making an indirect comparison with common species. And so, it almost goes without saying that the first steps in any problematic identification should be eliminating the expected. Once expected taxa are confidently eliminated, the possibility of something more unusual can be pursued. Naturally, probability wins on most days. In the East, Great Black-backed, American Herring, Ring-billed, and Bonaparte's Gulls are great reference species. In the West, Glaucous-winged, Western, California, and Short-billed Gulls fill that role.

RELATED AGES

There is a great lesson to be learned in demography when we look at age ratios in almost any gull flock. Having the highest survival rates, adults are most ubiquitous, and first cycles are the next most abundant age group encountered. Intermediate ages are the least numerous—an inherent consequence of mortality rates. A large percentage of birds perish within their first year of life, whether it be from disease, predation, or inadequate food sources (Ryder 1980). From the surviving cohort, birds in a smaller subgroup perish during the next year, as they still suffer from inexperience and are prone to natural defects. A gull that makes it through the first few years of life has favorable odds of becoming an adult that will breed and contribute to the gene pool. Generally speaking, an adult replaces itself in its lifetime if the population is stable. This ensures fit and thriving populations, and it is quite observable in gulls.

With gulls, comparisons must be made at an age-related level. For instance, in their first cycle, Lesser Black-backed and American Herring Gulls can present an identification challenge, but as adults, they're

43 An exciting component to gull-watching is mixed-species flocks that often allow extended study in the open. The majority of this flock is made up of Heermann's Gulls, with at least four other species for interest. PETER HAWRYLYSHYN. CALIFORNIA. DEC.

44 A recently fledged Ring-billed Gull in juvenile plumage (ghost type). Note the short wing projection and petite bill. The outer primaries and bill will undoubtedly develop and grow in the upcoming weeks. AMAR AYYASH. INDIANA. JULY.

unlikely to be confused. The age group we typically learn to identify first is adults, not only because they're most abundant, but because their plumages are less variable than those of other age groups. Studying adults gives us a good sense of size and overall structure for a species. It should be noted, though, that size isn't age dependent. That is, a free-flying juvenile has a fully grown body that might exceed the size and weight of its adult parent. Do keep in mind, however, that the outermost primaries on a recently fledged gull may still be in their final stages of growth and that the bill depth may continue to develop for several months in some individuals.

CATEGORIZING FIELD MARKS

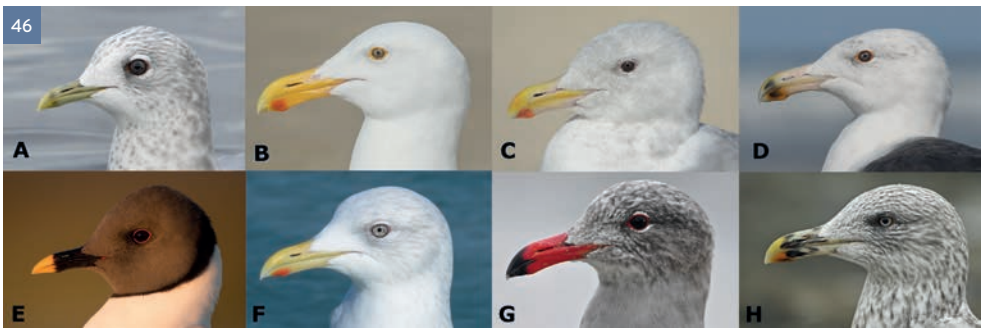
The species accounts provide a plethora of field marks to consider that can generally be divided into three types: diagnostic, extremely indicative, and supporting. It is necessary to reiterate a basic caveat here: field marks used in gull identification are almost always applied in an age-related or seasonal context. The black underwing of an adult Little Gull is diagnostic, with no other gull showing such dark underwings. However, this is an example of an *age-related* field mark, as it doesn't apply to first-cycle Little Gulls, which have pale underwings. Adult California Gulls acquire a distinctive black-to-red bill pattern around the bill tip in nonbreeding condition. This trait is supporting at best, as other four-year gulls may show a similar bill pattern. Furthermore, the pattern is lost in breeding condition and as such is an example of a *seasonal* field mark. Some features are of little to no value. For example, all juvenile gulls found in North America can be expected to have dark eyes. The ability to weigh the significance of a single field mark and correctly make use of it increases with experience.

45 Two Little Gulls—an adult and a 1st cycle—in a flock of Bonaparte's Gulls. The adult's black underwing is diagnostic, but the 1st cycle can easily go overlooked with its paler underwing (roughly four birds to the left of the adult).
EVAN SPECK. INDIANA. MARCH.

Other field marks are variable to the extent that they're found in a subset of a population and are absent in others. For example, any large black-backed gull showing a string-of-pearls and a broad white trailing edge is extremely indicative of Slaty-backed Gull. But some adult Slaty-backeds have a lackluster pattern on the outer primaries, showing little trace of the ornate string-of-pearls associated with the species. Learning the nuances of variation is by and large the cornerstone to large-gull identification. This topic is discussed in greater detail near the end of this chapter.

Another crafty approach to identification is knowing which traits are never expected. Constants are far less common than variables in gull identification, but they do exist. For example, Ring-billed Gulls never have red on the bill, adult Glaucous Gulls never develop mirrors or show pigment on the wingtip, and Red-legged Kittiwakes never acquire a tailband in any plumage. Although we take these features for granted, noting the absence of a characteristic can be surprisingly helpful.

Finally, recognizing *confusing pairs* is a familiar strategy not just in gull identification but in bird identification in general, and this is one thing that separates those with experience from beginners. When an experienced observer is faced with an identification challenge, an automated list of possible birds is



46 Describing What You See:
A Large, darkish eye on a small head. Petite, greenish-yellow bill with tapered tip and light smudging. No gonys spot. The nape is densely smudged. Adult Short-billed. Jan.
B Honey-colored eye with bold yellow orbital. The eye is disproportionally small and sits high on the face. Large, bright yellow bill with reddish gonys spot. Entirely clean white head. Adult Western Gull. Oct.
C Dark beady eye on a large face. Strong yellow bill with small gonys spot. The entire head shows a smudgy gray wash. Adult Glaucous-winged Gull. Sept.
D Darkish eye with orange-red orbital. A very stout bill with blobbed tip. Fleshy bill base with black marks near the tip. Blocky head shows faint streaks on crown. Adult Great Black-backed Gull. Sept.
E Dark eye with red orbital. No white eye crescents. Petite bill with black base and yellow tip. Slate-black hood bordered by a black necklace. Adult Sabine's Gull. June.
F Pale eye with light flecking. Hints of a pinkish orbital. The bill is thin and straight with minimal gonys expansion. The face and hindneck show light gray streaking. Adult Iceland Gull. Feb.
G Dark eye with red orbital and thin, white eye crescents. Long, droopy red bill with black tip. The head has gray ground color with moderate black markings. Adult Heermann's Gull. Nov.
H Pale eye. Dull yellow bill with much black along the cutting edge. The head and neck are heavily streaked. 3rd-cycle Lesser Black-backed. Dec.

47 Variation found in large gulls includes differences in bill and body size, upperpart coloration, and, here, wingtip patterns. The adult Slaty-backed Gull on the left shows extensive white on the wingtip, whereas the individual on the right has a relatively "dark" wingtip. LEFT: MARTEN MULLER, KOREA, FEB. RIGHT: GRAHAM GERDEMAN, JAPAN, JAN.

48 2nd-cycle American Herring and Thayer's Gull (right). This "confusion pair" shows some overlap in every plumage, but note here the paler tertials and primaries on Thayer's, as well as the pale underside to the far wing (p10). AMAR AYYASH. ILLINOIS. FEB.

generated, and a handful of similar species are then compared to one another. At the very least, knowing which species are in the running greatly focuses our efforts.

WHAT TO LOOK FOR

A gull in question should promptly be sized as small, medium, or large. Nearby birds and stationary objects can be used for comparison to help place your subject. Consider the size and shape of the bill with respect to the body's proportions. Is the bill relatively long or short? Thin or stout? Is the tip pointed or blunt? Parallel edged or bulbous? What color are the eyes? Is there any distinctive pattern to the head markings? Consider the shade of gray to the upperparts: Are they pale, medium gray, slate colored, or black? Take note of leg color and other bare-part details. Structurally, does the body have a front-heavy or shallow-

49 Another "confusion pair," 1st-cycle Ring-billed and Short-billed Gull (front), both with gray postjuvenile scapulars. Ring-billed averages a large body and bill, but also note it has replaced upper tertials and inner coverts. Short-billed typically retains these juvenile feathers until its 2nd molt cycle. ROBERT RAKER. COLORADO. APRIL.

50 Adult California Gull (left) and American Herrings. Although often described as being smaller than Herring, some California Gulls are just as large. AMAR AYYASH. MICHIGAN. NOV.

51 The adult Slaty-backed Gull (far right) immediately "pops," but more subtle are the "gull-gray" species, including two adult-type Herrings (center), adult Thayer's (far left with black wingtips), and three Glaucous-winged Gulls. These paler species are separated by wingtip coloration, eye color, and head and bill proportions. LIAM SINGH. BRITISH COLUMBIA. MARCH.

chested appearance? Is the gull potbellied or sleek in the rear? Are the legs noticeably long or short? Do the tips to the secondaries droop far below the wing coverts, or are they completely hidden? Do the primaries look truncated, or does the bird appear to have a long wing projection? What patterns are visible on the folded wingtips, including the underside? Evaluating these features are all essential first steps to making an identification. And although all of these questions do not need answers for every bird encountered, they are nonetheless questions that provide the framework for your identification.

NUANCES, CAVEATS, AND PITFALLS

LIGHTING

Lighting can have a dramatic effect on colors and tones, and it plays a significant role in how we see and interpret field marks. In general, the best viewing conditions for evaluating the gray upperparts of a gull are days with a thin cloud cover. This allows for sufficient—but not too strong or too sparse—sunlight to filter through. As a rule, direct sunlight makes for harsh and unpleasant gull-watching conditions. Too much light results in a halo effect across the upperparts. Grays become washed out, and tones can't be interpreted correctly. The opposite extreme—low light brought on by heavy overcast—causes grays to look muted and darker than they are. When considering pigments in the field, you want to be aware of these effects and mentally correct for any differences brought on by lighting conditions. These phenomena are easily observed on days when clouds are rapidly shifting, yielding moments of bright sunlight and moments of thick cloud cover. A medium gray mantle can change from appearing silvery to dark gray in a matter of seconds. Photographers know this well and will admit gulls can be some of the trickiest bird subjects to accurately compensate for. This is in part due to their high-contrast plumages, which combine whites, grays, and blacks all in individual birds.

With this in mind, consider your position in the field and the time of day. Ideally, you'd like the sun to your back and the gulls you're watching in profile. A gull viewed from behind will appear darker, while a gull viewed head-on may look paler. We can make reliable comparisons of gray values with gulls standing side by side at the same angle. Take any individual that starts to slightly turn away and notice how its gray tone is suddenly altered.

The potential for such pitfalls is not to be underestimated. The difference between the KGS values 6 and 9, for instance, is substantial in gull identification. It is fairly straightforward to manage these effects in a gull flock, where comparisons can be made from one individual to the next. If a known species appears a shade or two darker than it should be, then I would expect to make a corresponding adjustment to other species present. Needless to say, it's more challenging with birds viewed alone. A bird of interest that captures your attention should be observed from various angles to ensure an accurate assessment. To get a sense of how pale or dark its upperparts are, compare them to any black pigments on the wing. Also,

52 Lighting and camera settings hugely impact what we "see." This adult Glaucous-winged Gull was photographed at different times of the day by the same observer. The photo on the left shows dark wingtips, as found in some Glaucous-winged hybrids. The image on the right shows a perfectly fine Glaucous-winged. FRANK LIN. BRITISH COLUMBIA. NOV.

use the white feathers of the head and neck to estimate whether lighting conditions are favorable. If the white head and neck are blown out, or too much shadowing is observed, then the grays you're seeing are likely unreliable. If these feathers are evenly white throughout, then you can assume the shade of gray being observed is consistent.

Beware heavy shadow effects that are produced on various surfaces, such as snow, ice, and white sands. Shadows cast back onto your subject result in what looks like a much darker bird. Upperparts are altered in a similar respect on water, but the effect may be multiplied due to unavoidable glare. I recall an aggravating morning spent searching for an adult Black-tailed Gull (KGS: 8.0–9.5) in a large congregation of Ring-billed Gulls (KGS: 4–5) on Lake Erie. The intense sunlight made picking out this individual a real challenge. The upperparts of all the gulls present appeared to be glowing lightbulbs, while the sides of their bodies were covered in shadow. Once spotted, the Black-tailed Gull stuck out like a sore thumb, but only with high-magnification optics. Trying to find it with the naked eye was futile. As new birders arrived and scanned for the bird, not a single observer could find it without being directed by others. We returned to see this same individual the following weekend on a partly cloudy day: the Black-tailed Gull was effortlessly spotted in seconds!

Related circumstances arise with gulls in flight. In addition to colors being muted and appearing darker in low-light conditions, shape and structure may be impacted. Body size can appear bulkier, and wings can look noticeably broader. In brighter lighting conditions, wings tend to look thinner, as their outlines coalesce with their background. From below, various plumage features are highlighted, such as a tailband or a window. A negative result of this is noticing "more" of a window on species where it typically isn't expected (i.e., first-cycle California or Lesser Black-backed Gull). Some gulls, such as adult Glaucous-winged, exhibit a translucent quality to their flight feathers, and bright light shining down on the wing exaggerates this look. The never-ending conundrum of labeling pale Thayer's / dark Kumlien's is quite relevant to this discussion too. The folded wingtip on a perched individual may give the impression of a standard Thayer's type, but when the bird is in flight, the impression can shift to a standard dark gray Kumlien's. The reason for this is that when the wings are folded, there are layers of pigment overlapping one another with little to no light permeating the feathers, creating a cumulative dark effect, whereas the spread wing—specifically in bright conditions—assumes a surge of light through each individual primary, resulting in an apparently lighter shade of pigment that might look slate gray rather than black. How this is reconciled in the field is left to the observer.

In neutral lighting, the underside of the remiges can often be used to help pick out darker gray-backed and black-backed species. The secondaries and primaries usually reveal a darker contrasting row of feathers, or a shadow bar, when compared to those of paler gray-backed species. But beware the natural reflective properties of feathers. The black on the underside of the primaries, for example, can be seemingly lost as a bird banks or turns away.

Finally, under clear, blue skies, adult gulls flying at high altitudes can seem to "lose" their black wingtips, inviting thoughts of white wingers. As can happen when we watch hawks at a distance, the colors on the ventral side of the body often reveal themselves as our eyes adjust to the lighting.

53 Adult Kelp Gull in photographs taken seconds apart. The black underside to the flight feathers (left) is the correct color. A slight change in angle (right) causes the light to reflect a silvery underwing. AMAR AYYASH. PERU. NOV.

BEHAVIOR

Behavior can assist in recognizing a species. But it can also alter our perception of what a species should or shouldn't look like. It's important to ask if the size and structure you're seeing are in part due to behavior. Preening birds and birds attempting to cool down in warm temperatures commonly fluff out their feathers, making the body appear plump and stocky. An agitated or alarmed gull will often outstretch its neck, slightly shift its wings down, and produce a hunched-forward posture. This will make for a bird that looks larger and more powerful. Conversely, gulls confronting stiff winds will deliberately compress their contour feathers tightly against the body, giving them a streamlined figure. This can create a sleeker and longer-winged appearance. Feathers held down against the crown make a flatter looking head that is associated with males, while raised feathers portray a rounder head shape, giving the gull a more delicate, female-type appearance. Feathers held tightly in the loral region often give the bill a longer, exaggerated feel. A similar effect is produced when feathers around the bill base are matted down or missing. Gulls walking or resting along the shoreline with waves waxing and waning beneath them will often compress their belly feathers tightly against the body. This behavior exposes much of the tibia and results in what looks like a long-legged bird.

As for species that have forked tails or modest divots to the central tail feathers, note that the fork shape is lost when the tail feathers are completely fanned out. Also, beware molting rectrices on such species, which may show outer tail feathers equal in length to or even shorter than the central tail feathers.

For various reasons, gulls sometimes hold their mandible and maxilla ever so slightly apart, giving the impression of a larger bill. This is revealed by closely examining the cutting edge. A Thayer's Gull on the West Coast with mandible and maxilla slightly separated may be accused of being a Glaucous-winged × Herring hybrid simply because the bill looks too deep. It's also quite common to find gulls that have full crops—or, more accurately, full gullets—which can give the breast and upper neck a much chunkier appearance. We often see this on porked-out individuals arriving from feeding sites. Upon critical examination, the upper neck will look bulgy and sometimes misshapen. Be cognizant of such circumstances, and understand how they may dramatically change the apparent size or shape of an individual. Sufficient observation time usually dispels skewed impressions.

Like other birds, gulls engage in habitual behaviors. These can be specific to a certain species or a handful of species, particularly when it comes to feeding methods. Gulls feeding in crab apple trees in the East will likely be Ring-billed Gulls. A dark, medium-sized gull pirating a pelican on the West Coast is very likely a Heermann's. A flock of small gulls following a plow on the Great Plains immediately suggests Franklin's. A small gull with boomerang-shaped wings wheeling over the open sea will almost certainly be a kittiwake. These are but a few behavioral traits that we've learned to associate with particular species.

Although not necessarily helpful for identification but relevant to this topic, some behaviors are associated with specific age groups. For instance, handling inanimate objects with the bill is a common behavior of first-cycle gulls. It is not unusual for gulls less than a year old to be found picking up and experimenting with rocks, straws, bottle caps, cigarette butts, and a whole host of other items. In my experience, it seems these objects are utilized for play but may actually be serving as practice for manipulating prey.

54 3rd-cycle American Herring Gull in photographs taken seconds apart. Head and bill shape are useful in picking out some taxa, but note that this feature changes drastically depending on behavior and how the feathers are being held against the body. AMAR AYYASH. ILLINOIS. DEC.

DISTANCE

Can a gull half a mile away be identified with confidence? The answer is a qualified yes! Observers routinely make such calls in the field, given there are sufficient field marks to support an identification. Some species are so distinct that they are effortlessly identified at long distances. However, this is more the exception than the rule with gull identification. Many distant identifications are educated guesses based on probabilities of what is expected at a certain date and location. The skill set for identifying distant birds is cultivated by working backward. Learning how to first identify a species at close range, and then gradually increasing the distance, works best. With experience, we develop an imprint of size and proportions, wing-beat rhythm, and overall color patterns for a species, and we check off these elements when identifying distant birds with little effort or analysis.

BLEACHING AND WEAR

Bleaching (i.e., fading) and wear negatively alter the integrity of feathers. Bleaching is caused by prolonged exposure to the sun's ultraviolet light. While some birds can shield themselves from the adverse effects of ultraviolet radiation, most gulls are subject to constant sunlight exposure. As a result, colors lose their richness over time, leaving faded feather patterns. Black feathers initially fade to brown, browns fade to tan, and in the most extreme cases dark feathers can bleach to a sullied white. Within the primaries, the outer primaries are usually the first to fade, because they are most exposed to the elements.

In general, gulls in regions with abundant sunlight throughout the year are more prone to bleaching. The combination of salt water and sandblasting in coastal areas might intensify this problem. This is evident, for example, in midwinter when comparing the plumages of Lesser Black-backed populations on the Gulf Coast with those in the Northeast. Those farther north appear darker and less worn, while those farther south along coastal areas average paler and exhibit more wear. It is also evident after February when considering the plumages of Glaucous-winged and Thayer's Gulls, whose condition will be worsening on the central California coast but fairly intact in SE Alaska and British Columbia. Nevertheless, bleached gulls

55 By late winter and early spring, 1st-cycle large gulls can become extensively worn and bleached. Glaucous Gull (left) commonly bleaches to a sullied white. The smaller gull on the right is an Iceland Gull, presumably Thayer's, based on probability. Identifying it to subspecies out of range would prove problematic. PHIL PICKERING. OREGON. APRIL.

56 Known-origin 1st-cycle American Herring Gull. Pictured here as a juvenile in early July (left) and then in mid-Feb. Note how the pale tips to the upperwing coverts and tertials have worn down and become frayed. The juvenile scapulars have been replaced in a partial 1st prealternate molt. Also note how the primaries and tertials have faded in six months' time. KURT WRAY. OHIO. JULY. JOE BAILEY. INDIANA. FEB.

are found at all latitudes, including, but to a lesser extent, in the interior, away from coastal habitats. There is evidence indicating that feather bleaching in gulls is gradual throughout much of the fall and winter, with a suddenly accelerated rate in early to mid-spring (Howell 2001b). This helps explain why there's an abrupt surge in bleached first-cycle gulls once April approaches. By April and May, the effects of bleaching are vastly on display throughout the entire continent, and it is further compounded by excessive wear.

Wear is the other chief agent of feather degradation and can be accelerated if feathers have been weakened through fading. By "wear," we mean mechanical abrasion resulting in feather material being broken and lost. Like a broom's bristles or a tire's treads, when feathers rub against or otherwise come into contact with various elements and objects, they sustain some degree of reduction and breakage. Studies suggest darker feathers resist wear much better than pale feathers (Bonser 1995). Darker feathers, which are enriched with melanin, have harder surfaces, and this increases their durability. Juvenile gulls' brown upperparts often have pale edges, providing a crisp look to their plumage when fresh. These pale fringes are usually the first to fade, break down, and wear away. Rarely is wear evenly distributed throughout the upperparts, and this can make for an untidy appearance. In adult-type gulls, black regions to the primaries may remain more intact, while the white apicals and mirrors suffer more from abrasion. This can be due partly to their physical location (exposure) and partly to their weaker structure (lack of melanin). And although black feathers are better at resisting damage than adjacent white regions, they too have limited strength and are susceptible to wear (Ayyash 2016).

Common daily maintenance of feathers involves rifts being repaired by gentle preening or "brushing" with the bill. But over time, feather barbs are fractured and removed, making it impossible for them to lock together. At this stage, feathers are beyond repair. At their worst, feathers may eventually look like coarse strands of loose hair, as they completely wear down to their shafts.

Many bleached or worn gulls are identifiable, but in some instances, distressed plumages and their lack of color patterns only compound what might be an already-problematic identification. Attempting to competently identify hybrids and vagrants or to assign subspecies under such circumstances is best avoided. Also, be aware that the combination of wear and bleaching, as well as missing feathers and newer feathers growing in, can create uncharacteristic patterns that are seldom portrayed in field guides.

VARIATION

Years ago, I attended a morning walk in Cape May led by a prominent birding figure. It was late summer, and as participants began to congregate, someone noticed our first black-backed gull of the day. The bird was alone, preening, and was clearly a subadult. It was far enough down the beach to present some ambiguity for our group. With our binoculars, a few of us began to pick out field marks, when our trip leader immediately dismissed it as a Great Black-backed Gull. I suggested we consider a Lesser Black-backed Gull, based on the heavily marked head and the overall plumage aspect. At the time, Lesser was somewhat rare here in the summer, so expectations were heavily tilted one way. Our trip leader proceeded to explain it could only be a Great Black-backed, based on its rotund body, shorter wings, and hefty bill. Indeed, the impression, based on structure, was of a stocky gull, but there were no other birds around for comparison.

The gull then got up and flew closer, putting down near enough for everyone to confidently agree on its identification: a second-cycle Lesser Black-backed. The bill was mostly black and appeared deceptively large from a distance. This often happens against paler, contrasting backgrounds. The short-winged look was due to a couple of missing outer primaries, as it was undergoing wing molt. It now appeared much sleeker in the rear, and we attributed the "rotund" body shape to its raised feathers while it preened. Surprising to the entire group was a distinct straw-yellow quality to the legs, which had seemed convincingly pink from down the beach. It proved to be a life bird for several participants and served as a great learning moment for everyone present, especially our trip leader, who had overlooked some important identification points.

Fortunately, bird identification is a "low-stakes game." Much of the reward lies in the journey of watching ourselves move along a learning curve. With gulls, the inflection points on this curve consist of learning feather topography as well as aging and molt. Over the years, I have watched friends attempt to

learn gulls without a basic understanding of these topics, only to land themselves in a minefield. In fact, I would submit that a fair number of birders who "can't do gulls" have either adamantly avoided these topics or in fact don't realize these topics are requisites to grasping this group of birds. The problem, at root, lies in the misconception that gulls should conform to the plates in a general field guide, and this simply isn't the case with a fair number of individuals we encounter.

We often read in bird-identification literature that gulls are notoriously variable. Is this true? Yes and no. It's a statement that has become clichéd and needs some clarification. All species exhibit degrees of variation, even your local American Crows. But rarely is this variation striking enough to present identification problems. Extensive individual variation—the type that is immediately evident in even the smallest sample—is the variation we're interested in here. This sort of variation often gives us pause and almost always has implications for identification, especially when a particular feature (or features) can be found in several similar species. With gulls, more than 90 percent of identification problems come from less than 10 percent of birds.

Variation in two-year gulls is fairly straightforward and doesn't necessarily fall in the "gulls are notoriously variable" category. Extensive variation is often found in species that have a large geographic distribution, in which various "types" or subspecies show noteworthy plumage and size differences. This is generally found in some three- and four-year species, especially the latter. First and second cycles of several *Larus* species present variation that borders on downright Feral Pigeon madness. A prime example of this is the Herring Gull complex. I could carry on for pages describing the individual variation found in their early plumages and still come up short (e.g., see the number of first-cycle American Herring plates included in that account). This scope of variation generally can't be taught, but it can be reasonably learned in a contextual setting. The photographic examples in this guide are predominantly of "typical" individuals, with some examples of extremes that point out identification pitfalls. But it is typical birds that we're after. This is the soundest and sanest approach to identification. Once we're comfortable identifying run-of-the-mill individuals of a certain species, we then proceed to slightly widen our goal posts and allow for more variation, as we learn what features may be encountered. Your local species and the variability associated with them should be a priority. For the rest of this chapter, I discuss some of the variation one can expect in a same-species flock.

SIZE

Close scrutiny of most gull flocks will reveal size differences among conspecifics. At the species level, these are generally attributed to sex or geography. Gulls, particularly three- and four-year gulls, show appreciable size variation, with males averaging larger bodies than females (the opposite of raptors). This is also noticeable in bill size, neck and body girth, and, to a lesser extent, leg length and wing dimensions. It is not unusual, for example, for a female-type Western Gull to appear up to 25 percent smaller than male conspecifics. One can often observe this *sex-related variation* during the breeding season, when gulls are courting or paired up on or near the nest. Outside of these circumstances, identifying the sex

57 An example of size variation: This adult Thayer's (left) and Ring-billed Gull appear to be the same size. Thayer's is generally larger than most Ring-billeds, so we might assume this one is a small female type with a large male Ring-billed. Allow for size variation in large, white-headed gulls. AMAR AYYASH. ILLINOIS. MARCH.

of an individual is speculation, and for that reason we qualify our statements with "type" (i.e., "female type" or "male type"). Being cognizant of size differences also helps us understand differences between species. A male-type Iceland Gull may very well approach the size of a female-type Glaucous Gull. Such identifications, although supposed to be simple to work out in theory, require careful assessment of structure, as well as plumage and bare-part details.

Another explanation for size differences within a species is *geographic variation*. For example, the subspecies of California Gull in south-central Canada (*Larus californicus albertaensis*) averages larger than the nominate race found in the Great Basin (*Larus californicus californicus*). These races come together between the Colorado Front Range and the Pacific Coast in the nonbreeding season, and differences in body size, among other features, are readily observed at this time. And although there is great overlap, the difference in size between a typical female-type *L.c. californicus* and a male-type *L.c. albertaensis* can be doubly impressive. A similar observation can be made with American Herring Gull. When visiting the Northeast in the breeding season, I'm always struck by the size and structural differences between Atlantic Coast Herrings and those I'm accustomed to seeing on the Great Lakes. In addition to averaging smaller bodies, Great Lakes birds show smaller heads and bills and appear more compact. Those in the East, especially in places like Maine and New Hampshire, appear to me as having been raised on growth hormones and are rather intimidating.

There are times when the size of an individual appears to be beyond the extreme end of "normal" variation, and this inevitably challenges our notions of how small or how large a particular species can be. It helps to see these birds among conspecifics, and if they check all the other boxes, we write them off as being atypical in size. Repeatedly encountering individuals that appear way too small or way too big for a particular species may just mean you need to widen your bell curve.

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PLUMAGE

No gull species exhibits sexual dichromatism, so separating males and females by plumage isn't possible. Instead, *age-related*, *seasonal*, and *geographic* plumage differences are central. In many respects, these distinctions are the crux of gull identification. It goes without saying that age-related plumage differences are to be expected. If I'm scanning a flock of Great Black-backed Gulls, I should be prepared to sort them into four age groups, while if I'm watching Short-billed Gulls, I anticipate three age groups, and if I'm looking at Bonaparte's Gulls, just two age groups.

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58 An example of intraspecies variation, the adult Glaucous Gull on the right is presumably male, with a female type on the left. In addition to size, males average shorter wing projection. BRIAN SULLIVAN. ALASKA. AUG.

59 Trio of Ring-billed Gulls. The center and right birds are 1st cycles displaying remarkable variation. The center bird has juvenile scapulars with noticeably dark aspect. The bird on the right has paler juvenile wing coverts, replaced scapulars, and a bicolored bill. ROBBYE JOHNSON. WISCONSIN. SEPT.

First Cycles: The simplest reason for differences in plumage appearances in first cycles is hatch date. Consider, for example, that by mid-June there are fully fledged juvenile Ring-billed Gulls that have already taken wing in some parts of the continent, while in other regions adult Ring-billeds are still building nests. Striking differences in hatch dates can commonly occur in the same colony too. By early September, a mishmash of plumages can be seen as these same juvenile Ring-billeds begin to migrate and stage at various sites. Some individuals will have entirely crisp juvenile plumes with well-marked heads and bodies, while others are already becoming white headed, showing signs of wear and beginning to molt.

An extra layer of variation is added when we consider the nature of juvenile plumages. Some gulls fledge with inherently weak feathers that very soon begin to show wear and bleaching, while others have plumages that naturally hold up well through the winter and into early spring. Some birds go through a rapid preformative or first prealternate molt early on, in order to replace weaker feathers. With Ring-billeds, for example, it's not unusual to see all of the scapulars replaced, along with some wing coverts and even tertials, in just a couple of months. The differences in these "postjuvenile" molts (i.e., preformative or first prealternate molts) are so pronounced at times that birders mistake what they're seeing for different age groups, when in fact it is variation within the same age group.

Interestingly, northern gull populations generally come equipped with more durable juvenile plumages, while populations at more-southern latitudes have weaker juvenile plumages. There is much individual variation involved, however, and more study is needed to figure out the physiological causes behind this, but the phenomenon can be observed in the waves of newly arriving gulls in late fall and early winter. This is one of the reasons why a cohort of first-cycle Herrings may be all over the board in appearances in late winter.

But surely hatch dates and the integrity of juvenile plumages are not entirely satisfactory reasons for why we find so much variation in some first cycles? Numerous bird groups have rather dramatic differences in their hatch dates and originate from varying latitudes, yet in time, many come together to look more or less the same. To add to what is already remarkable plumage variation in some first-cycle gulls, also consider "types" and individual variation. Some juveniles naturally have dark or pale plumage aspects. A "ghost-type" juvenile Ring-billed thrown into a group of "brown types" is sure to trip up the casual observer who isn't aware of these things. Add size variation to the equation, and it results in some interesting variety. In addition, some individuals may have upperparts that are more boldly marked, while others may be less patterned. Some may show a wide tailband in a cohort of individuals showing thinner tailbands. These differences in plumage are plain to see, especially as we increase our sample sizes. Each bird comes with a suite of variables that contribute to its appearance, and being aware of this answers many of the questions arising in gull identification.

Adults: Variation in adult plumages is more clear-cut or, at least, more orderly than that found in first cycles. Questions related to adult plumages often revolve around upperpart coloration and outer-primary patterns. Upperpart color differences at the species level are often a result of regional variation. Some taxa show no appreciable variation in their KGS values, such as Ring-billed Gull, while others exhibit a wide range of variation, such as Western and Lesser Black-backed Gulls. There are instances when the slightest deviation in upperpart coloration is problematic, while at other times it's entirely expected.

60 One-year-old Lesser Black-backed Gulls undergoing their 2nd prebasic molt. The individual on the right has a fairly typical appearance for that species, but the bird on the left is unusually pallid. AMAR AYYASH. WISCONSIN. JULY.

61 From these five Lesser Black-backeds, the individual on the far right has upperpart coloration matching Laughing Gull; this is considered the palest gray within range for that species. AMAR AYYASH. FLORIDA. JAN.

62 A duo of male Glaucous Gulls nicely displaying size and color variation found in this species. On the right is a member of the smallest and darkest subspecies, *barrovianus* (North Slope, Alaska. May). On the left is a *leuceretes* type (Labrador, Canada. May). In time, Glaucous Gull may prove to be multiple species. AMAR AYYASH. BURKE MUSEUM, WASHINGTON.

An American Herring Gull that appears a couple of shades paler or darker than usual is promptly flagged as a potential hybrid, whereas a Lesser Black-backed Gull that's paler or darker than surrounding Lesser Black-backeds is not a problem in itself. Differences observed in upperpart coloration should have a reasonable explanation. Whether it be lighting, bleaching, possible hybridization, or regional variation, we're charged with deciphering it.

Outer-primary patterns are in many ways the defining feature of large white-headed gulls. Although adults of two-year species develop some rather stunning wingtips, they don't show any remarkable variation. Variation in primary patterns is mostly relevant to three- and four-year species. Some of this variation is geographic, some is standard individual variation, and some may even be related to age. Differences related to the degree of pigment on the wingtip and primary patterns are of most importance. By "degree of pigment," we mean the extent of paleness or darkness. Iceland Gull shows a complete gradation from 0-pigmented, white wingtips to black wingtips. Much of this variation is believed to be geographic. Those wintering on the Pacific are generally darkest and assigned to *Larus glaucoides thayeri*, while those wintering off Greenland are palest and assigned to *Larus glaucoides glaucoides*. The most variable winter

populations are Atlantic and Great Lakes birds, which display every shade in between the two extremes. Many of these birds are relegated to *Larus glaucoides kumlieni*. The amount of variation here is disturbing, because it is unmatched by any other gull species, and more so because it is not completely understood. Glaucous-winged Gulls also exhibit variably pigmented wingtips. The pigment found on some adults is concolorous with their gray upperparts, but many commonly show wingtips that are slightly darker than their upperparts, and a small percentage show wingtips that are paler. These differences are often chalked up to individual variation, at least by this author, but they're inconveniently found in several hybrid zones, creating potential for much confusion. Therefore, Glaucous-winged Gulls are routinely scrutinized for signs of hybridization, probably more than any other gull species. So long as other field marks are within range, we cautiously label them Glaucous-wingeds, or Glaucous-winged "types."

In addition to the degree of pigment found on wingtips, there is an array of appreciable primary-pattern differences at the species level. Comparing wingtip patterns from one adult to the next is rather amusing. But it is also fascinating to see how the wingtip on a particular individual can advance from one year to the next. Multiple case studies have demonstrated that adults regularly show less black on their wingtips as they age, taking on increasing regions of white (e.g., see Sauvage & Muusse 2013). This plasticity has also been recorded in mirrors, which generally increase in size with time.

Size reduction in mirrors is seldom recorded in any species, but it has been documented (Maarten van Kleinwee, pers. comm.). A study that measured mirror size on a group of adult Common Gulls from 1997 to 2007 found mirrors averaged largest when birds were in the middle of their reproductive age and actually decreased in size on older females (Sepp et al. 2017). Burgeoning data from known-age birds continues to broaden our understanding of just how variable adult wingtip patterns could be. Despite this variability, there are unifying patterns unique to most species.

Beyond wingtip patterns, there are other plumage features worth considering, such as head streaking in adult types. White-headed adults typically acquire maximum head and neck markings in basic plumage, which often coincides with the nonbreeding season. Some species display distinct patterns made of small, dark spots. Others have streaking that may be coarse or fine. Some appear blotted or densely smudged. Some show markings that run horizontally, others vertically. And some species show a combination of these patterns concentrated on various parts of the head and neck. California Gull, for example, maintains a rather unmarked foreneck and breast, with more of its head markings restricted to the sides and rear of the neck. A few species, such as Great Black-backed and Western Gulls, seldom show heavily marked heads, with the latter remaining largely white headed throughout the year. Incidentally, except in fall, when it can be quite heavily streaked dusky for a short while, Glaucous Gull is an interesting case, with adults in North America showing minimal if any head markings, while populations in Europe and Asia often acquire well-marked heads in basic plumage.

All in all, the patterns to these markings are quite consistent across whole populations of a species, but the extent is extremely variable from one individual to the next. At any given time of the year, especially in basic plumage, you can survey a handful of conspecifics that range from some being completely white headed to some having a pseudo-hooded appearance. An interesting question to ponder is whether these markings are consistent on the individual level from one year to the next. I recall an adult Kumlien's Gull that took up a small marina as its winter quarters in Hammond, Indiana, for seven consecutive years. It was a reliable bird that one was virtually guaranteed to see almost any day throughout the winter. The extent of its head markings was remarkably similar from one year to the next, and I personally know of several other cases that show head markings are fairly consistent on individual adults from one year to the next.

There is a phenomenon of hooded gulls taking on completely dark heads at the "wrong" time of year. Dark hoods are trademarks of alternate plumage, which often coincides with the breeding season. But occasionally, we encounter anomalous individuals with hoods at times of the year when they're not expected. To see a Bonaparte's Gull with a complete hood in December is always a brainteaser. There are some working theories for what may be happening with these birds. One idea is that the triggers for a hooded-head pattern may swap at a certain point in time. This implies these individuals are without a hood when the rest of the population normally has one. There is little evidence supporting this, however. Another theory is that these are birds in basic plumage that have produced head patterns identical to

63 Adult Laughing Gull with a complete hood in the boreal winter, likely the result of an early prealternate molt, as suggested by the whitish neck and breast. AMAR AYYASH. FLORIDA. JAN.

those found in alternate plumage. Finally, it is suggested that some individual birds may simply be running ahead of conventional molt schedules. This is almost certainly the case with Franklin's Gull. Franklin's undergoes a complete prealternate molt on the nonbreeding grounds in South America. A handful of adults with complete hoods begin to inch northward as early as January, surprising North American observers at first glance. Accelerated prealternate molts put these birds slightly ahead of schedule and at the top of their class. A similar phenomenon is observed with Laughing Gulls every winter at Daytona Beach Shores, Florida. Here, we find the largest wintering population of Laughing Gulls in North America: an estimated 75,000–100,000 individuals along a single stretch of beach. I have found that it's not unusual to see 1 in 2,000 adults with a complete hood as early as January. As is often the case, peculiarities become less peculiar with larger sample sizes. The best explanation for such birds is an early prealternate molt.

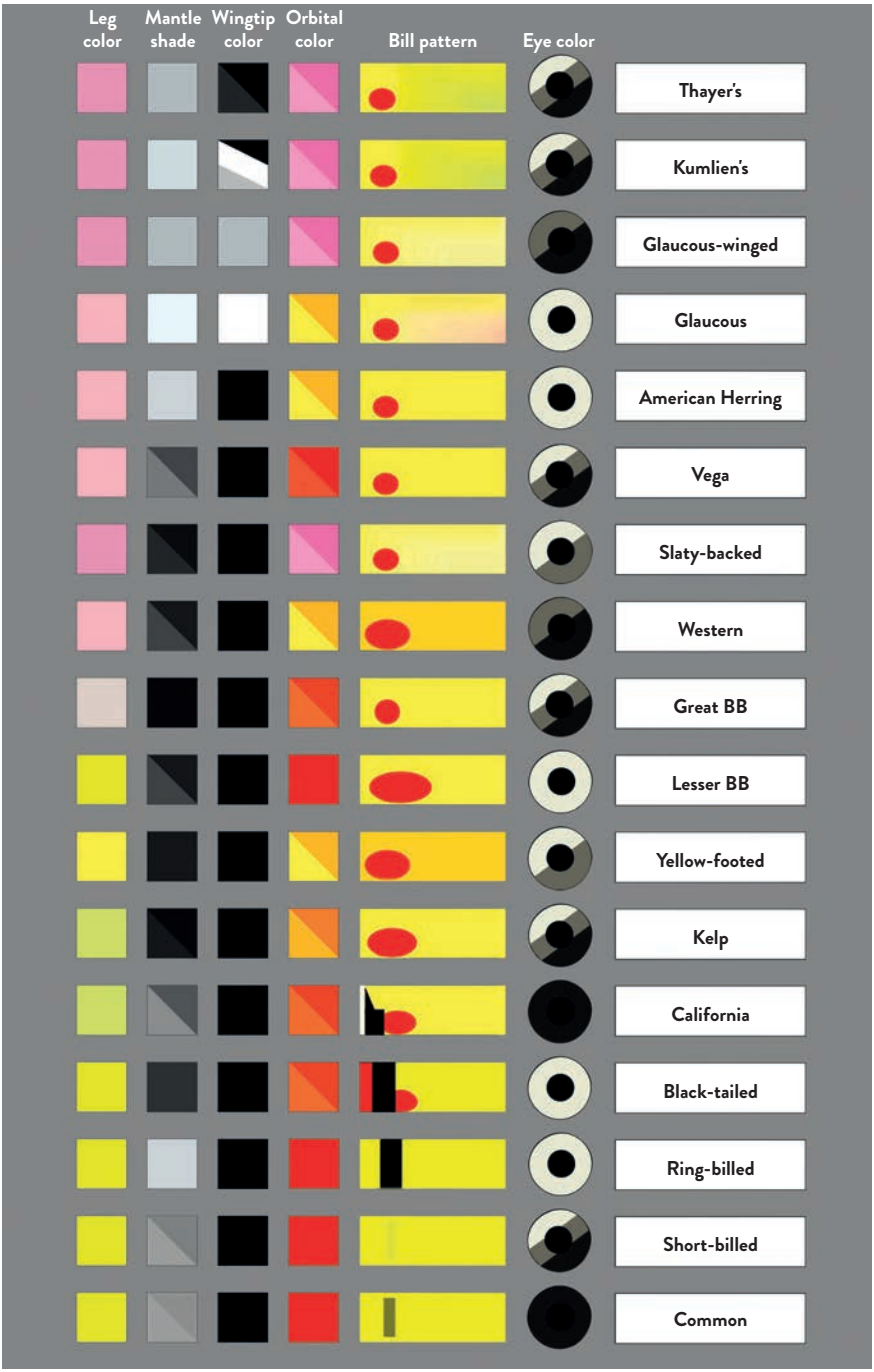
BARE PARTS

Bare parts are just as labile as plumage. I've noted that all North American gulls begin with dark eyes, dark bills, and dark to pinkish legs. Eye color is a prominent feature, and it's usually one of the first things that strikes us when examining a bird. All of our regularly occurring two-year gulls are dark eyed, and, incidentally, none has yellow legs. At the risk of overstating this truism, two-year species do not show much variation in this arena either. Knowing which three- and four-year species are dark eyed and which are pale eyed as adults will help in identification. Further, being familiar with those taxa that have variable eye color is of paramount importance. The species accounts highlight these differences with modifiers such as "somewhat variable," "variable," and "highly variable." Figure 2 is provided for quick reference.

Of those species that become unmistakably pale eyed as adults, allow for some variation with timing. If a third-cycle-type gull has all the characteristics of an American Herring Gull but shows darker eyes, then it's very likely just an American Herring Gull with delayed eye-color maturation. Conversely, you might encounter a one-year-old American Herring Gull that has already developed surprisingly pale eyes—all expected variation. Usually, the greater concern is finding with pale eyes a gull that is "supposed" to be dark eyed, such as Glaucous-winged or California Gull. California Gull, for instance, is a consistently dark-eyed gull, but on rare occasions a pale-eyed adult is reported. Whether this falls under variation or should be rightfully considered an aberration is up for debate.

I've mentioned that orbital rings are naturally altered throughout the seasons in a fairly predictable manner. Breeding condition results in vibrant colors, and nonbreeding condition often renders them dull. Be mindful of vague colors as the orbital ring transitions during nonbreeding condition to breeding condition and the reverse. This challenge is a theme every year, with observers hoping to turn Thayer's Gulls into Vega Gulls, for instance. The former has a pinkish orbital, while Vega's is a crimson red.

Figure 2. North American Gull Identification Chart.



As these colors begin to wane or take form, they sometimes develop a deceiving hue, especially in less-than-ideal lighting. In such cases, it's better to not use orbital rings as support for an identification. Finally, some species can show more than one "standard" orbital color across a population. For example, American Herring Gulls are commonly seen with either yellow or fiery-orange orbital rings. These differences aren't necessarily regional or seasonal, as I've sometimes found them in neighboring adults in the same colony. But overall, there is good consistency in orbital-ring color at the species level, and it has proven to be a useful feature when used properly.

Bill patterns and bill color can be appreciably consistent. A good many Iceland, Lesser Black-backed, and Glaucous-winged Gulls retain mostly dark bills for much of their first cycle. To see one with a pale bill in early first cycle is relatively rare. Others, such as California and Glaucous Gulls, take on a pale bill with a sharply demarcated black tip early in their first cycle, and when they don't show this by mid-fall, we go to the drawing board. And then, of course, there are those species which defy consistency, such as American Herring Gull: a few first cycles in this species acquire bicolored bills at just a few months old, while others remain dark billed into their third cycle—and everything in between is also possible. More often than not, bill-color transformations in four-year species are gradual, with the most drastic changes occurring between the second and third cycles.

Leg color is another bare-part feature that requires careful inspection. The idea is to distinguish yellow-legged and pink-legged species. Yellow-legged species generally begin to show yellowing legs late in their second cycle, with considerable individual variation. California Gulls take on a sickly blue-gray color as their legs transition to yellow. Others acquire a dull straw color before becoming yellow. Beware older "yellow-legged" species with retarded leg color. A classic example of this is third-cycle-type Lesser Black-backed Gulls. Some have adult-like plumages but may retain pinkish legs. The expectation is for these birds to have mustard-yellow legs, but this isn't always the case, so approach them with caution before evoking a rarer species or a hybrid.

Historically, bird-identification literature put much emphasis on leg-color brightness in several species, inflating the use of this feature. It was widely believed by field observers that adult Iceland and Slaty-backed Gulls always showed bright, bubblegum-pink legs and that they were invariably brighter than other accompanying pink-legged species. But although these two do often show brighter legs in the nonbreeding season, it is not a rule by any means. Another pink-legged species, Glaucous-winged Gull, is known for having a dark purplish hue to its legs, but to see one without this coloration shouldn't be a deal-breaker. The takeaway is to not overvalue variable color features.

Uncommon but regularly occurring in gulls are individuals displaying unusually bright bare parts—so bright that they are borderline neon. The causes for hypervivid bare parts are not altogether clear, but the two suspected factors are diet and hormones, which may not be mutually exclusive. Carotenoids are responsible for many of the red, orange, and yellow pigments found in birds, and they're only obtained through feeding (Goodwin 1984). In a study on Lesser Black-backed Gulls, carotenoid supplementation in female diets resulted in a significant increase in bare-part color indices: legs, bills, and orbital rings became significantly brighter and more saturated on birds that were fed carotenoids (Blount et al. 2002). Interestingly, poultry farmers in parts of Asia commonly add carotenoids to chicken feed to influence these desired colors (Wang et al. 2023). At any rate, gulls with ultrabright bare parts often show perfectly normal plumages, further reinforcing the fact that bare-part color and plumage are not always in harmony.

An interesting phenomenon which we see fairly regularly is some pink-legged species showing yellowish legs as adults. Generally, these individuals have the correct field marks to identify them, except for their confusing leg color. Popular thought has it that these individuals may have some hormonal circumstances causing the legs to take on the "wrong" color. Western Gull, which has pink legs as an adult, is a good example of this. Every year, a few adults along the Pacific Coast are reported with the wrong leg color, particularly in early spring, when in high breeding condition. Often, the bills on these birds are also super vibrant and extra bright. These individuals are rarely, if ever, reported in the nonbreeding season, so they may indeed be experiencing a hormonal episode associated with breeding.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64 It's not rare to find adult Western Gulls with yellow legs like this, particularly at the onset of the breeding season. Whether this color change is due to diet, hormones, or some other factor is not fully understood. VIVEK KHANZODE. CALIFORNIA. APRIL.

65 3rd-cycle-type Lesser Black-backed Gull with pinkish legs at an age when yellow legs are generally expected. The best explanation for this is a delay in bare-part maturation. Adults with this leg color are suspected hybrids with American Herring. AMAR AYYASH. FLORIDA. JAN.

It is also quite possible that this phenomenon of wrong leg color is due to an individual's inability to absorb carotenoids or enzymatic degradation of carotenoids (Wang et al. 2023). Another theory is that this aberration is caused by a rare allele. Quite a few Herring and Great Black-backed Gulls along the Eastern Seaboard display dull yellow legs year-round. I have knowledge of, and have personally recorded, several American Herring Gulls from Massachusetts and Florida which have shown yellowish legs for several consecutive years, giving credence to the allele theory. Still, I am unaware of any published studies on wrong leg color specifically in gulls.

A miscellaneous note related to feet: they're generally concolorous with the legs, but there are instances in which yellow-legged species show obvious pinkish tones concentrated around the feet, especially on the underside. You may ask, Who looks at the underside of a gull's feet? My first experience with Yellow-footed Gulls is a memorable one, standing beside the godfather of California birding, Guy McCaskie, at the Salton Sea. Near the end of a wretchedly long and hot August day, we settled in on a massive gull flock and were determined to find a Western Gull for our day list. As gulls would fly in and fly off, we mused over and over at the number of adult Yellow-footeds with pink-bottomed feet. I found it slightly ironic, as this is the only gull whose English name commits to foot color.

MOLT

Variation in the timing of molt is quite evident across different age groups. Younger ages begin their prebasic molts ahead of adults. A one-year-old Bonaparte's Gull, for instance, could begin replacing primaries at the end of May, whereas an adult might not start until July, once a portion of its breeding duties have been fulfilled. There are direct and indirect costs associated with molt, which is quite taxing to carry out while breeding. Some adults will begin flight feather molt and then entirely pause it until the end of the breeding season. As a result, it's not unusual to see adults finishing their flight feather molt very late in the fall in the northern hemisphere. A gull growing flight feathers beyond this period, however, can be an indication of something more unusual. Vega Gulls come to mind, as they commonly molt later than most North American gull taxa, including American Herring Gulls. In fact, one of the supporting field marks for identifying adult Vegas in winter is late primary molt.

In other instances, prebasic molts may be drawn out or protracted, due to some unusual circumstance. There are years when numerous adult-type Black-legged Kittiwakes along the Pacific Coast are documented with retarded flight feather molt. These molts extend through the winter and into the following spring season, presumably taking almost an entire year to complete! It's suspected that a combination of climate- or weather-related variables may reduce their energy intake, and this inevitably slows down flight feather replacement (Howell & Corben 2000b). This seems, however, to be an annual

66 A mixed flock of Great Black-backed, Lesser Black-backed, and American Herrings. The northern summer provides an excellent opportunity to learn molt as our gulls are at the height of their prebasic molts. AMAR AYYASH. MASSACHUSETTS. JULY.

67 Adult Black-legged Kittiwake with two retained outermost primaries and outer secondaries in Jan. Although found regularly on the Pacific, suspended (or protracted) prebasic molts are seldom seen in the Atlantic subspecies. ALEX LAMOREAUX. MAINE. JAN.

occurrence, and it's not rare to find beached kittiwakes along the Pacific that are still molting outer primaries in midwinter. Many large gulls have protracted prealternate molts that carry over through winter, albeit at a slow and subtle pace. Some large gulls systematically pause their prealternate molts over much of the winter and then resume later in the season as migration and breeding approach. Observation of these differences is illuminating, and it increases our awareness of why a gull looks the way it does at a certain time of year.

Recall that the onset of a prebasic molt signals a new plumage cycle, which in effect is indicated by the start of primary molt. This approach of using the shedding of p1 to signal the start of the next plumage cycle is without question binary. From an observer's perspective, a gull is in either its first cycle or its second cycle, its second cycle or its third cycle, and so on. Consequently, a pressing question arises: If the difference between being in one plumage cycle and being in the next is determined simply by the presence or absence of p1, then how does one distinguish between two same-aged birds that are in different plumage cycles and two birds that are a year apart in age in different plumage cycles? The simple answer is: examine the open wing. Of course, this may not always be possible, but more times than not it is, particularly with gulls. Suppose we have a report of two Short-billed Gulls in June, a first cycle and a second cycle. Without photographic support or accompanying notes, there isn't a sure way to know whether both birds hatched in the same year, with the "second-cycle" individual having just very recently graduated to its second plumage cycle (i.e., the second prebasic molt has been initiated), or whether they're legitimately one year apart in age, and neither has begun its prebasic molt. Another remote possibility is the first cycle being a recently hatched juvenile and the second cycle being days away from beginning its third prebasic molt. That would put them at two years apart in age! It is this reason you'll find some people who are versed in plumage cycles specifying any active molt that they observe.

This can be as simple as noting "new primaries growing in" or "some secondaries dropped." Or a more detailed note, such as "active second prebasic molt," could be given. If no visible molt is observed, we can specify the apparent plumage seen at that point in time—for example, "first alternate" or "third basic."

There is a novel system in use to deal with these nuances, known as the "cycle-based aging system" or Wolfe-Ryder-Pyle, shortened to WRP (Wolfe et al. 2010). It's based on a three-letter code, with the first letter describing the current cycle, the second indicating active molt or not molting, and the third representing observed plumage. The system is popular with students of molt and bird-banders, and it has practicable application with gulls.

Finally, it is not uncommon for extensive and complete prealternate molts that include rectrices and remiges to begin with the tail feathers and secondaries, which are then followed by the primaries (see plates 12.23 and 25.23). This is quite different from the typical prebasic molt sequence, which commences with the shedding of p1. We find this in some populations of various species, such as Franklin's and Yellow-footed, and in some Lesser Black-backed and Kelp Gulls (Adriaens et al. 2023).

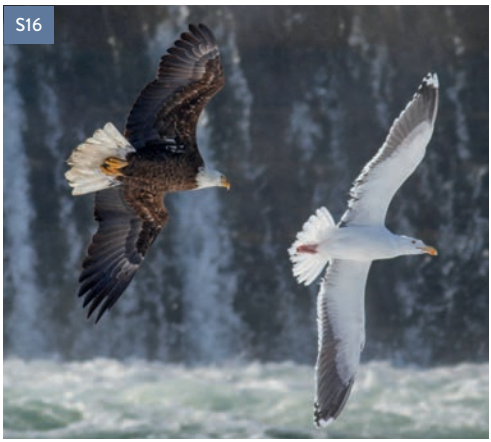
RELATIVE SIZE COMPARISONS

I had always known Sabine's Gull was a small gull, but for a long time my experience with the species was limited to peering at distant singletons as they zipped by on lake watches. I hadn't fully realized their diminutive size until observing tens of them alongside other species from the stern of a boat. Given that size is one of the first things we process (or at least should process) when looking at a bird, having an accurate sense of "true" size is critical. No matter how many measurements we commit to memory or read in a field guide, until we've seen a species in multiple scenarios, our perception of its size is mostly an abstraction. Optics have a big hand in this, and the result of stepping back from time to time and judging a bird's size with the naked eye is often surprising.

An effective way to absorb size is by direct comparison. Seeing a gull with a petrel or tern—even a raptor—not only teaches size but illustrates flight style and reinforces shape. Plates S.1–S.30 attempt to showcase sizes of select species. It helps, of course, to be familiar with at least one of the species in each image. These side-by-side comparisons should help you place the taxa presented in this guide into three broad categories: small, medium, and large.

S1 1st-cycle Bonaparte's with adult Short-billed and Ring-billed Gulls. GAIL WEST. CALIFORNIA. NOV.
S2 Adult Ring-billed and Bonaparte's Gull. CHRISSY MCCLARREN. MISSOURI. NOV.
S3 Adult California, American Herring, and Ring-billed Gull. KEITH CARLSON. WASHINGTON. DEC.

S4 Adult Bonaparte's Gull and Parasitic Jaeger. JEFF DYCK. MANITOBA. JUNE.
S5 Adult Little Gull and Black-legged Kittiwake. LENART JEPPSSON. SWEDEN. DEC.
S6 1st-cycle Heermann's and Common Raven. AMAR AYYASH. CALIFORNIA. JAN.
S7 Adult Common Gull (right of center) with Black-headed Gulls and Kumlien's Gulls. BRUCE MACTAVISH. NEWFOUNDLAND. JAN.
S8 Adult Glaucous Gull with Black-legged Kittiwakes. CAROLINE LAMBERT. ALASKA. JUNE.
S9 Adult Ivory Gull and Glaucous Gull. BRUCE MACTAVISH. NEWFOUNDLAND. FEB.
S10 Adult Glaucous-winged Gull and Thayer's Gull (right). LIAM SINGH. BRITISH COLUMBIA. MARCH.



S11 Adult Thayer's Gull (left) and Lesser Black-backed Gull with American Herring (background). AMAR AYYASH. ILLINOIS. DEC.

S12 Adult American Herring and Laughing Gull. AMAR AYYASH. FLORIDA. JAN.

S13 3rd-cycle Black-tailed Gull (underexposed) with adult Bonaparte's and 1st-cycle Ring-billed. CHRISSY MCCLARREN. ILLINOIS. JAN.

S14 Adult Slaty-backed Gull, 1st-cycle Glaucous Gull and adult Glaucous-winged Gull. TYLER HOAR. JAPAN. FEB.

S15 Adult Great Black-backed Gull with Canada Geese. CHARMAINE ANDERSON. ONTARIO. FEB.

S16 Adult Great Black-backed Gull with Bald Eagle. JIM TAROLLI. NEW YORK. FEB.

S17 Adult Yellow-footed Gull (center) with four California Gulls and White Pelicans. MARK CHAPPELL. CALIFORNIA. OCT.

S18 Adult Laughing Gulls in pursuit of Sandwich Tern. PETER BRANNON. FLORIDA. NOV.

S19 Adult Heermann's and Western Gull. BYRON CHIN. CALIFORNIA. JULY.

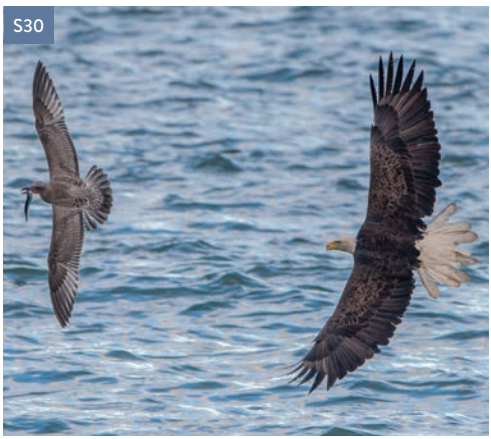
S20 Adult Swallow-tailed Gull with California and Heermann's Gulls. DAVE BEEKE. WASHINGTON. SEPT.

S21 Adult Franklin's Gull (center) with California Gulls and Ring-billed (lower left). ALAN KNOWLES. ALBERTA. MARCH.

S22 1st-cycle *sibiricus* Black-headed Gull (center) with 1st-cycle Franklin's Gull (right) and Bonaparte's Gulls. AARON MALIZLISH. CALIFORNIA. DEC.

S23 Juvenile Sabine's Gulls with Red-necked Phalaropes. JOEL BEYER. UTAH. SEPT.

S24 Adult Bonaparte's Gulls with 1st-cycle Great Black-backed Gull. AMAR AYYASH. MASSACHUSETTS. APRIL.



S25 1st-cycle Glaucous and Lesser Black-backed Gull. RICHARD SMITH. NEWFOUNDLAND. FEB.
S26 1st-cycle Western and California Gull (right). ALEX A. ABELA. CALIFORNIA. AUG.
S27 1st-cycle Laughing Gull (left of center) with three Parasitic Jaegers and Common Tern. STEVE ARENA. MASSACHUSETTS. OCT.
S28 2nd-cycle Great Black-backed Gull with Long-tailed Jaeger. BRANDON HOLDEN. ONTARIO. SEPT.
S29 1st-cycle Kumlien's Gull with Northern Fulmar. RONNIE D'ENTREMONT. NOVA SCOTIA. JAN.
S30 Juvenile American Herring Gull with Bald Eagle. JASON DAIN. NOVA SCOTIA. OCT.

ABERRATIONS

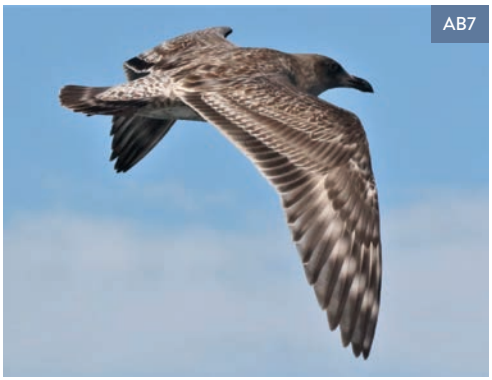
As ubiquitous as gulls are, we often notice anomalies in them so slight that they wouldn't be spotted on smaller birds or those with more elusive lifestyles. An interesting point to ponder is that the more variable a species' diet is, the more likely aberrations will be found in that species. For instance, there is data that suggests urban bird populations more commonly exhibit leucism than their rural counterparts, but it's not clear whether this disparity is due to an observer bias (Rollins 1953). An example of this may be the relatively high frequency with which white patches are recorded on the primary coverts of adult Heermann's Gulls. Is this a result of more people watching them intently combined with their highly contrasting plumages? Or is it a deep-seated genetic mutation within the species? Plates AB.1–AB.15 show common aberrations and abnormalities that are regularly reported in gulls. Some have the potential to present confusion, such as an unexpected dark eye on a pale-eyed species, while others are simply intriguing oddities. Much rarer oddities, such as a gull having an extra primary on one wing, or an extra tail feather, have been excluded from this section, but the reader should be aware of such quirks.

AB1 Melanistic Laughing Gull of unknown age. Melanism is rare in gulls and birds in general. More common is to see various tracts with extra melanin (see 7.13 and 8.11). Recalls Lava Gull, which averages a thicker and more blunt-tipped bill, without an obvious white throat. TROY HIBBITTS. TEXAS. JUNE.

AB2 Leucistic Yellow-footed Gull, identified by leg color, bill and body size, and location. Leucism is a generic term that's more or less useless when trying to understand pigment deficiencies, but it is a term widely understood by the birding and ornithological community. Leucism is by far the most common color aberration we find in gulls. NEIL CLARK. MEXICO. MAY.

AB3 Leucistic Short-billed Gull. A small white gull that immediately evokes thoughts of Ivory Gull, but bill size and color are important here. Leucistic individuals often have normal bare-part colors. MARIO BALITBIT. CALIFORNIA. NOV.

AB4 Dilute Laughing Gull with a lesser form of albinism throughout the upperparts. AMAR AYYASH. FLORIDA. JAN.



AB5 Calico Ring-billed Gull. This aberration is recorded annually in one or two Ring-billed Gulls. Interestingly, many have grayish underparts and a black bill with a yellow tip. TIM REEVES. NEW MEXICO. FEB.

AB6 Alternate Franklin's Gull. The intense pink suffusion on the body is not an aberration and is regularly found in smaller gulls, especially Franklin's and Ross's. This coloration is caused by a carotenoid known as astaxanthin. Carotenoids must be eaten; the effects are brought on only by diet. JULIAN HOUGH. TEXAS. APRIL.

AB7 1st-cycle Western Gull with broad stress bar across the primaries, greater coverts, and tail feathers. It has been suggested that this aberration, loosely known as "Willet Wing," is more common in years of poor food availability. STEVE HAMPTON. CALIFORNIA. OCT.

AB8 Adult American Herring Gull with heterochromia. Two dark eyes are very rare in American Herring Gulls. It's much more common to find one dark and one pale eye. Some reasons for an unexpected dark eye include injury, a genetic mutation, or possibly avian flu infection. AMAR AYYASH. MICHIGAN. OCT.

AB9 1st-cycle Ivory Gull with a handful of postocular lice spots. Seen somewhat regularly, especially on young gulls; the obligate ectoparasites feed on the feathers, skin, and blood of their host. A large lice load can be an indication that a bird's health is in peril. DARREN CLARK. MONTANA. FEB.

AB10 Adult Lesser Black-backed Gull with a sublingual fistula, brought on when a bird's tongue protrudes through the floor cavity of the mouth. Recorded in at least 17 gull species. Does not appear to be detrimental to survival in most cases. AMAR AYYASH. ILLINOIS. OCT.

AB11 1st-cycle Glaucous-winged type with bill color suggesting avian keratin disorder (AKD). The elongated hooked tip is a separate aberration found mostly in 1st cycles, sometimes with "crossbill" pattern. DONALD PENDLETON. CALIFORNIA. MARCH.

AB12 Adult Laughing Gull with bare-part depigmentation. Particularly frequent in this species, resulting in variable orange on the bill and legs, with otherwise ordinary plumage. AMAR AYYASH. FLORIDA. JAN.

AB13 1st-cycle American Herring Gull with depigmentation restricted to the bill. Normal leg color. AMAR AYYASH. ILLINOIS. DEC.

AB14 Oiled 3rd-cycle-type American Herring Gull. Caused by external chemicals and oils in the water, oiled feathers appear matted, glazed, and untidy. Oiling often impedes flight and the ability to keep the body insulated. AMAR AYYASH. WISCONSIN. JULY.

AB15 Soiled, adult-type Glaucous Gull found in a Russian coal-mining settlement. Likely exposed to coal dust and oiled. Soiling is easily mistaken for melanism. This bird would likely never be confidently identified out of context, but note the short wing projection with white tips, orange orbital ring, and evenly proportioned bill. NOAH STRYCKER. SVALBARD. JUNE.

SPECIES ACCOUNTS

The species accounts are systematically arranged as follows:

Header: Each species account is numbered, with the common and scientific names, followed by body (L) and wingspan (W) lengths. I have found some of the measurements given here in collections across North America, but the overwhelming majority were recorded by Olsen and Larsson (2004). Also included is the number of molt cycles typically required to acquire adult plumage, the accepted molt strategy—Simple Basic Strategy (SBS), Simple Alternate Strategy (SAS), or Complex Alternate Strategy (CAS)—and a range of KGS values.

Overview: A general overview is given, with information ranging from natural history, feeding habits, behavior and nesting preferences to population estimates and conservation concerns for the species.

Taxonomy: Historic and current notes on taxonomy are provided, especially when relevant to modern classifications. Some simply state, "Monotypic," while others go into more detail. If more than one subspecies is recognized, pertinent comments are made on distinguishing features and geographic distributions.

Range: A summary of breeding and nonbreeding ranges, with notes on known migration timings and peak movements, is given for each species. Seasons are sometimes used to generalize the time of year, and these should be understood as seasons of the northern hemisphere unless otherwise noted. General range maps are provided for most taxa but typically don't reflect isolated sites or occurrences where a species isn't regularly expected. Red indicates breeding range; blue, nonbreeding range; yellow, migration when this is widespread or noteworthy; and green, regions where a species can be found year-round, which encompasses breeding.

Identification: These sections begin by describing adults and then discuss first cycles. These are the only ages given for two-cycle species. Second cycle is described for three-cycle species, and third cycle is described for four-cycle species. Presumptions on subadult characteristics leading to definitive plumages are sometimes provided, through photographic examples when noteworthy. These can be generalized by light markings on the primary coverts or tail, more extensive pigment on the wingtip, brown wash on the coverts, dusky blemishes on the wing linings, and/or suspiciously delayed bare parts. Ultimately, it is impossible to know the age of such birds without life-history data.

***Similar Species*:** Here, the reader is given a brief overview of differences to consider when those field marks are noteworthy. These sections are not meant to be exhaustive; they aim to highlight overarching differences that can be supported by averages. It is often difficult to describe some features on paper, especially in four-year gulls, given the limitations of print publications and the variability in those features. In some sections, I refer the reader to a different species, implying that more details are given in that taxon's account. These sections should be read with reference to the provided photographs.

Molt: The molt section provides a general description of any recognized molt strategy. This information is mostly from birds of unknown origin (i.e., those without leg bands) and hence should be viewed as tentative. Much of this data is in agreement with Pyle (2008), Howell and Dunn (2007), and Howell (2010) and with data compiled on the Gull Research Organisation (n.d.) website and is from personal observations from both the field and museum collections. The summaries focus on adults and first cycles, as these ages are requisites to understanding the bigger picture. Second- and third-cycle individuals in this guide are assumed to be those ages based on overall patterns that match known-age birds.

Hybrids: Information is given on known and / or suspected hybridization in the wild, along with relevant notes on hybridization in captivity. The overwhelming majority of suspected hybrid gulls are of unknown origin and as such should be considered putative. To say that our knowledge of hybrid gulls is in its "developing" stages is an understatement. Some hybrid populations, such as the Glaucous-winged × Western hybrids (so-called Olympic Gulls) of the Pacific Northwest, are much better known than others.

Photographic Plates: Each species account provides a series of photographs, beginning with first-cycle and progressing to adult plumages. Plates are referenced beginning with the species account number. For example, plate 29.7 is plate 7 in species account 29 (i.e., Slaty-backed Gull). Where subspecies have their own accounts, a letter is also found. For instance, 32b.5 is plate 5 in species account 32b (i.e., Kumlien's Iceland Gull). Care has been taken to ensure images give an accurate portrayal of upperpart coloration, but despite this, it is impossible to reproduce true-to-life colors and shades in every instance. The images are captioned beginning with molt cycle, followed by relevant notes on plumage and identification. The photographer, general location, and month are also listed.

SECTION 1

SMALL TERN-LIKE & HOODED GULLS

1 SABINE'S GULL *Xema sabini*

L: 12.5"–14.0" (32–36 cm) | W: 33.5"–35.5" (85–90 cm) | Two-cycle | CAS | KGS: 7–9

OVERVIEW Arguably the most elegant gull species in the world, with adults having a dazzling geometry of black, gray, and white on the upperwing. This Holarctic breeder is highly pelagic in the nonbreeding season, with the longest migration of all gulls. Flight is powerful but graceful, with frequent dives. Feeding habits are much more similar to those of terns and phalaropes than gull-like. Often found feeding in locations where phalaropes concentrate, forming concentric circles on the water's surface while foraging. Walks with a slight waddle along the water's edge and on mudflats. Associates with Arctic Terns in migration and prefers to nest near that species in the tundra zone. Like terns, males carry prey items to females in bill (not regurgitated, as in many other gulls). Sabine's is often kleptoparasited by jaegers. The genus name, *Xema*, is apparently devoid of meaning, with no etymology (Jobling 2010). The future English name for this species must be held to the highest standard.

Trans-equatorial migration, mainly oceanic to the Pacific Coast of South America and Atlantic Coast of South Africa. Large numbers are attracted to the cool, rich waters of the Humboldt Current in W South America and of the Benguela Current off W South Africa. Presumably a first in avian research, members of a nesting pair of Sabine's Gulls fitted with geotrackers in the Canadian Arctic showed "divergent migratory pathways," migrating to different continents, wintering in different oceans, and then reuniting to nest together again in the northern summer (Davis et al. 2016). Apparent longevity record for the species is an individual banded as a chick in 1999 on South Hampton Island which was found breeding at the same site as a 24-year-old adult in July 2023 (Lain Stenhouse, pers. comm.).

TAXONOMY Four races have been considered (Portenko 1939; Burger & Gochfeld 1996). Smallest and palest birds from N Alaska to Greenland said to be nominate *Xema sabini sabini*. Larger and darkest birds in NE Siberia and W Alaska are *X.s. woznesenskii*. Birds from Spitsbergen and east to the Taimyr Peninsula are *X.s. palaearctica* (but sometimes placed with nominate). More study of fresh specimens and larger samples from purported *X.s. tschuktschorum* populations on Chukotskiy Peninsula needed. Some authorities regard differences clinal and maintain Sabine's is monotypic (Cramp & Simmons 1983; Harrison et al. 2021). Interestingly, Swallow-tailed Gull is not closely related to Sabine's, despite their superficial resemblances. Instead, Ivory Gull is believed to be sister taxon to Sabine's (Pons et al. 2005).

RANGE

Breeding: Holarctic breeder, from NE Russia east to Svalbard. In North America, nests in small colonies in marshy, low-lying tundra with pools and ponds, and rarely on barrier islands, coastally from W Alaska eastward to the high Arctic of Nunavut, as well as locally in central and N Greenland. Grass nest often placed in moss or wet ground close to water's edge.

Nonbreeding: Mostly pelagic during nonbreeding season. Seen rarely from or on shore along Pacific and Atlantic Coast. Southbound migrants well south of the breeding

1 Juvenile. Scaly upperparts with pale edging, dark hindneck, and fleshy legs. BRIAN C. JOHNSON. ARIZONA. SEPT.
2 Juvenile. Pale edging to upperparts showing slight wear, not as boldly marked as 1.1. DARREN CLARK. IDAHO. OCT.
3 Juvenile with similar-aged Bonaparte's Gull (left). Sabine's averages a smidgen smaller. Note thin white secondary skirt. DAVID TURGEON. QUEBEC. SEPT.
4 Juvenile. Pale edging to upperparts largely worn away, although retaining dark hindneck. RYAN O'DONNELL. UTAH. NOV.
5 Some gray formative feathers on scapulars now, with adult Bonaparte's. JAMES PAWLICKI. NEW YORK. NOV.
6 1st cycle showing moderate wear on the upperparts. More gray has grown in on the mantle and upper scapulars. Note petite bill, thin white secondary skirt, and white edges to inner webs of outer primaries. REINHARD GEISLER. FLORIDA. DEC.
7 1st cycle. Now showing much adult-like gray on scapulars and some upperwing coverts (replaced via preformative molt). Visible primaries are still juvenile. ROGER AHLMAN. ECUADOR. FEB.
8 1st cycle. Black bill pattern and retained juvenile outermost primaries. Much of the upperparts are adult-like now (formative), with visible signs of primary molt. White head with black hindneck and gray wash (see also 1.15–1.16). RICHARD BONSER. CHILE. APRIL

(continued...)

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