

# **BROWN BEAR MANAGEMENT IN SLOVENIA**



**Marko JONZOVIČ, B.Sc.**  
**Slovenia Forest Service**  
**Head of Wildlife & Hunting Department**





# BROWN BEAR IN SLOVENIA

## - HISTORY -

*Population of Brown bear has never been extinct in Slovenia*

*For the last 100 years it has always been safeguarded in a part or whole of the territory of present Slovenia*

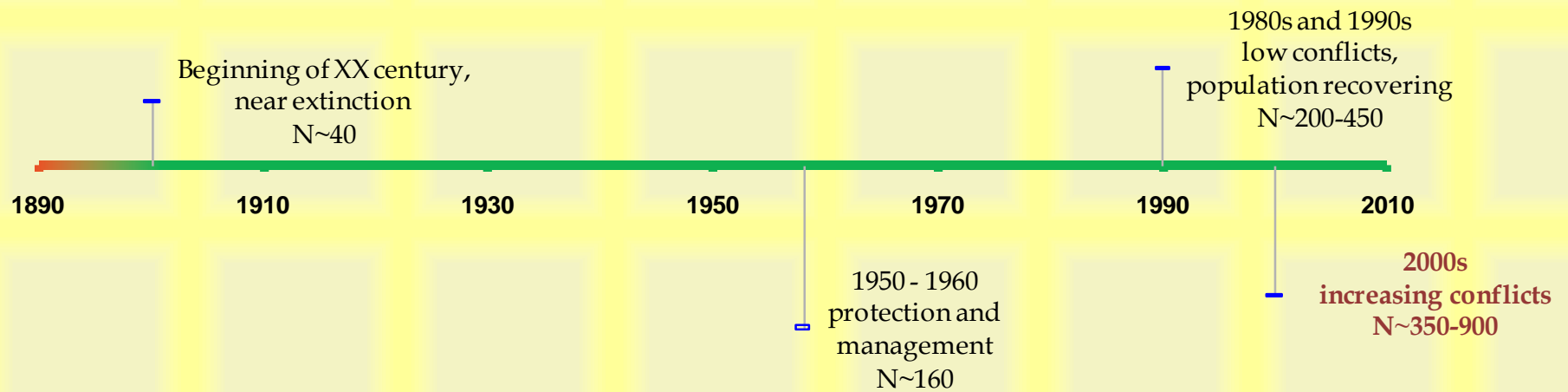
### MILESTONES THAT HAVE INFLUENCED BROWN BEAR PRESERVATION & POPULATION DEVELOPMENT

- ✓ **since 1890, brown bear has been protected on large forest estates in the south - western part of Slovenia**
- ✓ **in 1935 Ordinance on the Protection of bears in the Kočevje, Črnomelj, Novo mesto, Logatec and Ljubljana Districts was issued**
- ✓ **in 1940 the size of population was estimated at around 80 animals**
- ✓ **since 1945 brown bear has been protected by the *Hunting Act***



- 
- A brown bear is walking through a forest, its body slightly blurred to suggest movement. The bear is facing left, and its fur is a mix of brown and tan. The background consists of green foliage and trees, creating a natural, wooded environment.
- ✓ in 1966 *Ordinance on the Region in the SR of Slovenia in which Brown Bear is Protected* was issued
  - ✓ in 1976 *Act on Protection, Breeding and Hunting of Game and on Management of Hunting Grounds* was issued
  - ✓ in 1993 *Decree on the Protection of Endangered Animal Species* was issued – renewed in 2004
  - ✓ in 1999 *Nature Conservation Act* was issued
  - ✓ in 2002 *Management Strategy for brown bear in Slovenia* was adopted
  - ✓ in 2003 *Action plan for brown bear for period 2003-2005* was adopted
  - ✓ in 2004 new *Hunting Act* was issued – brown bear is no longer game species!!

# Time scale on population development 1890 - 2010



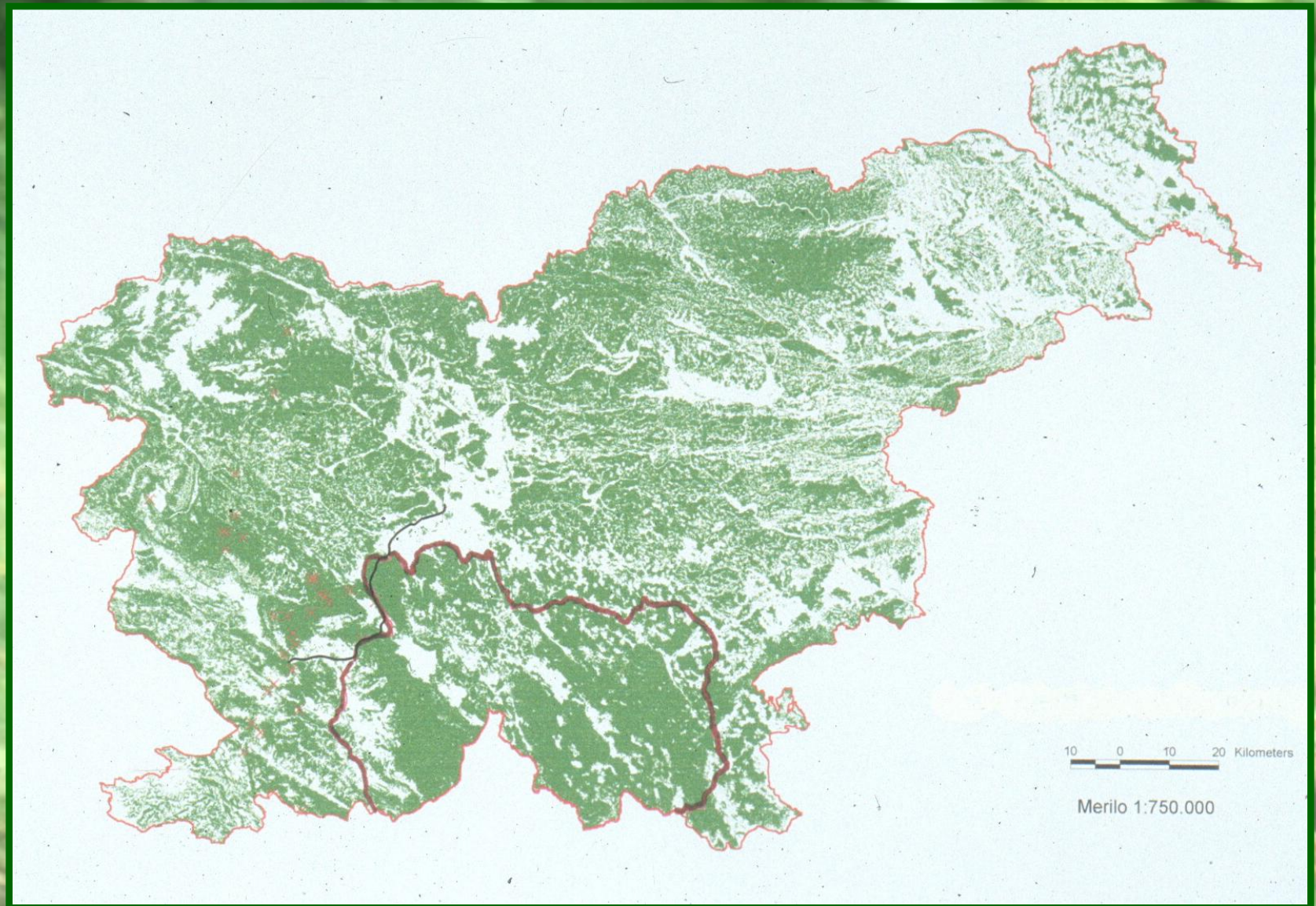


## Bear hunt – 1848 - 1878





# Bear protection area - 1966



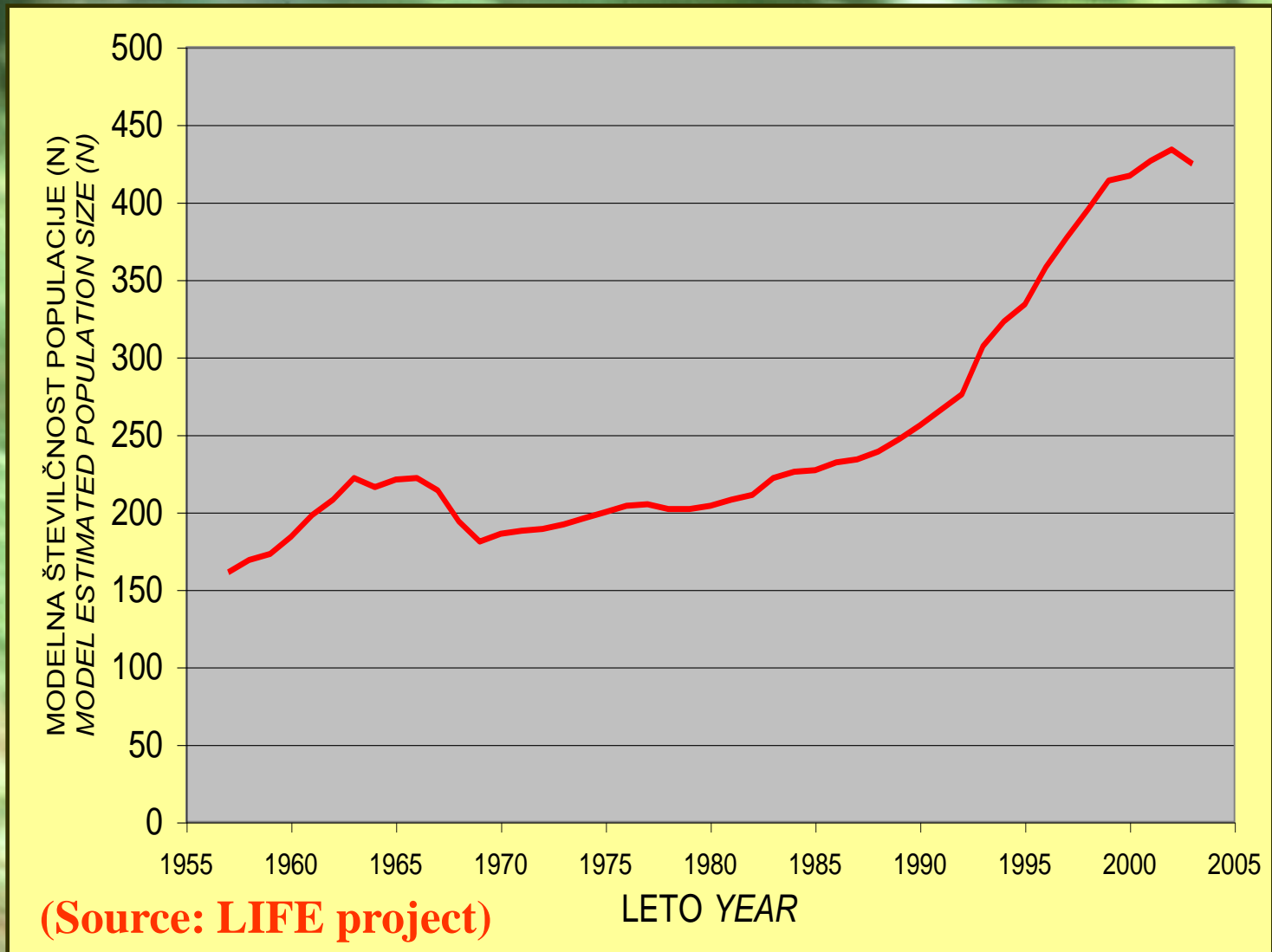


# Decree on the Protection of Endangered Animal Species - 1993



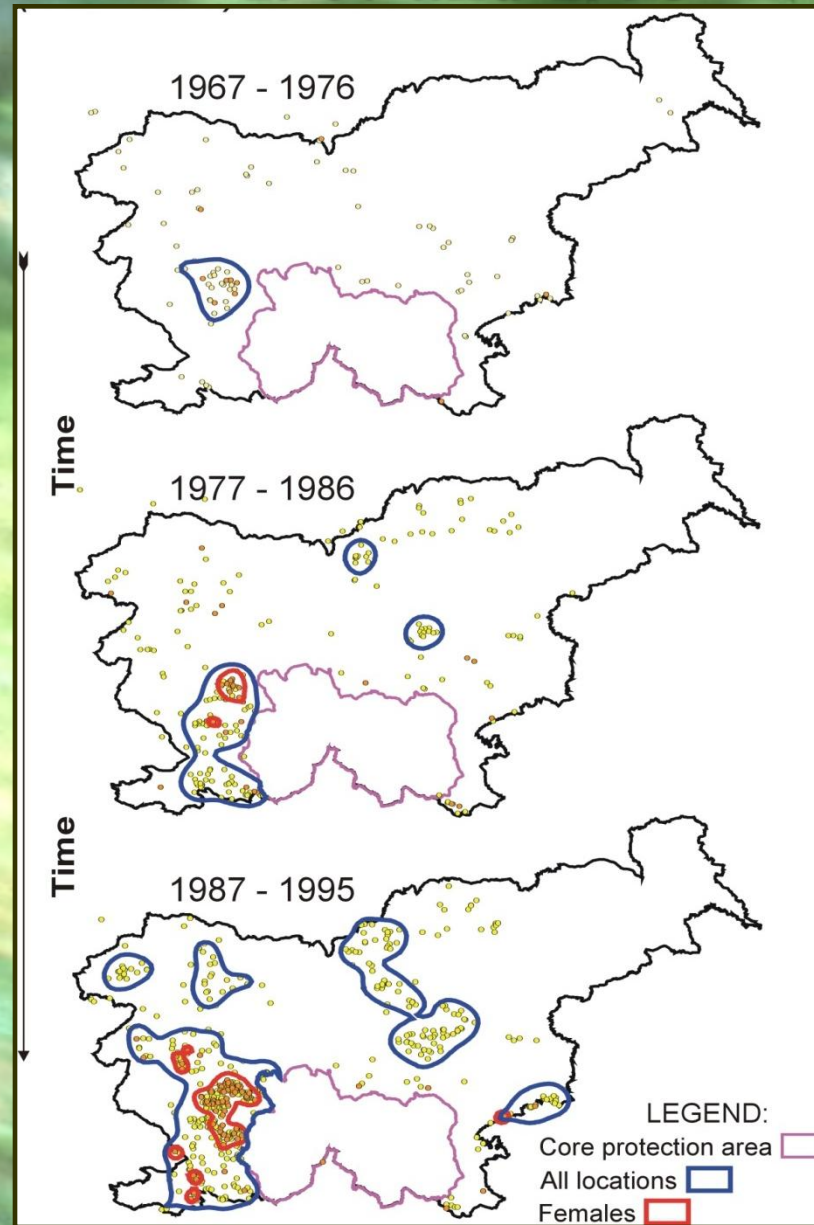


# Model of population growth between 1955 - 2005





# Spatial expansion of the brown bear in Slovenia between 1967 and 1995



(Source: BF)



# **BROWN BEAR IN SLOVENIA**

## **- TODAY'S SITUATION -**

**Existence of Brown bear in Slovenia is not a question**



- ✓ brown bear population in Slovenia is one of the most vital ones in Europe (450 – 550 animals on less than 6.000 km<sup>2</sup>)
- ✓ annual increment is between 80 - 120 cubs; 1,7 – 2,2 cubs/female; high survival rate of cubs
- ✓ its territory of occurrence is stable
- ✓ the trend is stable



- ✓ it has a status of fully protected species
- ✓ elimination from the population has always been planned in line with a top-down approach, taking into consideration specific ecology of brown bear and crucial legal documents (EU, Slovenian)



# **BROWN BEAR IN SLOVENIA**

## **- MANAGEMENT STRATEGY -**

**On the basis of the historical facts, today's situation and legal basis (EU, SLO)**

### **STRATEGY FOR THE BROWN BEAR MANAGEMENT IN SLOVENIA**

**was made in 2001 and adopted by the Government of the Republic of Slovenia in 2002**



**OBJECTIVES-DIRECTIONS-MEASURES for**

**long-term conservation of the species and its habitat**

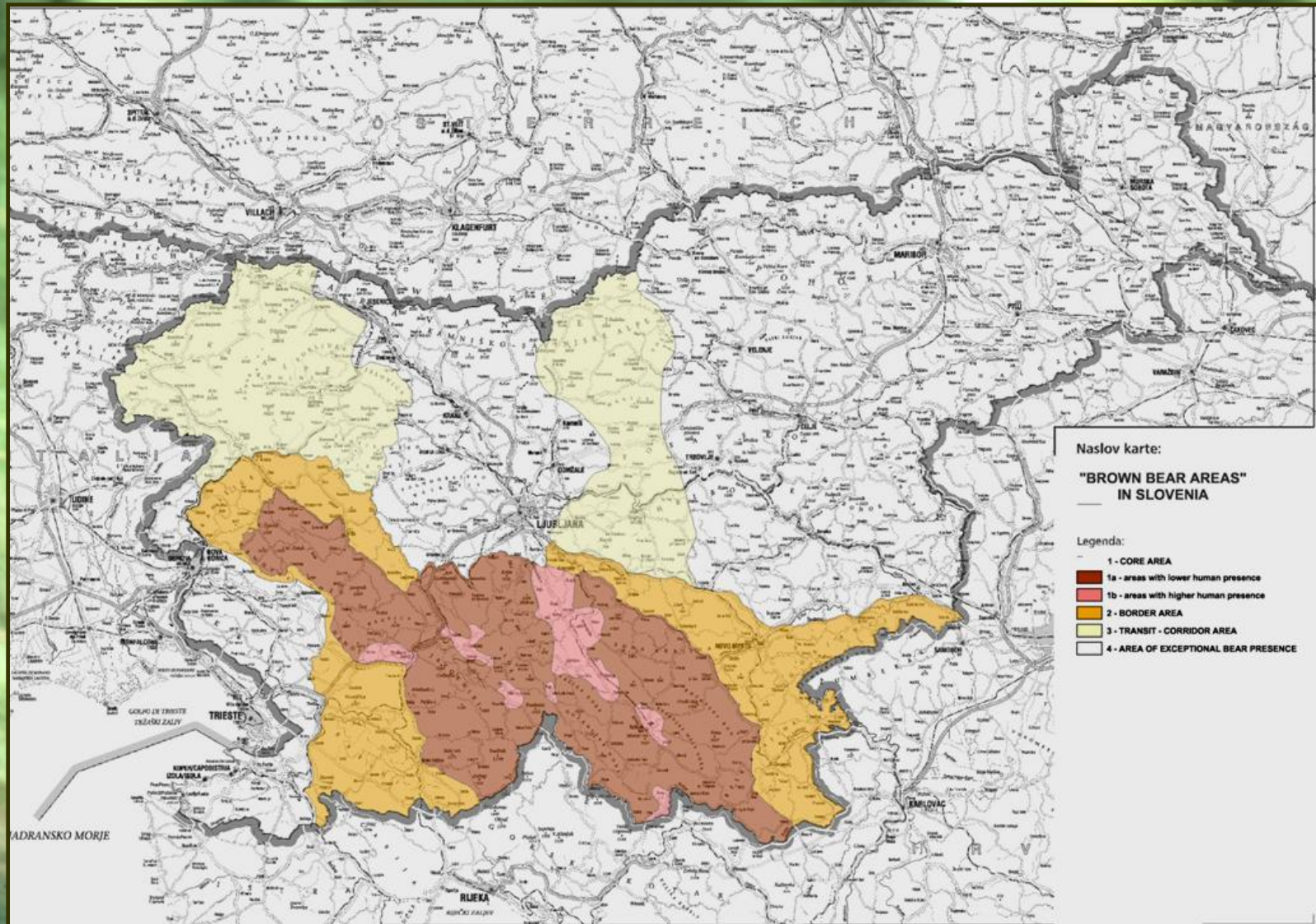
**ensuring the coexistence with people and their activities**

**Concretisation of the Strategy**

**"Action Plan for Brown bear in Slovenia for 2003-2005" was made and renewed for 2006 - 2011**



# “Brown bear areas” up to the Management Strategy





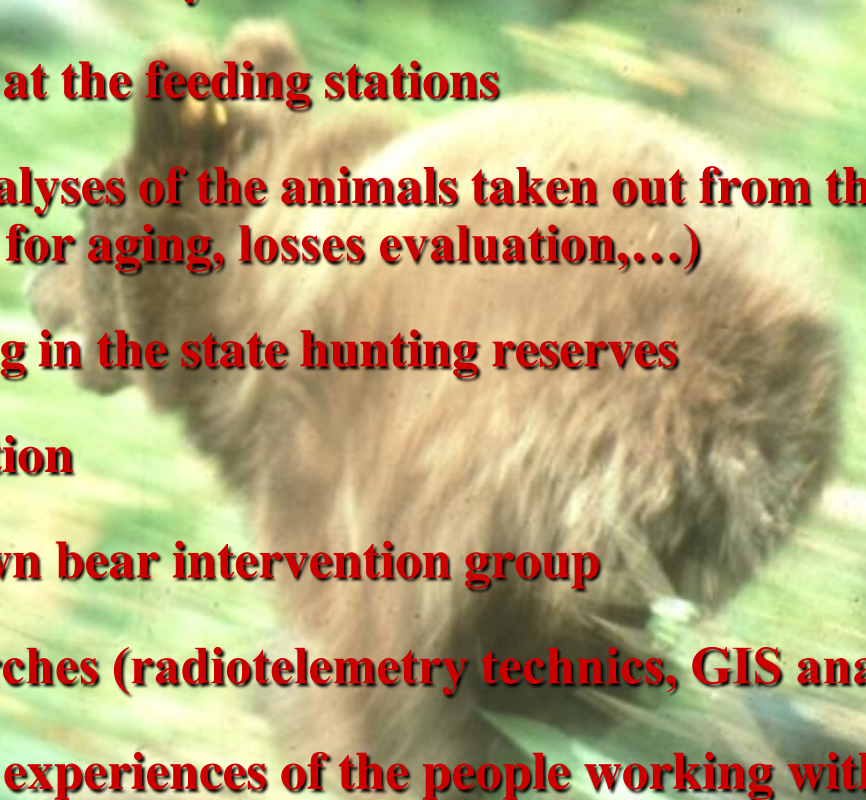
# **Today's' management principles**

- ✓ **According to “brown bear areas” all activities are adjusted (specifics and intensity);**
- ✓ **Culling quota is set yearly and only for “core and margin” area. In the “corridor and no presence” area only exceptional (conflict) killing is allowed, with individual permission of responsible state body;**
- ✓ **Culling quota is set for the whole Slovenia (but divided on core and margin area) and then divided down, first to hunting management regions and further on to hunting grounds;**
- ✓ **Hunting season for “regular” hunting is between 1. October – 30. April;**
- ✓ **Both, regular and exceptional killings count for quota fulfilment, losses are not included.**



# **BROWN BEAR IN SLOVENIA**

## **- Assessment of the population -**

- 
- A photograph of a brown bear walking through a forest, serving as a background for the text. The bear is seen from the side, moving towards the left. The forest floor is covered with green grass and some fallen leaves.
- ✓ **DNA sampling and analyses**
  - ✓ **Direct counting at the feeding stations**
  - ✓ **Records and analyses of the animals taken out from the population (tooth sampling for aging, losses evaluation,...)**
  - ✓ **Daily monitoring in the state hunting reserves**
  - ✓ **Damage evaluation**
  - ✓ **Records of brown bear intervention group**
  - ✓ **Scientific researches (radiotelemetry technics, GIS analyses,...)**
  - ✓ **Knowledge and experiences of the people working with bears**



# DNA sampling

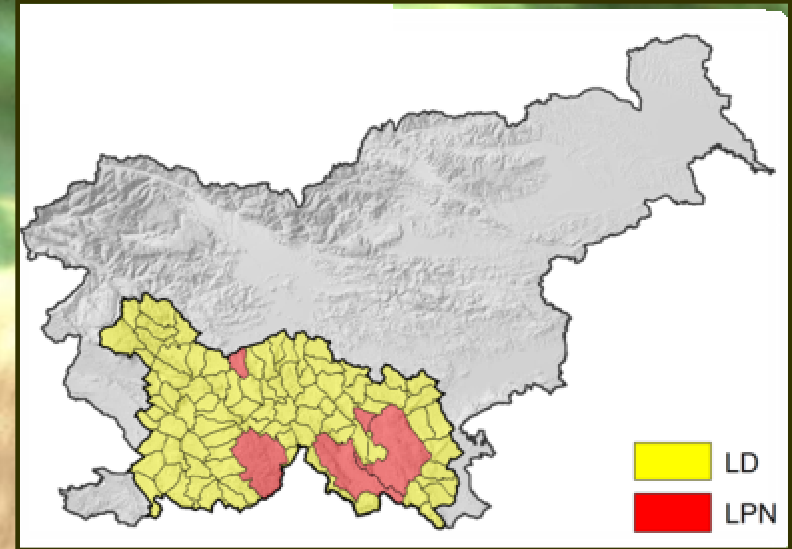
(data source: BF – Department of Biology)

## Where? What? When?

- entire permanent bear range in Slovenia ~ 6000 km<sup>2</sup>
- scat samples
- november – december 2007

## How many samples?

- power analysis using mark-recapture simulations.
- 1052 non-invasive samples. Samples found by 391 different people.
- 88% of samples (957) were successfully genotyped.
- 354 different bears were “captured”.



## Navodila



Za sodelovanje pri raziskavi  
medvedov s pomočjo genetike



**Robust results with different modelling approaches.**

**Different animals captured in sampling:**

- males: 159 (45%)
- females: 195 (55%)

---

**Total: 354 bears**

**Estimate of the number of bears  
(corrected for edge effect):**

- males: 208 (184-231) (45%)
- females: 252 (229-276) (55%)

---

**Total: 460 bears (427-493)**

**26 bears shot during sampling**

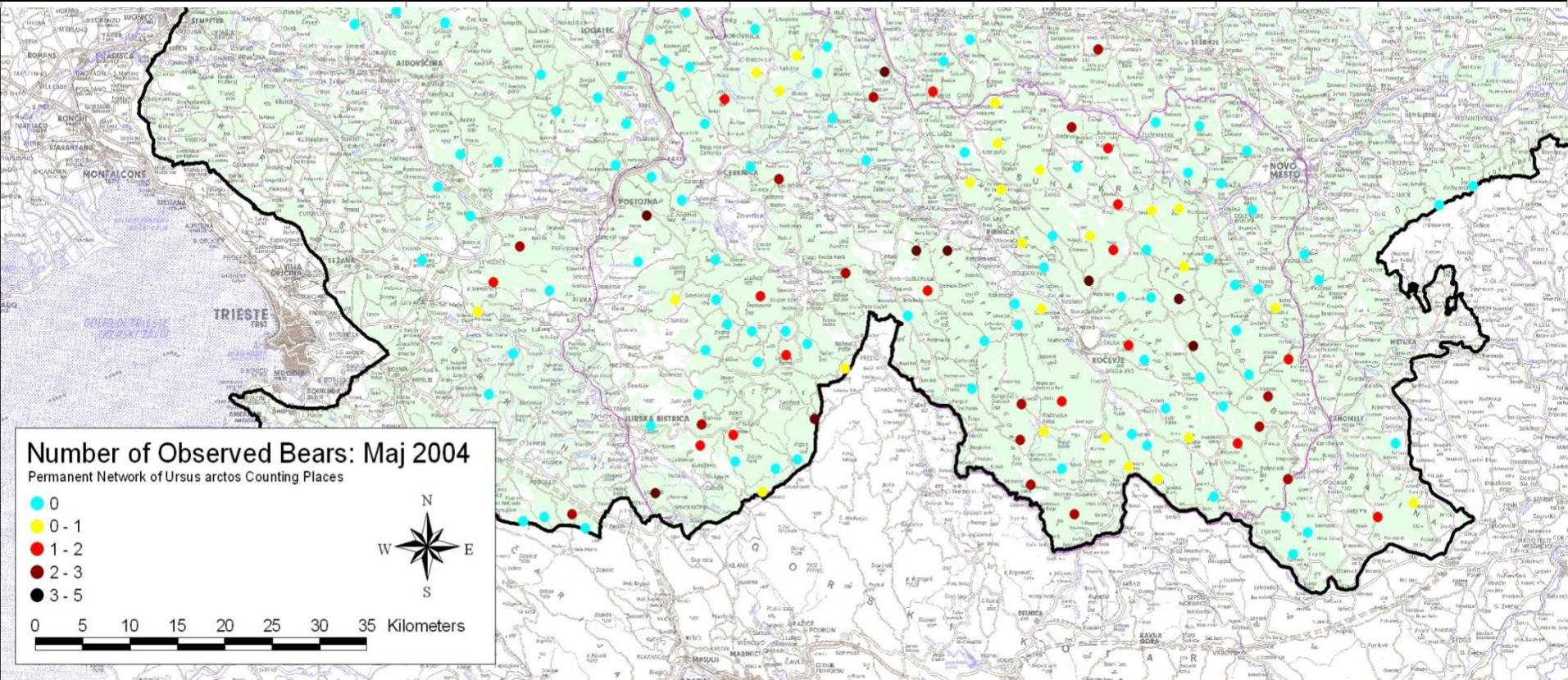


(data source: BF – Department of Biology)

**Remaining bears at the end of 2007, after finished cull and before reproduction (without 80-120 cubs): 434 (394-475) → > 500 bears**



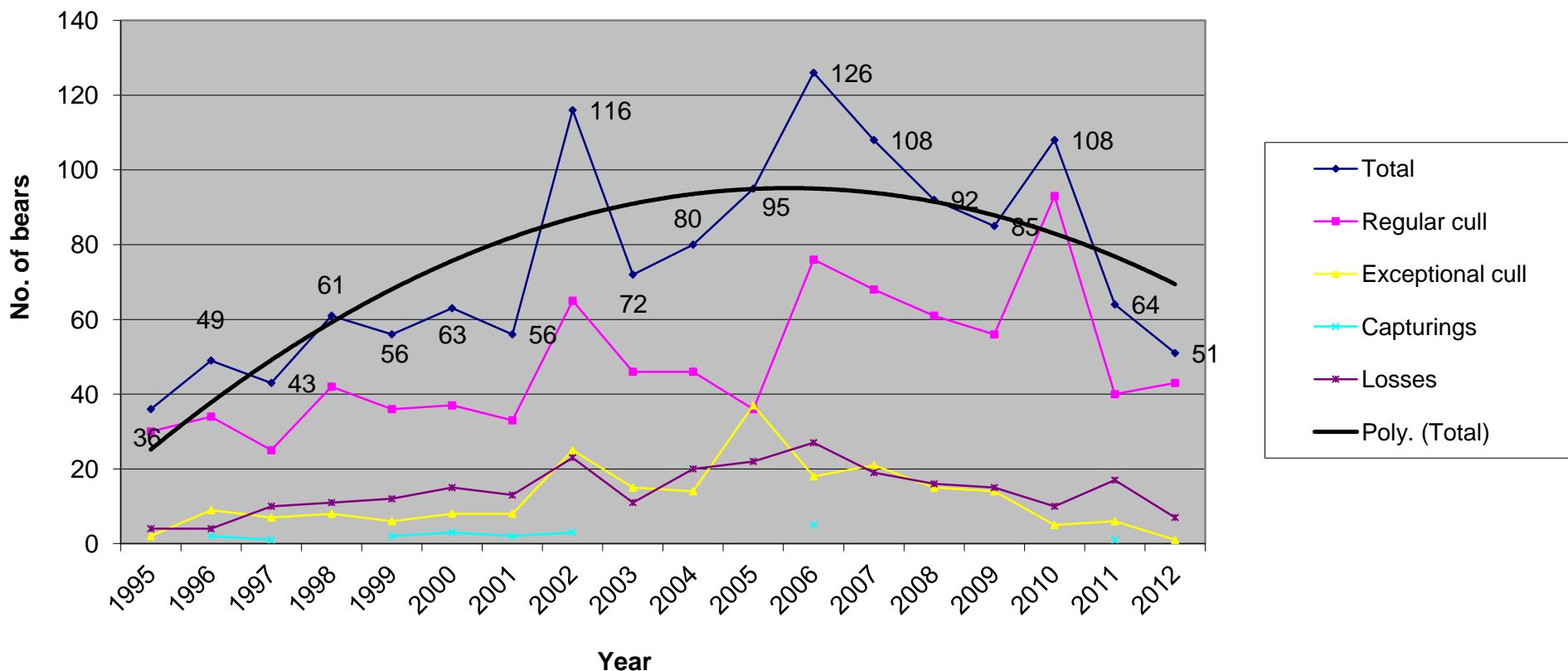
Bear countings	10.10.2003		28.5.2004		24.9.2004		22.10.2005		20.5.2005		19.8.2005		14.10.2005	
permanent places	total	%	total	%	total	%	total	%	total	%	total	%	total	%
Bears seen	94	100	144	100	137	100	135	100	187	100	238	100	186	100
Females with cubs+yearlings	16	17	26	18	25	18	26	19	35	19	51	21	36	19
Females with cubs of the year	12	13	11	8	18	13	20	15	16	9	37	16	29	16
Females with yearlings	5	5	16	11	8	6	7	5	19	10	14	6	9	5
Cubs of the year	24	26	21	15	28	20	35	26	29	16	67	28	54	29
Yearlings	9	10	29	20	13	9	12	9	33	18	33	14	17	9
Cubs of the year+yearlings	33	35	50	35	41	30	47	35	62	33	100	42	71	38
Average cubs/female	2,00		1,91		1,56		1,75		1,81		1,81		1,86	





# Brown bear mortality in Slovenia between 1995 - 2012

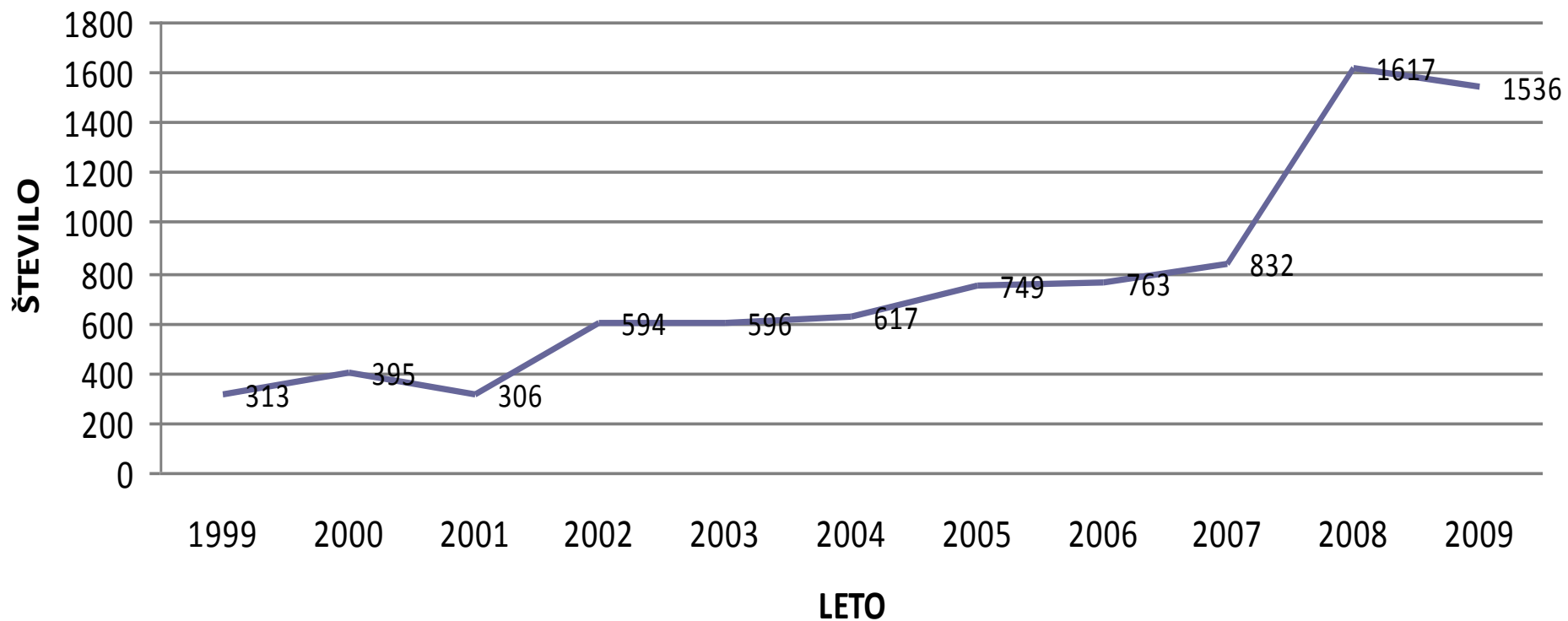
Brown bear mortality in Slovenia between 1995 - 2012



2012 (till now)	51	43	0,84	1	0,02		0,00	7	0,14
SKUPAJ	1246	867	0,70	219	0,18	18	0,01	256	0,21



## Monitoring rjavega medveda v LPN Jelen v obdobju 1999 - 2009





# **BROWN BEAR IN SLOVENIA**

## **- Troubles with bears -**

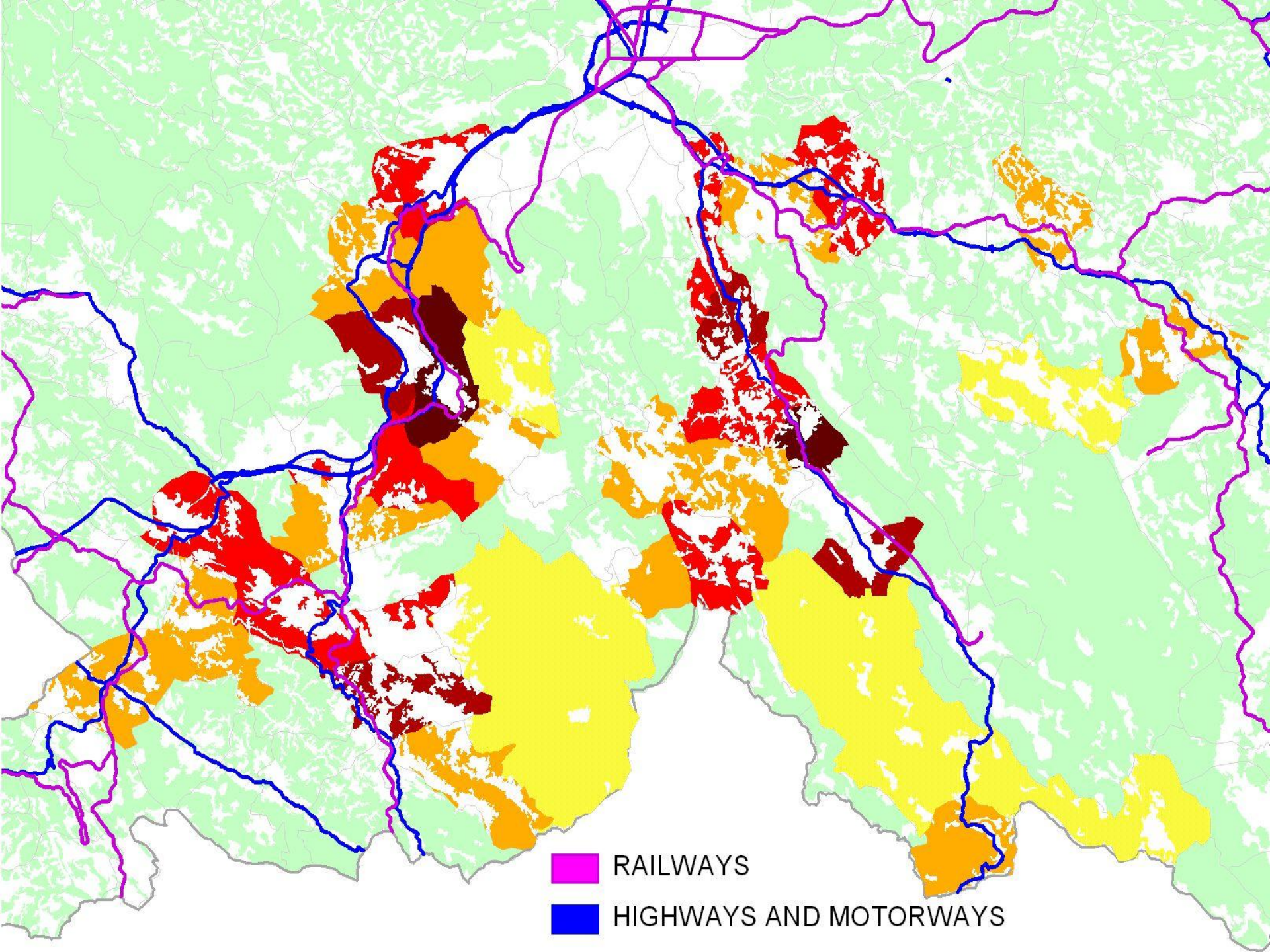
**Brown bear causes some damage to people:**

- ✓ **Most frequented are damages on livestock, crops, fruits, beehives, silage bales and in traffic**
- ✓ **Damages are evaluated by the Slovenia Forest Service**
- ✓ **Damages are paid by the State – through Environmental Agency**
- ✓ **Damages (No of cases & compenstaions) have no specific trend nowadays**



Year	No. of damage cases	Compensation paid in EUR	EUR/damage case
1994	11	3.487,50	317
1995	70	11.069,01	158
1996	64	26.291,21	411
1997	108	40.518,91	375
1998	133	118.459,23	891
1999	186	99.674,85	536
2000	180	52.684,51	293
2001	198	44.298,16	224
2002	565	107.901,72	191
2003	192	72.202,48	376
2004	497	156.201,40	314
2005	809	196.306,46	243
2006	647	156.287,07	242
2007	320	82.636,59	258
2008	632	181.056,56	286
2009	382	149.316,76	391
2010	626	248.307,68	397
2011	319	117.990,00	370

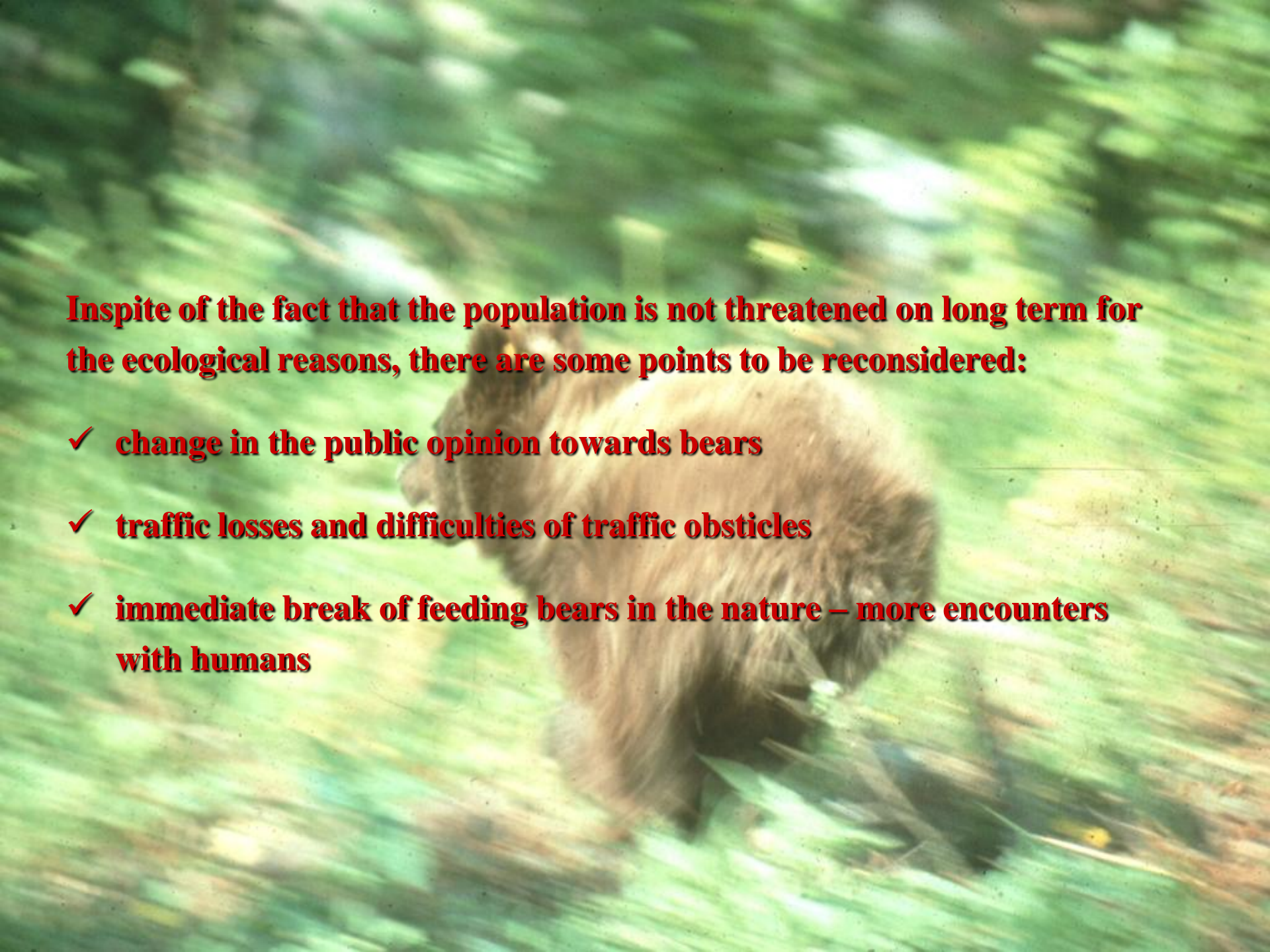




RAILWAYS

HIGHWAYS AND MOTORWAYS



A photograph of a brown bear walking through a forest. The bear is in the center of the frame, moving from left to right. The background is heavily blurred, suggesting motion. The bear's fur is brown and shaggy. The text is overlaid on the image in a red, bold font.

**Inspite of the fact that the population is not threatened on long term for the ecological reasons, there are some points to be reconsidered:**

- ✓ **change in the public opinion towards bears**
- ✓ **traffic losses and difficulties of traffic obstacles**
- ✓ **immediate break of feeding bears in the nature – more encounters with humans**



# **BROWN BEAR IN SLOVENIA**

## **- Possible donor population for European countries -**

**Slovenia has some positive experiences with brown bear restocking/reintroductions in Austria, France and Italy:**

- ✓ **1993 – 3 bears for Austria, few years ago assumed to be 12-18 bears, today in fact only 2 male bears in the area of restocking**
- ✓ **1996/97 – 3 bears for France (Pyrenees), before second restocking 14 – 18 bears left, only 3 autochthonus**
- ✓ **1999/2002 – 10 bears for Italy (Adamello Brenta), today > 50 new born cubs since the reintroduction, population estimation > 30 bears**
- ✓ **2006 – 5 more bears translocated to France (Pyrenees)**



A photograph of a brown squirrel running through a lush green forest. The squirrel is captured in motion, with its body angled towards the left. The background is a dense thicket of green leaves and branches, creating a blurred effect that emphasizes the squirrel's movement. The lighting is bright, suggesting a sunny day. The squirrel's fur is a mix of brown and tan, and its tail is bushy and slightly curved.

**Thank you for your attention!!**