Call for Help
Feathers of Gulls and Eiders Wanted

In support of a research project at the University of Glasgow

Reconstruction of the diet of British herring and lesser black-backed gull population in the past

The herring gull *Larus argentatus* and lesser black-backed gull *L. fuscus* populations in the UK have undergone very substantial declines over the last 4 decades. Such large scale declines in the population size and distribution of hitherto abundant species are generally indicative of substantial environmental change. A possible hypothesis of the cause of these marked changes in gull populations could be changing availability of food resources that the gulls use. In order to evaluate this hypothesis we need to characterise the foraging niche from the gulls in the past and now and in the different parts of the annual cycle. We can assess the foraging niche of the gulls in the past using feathers from museum specimens, but we also need feather samples from the present. To account for temporal and spatial variation in background condition we also require feather tissue from eider ducks as a reference indicator.

The analysis of natural ratios of stable isotopes in animal tissues provides a very valuable method to study the foraging niche in wild animals. Feathers are now widely used to study the diet in seabirds, which provides a non-invasive method to study resource utilisation. The feather material, keratin, is metabolically inert after synthesis and preserves the isotopic composition of the diet at the time the feather was formed and thus even feathers from dead birds still provides valuable information.

In order to obtain information from different parts of the birds' annual cycle we will collect feathers or part from feathers that have been grown at different parts of the year. As the pattern of moult is relatively well-understood in herring and lesser black-backed gulls, sampling different feathers that grow at different times in the year will allow us to study the foraging niche in the breeding and the non-breeding season.

If you collect the whole feather, we would love to have the whole of one of the P1 and P10 (Fig. 1) and 5 feathers from the brood patch and head (Fig. 2) each. If you collect part of feathers, for example when you collect from a live bird, you can very carefully cut individual barbs from the feather (but not the whole feather) from each of the 4 feathers. Barb sampling makes a minimal damage to the flight ability of the birds and the Home Office Inspector have agreed that this is not considered a regulated procedure but still will require a endorsement from the BTO. At the same we have established that 10 barbs give an accurate representation of the whole feather's stable isotope composition. Per feather we need 10 individual barbs evenly spaced over a suitable area of the primaries or 2 barbs each from 5 different feathers. The figures below illustrate the location of the areas we would like to have the feathers from.

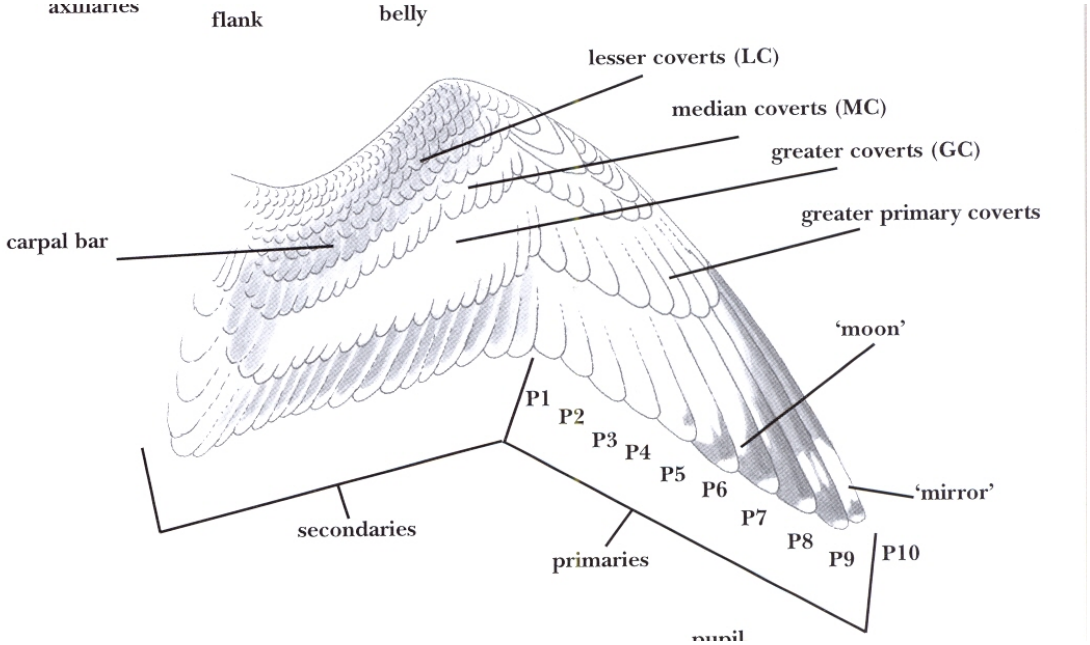

Figure 1: Collection of the two primary feathers. P1 which is the innermost primary and P10 which is the outermost long primary. We can only use the white(ish) parts of the feather; the black melanin interferes with the stable isotope assay, so if you cut barbs they should come from the white(ish) portion only.

(A) (B)

Figure 2. Collection of (A) 5 white feathers over the brood patch and (B) white head feathers marked in the area of the red circle.

Eider Feathers: Feather from eiders are required to correct for regional difference in baseline natural isotope levels. We require any body feathers from dead eiders (5 body feathers) or 5 down feathers from any eider nest that can be collected without disturbing the incubating bird

Any feathers that you might be able to secure with information on location and collection date would be most welcome

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