
APPENDIX 1

DESCRIPTION OF THE LIKHU KHOLA AND TRIBUTARIES

Dee Khola - open, very few alders, little riparian vegetation - either grazed, cut or cultivated to edge; some steep rocky dry hillsides with stunted scrub/tree growth; side tributaries with narrow strip of alder carr. Many irrigation channels diverting water from stream and much sandy sediment on stream bed. Large boulders in stream, but only two or three small (1 m high) waterfalls. South-facing.

Mahadev Khola - similar to Dee but riparian vegetation in patches by wooded sections and narrow gorge with cliffs and waterfalls up to 4 m high, for 300-400 m. Lower section with many rocks and stones. Wetted area reduced to trickle through irrigation diversions; much sediment and very turbid water. Hillside erosion in upper reaches. Channel width in lower section c. 10-15 m but stream reduced to 5-8 m. Gorge only 6-8 m wide. South-facing.

Bore Khola - narrow stream mainly with steep banks with shrubs and trees overhanging much of stream; and adjacent Sal forest in patches. Elsewhere rice fields. Rocks and boulders abundant but no true waterfalls. Many irrigation channels and much sediment on stream bed. Highest section more open. North-facing.

Syalping - broadest (20 m) of tributaries surveyed with good flow. Steep banks, many with fringe of trees and shrubs; some waterfalls; numerous rocks and boulders. North-facing.

Ghyambe Khola - a tributary of the Syalping - through woodland for much of survey stretch; meandering and rocky, narrow 4-6 m. More open in upper stretch.

Bhondare and Jogi - two narrow subtributaries, 2-8 m in width; the lower part of the Jogi through cultivation; little bankside cover; series of high rocky waterfalls at upper end of stretch surveyed; the Bhondare through cultivation too but in a narrow rocky channel with thick vegetation on streambanks; cliffs and waterfalls; a small trickle only in upper section

Likhu Khola - Upper 2 km surveyed rocky, open fast-flowing, 20-40 m wide; mainly 1 m depth; many shoals, riffles, some deep pools with riverside cliffs. Little riparian vegetation except odd patches and degraded forest along one bank for 500 m below the Syalping confluence. Alluvial terraces cultivated up to river edge. Much disturbance by local people and stock. Two bridges across the river and easily fordable elsewhere. Lower section in broad open valley, extensive shoals and river much braided, channel up to 500 m across. Gradient reduced cf. upper section.

Winter records of the Manchurian Reed-Warbler *Acrocephalus (agricola)* *tangorum* from Thailand

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Non-breeding season records of the Manchurian Reed-Warbler *Acrocephalus (agricola) tangorum* are reported from Thailand. These are the only observations of this taxon away from north-east China and Amurland, Russia where it both breeds and has been recorded on passage. *A. tangorum* shows some distinct differences from nominate *A. a. agricola* and its taxonomic and conservation status should be examined anew, particularly as it may be severely threatened by habitat destruction in its Thai winter quarters.

INTRODUCTION

The Manchurian Reed-Warbler *Acrocephalus (agricola) tangorum* is a little known taxon which breeds in in both Heilongjiang province and the Nei Mongkol Autonomous Region in north-east China (Cheng 1987, Alström *et al.* 1991) and in Russian Amurland (Shibnev and Gluschenko 1977, Stepanjan 1978, Gluschenko 1989). It has also been recorded on passage, in the western part of Chaoyang, Liaoning Province (Cheng 1987) and at Qinhuangdao, Hebei Province from which it was first described (La Touche 1912). Kennerley and Leader (1992), Williams *et al.* (1992) and Williams and Hsu (1992) have recently detailed a number of sightings of migrant *tangorum* at the nearby sites of Beidaihe and Daihe in both spring and autumn.

This paper documents the first records of *tangorum* away from north-east Asia, in its presumed winter quarters in Thailand.

THE FIND

The author, together with Dr Boonsong Lekagul, was netting migrant passerines in a freshwater marsh at Khao Sam Roi Yot, Prachuap Khiri Khan Province, south-western Thailand (12°10'N 99°54'E) on 6 May 1981, when he noticed an unusually rufous warbler with only a slight blackish brow among a number of Black-browed Reed-Warblers *A. bistrigiceps* trapped. This was immediately recognised as being similar to a skin labelled *A. agricola* which the author had previously examined at the Centre for Thai Reference Collections, Thailand Institute of Scientific and Technological Research, Bangkok. That specimen (number 53-2875), a first autumn female, had

been collected by Dr J. T. Marshall at Bang Phra Red Cross Horse Farm, Chon Buri Province, south-eastern Thailand (13°11'N 100°59'E) on 9 October 1967. The Khao Sam Roi Yot bird (Field number ACW 14) was collected for deposition at the Centre for Thai National Reference Collections.

The presence of a slight, but noticeable, black brow in both specimens indicated, according to Vaurie (1959), that the birds might be *A. (agricola) tangorum* and this was confirmed when the Khao Sam Roi Yot skin was compared with a series of eleven specimens of *tangorum* held at the British Museum (Natural History) in August 1982.

Subsequent observations of *tangorum* at Khao Sam Roi Yot were sight records of single birds by the author, Ben King and a King Bird tour group on 17 January 1985, and by the author and J. Dunn on 15 February 1985. A number of other sightings of *tangorum* at Khao Sam Roi Yot have been reported in subsequent years up to the present.

One further *tangorum* was netted in a marsh at Rangsit, Pathum Thani Province, on the northern outskirts of Bangkok (13°59'N 100°38'E) by Kevin Baker on 3 March 1987. After examination, it was photographed and released.

These appear to be the only records of this taxon away from north-east Asia.

DESCRIPTION

The two Thai specimens of *tangorum* showed fresh to slightly worn body plumage, having warm rufescent-brown upperparts, with the rufous tinge being strongest on the rump and upper tail coverts, and rufous-edged tertials. The crowns of both birds appeared slightly mottled, the individual feathers having blackish-brown centres and olive-brown edges. The blackish feather centres were particularly prominent on the lateral crown, above the supercilium, forming a slight blackish brow which extended from the anterior margin to just behind the hind margin of the eye. The broad, buffy supercilium extended from the base of the bill to roughly half way between the rear margin of the eye and the nape. There was a blackish-brown line through the eye.

The throat was clear white while the breast, flanks and under tail coverts were a bright rufous tawny-buff. On the specimen examined live by the author, the maxilla was blackish-grey and the lower mandible entirely pale flesh. The legs were flesh-coloured and the iris muddy-brown. The label of the Bang Phra specimen gave the iris colour as grey.

The upperparts of the October specimen were slightly paler and more evenly rufescent than those of the May (Khao Sam Roi Yot) bird and the rectrices showed slight to moderate wear. On the May bird, the rufescent tint on the upperparts was somewhat reduced, particularly on the upper back, as

Table 1. Biometrics and wing formula of Thai specimens of *Acrocephalus (agricola) tangorum*

(Lengths given in mm). Primaries are numbered descendantly. Under column p9, - 4 mm (=4/5) indicates that the tip of the 9th (second outermost) primary falls 4 mm short of the wing point, and lies between the tips of 4th and 5th primaries.

Specimen no.	53-2875	ACW 14	Rangsit
Wing	53	52	55
Tail	50	53	56
Bill length	16.4	16.4	16.0
Bill width	4.1	4.6	n.r.
Wing point	p8=p7(p6 = -1mm)	p8=p7(p6 = -1mm)	p8=p7=p6
p9	-4mm (=4/5)	-4mm (=3/4)	-5mm
Notch p8	10.7	11.5	n.r.
Notch p9	12.1	13.0	n.r.
Weight (g)	9.9	7.9	9.1

the rufescent tips and edges of the body feathers had begun to abrade, revealing the darker feather centres. In contrast, the rectrices of the May bird were fresher with darker centres and deeper more intensely rufous edges than those of the October specimen and had been recently moulted, together with all three tertials on both wings. The innermost secondary on the left wing had also been renewed but the primaries and all remaining secondaries were unmoulted and the primaries, in particular, showed moderate to heavy wear.

Both specimens were similar in plumage colouration to a series of seven skins collected by J. D. D. La Touche in August and September 1912 and September 1913 from Qinhuaungdao, Hebei Province, North-east China, held at BMNH. Four further skins at BMNH, collected at the same locality during 30 May to 2 June 1913, differed markedly in being more worn, and are duller and greyer, appearing olive-brown above, and whiter on the underparts. Although Williamson (1968) surmised that *tangorum* probably underwent a complete moult in its winter quarters, the Khao Sam Roi Yot bird, though it had renewed body and coverts feathers, tertials and tail, had clearly not moulted most remiges suggesting that a partial moult on the wintering grounds, rather than a complete moult, may be the norm. Although the body plumage may perhaps be expected to wear or bleach, losing its markedly rufescent tint over most of the upperparts and underparts, somewhat paralleling the seasonal change in hue of nominate *A. agricola*, all rectrices of

the four spring *tangorum* at BMNH appeared so heavily worn that they could not have been moulted as recently as those of the Khao Sam Roi Yot bird and had either not been moulted since the previous year, perhaps while still on the breeding grounds (if adult) or perhaps not moulted at all (for birds in their first calendar year). Photographs of two spring individuals in Kennerley and Leader (1992) showed similar, heavily worn rectrices. The Khao Sam Roi Yot bird, therefore, may have undergone an uncharacteristically extensive partial moult. The third bird, from Rangsit in March, had not yet undergone any pre-breeding moult and the overall colouration appeared closer to that of *A. bistrigiceps*, being only slightly more rufous on the upperparts (K. Baker *in litt.* 1993). Some biometrics and wing formula data for all three birds are given in Table 1.

STATUS AND HABITAT IN THAILAND

All but two of the Thai records come from a single locality, Khao Sam Roi Yot, the site of possibly the largest remaining *Phragmites* swamp in Thailand, covering roughly 50 sq km. The marsh is fringed with some *Typha angustifolia* Linn. together with other lower growth (probably *Eleocharis dulcis* (Burm.f.) Trin. ex Hensch. and *Scirpus mucronatus* Linn.) around its drier margins. Rangsit is a *Typha* marsh of less than 1 sq km area. Bang Phra is a water storage reservoir in relatively dry country which, at the time of capture of the *tangorum* specimen (October, in the late wet-season) would probably have supported a number of shallow flooded areas around its margins. The bird was said to have been caught in a grass field (Pantuwatana *et al.* 1969).

Notwithstanding the potential difficulty in separating *tangorum* in the field from the commoner and more widespread Blunt-winged Warbler *A. concinens*, or from the similarly scarce and local nominate race of the Paddyfield Warbler *A. a. agricola* (so far known only from two specimens from marshy areas in the far north of the country (King 1966, Round 1983) and a few probable sight records) it is surprising that more *tangorum* have not yet been recorded, especially considering the large number of birdwatchers visiting Thailand. This may indicate its genuine scarcity: ten *A. bistrigiceps* were trapped to only one *tangorum* at Khao Sam Roi Yot during 4-6 May 1991. The combination of sight records in January and February, and the specimen in May strongly suggests that *tangorum* winters at Khao Sam Roi Yot, whereas the Bang Phra bird, taken in October, seems more likely to have been on migration. (The author mist-netted *Acrocephalus* warblers at Bang Phra in September and December 1982 without locating any *tangorum*). The situation at Rangsit is unclear but it is indeed surprising that there are no sight records of *tangorum* from there, since it is one of the most heavily watched sites anywhere in the lowlands of Thailand. As far as we know, therefore,

tangorum may be mainly or entirely restricted to Khao Sam Roi Yot in winter though it is possible that increased mist-netting could unearth further birds in other areas.

THE CONSERVATION AND STATUS OF *A. (a.) tangorum*

Notwithstanding the inherent difficulty of separating smaller *Acrocephalus* warblers, *tangorum* appears to be genuinely scarce in its winter quarters. Furthermore, its only known wintering site, in the reedswamp at Khao Sam Roi Yot National Park, Thailand, has been very adversely affected by drainage and conversion to shrimp and fish ponds since 1986 (Parr *et al.* 1993), leading the IUCN Commission on National Parks and Protected Areas to list the site as one of the most threatened parks in the world. Khao Sam Roi Yot is probably the last major reedswamp in Thailand. Elsewhere, such minor freshwater swamps as remain, around the margins of major rice-growing areas, especially within a 150 km radius of Bangkok, are dominated by *Typha* and lack any expanses of *Phragmites*: all are imminently threatened by reclamation and urbanisation. Other than at Khao Sam Roi Yot, no freshwater swamp habitat has ever been incorporated within the boundary of any national park or wildlife sanctuary in Thailand.

The taxonomic position of *tangorum* still needs further clarification. Alström *et al.* (1991) clearly demonstrated that Williamson's (1968) placement of *tangorum* as a race of the Black-browed Reed-Warbler *A. bistrigiceps* - an arrangement subsequently followed by Watson *et al.* (1986) - was spurious. Although they continued to treat *tangorum* as a subspecies of *A. agricola*, as previously considered by Vaurie (1959), on the basis of its territorial response to song playback from nominate *A. agricola*, this was never tested by playback of any other *Acrocephalus* as a control and may therefore be inconclusive. Indeed, Alström and Olsson (1992) subsequently suggested that a positive response to playbacks may be of little or no taxonomic value because of known instances where taxa have responded to the songs of both close congeners and even unrelated species.

A. tangorum has a significantly larger bill than nominate *agricola* and, in addition, in worn plumage shows consistently darker, browner upperparts (Alström *et al.* 1991, Kennerley and Leader 1992). These slight but consistent differences and the large range-gap between the breeding ranges of the two might still suggest that *tangorum* is better treated as a distinct species which, especially in view of its probable threatened status, deserves renewed attention. *A. tangorum* is already considered rare or threatened in Gluschenko (1989) who recommended measures to prevent its reedbed breeding habitat from burning or reclamation for agriculture. Further efforts should be made to determine its precise distribution and the size of breeding

populations from singing males. Pressure should also be placed upon the Thai government to ratify the RAMSAR convention, demarcate and protect the boundary of Khao Sam Roi Yot National Park as well as to create or rehabilitate reedswamps elsewhere in central Thailand.

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Birds recorded during the third BirdLife/Forest Birds Working Group expedition in Viet Nam

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Between 12 April and 5 July 1991, surveys of forest birds were undertaken at a selection of sites, including protected areas, in Viet Nam. These surveys were part of the Viet Nam Forest Project of BirdLife International and provided information on the status and distribution of 16 globally threatened and 13 near-threatened species (Collar and Andrew 1988) and other endemic species. Information was obtained on Orange-necked Partridge *Arborophila davidi*, Green Peafowl *Pavo muticus*, White-winged Duck *Cairina scutulata*, Pale-capped Pigeon *Columba punicea*, White-shouldered Ibis *Pseudibis davisoni* and Black-hooded Laughingthrush *Garrulax milleti*. In addition, an undescribed taxon of fulvetta *Alcippe* was discovered on Mount Bi Doup near Da Lat, Lam Dong Province (South Annam).

Between 12 April and 5 July 1991 surveys for globally threatened and other endemic forest birds were undertaken at a selection of sites in Viet Nam. These surveys formed part of the Viet Nam Forest Project of BirdLife International and the Forest Birds Working Group of the Centre for Natural Resources Management and Environmental Studies (CRES) and the Institute of Ecology and Biological Resources, Hanoi.

The main aims of this fieldwork were to undertake surveys for four globally threatened endemic species; Orange-necked Partridge, Edwards's Pheasant *Lophura edwardsi*, Black-hooded Laughingthrush *Garrulax milleti* and Grey-crowned Crocias *Crocias langbianis* and to identify core areas for their protection. Other objectives were to undertake further surveys for White-winged Duck *Cairina scutulata* and Green Peafowl *Pavo muticus* in Nam Bai Cat Tien National Park and to conduct more detailed faunal surveys at Cong Troi and other remaining forest areas on the Da Lat Plateau. For a full account of the results of these surveys, including the implications for conservation, see Eames *et al.* (1992).

During fieldwork, new distributional data were obtained on Vietnamese birds and are presented in this paper. Of particular note was the discovery of Orange-necked Partridge *Arborophila davidi* and White-shouldered Ibis *Pseudibis davisoni* in Nam Bai Cat Tien N.P. Information was obtained on the status of 14 other globally threatened species, namely Siamese Fireback *Lophura diardi*, Germain's Peacock-Pheasant *Polyplectron germaini*, Crested Argus *Rheinardia ocellata*, Green Peafowl, White-winged Duck, Blyth's Kingfisher *Alcedo hercules*, Pale-capped Pigeon *Columba punicea*, Chinese Egret *Egretta eulophotes*, Lesser Adjutant *Leptoptilos javanicus*, Bar-bellied Pitta *Pitta elliotii*, Yellow-billed Nuthatch *Sitta solangiae*, Short-tailed Scimitar-