

Habitat preferences of linnets (*Linaria cannabina*) in vineyards



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Introduction

A large part of vineyards in Europe show no or very little ground vegetation, due to chemical and non-chemical weed control. But management techniques have started to change in the last years resulting in a reduction in herbicide applications and in an increase in ground vegetation growth and cover. This in turn, could lead to a higher attractiveness for wildlife, especially for foraging birds. However, what type of ground vegetation (e.g. structure, cover and composition) is important for birds remains quite unknown. Here, we use habitat selection models to fill this gap and to show habitat preferences of foraging linnets in relation to the ground vegetation of commercially used vineyards in different regions in Switzerland and Germany.

Methods

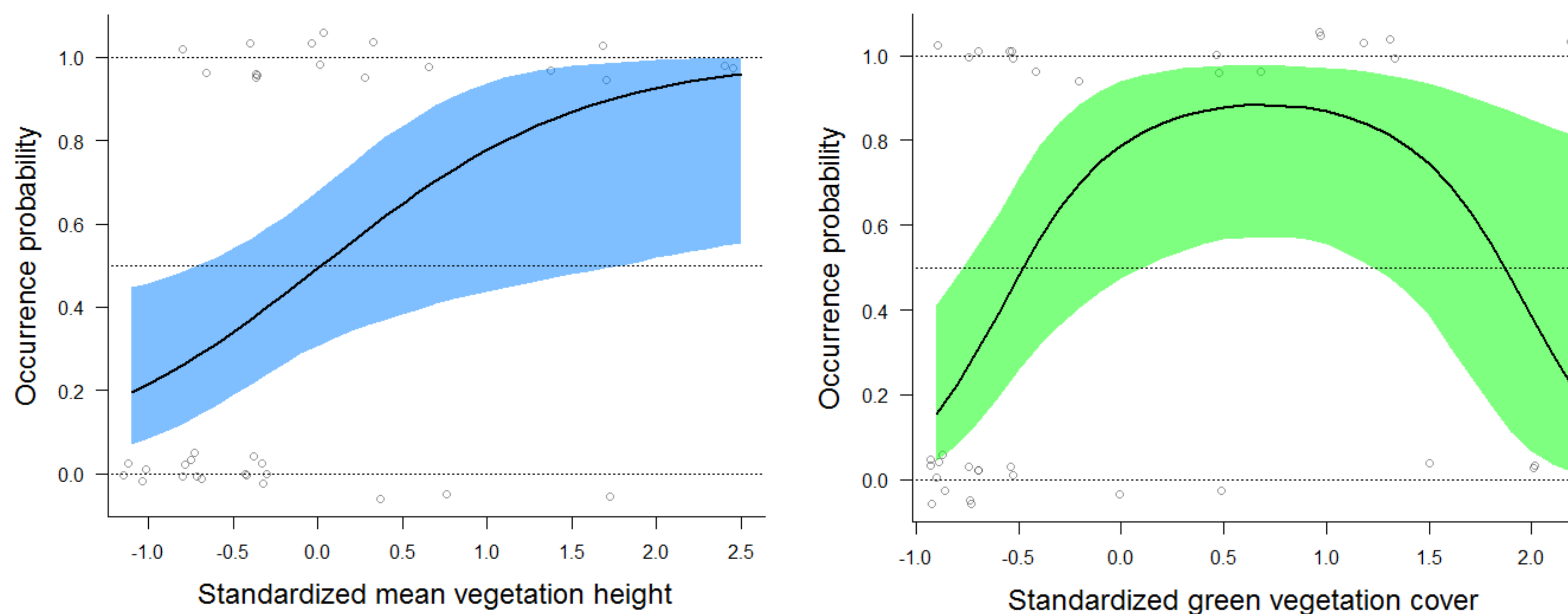


- Vineyards in different regions in Switzerland (CH) and Germany (D):
 - Valais (CH): 90% herbicide treated with little ground vegetation
 - Berg- & Weinstraße (D): mix of different management strategies
- Habitat preferences measured on foraging scale
 - Field scale to compare presence points with pseudo-absence points
- Habitat selection models using generalized linear mixed models



Results

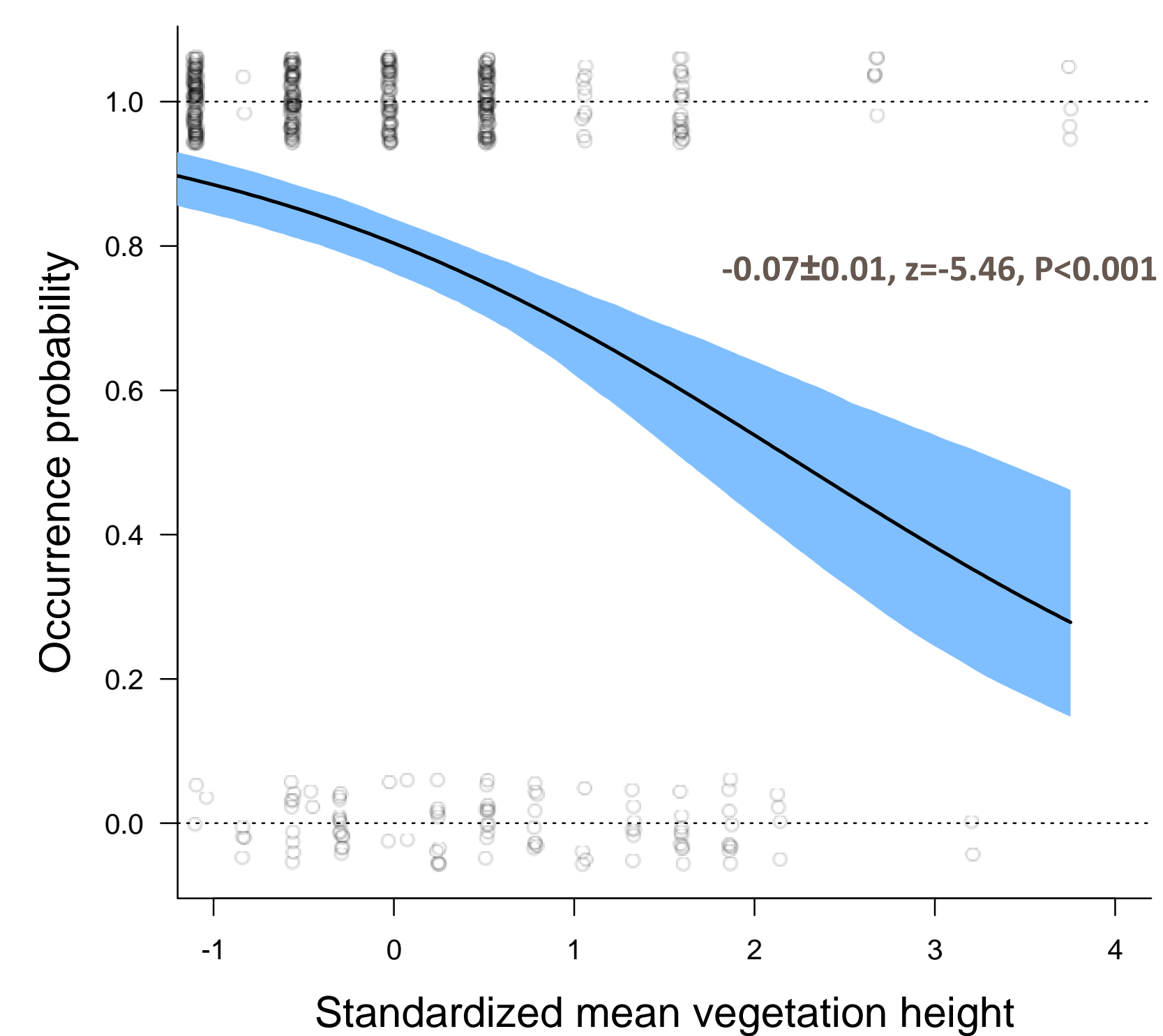
Switzerland (dominated by low vegetation cover)



	(Int)	veg. height	veg. height^2	ground cover	ground cover ^2	df	logLik	AICc	delta	weight
veg. height	-0.02	1.27				5	-20.55	53.1	0.00	0.39
veg. height ^2	0.41	1.85	-0.56			6	-19.85	54.6	1.48	0.18
ground cover^2	1.32			2.04	-1.47	6	-20.22	55.3	2.23	0.13

- ➔ preference for high vegetation
- ➔ possibly reflects preference for seed-rich, weedy plants (e.g. *Amaranthus*) that grow in parcels with intermediate ground cover

Germany (dominated by higher vegetation cover)

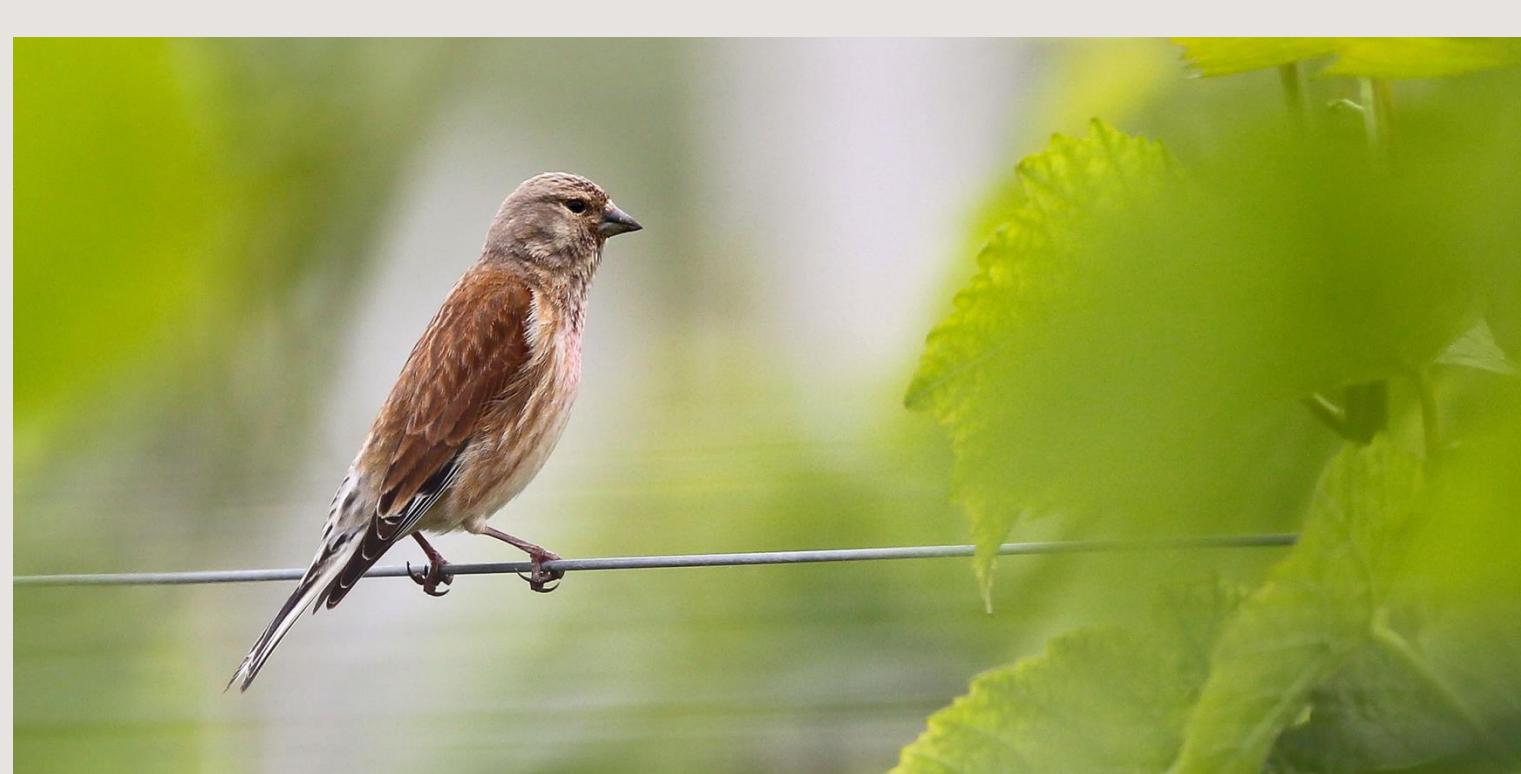


- ➔ linnets prefer short vegetation in vineyard agroecosystems with enhanced ground vegetation cover
- ➔ short vegetation possibly increases food accessibility



Conclusion

- Importance of ground vegetation in vineyards
 - Fine-scaled habitat preferences differ in relation to the ground vegetation management of vineyards
 - Importance of permanent and spontaneous (weedy) vegetation in vineyards
- Allows designing precise season-specific management recommendations
- To promote linnets



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