

## POSTER PRESENTATION

### **DISCOVERY OF INTER-SEXUAL AND INTER-SEASONAL DIFFERENCES IN THE CHEMICAL SIGNALLING STRATEGIES OF BROWN BEARS**

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The brown bear (*Ursus arctos*) is a species which, due to its solitary, dominance hierarchy social system and large home range, is thought to rely heavily on chemical signals as a means of communication. Through camera traps orientated towards bear 'rub trees' over a two-year period, we assessed the proportional contribution of scent marking in different seasons by different age sex classes, and gained insights into the role of chemical signalling in maintaining social structure.

We found, during the breeding season (June-July), that both adult males (n=38  $p<0.001$ ) and females with cubs >1 year (n=11  $p=0.003$ ) scent marked trees significantly more often than expected, whereas lone adult females (n=7) and subadults (n=3) marked less than expected. Outside of the breeding season (August-October), adult males (n=70) marked in an expected proportion, females with cubs (all ages) marked significantly more than expected (n=71  $p<0.001$ ), and lone adult females (n=11) and subadults (n=15) marked less than expected. During both the breeding season (n=7  $p=0.026$ ) and the fall (n=11  $p<0.001$ ), adult females marked trees significantly less than their occurrence on bear trails would expect, as did subadults during the breeding season (n=3  $p=0.026$ ) but not during the fall (n=15).

Adult males marked at significantly high frequencies both during and outside of the breeding season, potentially to communicate dominance between males; supported by the low frequency of scent marking by subadults. We observed a total avoidance of bear trails containing active rub trees by females with cubs <1 year during the breeding season, a possible counterstrategy to sexually selected infanticide due to the strong male bias in scent marking during the breeding season. We hypothesize that scent marking in brown bears is taught by the mother, beginning with cubs <1 year outside of the breeding season at a relatively 'safe' time of year.