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THE NORTH PACIFIC ALLIES OF  
THE PURPLE SANDPIPER

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In attempting to identify some specimens of sandpipers of the *Erolia ptilocnemis* group collected by myself some years ago about Hooper Bay, on the Bering Sea coast of Alaska, it became necessary to borrow examples from both the Pribilof and the Aleutian Islands. As the majority of the Hooper Bay birds did not seem to fit either of the forms from these localities, more specimens were obtained until I had for examination some five hundred odd examples of this species from all its known range except the Kurile Islands, from which only one immature bird was to be had.

A study of these specimens has led me to some conclusions at variance with the generally accepted ones. In the first place, I believe that there are three instead of only two forms inhabiting American territory regularly, with a fourth one, *quarta*, perhaps straying onto this continent occasionally. These three forms are typical *ptilocnemis*, a lighter, grayish bird nesting on the Pribilofs and some other islands in Bering Sea; *couesi*, a smaller, darker form, with the upper parts in the breeding season more buffy than reddish, found on the Aleutians; and, lastly, a dark form, with a more reddish dorsal surface in the breeding season, which nests in Siberia and certain places on the Alaska mainland north of the Alaska Peninsula. For this race the name *tshuktschorum* Portenko is available. Furthermore, study of these specimens leads me to believe that the Aleutian form, *couesi*, is mostly resident on those islands, and that at least the great majority of the birds wintering on the Pacific coast from the Alaska Peninsula south to Oregon are examples of *tshuktschorum*. While in winter plumage the two races cannot be told apart; all the

late April and May specimens examined, from Admiralty Island south to Washington (twenty-four examples), have the darker red edges to the feathers of the upper parts which are characteristic of *tschuktschorum* rather than of *couesi*.

These forms have sometimes been considered as conspecific with *maritima* Brunnich, because of the great similarity of their winter plumage. However, their downy young (which I believe are of great value in showing the degree of relationship among different forms) are very different. The general appearance of *maritima* downies is gray and black, speckled with white and with only very faint yellow tinges showing here and there. Pribilof and Aleutian downies on the contrary have a reddish yellow tone, with scattered dusky patches, the whole sprinkled with white. In fact, there is much more difference between the two than there is between downies of *Ereunetes pusillus* and *E. mauri* or *Arenaria interpres* and *A. melanocephala*.

I am indebted to the following ornithologists and institutions for the loan of specimens: John Aldrich of the Fish and Wildlife Service, A. M. Bailey of the Colorado Museum of Natural History, Herbert Friedmann of the United States National Museum, Alden Miller of the Museum of Vertebrate Zoology, Robert Orr of the California Academy of Sciences, James L. Peters of the Museum of Comparative Zoology, Thurston Wright of the Chicago Academy of Sciences and John T. Zimmer of the American Museum of Natural History.

Below are given in more detail the differences between the races, their ranges, and facts about the specimens examined. However, it should be pointed out here that because of the rapidity with which the breeding dress of these sandpipers wears and fades, it is necessary to compare specimens taken on approximately the same dates to get a clear idea of the differences between the different forms. For instance, May examples from the mainland are very much redder than May birds from the Aleutians but a July series from Siberia has the upper parts so faded that they are buffy instead of red and very much like *couesi*.

### ***Erolia ptilocnemis ptilocnemis* Coues**

*Tringa ptilocnemis* Coues, in H. W. Elliot, Rep. Seal Ids. Alaska, unpagged, note, 1873—St. George Island, Pribilof Islands.

*Range*.—Breeds in Bering Sea on the Pribilof, St. Matthew and Hall Islands. Winter range not well known, but the bird leaves the Pribilofs by October and has been found sparingly in winter, or on



migration at Hooper Bay, Nunivak Island and different localities on the Alaska Peninsula and southern Alaska.

St. Lawrence Island has generally been considered as part of the breeding range of this race. The twenty specimens in spring plumage examined from that locality, however, while not quite typical of *tschuktschorum*, seem much too dark to be classified with the Pribilof Island form.

*Breeding plumage.*—A series of fifty-two specimens in breeding dress has been examined. They were taken from April 23 to July 17. The salient characteristics of this series are as follows: The April and May birds (from St. George, St. Matthew and Unimak Islands and Hooper Bay on the mainland) have the light edges to the feathers of the upper parts and the chest a reddish clay color (Mikado Brown). This rapidly fades to ochraceous so that specimens taken in early June are very different from the April and early May birds. The upper wing coverts are rather broadly margined with white or grayish white, but these lighter edges wear rapidly, so that in late June or July specimens they are little broader than those found in the other races. However, even with these worn margins, the wing coverts in typical *ptilocnemis* have a lighter appearance as the dusky background is not so dark.

While the breeding series examined belong together as far as coloration is concerned, there is some variation in size according to locality, the Pribilof birds being the largest, with a gradual diminution on each island as one goes north. The measurements are as follows:

	MALE		FEMALE	
	Wing	Culmen	Wing	Culmen
St. Paul Island . . . . .	126-132	30-35	131-137	34-37
St. George Island . . . . .	127-133	30-34	128-135	33-36
St. Matthew Island . . . . .	127-132	27-30.5	127-131	31-34
Hall Island . . . . .	125-129	29-30	128-132	31-34

A single male from Unimak Island has a wing of 128 and a culmen of 30, while two males taken at Hooper Bay on the mainland during spring migration have wings of 124 and 129, with culmens of 28.5 and 29 mm. respectively. The place of capture and measurements of the Hooper Bay birds suggest that they were en route to St. Matthew or Hall Island. Their coloration seems too light for them to belong to the St. Lawrence Island breeding stock.

*Specimens examined (breeding dress).*—52: St. Paul Island, 26; St. George Island, 9; St. Matthew Island, 7; Hall Island, 7; Hooper Bay, 2; Unimak Island, 1.

*Winter plumage.*—In winter plumage this race is characterized by its light grayish appearance, whereas all the other forms are much darker. Below is a list of the localities from which specimens in winter plumage have been examined. Dates also are given. It will be noted that there is a space of five months, from late October to late March, during which no specimens seem to have been taken.

*Specimens examined (winter dress).*—30: St. Paul Island, 19 (August 9–October 19); St. George Island, 2 (September 7); Nunivak Island, 1 (October 5); Point Etolin, 3 (April 8–10); Nushagak, 2 (April 1–18); Juneau, 3 (March 25–April 5).

*Immature plumage.*—Immatures of this race, like the adults, are much lighter than those of the other forms. This is especially noticeable on the back of the neck, top of the head and sides of the face. On the under side the dark streaks on the feathers of the lower neck, chest and flanks are duller, less distinct.

This plumage is retained for a surprisingly short time and seems to wear and fade very rapidly. Two specimens taken on July 30 have already lost most of the dark buffy edges to the feathers of the mantle and one shows a number of the feathers of the winter plumage. By early August many specimens are well along into the winter garb. The nesting season must be quite protracted, however, as a specimen taken on September 13 is in practically full immature dress.

*Specimens examined (immatures).*—30: St. Paul Island, 18; St. George Island, 9; St. Matthew Island, 2; Nunivak Island, 1 (September 13).

*Downy plumage.*—The downy Pribilof sandpipers are lighter, more yellowish, above than downies of the other races; otherwise there is no difference.

*Specimens examined (downy plumage).*—15: St. Paul Island, 12; St. George Island, 2; St. Matthew Island, 1.

Mr. A. C. Bent (1927, p. 156), in comparing the downy young of the Pribilof and Aleutian sandpipers, states that they are similar in pattern but the colors are different, the former being "much duller." Having seen the specimens in his collection and compared them with others taken on the Pribilofs, I cannot help but think that there is something wrong—that for some reason the Bent specimens have become discolored. All the other Pribilof downies that I have examined, when compared to specimens from the Aleutians, are brighter, lighter and more yellowish, just the opposite of his statement.

***Erolia ptilocnemis couesi* Ridgway**

*Arquatella couesi* Ridgway, Bull. Nuttall Orn. Cl., 5, p. 160, 1880—Aleutian Islands and coast of Alaska north of St. Michaels; type from Chichago Harbor, Attu Island, Aleutian Islands.

*Range*.—Resident on the Aleutian and Shumagin Islands, intergrading with *tshuktschorum* on the Alaska Peninsula.

*Breeding plumage*.—Sixty-five specimens taken from May 3 to June 27 have been examined. Most of them are from the Aleutians, a few from the Alaska Peninsula. This series is much darker than that of typical *ptilocnemis*, the primaries, rump and tail being more dusky, while the upper wing coverts are not only darker but have rather indistinct grayish white margins, much narrower than those in the preceding race. The face and entire head are also darker, the dusky shades prevailing in this form instead of the lighter colors. In early May the edges to the feathers of the upper parts are Ochraceous Tawny, but this color rapidly fades, becoming more ochraceous as the season advances. Below, the throat is often speckled with dusky, the lower neck and upper chest are not nearly so ochraceous (occasional specimens in this respect are like the typical race), and the belly, flanks and under tail coverts are generally more sprinkled with dusky. There is much variation, however, especially in the width of the light edges of the upper parts. The specimen taken on Attu Island and referred provisionally by Bent (1927, p. 160) to *quarta* is in my opinion not nearly rusty enough for that race and is simply a rather aberrant specimen of *couesi*. Several other Aleutian specimens that I have examined have just as broad light edges to the feathers of the upper parts.

Measurements of Aleutian specimens are, for males, wing 112–125, culmen 24–31; females, wing 117–132, culmen 28–36.5 mm.

The small series from the Alaska Peninsula is not quite typical, as there seems to be a tendency toward the next race *tshuktschorum* in several of the specimens. A male taken at Izembek Bay on May 28 and showing large brood patches is redder on the upper parts than birds from the Aleutians taken about the same date. Four other specimens from the same locality, however, are typical *couesi*.

*Specimens examined (breeding dress)*.—65: Aleutian Islands (Attu, 16; Agattu, 3; Kiska, 11; Tanaga, 4; Adak, 3; Atka, 8; Chuginadak, 2; Unalaska, 1; Akutan, 2; Unimak, 1; Sanak, 4); Alaska Peninsula (Port Moller, 1; Moller Bay, 3; Izembek Bay, 5; unspecified, 1).

*Winter plumage*.—Differs from typical *ptilocnemis* by being much darker both above and below. The Pribilof sandpiper has a light

gray appearance, *couesi* a sooty blackish one, the feathers of the upper parts being sooty blackish edged with dark gray. Below, the Aleutian bird is much darker, more sooty on the neck, chest, upper breast and flanks.

*Specimens examined (winter plumage)*.—25: Akutan, 4 (October 9); Unimak, 5 (September 17, January 12 and 20); Unalaska, 16 (September 15–February 17).

*Immature plumage*.—Immatures of *couesi* are much darker than those of the typical race. Above, the buffy edges to the feathers are darker, as is the gray on the hind neck, sides of the crown and sides of the face, while the light edgings to the feathers of the rump, when not worn away, are buffy, not gray as in typical *ptilocnemis*. Below, the lower neck and chest are darker buff with much heavier dusky shaft streaks, which extend much farther onto the breast.

*Specimens examined (immature dress)*.—14: Aleutian Islands (Attu, 1; Unalaska, 3); Nushagak, 2; Alaska Peninsula (Morzhovoi Bay, 7; King's Cove, 1).

*Downy plumage*.—As stated under the preceding race the downies of *couesi* are darker, more reddish, less yellowish; otherwise there is no difference.

*Specimens examined (downy plumage)*.—9: Aleutian Islands (Attu, 3; Adak, 2; Tanaga, 1; Little Kiska, 1; Little Sitkin, 1; unspecified, 1).

### ***Erolia ptilocnemis tshuktschorum* Portenko**

*Arquatella maritima tshuktschorum* Portenko, Mitt. Zool. Mus. Berlin, 22, p. 225, 1937—"Terrae Tshuktschorum," type from Uelen.

*Range*.—Known to nest in Siberia (Emma Harbor, on Providence Bay), on St. Lawrence and Nunivak Islands, and at Wales, Alaska, but probably breeds on the Chukchi Peninsula, Siberia, and in suitable localities between Cape Prince of Wales and Hooper Bay, Alaska. Winters on the Pacific coast of North America from the Alaska Peninsula south to Washington, and occasionally northwestern Oregon; probably also on the Kamchatka Peninsula.

The breeding range is still imperfectly known, but in the summer of 1924 while we were collecting in the vicinity of Hooper Bay, on Bering Sea, the Eskimos told us that this species nested sparingly in the hills back of Cape Romanzof. In support of this statement, on July 30 of that year I collected on the tundra back of Point Dall two immatures with down still adhering to the sides of the crowns of their heads.

*Breeding plumage.*—One hundred and fifteen adults taken in spring and early summer have been examined. This race is more like *couesi* than typical *ptilocnemis*. Compared to the Aleutian birds the mainland form is darker, more reddish above, with the white tips to the feathers of the upper parts broader and more conspicuous because of the generally darker appearance of the bird as a whole. This darker hue is brought about by the light edges to the feathers being narrower and dark reddish instead of dark buff. Below, there is no constant difference between the two. The wings average slightly longer, running in males from 120 to 127 and in females from 122 to 131 mm., as against 113 to 125 and 117 to 132, respectively.

From the typical race *tschuktschorum* differs by having the light edges to the feathers of the upper parts dark reddish, not reddish clay color; the rump, primaries, secondaries and upper wing coverts darker, with narrower white edges to the latter; and the crown of the head darker, less grayish. Also there are no light edges to the feathers of the rump and upper tail coverts. The under parts have a darker appearance, the sides of the face and foreneck having very little or none of the clayish buff wash found in *ptilocnemis*, while on the upper chest this buff coloration is replaced by dusky mottlings and the black of the breast extends lower. The cheeks are generally duskiest and the ear coverts darker.

Twenty specimens from St. Lawrence Island are typical of neither the Pribilof nor the mainland race, and breeding birds from that locality are probably the connecting link between the two. Compared with a Pribilof series taken about the same dates, eight collected from June 23 to 27 are not so grayish nor are the rusty edgings to the feathers of the upper parts so ochraceous, while twelve taken in July are much redder, not nearly so light buffy above, and they also have a darker, less grayish look. It seems best, therefore, because of this darker appearance and their smaller size (wings, males 122–128, females 125–131) to classify St. Lawrence birds with *tschuktschorum*.

A series of sixteen specimens taken at Nunivak Island shows wide variation. However, all were taken after July 1 and most are somewhat faded. Thirteen seem to belong to the mainland race, while the three others resemble *couesi* and may be strays from the Aleutians. Although taken in July (one as late as the 21st) these three are in fresh unworn plumage. None of this Nunivak series appear to me to belong to typical *ptilocnemis*, as Swarth has stated (1934, p. 31).

There is great variation in these sandpipers, and an occasional specimen from the range of *tshuktschorum* resembles *couesi* and vice versa. An example from St. Michaels taken on May 22 and two shot at Emma Harbor on June 6 and 11 are like the Aleutian series, while a bird from Unimak Island, collected on May 18, has the upper parts rather reddish and more closely resembles the mainland race. Even more extreme is an example taken at Prince of Wales Island on May 9, which has the light edges to the feathers of the upper parts almost as broad as in the Commander Island race *quarta* but an even darker red. It is a male (wing, 125 mm.) and is probably but an extreme variation of *tshuktschorum*. Another male, however, in the Colorado Museum of Natural History, taken at Wales on June 8, has a wing of 125 and culmen of 25.5 mm., but in coloration agrees very closely with a breeding series from Bering Island. It may well be a stray.

As stated above, all specimens examined from the coasts and islands of Washington, British Columbia, and southern Alaska which were taken late enough in the spring to show signs of the breeding plumage belong to this race and not to *couesi*. There were twenty-four examples in all and they were collected between April 27 and May 14. It seems therefore that at least the greater part of the birds wintering south of the Alaska Peninsula belong to *tshuktschorum*.

*Specimens examined (breeding dress).*—115: Siberia (Emma Harbor, 14; East Cape, 3; Cape Serdze, 1); Alaska (St. Lawrence Island, 20; Wales, 22; St. Paul Island, 2;<sup>1</sup> Hooper Bay, 13; Nunivak Island, 16; Admiralty Island, 3; Prince of Wales Island, 1; Sitka, 1; Juneau, 1; Forrester Island, 14); British Columbia (Queen Charlotte Islands, 2; Comox, Vancouver Island, 1); Washington (Jefferson County, 1).

*Winter plumage.*—In winter plumage this race seems to be indistinguishable from *couesi*. An occasional winter specimen is found with the gray edgings to the feathers of the dorsal surface broader and much lighter than usual, giving an appearance somewhat like that of typical *ptilocnemis*. On closer examination, however, the centers of the feathers are found to be much darker than in winter specimens of that race. These examples are very puzzling, but perhaps they may come from St. Lawrence Island, where the breeding stock, as pointed out, appears to be intermediate in character. Seven of these lighter birds have been examined, one each from Cold Bay and Pavlof Bay on the Alaska Peninsula and five from Juneau.

<sup>1</sup> April and July.

*Specimens examined (winter plumage).*—52: St. Lawrence Island, 1; St. Paul Island, 2 (September and November); St. George Island, 2 (September and February); Alaska (Norton Sound, 1; St. Michaels, 11; Nunivak Island, 3; Nushagak, 3; Point Etolin Bay, 1; King's Cove, 1; Pavlof Bay, 3; Cold Bay, 1; False Pass, 1; Sitka, 2; Juneau, 8; Wrangell, 5; Auk Bay, 1; Fogg Bay, 1); British Columbia (Comox, Vancouver Island, 1); Washington (Jefferson County, 3; Dungeness, 1).

*Immature plumage.*—Immatures of this race cannot be distinguished from those of *couesi*.

*Specimens examined (immature plumage).*—79: Siberia (Plover Bay, 1); St. Lawrence Island, 4; Alaska (Wales, 2; Nome, 1; St. Michaels, 66; Topkok, Norton Sound, 2; Kashunuk River, Hooper Bay, 2; Nunivak Island, 1).

*Downy plumage.*—The only specimen examined, from Nunivak Island, does not differ in coloration from the like plumage in *couesi*.

### ***Erolia ptilocnemis quarta* Hartert**

*Erolia maritima quarta* Hartert, Nov. Zool., 27, p. 137, 1920—Bering Island.

*Range.*—Breeding and probably resident on the Commander Islands.

*Breeding plumage.*—This race has the light edgings to the feathers of the mantle, scapulars and tertials so broad that the dorsal surface has the appearance of being almost solid rufescent. Males, wing 117–126, culmen 25–28; females, wing 120–128, culmen 27–32.5 mm.

Differs from the typical race by its much smaller size and much darker, more reddish, upper parts which have the light edges to the feathers broader and the dark centers much less in evidence. The primaries, upper wing coverts, rump and tail are darker, the sides of the head less whitish and the chest and belly more marked with dusky.

From *couesi* it can be separated by its brighter, more reddish dorsal surface. Where the Aleutian birds are ochraceous buff, *quarta* is darker rufescent buff with the light edges to the feathers very broad.

Differs from *tshuktschorum* by its brighter and lighter reddish upper parts, which, as has been pointed out above, appear almost solid rufescent, whereas in the mainland race the red edges are darker and the dusky centers to the feathers are dominant.

There appears to be one record for this race from the Alaska mainland. It is a specimen now in the Colorado Museum of Natural

History, taken June 8 at Wales. It has a wing of 125 mm. and in coloration and breadth of the light edges to the feathers of the dorsal surface agrees with a series of breeding birds from Bering Island.

*Specimens examined (breeding plumage).*—10: Bering Island, 9; Wales, Alaska, 1.

*Winter plumage.*—Does not differ from that of *couesi* or *tshuktschorum*. The specimens listed below were taken from September 22 to March 11.

*Specimens examined (winter plumage).*—10: Bering Island, 9; Copper Island, 1.

*Immature plumage.*—Same as in *couesi*.

*Specimens examined (immature plumage).*—3: Bering Island, 3.

*Downy plumage.*—The two specimens examined are fairly well feathered out on the back and wings. They do not differ from similar examples from the Aleutians.

*Specimens examined (downy plumage).*—2: Bering Island, 1; Copper Island, 1.

### ***Erolia ptilocnemis kurilensis* Yamashina**

*Arquatella maritima kurilensis* Yamashina, *Tori*, 6, p. 89, 1929—Paramushir, Kurile Islands.

*Range.*—As far as known, resident on the northern and central Kurile Islands.

The English résumé following the original description in *Tori* reads: "Resembles *A. m. quarta* but smaller. Wing 112–118 (male), 116–120 (female) mm. in the present form instead of 121–130 mm. as in *quarta*. Type, male adult in summer plumage in Yamashina Collection, No. 3512, Paramushir Island, northern Kuriles, August 11, 1928. Collected by H. Orii." Specimens examined by Yamashina were four males and two females taken in August, one winter male, and a male and female immature. The different measurements of these specimens are given. Culmen in males ran from 23 to 26 mm. and in females from 27 to 28. In describing *tshuktschorum* Portenko mentions examining two specimens of this race, and states that the wings were as in *quarta* but the bills were shorter.

Only one specimen and that in immature plumage was available to me for examination. It was taken on Sradnoe Rocks, Kurile Islands, and in coloration is no different from Aleutian or Bering Island specimens. It is a female and has a wing of 119 and a culmen of 26 mm.



This seems to be a rather poor race according to the little information available. If it should prove to be recognizable, the name *arquatella* Pallas (Pallas, 1811, p. 190) could be used for this form by restriction of the type locality to the Kuriles (which are repeatedly mentioned in the description). This name does not appear to have been disposed of by any definitive action.

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