

However, most wader species are active both at day and night. In all, the developed recording systems make more comprehensive and complete data sets available than visual observations alone. Hence, it enables us to estimate time and energy budgets more exactly.

The described systems have been tested in free living Oystercatchers (Haematopus ostralegus). I will present first results and discuss the suitability of the systems for field studies.

It should be no problem to bring forward the proposed transmitter design to study activity patterns as well as physiological variables of other species too. The same holds for the design of the electronic nest balances.

O'BRIEN, MARK (Royal Society for the Protection of Birds, UK)

Soil-water conditions and breeding Snipe

Previous research has indicated that the length of the breeding season for breeding Snipe is, in part, determined by the softness, and so the penetrability, of the soil. Snipe cease to attempt to breed once the soil penetrability exceeds a certain level. On the peat soils of the RSPB reserve at West Sedgemoor on the Somerset Levels, this force is exceeded once the water table drops to about 35cms below field surface. Subsequent management of RSPB lowland wet grassland reserves has been aimed at maintaining a water table at or above this level.

Recent research has considered the relationship between soil penetrability and water conditions for a range of soil types. The link between soil penetrability, water table and ditch water level has been shown to be general for peat soils at a variety of sites. If ditch water levels are maintained within about 30cms of the field surface then the soils will be soft enough for breeding Snipe. On clay soils, however, soil penetrability is only weakly correlated with water table - although there is a strong link with soil moisture content (or gravimetric wetness). One factor that affects the gravimetric wetness of the soil is the likelihood of flooding in the late winter/early spring. The implications of this for management of lowland wet grassland reserves on clay soils are discussed.

GORBAN, I & POTYSH, L (Lviv University & Uzhorod University, Ukraine)

Spreading ^{Little} Ringed Plover and Common Sandpiper in the Western Ukraine

Both of these wader species are irregularly distributed in the Ukraine. In the Western Ukraine these waders live near the river valleys. Most breed in highland river valleys in the Ukrainian Carpathians up to an altitude of 800 metres above sea level. The number of ^{Little} Ringed Plovers

is 3000 pairs and Common Sandpiper 1500 pairs (according to the Atlas of Western Ukraine Breeding Birds and modern accountings). Common Sandpiper are found during the breeding season in 142 out of 217 25 x 25 kilometre squares and its breeding is improving in 56 squares.

CHYLARECKI, PRZEMEK (Ornithological Station, Polish Academy of Science, Poland)

Ectoparasites influence egg size in the Ringed Plover

Feather mites of the super family Analgoidea are widespread ectoparasites living on wader remiges. Infestation by a feather mite species Bychovskiata charadrii was studied in an inland population of Ringed Plover (Charadrius hiaticula) breeding in Eastern Poland. Parasite load was found to correlate negatively with egg volume laid by individual females. This reduction in egg size occurred solely via effect on egg length, while egg breadth remained unaffected. Surprisingly, both female body size and physical condition did not influence egg measurements in this sample. It is not clear whether reduced reproductive investment of female plovers is a direct effect of Bychovskiata or high parasite load is an indicator of otherwise lowered fitness. In any case, the level of infestation by feather mites should be considered as a useful predictor variable in other studies of egg size variation in waders, as a similar significant effect on egg length was found also among female Little Stints (Calidris minuta) from Taymyr.

GRANT, MURRAY (Department of Biological Sciences, University of Durham, UK)

Effects of moorland fragmentation on breeding Curlew (Numenius arquata) in Orkney

Moorlands and other semi-natural habitats in the Orkney Islands have become fragmented as a result of agricultural improvements, and in many areas of Orkney improved grasslands, intensively managed for beef cattle, are now the predominant habitat. The extent of fragmentation is greatest in lowland areas (i.e. <100m above sea level) where remnants of semi-natural habitat range from <1ha to 300ha in area. Within these remnant areas Curlews (Numenius arquata) nest at extremely high densities (frequently 1.0-1.5 pairs.ha⁻¹), whilst on relatively intact moorlands (>1000ha in area, and generally above 100m above sea level) nesting densities are lower (ca 0.1 pairs.ha⁻¹). Despite the high densities on the fragmented areas of semi-natural habitat few Curlew nest in the surrounding improved grasslands.

This study investigates (i) factors associated with variation in the nesting density of Curlew on areas of semi-natural habitat and (ii) using radio-tagged and individually colour-ringed birds, the extent to which Curlews nesting on remnants of semi-natural habitat depend upon the surrounding improved grasslands, both as feeding habitat for adults and as chick-rearing