

Systematic notes on Asian birds. 65 A preliminary review of the Certhiidae ¹

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Recent proposed taxonomic changes in the Certhiidae are reviewed within the geographic scope of this series and their reliability is discussed in terms of the Biological Species Concept, with respect to secondary contacts, bioacoustics, and molecular genetics. Certain hitherto unpublished data, useful for the understanding of taxonomic decisions, are included. In accordance with Article 24.2.3 of the Code one of us acts as First Reviser in selecting the correct spelling of the name of the recently described Chinese species.

Introduction

This contribution critically reviews, within the scope of this series, the few recent systematic and taxonomic papers on Asian treecreepers and their allies. Consequently it is purely descriptive in nature. Recommendations for taxonomic changes for nearly all the cases discussed here have been published elsewhere, most of them quite recently. As yet sufficient time has not passed for completely objective review, nor for additional information to be discovered and presented in such cases. Thus, personal experience with certhiid taxonomy based on morphology, acoustics, and molecular genetics have influenced our views, helped by extended field experience mainly in the Himalayas, China and other parts of Palaearctic and Oriental Asia.

The species accounts we provide are usually subdivided into several small chapters, according to necessity. These are:

Included taxa: enumerates and details the subspecies relevant within the scope of our area and which we currently treat as valid. To help signal the geographic relevance type localities are added in square brackets.

Taxonomy: outlines current taxonomic status, refers to the validity of subspecies, and to subspecies and species limits as well; here also we note those questions and problems that deserve further research.

General characteristics: relevant morphological generalities or peculiarities important to the discussion.

¹ Results of the Himalaya Expeditions of J. Martens, No. 255.— For No. 254 see: Zool. Med., Leiden, 80-5 (1): 1-63, 2006 (this issue).

Distribution: we point out problem areas associated with contact zones, and raise other questions related to specific ranges and the range limits attributed to particular subspecies.

Colour images: we note published high-standard colour drawings that reliably figure subspecies/species taxa of our area. Among the already good number of such images we were able to choose only a few; the lengths of the bills are often wrongly depicted. Most often we refer to Quinn's colour plates in Harrap (1996), but we include two extra colour plates here.

Developments in the taxonomy of *Certhia* Linnaeus, 1758

Systematics and taxonomy of the few treecreeper species (*Certhia*) of the Holarctic and Indomalayan realms remained virtually stable from the treatment of the group by Vaurie (1950, 1957, 1959) and by Greenway (1967) in Peters's *Check-list of the birds of the world* until 1995.

The main exception was that Thielcke (1961, 1962, 1970) split off the New World subspecies group of *C. familiaris* Linnaeus, 1758, as a separate species, *C. americana* Bonaparte, 1838, on the basis of his playback experiments. This was discussed by Mayr & Short (1970) and later accepted by Sibley & Monroe (1990), by the A.O.U. (1983, 1998) and by Harrap (1996).

Although *Certhia* embraces only a few species, the highest "species density" occurs in west-central Nepal, with up to four near-sympatric species (Martens, 1981; Martens & Eck, 1995), of which up to three are syntopic. Their remarkable external homogeneity in coloration, size, bill shape, and ecology make them a potentially fertile group for the discovery of undetected diversity. However, after an initial acoustic appraisal of the four Nepal species (Martens, 1981) and playback experiments with Nepal voices on *C. familiaris* in Germany (Martens & Geduldig, 1988), no taxonomic changes were proposed on the species level.

However, the discovery of a new form in western China, *Certhia familiaris tianquanensis* Li, 1995, which is not a cryptic taxon but turned out to be a species that is fairly easily separable by its external morphology (Martens et al., 2002, 2003), suggested that the genus might indeed contain more species than formerly believed. This is the only new certhiid described from our area since Greenway (1967).

Acoustic studies of *Certhia* demonstrated a high stereotypy of territorial songs and calls in both individual and widely distributed populations (Thielcke, 1961, 1962, 1970; Martens, 1981), at least in central Europe, and this was corroborated for Himalayan species, too (Martens, 1981). Martens (1981) suggested a possible evolutionary pathway of *Certhia* species based on song characters and included the Himalayan species, but not those of China which were then unavailable. Consequently, it was thought that territorial songs could be used to identify local populations, subspecies, and even species. However, considerable differences within the songs of European and Himalayan *C. familiaris* and the results of playback experiments pointed to a pronounced diversity of song parameters within species that are distributed over large ranges (Martens, 1981; Martens & Geduldig, 1988). This obviously stimulated further work.

Recent molecular genetic studies of species which inhabit large apparently continuous ranges and of those now found in widely scattered relict populations in the Palae-

arctic or Indomalayan Asia have shown that speciation is indeed greater than previously suspected and speciation events have been deduced affecting at least two such species. As a consequence, *C. familiaris* has been split into two species, *C. familiaris sensu stricto*, and *C. hodgsoni* Brooks, 1871, with surprising distributional limits in our area, and *C. discolor* Blyth, 1845, is also split, into *C. discolor sensu stricto* and *C. manipurensis* Hume, 1881. When deciding on these splits the picture from the molecular genetics of the mitochondrial cytochrome-*b* gene was combined with acoustic evidence (Tietze et al., 2006).

Including the new Chinese species, the genus *Certhia* now comprises nine species instead of the former five (Greenway, 1967).

Apart from a relative morphological homogeneity, the genus *Certhia* is known for a marked sexual difference in bill morphology – males generally displaying longer bills, females shorter ones. These differences are remarkable in the long-billed species, e.g., *C. himalayana* Vigors, 1832, *C. familiaris* and *C. hodgsoni* (details in Martens & Eck, 1995) and may reflect a limited tree bark resource; different bill sizes may allow a more profound exploitation of this microhabitat.

Salpornis spilonotus (Franklin, 1831) is generally included with the Certhiidae, and has been claimed as the closest relative of *Certhia* (Sibley & Ahlquist, 1990).

Taxonomy at and below species level

Certhia [familiaris] sensu lato

The Eurasian or Common Treecreeper is an impressive example of how far diversity eventually may be camouflaged by morphological homogeneity. Vaurie (1959) considered *C. familiaris* an Holarctic species, but it became truly Palaearctic when the New World populations were separated as a species *C. americana* (as discussed above).

The range of *C. familiaris (sensu lato)* was thoroughly mapped by Portenko & Stübs (1977) but, recently, an undiscovered split within the Palaearctic has become obvious. Martens & Eck (1995: 355) noted: “It is by no means certain that *hodgsoni* actually belongs to a [Sino-Himalayan] biospecies *C. familiaris* [i.e., in the former broad sense]; the file on its taxonomic status is not yet closed”. However, Tietze et al. (2006) demonstrated that a deep molecular genetic difference separates on the one hand the three Sino-Himalayan subspecies, *hodgsoni*, *mandellii* Brooks, 1874, and *khamensis* Bianchi, 1903, as well as the more northerly subspecies *bianchii* Hartert, 1905 (which is also Sino-Himalayan) from, on the other, all the yet more northerly and largely disjunct subspecies of the taiga belt and their eastern relatives, covering an area from northern Europe and central Asia via Siberia to Japan and China (Fig. 1). The cytochrome-*b* sequence distance between *C. familiaris sensu stricto* and *C. hodgsoni* amounts to 5.3%; remarkably high and equal to the level found in many closely-related sympatric species (Tietze et al., 2006). This difference is supported by parallel differences in the territorial songs of the populations concerned (Fig. 2). Their unusual distribution pattern is backed by morphological evidence which shows that there “extends ... a cline along which five subspecies can be recognized (nominat *familiaris*, *daurica* [Domaniewski, 1922], *orientalis* [Domaniewski, 1922], *japonica* [Hartert, 1897], and *bianchii*)” “extending from Scandinavia across northern Eurasia to Sakhalin and Japan and

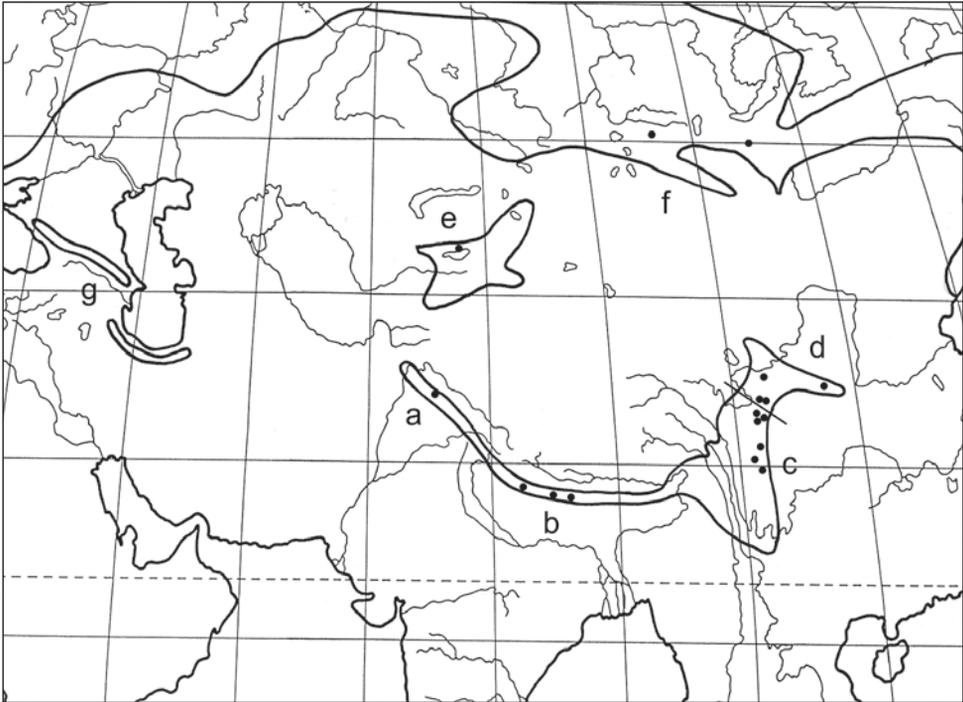


Fig. 1. Distribution of *Certhia familiaris sensu stricto* and *C. hodgsoni* in the Sino-Himalayas and adjacent areas derived from cytochrome-*b* analysis. The anticipated, but as yet unknown, zone of secondary contact between *C. familiaris* and *C. hodgsoni* is indicated by an arbitrarily drawn bar between the closest localities of c and d.— a) *C. h. hodgsoni* (India, Kashmir), b) *C. h. mandellii* (Nepal), c) *C. h. khamensis* (China, Sichuan), d) *C. f. bianchii* (China, Gansu: three western dots, Shaanxi: one eastern dot), e) *C. f. tianschanica* (Kyrgyzstan), f) *C. f. daurica* (Russia, Tyva, western dot; Mongolia, eastern dot). No samples were available from the Caucasus/Alborz area (g: *C. f. caucasica*; western area, and *C. f. persica*, eastern area).— Slightly modified from Tietze et al. (2006).

thence southwest on the continent to Shensi and Kansu" (Vaurie, 1957). This view, based on traditional morphology, is fully congruent with the genetic results and thus the conclusions reached become even more convincing. Tietze et al. (2006) drew the only possible conclusion, that the two groups represent different biological species (see below), and treated them as forming a superspecies *Certhia [familiaris]*. We recommend that the vernacular English name Common Treecreeper be retained for *C. familiaris sensu stricto* and that the name Hodgson's Treecreeper be introduced for *C. hodgsoni*.

Certhia familiaris Linnaeus, 1758 [*sensu stricto*]

Included taxa (4): *C. f. tianschanica* Hartert, 1905 [Ak-Su, southern Tian Shan]; *C. f. daurica* Domaniewski 1922 [Darasun, Transbaicalia]; *C. f. japonica* Hartert, 1897 [Iwaki, northern Honshu]; *C. f. bianchii* Hartert, 1905 [S Tatung Mts., Gansu (now = Daban Shan, Qinghai)].

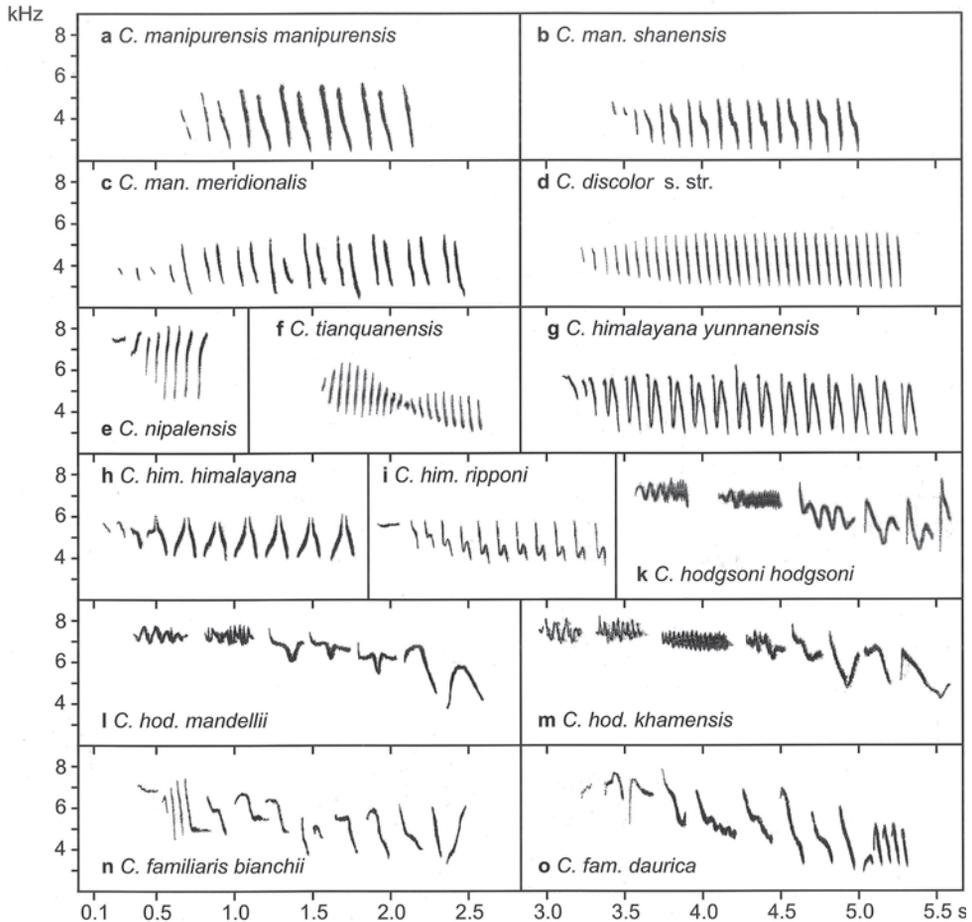


Fig. 2. Territorial songs of Asian *Certhia* species and subspecies.— a) *C. manipurensis manipurensis* (Myanmar, Natmataung); b) *C. m. shanensis* (Thailand, Doi Inthanon); c) *C. m. meridionalis* (Vietnam, Tuyen Lam); d) *C. discolor* (Nepal, Ting Sang La); e) *C. nipalensis* (Nepal, Thimang/Bagarchap); f) *C. tianquanensis* (China, Sichuan, Wawu Shan); g) *C. him. yunnanensis* (China, Yunnan, N Zhongdian); h) *C. himalayana himalayana* (Nepal, Myagdi Distr., Dhorpatan); i) *C. him. ripponi* (Myanmar, Natmataung); k) *C. hodgsoni hodgsoni* (Pakistan, Kaghan valley); l) *C. hod. mandellii* (Nepal, Mustang Distr., Tukche); m) *C. hodg. khamensis* (China, Sichuan, Wawu Shan); n) *C. familiaris bianchii* (China, Gansu, Lianhua Shan); o) *C. f. daurica* (Russia, Sakhalinskaya oblast; extralimital).— Recordings by J. Martens except for a, i (D.T. Tietze), b (T. Ball), c (C. Robson), k (P. Alström), and o (B.N. Veprintsev).

Taxonomy: within our area, the above four subspecies deserve recognition. Their differences are clinal in character (Vaurie, 1957, 1959), except for the disjunct central Asian *tianschanica*, which differs by its remarkably long bill (Vaurie, 1959) (Plate VII, Fig. b). The cline described by Vaurie (1957) includes the disjunct northern Chinese *bianchii* as well as the extralimital subspecies *macroactyla* Brehm, 1831, and the nominate form.

Vaurie (1957) characterised *orientalis* as “very poorly differentiated”, but retained it

(Vaurie, 1959), as did Harrap (1996). Here we treat the name as a synonym of *daurica*.

The topology of the phylogenetic tree based on the cytochrome-*b* gene as shown by specimens from central and northern Europe through to Japan and northern China, appears quite uniform without noticeable sub-structuring (Tietze et al., 2006), indeed these authors found an identical haplotype in birds from Germany, eastern Russia, Kyrgyzstan, and northern China (Shaanxi and Gansu).

Distribution: it is desirable to explain why the forms *tianschanica* and *bianchii* have disjunct ranges, although being related to the clinal population across the taiga and the insular form from Japan. The distribution of cytochrome-*b* haplotypes suggests that subspeciation within *C. familiaris sensu stricto* is quite recent; perhaps only post-glacial in nature. At least no noticeable lineage-sorting of cytochrome-*b* haplotypes has occurred yet. In the case of *bianchii* the treeless dry northern parts of China may have caused the isolation from the northern part of the range of *C. familiaris*. In this region there is no reason to attribute this disjunction to a man-made loss of forest cover.

General characteristics: the central Asian form *tianschanica* is extremely long-billed and conspicuously light-coloured (Plate VII, Fig. b), but does not represent a haplotype lineage of its own. Subspecies *bianchii*, disjunct from the northern range of *C. familiaris*, contrasts in its whitish vent with the parapatric and much darker *C. h. khamensis* (Plate VII, Fig. f). As regards the song it should be noted that the introductory 'sreeh' notes are lacking (Fig. 2 n-o).

Colour images: pl. VII (this paper): Figs. a. *macrodactyla*, b. *tianschanica*; Quinn in Harrap (1996), pl. 9, fig. 26c: nominate *familiaris*.

Certhia hodgsoni Brooks, 1871²

Included taxa (3, plus one potential component form): *C. h. hodgsoni* Brooks, 1871 [Kashmir]; *C. h. mandellii* Brooks, 1874 [Sikkim]; *C. h. khamensis* Bianchi, 1903 [restricted to the upper Mekong River in Kham (= Hsikang) (see Hartert, 1905: 321)]; syn. *waschanensis* Kleinschmidt & Weigold, 1922 [Wa Shan, Sichuan].

Status unresolved: *C. h.? kwanhsienensis* Kleinschmidt & Weigold, 1922 [Kwanhsien, now Dujiangyan, NW of Chengdu, Sichuan].

Taxonomy: the logic for treating the southern set of Sino-Himalayan subspecies of the (former) *C. familiaris sensu lato* as a species of its own has been given above under the superspecies *C. [familiaris]*.

Though the range of *C. hodgsoni* is only small (see below) the three subspecies involved differ considerably in their outer morphology, e.g., bill length, hind-toe length, and coloration (Pl. VII, Fig. d-f). Accordingly, there is also a strong sub-structuring of the *hodgsoni* cluster in its cytochrome-*b* phylogeny. These three subspecies differ by 2.0 to 3.9%, again quite a high value and close to that of distinct species, but they are best treated as related subspecies until a detailed field study detects a contact zone between *hodgsoni* (the western Himalayan population) and *mandellii* (the eastern Himalayan population). For now, additional *hodgsoni* samples remain to be analysed.

² Greenway (1967: 152) erred in citing the 1873 publication as the original. This name appeared in the Proc. Asiatic Soc. Bengal a year or two earlier (see Dickinson et al., 2006, and Dickinson & Pittie, 2006).

Vaurie (1959: 539) stated that these two subspecies intergrade in northern Punjab, but no skins seem to be in existence to substantiate this. A specimen from Kulu District, Punjab (UMMZ 77739), an unmistakable *mandellii*, is apparently the westernmost record of this subspecies in existence (see Martens & Eck, 1995, for scatter plots of morphological characters). Thus two remarkably different treecreepers may meet west of Kulu, with differences in bill length, hallux-claw length, coloration, and cytochrome-*b* composition, but the position of the area of secondary contact, if there is one, is still unknown. Interactions between these two subspecies need thorough investigation.

Two taxa from Sichuan, China, need particular attention; these are "*C. f. waschanensis*" Kleinschmidt & Weigold, 1922, and "*C. f. kwanhsienensis*". Both were synonymised by Vaurie (1957) with *khamensis*, the wide-spread local subspecies. This is defensible for *waschanensis*, which judging by the types is distinguishable although we provisionally accept in its placement in the synonymy of *khamensis* (Pl. VII, Fig. f), but certainly this does not apply to *kwanhsienensis*. This has a remarkable dull-grey breast and belly, already noted in the original description, when the authors specified that the "true" coloration was not camouflaged by dirt (Kleinschmidt & Weigold, 1922). In addition, the three *kwanhsienensis* specimens in the MTD, originally thought to be winter visitors to Kwanhsien, have conspicuously short bills. Hartert & Steinbacher (1933: 157) believed these birds to be juveniles of the local *khamensis*, but as this material was collected in December and January, well after the first moult of juveniles, this cannot be the case. Eck & Quaiser (2004) mentioned a newly-collected specimen from the mountains close to Dujiangyan (the former Kwanhsien, north-west of Chengdu), which seemed to be similar to *kwanhsienensis*. This specimen, from the Longxi-Hongkou reserve, exhibits a haplotype of its own (Tietze et al., 2006); it is too large and too different in colour to be *kwanhsienensis* and better fits *khamensis*, as did its vocalisations. Based on the available material *kwanhsienensis* is a distinct local form, but one that has not been collected again since its description and is not certainly identifiable to species without molecular study. In the light of the recent discovery of *Certhia tianquanensis* and the taxonomic splits within our region discussed here, it is dangerous to simply place such "unexplained" forms in synonymy. This taxon must be relocated and its status clarified. Inevitably, linear species lists offer no way to signal such cases.

General characteristics: despite its compact range *C. hodgsoni* disposes of a rich morphological and molecular genetic structuring reflecting at least three well differentiated subspecies. Internal isolating mechanisms may be well developed as suggested by differences in voice (Fig. 2) and morphology. The latter are most strongly developed between nominate *hodgsoni* and *mandellii* (Pl. VII, Figs. d and e) and concern bill size, hallux-claw length, and coloration of breast and belly; but differences between *mandellii* and *khamensis* (Pl. VII, Figs. e and f) are also obvious.

Distribution: *C. hodgsoni* is entirely Sino-Himalayan in distribution. It ranges over the whole Himalayan chain from Pakistan to southern Tibet, and extends to Yunnan and Sichuan, and perhaps to southernmost Gansu. Other western and northern regions are inhabited by *C. familiaris sensu stricto* (*q.v.*). Despite a focused personal effort to detect the contact area in western China between *C. familiaris sensu stricto* and *C. hodgsoni* by one of us (J.M. on his 2005 expedition), it is as yet only possible to give a general geographical picture. Apparently, the distributional divide lies in the Qinling Range; *C. hodgsoni* has been found on the southern flanks, and *C. familiaris sensu stricto* on the

northern flanks. The closest known localities of the two are 165 km apart (fig. 2 in Tietze et al., 2006, see Fig. 1 herein).

Colour images: Pl. VII (this paper): Figs. c. '*waschanensis*', d. *hodgsoni*, e. *mandellii*, f. *khamensis*; Quinn in Harrap (1996), pl. 9, figs. 26d. *hodgsoni*, 26e. *mandellii*.

Certhia himalayana Vigors, 1832

Included taxa (4): *C. h. taeniura* Severtzov, 1873 [Chimkent, Russian Turkestan]; *C. h. himalayana* Vigors, 1832 [Himalayas, restricted to Garhwal or Kumaon by Meinertzhagen, 1922], *C. h. yunnanensis* Sharpe, 1902 [Shayang, Chütung road, N Yunnan]; *C. h. ripponi* Kinnear, 1929 [Mt. Kotan, Chin Hills].

Taxonomy: the Himalayan or Bar-tailed Treecreeper occurs in three disjunct areas: in the western Himalayas west to the Tian Shans (*taeniura* and *himalayana*), south-western China (*yunnanensis*), and the Chin Hills, western Myanmar (*riponi*). A proposed additional subspecies at the eastern fringe of the western range, *infima* Ripley, 1950, was accepted neither by Vaurie (1957) nor by Greenway (1967). To expect well developed diversity between these populations turned out to be false. In playback experiments the territorial songs of a western population (*himalayana*) regularly evoked strong territorial responses in the Chinese population (*yunnanensis*). Their songs may be regarded as very similar or even identical (Fig. 2 g-i). Moreover, the cytochrome-*b* gene of individuals from the three populations revealed no clear-cut clustering (Tietze et al., 2006), although given the low sample size we cannot yet fully exclude this. The single *taeniura* sample, from Kyrgyzstan, shared one of the haplotypes from the *himalayana* population, and sequence distance values between the resulting three haplotype clusters are low (between 0.5 and 1.2%) pointing to recent segregation.

General characteristics: the segregation of these three populations is recent judging from their similar morphology, vocalizations, and cytochrome-*b* phylogeny.

Distribution: in the Himalayas this species is apparently limited by the amount of precipitation. In the western Himalayas it only penetrates eastwards as far as forested areas are available in the rain shadow of the main range. Such forests fade out in the Dhaulagiri and Annapurna areas of western Nepal (Martens & Eck, 1995).

Colour images: Pl. VIII (this paper): Figs. a-b; Quinn in Harrap (1996), pl. 10, figs. 29a: *taeniura*, 29b: nominate *himalayana*, 29d: *yunnanensis*; Martens et al. (2002), pl. 1c: *yunnanensis*.

Certhia tianquanensis Li, 1995

Included taxa (1): *C. tianquanensis* Li, 1995 [Tianquan County, Sichuan, China].— Monotypic.

Taxonomy: The Sichuan Treecreeper was originally described as a subspecies of *C. familiaris* (Li, 1995), but soon turned out to be a good biological species, with peculiar external morphology, vocalisations and, as an important biological character, syntopic occurrence with *C. hodgsoni* and with *C. familiaris sensu stricto* (Martens et al., 2002, 2003, Sun & Martens, 2005), as well as distinct cytochrome-*b* differences. Despite the earlier assumption that *C. discolor* is the closest relative of *C. tianquanensis* (Martens et al., 2002), more detailed analyses group it with *C. nipalensis*, but with a sequence difference of

5.7% (Tietze et al., 2006). However, the two can be united in a superspecies *Certhia [nipalensis]*.

In the original description of *C. tianquanensis* given in Chinese (with English summary) three different spellings of the species name *tianquanensis*, *tianouanensis*, and *tian-guanensis* were used, two of them erroneously. We know of no other subsequent paper in which all three names were listed and one of them selected as is required for stability. Therefore one of us (J.M.) here acts as First Reviser and in accordance with Art. 24.2.3 of the Code selects the specific name *tianquanensis* (I.C.Z.N., 1999). This is almost certainly the name Li (1995) intended to attribute to this taxon, because it correctly refers to the type locality, Tianquan County, Sichuan, China.

General characteristics: A large, short-billed species with conspicuously light throat and breast, becoming slightly darker on the breast; it is also unmistakable by voice, in its fir-dominated mountainous habitat. The Sichuan Treecreeper apparently occupies coniferous forests at comparatively low altitudes. It avoids those in the extremely harsh climate close to the timberline where only *C. familiaris* and *C. hodgsoni* persist. Syntopic occurrences with the latter species have been reported on Wawu Shan and Jiuzhaigou in Sichuan by Martens et al. (2002, 2003), and by Rheindt (2004), and by Sun & Martens (2005) on Taibai Shan and a few other localities in the Qinling mountains, Shaanxi.

Distribution: this species seems to have a highly restricted range, known only from a handful of localities in the western Chinese provinces of Sichuan and Shaanxi (Li, 1995; Martens et al., 2002, 2003; Rheindt, 2004; Sun & Martens, 2005). More localities will undoubtedly be discovered.

Colour images: Pl. VIII (this paper): Fig. d; Martens et al. (2002), pl. 1a-b; Martens et al. (2003), pl. 5a-b.

Certhia nipalensis Blyth, 1845

Included taxa (1): *C. nipalensis* Blyth, 1845 [Nepal].— Monotypic.

Taxonomy: it is generally accepted that *nipalensis* is a clearly distinguishable species of the central and eastern Himalayas, the Rusty-flanked Treecreeper, although Hartert (1905: 322) and Baker (1922) considered it a race of *C. familiaris sensu lato*. The correct identity of the bird to which Blyth attached this name was explained by Kinnear (1935); earlier authors had confused the nomenclature. In its restricted range it usually lives in local syntopy with *C. hodgsoni* and rarely with *C. himalayana* as well (Martens & Eck, 1995).

Current cytochrome-*b* analyses make *nipalensis* a sister taxon of *C. tianquanensis* with 5.7% sequence distance and both turn out as the sister group to the other “trill singers”, *C. discolor* and *C. manipurensis* (*q. v.*) (Tietze et al., 2006).

Colour images: Pl. VIII (this paper): Fig. e; Quinn in Harrap (1996), pl. 9, figs. 30a-b.

Certhia [discolor] sensu lato

What makes the ‘Brown-throated Treecreeper’, the traditional species *C. discolor*, so remarkable is the fact that it lives in some highly disjunct areas in the mountainous tropics and subtropics of South-east Asia and that these restricted populations differ considerably in external morphology.

They differ in coloration of breast and belly, and in bill size, as hardly any other treecreeper species does. The conspecificity of all these local forms has not been disputed since they were lumped, and Harrap (1996), the last reviser, did not suggest that species limits might have been wrongly drawn. Since then Martens et al. (2002) demonstrated in sonagrams remarkable differences in territorial song of northern (nominate *discolor*) and several of the south-eastern populations (*shanensis*, *manipurensis* and *meridionalis*) but did not then take his conclusions further. A molecular analysis of the cytochrome-*b* gene now reveals remarkable distance values between northern *discolor* and southern *manipurensis* (Tietze et al., 2006). The distance value of 5.1% is of almost the same order of magnitude as between *C. nipalensis* and *C. tianquanensis* – see above.

Unfortunately, the remaining south-eastern subspecies *shanensis*, *laotiana*, and *meridionalis* have not yet been sampled and included in a molecular study, so that it is not possible to be definite as regards the affinities of these isolated local forms. However, given the similarities of their songs (as demonstrated in Martens et al., 2002, and Fig. 2 herein), a close relationship with *manipurensis* is evident. Nonetheless, it remains possible that among this south-eastern set of taxa additional independent species are hidden. For the time being, we feel the proposed split of Tietze et al. (2006) is the most parsimonious and plausible treatment available: thus we have a northern monotypic species *C. discolor sensu stricto*, and a south-eastern polytypic one, *C. manipurensis*. Combining them as a superspecies seems appropriate for they are allopatric and they appear as sister taxa on the cytochrome-*b* phylogeny. We recommend that the vernacular English name Brown-throated Treecreeper be retained for *C. discolor sensu stricto* and that the name Hume's Treecreeper be employed for *C. manipurensis*.

Certhia discolor Blyth, 1845 [*sensu stricto*]

Included taxa (1): *C. discolor* Blyth, 1845 [Darjeeling].— Monotypic.

Taxonomy: having separated from it all the south-eastern subspecies of former *C. 'discolor'* the newly defined *C. discolor sensu stricto* is monotypic.

General characteristics: the territorial song normally consists of a long series of identical 'downstrokes' giving the verse a homogeneous rattling character (Fig. 2d).

Distribution: its range is now purely Himalayan; from Kumaon (local and patchy), through all Nepal (although only local in the west), to Sikkim, Bhutan, the north-eastern states of India and, locally, south-east Tibet (Harrap, 1996).

Colour images: Pl. VIII (this paper): Fig. c; Quinn in Harrap (1996), pl. 10, figs. 31a-b; Martens et al. (2002), pl. 1d.

Certhia manipurensis Hume, 1881

Included taxa (4): *C. m. manipurensis* Hume, 1881 [Manipur]; *C. m. shanensis* Baker, 1930 [Loi Pang Nan, Mekong]; *C. m. laotiana* Delacour, 1951 [Phukobo, a mountain near Xieng Kouang, Laos]; *C. m. meridionalis* Robinson & Kloss, 1919 [Langbian Mts., S Annam].

Taxonomy: The split between Himalayan nominate *discolor* and all the south-eastern subspecies of former *C. 'discolor'* as described above leaves a remarkably variably-coloured set of four disjunct subspecies with similar songs (although this is still unknown

for *laotiana*). The main difference compared to *C. discolor sensu stricto* song is that two slightly different notes of the simple down-stroke elements regularly alter and even form distinct two-element groups. To the human ear, this gives a certain irregular impression of verse structure (Fig. 2a-c). The song of *C. discolor sensu stricto* normally only consists of a single type of down-stroke note and such notes are combined with a homogeneous rattling verse (Martens, 1981, Martens et al., 2002, Tietze et al., 2006).

General characteristics: these subspecies are not morphologically homogeneous, they differ in bill size, and in breast and vent coloration (for example reddish in *manipurensis* and ashy-grey in *laotiana*).

Distribution: four disjunct subspecies, from eastern-most north-east India and north-west Myanmar (*manipurensis*), eastern Myanmar and northwest Thailand (*shanensis*), a small local population in Laos (*laotiana*), and another in southern Vietnam (*meridionalis*). Three of the four populations were named only in the 20th century apparently due to their restricted distributions and difficult access to their ranges (Harrap, 1996).

Colour images: Pl. VIII (this paper) Fig. f; Quinn in Harrap (1996), pl. 10, fig. 31c: *manipurensis*, fig. 31d: *shanensis*, fig. 31e: *meridionalis*.

Salpornis spilonotus (Franklin, 1831)

Included taxa (1): *S. s. spilonotus* (Franklin, 1831) [Vindyan Hills]; syn. *S. s. rajputanae* R. & A. Meinerzhagen, 1926 [Sambhur].

Taxonomy: no changes have been proposed within our area. Conspecificity with the African subspecies, which in themselves are highly disjunct in distribution, has not been reviewed, but deserves investigation. Sibley & Ahlquist (1990) said that “the Afro-Asian Spotted Creeper (*Salpornis spilonotus*) is the closest relative of *Certhia*”. However, newer research techniques need to be applied to confirm this.

Colour images: Quinn in Harrap (1996), pl. 124, fig. 32 (Oriental and African subspecies).

Acronyms

BMNH	The Natural History Museum, Tring – formerly the British Museum (Natural History).
MTD	Staatliche Naturhistorische Sammlungen Dresden, Museum für Tierkunde, Dresden.
ZFMK	Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn.
ZMB	Museum für Naturkunde der Humboldt-Universität zu Berlin, Berlin - formerly Zoologisches Museum Berlin.
UMMZ	University of Michigan, Museum of Zoology, Ann Arbor.

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³ This issue is dated 26 May 1864. The date follows the list of contributors to the volume.

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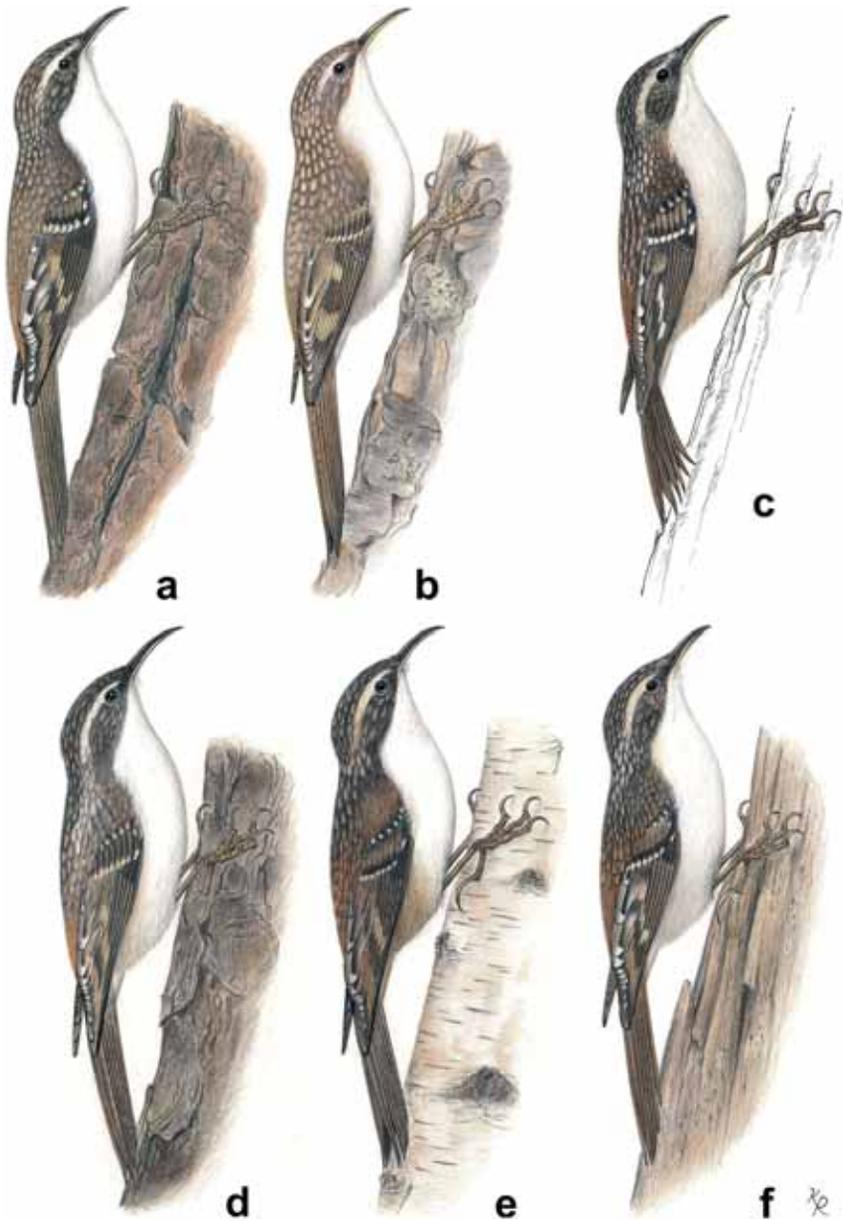


Plate VII: European, central Asian and Himalayan subspecies of *Certhia familiaris* (a–b) and *Certhia hodgsoni* (c–f).— a) *C. f. macroactyla* (extralimital): Czech Republic, Šumava, MTD C 62629; – b) *C. f. tianschanica*: Kaschka-Su, “Turkestan”, Kazakhstan or North-West China, ZMB B 341; – c) *C. h. 'waschanensis'* (in synonymy): China, Sichuan, summit of Wa Shan, paratype, MTD C 25163; – d) *C. h. hodgsoni*: India, Kashmir, Sonamarg, BMNH 1949.Whl-I. 5494; – e) *C. h. mandellii*: Nepal, Mustang Distr., Tukche, ZMFK; – f) *C. h. khamensis*: China, Tsari valley, SE Tibet BMNH 1938.12.13.8.— Originals by K. Rehbinder.

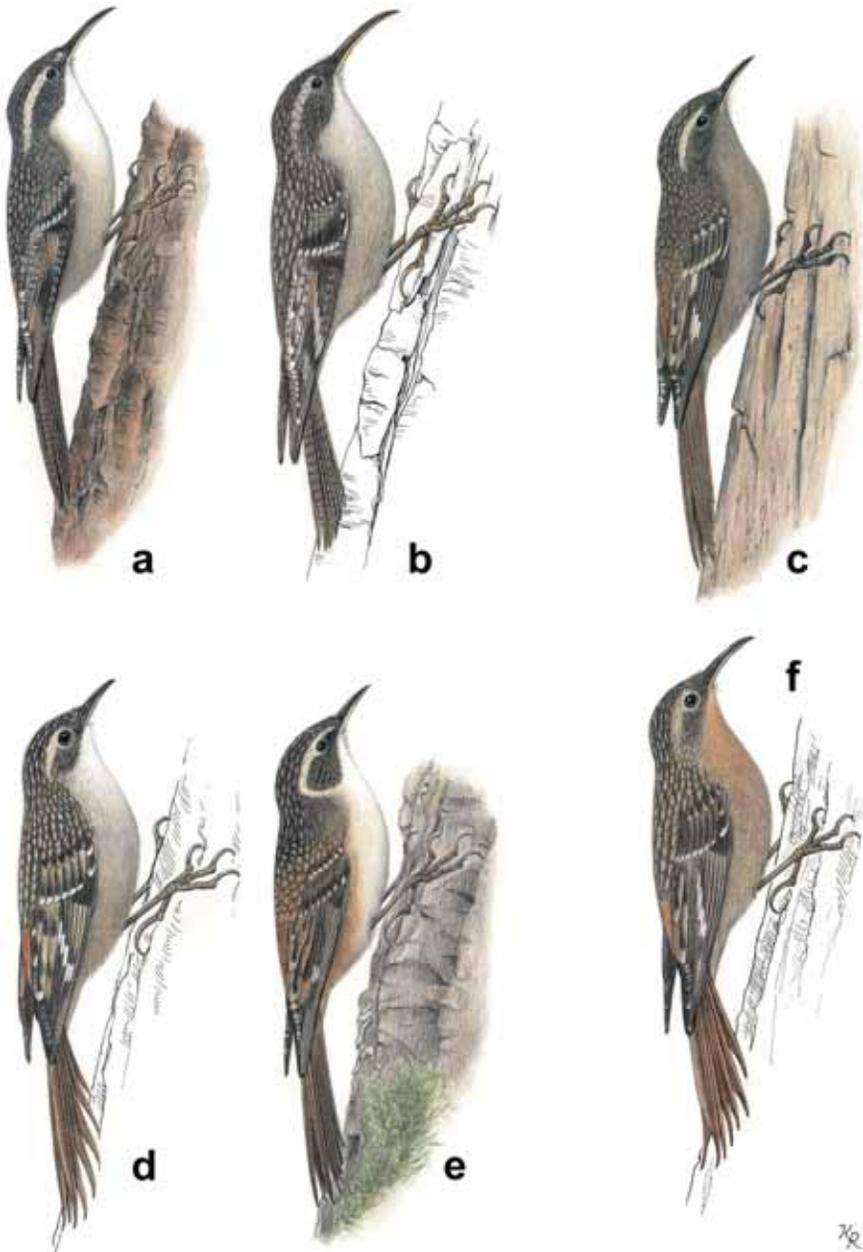


Plate VIII: Asian species and subspecies of *Certhia*. – a) *C. himalayana himalayana*: male, Nepal, Mustang Distr., Dumpu, ZMFK; – b) *C. h. yunnanensis*: male, China, Sichuan, from near Sungpan, C MTD 23921; – c) *C. discolor*: male, Nepal, Ramechhap Distr., ascent to Ting Sang La, ZMFK; – d) *C. tianquanensis*: male, China, Sichuan, Wawu Shan, Hongya County, MTD C 59560; – e) *C. nipalensis*: male, Nepal, Myagdi Distr, Dhorpatan, ZMFK 71.807; – f) *C. manipurensis manipurensis*: male, Myanmar, Mt. Victoria (=Natmataung), ZMB 39.345.— Originals by K. Rehbinder.