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## Introduction

## Objectives and data collected

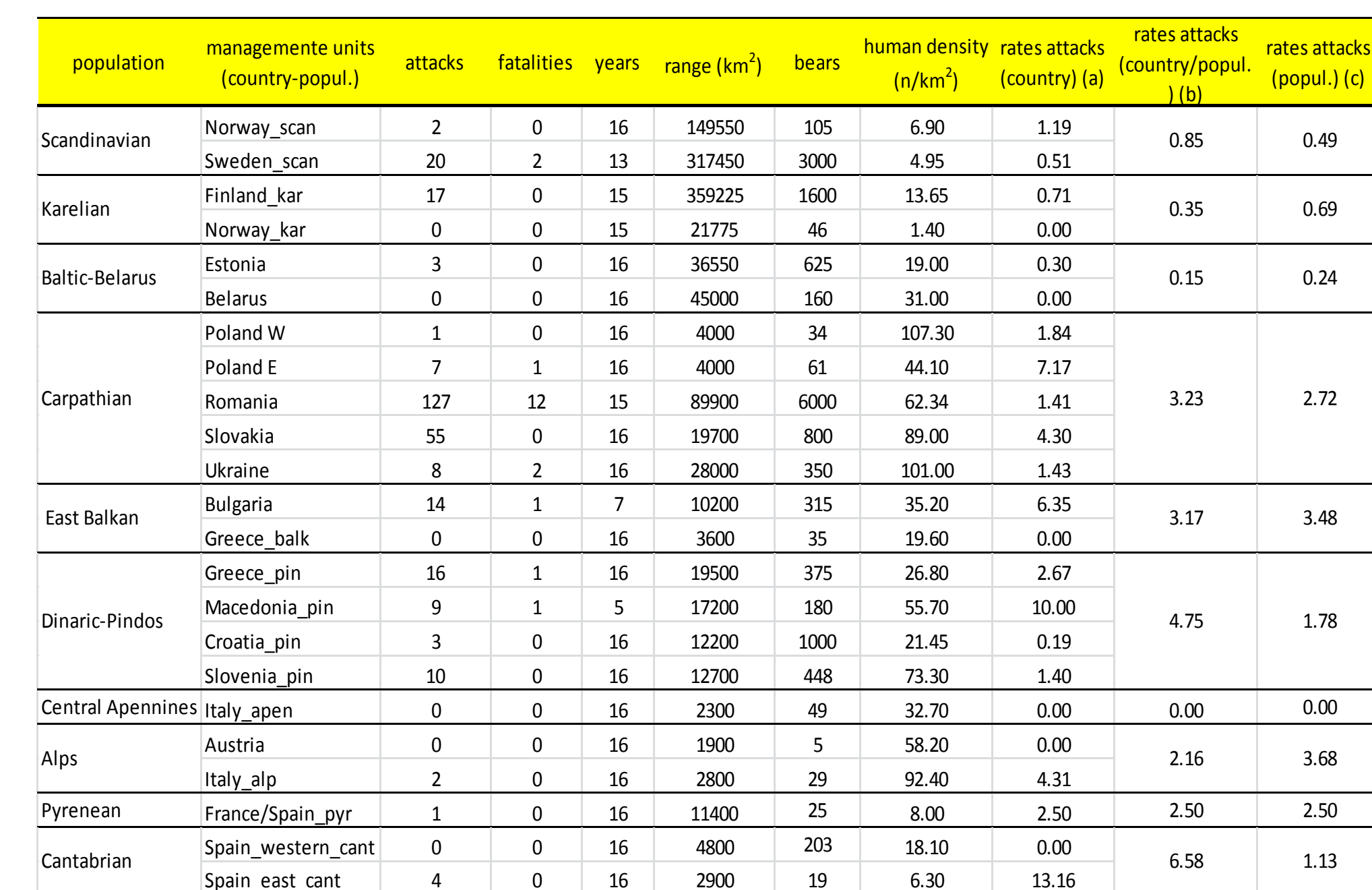
To date, we have collected 54 attacks in North America (22 fatalities); 107 attacks in Russian Federation (comprising the European area; 43 fatalities) and 299 attacks in European countries (west of Russian Federation; 20 fatalities). We have also collected some anecdotal observations in Afghanistan, Albania, Iraq and Pakistan.

## Analyses of European data

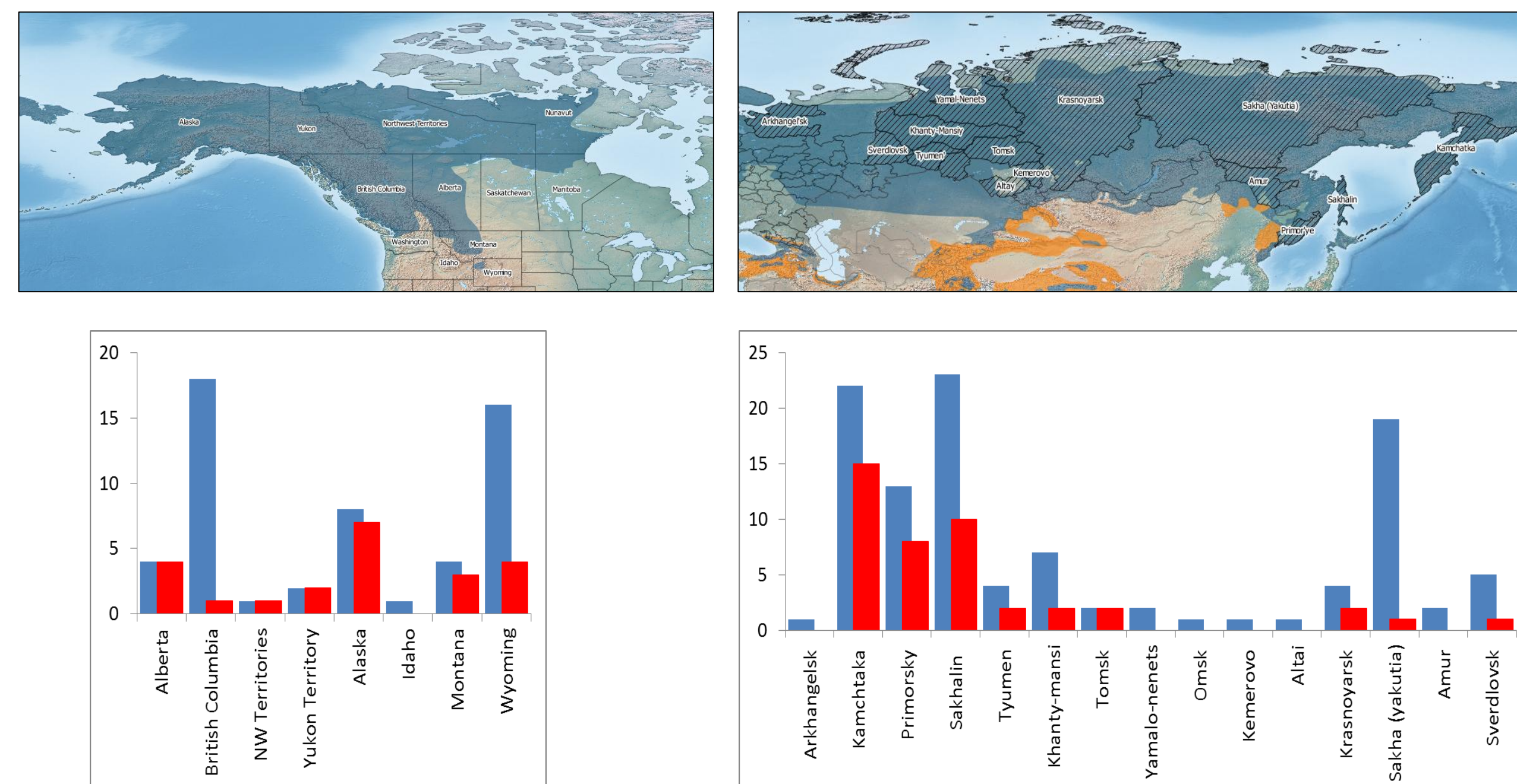
We did analyze the relationships of number of attacks with the size of the bear population (3) and human density (5) in each country-population. We found that the best model included only the number of bears (see note). Nevertheless, the relation with the number of attacks was weak ( $p = 0.04$  of the variable coefficient in the function), suggestion that other factors are probably playing stronger roles.

## Perspectives

To fulfill data bases of brown bear attacks on humans, especially in North America and in Asia, and analyze different factors related to the attacks, e.g. bears' behaviors and human activities. Thereafter, we would compare our results among populations worldwide.



Brown bears attacks on humans in Europe (west of the Russian Federation), per country and bear population (2000-2015 period; data for the whole period is not available for all countries). Fatalities are number of killed people in bear attacks. (a) Rates attacks (country): attacks  $\bullet$  100 bears<sup>-1</sup>  $\bullet$  10 years<sup>-1</sup>, in a country in a given population. (b) Rates attacks (country/population): in a given population measured as the average rate-attacks (country). (c) Rates attacks (population): attacks  $\bullet$  100 bears<sup>-1</sup>  $\bullet$  10 years<sup>-1</sup>, in each population



Brown bears attacks on humans in the federal territories of Russian Federation (2000-2015 period). Red bars: Fatalities (number of killed people in bear attacks). Geographic context (surface) and number of years with data during the study period is currently imprecise in some cases.

## References

- (1) Penteriani, V. et al. 2016. Human behaviour can trigger large carnivore attacks in developed countries. *Scientific Rep.*, 6.
- (2) McLellan, B. et al. (IUCN SSC Bear Specialist Group). 2008. *Ursus arctos*. The IUCN Red List of Threatened Species 2008: e.T4168BA10513490. Downloaded on 06 June 2016.
- (3) Chapron, L. et al. 2014. Recovery of large carnivores in Europe's modern human-dominated landscapes. *Science*, 1517.
- (4) Swenson, J.E., et al. 1996. Er den skandinaviske bjørnen farlig? [Is the Scandinavian brown bear dangerous?]. - NINA Oppdragsmelding 404: 1-2
- (5) CIESIN (2005). Center for International Earth Science Information Network . Columbia University, and Centro Internacional de Agricultura Tropical - CIAT. 2005. Gridded Population of the World, Version 3 (GPWv3): Population density grid. *Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC)*.
- (6) Artele, K. A., et al. 2016. Ecology of conflict: marine food supply affects human-wildlife interactions on land. *Scientific Rep.*, 6.

