

# Identification of adult American Herring Gull

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Recently, the identification of American Herring Gull *Larus smithsonianus* (hereafter *smithsonianus*) in a European context has been discussed in several papers, most thoroughly by Loneragan & Mullarney (2004). While these papers have greatly increased our knowledge of this taxon, they focused mostly on the identification of immature birds. Adults have always remained a bit of a mystery, since they seem almost identical to European Herring Gull *L. argentatus*, particularly of the subspecies *L. a. argenteus* (hereafter *argenteus*). Some authors have hinted at possible differences in the primary pattern, including Garner & Millington (1998) and Oddie & Doherty (2000), but such characters were never studied in

more detail. In addition, it has become apparent that there may be significant regional variation in *smithsonianus*, complicating the identification outside its normal range. While some variation between East and West Coast populations was already pointed out a long time ago by, eg, Dwight (1925), consistent differences between Newfoundland birds ('Newfoundland American Herring Gull', hereafter NF *smithsonianus*) and birds wintering in the Niagara region have been published recently by Jonsson & Mactavish (2001), indicating that there may be more than just two different populations. The most recent treatment of the subject of geographical variation is found in Olsen & Larsson (2003).

219 American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 2 January 2001 (Bruce Mactavish). Note strong head streaking, reaching well down onto hindneck and breast. On the hindneck, there is almost a solid brown wash, and the eye is encircled by a thin blackish smudge, giving the face a very mean expression. Note also blackish spot near gonys. The upperparts in this photograph look a bit dark but this is a photographic effect caused by the reflection of the ice.



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In this paper, we discuss the possibilities of finding and identifying adult *smithsonianus* in Europe. We believe that a reliable identification will be possible in some cases, if strict criteria are met. We present a detailed analysis of all relevant characters and suggest combinations that we believe to be diagnostic. We also describe some of the regional variation that we have encountered in *smithsonianus*, although this should by no means be seen as a complete overview. We merely hope that it will stimulate further research in North America. Before discussing the identification criteria, we would like to emphasize two important points. Firstly, identification of adult *smithsonianus* in Europe will not be possible without good photographs and/or video sequences illustrating the primary pattern. This is of critical importance. Preferably, such images should have been taken from close up, and show the primaries both from above and below. As a rule, you can not observe all of the necessary details of the primary pattern in the field – unless it concerns a dead bird! Secondly, it should be noted that this paper has a strong European bias. It focuses exclusively on the identification of adult *smithsonianus* in a European context, and is not meant to be used the other way round. A large-scale research on regional variation in *smithsonianus* is necessary before one can attempt to identify *argenteus* in North America.

### Material and methods

Our results are mainly based on the analysis of museum skins, dead birds, photographs and video sequences. In addition, we both have extensive field experience with *smithsonianus* and European Herring Gulls. Bruce Mactavish has seen adults of both species together (three adult *argentatus* among NF *smithsonianus*).

Since we did not have the time nor means to examine *smithsonianus* from all parts of North America, we decided to focus on one single population that is likely to stray to Europe: the NF *smithsonianus*. There were several reasons for this choice: **1** Newfoundland is the easternmost part of North America, and is closest to Greenland. Birds from that region and adjoining parts of eastern Canada are likely to turn up in Europe from time to time. In fact, the first European record of *smithsonianus* concerned a bird that was ringed in a neighbouring part of Canada (New Brunswick) (Gross 1940); **2** Of all groups of *smithsonianus* we examined, the Newfoundland adults appear to be the most dis-

tinctive compared with European birds, particularly *argenteus*; and **3** BM has been living in Newfoundland for years and is thoroughly familiar with the local *smithsonianus*, which are very common and easily studied.

For this paper, the primary patterns of 208 adult NF *smithsonianus* were studied in detail on the basis of dead birds, photographs by BM and video sequences by Peter Adriaens. Outside Newfoundland, we have studied adult *smithsonianus* in Canada (Niagara and Toronto, Ontario, Northwest Territories and Yukon) and the USA (New York and New Jersey) and. Through museum curators, we also obtained many photographs of stretched wings from Canada (Alberta, British Columbia, Northwest Territories and Yukon) and the USA (Alaska, California, Connecticut, Maine, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Virginia and Washington). Sample sizes are given later on in the paper.

On the European side, the primary patterns of 182 adult *argenteus* were studied, from dead birds, museum skins (from Belgium, England and Ireland), video sequences obtained in Belgian breeding colonies and photographs (from England, Iceland and the Netherlands). A total of 36 adult European Herring Gulls of the nominate subspecies *L a argentatus* (hereafter *argentatus*) were thoroughly studied, from museum skins from Denmark, video sequences obtained in Belgium (in winter), and photographs from England (winter) and Norway. Another 70 winter adults from Germany were examined (on photographs of captured birds) but were not included in the final results since their origin was unknown.

In addition, eight suspected adult hybrids *argentatus* x Pontic Gull *L cachinnans* were also examined, on basis of photographs from Poland.

One important point is that, when describing the variation in adult European Herring Gulls, we have chosen to consider two additional 'forms', apart from *argenteus* and *argentatus*. This was the most convenient way to explain the regional variation and should definitely not be seen as any taxonomic suggestion from our part! These additional forms are: **1** Intergrades  $argenteus \geq \leq argentatus$ . There is a zone of clinal variation between these subspecies, as indicated by measurements (cf Cramp & Simmons 1983) and morphological characters. Adults showing pale grey to medium grey upperparts and a primary pattern somewhere 'in between' (although in some the pattern may fit either subspecies) breed in the

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**220** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, winter (Bruce Mactavish). Note rather long bill with thin dark subterminal band and fairly small, orange gonys spot, angular head with rather flat crown, and brown blotching on lower hindneck. **221** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, early December 1995 (Bruce Mactavish). Bird with more *argenteus*-like head shape, but note dense head streaking reaching well down onto breast and converging into dark smudging in front of, above, and behind eye. Head streaking contrasts with the pale grey upperparts. Note also rather thin bill with dark subterminal band, small orange gonys spot and greenish tinge to the bill base. **222** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 28 October 2001 (Bruce Mactavish). The strong head streaking reaches far down and converges into a blackish smudge in front of and a blackish streak behind the eye. Note also pink basal part of bill, and dark spot near gonys. **223** American Herring Gulls / Amerikaanse Zilvermeeuwen *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 28 October 2001 (Bruce Mactavish). A few autumn head patterns. On these four birds, note dark smudge in front of eye and rather long, parallel-sided bill (almost pencil-like on the first bird).

very north of the Netherlands, north-western Germany and south-western Denmark. Barth (1975) classified these birds still as *argenteus* but commented that 'they form, to some degree, a mixed population with nominate *argentatus*' in that region. In winter, intergrades are relatively common from at least Belgium to the west coast

of Denmark (Klaus Malling Olsen pers comm; pers obs). Examples of what we believe to be such birds are shown in plate 242-244. 2 'Eastern Baltic Herring Gull'. This name refers to those *argentatus* breeding along the eastern Baltic Sea, eg, in Belarus, Estonia, Finland, Latvia and Poland. They quite often have yellow legs,

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COMPOSITE 1 Winter head patterns of adult American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, St John's, Newfoundland, Canada (Bruce Mactavish). All photographs taken between 23 October and 7 February. Head streaking is usually extensive; note that even paler-headed birds tend to show some streaks or blotches on the lower hindneck and breast. Darker-headed individuals can show a very dark spot in front of or around the eye. Note also bill pattern.

the upperparts are slightly paler than in 'northern' or 'Arctic' *argentatus*, the primary pattern is often also subtly different and the moult seems to occur slightly earlier, thus being more similar to *argenteus* (Hario & Kilpi 1986, Mierauskas & Greimas 1992, Jonsson 1998; pers obs; Klaus

Malling Olsen pers comm). They mainly stay in the Baltic region in winter with dispersal to Kattegat and Skagerrak, but a few reach further south, as far as the Adriatic Sea and Lake Garda, Italy (Olsen & Larsson 2003). At least a few occur in western Europe in winter too, as indicat-



COMPOSITE 2 Head patterns of Eastern Baltic Herring Gull / Oostelijke Baltische Zilvermeeuw *Larus argentatus*, Tampere, Finland, 26 October 2003 (*Visa Rauste*). The variation in autumn/winter head streaking is very extensive, with birds at the paler end being (almost) white-headed, and those at the darker end showing very dense streaks and blotches that reach well down onto the breast. At the darker end in particular, there is much overlap with *smithsonianus*. Note also the bill pattern, which tends to be a little more yellowish throughout than in many *smithsonianus*, with on average a slightly larger orange or red gonys spot.

ed by ringing recoveries. For this paper, 85 adult Eastern Baltic Herring Gulls were studied, from video sequences taken in southern Finland and photographs from Belarus, Estonia, Latvia and Poland.

It should be taken into account that *argentatus* shows clinal variation too, showing darker grey upperparts and paler wing-tips towards northern Scandinavia.

## Identification

There are two main problems to consider when it comes to identifying adult *smithsonianus* in Europe: **1** How to detect a potential *smithsonianus*, especially in a flock of *argenteus*; and **2** how to arrive at a conclusive identification.

The following sections refer exclusively to *smithsonianus* of the Newfoundland population but probably also apply to birds from surrounding parts of eastern Canada.

### Finding a good candidate

Given the regular occurrence of immature *smithsonianus* in Europe (cf Lonergan & Mullarney 2004), adults are likely to occur as well. Indeed, there have already been several claims from the Azores, Britain and Ireland (cf plate 245-246). While these reports could not (yet) be proven, they at least show that birders are aware of the possible occurrence.

Although adult *smithsonianus* are perhaps most likely to turn up in countries such as Britain, Iceland, Ireland and Norway, they may

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be far easier to detect in, eg, Portugal and Spain, where European Herring Gulls are scarce. Especially the Azores are well-positioned; the islands Corvo and Flores are, in fact, closer to Newfoundland than to mainland Europe!

While some adult NF *smithsonianus* may stand out in size, structure and head streaking, this will not usually be the best way to look for them, as there is much overlap with European Herring Gulls in these respects.

#### *Three characters that may be helpful, when used in combination*

**UPPERPARTS** First of all, it should be established that the upperparts are pale grey. *Smithsonianus* has an estimated Kodak grey-scale value of 4-4.5 (rarely 5.0; cf Howell & Elliott 2001), while in *argenteus* it is 5.0-5.5 (Jonsson 1998). Olsen & Larsson (2003) give (3)3.5-6 for *smithsonianus* and 3-5.5 for *argenteus*. Newfoundland birds are among the palest of *smithsonianus*, probably having a Kodak grey-scale value of c (3)3.5-4.5 on average. Their upperparts are, in fact, quite similar to those of Ring-billed Gull *L delawarensis*, and nearly as pale as in Black-headed Gull *L ridi-*

*bundus* (pers obs). In any case, an adult *smithsonianus*, and Newfoundland birds in particular, should not normally stand out as visibly darker in a flock of *argenteus*. The mantle colour is most important with regard to *argenteus* and Eastern Baltic Herring Gull. The latter is said to have an average Kodak grey-scale value of 5.6, and *argenteus* of 5.0-7.0 (Jonsson 1998); Olsen & Larsson (2003) give (4)4.5-6 and (4)5-7(8), respectively. Variation in mantle shade of *argenteus* is clinal, ranging from palest in Danish birds (which overlap with *argenteus* in this respect) to darkest in Arctic regions. Keep in mind, however, that bright sunlight may make it more difficult to assess mantle shades correctly, and that the shade of the upperparts often seems to vary with the position of the bird. Prolonged field observation may be necessary.

**UNDERSIDE OF WING-TIP** A good character to look for, is the underside of the wing-tip at rest. In NF *smithsonianus*, the grey tongue on the outermost primary (p10) is often long (ie, covering more than half of the length of the inner web), broad, and very steeply (c 90°) curved at the end (see figure 5a, and plate 224-229). Such a tongue is actually quite similar to that of adult Pontic Gull. It is often visible at rest, if you look at the underside of the far wing-tip. This pattern was found in 69% of our sample of Newfoundland birds. In many birds,

**224** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, March 2001 (Bruce Mactavish). The long, rectangular tongue on the outermost primary is visible on the underside of the far wing-tip, leaving a black medial band that is smaller than the white mirror. Note also tiny, orange gonys spot, and blackish subterminal bill mark.



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**225** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). Rather typical bird. The outermost primary is displaced, revealing the long and broad tongue, which is strongly curved at the end. The black medial band is slightly narrower than the white mirror. This is combined with a nice, thin black 'W' on p5 – a combination that is rare in European Herring Gulls *L. argentatus*. In addition, note that the grey tongue on p8 is as long as the one on p7, and has an obviously broad white tongue-tip. There is a 'bayonet-pattern' on the outer web of p7-8, and in this case even p9. Also, p6 shows a quite symmetrical black 'W'. The grey tongue on p9 covers most of the inner web, and is therefore well visible from above, even though the wing is not fully outstretched. **226** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). P10 is again displaced, revealing a long, broad, and rectangular grey tongue, leaving a black medial band of approximately the same size as the white mirror. This is combined with a black 'W' on p5. P9 has no mirror on the left wing, and a small one (confined to the inner web) on the right wing. The black colour of the outer web of this primary does not reach the primary coverts. The grey tongue is visible from above, at least on the right wing. There are 'bayonets' on the outer webs of p7-8, and there is a very pointed black wedge along the outer edge of p6. **227** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult (background, with third-winter in front), St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). The long, rectangular grey tongue on p10 may just be visible on the underside of the right wing. The black band on p5 is interrupted, but there is still a 'U'-shaped pattern on the outer web. The white mirror on p9 is confined to the inner web, the black colour of the outer web does not reach the primary coverts, and the grey tongue is visible from above, even though the wing is not entirely outstretched. There is a bit of white on the tongue-tip of p8, there are obvious bayonets on the outer webs of p7-8, and there is a drawn-out 'W' on p6. **228** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). On the underside of the left wing, the long, rectangular tongue on p10 is visible. Note also how the black colour is largely concentrated on the outer and trailing edges of the underwing. P5 has a thin black 'W'. In addition, the white mirror of p9 is confined to the inner web, the black colour of the outer web does not reach the primary coverts, and there is a markedly forked ('V'-shaped) pattern on the outer web of p7, as there is a pointed black wedge not only along the outer edge, but also on the shaft.

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the remaining black 'medial band' (ie, the black separation between tongue and mirror) is smaller than the white mirror. In *argenteus*, the grey tongue on p10 is normally short (less than half the length of the inner web), and pointed, oblique, or wedge-shaped (figure 5c) (in more than 95%). It is therefore not visible at rest; the underside of the wing-tip looks all-black, except for the white mirror. Occasionally, birds with a longer grey tongue occur (less than 2%), but the combination of a long (> 1/2) grey tongue and very steeply curved shape was not found in our sample of *argenteus*. However, such a combination is occasionally seen in intergrades, pure *argentatus*, Eastern Baltic Herring Gull, and hybrids *argentatus* x *cachinnans*. It will usually be possible to eliminate most of these on the basis of mantle colour but some birds of any of these forms appear just as pale as pure *argenteus*, so it may be necessary to check more characters, however subtle, before investing a lot of time in a particular bird. In this respect, it may be interesting to combine the length and shape of the tongue with the presence of black marks near the tip of this primary. Most European Herring Gulls that show a long, 'cachinnans-like' tongue here, often have an all-white mirror and tip without any subterminal black markings, which is only infrequently the case in NF *smithsonianus*. Keep in mind, however, that if you look at the underside of the wing-tip on a resting bird, the black subterminal band of p9 may often 'shimmer through' and create the illusion of black marks near the tip of p10 (cf figure 11, and compare with plate 224). Careful observation is needed, preferably from up close. The combined characters of p10 will be discussed in more detail later on in this paper.

**PATTERN OF P5** If the bird is preening its wings, the pattern of p5 (the last primary to be covered by the tertials at rest) is worth noting: many NF *smithsonianus* have a complete black band, which is often shaped like a distinct 'W' (see next section 'How to be sure?' for more details; see also figure 10a, and plate 225, 226, 228 and 230). The combination of a long, almost rectangular tongue on p10 and a complete 'W' on p5 is quite significant (again, see next section). Those NF *smithsonianus* that have only an incomplete black band on p5 often still show a forked (or 'U'-shaped) pattern on the outer web (figure 10b). The primary pattern will be dealt with in much more detail later on in this paper.

### *Less reliable but possibly helpful characters*

**HEAD STREAKING** This character is really variable in herring gulls but may at times provide an additional clue. In general, adult NF *smithsonianus* have strong head streaking, that reaches far down, well onto the breast. The streaks may be so strong, that they converge into solid brown blotches, especially on the lower hindneck, breast and around the eye. In such cases, the head pattern may be similar to that of nominate Glaucous Gull *L hyperboreus hyperboreus*, and contrast strongly with the pale grey upperparts. The breast-sides of such birds are often isolated from the fore-wing by a white wedge near the wing-bend (which recalls, with a little bit of

imagination, the white wedge of Common Sandpiper *Actitis hypoleucos* and Spotted Sandpiper *A macularius*). In some birds, the streaking or blotching is more prominent on the lower hindneck/breast than on the head itself. A complete necklace of strong streaks/blotches may be present on these parts. The heavy streaking often makes the pale eye stand out very clearly, enhancing the 'mean' facial expression. There is sometimes a dark greyish or brownish smudge just in front of the eye, sometimes even surrounding the eye, which emphasizes the paleness of the iris. This is usually less pronounced in European Herring Gull. In *argenteus*, winter streaking is usually slightly thinner, and does not reach as far down, instead being mostly confined to the head and (upper) neck. There are quite a few exceptions, though. Also, beware of subadult birds, which often show heavier and more extensive streaking than adults, for a longer period of time. NF *smithsonianus* appear to moult later than *argenteus*, and this may create an additional difference in head pattern in late winter. Adult *argenteus* start to acquire a pure white head from late December onwards; by mid-February, most adult birds are entirely whiteheaded. NF *smithsonianus*, on the other hand, start losing their head streaking only from late January on. In mid-February, 99% of all adults still retain head streaking. Only by late March have all adults acquired pure white heads. However, it should be noted that moult is not really an identification criterion that can be applied to a single bird, especially if it is a vagrant. For example, it is quite conceivable that a bird having arrived in Ireland in autumn, may start its spring moult earlier than usual due to the more temperate weather conditions than in Newfoundland. In addition, *argenteus* from Iceland moult later than those from western Europe (Olsen & Larsson 2003).

Eastern Baltic Herring Gulls also show only thin and limited head streaking in winter (Visa Rauste pers comm) but in mid autumn (October-November) they usually have a distinctly dark-streaked head and neck (Jonsson 1998). In *argentatus* and intergrades, the winter pattern can be more extensive, and variation can be bewildering.

**STRUCTURE** This may provide another clue, although the differences are subtle and there is much variation. NF *smithsonianus* usually have a somewhat 'awkward' structure, caused by the rather bulky body on short legs. The head shape is angular, with a rather flat crown. In these respects, they are similar to *argentatus*. The bill is often quite long and parallel-sided, with only a slight gonydeal angle. In *argenteus*, the head is usually more pear-shaped, and the bill is slightly shorter, with a more marked gonydeal angle. Eastern Baltic Herring Gulls can be more different still, as they have on average rather long legs and an elongated body with fairly long primary projection (Mierauskas & Greimas 1992, Jonsson 1998). Note also that NF *smithsonianus* are fairly large on average, being for example slightly larger than birds of the Niagara population (Jonsson & Mactavish 2001). They may therefore stand out as slightly larger in a flock of *argenteus* (not *argentatus*!), but there is some overlap.



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**229** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, March 2001 (*Bruce Mactavish*). An impression of the underwing from a distance. Note how the black colour is concentrated on the very outer and trailing edges. The white 'string of pearls' is also quite obvious. The complete black band on p5 can be seen, shimmering through, and is combined with a long rectangular tongue on p10 (leaving a black medial band narrower than the white mirror).

**230** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). The tongue on p10 is not visible here but the other primaries are rather typical; the white mirror on p9 is confined to the inner web, black colour of the outer web does not reach the primary coverts, and the grey tongue is visible from above. Note also rather long grey tongue on p8 (as long as on p7), with fair amount of white on tongue-tip, 'bayonets' on p7-8 (more visible on left wing), and black 'W' on p5-6.

**231** American Herring Gulls / Amerikaanse Zilvermeeuwen *Larus smithsonianus*, adult, St John's, Newfoundland, Canada, 23 March 2003 (*Bruce Mactavish*). An illustration of some variation in wing-tip patterns. The leftmost bird is an example of one with a 'Thayeri pattern' on p9 (grey tongue joining the mirror), yet combining this with a relatively small white mirror, ie, confined to the inner web.

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FIGURE 1a Newfoundland American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, upperwing of adult (Peter Adriaens)



FIGURE 1b Newfoundland American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, underwing of adult (Peter Adriaens)



FIGURE 2a Newfoundland American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, upperwing of adult (Peter Adriaens)



FIGURE 2b Newfoundland American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, underwing of adult (Peter Adriaens)

**BILL COLOUR** In winter, this may be another element of limited help, as the bill is rather dull in adult NF *smithsonianus*, compared with adult *argenteus*. While the bill-tip is normally yellow, the basal two thirds are often clearly less brightly coloured, and may even be greenish, pinkish, or greyish without a yellowish hue. Many winter adults have dark subterminal bill markings, such as a greyish or blackish spot or bar above the gonys.

FIGURE 3 Newfoundland American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, upperwing of adult (Peter Adriaens)



The red gonys spot is often distinctly small, obviously not reaching up to the lower cutting edge, and is rather pale (more orange than red). Therefore, the bill pattern resembles that of *argentatus* although the gonys spot may be even smaller. In winter, adult *argenteus* usually retains a more yellowish bill throughout (although the basal two thirds may be paler yellow than the tip), dark subterminal markings are more often absent, and the gonys spot is larger (reaching up to or almost up to the cutting edges) and brighter. Beware of subadult birds, however. From mid-February onwards, the bills of NF *smithsonianus* rapidly turn bright yellow as head streaking disappears. However, the dark subterminal marks often remain into May at least, which only exceptionally occurs in European Herring Gulls. The orange gonys spot may increase in size and brightness, although it remains relatively small in quite a few birds.

**LEG COLOUR** Legs are nearly always pink (dull pink to brownish-pink in winter). There is a tendency for the legs to brighten up in mid-February to March and a vague yellowish tinge becomes apparent on a very few birds but is nothing like the yellow of, eg, a Lesser Black-backed Gull *L fuscus graellsii*. NF *smithsonianus* with distinctly yellowish legs are truly exceptional, while many Eastern Baltic Herring Gulls, some northern *argenteus*, and a few *argenteus* (especially in

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FIGURE 4a European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, upperwing of adult (Peter Adriaens)



FIGURE 4b European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, underwing of adult (Peter Adriaens)

spring) show this colour. In *argenteus*, any yellow tinge to the legs often coincides with the development of a brighter yellow bill and pure white head in February-March, indicating that this yellow colour is a signal in breeding birds, and therefore not very likely to occur in *smithsonianus* vagrants. In Europe, a distinct yellowish tinge on the legs should be considered a sign that the bird is not a *smithsonianus*.

**SIZE OF WHITE PRIMARY TIPS** In many *argentatus*, and in some intergrades and Eastern Baltic Herring Gulls, the size of the white primary tips at rest is also slightly different, being quite large to very large, and creating more white than black in the folded wing-tip. In NF *smithsonianus*, the white tips are typically smaller, being close or identical in size to those of *argenteus*, although there are some adult birds with larger white tips.

**FLIGHT** Even in flight, several useful clues will be visible in the field. Because the pale tongues are generally longer and broader than in *argenteus*, the primary pattern often gives a different impression. When seen from below, the outer hand usually appears 'hollowed out', with the black colour concentrated on the outer and trailing edges, creating a distinct L-shape reminiscent of adult Pontic Gull (figure 1b and 2b; plate 229). While a similar pattern is seen in many *argentatus*, intergrades and Eastern Baltic Herring Gulls, *argenteus* normally shows more black on the inner web of p8-10, creating more of a solid black triangle on the underside of the wing-tip (figure 4b). Even from above, the pale tongue is often easily visible on all of the outer primaries, except the outermost (p10). Again, *argentatus*, intergrades and Eastern Baltic Herring Gulls can be similar, but in most *argenteus* at least two outermost primaries (p9-10) appear solidly black (unless the primaries are fully spread, eg, when the bird is landing). Quite a few NF *smithsonianus* show broad white tongue-tips on p5-8 (sometimes referred to as a 'string of pearls'), and this creates the impression that the white trailing edge of the wing continues across the black pattern of the outer primaries. This 'string of pearls' was not found in our sample of *argenteus* but it is shown by some *argen-*

*tatus*, Eastern Baltic Herring Gulls and the occasional intergrade. The primary pattern is described in much more detail in the next section.

In conclusion, it will be possible to locate a potential *smithsonianus* by looking at several subtle characters in combination. The biggest pitfall is perhaps formed by intergrades  $\argenteus \geq \leq \argenteus$ . While these are unlikely to show many of the above characters in combination, only detailed analysis of the primary pattern (on the basis of photographs/video) will rule them out conclusively – which is the next step in the identification process.

### How to be sure?

As Lonergan & Mullarney (2004) have already pointed out, the number of identifiable *smithsonianus* decreases with age. This is certainly true for adults; our estimates indicate that about 40% of adult NF *smithsonianus* can be identified with certainty in Europe. This is only a minority, which is unfortunate perhaps, but that is just how it is. The rather large percentage of non-identifiable birds can be explained by extensive variation in both American and European Herring Gulls. While the primary pattern is the key to the identification problem, it is also variable: it varies regionally and individually and is also age-dependent, since the amount of black in the primaries seems to decrease slowly with age (Coulson et al 1984; pers obs on colour-ringed birds). It is sometimes claimed that the variation is also sex-dependent but we have seen no strong evidence yet of this. In fact, several authors who previously searched for sex-dependent variation in the primaries of European Herring Gull, could not find any consistent

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**232** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, Norman Wells, Northwest Territories, Canada, 27 May 2002 (*Bruce Mactavish*). Compared with typical NF *smithsonianus*, this bird shows more black on the outer web of p9 (being almost solid black up to the primary coverts on left wing) and, most notably, p6 (covering almost half of the outer web). The grey tongues on p8-9 are slightly shorter, and there is hardly any white on the tongue-tip of p8. As a side note, it may be of interest that, compared with European Herring Gull *L argentatus*, this bird shows obvious 'bayonets' on p7-8, and even p6. We think it would take considerable effort to find a European Herring Gull with three such 'bayonets', especially one on p6 (and combined with a complete 'W' on p5).

**233** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, Norman Wells, Northwest Territories, Canada, 27 May 2002 (*Bruce Mactavish*). View of the underwing. Note the short, pointed grey tongue on the outermost primary and the shorter grey tongue on p8-9 compared with typical NF *smithsonianus*. The underwing pattern is actually more similar to that of a typical European Herring Gull *L argentatus argenteus*, and even approaches that of Yellow-legged Gull *L michahellis*. The black band on p5 is usually complete in western birds.

**234** American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, western Mexico, 21 January 2003 (*Steve N G Howell*). Impression of the underwing in a western bird. Note the very short, pointed grey tongue on the outermost primary. There is no white mirror on p9, and the complete black band on p5 is shimmering through.

**235** European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, adult, Zeebrugge, West-Vlaanderen, Belgium, June 2001 (*Geert Spanoghe*). The grey tongue on p10 is thin and pointed, and there is a solid black spot on p5, entirely confined to the outer web. P6 lacks the 'W'-pattern, as the black wedge along the outer edge is not very pointed, and there is no pointed wedge on the shaft either. There are no 'bayonets', neither on p8 nor p7. The grey tongue on p8 is slightly shorter than the one on p7 (compare the subterminal amounts of black), and there is hardly any white on the tongue-tip.

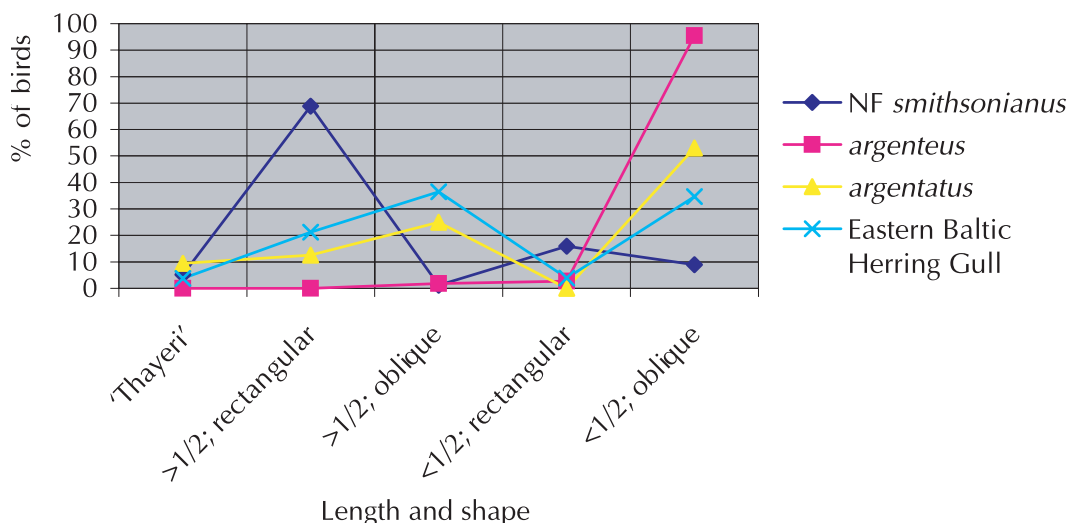


DIAGRAM 1 Length and shape of the tongue on p10 in herring gulls.

'Thayeri': birds in which the tongue cuts through to the mirror.

'>1/2, rectangular': birds in which the tongue covers more than half of the inner web and is steeply curved at the end.

'>1/2, oblique': birds in which the tongue covers more than half of the inner web and is rather wedge-shaped.

'<1/2, rectangular': birds in which the tongue is short, covering no more than half of the inner web, and is steeply curved at the end.

'<1/2, oblique': birds in which the tongue is short, covering no more than half of the inner web, and is rather wedge-shaped.

Note especially the difference between NF *smithsonianus* and *argenteus*.

TABLE 1 Extent of white mirror on p10

p10	% of birds with all-white mirror + tip
NF <i>smithsonianus</i>	8
<i>argenteus</i>	32
<i>argentatus</i>	56
Eastern Baltic Herring Gull	62

Note: Jonsson & Mactavish (2001) came to almost the same result in NF *smithsonianus*, namely 7%. Barth (1968) found a similar average percentage for *argentatus*, namely 54%, while in Eastern Baltic Herring Gulls, Mierauskas & Greimas (1992) found an average of 32.5% (on birds from Latvia and Russia), and Kilpi & Hario (1986) recorded a total of 46% (on birds from Finland). Olsen & Larsson (2003) give 53% for *argentatus* and c 20% for *argenteus*. Coulson et al (1984) examined many *argenteus* (n = 1484) from various breeding colonies in Britain, and noted the following percentages: 30.9% in Shetland birds, 20.5-25% on the British east coast, 9.3-10.8% on the British west coast, 13.4% in North Wales, and 1.4% in Lancashire, England. They concluded that European Herring Gulls breeding on the west side of Britain show on average more black near the tip of p10.

differences and ended up pooling males and females together in their research (eg, Barth 1975, Coulson et al 1984, Snell 1991). In the museum skins that we studied, we could not see any consistent differences either.

However extensive the variation may be, it is not endless. In the following section, we have tried to point out its limits and to draw the line between NF *smithsonianus* and European Herring Gulls.

In general, the primary pattern of adult NF *smithsonianus* is characterized by long and broad grey tongues (clearly 'eating' into the black markings), rather prominent pale tongue-tips, and usually six primaries marked with black. While each and every marked primary is subtly different from the corresponding one in European Herring Gulls, none of the characters is diagnostic in itself. They should be used in combination, and even then many birds will have to be left unidentified. We will first describe each primary separately, and then explain what combinations can be used. Note that primaries are numbered outwards.

Identification of adult American Herring Gull



% NF <i>smithsonianus</i>	65.6	15.3	7.8	5.6
% <i>argenteus</i>	0.0	2.7	95.6	0.0
% <i>argentatus</i>	0.0	0.0	53.1	0.0
% E-Baltic Herring Gull	5.8	1.9	13.5	0.0

FIGURE 5 Variation in pattern of p10 in herring gulls (*Peter Adriaens*). Percentages refer to the combination of characters illustrated. Here, for instance, it is stated that 65.6% in our sample of NF *smithsonianus* showed a long (>1/2 of the inner web) pale tongue, which curved very steeply at the end, and that, in addition, all of these birds also showed variable black marks near the tip of the primary (ranging from a very small black spot to a complete black band). This combination is illustrated in figure 5a. As can be seen, only some Eastern Baltic Herring Gulls *Larus argentatus* combined the same length and shape of the tongue with black marks near the tip (5.8%) – although not as complete a black band as drawn here.

TABLE 2 Amount of black between white mirror and tip of p10

p10	% of birds with uninterrupted subterminal black band
NF <i>smithsonianus</i>	51
<i>argenteus</i>	40
<i>argentatus</i>	6
Eastern Baltic Herring Gull	11

Note: Jonsson & Mactavish (2001) recorded only 39% in NF *smithsonianus* but, in another 24% of their sample, the subterminal black band was still quite thick, and was only or mostly interrupted at the shaft. Barth (1968) noted an average of 8.4% in Norwegian *argentatus*. Mierauskas & Greimas (1992) found an average of 15% in eastern Baltic Herring Gulls.

TABLE 3 Extent of white mirror on p9

p9	% of birds with mirror present also on outer web
NF <i>smithsonianus</i>	24
<i>argenteus</i>	36
<i>argentatus</i>	78
Eastern Baltic Herring Gull	93

Note: Jonsson & Mactavish (2001) found 44% with mirror on outer web in their sample of NF *smithsonianus*; however, in 26% of those, the amount of white on the outer web was very small. Barth (1968) recorded an average similar to ours in *argentatus*, namely 71%; Mierauskas & Greimas (1992) obtained a lower value in Eastern Baltic Herring Gulls (from Latvia and Russia), namely 60%. Kilpi & Hario (1986) did not check the size of the mirror on p9.

p10 (figure 5, table 1-2, diagram 1)

As mentioned earlier, p10 typically (in 69% of our sample) has a long and broad tongue that is steeply curved at the end. It runs down along more than half of the inner web (best seen from below) and then ends at an angle of almost 90°, leaving a black medial band that is of approximately the same size as the white mirror in many

birds (figure 5a). In some birds, the black medial band is even obviously shorter than the mirror.

Such a long and almost rectangular tongue was not found in our sample of *argenteus* but was present in more than 12% of *argentatus* and 21% of eastern Baltic Herring Gulls. It also occurs in intergrades *argenteus*  $\geq$  *argentatus*.

In some NF *smithsonianus*, the grey tongue is

Identification of adult American Herring Gull

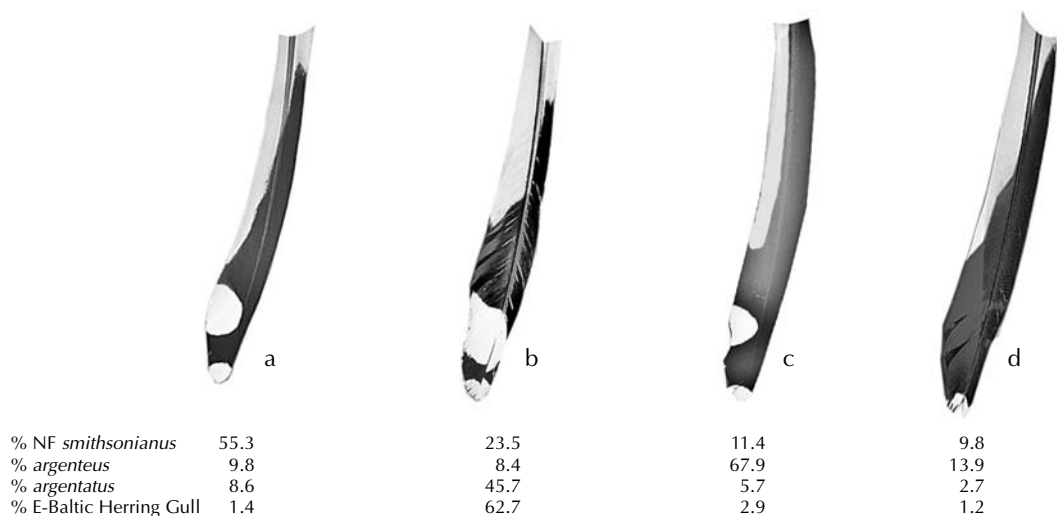


FIGURE 6 Variation in pattern of p9 in herring gulls (*Peter Adriaens*). Percentages refer to the combination of characters illustrated. Here, for instance, it is stated that 55.3% in our sample of NF *smithsonianus* combined a small white mirror (concentrated on the inner web) with a restricted black pattern on the outer web (not reaching primary coverts), and a rather long grey tongue on the inner web (>1/2), as illustrated in figure 6a. Paleness of the tongue-tip was not included in the percentages.

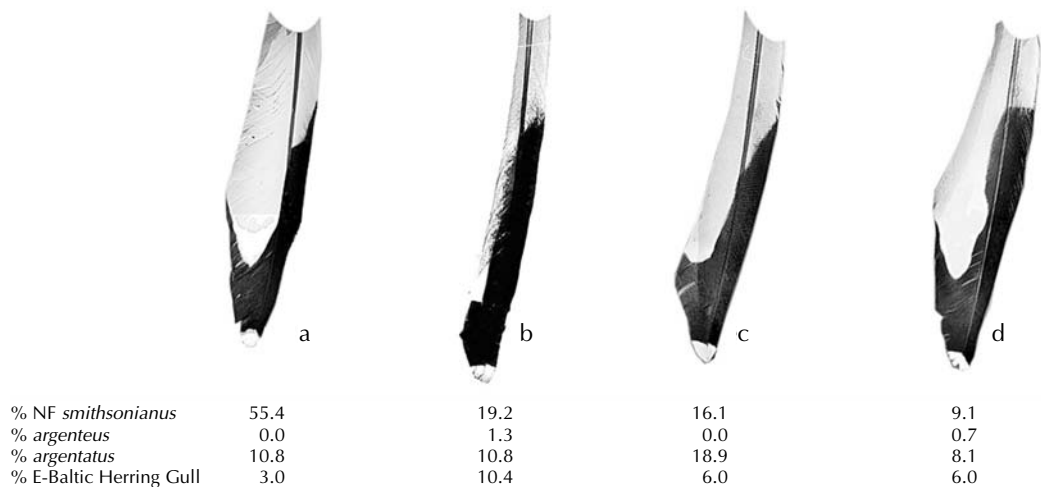


FIGURE 7 Variation in pattern of p8 in herring gulls (*Peter Adriaens*). Percentages refer to the combination of characters illustrated. Here, for instance, it is stated that 55.4% in our sample of NF *smithsonianus* combined a 'bayonet-pattern' on the outer web with a very long pale tongue (3/4 or more of the inner web) and a white tongue-tip (at least a thin crescent), as illustrated in figure 7a.

Identification of adult American Herring Gull

TABLE 4 Length of grey tongue on inner web of p8

p8	% of birds with pale tongue as long as on p7
NF <i>smithsonianus</i>	83
<i>argenteus</i>	3
<i>argentatus</i>	49
Eastern Baltic Herring Gull	30

TABLE 6 Shape of black colour on outer web of p7 and/or p8

p7/8	% of birds with 'bayonet' on p7 and/or p8
NF <i>smithsonianus</i>	73
<i>argenteus</i>	3
<i>argentatus</i>	19
Eastern Baltic Herring Gull	20

TABLE 5 Extent of white on tongue-tip of p8

p8	% of birds with thin white tongue-tip (crescent-shaped)	% of birds with broad white tongue-tip (large, rounded spot)	Total (%)
NF <i>smithsonianus</i>	57	39	96
<i>argenteus</i>	33	0	33
<i>argentatus</i>	24	41	65
Eastern Baltic Herring Gull	70	3	73

shorter (less than half of the inner web) but often the more or less rectangular shape remains (figure 5b). In a few birds (6%), the grey tongue is very long and joins the white mirror (figure 5d) – creating the so-called 'Thayeri pattern'. In that case, the rectangular shape of the tongue is lost, of course, which may make identification more difficult or even impossible. Even though a 'Thayeri pattern' on p10 is virtually unknown in pure *argenteus*, it does occur in other European Herring Gulls, especially northern *argentatus* (Barth 1968; pers obs).

In most *argenteus*, the grey tongue is short (about 1/3 of the inner web) and wedge-shaped (pointed at the end; figure 5c). This is also true for quite a few birds of other European forms (see percentages below figure 5c). See also diagram 1 for more details.

The pattern of the white mirror is quite variable, and is in itself of little use for identification purposes in our opinion. It may be worth knowing that most NF *smithsonianus* in our sample had at least a little black between the mirror and the white primary tip, while this was less often the case in European Herring Gulls (table 1).

Likewise, a complete subterminal black band is more often seen in NF *smithsonianus* than in European birds (cf table 2). However, when the pattern of the mirror is combined with the size and shape of the tongue, the characters become more useful. European Herring Gulls with a long, broad tongue on p10 show a tendency towards combining it with a lack of black markings near the tip. In fact, this was the case in all of the

*argentatus* in our sample – though a larger sample might reveal a few exceptions.

Of those NF *smithsonianus* in our sample that showed a long, broad tongue, 94% had variable black subterminal marks. Even birds with a 'Thayeri pattern' (tongue cutting through to the mirror) seem to retain these marks. Our sample contained 10 birds with a 'Thayeri tongue' on p10; only one of them had an all-white mirror and tip.

Of the Eastern Baltic Herring Gulls with long, broad tongues, 27% had black subterminal spots, and in German birds (of unknown origin) 38%. One German bird with a 'Thayeri pattern' still retained a small black subterminal spot on the outer web, so this combination is not unique for NF *smithsonianus*.

Interestingly, a significant proportion (34%) of NF *smithsonianus* combined a long, broad tongue (as in figure 5a) with a complete, uninterrupted black band between the white mirror and tip. This combination was not found in our sample of European Herring Gulls (including the German birds), so any bird showing it may well be worth scrutinizing!

By combining all of the above characters (length and shape of tongue with presence or absence of black marks near the tip), the difference between European and NF *smithsonianus* becomes clearer; this is shown in figure 5: many NF *smithsonianus* show the combined characters of 5a, while European birds are more like 5c. German birds were not included in the figures, but the combination of all of the above charac-





**236** European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, adult, Zeebrugge, West-Vlaanderen, Belgium, June 2001 (Geert Spanoghe). An example of a bird with a complete black 'W' on p5. The grey tongue on p10 is not visible, but is certainly neither very broad nor long – otherwise it would appear in this photograph. The white mirror of p9 reaches onto the outer web, the outer web is solidly black up to the primary coverts, and the grey tongue is not visible, even though the wing is quite well spread here. The grey tongue of p8 is shorter than on p7, and does not really have a white tongue-tip. There are no 'bayonets' on p7-8, or perhaps a very slight one on p7, but it is hardly visible. The black pattern on p6 is quite thick, and is therefore more difficult to compare to a 'W'.



**237** European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, adult, Zeebrugge, West-Vlaanderen, Belgium, June 2001 (Geert Spanoghe). The tongue of p10 is not visible but in any case cannot be very broad. P5 does not show a complete black band, and the spot on the outer web is thick and solid (not 'U'-shaped). The grey tongue of p8 is shorter than on p7, and lacks a white tongue-tip. There are no 'bayonets' on p7-8, or perhaps a very slight one on p8, but it is hardly visible. Note also the rather large amount of black on the inner and outer webs of p9.

ters on p10 (as in figure 5a) was found in less than 9%. Again, we would like to emphasize that, of these 9% (and of those 5.8% of Eastern Baltic Herring Gulls mentioned under fig 5a), none showed a complete black band between the white mirror and tip.

#### p9 (figure 6, table 3)

The grey tongue is again clearly long in most NF *smithsonianus* (more than half of inner web in over 98% of birds; in 21%, the tongue even cuts through the entire inner web and joins the white mirror). At least part of the tongue is often easily visible from above.

In *argenteus*, fewer birds have a long tongue (>1/2 of the inner web in 59%, with only one bird in our sample showing a tongue that cuts through to the mirror) but in other European forms the length is approximately the same as in NF *smithsonianus* (see figure 6 for percentages).

Compared with *argenteus*, the outer web (apart from the white mirror) is less often all-black up to the primary coverts (figure 6c); the base is either entirely grey, or black only reaches the primary coverts in a thin, pointed wedge

along the outer edge.

Compared with *argentatus* and Eastern Baltic Herring Gull, the white mirror is usually smaller, more often confined to the inner web (or absent). In these European forms, the white mirror is often also present on the outer web, and regularly interrupts the black outer edge. It is largest in Arctic populations.

Note also that in the European forms, presence of a 'Thayeri-pattern' on p9 (long tongue joining the mirror) often means a large white mirror here too (reaching onto outer web). On the other hand, in quite a few NF *smithsonianus* the white mirror is still confined to the inner web, while the tongue cuts through (cf figure 1a).

There may already be a certain amount of white on the tongue-tip. If this is the case, the white tongue-tip is usually thin, and shaped like a white crescent, or tip of a fingernail. The amount of white may be more extensive in some; a few birds (5%) even showed an obviously broad white spot, which could be described as rounded or 'pearl-shaped', and was not found in our sample of *argenteus*.

The above characters are significant when they

Identification of adult American Herring Gull



% NF <i>smithsonianus</i>	38.4	35.8	22.0	3.8
% <i>argenteus</i>	1.1	50.9	20.6	27.4
% <i>argentatus</i>	5.6	44.4	27.8	22.2
% E-Baltic Herring Gull	6.1	71.4	12.2	10.2

FIGURE 8 Variation in pattern of p7 in herring gulls (*Peter Adriaens*). Percentages refer to the shape of the black pattern on the outer web. Here, for instance, it is stated that 38.4% in our sample of NF *smithsonianus* showed a black 'bayonet' on the outer web, as illustrated in figure 8a.

are used in combination, as can be seen in figure 6a.

*p8* (figure 7, table 4-6)

The grey tongue is usually very long, covering more than 3/4 of the visible part of the inner web, and leaving only a rather thin black sub-terminal band. The tongue on p8 is of approximately the same length as the tongue on p7. On the underside of the wing, the long tongues on p5-8(9) leave only a thin and rather straight black trailing edge (cf figure 1b and 2b).

In *argenteus* and many birds of other European forms, the pale tongue is slightly shorter than the one on p7, so the amount of black on the inner web is also larger.

The tongue-tip is often white; some birds have an obviously broad, rounded white spot at the tongue-tip (cf figure 1a and 3), which, together with the white tongue-tip of p(5)6-7 may create a 'string of pearls' effect. We did not find an adult *argenteus* in our sample with such a broad white tongue-tip on p8; in fact, the majority have no

white at all here. Among the European forms, the 'string of pearls' seems to be mostly shown by *argentatus*, and a few intergrades. Keep in mind, however, that even slightly over-exposed photographs may exaggerate the whiteness of the tongue-tips, and may create the false impression of a broad white spot on the tongue-tip of p8 when there is none. The other extreme is also possible: a more over-exposed photograph can obliterate the white 'string of pearls'.

The shape of the black pattern on the outer web is another important character. Here, and/or on the outer web of p7, many NF *smithsonianus* have a rather peculiar shape, which we would like to call the 'bayonet pattern' (see figure 7a and 8a). Basically, the pattern consists of a straight or slightly oblique upper border, which then projects towards the primary coverts in a thin, very pointed black wedge (almost 'needle-shaped') along the outer edge. The shape recalls a French 'bayonet', hence the name. It is important to note the difference with the pattern in figure 7c and 8c: these also show a pointed black wedge towards

TABLE 7 Extent of white on tongue-tip of p7

p7	% of birds with thin white tongue-tip (crescent-shaped)	% of birds with broad white tongue-tip (large, rounded spot)	Total (%)
NF <i>smithsonianus</i>	54	46	100
<i>argenteus</i>	84	11	95
<i>argentatus</i>	50	50	100
Eastern Baltic Herring Gull	91	9	100

Identification of adult American Herring Gull

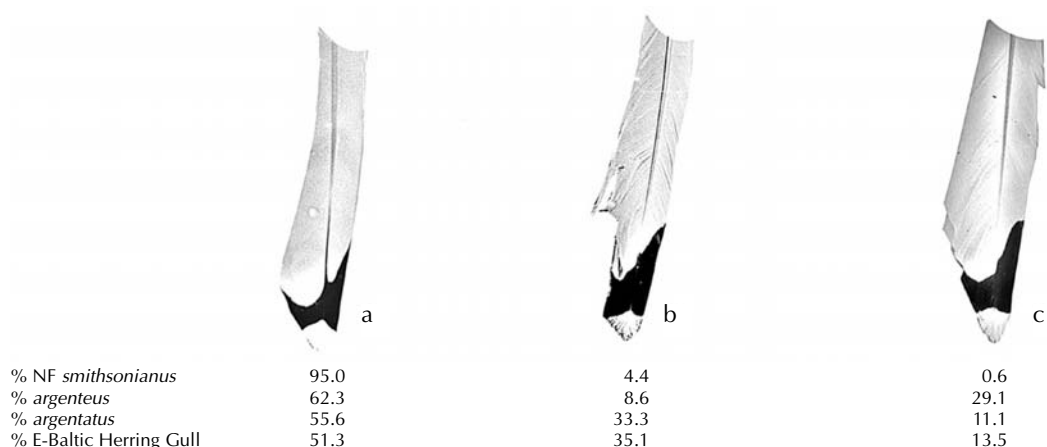


FIGURE 9 Variation in pattern of p6 in herring gulls (*Peter Adriaens*). Percentages refer to the shape of the black pattern. Here, for instance, it is stated that 95% in our sample of NF *smithsonianus* showed a rather drawn-out 'W-pattern', being sharply pointed along the outer edge and the shaft, as illustrated in figure 9a.



FIGURE 10 Variation in pattern of p5 in herring gulls (*Peter Adriaens*). Percentages refer to the combination of shape and extent of the black pattern. Here, for instance, it is stated that 70.2% in our sample of NF *smithsonianus* had an uninterrupted black band (on both webs), which, in addition, was shaped like an almost symmetrical 'W', as illustrated in figure 10a.

the primary coverts but it is broader at the base, starting from the shaft and lacking a distinct step. The combination of the three characters mentioned above ('bayonet', tongue-tip, length of tongue) is significant, as can be seen in figure 7a and the percentages below it.

*p7 (figure 8, table 6-7)*

Basically, the characters to be looked for in p7 are the same as those in p8 but the pale tongue is (nearly) always very long in all forms, and is therefore not helpful. The presence of a 'bayonet' is significant, either on p7 or p8 (or on both); see table 5. The amount of white on the tongue-tip

should also be noted, although the difference is less obvious than in p8. In some birds, the black colour of the outer web not only projects in a 'bayonet' or pointed wedge along the outer edge but also slightly along the shaft, thus creating a rather forked or 'V'-shaped pattern (eg, plate 228).

*p6 (figure 9)*

The shape of the black mark is important. The black band was always complete in our sample of NF *smithsonianus* (in some birds of European forms, especially in *argentatus*, there is sometimes only an incomplete black band), and the pattern was usually sharply pointed. It is pointed

Identification of adult American Herring Gull

TABLE 8 Amount of black on p5

p5	% of birds with complete black band
NF <i>smithsonianus</i>	73
<i>argenteus</i>	22
<i>argentatus</i>	3
Eastern Baltic Herring Gull	30

Note: In a smaller sample of adult NF *smithsonianus* (n=100), Jonsson & Mactavish (2001) recorded 65% with a complete black band on p5.

along the inner edge, along the shaft, and along the outer edge, so that the pattern tends to resemble a sort of drawn out 'W' (see figure 9a and percentages below it). In quite a few European birds, the black band is clearly broader, lacking the three pointed wedges, and showing an oblique, rounded or straight upper border on the outer web (figure 9b and 9c).

p5 (figure 10, table 8)

The shape of the black mark (when present) is important, even more so than in p6. The majority of NF *smithsonianus* in our sample had a complete, uninterrupted black band, while this is less frequently seen in European birds.

In those NF *smithsonianus* with a complete black band, there are normally three pointed wedges (as in p6), creating a nice symmetrical 'W'-pattern (see figure 10a and percentages below it). In birds in which the black band is interrupted, or entirely confined to the outer web, two very pointed wedges usually remain, creating a forked or 'U'-shaped pattern (figure 10b). In *argenteus*, the common pattern is that of a thick black spot entirely confined to the outer web – which is only rarely seen in NF *smithso-*



238 European Herring Gull / Zilvermeeuw *Larus argentatus argenteus*, adult, Zeebrugge, West-Vlaanderen, Belgium, June 2001 (Geert Spanoghe). The tongue of p10 is thin and pointed. The black band on p6 is broken centrally, which seems to be very rare in American Herring Gull *L. smithsonianus*, if it occurs at all (no birds in our samples). There are no 'bayonets' on p7 nor p8, the grey tongue of p8 is slightly shorter than on p7, and lacks a pure white tongue-tip. The white mirror of p9 reaches onto the outer web. The grey tongue of this primary seems short but its exact length is better judged from below.

*nianus* (see figure 10e). Of those *argenteus* with a complete black band in our sample, only a minority showed a distinct 'W'-pattern.

In *argentatus*, black markings are commonly absent altogether (figure 10c). No birds in our sample had a distinct, complete 'W'.

In Eastern Baltic Herring Gulls, the pattern on p5 is quite variable.

p4

We checked the presence or absence of black



FIGURE 11 Wing-tips of European Herring Gull / Zilvermeeuw *Larus argentatus* at rest (Peter Adriaens). A = typical *L. a. argenteus*; B = some *L. a. argenteus* and Eastern Baltic Herring Gulls. B is an example of a European bird with a long, broad tongue (projecting beyond the tertials) on the underside of p10. Note, however, in this case the absence of black marks near the tip of this primary. The black subterminal band of p9 shimmers through. Compare with plate 224.



239-240



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**239-240** European Herring Gulls / Zilvermeeuwen *Larus argentatus argentatus*, adult, Worcestershire, England, 6 January 1992 (Peter Stewart). Two typical examples of 'northern *argentatus*'. On both birds, note the rather thin and pointed tongue on p10, and the large white mirror on p9, prominently covering both webs. On the lower bird, note also absence of 'bayonets' on p7-8, and the solidity of the black pattern on the outer web of p9, right up to the primary coverts. The upper bird is less easy in that it has an obvious 'bayonet' on the outer web of p8, and a slightly forked pattern on the outer web of p7. In the field, the colour of the upperparts can be of additional help.

**241** Eastern Baltic Herring Gull / Oostelijke Baltische Zilvermeeuw *Larus argentatus*, adult, Wloclawek, Poland, spring 2002 (Grzegorz Neubauer & Magda Zagalska). An example of a European bird with a long, rectangular grey tongue on p10, quite similar to NF *smithsonianus*. Note, however, the absence of black marks near the tip of p10, and the large white mirror on p9 – obviously covering both webs. There do not seem to be 'bayonets' on p7-8, though the pattern on p8 is partly hidden under p9 here. There are no black marks on p5. Mantle colour can be of additional help: in a sample of 32 Polish European Herring Gulls (caught and ringed), it was perceived as a mean value of 5.63 on the Kodak grey-scale (Grzegorz Neubauer & Magda Zagalska pers comm).

marks on this primary, but did not find any significant differences. In all forms that we examined, a variable black mark on the outer web of p4 may occur in a very small proportion of birds (c 2%). In addition, we also found one NF *smithsonianus* and one eastern Baltic Herring Gull with an almost complete but thin, black band across both webs.

*Conclusion: diagnostic combinations*

While every marked primary of adult NF *smithsonianus* is often subtly different from the

corresponding one in European forms, there is much variation. It is only when the patterns are combined that they give the wing-tip a unique character.

Ideally, all primaries should have a typical pattern, and other characters such as structure ('jizz'), head streaking and bill pattern should look right, but if this is not entirely the case, there are at least two minimal combinations that can be used.

First, a very basic one is the combination of p10 and p5: a pattern as in figure 5a (broad,

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**242** European Herring Gull / Zilvermeeuw *Larus argentatus*, adult, presumed intergrade  $L a \text{ argenteus} \geq L a \text{ argentatus}$ , Wijster, Drenthe, Netherlands, 8 december 2001 (Rik Winters). The primary pattern of this bird is most similar to *argenteus* (but note very long 'bayonet' on p7), while the upperparts were slightly darker grey (Rik Winters, pers comm). Differs from typical adult NF *smithsonianus* in that the white mirror of p9 bleeds onto the outer web, the black colour of the outer web is thick and solid all the way up to the primary coverts and the grey tongue is not visible from above. In addition, the grey tongue of p8 is slightly shorter than on p7, and lacks a white tongue-tip. An intergrade may have an obviously long grey tongue on p10, but in that case it is more likely to be thin and pointed (Rik Winters pers comm).

**243** European Herring Gull / Zilvermeeuw *Larus argentatus*, adult, presumed intergrade  $L a \text{ argenteus} \geq L a \text{ argentatus}$ , Wijster, Drenthe, Netherlands, 14 april 2001 (Rik Winters). A bird with much black in the primaries, again most similar to *argenteus*. The outer web of p9 is solidly black up to the primary coverts, the grey tongue on p8 is shorter than on p7, and lacks a white tongue-tip, there are no 'bayonets' on p7-8, and there is no distinct 'W' on p6.

**244** European Herring Gull / Zilvermeeuw *Larus argentatus*, adult, presumed intergrade  $L a \text{ argenteus} \geq L a \text{ argentatus}$ , Doornzele, Oost-Vlaanderen, Belgium, June 2001 (Geert Spanoghe). The primary pattern of this bird is similar to 'northern *argentatus*' but mantle shade and measurements were identical to those of *argenteus* (Geert Spanoghe pers comm). Differs from typical NF *smithsonianus* in that the white mirror on p9 is large, obviously covering both webs. There are no black marks near the tip of p10. In addition, from a European point of view, the combination of a 'Thayeri pattern' on p10 (long tongue cutting through to the white mirror, so that the rectangular shape of the tongue is lost) with the lack of any black marks on p5 should be seen as a strong indication that the bird is of European origin. The number of European birds showing this combination is much higher than that of NF *smithsonianus*; besides, the primary pattern of those few NF *smithsonianus* with this small an amount of black on the primaries can be identical to that of some European birds.

**245** Putative American Herring Gull / mogelijke Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, Azores, February 2003 (Peter Alfrey). An example of a very good candidate in the Western Palearctic. Note the pale grey upperparts, flat crown, long and parallel-sided bill, noticeably small orange gonys spot, greenish tinge to bill base, retained streaking on the lower hindneck and breast-sides, and the dusky smudge in front of the eye. See also plate 246.



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**246** Putative American Herring Gull / mogelijke Amerikaanse Zilvermeeuw *Larus smithsonianus*, adult, Azores, February 2003 (*Peter Alfrey*). Same bird as in plate 245. The underside of p10 is visible here, revealing an obviously long grey tongue that ends in a steep curve (90°), as in typical Newfoundland Herring Gull. There may be some black marks near the tip of p10, but it is very hard to judge correctly from this angle. A displaced tertial seems to reveal a bit of black on p5, but it is impossible to assess the shape or pattern. Note also the short legs. Unfortunately, this bird was not photographed in flight, so it remains unidentified.

**247-248** European Herring Gull / Zilvermeeuw *Larus argentatus*, adult, Germany, date unknown (*Andreas Buchheim*). A difficult bird, and therefore a good illustration of why the criteria need to be very strict. Of all the European birds in our samples, this one was closest to meeting the minimal requirements for Newfoundland Herring Gull *L. smithsonianus*. Note, however, that

the pattern on p6 is not typical (compare with figure 9; the black band tends more towards pattern 9b than 9a, as it is more asymmetrical – clearly more black on the outer web than on the inner web –, with a distinct ‘step’ on the shaft, and is less pointed along the outer edge; especially the step on the shaft is wrong for NF *smithsonianus*). There are no obvious ‘bayonets’, only an indistinct one on the outer web of p8. The outer web of p9 is entirely black all the way up to the primary coverts (note that at least one primary covert is missing at the base). Note also the disproportionate amount of black on p5: there is a rather thick black spot on the outer web, but nothing on the inner web. This pattern corresponds with figure 10e, which is shown by only a few NF *smithsonianus* (2%).

long, almost rectangular tongue) regularly goes with the pattern of figure 10a (complete black ‘W’) in NF *smithsonianus* (52%), while this exact combination was not found in our samples of *argenteus* and *argentatus*. However, it was present in three Eastern Baltic Herring Gulls (c 4%). In European forms, a long tongue on p10 usually excludes a complete black band on p5; some intergrades *argenteus*  $\geq$  *argentatus*, a few Eastern Baltic Herring Gulls, and a few hybrids *argentatus* x Pontic Gull do combine this tongue

with a complete black band on p5 but the shape of the tongue and the shape of the black band are usually (not always!) different from those in typical NF *smithsonianus*. Also, check the amount of black between the white mirror and tip of p10; European Herring Gulls with a long, broad tongue here (as in figure 5a) usually show little or no black near the tip – and such birds apparently ‘never’ show an uninterrupted black band across both webs. Nevertheless, we would strongly advise to check other characters as well,

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such as the presence of a 'bayonet', the extent of white on tongue-tips, and so on.

Second, if the black band on p5 is not complete, identification is more complicated but may still be possible. It should be established that at least all of the following characters are present, before a conclusive identification can be reached: **1** p10 with a long, broad, almost rectangular tongue (as in figure 5a); **2** mirror on p9 confined to inner web, or no mirror at all (figure 6a,c,d; 6a being most typical); **3** 'bayonet' on either p7 or p8, or on both (figures 7a and/or 8a); **4** white tongue-tip on inner web of p8; at least a thin white crescent but preferably a large, rounded, white spot (figure 7a); and **5** complete black band on p6, which is sharply pointed at least along the outer edge, but preferably also along the shaft and the inner edge (tending towards a 'W'-pattern; cf figure 9a). In our sample of NF *smithsonianus*, 41% showed the combination of the above five criteria, regardless of their pattern on p5. The same combination was not found in our sample of European forms.

Any potential adult *smithsonianus* in Europe that does not meet these criteria, should be left unidentified, in our opinion.

### Pontic Gull and hybrids

Since there are some similarities between NF *smithsonianus* and Pontic Gull in primary pattern and bill pattern in winter, we discuss the latter species here also. In addition, hybridization between Pontic Gull and Eastern Baltic Herring Gull has been recorded in Poland (Faber et al 2001), which may create some more identification problems.

Pontic Gull and hybrids are normally slightly darker mantled than NF *smithsonianus*, they often have a yellowish or greenish tinge on the legs, and they have little or no winter head streaking, except for some fine brown hindneck streaks (rarely, there can be fine pencil-streaks around the eye, but these are less distinct than the hindneck streaks). In Pontic, the iris regularly has some dark pigmentation, the legs are often longer and thinner, in many with longer tibia than in any herring gull, the bill is on average slightly thinner, the primary projection is longer, and the forehead may be more sloping.

The primary pattern of adult Pontic Gull usually differs from that of NF *smithsonianus* in that the white mirrors are larger, and the black bands on p5-6 are slightly broader and more solid on average (less tendency towards a thin 'W', also because the amount of black is typically larger

on the outer than on the inner webs). A 'bayonet'-pattern on either p7 or p8 is also less frequent. In all of the 71 birds examined by Mierauskas & Greimas (1992), the white mirror of p9 always extended onto the outer web. The white mirror on p10 was also very large, with only 26% of the birds showing some black between the mirror and the white primary tip.

Likewise, all of the eight putative hybrids from Poland that we examined showed a white mirror on both webs of p9. No birds had a 'bayonet' on either p7 or p8. The black bands on p5-6 were also more solid and thicker on average; only one bird had a 'W'-pattern on p6, and while all but one had a complete black band on p5, only two birds showed a distinct 'W' here.

The criteria for separating NF Herring Gulls and European Herring Gulls should also be conclusive for ruling out Pontic Gull and its hybrids.

### Glaucous x herring gull hybrids

Hybrids Glaucous x European Herring Gull are known from Iceland and the Kola Peninsula, Russia. Hybrids Glaucous x American Herring Gull occur in north-eastern Canada. Hybridization is also known from Greenland. While adult hybrids usually show characters of both parent species (eg, greyish to blackish-grey wing-tips, very short primary projection, etc), a few birds at the darkest end can be similar to herring gulls, and may have long, broad tongues on the outer primaries (influence from Glaucous Gull). However, such birds will normally combine these long tongues with large white mirrors on p9-10 (completely covering both webs on p9), generally reduced dark markings on the outer webs of p6-8, and little or no dark markings on p5 (Ingolfsson 1970, 1993, Sibley 2000, Olsen & Larsson 2003).

### Notes on geographical variation (table 9-14)

The following is merely an attempt to give some idea of the regional variation in North America. The samples from the different regions outside Newfoundland were small and only occasionally included breeding birds. Therefore, the descriptions have no taxonomic value; we just hope that they will motivate others to examine *smithsonianus* in more detail.

The results are given in table 9-14. In short, it seems that the primary pattern on the East Coast of the USA is quite variable but perhaps somewhat intermediate between that of NF *smithsonianus* and those populations more to the west. It is difficult to interpret data from outside the



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TABLE 9 Variation in pattern of p10 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 5. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 5a) always represents the most typical pattern of NF *smithsonianus*. It should also be noted that, in central and western birds, the black marks between the white mirror and tip usually form an uninterrupted black band (which is not illustrated in figure 5b-d).

p10	Corresponding figure			
	5a	5b	5c	5d
Maine	1		3	
Massachusetts	5	4	4	
New York	2	7	2	
Connecticut	2	1	1	1
New Jersey	2	1	1	
Maryland				
Virginia	1			
North Carolina			1	
Michigan	1	1		
Ontario			3	
Mexico	1		3	
California			1	
Washington	1	2	8	
Alberta		1	10	
British Columbia				
Northwest Territories			7	
Yukon		1		
Alaska	1		7	

TABLE 10 Variation in pattern of p9 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 6. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 6a) always represents the most typical pattern of NF *smithsonianus*.

p9	Corresponding figure			
	6a	6b	6c	6d
Maine			3	1
Massachusetts		4	2	7
New York	4	1	2	6
Connecticut	4		2	
New Jersey	1	1	3	3
Maryland			1	
Virginia				
North Carolina			1	
Michigan	1			2
Ontario			7	58
Mexico	1			3
California				1
Washington			3	9
Alberta		3	2	6
British Columbia			1	
Northwest Territories	1		1	5
Yukon				1
Alaska			5	3

Locations, sample sizes and dates of collection of investigated specimens:

**Eastern**

Maine (n=4; June); Massachusetts (n=13; May-August); New York (n=13; nearly all months); Connecticut (n=6; January, March, April, November); New Jersey (n=18; September); Maryland (n=1; January); Virginia (n=1); North Carolina (n=1)

**Central**

Michigan (n=5; May, November); Ontario (n=64; February, May, November) (Jonsson & Mactavish 2001)

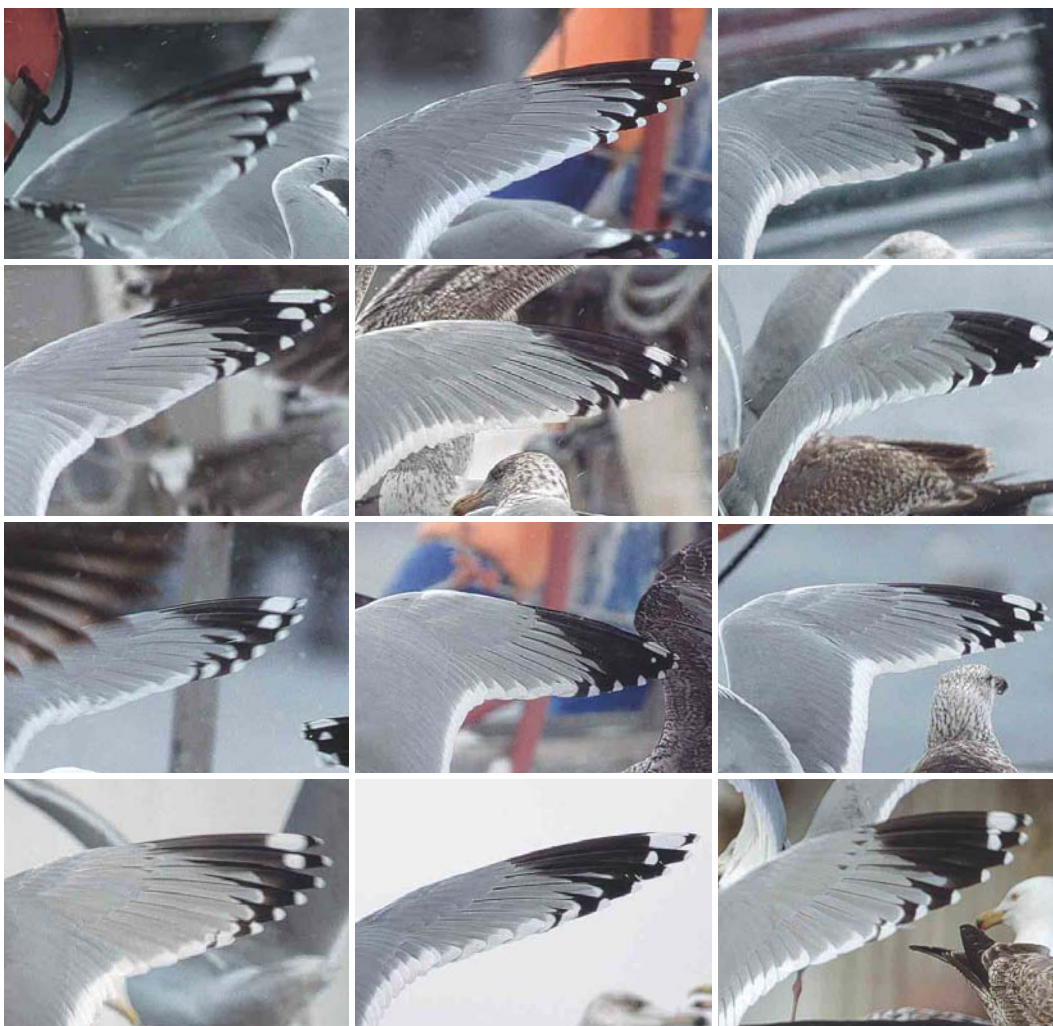
**Western**

Mexico (n=4; January); California (n=1; November); Washington (n=12; January-February, November-December); Alberta (n=11; May-July); British Columbia (n=1); Northwest Territories (n= 8; May, June); Yukon (n=1; May); Alaska (n=10; May, June, August)

breeding season, since they may include some Newfoundland birds. Indeed, NF Herring Gulls ringed on breeding colonies near St John's, Newfoundland, have been recorded – mostly in winter – in Virginia, New Jersey, New York and Maine. Olsen & Larsson (2003) mention that 20-30% of adult *smithsonianus* from Massachusetts to Virginia did not have a white mirror on p9, as opposed to less than 15% of Newfoundland birds (11% in our sample). They also state that black markings on p4 occur in 25% of East Coast birds (but only 7% in Massachusetts) – as opposed to only 2% in NF *smithsonianus* (3.5% in our sample).

The inland Ontario (or Niagara) population was mostly studied in winter, so its origins are not entirely clear. In any case, the *smithsonianus* occurring in that region in winter have more black in the wing-tips than Newfoundland birds, showing shorter grey tongues to p8-10, often no white mirror on p9 (in 90% of those examined; Jonsson & Mactavish 2001), usually a complete black band on p5, and some black on p4 in quite a few birds (34%). All birds had an uninterrupted black band between the white mirror and tip of p10. In addition, the pointed black wedges or black 'bayonets' (when present) on p7-8 can be really long, eg, almost reaching the primary

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COMPOSITE 3 Illustration of part of the variation in primary patterns of adult American Herring Gull / Amerikaanse Zilvermeeuw *Larus smithsonianus* in Massachusetts in winter (Pat Lonergan & Killian Mullarney)

coverts on p8. Likewise, the pointed wedge on the outer web of p6 can be longer than in *NF smithsonianus*. There is not much white on the tongue-tips of p5-8. According to Jonsson & Mactavish (2001), the winter Niagara birds appeared smaller, with shorter legs, less sturdy bills, and more rounded heads than Newfoundland birds. Many looked quite petite, similar in fact to several of the Kumlien's Gulls *L. glaucoides kumlieni* that were present.

West Coast and western Canadian populations are similar to the winter Ontario birds but seem to have even shorter grey tongues on p8-10. In

addition, some birds have a lot of black on the outer web of p8; the outer web can be all-black almost up to the primary coverts. White on the tongue-tips of p5-8 is very restricted, and is regularly absent on at least p8. On p10, there is typically a broad, black subterminal bar between the mirror and the white tip – on average far more distinct and broader than on Newfoundland birds. Olsen & Larsson (2003) recorded 64% of birds at Lake Superior without a mirror on p9, and 75-80% in California/northern Mexico. In addition, they found that 50% of West Coast adults had black markings on p4, and a few even

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TABLE 11 Variation in pattern of p8 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 7. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 7a) always represents the most typical pattern of NF *smithsonianus*. Details of locations as in table 9-10.

p8	Corresponding figure			
	7a	7b	7c	7d
Maine		2		2
Massachusetts	3		6	4
New York	3	4	2	3
Connecticut	2		1	3
New Jersey		1	2	
Maryland	1			
Virginia				
North Carolina			1	
Michigan	1	1	1	
Ontario				1
Mexico		1		
California		1		
Washington	1	1	5	5
Alberta	1	3	4	2
British Columbia				
Northwest Territories	1	2	3	
Yukon				1
Alaska	3		1	2

TABLE 12 Variation in pattern of p7 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 8. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 8a) always represents the most typical pattern of NF *smithsonianus*. Details of locations as in table 9-10.

p7	Corresponding figure			
	8a	8b	8c	8d
Maine	1	1	2	
Massachusetts	3	4	6	
New York	2	3	7	
Connecticut		2	3	1
New Jersey	4	5	4	
Maryland			1	
Virginia				
North Carolina			1	
Michigan	2	1	1	
Ontario		1		
Mexico		1		
California			1	
Washington	2	3	7	
Alberta	1	3	6	1
British Columbia			1	
Northwest Territories	3	1		
Yukon				
Alaska	2	3	2	

TABLE 13 Variation in pattern of p6 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 9. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 9a) always represents the most typical pattern of NF *smithsonianus*. Details of locations as in table 9-10.

p6	Corresponding figure		
	9a	9b	9c
Maine	4		
Massachusetts	13		
New York	11	2	
Connecticut	6		
New Jersey	17		
Maryland	1		
Virginia			
North Carolina	1		
Michigan	2	2	
Ontario	2		
Mexico		1	
California		1	
Washington	12		
Alberta	10	1	
British Columbia		1	
Northwest Territories	2	2	
Yukon	1		
Alaska	5	1	1

TABLE 14 Variation in pattern of p5 in different *smithsonianus* populations. For each bird, the pattern was assigned to the most similar drawing in figure 10. Figures represent actual number of birds, not percentages. For comparison, note that the first drawing in the row (here figure 10a) always represents the most typical pattern of NF *smithsonianus*. Details of locations as in table 9-10.

p5	Corresponding figure				
	10a	10b	10c	10d	10e
Maine	4				
Massachusetts	9	4			
New York	8	4			1
Connecticut	3	1			2
New Jersey	12	5			
Maryland	1				
Virginia	1				
North Carolina	1				
Michigan	3	1			
Ontario	61	3			
Mexico	1				
California	1				
Washington	9	1		2	
Alberta	9	1		1	
British Columbia		1			
Northwest Territories	2	1		1	
Yukon	1				
Alaska	4	2			

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had a little black on p3. When BM was studying breeding *smithsonianus* in the field in Yukon, he had the impression that their upperparts were slightly darker than in Newfoundland birds, and that their eyes more often had a darker, somewhat olive-yellow iris, frequently with dark specks, resulting in very dark eyes.

As a side note, we would like to highlight that our sample from Alberta contained three birds (skins) with a large white mirror on p9, covering both webs, which seems surprising for western birds. All three were from the Athabasca region.

Birds in our sample from Alaska appeared more variable than birds of other western populations.

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### Samenvatting

HERKENNING VAN ADULTE AMERIKAANSE ZILVERMEEUW Dit artikel beoogt een eerste bijdrage te leveren aan de herkenning van Amerikaanse Zilvermeeuw *Larus smithsonianus* in *adult* kleeid. De herkenning van onvolwassen vogels is beter bekend en recent in verschillende artikelen behandeld. De herkenning van adulte is een ingewikkeld(er) thema, niet alleen omdat de meeste ken-

merken overlappen met die van Europese Zilvermeeuw *L. argentatus* maar ook omdat de geografische variatie bij Amerikaanse Zilvermeeuw nog onvoldoende beschreven is. Om praktische redenen worden in dit artikel voornamelijk Amerikaanse Zilvermeeuwen van Newfoundland, Canada, beschreven, hoewel aan het einde ook wordt ingegaan op geografische variatie in de rest van Noord-Amerika. Ook de variatie bij Europese Zilvermeeuwen, zowel geografisch als individueel, wordt uitgebreid besproken.

Voordat een adulte Amerikaanse Zilvermeeuw uit Newfoundland (of van elders) met zekerheid herkend kan worden in Europa, moet hij eerst ontdekt worden. In zit zijn de verschillen met Europese Zilvermeeuw namelijk miniem en een goede kandidaat zal dan ook niet noodzakelijkerwijs in het oog springen. Door echter goed te letten op de onderkant van de vleugeltop, het patroon van p5 (zichtbaar wanneer de vogel bijvoorbeeld de tertials poetst), de kleur van de bovendelen (niet donkerder dan *L. a. argenteus*) en eventueel ook kopstreping, snavelpatroon en 'jizz', zal het in veel gevallen mogelijk zijn om een kandidaat te lokaliseren.

Om de vogel vervolgens met zekerheid te determineren, moet een aantal kenmerken in het handpenpatroon worden gecombineerd. Dat is doorgaans erg moeilijk zonder de hulp van foto's en/of video-opnamen. Bovendien moet bedacht worden dat de twee hieronder vermelde sluitende combinaties enkel voorkomen bij een minderheid (c 40%) van de Newfoundland-vogels. De volgende kenmerken zijn van belang: **1** lengte en vorm van de tong op p10 en hoeveelheid zwart nabij de handpentop; **2** complete zwarte 'W' op p5; **3** opvallende 'bayonet'-vorm op buitenvlag van p7 en/of p8; **4** spiegel op p9 ontbreekt of is beperkt tot de binnenvlag; **5** witte vlek aan het einde van de tong op p8; **6** patroon van p6; **7** lengte van de tong op p8; en **8** hoeveelheid zwart aan de basis van p9. Uiteraard geldt 'hoe meer typische kenmerken er aanwezig zijn, hoe beter' maar de volgende twee combinaties kunnen als absolute minima beschouwd worden: **a** combinatie van kenmerken **1**, **2** en **3**; of (als het bandje op p5 niet compleet is) **b** combinatie van kenmerken **1**, **3**, **4**, **5** en **6**. Bovenstaande kenmerken (al dan niet samen met bijvoorbeeld kopstreping, 'jizz' en pootkleur) sluiten ook andere taxa en hybriden uit, zoals Pontische Meeuw *L. cachinnans* en hybriden Grote Burgemeester *L. hyperboreus* x Zilvermeeuw.

Het is nog niet goed mogelijk een volledig beeld te schetsen van de geografische variatie bij Amerikaanse Zilvermeeuw maar volgens de voorlopige resultaten lijkt het er op dat er een geleidelijke toename van de hoeveelheid zwart in de handpennen is naar het zuiden en vooral westen van Noord-Amerika toe – hoewel vogels van Alaska, VS, niet helemaal in die lijn lijken te passen.

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