

Oral presentation

How far is the female den?

Slaven Reljić^{1,2}, Goran Gužvica¹, Lidija Šver³, Gaja Hana Francky⁴, Laura Schulte⁵,
Ratko Popović⁶, Djuro Huber^{1,2}

¹*Oikon Ltd. - Institute for Applied Ecology, Zagreb, Croatia*

²*University of Zagreb Faculty of Veterinary Medicine, Zagreb, Croatia*

³*University of Zagreb Faculty of Food Technology and Biotechnology, Zagreb, Croatia*

⁴*Faculty of Veterinary Medicine, University of Ljubljana, Ljubljana, Slovenia*

⁵*Department of Behavioural Ecology, Bielefeld University, Bielefeld, Germany*

⁶*Croatian Forests Ltd., Zagreb, Croatia*

If you see a bear family with newborn cubs, the typical question is: How far away is their den? The answer is particularly important if new infrastructure (such as wind turbines) is planned in the area. The Environmental impact assessment is expected to determine the minimum safe construction exclusion zone. We know that bears tend to choose remote areas with no human influence, which are usually difficult to access and/or at higher altitudes. It is of utmost importance to preserve the brown bears' denning areas. In Croatia, the construction of wind farms in these areas has been rising in recent years.

In this study, we wanted to answer the question of how far a female bear, alone, with cubs of the year (COYs) or yearlings, moves away from the den in the moment of the observation (with an automatic camera or by a human). In this way, we can make the best possible estimate of the minimum distance at which the wind turbine can be built. We collected the telemetry data of 11 female brown bears tracked in Croatia in a period from 2010 to 2024. For each of the females, we have verified data on their reproductive status. We analyzed the GPS data for four standard seasons and compared the size (MCP 100%) of the females' seasonal ranges in terms of the presence or absence of COYs or yearlings. We also measured the greatest distance from the den to the edge of the range in certain seasons. The smallest home ranges and the smallest distance from the den occurred in spring after females had emerged from the den with cubs of the year, on average 6.5 km² and 3.9 km, respectively. The seasonal range size of females with COYs increased in summer (22 km²; 5.7 km) The largest range and the greatest distance from the den was in the autumn (females with COYs making excursions; 349 km² and 47 km, respectively). Excursions occurred mostly in September or October, except for one female who made it in the spring season. The length of the trips ranged from 10 to 38 km.