

Beetles (Coleoptera) in the diet of Piping Plovers in the Iles de la Madeleine, Québec, Canada

CHRISTOPHER G. MAJKA¹ & FRANÇOIS SHAFFER²

¹Nova Scotia Museum, 1747 Summer Street, Halifax, Nova Scotia, Canada B3H 3A6. c.majka@ns.sympatico.ca

²Canadian Wildlife Service, 1141 Route de l'Église, 9e étage, PO Box 10100, Québec, QC, Canada G1V 4H5

Majka, C.G. & Shaffer, F. 2008. Beetles (Coleoptera) in the diet of Piping Plovers in the Iles de la Madeleine, Québec, Canada. *Wader Study Group Bull.* 115(2): 77–83.

Keywords: Piping Plover, *Charadrius melodus*, Charadriidae, shorebirds, endangered species, Coleoptera, Staphylinidae, *Bledius*, coastal ecology, maritime environments, mudflats, fecal analysis, avian diet, Iles de la Madeleine, Québec, Canada

Coleoptera remains from droppings collected for a fecal analysis study of the diet of Piping Plovers (*Charadrius melodus*) in the Iles de la Madeleine, Québec, Canada were examined and identified to species level. Beetles found in the bird's droppings included *Bledius opaculus* LeConte (Staphylinidae), *Philopodon plagiatum* (Schaller), *Dryocoetes autographus* (Ratzeburg) (Curculionidae), *Baeckmanniolus dimidiatipennis* (LeConte) (Histeridae), *Negastrius delumbis* (Horn) (Elateridae), *Dyschiriodes sellatus* (LeConte), *Harpalus affinis* (Schrank), and *Cicindela* species (Carabidae). *Bledius opaculus*, an algae-feeding rove beetle that inhabits sand- and mud-flats, was two orders of magnitude more abundant than any other species.

These results allow for insights into the feeding strategy and preferences of Piping Plovers and the ecological circumstances of the environment they occupy. Piping Plovers are reliant to an important degree on the specialized algae-*Bledius*-*Dyschiriodes* ecological system; they feed in and exploit the resources of several shoreline microhabitats including sand- and mud-flats, sand dunes, beach wrack and the strand line; they appear to be diurnally- and nocturnally-active; they exploit both introduced Palearctic species that now inhabit their environment, as well as beetles that have been accidentally blown or washed into their habitat; prey sizes ranged from 3.2 mm to ~15.0 mm; and they feed on a diverse assemblage of beetles representative of the shore-line inhabiting groups. This indicates that Piping Plovers are able to exploit a diversity of potential food resources in their environment. Their diet in the Iles de la Madeleine, however, appears to be based in large measure on *Bledius opaculus*, and hence this plover is vulnerable to changes that would affect the specialized *Bledius*-based ecosystem.