SHORT REPORT

Separation of Marsh Tit Poecile palustris from Willow Tit Poecile montana using a bill criterion

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Marsh Tits Poecile palustris and Willow Tits Poecile montana are difficult to separate on visual appearance, with a large degree of overlap of identification features (Perrins 1979, Scott 1999). This problem is particularly acute in the British population of both species since the 1970s (Baillie et al. 2007). Similar declines have been detected elsewhere in Europe, although the cause or causes remain unknown (BirdLife International 2004, PECBMS 2007). The evidence from Britain is that the decline of the Willow Tit has been more severe than that of the Marsh Tit (Baillie et al. 2007), and differing factors may be at work (Siriwardena 2004, 2006). It is therefore imperative that these two similar species are reliably identified, in order for the changing populations and distributions to be monitored.

Perrins (1979) listed six ‘main differences in plumage’ to separate the Marsh Tit and the Willow Tit, these being: crown colour and gloss, presence/absence of a pale wing panel, bib size and definition, cap length, cheek patch size, and flank colour, but added the caveat that none of these differences was completely reliable. The one ‘fairly reliable’ method of separation suggested by Perrins (1979) was the relative lengths of outer and inner tail feathers (see du Feu & du Feu 1996), with Marsh Tit having outer tail feathers some 2–4 mm shorter than the inner ones, and this difference being 5–6 mm in Willow Tit. Scott (1999) tested all of these criteria on a known sample of both species in juvenile plumage considered to be essentially inseparable (Perrins 1979). Both the Marsh Tit and Willow Tit are on the ‘Red List’ of birds of serious conservation concern due to the significant decline in the British population of both species since the 1970s (Baillie et al. 2007). Similar declines have been detected elsewhere in Europe, although the cause or causes remain unknown (BirdLife International 2004, PECBMS 2007). The evidence from Britain is that the decline of the Willow Tit has been more severe than that of the Marsh Tit (Baillie et al. 2007), and differing factors may be at work (Siriwardena 2004, 2006). It is therefore imperative that these two similar species are reliably identified, in order for the changing populations and distributions to be monitored.

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with live birds. The appearance of the bills of skins tallied remarkably well with those of live birds, with the presence or absence of pale marks being clearly discernible; no significant post-mortem changes were apparent. A further 60 Willow Tit skins were subsequently examined, 30 from Scandinavia (Sweden, Norway, Lapland: \textit{P. m. borealis}) and 30 from Switzerland and Austria (\textit{P. m. montana}), and a further 27 Marsh Tits from Poland, Sweden and Norway (\textit{P. p. palustris}). Skins were sexed according to their labels where possible, and aged as first-years or adults using the appearance of the rectrices. The Willow Tit skins included 46 males, 42 females and 24 birds of indeterminate sex, with 65 first-years and 47 adults. The Marsh Tit skins included 20 males, 23 females and 14 birds of indeterminate sex, with 30 first-years and 27 adults.

Of 199 live Marsh Tits examined, 100% showed pale (whitish) cutting edges to the bill and distinct pale marks on the proximal area of the upper mandible, and were scored as ‘1’ (Fig 1a). Of the Marsh Tit skins examined, 96.5% (55/57) displayed obvious pale marks as in live birds. Of the two skins (both \textit{P. p. dresseri}) that were scored as ‘0’, small and diffuse pale marks were judged to be present but they were not clearly discernible. Of the 27 live Willow Tits, pale marks were found on the upper mandible of just two birds (7.4%), with one showing pale marks on one side of the bill only and this being attributed to abrasion. The remainder all had dark, unmarked upper mandibles (Fig 1b). Live Willow Tits did show a very narrow pale cutting edge to the lower mandible that was visible when the bill was open, and similar to Marsh Tit, but this was not possible to check on skins due to the bills being rigidly closed; accordingly, only pale marks on the upper mandible were considered in analyses. Abrasion was also found on the upper mandible of one Willow Tit skin (race \textit{P. m. montana}), again on one side only, although a further three (\textit{P. m. kleinschmidtii}) displayed obvious pale marks similar to Marsh Tit, and a further two (also \textit{P. m. kleinschmidtii}) showed diffuse marks, resulting in these six skins being scored as ‘1’. The other 106 Willow Tit skins (94.6% of skins examined) showed no pale marks and were scored as ‘0’. Pooling the live bird and skin samples, 98.7% of Marsh Tits (of 256 birds) and 94.2% of Willow Tits (of 139 birds) were correctly identified using the bill criterion alone. If a more stringent test were applied to Willow Tits, requiring pale marks on both sides of the upper mandible and thus discounting individuals with asymmetrical abrasion, the probability of accurate identification became 95.7% for that species. Pooling all samples (395 birds), the probability of accurately identifying an unknown bird as a Marsh Tit or a Willow Tit, based only on the presence or absence of pale marks on both sides of the upper mandible, was 98.0%.

The bill criterion proposed by Dewolf (1987) was therefore validated as a highly reliable method of separating Marsh Tits and Willow Tits. Some refinement was necessary as Willow Tits also showed pale cutting edges to the lower mandible. Therefore, only marks on the upper mandible should be considered – specifically distinct pale features at the proximal end, below the nostril and towards the cutting edge of the bill sides. This feature appears to be independent of age, sex, and geographical location (in the races examined). Abrasion marks on the bills of Willow Tits are a potential pitfall,
although these were rare and easily detected due to being asymmetrical. Very young juvenile birds in their first month or so after fledging were not examined, and it is possible that remains of the nesting gape-flange on such birds may also be a pitfall. Cramp & Perrins (1993) reported that juvenile Willow Tits retain pale yellow gape-flanges and cutting edges for the first few weeks after fledging. Very few birds of this age are likely to be caught by ringers, however, as they are still largely dependent on their parents during this period. Nevertheless, the reliability of the bill criterion is significantly higher than that of all other known separation criteria used in the hand, such as relative tail-feather measurements, cap gloss wing panel (Scott 1999), and it may be used in isolation with a very low risk of misclassification. As such, the bill criterion is a powerful new tool for ringers and scientists in aiding accurate population monitoring of these two declining species.

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REFERENCES


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