

Status, genetic diversity and possible breeding origin of wintering Great Northern Divers *Gavia immer* in Galicia, northwest Spain

Bao, R.¹, Bartolomé, C.², Barros, A.³, Camphuysen, C. J.⁴, De Souza, J. A.⁵, Fortin, M.⁶, Heubeck, M.⁷, Maside, X.² & Sandoval, A.⁸

¹Facultade de Ciencias, Universidade da Coruña, Spain

²Grupo de Medicina Xenómica, Universidade de Santiago de Compostela, Spain

³Departamento de Ecoloxía e Bioloxía Animal, Universidade de Vigo, Spain

⁴Netherlands Institute for Sea Research, The Netherlands

⁵O Graxal 10, Oleiros, A Coruña, Spain

⁶Bretagne Vivante SEPNEB, Séné, France

⁷University of Aberdeen (SOTEAG), United Kingdom; martinheubeck@btinternet.com

⁸Terranova Interpretación y Gestión Ambiental, A Coruña, Spain

We review the status of wintering Great Northern Divers *Gavia immer* in Galicia (NW Spain) based on published data on field surveys, necropsies of beached birds and genetic analyses. The species is mainly present from mid-October to mid-May, preferentially occupying exposed sandy coasts, particularly in late winter and spring when flight feather moult takes place. The average wintering population ranges between estimates of 123 birds (95% CI = 76–166), uncorrected for detectability, and 230 birds (95% CI = 130–330) if a correction factor for detectability is applied. This could represent 2.5% of the European biogeographic population (1% level = 50 birds).

The November 2002 Prestige oil spill (POI) had a severe effect on the population, which was apparently reduced by 36% between 2002 and 2003 and by 57% between 2002 and 2005. However, the population had returned to pre-spill levels by 2008/09, possibly by the redistribution of birds from other Iberian wintering areas. Examination of POI victims stranded in Galicia found a lower proportion of adults (56%, n = 39) than among winter oil incident samples from further north in Europe, and identified drowning in fishing gear as a threat to the species in Galicia.

Genetic analysis of these birds (n = 33) showed very low levels of nucleotide site diversity at three mitochondrial DNA loci. Comparison with sequences available in GenBank suggests the species comprises a single panmictic population of small effective population size. As a result, genetic markers perform poorly as tools for assigning individuals to their region of breeding origin. By contrast, biometrics of the POI birds (n = 41), and the incidence of gunshot in their carcasses, suggest an inconclusive Icelandic and/or Greenlandic origin.