THE PROBLEMATICAL RELATIONSHIPS OF THE ASIATIC SHOREBIRD LIMNODROMUS SEMIPALMATUS

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In conjunction with a study of variation and distribution in American dowitchers (*Limnodromus*), it was desirable to examine the possible bearing of the Asiatic form now known as *Limnodromus semipalmatus* (Blyth) on the relationships of the American forms. As this species is poorly represented in American collections, I have been able to examine only 35 specimens. But the data from this limited material indicate that the present systematic treatment of *semipalmatus* is open to question, and I should like briefly to review the problem.

It is chiefly the affinity of *Limnodromus semipalmatus* to the American dowitchers which is questioned here. If there is valid basis for this doubt, however, then several more questions at once arise. First, is *semipalmatus* really a member of the Scolopacinae? Second, can it be linked, as suggested beyond, with the godwits (*Limosa*)? Third, if *semipalmatus* proves to be related to the godwits, yet displays some affinities to the American dowitchers, are the latter so definitely members of the Scolopacinae as maintained? And finally, do these considerations have bearing on the problem of subfamilial break-up of the Scolopacidae?

In the Scolopacidae, Witherby, *et al.* (1940:154) recognize six subfamilies, whereas Peters (1934:258*ff.*) recognizes only four and excludes the phalaropes from the Scolopacidae altogether. Lest present-day check-lists and handbooks mislead us on this problem by implying that these subfamilies have more or less equivalent rank, let us refer to Lowe's (1931) original studies of the scolopacids. The picture of subfamilial groupings he presents is that among six main groups four (Tringinae, Eroliinae, Scolopacinae, and Limosinae) are primary ones, and two are secondary ones (Arenariinae derived from Eroliinae, Phalaropinae from Tringinae). After delimiting the first three primary subfamilies and the two secondary ones, Lowe (1931:758) states: "We now come to an assemblage of genera which represent, so to speak, the residue of the Scolopacidae," and (p. 759), "I have decided, after a general study of their anatomy and other characters, to include, provisionally at any rate, all the genera above mentioned under one subfamily, the Limosinae." In other words, this subfamily is not necessarily a monophyletic unit; it is apparently a catch-all and merits study for further elucidation of relationships within the whole family. This should be borne in mind in the comparisons of *Limnodromus semipalmatus* and members of the genus *Limosa* presented beyond.

I shall go a step further and object to the statement of Witherby, *et al.* (1940:155) that "*Limnodromus* is shown [by Lowe] to be unmistakably a snipe." In bill structure and associated features of skull and feeding behavior, the members of this genus may be snipes *or they may merely be snipe-like.* Again I hark back to Lowe, who states (p. 750) that among the Scolopacinae, *Limnodromus* "is not so typical or so specialized as the rest" and that it is the most generalized member of the subfamily. Let us note that he cites (p. 752) a resemblance of *Limnodromus* to "*Erolia* or *Limosa,*" and states (p. 754) that "the supra-orbital morphology still retains a godwit-like, tringine, or eroliine impress, rather more noticeable in *L. taczanowskii* [= *semipalmatus*] than in *L. griseus* or *L. scolopaceus.*" Lowe's main argument concerning the relationships of *Limnodromus* is based on the position of the quadrate in the skull of *L. scolopaceus,* the member of this genus with much the longest bill relative to skull size. The condition in the skulls of *griseus* and *semipalmatus* has not been described yet.

A few other reasons for placing the genus *Limnodromus* in the Scolopacidae are given briefly by Lowe. Mere reference is made by him (p. 755) to supposedly close resemblance of the downy young of "snipe" (*Capella*?) to those of American dowitchers as described by Bent (1927:118). This evidence he regards as "nearly as convincing" (p. 752) as that provided by skull morphology. [It should be noted that at the time Bent prepared his volume on shorebirds he knew only the downy young of *L. scolopaceus,* and these differ in important degree from those of *L. griseus* (Conover, 1941:378; Pitelka, MS).]

With regard to the adult and juvenal plumages, Lowe (*loc. cit.*) states only that "the young [juvenal?] male's plumage is more snipe-like than the fully adult male's." This statement is not elaborated further or documented. In American dowitchers, including the vagrant "Red-breasted Snipe," *L. griseus,* of Britain (Witherby, *et al.,* 1940: 209), the sexes do not differ in plumage characters; in *semipalmatus* this is true of the juvenal and probably of winter plumages, but at least a tendency toward dimorphism is found in the adult plumage (see beyond). Lowe's added point that "the russet-coloured tips to the tail feathers . . . are so typical of the Snipe" is, of itself, unimportant. He omits any reference to plumage and structural resemblances between the godwits and *semipalmatus.*

One difficulty in using and evaluating Lowe's work lies in the fact that he does not tell the reader precisely what skeletal or preserved material he examined. Only once does he indicate, and then indirectly, that he had any skeletal material at all of *L. semipalmatus.* It is true perhaps that Lowe was interested more in broader groupings than in intra-group relations, yet adequate study of the latter alone can lead to a reasonably conclusive and satisfactory arrangement of these broader groupings. It is also true that in dealing specially with *Limnodromus,* he was concerned to demonstrate that this genus displays, not tringine affinities as maintained by earlier workers, but rather affinities to another group and he concluded that this group was the Scolopacinae. Lowe's only fully supported arguments concern skull structure.

The foregoing discussion thus poses a phylogenetic problem which may be stated broadly as follows: Are the dowitchers "half-way on towards the complete scolopacine specialisation of the Snipes and Woodcocks" (Lowe, 1931:755); or, assuming for the moment that the three species represent a monophyletic group (which they may not), are they possibly an early offshoot of another group, perhaps the Limosinae, displaying some convergent tendencies toward the Scolopacinae? Beyond calling attention to and stating this problem, my objective here is only to provide enough data concerning the species *semipalmatus* to justify the doubt expressed about current views of its relationships.

PLUMAGE PATTERN AND COLOR

The adult winter plumage of *L. semipalmatus* is described by La Touche (1933:368) and by Robinson and Chasen (1936:145), the summer plumage by Baker (1929:210) and Shaw (1936:408). See also figures 54 and 55. Colored illustrations are included in works by David and Oustalet (1877: pl. 121) and Dresser (1909: pl. VII). The important differences between adult plumages of that species and *L. griseus* are summarized in table 1, and they apply also to the first-year plumages.

La Touche's description of the winter plumage is correct except for the fact that the pale rufous feathers scattered on the breast of his reference specimen (an October male seen by me; MCZ 131683) are worn feathers of the preceding nuptial plumage. This fact together with the exceedingly worn and faded remiges and rectrices indicate a protracted molt, perhaps abnormally so in this individual. Shaw's description of the summer plumage is based on the fully adult male. Descriptions of the summer plumage by

various authors differ because of failure to recognize that the first-year breeding plumage is, at least ventrally, a varying combination of winter and summer plumage characters. In the fully developed breeding plumage, the whole of the head, neck and under parts is rust-colored except the chin, which is whitish buff, and the lower belly, which is white. Occasionally the belly is also rust with scattered white or white-margined feathers (examples: FM 80713 ♂, see fig. 55; ASL 333 ♂). In the first-year breeding plumage, the rust varies in extent and occurs mainly on the lower neck and breast, occasionally also on the belly (see HBC 14734). In addition there is varying spotting anteriorly and barring posteriorly over both rust and white areas.

Table 1

Characters Distinguishing Adult Plumages of *L. semipalmatus* and *L. griseus*

	L. semipalmatus	*L. griseus*
Winter plumage—		
Crown	Streaked (feathers brownish-gray with light lateral margins)	Plain (feathers gray with dull brownish-black centers)
Upper back	Streaked (feathers brownish-gray centrally, darkest along shaft, with broad light lateral margins)	Plain (feathers gray with black shaft streaks and faint light margins)
Lower back[1]	Black, feather margins white	White
Primaries[1]	Inner webs of outer 5 primaries with wedge-shaped white area; bases of remaining ones increasingly white inwardly	Innermost primaries only margined with white and with white streak along outer side of shaft
Secondaries[1]	White, irregularly barred or banded with brownish gray	Brownish gray margined broadly with white
Underwing coverts	White, with or without dusky, irregular spots	White with conspicuous V- or U-shaped gray bars
Flanks and undertail coverts	Brownish-gray bars few, sometimes faint	Gray bars numerous, more or less conspicuous
Summer plumage—		
Venter	Plain; bars present only on flanks and anteriorly in first-year plumage	Spotted extensively (except in inland race)
Dorsum	Streaked (feathers broadly rust-colored laterally, dark brown centrally)	Irregularly barred and streaked (feathers narrowly margined and barred with buff, tipped with light grayish brown which whitens distally)

[1] These contrasting differences also apply to the breeding plumage.

The sum of these characters of the first-year plumage strongly suggests the plumage of *Limosa limosa*, whereas the fully developed male plumage is close to that of *L. lapponica*. (For descriptions of these forms, see Witherby, *et al.*, 1940:158, 164.) The resemblance between *semipalmatus* and *L. lapponica* is especially striking as regards color of head, neck, and under parts; no patterning occurs on these areas. The back and wings of *L. lapponica* are colored and patterned more as in *L. haemastica* (Ridgway, 1919:191), whereas the back pattern of *semipalmatus* is conspicuously unlike that of either of the American dowitchers and among godwits it is approached only by the juvenal plumage of *Limosa lapponica*.

The juvenal plumage of *semipalmatus* (see figs. 54 and 55), so far as known to me, has not been described. The young birds briefly described by Sharpe (1896:401) are apparently first-year birds which have undergone partial spring molt. This appears also to be true of Hartert's (1920:1606) brief description of "Juv." birds. The juvenal plumage of *semipalmatus* is similar to that of *L. griseus* except for the following points.

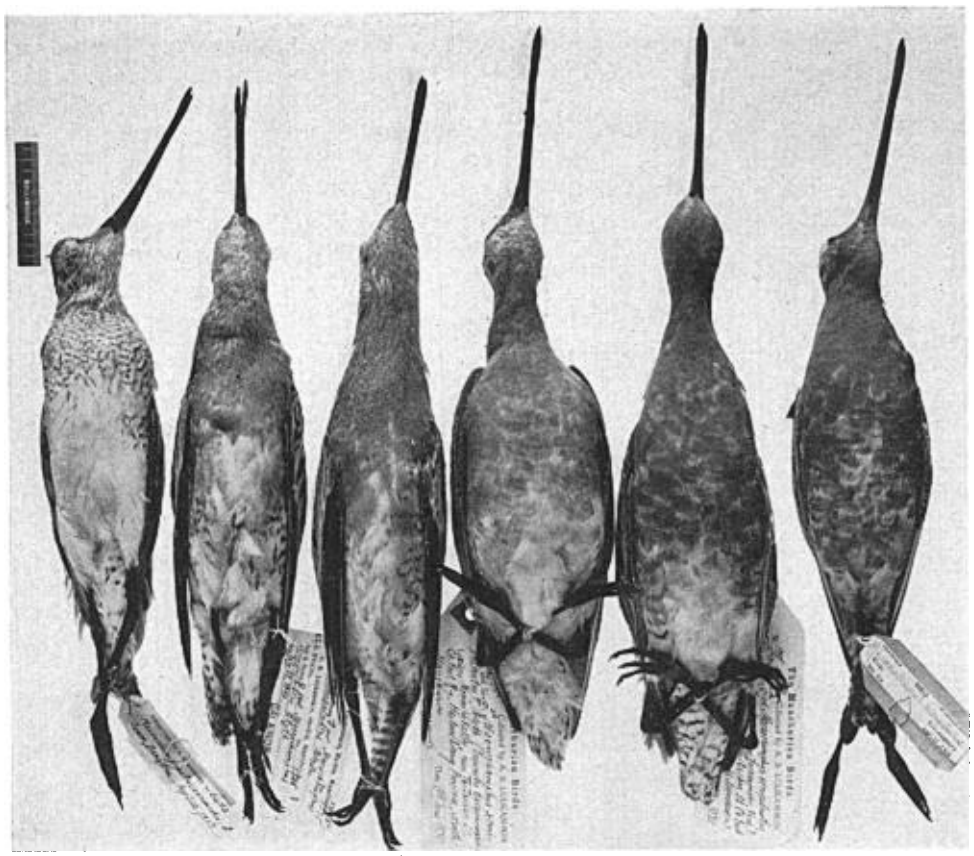

Fig. 54. Plumages of *Limnodromus semipalmatus* shown in ventral view. The specimens, left to right, are as follows: first-year male, winter plumage, Ban Hia, Siam, April 22, 1927 (HBC 6693); juvenal female, Dalai Nor, Manchuria, July 22, 1940 (MCZ 271626); juvenal male, same place and date as preceding (ASL 1535); adult female, breeding plumage, near Tsitsihar, Manchuria, June 9, 1930 (ASL 332); adult male, breeding plumage, same place and date as preceding (ASL 334); adult male, breeding plumage, Ban Hia, Siam, April 22, 1926 (CM 80713).

1. Amount of white on remiges is greater in *semipalmatus*, as noted in table 1 for the winter plumage.

2. The lower back feathers are black margined with white, and not entirely white (see table 1).

3. The dorsal plumage is streaked broadly in consistent manner, not variegated (light, narrow feather margins, submarginal lines, irregular bars) as in *griseus* (see fig. 54 and table 1).

4. Ventrally, recognizing a considerable variability in this plumage, the two forms are similar except that in *semipalmatus* the breast is washed more extensively with buff and the latter color is more vinaceous than in *griseus*. Spotting characters over the entire venter are similar.

Thus, close examination of the juvenal plumages reveals important differences in pattern.

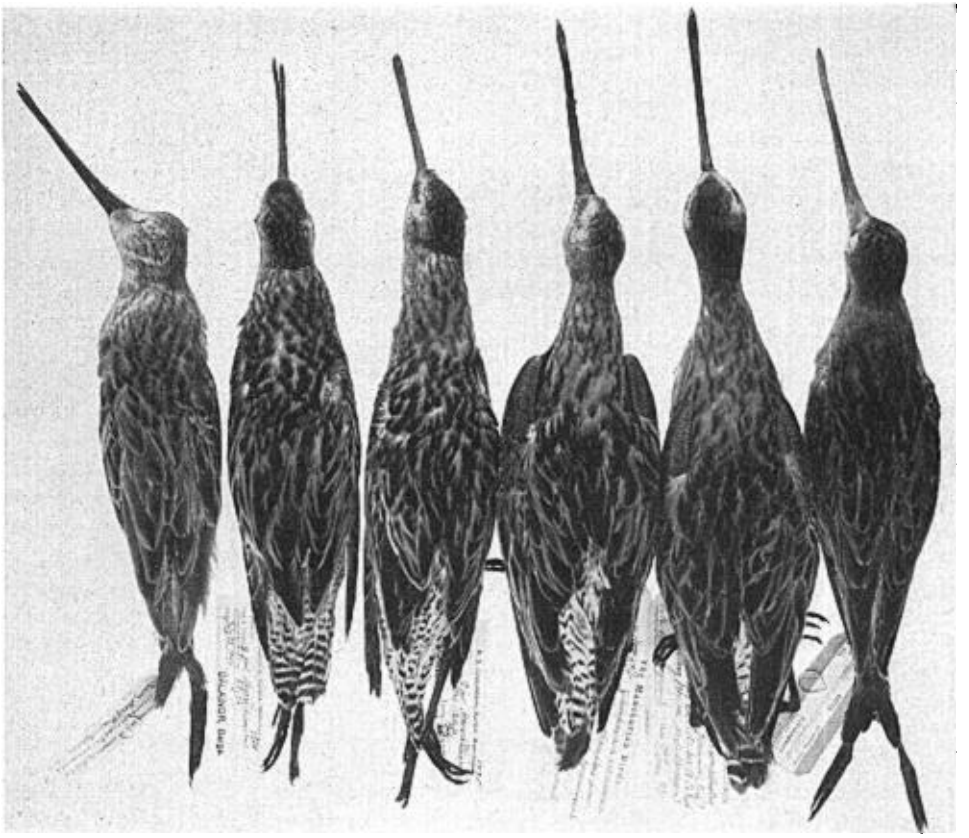

Fig. 55. Plumages of *Limnodromus semipalmatus* shown in dorsal view. Specimens same as in figure 54.

Among the godwits, the juvenal plumage of *semipalmatus* resembles most closely that of *L. lapponica*. Ventrally, they differ in that (1) except for obsolescent marks on the flank feathers, spotting in *lapponica* is confined to the neck and breast and is lighter than in *semipalmatus*, and (2) the buff wash is lighter. Dorsally, the two differ in that (1) the brown coloration is lighter in *lapponica* than in *semipalmatus* (thus, the back pattern is less contrasting), (2) the lower back is less black (thus more white), and (3) the broad lateral buff margins are scalloped more or less along their inner edges, thus breaking the streaked effect conspicuous in *semipalmatus*.

If the resemblance between juvenal plumages of *semipalmatus* and *griseus* is really significant, then attention should also be called to "significant" similarities between the juvenal plumages of *Limnodromus scolopaceus* and *Limosa haemastica*. In this instance, there are again clear-cut differences in pattern, chiefly on the lower back, tail, and posterior under parts. But these need not be described; my only point is that there is just as much basis for statements linking the latter pair of species as for those of Lowe (*loc. cit.*), Brodkorb (1933:127), and others relative to the resemblances of *semipalmatus* to *griseus*.

The plumage of the downy young of *semipalmatus* has been described by Hachlow (1932:290). So far as I can tell from the description and rather poor color reproduction,

the resemblance, in pattern at any rate, to the American dowitchers (Pitelka, MS) is close. In color, the downy young of *semipalmatus* is dark and similar to or darker than that of *Limnodromus scolopaceus*. It is much darker than the downy young of *Limosa lapponica* and *L. limosa* (see Witherby, *et al.*, 1940:159, 165). There are differences of pattern also (see Hachlow, *loc. cit.*). These facts are stressed by taxonomists who place considerable emphasis on evidence of affinities suggested by plumages of downy young and who, on this basis, would link *semipalmatus* with *Limnodromus scolopaceus* and with *Capella*, as exemplified by *C. gallinago*. Evidence from downy young thus does not agree with the main thesis of this paper, but the possibility remains that this evidence has been overemphasized. Clearly, other plumage characters must be considered in phylogenetic postulations together with those of the downy young.

With reference to Lowe's (1931:755) statement concerning the "convincing" similarities of the downy young of *Limnodromus scolopaceus* and snipes, I have compared three downy young of *Capella gallinago* with nine of *Limnodromus scolopaceus* in conjunction with descriptions provided by Witherby, *et al.* (1940:202, 212), where the necessary data are adequately recorded. Here I wish only to call attention to the fact that the two differ to clearly evident degree in patterning on crown, sides of head, chin and throat. Over the remainder of the body, pattern does not differ, while color tones are darker ventrally and richer dorsally in *Capella*. (See also Brooks, 1939:452.) I conclude that resemblances between downy young of *Limnodromus* and those of *Capella* may have phylogenetic significance, or they may not, and that adequate, analytical, and convincing comparisons among downy young of scolopacids have yet to be made, or if made, have yet to be fully presented in print.

EXTERNAL MORPHOLOGY

Turning our attention briefly to structural characters, those of wing and tail form, tarsal scutellation, and development of hind toe attributed by Witherby, *et al.* (1940: 155) to *Limosa* apply also to *Limnodromus semipalmatus* and even to the two American dowitchers. Thus: "Wings long and pointed, first developed primary longest. Tail almost square. Legs long, bare portion of tibia longer than middle toe [at least in *Limosa limosa*, about as long in *Limnodromus semipalmatus*, shorter in American dowitchers]. Tarsus scutellated . . . . Hind toe well developed."

Webbing of the toes in *semipalmatus* (see illustration, Seebohm, 1888:399) is better developed than among members of the genus *Limosa* or the American dowitchers. The webs extend the full length of both inner and outer proximal phalanges. In *Limosa* and the American dowtchers (Ridgway, 1919:177, 182, 196), the web extends along half or more of the proximal phalanx of the outer toe; it is absent or only indicated between the inner and middle toes. In linking *semipalmatus* closely to the American dowitchers, Brodkorb (1933:127) referred to the "web of *semipalmatus* as a good specific character, rather than of generic value," but considered together with characters of plumage color, pattern, and dimorphism (see beyond), this character adds weight to the view that *semipalmatus* is farther removed from the American dowitchers than is now admitted.

Bill characters of *Limosa* and *semipalmatus* are similar except for the facts that the bill in *semipalmatus* is not recurved and the tip of the bill is dilated and pitted, thus snipe-like.

Examination of skins suggests that in *semipalmatus* the ear openings are somewhat lower and more anterior than in the godwits, and thus similar in position to those of the American dowitchers. Skeletal material needed to substantiate this point was not available in the present study.

SIZE

Measurements of *Limnodromus semipalmatus* are given in table 2. These are more extensive than data given by preceding authors. Moreover, the wing measurement (chord) is based only on adult specimens. In the American dowitchers, I find that the wing of first-year birds averages shorter than that of adults because the former carries the juvenal primaries held through the first year until the time of the first complete molt. This difference, while small, becomes important in statistical comparisons of large samples. The average wing dimensions of *semipalmatus* given in table 2, probably because they are those of adults exclusively, are greater than those given by most previous workers. The results presented in table 2, however, must be regarded as provisional not only because of small numbers of specimens, but because there is within the species some suggestion either that variability is greater than indicated by these data or that there is a racial break-up not yet detected. A male specimen (FM 80713) not included in table 2, collected by C. J. Aazaard at Ban Hia, Siam, on April 22, 1926, measures 88.3

Table 2

Measurements of *Limnodromus semipalmatus*

		Number of specimens	Range	Mean
Wing[1]	Females	6	168 –181 mm.	174 mm.
	Males	8	164 –172	169
Culmen[2]	Females	9	78.3– 87.1	82.9
	Males	14	74.7– 81.9	80.1
Tarsus[2]	Females	9	47.6– 54.0	50.8
	Males	14	45.8– 52.7	50.7
Weight[3]	Females	5	165 –245 gr.	190 gr.
	Males	3	168 –194	181

[1] Data from adult specimens only.
[2] Data from adult and first-year specimens, the latter collected no earlier than April after the summer of hatching.
[3] Taken from Shaw, 1936:408; a July male collected in Manchuria (MCZ 271625) weighed 160 grams.

mm. in culmen length. It may be a missexed bird, yet it was taken in a season when sexing is not difficult, its plumage is brighter and more extensively rust than that of any other male seen by me, and other dimensions (wing, 171 mm.; tarsus, 51.1) are not extreme, but fall into the overlap between sexes. It may be noted also that Shaw (1936: 408) lists three males with culmen lengths of 81, 83, and 85 whereas none of the 14 other males measured by me has a culmen longer than 82 mm.

But these problems notwithstanding, we can use the data of table 2 for the purpose of general interspecific comparisons. In table 3, measurements from males of two species of *Limosa* and of the American dowitchers are provided. A comparison of these data indicates that among males of these several forms, *semipalmatus* is closest to *Limosa lapponica* in bill and tarsal lengths while it is more or less intermediate between the godwits and dowitchers in wing size. The point I wish to stress here is that there is a clear gap between *semipalmatus* and both the American dowitchers, genus *Limnodromus, sensu stricto*. Again, then, considered with foregoing data, the argument that *semipalmatus* is not closely related to the American dowitchers is furthered. While no skeletal material of *semipalmatus* is available to me, I cannot help noting that head-body proportions in this species, as indicated by a series of skins, are similar to those of *L. lapponica*, and not to those of American dowitchers; that is, the head of *semipalmatus* and the godwits is smaller relative to body than in the American dowitchers.

Size comparisons have been limited to males because of the fact that in the dowitch-

ers (Pitelka, MS), and apparently also in the godwits, degree of sexual dimorphism in dimensional characters is not consistent among species, and the smaller dimensions of males appear to be more useful as bases for interspecific comparisons. This, however, is a matter open to discussion since the problem of differential degrees of sexual dimorphism in certain groups of closely related birds has been little studied. It is one of considerable biological importance.

MOLT AND DIMORPHISM

The material available to me consists of 11 specimens in adult breeding plumage, 8 in first-year (some possibly second-year?) plumage, 12 in juvenal plumage, and 4 in winter plumage. This limited material indicates that sequence of molts and plumages in *semipalmatus* is comparable, in more obvious features at any rate, to that of *Limosa lapponica* and *L. limosa* (Witherby, *et al.*, 1940:158, 164) and also to that of *Limnodromus griseus* (Pitelka, MS). Descriptive data for these latter species may be consulted for the facts. My chief point here is that there is no indication at present that *semipalmatus* differs from either *Limosa* or the American dowitchers, but comparisons based on much larger series should be made.

Table 3

Comparative Measurements of Male Godwits and Dowitchers in Millimeters[1]

	Number of specimens	Range	Mean
Wing			
Limosa limosa limosa	5	198 –225	211
Limosa lapponica baueri	10	218 –235	224
Limnodromus griseus	17	142 –151	146
Limnodromus scolopaceus	20	133 –143	139
Exposed culmen			
Limosa limosa limosa	5	86 –124	103
Limosa lapponica baueri	10	77 – 86	80
Limnodromus griseus	24	51.5– 61.5	56.9
Limnodromus scolopaceus	47	56.8– 68.6	62.1
Tarsus			
Limosa limosa limosa	5	72 – 84	75
Limosa lapponica baueri	10	49 – 53	51
Limnodromus griseus	25	33.4– 40.0	36.7
Limnodromus scolopaceus	47	34.7– 41.2	39.2

[1] Data on *Limosa* are taken from Ridgway (1919:179, 188); data on *Limnodromus* are original and based on Alaskan specimens only.

According to Witherby, *et al.* (1940:159, 165), there is among the godwits a varying tendency toward sexual dimorphism in plumage. In *semipalmatus,* as among the godwits and *not* among the American dowitchers, this tendency is clearly manifest. The fully adult female of *semipalmatus* differs from the male in that rust coloration averages lighter and is not so extensive ventrally; also, the breast may be lightly spotted (see fig. 54). The adult breeding plumage of the female appears to be more variable than that of males and occasional individuals are as richly colored as males (example: HBC 14028). A similarly varying color dimorphism occurs in *Limosa limosa* (Witherby, *loc. cit.*).

DISCUSSION AND CONCLUSIONS

Data presented in foregoing sections, then, are my basis for the introductory statements that *Limnodromus semipalmatus* is doubtfully a close relative of the American dowitchers and also doubtfully a member of the Scolopacinae. I hesitate to isolate *semi-*

palmatus again as the lone member of the genus *Pseudoscolopax* (Blyth, 1859:280), since no satisfactory answer to the question of systematic position of *semipalmatus* can be given at this time. Yet such action would better reflect the present state of knowledge, since the onus of proof would seem to lie with those who regard *semipalmatus* as a member of *Limnodromus*. Some consideration may well be given to Ridgway's (1919:145) suggestive placement of *Pseudoscolopax* with *Limosa* and thus apart from *Limnodromus*, even though his key (p. 146) places them in the same subfamily. In other words, he was concerned here not with just another case of generic splitting, as implied by Brodkorb (1933:127), but with degrees of relationship with the results just cited.

Whether *semipalmatus* should or should not remain in the genus *Limnodromus* can perhaps be answered conclusively by a three-way morphological comparison of this form with *scolopaceus* and Atlantic coast specimens of *L. griseus* representing the smallest race of the latter species. But, as pointed out earlier, we are faced not only by the question of the relationships of *semipalmatus* to other scolopacids, but also by the fact that the present subfamilial subdivision of the Scolopacidae needs to be reexamined. It is obvious that in this comparatively old group of birds, as in the ducks and others, what is most badly needed is information on comparative ethology. At the same time, a comprehensive comparative study of the plumages, molt sequences, and morphological characters would provide clues as to the species on which ethological data would prove most critical.

Information available now suggests strongly the possibility that *Limnodromus semipalmatus* may be a relict form. This suggestion comes not only from the morphological data, but also from the fact of its interior Asiatic breeding range (Lowe, 1931:757). A number of authors dealing with different geographic sections of the Asiatic avifauna have commented on its relative scarcity among the shorebirds of that region.

The problem presented by *L. semipalmatus* is put in a nutshell by its vernacular name, "Snipe-billed Godwit." Long ago, Swinhoe (1863:313) said, "You have only to cut off the bill, and it is almost undistinguishable from *Limosa uropygialis* [= *lapponica*]." The resemblance has been noted also by more recent authors. Appropriate at this point are the comments made by Lowe (1931:720) relative to pattern resemblances in conjunction with the arrangement of genera in the subfamily Tringinae:

"I have already called attention . . . to the great value which . . . colour-pattern schemes have in enabling us to appreciate the relationship which may or may not exist in regard to the members of any given assemblage of 'Waders,' to say nothing of other avian groups . . . . They actually seem to indicate far more important and 'deep-seated' genetic factors than the usual generic characters . . . with which the more evanescent factor of habit is more probably associated . . . . Yet in many of the leading and important works which have professed to classify the members of the Scolopacidae. such truly genetic linkage factors have been entirely overlooked or ignored . . . ." Had Lowe applied these ideas fully in his study of *semipalmatus*, he could hardly have been so definite as he was in his views concerning its relationships.

One more consideration remains. Robinson and Chasen (1936:145) and Delacour (1947:87) regard *L. semipalmatus* as a race of *L. griseus*. It should be clear from the foregoing data and discussions that there is no basis at all for this action.

DISTRIBUTION

The easternmost part of the breeding range of *L. semipalmatus* described by Peters (1934:273) is central Mongolia. It is possible to extend the known distribution eastward on the basis of specimens examined in this study. Three of these specimens were

taken by A. S. Loukashkin near Tsitsihar in the Heilunkiang Province, in central Manchuria.

A list of specimens examined follows. Places of deposit of all specimens are indicated. Since the distribution of *L. semipalmatus* is only sketchily known, locality data and dates of occurrence are given as precisely as possible. Breeding specimens were examined from three Siberian and three Manchurian localities.

Specimens examined.—Total, 35. MALAY PENINSULA: *Bintang I.*—Pulo Adang (Dec. 15), 1 (US). CHINA: *Fukien*—Foochow (Oct.), 2 (MCZ); *Chihli*—Peitaiho (Aug. 14-18), 2 (HBC). MANCHURIA: *Barga District*—Lake Dalai Nor [? = Hulun Nor] (June 3–July 30), 14 (3 FM, 8 HBC, 1 ASL, 2 MCZ); Lamagure Lamasery on Urshun R. (June 8–July 22), 6 (ASL); *Heilunkiang Province*—Nonniho Valley, near Tsitsihar Station, Ch. East Ry. (June 9), 3 (ASL). SIAM: Ban Hia (April 22-26), 3 (2 FM, 1 HBC); Lacon Pen. (Aug. 30), 1 (MCZ). SIBERIA: Argun, Dauria [in Transbaikalia] (June 1), 1 (US); Kirghizland [Southwest Siberia] (June 21), 1 (MCZ); Tchutznog's Lake [Southwest Siberia] (June 7), 1 (MCZ). [US, United States National Museum; ASL, A. S. Loukashkin Collection; CM, Chicago Natural History Museum; HBC, H. B. Conover Collection; MCZ, Museum of Comparative Zoology.]

SUMMARY

The relationships of the Asiatic shorebird now known as *Limnodromus semipalmatus* to the American dowitchers (*Limnodromus griseus* and *L. scolopaceus*) and to the subfamily Scolopacinae are questioned. Data on plumage pattern and color, sexual dimorphism, external morphology and size considered together suggest relationships to the Limosinae, or at least to *Limosa lapponica* and *L. limosa,* should the latter subfamily prove to be polyphyletic. These and other facts indicate that *semipalmatus* may be a relict species meriting close study. Placement of *semipalmatus* in the monotypic genus *Pseudoscolopax* Blyth would better reflect present knowledge concerning its relationships. The known distribution of *semipalmatus* is extended eastward to central Manchuria.

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