UNIVERSITY OF LEEDS

Conservation genetics of re-introduced corncrakes

Supervised by: Dr Hannah Dugdale, University of Leeds
Prof Rhys Green, University of Cambridge & RSPB
Dr Patricia Brekke, Zoological Society of London

Corncrakes (*Crex crex*) have a red status in the UK (Eaton et al 2009), as they have disappeared from specific regions such as the Nene Washes, Cambridgeshire (UK). Mechanised mowing of hay meadows reduces their breeding success (Donaghy et al 2011) leading to the disappearance of the Nene Washes population *ca* 1920. The nearest populations were then in western Scotland and the Loire Valley. Fortunately, the RSPB and Natural England have been controlling mowing on a large area of grassland on the Nene Washes. As a result, corncrakes have been reintroduced to the site, by releasing juveniles bred in captivity at Whipsnade Zoo and the Pensthorpe Conservation Trust.

Ringing and recapture records have shown that the return rates of released zoo-bred birds from their trans-Saharan migration approach those of wild-born juveniles in Scotland and that the corncrakes are breeding successfully in the wild. In turn, wild-born birds are also returning to breed at the site. However, there are concerns that there may be more mating in the wild between close relatives than is desirable. It is also unknown as to whether any corncrakes from outside of the reintroduction project are recruiting to the Nene Washes. This is entirely feasible given that Scottish corncrakes migrate over the area in spring and may be attracted by the singing males of captive origin. Additionally, females are not strongly philopatric.

This Masters project will determine the genetic and parentage relationships among the wild corncrakes in the reintroduced population, using molecular markers (Gautschi et al 2002). Here are some typical questions we are very keen to know the answers to:

1. What is the effective population size of the Nene Washes corncrake population?
2. What is the degree of inbreeding in the population?
3. Are wild-born adults that are first captured as unringed birds, descendants from the introduced birds or is emigration occurring into the Nene Washes population?
4. How many adult females that evaded capture were mothers of wild-born chicks captured in a particular year (virtually all adult males have been caught, but only a small proportion of the females)?

Molecular laboratory work has already been completed. This project will analyse the genetic and ringing data to answer the above questions. Full genetic analysis training will be provided. The student should have an interest in conservation genetics, and be keen to learn parentage assignment and relatedness estimation methods.

References

Donaghy AM, Green RE & O'Halloran J (2011) Timing of autumn migration of young Corncrakes *Crex crex*. *Ibis* 153, 425–428.

Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds*, 102, pp296–341.

Gautschi B, Arter M, Husi R, Wettstein W & Schmid B (2002) Isolation and characterization of microsatellite loci in the globally endangered Corncrake, *Crex crex* Linné. *Conserv Genet* 3, 451–453.