

Depredation levels caused by wolves in livestock farms in Mt. Oiti National Park- Central Greece



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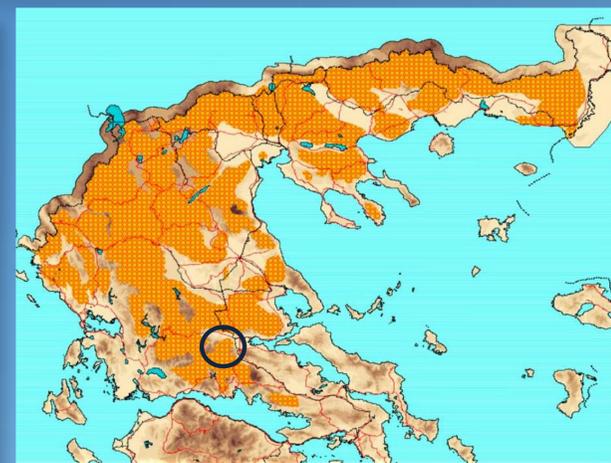
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INTRODUCTION: Wolves in Greece have expanded their distribution the last 20 years in Central Greece, reaching areas where the species was formerly rare since 60's (Iliopoulos, 2009). As a result several conflicts arise with free ranging livestock farmers apart from increased social tension.

In **Oiti National Park**, wolves (92/43 habitats directive- annexes II, IV) have been successfully reproduced again, since late 90's.

AIMS OF THIS PRELIMINARY STUDY: To access levels of wolf-livestock conflicts in all farms inside Oiti N.P during summer of 2012, as well as husbandry methods enforced to reduce losses.

STUDY AREA: Oiti N.P (250 km²) has an altitudinal range of 600 to 2200m and is dominated by fir forests and extensive alpine and sub-alpine grasslands. Livestock farming is consisted by **transhumance** free-raising flocks grazing from May to late October. 6733 sheep, 2068 goat, 472 cattle and 165 calves graze inside the park.



Wolf distribution in Greece. Map by Y. Iliopoulos, 2012



METHODS

We interviewed 36 livestock units (**39 livestock flocks**) grazing inside the park, using a detailed standardized questionnaire to collect information considering: 1) type of farming, 2) livestock number per species/unit, 3) number, origin and quality of livestock guarding dogs, 4) number of workers involved in livestock guarding, 5) use of predator-proof fences, 6) number of depredation events per year (2010-2012), animal losses/event, and 7) levels of compensation paid per farmer/year.

All interviews were contacted in livestock husbandry areas, in the field, as to directly evaluate morphology and behavior of livestock guarding dogs, assessing their attentiveness, protectiveness & aggressiveness to intruders.

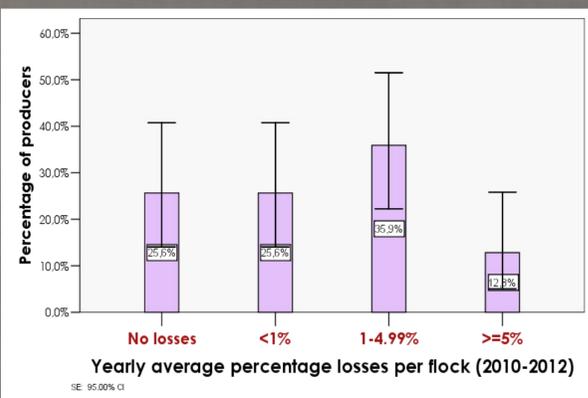
Level of flock attendance per flock was classified in 3 classes according to number of workers involved and time spend with flock per day

Overall quality of livestock dogs was classified in 4 classes after assessing their morphological and behavioral traits.

Wolf current presence and distribution was positively verified with a network of camera traps uniformly spaced in the park, been active for 40 days. A minimum number of 7 wolves was estimated to occupy the park (1-2 packs).

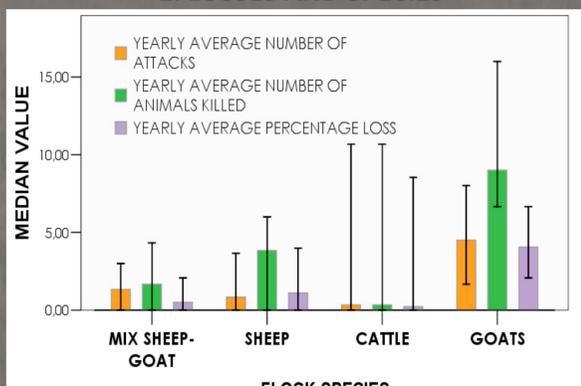
MAIN RESULTS

1. LOSS LEVELS



Livestock units experienced 2.62 attacks (range 0-20) and 5.4 animal losses (range 0-40) in average per year. Animal losses/attack averaged **2.93** (range 1-18). The **1-5% yearly average loss** class per flock predominates.

2. LOSSES AND SPECIES



Pure goat flocks suffered more losses than other type livestock flocks. (χ^2 Kruskal Wallis test = 8.29, $p=0.040$, $v = 39$, $d.f = 3$)

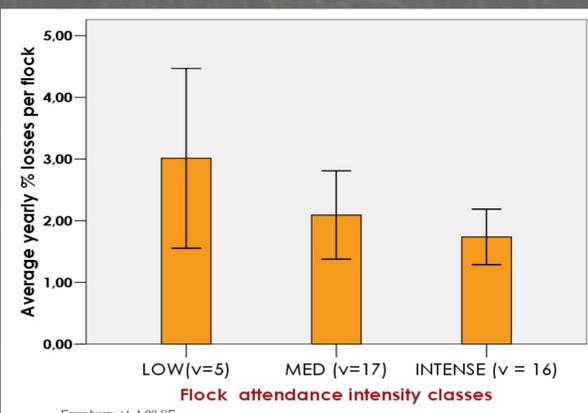
3. LOSSES AND FENCING/LIVESTOCK RESTRICTION



Only 10 out of 41 fences examined (**24%**) were **predator proof**, but farmers counterbalanced poor quality by spending the night with their flock aided by shepherd dogs. Damages to sheep/goat flocks inside fences was rare.

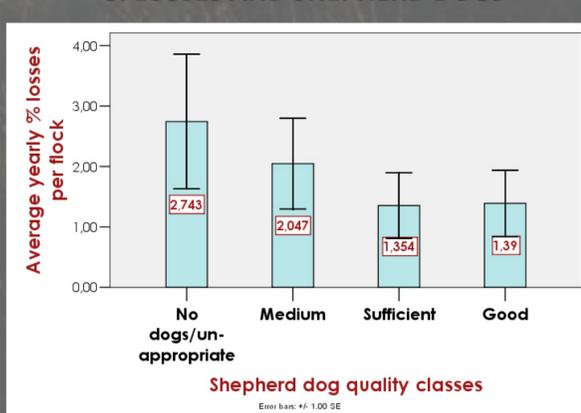
In the contrary all six cattle farmers experienced **high calf losses** in the past or present when they do not restrict young calves inside fences during the night. Those who enforced the method ($n=3$) stopped losing cattle to wolves but needed **extra personnel** to attend and handle cows and calves during specific hours of the day.

4. LOSSES AND FLOCK ATTENDANCE



A **negative trend** was recorded between **attendance intensity** during grazing and **yearly average % losses**. In average 1.2 unit decrease was observed between low and high intensity attendance classes.

5. LOSSES AND SHEPHERD DOGS



A **negative trend** was recorded between **quality of dogs** and **yearly average % losses**. In average 1.3 unit decrease was observed between "low/no dog" class and "sufficient/good" dog quality classes.

6. SHEPHERD DOG USE & other info



Average number of shepherd dogs per 100 sheep/goats was **1.7 dogs** (range 0-5.3, $SD = 1.17$, $v = 32$). Average number of good quality dogs per 100 head was **only 0.54 dogs** (range 0-4.3, $SD = 0.83$, $v = 39$).

Good quality shepherd dogs **killed occasionally wolf pups** and **brown bear cubs** in the park.

50% of farmers ($n=36$) experienced **poisoning of their dogs** the last 5 years, with losses per incident ranging from 1-5 dogs.