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Address: Dr P. A. Clancey, Fernleigh Gardens, 8 Lambert Road, Morningside, Durban 4001, South Africa.

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The systematic position of the Buff-streaked Chat (*Oenanthe/Saxicola bifasciata*)

by Alan Tye

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The Buff-streaked Chat is an enigmatic species, endemic to southern Africa. It was considered by Hall & Moreau (1970) as of "uncertain affinities". At its original description, Temminck (1829) named it *Saxicola bifasciata*, thus placing it in a genus which at that time covered a variety of chats, including most wheatears. It was later transferred to the ant-chat genus *Myrmecocichla* (e.g. Seebohm 1881) while other wheatears remained in *Saxicola*. However, at that time *Myrmecocichla* bore little resemblance to the genus as we now know it: Seebohm (1881) considered it to comprise 8 species in 3 groups, of which 6 species (2 groups) are now included in *Cercomela*. (The remainder of present-day *Cercomela* was included with the wheatears in *Saxicola*.) The third group in Seebohm's *Myrmecocichla* comprised the Buff-streaked Chat and the Southern Anteater Chat *M. formicivora*.

The very diverse *Myrmecocichla* as constituted by Seebohm (1881) was later dismantled, with the majority of its species transferred to *Cercomela* but, over the years, further species were added to it, forming a *Myrmecocichla* genus quite different in character from that in which Seebohm placed the Buff-streaked Chat.

The Buff-streaked Chat superficially resembles some of the ant-chats in having white (or buff) shoulders, but this mark is due to buff scapulars in the Buff-streaked Chat while in the ant-chats it is a result of white wing-coverts. In other characteristics, the Buff-streaked Chat differs from the ant-chats in plumage, egg-colour and behaviour and does not appear to be closely related to them. Ripley (1962) removed it and restored it to the wheatears (which by that time were placed in *Oenanthe*) "on plumage and behavioural grounds" but without giving detailed reasons.

In plumage, the Buff-streaked Chat is actually quite unlike any wheatear, although it does bear a striking resemblance to the Stonechat *Saxicola torquata* and Whinchat *S. rubetra*. It seems worthwhile to compare in detail what is known of the plumage, morphology, behaviour and ecology of the Buff-streaked Chat with 'other' wheatears (hereafter termed simply wheatears or *Oenanthe* spp.) and with *Saxicola* spp.

Plumage

The Buff-streaked Chat superficially resembles the Stonechat, but a detailed comparison is required to substantiate this resemblance.

The male Buff-streaked Chat has a black throat, a feature found in some species of both *Saxicola* and *Oenanthe*, but the remainder of the underparts of the Buff-streaked Chat is a deep cinnamon-buff, as in the Stonechat and Whinchat but unlike any *Oenanthe* except the Desert Wheatear *O. deserti*. Male Buff-streaked Chats have a cream supercillium, as in some species of both genera (including the Whinchat but not the Stonechat).

The upperparts of the Buff-streaked Chat, from crown to back, are mottled black and brown, unlike any *Oenanthe* but strikingly like the upperparts of the Stonechat and Whinchat. In all 3 species the fresh feathers have black centres with broad brown fringes. Indeed, the exactitude of the resemblance in this character alone would strongly suggest relationship.

The Buff-streaked Chat's rump is cinnamon or deep buff, as in the Stonechat. This condition is also approached by the 2 'red-rumped' wheatears, Tristram's *O. moesta* and the Red-tailed *O. xanthopyrna*.

One of the most arresting characters of the male Buff-streaked Chat is its cinnamon-buff or creamy-white inner wing-coverts and scapulars which contrast with the dark wings and upperparts. This precise pattern is found in no *Oenanthe* but is approached most closely by the Mountain Wheatear *O. monticola* and Somali Wheatear *O. phillipsi*, in which most or all of the wing-coverts are white or pale grey, and by the Desert Wheatear in which the innermost coverts are buff (concolorous with the back). However, cream or white inner wing-coverts and outer scapulars are a prominent feature of several *Saxicola* spp., including the Stonechat, in which the extent of white varies greatly between subspecies and individuals. The females of the Stonechat and Buff-streaked Chat resemble one another closely, except that the wing-flash is absent from the female Buff-streaked Chat.

In *Saxicola* the tail may be wholly black (as in the Stonechat) or black and white (e.g. Whinchat). The Buff-streaked Chat has a black tail. All *Oenanthe* spp. except one subspecies of the Mountain Wheatear *O. m. nigricauda* have a patterned black and white tail. Although *O. m. nigricauda* demonstrates that a wholly black tail can arise in *Oenanthe*, this character allies the Buff-streaked Chat more closely with *Saxicola*.

In isolation, each of the resemblances to *Saxicola* might not appear convincing but as a suite of characters (Table 1), the overall similarity between the Buff-streaked Chat and, especially, the Stonechat seems unlikely to have arisen by convergence. In contrast, the Buff-streaked Chat resembles closely no single wheatear species: it has an odd mix of characters, one or other shared with different species (e.g. general colour with Desert Wheatear, rump colour with Tristram's, etc). These isolated resemblances are less likely to indicate close relationship and more likely to represent convergence.

TABLE 1

Comparison of plumage characteristics of the Buff-streaked Chat with the Stonechat *Saxicola torquata* and wheatears. + signifies agreement with Buff-streaked Chat, – signifies disagreement.

	Buff-streaked Chat	Stonechat	<i>Oenanthe</i> spp.
Underparts	Rich cinammon-buff	+	–(+ <i>deserti</i>)
Tail	Black	+	–(+ <i>m. nigricauda</i>)
Upperparts	Mottled black & brown	+	–
Rump	Cinammon-buff	+	–(+ <i>moesta</i> & <i>xanthopyrimna</i>)
Shoulder-patch	Contrasting buff-white	+	–(+ <i>monticola</i>)

TABLE 2

Structural characteristics of the Buff-streaked Chat compared with *Saxicola* and *Oenanthe* spp. Figures are means calculated from data in the following sources: *S. torquata* & *S. rubetra* – Cramp (1988); Buff-streaked Chat & *O. monticola* – Tye (in press); *O. deserti* – Cramp (1988), Tye (in press). Figures in brackets are measurement divided by body weight^{0.33}.

		Body weight (g)	Wing length (mm)	Tail length (mm)	Bill length (mm)
<i>Saxicola torquata</i>	♂	15	66(26.7)	46(18.6)	15(6.1)
	♀	14	65(27.0)	45(18.7)	15(6.2)
<i>S. rubetra</i>	♂	19	77(28.8)	45(16.9)	15(5.6)
	♀	17	76(29.6)	43(16.7)	15(5.8)
<i>bifasciata</i>	♂	}35{	93(28.4)	61(18.7)	20(6.1)
	♀		87(26.6)	58(17.7)	19(5.8)
<i>Oenanthe monticola</i>	♂	}33{	113(35.2)	75(23.4)	22(6.9)
	♀		109(34.0)	73(22.7)	22(6.9)
<i>O. deserti</i>	♂	}20{	90(33.2)	61(22.5)	18(6.6)
	♀		87(32.1)	58(21.4)	18(6.6)

Morphology

The Buff-streaked Chat is a larger bird than the Stonechat and other *Saxicola* spp., although this may not be of great significance. Similar size differences exist between subspecies of other chat species.

Structural differences between *Saxicola* and *Oenanthe* include the following (Meinertzhagen 1930, Leisler & Winkler 1985): the bill of *Saxicola* is generally shorter and flatter at the base than in *Oenanthe*; *Oenanthe* has fewer, finer, shorter rictal bristles than *Saxicola*—in the latter they are very prominent, resembling those of flycatchers Muscicapidae (*sensu stricto*); the wing and tail of *Saxicola* are shorter in comparison with body size than in *Oenanthe*.

Some of these factors are examined for the Buff-streaked Chat in relation to 2 *Saxicola* spp. and 2 *Oenanthe* spp. in Table 2. The 2 *Saxicola* spp. were chosen as those geographically closest and most similar in appearance to the Buff-streaked Chat. The 2 *Oenanthe* spp. represent extremes of body size in that genus and include the species (Desert

Wheatear) which perhaps most closely resembles the Buff-streaked Chat in appearance.

Table 2 considers wing, tail and bill lengths in relation to body size (measured by body weight^{0.33}) and clearly demonstrates 2 points: first, that *Saxicola* and *Oenanthe* differ considerably (no overlap) in these characteristics and, second, that the Buff-streaked Chat falls within the range of *Saxicola* in all 3 features. The agreement with *Saxicola* comes despite the fact that the Buff-streaked Chat is a considerably larger bird. Differences between the Buff-streaked Chat and the Mountain Wheatear (which are similarly sized) and similarities between the 2 wheatear species (which differ greatly in size) show that these results are not the product of allometry but are probably true generic characteristics.

The bill of the Buff-streaked Chat is finer than that of most *Saxicola* but rather broader than that of *Oenanthe*. Taking into account bill length (proportional to body size) and shape, the Buff-streaked Chat's bill is perhaps intermediate between the 2 genera (short like a *Saxicola*, finer like an *Oenanthe*).

The Buff-streaked Chat possesses long, prominent rectal bristles, as in *Saxicola* spp.

Egg

The egg of the Buff-streaked Chat is unusual in having a ground colour of creamy-white or buff, heavily freckled with lilac and red-brown (see Priest 1948). In this it resembles the typical pattern of neither *Saxicola* nor *Oenanthe* (nor *Myrmecocichla*), which normally have pale blue or greenish blue eggs, spotted with red-brown. The Buff-streaked Chat egg more closely resembles those of *Thamnolea* and *Monticola* spp., although a few species of both *Saxicola* and *Oenanthe* sometimes approach it. Egg colour seems quite labile in the Turdidae and these resemblances may not bear any taxonomic significance (Lack 1958).

Ecology and Behaviour

The Buff-streaked Chat has been studied little in the field. What is known of its biology is summarized by Tye (in press). Most aspects of its behaviour and ecology do not ally it more closely with either *Saxicola* or *Oenanthe*, partly because these 2 genera are themselves rather similar. One small difference exists in breeding biology: *Oenanthe* are primarily underground hole-nesters, whereas *Saxicola* mainly nest on the ground (under bushes) or in crevices. The Buff-streaked Chat is mainly a crevice nester, often placing its nest on the ground, on the down-slope side of a rock, concealed by grass tufts (Vincent 1947). In this it resembles *Saxicola*.

The major behavioural-ecological difference between the 2 genera lies in habitat selection and foraging behaviour. *Saxicola* spp. in general prefer bushier habitats than *Oenanthe*, and forage mainly by sallying to the ground or aerial sallying from elevated perches (Greig-Smith 1982, Moreno 1984, Leisler & Winkler 1985, Cramp 1988). *Oenanthe* is a more terrestrial group, occupying more open, steppe and semidesert habitats.

Although ground and aerial sallying are used by most wheatear species, they also commonly run on the ground to capture terrestrial prey by a technique known as dash-and-jab (Cornwallis 1975, Tye in press).

In a recent study of the foraging behaviour of the Buff-streaked Chat (Tye 1988), I found it difficult to reconcile certain aspects of the bird's behaviour with that of wheatears. Differences from 'normal' wheatear behaviour included a comparatively high frequency of aerial and ground sallying, the absence of typical dash-and-jab, and an unusual bounding gait. Since the Buff-streaked Chat was then regarded as a wheatear, I attempted to explain these differences in behaviour from the normal wheatear pattern as adaptations to its unusual (for a wheatear) habitat. The Buff-streaked Chat inhabits montane grassy slopes, with tall grass and boulder fields in the Drakensberg of southeast Africa. In this habitat the tall grass prevents dash-and-jab, necessitating alternative foraging and movement techniques. No other wheatear species has this type of habitat as its major environment; all others inhabit short-grass savannas or steppes with much bare ground.

However, if the Buff-streaked Chat is regarded as a *Saxicola*, there is no difficulty in explaining either its habitat preferences or its behaviour. Montane grasslands with tall grass are the normal habitat of many *Saxicola* spp., including the Stonechat, which lives alongside the Buff-streaked Chat in the Drakensberg (pers. obs.). The foraging behaviour of the Buff-streaked Chat is similar to that of the Stonechat (cf. Greig-Smith 1983 with Tye 1988), especially where the 2 are using similar habitat. In the study area described in Tye (1988), both species captured the majority of their prey by aerial sallying (Tye 1988 and unpublished). One difference is that the Stonechat perches more often on vegetation (e.g. Greig-Smith 1983, Moreno 1984), whereas the Buff-streaked Chat shows a strong preference for rocks (Tye 1988). However, where rocks are available, Stonechats also use them as perches from which to hunt: in the same area studied by Tye (1988) where Buff-streaked Chats used rocks for 96% of their perches, 53% of Stonechats' perches were also on rocks (Tye, unpublished). The stronger preference for rocks exhibited by Buff-streaked Chats is perhaps explained by their larger, heavier build.

Finally, the unusual bounding gait noted for Buff-streaked Chats (Tye 1988) seems, in fact, typical of *Saxicola*: Cramp (1988) describes the gait of the Stonechat as a "bouncing hop".

Conclusion

The Buff-streaked Chat resembles *Saxicola* more than *Oenanthe* in plumage (detail and general appearance), morphology and ecology. It bears the closest resemblance to the 2 geographically closest *Saxicola* spp., the Stonechat and Whinchat. Most of the characteristics shared by the Buff-streaked Chat and wheatears are common to many chat species and genera and are therefore of little taxonomic significance. Details of plumage, structure and behaviour shared with *Saxicola*, on the other hand, do seem to indicate evolutionary relationship. On this basis the Buff-streaked Chat might be regarded as a giant Stonechat.

It may be speculated (Tye in prep.) that the genus *Oenanthe* may not be monophyletic, even after excluding the Buff-streaked Chat from it. Certain *Oenanthe* spp. or superspecies seem closely linked with *Myrmecocichla* on the one hand (e.g. *O. monticola*) and *Cercomela* on the other (e.g. *O. pileata* superspecies). These 3 genera, perhaps together with *Thamnolea*, *Saxicola* and others, seem to stem from an early chat radiation, although the precise relationships between these genera and their constituent species-groups are obscure. Although the Buff-streaked Chat most closely resembles *Saxicola* spp., it is conceivable that it represents an evolutionary line which has been independent since the time of the postulated early chat radiation. If this is the case, it merits its own monotypic genus. However, lacking clear evidence on the course of events at the time of the isolation of the ancestors of the present genera, the more conservative option of placing it with its nearest apparent relatives seems the better course. The Buff-streaked Chat thus returns to its original genus, becoming *Saxicola bifasciata* Temminck 1829.

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Address: Dr A. Tye, British Ornithologists' Union and Edward Grey Institute of Field Ornithology, Dept of Zoology, South Parks Road, Oxford, OX1 3PS, England.



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