

Montagu's harriers *Circus pygargus* in Southwest Jutland

Movement patterns in the breeding season

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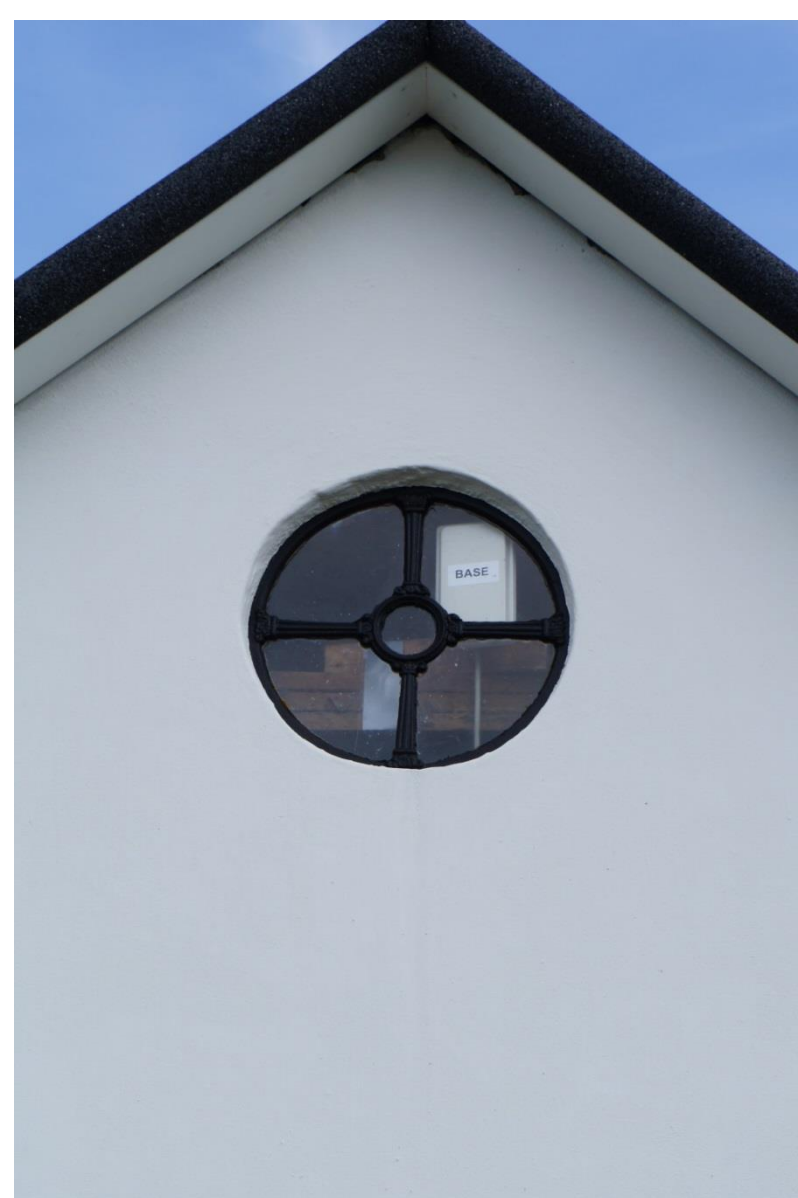
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Four Montagu's harriers were tagged with GPS-loggers to study movement patterns, habitat-use and -selection in the breeding area in Southwest Jutland. The aim was to obtain valuable information to provide basis for future management of the population. The birds were tracked in 2011 and 2012 and more birds will be tagged and tracked in the following years. Here we present the results from one of the males tagged in 2011 that represents the preliminary findings for the three males.



The loggers used are solar driven 14 gram GPS-loggers from the University of Amsterdam Bird Tracking System (UvA-BiTs) v1.0.3.5 which is a system that in addition to the GPS-logger contains an antennae network connected to a ground station.

The GPS loggers have a two-way communication system that makes it possible to change e.g. interval between data sampling. In this case the loggers collected fix points with an interval of three seconds to five minutes. The fix points contained information about position, time, height, speed and acceleration.



Background

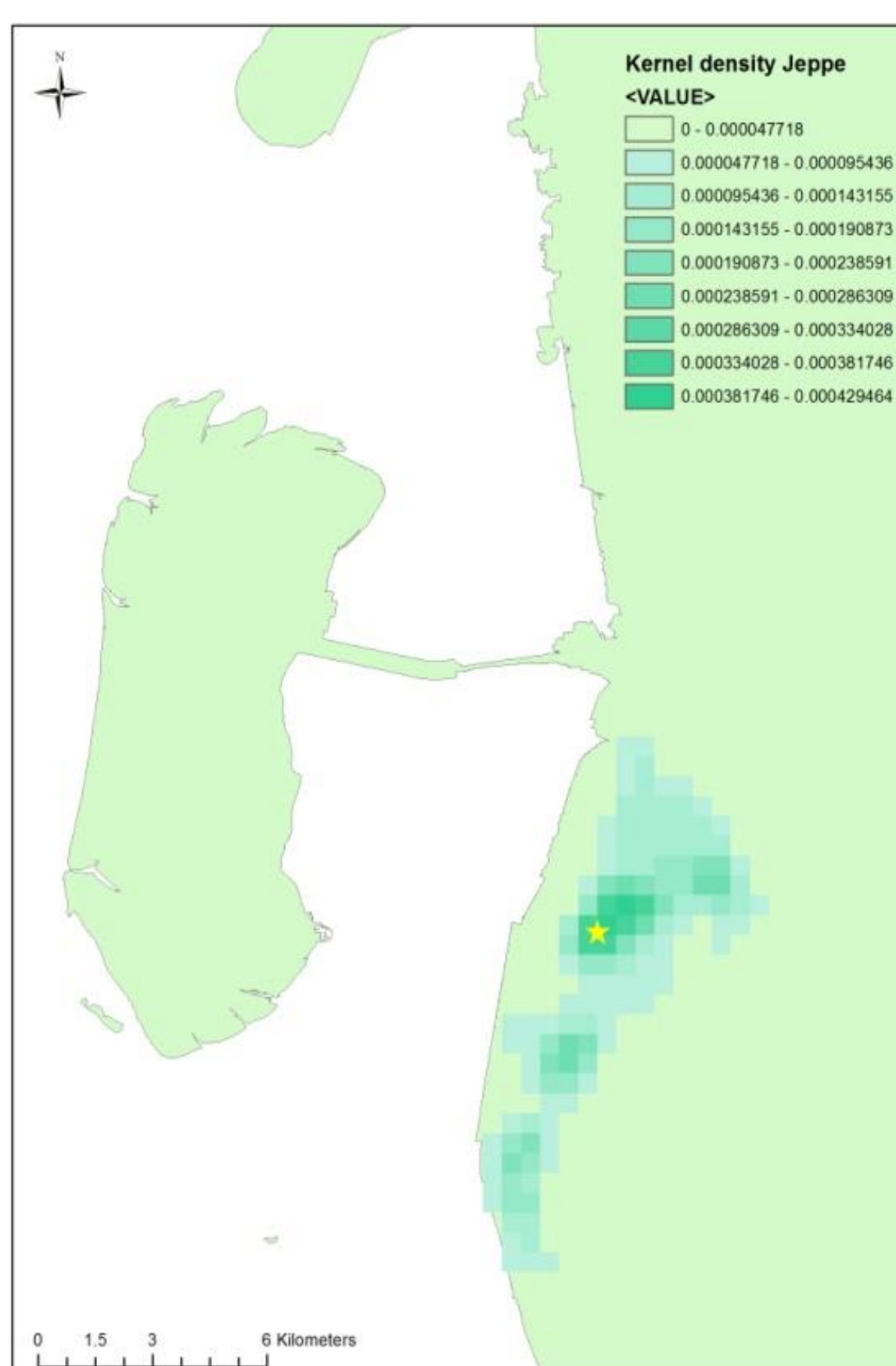


The population of Montagu's harriers in Denmark has declined since the 1980s from around forty to twenty pairs, and it now breeds mainly in the farmland and marshland of Southwest Jutland. During the last years it seems that a decreasing number of pairs are breeding successfully indicating lack of food. If the production of young does not increase in the years to come the recruitment will be too low to sustain the population, according to studies of other populations in Europe. It is therefore clear that actions have to be made to conserve the Montagu's harrier as a Danish breeding bird.

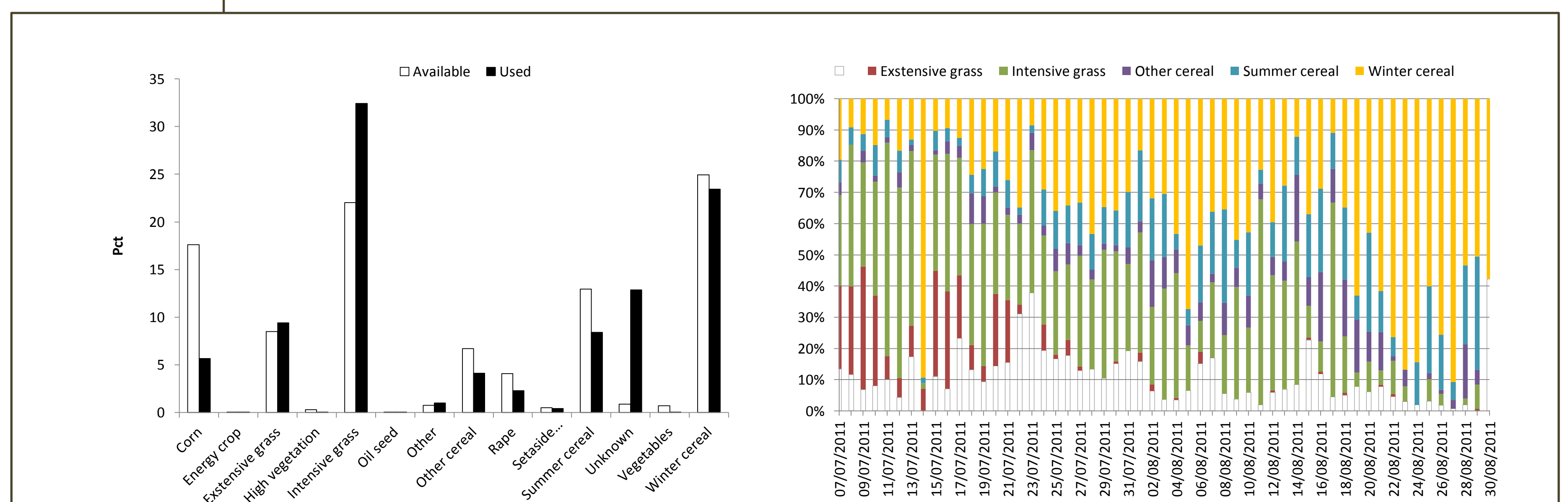
In this study we use GPS tracking to determine areas and habitats of substantial importance to breeding Montagu's harriers. Three males and one female were tagged, but only the males were used in the analyses. The low sample-size made it difficult to generate significant results but with more data in the coming years it will be possible to test for patterns that is already indicated in the data obtained. Here we present results from one of the males.

This GPS-study is part of BirdLife Denmark's project *Aid of Eight* and is carried out in cooperation with Natural History Museum, Dutch Montagu's harrier Foundation and University of Amsterdam.

Results



This map shows kernel density from one of the males. Dark areas indicate areas of intensive use. Stars indicate nest site. The area within the home-range was not equally used and he mainly used areas along the coast line (north/south movements).



Available habitat and used habitat is shown left and it seemed that intensive and extensive grass was used more than available. But the proportion of data fixes within a given habitat per day in the tracked period showed a shift from mainly foraging in Grassland to foraging in Cereals later in the season (right). This indicates that the habitat preference is changing over season.