

Slaty-backed Gull winters on the Mississippi River

Detailed field identification notes are contained in the written documentation of the first North American occurrence of *Larus schistisagus* away from the northern Pacific Ocean.

*Ronald E. Goetz, William M. Rudden,
and Phoebe B. Snetsinger*

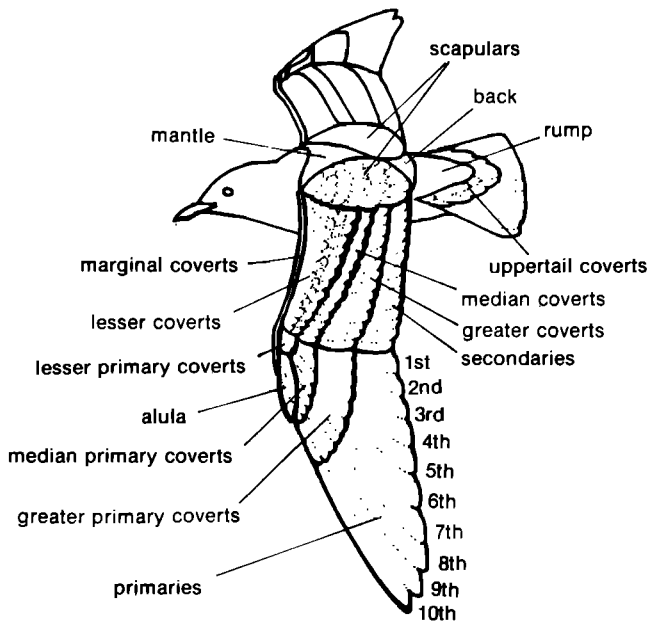
THE PRESENCE OF AN ADULT SLATY-backed gull (*Larus schistisagus*), on the Mississippi River from St. Louis, Missouri to Alton, Illinois, December 20, 1983–January 29, 1984, represents the first verified occurrence of this northeast Asian species for eastern North America and only the second North American record south of Alaska. This report presents a detailed description of the St. Louis bird, a discussion of the relevant field marks, and miscellaneous notes concerning the first inland wintering of this coastal species.

Description

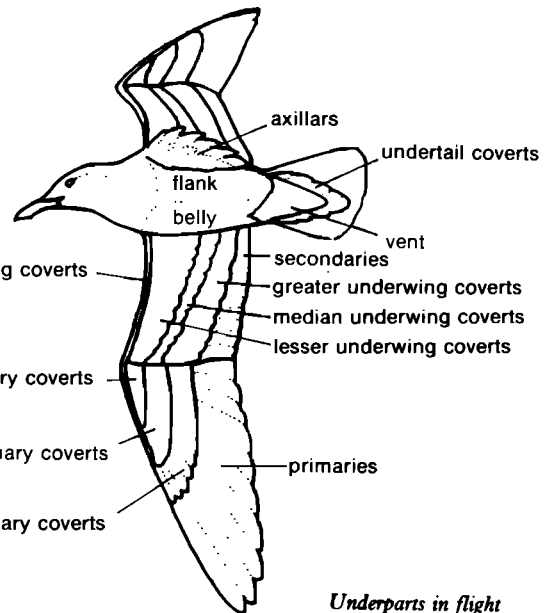
Taken from Goetz' documentation, these details were compiled during 32 hours of observation and discussed extensively among the authors.

Age and molt: gull was an adult in fresh basic plumage; no wear was evident on wingtips or elsewhere; all remiges and rectrices were fully grown. No brownish cast was visible on the mantle and no blackish was present in the tail. **Body size and shape:** length of sleeping bird, chest to wingtips, was only

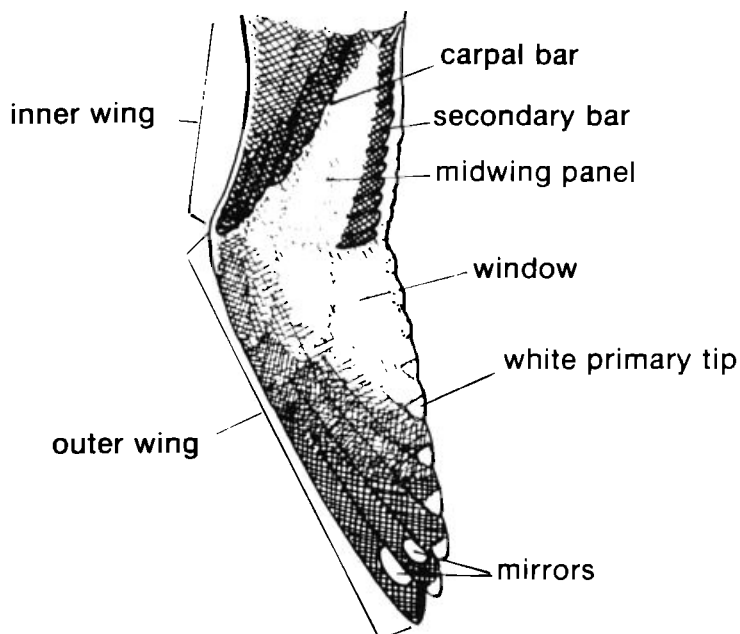
slightly larger than that of the largest Herring Gulls (*L. argentatus*) present; however, the chest was decidedly bulkier, and the neck was longer and more obviously muscled than in members of that species. The wingtips of the sitting bird extended just past the tip of the tail, by slightly less than the length of the bill. **Head shape:** profile was unique among gulls present, with a sloped forehead, a very flat crown, and a squared rear crown. The head was very broad across the back, most apparent when the bird bowed its head toward observ-



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Underparts in flight



ers. Overall size of the head was notably larger than in all Herring Gulls. **Proportions:** the Slaty-backed's Herring Gull-sized body and proportionately larger head produced a rather top-heavy appearance. **Bill size and shape:** unique in the authors' experience. Height at the base of the bill was somewhat less than that of three juxtaposed first-basic plumaged Glaucous Gulls (*L. hyperboreus*), but was greater than in all juxtaposed Herring Gulls. Bill was proportionately longer than in any other species present, and actually longer than in all juxtaposed Herring Gulls. Gonyleal angle was not as pronounced

compared to bill height and appeared proportionately closer to tip than in Herring Gulls. **Head and neck:** reddish brown to gray-brown clouding, streaking and spotting gave the bird a hooded appearance at a distance. In detail: nape was heavily marked with wide, sharply defined brown streaks that stopped abruptly at the base of the hindneck. Crown and auricular region were clouded grayish brown. Forehead, chin, and throat were only lightly clouded grayish buff. Brown streaking on the sides of neck and foreneck became heavier and formed spotting posteriorly before terminating in a V-shaped border across the upperbreast. Some very dark feathering circled the eye and formed a streak through the eye which curved upward posteriorly. The color of the head streaking was quite distinctive, roughly terra cotta. **Underparts, wing linings, rump, upptail coverts and tail:** wholly snowy white. **Mantle:** dark slate



Figure 1. Adult Slaty-backed Gull showing the upper surface of the near wingtip. Note also the slate-gray mantle, and the terra cotta colored head streaking. All photos of the gull taken January 1984 at Alton Dam #24, Illinois. All photos of the gull by David Ulmer.

gray, changing substantially with available light, distance, and the angles between incident light, bird, and observer. As far as we are aware, all observers familiar with the British race of the Lesser Black-backed Gull (*L. fuscus graellsii*) thought the bird was recognizably darker than that gull. This was also the opinion of Rudden when he discovered the bird only three days after studying an adult *L. f. graellsii* at Carlyle, Illinois. Direct comparison with a similar shade was never possible. White feathers of

the marginal coverts formed a thin white leading edge to wing. **Secondaries and tertials:** secondaries were dark slate gray with very long white tips—in flight these tips, together with the white tips of the primaries, formed a dramatically wide white trailing edge to the wing, which was widest across the middle secondaries. The broad white tips of the tertials formed a very conspicuous crescent on the sitting bird; the white-tipped scapulars formed a less conspicuous crescent. On the sitting bird, the tips of

the outer secondaries were usually just visible beyond the tips of the greater secondary coverts, while the inner secondaries were always covered. From below, the secondaries appeared gray proximally, contrasting with the wing linings but paler than from above. **Primaries:** patterning complex (Figs. 1 and 2; cf. Figs. 5 and 6). All primaries had white apical spots. The outermost (tenth) primary was blackish, with a long white mirror across both webs, narrowly separated from the white api-



Figure 2. Slaty-backed Gull with head hidden between wingtips. Note a trace of the tongue-tip on the ninth primary, as seen in underwing. This feature is not visible dorsally.



Figure 4. Here notice the Slaty-backed Gull's particularly reddish tarsi, toes, and webs. Note also the bird's proportionately larger (cf. Herring Gull) head size and proportionately longer bill.

describe is the patterning of subapical white areas in the outer primaries. Although a number of brief descriptions of this field mark have appeared recently, it is necessary to consider the markings feather by feather in order to understand the variation in the patterning possible in *L. schistisagus* and the extent of similarity to related species.

Some terminology is required in order to proceed. The tongue (or primary-tongue) is an elongated area of gray [and] or white that extends variable distances from the bases of the primaries, usually on the inner webs, sometimes or both (Dwight 1925, p. 124). The term "tongue-tip" is defined as a contrasting area (white or pale gray, below) at the distal portion of a tongue, bordering the feather's black subterminal band (Fig. 7). The "length" of the tongue-tip is the length of the maximal line segment parallel to the feather shaft and contained within the tongue-tip. The words "long" and "short," when applied to tongue-tips, indicate lengths of at least 15 mm or at most 10 mm, respectively. As far as could be determined by examining specimens and photographs, these measurements correspond to a difference which is apparent without relying on rulers: from above, with feathers spread normally, a long tongue-tip appears roughly as an oval with its longer axis nearly aligned along the feather shaft; a short tongue-tip appears

to be a rather flat crescent roughly perpendicular to the shaft.

The critical markings in the identification are the tongue-tips on primaries 6–8. Because the patterning is rather fine and is generally only visible when the wing is spread, some of the details discussed below can be determined in the field only under remarkably propitious circumstances. However, as will become apparent, such details can contribute significantly toward the identification of any of the dark-mantled gulls, and thus photos showing the patterning of the outer primaries should be sought whenever possible for unusual or potentially unusual records.

The patterning on the primaries of the inspected *L. schistisagus* was as follows: tenth primary always had a long white mirror, rarely partially joined to the white apical spot. A white mirror was present on the ninth primary of all but five of the specimens and was generally (but not always) quite small and confined to the inner web (as in the St. Louis bird). Long white tongue-tips were present on the inner webs of the sixth and seventh primaries of all specimens; these sometimes extended to the inner portion of the outer webs, especially on the sixth. Distinct white to pale gray tongue-tips were also present on the inner webs of the eighth primaries of all specimens, but with much more variation encountered. In some birds this tongue-tip was even longer than

those on the sixth or seventh, but in others it was very small and limited to the innermost portion of the inner web. We suspect that the latter tongue-tips would not be visible dorsally in the field. A trace of a tongue-tip was also present on the ninth primary of some of the specimens, but these would almost certainly never show dorsally in the field; when present, they may be visible in photos of the underwing (Figs. 2 and 5; Armstrong 1980). Finally, the patterning of the fifth primary was highly variable, generally with a long white tip divided transversely by a narrow black band.

The utility of these features for field identification can be summarized as follows: the most distinctive *L. schistisagus* wing pattern, exemplified by the St. Louis individual, shows long tongue-tips on each of the primaries 6–8, producing a broken band of white ovals that curves dramatically inward from the trailing edge (Figs. 5 and 6). This effect is easily noticed and is shared by no other similar gull. However, in a significant number of individuals, the tongue-tip on primary 8 will not be visible from above (photos illustrating Gibson 1983, and Armstrong 1980), and the effect of the curving band is essentially lost.

In this event, more care will be necessary to determine the precise patterning, but the confirmed presence of long tongue-tips on primaries 6 and 7 is

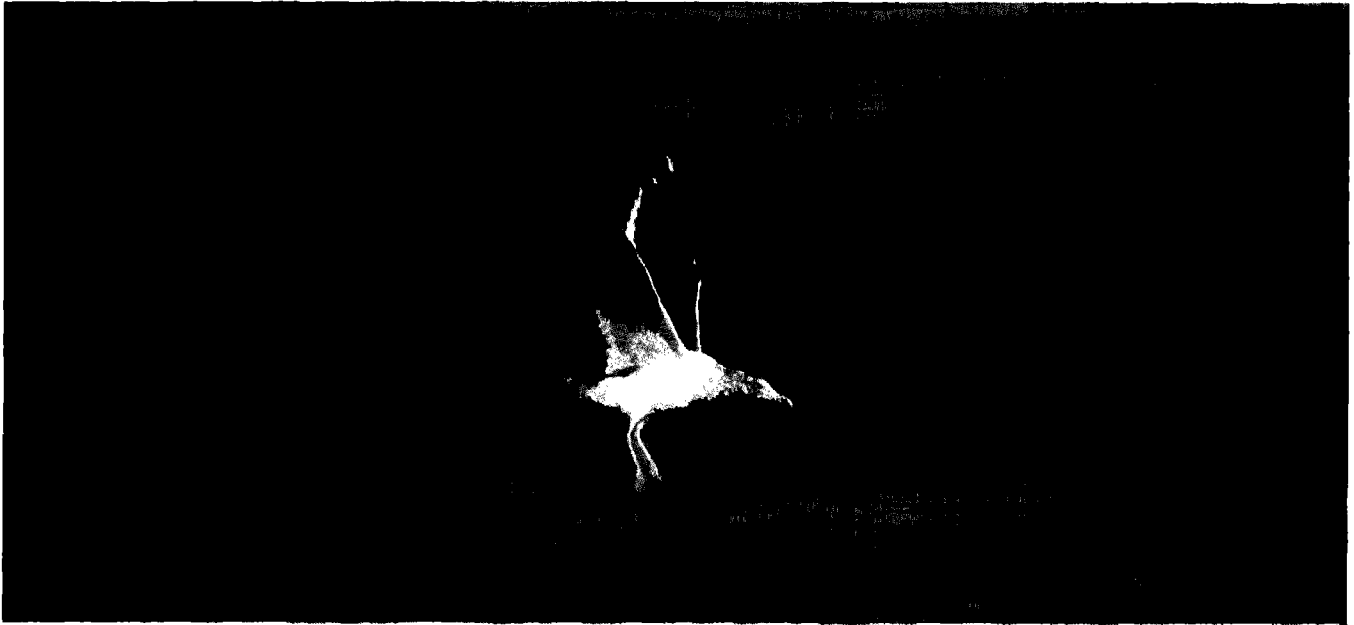


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Figure 5. The upper surface of the wing of a female Slaty-backed Gull specimen (#76767 Am. Mus. Nat. His.) shows clearly the apical spots, mirrors, tongue and tongue-tips. Photo/Barbara Spencer.



Figure 6. The undersurface of the wing of AMNH specimen #76767 shows the gray in the primaries and the limited black regions subterminally. Note the long white mirror on primary #10 (outermost) separated from the white apical spot by the narrow black subterminal band. Photo/Barbara Spencer.

strongly suggestive of *L. schistisagus*. Of the similar gulls, only *L. dominicanus* has fairly long tongue-tips (often 10–15 mm) on primaries 5–7. However, in this species there is no tongue-tip on primary 8 (D.R. Paulson, *pers. comm.*; specimens at Field Museum); mirrors are only rarely present on primary 9 (Dwight 1925); and other factors prevent confusion with *L. schistisagus* in any case. *L. marinus* has only short tongue-tips on primaries 6 and 7 and the 10th generally has a long wholly white tip (note that there is sometimes a small mirror on the inner web of primary 8 which may superficially resemble a tongue-tip). *L. fuscus* (all subspecies), *L. livens*, and *L. occidentalis* (both subspecies) all have short tongue-tips on primary 5, usually very short tongue-tips on primary 6, and no distinct tongue-tips on primaries 7 or 8. Also, these gulls have considerably less ex-

tensive gray tongues on primaries 6, 7, 8, and 9 than *L. schistisagus*, so that much more black is apparent in their primaries when seen from below. Finally, mirrors on primary 9 are quite rare in *L. occidentalis*, and possibly unknown in *L. livens* (McCaskie 1983). Note that the tongue-tips of typical *L. fuscus*, *L. schistisagus*, *L. livens*, *L. occidentalis* and *L. marinus* are illustrated quite well in paintings by Thomas Schultz (Nat. Geo. Soc. 1983:155 & 157).

Short tongue-tips are present on the sixth and seventh primaries of one specimen of *L. argentatus* × *L. marinus* (sketch by Helen Hayes in Jehl 1960); we doubt that this hybrid would ever approach *L. schistisagus* in this character, since neither parent species does. Finally, the wingtip pattern of *L. o. occidentalis* × *L. glaucescens* is highly variable, but “in all birds examined the

gray or black of the wing tips graded into the mantle gray without an intervening white area as in *L. thayeri* or *L. schistisagus*” (Hoffman *et al.* 1978:446)

Mantle color The mantle color of *L. schistisagus* is quite distinctive. It is a full shade (Binford 1978) paler than in *L. dominicanus*, one-half shade paler than in *L. marinus* and *L. f. fuscus*, a full shade darker than in *L. livens*, *L. o. wymani* and *L. f. graellsii*, and a shade and one-half darker than in *L. o. occidentalis* and any *L. o. occidentalis* × *L. glaucescens*. The mantle color of *L. argentatus* × *L. marinus* is rather variable, but probably not more than one-half shade darker than in the California Gull (*L. californicus*) (Jehl 1960, Andrie 1972; Godfrey 1973; Foxall 1979), hence at least two full shades paler than in *L. schistisagus*. On the other hand, the mantle color of *L. f. intermedius* is very similar to that of *L.*

schistisagus (P.J. Grant *pers. comm.*), thus presenting a potential confusion.

In any case, mantle color is of only marginal use as a field mark. The difference is sufficiently subtle that without direct comparison to, or at least recent experience with, one of the most similar shades, accurate judgment of relative darkness is probably not possible. Moreover, perceived mantle color varies greatly with available light and the angle of the bird to the observer (Grant 1982:93), and the seasonal variation produced by molts and feather wear provide additional complications.

Head streaking Few references describe the patterning of head streaking found on basic-plumaged *L. schistisagus*. The specimens (four basic adults) and the descriptions received from T.G. Tobish (*pers. comm.*) indicate that the general patterning is highly variable, with one extreme displaying the extensive streaking and spotting of the St. Louis bird and the other showing well-defined streaks limited to the lower nape. The color of the streaking varies from gray-brown (probably in the majority of cases) to the reddish brown of the St. Louis bird.

Those larids with only light streaking or mottling on limited portions of the crown or nape are rather easily eliminated: *L. f. fuscus* and *L. marinus* (Cramp and Simmons 1983), *L. livens* and *L. o. wymani* (McCaskie 1983), *L. dominicanus* (Dwight 1925). Of the remaining similar gulls, *L. f. graellsii* and *L. f. intermedius* apparently do not show spotting on the breast, while those *L. o. occidentalis* with heavily marked heads tend to have wide, blurry streaks on the nape. In *L. argentatus* × *L. marinus*, the "streaking about head and neck is variable but always markedly less intense and more restricted than that of typical *argentatus*" (Foxall 1979).

Of greater importance than the general head patterning is the dark feathering that forms a complete eyering and upward-curving postocular line: this appears to be a highly consistent mark of basic-plumaged *L. schistisagus* (T.G. Tobish, *pers. comm.*). It is illustrated fairly well (but lacking the upward curve) in Wild Bird Society of Japan 1982:89, and less well in National Geographic Society 1983, and Harrison 1983. We have not found this patterning about the eye in any of the similar gulls. *L. f. graellsii*, *L. f. intermedius*,

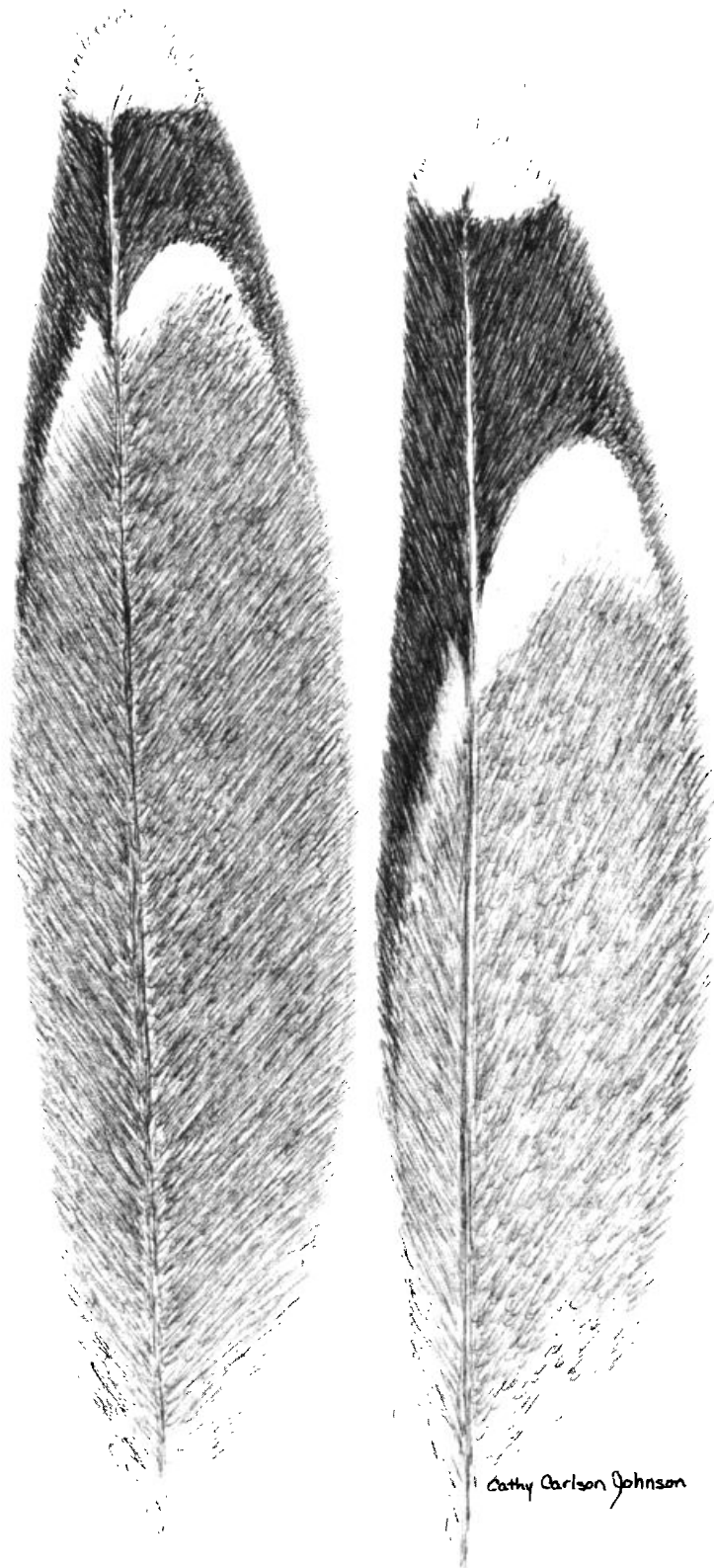


Figure 7. This sketch of the sixth primaries of *L. marinus* (left) and *L. schistisagus* (right) shows the short and long tongue-tips, respectively. Sketch by Cathy Carlson Johnson.

L. marinus, and some *L. argentatus* × *L. marinus* show dusky preorbital crescents, but these fail to form complete eyerings, and there is no well-defined ocular line. In *L. occidentalis*, the entire eye is generally surrounded at least narrowly by whitish, although some 3rd-basic plumaged birds show a dusky smudge throughout the ocular-auricular region.

Bill shape Sexual dimorphism makes a detailed discussion difficult but the following general trends have been mentioned: the bill of *L. schistisagus* tends to appear relatively long, but fairly uniform in height and with the gonydeal angle not as pronounced relative to bill height as in *L. argentatus* or particularly *L. occidentalis* (T.G. Tobish *pers. comm.*; Balch 1980). Bill height varies between those of *L. a. smithsonianus* and *L. glaucescens* (T.G. Tobish *pers. comm.*; Dwight 1925). Actual length of the bill is perhaps typically greater than in *L. occidentalis*. Small individual *L. schistisagus* may overlap Herring Gull in head and bill size (T.G. Tobish *pers. comm.*).

In general, the relatively unpronounced gonydeal angle and lack of terminal swelling are good field marks in the elimination of *L. marinus*, *L. argentatus* × *L. marinus* (R.A. Foxall *pers. comm.*) and *L. dominicanus*, and is at least atypical of *L. livens* and most *L. occidentalis*. The length and height of the bill of the St. Louis bird is entirely inappropriate for *L. fuscus*.

Soft parts The color of the irides of *L. schistisagus* is consistently described as pale yellow or cream-colored, with no mention of darker flecking in any reference. Reported colors of orbital ring vary widely: roughly "pink to red-purple" (Roberson 1980:191; Harrison 1983:343). The reddish tone of legs and feet has been widely noted, but it is apparently more consistent in autumn than in summer (T.G. Tobish *pers. comm.*).

The color of the soft parts figures heavily in the identification of the St. Louis bird. The clear pale yellow irides eliminates *L. o. occidentalis* and *L. o. occidentalis* × *L. glaucescens*, both of which show some amount of melanin over amber to brown eyes (Hoffman *et al.* 1978). The irides of *L. o. wymani* have been variously described as "pale gray to white" (McCaskie 1983) and "amber yellow" (Binford 1978), so the eye color may or may not be relevant

in the elimination of that subspecies. The pink-red orbital ring is certainly atypical of those gulls with essentially yellow orbital rings: *L. livens* and *L. o. wymani* (McCaskie 1983), *L. o. occidentalis* (although some show reddish tints, D.R. Paulson *pers. comm.*), and *L. argentatus* × *L. marinus* (although one individual was reported as having a red orbital ring, Foxall 1979). The bright salmon pink mouth is inconsistent with *L. fuscus* (inside of mouth yellow, Cramp and Simmons 1983), and possibly other species as well. Finally, the bright reddish pink legs and feet are at least somewhat atypical for all the gulls considered here, extremely so for those with legs and feet various shades of yellow or green: *L. fuscus* (Cramp and Simmons 1983); *L. livens* (McCaskie 1983); and *L. dominicanus* (Harrison 1983). Leg color of *L. argentatus* × *L. marinus* is typically pale or whitish flesh, but in single individuals it has been described as grayish and dark pink (Godfrey 1973). Finally, the legs of *L. marinus* and *L. occidentalis* are typically a less reddish pink.

Molt *L. schistisagus*, like most of the gulls considered here, completes its molt in the fall, so that early-winter birds show fresh, fully grown primaries. Four of the similar gulls do not share this molt pattern. The primary molt in *L. f. fuscus* is not completed until late February or later, while in *L. f. graellsii* and *L. f. intermedius* it is not completed until late December or January (Cramp and Simmons 1983). *L. dominicanus* is typically molting its inner primaries during January and February.

Trailing edge The white trailing edge of the wings of this species is usually wider and more conspicuous than in perhaps any other dark-mantled gull. However, individual variation and especially variation owing to wear necessitate only cautious use of this field mark. Note that all the gulls discussed here have "conspicuous" white trailing edges.

The St. Louis bird was thus consistent with Slaty-backed Gull in all respects, while the most similar larids are clearly eliminated by the features discussed above. A few other larids warrant mention. A number of subspecies of the Herring Gull (following taxonomy of Vaurie 1965) are fairly large and dark mantled. The Siberian breeding race *L. a. vegae* has a mantle about as dark as that of the California Gull (hence

distinctly darker than *L. a. smithsonianus*), pink legs, and occurs regularly in Alaska and the Aleutians, where it has been confused with *L. schistisagus* by inexperienced observers (Balch 1980; T.G. Tobish *pers. comm.*). However, this bird shows a strong contrast between mantle and wing tips in good lighting, more black in the wing tips from below, and lacks the prominent tongue-tips on primaries 6–8 (probably with short tongue-tips on primaries 5–7). Of the remaining races, only *L. a. heuglini* and *L. a. atlantis* are darker mantled than the California Gull, and these are still at least a shade and one-half paler than *L. schistisagus* and have yellow legs. Finally, *L. thayeri* has conspicuous white tongue-tips on primaries 6–8 and dark pink tarsi, but otherwise bears no resemblance to *L. schistisagus*.

Distribution, origins, and other considerations

The Slaty-backed Gull was discovered on the Mississippi River near Lock No. 27 by Rudden December 20, 1983. Due to the difficulties of locating the bird in the 19-mile stretch of ice-laden river it used, and of obtaining diagnostic views, it was not positively identified until December 31, 1983 (Goetz, Snet-singer, Rudden *et al.*). Readers interested in the detective work of the identification process are referred to Snet-singer *et al.* 1984.

Subsequent to its identification, the St. Louis Slaty-backed Gull attracted as much attention as any single bird ever had in the Midwest, and perhaps, even the entire interior United States. In all, nearly 1000 people from at least 24 states saw the bird, including about 250 January 7, 1984 alone. A number of national newspapers and wire services carried the story, and the bird made a national TV appearance on the CBS Evening News January 5, 1984.

The last certain sighting of the Slaty-backed Gull that we know of was by Rudden and Goetz at about noon January 29 at Dam No. 26. It was reported there again February 4–5, 1984 by a number of observers, but details did not reach these authors.

A detailed account of the bird's behavior has been deposited with the Illinois State Museum. This includes descriptions of all observed interspecific interactions; its feeding methods, sites,

and schedule, its roosting and sleeping habits; and its preening and stretching routines.

The normal range of the Slaty-backed Gull is described as: "Asiatic coasts of North Pacific and Bering Sea from Chukotskiy and Kamchatka Peninsulas south through Kurile Islands and Sea of Okhotsk to Hokkaido, Japan . . . Winters from Kurile Islands south to Honshu (Southern Japan)" (Harrison 1983:344). In North America, the bird is an "uncommon summer and rare fall visitor to western Alaska and Aleutians, rare on north coast" (Nat. Geo. Soc. 1983:154). Additionally, it has become a fairly regular fall visitor as far east as Anchorage on the Pacific coast (T.G. Tobish *pers. comm.*), although it had been unrecorded at Anchorage prior to 1979 (Gibson 1980). The only previous record from North America south of Alaska in the literature is that of an adult at Clover Pt., Victoria, Vancouver Island, British Columbia on March 1, 1974 (Roberson 1980:190).

The habitat chosen by the St. Louis bird appears to be nearly as remarkable as the distance it traveled from its usual range. The Slaty-backed Gull has been said to be "only seen at sea and along the coasts" (Nat. Geo. Soc. 1983) and indeed we found no specific references to inland sightings. It would thus seem that a successful wintering some 950 km from salt water is unprecedented.

However, two other potential records of Slaty-backed Gull from the Midwest have come to light since the St. Louis sighting. The most important of these, since documented with photographs taken by Thomas Heatley, is of a bird at Sault Sainte Marie, Michigan, November 28, 1981. This bird had been regarded as a Herring X Great Black-backed Gull hybrid, but it is now thought rather likely that the bird was a Slaty-backed Gull (L.G. Balch *pers. comm.*; T.G. Tobish *pers. comm.*). The second interesting sighting is of a dark-mantled gull at Two Harbors and Knife River, Minnesota January 4–28, 1968; while this will undoubtedly remain at best a hypothetical record, the description is more consistent with Slaty-backed Gull than any other gull (Green 1969).

The most likely route by which a Slaty-backed Gull could reach the Midwest would seem to be, as with most coastal or pelagic species occurring in the Midwest in late fall and early winter,

The principal optical equipment used by the authors of the Slaty-backed Gull article was: (Goetz) Swift Trilyte 7 × 35 binoculars and a Bausch & Lomb Balscope Sr. 15–60× zoom telescope; (Rudden and Snetsinger) Leitz 8 × 40 binoculars and Bushnell Spacemaster II 20–45× zoom telescopes.

The authors also had the pleasure of viewing the gull through a variety of more powerful telescopes than their own, which belonged to local birders and visitors. Most of these telescopes were Questars with 40× and 80× eyepieces. It might be added that most other makes and models of telescopes were represented at one time or another through which visiting birders viewed the gull.

Observations were made with the bird at rest as close as 100 yards, and in flight, as close as 60 yards.

via arctic Canada (Balch *et al.* 1979). Whatever route the St. Louis Slaty-backed Gull used, its arrival in St. Louis was apparently coincident with the passage of a bitter arctic front December 18, 1983, that produced temperatures down to about -15°F and record-breaking windchills of -50° to -60°F for the next several days.

Because adult accidentals are often thought to be birds which have repeated "mistakes" they made as juveniles, we reviewed all recent records of similar species in the St. Louis area. It is virtually certain that none of these can be attributed to the Slaty-backed Gull; this is true in particular of an unidentified 3rd-basic plumaged dark-mantled gull seen at Dam No. 26 in January–February 1982 (Peterjohn 1982). Apparently, if the Slaty-backed was present in previous years, it went undetected. The Slaty-backed did not return in winters 1984–1985 or 1985–1986.

We would not be surprised if the initial perturbation in the migrational routine of the St. Louis Slaty-backed was linked to the 1982–1983 El Niño/Southern Oscillation. The disruption of the nesting cycles and subsequent abnormal behavior of seabirds of the Pacific Ocean apparently caused by this atmospheric/oceanic anomaly have been well documented (Schreiber and Schreiber 1984, Gibson 1984). However, the birds thought to be the most disturbed have been surface-feeding species, and we are not aware that any species with the scavenging capabilities of the Slaty-backed Gull has been reported to have been affected by El Niño.

Conclusion

The present sighting has clear implications for all observers identifying dark-mantled gulls in the United States. We made three specific observations. First, prior to 1980, information on the

identification of Slaty-backed Gulls was virtually nonexistent, so the true status of this species in North America may take many years to determine. Second, although the Lesser Black-backed Gull is becoming increasingly commonplace in the Atlantic coastal plain and even in the Midwest and in the Gulf States, observers should still exercise caution in identifying this species and take particular note of the leg color and structural features. Third, observers confronted with a dark-mantled, pink-legged gull in the interior of the continent should consider the possibility of Western Gull carefully. The Western Gull has been recorded east of the Mississippi River with a specimen of the race *L.o.occidentalis* taken at Chicago on November 17, 1927 (Bohlen 1978). It was originally written up as *L.o.wymani* (Wright and Komarek 1928), but was reassigned in 1971 by J.R. Jehl, Jr. and P. Devillers (Jehl letter on file at The Chicago Academy of Sciences).

This sighting provides an emphatic variation on a very old theme: birds should be identified by their field marks, not by their geographic likelihood. This is especially true of gulls, which have, as a group, clearly established their capability of breaking any particular geographic barriers, given sufficient time.

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Brown Pelicans (*Pelecanus occidentalis*). Illustration/Phyllis V. Saroff.