



Alan Harris

Least Tern in East Sussex: new to Britain and the Western Palearctic

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Abstract A Little Tern *Sternula albifrons* with a distinctive 'squeaky' voice was discovered in the tern colony at Rye Harbour, East Sussex, in June 1983. It returned annually until 1992. Although it was dismissed initially as an odd Little Tern, comparison of sound recordings of the call with those of the North American form *S. (albifrons) antillarum*, together with the noticeably greyer rump and central tail feathers, led to the eventual realisation that it was one of the New World races of Little Tern, known as 'Least Tern'. Research into the calls of all races of Little Tern eliminated other possibilities and it was eventually accepted as an individual of the North American *antillarum/athalassos/browni* group. Although its distinctive advertising call drew attention to the bird in flight, when silent it was not separable from the many Little Terns present. It was seen to display and present fish to Little Terns, suggesting that it was a male, but there is no evidence that breeding took place.

Intensive daily management of the Little Tern *Sternula albifrons* breeding colony at Rye Harbour Nature Reserve in East Sussex led to the discovery, in June 1983, of an individual small tern with an unusual call. The call was so distinctive that it enabled the bird to be readily located within the throng of Little Terns, and it was soon nicknamed

'Squeaker'. This bird returned to Rye Harbour annually until 1992, and during that time it was enjoyed by many birdwatchers. Although it was not appreciated initially, the call resembled that given by the North American race of Little Tern *S. (albifrons) antillarum*, known in North America as Least Tern. Owing to uncertainties over the calls

Although the call appeared to be indistinguishable from that of Least Tern, it took several years for recordings of other small terns, including that of *S. a. guineae* to

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Fig. 1. Notes and sketches of the Rye Harbour Least Tern *Sternula (albifrons) antillarum*, June 1992.

The discovery

Pam Knight, then assistant warden of Rye Harbour NR, made the first detailed observation of 'Squeaker' on 14th June 1983 and included the following comments in her notebook: 'Squeaky-voiced tern – by behaviour a male – arrived about 5–6 days ago. Favoured area at east end of West Beach colony around nests 1 and 4 area. Observed daily bringing in fish, approaching birds from other nests and being chased off – quite persistent. Also seen at Ternery Pool Ridges colony but flew on down to West Beach.'

The warden, Richard Knight, wrote in the Rye Harbour Nature Reserve Annual Report for 1983: 'Interestingly, one Little Tern was identifiable as an individual by its voice, which had a peculiar and very distinctive squeaky sound. This bird arrived on about 8th June and over the following couple of weeks took part in courtship flights, chasing and display. It was observed several times attempting to present fish to other birds in the colony at West Beach but without success. The bird, presumably a male, was not observed to mate and was not seen after the end of June. One might surmise that its abnormal voice was the reason for its failure to attract a mate.'

Fortunately, the bird returned in 1984 and became a regular feature of the colony, where it reappeared annually until 1992. It was not until 1990 that interest in the bird really began to gather momentum, with the growing realisation that the distinctive squeaky call closely resembled recordings of Least Tern. Many birdwatchers visited the site and made detailed notes and sketches, including Brian Small whose notebook details and sketches are reproduced below (fig. 1). I am not aware of any photographs being taken of the bird.

Description

Overall, the bird was extremely similar to the Little Terns in the colony. However, in overcast conditions the rump appeared noticeably grey (unlike the white rump shown by Little Tern) and, when the tail was spread, the outer feathers were whiter than the central tail feathers. Some observers noted a slightly fuller-chested appearance and broader-based wing structure, and the bird appeared very

slightly smaller than Little Tern. It was reportedly seen to attempt to copulate with a female Little Tern on at least one occasion.

The distinctive squeaking call was the 'advertising' call of a male, typically heard as it flew through the colony. It was transcribed as 'pudee pudoo' or 'puedeek puedeek' with a tone similar to that of Oystercatcher *Haematopus ostralegus* and very different from the grating calls of Little Tern.

Brian Small, who visited the reserve on 19th and 20th June 1992, made the following observations: 'Throughout the two days I spent at the colony, it was pretty elusive, particularly on 20th, when it made only a couple of brief visits to the Little Tern colony; it was harassed by the Little Terns, which drove it off. In direct comparison with Little Tern, I got the impression of the tail being "slimmer" and "finer", and held to a point more frequently. On the ground, the tip of the tail seemed to reach the wing-tip (or almost so); at times it looked slimmer-bodied than Little. In flight, mantle, scapulars, upperwing-coverts, most of the remiges, uppertail-coverts and "middle tail" noted as an evenly toned pale grey, slightly lighter on the outer secondaries and outer rectrices. When perched, it was noted as having greyer remiges than Little, which gave it an evenly toned upperpart appearance. In comparison, Little was noted as having a white rump and tail, though I did see at least one Little Tern with a slight pale grey shade on the centre of the upper rump. The most distinctive feature was the call, described as a squeaky, "pudeek... pudeek", together with miscellaneous chatter notes.'

Identification as Least Tern

Plumage features are of little value in the separation of Little and Least Terns. Olsen & Larsson (1995) stated that Least Tern is, generally speaking, identical to Little Tern, but shows a grey rump and central part of the tail which is concolorous with the back. Proportionately, it is slightly smaller, with shorter legs, a relatively slimmer bill and, when adult, generally longer tail streamers. In detail, the central four pairs of tail feathers (T1–4) are grey, T5 is grey or with a white inner web, and T6 is white with a grey tinge to the central and outer parts of the inner web

(although sometimes white). Identification, therefore, relies heavily on vocal differences.

The first indication that the bird could be *antillarum* came during the winter of 1985/86, when Richard Knight and John Trowell were listening to the Audubon Sound Recording of Least Tern. They realised immediately that the advertising call of Least Tern was a very close match to the call of 'Squeaker'. In June 1986, I borrowed sound-recording equipment and made a recording of the distinctive call, which can be heard at www.wildrye.info/media/audio. A copy of the recording was sent to Barbara Massey, an authority on terns in North America, who replied on 21st January 1990 with the following comments: 'The new cassette is a big improvement, and allows me to say without hesitation that your "squeaky" tern sounds like *Sterna antillarum*. Isn't that astonishing! You said this "stray" never found a mate. I presumed back in 1973 that the difference in calls would prevent *antillarum* and *albifrons* from mating, if ever they should come together. Your observations have confirmed this, and the splitting of the two, based mainly on vocalisations, has been justified.'

Howard Taffs arranged for the recorded calls to be converted to sonograms by Dr Clive Catchpole at University of London. These were included in a published summary of the occurrence (Yates & Taffs 1990), which discussed the overall similarity of the sound spectrograms of the Rye Harbour 'Squeaker' and the Audubon recording of Least Tern. This led the authors to conclude that the Rye Harbour bird was *antillarum*.

Prior to 1990, there was little interest in the bird beyond its unusual call, which revealed its presence. During that year, however, there was a growing awareness among birders that the bird was Least Tern and many visited to see and hear it. The interest peaked after the publication of Yates & Taffs (1990) and the bird was heard regularly within the colony during the 1990–92 breeding seasons. Despite its distinctive call, it was almost impossible to locate when silent, and some birders had to make multiple visits before finally being certain that they had seen the right bird!

Summary of annual occurrences

Following its initial discovery in 1983, 'Squeaker' was relocated in the Rye Harbour Little Tern colony each year until 1992. Identification essentially relied upon hearing its distinctive call, but as the significance of this was not appreciated during the earlier years, its presence may have gone unrecorded on dates before, during or after those listed below:

- 1983 – about 8th June to 5th July
(Little Tern colony size 67 pairs).
- 1984 – present as 'Squeaker' but dates not noted (66 pairs).
- 1985 – heard only on 30th May (76 pairs).
- 1986 – heard only on 22nd May (70 pairs).
- 1987 – present as 'Squeaker' but dates not noted (55 pairs).
- 1988 – heard only on 23rd May and 8th June (55 pairs).
- 1989 – heard on four dates between 28th May and 24th June (55 pairs).
- 1990 – heard regularly between 21st May and 12th July (30 pairs).
- 1991 – heard regularly between 25th May and 13th July (40 pairs).
- 1992 – heard regularly between 24th May and 8th July (48 pairs).

Record evaluation

Once it was widely acknowledged that the calls given by 'Squeaker' were indistinguishable from those of North American Least Terns, the record was submitted to BBRC. The record was accepted, largely based on the call, and the file was passed to BOURC as a potentially new taxon for the British List. Although the recorded calls appeared to rule out all other options, BOURC expressed concern that extralimital races of Little Tern could occur in Britain, and that the call of these needed to be investigated before the record could be reviewed. In addition to the nominate race of Little Tern, which breeds in Europe, North Africa and western Asia, two other Old World races of Little Tern are recognised: *S. a. guineae* breeds in West and central Africa, and *S. a. sinensis* breeds in eastern Asia and the northern and eastern coasts of Australia.

In particular, the calls of West African *S. a. guineae*, the extralimital race breeding closest

to Europe, were unknown at the time. Until recordings became available, BOURC considered that no formal decision could be made. Efforts were made to obtain recordings of as many of the smaller terns as possible, and these proved to be largely successful. Sonograms were made of the advertising calls of Little and Least Terns (figs. 2–8), as well as many of the other smaller terns, by George Sangster on behalf of BOURC, and compared with those of the Rye Harbour bird (fig. 9).

Having finally established that the calls of the Rye Harbour ‘Squeaker’ differed from those of all other races of Little Tern, but matched those of Least Tern, BOURC accepted the identification as Least Tern (BOU 2006). Note that in 1991 the bird was present at Rye Harbour from 25th May to 13th July, but was not heard from 29th June to 1st July, when a bird giving the same call was reported at Colne Point, Essex. It seems likely that the same bird was involved in both sightings.

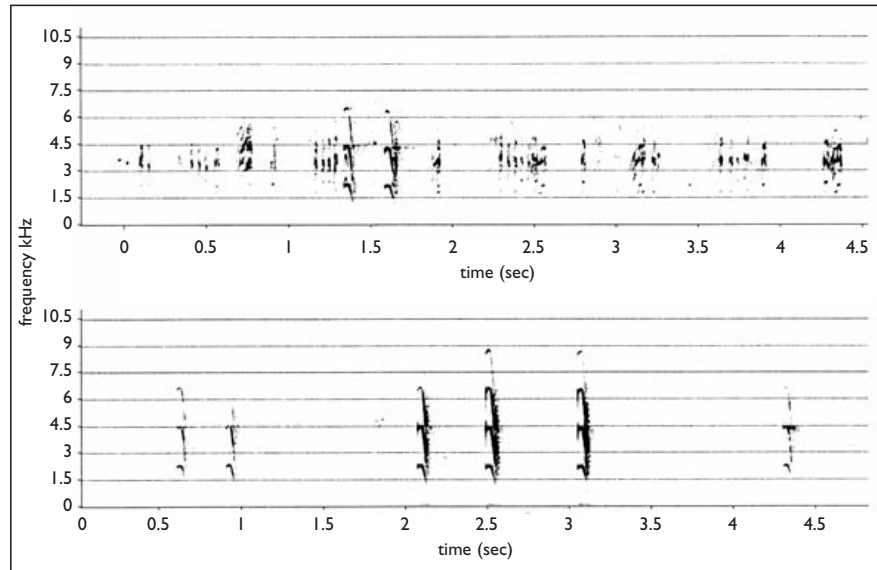


Fig. 2. Advertising calls of Little Tern *Sternula a. albifrons*, Dorset, June 1977 (Kettle & Ranft 1992). Note the short duration of each call, mainly within the frequency range of 1.5–6.5 kHz.

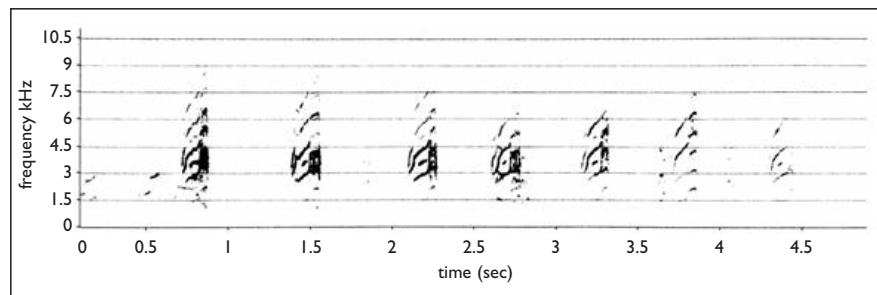


Fig. 3. Flight calls of Little Tern *Sternula a. albifrons*, France, May (Chappuis 2000). Each call is of longer duration than the advertising call.

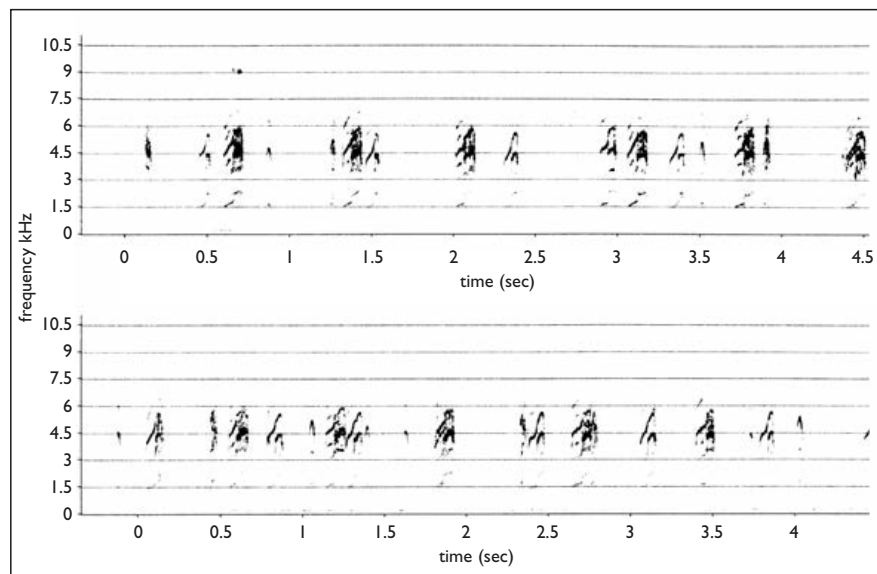


Fig. 4. Unknown call type of West African breeding Little Tern *Sternula albifrons guineae*, Langue de Barbarie, Senegal, 9th June 2001 (V. Bulteau & D. Vangeluwe, IRSNB, unpublished recording). The frequency range of *guineae* is much tighter than that of calls given by nominate Little Tern in Europe, and is typically restricted to 3.5–6.0 kHz.

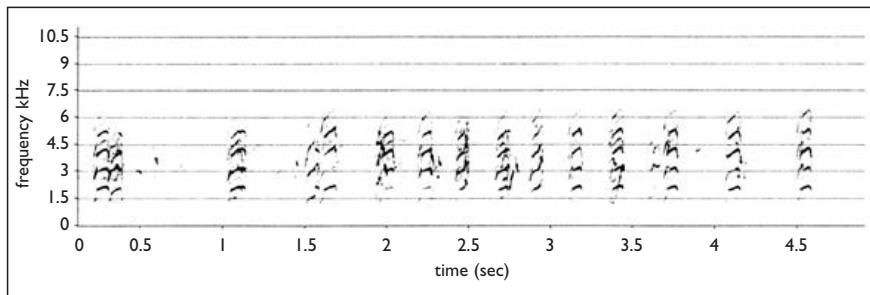


Fig. 5. Calls given by male Little Tern of Asian race *Sternula albifrons sinensis* while pursuing a female, Japan, June (Ueda 1998). Although similar in frequency to those given by the nominate race, they are distinctly longer and given at more regular intervals.

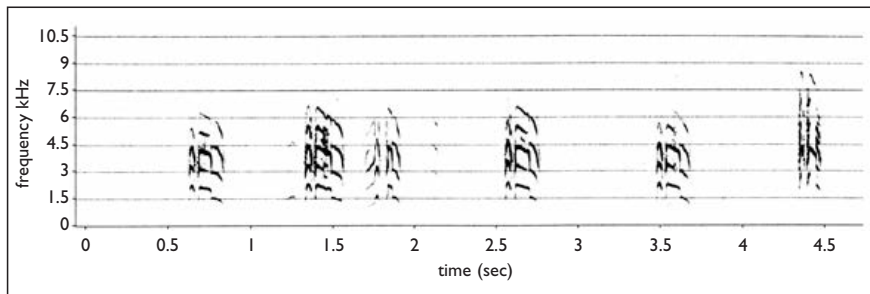


Fig. 6. Advertising calls of Least Tern *Sternula (albifrons) antillarum*, New York state, USA, June (Elliott 1997).

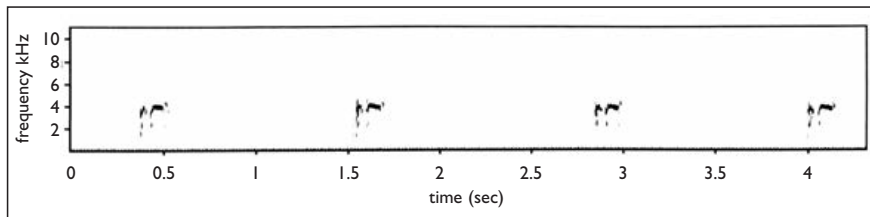


Fig. 7. Presumed advertising calls of Least Tern *Sternula (albifrons) antillarum*, Audubon Sound Guide. Calls are given at intervals of approximately one second and lack the harmonics shown by most Little Terns. Instead they appear as a distinct 'M' shape with a plateau at c. 4 kHz.

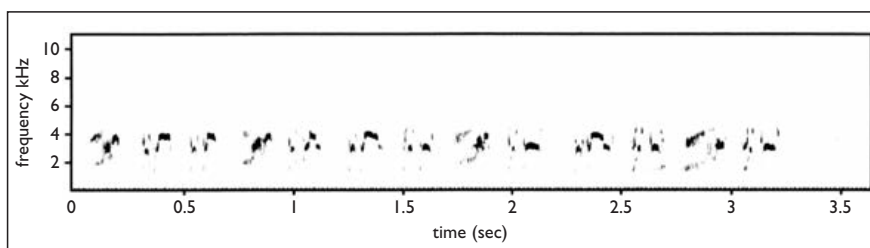


Fig. 8. Presumed advertising calls of Least Tern *Sternula (albifrons) antillarum*, Audubon Sound Guide. Calls are more complex and given more frequently than those shown in fig. 7, within a frequency range of 3–4 kHz and with a plateau at c. 4 kHz. Note the almost complete absence of harmonics compared with Little Tern.

Distribution and status

Least Tern breeds along the coasts of North America, and also along major rivers and inland waterways. At least three subspecies are recognised, these being morphologically very similar and differences between them are slight; they cannot be reliably separated

in the field. The two coastal breeding races remain common and widespread, but the inland breeding population is endangered.

The race *S. a. antillarum* breeds on the Atlantic coast of North America, from Maine south along the east and south coasts of the USA, and also occurs in Bermuda, the Caribbean and Venezuela. The race *S. a. browni* breeds on the Pacific coast, from central California south to western Mexico. Two other subspecies are sometimes delineated, *S. a. mexicana* and *S. a. staebleri* from the Gulf of California south along the Pacific Coast to Oaxaca and Chiapas, but are less widely recognised (Thompson *et al.* 1997; Dickinson 2003). Finally, the race *S. a. athalassos*, which breeds on the inland rivers of the Mississippi River drainage basin, including the Mis-

souri and Yellowstone Rivers, north to Montana, was listed as endangered by the US Fish and Wildlife Service in 1985.

Northern birds are migratory, wintering to the south of the breeding range, mainly in Central America and south to northern Brazil.

Taxonomy

Massey (1998) provided a useful summary of the changes in small-tern taxonomy which have had a profound effect upon the (mis)understanding of species limits within the Little Tern complex. Prior to 1915, no fewer than 19 species of very similar small tern were recognised, many of which referred to the same taxon. Then, during a period when lumping of the large number of species described during the nineteenth and early twentieth centuries became fashionable, Hartert (1921) undertook a major revision of the terns. He absorbed the genus *Sternula* within *Sterna*, and the number of species of small terns was reduced to just one, Little Tern, with five races (*albifrons*, *saundersi*, *sinensis*, *antillarum* and *browni*; *athalassos* was not described until 1942). No fewer than 12 taxa that previously had been treated as distinct species were now not even recognised as races of Little Tern, and became synonyms of *albifrons* or *sinensis*. Hartert's revision was based upon comparisons of morphology and distribution. His description of *S. a. albifrons*, which extended to just over one page, encompassed adult breeding plumage, ranges of adult measurements, juvenile plumage, distribution, and breeding

ecology. He gave little justification for his decisions on subspecies. For example, in a single sentence he noted that *S. a. antillarum* was analogous to the European form but with the rump and tail feathers grey, like the back.

Massey (1998) highlighted the value of the advertising call as a tool for species separation, this being particularly valuable for mate identification and chick–parent recognition in mixed species colonies. She commented that had Hartert appreciated the value of vocalisations and behaviour in delineating tern species, the lumping of Old World and New World forms probably would have been avoided. Massey used the distinctive vocalisations of different forms to justify the recognition of North American *antillarum* as a species distinct from other taxa in the Old World Little Tern complex. In addition, Pyle *et al.* (2005) presented evidence for the apparent assortative mating of Little and Least Terns on Midway Atoll, in the North-western Hawaiian Islands.

Work on DNA sequencing (Bridge *et al.* 2005) has subsequently provided support for Massey's views, and demonstrated that several of the smaller terns that were formerly included within the larger genus *Sterna*

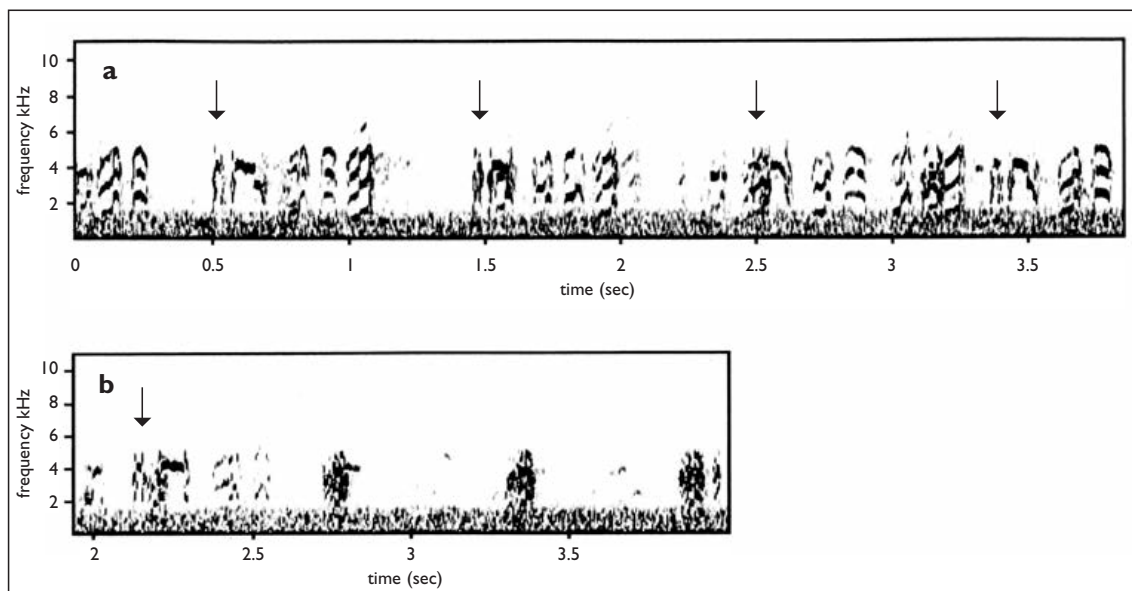


Fig. 9. 'Advertising' calls of 'Squeaker' recorded within the Little Tern *Sternula albifrons* colony at Rye Harbour Nature Reserve, East Sussex, by the author. Although most calls visible here are given by Little Terns, the distinctive 'M' shape to the call of 'Squeaker' closely matches that of the Least Terns *S. (albifrons) antillarum* shown in figs. 7 and 8. In 9a, this can be seen at 0.5 s, 1.5 s, 2.5 s (although a Little Tern is calling simultaneously at this time) and 3.5 s. The interval between calls is approximately one second and closely matches the time interval between calls of the Least Tern in fig. 7. In fig. 9b, Squeaker calls at 2.2–2.3 s amid Little Terns, followed by rapid calls of Little.

represent a distinct grouping. They established a 5.0% sequence divergence between *albifrons* (albeit from an Australian sample) and North American *antillarum*. Samples of *albifrons* from Europe and elsewhere, and Saunders's Tern *S. saundersi*, which they also recognise as a different species from Little Tern, were not included in this study. Among their recommendations was the treatment of Little Tern and Least Tern as distinct species and the inclusion of seven species of small tern within the genus *Sternula*: Little Tern, Least Tern and Saunders's Tern, together with Fairy Tern *S. nereis* (Australia), Damara Tern *S. balaenarum* (southwest Africa), Yellow-billed Tern *S. superciliaris* (eastern South America) and Peruvian Tern *S. lorata* (Ecuador to northern Chile). Based upon these findings, recognition of the New World Least Tern as a species distinct from Old World Little Tern has been adopted by AOU (Banks *et al.* 2006). BOURC has not yet accepted this treatment, pending ongoing genetic analyses of *albifrons* from western Europe, but has recognised the validity of the genus *Sternula* for the small terns (Sangster *et al.* 2005).

Acknowledgments

I would like to extend my thanks to Barbara Massey for her supportive comments made on the recorded calls of the Rye Harbour tern, and to Brian Small for allowing me to include excerpts from his notebook which support the detailed description. Richard and Pam Knight provided observations from their field notebooks. Howard Taffs kindly made arrangements with Dr Clive Catchpole at University of London for sonograms to be made from the recordings. I am also grateful to BOURC, who obtained comparative sound recordings of the various smaller terns, which ultimately proved to be essential for establishing the identity of the Rye Harbour bird. Steve Dudley kindly accessed the BOURC archive and copied the sonograms that appear in this paper.

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Editorial comment Bob McGowan, Chairman of BOURC, commented: ‘Two aspects of the Rye Harbour Least Tern were particularly noteworthy. First, the identification was based principally on the distinctive call of the returning bird, rather than on more conventional plumage characteristics. Second, the BOURC file was pended for an uncharacteristically lengthy period as efforts were made to obtain audio recordings of calls of extralimital races of Little Tern.

‘The ten-year history of the bird returning to the Sussex colony is well documented. While the rump of the Least Tern was reported as marginally greyer than that of Little Tern, it was the distinctive advertising call that first drew it to notice. Barbara Massey subsequently confirmed

that audio recordings were typical of Least Tern “advertising” call and a case for acceptance was drawn up.

‘BOURC recognised that the credentials for *antillarum* were strong, with the call recordings conclusively ruling out nominate Little Tern. However, as extralimital races of Little Tern were considered potential vagrants to Britain – the West African race *S. a. guineae* in particular – it was crucial that these were eliminated. Importantly, the rump of *guineae*, though variable, may be greyish in some individuals. Obtaining relevant audio recordings became a rather protracted business and a final decision was delayed for a number of years. Helped by George Sangster’s efforts, BOURC finally acquired the evidence needed to rule out other Old World taxa and the Rye Harbour individual was accepted as having a North American origin, the actual race being undetermined but of the *antillarum/athalassos/browni* group.’

Adam Rowlands, BBRC Chairman, added: ‘This record demonstrates the value of researching the potential identification of vagrant individuals of rare races which may subsequently transpire to represent separate species. This is an important element of the RIACT Sub-committee’s work undertaken by current and former members of BBRC on behalf of the Committee (see *Brit. Birds* 99: 619–645), although this approach was adopted after the present record was considered and accepted by BBRC. Such taxa may be extremely difficult to separate from more regularly occurring species on current knowledge, but the story outlined above illustrates how they may reveal themselves in a vagrant context through key distinctions such as diagnostic vocalisations. Least Tern, perhaps unfairly, received relatively low-key treatment when accepted as a new bird for Britain and the Western Palearctic. It was included in the BBRC 2004 Annual Report (*Brit. Birds* 98: 661–662) as an unassigned representative of a complex of Nearctic races of the Little Tern.

‘Observers at Little Tern colonies would be well advised to keep an ear out for the possible reoccurrence of this species in the UK and it is likely that this would spark significantly more interest amongst British and European birders than the Sussex bird did during the ten years it returned to visit the Rye Harbour colony. Sharp-eyed observers are also reminded to check the tail coloration of any breeding-plumage Little Terns they encounter. A grey-tailed individual would cause immediate interest.’



Conservation research news

Compiled by Arjun Amar, Guy Anderson,
Richard Gregory and Juliet Vickery

The impact of predation on birds is often the centre of heated debate, particularly when the prey are of economic or conservation importance and/or the predator is a species of conservation concern. This month’s Conservation Research News focuses on three important papers tackling this subject, all recently published in the *Journal of Applied Ecology*. The first deals with the issue of the UK’s recovering Common Raven *Corvus corax* population, and its possible effect on populations of upland waders. Previously summarised in *BB* (*Brit. Birds* 103: 254), this study exonerates Ravens as the cause of observed wader declines, and provides no

evidence to warrant overturning the decision by Scottish Natural Heritage to refuse to grant several licences requested in 2007 and 2008 to control Raven numbers to protect breeding waders.

Amar, A., Redpath, S., Sim, I., & Buchanan, G. 2010. Spatial and temporal associations between recovering populations of Common Raven *Corvus corax* and British upland wader populations. *J. Appl. Ecol.* 47: 253–262.

However, another study provides much more evidence for the effects of other predators on upland waders: