

Foreword

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Dick, W.J.A. 1992. Foreword. *Wader Study Group Bull.* 64, Suppl.: 7.

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The rate of increase in our knowledge of Knot migration and ecology in the twenty years leading to the WSG workshop has been remarkable. The species has become one of the best-studied long-distance migrants, and this is all the more notable considering how little was known about the species as recently as the early 1970s. Few researchers at that time would have dreamt that a workshop could be convened, involving the presentation of the results of world-wide Knot migration research.

In Europe, the introduction and wide application of cannon-netting in the late 1960s was critical to the development of Knot migration research. By 1972 as much as 5% of the Nearctic population in Britain and Europe carried rings. This generated good recovery data and was followed by an active and geographically wide-ranging programme of ringing, allowing separation of both Nearctic and central Siberian populations. In the late 1970s, WSG co-operative spring migration projects, involving co-ordinated observations and ringing effort, played a major role in increasing knowledge of migration flyways, timing and migration strategies.

The results of work on the migration of *C. c. rogersi* as a result of intensive efforts in Australasia and Asia, and of *C. c. rufa* in the New World, provide fascinating parallels to the migration strategies of *C. c. canutus* and *C. c. islandica* found in Europe and Africa, and also demonstrate the speed at which knowledge can be gained.

In the case of each Knot population, the weakest area of knowledge is likely to remain its breeding. Even for the best known population, *C. c. islandica*, overall population numbers cannot be accounted for at densities shown by studies in known breeding areas, although evidence, stimulated by questions raised at the workshop and included in this proceedings volume, now supports a much more extensive breeding range in the Canadian Arctic than previous-

ly supposed. Breeding studies will probably provide as many unexpected surprises as have migration studies. The recent increase in collaboration between ornithologists in East and West provides many opportunities for increasing knowledge of Knot on their breeding grounds.

In the progression of Knot research, evidenced by results presented at the WSG workshop, it is notable how productive integrated migration research effort can be. The 'stone age' of initial migration research relied almost exclusively on large scale ringing, where the immediate return on research effort was very high. By comparison, similar returns in today's migration research demand far more ingenious approaches, involving integration of the disciplines of physiology, nutrition, behaviour, meteorology, radar, aerodynamics and many others. The bringing together of these disciplines, and the exchange of ideas thus generated, was one of the most exciting outcomes of the workshop.

Although Knot discoveries have often been made in major steps, workshop participants were perhaps not prepared for the extent of the quantum leap demonstrated by Allan Baker in his talk on molecular genetics. The ability to separate populations using genetic criteria, to trace their origins and past population sizes, and even to predict their fitness from study of genetic diversity, brings a new dimension to wader research and conservation planning.

Why Knot? Ornithologists are drawn to the Knot, whether or not they have professional research interest. Knots invoke a strong sense of awe whether on arctic tundra, desert shoreline, or departing in massed flocks from a staging area. The next workshop seems likely to be sooner rather than later.