

CRITICAL NOTES ON *LIMNODROMUS SEMIPALMATUS*

By A. L. RAND

The Old World dowitcher *Limnodromus semipalmatus* (Blyth) is so similar to the New World dowitchers *L. griseus* and *L. scolopaceus* that these several forms have been considered conspecific; but recently Pitelka (Condor, 50, 1948:259-269) has maintained that the relationships of *semipalmatus* are unknown, and Sutton (Condor, 51, 1949:259-261) has resurrected the monotypic genus *Pseudoscolopax* for it.

In attempting to evaluate their reasoning, I found it necessary to condense and list their arguments and conclusions. The latter are so at variance with mine that I have also examined the material in the Chicago Natural History Museum, including a partial skull of *Limnodromus semipalmatus*.

Pitelka suggests that we do not know the closest relative of *Limnodromus semipalmatus* and attempts to demonstrate this by stressing similarities with *Limosa*. He considers the following points:

Color pattern.—The speckled downy young of *L. semipalmatus* (Hachlow, L'Oiseau, 2, 1932:290) is very similar to that of *L. scolopaceus* (specimens, C. N. H. M.). The downy young of *griseus* (specimens, H. B. Conover coll.), though different enough to tell at a glance, is still the same general light-spotted type of plumage, but paler. These are all very different from the blotched young of *Limosa*, as Pitelka admits, but he is loathe to attach significance to this.

In all subsequent plumages the color and pattern would allow us to put *semipalmatus* in either *Limnodromus* or *Limosa*. Its inclusion in *Limosa* would call for only a slight change in our concept of the known color patterns in that genus; its inclusion in *Limnodromus* would not increase the variation in color or patterns in that genus to the extent that now exists in *Limosa*. This is a neutral point.

External morphology.—Wing and tail form, tarsal scutellation, and development of hind toe Pitelka considers neutral. In greater webbing of the toes *semipalmatus* differs from both *Limnodromus* and *Limosa*, and Pitelka attaches some weight to this as indicating that *semipalmatus* is further removed from *Limnodromus* than is now admitted. However, it must be remembered that extent of webbing between toes may be only a subspecific character in shore birds, as in *Charadrius h. hiaticula* and *C. h. semipalmatus*. These characters all seem neutral at a generic level.

Bill characters of *Limosa* and *semipalmatus* according to Pitelka are similar except for the fact that the bill in *semipalmatus* is not recurved and the tip of the bill is dilated and pitted, thus snipe-like. However, the bill of *semipalmatus* is almost precisely like those of *Limnodromus scolopaceus* and *L. griseus* in straightness, in the dilated, pitted form of the tip, and in the way the upper mandible fits in part into the wider lower mandible. If there is a difference, it seems that this last character may be slightly more accentuated in *scolopaceus*. In these characters the bills contrast strikingly with those of *Limosa*.

The ear seems to be more below the eye in *semipalmatus*, agreeing better with *Limnodromus* than with *Limosa* according to Pitelka from an examination of skins, a fact which I have corroborated by skull examination. Actually this is but another expression of change in skull form (see below).

Size.—Pitelka devotes about a page to size, showing that *semipalmatus* is intermediate in wing size but in tarsus and bill is closer to *Limosa*. General size, especially when of the magnitude of male wing (*Limnodromus griseus* 146 and *L. semipalmatus*

169; *Limosa haemastica* 203 and *L. lapponica* 224 mm.), seems useless as a generic character.

Pitelka got the impression from handling skins that the head of *semipalmatus* was relatively smaller than the body, compared with the condition in *Limnodromus griseus* and *scolopaceus*, and more like the condition in *Limosa*. I have compared the skeletal material of males of *Limosa* and *Limnodromus* available.

Species	Body length*	Skull length from anterior border of orbit	Index: $\frac{\text{Body}}{\text{skull}}$
<i>Limosa fedoa</i>	122 mm.	30 mm.	4.06
<i>Limosa limosa</i>	102	28	3.64
<i>Limosa haemastica</i>	110	28	3.57
<i>Limnodromus scolopaceus</i>	75	20	3.75

* From anterior surface of shoulder to tip of pubis.

Thus, it seems that the ratio of skull to body length in *scolopaceus* falls within the range of that ratio in *Limosa* and the character is not of use here.

Molt and sexual dimorphism.—Molt is similar in the different forms and Pitelka considers this neutral as a character. But sexual dimorphism in color, which he describes for *L. semipalmatus*, the female being on the average paler and sometimes having spotting ventrally, he uses as evidence. *L. griseus* and *scolopaceus* he says have none, while among godwits there is a varying tendency toward sexual dimorphism. In some species of *Limosa*, however, this tendency is so slight or even nonexistent that Ridgway (Birds N. M. Amer., part VIII, 1919:178 ff.) described *Limosa fedoa*, *L. lapponica baueri*, and *L. haemastica* as sexes alike in summer while only *L. limosa* is given as having the female different from the male. It is no more illogical to have sexual dimorphism, also lack of it, in *Limnodromus* than in *Limosa*. And this seems a neutral character. Sexual dimorphism in size Pitelka quite rightly considers a neutral character here.

It is advisable to tabulate these characters of *semipalmatus* and see how they add up.

Character	Relationships
(1) Color pattern	Downy young—strongly <i>Limnodromus</i> ; subsequent plumages—neutral.
(2) External morphological characters	Wing, tail, tarsal scutellation and development of hind toe—neutral. Palmation—neutral. Bill character—strongly <i>Limnodromus</i> . Ear situated below eye—strongly <i>Limnodromus</i> .
(3) Size and relative size of head and body	Neutral.
(4) Molt and sexual dimorphism	Neutral.

Even disregarding Lowe's (Ibis, 1931:712-771) findings, based on the skull, as Pitelka did, on the basis of this summary, I cannot agree with Pitelka that "Placement of *semipalmatus* in the monotypic genus *Pseudoscolopax* Blyth would better reflect present knowledge concerning its relationships." *Limnodromus semipalmatus* seems to be a dowitcher.

Lowe (*op. cit.*) when studying the genus *Limnodromus* evidently had some skeletal material of *L. semipalmatus*, but, perhaps because it was so similar to *L. scolopaceus* which he figured, he made little comment on it. Thus the matter might have rested. But in view of Pitelka's comments that *L. semipalmatus* may not be closely related to *L. scolopaceus* and *griseus*, I extracted a skull (incomplete) from a skin of *L. semipalmatus* and compared it with skulls of *Limnodromus scolopaceus*, *Limosa fedoa*, *Limosa limosa*

and *Limosa haemastica* (see fig. 35). The two species of *Limnodromus* (*scolopaceus* and *semipalmatus*) agree among themselves and differ from the three species of *Limosa* in:

(1) the increase in size of the ectethmoidal plate and its closer association with the orbital process of the lacrymal,

(2) the more forward position of the squamosal process, quadrate and other associated parts of the lower base of the skull (this naturally puts the ear farther forward under the eye),

(3) the greater extent of the ossified nasal septum,

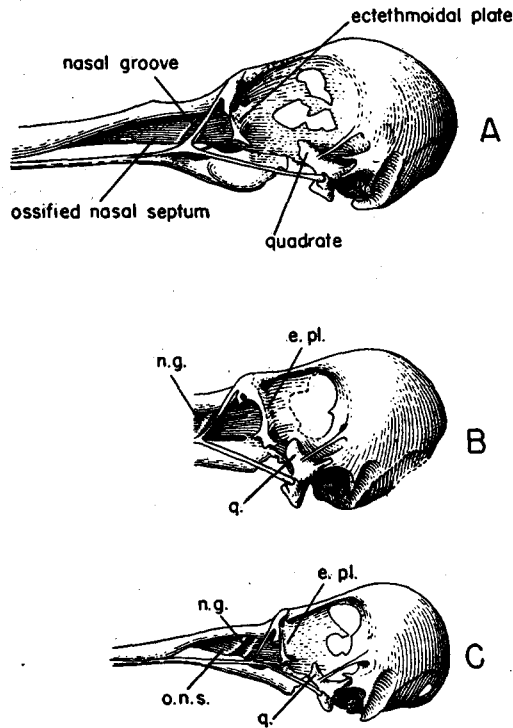


Fig. 35. Skulls of *Limosa limosa* (A), *Limnodromus semipalmatus* (B), and *Limnodromus scolopaceus* (C). Broken lines in B indicate where the bone is broken. Approximately $\times 1$.

(4) the groove for the nasal nerve on each side of the nasal septum is forward of the external process of the nasal bone, and

(5) another skeletal point, mentioned by Lowe but not evident from the incomplete skull of *L. semipalmatus* I have checked by forcing open the bills of skins. The palatal surface of the premaxillaries has a conspicuous downward projecting ridge for the middle third of their length in *L. scolopaceus*; this is lacking in *Limosa*. Forcing open the bills of skins one is able to see that *L. semipalmatus* has a ridge like that of *L. scolopaceus*.

There are no characters which present material of *Limnodromus semipalmatus* shares with *Limosa* which it does not also share with *Limnodromus scolopaceus*.

The conclusion from the skull is the same as from the external characters: *Limnodromus semipalmatus* is a dowitcher and more closely related to the other members of the genus *Limnodromus* than it is to those of the genus *Limosa*.

As to the validity of *Pseudoscolopax*, Pitelka suggested it be revived, and Sutton resurrected it and compared *Pseudoscolopax* with *Limnodromus griseus*. His characters are as follows: (1) plumage differences, quoted from Blyth, (2) hallux proportionately longer and heavier, (3) nostril more slit-like and 3-6 mm. from frontal feathering, rather than 1-2 mm., (4) peculiar troughing of bill, and (5) more extensive semipalmations between toes.

Plumage differences referred to by Sutton have been considered above and shown not to provide sufficient basis to separate *semipalmatus* from *Limnodromus*; indeed the downy young show a close relationship. The hallux being proportionately heavier and longer and the nostril being more slit-like and farther from frontal feathering may be real structural differences, but very small ones. If similar small differences were used in such currently accepted genera as *Tringa*, *Numerius*, *Limosa* and *Erolia*, these genera too would have to be divided much further.

Sutton did a useful service in pointing out the troughing of the lower mandible in *semipalmatus*, the upper mandible fitting into the lower mandible, but the condition is equally if not even more pronounced in the other members of the genus *Limnodromus*.

The semipalmation of the toes, as pointed out above, may be only a subspecific character in some shore birds and thus has little weight at the generic level.

Sutton expresses no direct opinion as to the relationships of *Pseudoscolopax*; but since almost all his minute comparisons are with *Limnodromus griseus*, one may deduce he thought it closely related to that. No sufficient reasons seem advanced for regarding *semipalmatus* as the type of a monotypic genus. Sutton states further that he may have been influenced in his thinking by the distributional range of *semipalmatus*. This one would think would be in direction of considering it a geographical representative of *L. griseus* and *scolopaceus*. That it is such a representative is obvious, but as with *Numerius borealis* and *N. minutus*, the differences seem great enough to consider them as distinct species.

DISCUSSION AND CONCLUSIONS

The species *Limnodromus semipalmatus* looks like a dowitcher; Lowe, who had skeletal material, considered it a dowitcher and made only minor comment; and some recent authors have considered it conspecific with the American dowitchers. Pitelka, on the basis of external characters, thought that *semipalmatus* was not a dowitcher, that it might be as closely related to the godwits as to the dowitchers.

From an examination of Pitelka's arguments, and the skins and the skeletal material in the Chicago Natural History Museum, it appears that *L. semipalmatus* has been correctly placed in the genus *Limnodromus*, contrary to Pitelka's views.

Sutton's resurrection of *Pseudoscolopax* appears to be an example of generic splitting which would serve no useful purpose and would conceal rather than elucidate relationships. If the same degree of "splitting" were followed in other groups of shore birds, the result would be a bewildering array of genera.

SUMMARY

The relationships of the Asiatic dowitcher (*Limnodromus semipalmatus*) are considered. It is demonstrated that they are with other members of the genus *Limnodromus* and that *semipalmatus* should be included in that genus in accordance with usual practice, rather than considering it a subspecies of either of the American species, or a representative of the monotypic genus *Pseudoscolopax*, and of unknown relationships.

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