34 High abundance of an introduced prey species, fallow deer *Dama dama*, abolishes wolf preference towards red deer

Małgorzata Witek (1), Adrian Zwolicki (1), Zuzanna Wikar (1), Monika Gehrke (1), Sylwia Stapel (1), Anna Szczepanek (1), Andżelika Haidt (2), Karolina Lubińska (3), Robert W. Mysłajek (4), Sabina Nowak (4), and Maciej Szewczyk)1)

(1) University of Gdańsk, Poland
(2) Forest Research Institute, Poland
(3) Bory Tucholskie National Park, Poland
(4) University of Warsaw, Poland

The gray wolf (*Canis lupus*) is dynamically recolonizing western Poland. One of such recently recolonized areas is Tuchola Forest, a large forest characterized by high density of an artificially introduced, medium-sized ungulate species, fallow deer *(Dama dama*). We investigated how fallow deer density affects diet composition and prey preference patterns of the local wolf population. Across the study area he niche breadth B (Levins index) of the wolf diet was very narrow (mean 1.21) indicating clear specialisation on a single food category – wild ungulates, which constituted 91% of the consumed biomass. However, inter-pack diet variety was relatively high (B range 1.00 -1.67 for the 13 analyzed wolf family groups), reflecting significant share of beaver (up to 19%) and anthropogenic food (mostly domestic dog; up to 12%) in the diet of some packs. Fallow deer was in general the preferred wolf prey. In regions of its highest density, fallow deer constituted ca. 35-40% of ungulate biomass consumed by wolves. Unsurprisingly, the share of other ungulates in the wolf diet decreased with the increase of fallow deer in the ungulates community. However, the size of this effect differed between the prey species: while the biomass of consumed roe deer (*Capreolus capreolus*) decreased only slightly, which may result from specialization towards the smaller size of the prey of wolves recolonizing new areas, the decrease of red deer (*Cervus elaphus*) consumption was significant. Concordantly, the Jacobs' D selectivity index indicated that red deer was avoided by wolves in the high fallow deer density zone, while when fallow deer was absent or present at very low density, red deer was the preferred prey species, similarly as in the other wolf diet studies from central Europe. Thus, it indicates that the introduction of fallow deer significantly alters the grey wolf's dietary preferences and may affect the gray wolf – red deer ecological relationship. Interestingly, wolves in high fallow deer abundance zone consumed better quality food than the wolves in other packs, which may indicate the presence of easier prey, such as the fallow deer, results in decreasedneed to feed on less indigestible material like bones.

WOLVES ACROSS BORDERS

International Conference on Wolf Ecology and Management

DJURÖNÄSET HOTEL & CONFERENCE CENTER

MAY 8-11, 2023 | STOCKHOLM, SWEDEN

www.wolvesacrossborders.com