

TRIGLAVSKI
NARODNI
PARK





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Javni zavod Triglavski narodni park



CLIMAPARKS – A project on monitoring and study the effects of climate change on biodiversity



Trenta, 7th June 2017

The contents of presentation



- I. Project Climaparks - introduction
- II. Case study 1 – Canin Glacier Area (PGNP)
- III. Case study 2 – Chamois (TNP)
- IV. Discussion





I. Project Climaparks – introduction



Climaparks – general information

- ❖ **Programme:** Interreg IIIA Slovenia – Italy
- ❖ **Priority task:** 1. Environment, transport and sustainable territorial integration
- ❖ **Duration:** 1st May 2010- 31st December 2013 /
- ❖ **Approved costs:** 3.239.513 EUR
- ❖ **Partnership structure: Protected areas -** LP: TNP , PP: 5-IT, 3-SI

Triglav National Park

Landscape Park Strunjan

SOLINE Salt Production

Škocjan Caves Park

Park Julian Prealps

Friulian Dolomites Natural Park

Po Delta Nature Park Veneto

Ente Gestione Parchi Biodiversità - Delta del Po

Park of Gypsum Vein of Romagna

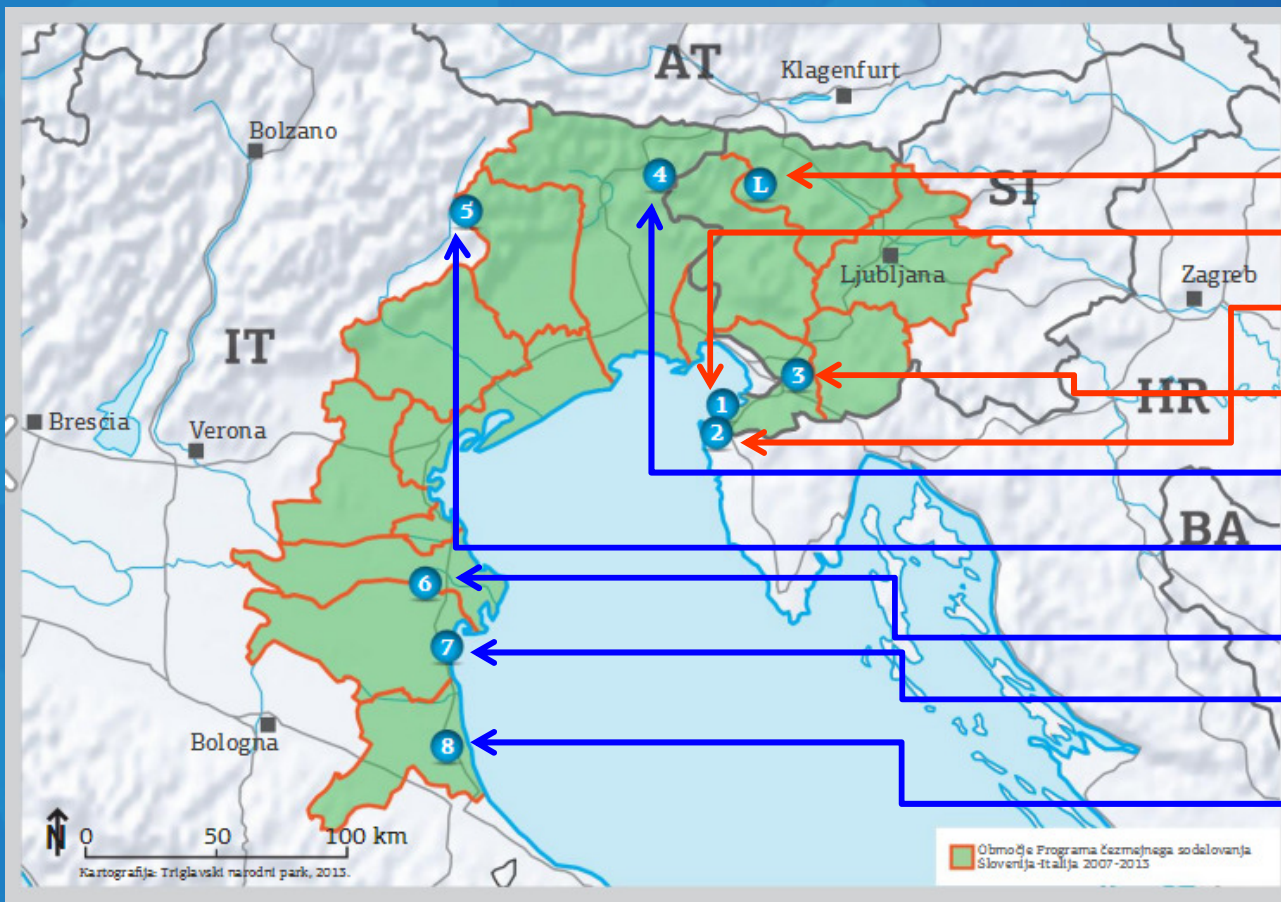




I. Project Climaparks – introduction



Climaparks – general information



1	TRIGLAVSKI NARODNI PARK	
1	KRAJINSKI PARK STRUNJAN	
2	SOLINE PRIDELAVA SOLI D.O.O.	
3	PARK ŠKOCJANSKE JAME	
4	DEŽELNI NARAVNI PARK JULIJSKO PREDGORJE	
5	DEŽELNI NARAVNI PARK FURLANSKI DOLOMITI	
6	DEŽELNI PARK DELTA DEL PO VENETO	
7	USTANOVA ZA UPRAVLJANJE PARKOV IN BIOTSKE RAZNOVRSTNOSTI - DELTA REKE PAD	
8	DEŽELNI PARK VENA DEL GESSO ROMAGNOLA	





I. Project Climaparks – introduction



Climaparks – project objectives

- ❖ **To establish a common system of monitoring and analyses of climate change impacts on biodiversity**
 - Protected areas as a model of good practice for regional level – pilot actions
 - Species / habitats / climate / human pressures monitoring
 - Management adjustments by sharing experiences
- ❖ **Sustainable visits and awareness**
 - Common awareness activities - parks' information centers network, info points
 - Educational programs and awareness raising for specific stakeholder groups – schools, experts, local inhabitants, decision makers, NGOs, visitors, ...
- ❖ **Communication strategy**
 - Joint communication activities – conferences, publications, media, ...
 - Partnership development or intensification between SI – IT protected areas





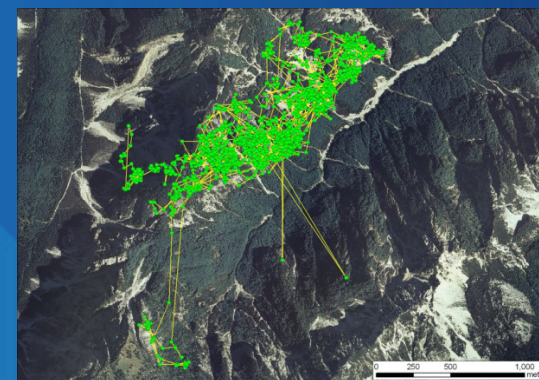
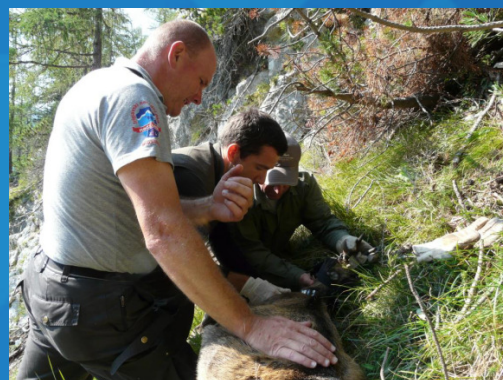
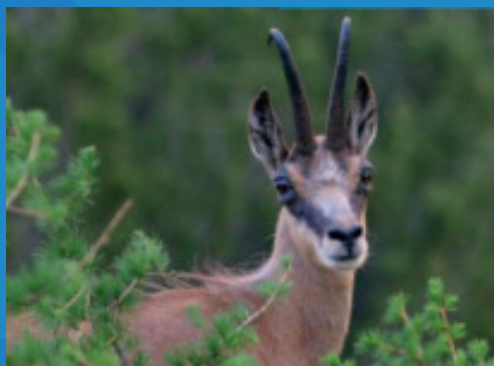
I. Project Climaparks – introduction



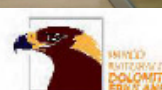
Climaparks – implemented activities

❖ Triglav National Park

- Monitoring: Telemetry study of Chamois (*Rupicapra rupicapra*)



- Pilot projects: Education center in TNP Info Center Dom Trenta, weather station installation





I. Project Climaparks – introduction



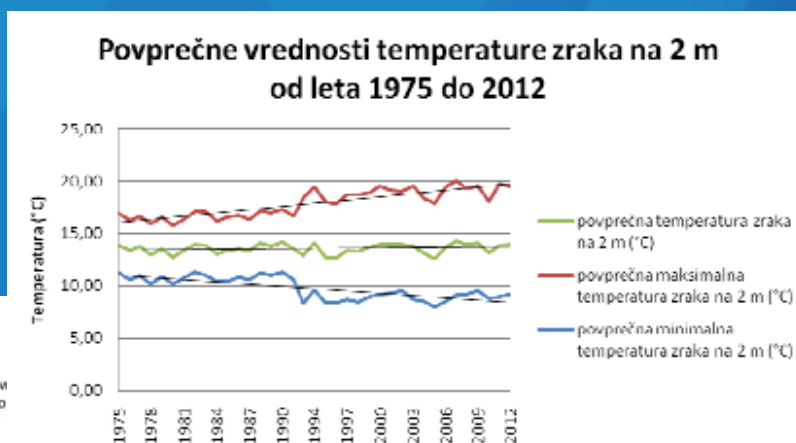
Climaparks – implemented activities

❖ Landscape Park Strunjan

- Monitoring: Marine biodiversity in Strunjan Nature Reserve



- Pilot projects: Evaluation of weather conditions on the visitation



Javi Istitutu

REGIO TRIPALE
ITALY
BLUE

WINNER
BENTON & BOWLES
DOLOMITI
FRUIT & ANE

PARKO REGIONALE TEVERO

Ente di Gestione per
il Parco e la Biodiversità
DETER DEL PO

Provincia di Ravenna



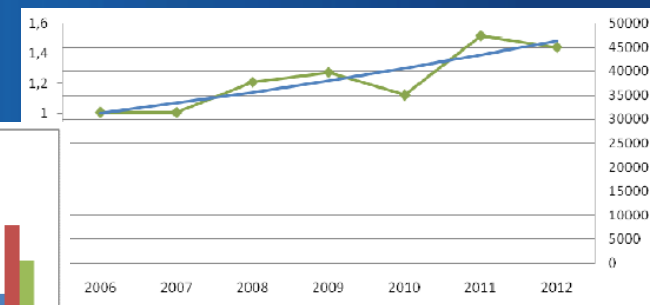
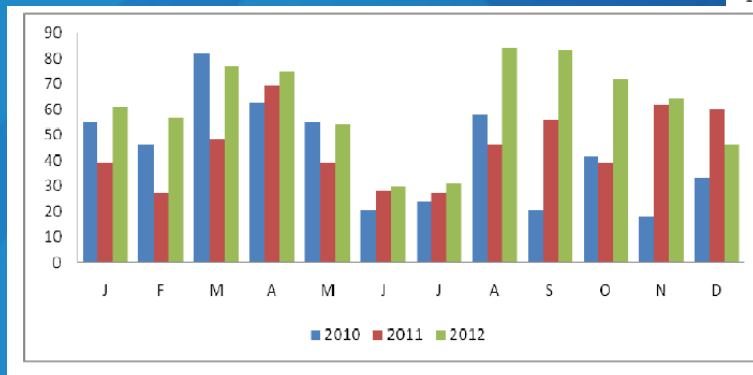
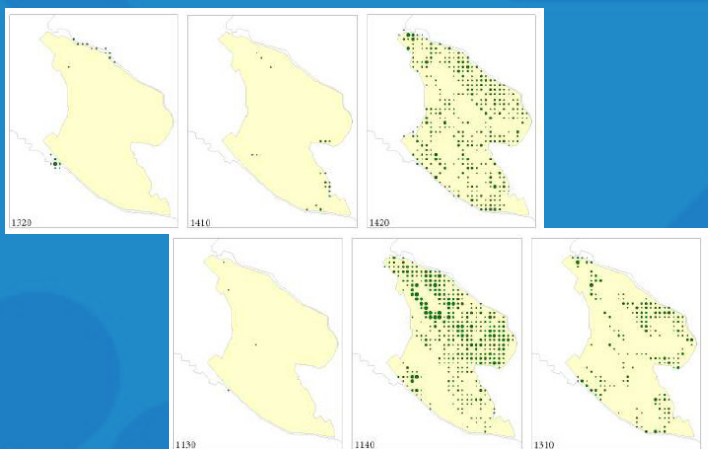
I. Project Climaparks – introduction



Climaparks – implemented activities

❖ SOLINE Salt Production

- Monitoring: Evaluation of climate change effects on biodiversity and visitation in Sečovlje Salina Nature Park



- Pilot projects: Study on environmentally friendly transportation, electric bikes purchase





I. Project Climaparks – introduction



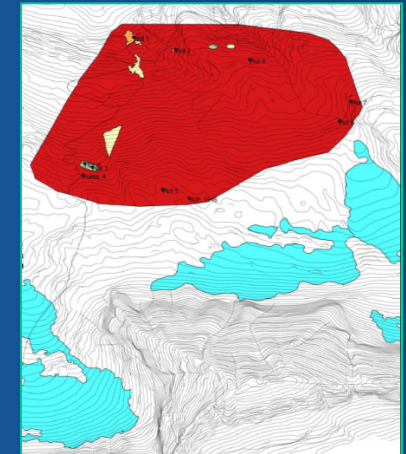
Climaparks – implemented activities

❖ Park Julian Prealps

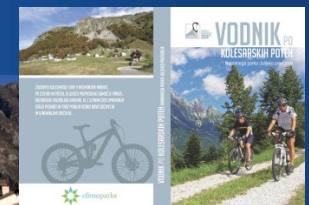
- Monitoring: Habitats and species in the Canin Glacier Area



1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25



- Pilot projects: Preparation of the „Energy plan“, photovoltaic system installation, promotion of public transportation, thematic publications promoting cycling





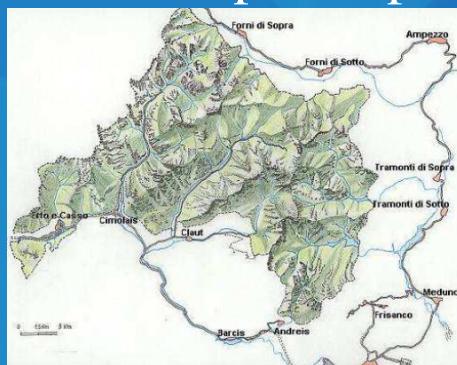
I. Project Climaparks – introduction



Climaparks – implemented activities

❖ Friulian Dolomites Natural Park

- Monitoring: Vegetation and plant species in Ciadin della Meda, visitation



- Pilot projects: Restoration and conversion of the old bus station into information center, photovoltaic system installation, energy plan





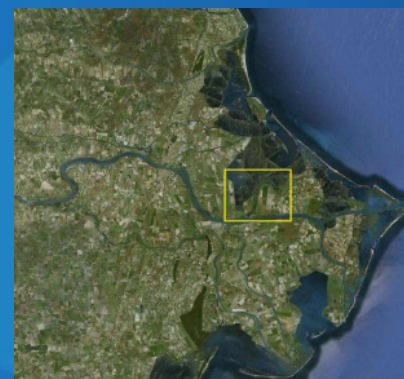
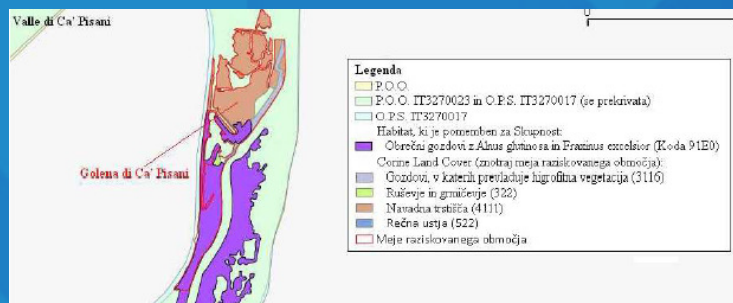
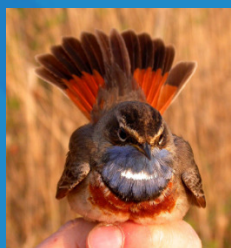
I. Project Climaparks – introduction



Climaparks – implemented activities

❖ Po Delta Nature Park Veneto

- Monitoring: Birds, focusing on Passerines at the Ca' Pisani Floodplain



- Pilot projects: Weather station installation, initiatives for UNESCO MAB designation





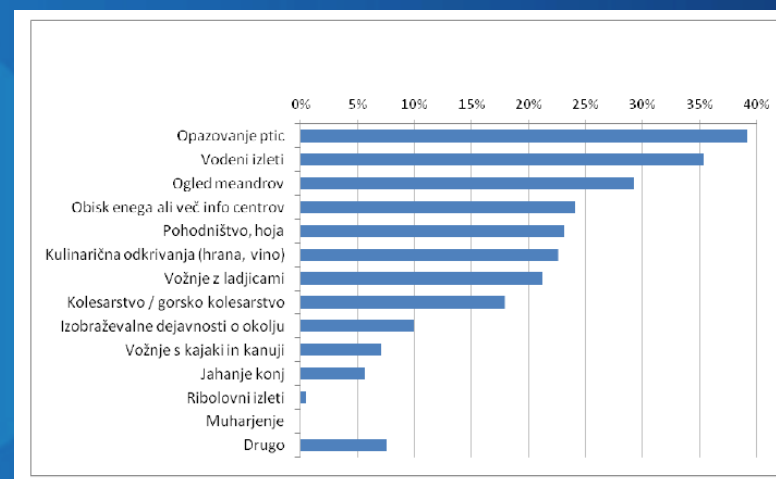
I. Project Climaparks – introduction



Climaparks – implemented activities

❖ Ente Gestione Parchi Biodiversità - Delta del Po

- Monitoring: plant communities, bioindicator species identification, visitation analysis



- Pilot projects: electric cars purchase, arrangement of the classroom and laboratory in the reception center





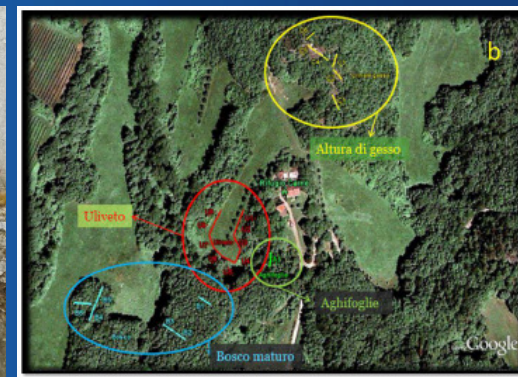
I. Project Climaparks – introduction



Climaparks – implemented activities

❖ Park of Gypsum Vein of Romagna

- Monitoring: Birds (Aves), bats (Chiroptera), insects (Insecta)



- Pilot projects: Thematic exhibition in the information center



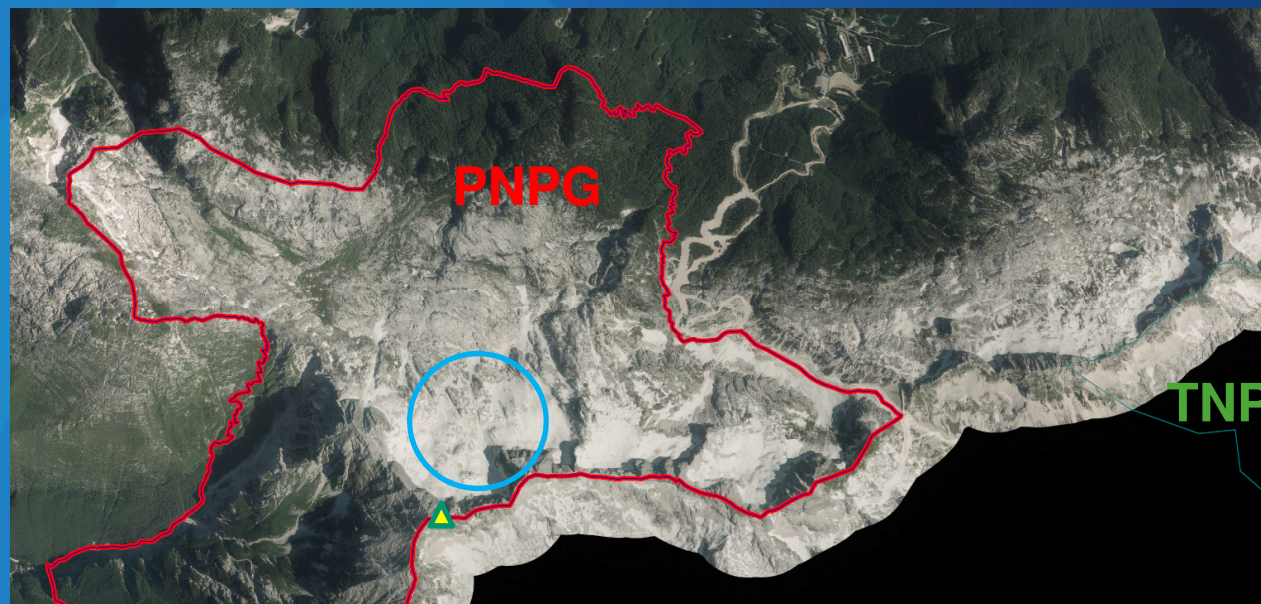
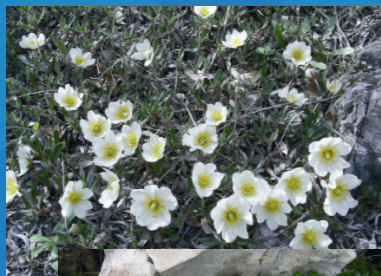


II. Case study 1 – Canin Glacier Area



Climaparks – species and habitats monitoring in PGNP

- ❖ **Purpose:** to analyse the current state of flora as a reference for assessing the climate change impacts on vulnerable Alpine systems in the future
- ❖ **Study site:** PGNP - Canin Glacier Area
- ❖ **Activities conducted:** protocol preparation defining the exact monitoring methodology (e.g. plants – sample plots, fauna – altitudinal transects)



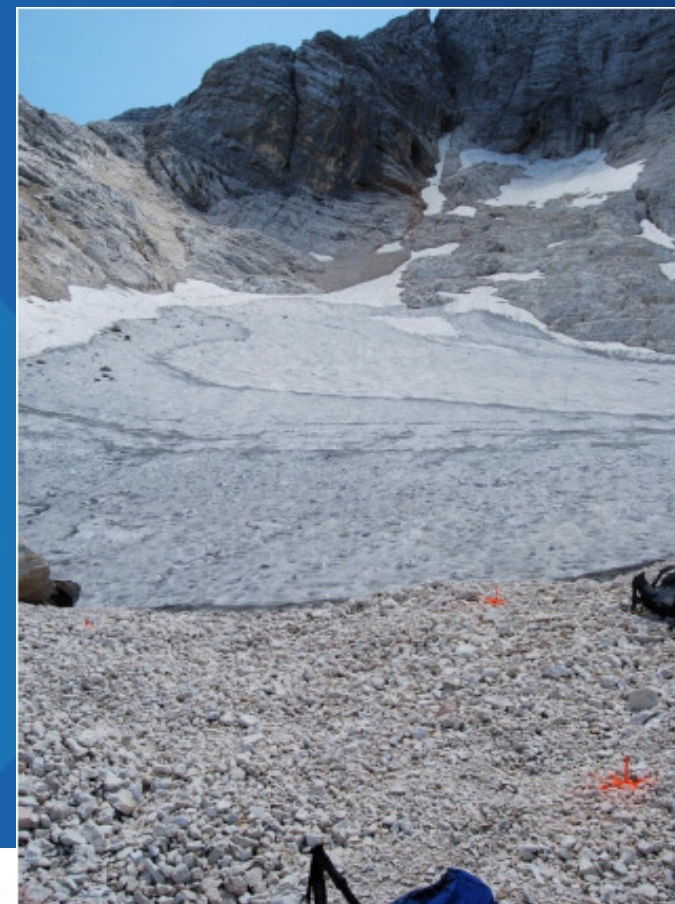


II. Case study 1 – Canin Glacier Area



Climaparks – species and habitats monitoring in PGNP

- ❖ **Activities conducted:** field inventories – plant species / vegetation – by using 8 permanent sample plots (5 x 5 m², 2.054 m – 2.252 m)





II. Case study 1 – Canin Glacier Area

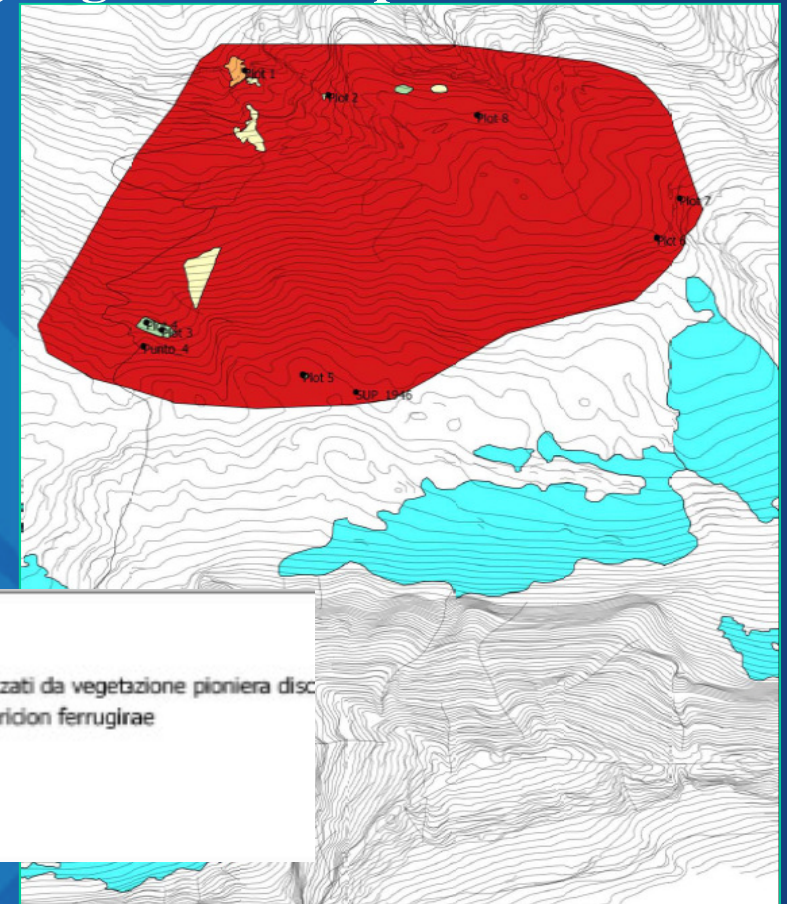


Climaparks – species and habitats monitoring in PGNP

❖ **Activities conducted:** phytosociological analyses, vegetation maps

Tabella 1b. Sintesi rilievi fitosociologici grid 10x10 cm sui 4 sub-plot (1m² ciascuno) – Plot 1

PLOT 1 - sintesi fitosociologico 10x10 cm	PLOT1-Q1	PLOT1-Q5	PLOT1-Q21	PLOT1-Q25
<i>Achillea atrata</i> L.	0,2	0,52	0,15	0,07
<i>Arabis alpina</i> L. subsp. <i>alpina</i>	0	0	0	0,15
<i>Arabis bellidifolia</i> Crantz s.l.	0	0,15	0,06	0
<i>Armeria maritima</i> Willd. subsp. <i>alpina</i> (Willd.)Pinto da Silva	0	13,35	0	0
<i>Bartsia alpina</i> L.	0	0,08	0	0
<i>Bistorta vivipara</i> (L.)Delarbre	6,25	5,43	3,61	1,93
<i>Campanula scheuchzeri</i> Vill.	0,2	0,06	0	0,02
<i>Carex ferruginea</i> Scop. subsp. <i>ferruginea</i>	0,85	15,75	13,65	45,85
<i>Carex firma</i> Host	0	0	4,15	0,25
<i>Carex parviflora</i> Host	0	0	0,08	0
<i>Cerastium carinthiacum</i> Vest s.l.	0	0	0,31	0
<i>Crepis aurea</i> (L.)Cass. subsp. <i>aurea</i>	0	0	3,08	0,5
<i>Festuca nitida</i> Kit. in Schult. subsp. <i>nitida</i>	59,63	2,5	9,2	60,65
<i>Gentiana pumila</i> Jacq. subsp. <i>pumila</i>	0,06	0,08	0	0
<i>Homogyne discolor</i> (Jacq.)Cass.	0	0	0,22	0
<i>Juncus jacquinii</i> L.	3,35	0	0	0,5
<i>Leontodon hispidus</i> L. s.l.	57,8	5,03	0,81	22,85
<i>Pedicularis rostratocapitata</i> Crantz subsp. <i>rostratocapitata</i>	0	0,35	0	0
<i>Peucedanum ostruthium</i> (L.)W.D.J.Koch	0	0	0	1
<i>Poa alpina</i> L. subsp. <i>alpina</i>	5,95	1,6	0,13	1,55
<i>Prunella grandiflora</i> (L.)Scholler subsp. <i>grandiflora</i>	0	0	1,05	0
<i>Ranunculus traufelneri</i> Hoppe	0,4	4,62	3,395	0
<i>Salix retusa</i> L. subsp. <i>retusa</i>	6	17,4	35,05	0
<i>Salix waldsteiniana</i> Willd.	58,59	6,45	0,2	0
<i>Saxifraga aizoides</i> L.	0	16,05	2,77	0
<i>Silene acaulis</i> (aggr.)	0	0	0,95	0
<i>Soldanella alpina</i> L. subsp. <i>alpina</i>	2,85	5,35	2,34	2,14
<i>Soldanella minima</i> Hoppe subsp. <i>minima</i>	0	0	3,61	0
Muschio	0	0,5	25,15	0
Copertura totale %	100	80	76,8	96,4



Legenda

Tipologie vegetali

- Aree rocciose, macereti, ghiaioni colonizzati da vegetazione pioniera disc
- Mosaico Salicetum retuso-reticulatae/Caricion ferruginae
- Salicetum retuso-reticulatae
- Thlaspion
- Ghiacciaio





II. Case study 1 – Canin Glacier Area



Climaparks – species and habitats monitoring in PGNP

❖ **Conclusions:**

- first stage of monitoring activities to assess CC impacts on biodiversity
- first step in CC mitigation / adaptation
- scientific background for conducting correct management / conservation measures





III. Case study 2 – Chamois

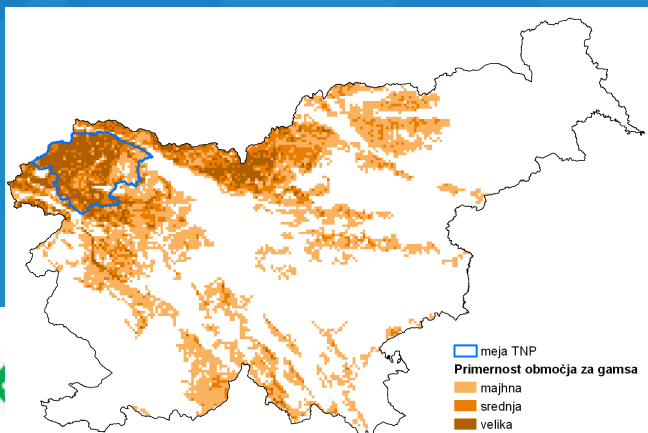


Climaparks – species monitoring in TNP

- ❖ **Purpose:** to analyse species habitat use in TNP in order to confirm Chamois as a candidate indicator species for climate change
- ❖ **Study site:** TNP – Vršič, Tamar, Kranjska gora
- ❖ **Activities conducted:** habitat modelling by using the existing available data from systematic observations 1993 – 2011 (1 km x 1 km grid)

Spring: activity of Capercaillie and Black Grouse at leks

Autumn: one-day systematic counting of Chamois and Alpine Ibex



TRIGLAVSKI NARODNI PARK

OPAZOVALNI LIST
SISTEMATIČNA OPAZOVANJA

1. vrsta opazovanja (leksi)

2. lokacija

3. datum opazovanja

4. opazovalnik

ZNAČILNOST	ČAS OPAZ.	NAČIN OPAZ.	OPAZOVANA VISTEVANJA	PODATKI O OPREZENIH ŽIVALIH (število)												DRUGI ZNAKI				
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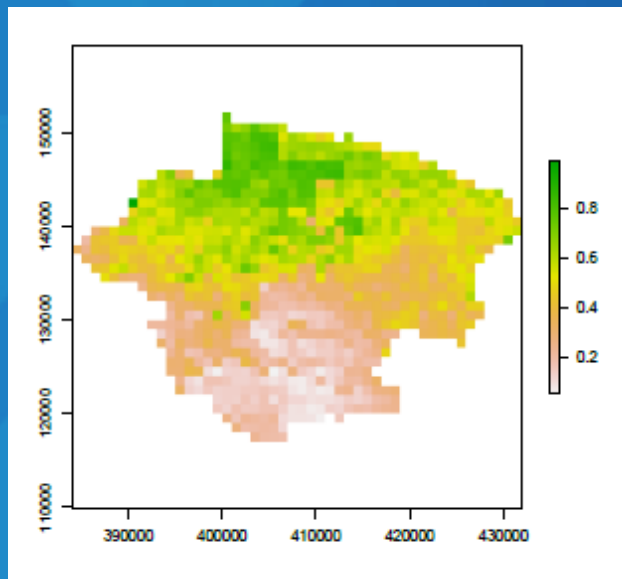
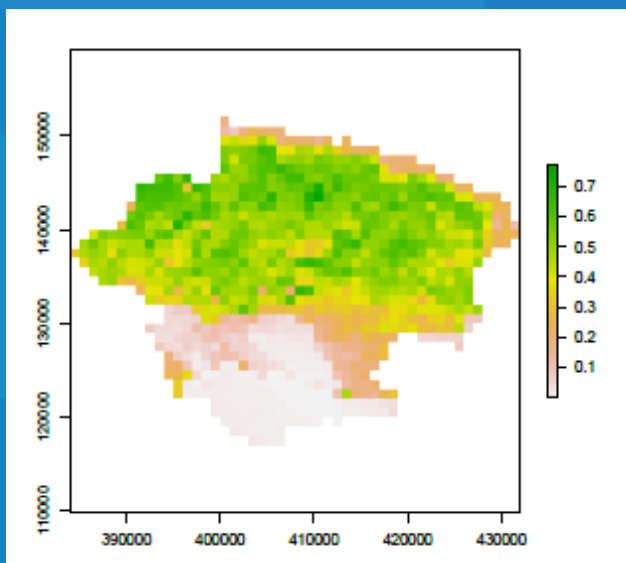


III. Case study 2 – Chamois



Climaparks – species monitoring in TNP

❖ Results: habitat suitability models in TNP



Environmental indicators:

- Inclination
- Diversity of aspects
- Average precipitation
- Percentage of conifers
- Size of the largest forest patch in the quadrant



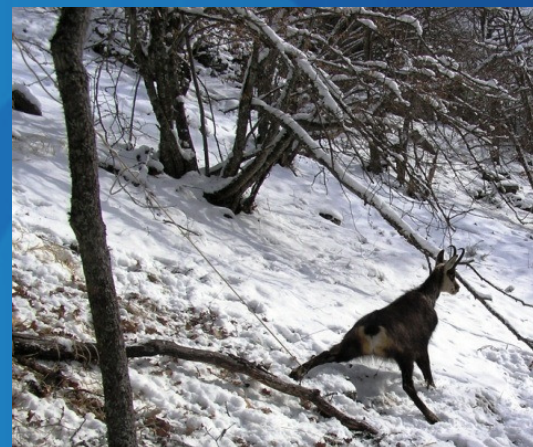
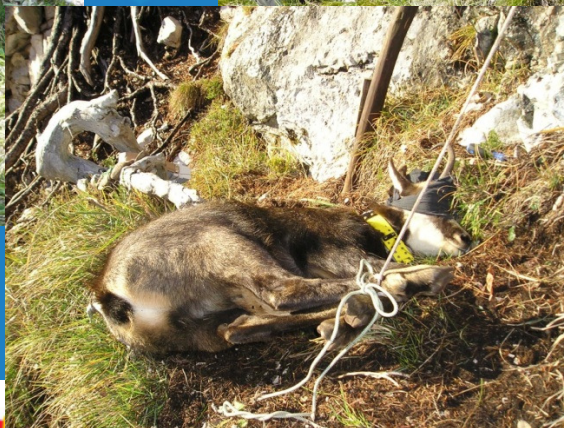
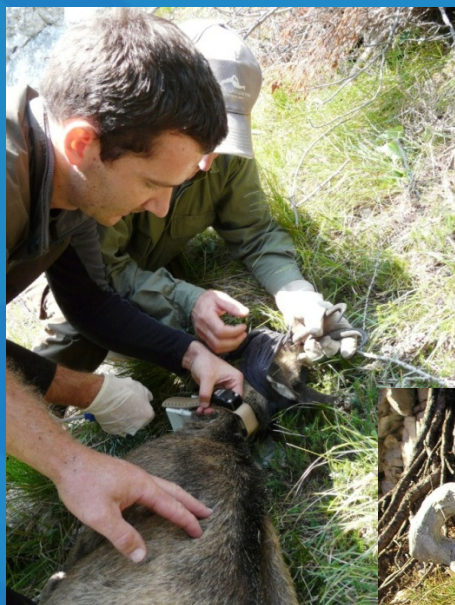


III. Case study 2 – Chamois



Climaparks – species monitoring in TNP

- ❖ **Activities conducted:** GPS telemetry – capture of 4 animals to be fitted with tracking collars
 - Capture technique – foot loops



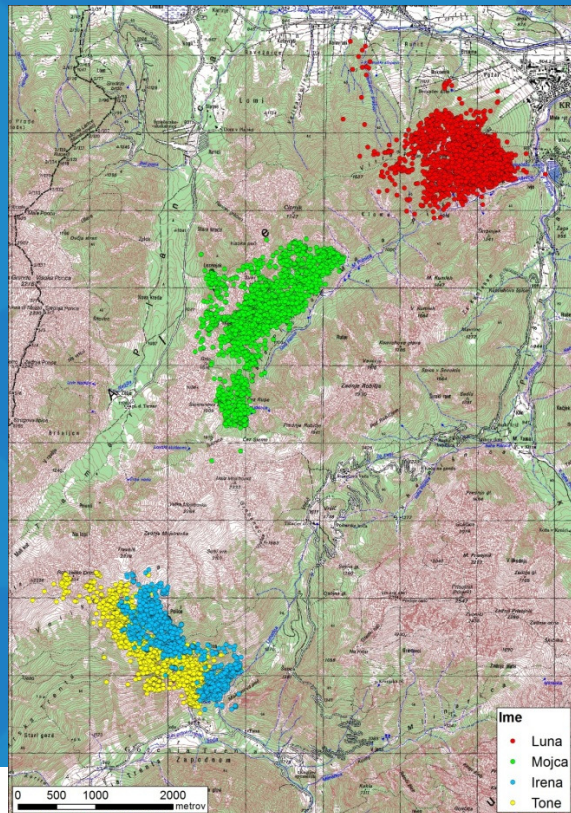


III. Case study 2 – Chamois

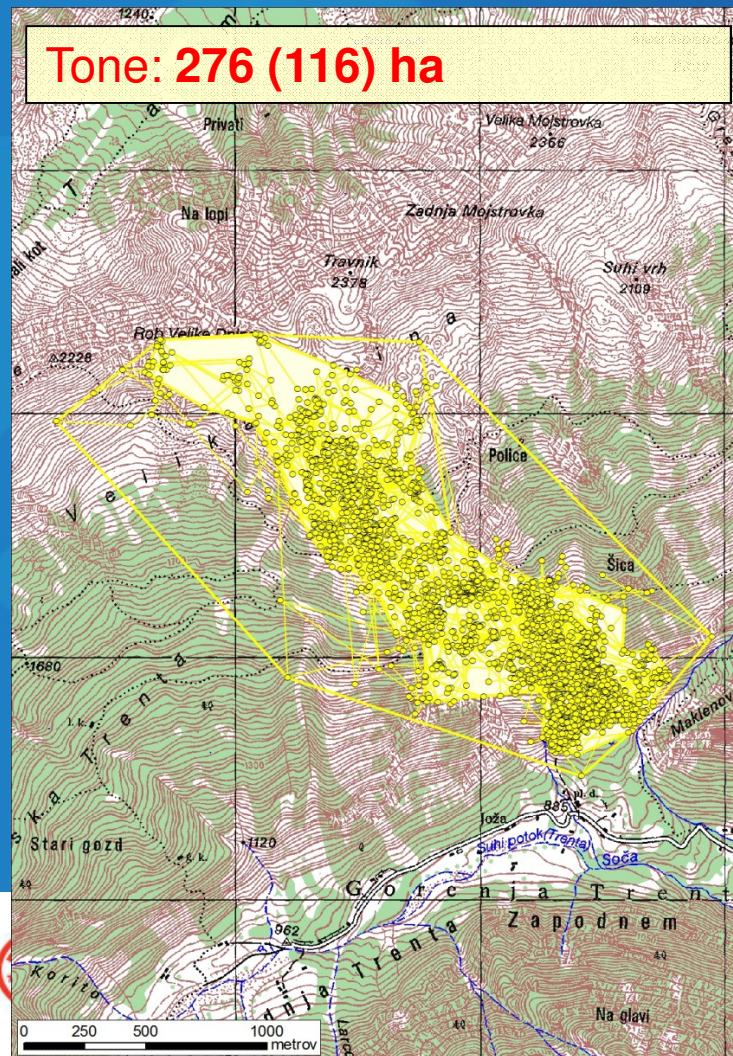


Climaparks – species monitoring in TNP

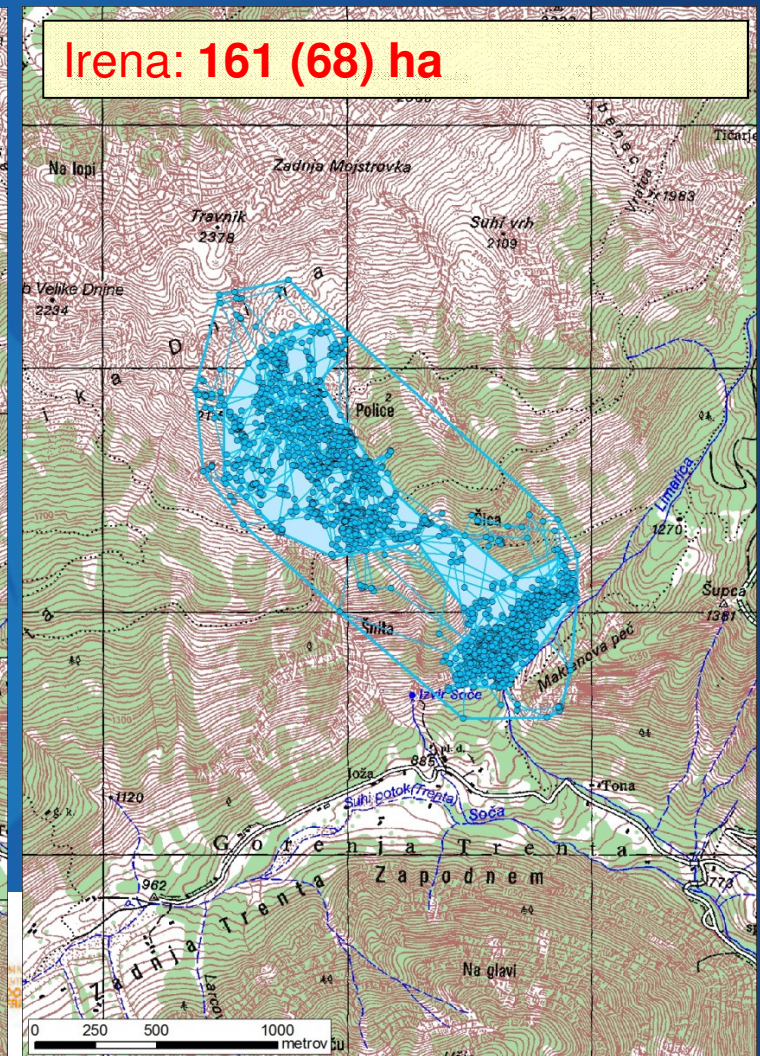
❖ **Results:** GPS telemetry – maps of (overall) movements recorded



Tone: 276 (116) ha



Irena: 161 (68) ha



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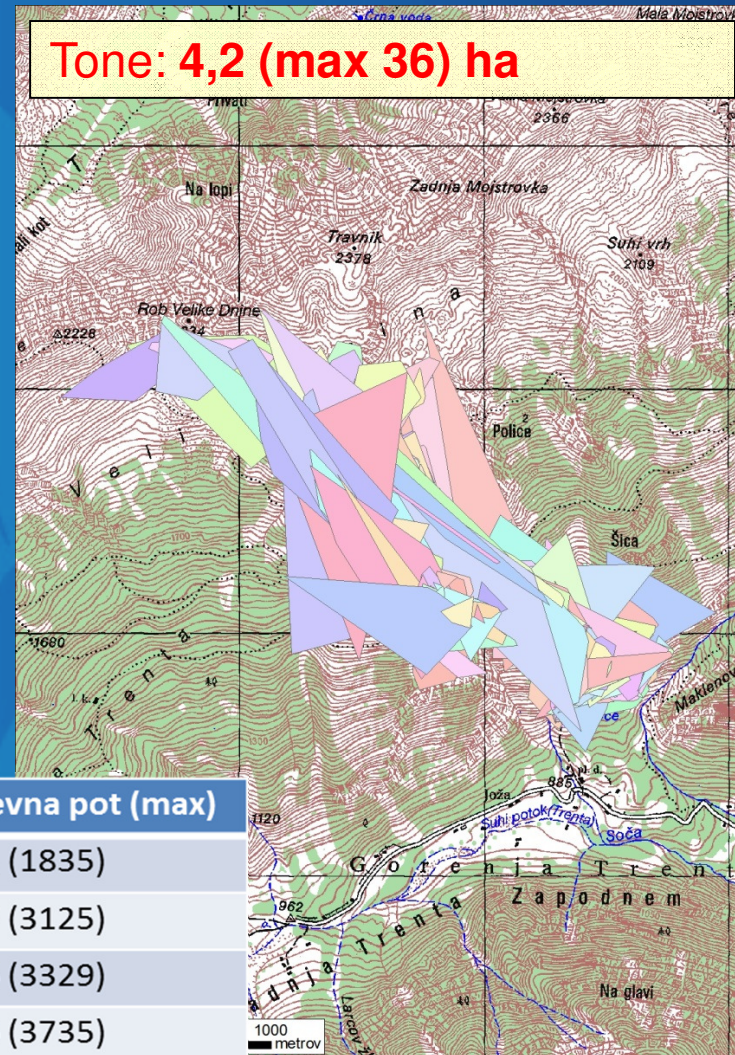
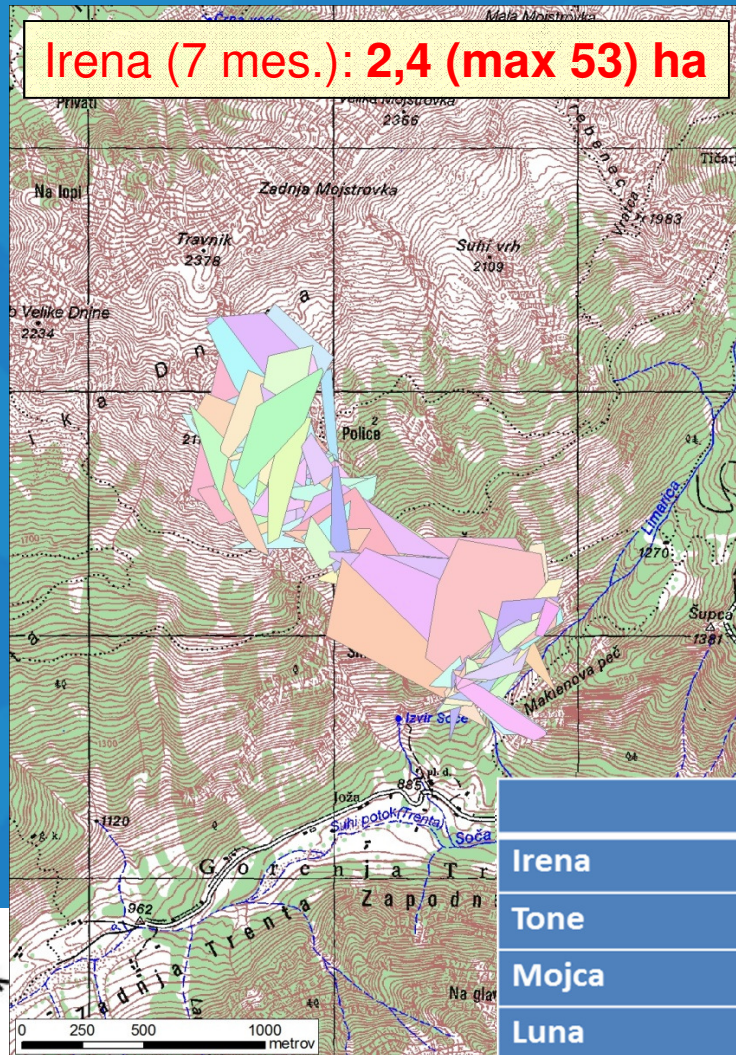


III. Case study 2 – Chamois



Climaparks – species monitoring in TNP

❖ **Results:** GPS telemetry – maps of (daily) movements recorded



	Dnevna pot (max)
Irena	601 (1835)
Tone	877 (3125)
Mojca	826 (3329)
Luna	956 (3735)



Provincia di Ravenna

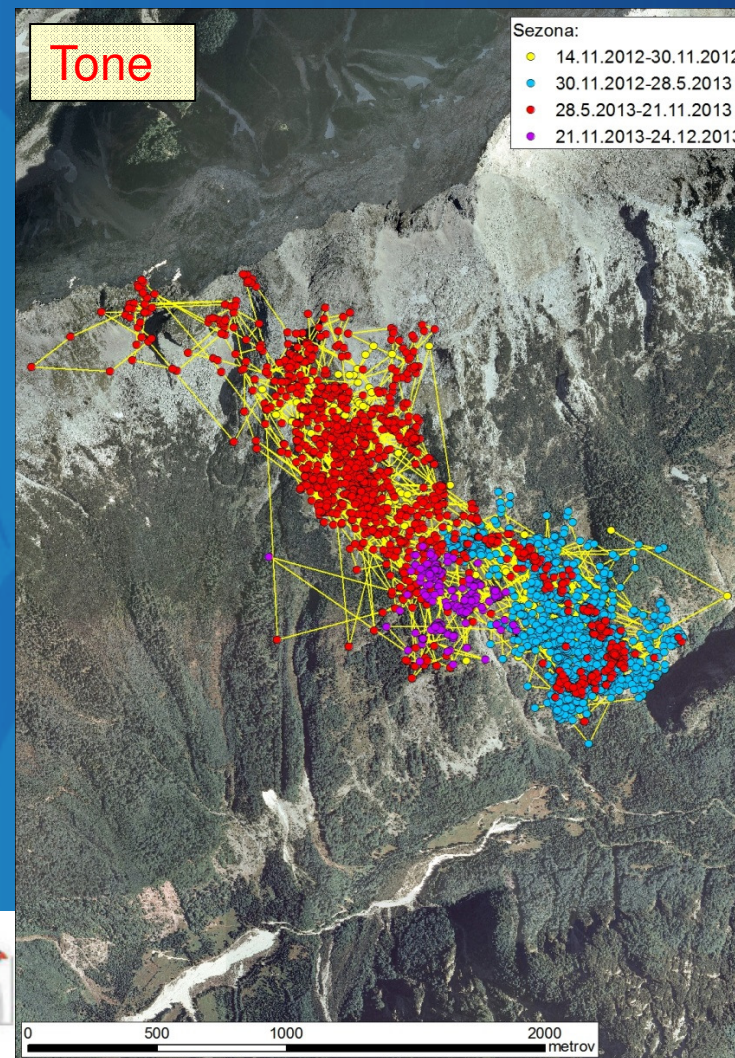
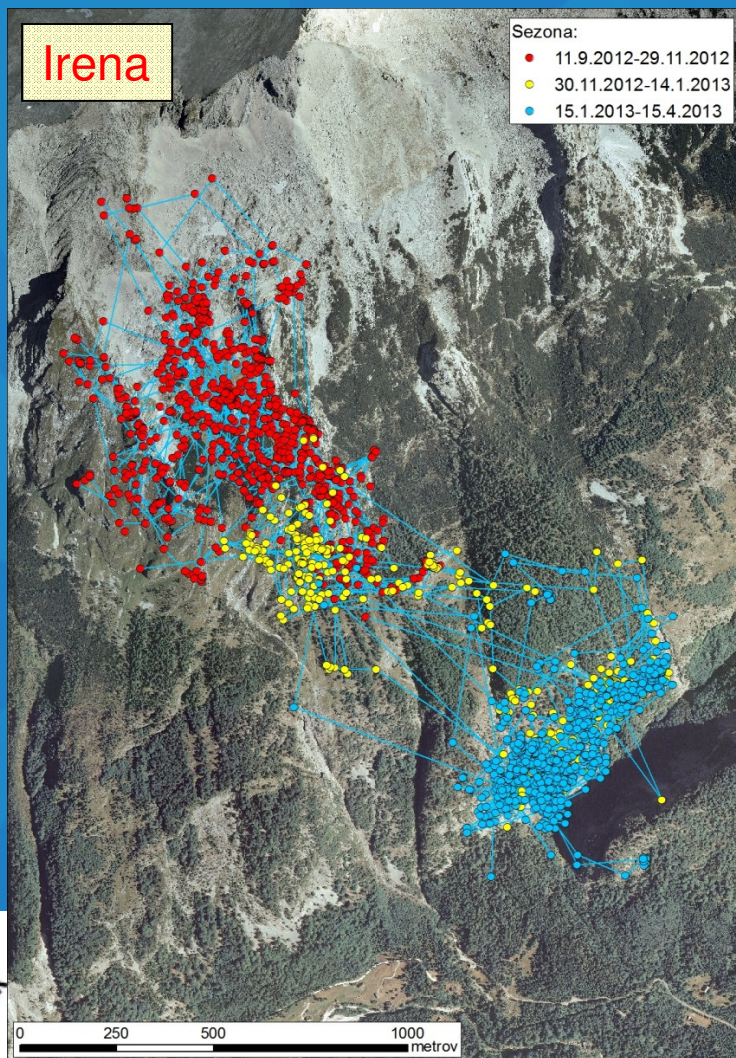


III. Case study 2 – Chamois



Climaparks – species monitoring in TNP

❖ **Results:** GPS telemetry – maps of (seasonal) movements recorded



Provincia di Ravenna



III. Case study 2 – Chamois

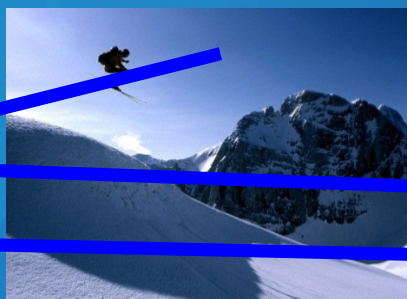
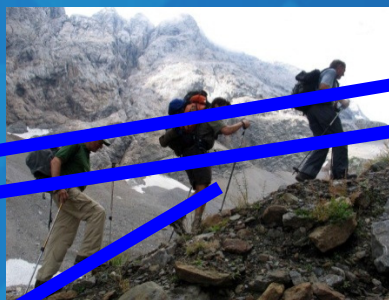


Climaparks – species monitoring in TNP

❖ **Results:** GPS telemetry – impacts of human disturbance / visitation ????

Tone – July, November

Pot:
— julij
— november



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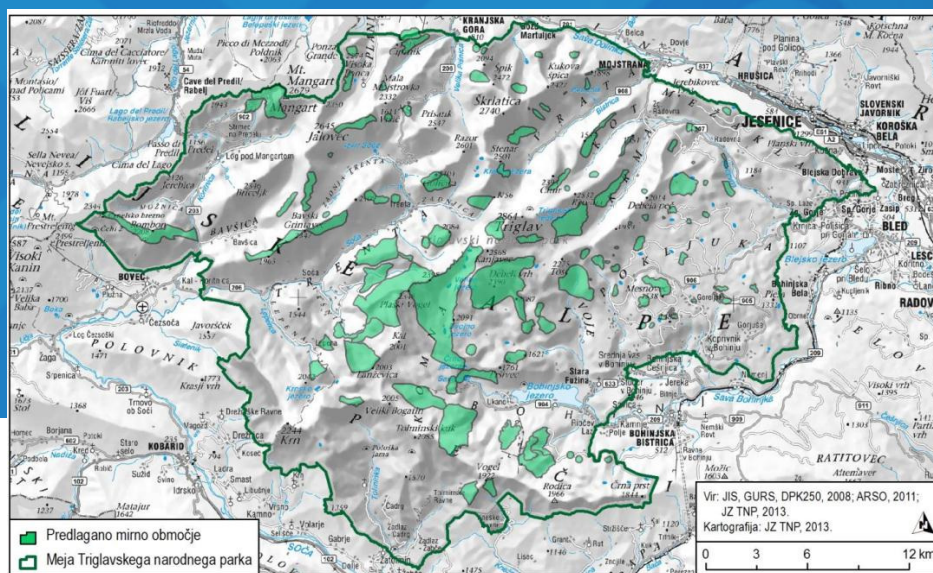
III. Case study 2 – Chamois



Climaparks – species monitoring in TNP

❖ Conclusions:

- Strong dependence of Chamois habitat use upon climatic factors
- Significant impact of climate changes predicted – Chamois is an indicator species for the effects of climate change
- Species home range estimated by using telemetry data in line with other studies (AT, SI)
- Unknown impacts of human disturbances



IV. Discussion





Hvala za pozornost!

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