

## REVIEW OF JAPANESE BIRDS.

P.

VIII.—THE NUTCRACKER (*NUCIFRAGA CARYOCATACTES MACRORHYNCHOS*).

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Having recently been asked by Victor Ritter von Tschusi-Schmidhoffen to express an opinion in regard to the races of *Nucifraga caryocatactes*, I shall not attempt a full analysis of the whole question, but only review the material in my hands, as it may throw some light on the subject.

Brehm was the first to clearly define the two races of Nutcrackers, which most ornithologists who have studied the question are now willing to admit. He was, however, unable to assign to them definite and distinct habitats, and partly because the shape of the bill, which is the principal characteristic of the two races, is in itself subject to great individual variation as well as to considerable changes on account of wear and tear, partly on account of the unreasonable prejudice of ornithologists concerning the forms described by Brehm, the races or subspecies in question were either misunderstood or entirely ignored for more than half a century. When, in 1872, I examined and measured a number of Nutcrackers in the museums of Bergen and Christiania for the monograph of von Tschusi-Schmidhoffen,\* I labored under the same impression, viz, that because both thick-billed and slender-billed specimens occurred in Norway there could not well be any racial difference. But after the elaborate monograph of Dr. Rudolf Blasius,† in which he most convincingly demonstrates that the resident bird of Europe is the thick-billed form, while the slender-billed individuals belong to the numerous flocks which, with short and irregular intervals, invade the western countries from the forest region of Siberia, there is no excuse for confounding them any more.

Before proceeding any further it will now be necessary to ascertain the correct names of the two forms. While expressing my great appreciation of Dr. R. Blasius's painstaking work, I can not but most severely condemn that he should think it necessary to reject the old names for the trifling reason that they are unsuitable, and substitute new terms in direct violation of the law of priority recognized both by the code of the American Ornithologists' Union and by the Stricklandian code. The new names are imposed in order to avoid misunderstandings and confusions, but they have only made confusion more con-

\* Der Taunenheher (*Nucifraga caryocatactes*). Dresden, 1873, p. 4.

† Der Wanderzug der Tannenheher, etc., *Ornis*, II, 1886, pp. 437-550, + pl. i-iii (also extr. page 1-114).

founded. It is safe to say that if Dr. Blasius and von Tschusi had stuck to the old terms they would by this time have become familiar to all ornithologists. As it is the new names should be suppressed as soon as possible, before more mischief is done.

The following is a condensed, but correct and nearly complete synonymy of the two forms. It is plain that the resident form of Sweden, upon which Linnaeus bestowed the name *Corvus caryocatactes* must stand as the typical form. The Thick-billed Nutteracker, therefore, is entitled to the name—

***Nucifraga caryocatactes* (LIN.).**

- 1758.—*Corvus caryocatactes* LINN., Syst. Nat., 10 ed., I. p. 106.  
 1816.—*Caryocatactes maculatus* KOCH, Syst. Baier. Zool., I, p. 93.  
 1816.—*Nucifraga guttata* VIEILLOT, Nouv. Dict. d'Hist. Nat., v. p. 354.  
 1817.—*Caryocatactes nucifraga* NILSSON, Orn. Svec., I, p. 90.  
 1823.—*Nucifraga brachyrhynchos* BREHM, Lehrb. Eur. Vög., p. 104.  
 1833.—*Nucifraga platyrhynchos* BREHM, Isis, 1833, p. 970.  
 1855.—*Nucifraga alpestris* BREHM, Vogelf., p. 66.  
 1860.—*Nucifraga caryocatactes major* BREHM, Journ. f. Orn., 1860, p. 236.  
 1886.—*Nucifraga caryocatactes pachyrhynchus* R. BLASIUS, Ornis, II, p. 543; extr. p. 107; pl. ii, figs. 3, 4; pl. iii.

Should it be found necessary to use a trinomial in order to avoid mistakes it should be no other than *Nucifraga caryocatactes brachyrhynchos*. On the other hand, the Slender-billed Nutteracker should stand as—

***Nucifraga caryocatactes macrorhynchus* BREHM.**

- 1823.—*Nucifraga macrorhynchus* BREHM, Lehrb. Eur. Vög., p. 103.  
 1833.—*Nucifraga hamata* BREHM, Isis, 1833, p. 970.  
 1845.—*Nucifraga caryocatactes* SELYS-LONGCH., Bull. Ac. Brux., XI (p. 295) (*part; nec* LINN.).  
 1855.—? *Nucifraga arquata* BREHM, Vogelf., p. 66.  
 1866.—*Nucifraga caryocatactes macrorhynchus* BREHM, Verz. Samml., p. 4.  
 1886.—*Nucifraga caryocatactes leptorhynchus* R. BLASIUS, Ornis, II, p. 543; extr. p. 107; pl. i; pl. ii, figs. 1, 2.

It appears that von Tschusi-Schmidhoffen, quite independently and about the same time, came to the same conclusions as Dr. R. Blasius,\* and both these ornithologists agree in dividing the Nutteracker into two races—one western, thick-billed, and another eastern, slender-billed. According to them *N. caryocatactes brachyrhynchus* “breeds in the northern temperate zone of the western portion of the palæartic region, viz. in the forests of Lapland, Scandinavia, the Baltic provinces of Russia, East Prussia, the Harz, the Riesengebirge (Böhmerwald), the Schwarzwald (Black Forest), the Carpathians (the mountains of Bosnia, Herzegovina, and Dalmatia), the whole extent of the Alps, and the Pyrenees.” *N. c. macrorhynchus*, on the other hand, is stated to “breed in the northern temperate zone of the eastern portion of the palæartic

\*See “Verbr. und Zug d. Tannenhebers,” Verhandl. k. k. zool.-bot. Ges. Wien, 1858, p. 488; extr. p. 82.

region, viz, in the forests of Asia, from Kamtschatka and Japan west to the Ural Mountains and the governments of Perm and Vologda in European Russia."

Mr. Henry Seebohm, in a paper "On the Arctic Form of the Nutcracker,"\* has lately taken issue with Dr. R. Blasius in regard to the alleged distribution of the two forms, though agreeing with him in the general result, viz, the distinctness of the forms and the migrant into northern Europe being the slender-billed Siberian race. He contends that "there is not an Eastern and a Western form, \* \* \* but an arctic and a temperate form. \* \* \* The Siberian form appears sometimes to winter in north China as well as in southern and western Europe, but the Japanese form appears to be a resident, and to be, to all intents and purposes, identical with the resident form of Europe. The white spots, both on the upper and under parts and on the end of the tail-feathers, are rather more developed in the Japanese birds than in the resident European ones, but not so much so as in examples from Siberia."

My material is not sufficient to solve the puzzle entirely, but I think it is large enough to show that Mr. Seebohm's theory is not well founded. But before examining my material I must, from a general stand-point, protest against the terms "arctic form" and "temperate form," used by Mr. Seebohm. In the first place, the Nutcracker is not an "arctic" bird. In Europe it occurs, more or less, stationary from Spain (roughly, 42° north latitude†) to northern Norway (about 64° north latitude). In northwestern Russia the typical form hardly extends so far north, while farther east the slender-billed race is not known to occur north of 62° north latitude, and the southern limit of its breeding range in the Ural seems to be about 62° north latitude.‡ In Asia the latter has been found by Mr. Seebohm himself in the valley of the Yenisej as far north as 67°, though farther east it hardly exceeds the sixty-fourth degree of latitude. The southern limit of its breeding range in western Asia seems to be the Tian-Shan,§ consequently about 40° north latitude, while in the extreme East slender-billed birds have been found in summer at least as far south as 38° north latitude. It will be seen that the distribution of the Siberian form, on the whole, is not more arctic than its western representative, if we regard the latitudes alone. But the adjectives arctic, for the former, and temperate, for the latter, are not better founded if, by such a nomenclature, we would indicate the relative distribution of the two forms where their ranges meet, for there is

\* Ibis, 1888, pp. 236-241.

† Blasius, as quoted above, states that it breeds in the Pyrenees, but according to Dr. Companyo, in Dresser's Birds of Europe, iv, p. 458, it is only a rare bird in the eastern Pyrenees, while Arévalo y Baca (Aves de España, Madrid, 1887, p. 260), expressly says that it occurs only accidentally in Spain. In Italy, according to Giglioli (Avif. Ital., 1886, p. 13) and Salvadori (Ucc. Ital., 1887, p. 180) the Nutcracker is stationary only in the Alps.

‡ Nazarow, Rech. Zool. Steppes Kirguiz, 1886, p. 31.

§ Zeverzow, Journ. f. Orn., 1875, p. 172.

no evidence that in any part of the whole palaearctic region breeding localities of the slender-billed race are situated north of those of the thick-billed form on approximately the same degree of longitude, unless Mr. Seebohm be correct in referring the Japanese specimens to the typical form.

In fact, this identification by Mr. Seebohm seems to be the only foundation for his theory of an arctic and a temperate race, as opposed to Blasius's of a western and eastern. Upon the proper reference of the Japanese specimens, therefore, hinges the whole question.

I have before me four examples from Japan, which I can compare with four from Korea, one from Kamtschatka, and a number of both forms from Europe. According both to Blasius and Seebohm, the slender-billed individuals from Western Europe are only immigrants from Siberia; they will consequently serve as well as specimens from the latter country.

Both Blasius and Seebohm lay considerable stress on the dimensions of the bills as indicating the subspecific difference. To a certain extent this is so, and an examination of the tables of measurements given below will therefore give some valuable hints as to the identity of the various individuals, but only if the specimens can be examined at the same time, for it is plain when inspecting a series of these birds that the peculiar *shape* of the bills in the two birds is of more importance than the length and the height. In the typical form the upper mandible is more swollen, the upper tomium more inflected, and the basal portion of the culmen straighter and more parallel with the commissure, while in the slender-billed form the upper tomium is hardly inflected at all, and the culmen tapers at once towards the tip from the frontal feathering. At the latter point the bills of both forms are nearly of the same height, and consequently Dr. Blasius's method of measuring the bills in the middle is more expressive than that of Mr. Seebohm, who measures them at the angle of the gonys. It is plain that this difference is easier to appreciate in the specimens than to express in words or condense into a satisfactory diagnosis, the more so since the bills in these birds are subject to considerable individual variation in all directions. I will also call attention to the fact that the bills of the resident birds of Europe seem to vary to some extent locally, as both Blasius and von Tschusi-Schmidhoffen have noted a difference in the stoutness of the bill in specimens from Sweden and from the Alps.

The other character to which Blasius has called special attention is the width of the terminal white band of the tail-feathers. In the typical form the average width is stated to be 18.3<sup>mm</sup>, while in the slender-billed subspecies it is given as averaging 27.4<sup>mm</sup> on the outer pair. The difference in the width of the white band is also admitted by Mr. Seebohm, and I find it corroborated by the material before me. I will remark, however, that this character is also subject to some individual variation, but, so far as I can make out, there is no local variation

within the two races. On the other hand, as in many other birds, the white ends to the tail-feathers are probably, on the whole, smaller in the young birds than in the old ones.

With these remarks in view, I shall now proceed to examine the material before me.

The first one is U. S. National Museum No. 110015, from Petropaulski, Kamtschatka, collected December 27, 1885. It is the easternmost example I have seen, and is a very pronounced slender-billed bird, agreeing closely with Blasius's fig. 2, pl. i. Its coloration exhibits the maximum amount of white, as might be expected.

Next comes four birds collected by Mr. P. L. Jouy, at Fusan, southern extremity of Korea (latitude 35°), the southernmost locality, I think, in which specimens of this species ever have been taken (U. S. National Museum, Nos. 114097-114100). They are all alike and very characteristically slender-billed, belonging undoubtedly to *macrorhynchos*, both on account of the shape and size of the bill and the width of the white tail-band. From Norway I have four slender-billed birds, evidently Siberian immigrants, collected near Bergen during the great invasion in 1887\* (U. S. National Museum, Nos. 113218-113222), which are in every particular identical with the Korean examples. It would be utterly impossible to tell these birds apart were the labels removed, and the uniformity of these eight specimens of so variable a species, and from so distant localities, is truly astonishing.

Finally, I have four specimens from Japan, collected by Mr. Jouy, but as two of them are young birds which have not yet fully assumed the adult plumage, they may safely be left out of the comparison. The remaining two are U. S. National Museum, No. 88701, ♀, Fuji, July 2, 1882, a fully adult bird, just molted into a fresh plumage, possibly the mother of the two young birds referred to, which were shot in the same locality on the same day, and the other, No. 91392, ♂, Tate-Yama, December 17, 1882. The latter is unquestionably a typically slender-billed bird, very much like the one described from Kamtschatka, with a slightly longer bill, the length of which exactly equals the average of the eight specimens from Korea and Norway referred to above, while the amount of white on the tail almost reaches the maximum. The bill is just a trifle higher than that of the other slender-billed specimens (though not reaching the maximum height of specimens measured by Blasius, *e. g.*, his

\* I have seen only few notices of the 1887 migration. According to J. Collin, in his "Bidrag til Kundskaben om Danmarks Fuglefauna," the Nutcracker has never before occurred in such numbers in Denmark. In Norway the immigration was remarkable both on account of the number of birds and the extent of country covered, specimens having been taken even north of Tromsø. Near Bergen about one hundred individuals were killed during September, and Mr. V. Storm states that the bird appeared in the vicinity of Trondhjem in vast numbers about the first of that month. Numerous specimens were received from Røraas, Guldal, (Erkedal, Rissen, and more northern localities. (K. Norske Vid. Selsk. Skr. 1886-'87, Trondhj., 1888, p. 52; Naturen, XII, 1888, p. 224.)

Nos. 30, 31), but its shape is normal, and differs in that respect from the *resident* Scandinavian birds as much as any one in the series. The Fuji-Yama bird, found breeding near the extreme southern range of the species, differs only in having the bill shorter than any other specimen in the series. The shape, however, is that of *N. macrorhynchos*, and the white on the tail is almost up to the average, as established by Blasius, or 3<sup>mm</sup> wider than the maximum of any specimen by him referred to the typical thick-billed form. That the shortness of the bill is no argument against referring this Japanese specimen to the Siberian form is very plain, from the fact that it is nearly identical with a Yenisej specimen collected by Mr. Seebohm himself (No. 176 of his collection, *vide* Blasius, *Ornis*, 1886, p. 472, extra p. 36, No. 8).\*

My material, therefore, contradicts Mr. Seebohm's suggestion that the resident bird of Japan is, "to all intents and purposes, identical with the resident form of Europe." On the contrary, it is evident to me that it is, to all intents and purposes, identical with the Siberian, or the slender-billed form *N. c. macrorhynchos*.

The very meager *details* in regard to his specimens, which Mr. Seebohm furnishes in his article, do not support his own conclusion that "the white spots \* \* \* on the ends of the tail-feathers are \* \* \* not so much [developed] as in examples from Siberia;" for he himself gives the white on tail as varying between 0.9 and 1.1 inch in the Japanese birds, against a variation of from 0.8 to 1.25 inch in Siberian and Chinese specimens and presumed European migrants, consequently nearly coinciding with the limits established for the latter.

I am, therefore, forced to conclude that Dr. R. Blasius and V. von Tschusi-Schmidhoffen are right in distinguishing between an eastern and a western race, and that Mr. Seebohm is wrong in assuming the existence of an arctic and a temperate form of the Nutcracker.

Before closing I would say, however, that I will not deny the possibility of a large series of Japanese birds showing a somewhat shorter bill, on the average, than continental Asiatic specimens; but I will venture to say that the difference in size and shape will not be so great as it is between resident birds from Scandinavia and southern Europe, and I do not think that the differences will ever prove tangible or constant *enough* to allow a further subdivision of this species. Blasius and von Tschusi have made it pretty plain that the differences in size and shape of bill in the two subspecies recognized are due to the difference in the food, the nut of the Siberian form of *Pinus cembra* having a thinner shell than the typical form growing in the mountains of central Europe. The difference between resident Scandinavian and South European specimens is easily explained from a similar reason, as *Pinus*

\* In the table alluded to the length of the bill is given as 30<sup>mm</sup>. This I take to be a misprint or a slip of the pen for 40<sup>mm</sup>, as the length from nostril to tip of bill is said to be 34.2<sup>mm</sup>, exactly as in the Japanese specimen before me, the exposed culmen of which is 40<sup>mm</sup>.

*cembra* does not occur wild in Scandinavia, where the Nutcrackers are compelled to live on seeds or nuts harder and more difficult to open. *Pinus cembra* is said to occur in the highest mountains of Hondo, Japan, but apparently in limited number. It is therefore doubtful whether the Nutcracker to any great extent feeds on this fruit. I am also unable to say whether the Japanese *P. cembra* belongs to a thin-shelled variety or to a thick-shelled, as I cannot find it stated whether the form occurring in Japan is *P. cembra sibirica* or not. It may be useful to remark, that Professor Schübeler (Die Pflanzenwelt Norwegens, Christiania, 1875, p. 154) characterizes the seeds of the two forms (or species?) as follows: *P. sibirica* having the seed sooty-brown in color, and rather attenuated in shape at one end, one hundred seeds weighing 24.75 grams, while those of *P. cembra typica* are light brown, oval or nearly globular, one hundred seeds weighing 39.10 grams. There are consequently three questions for the resident field ornithologists of Japan to solve: (1) Are the bills of the Nutcrackers residing in Japan normally and on the average shorter than the bills of the birds residing on the Asiatic main-land? (2) What kind of seed or nut forms the principal food of the Nutcracker in Japan? (3) Are the seeds of *Pinus cembra* in Japan incased in a harder shell than those from Siberia?

Measurements (in millimeters).

I. NUCIFRAGA MACRORHYNCHOS.

(a) Specimens from Japan.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Upper mandible beyond lower one.	Tarsus.	Middle toe with claw.	Height of bill in the middle.	White of outer tail-feathers.
88701	Jouy, 389..	♀ ad.	Fuji, Japan.....	July 2, 1882	182	123	40	1	38	35	11	26
91392	P. L. Jouy, 879.	♂ ad.	Tate-Yama, Japan..	Dec. 17, 1882	192	129	45	1	40	34	11	32

(b) Specimens from Continental Asia and Europe.

114097	P. L. Jouy, 1540.	♂ ad.	Fusan, Korea.....	Sept. 23, 1885	182	123	47	4.5	38	....	9	24
114098	P. L. Jouy, 1548.	♂ ad.	....do.....	Sept. 27, 1885	190	128	46	3	39	....	10	26
114100	P. L. Jouy, 1549.	♀ ad.	....do.....	Sept. 27, 1885	180	119	43	2	40	....	10	28
114099	P. L. Jouy, 1550.	♂	....do.....	Sept. 27, 1885	186	125	48	3	41	....	10.3	32
110015	Hunter ...	.....	Petropaulski, Kamtschatka.	Dec 27, 1885	180	119	42	4	38	....	10	34
113218	Berg. Mus.	♂	Bergen, Norway...	Sept. 18, 1887	180	120	43	2	39	34	9.5	22
113220	...do.....	♂	....do.....	Sept. 30, 1887	176	122	42	2	37	....	8.8	29
113221	...do.....	♂	....do.....	Sept. 18, 1887	182	129	45	1	41	....	10	25
113222	...do.....	♂	....do.....	Sept. 10, 1887	177	117	44	1	39	33	9.6	27

## II. NUCIFRAGA CARYOCATACTES.

98573	Stejneger, 65.	♀ ad.	Christiania, Norway.	Sept. 20, 1873	185	123	41	0	40	36	12	20
111106	Collett ...	♀ ad.	.....do .....	Sept. 28, 1886	184	122	42	0	40	34	12	18
9673	Von Müll- ler.	♂ ad.	Germany .....	.....	193	122	47	2	.....	.....	11	20