

Wolf predation on ungulates and its input on game management: case of Ralsko region (Northern Bohemia)



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Framework of wolf management in the Czech Republic

- **Game management legislation**
game species, but without possibility to hunt
- **Nature and landscape protection legislation**
specially protected, critically endangered species
- **Legislation providing compensation of damages caused by selected specially protected animals**
damages on farm animals are paid by the government

Rapidly growing wolf population

Rapidly growing area of occurrence

Increasing damages on domestic animals



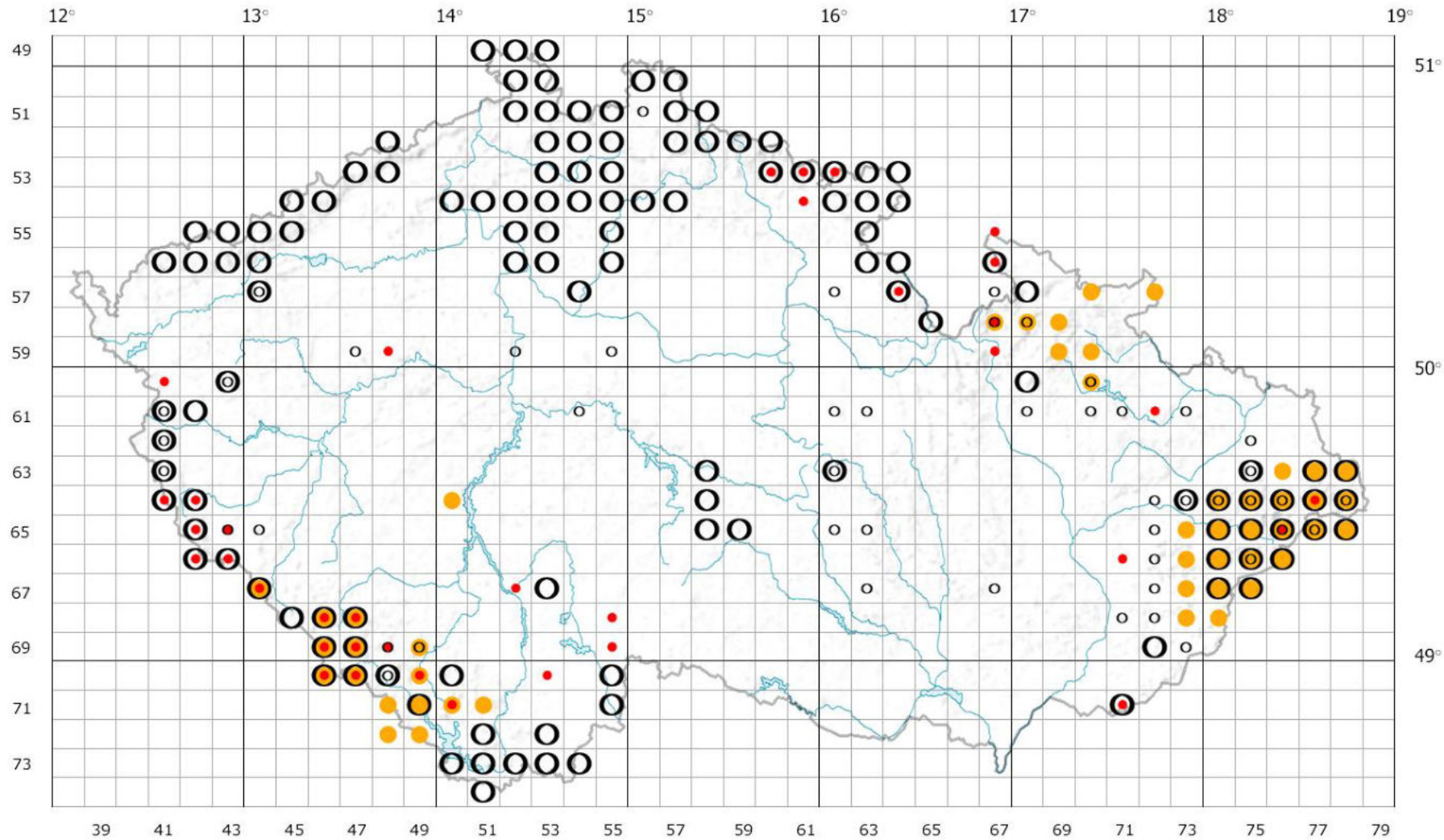
Riven public mind

Time to change the wolf status (?) and when (?)

Necessity to adopt the management plan



Wolf occurrence in the Czech Republic



Findings

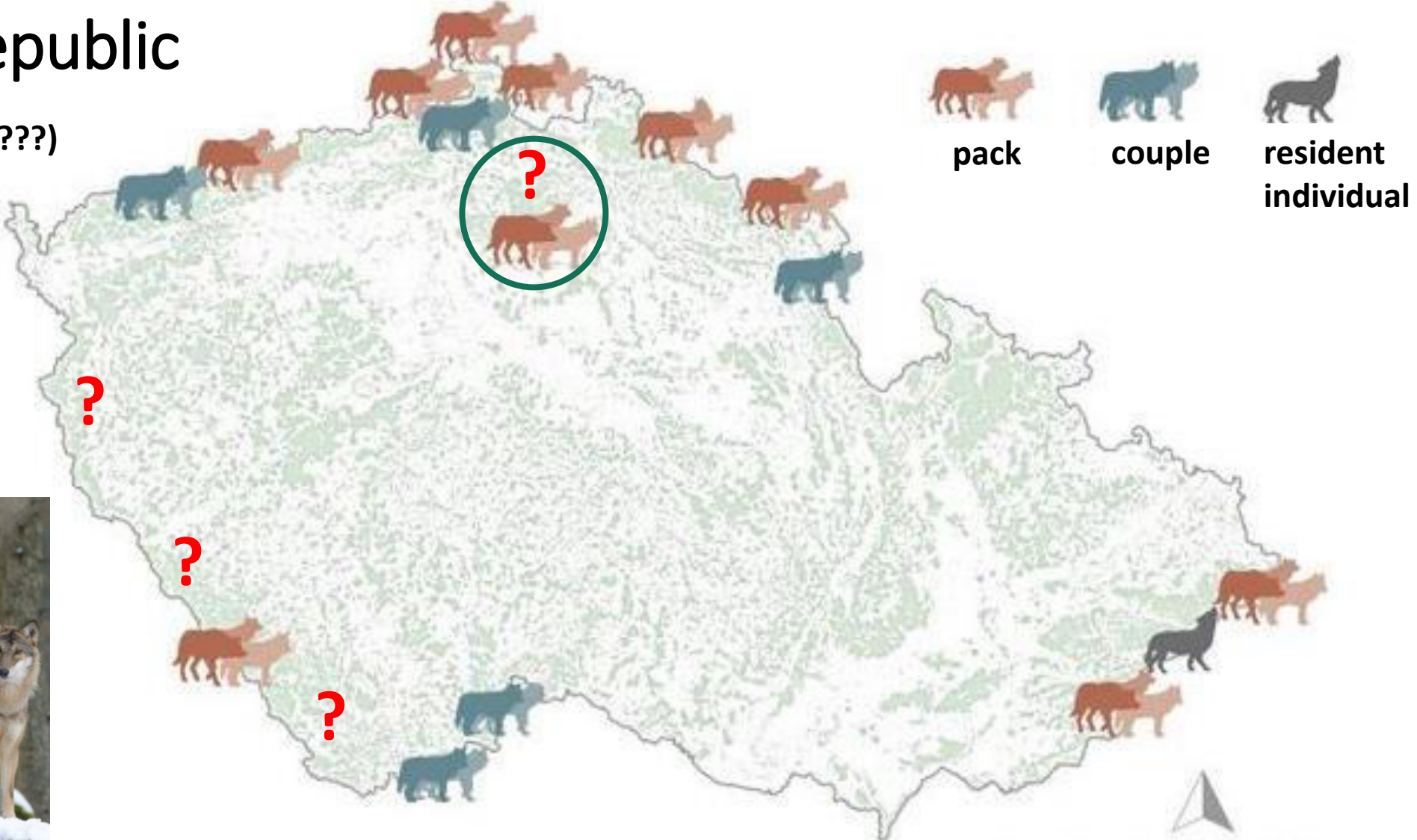
- to 1949
- 1950 - 1989
- 1990 - 2009
- after 2010

According to database (ND OP) of the Nature Conservation Agency of the Czech Republic (file updating 12.4.2019)

Wolf occurrence in the Czech Republic

approx. 50 - 100 inds. (???)

 Study area



Adjusted map according to database (ND OP) of the Nature Conservation Agency of the Czech Republic

Wolf occurrence in Ralsko region

- First observation – autumn 2013, two wolves hunted female of fallow deer
- First reproduction – 12.9.2014, two pups recorded by camera trap
- Current occurrence of one (or two) pack(s), 5 – 10 wolves



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2017/05/31 06:21:08

Other aspects of wolf occurrence in Ralsko region and in vicinity

- **Mortality (2014 -2019)**
 - traffic accidents (4 cases)
 - killing by other wolf (1 case)
 - poaching (2 cases)
- **Compensation on domestic animals (sheeps, cattle, goats)**
 - 2015: 6 000 Kč (240 E)
 - 2016: 34 849 Kč (1 394 E)
 - 2017: 114 600 Kč (4 584 E)
 - 2018: 230 490 Kč (9 220 E)

Czech Republic 2010-2017
Wolf – approx. 1.5 mil. Kč (60000 E)
Otter – approx. 100 mil Kč (4 mil. E)
- **Competition with jackal ?**



Study area - habitats

- **Total range** 28283 ha
 - **Forest stands** 26920 ha
 - **Water surface** 217 ha
 - **Agriculture land** 86 ha
 - **Built-up area** 8 ha
-
- **Different habitats in abolished military training area Ralsko**
 - **Forestation more than 95%**

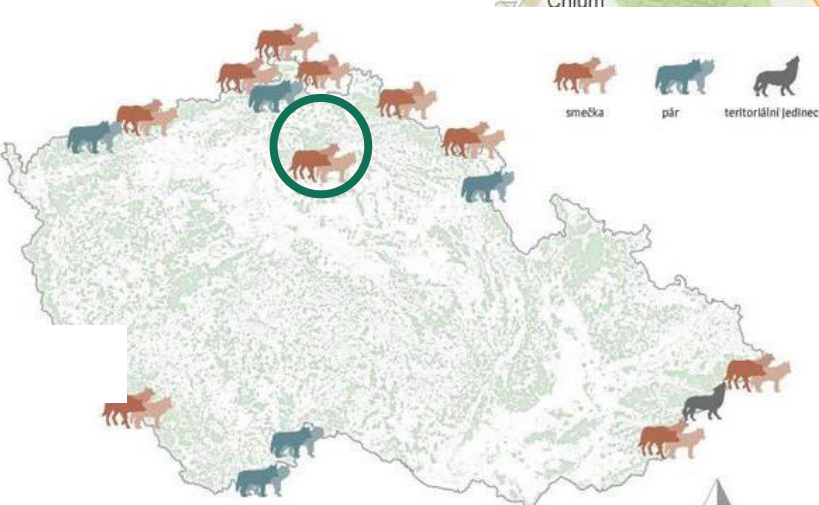
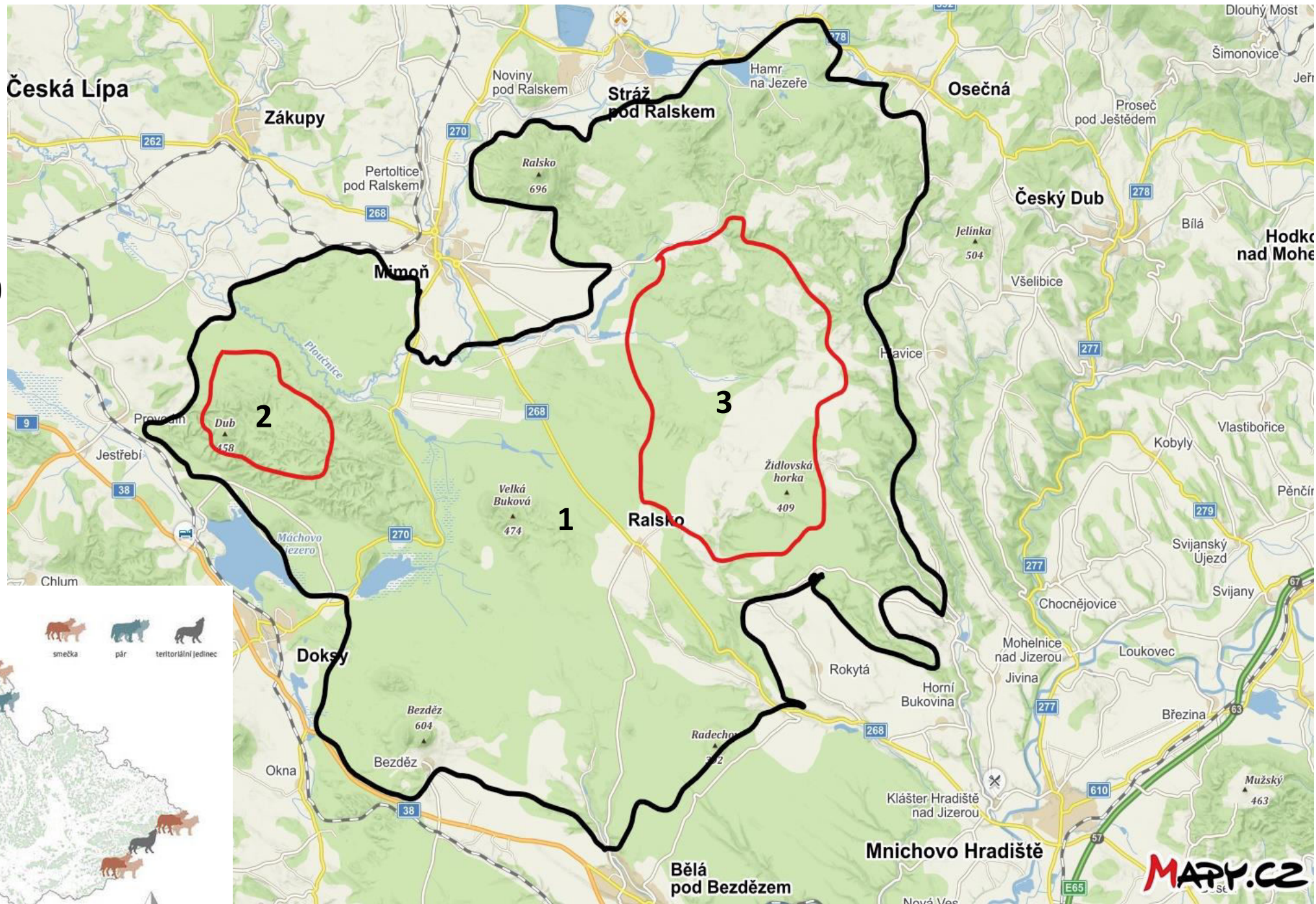
Four hunting grounds

- 1 **Free ranged Ralsko**
- 2 **Game preserve Velký Dub**
- 3 **Game preserve Židlov**
- 4 **Game preserve Prosíčka**



Study area

- 1 Ralsko (21461 ha)
- 2 Velký Dub (534 ha)
- 3 Židlov (3794 ha)



Ralsko

- 21 461 ha
- Dominant different forest stands, open areas of former army shooting ranges, agriculture land, water surfaces and swamps
- Normalized numbers of: wild boar (98 inds.), red deer (210 inds.), fallow deer (256 inds.), mouflon (50 inds.) and roe deer (257 inds.)
- Exact abundance of game species and density unknown
- Strong wolf predation



Velký Dub

- 534 ha
- Fully forested area with large beechwood and some oak stands; rugged sandstone rocky formation
- Breeding area for fallow deer and mouflon
- Exact abundance of game species and density unknown
- Former strong wolf predation before fence adjustment



Židlov

- **Second biggest game preserve in the Czech Republic (3794 ha)**
- **The most important areas are deforested military tank fire ranges, forestation 55.9% ha**
- **Main bred game: red deer and european bison (herd of 28 animals); accessory game: wild boar, fallow deer, roe deer mouflon**
- **Exact abundance and density of game species unknown**
- **Game behaviour like in free nature**
- **Former strong wolf predation before fence adjustment**



Wild boar (*Sus scrofa*) – wolf predation



Ralsko (2014 – 2018): 25 inds. (5 inds. per year); 2 males : 9 females : 14 juv. (8,0% : 36,0% : 56,0%)

Židlov (2014 – 2017): 12 inds. (2.4 inds. per year); 0 males : 2 females : 10 juv. (0,0% : 16,7% : 83.3%)

Red deer (*Cervus elaphus*) – wolf predation



Ralsko (2014 – 2018): 25 inds. (5 inds. per year); 4 males : 14 females : 7 juv. (16,0% : 56.0% : 28.0%)
Židlov (2014 – 2017): 44 inds. (11 inds. per year); 2 males : 33 females : 9 juv. (4.5% : 75.0% : 20.5%)

Fallow deer (*Dama dama*) – wolf predation



Ralsko (2014 – 2018): 184 inds. (36.8 inds. per year); 25 males : 79 females : 80 juv. (13.6% : 42.9% : 43.5%)

Velký Dub (only 2017): 19 inds. per year; 3 males : 12 females : 4 juv. (15.8% : 63.1% : 21.1%)

Židlov (2014 – 2018): 26 inds. (6.5 inds. per year); 7 males : 11 females : 8 juv. (26.9% : 42.3% : 30.8%)

Roe deer (*Capreolus capreolus*) – wolf predation



Ralsko (2014 – 2018): 110 inds. (22 inds. per year); 25 males : 55 females : 30 juv. (22.7% : 50.0% : 27.3%)

Židlov (2014 – 2017): 28 inds. (7 inds. per year); 0 males : 12 females : 16 juv. (0,0% : 42,9% : 57.1%)

Mouflon (*Ovis aries musimon*) – wolf predation



Ralsko (2014 – 2018): 27 inds. (5.4 inds. per year); 11 males : 11 females : 5 juv. (40.7% : 40.7% : 18,6%)

Velký Dub (only 2017): 39 inds. per year; 13 males : 6 females : 20 juv. (33.3% : 15.4 % : 51.3%)

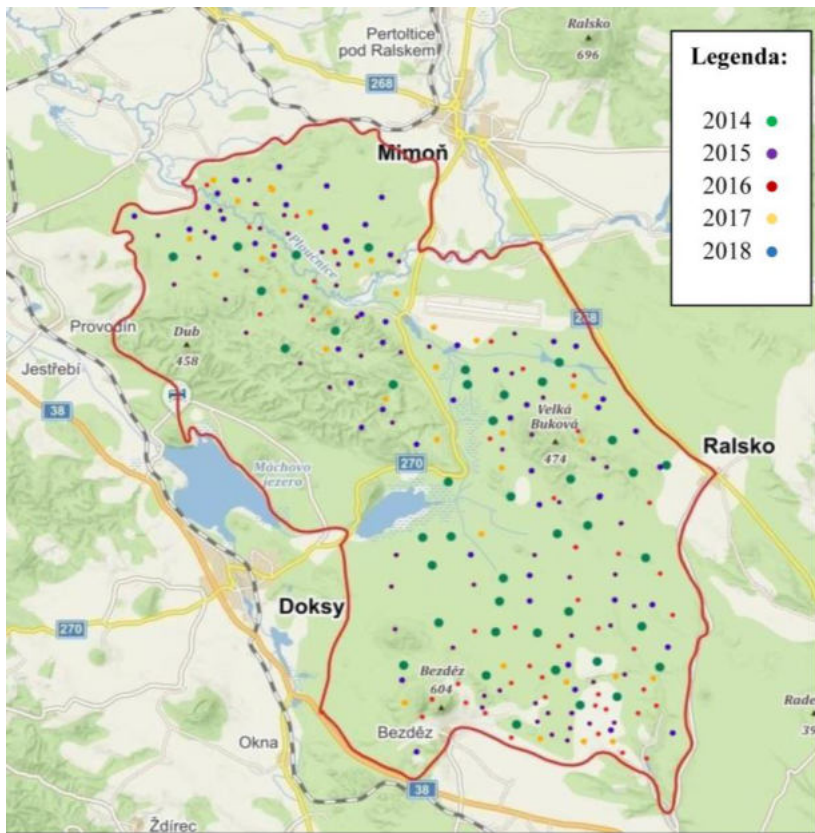
Židlov (2014 – 2017): 98 inds. (24.5 inds. per year); 35 males : 34 females : 29 juv. (35.7% : 34.7% : 29.6%)

European bison (*Bison bonasus*)

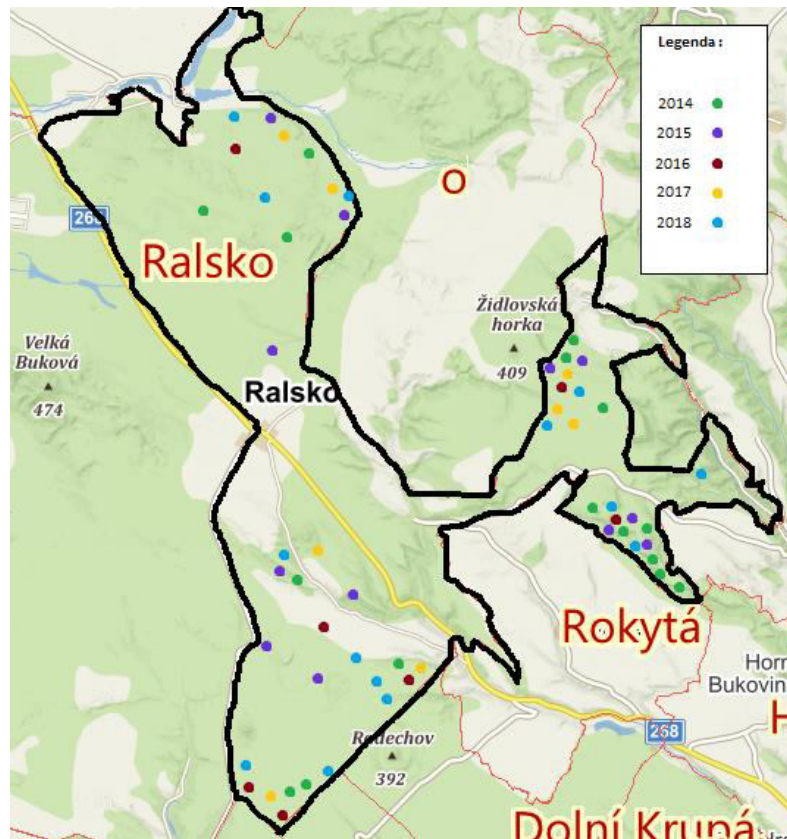


Židlov: no wolf predation, changes in bison behaviour

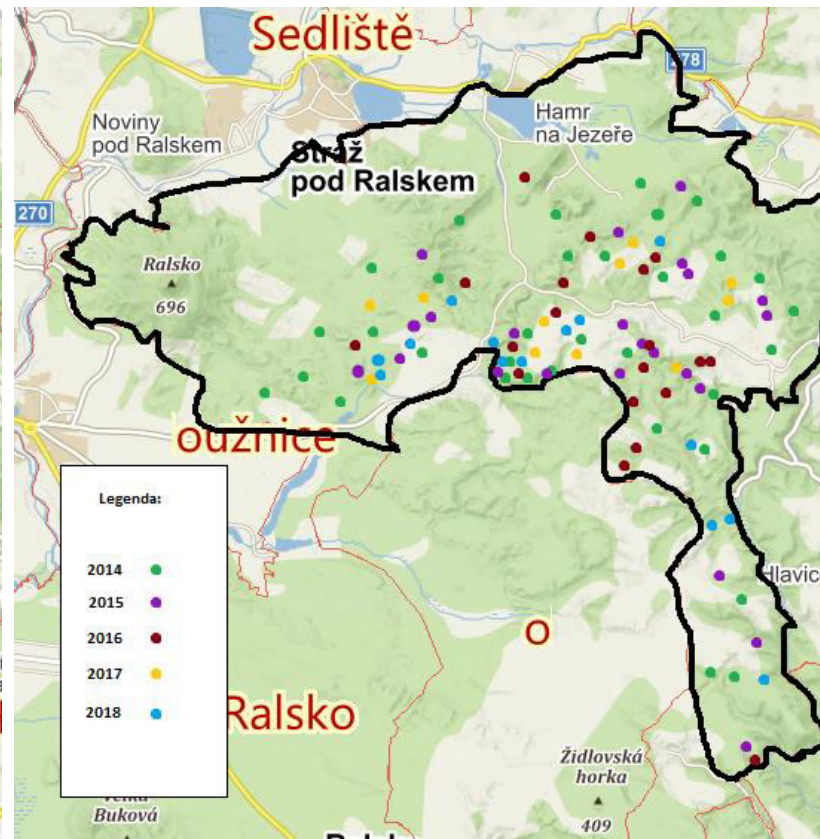
Ralsko - distribution of kills in different forest districts



Břehyně



Dolní Krupá

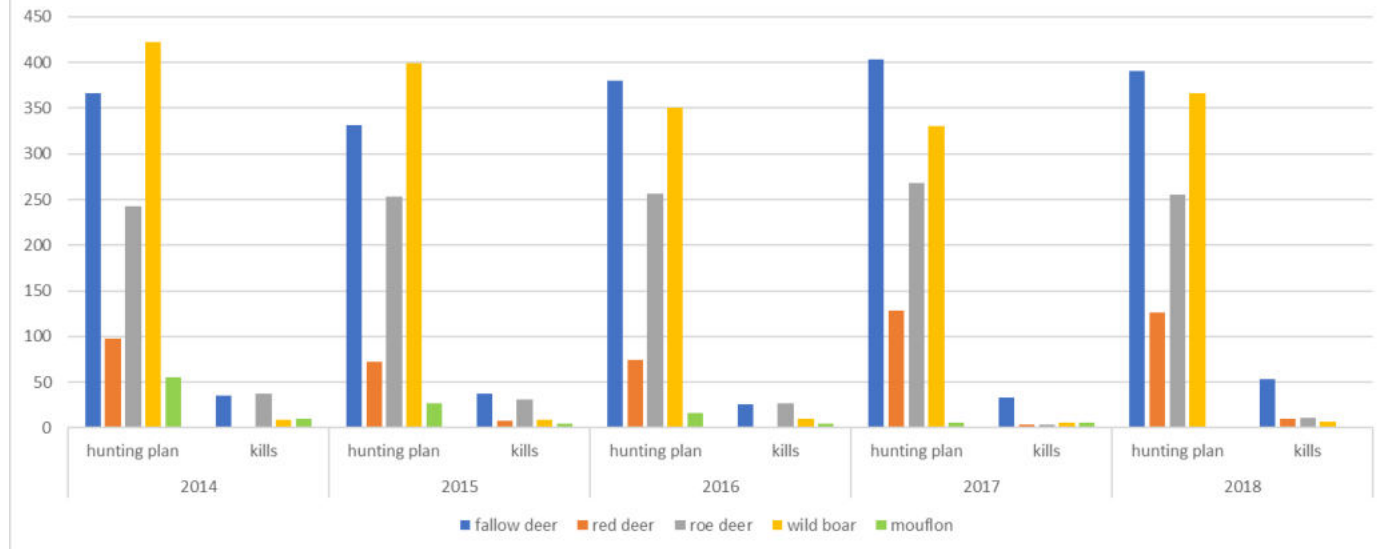


Hamr

Ralsko

	2014		2015		2016		2017		2018	
	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills
fallow deer	366	35	331	37	380	26	403	33	391	53
red deer	98	1	72	8	75	2	128	4	126	10
roe deer	243	37	253	31	256	27	268	4	255	11
wild boar	422	9	399	9	350	10	330	6	366	7
mouflon	55	10	27	5	16	5	6	6	0	1

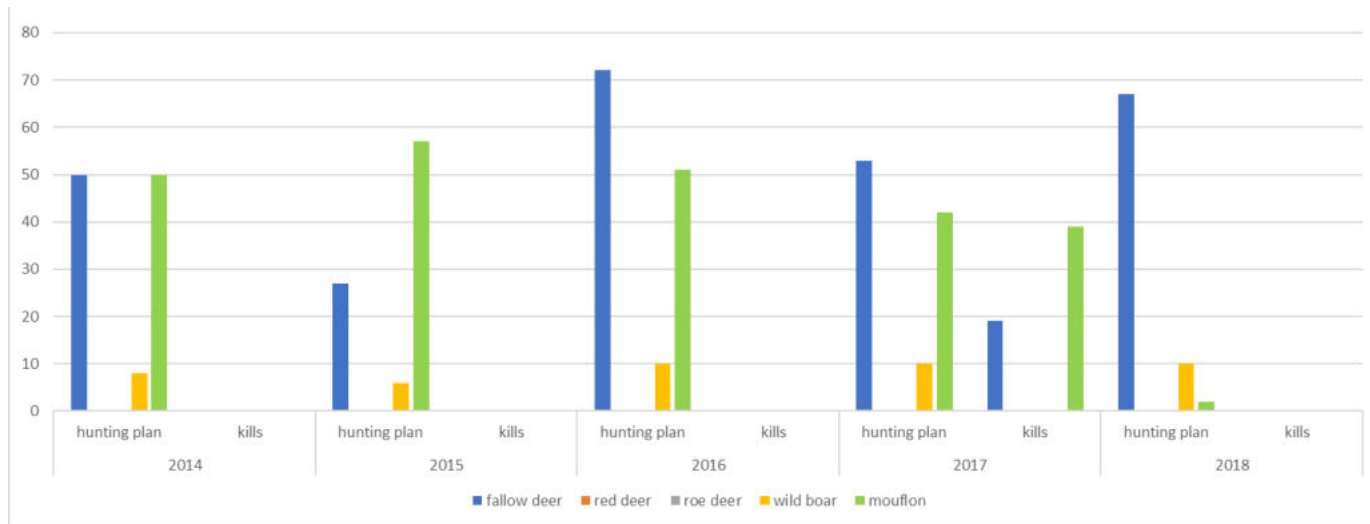
2014 - 2018	hunting plan	kills	%
fallow deer	1871	184	10%
red deer	499	25	5%
roe deer	1275	110	9%
wild boar	1867	41	2%
mouflon	106	27	25%
together	5 618	387	7%



Velký Dub

	2014		2015		2016		2017		2018	
	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills
fallow deer	50	0	27	0	72	0	53	19	67	0
red deer	0	0	0	0	0	0	0	0	0	0
roe deer	0	0	0	0	0	0	0	0	0	0
wild boar	8	0	6	0	10	0	10	0	10	0
mouflon	50	0	57	0	51	0	42	39	2	0

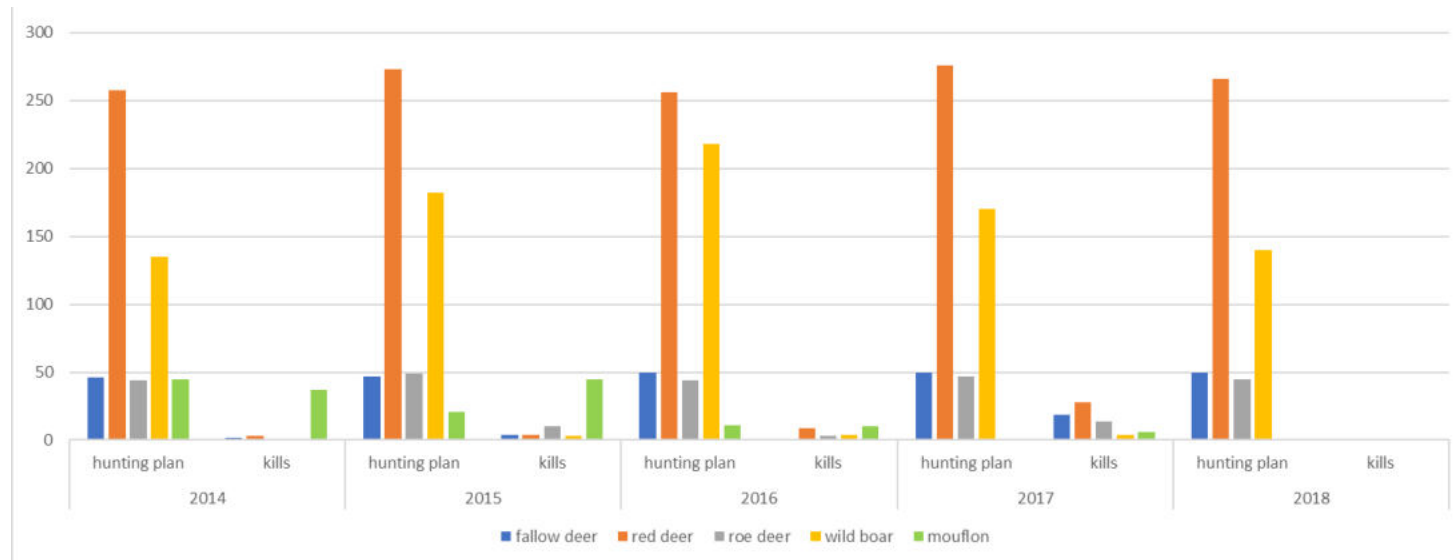
2014 - 2018	hunting plan	kills	%
fallow deer	269	19	7%
red deer	0	0	0%
roe deer	0	0	0%
wild boar	44	0	0%
mouflon	202	39	19%
together	515	58	11%



Židlov

	2014		2015		2016		2017		2018	
	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills	hunting plan	kills
fallow deer	46	2	47	4	50	1	50	19	50	0
red deer	258	3	273	4	256	9	276	28	266	0
roe deer	44	1	49	10	44	3	47	14	45	0
wild boar	135	1	182	3	218	4	170	4	140	0
mouflon	45	37	21	45	11	10	0	6	0	0

2014 - 2018	hunting plan	kills	%
fallow deer	243	26	11%
red deer	1329	44	3%
roe deer	229	28	12%
wild boar	845	12	1%
mouflon	77	98	127%
together	2 723	208	8%



Wolf predation (inds. per year)

1. Mouflon: 5.4 – 39.0

2. Fallow deer: 6.5 – 36.8

3. Roe deer : 7.0 – 22.0

4. Red deer: 5.0 – 11.0

5. Wild boar: 2.4 – 5.0

Together/100 ha: 0,35 – 10,86

Wolf predation (% from hunting plan)

1. Mouflon: 19 - 127

2. Fallow deer: 7 - 11

3. Roe deer : 9 - 12

4. Red deer: 3 - 5

5. Wild boar: 1 - 2

Together 7 - 11



Velký Dub: 534 ha, 10,5 km of fence adjustment by wire mesh



**digging holes
under fences
before
adjustment**

**no chance to dig
after adjustment**



ŽIDLOV: 3794 ha, 32 km of fence adjustment by strong wire grating, open gates with ground iron grate



Thank you for your attantion

