

# Diurnal and nocturnal activities of a Purple Sandpiper *Calidris maritima*

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## INTRODUCTION

In most studies of the winter feeding ecology of waders, the big unknown is what happens at night. By inhabiting intertidal mudflats waders can potentially feed at night at low tide. Whilst this has been shown for some sandpipers which hunt their prey by touch on mud flats (McNeil 1991), there seems less scope for visual feeding for those which forage over hard substrates. For this reason it has been suggested that Purple Sandpipers *Calidris maritima* feed only by day (Feare 1966).

The Purple Sandpiper is unusual in that it winters further north than any other wader and so endures long nights during winter. Observations in north Norway (69° N) in November have shown that when high tide occurs during the middle of the day, Purple Sandpipers spend 89% of the day roosting and preening and only 11% of the day feeding (Strann & Summers 1990). It would therefore seem that there is not sufficient time to obtain their daily food requirements by day and they must feed by night. A study was therefore initiated in eastern Scotland in order to obtain a better understanding of their night-time activities.

## METHODS

The study was carried out between 14 and 17 April 1993 on the Isle of May, Fife. A Purple Sandpiper was dazzle-netted on the night of the 14th on East Rona and was kept in a bird bag overnight. It proved to be a male of the Norwegian population, based on its bill length (Nicoll *et al.* 1988). It weighed 64 g. A 1 g Biotrack transmitter with a main and ground plane antennae was glued to the back feathers with super glue and it was released at the site of capture at 06:30 h on the 15th.

Observations commenced about 11 hours later. Every half hour, the signal was listened to for one minute's duration with a CE12 receiver and a Yagi antenna from the Low Light bird observatory. The signal was recorded as either steady or varying. Varying signal strength indicated that the bird was active due to the changing alignments of the transmitting antenna relative to the receiving antenna, which was held still.

## RESULTS AND DISCUSSION

Between 18:00 on the 15th and 18:00 on the 16th the bird remained between East Rona and Colm Hole, spending most of its time on the East Tarbet Rocks (Figure 1). Direct observations were made of the bird foraging normally and it flew strongly. There was no indication that it had not accepted the radio.

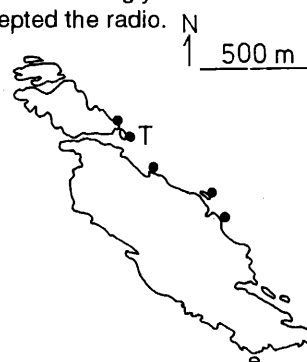


Figure 1. The Isle of May showing sites used by the radio tagged bird and the Tarbet Rock (T).

The bird showed periods of inactivity only around high tide (Figure 2). Inactivity extended into the ebb period when potential feeding habitat was available. The activity at night during low tide suggested that it was feeding nocturnally. How it actually detected prey is unknown but Purple Sandpipers do have a touch-sensitive bill tip so it is likely that they could detect active prey such as amphipods, which inhabit clumps of sea-weed on rocky shores.

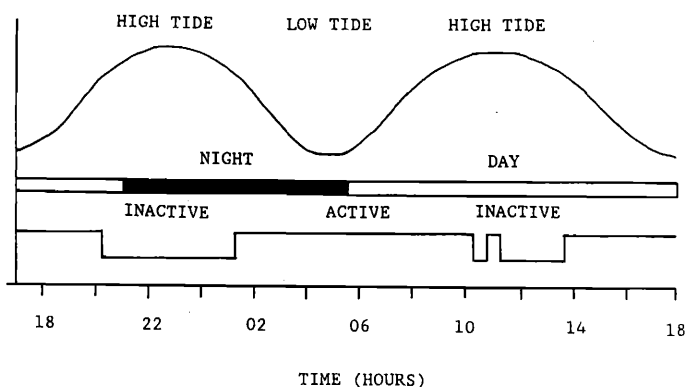


Figure 2. The activity pattern of the radio tagged Purple Sandpiper in relation to tide and day/night.