PRELIMINARY RESULTS

Winds of Change: Renewable Energy and its Impacts on Wolves

Leticia Duarte[1], Samu Mäntyniemi[2], Jon Brommer[1], Toni Laaksonen[1]

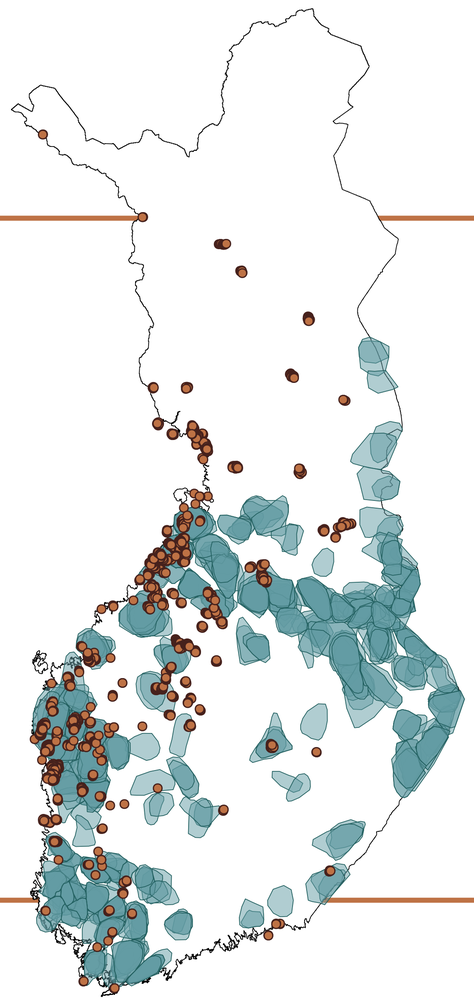
[1]Department of Biology, University of Turku, Finland
[2]Natural Resources Institute Finland

Background

In Finland, the construction of wind farms is at an unprecedented rate. There is still little knowledge about the effects of wind farms on wildlife. Finland's wolf population was at their lowest during the late 19th century, but it has been growing at approximately 10% annually since 2017.

Aim

Investigate the potential shifts in wolf territory dynamics, and assess their correlation with wind energy development.



Wolf Territories (2017-2024)
State 1: Unoccupied
State 2: Occupied by Pair
State 3: Occupied by Pack

Wind Turbines (1995-2025)

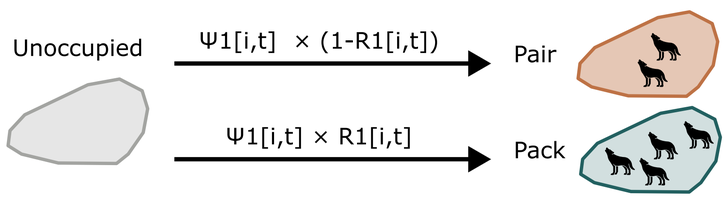
Wind Turbine Exposure:
$\sum exp(-\lambda.distance)$, $\lambda = 0.15$

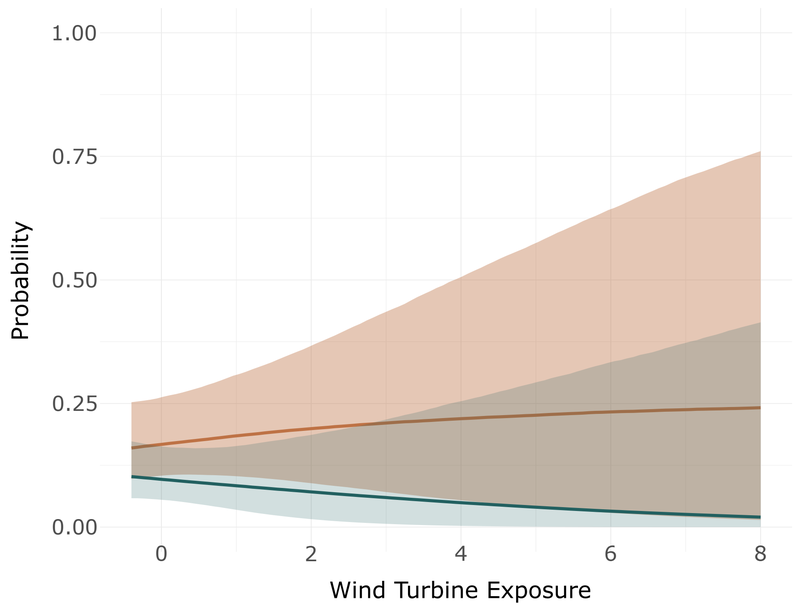
Bayesian Dynamic Multistate Occupancy Model

For each origin state, territory i, and year t, transition probabilities were modeled using **logistic regression**, assuming perfect detection.

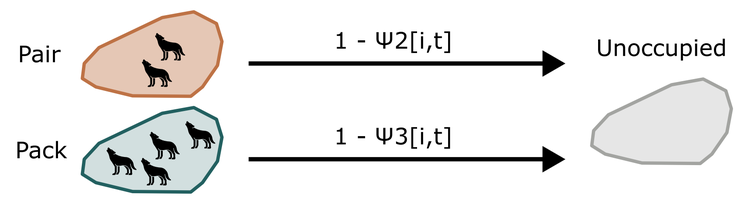
Ψ represents the probability that a territory becomes or stays occupied, and **R** the probability that, within that scenario, it is occupied by a pack.

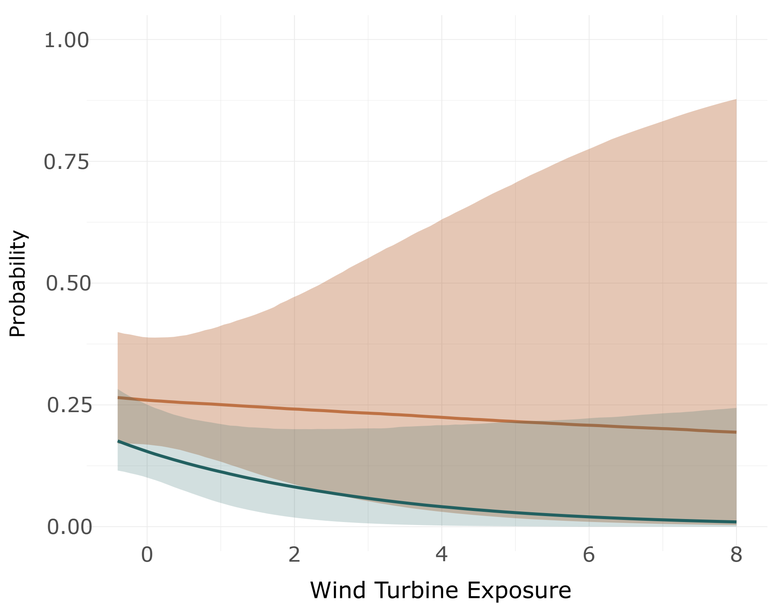
Colonization Probability





Extinction Probability





Take-Home Messages

- Wolf packs are highly stable once established
- Colonization usually begins with a pair
- Further analyses are needed to better understand how wind and other factors influence wolf territory dynamics

No clear evidence of wind energy development effect on wolf territories

Follow the progress of my research!

@letiduarte.bsky.social
@leticia-f-duarte

Check out my awesome team!

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