HOW MANY BEARS INTERACTING WITH HUMANS IN NW GREECE – A MONITORING SURVEY WITH CAMERA TRAPS

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In the course of the LIFE AMYBEAR (LIFE15NAT/GR/001108) project: "Improving Human-Bear Coexistence Conditions in Municipality of Amyntaio", we conducted a camera trapping study to determine and better understand the manifold factors influencing habitat choice and circadian actiivity of Brown Bear (Ursus Arctos) in relation to the human- bear interferences.

The project area, namely the municipality of Amyntaio, consists of many scarcely vegetated parts around the karst mountains that reach up to about 1200m that is part of the Northern Pindos mountain range. While the greatest area of interest are the forested areas in the North close to the village of Xino Nero at the boarder with the municpality of Florina. Here low human density and rich mixed oak forests are a strong reason for the occurrence of bears. On the other hand, there is an important highway network crossing the municipality and causing many fatalities of bears in car accidents.

This study aims to assist the implementation of management actions that limitate the negative interactions between bears and humans and help to enhance possible benefits of a safe coexistence by supporting management decisions through increased knowledge about bears behaviour and activity related to the human factor.

To analyse these patterns we spread 12 cameras across the study area in a grid (5km*5km) starting on 12th of July focussing on areas, most likely to play a cruical role in bears occurrence (forested areas) following a strict protocol. Camera traps have proven to be a cost efficient, representive, random, indirect, non-invasive way of collecting data enabling a large variety of statistical analyses.

The grid size was chosen for a small reference scale and represents the smallest homerange size of a female bear with cubs, so that every individual had the chance to be captured, while trying to avoid a big overlap of homeranges. Camera trap position inside each grid cell was chosen in order to achieve highest probability of detection when present, but also considering representative habitat structures. The cameras were rotating every month inside their own grid element until the beginning of December (4 rotations each cell). Time references for most cameras are as follows: 1. Period: 11.7 - 23.8, 2. Period: 23.8 – 29.09, 3. Period: 29.9 – 01.11, 4. Period: 01.11 – 04.12.

That gives a total of 516 trapping nights for the first, 403 for the second , 363 for the third and 330 for the fourth rotation, resulting in more than 53 bear events in the second period, and 33 events in the third period, where a "bear event" is considered as one or more individuals being captured on different frames in a period of max. 15 minutes. The other rotation periods have yet to be analysed.

The existing data allows a large variety of statistical analyses. We plan to conduct an occupancy modelling combining bear presence- absence data with fine scale habitat composition. Possible covariates may include: distance to closest human infrastructure (settlements, roads), distance to water stream, distance to forest edge, temperature, rainfall, elevation, food sources, distance to forest, land cover.

We expect to see a very ambilastic role of humans influencing bear activity patterns and behaviour. The bears are likely to show a great plasticity adapting to seasonal food availability related to the forest ecosystems productiviy and the human factor. Therefore we predict that bears will be more nocturnal where human activity is high and will be most active in late summer and fall (hyperphagia) trying to avoid human disturbance. During summer most bears will be found in close proximity to human related habitat, because of the availability of human grown food ressources. Whereas during fall bears are not dependent on anthropogenic habitat because of the high availability of hard mast and will avoid proximity of humans.

Bears prefer habitat with easy accessible food sources given that enough cover is available and will therefore use orchids and plantations (anthropogenic habitat) at forest edges.