

SUMMARY

1. The Red-billed Chough *Pyrrhocorax pyrrhocorax* is a protected species throughout the European Community and the rarest breeding crow in Britain. Its British and Irish population *ca.* 1000 breeding pairs, of which 2/3 are in Ireland. The present distribution is entirely confined to western maritime cliff regions, where there is a dependence on the invertebrate faunas associated with natural, semi natural and pastoral habitats.
2. The study investigated the feeding ecology and habitat use of the Chough in Dyfed, West Wales, principally the county of Pembrokeshire, where there is low level population linearly distributed along the mainland coastline. Within Dyfed, the study region was separated into 4 blocks, with a variety of physiography and extending in all to >100km of coast. The study inquired into the decline of the Chough in Cornwall, its subsequent extinction as a breeding species in England in the 1970s, and the feasibility of its possible re establishment.
3. Ecological knowledge, acquired in the Welsh phase regarding habitat use and the biomass and diversity of the prey base, was applied in previously occupied sites in Cornwall in order to assess their suitability as re establishment sites.
4. Assessment showed that the same suite of natural and semi natural habitats exist in both regions, but precise examination of feeding areas showed that Chough usage is influenced more by fine detail of habitat composition which is not revealed by broad based surveys. The existence of bare earth exposures within natural vegetation mosaics and annuals such as *Aira praecox* (Early hair grass) formed the most important single feeding complex that could be described botanically. Invertebrates associated with these complexes formed a key resource, in particular, ants during the breeding season.
5. Choughs using natural cliffscape showed better foraging success than those dependent upon pastoral agricultural systems. Cliff quality influenced agriculture usage, and, if high, reduced the significance of farming methods on adjoining land. However, it is unlikely that cliffs of high quality exist over a sufficient extent of coastline to support Choughs without recourse to pastoral agriculture. The Chough, for its long term survival, requires functional units which contain both natural and low intensity pastoral (=semi natural) agricultural components.
6. Invertebrate faunas, notably beetles and fly larvae, associated with herbivore dung were used extensively throughout the year. The principal prey orders involved overall were Coleoptera, Oligochaeta, Diptera (mainly larvae), Hymenoptera, Crustacea, Arachnida and possibly Dermaptera.
7. Resources used in Welsh study areas existed at equal or greater levels in the Cornish areas examined, although management work might be required in order to increase the extent of suitably grazed semi natural vegetation near proposed population centres, of which the Lizard emerged as the leading contender. Similar work is probably also necessary in Wales to increase viability within current ranges.
8. If re establishment is to be attempted in Cornwall it should proceed as swiftly as possible, compatible with habitat requirements, to minimise the effect of deleterious recessive genes and reduced heterozygosity within the captive founder stock.