Habitat use of raccoon dogs at their invasion front

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1 Study area and GPS data

- Northern Sweden, raccoon dog at its invasion front (Fig. 1)
- 55 GPS-collared raccoon dog (30 males, 25 females)
- Individuals followed for 196 days on average
- Clustering algorithm to group daily steps into classes
- Landscape characteristics for habitat use: distance to roads, distance to water, elevation, slope and length of the growing season
- Habitat types (Corine data set) reclassified into 6 classes: open water, forest, wetland, open natural habitat, agriculture habitat, artificial habitat
- No *a priori* knowledge about the best spatial scale to study raccoon dog habitat use → multi-scale approach, 8 scales from 100 to 20000 m
- Random points within the 8 spatial scales to see if use changed with scale

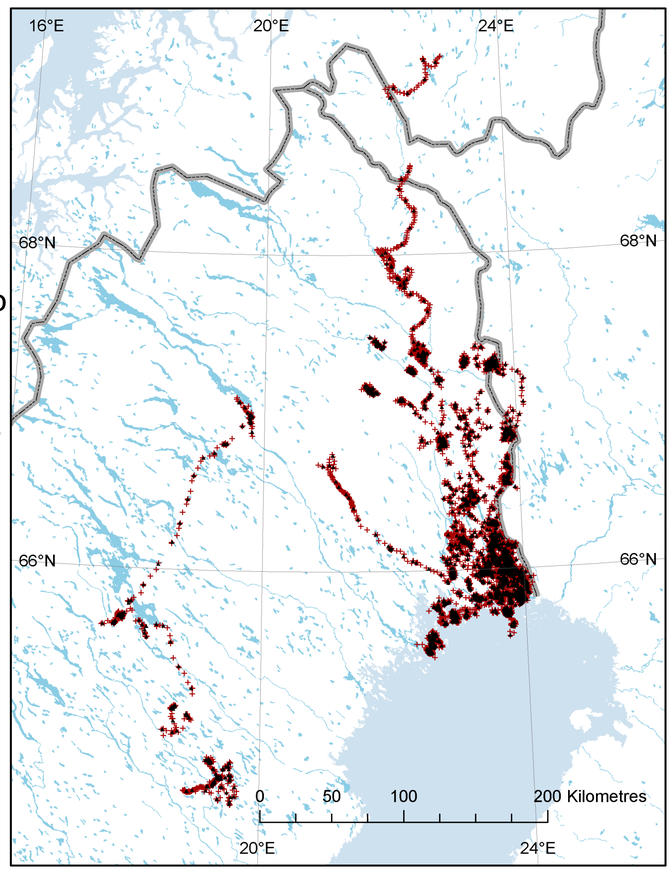

Fig. 1. GPS-locations (red crosses) of raccoon dog in Sweden. Black triangles show daily mean locations.

2 Use of habitat types and landscape characteristics

- Most observations in forest, wetland and open natural areas
- GPS-points more often in agriculture and wetland than random points, less often in forest and open natural
- GPS-points closer to water, at lower altitudes and flatter terrain than random points.

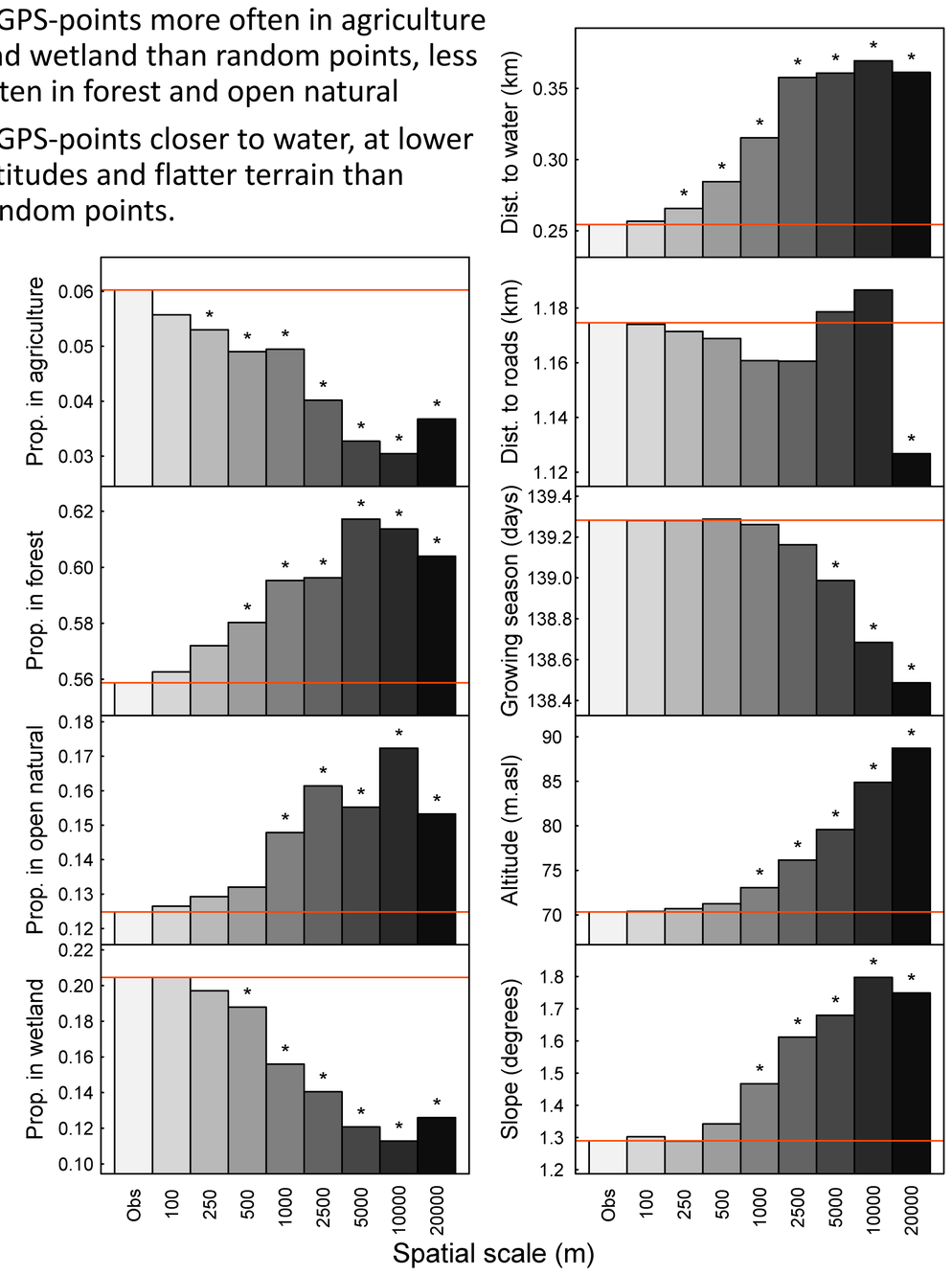

Fig. 2. Overall use of habitat types and landscape characteristics by raccoon dog in Sweden. "Obs" refers to GPS-locations, whereas the spatial scales are points (2 random points per GPS-location) randomly located within a given distance from the GPS-location. An asterisk indicates that the value at the specific spatial scale was significantly different from the values at the GPS-locations.

3 Differences between sexes

- Males and females were very similar in their habitat use both during dispersal and when they were settled
- Males and females differed in habitat use only for wetland areas
- **The lack of sex specific habitat use increases the probability of encountering potential mates during dispersal and therefore the likelihood for reproduction in new areas**

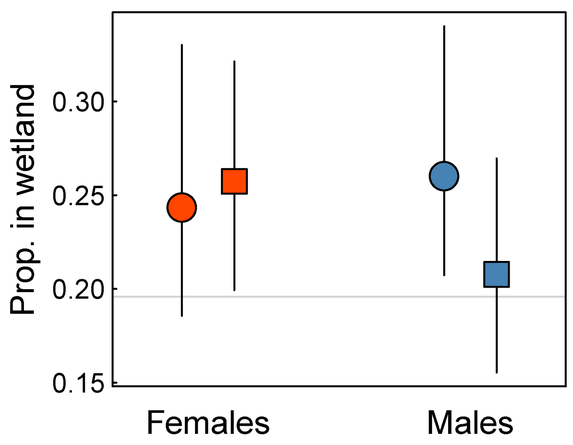

Fig. 3. Proportion of GPS locations in wetland for dispersing (circles) and settled (square) male and female raccoon dogs.

4a Differences in seasonal use of habitat types and landscape characteristics

- Large seasonal variation in habitat use: winter and spring were most different
- Seasonal differences in use of forest, wetland and altitudes depended on movement state
- During summer and autumn: raccoon dogs were less in forest, more in wetland, at higher altitudes and in areas with shorter growing seasons

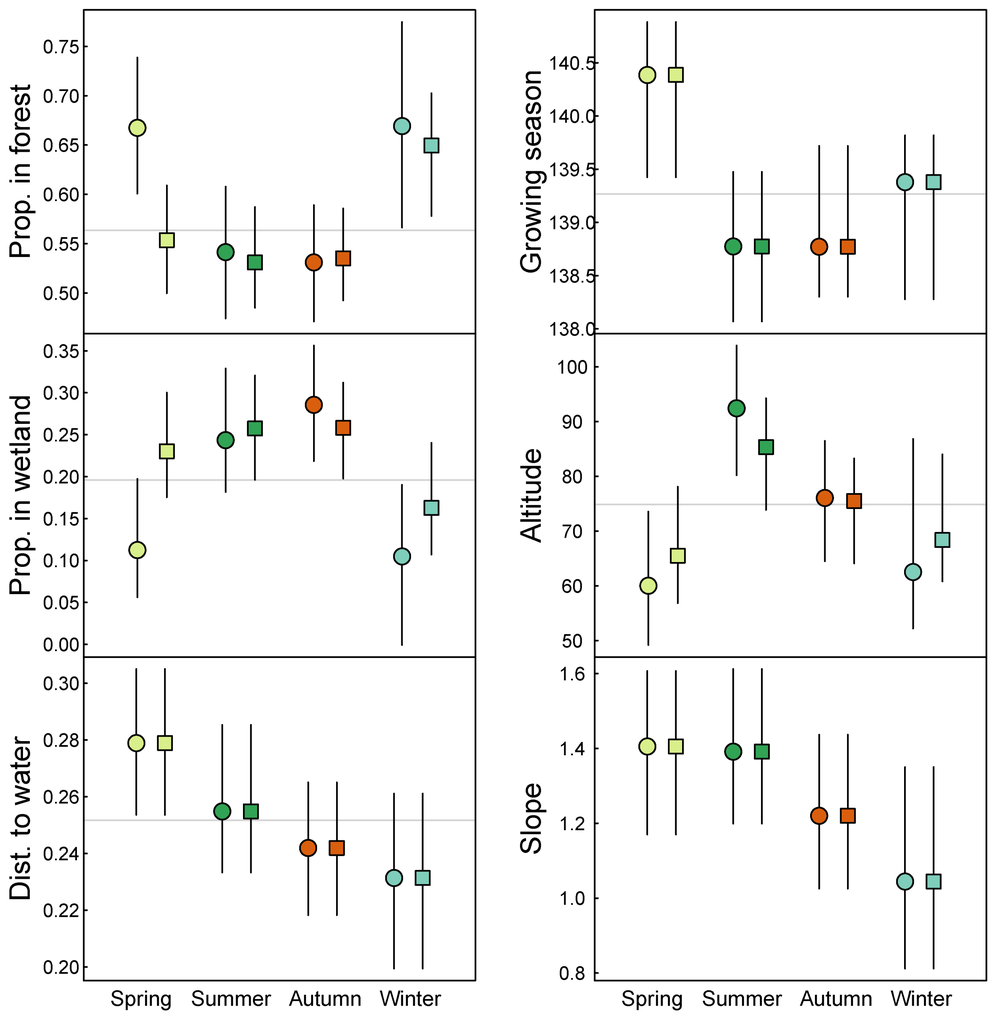

Fig. 4a. Differences in use of habitat types and landscape characteristics by raccoon dog between seasons and movement state (circles = dispersal state, squares = settled state). Bars indicate 95% credibility intervals based on 10000 mcmc simulations of the parameter estimates. The horizontal line show the overall use of the habitat type or landscape characteristics, independent of season or movement state.

4b Differences in use of habitat types and landscape characteristics in different daylight conditions

- Habitat use at night differed from that at twilight and during the day
- At night they used more agricultural areas, less wetland, they held closer to the road at night and in steeper terrain

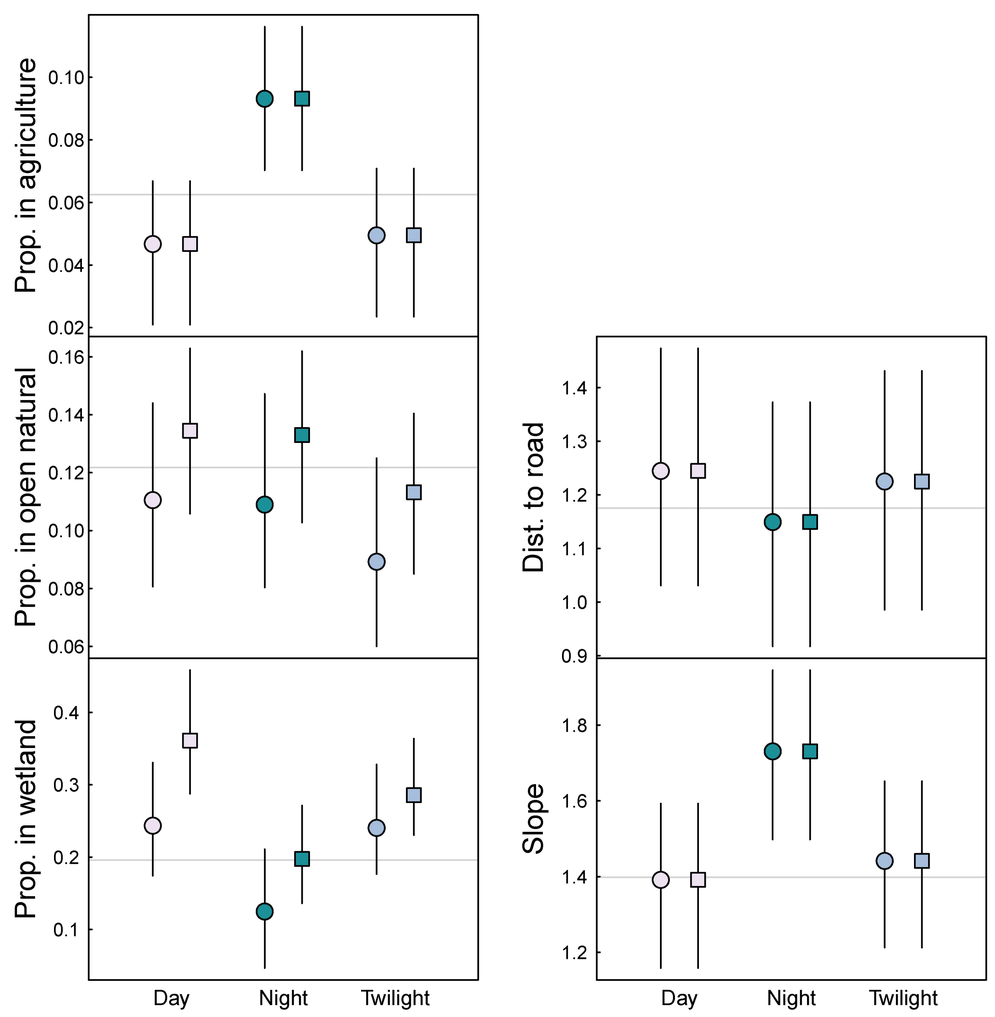

Fig 4b. Differences in use of habitat types and landscape characteristics by raccoon dog at different daylight conditions and movement state (circles = dispersal state, for more explanations see Fig. 4a.

Acknowledgements
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