How does moose-density change with forest density and forest category

Erik Lund-Tønnesen, Tonje Sætre Olsen, Eline Taule Stava and Ragnhild Svensen Stokka

BIO300A_15

Background

We humans are constantly **increasing our land use** and expanding our activities. This will affect wildlife such as **big mammals**, who are forced to find new homes.

Norway has a long **history of forestry**, and it has become one of the main industries despite the **wish to protect** the big mammals that live in the forests. These mammals inhabiting the forests have long been **overlooked due to the profitability** of the forest industry.

Mehlhoop et al. (2022) categorized five forest categories based on age and production level in regard to forestry: Low-productive old forest, high-productive old forest, unproductive forest, low-productive young forest, and high-productive young forest. High and low productive forest produce respectively ≥ 1 m^3 and ≤ 1 m^3 wood per ha per year.

Hypothesis:

1. Low-productive young-forest has higher moose density
2. Higher moose density at medium tree density, due to the mix between food availability and protection

Material and Methods

- ❖ Source of dataset
  - ❖ Mehlhopp et al. (2022), National Forest Inventory
  - ❖ Data from last 3 three collection periods (9th, 10th, 11th)
    - ❖ (3x3) km grids, below coniferous line
    - ❖ (3x9) km grids, above coniferous line

- ❖ Method of analysis
  - ❖ Analysed largest of four datasets
    - ❖ Figure 1 – boxplot
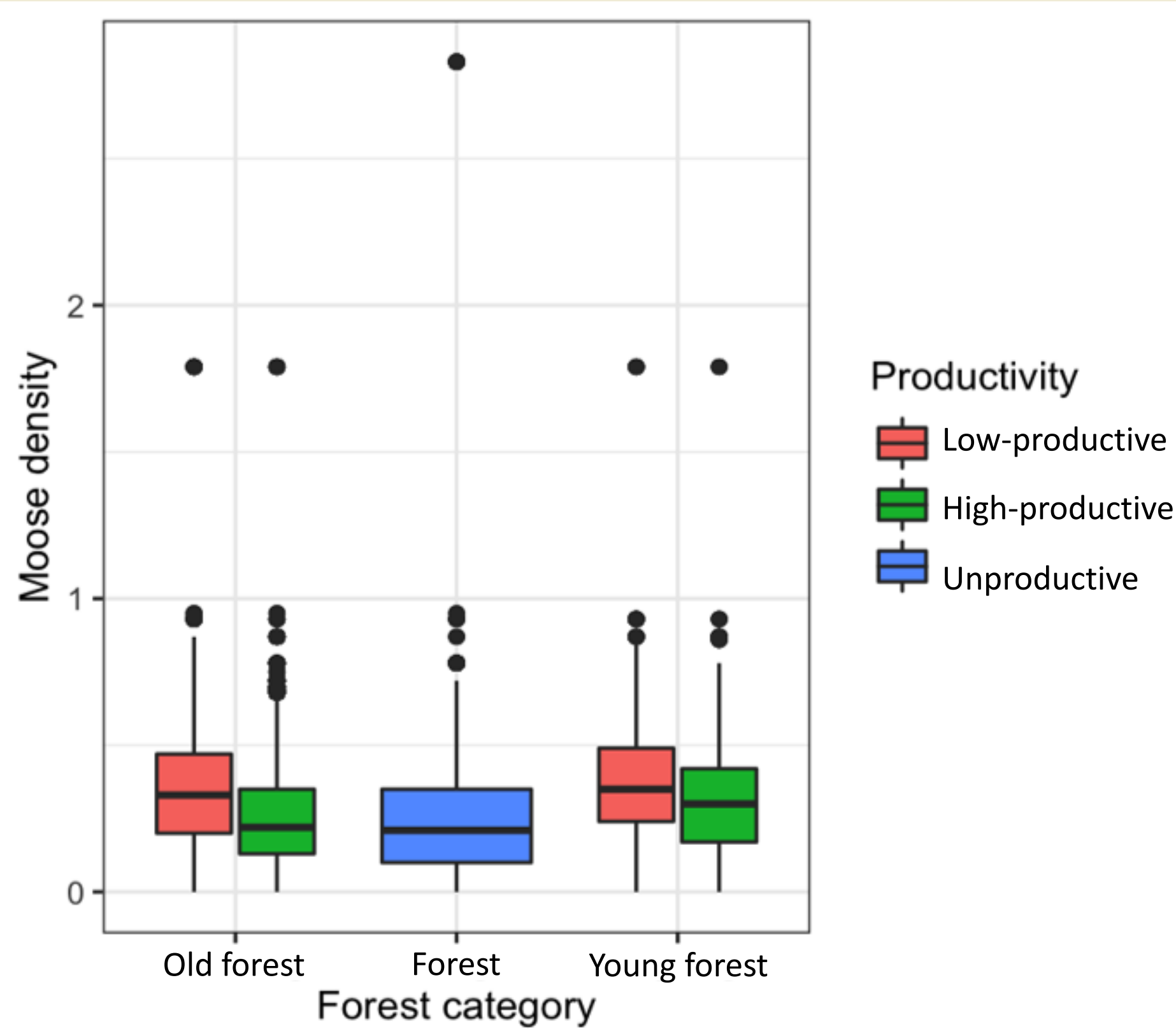   - ❖ Figure 2 – scatterplot

Results

Figure 1: Shows a boxplot of the moose density for different forest types and forest productivities.
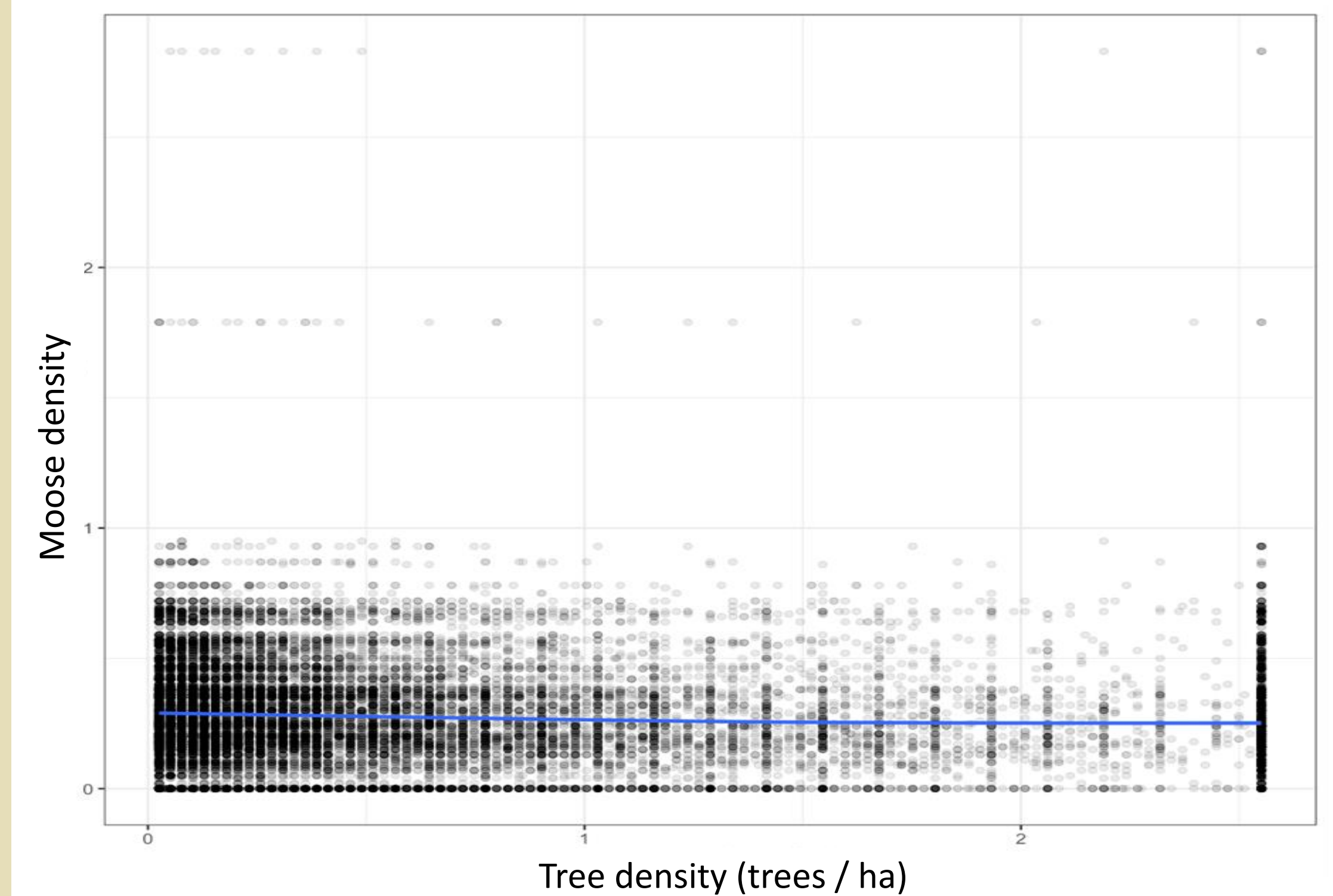

Figure 2: Shows the moose density compared with the tree density. The blue line is the regression line for all the datapoints.

Conclusion

Both the five forest types and tree density showed no significant difference in moose density. This could indicate that other factors, - such as tree type and distance to roads and human activities as found in another study- are more important for their choice of habitat.

References:
Mehlhoop, A.C. et al. (2022). Moose in our neighborhood: Does perceived hunting risk have cascading effects on tree performance in vicinity of roads and houses? *Ecology and Evolution*, *12*(4). https://doi.org/10.1002/ece3.8795