Long-term effects of Spinosad on the Common vole (*Microtus arvalis*) on grassland as surrogate crop

INTRODUCTION

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Spinosad is used as an insecticidal spray in a number of crops in Europe with up to three applications per year. Based on the lowest endpoint for the wildlife risk assessment, a risk for small herbivorous mammals (Common vole) has been identified for various crops.

A field effects study in grassland was conducted to address the potential long-term risk to small herbivorous mammals.

METHODS

- 3 foliar spray applications of Spinosad at 120 g a.s./ha and interval of 4 to 8 days
- Trapping: 60 Ugglan traps per study site (10 m trap-distance in a grid)
- Individual markings by passive integrated transponders (PIT)
- Schedule: 10 capture-mark-recapture (CMR) trapping sessions per site in the time between April and November 2019

Spray application of Spinosad
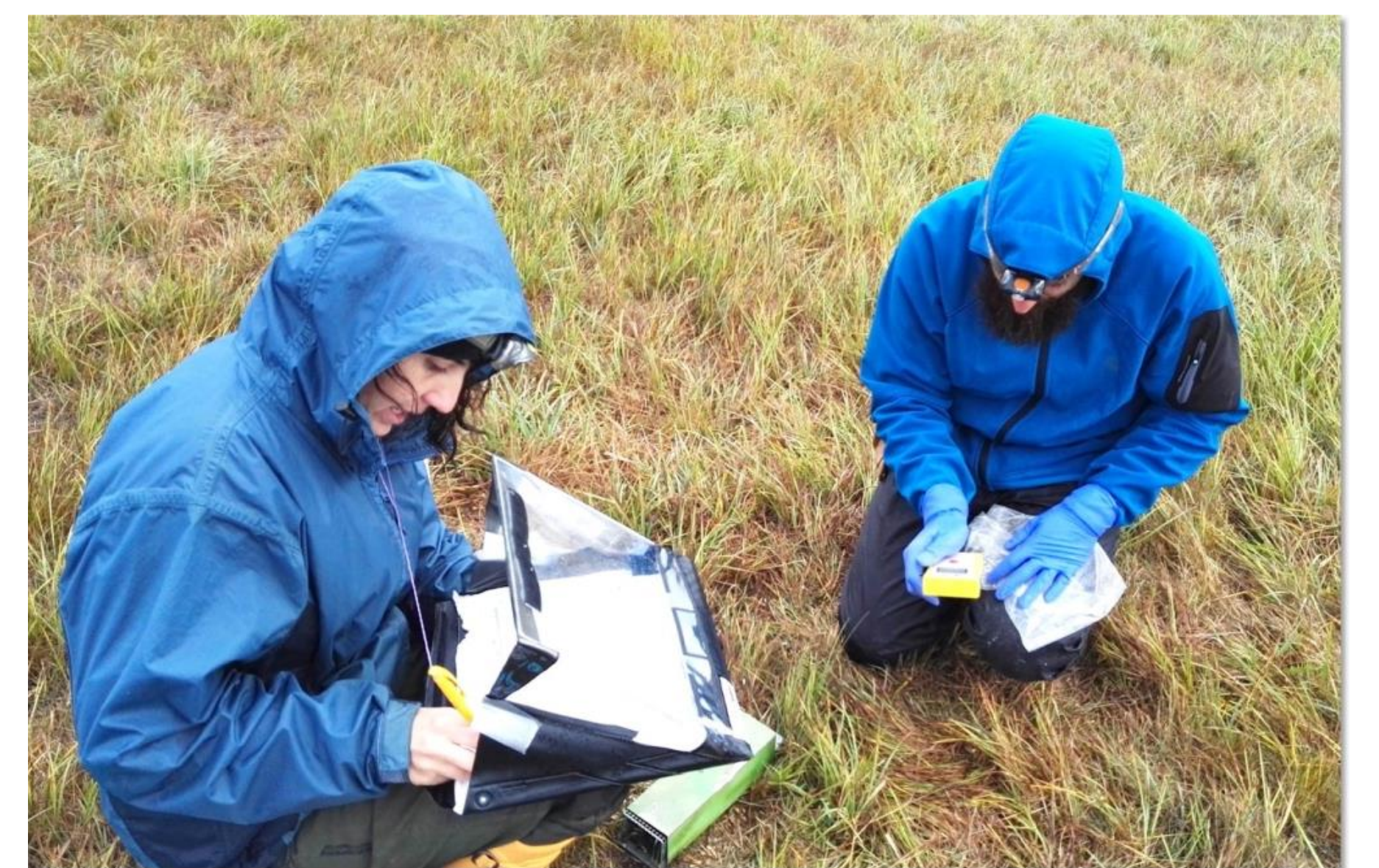
Field biologists checking individual PIT marking in the field

Location of the study area

Ugglan-live-trap in the field

June
spray applications

2019

April
start of CMR trapping

November
end of CMR trapping

LOCATION

- Region: Hesse, Germany
- Study sites: 14 commercially used grassland fields (mean size of 1.2 ha)
- 7 treated fields, 7 (untreated) control fields

RESULTS

- 21415 captures of common voles in 23879 trap nights
- MNA (individuals/100 trap nights) ranged from 7 to 218 on treated sites and from 4 to 236 on control sites
- Average body weight of adults ranged between 17.4 g and 30.3 g on treated sites and between 17.5 g and 30.6 on control sites
- No significant treatment effects.
- Mean time span of individuals present in the field was 47.5 days on control and 47 days on treated sites
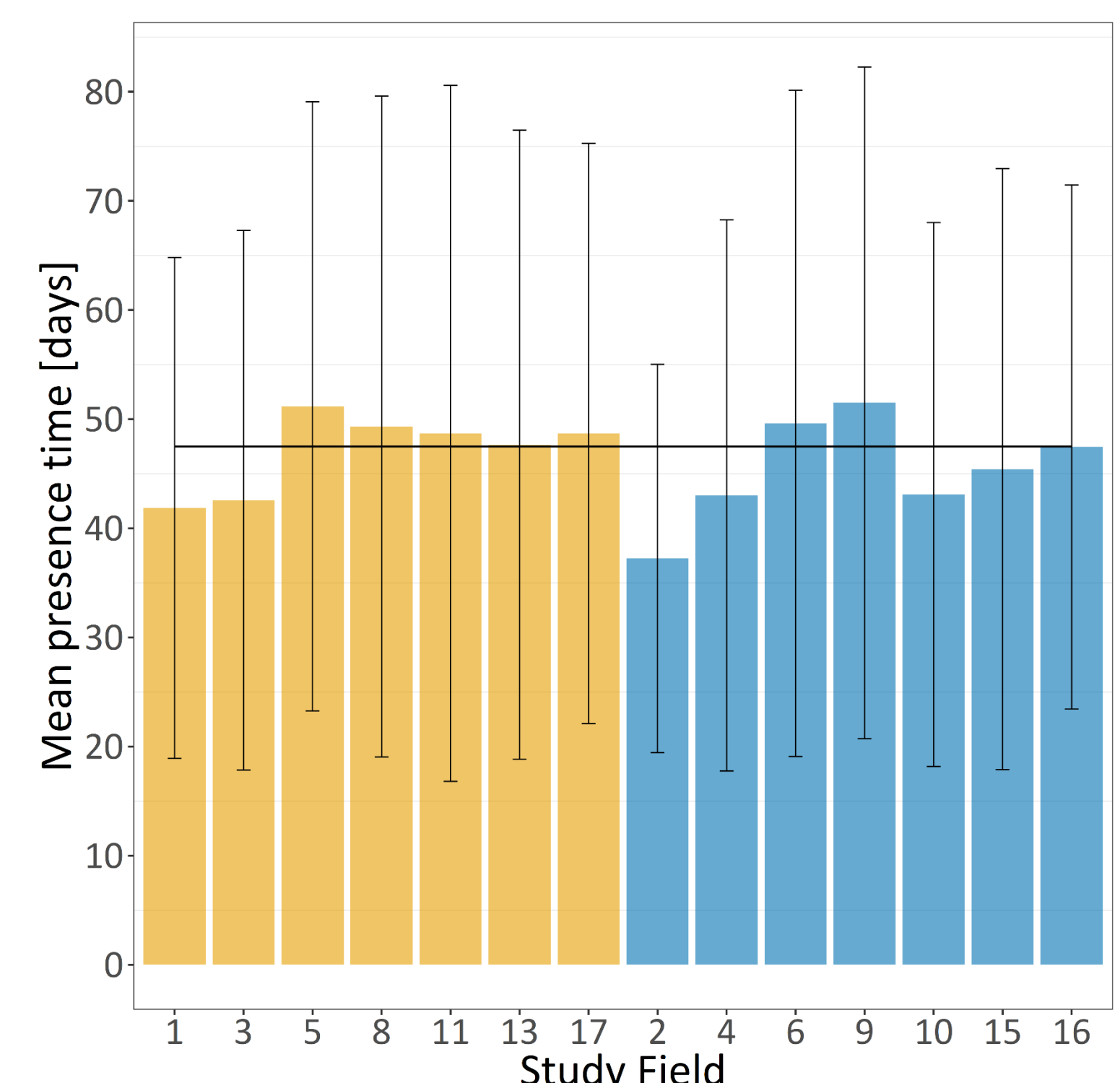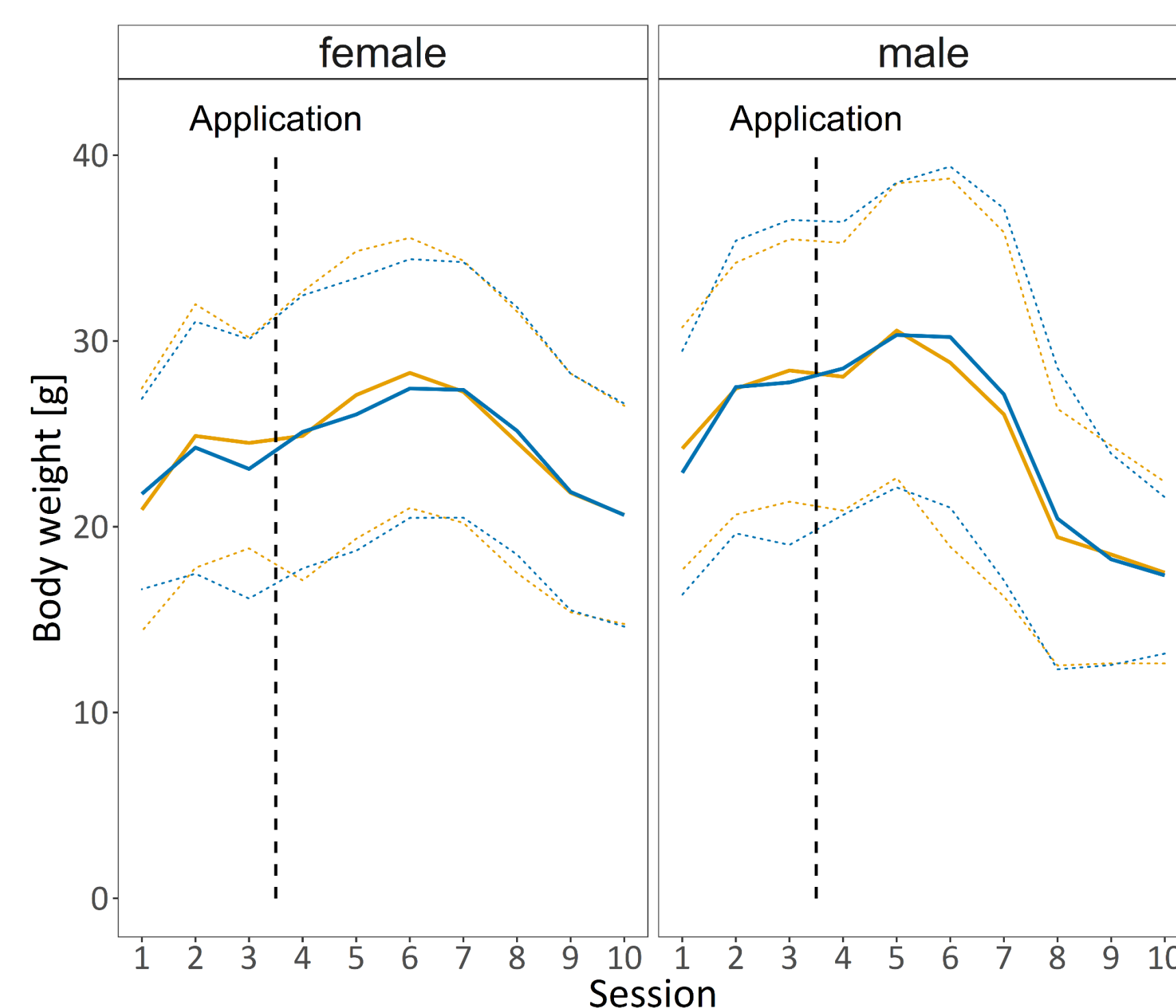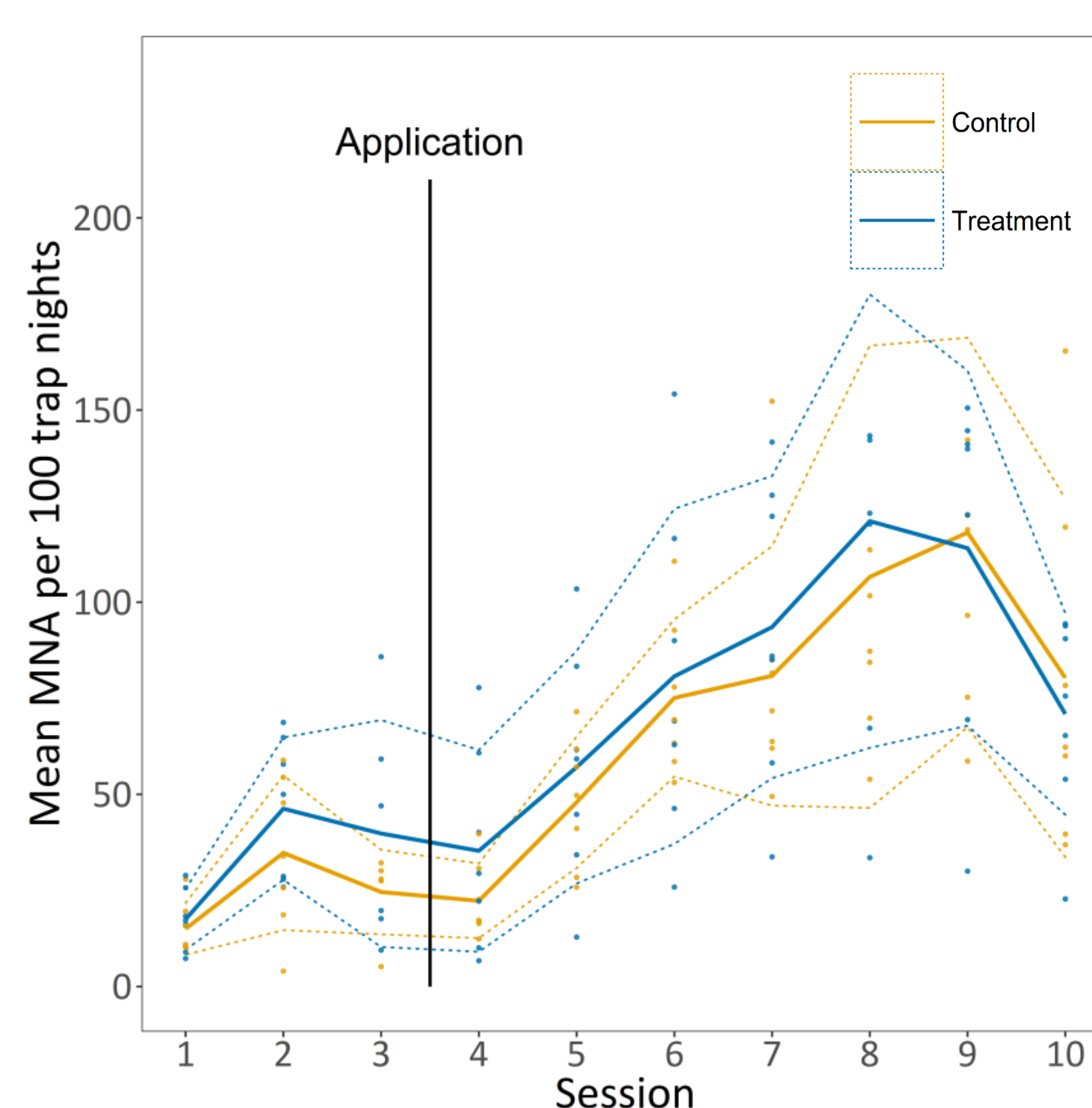
CONCLUSIONS

- No adverse effects of Spinosad on the population of common voles in grassland observed during this study
- Trapping sessions with regular 21 day interval allow for state-of-the art data analysis of treatment related effects using statistical mixed models (GLMMs)
- Mean presence of marked individuals in the field was not significantly different on treated and control sites

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