



Dowitcher identification and ageing

A photographic review

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ABSTRACT All three species of dowitcher *Limnodromus* are described and illustrated in all their substantive plumages, including the three races of Short-billed *L. griseus* and the poorly known Asian Dowitcher *L. semipalmatus*. The various identification criteria for separating the two Nearctic species are reviewed, and primary projection beyond the tail is highlighted as a useful feature in all except juvenile plumages, particularly to aid identification in the 'difficult' non-breeding plumage.

There are three species of dowitcher *Limnodromus*: Short-billed *L. griseus*, Long-billed *L. scolopaceus* and Asian Dowitcher *L. semipalmatus*. Short-billed and Long-billed both breed in the Nearctic, and Long-billed also breeds in the eastern Palearctic. Both species occur as vagrants in the western Palearctic, though Long-billed is far commoner than Short-billed, of which there are very few records. The Asian Dowitcher is an eastern Palearctic breeder that has not been recorded in the western Palearctic, though it may be in the future.

The purpose of this paper is to review the field identification and ageing criteria for all three species, illustrating with photographs each distinctive

subspecies and age-class plumage. There have been several recent detailed discussions of the identification and separation of Short-billed and Long-billed Dowitchers (Wilds & Newlon 1983; Wilds 1990; Jaramillo *et al.* 1991; Jaramillo & Henshaw 1995), which between them cover the identification features of these two species, and it is not intended to repeat the detailed content of those papers. There is, however, no similar review that compares all three species, including Asian Dowitcher.

Breeding and migration

Short-billed Dowitcher

There are three races of Short-billed Dowitcher, which breed in separate areas in Alaska and Canada. The 'western' Short-billed Dowitcher *L. g. caurinus* breeds in coastal southern Alaska, the 'inland' Short-billed Dowitcher *L. g. hendersoni* in central Canada from southeast Yukon to Hudson Bay, and the eastern nominate race *L. g. griseus* in northern Quebec, Labrador and possibly northern Ontario. Unlike Long-billed Dowitcher, whose breeding range extends well into Asia, Short-billed breeds only within North America.

In autumn, the southward migration routes through North America reflect the breeding distribution of the three races. *L. g. caurinus* moves south through the Pacific Coast states to winter from California south to Peru. The bulk of the population of *hendersoni* migrates through the centre of the continent via the eastern Great Plains and the Great Lakes, south to coastal Texas and Louisiana, though some move east to reach the coast from about New Jersey, becoming more numerous farther south. *L. g. griseus* migrates down the eastern seaboard, with a few reaching as far west as Texas. *L. g. hendersoni* winters from Florida westwards, in the Caribbean and on both coasts of northern South America, while *griseus* winters in southern USA and from the Caribbean south to Brazil (Wilds & Newlon 1983; Hayman *et al.* 1986). Spring migration routes are similar to those taken in autumn.

Long-billed Dowitcher

The Long-billed Dowitcher breeds in western and northern Alaska and northwest Mackenzie, as well as in Siberia, where the westward range expansion reported by Tomkovich (1992) continues, breeding having now been recorded as far west as the Duduypta river basin, southwestern Taimyr Peninsula (Tomkovich 1996). In autumn, the species migrates down the Pacific coast of North America, through the Great Plains and also eastward to the Atlantic coast, where, like *L. g. griseus*, it becomes more numerous in the south, from New England to Florida. It winters in California, around the Gulf Coast, in Florida and south to Central America (Wilds & Newlon 1983; Hayman *et al.* 1986). Since its breeding range overlaps with that of Curlew Sandpiper *Calidris ferruginea*, one cannot help wondering if some Long-billed Dowitchers might not migrate westward with the Curlew Sandpipers, rather than eastward to winter in southern North America. Spring migration is generally along more westerly routes, with few individuals appearing east of the Mississippi.

Asian Dowitcher

Asian Dowitchers breed between about 50°N and 62°N, in the valleys of the Ob and Irtysh at about 68°E in Siberia, to about 134°E in Manchuria (e.g. Sibley & Monroe 1990). They winter mainly in Southeast Asia, particularly in Sumatra, and in smaller numbers as far south as Australia, and occur regularly on passage in Hong Kong and in Thailand, and less commonly in Japan. The most westerly records of vagrants are in Aden in August 1958 (Paige 1965) and at Lake Nekuru, Kenya, in November 1966 (Smart & Forbes-Watson 1971). The size of the population is in some doubt: estimates of the World population have in the past been of the order of 5,000 individuals, but a count of about 13,000 wintering in Sumatra (Verheugt *et al.* 1990) led to the suggestion that the total population might be as high as 25,000 (Howes & Parish 1989). On migration and on their wintering grounds, Asian Dowitchers usually frequent coastal saline feeding areas.

Identification of Short-billed and Long-billed Dowitchers

A number of factors are discussed here; further distinctions between the two species are discussed in the plumage descriptions of Short-billed Dowitcher.

Flight pattern

Both Short-billed and Long-billed Dowitchers show a narrow white trailing-edge to the secondaries and inner primaries, and a white 'V' up the back. The feet extend beyond the tail, perhaps slightly less with Short-billed than with Long-billed. Spotted Redshank *Tringa erythropus* has been reported flying with legs retracted (Grant 1983); with its similar flight pattern, such a bird might cause confusion with either of the two Nearctic dowitchers.

Structure

The three races of Short-billed Dowitcher are virtually identical in size and structure, as may be seen from published measurements (table 1). In comparison with Long-billed Dowitchers, they are slightly smaller and proportionately shorter legged, though overlap in the size of the two species renders these differences of no real value in the field, even when both species are present. Two factors, however, bill length and the relative length of the primaries, are of help, though neither is diagnostic.

As there is considerable overlap in bill-length between sexes of both species and between the species themselves, the only conclusion that can be reached is that those with the longest bills are female Long-billeds, and those with the shortest bills are male Short-billeds. A good guide is that those with bill lengths about one-and-a-half times the head length are probably Short-billeds, while those that have a bill length around twice the length of the head are likely to be Long-billeds (Cramp & Simmons 1983; Wilds & Newlon 1983). It is the experience of the Rarities Committee, however, that such judgments are prone to great variation among observers.

With regard to wing-length, table 1 shows that Short-billeds typically have

Table 1. Measurements (in mm) of the three dowitcher *Limnodromus* species. Figures are mean, (range) and sample size, where known. Data for Short-billed *L. griseus* and Long-billed *L. scolopaceus* from Cramp & Simmons 1983 (who combined adult and juvenile measurements and observed that juvenile wing averages 2 mm shorter than adult) and Hayman *et al.* 1986 (total length); and for Asian *L. semipalmatus* from Higgins & Davies 1996.

Species/race	Sex	Wing	Bill	Tarsus	Length
<i>L. g. griseus</i>	male	145 (142-150) <u>13</u>	58.8 (54.1-63.2) <u>11</u>	34.5 (33.3-36.3) <u>13</u>	250-290
	female	144 (140-155) <u>7</u>	56.5 (51.0-62.7) <u>8</u>	34.5 (31.3-38.1) <u>7</u>	(all
<i>L. g. hendersoni</i>	male	142 (135-150) <u>55</u>	57.1 (50.8-61.2) <u>75</u>	36.6 (33.8-39.3) <u>76</u>	racess)
	female	144 (137-152) <u>59</u>	61.8 (56.2-65.9) <u>73</u>	37.9 (34.0-41.3) <u>74</u>	
<i>L. g. caurinus</i>	male	146 (142-151) <u>17</u>	56.9 (51.5-61.5) <u>24</u>	36.7 (33.4-40.0) <u>25</u>	
	female	150 (145-155) <u>16</u>	62.2 (56.6-67.7) <u>17</u>	38.3 (36.8-41.2) <u>17</u>	
<i>L. scolopaceus</i>	male	140 (133-156) <u>107</u>	62.2 (55.3-69.3) <u>134</u>	38.2 (34.0-41.5) <u>135</u>	270-300
	female	145 (138-158) <u>96</u>	72.0 (63.6-78.4) <u>119</u>	41.3 (36.2-46.5) <u>119</u>	
<i>L. semipalmatus</i>	male	177 (172-184) <u>8</u>	80.2 (74.9-85.2) <u>24</u>	50.7 (45.8-52.7) <u>14</u>	340-360
	female	180 (177-185) <u>5</u>	84.6 (78.9-90.7) <u>23</u>	50.8 (47.6-54.0) <u>9</u>	
	juv/immm	173 (172-175) <u>3</u>	—	—	

marginally longer wings than do Long-billeds, particularly in comparison with body length, resulting in a subtle but useful structural difference between all but juveniles of the two species. As a consequence of the proportionately greater wing length, the folded wing-tips of Short-billeds usually extend at least to the tail tip, and typically 2-3 mm beyond, unlike Long-billeds, whose folded wing tips usually fall 1 mm or so short of the tail. This feature was originally noted by Nisbet (1961), though he mistakenly applied it to juveniles as well as to adults. In fact, the primaries appear to continue to grow for some months after fledging, so that it may not be until as late as December that the primary projection of Short-billeds becomes of value for identification. More recently, Jaramillo & Henshaw (1995) have drawn attention to the primary projection beyond the tail-tip to aid the separation of breeding adults of the two more easterly races of Short-billed from Long-billed Dowitcher.

Of course, care has to be taken with birds that may have moulted their longest primaries. A particular case is non-breeding summer individuals in winter-type plumage, the majority of which are presumably first-summer/second-winter. Not breeding in their first summer, they moult early to full adult winter plumage, unlike breeding adults, which may not moult until much later and may still have growing primaries into December. Thus, throughout the latter half of the year, the primary-projection criterion should be used with caution with birds in winter plumage.

Thus, in summary, observation of the primary projection beyond the tail of dowitchers in adult summer plumage is useful in confirming the species involved, though it will also be of notable value in the separation of Short-billed and Long-billed Dowitchers in their confusingly similar non-breeding plumages. In such plumages, care must be taken to confirm that the primaries are fully grown, which is perhaps not until December with some adults,

► **13. Juvenile Short-billed Dowitcher** *Limnodromus griseus griseus*, Florida, USA, September 1988 (R. J. Chandler). Internal 'tiger-stripe' markings of scapulars and tertials are diagnostic of age and species. Relative paleness of these markings is typical of race *griseus*. Folded primary tips fall short of end of tail, but are still growing and will eventually reach just beyond tail tip.



► **14. Juvenile Short-billed Dowitcher** *Limnodromus griseus caurinus*, moulting to first-winter, California, USA, September 1984 (R. J. Chandler). Richer colour of 'tiger-stripes' is typical of race *caurinus*, but width of scapular and tertial fringes is little different from the *griseus* in plate 13.



► **15. First-winter Short-billed Dowitcher** *Limnodromus griseus*, Florida, USA, January 1987 (R. J. Chandler). Aged as first-winter by fresh greyish mantle and scapular feathers, and identified as Short-billed by remaining worn (pointed) juvenile 'tiger-striped' tertial. Note that, by this age, primary tips fall beyond tail, but only by 1 mm or so. Breast lightly spotted.



► **16. Presumed first-summer Short-billed Dowitcher** *Limnodromus griseus*, Texas, USA, April 1994 (R. J. Chandler). In non-breeding plumage in April, this individual presumably will not breed. Not heard to call (and thus not confirmed as Short-billed), but feeding in salt water with large flock of breeding-plumaged Short-billeds. Primary tips extending beyond tail and fine spotting on white of lower breast support identification.





◀ 17. **Second-winter Short-billed Dowitcher** *Limnodromus griseus*, Florida, USA, September 1988 (R. J. Chandler). In near-complete non-breeding plumage in September. Not heard to call, but with large flock of Short-billeds in a salt-water area; spotting on white of breast also supports identification as Short-billed Dowitcher. Primary tips fall short of tail, but this likely to be result of moult, the just-visible pointed tip below longest new primary being a retained juvenile primary.



◀ 18. **Adult winter Short-billed Dowitcher** *Limnodromus griseus*, Florida, USA, January 1987 (R. J. Chandler). At same salt-water site as plate 15; lacks any juvenile scapulars or tertials and hence adult, identified as Short-billed from finely spotted breast and primary projection beyond tail.



◀ 19. **Adult summer Short-billed Dowitcher** *Limnodromus griseus griseus*, New Jersey, USA, date not known (A. & E. Morris/Windrush). Identified as race *griseus* on basis of relatively narrow rusty upperpart fringes, extensive barring on sides of breast, and large area of white on lower breast and flanks reaching as far as vent.



◀ 20. **Adult summer Short-billed Dowitcher** *Limnodromus griseus hendersoni*, Texas, USA, April 1994 (R. J. Chandler). Identified by primary projection beyond tail, scapulars and tertials lacking white tips, and underpart pattern, and as race *hendersoni* by broadly fringed upperpart feathers, and sparsely spotted orange-peach underparts with white confined to vent.

► 21. **Adult summer Short-billed Dowitcher** *Limnodromus griseus caurinus*, California, USA, April 1992 (R. J. Chandler). Identified by primary projection beyond tail and by strongly spotted underparts, particularly on sides of breast, where Long-billed Dowitcher would be barred. This race most closely resembles Long-billed, and often, as with this individual, has white tips to scapulars and tertials, a feature not shared by other two races of Short-billed Dowitcher.



► 22. **Juvenile Long-billed Dowitcher** *Limnodromus scolopaceus*, California, USA, September 1984 (R. J. Chandler). Identified and sexed as female by bill length in excess of twice head-length. Plain, dark upperparts with narrow, slightly spotted fringes to scapulars and tertials.



► 23. **Presumed first-summer Long-billed Dowitcher** *Limnodromus scolopaceus*, Texas, USA, April 1994 (R. J. Chandler). In freshwater marsh, with adult summer Long-billed Dowitchers, though this individual did not call. Breast pattern more like Short-billed, but primary tips, cloaked by tertials, clearly fall short of end of tail; unlikely to be in primary moult at this early date, and therefore presumed to be Long-billed. Very worn wing-coverts consistent with first-summer. Bill length indicates male.



► 24. **Adult Long-billed Dowitcher** *Limnodromus scolopaceus*, moulting to adult winter, California, USA, September 1984 (R. J. Chandler). Has classic Long-billed grey winter-plumaged breast with sharp unspotted lower border, and shows well broader dark tail bars. Though primary tips are expected to fall short of tail, is clearly in primary moult, so no conclusions can be reached regarding primary projection (or lack of it).





◀ 25. Adult summer Long-billed Dowitcher *Limnodromus scolopaceus*, California, USA, April 1992 (R. J. Chandler). Identified to species by white tips to scapulars and tertials, broad dark barring on tail, no primary projection beyond tail, and 'keek' call when flushed. Underparts have strong dark barring on sides of breast and flanks, with broad white fringes typical of fresh summer plumage which will wear off by early June.



◀ 26. Juvenile Asian Dowitcher *Limnodromus semipalmatus*, Japan, August 1986 (T. Ishii). Note flesh-pink base to blunt-tipped bill; among dowitchers, this is diagnostic of both age and species.



◀ 27. Adult winter Asian Dowitcher *Limnodromus semipalmatus*, Western Australia, April 1995 (R. J. Chandler).



◀ 28. Adult summer Asian Dowitcher *Limnodromus semipalmatus*, Western Australia, April 1995 (R. J. Chandler). Compare size and bill colour with (out-of-focus) Bar-tailed Godwit *Limosa lapponica baueri* just behind. This race of Bar-tailed Godwit is slightly larger than the western Palearctic *L. l. lapponica*; also seen are Red Knots *Calidris canutus rogersi*.

though at any time one showing primary projection beyond the tail should be a Short-billed Dowitcher. Since many first-years of both species retain the diagnostic juvenile scapulars and tertials until at least December, it may be that, with care, many individuals which are largely in winter plumage can be identified during the autumn and the early part of the winter.

Calls

The single best character for distinguishing the two species is the call. Short-billed has a mellow, rapidly repeated 'tu-tu-tu', while Long-billed gives a higher-pitched, thin 'keek', sometimes singly, but often repeated several times. It is the pitch of the call, rather than the number of repetitions, that is important.

Bare-part colours

At all ages and with both species, the bill is horn-coloured, darker distally, sometimes, particularly in winter, with a yellowish base. The legs of both species are dull greenish-yellow.

Tail patterns

The tails of both Short-billed and Long-billed Dowitchers are barred at all ages and in all plumages. This barring is black-and-white in juvenile and non-breeding plumages, with the white often being replaced by pale rusty orange in full adult breeding plumage, but not on individuals that acquire breeding plumage in their first summer (Paulson 1993). Occasionally, the pattern may be more complex than straightforward barring. The extent and pattern of the markings shown by the two species were reviewed by Wilds & Newlon (1983) and Wilds (1990). In summary, they concluded that Short-billed Dowitcher usually has the light bars wider than the black, while on Long-billed this is never the case, and the pale bars are usually much narrower. Thus, if the tail pattern can be seen, it can provide a useful indication of the species involved, though apparently some 'western' Short-billeds are an exception to this rule (Paulson 1993).

Other factors

A further useful distinction between the two species that applies in North America, though it is less likely to be of the same value with vagrants, is the habitat in which they are found feeding. When not breeding, Short-billeds are usually encountered in saline environments (coastal mudflats and salt-marsh pools), while Long-billeds are usually found in freshwater habitats. Obviously, this distinction can apply only where they have access to both fresh and saline environments.

Identification of Asian Dowitcher

Flight pattern

Asian Dowitcher has a wide, pale (not white) trailing edge to the wing, reaching across the secondaries and the inner primaries. The back, rump,

uppertail-coverts and tail are pale but finely barred, and thus lack the contrast in flight-pattern shown by the other two dowitcher species. This flight pattern is similar to that of the eastern Palearctic race of Bar-tailed Godwit *Limosa lapponica baueri*, with which it regularly associates, which has a barred rump and dark back, unlike the western race *L. l. lapponica* with its white rump and back. The underwing of Asian Dowitcher is pale and unbarred, like that of *L. l. lapponica* but quite unlike the heavily barred underwing of *L. l. baueri*.

Structure and bare-part colours

Asian Dowitchers are considerably larger than either Short-billed or Long-billed Dowitchers. In size, they are somewhat smaller than the eastern Bar-tailed Godwit, and thus will be closer to, but still smaller than, western Bar-tailed Godwit. The long, straight, parallel-sided, blunt-tipped bill is all-black in the adult, but has an extensive pale base to the lower mandible in the juvenile. When standing, the bill is held at about 30° to the horizontal. The expanded bill tip so often referred to in the literature is not particularly obvious in the field, and is best described as 'blunt-tipped'. Females are on average slightly longer billed, though there is a great deal of overlap between the sexes (table 1). The legs are proportionately longer than those of the other two dowitchers, and are grey-black at all ages.

The combination of significantly greater size, longish black legs and, in all but juvenile plumage, the prominent all-black bill and different flight pattern should easily distinguish Asian Dowitcher from both Short-billed and Long-billed Dowitchers. Bill shape and colour and, in flight, the lack of clear white on the rump and back and the white underwing provide separation from the western race of Bar-tailed Godwit.

Calls

Generally silent, but with a yelping 'chep-chep' or 'chowp', and a soft moaning 'kiaow' (Hayman *et al.* 1986; Higgins & Davies 1996).

Plumages

Short-billed Dowitcher

The three races show plumage differences as breeding adults, and there are also differences between juveniles of *caurimus* and those of the other two races. In adult non-breeding plumage, the races of Short-billed are inseparable in the field.

ADULT SUMMER

Adults of all races acquire summer plumage by about the end of the first third of April, and the majority of both Short-billed and Long-billed Dowitchers also do so in their first summer.

Race *griseus*

The main differences between the three races of Short-billed Dowitcher are the brightness of the upperparts, which is the result of the colour and width of the mantle and scapular fringes on otherwise black feathers, and, on the underparts, the degree of spotting and barring and the extent of white. On *griseus*, the upperparts are relatively dull and dark, with generally narrow fringes, grey-buff on the mantle but rather brighter, more rusty-orange on the scapulars and tertials. Internal markings on these feathers are relatively narrow and are coloured similarly to the fringes.

During the course of the summer, *griseus* changes rather little, though it does become slightly darker as a consequence of the wear of the feather fringes. On the neck and breast, there is dense dark spotting and barring (which adds to the general impression of darkness), barring dominating on the sides of the neck and breast and on the flanks, with spotting prevailing on the centre of the breast. The underparts typically have a rather dull brownish-orange ground colour which extends from the neck to the breast, and often to the flanks and undertail-coverts; the belly and vent are white. Some coloured feathers may be present on the white areas, and the flanks especially may show patches of white. The general effect in the field is of a rather dark bird with heavy underpart spotting and barring, though with a white belly and vent.

Race *hendersoni*

This is the brightest of the races, with broad rusty-yellow fringes and extensive internal markings on the mantle feathers, scapulars and tertials. Wear reduces the width of the fringes, giving a darker appearance, but the bright internal feather markings remain. The neck, breast and belly are spotted, sometimes extensively, but more usually quite sparsely, particularly on the belly, while any barring is confined to the flanks. The undertail-coverts are spotted, sometimes with some barring. The underparts are almost completely coloured, a distinctive orange-peach, any white being confined to the area of the vent. Unlike Long-billed, white fringes on the underparts in fresh plumage are narrow and quickly wear away. The general effect is of a bird with rather bright upperparts, and relatively unspotted orange-peach underparts with little if any white.

Race *caurinus*

The fringes and internal markings of the mantle feathers, scapulars and tertials are usually rusty-orange and of intermediate width compared with those of the other two races. In fresh plumage, some scapulars and tertials may have white tips, which can cause confusion with breeding Long-billed, whose scapulars and tertials have extensive white tips. On the underparts, the dark markings are rather more variable than is usually the case with the other two races, and in the extreme can approach the extensive markings of *griseus* or the sparseness of markings of some *hendersoni*; usually, the markings are close to those of typical *griseus*. The ground-colour of the underparts is similar to that of *griseus*, dull brownish-orange, with a variable extent of white on the vent and lower belly.

ADULT WINTER AND FIRST-WINTER

Individuals in this plumage provide the observer with the greatest difficulty in separating Short-billed and Long-billed Dowitchers. Both species have plain brown-grey upperparts, with a grey neck and upper breast, and the differences between the species are quite subtle. All three races of Short-billed Dowitcher are similar in non-breeding plumage, having the throat and upper-breast light grey, usually with sparse darker spotting and speckling on the grey areas which spills onto the white of the lower breast. Typical 'classic' Long-billeds have a near-uniform medium grey breast with a sharp lower boundary, though some individuals can appear more streaked and spotted, closer to Short-billed.

The small proportion of first-summerers which are non-breeders may move north of their wintering area, but apparently they do not reach the breeding grounds and do not acquire summer plumage. Rather, they retain first-winter plumage and probably moult early to adult winter.

JUVENILE

Juveniles of all three races have a similar distinctive plumage. The upperpart feathers are dark brown with broad golden-buff fringes and extensive and quite variable internal markings. The markings are particularly obvious on the tertials, one or two of which may be retained at least until January. These strongly marked feathers are diagnostic in separating juvenile Short-billed and Long-billed Dowitchers, the latter having very plain feathers which give it a much darker appearance. The wing-coverts of Short-billed Dowitcher are brown with pale buff or off-white fringes. The underparts are white, with the upper breast finely streaked brown, often over a buff-brown wash, with sparse spotting and some barring on breast-sides and flanks, and spotting on undertail-coverts. The pale upperpart fringes and internal markings of *caurinus* are more rufous (e.g. Wilds & Newlon 1983) and narrower than in the other two races, though wear and fading can render these distinctions of little value in the field.

In North America, the first migrant juvenile Short-billeds move south from their natal areas in early August. Juvenile Long-billeds appear later, from mid August in the Pacific northwest and typically mid September in the east (at about the time when the first vagrant juveniles occur in western Europe), and may join flocks of juvenile Short-billeds. In mixed flocks, Short-billeds can look slightly smaller, as a result of their shorter legs, but more particularly they are brighter and paler than Long-billeds and consequently can be separated at quite long distances.

Long-billed Dowitcher

ADULT SUMMER

This plumage is acquired by about mid April. The upperpart feathers, as with Short-billed, are black, but the fringes and internal markings are cinnamon or chestnut, darker than on Short-billed. In fresh plumage (April/May), the tips of the lower rear scapulars and tertials are white, though the feather shaft is dark. This is a useful feature for separation from Short-billed, though in fresh

plumage some *caurinus* can show rather pale tips to these feathers. The underparts are darker than on any Short-billed, the ground colour being a dull orange-red. The ground colour extends from neck to vent, though in fresh plumage the feathers have extensive white fringes. These fringes wear away by early June. The sides of the breast and flanks have extensive dark barring, each feather having a single bar so that the barring is generally more obvious than on even the most strongly marked Short-billed. The neck and breast are extensively spotted.

ADULT WINTER AND FIRST-WINTER

The upperparts are plain brown-grey, though typically darker than on Short-billed Dowitcher. The underparts have the throat and upper-breast plain medium grey, with a sharp lower boundary with the white lower breast, and they generally lack the fine spotting shown by Short-billed Dowitchers.

JUVENILE

This is a much more uniform bird than juvenile Short-billed, with head and neck medium grey-brown and with an indistinct supercilium which is most obvious in front of the eye. The upperparts are a darkish grey-brown, with neat, narrow, often finely spotted pale fringes. There are often no internal markings on any feathers, but occasionally there may be faint narrow pale patterning on the tertials. The underparts are very similar to those of juvenile Short-billed, with faint dark streaking over a pale buff wash on the breast, light spotting on the flanks and heavier spotting on the vent and undertail-coverts.

Asian Dowitcher

ADULT SUMMER

Crown and lores dark brown, with forepart of supercilium often white. Upperparts fairly dark brown-grey, individual feathers having diffuse rufous-brown and/or pale grey fringes. Head, neck, breast and upper belly are chestnut-red, lower belly, vent and undertail-coverts white, with dark spotting on sides of lower belly and barring on undertail-coverts. There is dark fine spotting on lower neck and upper breast, with some rather variable dark barring on sides of breast; in fresh plumage, many of the chestnut-red underpart feathers have narrow white fringes.

ADULT WINTER AND FIRST-WINTER

A plain, uncoloured version of adult summer, lacking any trace of red on upperpart feathers and with underparts white rather than chestnut-red. Fore-supercilium white; upperpart feathers brown-grey with off-white fringes, throat and upper-breast finely streaked and spotted dark grey. Flanks and undertail-coverts with chevrons and dark bars.

It is not known if Asian Dowitchers breed in their first summer, but small numbers of first-summer individuals in winter-type plumage regularly remain during the breeding season in both Australia and Sumatra.

JUVENILE

The crown, nape and hind-neck are strongly streaked dark brown, with a dark area in front of the eye contrasting strongly with broad off-white supercilium. The upperparts are dark brown, broadly fringed pale buff on the sides of the feathers only, the dark centres reaching the feather tip. The wing-coverts are similarly fringed, but with off-white. The throat and breast are lightly streaked brown, with pale rufous-buff wash; remainder of underparts white. Bill black, but with an often extensive flesh-pink area at base of the lower mandible.

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