

## Beyond the water: the effects of small stream restoration on terrestrial taxa

Lena Lerbs¹, Lisa Grunwall¹, Jonas Lampe¹, Alina Singer¹, Anna Dotzert¹, Katja Siegemund¹, Alistair McMurtry<sup>1</sup>, Nina Farwig<sup>2</sup>, Sascha Liepelt<sup>1</sup>, Stefan Pinkert<sup>2</sup>, Anna Bucharova<sup>1</sup>

- <sup>1</sup> Department of Biology, working group conservationbiology, Philipps-University, Marburg
- <sup>2</sup> Department of Biology, working group conservation, Philipps-University, Marburg

#### BACKGROUND

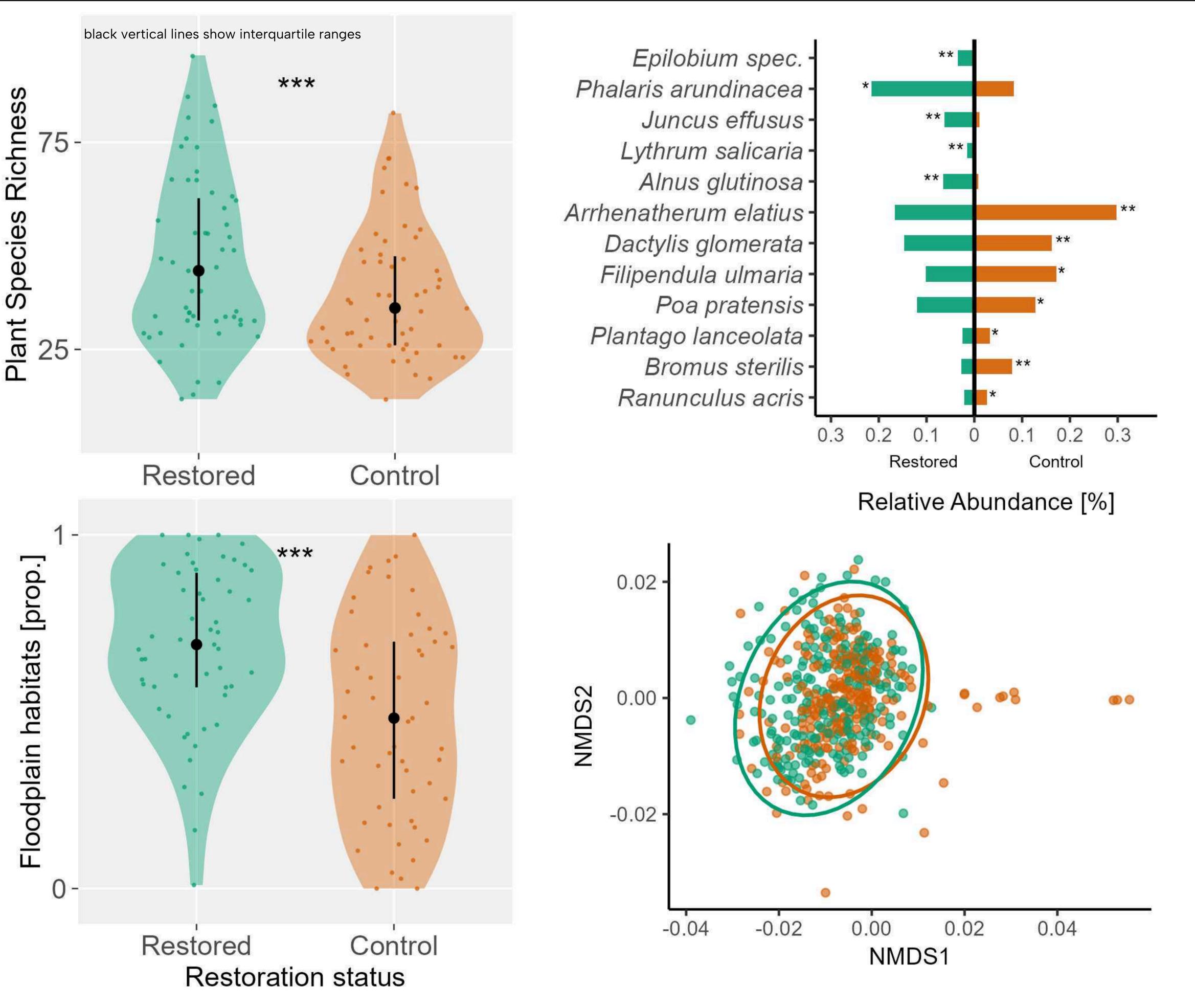
- Rivers have been channelized, riparian ecosystems are degraded
- Restoration along small streams is common
- Limited effects on aquatic species
- Positive effects on terrestrial taxa can be expected

#### How do terrestrial taxa respond to small stream restoration?

# 1. STREAM COMPLEXITY Restored sites are ←worse better → Channel development -Longitudinal profile -Cross-section Stream bed structure -Stream bank structure Riparian zone -Total structural complexity Δ Structural complexity (R – C)

Restored sections show higher structural complexity

#### 2. PLANTS



Restored sections have more plant species and higher proportion of floodplain habitats

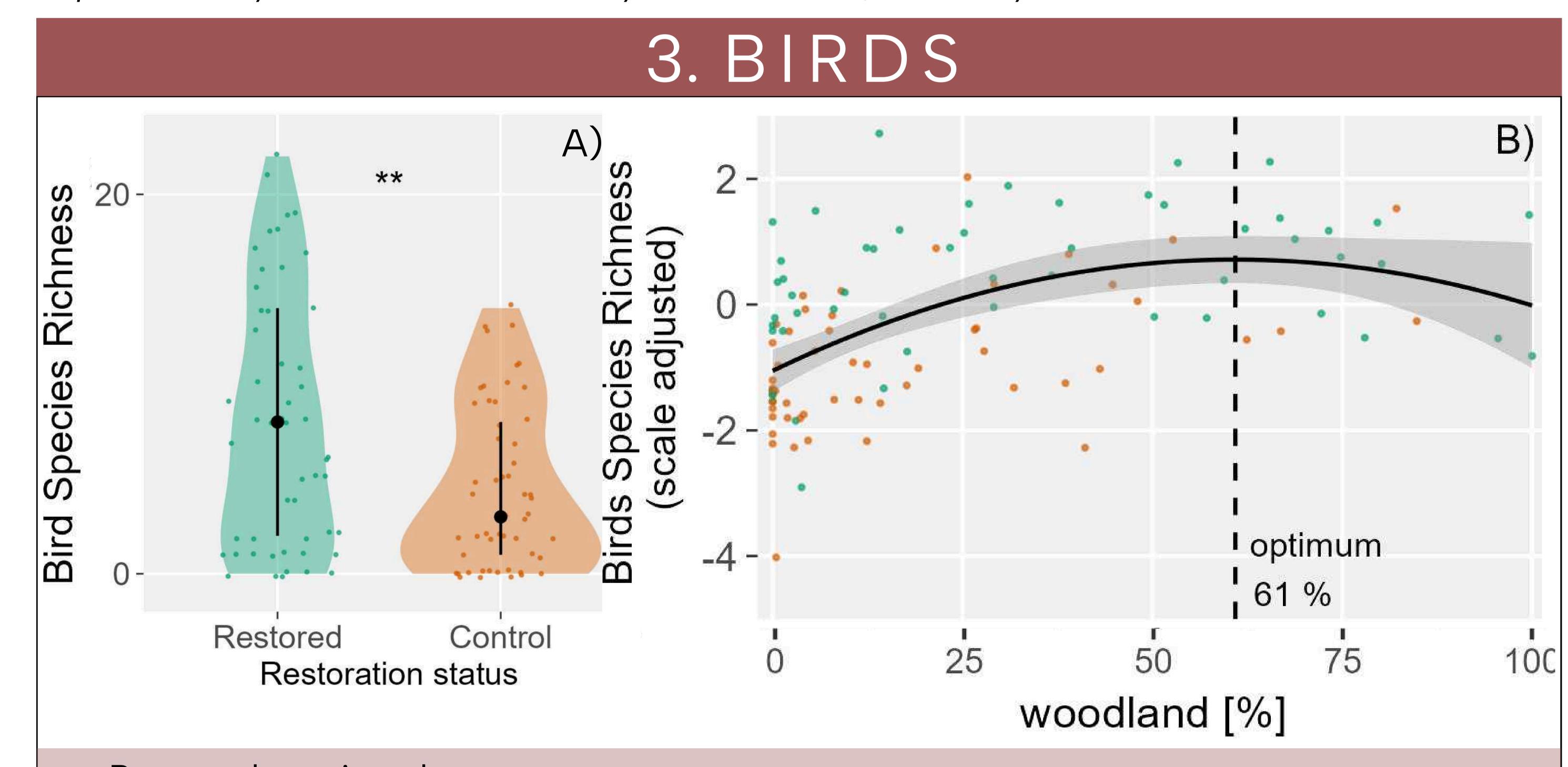
- Wetland tolerating species indicate restored sections
- Plant composition doesn't differ

#### METHODS

- Space for time approach
- Comparison of 55 restored with upstream non-restored stream sections
- Streams are located in agricultural environments
- Survey of plants, birds and insects

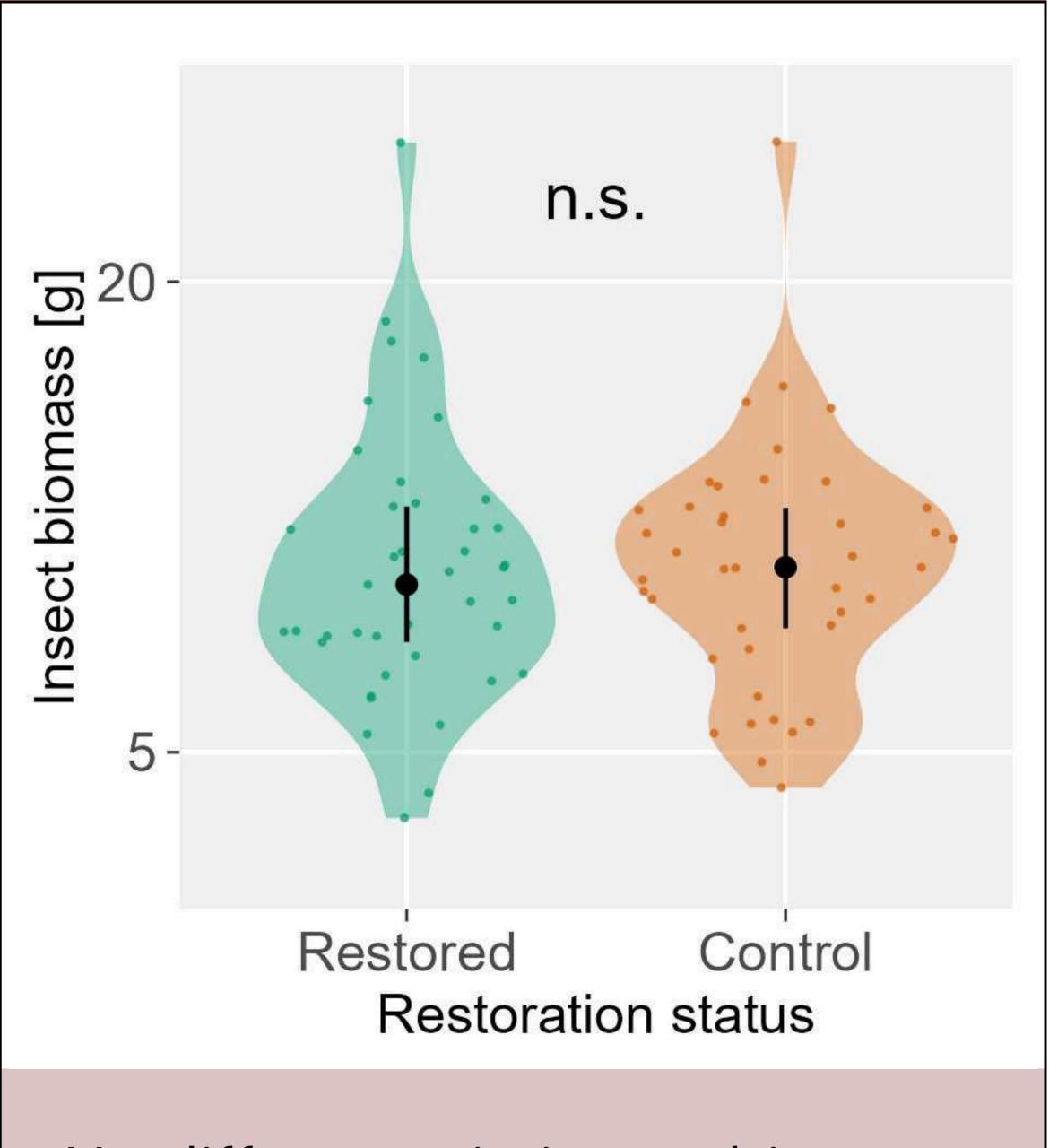


Figure 1: A) upstream control section B) downstream restored section C) 4 x 4 m plot used in plant surveys D) Overview of study area in Hesse, Germany



- Restored sections have more bird species
- There is optimal woodland coverage for birds
- Combination with other habitats is important

### 4. INSECTS



- No difference in insect biomass
- Analysis of species data will follow

#### CONCLUSION

- Restoration increased the stream complexity
- Higher plant and bird species diversity in restored sections
- The increase of plant diversity is mediated by the channel complexity
- → Terrestrial species respond positive to restoration of small streams
- The insect biomass did not increase with restoration, analysis of species data is next











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