Methods of catching and studying breeding waders

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[...]

In spite [of tremendous recent improvements in our knowledge of the size of the populations of waders breeding in Europe, there is still a shortage of biometrical data from them.] A concerted effort is needed to ring, weigh and measure breeding adults to provide basic information for comparison with the excellent data already collected from migrant, wintering and some arctic breeding populations. It is not an easy task since breeding adults can only be caught one at a time, and even this requires patience. The fact that every breeding adult measured is worth perhaps a hundred measured on migration or in winter, provides some consolation. We set out below some basic catching techniques for use in breeding areas. Our experience has been gained, ironically enough, in north-east Greenland, but we hope it will prove of value nearer home.

Locating nests and young

Random searching for either nests or young in suitable areas is seldom of any real value. A few may be found in this way. An adult bird which is aware of the observers' presence will rarely stand anywhere near the nest, so a search in an area where a bird has been standing is an even greater waste of time. The most useful standard method is to walk systematically across suitable habitat until a bird is flushed (a bird flushed from a nest usually rises much later than one, for example, feeding), and then to retire to cover, as far as possible, and await its return. With shy species which flush easily the problem is retracting far enough to allow the bird to return but to still be within binocular range. With species which sit tight, the problem is getting them to rise at all, and in this case a length of rope held stretched between two people and dragged systematically across the ground often proves useful. In some parts of Britain a car is an excellent hide for "watching back" waders to their nest.

Once a bird has been traced back to the nest through binoculars, two people are required to locate the exact spot. One should train his binoculars on the bird and fix its position in relation to surrounding vegetation and other landmarks. The bird will usually rise from the nest as soon as the second person begins to make a move towards the spot (which he has fixed with his naked eye). The person walking towards the nest must keep out of the line of sight of the static observer and, by the use of pre-arranged hand signals, he can be directed to within one or two metres of the nest, from where it should be visible.

Adults do not usually perform distraction displays until either near the end of incubation or after the chicks have hatched, therefore this behaviour usually means chicks are present. Exactly the same technique should be used for locating these, but greater skill is needed since the static observer has to fix several 'targets' at the same time. The chicks may be well spread out. They scatter when first disturbed, and then crouch in response to the adult alarm calls and so long as the appropriate calls continue they remain crouched and 'frozen'.

Trapping methods at the nest

Adults may be trapped at the nest either when they return to incubation or in the short period when the chicks are brooded in the nest cup. Special care must be taken to avoid chilling of eggs or chicks. In some cases it may be advantageous to use a dummy clutch (filled with plaster of Paris or similar) to catch the parents while the genuine clutch is kept warm artificially. The most widely used trap for smaller waders is about 40 cm high and 45 cm diameter (but heart shaped in ground plan) with a walk-in funnel entrance. The entrance should point in the direction of the adult's normal return path to the nest and this should be carefully recorded when first 'watching back'. After the bird has entered always approach the trap from the funnel side. An alternative is a manually operated drop-door trap (we used one made from Twillweld, mesh 2.5 × 1.5 cm, and about 40 × 40 × 60 cm in size). The door, heavily weighted to ensure rapid closure, is propped up with a stick attached to a long release cord. The side walls should be slightly angled so the door does not to fall to a vertical position to shut, and the cord should not be pulled until the bird is well settled on the nest. Other workers have used automatic treddle operated drop door-traps. In all cases the trap must be watched continuously during the short period of use.

One of the major disadvantages of cage traps is that some birds are reluctant to enter and a few will not return when such a conspicuous object is in the region of the nest. Clap nets, which are less conspicuous, have a considerable advantage in this respect. We used two basic types. The first, which was elastic powered, consisted of two poles between which the net (150 × 150 cm, 3.5 cm mesh) was suspended. Strong U-shaped wire, threaded through holes at the end of each pole, provided simple, effective and easily anchored hinges. Tension strings were attached to the other ends and the leading cage of the net strung between them. The rear of the net was pegged to the ground. Power was provided by a short length of powerful elastic attached to one pole (a lifter, such as a stone, was necessary to give initial upward as well as forward pull). A bent metal pin is attached to a long release cord and thrust into the ground, holding the elasticated pole in the set position. We also used single pole clap nets 1 × 2.5 m and 2 × 2.5 m size manually operated by pulling hard on the release cord. The elastic operated net had the advantage of speed; the hand pulled one of large size. Even when operating over a relaxed incubating bird clap nets have

to move quickly to catch the bird. Damage to eggs is avoided because the bird always has time to move several inches away from the nest before being caught in the net. Properly set and camouflaged clap nets cause little delay in the return of adults to the nest provided that net, poles and cord do not lie across the bird's line of approach. There was no apparent difference between cage trap and clap net in the adult's speed of return to the nest after its release and withdrawal of the observers. There was no evidence of desertions amongst the birds we caught in Greenland (Ringed Plover *Charadrius hiaticula*, Sanderling *Calidris alba*, Dunlin *Calidris alpina*, Knot *Calidris canutus* and Turnstone *Arenaria interpres*).

Catching juveniles

Just before fledgling young waders can be difficult to catch since they no longer crouch when alarmed but instead rely on speed to escape. In such cases, and also when newly fledged, young run some distance rather than flying and they can be caught by means of a mist net, held on two poles between two people, which is laid quickly on top of them. Even those which fly can sometimes be caught by judiciously flicking the net up in front of them, since their ability to manoeuvre in flight is poorly developed.

The usual common sense considerations apply when dealing with eggs that may be chilled, predated or deserted and chicks that may chill if they are not brooded regularly. Catching must not be attempted in wet weather. Speed when trap setting and when handling the adults is essential. A useful tip is to delay capturing a bird which has returned to incubate in a trap until the eggs have been warmed. In cold weather a hat, glove or handkerchief placed carefully over the eggs while the caught adult is examined, will reduce their rate of cooling. It must be noted that in Britain several species of wader are on the first schedule of the Wildlife and Countryside Act and special permits are required for studies at the nest. The use of snares, and restrained chicks to attract adults, both of which we used in Greenland, are prohibited in Britain, and although in theory a special licence could be obtained it is extremely unlikely to be granted except in very special circumstances.

Recording

A great deal of information can be collected by studies at the nest and none should be wasted through inadequate record keeping. Nest records should always be made (date and time of visits, clutch size, details of nest etc.) and if future visits are possible attempts should be made to determine the exact time of laying of successive eggs and the length of incubation. For some species it may be of value to weigh and measure the eggs and if repeat visits are likely each egg can be identified by a pencilled number. Eggs lose weight during incubation and direct records of the rate and amount of loss are few. This is essential information for studies of relationships between female weight and egg weight, shape and volume. These may well show interesting differences between species, race and in difference parts of the world. There are few accurate data on wader chicks growth rates and running chicks should be weighed and measured – especially retraps of known age. Some fledging periods are not accurately known. Besides collecting the usual measurements adults should be checked for brood patches, both wing and body moult, perhaps photographed and of course ringed.

To avoid prolonged disturbance, chilling or other damage it is obvious that quick careful work is required. So much information becomes available at short notice that anyone undertaking detailed study of breeding waders should plan their recording system with care and have all the necessary tools (pliers, calipers, balances etc.) ready for instant use. In the rush at the nest it is very easy to forget to record some items. In Greenland we used pre-printed record cards (150 × 100 mm) which were vary satisfactory as they collected all the data relating to one nest into one place and also provided memory cues in the field. Full details of the system [are] given in the report of the Joint Biological Expedition to North-east Greenland 1974 (Green & Greenwood 1978).

Reference

Green, G.H. & Greenwood, J.J.D. (eds). 1978. *Joint Biological Expedition to north-east Greenland 1974.* Dundee University, NE Greenland Expedition, Dundee.