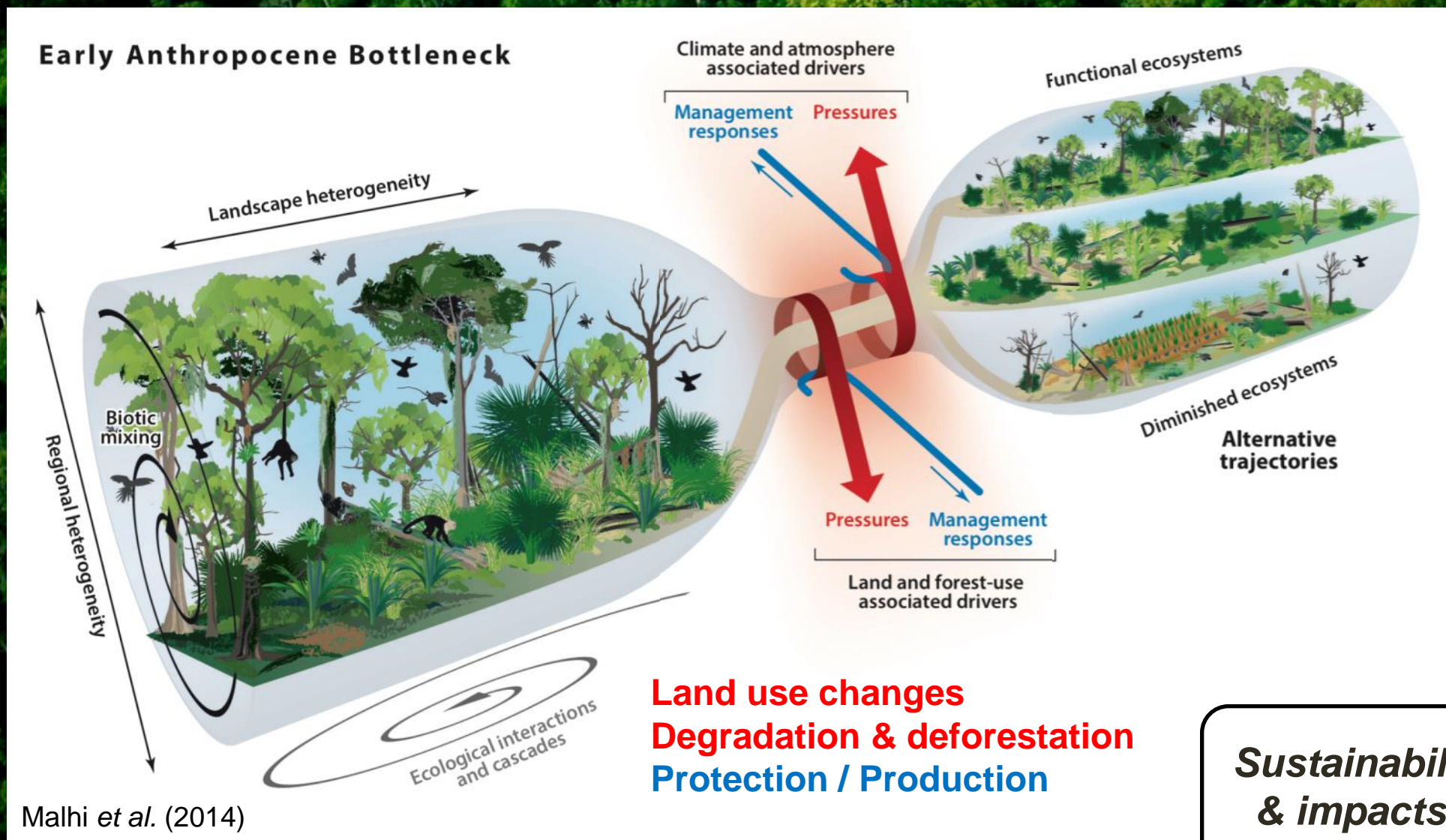


# Conservation value of tropical forests allocated to protection and production in Cameroon

LHOEST SIMON, FONTEYN DAVY, DAÏNOU KASSO, DELBEKE LAETITIA, DOUCET JEAN-LOUIS, DUFRÊNE MARC, LIGOT GAUTHIER, VERHEGGEN FRANÇOIS, VERMEULEN CÉDRIC, FAYOLLE ADELINE

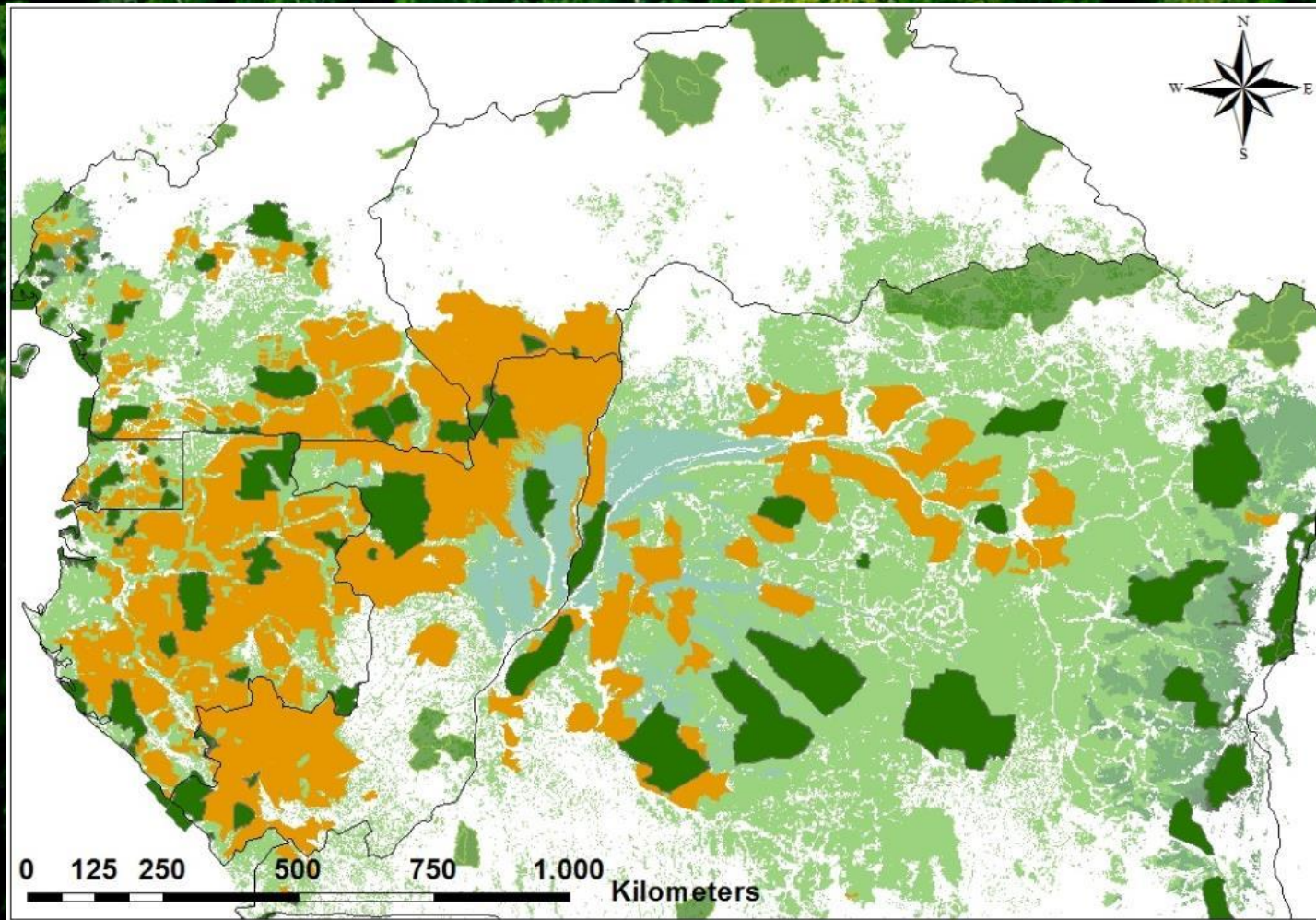
11<sup>th</sup> December 2018





+ Other important changes in central Africa:  
Population growth, climate change, political instabilities, etc.





## Production forests

55 millions hectares  
(<10 % certified for sustainable management)



## Protected forests

27 millions hectares







Efficient protected areas, or paper parks?

Impacts and potential of industrial logging concessions in biodiversity conservation?

Remnant biodiversity in degraded community forests, or empty forests?



**Hypothesis:** “Forest biodiversity is shaped by forest land allocation and management”





Biodiversity assessment in three contrasted land allocation types:

- i. A protected area
- ii. A FSC-certified logging concession
- iii. Three community forests

Two indicator taxonomic groups:

- i. Mammals
- ii. Dung beetles



Three different components of diversity (Stirling, 2007):

- i. Variety (species richness)
- ii. Balance (species abundance)
- iii. Disparity (distance between species)

Three different scales:

- i.  $\alpha$ -diversity
- ii.  $\beta$ -diversity
- iii.  $\gamma$ -diversity

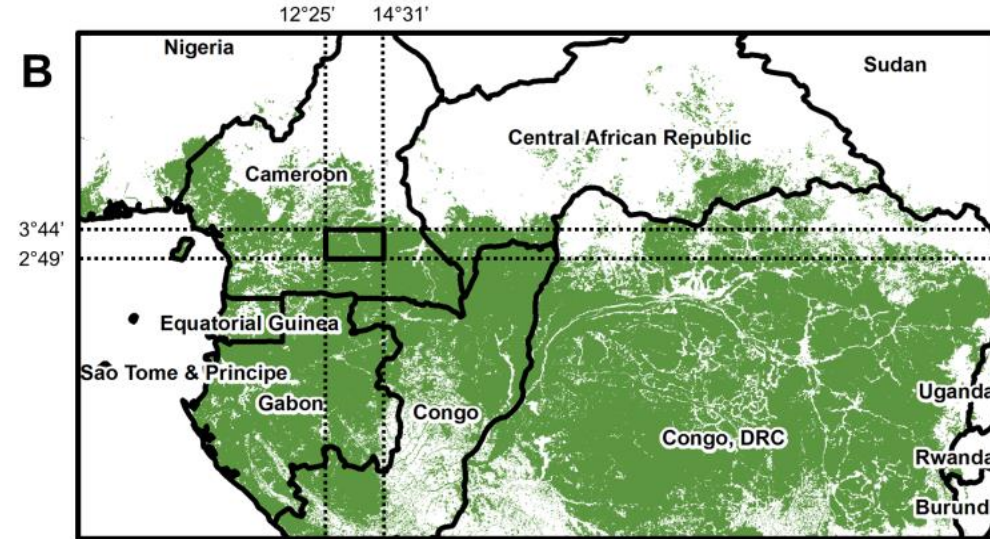


# Study area

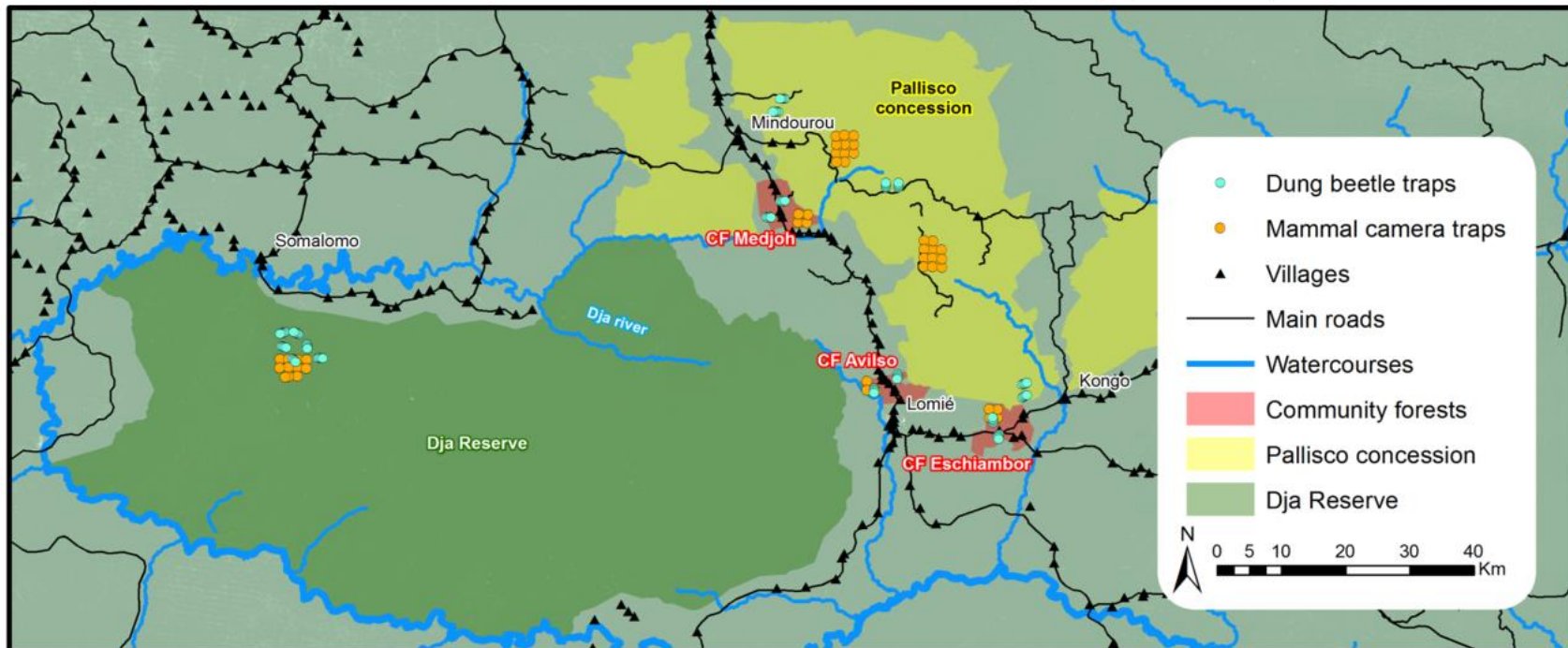
A



B



C







44 camera traps  
3 months  
Density of 1 camera / 2 km<sup>2</sup>  
30-50 cm above ground level  
Oriented to animal trails  
Herbaceous vegetation cleared



**TEAM**  
NETWORK

**TROPICAL ECOLOGY**  
ASSESSMENT AND MONITORING



72 baited pitfall traps  
18 groups of 4 traps  
250 m between traps in each group  
48 hours





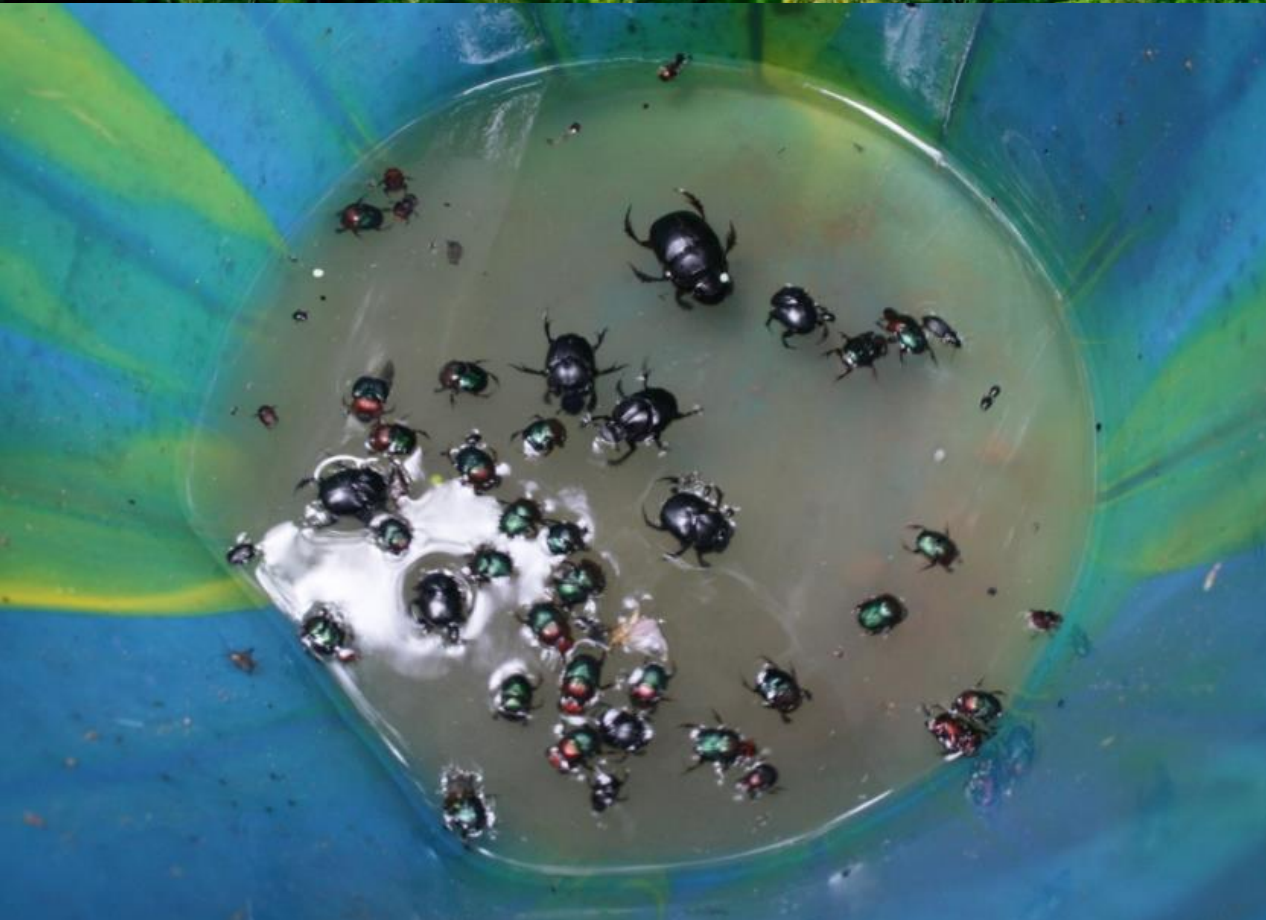
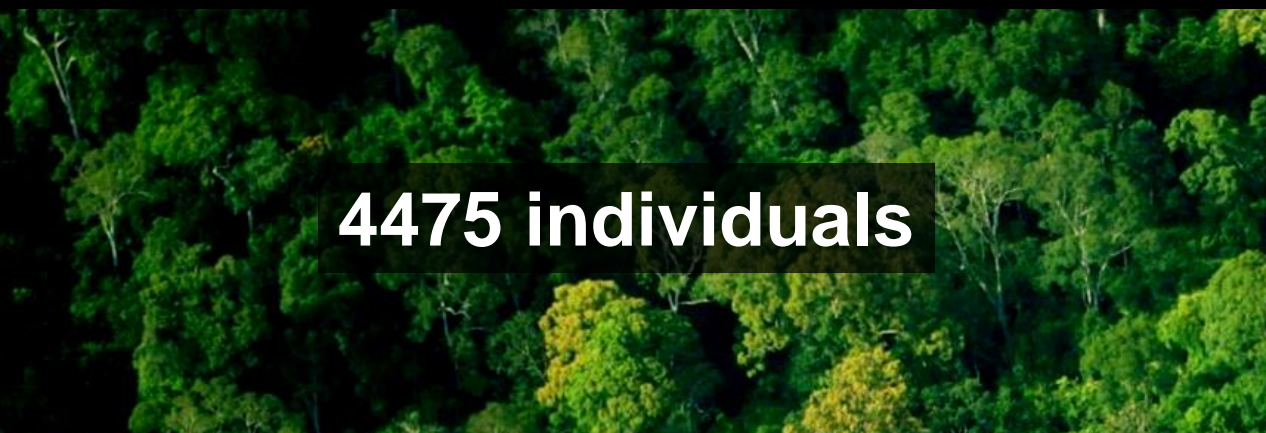
**3464  
independent  
detection  
events**





# Dung beetles

4475 individuals

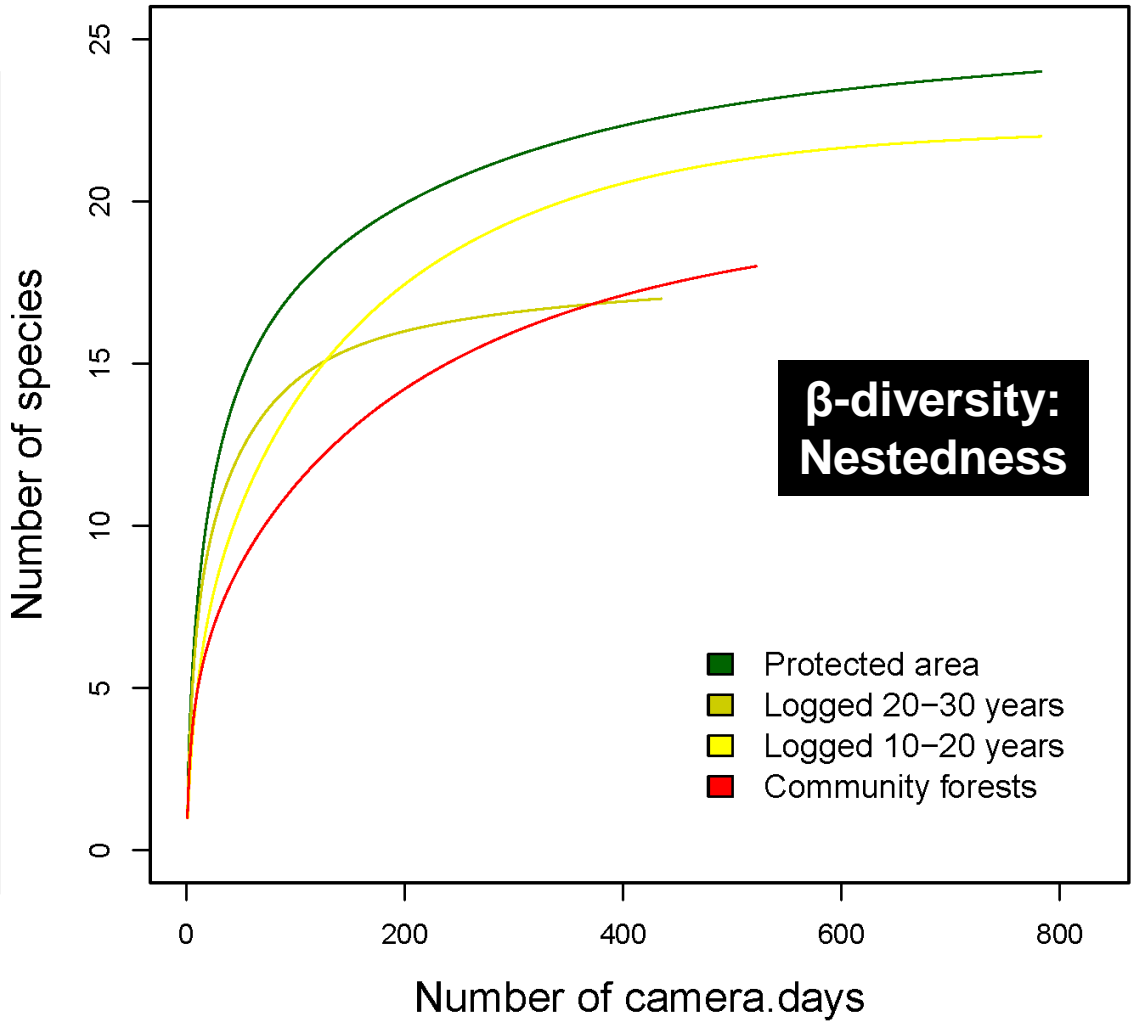
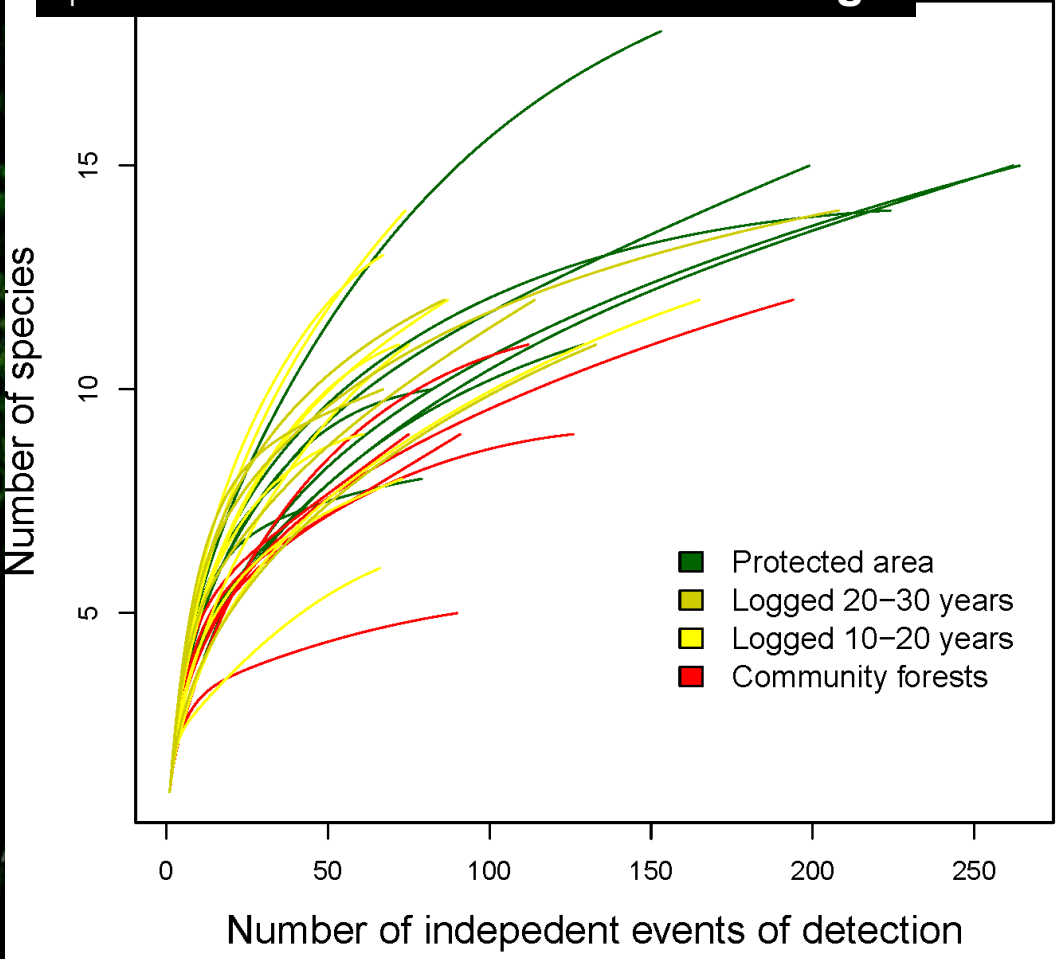




# Rarefaction curves (variety)



↑ with distance to the nearest village

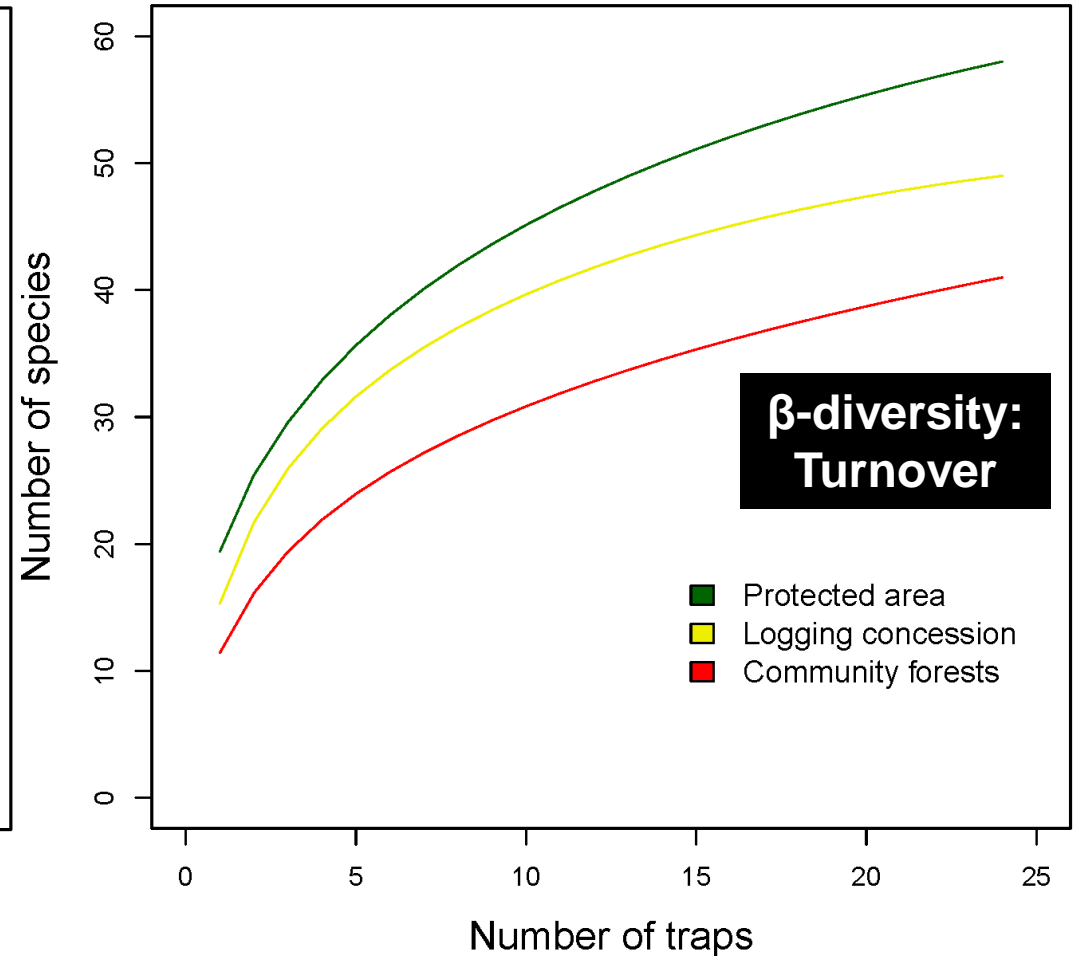
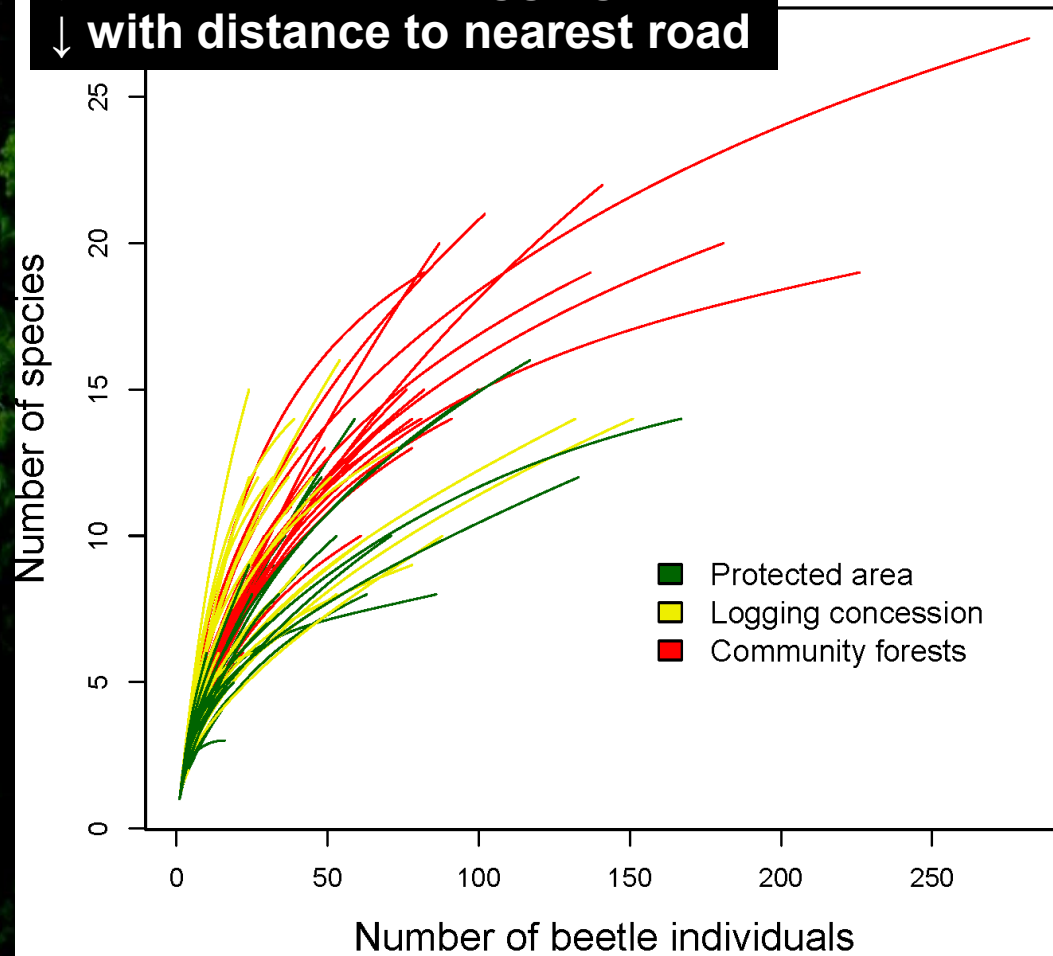




# Rarefaction curves (variety)

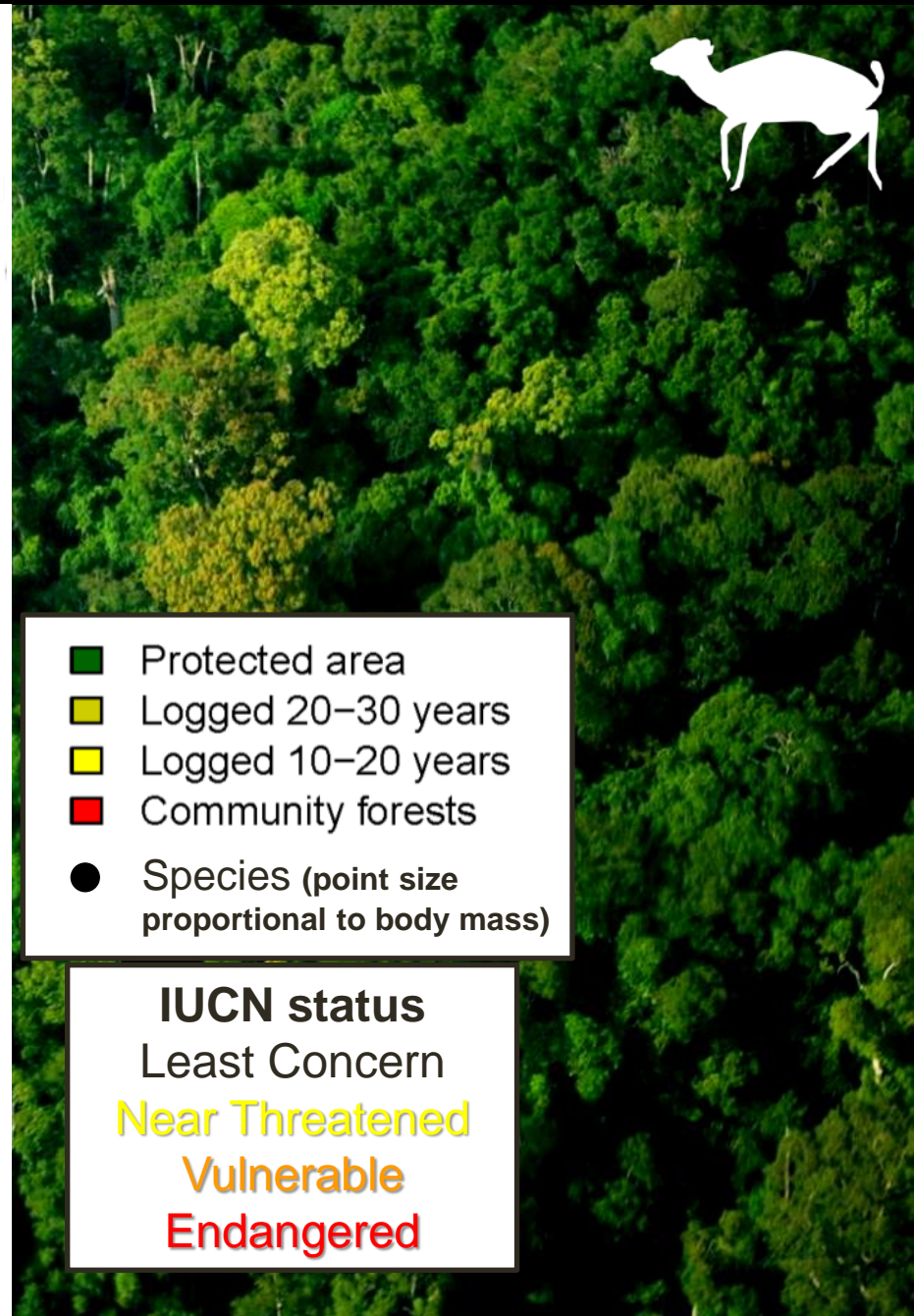
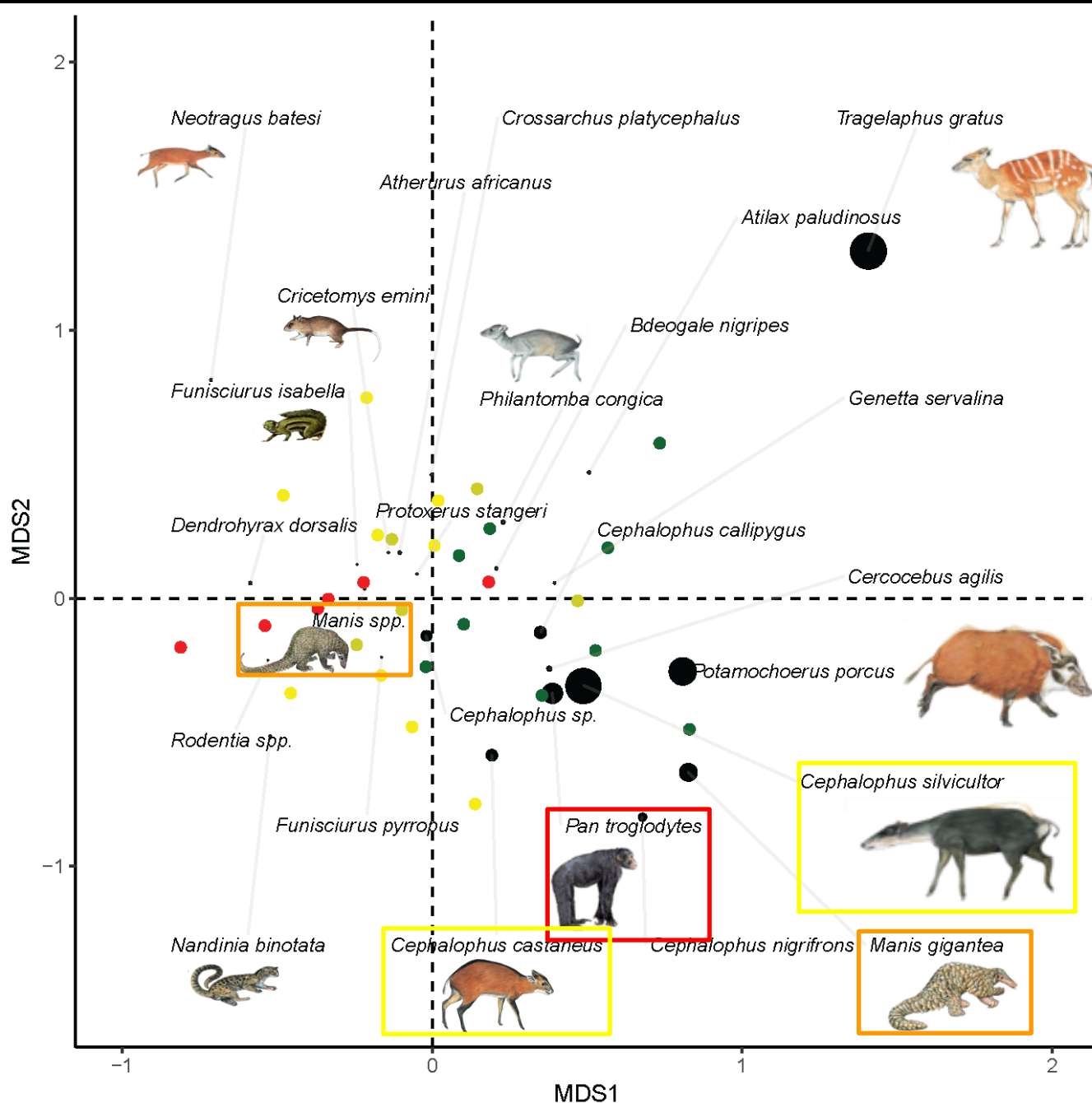


↓ with time since logging  
↓ with distance to nearest road





# NMDS (balance and disparity)

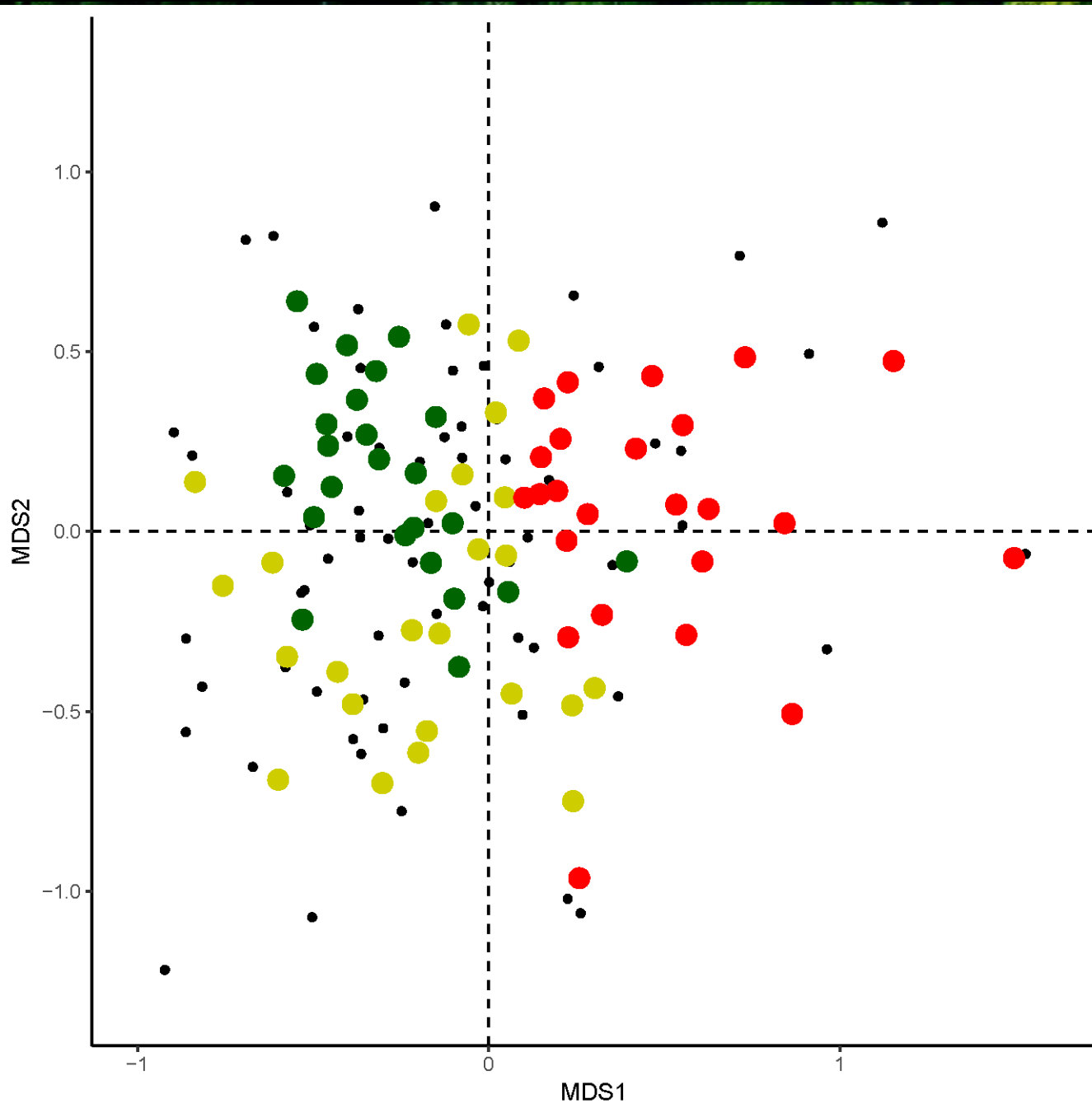


- Protected area
- Logged 20–30 years
- Logged 10–20 years
- Community forests
- Species (point size proportional to body mass)

**IUCN status**  
 Least Concern  
 Near Threatened  
 Vulnerable  
 Endangered



# NMDS (balance and disparity)



- Protected area
- Logging concession
- Community forests
- Species



Different patterns of biodiversity between the different forest land allocation types

Variety (species richness), for both mammals and dung beetles :

Protected area > FSC-certified logging concession > Community forests



Variety

$\alpha$

↑ with distance to the nearest village

↓ with time since logging and distance to nearest road

$\beta$

**Nestedness** between communities

**Turnover** between communities

$\gamma$

**26 species** inventoried

**71 species** inventoried

Balance  
& disparity

Gradient of body mass  
+ conservation status

Structured communities  
(ongoing analysis)



**Thanks for your attention!**