

# A STUDY OF THE ORANGE-BREASTED NILTAVAS REPRESENTED ON MAINLAND S.E. ASIA

by

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## SUMMARY

Based on an examination of over 400 skins it is suggested that :

1. the species with orange breasts belonging to the genus *Niltava* sensu stricto and represented on the mainland of south-east Asia number four : *sundara*, *davidi*, *sumatrana* and *vivida*
2. the valid races of *Niltava sundara* are typical *sundara*, *denotata* and *whistleri*
3. although *sundara* and *davidi* seem to be allopatric they are best treated as separate species.

## SCOPE :

The term 'orange breasted' is used to put outside the study the species *Niltava grandis* and *N. macgrigoriae*. The use of the scientific (originally Nepali) name *Niltava*—also used for the vernacular name—is in its narrowest sense, which would according to VAURIE (1953)<sup>1</sup>, apart from the two species excluded above, leave us with but two species : *N. sundara* and *N. davidi*.

In fact whilst these two species form the core of the study it proved necessary to consider carefully the species *vivida* and the following questions have been reviewed or probed :

1. the status of the "race" *sumatrana*
2. the assignment of *vivida* to the genus *Niltava* sensu stricto or to the genus *Cyornis* sensu stricto.

This second question is not discussed separately in detail below and it should be noted that it was reviewed :

- a. only to facilitate study of the first point
- b. without reference to the allied species *Niltava hyacinthina*, *N. hoevelli* and *N. sanfordi* from archipelagic south-east Asia, and

1) It should be noted that Vaurie here was citing other authorities and, as emerges below, himself favoured a broader genus *Niltava*.

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- c. without close examination of the merits of treating all such flycatchers in a broad genus *Muscicapa*—as suggested by HARTERT (1907), DELACOUR & MAYR (1945) and DELACOUR (1946)—or keeping the narrow genus *Niltava* or its widened form (including the 18 species of the *Cyornis* group) advocated by VAURIE (1953).

### HISTORICAL BACKGROUND:

For the convenience of the reader this is best split to cover separately *N. sundara*, *N. sumatrana*, *N. vivida*, and *N. davidi*.

#### a) *Niltava sundara* Hodgson

Described from Nepal by Hodgson in 1837. LESSON (1840) described what seems to have been the same form<sup>2</sup>. from the "monts Himal." as *Cyanecula fastuosa*. Although the species became better known to ornithologists in the Indian region over the next seventy years and was found in Yunnan and reported—erroneously<sup>3</sup>.—from Fukien by LA TOUCHE (1899), those differences which exist between different populations of the species as now recognized went undescribed until BANGS & PHILLIPS (1914) described *Niltava sundara denotata* from Mengtze in Yunnan. TICEHURST (1926) separated the birds from the north-west Himalayas—first found in the area at Naini Tal "in 1867"<sup>4</sup>.—under the name *Niltava sundara whistleri*, selecting as the type a bird from Murree.

LORD ROTHSCHILD (1926) reviewing the status of the species in Yunnan accepted the occurrence of both typical *sundara* "in the west and north-west at considerable elevation" and of *N. s. denotata* "inhabiting the plains and lower elevations" in the "... east but going round to the south-west". MEYER DE SCHAUENSEE (1929b.) reported *N. s. denotata* from northern Thailand (then Siam) but stated that it was certainly not a lowland bird.

2) though in unusual plumage—the central pair of tail feathers blue but the remaining rectrices and the wings brown.

3) La Touche later describes *Niltava davidi* from Fukien and one of the two ♂♂ he refers to in 1899 (MCZ 128569) is treated by Bangs (1930) as a co-type.

4) Although 1867 is the date quoted by Ticehurst (1931) there are in fact skins in the British Museum from Naini Tal dated 1866.



BAKER (1930) in the Corrigenda and Addenda to the Fauna of BRITISH India; Birds listed *N. s. fastuosa* (Lesson) as a valid race from the north-west Himalayas, ascribing to it the characters of Ticehurst's *whistleri* which he synonymised with it, listing the type locality of the latter as the type locality of the former. TICEHURST (1931) quickly pointed out that the Punjab was not under British governance until later than 1840 and that birds of this species from the north-west Himalayas were unknown to contemporary ornithologists writing in India. He then corrected the type locality of *fastuosa* to the north-eastern Himalayas, which puts the name firmly back in the synonymy of typical *sundara*.

Meanwhile *Niltava davidi* had been described, see below, and old valid records of *sundara* in China north or east of Yunnan seem not to exist and though CALDWELL & CALDWELL (1931) thought that the species occurred in Fukien this remains to be proved for La Touche's and Styan's birds from Fukien are *N. davidi*.

RILEY (1931) described moult sequence in young *N. sundara denotata* and GREENWAY (1933) recorded some additional localities for the species in north-west Yunnan, ascribing the birds to *N. s. denotata*—in contrast to the views expressed by ROTHSCHILD (1926). BAKER (1924) had included in the range of *sundara* "Central Burma to Tenasserim; Peninsular Siam, Northern Siam, probably Shan States and Szechuan in western China" but it was left to MEYER DE SCHAUENSEE (1934) to point out the lack of records from Peninsular Siam. He also commented on the validity of *denotata* and mentioned the occasional absence of blue neck patches in females—the constant lack of which in *vivida* (both sexes) was often used as one of the grounds for retaining it in the genus *Cyornis*.

TICEHURST in STANFORD & TICEHURST (1938) kept birds from north-east Burma in typical *sundara* and felt that if *denotata* were valid they would prove to be intermediate. RILEY (1938) remarked that *N. s. denotata* in northern Siam had yet to be proved resident or a mere winter visitor.

Birds wintering in Indochina were considered by DELACOUR & JABOUILLE (1931) all to belong to the species *davidi*, but DELACOUR & GREENWAY (1940) reexamined the problem and concluded that all birds taken in northern Laos were *N. s. denotata* whilst all birds taken in Tonkin and



Annam were indeed *davidi*. They also agreed with MEYER DE SCHAUENSEE (1934) that size is the only good character for separating typical *sundara* and *denotata*.

DEIGNAN (1945) gave extreme dates for *N. s. denotata* in north Siam as 31 October and 14 April thus proving it a mere winter visitor. On the other hand SMYTHIES (1953) quoted WICKHAM (1918) as saying that *sundara* bred commonly in the Chin Hills<sup>5</sup>, and in his distribution tables maintained the resident status of *sundara* in Tenasserim. RAND & FLEMING (1957) gave several winter localities in Nepal and described a call—which SALIM ALI (1949) had reported to be undescribed except as 'beautiful'. RIPLEY (1961) followed BAKER (1930) in the use of the name *fastuosa* for birds from the north-west Himalayas, but is understood to be planning to use the name *whistleri* in the Handbook of the Birds of India and Pakistan (pers. comm).

There are some recent Chinese records. CHENG et al (1962) report a migrant *N. s. denotata* from the Tsin-ling and Ta-pa-shan region (southern Shensi) in April. CHENG et al (1963) found a female *denotata* on Mt. Omei (Szechwan, close to the Sinkiang border) in January but none from February to August, though *davidi* was present and bred: TAN & CHENG (1964) list typical *sundara* from Mt. Yu-lung, N.W. Yunnan from April to October but they did not themselves collect it: the records are drawn from the publications of Rothschild and Riley.

#### b) *Niltava sumatrana* Salvadori

Described by SALVADORI (1879) on the basis of 3 ♂♂ 2 ♀♀ collected by Beccari in June and August 1878 on Mt. Singalan, west Sumatra.<sup>6</sup> ROBINSON (1909) described *Cyornis peninsularis* based on a pair from Telôm, Perak—Pahang boundary, southern Perak and cited the frontal plumes as his reason for keeping this and *oatesi* and *vivida* out of the genus *Niltava*. Later (ROBINSON 1914) a contradictory paragraph reports a bird from Gunong Kerbau under the designation *Niltava sumatrana*

5) This is substantiated by skins of juveniles and adults in breeding condition collected by Gerd Heinrich on Mt. Victoria in May and June 1938 and now in the Museum of Comparative Zoology, Cambridge, Mass.

6) Salvadori's description compares the bird to *Niltava sundara* and interestingly here already we find mention of the reddish under tail coverts in the female.



though saying six lines later "cannot I think be classed as a *Niltava*". This appears to be the third specimen from Malaya: it is said to be identical with a bird described as *Cyornis malayensis* from Batang Padang. The name *Cyornis malayensis* crops up twice more in the synonymy but appears to have no foundation. In the report on Korinchi Peak Robinson and Kloss (1918) place *Cyornis peninsularis* in the synonymy of *N. sumatrana* after comparing their series with the three birds from the mainland, and they also list *C. malayensis* in the synonymy as a lapsus calami but unfortunately without referring to a date so that one cannot be certain that the error started in 1914. However ROBINSON & KINNEAR (1928) list *Cyornis malayensis* again in their synonymy, this time giving the reference and type locality applicable to *Cyornis peninsularis*. As Telôm is in the Batang Padang range it is probably safe to assume that ROBINSON (1914) was referring to *Cyornis peninsularis*,

Then seems to have come the start of a series of comparisons of *sumatrana* with *vivida* and *oatesi* without reference to *sundara* let alone *dauidi*. ROBINSON & KLOSS (1924) with Jacobsen's birds from Mr. Talamau, Ophir District, West Sumatra before them "compare these and many other specimens . . . with paratypes of *Cyornis vivida*" and whilst treating *vivida*, *oatesi* and *sumatrana* as "not very distinct subspecies"—chronological precedence making the specific name *vivida*—kept the species in the genus *Niltava*. Later ROBINSON & KINNEAR (1928) place the three—all still races of *vivida*—back in *Cyornis* on the basis of the frontal plumes and the lack of "bright bluish mauve patches on the sides of the neck in the female".

More than ten years later comparisons are at last made again with *sundara*. MEYER DE SCHAUENSEE & RIPLEY (1939) reported on the George Vanderbilt Sumatran Expedition which took 43 skins of *sumatrana* from the Atjeh area. They placed it as a race of *sundara*, mainly on account of the plumage pattern of the females and the throat pattern of the males. Although they remarked that "below it is quite different from either species" they made no mention of the rufous tinge to the under tail coverts. DELACOUR & MAYR (1945) and DELACOUR (1946) then brought to the Oriental region the concept of a broad genus *Muscicapa* proposed by HARTERT (1907) and in his 'Checklist' GIBSON-HILL (1949) uses the name *Muscicapa sundara sumatrana*.



Over the following fifteen years the mainland population, previously known by a mere three specimens, was rediscovered by ALLEN (1957) netted in some numbers (McCLURE 1963) and found nesting (MEDWAY & WELLS 1964)—all this in Cameron's Highlands.

c) *Niltava vivida* (Swinhoe)

Described as *Cyornis vivida* by SWINHÖE (1864) on the basis of birds from Taiwan (then Formosa). Most subsequent authors on Formosan birds (OGILVIE-GRANT & LA TOUCHE 1907, UCHIDA 1912 and HACHISUKA & UDAGAWA 1951) have given a few details on localities and dates and it would appear to be a not uncommon altitudinal migrant.

SALVADORI (1887) described *Niltava oatesi* from Mt. Muleyit, Pegu, Tenasserim, and just who first treated this as a race of *vivida* is unclear. ROTHSCCHILD (1923) does so without comment whilst BAKER (1924) and, as mentioned above, ROBINSON & KLOSS (1924) both do so with comments on why. However whilst this was universally accepted its generic ties remained disputed.

Chaos occurs in northern Siam when RILEY (1929) describes *Niltava smithi*, and MEYER DE SCHAUENSEE (1929a.) describes *Niltava williaminae*. CHASEN & KLOSS (1932) suggest that the latter seems very close to the female of *Niltava vivida oatesi*—first described by ROTHSCCHILD (1923)—but RILEY (1933) goes on to describe the males of *Niltava smithi*, recently to hand, as being close to *N. davidi*. Both Riley and Meyer de Schauensee were of course misled by thinking of *vivida* as a typical *Cyornis* and both soon place their names in the synonymy of *N. vivida oatesi* [MEYER DE SCHAUENSEE (1934) and RILEY (1938)].

d) *Niltava davidi* La Touche

Described from Kuatun, N.W. Fukien by LA TOUCHE (1907) comparing both male and female to those of *N. sundara*, but giving no collector's or catalogue numbers for the types. If the male type specimen listed by BANGS (1930) has been correctly identified then it is one of the two ♂♂ taken on Mt. David in early April 1898 and reported by LA TOUCHE (1899) as *sundara*. Following the John E. Thayer Expedition to China 1907-8 THAYER & BANGS (1909) described *Niltava lychnis* from Pao Tung,

Hupei. In 1912 they published a colour plate of this form. Two years later BANGS & PHILLIPS (1914) state that La Touche's name was overlooked in naming *lychnis* and that it is at best subspecifically distinct from *davidi*; as they wrote this they had before them three specimens from Mengtze taken in April and October.

WEIGOLD (1922) reported the collection of *lychnis* in Omei-Shan, Szechwan. ROTHSCHILD (1926) quotes LA TOUCHE (1925) as saying that "Yunnan and Hupei examples do differ from Fukien birds", the latter—typical *davidi*—being said to have conspicuous streaks which *lychnis* lacks.

Meanwhile confusion reigned in Indochina. DELACOUR & JABOUILLE (1931) did not list *sundara* from the area but treated all Indochinese birds as wintering examples of *davidi*, and all of the race *lychnis*. They did mention that *sundara* and *davidi* overlapped in Yunnan and must each be accorded specific rank. BANGS & VAN TYNE (1931) record two specimens from the Kelley-Roosevelts Expedition, a female from Ba Nam Cai, Tonkin and a male from Phong Saly, Laos. The male (Field Mus. No. 79895) proves on examination however to be *Niltava vivida oatesi*. ENGELBACH (1932) reported taking 3 ♀♀ *lychnis* on the Bolovens Plateau in southern Laos but unfortunately these specimens have not been located for re-examination. One other specimen of *N. davidi* from the Bolovens Plateau has come to light (DICKINSON 1970a.)

DELACOUR & GREENWAY (1940) after the VIIth. Expedition to Indochina and with many skins before them, including a long series from Lo Tiao in north Laos, reviewed the Indochinese situation and stated that all birds from northern Laos proved to be *N. sundara denotata* whilst those from Annam and Tonkin were *davidi*: they added that they considered *lychnis* of doubtful validity, but unfortunately they did not resolve even the specific identity of Engelbach's birds from the Bolovens Plateau. DELACOUR & JABOUILLE (1940) also omit this detail and subsequent additions to their Checklist—DELACOUR & GREENWAY (1941) and DELACOUR (1951)—remain silent.

Reviewing the tribe Muscipapini VAURIE (1953) calls *davidi* and *sundara* sibling species but, since his revision was mainly concerned with arrangements at generic level unfortunately he does not set out their



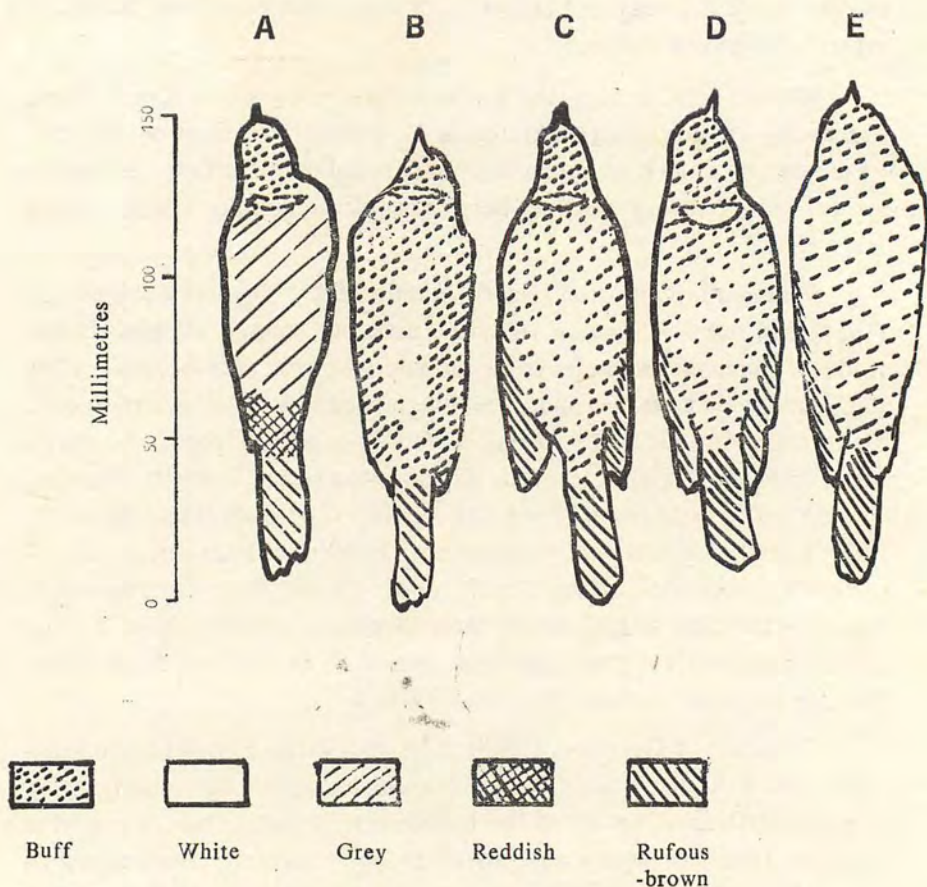


Fig. 1. The pattern of the underparts in five ♀♀ niltavas:

A. *Niltava sumatrana*, collection of H.E. McClure, No. 5,367, Gunong Brinchang, Malaya; B.C. and D. *Niltava sundara denotata* from northern Thailand; E. *Niltava vivida oatesi*, Chulalongkorn University Coll., Bangkok, collected by A. David-Beaulieu on Phou Kobo, northern Laos (collector's No. 7,160).



differences in great detail. The only recent published records appear to be that of CHENG et al. (1963) who found *davidi* numerous and breeding on Mt. Omei in Szechwan in May, that from the Bolovens Plateau referred to above and one from Dong Dan, north Laos (DICKINSON 1970b.)

#### THE STATUS OF THE "RACE" *SUMATRANA*

Although described as a species and so maintained until 1918 subsequent reviewers reduced it to a race—initially of *Cyornis vivida* and later of *Niltava sundara*. During this study 12♂♂ and 9♀♀ were examined.

The two reasons chosen to support the postulated relationship to *vivida* were:

- character of the frontal plumes,
- lack of shining patches on the neck.

In fact, precisely the characters which excluded *vivida* from the genus *Cyornis*. The similarities of both male and female to the respective sexes of *N. sundara* were clearly set out by MEYER DE SCHAUENSEE & RIPLEY (1939). Although *sumatrana* certainly seems closer to *sundara* than to *vivida* it seems preferable to restore to it full specific status for the following reasons:

1. to dramatise its nature as a link between *sundara* and *vivida*,
2. it could be argued that *sumatrana* is as close to *davidi* as it is to *sundara*—one character that tends to support such an argument is the extent of shining blue on the crown of each of the three species. It can be seen from Plate 1 that the four specimens B, C, D and E, which are all *N. sundara denotata* appear to have a clear full cap of shining blue with a sharp change on the nape, whilst specimens A and F, respectively *N. davidi* and *N. sumatrana* have bright shining feathers only on the forecrown with a gradual transition to the blue of the mantle. Specimen G. is *N. vivida oatesi*.
3. the geographical isolation of *sumatrana*: even winter vagrants of *N. sundara* have not been found within its range.
4. the distinctive underparts of the female *sumatrana* which are iron-grey with a poorly defined white jugular patch, a paling to whitish on the abdomen and a tendency to rufous on the under tail coverts. See figure 1.

THE DIFFERENCES BETWEEN *SUNDARA* AND *DAVIDI*

Some previous authors have supposed that these species must be treated separately because they are sympatric. It is shown below that this does not appear to have been proved. There do seem however to be valid differences between them—easier to see in the male than in the female. One such difference has been mentioned above—the crown pattern—and is illustrated in Plate XXXIX. The other differences put forward from time to time are worth reviewing.

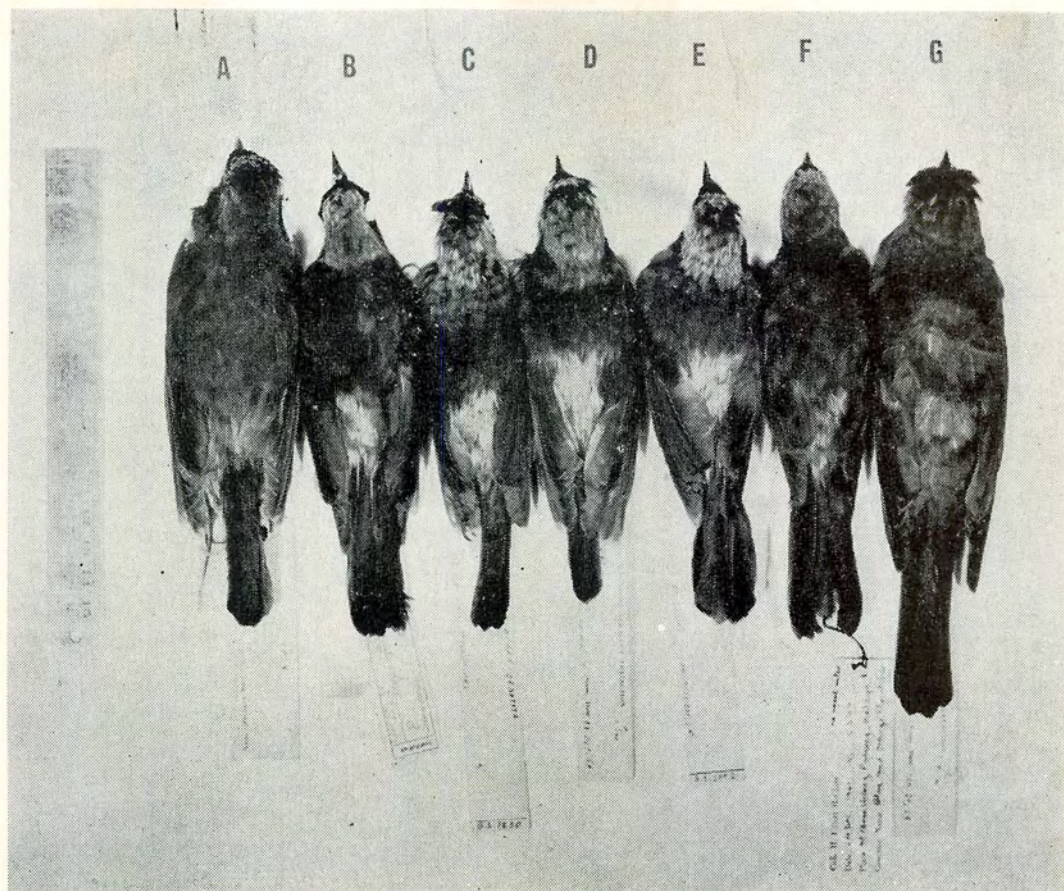
*N. davidi* was described as differing from *sundara* as follows: "larger and with purplish blue back and scapulars; the sides of the head, neck, chin and throat with a very strong wash of blue; the neck spot cobalt blue; and the lesser upper wing coverts of a slightly lighter tint than the back". The size and the colour of the neck spot were also mentioned as good characters in females too. THAYER & BANGS (1909) in describing *lychnis*<sup>7</sup>, relative to *sundara* said "underparts paler—pale rufous tawny on chest shading off to orange buff on the middle of the abdomen and under tail coverts". Finally DELACOUR & GREENWAY (1940) said that from *N. davidi* specimens of *N. sundara denotata* "se différencient... par leur taille plus faible, le ton beaucoup plus vif et plus brillant du bleu du dessus et du roux du dessous du corps". They also helpfully provide a colour plate of the males of *N. sundara denotata*, *N. davidi* and *N. vivida oatesi* (in which the pale shining blue of the forecrown of *davidi* is brought out).

Examination then of these characters shows:

- larger size: table I. and figure 2 show that both sexes of *N. davidi* are clearly larger than the respective sexes of *N. sundara denotata* (the closest and largest race), but there is some overlap.
- purple tone of back and scapulars, i.e. duller than *sundara*: true.
- colour of neck spot: true, the neck spot of *davidi* does seem brighter and is often larger.
- colour of underparts: both in typical *sundara* and in *sundara denotata* there is considerable variation but in each individual specimen the colour seems uniform whilst in *davidi* there is a definite paling in tone towards the vent.

7) the validity of which has not been evaluated because of the paucity of skins from any part of China—of 49 skins of *davidi* 32 came from Indochina.





The pattern of the upperparts in seven ♂♂ niltavas

A. *Niltava davidi*, Chulalongkorn Univ. Coll., Bangkok, collected by A. David-Beaulieu (No. 6712) at Dong Dan, north Laos (Dickinson 1970b.); B.C.D. and E. *Niltava sundara denotata* from northern Thailand; F. *Niltava sumatrana*, collection of H.E. McClure, No. 5,397, Gunong Brinchang, Malaya; G. *Niltava vivida oatesi*, from northern Thailand. Note particularly the capped appearance of B.C.D. and E. and, specially in B., the way this cap contrasts sharply with the mantle.





**Table 1.** Wing measurements, taken to the nearest half-millimetre, in various populations of *Niltava sundara*, *Niltava sumatrana* and *Niltava davidi*. Only birds in adult plumage taken into consideration.

	No. of Specimens examined	♂♂			No. of specimens examined	♀♀		
		Wing length				Wing length		
		Maximum	Minimum	Average		Maximum	Minimum	Average
<i>Niltava sundara whistleri</i>								
Punjab	15	86	79.5	82.23	12	83	77	79.21
<i>Niltava sundara sundara</i>								
India	13	85	79.5	82.31	1	—	—	78.0
Sikkim/Bengal	27	87	78	82.52	25	82.5	74	78.60
Assam	22	85	79	82.32	12	85	76	80.38
Bhutan/Tibet	9	85	77	82.90	5	83	80	81.80
Nepal	14	84	80	81.86	22	81	75	78.14
	(85)			(82.36)	(65)			(79.01)
<i>Niltava s. sundara</i> ⚭ <i>denotata</i>								
Burma	24	87	78	83.25	11	82	74	79.09
<i>Niltava sundara denotata</i>								
North Thailand	20	90	84	87.02	12	86.5	79.5	83.33
Indochina	13	89.5	84	86.77	22	87.5	79	83.36
Yunnan	43	92.5	81	86.41	10	87	79	84.25
	(76)			(86.63)	(44)			(83.55)
<i>Niltava sumatrana</i>								
Sumatra	9	84	77	80.78	7	82	77	80.00
Malaya	3	80.5	79	79.83	2	79	78.5	78.75
	(12)			(80.54)	(9)			(79.72)
<i>Niltava davidi</i>								
Indochina	19	97	88	92.03	13	92	84	88.77
Fukien, Hupeh & Szechwan	6	94	87	91.00	2	88	87	87.50
Yunnan	7	94	89.5	91.50	2	92	90.5	91.25
	(32)			(91.72)	(17)			(88.91)

Probably the only character which might be evident in the field, with a good, long view under ideal light conditions, which would establish identity with any certainty is the colour pattern of the crown and nape.

For females the colour of the neck patches seems valid and size is helpful, but safe, constant differences remain to be found and consequently the series of measurements presented in the tables should be accepted only with some reservation as wrongly identified specimens could still perhaps be included.

In this study 49 specimens of *davidi* were examined (32 ♂♂ and 17 ♀♀).

#### THE VALIDITY AND NOMENCLATURE OF THE RACES OF *NILTAVA SUNDARA*:

As mentioned above *sumatrana* should no longer be considered a race of *sundara*.

Various authors have already pointed out that *denotata* can only be distinguished from typical *sundara* on size, even here there is some overlap but in series the size difference is clear. Amongst local populations of typical *sundara*—which has an overall average male wing length of 82.55 mm.—this average varies between a low of 81.86 mm. in Nepal and a high of 83.25 mm. in Burma. This presents a clear contrast with *denotata*—which has an overall average male wing length of 86.63 mm., varying between 86.41 mm. in the breeding area in Yunnan and 87.02 mm. for wintering birds from north Thailand. The females show almost the same pattern. See table 1. and figure 1.

Wing measurements were all taken to the nearest half millimetre, normally using the right wing (but occasionally the left in such cases as shot-away right wing tip or missing primaries). The information so obtained from adult birds is set out in table I and, rounded to the nearest millimetre, was used to produce figure 1.

Birds from the north-western Himalayas fall entirely within the limits for typical *sundara* for both sexes, but this population was separated by Ticehurst on the grounds of the paler colour of the underparts. This seems valid and present distributional evidence suggests that there is a



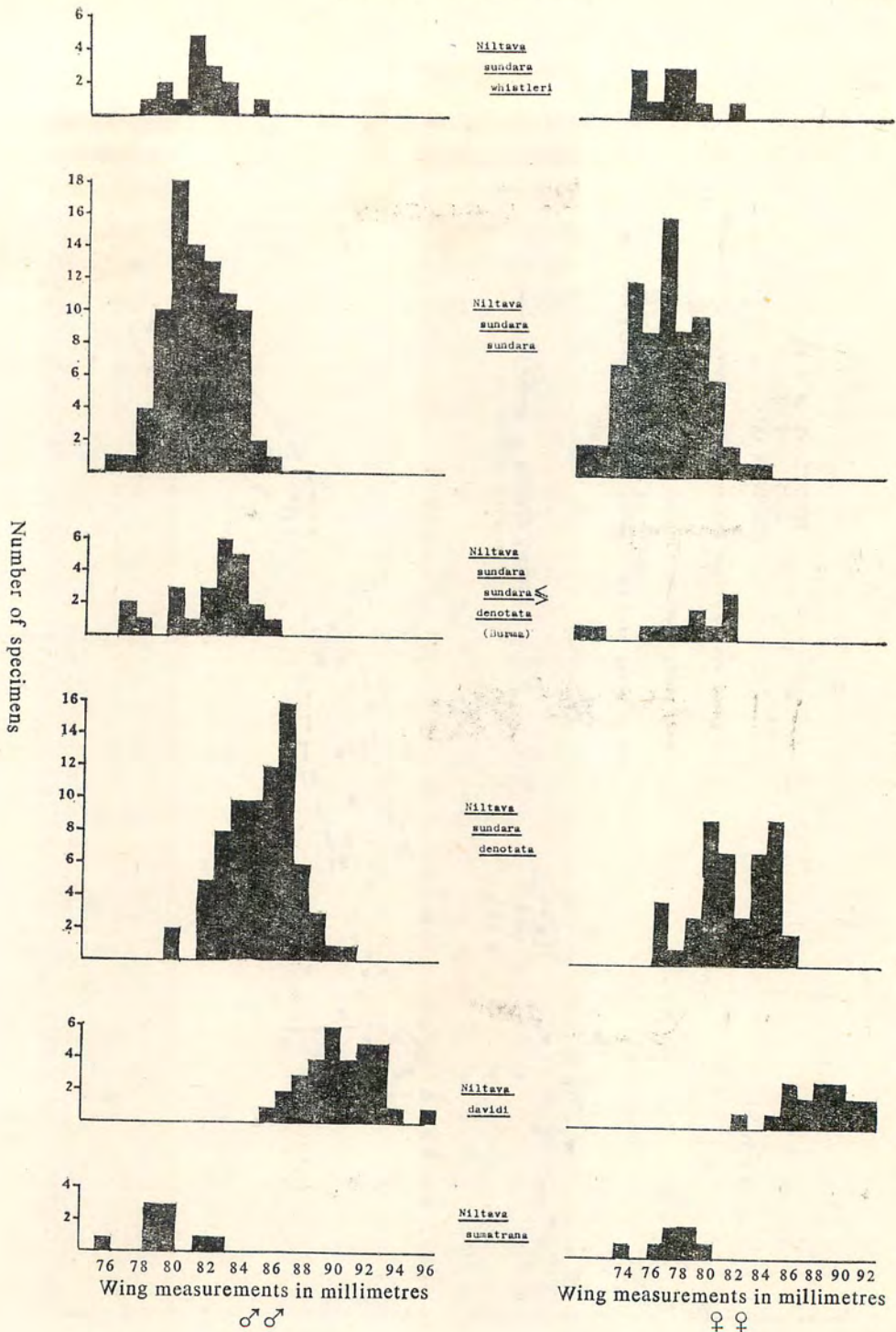
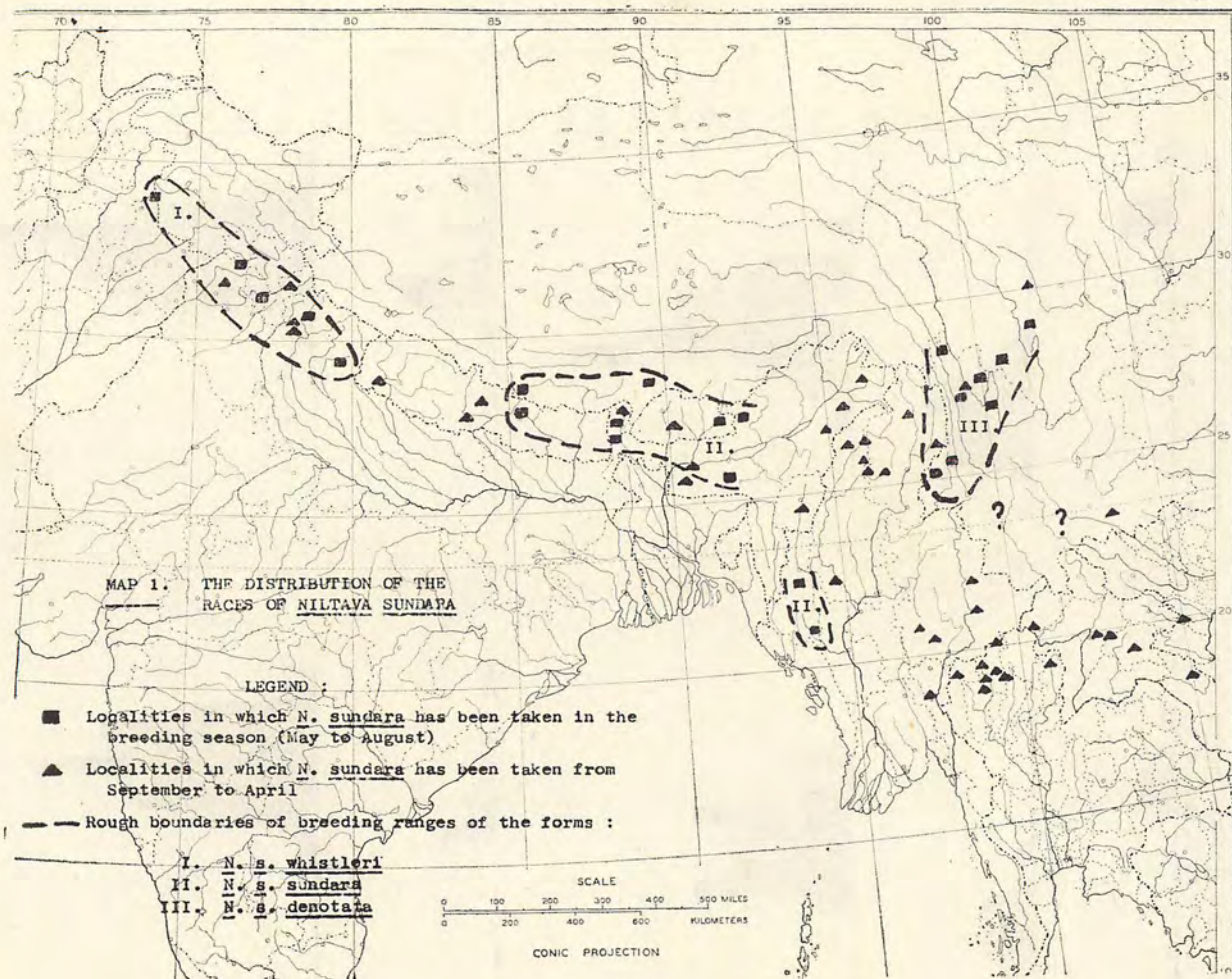


Fig. 2. The wing measurements of the races of *Niltava sundara*, and of the species *Niltava davidi* and *Niltava sumatrana*. All measurements were taken to the nearest half millimetre and those that came out to half millimetre figures have for the purpose of this graph been rounded down. Adults only.



Map 1.



gap between such birds and typical *sundara*. The name to be applied to the population of the north-west Himalayas has—as mentioned earlier—been disputed. The comments by TICEHURST (1931) on the probable origin of Lesson's type of *fastuosa* seem valid, and his action in correcting the restriction made by BAKER (1930) is in accord with Recommendation 72E. under Article 72 of the International Code of Zoological Nomenclature adopted by the XVth. International Congress of Zoology (STOLL et al. 1961). The race of the north-west Himalayas should thus correctly be called *Niltava sundara whistleri*.

Map 1. shows the known localities at which *Niltava sundara* has been found, and approximate boundaries are given for the ranges of the races.

The following were examined in the course of this study :

<i>N. sundara whistleri</i>	15 ♂♂	12 ♀♀
<i>N. sundara sundara</i>	85 ♂♂	65 ♀♀
<i>N. sundara sundara</i> $\gtrsim$ <i>denotata</i>	24 ♂♂	11 ♀♀
<i>N. sundara denotata</i>	76 ♂♂	44 ♀♀

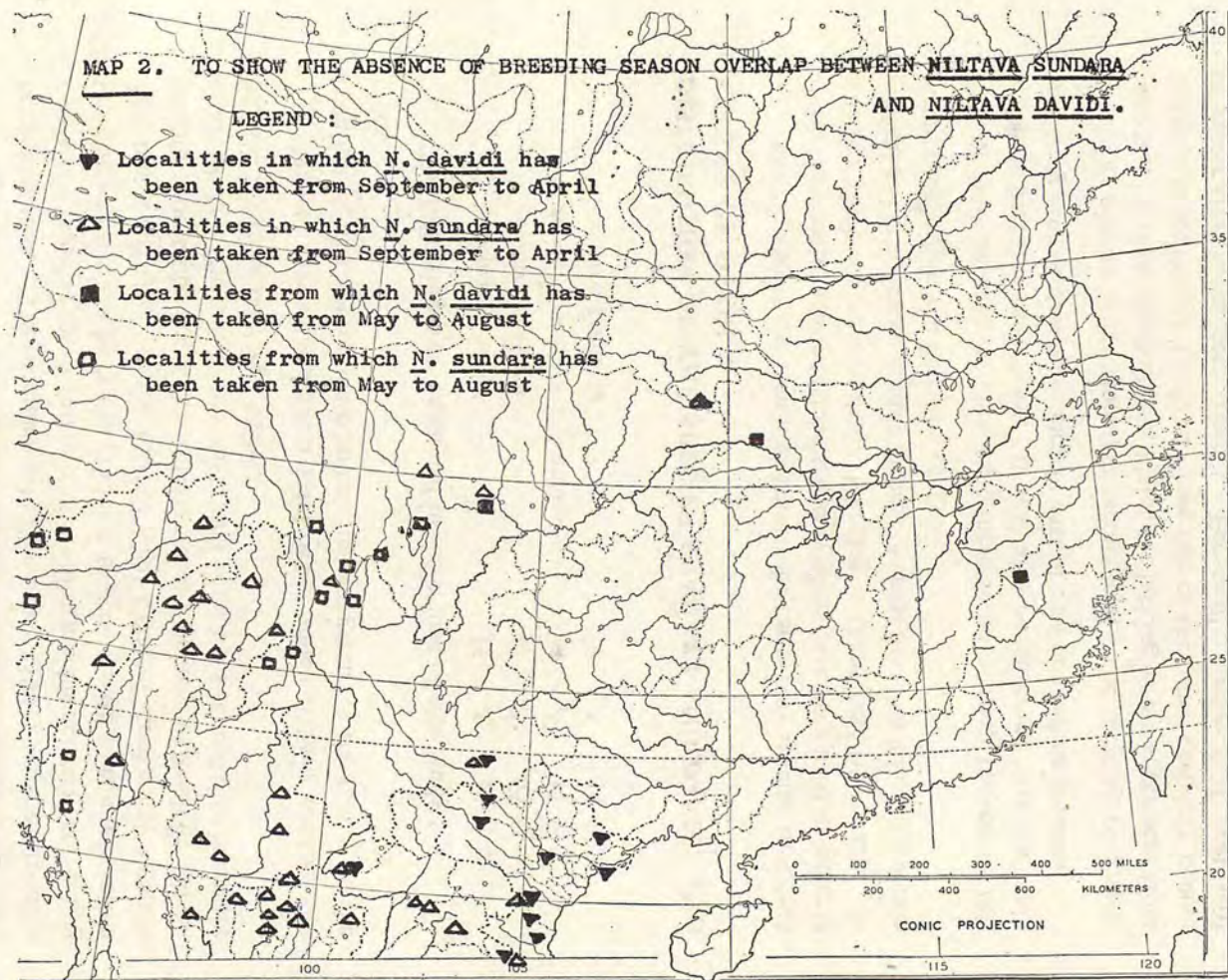
#### DISTRIBUTION OF THE SPECIES *SUNDARA* AND *DAVIDI* AND EXTENT OF OVERLAP :

Map 2. shows the localities known for these two species in China and in continental south-east Asia, and symbols have been used to indicate whether the birds were probably breeding in these localities or not. In general a skin collected in May through August has been taken to indicate occurrence within the breeding range.

It will be seen at once that there is no overlap proven in this probable breeding range plot. It will also be observed that the main wintering area of *dauidi* lies clearly east of that of *sundara denotata*.

The picture is unfortunately incomplete. The identity of Engelbach's skins from the Bolovens Plateau is lacking so are specimens from the hills of south-east Thailand where one or the other certainly occurs in winter (B.F. King, pers. comm.). Eventually further field work will fill in these gaps and, hopefully, the even bigger ones in China.





Map 2.



Map 3. shows the summer and winter ranges as far as they are known of *Niltava sundara*, *N. davidi* and *N. sumatrana*. No attempt has been made to superimpose the range of *Niltava vivida* which is considered less closely related to any one of these three than each is to the other two.

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Map. 3



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