

Current status and trends in Croatian autochthonous cattle breed populations

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Croatian autochthonous cattle breeds

- Busha
- Istrian cattle
- Slavonian Syrmium Podolian cattle

Busha



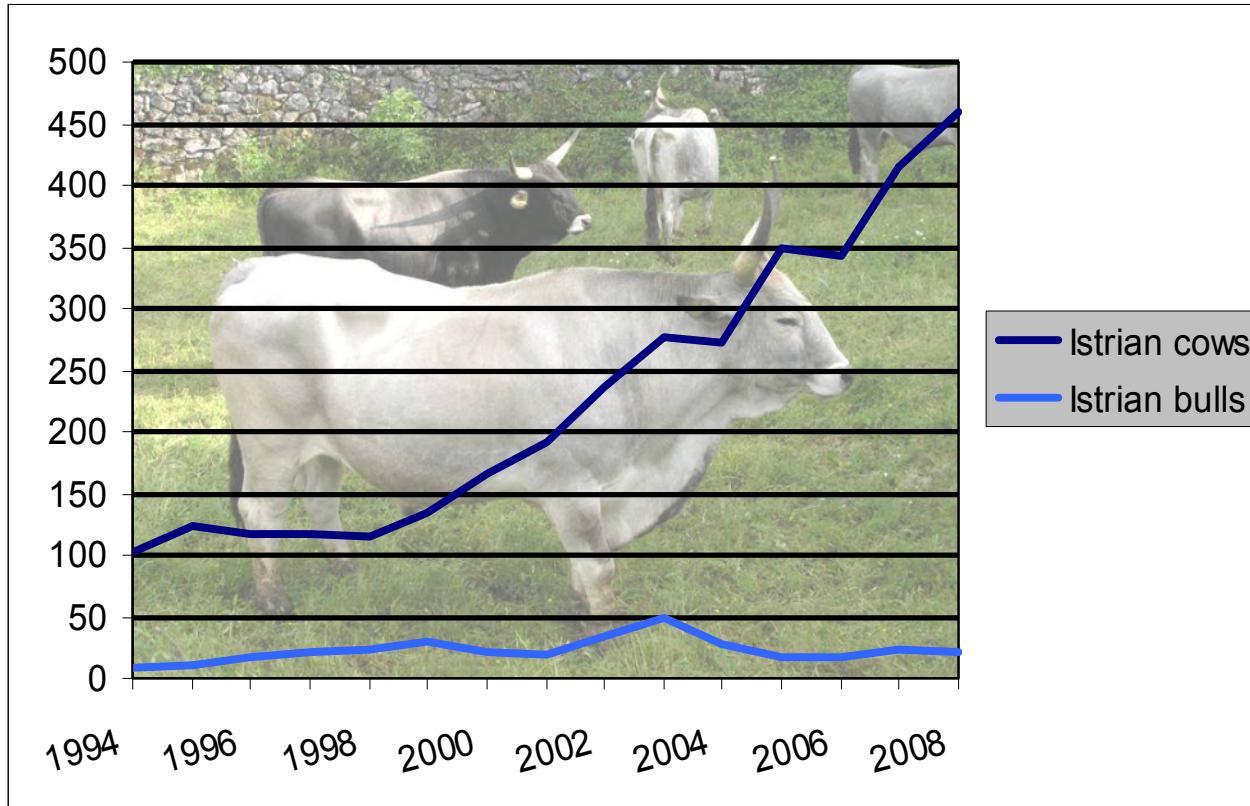
Istrian cattle



Slavonian Syrmium Podolian cattle



Istrian cattle



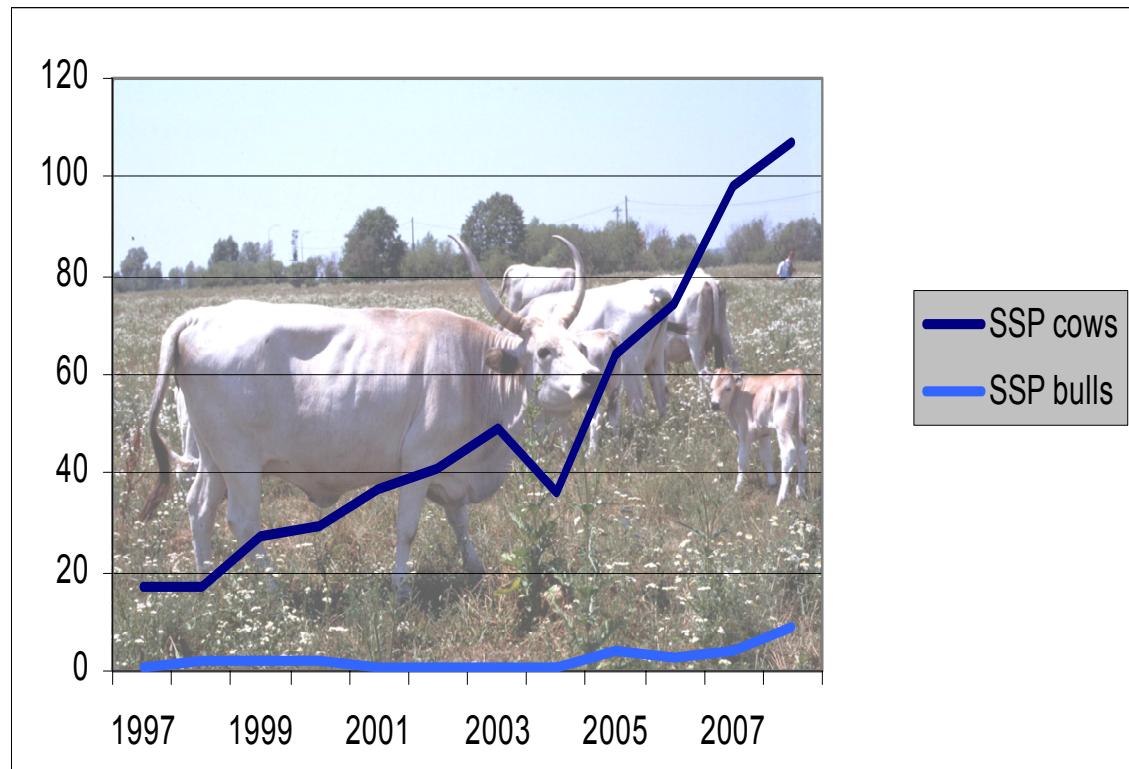
1994. $N_e = 29,69$

2008. $N_e = 80,33$

Istrian cattle



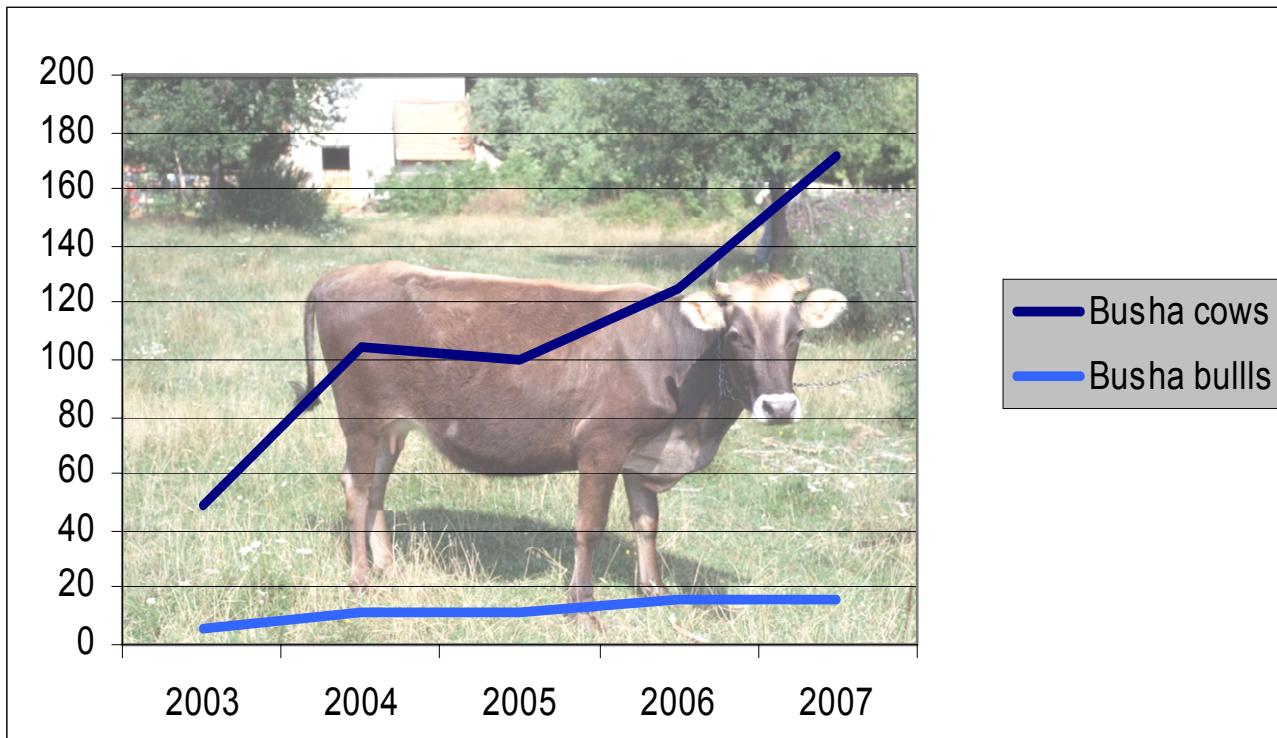
Slavonian Syrmium Podolian cattle



1997. $N_e = 3,77$

2008. $N_e = 33,21$

Busha



2003. $N_e = 21,38$

2008. $N_e = 58,55$

Pedigree analysis

- 2 151 data for Istrian cattle
- 578 data for SSP
- 898 data for Busha
- 1994.-2008. Croatian agriculture agency
- ENDOG v4.5 program

Generation intervals of autochthonous Croatian cattle breeds

Pathway	Istrian cattle	SSP	Busha
Father-son	5,80±0,396	5,95 ±0,505	-
Father-daughter	5,81 ±0,363	5,35 ±0,705	4,82 ±0,365
Mother-son	7,31 ±0,375	5,62 ±1,170	7,61 ±1,463
Mother-daughter	7,22 ±0,389	6,30 ±1,308	6,89 ±0,606
average	6,53 ±0,134	5,82 ±0,182	6,09 ±0,411

Actual and effective number of herds in Croatian autochthonous cattle breeds

	Istrian cattle		Slavonian syrmian podlolian cattle		Busha	
	Actual	Effective	Actual	Effective	Actual	Effective
H_s	48	12,57	8	1,76	15	4.14
H_{ss}	21	4,01	2	1,63		
H_{sss}	9	2,10				

Estimates of inbreeding and average relatedness coefficients in Croatian autochthonous cattle breeds

breed	Mean inbreeding (%)	Mean average relatednes (%)	Inbreed animals in first generation (%)	Average ΔF of inbreed animals
Istrian cattle	2,38	3,58	8,71	16,03
SSP	2,82	11,79	17,23	24,47
Busha	0,26	0,42	4,31	23,75

Mean number of alleles, observed and expected heterozygosity, inbreeding estimates and Nei's distance at 30 microsatelite loci

Locus	MNA	H_o	H_E	F_{IS}	D_a	
					SSP	Istrian cattle
Istrian cattle	6,6	0,588	0,663	0,112	0,1982	-
SSP	4,9	0,581	0,572	-0,016	-	-
Busha	8,7	0,661	0,744	0,112	0,1968	0,1058

Conclusions

- stabilization of number
- pedigree analysis – useful for further mating schemes
- higher genetic variability of Busha
- all doubts between pedigree and genetic analysis results
– verify on DNA level
- systematical monitoring of populations

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