Republika Slovenija
Služba Vlade Republike Slovenije za lokalno samoupravo in regionalno politiko

EKOLOGIJA VRTNEGA STRNADA *Emberiza hortulana* NA KRASU

The ecology of Ortolan Bunting Emberiza hortulana on Kras

Zaključno poročilo

Final Report

DOPPS 2008

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1 INTRODUCTION

The Ortolan Bunting *Emberiza hortulana* occurred in most parts of Slovenia with the stronghold in the sub-mediterranean south-western part of Slovenia called Kras (GEISTER 1995). The Ortolan bunting was reported to be in decline and had an estimated population of 200-300 pairs in 2000 (BURFIELD & VAN BOMMEL 2004). Nowadays almost all Ortolan buntings occur on Kras, while in the temperate part it is most probably extinct. During the census for Ornithological atlas of Slovenia (GEISTER 1995) it was recorded in 24 (10%) 10x10 km squares. At that time, it was recorded also in Goriška Brda and some separate locations in geographically quite different parts of Slovenia (GEISTER 1995). On the Red list of breeding birds of Slovenia it has a status of highly endangered species (E2; URADNI LIST RS 2002).

Habitats of many bird species are under threat by land use of humans (VITOUSEK et al 1997). In the Mediterranean basin there is a strong trend of abandoning the agricultural areas with the consequence that many of the meadows are getting overgrown (MAZZOLENI et al 2004). Some woodland species increased, however many open habitat bird species will be hereby affected (PREISS et al 1997, SIRAMI et al 2007a). Especially migratory birds associated with farmland were negatively influenced by land abandonment (SIRAMI 2007b).

The Ortolan bunting is a migratory bird with its breeding distribution over the Mediterranean basin and temperate part of Europe and Asia (CRAMP & PERRINS 1994). Nowadays its populations are rapidly declining (BURFIELD & VAN BOMMEL 2004), due to habitat loss (VEPSÄLÄINEN et al 2005, PREISS et al 1997), female post-natal dispersion (DALE 2005), changing wintering quarters (STOLT 1993) and trapping (STOLT 1993, GEISTER 1995). The habitat use of the Ortolan bunting in the temperate part of Europe is mainly on mixed farmland and on raised peat bogs (CRAMP & PERRINS 1994, DALE & HAGEN 1997), while in the Mediterranean area it is in open bushy areas mixed with meadows (CRAMP & PERRINS 1994, FONDERFLICK et al 2005).

In this part of the project we censused the species' habitat on Kras.

2 METHODS

Kras is an area with a surface of approximately 429 km^2 located in the south west of Slovenia. It starts south of Nova Gorica and continues south to the Croatian border.

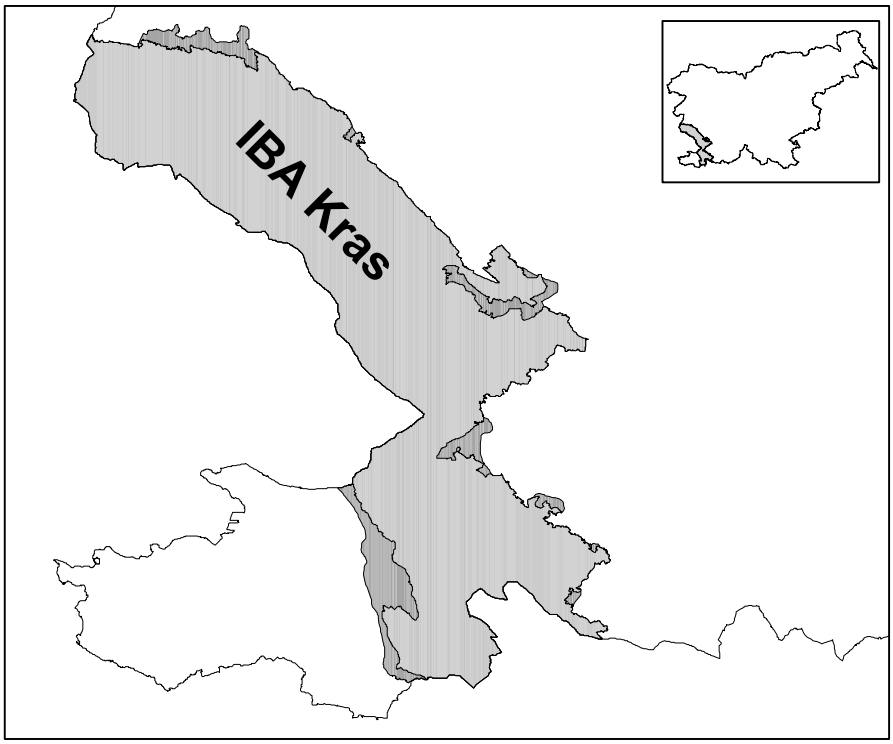

Figure 1: Research area of habitat census of Ortolan Bunting on Kras (dark grey); IBA Kras is depicted as light grey

It has a sub Mediterranean climate and in most parts of the area the karstic phenomena exist and is therefore dry. Kras supports a wide variety of vegetation types due to human management and exploitation. In former times most of it was covered by pastures and meadows but nowadays it is slowly becoming overgrown with scrub of variety of species, depending on the local (and very variable) climate. Moreover, Kras is largely covered by Black Pine *Pinus nigr*a which has been planted since the 18th century. A similar area further south is Podgorski kras, Čičarija and Podgrajsko podolje with the area 244 km^2, and both are considered as mezoregions in Medierranean macroregion of Slovenia (PERKO, D. & OROŽEN ADAMIČ, M. 1999). The research area itself is best described as Important bird area Kras (Božič 2003) with some added adjacent surfaces. (Figure 1)

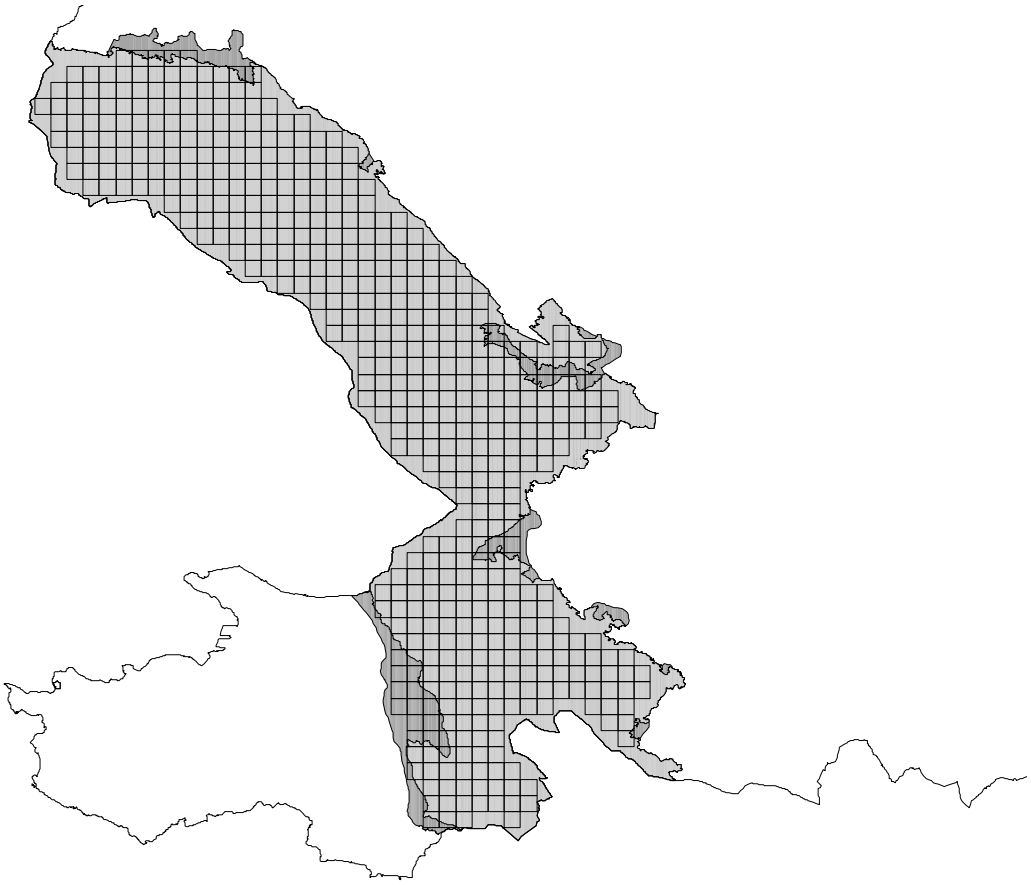

Figure 2: 1x1 km grid was laid across the research area to investigate the distribution of Ortolan Bunting.

The number of Ortolan bunting male territories was defined as the number of singing posts. The Ortolan bunting singing posts were systematically mapped over the whole area of Kras in the period between 15th of May till the 28th of June 2006 by visiting once all potenitial nesting habitats. Per site the recording time lasted up to 20 minutes. For every singing post the GPS coordinates were recorded. The mapping took only place when it was not rainy. In 2007, the same points were visited.

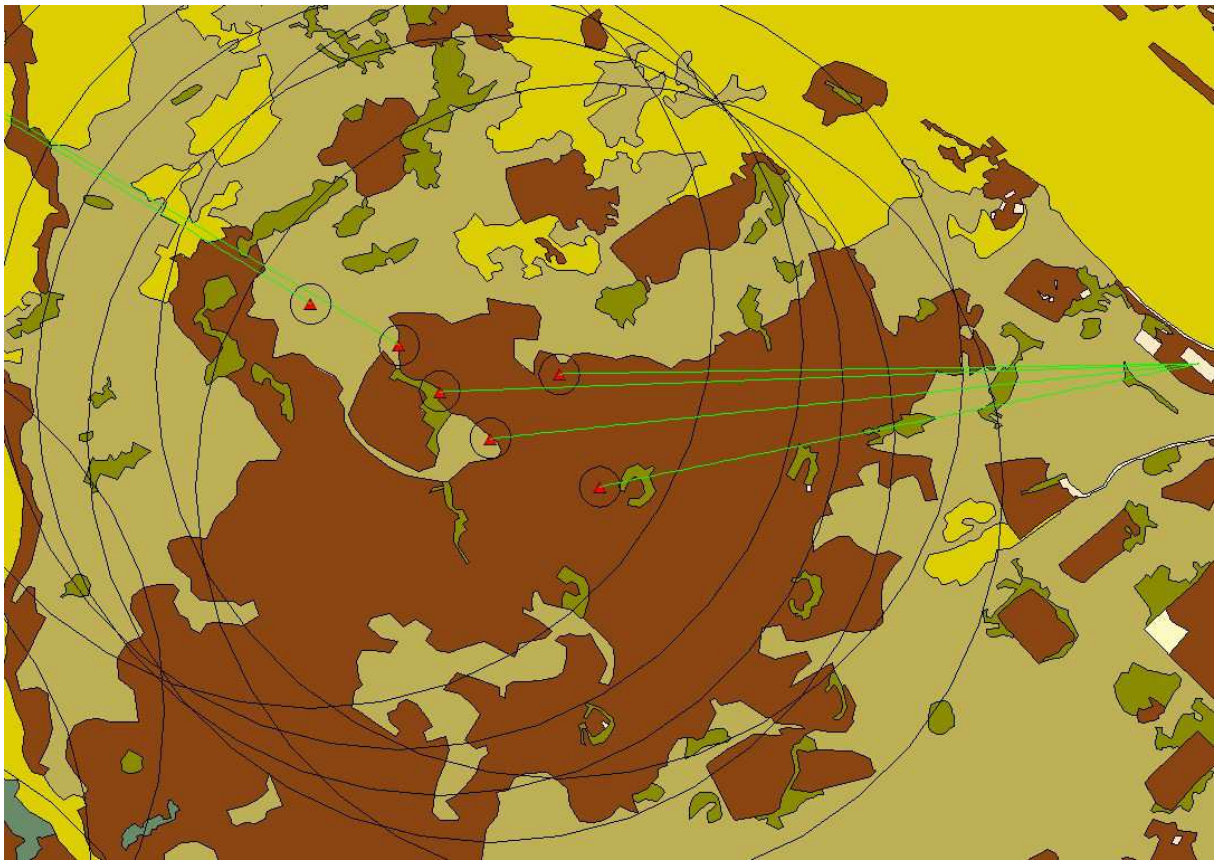

Figure 3: The habitat choice was investigated in 25 m and 500 m buffers around the singing posts (red triangles). Calculated distances to the nearest house are also shown.

The habitat was surveyed within a radius 25 m around every singing post. In addition we sampled randomly chosen points from the whole research area. For every singing post and random point the following habitat variables were measured: bare land cover (%), grass cover (%), bush and tree cover (%), Smoke Bush *Cotinus coggygria* cover (%), height and number of black pines, height and number of junipers, height and number of trees and bushes, thickness and height of herbaceous layer, bare land between the grass (more than 50% / some bare parts / no bare parts), tufts (yes/no), topography (summit / ridge / steep slope / mild slope / plain / valley / karst depression), the occurrence of dead trees, signs of forest fire (no signs / scorched trunks / clear signs / forest recently burned), signs of poaching (yes/no). The height of the trees, juniper trees and black pines were estimated whether it was lower or higher than 1.8 m. The number of trees, juniper and black pines were counted and put in the classes less or more than 30 trees. Furthermore, the thickness of herbaceous layer was estimated in rough classes if one could easily see

the ground through the vegetation or not. The herbaceous layer height was divided in classes lower or higher than 40 cm. The Smoke Bush cover was included because this is a pioneer species and tells more about the succession stage of the meadow.
Buffers of 25 m and 500 m were put around the singing posts and random points. Within the buffers the following variables were measured: fields and gardens (%), vineyards (%), intensive and extensive orchards (%), olive tree stands (%), meadows (%), meadows overgrown with bushes (%), meadow with single trees (%), abandoned fields (%), forest (%), urban area (%), dry open areas with specific plant cover (%), exposition, altitude (m), slope (°), mosaic of land use (number of polygons) and heterogeneity of land use (number of types of land uses) (ARSO 2007A&B; GURS 2007A&B; MKGP 2007A&B).

A grid of 1 x 1 km was superimposed on the Kras area to quantify the species distribution. For the analysis we included only squares, which were entirely in the region (N = 398). The absence-presence was calculated for every square. As the Ortolan bunting singing posts were clumped together, there was a low number of squares with singing posts. Therefore an occupied square was weighted by multiplying it by the number of singing posts occurring in it. For each square, the above mentioned topological and land use variables were measured. Additionally the number of houses and the length of the roads (m) were measured. (Figure 2, Figure 3).

The difference between the singing posts and random points were analysed with a nonparametric Mann-Whitney test for continuous variables. Also the difference between occupied and not occupied squares were analysed with the Mann-Whitney test as the data were not normally distributed. In addition, the absence-presence data was investigated with a logistic regression. The variables were tested in groups of seven variables, due to the low number of found Ortolan singing points. Each variable was randomized several times over the groups and tested on significance in different variable combinations. The significant variables were selected and again divided in groups of seven variables. This procedure went on till seven, or less, significant variables were found.

Figure 4: Typical habitat of Ortolan Bunting *Emberiza hortulana* on Podgorski kras. (photo: T. Mihelič)

Figure 5: Overgrown meadows with Smoke Bush *Cotinus coggygria* on Podgorski kras. (photo: T. Mihelič)

3 RESULTS AND CONCLUSIONS

In total there were 56 singing posts, which were found in 19 1x1 squares out of 398. Most of them were lumped together. Three squares had eight singing posts, one square had 5 singing posts, two and three singing posts were each found in 3 squares, and nine squares had only one singing post. Most of the squares with singular singing posts were in the vicinity of squares with more singing posts.

The singing post area was characterized by large grass cover and a lower bush and tree and Smoke Bush cover (Table 1). When using a logistic regression, singing posts were mostly related to the height of the pines (Figure 6), height of the herbaceous layer (Figure 7) and the openness of the bare ground (Figure 8).

The singing posts of Ortolan buntings were influenced by land use on different scales. In the 25 m buffer the overgrown meadows ($z = 3.1$, $df = 1$, $P < 0.01$; Figure 9) and permanent meadows ($Z = 2.7$, $df = 1$, $P < 0.01$; Figure 10) were influencing strongest the singing posts, while in the 500 buffer the meadows with large single

trees ($Z = 3.2$, $df = 1$, $P < 0.01$; Figure 11) were important. Furthermore the distance to the nearest house was of importance (Figure 12).

The squares with Ortolan buntings were characterized by less orchards (intensive and extensive), fields and gardens, vineyards, abandoned fields, forest, urban area, heterogeneity, number of kilometres of road. But on the other hand, they were dryer and had more meadows, meadows overgrown by trees and bushes, more areas which were essentially meadow but nowadays covered with trees and bushes, more areas essentially meadows with single trees, flat areas or gentle slopes and a higher elevation (Table 1). Furthermore, the logistic regression showed that the Ortolan bunting was mainly negatively affected by the heterogeneity of the land uses, but needed meadows with large single trees and on the slope. It was positively influenced by permanent meadows, hedgerows and a few areas with meadows which are essentially becoming overgrown (Table 2, Figure 4, Figure 5).

Table 1: Difference in land use variables between sites occupied and unoccupied by the Ortolan Bunting.

		Ortolan bunting present		**Ortolan bunting absent**			
		mean	**s.e.**	**mean**	**s.e.**	**Mann-Whitney U-test**	***P***
Local scale	Grass cover (%)	71,30	2,51	57,87	3,55	1017,5	< 0.01
	Tree and bush cover (%)	26,48	2,44	36,83	3,47	1136,5	< 0.05
	Smoke bush cover (%)	6,11	1,36	4,74	1,70	1165,5	< 0.05
Regional scale	Average rainfall (mm)	1500,96	9,84	1462,50	4,40	10184	< 0.001
	Fields and gardens (%)	0,59	0,03	0,07	0,05	9596	< 0.001
	Vineyard cover (%)	1,62	0,27	0,27	0,18	8672	< 0.001
	Intensive orchards (%)	0,06	0,00	0,00	0,02	13132	< 0.05
	Extensive orchards (%)	0,24	0,01	0,02	0,02	10310	0.001
	Permanent meadows (%)	55,01	3,05	20,79	0,74	3366	< 0.001
	Hedgerows (%)	2,55	0,25	2,14	0,10	11193	< 0.01
	Abandoned fields (%)	0,04	0,00	0,00	0,01	12908	< 0.01
	Meadows with large single trees (%)	6,44	0,71	1,95	0,12	7300	< 0.001
	Forest (%)	63,29	3,04	29,03	1,04	4537,5	< 0.001
	Urban area (%)	4,20	0,11	0,91	0,32	10645	< 0.001
	Altitude (m)	390,07	14,22	417,07	6,85	12167,5	< 0.05
	slope (°)	9,07	0,48	5,95	0,20	6784,5	< 0.001
	Number of houses	34,49	0,45	0,45	2,87	5930	< 0.001
	Heterogeneity of land uses	6,45	0,12	7,31	0,10	10707,5	< 0.001
	Length of roads (m)	934,48	97,31	495,80	41,51	10244	< 0.001

Table 2: Habitat variables important for occurrence of the Ortolan Bunting on Kras using a logistic regression.

Variable	B	SE	Z value	P
(Intercept)	-1.08472	1.33600	-0.812	ns
Slope	-0.23911	0.08911	-2.683	< 0.01
Open areas with specific vegetation	1.92967	0.50592	3.814	< 0.001
Hedge rows	-0.29078	0.11494	-2.530	< 0.05
Heterogeneity of landuses	-0.42016	0.16966	-2.476	< 0.05
Meadows with large single trees	0.22283	0.04817	4.626	< 0.001
Meadows	0.08284	0.01156	7.163	< 0.001
Overgrown meadows	0.05764	0.01982	2.908	< 0.01

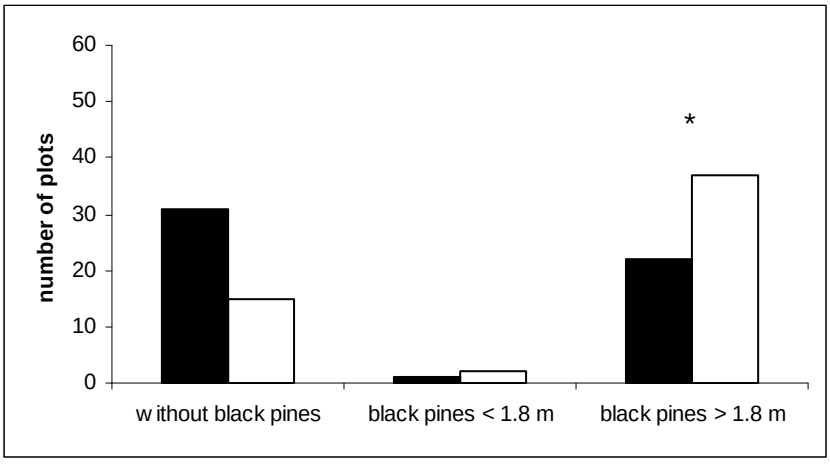

Figure 6: Influence of the height of black pines on the Ortolan bunting. Black bars represent the random points. White bars represent the singing points. * P < 0.05.

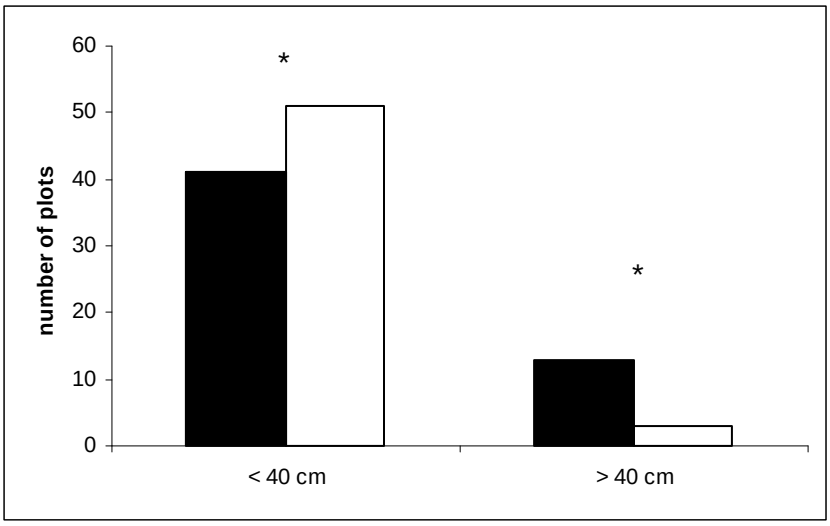

Figure 7: Influence of the height of the herbaceous layer on the ortolan bunting. Black bars represent the random points. White bars represent the singing points.

* P < 0.05.

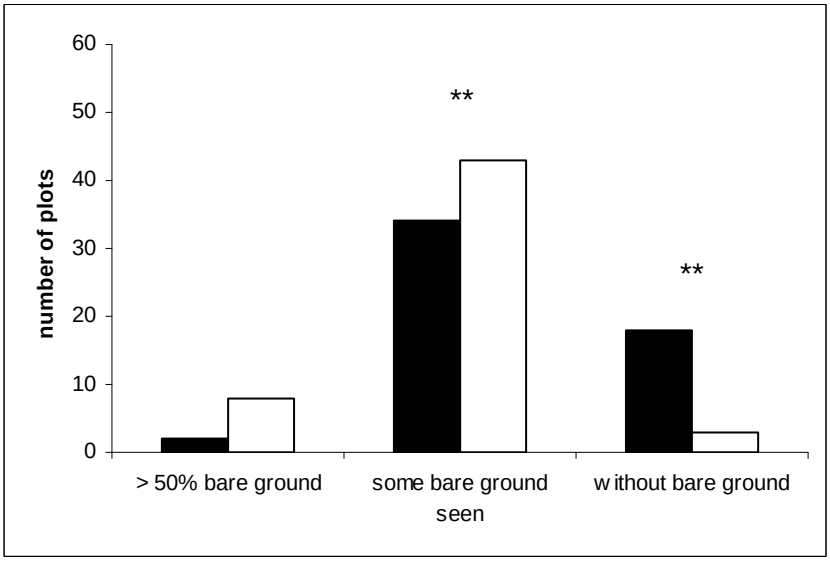

Figure 8: Influence of the percentage of bare ground on the Ortolan bunting. Black bars represent the random points. White bars represent the singing points.

** P < 0.01.

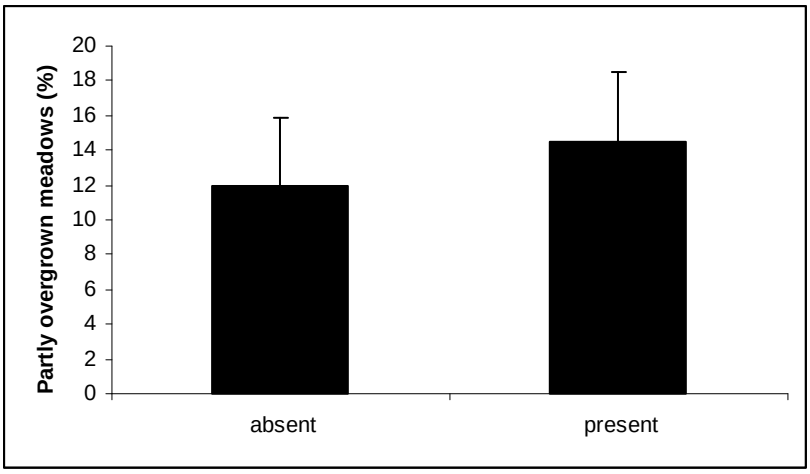

Figure 9: Influence of partly overgrown meadows on the Ortolan bunting 25 m around the singing post.

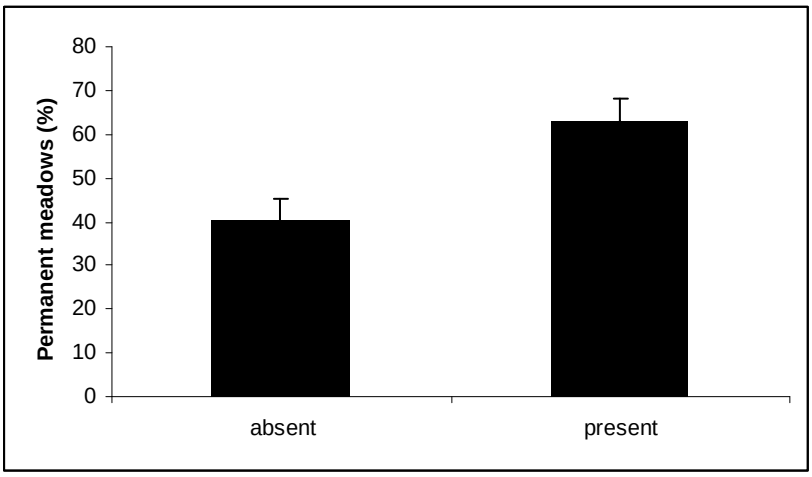

Figure 10: Influence of permanent meadows on the presence of the Ortolan bunting 25m around the singing post.

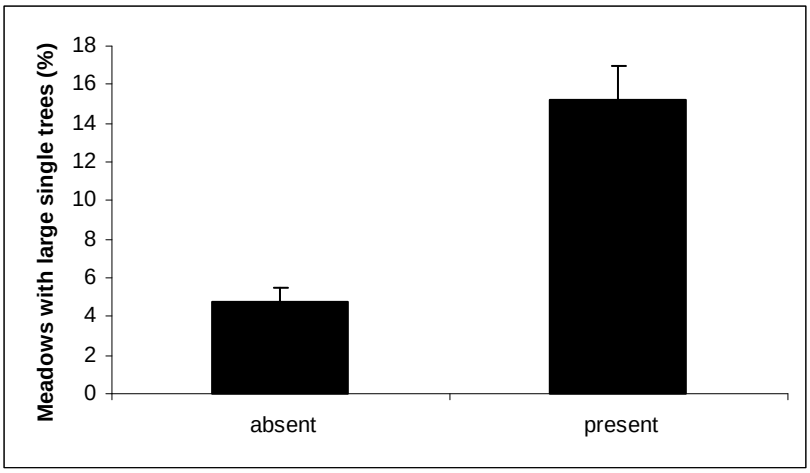

Figure 11: Influence of percentage of meadows with large single trees on the presence of the Ortolan bunting 500 m around the singing post.

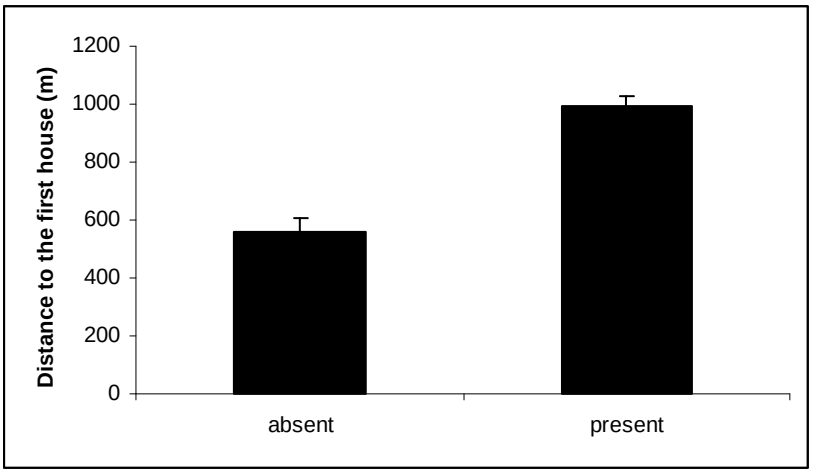

Figure 12: Influence of the distance to the first house on the presence of the Ortolan bunting.

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APPENDIX 1: Census form

Habitat census of Ortolan Bunting *Emberiza hortulana*

Short instructions

The census will go on between 25.5. and 15.6. When you locate singing post (or ex. singing post or random point) make GPS reading and census habitat in **25 m radius** around the point. In the end add general data and remarks. Precision of % is 5, for signs of poaching and presence of grass tufts make just X. With numbered categories circle one, or two adjacent categories when in doubt. Use rope to measure 25 m and make census from the middle point (eg. singing post).

General

Code	Date	Location
abbreviation of your name plus your number of the point		in a wider sense eg. Golič

☐ singing post
☐ ex. singing post
☐ random point

Bare land cover (%)
Only large areas, not between grass!

Grass cover (%)

Bush and tree cover (%)
Including *Cotinus*!

Smoke Bush *Cotinus* cover (%)

Black pines
Only live trees count, not burnt!

1 no
2 mostly smaller than 1.8 m, few (<30)
3 mostly smaller than 1.8 m, many (>30)
4 mostly higher than 1.8 m, few (<30)
5 mostly higher than 1.8 m, many (>30)

Junipers
Only live trees count, not burnt!

1 no
2 mostly smaller than 1.8 m, few (<30)
3 mostly smaller than 1.8 m, many (>30)
4 mostly higher than 1.8 m, few (<30)
5 mostly higher than 1.8 m, many (>30)

Trees and bushes
Only live trees count, not burnt! Including Black Pines and Junipers!

1 no
2 mostly smaller than 1.8 m, few (<30)
3 mostly smaller than 1.8 m, many (>30)
4 mostly higher than 1.8 m, few (<30)
5 mostly higher than 1.8 m, many (>30)

Grass thickness

1 grass and herbs low and thin
2 grass and herbs low and thick
3 grass and herbs high and thin
4 grass and herbs high and thick

low = under knees (ca. 40 cm)
high = above knees
thin = easily seen through from above

Bare land between grass

1 more than 50%
2 some bare land seen
3 no bare land

Are grass and herbs mostly in distinct large tufts? (X)

Topography
(position of point)

1 summit
2 ridge
3 steep slope
4 mild slope
5 plain
6 valley
7 karst depression (vrtača)

Dead trees

1 no
2 mostly smaller than 1.8 m, few (<30)
3 mostly smaller than 1.8 m, many (>30)
4 mostly higher than 1.8 m, few (<30)
5 mostly higher than 1.8 m, many (>30)

Signs of forest fire

1 no signs
2 scorched trunks and changed vegetation imply past fire but no damage is seen (dead trees etc.)
3 clear signs of recent fire; damage (dead trees etc.) but vegetation is improving
4 forest recently completely burnt

Signs of poaching (X)
describe in remarks

Please turn to add any remarks!

APPENDIX 2: Table with habitat parameters (s = singing post, r = random point)

KatToc	Datum	BareCov	GrassCov	BushtCov	SmokebCov	BlackP	Jun	Trees	GrassTh	BareBGr	Tufts	Topo	DeadT	FireSig	Poach	Group
s	2.6.2006	0	80	20	0	4	3	3	2	2	n	5	1	1	n	
s	2.6.2006	5	40	55	50	5	2	3	1	2	n	5	1	1	n	Sežanski Gabrk
s	8.6.2006	5	70	25	20	4	1	5	1	2	y	4	3	3	n	Sežanski Gabrk
s	8.6.2006	5	80	15	10	4	2	5	2	2	n	4	3	3	n	Sežanski Gabrk
s	8.6.2006	5	75	20	20	4	3	3	2	2	n	2	1	1	n	Sežanski Gabrk
s	8.6.2006	15	70	15	15	4	2	5	2	2	y	2	1	1	n	Sežanski Gabrk
s	27.5.2006	0	70	30	0	1	2	4	1	2	n	5	1	1	n	
s	27.5.2006	5	40	55	0	1	2	4	1	1	n	5	1	1	n	Kosovelje
s	17.6.2006	5	80	20	5	4	2	2	1	2	n	1	4	1	n	
s	17.6.2006	0	60	40	0	4	2	5	1	2	n	1	2	1	n	
s	27.5.2006	0	80	20	10	4	2	2	1	2	n	1	4	1	n	Kosovelje
s	27.5.2006	5	60	35	0	1	2	4	1	1	n	5	1	1	n	Kosovelje
s	27.5.2006	5	70	25	5	4	1	4	1	2	n	1	2	1	n	Kosovelje
s	27.5.2005	5	45	50	5	4	2	5	1	2	n	4	1	1	n	Kosovelje
s	27.5.2006	5	65	30	0	4	2	4	1	1	n	4	1	1	n	Kosovelje
s	27.5.2006	10	60	30	0	4	2	4	1	2	n	4	2	1	n	Kosovelje
s	27.5.2006	5	35	60	5	5	2	5	1	1	n	5	1	1	n	Kosovelje
s	27.5.2006	5	15	80	10	1	1	5	1	1	n	7	1	1	n	Kosovelje
s	31.5.2006	0	80	20	0	4	1	5	2	2	y	4	2	2	n	Golič
s	1.6.2006	0	20	80	0	4	1	5	2	2	n	3	1	1	n	Kuk
s	31.5.2006	0	70	30	0	1	1	4	2	3	n	4	3	2	n	Golič
s	31.5.2006	0	80	20	0	1	1	4	1	2	n	4	3	2	n	Golič
s	31.5.2006	0	60	40	0	1	1	5	2	2	n	4	2	2	n	Golič
s	31.5.2006	0	60	40	0	2	1	1	2	3	n	6	4	2	n	Golič
s	1.6.2006	0	70	30	5	2	1	5	3	1	n	3	1	1	n	Kuk
s	1.6.2006	5	75	20	0	4	1	4	3	1	n	3	1	1	n	Kuk
s	1.6.2006	0	70	30	0	4	1	5	4	2	n	7	1	1	n	Kuk
s	1.6.2006	5	50	50	5	1	1	5	2	2	n	4	4	1	n	Kuk
s	28.5.2006	0	60	40	15	1	1	4	1	2	n	5	1	1	n	Podgorski kras
s	28.5.2006	5	90	5	0	4	2	2	1	1	y	2	1	1	n	Podgorski kras
s	13.6.2006	5	80	15	5	4	2	2	1	2	n	1	5	1	n	Podgorski kras
s	13.6.2006	0	70	30	10	1	2	5	1	2	n	4	4	1	n	Podgorski kras
s	13.6.2006	5	60	35	20	1	1	4	1	2	n	4	1	1	n	Podgorski kras
s	13.6.2006	0	85	15	0	4	1	4	1	2	y	4	1	1	n	Podgorski kras
s	13.6.2006	0	90	10	0	1	1	4	1	2	n	4	1	1	n	Podgorski kras
s	13.6.2006	0	70	30	5	1	1	4	1	2	n	5	1	1	n	Podgorski kras
s	13.6.2006	0	80	20	15	4	1	4	1	2	y	5	1	1	n	Podgorski kras
s	13.6.2006	0	80	20	10	4	1	4	1	2	n	5	1	1	n	Podgorski kras
s	13.6.2006	5	90	5	0	1	1	4	2	3	n	4	4	1	n	Podgorski kras
s	28.5.2006	0	50	50	35	4	1	3	1	2	y	5	1	1	n	Podgorski kras
s	13.6.2006	0	85	15	5	4	1	4	1	2	n	5	1	1	n	Podgorski kras
s	13.6.2006	0	90	10	0	4	1	4	1	2	y	5	1	1	n	Podgorski kras
s	13.6.2006	0	90	10	0	4	2	4	1	2	n	5	1	1	n	Podgorski kras
s	13.6.2006	0	90	10	5	4	2	4	1	2	n	1	1	1	n	Podgorski kras
s	13.6.2006	0	80	20	30	4	1	4	1	2	y	4	1	1	n	Podgorski kras
s	13.6.2006	5	85	10	0	4	2	4	1	2	y	4	1	1	n	Podgorski kras
s	28.5.2006	0	95	5	0	4	2	4	1	2	y	5	1	1	n	Podgorski kras
s	28.5.2006	0	90	10	5	1	2	3	1	2	y	5	1	1	n	Podgorski kras
s	28.5.2006	0	95	5	0	4	1	4	1	2	n	2	1	1	n	Podgorski kras
s	28.5.2006	5	60	35	5	4	1	2	1	2	y	5	4	1	n	Podgorski kras
s	28.5.2006	0	90	10	0	4	1	4	1	2	n	4	1	1	n	Podgorski kras
s	28.5.2006	0	80	20	0	4	1	4	1	2	y	7	1	1	n	Podgorski kras

KatToc	Datum	BareCov	GrassCov	BushtCov	SmokebCov	BlackP	Jun	Trees	GrassTh	BareBGr	Tufts	Topo	DeadT	FireSig	Poach	Group
s	28.5.2006	5	90	5	0	4	1	4	1	2	y	2	1	1	n	Podgorski kras
s	28.5.2006	0	95	5	0	4	1	4	1	2	y	2	1	1	n	Podgorski kras
s	8.6.2006	10	70	20	20	1	1	4	1	2	y	2	2	3	n	Sežanski Gabrk
s	8.6.2006	10	80	10	10	1	1	3	1	2	y	2	2	3	n	Sežanski Gabrk
s	8.6.2006	5	65	30	0	4	2	5	1	2	y	2	2	3	n	Sežanski Gabrk
r	1.6.2006	0	100	0	0	1	1	1	3	2	n	3	1	1	n	
r	31.5.2006	5	85	9	1	1	1	2	1	3	n	4	4	3	n	
r	1.6.2006	10	50	40	0	1	1	5	1	2	y	5	1	1	n	
r	1.6.2006	0	50	50	0	4	3	5	1	2	n	5	1	1	n	
r	1.6.2006	0	50	50	0	1	1	5	3	2	n	5	1	1	n	
r	1.6.2006	5	20	75	50	4	2	4	1	2	n	5	1	1	n	
r	1.6.2006	10	10	80	70	1	1	4	1	2	n	5	4	2	n	
r	17.10.200	20	50	30	0	1	2	5	1	2	n	3	2	1	n	
r	17.10.200	5	10	85	0	5	2	5	2	3	n	7	4	1	n	
r	17.10.200	10	55	35	0	4	3	5	1	2	n	4	4	1	n	
r	17.10.200	5	60	35	0	1	4	5	1	3	n	5	4	1	n	
r	1.6.2006	5	95	0	0	1	1	2	1	2	n	5	1	1	n	
r	17.10.200	40	60	0	0	1	1	1	1	1	n	5	1	1	n	
r	17.10.200	10	5	85	0	4	5	5	1	2	n	4	5	1	n	
r	1.6.2006	0	30	70	10	1	1	5	4	3	n	3	1	1	n	
r	1.6.2006	0	60	40	0	5	1	1	1	2	n	5	1	1	n	
r	1.6.2006	0	60	40	5	3	2	5	3	2	n	5	1	1	n	
r	1.6.2006	0	70	30	0	1	1	4	3	2	n	4	1	1	n	
r	27.5.2006	0	50	50	0	1	2	5	1	2	y	4	1	1	n	
r	27.5.2006	0	50	50	0	4	2	5	1	2	n	1	4	2	n	
r	31.5.2006	5	85	10	0	1	1	2	1	2	n	3	4	3	n	
r	8.7.2006	0	90	10	0	4	4	4	2	3	n	4	1	1	n	
r	8.7.2006	0	30	70	0	4	2	5	2	2	y	4	1	1	n	
r	8.7.2006	0	90	10	0	1	1	4	2	3	n	1	1	1	n	
r	8.7.2006	0	40	60	10	4	2	5	4	2	n	4	1	1	n	
r	8.7.2006	0	90	10	0	1	1	4	2	3	n	5	1	1	n	
r	8.7.2006	10	90	0	0	1	1	1	2	3	n	5	1	1	n	
r	8.7.2006	0	100	0	0	1	1	1	2	3	n	4	1	1	n	
r	8.7.2006	0	90	10	0	1	1	4	2	3	n	5	1	1	n	
r	8.6.2006	5	70	25	20	4	1	5	1	2	y	4	3	3	n	
r	8.7.2006	0	80	20	0	4	2	4	2	3	n	4	1	1	n	
r	28.5.2006	5	85	10	0	1	1	4	2	2	n	5	1	1	n	
r	28.5.2006	5	25	70	0	1	1	5	2	2	n	5	1	1	n	
r	28.5.2006	0	55	45	0	1	1	5	4	2	n	5	1	1	n	
r	28.5.2006	5	80	15	0	1	1	4	3	1	n	5	1	1	n	
r	26.10.200	5	30	65	0	1	2	5	1	2	n	4	2	1	n	
r	26.10.200	10	40	50	0	4	2	3	4	3	n	7	1	1	n	
r	26.10.200	5	40	55	10	5	2	5	1	2	n	4	4	1	n	
r	1.6.2006	5	15	30	0	1	1	5	4	3	n	5	1	1	n	
r	10.6.2006	0	30	70	0	4	2	5	1	2	n	4	4	1	n	
r	1.6.2006	5	50	45	0	4	2	5	1	2	n	4	1	1	n	
r	1.6.2006	0	60	40	20	1	1	5	3	3	n	5	1	1	n	
r	1.6.2006	5	30	65	0	1	1	5	1	2	y	5	1	1	n	
r	1.6.2006	0	60	40	5	1	1	5	3	3	n	5	1	1	n	
r	1.6.2006	0	80	20	0	4	2	5	1	2	n	4	4	1	n	
r	1.6.2006	5	15	80	5	4	1	5	1	2	n	4	5	1	n	
r	1.6.2006	0	50	50	0	4	2	5	1	3	n	5	1	1	n	
r	31.5.2006	0	80	20	0	1	1	4	4	3	n	5	1	1	n	
r	31.5.2006	5	80	15	0	4	1	4	1	2	y	4	1	1	n	
r	31.5.2006	5	90	5	0	1	2	2	1	2	n	5	1	1	n	
r	31.5.2006	0	40	60	20	4	3	5	2	3	n	4	1	1	n	