

## UK SPA SCIENTIFIC WORKING GROUP

### 13 March 2002

## Twite *Carduelis flavirostris* in the UK: consideration of treatment under Article 4 of the Birds Directive

### Background on the process

The Twite was surveyed on a national scale under SCARABBS in 1999; this was the first national survey of the species. The 1999 survey has produced a revised British population estimate of 9,950 pairs (6,000-15,000 pairs: Langston *et al.*, in prep<sup>1</sup>). The previous British population estimate of 65,000 pairs was from the *New Atlas of Breeding Birds*<sup>2</sup> derived on the basis of a density of 100 pairs per occupied 10-km square. The 'Atlas' All-Ireland population was estimated to be 3,500 pairs (extrapolated from the British estimate).

The SPA Steering Group previously considered the treatment of Twite under Article 4 of the Birds Directive during the SPA review period, but concluded that, on the basis of the published population estimate for Britain (65,000 pairs), it was unlikely that any areas would be suitable for consideration as SPAs. Given the availability of the 1999 national survey data and population estimate it is appropriate to re-assess treatment of this species.

Twite is not listed in Annex I to the Birds Directive and so any consideration of implementation of Article 4 for this species would have to be on the basis that it is a regularly occurring migratory species in the UK. Under the Selection Guidelines for Special Protection Areas (JNCC 1999) consideration of areas likely to qualify as SPAs for migratory species is based on comparison of site populations with the recognised biogeographical population of the species. Thus for Twite three assessments are required before the species can be further considered under Article 4 of the Birds Directive: (i) Is site-based conservation appropriate? (ii) What is the species migratory status, and (iii) what is the relevant biogeographical population.

Twites are semi-colonial breeders in the UK - pairs nest singly or in small groups (of 4-6). Nesting habitats include upland moorlands and associated grasslands or coastal heath habitats. Heather *Calluna* is favoured for nest placement, but birds will forage regularly at up to 1.5 km from the nest in moorland and grassland habitats, including pastures. Outside of the breeding period the species typically forms large flocks. The favoured winter habitats are coastal lowlands - especially salt-marshes where they feed on seeds of Sea Aster, Glasswort and other coastal plants - although some birds remain in the uplands and utilise moorland or agricultural habitats (BWP, Cramp & Perrins 1994).

### Definition of 'migratory'

Article I(1)(a) of the Bonn Convention defines a migratory species as "*the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries*".

This is the definition adopted by the SPA Steering Group with the relevant jurisdictional boundary taken as the UK.

### Distribution and migratory movements of Twite

The species has a disjunct breeding distribution across Eurasia with two centres of population in Europe and a further population in central Asia. In Europe, Twite occurs in two widely separated populations: north-west Europe, and; eastern Turkey and states between the Black and Caspian Seas. There is no evidence that birds from these two populations mix (BWP).

In north-west Europe, three subspecies are described: the nominate race *C. f. flavirostris* which breeds in Norway and north-west Russia; *C. f. pipilans* which breeds in Ireland and the UK (except the Western Isles), and; *C. f. bensonorum* which breeds only in the Western Isles of the UK (considered by some

authors as indistinct from *pipilans*, and treated as such in this paper) (maps to be supplied at March meeting).

The nominate race is migratory; wintering from southern Norway and southern Sweden down into central Europe as far south as northern France, Austria and Hungary (*BWP*). Past observations of very large flocks in eastern England may indicate that some Norwegian birds winter in the UK, but ringing data do not support this. It may be that such large numbers, e.g. 17,000 estimated in the Wash in February 1986<sup>3</sup>, were from the South Pennines breeding population, which was estimated to be of that order of magnitude at the time<sup>3</sup>. Birds of the nominate race show high fidelity to wintering areas. The total population of the nominate race is estimated to be between 100,000-500,000 pairs<sup>4</sup>.

The British and Irish race *pipilans* (including *bensonorum*) is only partially migratory (*BWP*; Brown & Atkinson<sup>5</sup>). The bulk of the population breeds in western and northern Scotland, with scattered populations throughout the rest of Scotland, Northern England, Wales and the coasts of Ireland. Information on movements of British birds comes largely from an intensive ringing study in the southern Pennines. Relatively few birds have been ringed elsewhere in Britain. Scottish birds winter primarily along Scottish coasts; the limited ringing data available indicate that the majority of movements of Scottish birds are within Scotland, but a few ringing recoveries suggests that some Scottish birds may make south-westerly movements to winter in Ireland. Hence, Scottish birds are partially migratory, although the numbers involved in regular movements are unknown. Movements of Irish and Welsh birds are not known. There are no data to indicate the pattern of movements of birds breeding in the northern English uplands outside the southern Pennines. However, those birds breeding in the southern Pennines of England are largely migratory. Ringing recoveries indicate a predominantly south-easterly movement of south Pennines birds taking them to wintering grounds along the coasts of the southern North Sea in England, France, Belgium and the Netherlands. Just over half of recoveries of birds breeding in the southern Pennines were from the English coast between the Wash and Thames, with the remainder from the Continental coast between Boulogne and The Hague. No birds have been recovered in the Pennines after autumn, although small numbers are seen which may be local breeders. Birds may not be particularly faithful to wintering areas, and annual changes in numbers recorded in eastern England may reflect lesser or greater numbers moving to the near Continent (perhaps dependent on patterns of weather and/or food availability).

In northern France, *pipilans* and *flavirostris* intermix during winter, however, ringing recoveries (including from a large number of birds ringed in Norway) provide a good indication that there is no exchange between them.

### Definition of 'biogeographical population'

For waterbirds, the Ramsar Convention (Resolution VII.11), based on Scott & Rose (1996)<sup>6</sup> has defined the term "biogeographical population" as follows. Several types of 'populations' are recognised (emphasis added):

- i. the entire population of a monotypic species;
- ii. the entire population of a recognized subspecies;
- iii. **a discrete migratory population of a species or subspecies, i.e., a population which rarely if ever mixes with other populations of the same species or subspecies;**
- iv. that 'population' of birds from one hemisphere which spend the non-breeding season in a relatively discrete portion of another hemisphere or region. In many cases, these 'populations' may mix extensively with other populations on the breeding grounds, or mix with sedentary populations of the same species during the migration seasons and/or on the non-breeding grounds;
- v. a regional group of sedentary, nomadic or dispersive birds with an apparently rather continuous distribution and no major gaps between breeding units sufficient to prohibit interchange of individuals during their normal nomadic wanderings and/or post-breeding dispersal.

### Determination of biogeographical populations and migratory status of Twite in the UK

According to the internationally accepted definitions of 'migratory' and 'biogeographical populations' (especially (iii) above) the status of Twite may be interpreted as follows, on the basis of available data.

It appears that within western Europe there are at least three distinct biogeographical populations:

- ◆ birds breeding in Norway and north-west Russia (*C. f. flavirostris*) - migratory
- ◆ birds breeding in the English Uplands (possibly restricted to the southern Pennines) (*C. f. pipilans*) - migratory
- ◆ birds breeding elsewhere in Britain and Ireland (Scotland and possibly Ireland, Wales and northern England) (*C. f. pipilans* and *C. f. bensonorum*) - partially migratory

### Possible biogeographical population sizes

Norway/Russia (*flavirostris*) - the biogeographic population is a minimum of 100,000 pairs<sup>4</sup>. Ringing data suggest that birds from this population do not winter regularly in the UK and so further consideration of it is unnecessary.

English Uplands (southern Pennines) - no population estimate currently available, but may number less than 600 pairs (<6% GB; SCARABBS 1999). Data from the 1999 national survey may provide a population estimate, but the geographical range of this population needs to be defined prior to analysis of these data. In 1999, a repeat of the 1990 moorland bird survey in the South Pennines yielded a population estimate of 387 pairs (139-749 pairs, sample of 63 1-km squares) based on all records and not just the moorland component of the sample (Batty *et al.*, unpublished). This survey may also be an appropriate source of an estimate for this population. The wintering population is not known. Until an estimate of the breeding population is available the 1% threshold for this population cannot be determined. A winter population estimate could be established either from a co-ordinated winter survey or by use of the breeding population estimate and knowledge of productivity. Again, without a winter estimate the 1% threshold cannot be determined.

Scottish/Irish/Welsh (and possibly northern England) - no population estimate currently available. The 1999 national survey did not cover all of Ireland and so the total population remains unknown, although the 1988-91 estimate for All-Ireland of 3,500 pairs is that currently published. This 'Atlas' estimate is extrapolated from the British population and so it is highly likely to be a considerable over-estimate of the true Irish population. The 1999 British estimate of 9,950 pairs could be adjusted to remove the English Uplands population once the latter has been calculated. However, combining the adjusted 1999 British estimate with that of the currently published Irish estimate would not provide a satisfactory indication of the total population. This population may be only partially migratory and it may be that a more accurate population estimate is not required. More information on movements and an Irish survey would be beneficial.

### Implications for the future development of the UK SPA network

The Twite populations in the UK and Ireland constitute the entire EU breeding population. This special responsibility and the potential migratory status of the species means that its treatment under Article 4 of the Birds Directive must be considered. Depending on the agreed status of Twite in the UK there may be a case for considering the suitability of areas within the English uplands and along the east coast of England for classification as SPAs for the English Upland (southern Pennines) biogeographical population. However, further work would be needed to establish estimates of both the breeding and wintering populations, which may or may not require additional survey. In addition, the collation of winter data and/or winter surveys would be necessary.

### Recommendations

In the light of the above, it is recommended that the UK SPA Scientific Working Group:

- ◆ **Consider and agree** whether site-based protection is appropriate for Twite in the UK.
- ◆ **Consider and agree** the biogeographical status of Twite in the UK, and the geographical limits (range) of biogeographical population(s) defined.
- ◆ **Agree** the migratory status of the biogeographical population(s) relevant to the UK.
- ◆ **Consider and agree** appropriate actions to determine relevant population information. Points to consider include; additional breeding surveys in Ireland, Wales and England, winter surveys along eastern English coast, targeted ringing of birds outside of the southern Pennines.

- ◆ **Agree**, on the basis of the findings of the above recommendations, appropriate further action with regard to consideration of the species under Article 4 of the Birds Directive.

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<sup>1</sup>Langston, R.H.W., Smith, T., Brown, A.F., and Gregory, R.D. (In prep). The status of Twite *Carduelis flavirostris* in the UK in 1999.

<sup>2</sup>Gibbons, D.W. *et al.* 1993. *The New Atlas of Breeding Birds in Britain and Ireland 1988-1991*. T. & A.D. Poyser, London.

<sup>3</sup>Davies, M. 1998. The importance of Britain's Twites. *RSPB Conservation Review* 2: 91-94.

<sup>4</sup>Hagemeijer, W.J.M. & Blair, M.J. 1997. *The EBCC Atlas of European Breeding Birds: their distribution and abundance*. T. & A.D. Poyser, London.

<sup>5</sup>Brown, A. & Atkinson, P. *Twite*. In: Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (In press). *The Migration Atlas: Movements of the Birds of Britain and Ireland*. T. & A.D. Poyser, London. [Pre-publication copy of Twite account kindly made available by BTO]

<sup>6</sup>Scott, D.A. & Rose, P.M. 1996. *Atlas of Anatidae populations in Africa and Western Eurasia*. Wetlands International Publication, 41.