

THE REDISCOVERY OF THE NUTHATCH *DAPHOENOSITTA*
WITH NOTES ON ITS AFFINITIES.¹

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THE rediscovery of the rare pink and black Nuthatch (*Daphoenositta*) was one of the most interesting ornithological results of the American Museum's 1933 Papuan Expedition.²

But seven specimens of *Daphoenositta* were in existence, and none of these was in America, up until the time our collections were made, so that the finding of this bird added considerably to the interest of our mountain work.

The species was first discovered by Signor Giulianetti, collecting for Sir William MacGregor during October 1-5, 1896, on Mt. Scratchley, Wharton Range, in southeast New Guinea, at an altitude of 3750 meters. He collected three skins of females and a spirit specimen, and recorded the stomach contents as insects.

The distinctiveness of the bird and its relation to *Neositta* were recognized by DeVis who described it as a new genus and species, *Daphoenositta miranda*.³

Salvadori examined one of these specimens in 1898 and discussed the species in 'The Ibis' for that year. The species was figured at the same time.⁴

The species was next found by Mr. Lorentz who collected three males in the Hellwig Mountains (eastern Snow Mountains) in October 1909. These were referred to a new subspecies, *frontalis*, by Van Oort.⁵

This is all that was known about this aberrant Nuthatch.

In the course of our explorations we collected *Daphoenositta* only on Mt. Tafa, a subsidiary mountain of the Wharton Range, about forty kilometers west of Mt. Scratchley where Giulianetti discovered it forty years before.

We camped on the east slope of Mt. Tafa at about 2000 meters altitude for most of May 1933. This was in the tall, dense subtropical forest. Here we encountered *Daphoenositta* only twice. On May 21 I found a party of about eight birds feeding amongst the smaller limbs in the top of a tall forest tree, and on May 28 Mr. Archbold found another party in a similar situation.

The next two months were spent on the Wharton Range at 3680 meters altitude on Mt. Albert Edward, where no *Daphoenositta* was seen, and in

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² This expedition, sponsored and led by Mr. Richard Archbold, had for its object the study of the flora and vertebrate fauna of the higher altitudes in southeast New Guinea.

³ 1897, *Ibis*, p. 380.

⁴ 1898, *Ibis*, pp. 208, 209, pl. IV.

⁵ 1910, *Notes Leiden Museum*, XXXII, p. 214.

Murray Pass, at 2800 meters, where I saw a party of small birds I took to be this species but it was so difficult to move about in the trailing-bamboo draped forest that I was unable to secure a specimen.

Returning to Mt. Tafa at the end of August we camped at about 2400 meters, where the tall forest of the Subtropical Zone changed to the mossier forest of the Temperate Zone. Here we found *Daphoenositta* fairly common.

On August 27 a flock of about ten of these Nuthatches came into the trees about the camp clearing. They were not in the tree tops this time but low amongst the smaller limbs and even on the trunks of the trees within five meters of the ground. They were behaving rather in the manner of Nuthatches, hopping along the smaller branches, head upwards or head downwards, and also up and around the trunks of the trees, clinging to the bark. As I noted on other occasions also, each member of the flock kept uttering little short calls so that the result recalled that produced by a flock of Finches. The birds were not at all shy, though quick and active in their movements, and I was able to collect seven before the flock left.

During the next few days I saw several flocks of this species in the tree tops but due to the difficulty of moving about on the steep wooded slopes I was unable to get near them before they moved away through the forest.

On August 31 I found a party of about ten close to the trail, moving about in the smaller limbs in the top of the tree. The birds were shy and the flock kept moving about so I was able to secure but one before the rest disappeared. I saw another flock on September 1 moving quickly about in the tops of the tallest tree; two days later Mr. Brass, the botanist of our party, secured one bird from a flock and the next day a shooting boy brought in one he had collected from a flock. This was the last we saw.

This bird, rare in collections, appears to be fairly common in its mountain habitat at about 2400 meters, and to range from 2000 to 3750 meters; thus it is a bird of the Subtropical and Temperate Zones.

The parties of six to ten in number, keep together and move about quickly through the forest. They are usually in the smaller branches of the tree tops, but occasionally come down into the lower branches and even on to the tree trunks; they creep about the branches searching for their food in a fashion which recalls the Red-breasted Nuthatch (*Sitta canadensis*). Their food is evidently largely insect matter as several stomachs examined contained insects, including two caterpillars; and one contained a spider.

These parties of Nuthatches never were accompanied by other species. The flocks contained birds of both sexes; in one flock were birds with enlarged gonads, adult birds showing no enlargement of their gonads, and birds in immature plumage with skulls incompletely ossified.

On Mt. Tafa there seemed to be a general breeding season for most birds beginning about October, but *Daphoenositta* appeared not to conform to

this; males taken in May as well as one in August had enlarged gonads; three August females had somewhat enlarged ovaries.

Color of soft parts: adult male iris dark brown, bill black, feet dark olive brown; adult female iris yellow, bill black, feet yellow, nails gray; immature male (molting out of nestling plumage) iris grayish brown, bill black, feet horn color, tinged olive; immature female (largely in nestling plumage) iris pale yellow, bill grayish black, base of mandible gray, gape yellow, feet grayish yellow, nails gray.

The measurements of our series in mm. are as follows:

	Male Ad.				Male Imm.			Female Ad.				Female Imm.
Wing	84	86	86	87	79	82	82	81	84	85	87	82
Tail	42.5	42	43	42.5	41.5	41	—	39	40.5	41.5	43	41
Culmen	11	13	12	12	12	12.5	—	12	11	11	12	11
Tarsus	18	20	18	18	17.5	17.5	13	18	18	17	19	—

One specimen, a female taken August 27, is in nearly full nestling plumage, just starting to molt into the first year dress. The forehead is cinnamon, the rest of the upper parts are dusky black with cinnamon tips to the feathers, except for the more silky rump feathers which are gray tipped dark rufous. Chin and upper throat are light cinnamon; breast feathers are grayish black tipped cinnamon, the lower breast and abdomen gray, the feathers tipped with pale cinnamon. The wing is black like the adult wing but the upper coverts and tertials are tipped cinnamon. The tail is similar to that of the adult but the pink areas are less intensely colored. Two immature males are molting into first year plumage and two are in complete first year plumage.

The first year plumage is acquired by an incomplete molt, the rectrices, remiges and some of the upper wing-coverts being retained. This first year plumage resembles that of the adult except for being slightly less intensely colored. Male and female are alike in plumage and size but are easily distinguished by the color of the soft parts.

The genus *Daphoenositta* is very well marked. It differs from *Neositta* in the straight, not upcurved, culmen, the uncination and notch more pronounced, the basal widening of the bill greater, the nostrils having a more developed operculum, the almost complete lack of nasal, rictal, and interramal bristles. The tarsus is much longer than the bill and slightly longer than the middle toe with claw, the scutulations on the front of the tarsus are less distinct than in *Neositta*. The tail equals about one-half the wing length and the tail is quite rounded. The texture of the plumage of *Daphoenositta* is a further development along the lines of *Neositta* away from *Sitta*. The terminal fourth of the feather is of firmer, more compact structure than the basal portion and the narrow edgings to the feathers are grayish and

slightly iridescent, giving a scaled appearance. (However, *Callisitta* also has a firmer feather structure than *Sitta*.) The difference in color pattern is mentioned below.

The genus *Daphoenositta* contains but a single species, *miranda*, with the typical subspecies in southeast New Guinea; and the subspecies *frontalis* distinguished by the greater extent of red on the forepart of the head according to the descriptions, in the Hellwig Mts. (eastern Snow Mountains near the head of the Noord River).

*Daphoenositta*¹ is an aberrant Nuthatch which is probably best included with *Neositta* in a separate subfamily. *Neositta* has been considered as forming the subfamily Neosittinae, but as *Daphoenositta* is the oldest genus, the subfamily must be called Daphoenosittinae.

This subfamily is characterized by the laterally compressed bill (nearly approaching the condition of a ridged culmen) with a slight (*Neositta*) or a pronounced (*Daphoenositta*) basal expansion, exposed, linear, strongly operculate nostrils, the unciniate and notched maxilla (DeVis, l. c., described the bill as not notched), the absence or very slight development of nasal, rictal, and interramal bristles, the long wing with the second primary about equal the fifth. The outer toe is relatively longer than in the Sittinae; without its claw it reaches beyond the last joint of the middle toe.

In color pattern both *Neositta* and *Daphoenositta* differ greatly from typical Nuthatches, *Neositta* being gray, streaked with dusky or brown above, the lower rump and upper tail-coverts white, the crown black, gray, or white, below white with or without streaks. *Daphoenositta* has the body plumage generally blackish, with red about the bill and an indication of a red rump; both have a light (white or rufous) band across the middle of the under side of the wing. The coloration of the spotted young, differing from the adults, also contrasts with *Sitta*.

Neositta makes an exposed nest in the fork of a branch; the nidification of *Daphoenositta* is unknown.

The distribution of this subfamily is Australia and New Guinea where no representative of the subfamily Sittinae occurs.

The subfamily Sittinae, contrasted with Daphoenosittinae, has the bill subulate, the nostrils oval or round, non-operculate, or with a very slight operculum, and the nostrils more or less concealed by forward projecting bristles and feathers, the maxilla is not unciniate nor is it notched. Nasal, rictal, and interramal bristles are well developed, the wing is more rounded, the secondary primary being about equal to the sixth. In coloration the upper parts, including the upper tail-coverts and rump, are grayish or bluish, the crown and nape, or only part of the crown, may be brown or

¹ I am indebted to Mr. J. T. Zimmer and Dr. E. M. Mayr for criticizing the following section of the manuscript.

black. The under parts may be white or gray to buffy or chestnut or part-colored or even partly black, but not streaked; there may be white on the under wing at the base of the primaries or light edgings to the inner web of the remiges but no light mark across the middle of the remiges. The young resemble in general the adult in plumage. The nest is placed in a cavity. Representatives of Sittinae occur from Timor and Java to Asia, in Asia, Europe and North America.

Hypositta quite properly is kept in a separate family, Hyposittidae. The strikingly different features are the long, slender toes that might be taken for those of a Creeper; the amount of fusion between the toes, the outer toe is united with the middle toe for nearly the length of the latter's two basal phalanges, the inner toe is united with the middle toe for the length of the basal phalange of the latter; the long tail which is about three quarters the length of the wing; the peculiar coloration, the male being blue with black on the forehead, chin and lores, the female duller blue on the back, olive brown on the top and sides of the head and the underparts, the first year male is like the female.

The bill of *Hypositta* is shorter than the head, it has a ridged culmen, and is strongly uncinuate and notched; the base of the bill is somewhat expanded; the nostrils are non-operculate, or very slightly operculate, partly concealed by forward projecting feathers, and there are well developed nasal and interramal bristles. In the shape of the bill this diverges widely from *Sitta* but is not very different from *Daphoenositta*, while the condition of the feathering at the base of the bill suggests that of *Sitta*.

The scutulations on the front of the tarsus are obscured, again suggesting *Daphoenositta*. The secondaries are comparatively long, giving a short wing tip. In feeding habits *Hypositta* is very Creeper-like, climbing silently up one tree trunk, then flying down to climb another trunk in its search for insects. Its nidification is unknown. *Hypositta* contains but a single species, *corallirostris*, which is restricted to the humid forest of eastern Madagascar.

Many peculiar forms have evolved in the isolation which Madagascar has afforded, and the affinities of many of them are obscure. The similarities between the shape of the bill in *Daphoenositta* and *Hypositta*, taken in connection with their peripheral distribution, suggests that this represents the primitive type of Nuthatch bill. In the structure of its foot and its feeding habits *Hypositta* recalls some of the Creepers (Certhiidae) and is perhaps most closely related to them.

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