How frequent is external transport of seeds and invertebrate eggs by waterbirds? A study in Doñana, SW Spain

Jordi Figuerola and Andy J. Green

Estación Biológica de Doñana, CSIC, Spain

With 2 figures and 2 tables

Abstract: Dispersal of aquatic organisms by birds has long been assumed to be an important process, but quantitative studies of its frequency are scarce. We determined the presence of plant and invertebrate propagules adhering to the plumage or feet of 47 waterbirds of 6 species (2 ducks, 2 waders and 2 rallids) trapped during the spring migration period in two localities in Doñana, south-west Spain. The percentage of waterbirds transporting propagules was high, with large differences between sites in the proportion of individuals carrying propagules (35% and 100%, respectively) and the numbers and types of propagules carried. Seeds of at least 15 plant species, eggs of at least 6 invertebrate species and at least one alga were encountered, with each bird carrying up to 12 different types. Seeds tended to be attached to the plumage, and invertebrate eggs to the feet. The efficiency of protocols for removing propagules from birds varied between bird and propagule species. External transport of propagules by waterbirds seems a frequent process at least at a local scale and is likely to facilitate the rapid colonisation of new or temporary wetlands, and maintain gene flow between populations.

Key words: Dispersal, egg dispersal, habitat colonisation, seed dispersal.

Introduction

The transport of plant and invertebrate propagules by adhesion has long been considered a significant mode of dispersal in aquatic environments (Darwin 1859, Ridley 1930). Darwin (1859) provided some experimental evidence of the possibility of dispersal of pond snails by adhesion. Many years later, Segerstråle (1954), showed that the amphipod Gammarus lacustris can ad-