Editorial

Franz Bairlein · Peter H. Becker

Received: 4 June 2011 / Revised: 25 June 2011 / Accepted: 27 June 2011 / Published online: 12 July 2011
© Dt. Ornithologen-Gesellschaft e.V. 2011

When “Vogelwarte Helgoland”—now called the Institute of Avian Research—was founded on the 1st of April 1910, the study of bird migration was in its infancy. Although Heinrich Gätke, whose scientific library and skin collection formed the basis for the foundation of the Vogelwarte Helgoland (Helgoland Bird Observatory), recorded the seasonal passage of birds on the island of Helgoland and considered the theoretical background for bird migration in great detail, he was unable to assign these birds to areas of origin or destination. The use of metal rings to band birds, introduced by Hans Christian Mortensen in 1899, was in its infancy. However, the combination of Gätke’s fascinating scientific assets and that new methodology led to the foundation of the Vogelwarte Helgoland, so the study of bird migration through scientific ringing was the major goal when Dr. Hugo Weigold was appointed the first director of the Vogelwarte Helgoland. Since then, the study of bird migration was and still is the central theme of the institute’s scientific work. For a long time, its work focused on clarifying migration routes and wintering areas with the help of ringing. However, as early as the mid-1930s, Dr. Rudolf Drost, the second director, started to study the mechanisms of bird migration by translocating birds during migration, and by studying nocturnal migratory activity in captive birds. Today, the search for the mechanisms of the internal and external factors and mechanisms that control migration is the main focus of the institute’s research, with the aim being to understand migration strategies and long-term changes in migration behavior through a combination of field and laboratory studies.

Rudolf Drost also introduced the study of bird populations to the institute’s targets. His detailed studies on the population biology and behavior of herring gulls were pioneering works for seabirds. Today, population biology is the second main research focus at the institute. In this case, the aim is to understand the extent to which bird populations are influenced by environmental change, and which fitness components and demographic processes have a role to play in this. Only a few individuals are responsible for the production of the majority of offspring for the next generation. This raises exciting new questions, such as the identification of the life history traits that characterize those individuals with special qualities. Only by elucidating the causes and consequences of the considerable inter-individual variations in quality—for example, in the timing of migration or egg-laying, the age of first breeding, body condition or reproductive performance, as well as in the age-dependent development of those traits—will we be able to explain phenotypic and demographic changes and design effective species protection measures.

Even though breeding and migration are coherent parts of the birds’ annual cycle, the study of bird migrations and the study of population biology evolved largely independent of each other for many decades. Integrating the breeding and non-breeding periods of migratory birds is a task that is done for the sake of science as well as conservation. Especially species migrating over long distances are currently of major conservation concern because of long-term declines in population size. We will only be able to understand and to counteract these changes if we connect breeding and nonbreeding studies and learn more about carryover effects between migration and breeding performance and vice versa.

Therefore, it was our aim to bring these two subjects together and integrate them in a seminal way for the

F. Bairlein (✉) · P. H. Becker
Institute of Avian Research, Wilhelmshaven, Germany
e-mail: franz.bairlein@ifv-vogelwarte.de

institute's centenary anniversary symposium. We are very grateful to all participants in the symposium and to the authors for their contributions compiled in this special issue of the *Journal of Ornithology*. We thank the various sponsors of the symposium—the Lower Saxony Ministry of Science and Culture, the Werner Brune Foundation, the Gerd-Möller Foundation, the Marschenrat, Oldenburgische

Landschaft, and the German Ornithologist's Society (DO-G)—for their kind support. We also thank the journal's editors, the many peer reviewers, and Springer for their contributions to these proceedings.

Acknowledgment This supplement was funded by the Institute of Avian Research “Vogelwarte Helgoland”, Wilhelmshaven, Germany.