

POTENTIAL IMPACT OF WOLVES *Canis lupus* ON PREY POPULATIONS IN EASTERN POLAND

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Abstract

A 7000 km² study area in eastern Poland supported c.50 wolves *Canis lupus* in 1989 and 40 in 1992, and high numbers of game constituting the staple food of these predators. This paper assesses the energetic requirements of the wolf population as well as potential resources of its preferred prey. On the basis of basal metabolism rate (BMR) and daily food consumption (DFC), we calculate that an average wolf (35 kg) needs 13 421 kJ daily, which corresponds to 1.74 kg of prey biomass. Calculations based on field metabolism rate (FMR2-for non-herbivorous mammals) yielded a 60% higher value, i.e. 2.77 kg of meat per day. The yearly requirements of the study population, using these two methods, ranged from 242 GJ (40 individuals, BMR and DFC) to 389 GJ (50 individuals, FMR2), i.e. 31.5–51.0 tonnes of meat and edible tissues. Wolves preyed chiefly on red deer *Cervus elaphus* and roe deer *Capreolus capreolus* (70–85% of the total biomass consumed), wild boar *Sus scrofa*, hare *Lepus europaeus*, moose *Alces alces* and small rodents. The total biomass of wolf prey, censused from snow tracking and year-long observations, and corrected from drive censuses, was assessed at 879–943 tonnes. These data suggest that wolves remove no more than 10% (6.3–9.0%) of the total available biomass of ungulates which may not seriously affect resources of local game owners. © 1997 Elsevier Science Ltd. All rights reserved

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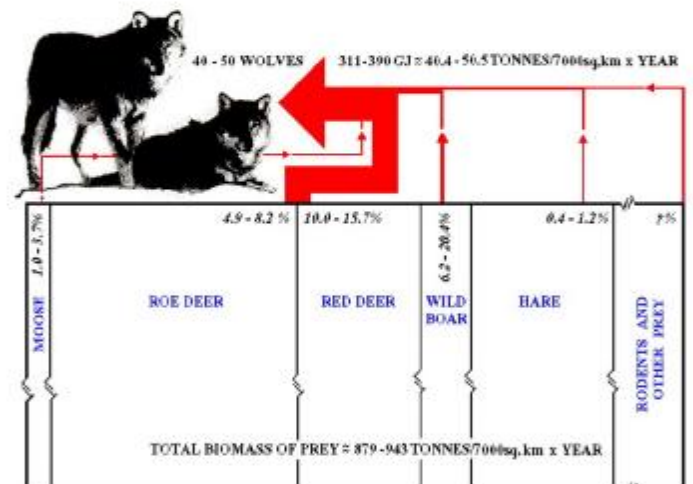


Fig. 2. Estimated edible biomass and energy consumption (C) of the wolf population in the study area. Areas of rectangles 1-5 indicate the share of particular species in the total biomass of wolf prey-average value for 1989 and 1992. Percent values refer to uptake of biomass of different kinds of prey, including inedible parts of body.