

# The European Non-Estuarine Coastal Waterbird Survey: background and methodology

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The European Non-Estuarine Coastal Waterbird Survey (Europe-NEWS) represents the first co-ordinated survey of waders wintering on the continent's non-estuarine coasts. Here, we briefly outline the background to the survey, geographical and species coverage, and survey methods. The differing methods used to generate population estimates are also described and information provided for interpretation of country accounts.

## Introduction

There has been a long history of co-ordinated winter waterbird monitoring in Europe. The International Waterbird Census (IWC), begun in 1967 by the International Waterfowl and Wetlands Research Bureau (IWRB) and now centrally co-ordinated by Wetlands International, brings together count data collected each winter from countries across the continent. Europe supports a wealth of different waterbird species on a great variety of habitats. Data from the IWC (and national schemes contributing to this) have been used to provide up-to-date estimates of these species' winter populations (Wetlands International 2006) and identify important wetlands for protection (e.g. Heath & Evans 2000, Stroud *et al.* 2001). On the coast, Europe's estuaries are particularly important for the large numbers of overwintering waders that they support, and coverage of the coast in national monitoring schemes has typically been biased towards these sites. In contrast, relatively little of the continent's non-estuarine coast is monitored annually and estimates of the numbers of waterbirds wintering on non-estuarine habitat have only been produced by a few countries. In Belgium (Devos 2008), the Netherlands (van Roomen *et al.* 2008) and Germany (Blew *et al.* 2008), much of the non-estuarine coast is effectively covered by the IWC. In the United Kingdom, the Winter Shorebird Count in 1984/85 provided the first estimates of the numbers of waders wintering on this nation's non-estuarine coasts (Moser 1987, Rehfishch *et al.* 2003). For most countries, however, surveys have been restricted in their spatial and temporal coverage, though there may be much information at a regional scale (e.g. Green *et al.* 1988, Hortas *et al.* 2008).

It was thus with the aim of improving our knowledge of the wader populations wintering on the continent's non-estuarine coasts that the European Non-Estuarine Coastal Waterbird Survey (Europe-NEWS) was initiated. Europe-NEWS represents the first co-ordinated survey of waders wintering on the continent's non-estuarine coasts, and aimed to provide population estimates for waders on the non-estuarine habitat in different participant countries, which would complement information from better-monitored estuarine sites.

While almost all the wader species that use European estuaries may be found on non-estuarine coasts, certain species show a preference for such habitats. Purple Sandpipers

*Calidris maritima*, the most northerly distributed of Europe's wintering waders, are specialist foragers of the invertebrate communities of rocky shores and thus virtually restricted to this habitat in the non-breeding seasons (Feare 1966, Feare & Summers 1985). Ruddy Turnstones *Arenaria interpres* are also particularly associated with rocky shores (Feare & Summers 1985), though are more versatile foragers, often feeding at tidal wrack beds (Whitfield 1990, Fuller 2003) and in a variety of other habitats (Cramp 1983). Common Ringed Plovers *Charadrius hiaticula* and Sanderlings *Calidris alba* also forage on rocky (as well as estuarine) shores, though are particularly associated with sandy substrates (Summers *et al.* 1998, 2002, Granadeiro *et al.* 2004, 2007). The non-estuarine coasts covered in the survey were thus predicted to support significant proportions of the biogeographic populations of these species.

## Geographical and species coverage and survey methods

In total, 12 different countries participated in Europe-NEWS – Belgium, Croatia, Denmark, France, Germany, Italy, the Netherlands, Portugal, the Republic of Ireland, Spain, Sweden, the United Kingdom (together with one UK crown dependency – the Isle of Man – and one overseas territory – Gibraltar) – covering non-estuarine shores from the Baltic Sea to the Adriatic Sea. Attempted NEWS coverage in Norway and Iceland was insufficient to obtain meaningful population estimates (K-B. Strann pers. comm., A. Petersen pers. comm.).

Most counts took place in the winter of 1997/98, with some in 1999/2000, and were targeted for January (though counts also took place in December in some countries). As with other coastal waterbird surveys, coasts were divided into count sections (e.g. for the UK, up to 4 km in length: Rehfishch *et al.* 2003) for ease of surveying. The majority of surveys were undertaken during the low tide period (e.g. for the UK, 3.5 hours before to 3.5 hours after low water: Rehfishch *et al.* 2003), when birds were foraging. This standardisation was less important in the Baltic and Mediterranean where tidal movements are limited.

In the majority of countries, species coverage was limited to waders. In Croatia, Denmark, Italy, Sweden and the United

Kingdom, other waterbird species were also counted and, for the former four countries, appendices are provided summarising the data collected. Species groups covered include loons (divers), grebes, cormorants, herons, storks, flamingos, wildfowl, rails, gulls, terns, auks and kingfishers. Habitats covered are described in the country accounts.

## Methods used to derive estimates

Approaches used to estimate populations and thus survey methodologies varied between countries. In two – Belgium (Devos 2008) and the Netherlands (van Roomen *et al.* 2008), where counts were undertaken as part of standard midwinter (IWC) counts, as well as the small UK overseas territory of Gibraltar (Cortes 2008) – coverage was effectively complete. In four countries – Denmark (Thorup *et al.* 2008), Germany (Blew *et al.* 2008), France (Deceuninck *et al.* 2008) and Spain (Hortas *et al.* 2008) – surveys either targeted key sites, or sampling was insufficient to allow extrapolation, and thus numbers reported only represent minimum population estimates. In three cases – Croatia (Radović *et al.* 2008), Italy (Soldatini *et al.* 2008) and Sweden (Nilsson 2008) – a sampling approach allowed an “expert extrapolation” of counts to provide approximate national population estimates. In Portugal (Mendes *et al.* 2008), the Republic of Ireland (Colhoun *et al.* 2008) and the United Kingdom (and the Isle of Man: Rehfish *et al.* 2003), the sampling approach used (pseudo-random in the former case, stratified random in the latter two) and coverage obtained allowed a statistical extrapolation to provide national population estimates with confidence limits.

## Interpretation of country accounts

Accounts are provided for those 12 countries that took part in Europe-NEWS, together with one UK overseas territory (Gibraltar). The population estimates provided in these accounts are then brought together in a summary chapter to provide an overall assessment of the population status of waders wintering on Europe’s non-estuarine coasts (Burton *et al.* 2008).

In each of the country accounts, an introductory table indicates which of these four approaches was used to estimate populations, as well as the (estimated) length of non-estuarine coast, the percentage of this covered by NEWS, the winter that counts were undertaken and the reliability of the population estimates produced. Reliability was qualitatively estimated as good, average or poor according to coverage, the approach used to estimating populations and any possible biases. Where differences exist between regions (e.g. in Germany between the North Sea and Baltic coasts: Blew *et al.* 2008), these are indicated.

Species nomenclature follows that used by BirdLife International (2004), with species listed in Euring sequence.

Both in the summary chapter (Burton *et al.* 2008) and individual country chapters (unless otherwise stated) the numbers of waders wintering in each country are assessed relative to each species’ “biogeographic population”, following those defined by Wetlands International (2006). In its simplest form, a biogeographic population is a distinct assemblage of individuals which does not experience significant emigration or immigration. Although some species have a limited geographical range and can be considered as one population, others have more cosmopolitan distributions and for these Wetlands International (2006) defines biogeographic units

by considering all aspects of biology and the practicalities of conserving populations. Among waders, there is often overlap between populations on migration and on wintering grounds. For these species, following Ramsar guidelines, the relative importance of each country for the species is gauged relative to the estimated population size of the more numerous subspecies/population.

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