IDENTIFICATION OF WHITE AND BLACK-BACKED WAGTAILS IN ALTERNATE PLUMAGE

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Since the American Ornithologists' Union (1983) considered the White Wagtail (Motacilla alba) and Black-backed Wagtail (M. lugens) separate species, interest in their field identification in North America has grown. The White Wagtail breeds across Eurasia to western Alaska, while the Black-backed Wagtail breeds primarily in the Kamchatka Peninsula; the two are sympatric along the Bering Sea coast north of the Kamchatka Peninsula (Morlan 1981, A.O.U. 1983). The Siberian (and Alaskan) subspecies of the White Wagtail is M. a. ocularis, which, together with lugens, differs from other forms of White Wagtail in its black eyestripe; both forms winter in southeast Asia.

The prebasic molt (July to September), partial in juveniles, is mostly completed on the breeding grounds prior to migration. The prealternate molt, which includes the central restrices and often some tertials, takes place (December to April) mostly on the winter grounds prior to northward migration. Apparently, lugens requires two years to attain definitive alternate plumage (Morlan 1981), but this may be variable (see below); ocularis, like most passerines, attains definitive plumage in one year.

Adults of lugens have mostly white wings, while adults of ocularis have mostly dark wings. However, first-year birds of both forms have mostly dark wings, and the juvénal and first basic plumages usually are indistinguishable in the field. Some confusion exists in the literature concerning distinctions between the Black-backed and White wagtails in alternate plumage, and most sources differ in their treatment of alternate-plumaged "adults," particularly females (Morlan 1981, Gibson 1983', National Geographic Society [NGS] 1983, 1987, Wild Bird Society of Japan [WBSJ] 1982). First-alternate-plumaged females of lugens and alternate-plumaged ocularis (especially females) can be at best difficult to distinguish in the field. Typically, alternate-plumaged males of lugens of all ages have much black on the back.
and usually are not a problem to identify. Here I discuss identification of alternate-plumaged Black-backed and White wagtails, especially the distinctions between *ocularis* and first-year *lugens*.

**METHODS**

I examined over 200 specimens, of both forms, at the American Museum of Natural History, New York (AMNH), the Museum of Comparative Zoology, Harvard University (MCZ), the Museum of Vertebrate Zoology, University of California, Berkeley, and the British Museum. In particular, I examined all 64 specimens of alternate-plumaged *lugens* collected between mid-April and June, and compared them with 62 alternate-plumaged *ocularis* collected from mid-April to June. Identification of specimens was based upon unequivocal plumage characters and/or locations within the known breeding ranges. Potentially misidentified birds were omitted from the analysis.

The criteria I examined were (1) chin (and upper throat) color, (2) back and rump color, (3) wing pattern, (4) tail pattern, and (5) bill size. Specimens were segregated by age on the basis of differential wear and pattern of flight feathers, and by sex on the basis of specimen labels and measurements (males average larger than females).

Figure 1. Chin/throat patterns of White and Black-backed wagtails in alternate plumage.
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RESULTS AND DISCUSSION

Chin Color

I assessed the chin color of each specimen by means of four categories: white, whitish, sooty, and black (Figure 1). Whitish chins were mostly white, variably flecked with black; sooty chins were mostly black, flecked with white.

Morlan (1981) stated that females of lugens "can be distinguished [from ocularis] by their white chin and upper throat" but then said that eight out of 24 females showed black on the chin. Gibson (1983) stated that the adult female lugens has "chin, throat, and back like both sexes of White Wagtail." The NGS (1983, 1987) shows a "breeding female" lugens with a white chin and upper throat, while WBSJ (1982) also shows a "female summer" lugens with a white chin and upper throat.

My results (Table 1) show that in lugens a white chin is more typical of adults than of immatures, ten (28.5%) of which had an all-black chin. Also, even a sooty chin can appear all-dark, and careful views are needed to see this feature clearly. Interestingly, three first-year specimens of ocularis had a whitish chin.

In most cases chin color is not diagnostic, though it may be useful in combination with other characters. It appears diagnostic only for those lugens that have a clean white chin, and for adult ocularis with a solidly black chin.

Back and Rump Color

I estimated the percentage of black on the back and rump (Table 1), and further divided the rump into upper and lower (Figure 2); typically, the upper tail-coverts of both forms are black.

Table 1 Chin, Back, and Rump Color of Black-backed and White Wagtails in Alternate Plumage

<table>
<thead>
<tr>
<th></th>
<th>Chin</th>
<th>Back</th>
<th>Upper Rump</th>
<th>Lower Rump</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>black</td>
<td>sooty</td>
<td>whitish</td>
<td>white</td>
</tr>
<tr>
<td>n</td>
<td></td>
<td></td>
<td>(% black)</td>
<td>(% black)</td>
</tr>
</tbody>
</table>

Black-backed

<table>
<thead>
<tr>
<th>Sex</th>
<th>1st-year ♂</th>
<th>2nd-year ♂</th>
<th>Adult ♂</th>
<th>1st-year ♀</th>
<th>Adult ♀</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-100</td>
<td>0-100 (53)*</td>
<td>75-100 (94)</td>
<td>95-100 (77)</td>
<td>80-100 (97)</td>
<td>10-100 (60)</td>
</tr>
<tr>
<td>0-15</td>
<td>0-25 (8)</td>
<td>10-100 (60)</td>
<td>20-100 (79)</td>
<td>20-100 (79)</td>
<td></td>
</tr>
<tr>
<td>0-80</td>
<td>0-60 (20)</td>
<td>20-100 (79)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

White

<table>
<thead>
<tr>
<th>Sex</th>
<th>1st-year ♂</th>
<th>Adult ♂</th>
<th>1st-year ♀</th>
<th>Adult ♀</th>
</tr>
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<tbody>
<tr>
<td>15-100</td>
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</table>

* Mean value in parentheses.
Morlan (1981) correctly pointed out that female lugens in summer can be gray-backed and “may resemble ocularis closely, particularly in the first year when the white in the wing is not fully developed.” Gibson (1983) stated that the adult female lugens has a “back like both sexes of White Wagtail” and that females of the two are “probably inseparable.” Only three females of lugens I examined (two first-year, one adult) had an all-gray back but six others had so little black, always on the scapulars, that it might be difficult to see in the field. All first-year males of lugens had at least some black mottling on the back that should be noticeable in the field. The lower rump of all specimens of lugens showed some black and often was solidly black. Only eight of these had an all-gray upper rump (one first-year male, five first-year females, two adult females).

The sexes of alternate-plumaged ocularis are similar. Both male and female have a gray back and upper rump, typically with the lower rump contrastingly darker gray and usually mottled black. The back of most specimens of ocularis is a brighter, clearer (or bluer) gray than the relatively dusky gray back of lugens, but some approach the dusky gray of lugens. Rarely, ocularis has slight black mottling on the back (Table 1), though this may indicate an intergrade with lugens.

The most visible of these characters is the clearer, brighter blue-gray back of ocularis versus the darker, duskier gray back of lugens, but judgment of this in the field probably requires prior experience with one or both forms. In addition, a solidly black lower rump and black mottling on the upper rump indicates lugens, while an all-gray upper rump and slight or no black mottling on the dark gray lower rump indicates ocularis. The rump pattern, however, may be difficult to see or judge in the field and should be used in conjunction with other characters.

Figure 2. Distinction between upper rump (A) and lower rump (B) of White and Black-backed wagtails.
Wing Pattern

Birds in first alternate plumage retain their juvenile flight feathers, which, in both species, are similar: the remiges are dark brownish, narrowly edged whitish, and often become noticeably faded by spring. Although NGS (1987) stated that immature lugens has a whiter base to the flight feathers than does ocularis, this character is not readily evident in specimens with folded wings; consequently I did not evaluate it. It is worth noting, however, that photographs of hand-held first-year lugens show a distinct whitish stripe across the bases of the remiges (Bird Migration Research Center 1983); unfortunately, I have not found comparable pictures of ocularis.

Following the second prebasic molt, the remiges of lugens are mostly white and hence quite different from those of ocularis (see below). Several specimens of lugens (intergrades with ocularis?) had the outer two or three primaries mostly dark, as in ocularis. The primaries of adult male lugens are similar to the second-generation feathers but average more extensively white. In female lugens, individual variation makes the distinction between second-generation and older remiges difficult, and I was unable to distinguish these age classes with confidence, although Morlan (1981) stated that “adults differ from second-year birds in the greatly increased amount of white in the wing.”

In ocularis, the remiges of the second and subsequent basic plumages are similar to the juvenal feathers but darker, with more contrasting white edges. By spring, however, they may fade and appear similar to first-year remiges.

Typically, at least one or two tertials are replaced during the first winter. Morlan (1981) stated that, after the first year, the edges of the tertials become more broadly white in lugens than in ocularis. I found that the thickness and pattern of white tertial edgings vary greatly within lugens, such that individual variation is as great as age-related or sex-related variation. Variation within ocularis was slight and the typical pattern was matched by several lugens, though all birds with mostly or entirely white outer webs to the tertials were male lugens. There appeared, however, to be a difference in the intensity of the white, and specimens of lugens with patterns similar to that of ocularis had brighter white tertial edgings.

Thus, the birds with mostly white remiges are lugens, but mostly dark wings characterize first-year lugens and all ocularis. Tertial pattern is unhelpful except for some males of lugens, which can be readily identified by other characters, e.g., extensive black on the back. The apparently brighter white of the tertial edgings of lugens is evident when series of specimens are compared but is unlikely to be useful in the field. The whiter base to the flight feathers of lugens may be apparent in the field.

Tail Pattern

Males of lugens of all ages rarely show some white mottling on the inner web of rectrix 4, i.e., the third from outermost rectrix. No specimen of ocularis showed this feature. More consistent, but of limited field use, was that 85% of lugens (of both sexes) had the basal portion of the fourth rectrix shaft white (Figure 3B), typically more extensive in males. However, four first-year males and one first-year female had the fourth rectrix shaft dark brown (Figure 3A). In ocularis, typically the shaft of rectrix 4 was dark (Figure
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3A); a few birds had a slight whitish streak along the shaft which was difficult to see in the hand and probably would be invisible in the field. The white shafts on most specimens of *lugens* were quite bright, clearly more so than the effect caused by light reflected from a shiny dark shaft.

Therefore, a bright white shaft to rectrix 4 indicates *lugens*, but birds with an all-dark shaft rectrix 4 could be either *lugens* or *ocularis*. Observing this character in the field would be difficult but not impossible, given patience and luck.

Bill Size

Morlan (1981) stated that "the culmen of *ocularis* averages slightly shorter: 10.1 mm to the nostril vs. an average of 10.3 mm for *lugens*" in the specimens he measured. I measured the bills of 86 specimens of *lugens* (47 male, 39 female) and 77 of *ocularis* (43 male, 34 female), from the anterior end of the nostril to the tip of the maxilla. Males of *lugens* measured 9.3–11.2 mm (mean 10.2), females of *lugens* 9.2–10.8 mm (10.0); males of *ocularis* measured 8.5–10.2 mm (9.4), females of *ocularis* 8.5–9.8 mm (9.2).

From these measurements, as well as simply standing back and looking at the specimens, *lugens* clearly averages larger-billed than *ocularis*, far more so than might be interpreted from Morlan’s figures. Part of the visual difference, not evident from these measurements, is accounted for by the associated greater bill depth of *lugens*; one also should remember that size (i.e., volume) increases as a cube of increase in length. With experience, bill size might be useful in the field, as it is with *Empidonax* flycatchers, even though absolute length differences are not great.

Figure 3. Patterns of rectrix 4 in White and Black-backed wagtails. A, *ocularis*, some *lugens*; B, most *lugens*. 46
Identification Problems

Birds with an extensively black back and/or birds that appear extensively white-winged in flight are *lugens* (with the potential exception of partly albinic *ocularis*). However, gray-backed birds with dark wings and a blackish throat are not necessarily *ocularis*.

Two females of *lugens* in first alternate plumage (AMNH specimens 29915 and 29917) could easily be taken for *ocularis*, particularly as their throats are sooty. Their rumps show very little black and, in the field, extremely good views would be needed to see the slight black mottling on the scapulars. AMNH 29915 was collected at “Bering Is.” on 11 May 1882; AMNH 29917 was collected at “Petrop. (= Petropavlovsk), Kamchatka” on 15 May 1883. Both, therefore, are from the breeding range of *lugens*.

Figure 4 shows a lineup of *lugens* and *ocularis*, including the two problem birds. AMNH 29915 was identified as *lugens* by Leonhard Stejneger; later, Charles Vaurie amended the identification to *ocularis*, presumably on account of the black chin and throat. However, 29915 has a white shaft to rectrix 4, slight blackish mottling on the scapulars, and a bill length from nostril of 10.0 mm. In all these characters it agrees with *lugens*. The identification of 29917 (bill from nostril 9.8 mm) as *lugens* has not been questioned although it is very similar to 29915. Also, MCZ 276409, labeled *lugens* (bill from nostril 9.6 mm), is extremely similar to the two AMNH birds.

Regardless of their parentage, all three represent identification problems and observers should consider the possibility of intergrade *lugens* × *ocularis* occurring on the west coast of North America.

CONCLUSIONS

The distinctions between alternate-plumaged Black-backed and White wagtails are confused in the literature. The first alternate plumage of female *lugens* and the alternate plumage of *ocularis* (especially females) are at best difficult to distinguish in the field. Even with a bird in the hand, one may be unable to rule out the possibility of an intergrade *lugens* × *ocularis*. Adult females of *lugens* in alternate plumage typically have a white chin and mostly white wings, striking in flight. In alternate plumage, males of *lugens* of all ages have an at least partly black back.

A gray-backed, black-throated, dark-winged wagtail presents the greatest problem. However, careful consideration of the following points should allow the majority of such birds to be identified.

An extensively white chin indicates *lugens*, but in their first year many examples of *lugens*, like *ocularis*, have a black throat.

Some specimens of *lugens* have a gray back like *ocularis*, but most show at least slight black mottling, especially on the scapulars. Typically, *ocularis* has a cleaner, brighter blue-gray back than the darker, dusky gray back of *lugens*, but a few have a dusky gray back.

Black mottling on the upper rump and a solidly black lower rump indicate *lugens*. A gray upper rump and relatively little black mottling on a darker gray lower rump indicate *ocularis*. Examples of *ocularis* with the most black on the lower rump are adult males, which usually have a brighter, bluer gray back than does female *lugens*.
Figure 4. Five specimens in AMNH. Left to right: 56951 (first-year female lugens), 29917 (first-year female lugens), 29915 (first-year female lugens), 77331 (adult female ocularis), 77325 (adult male ocularis). A, dorsal view. Note extensively black rump and relatively dusky gray back of lugens. B, ventral view. Note black and sooty throat, respectively, of 29915 and 29917.

Photos by Steve N. G. Howell
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The wing pattern of first-year lugens is similar to that of ocularis, although lugens often shows whiter tertial edgings; this difference is subjective, however, and there is overlap in pattern. A whitish base to the flight feathers of lugens may be apparent in flying birds but was not evident from specimens.

Many specimens of lugens show a contrasting white basal half or more to the shaft of rectrix 4. On some, especially first-year birds, however, the shaft can be dark brown as on ocularis.

The bill of lugens averages larger than that of ocularis but judgment of this requires experience with one or both forms.

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LITERATURE CITED


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