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## Foraging requirements of subadult red-billed choughs in Scotland: the importance of coastal sand grasslands

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The red-billed chough (*Pyrhacorax pyrrhacorax*) is a species of conservation concern across Europe and in the UK. The Scottish population of the species is restricted to two of the Inner Hebridean islands, Islay and Colonsay, and is the subject of a long-term study by the Scottish Chough Study Group. Previous analyses of long-term data from this population showed that population growth rate is strongly affected by survival of subadult birds. However, despite its relevance to conservation management, detailed knowledge of the habitat requirements of subadult choughs (and the potential link between habitat use and survival) has been lacking.

To address these questions, a study was recently conducted on the Isle of Islay which holds 70-80% of the Scottish population of the species. Variation in habitat use was examined over two years, at several spatial scales ranging from island-wide to precise foraging location scale. Subadult choughs relied almost entirely on coastal sand grasslands year round but different sites were used to a different extent. Two main sites supported a large number of birds year round, other sites were used part or most of the year by fewer birds. This did not simply reflect differences in size among the sites but appeared to be partly due to relatively subtle habitat differences among them. Furthermore, within each site subadult choughs foraged repeatedly at particular locations and were never observed foraging at others. The used locations covered a range of habitat features and differed from unused ones in a number of characteristics. Overall, the locations where choughs foraged had sparser, slightly shorter and more variable vegetation and larger amounts of relatively

old cow dung compared to unused locations. Flexible management strategies should be devised that take into account habitat variation among sand grassland sites and maintain a mosaic of habitat features within sites, thus ensuring that choughs have access to a variety of resources at all times.

