

# Biodiversity loss in OECD countries: exploring potential correlations

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## Background

The aim of this research is to visualize biodiversity loss in OECD countries and run an exploratory OLS regression to see if there are any preliminary correlations between loss in biodiversity and population growth, material consumption, land loss, greenhouse gas (GHG) emissions, and income inequality.

## Data & Methodology

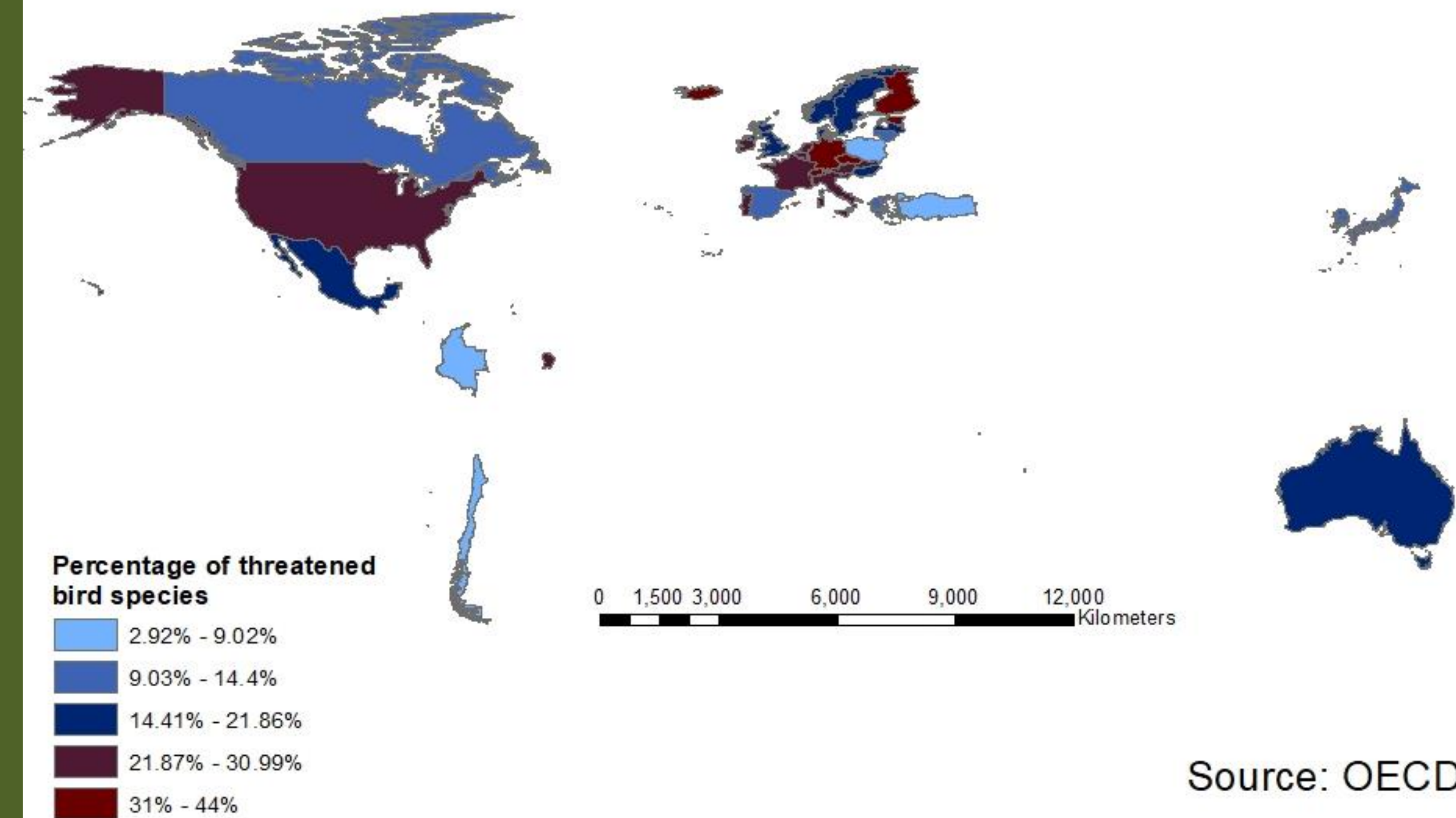
Data were sourced from the OECD, mostly averaged for the period of 1990-2015, except population growth that was averaged for 1960-2015. There are missing data for some countries for the beginning of the period.

Choropleth maps were used to visualize biodiversity loss. Three Ordinary Least Squares (OLS) regressions were run for loss of bird, mammal, and plant species. Explanatory variables were population growth, material consumption, land loss, GHG emissions, and income inequality (GINI coefficient).

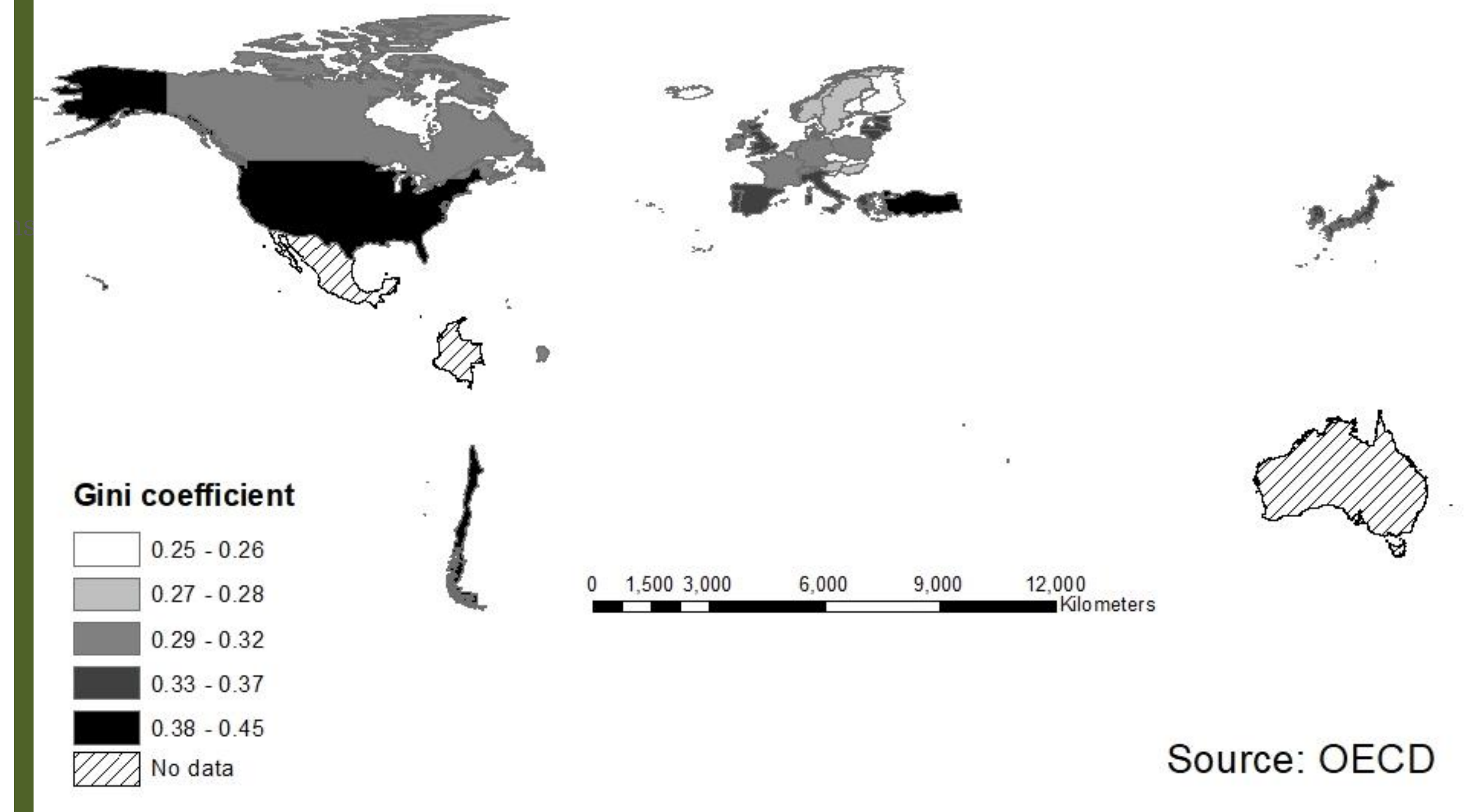
## Maps

Map 1, 2, and 3 show the percentage of threatened bird, plant, and mammal species, respectively, in 2015. Map 4 shows income inequality using a GINI coefficient data for 2015. Out of all explanatory variables only income inequality map was shown, since it was the only variable with statistically significant robust probability.

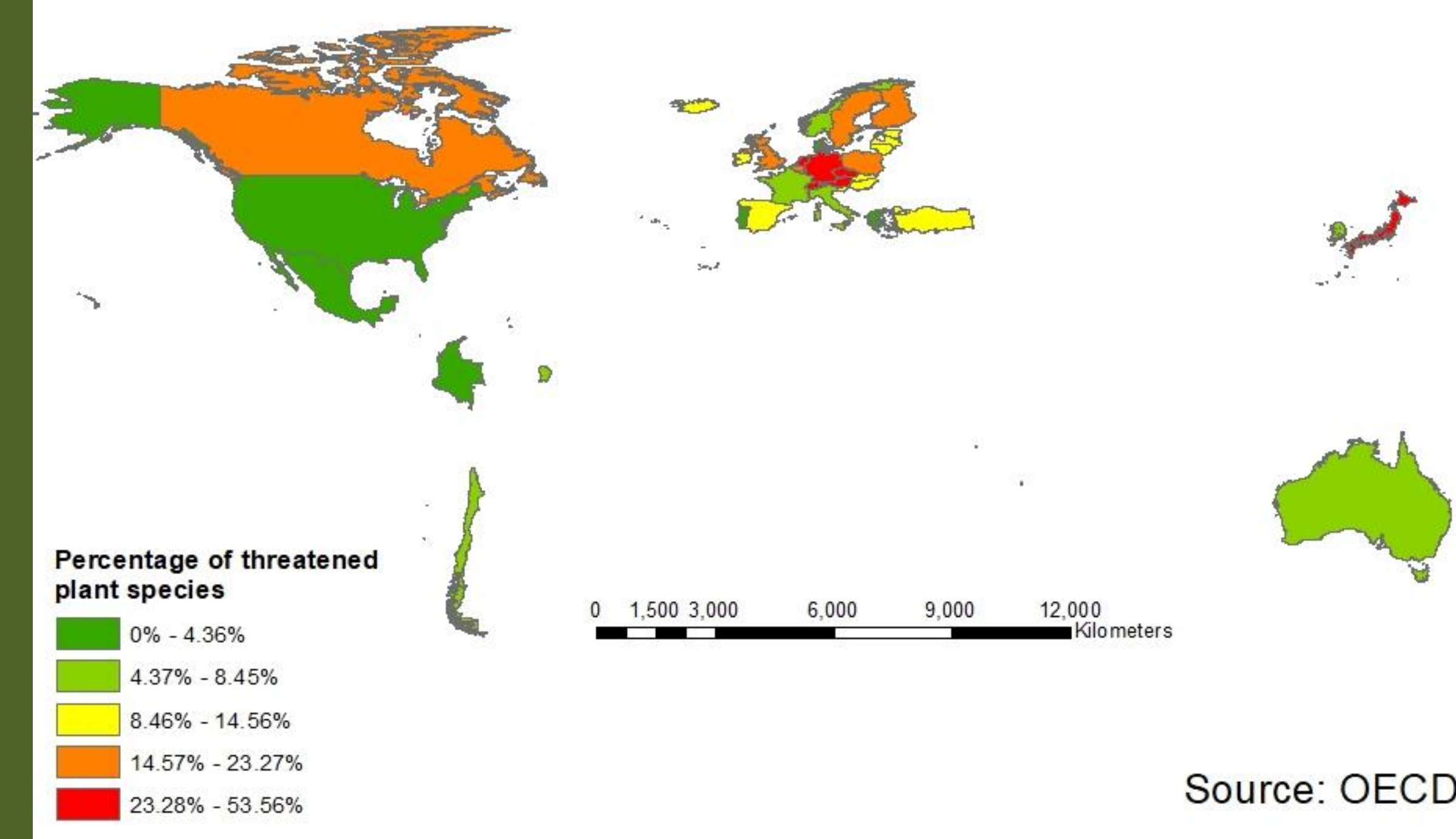
**Map 1:  
Loss of bird species (2015)**



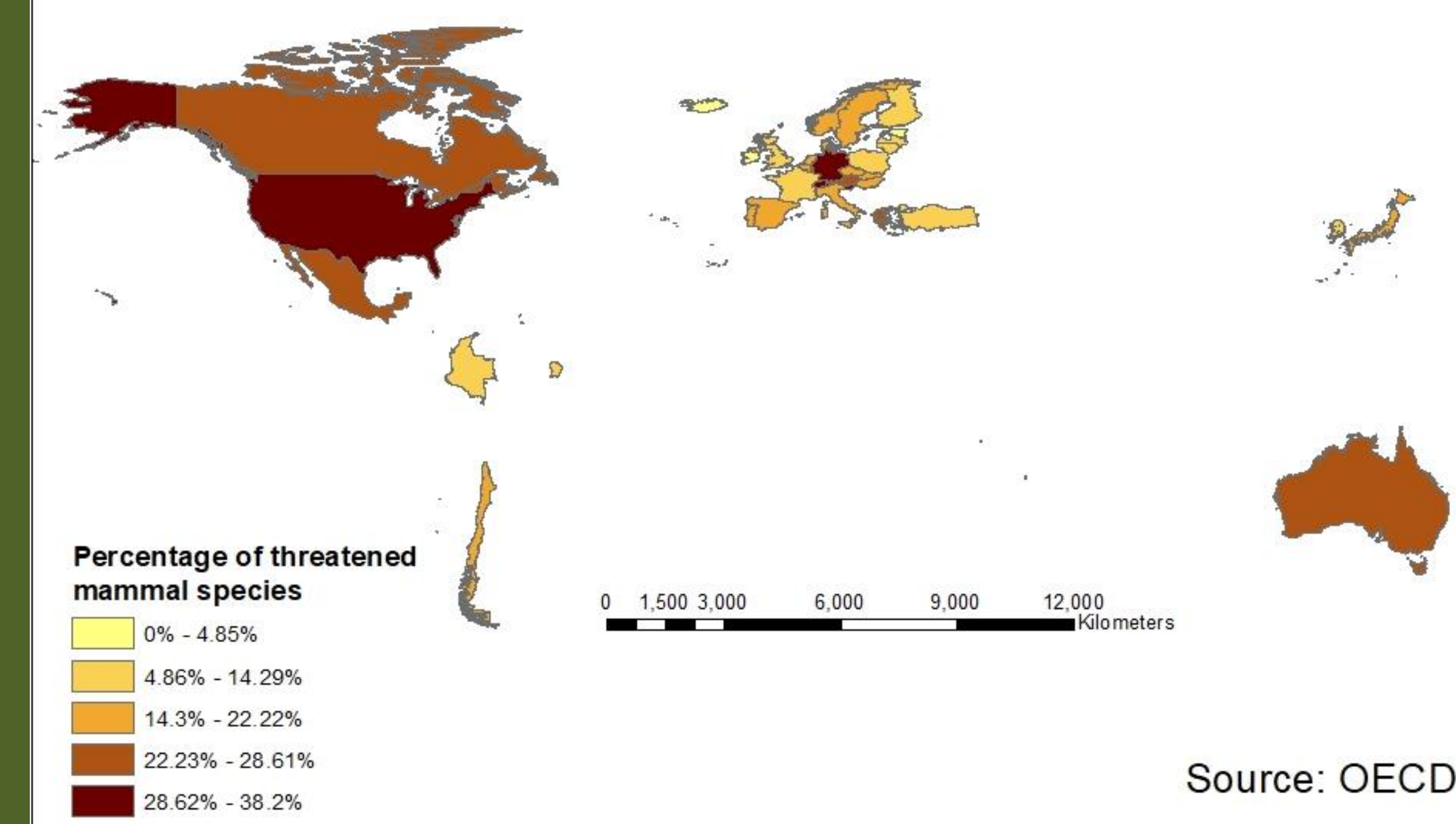
**Map 4:  
Income inequality in OECD countries (2015)**



**Map 2:  
Loss of plant species (2015)**



**Map 3:  
Loss of mammal species (2015)**



## OLS results

Variable	Robust_t	Robust_Pr [b]
Intercept	3.180763	0.003779*
MAT.CONSUM	1.156556	0.257971
LANDLOSS	-0.390461	0.699375
POP.GROWTH	-1.658612	0.109209
GINI	-2.174883	0.038923*
GHG	1.203000	0.239817

## Results

GINI coefficient seems to be a significant variable in a regression with birds' loss as the Y, while none other variables or coefficients are. Significant joint F-statistic suggests multicollinearity. Germany has the highest biodiversity loss in all categories. US is among the lowest in plants' loss, while among the highest in birds' loss and second highest in mammals' loss. Canada is among second highest in plants' and mammals, loss but lowest in birds' loss.

## Recommendations

1. Explore why Germany is in the highest percentage bracket in all categories of biodiversity loss.
2. Explore why the US and Canada have contrasting tendencies.
3. Get data for as many countries as possible to ensure an even representation for different income and inequality levels.
4. Get biodiversity loss data for 1990 to run another regression to explain the change in 1990-2015 with the changes in other variables for the same period.