



# Selection methods of red deer (*Cervus elaphus* L.) breeding in the state hunting ground No. VII / 4 „Garjevica” in Croatia

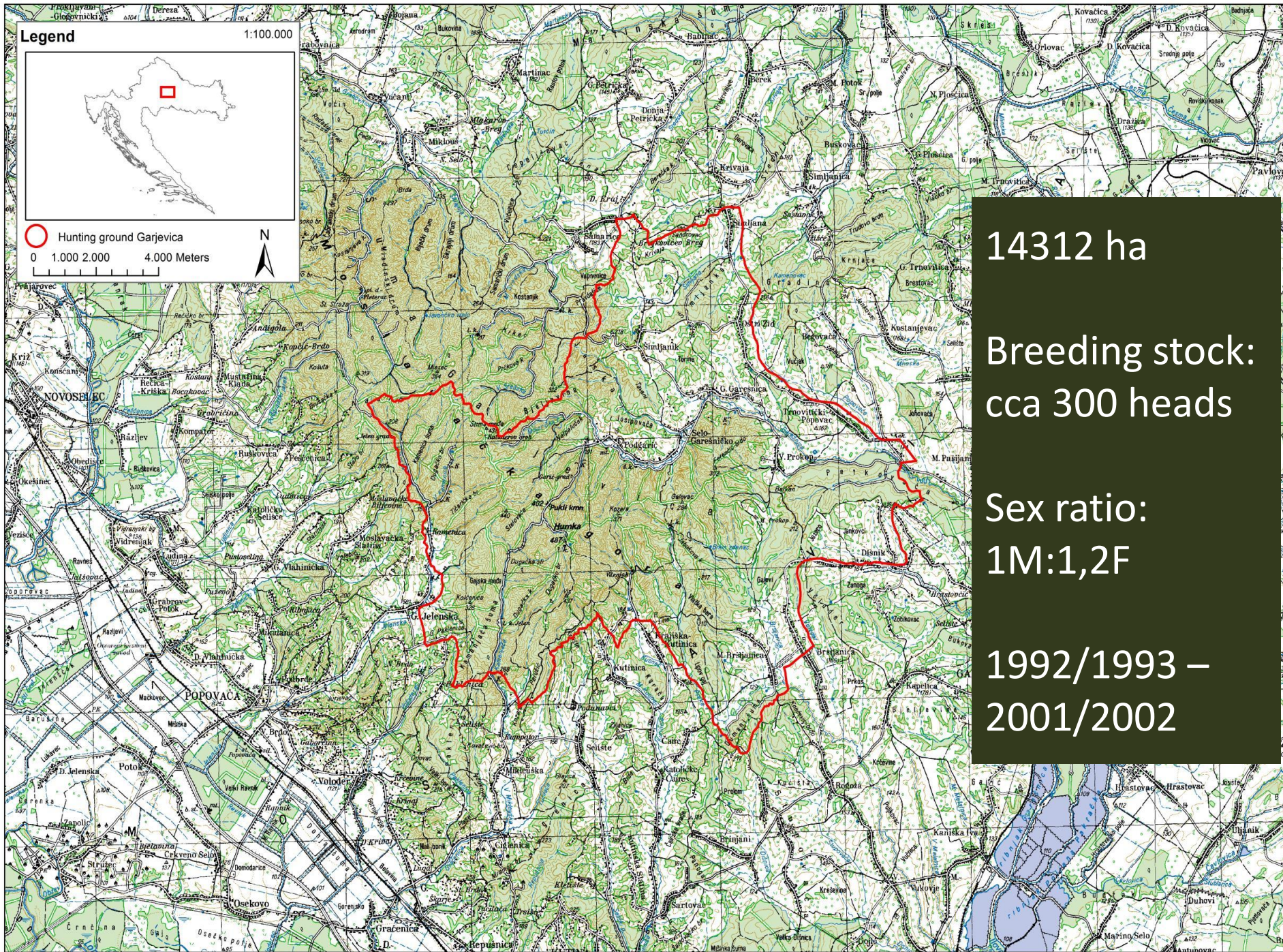
LUKA MANOJLOVIĆ<sup>1</sup>, TOMISLAV DUMIĆ<sup>2</sup>, KRUNOSLAV PINTUR<sup>2</sup>, TOMICA MARIĆ<sup>3</sup>

<sup>1</sup> *Vincenta iz Kastva 6, Zagreb, Hrvatska*

<sup>2</sup> *Veleučilište u Karlovcu, Trg J.J. Strossmayera 9, Karlovac, Hrvatska  
(tomislav.dumic@vuka.hr)*

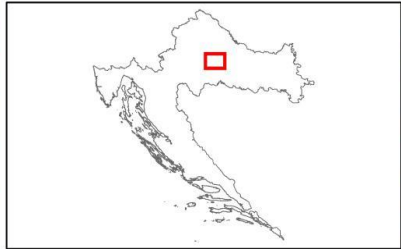
<sup>3</sup> *Lovno gospodarstvo Moslavina, Trg Dražena Petrovića 3, Zagreb, Hrvatska*





**Legend**

1:100.000



○ Hunting ground Garjevica  
0 1.000 2.000 4.000 Meters



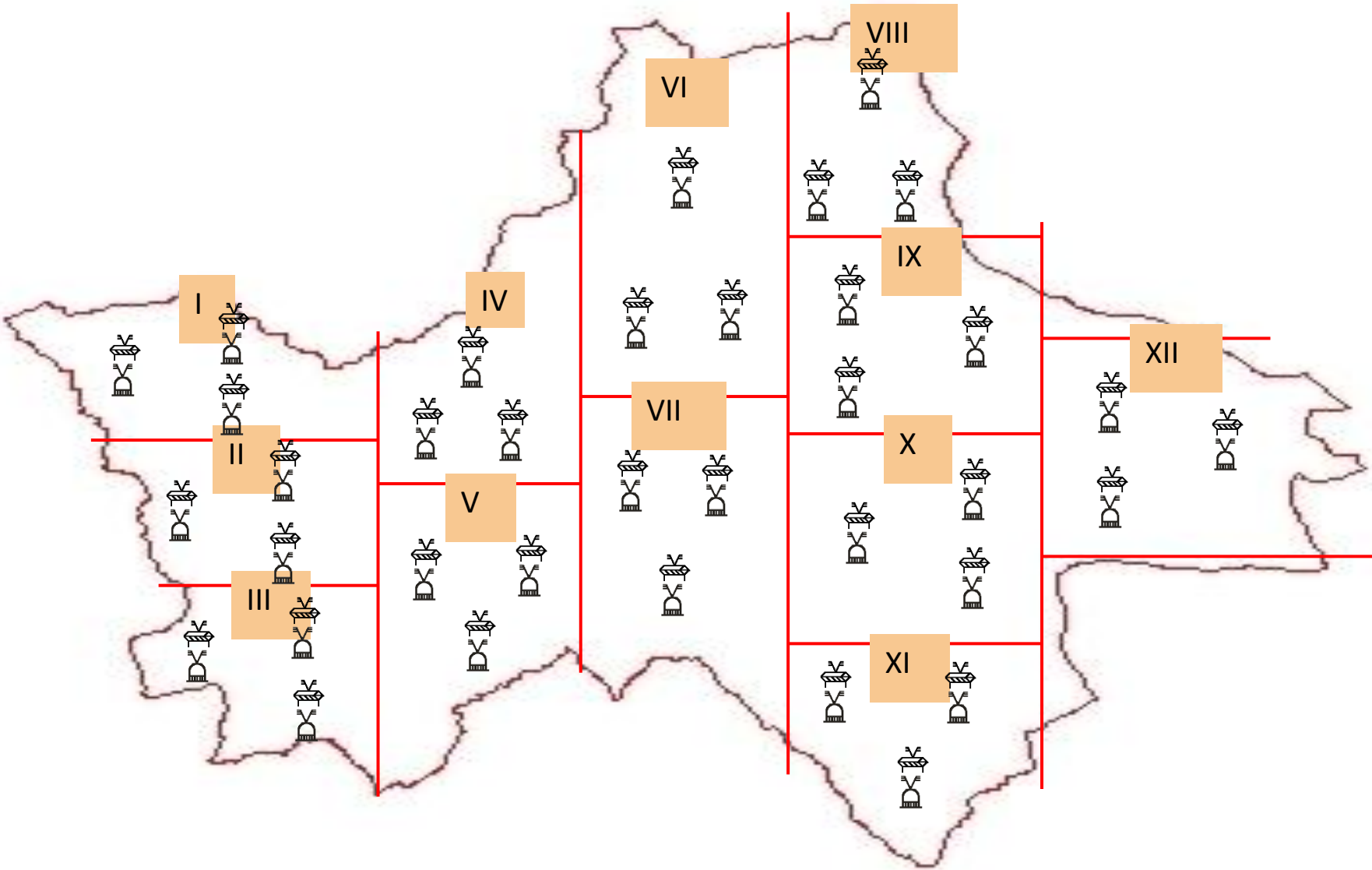
14312 ha  
Breeding stock:  
cca 300 heads  
Sex ratio:  
1M:1,2F  
1992/1993 –  
2001/2002



# Breeding measures:

- raising the nutritional capacity of the habitat
- supplementary feeding / nutrition
- preserving peace in the hunting ground
- health care
- selection (breeding) cull

# Position of feeding places: semiautomatic feeders and haystacks + saltlicks

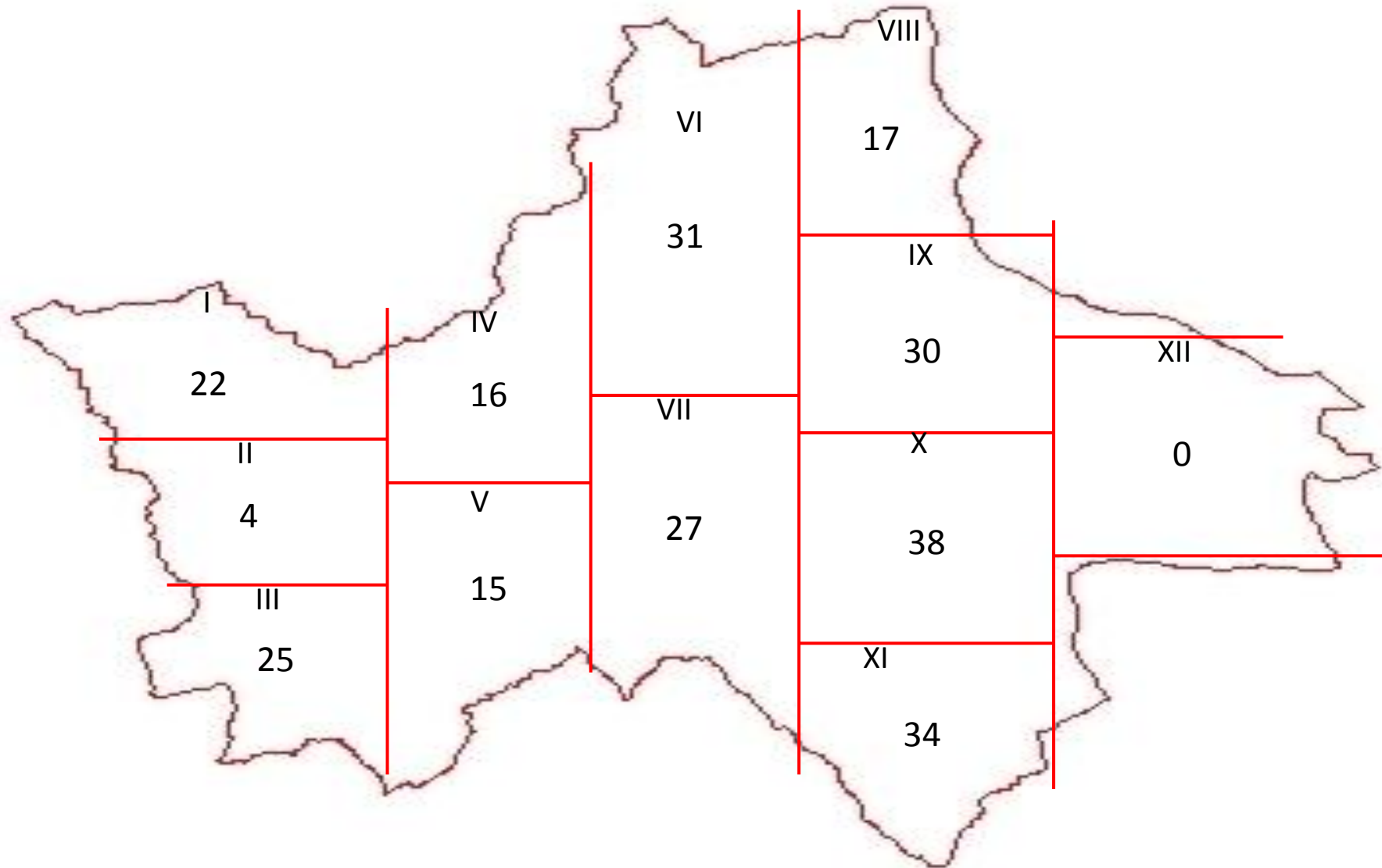






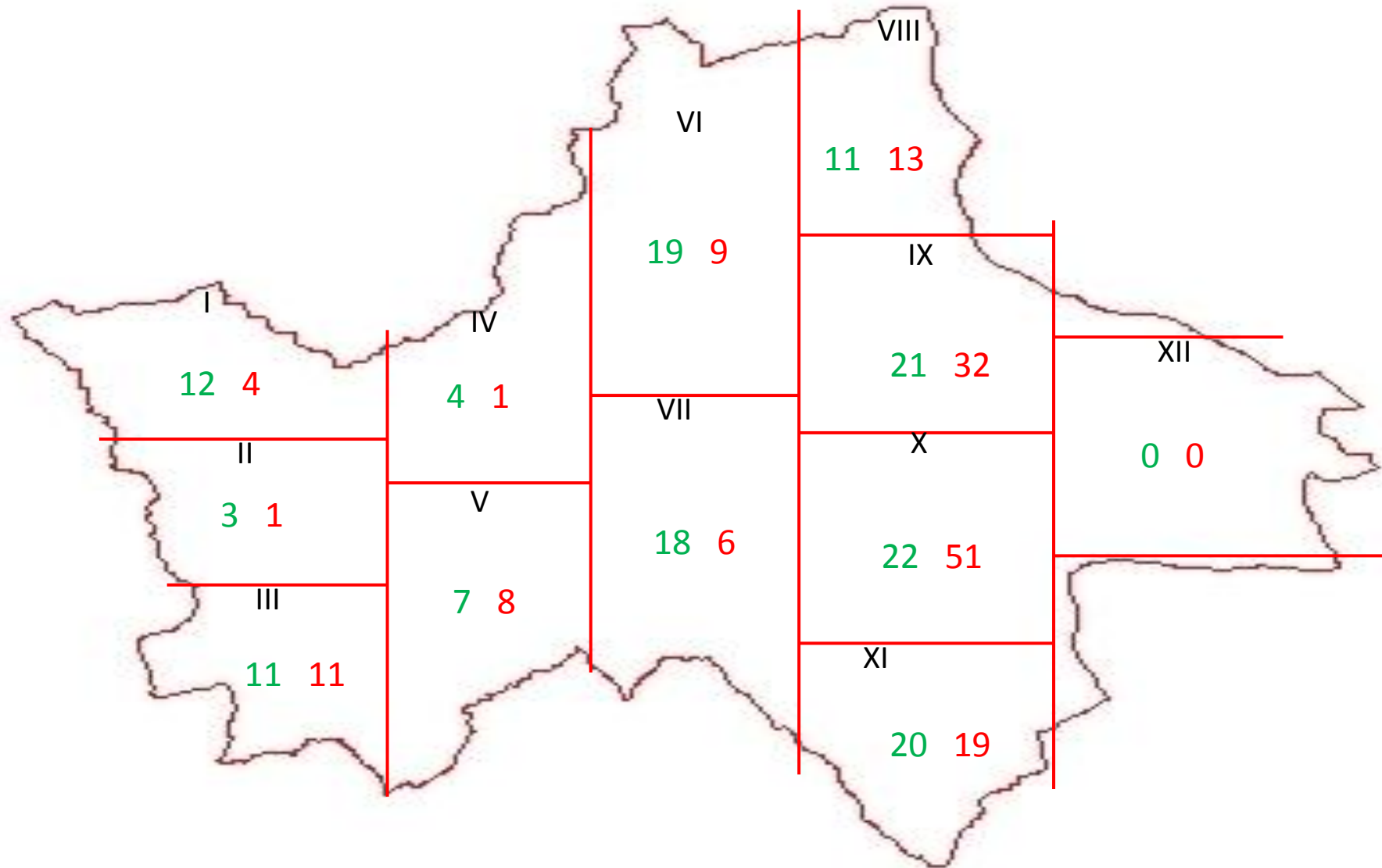


Breeding stock: 259 heads

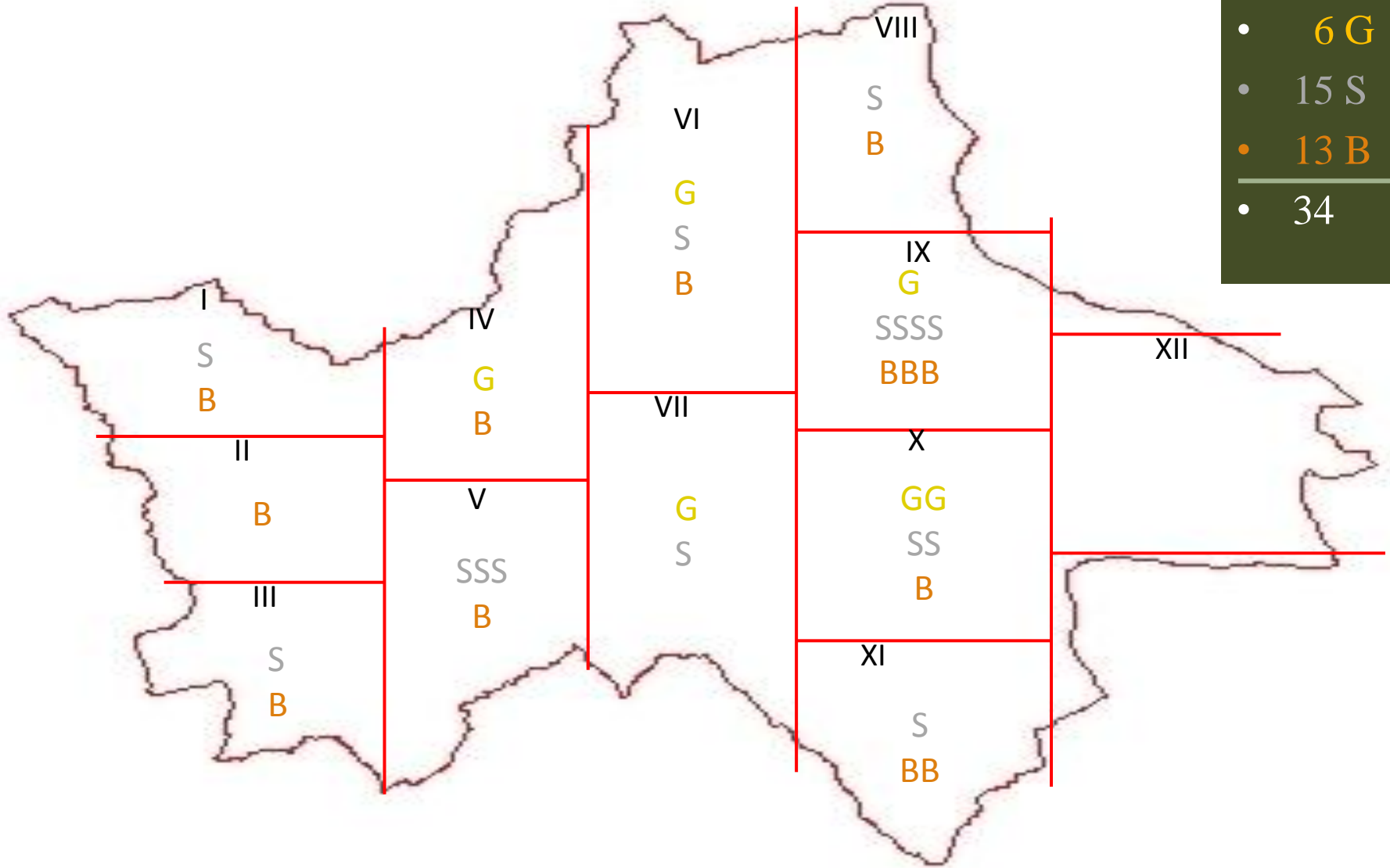




# Breeding hinds: before calving - in mating season



Breeding males: gold medal (G), silver medal (S), bronze medal (B)













# 425 trophies were analyzed by trophy parameters

n = 100

III/2.	1	2	3	4	5	6	7	8	9	sum	10-14	sum
Min	22,5	3,45	0,00	11,40	12,80	12,17	1,80	0,00	4,00	88,32	1,00	90,82
Avg	34,96	5,67	5,57	18,10	20,69	18,81	5,03	2,08	8,88	119,80	4,88	124,68
Max	46,77	8,25	10,95	23,20	30,00	28,40	8,00	3,00	14,00	148,27	12,00	159,27
<i>sd</i>	3,50	1,07	1,76	1,81	2,32	2,35	1,20	0,71	1,84	10,78	2,60	12,43
r	0,61	0,49	0,50	0,66	0,83	0,77	0,80	0,12	0,62	0,91		
%	28,04	4,55	4,47	14,52	16,59	15,08	4,03	1,67	7,12	96,08	3,92	100,00

n = 100

IV/3.	1	2	3	4	5	6	7	8	9	sum	10-14	sum
Min	32,10	1,30	4,40	17,6	20,40	17,60	4,40	0,00	8,00	123,75	2,00	128,25
Avg	41,86	7,00	6,98	20,69	23,85	22,21	7,98	2,32	10,56	143,54	6,45	149,99
Max	50,37	9,93	10,40	27,40	29,70	30,50	11,90	3,00	16,00	177,12	12,50	189,62
<i>sd</i>	3,77	1,33	1,26	1,73	2,00	2,50	1,57	0,59	1,44	11,02	2,60	12,38
r	0,72	0,47	0,61	0,74	0,77	0,83	0,92	-0,1	0,38	0,98		
%	27,90	4,67	4,65	13,80	15,91	14,81	5,31	1,54	7,10	95,70	4,30	100,00

n = 95

V/4.	1	2	3	4	5	6	7	8	9	sum	10-14	sum
Min	37,75	6,55	4,32	17,60	21,60	19,00	5,80	1,00	8,00	156,55	2,00	158,55
Avg	45,40	8,04	7,48	21,40	25,63	24,02	9,59	2,29	11,73	162,13	7,86	179,90
Max	55,47	10,16	12,16	27,40	31,80	30,70	14,98	3,00	16,00	184,27	13,00	195,27
sd	4,12	1,06	1,61	1,67	1,16	1,30	2,36	0,56	1,70	13,49	2,75	15,20
r	0,73	0,57	0,68	0,77	0,89	0,89	0,93	-0,2	0,53	0,99		
%	25,24	4,47	4,16	11,90	14,24	13,35	5,33	1,27	6,25	95,66	4,34	100,00

n = 45

6 - 8	1	2	3	4	5	6	7	8	9	sum	10-14	sum
Min	45,58	7,02	5,85	22,05	23,70	22,10	5,96	1,00	8,00	154,43	2,00	156,43
Avg	53,63	9,76	8,94	26,11	30,34	28,24	14,64	2,12	13,55	187,32	9,88	197,20
Max	61,55	12,25	11,92	30,65	37,20	35,00	21,64	3,00	22,00	214,61	18,00	232,61
sd	3,67	1,35	1,78	2,15	1,61	1,47	3,73	0,78	2,94	15,71	3,17	18,21
r	0,28	0,57	0,74	0,75	0,85	0,82	0,92	-0,1	0,78	0,99		
%	27,22	4,95	4,54	13,25	15,50	14,24	7,43	1,08	6,88	94,99	5,01	100,00

n = 85

9 <	1	2	3	4	5	6	7	8	9	sum	10-14	sum
Min	37,10	8,35	6,21	22,00	24,60	24,00	11,20	0,00	9,00	171,71	6,00	177,71
Avg	54,94	9,95	9,89	27,33	33,37	31,14	18,92	2,32	14,68	201,71	13,50	215,21
Max	61,80	11,67	13,54	30,75	47,20	38,30	25,78	3,00	22,00	238,86	18,00	250,86
sd	5,27	1,07	2,07	2,36	2,45	1,97	4,42	0,84	3,34	18,55	3,35	21,21
r	0,34	0,15	0,73	0,82	0,74	0,75	0,92	0,11	0,80	0,99		
%	25,53	4,62	4,60	12,70	15,40	14,34	8,41	1,08	6,82	93,73	6,27	100,00

## < 50 % of total trophy value (CIC points)

- the mean value of length of the beams
- the mean value of the circumference of the burr
- values of the upper and lower circumferences of both beams
- antlers weight
- the total number of tines with an emphasis on the number of tines in the crowns



# Selection (breeding) cull by

body mass

	After calving kg	After 3 months kg	After 6 months kg	After 1 year kg	After 2 years kg	From 3 – 5 years kg	Over 6 < years kg
Male	10	35	75	100	130	180	200 <
Female	8	30	60	85	100	120<	120<

trophy parameters

	3 - 5 yrs	+ CIC points	6 - 8 yrs	in %	+ CIC points	9 < yrs	in %
Max	<b>181,38</b>	51,22	<b>232,60</b>	28,23	18,26	<b>250,86</b>	7,85
Avg	<b>151,52</b>	45,68	<b>197,20</b>	30,15	18,01	<b>215,21</b>	9,13
Min	<b>125,87</b>	30,56	<b>156,43</b>	24,28	21,28	<b>177,71</b>	13,60

<b>Year</b>	<b>Gold medal trophies</b>	<b>CIC score</b>
<b>1992.</b>	<b>-</b>	<b>194</b>
<b>1993.</b>	<b>-</b>	<b>187</b>
<b>1994.</b>	<b>-</b>	<b>208</b>
<b>1995.</b>	<b>2</b>	<b>220</b>
<b>1996.</b>	<b>4</b>	<b>232</b>
<b>1997.</b>	<b>4</b>	<b>232</b>
<b>1998.</b>	<b>8</b>	<b>232</b>
<b>1999.</b>	<b>8</b>	<b>250</b>
<b>2000.</b>	<b>7</b>	<b>244</b>
<b>2001.</b>	<b>1</b>	<b>219</b>

## Employees:

Director of LG Moslavina doo	1
Head of hunting ground	1
Game wardens	10 - 12
Drivers (Unimog, tractors)	3
Carpenter (feeders, high seats)	1
Worker in the refrigeration chamber and in the yard	1
	17 - 19

According to the needs, additional workers and external associates are engaged



Le Conseil International de la Chasse  
et de la Conservation du Gibier

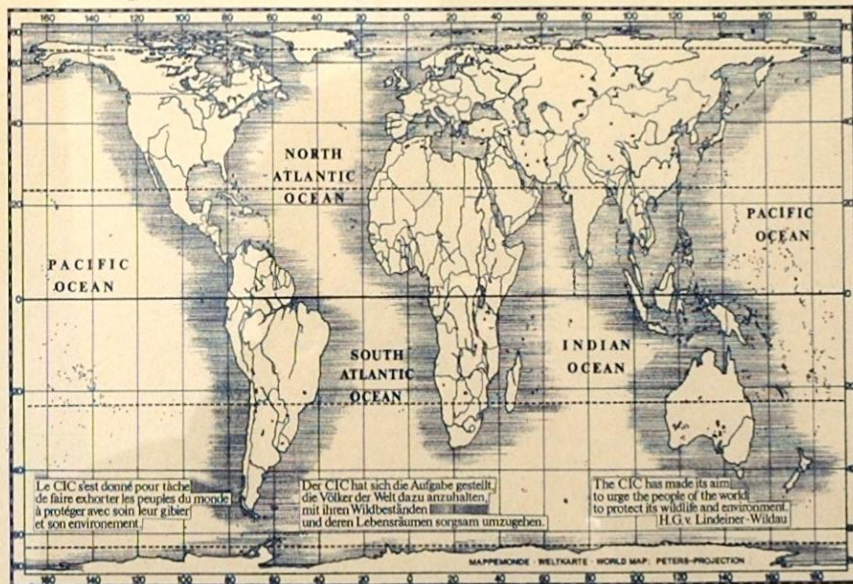
The International Council  
for Game and Wildlife Conservation

Der Internationale Jagdrat zur Erhaltung des Wildes

confère      verleiht      awards to

*Jovica Todoric*  
for his exemplary work  
in establishing and managing  
the reserve of Moslavina  
Edmond Blanc Prize 2001  
*Viktor Korman*      *Stavros*  
Président du CIC      Président de la Commission

*Robinson, 5 May 2001*









# Fodder consumption in tons

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
1993	22,1	18,3	24,8	35,8	30,7	42,5	54,6	66,7	38,5	24,1	44,3	49,9	452,30
1994	41,5	35,1	54,1	40,8	52,8	82,3	77,8	87,5	64,4	52,9	87,5	94,3	771,00
1995	53,3	47,8	60,9	69,1	59,0	89,7	102,0	104,2	80,4	79,7	99,2	78,5	923,80
1996	100,1	79,6	114,1	91,4	96,2	94,2	107,9	108,1	59,4	80,3	90,9	81,1	1103,30
1997	114,6	69,2	97,5	77,6	83,6	101,6	101,5	72,7	57,2	88,0	74,9	94,6	1033,00
1998	86,2	94,8	102,9	121,6	76,5	135,4	123,4	122,0	79,6	63,1	104,1	102,1	1211,70
1999	76,8	116,1	102,6	104,6	87,3	148,7	114,3	111,6	63,2	64,8	90,1	98,2	1178,30
2000	75,6	115,1	101,2	92,6	104,7	140,4	131,7	139,2	81,3	95,8	106,3	100,0	1283,90
2001	87,9	90,4	91,4	101,9	122,8	131,9	160,1	143,1	98,9	144,6	111,2	127,3	1312,60

Corn : Oats = 1 : 1

3, 4, 5, 6 month = corn : oats : pelets = 1 : 1 : 1

Additionally:

20 tons of alfalfa hay yearly

Apples - 16 t/week from 6 - 11 month