

THE RACES OF THE KNOT (*CALIDRIS CANUTUS*)

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There has been some confusion as to the races of the Knot (*Calidris canutus*), especially those found in the Nearctic region. Whereas Ridgway recognized only one, both the latest A.O.U. Check-list and Peters suggest that there may be three forms nesting between Greenland and Alaska. To try to throw some light on this question, I have borrowed a number of specimens, which, together with those in my own collection and that of the Field Museum of Natural History in Chicago, have given me some two hundred specimens for examination. Unfortunately, it was found that the plumage of birds in breeding dress seems to wear and fade very rapidly so that breeding specimens and many northern migrants were only of slight value for comparative purposes. In making these racial studies, therefore, only examples falling within the following three groups were used: (1) adults in comparatively fresh breeding plumage collected in the months of April, May, and June; (2) adults in winter plumage; and (3) young of the year in immature plumage taken from August to November. It is this last group that shows the racial characteristics most clearly.

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## ADULTS IN BREEDING PLUMAGE

A fine series of specimens from the eastern coast of the United States in fresh breeding plumage and a number from the interior is available in the Field Museum. Unfortunately, only an occasional specimen from the much smaller series of European and Asiatic specimens examined is in like plumage. From the Pacific coast of North America, only one example in comparable dress is available; Alaskan birds are too worn to be of much use. Therefore, the specimens in this group left much to be desired when it came to distinguishing racial characteristics, and only rather general broad deductions could be made.

Specimens from the eastern coast taken in May are very light colored on the upperparts and have a very grayish appearance especially on the hind neck and crown. They show only a moderate amount of rufous. Specimens from Saskatchewan and Alberta are the same, but seem on the average to have more rufous on the scapulars and tertials. The European series, though the plumages are more worn, gives an impression of being redder, less grayish above, with the rusty coloring darker and much more in evidence on the back of the neck and crown. The three Greenland specimens were taken some years ago and are somewhat stained, but appear to have the rusty hind neck and crown of the European birds.

In the small series from Asia there is great variation. While the specimen in the freshest plumage, an April bird from Shanghai, is as light above as the majority from the eastern coast of America, two others, one from Thailand and one from Fukien, have very dark rusty coloring and resemble European examples. The rest seem intermediate between European and eastern American specimens. Alaskan birds, as stated, are too worn to be of much use, but the single specimen from the coast of Washington agrees with the majority in the Asiatic series.

On the underparts, while the European and Greenland birds seem to show a strong tendency toward a darker, richer red coloring, the variation in both the European and American series is so great that this feature has little value as a distinctive racial characteristic.

To summarize, from these specimens it appears that in breeding plumage, European and Greenland specimens are darker and more rusty above than birds from the eastern coast and interior of North America, whereas examples from eastern Asia (and probably the Pacific coast of North America) are intermediate.

*Specimens examined.*—Europe and Greenland: England (Pagham Harbor, 1); France (St. Vigor, 2; St. Valery, Somme, 1; Havre, 1); Greenland (unspecified, 3). Total, 8.

Asia and Pacific coast of North America: China (Shanghai, 7; Fukien, 2); Thailand (Me Klong, 1); Alaska (Barrow, 1; St. Michaels, 2; Hooper Bay, 1; Sitka, 1); Washington (Long Beach, 1). Total, 16.

Interior and Atlantic coast of North America: Canada (Ft. Simpson, Mackenzie, 1; Lake Athabaska, 3; Tofield, Alberta, 4; Lake Johnson, Saskatchewan, 7); New York (Cayuga, 3); North Carolina, Dare County (Bodie Island, 8; Pea Island, 15); South Carolina (Mt. Pleasant, 1; Dewee's Island, 1). Total, 43.

#### ADULTS IN WINTER PLUMAGE

The available specimens of a limited series were taken on greatly scattered dates throughout the winter from November to April. No differences in color correlated with locality were found.

*Specimens examined.*—Europe: England (Burnham, Somerset, 3; Kingsbridge, Devon, 1; Blackpool, Lancashire, 1; Fleetwood, Lancashire, 1; Fairhaven, Lancashire, 1); Hungary (unspecified, 1). Total, 8.

Asia: Thailand (Me Klong, 2; Ban Hia, 1). Total, 3.

North America: North Carolina, Dare County (Bodie Island, 3; Pea Island, 1); Georgia (McIntosh County, 1); Florida (Grove City, De Soto County, 1; Canaveral, Brevard County, 1; Louisiana (Brenton Island, 1); Texas (Nueces County, 2; San Patricio County, 1); California (Humboldt Bay, 1). Total, 12.

#### YOUNG OF THE YEAR

Specimens from North America east of the Rocky Mountains are on the average much lighter above than those from Greenland, Europe, Asia, Alaska, and California. This is especially noticeable when a series is examined, although an occasional dark example from eastern America can be approximately matched by a light European or Alaskan specimen. The eastern American birds, also, have whiter, less buffy edges to the feathers of the upper back, scapulars, tertials and upper wing coverts. The dusky submarginal line on these feathers is generally narrower, duller and therefore less conspicuous. Strange to say, in variance with examples in breeding dress, the small series of immatures from Asia average much darker than the European ones, but this may be due to their being in fresher plumage. They are matched, however, by four of the Greenland specimens and several from Europe. Only six of the fifteen Alaskan examples are as dusky, but the remainder together with those from California are like the European series, and not like those from east of the Rocky Mountains. Therefore, there seem to be no satisfactory characters on which to separate immature knots from Europe from those from Asia and the Pacific coast of North America.

To summarize, in the first or immature plumage Knots can be divided into two groups, a lighter one found in North America east of the Rocky Mountains and a darker one inhabiting Europe, Asia, Alaska and the Pacific coast of North America.

One example seen from La Paz, Lower California, belongs with the light eastern

race. It may well be that both the light and the dark forms winter on the Pacific coast of Central and South America.

*Specimens examined.*—Europe and Greenland: Greenland (Parker Snow Bay, near Cape York, northwestern Greenland, 4; unspecified, 1); Norway (Bergen, 3); France (Havre, 2); England (Kingsbridge, Devon, 2; St. Ann's, Lancashire, 1; Romney, 2; Burnham, Somerset, 2; Fleetwood, Lancashire, 3; Pagham Harbour, 2; Rossal, Lancashire, 1); Italy (Cremona, Lombardy, 1). Total, 24.

Asia and western North America: Siberia (Chaun Bay, 1; Indian Point, 2); Japan (Yokohama, 1); China (Foochow, Fukien, 1; unspecified, 1); Alaska (Point Barrow, 3; Wainwright, 1; Port Safety, 2; Golovin Bay, Norton Sound, 2; St. Michael, 7); California (Trinidad, Humboldt County, 1); Pacific Beach, San Diego County, 2; Moss Landing, Monterey County, 1); Mexico (La Paz, Lower California, 1). Total, 26.

Interior and eastern North America: Quebec (Magdalen Islands, 4); Alberta (Athabaska Delta, 1); Massachusetts (Monomoy Island, 16; Marshfield, 1; unspecified, 1); Connecticut (West Haven, 1); Indiana (Miller, 4; Wolf Lake, 2); Illinois (Waukegan, 1); North Dakota (Ramsey County, 1; Graham Island, 1). Total, 33.

#### SUMMARY

From the above study it appears that there is an eastern American race of the Knot characterized by lighter colored upperparts in both the breeding and immature plumages, but indistinguishable from the typical European race in winter dress. It also appears that whereas specimens from eastern Asia in breeding dress are not like either the European or eastern American forms, but are intermediate, examples in immature plumage are inseparable from the typical race. Therefore, the Asiatic form, *rogersi* (Mathews) seems to be an unsatisfactory one, and it is suggested that it be combined with the European race.

If these suggestions are accepted, the races of the Knot, together with their ranges, would be as follows:

#### *Calidris canutus canutus* (Linnaeus)

*Tringa Canutus* Linnaeus, Syst. Nat., ed. 10, 1, 1758:149; Europe; restricted type locality, Sweden.  
*Canutus canutus rogersi* Mathews, Birds Austr., 3, 1913:270, 273, pl. 163; Shanghai, China.

*Range.*—Breeds from northwestern Greenland (Parker Snow Bay) and Spitzbergen east across arctic Europe and Siberia to Point Barrow, Alaska. (The Bishop Collection in Field Museum contains a downy young Knot taken at Barrow, Alaska, on July 17, 1936.) Migrates south through Europe, Asia and along the Pacific coast of North America. Winters in England, Africa, Australia, New Zealand, and probably on the Pacific coast of South America.

#### *Calidris canutus rufus* (Wilson)

*Tringa rufa* Wilson, Am. Orn., 7, 1813:43, pl. 57, fig. 5; Middle Atlantic States, that is, New Jersey.

*Range.*—Breeds in arctic Canada. Migrates south through North America east of the Rocky Mountains. Winters in Central and South America (probably both coasts) south to Tierra del Fuego and occasionally on the south Atlantic and gulf coasts of the United States.

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