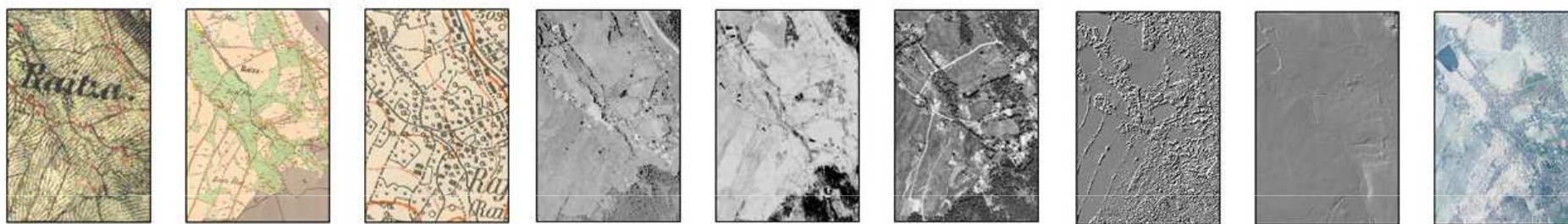


# Landscape history of Bohemian–Saxon Switzerland

## available historical topographic data on Czech side



**Ing. Jitka Elznicová, PhD.**

[jitka.elznicova@ujep.cz](mailto:jitka.elznicova@ujep.cz)

University of J. E. Purkyně in Ústí nad Labem  
Faculty of Environmental Studies  
Ústí nad Labem



Europäische Union. Europäischer  
Fonds für regionale Entwicklung.  
Evropská unie. Evropský fond pro  
regionální rozvoj.



Ahoj sousede. Hallo Nachbar.  
Interreg V A / 2014–2020

**Since 2002**, the Faculty of the Environment UJEP in Ústí nad Labem has been involved in the processing of geodata in the cross-border area of Bohemian-Saxon Switzerland.

There is closed **cooperation** with:

- **Technische Universität Dresden**



TU Dresden

- **Leibniz-Institut für ökologische Raumentwicklung**



IÖR Dresden

- **National Park Bohemian Switzerland**



- **Protected landscape area Elbe Sandstone Mountains**



- **National park and protected landscape area Saxon Switzerland**



# PHARE CBC (2002-2004)

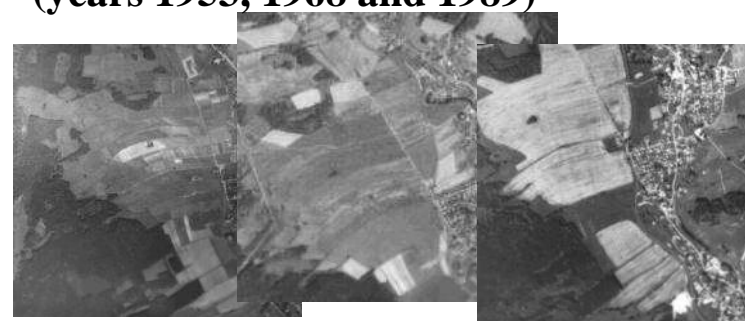
fzp.ujep.cz/kig/vav/pharecbc

## The creation of geoinformatics networks for cross-border region Bohemian-Saxon Switzerland

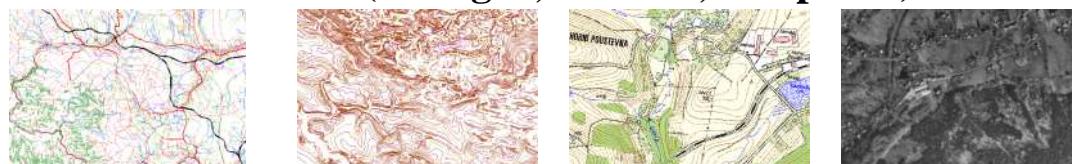
### Old Maps (Military surveys, Topographic maps)



### Archive aerial photography (years 1953, 1968 and 1989)



### Data 2000/2001 (Zabaged, RZM10, ortophoto)



### Satellite data SPOT4 a SPOT5



### Geology maps GEOČR50, ortophoto of Labe River (2002) and Děčín city (2000)





## INTERREG IIIB CADSES

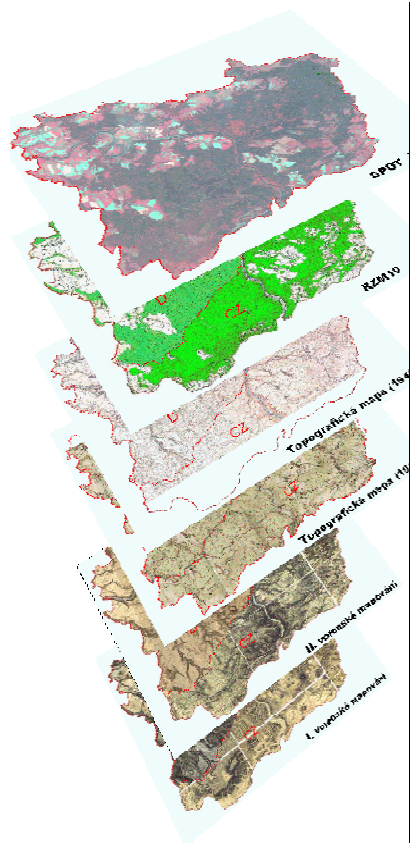
## SISTEMaPARC

(2004-2006)

(Spatial Information Systems for Transnational Environmental Management of Protected Areas and Regions in CADSES)



Project part-financed by the European Union



Time	area <i>Saxon Schitzlerland</i>	area <i>Bohemian Schitzlerland</i>
~1800	Sächsischen Meilenblätter 1 (1780–1809)	1 <sup>st</sup> Military maps 2 (1764–1768, 1780–1783 rektifikation)
~1850	äquidistantenkarte des Königreiches Sachsen 1 (1870–1885)	2 <sup>nd</sup> Military maps 2 (1806–1869)
~1900	Topographical map Messtischblatt 1 (1900–1924)	Topographical map Messtischblatt (1900–1924) 1
	Meinholdkarte 4 (1910)	Meinholdkarte (1910) 4
~1940	Topographical map Messtischblatt 1 (~1940)	Topographical map 3 Messtischblatt (~1940)
~2000	TK 25/TK10 1	RZM10 4
	ATKIS 1	ZABAGED 4
	area <i>Bohemian-Saxon Schitzlerland</i>	
	Satellite images (SPOT4 a SPOT5) 4	
	Laser scanning 6	
	Multispectral images 6	

1. Data were processed within the project INTERREG IIIB "SISTEMaPARC" 3B038, Work package 2 - Analysis Tools and Monitoring Methods“. Dr. Ulrich Walz (**Leibniz Institut für ökologische Raumentwicklung e.V., Dresden - IÖR Dresden**), was the project coordinator of this section.
2. Data were processed within the project VaV/640/2/01 – "Identification of historical network of landscape ecological stability elements" which was solved between years 2001 - 2002. **Ing. Vladimír Brůna (FZP UJEP)** was the project coordinator.
3. Data were processed within the project INTERREG IIIB "SISTEMaPARC" 3B038, Work package 2 - Analysis Tools and Monitoring Methods“. **Ing. Jitka Elznicová, Ph.D. (FZP UJEP)** was co-researcher of the project.
4. Data were bought and processes within the project SFMP CBC CZ0012/0501/0029 „Creation of geoinformatic database for Cross-boundary region Czech-Saxon Switzerland “. **Ing. Jitka Elznicová, Ph.D. (FZP UJEP)** was the project coordinator.
5. Data were bought within the project SFMP CBC CZ0012/0501/0029 (UJEP) and processed within the project INTERREG IIIB "SISTEMaPARC" 3B038 TU Dresden. **Prof. Dr. Elmar Csaplovics (Institut für Photogrammetrie und Fernerkundung, Technische Universität Dresden - TU Dresden)** was the project coordinator.
6. Data were bought within the project INTERREG IIIA "Geoinformation Networks for the Crossborder National Park Region Saxon-Bohemian Switzerland" (02-I2.11-D024-EEL11064-2) and processed by TU Dresden. The project coordinator was **Prof. Dr. Elmar Csaplovics (Institut für Photogrammetrie und Fernerkundung, TU Dresden)**.

# Central Europe – **TransEcoNet** (2009 – 2012)

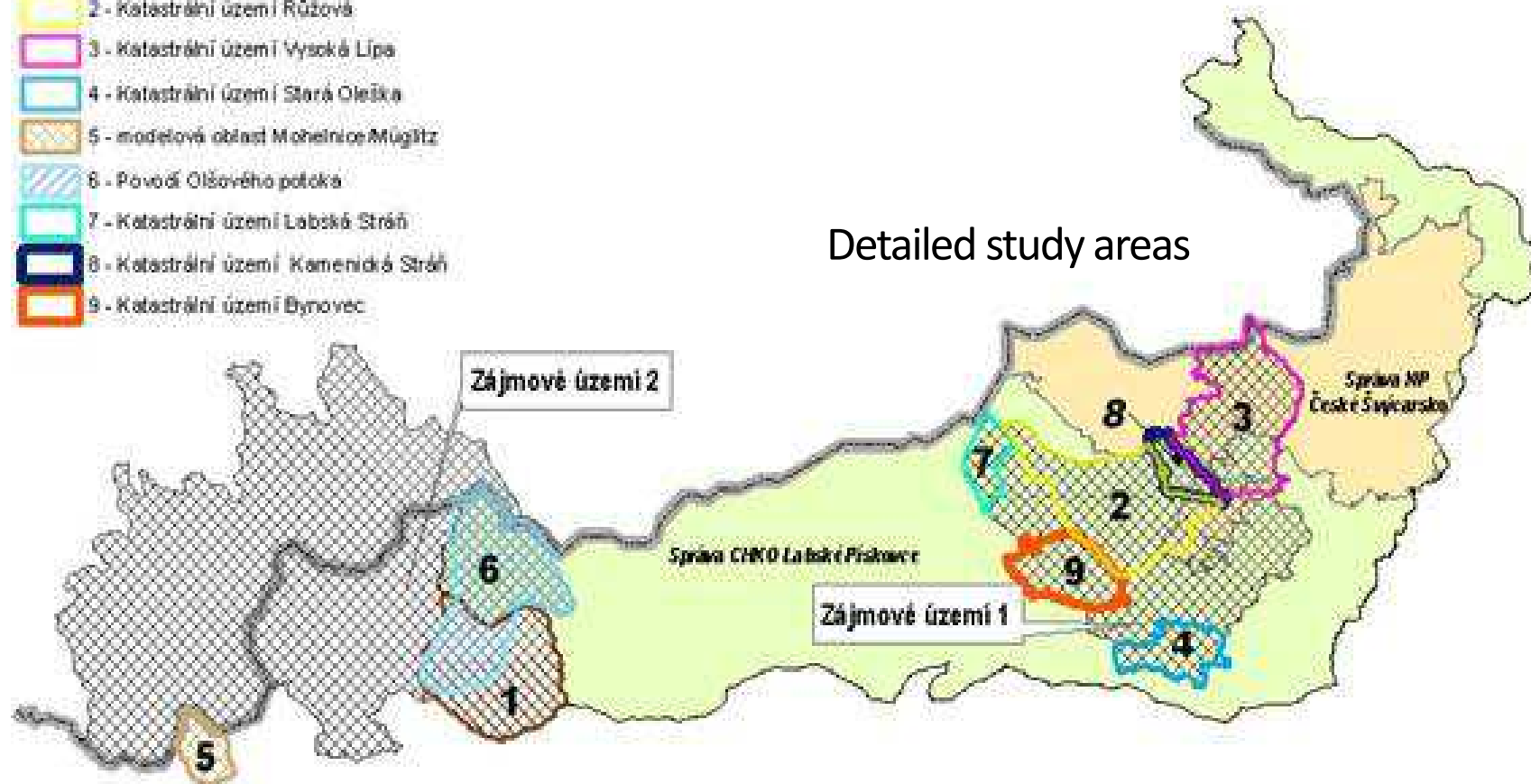
<http://projekty.fzp.ujep.cz/transeconet>



## Transnational Ecological Network in Central Europe

- 1 - Vojenský prostor Tisá
- 2 - Katastrální území Růžová
- 3 - Katastrální území Vysoká Líba
- 4 - Katastrální území Stará Oleška
- 5 - modelová oblast Mohelnice-Müglitz
- 6 - Pávodí Olšovského potočka
- 7 - Katastrální území Laboká Stráň
- 8 - Katastrální území Kamenická Stráň
- 9 - Katastrální území Bynovec

Detailed study areas



## Mapserver

<http://projekty.fzp.ujep.cz/transeconet>


**Analýza změny využití krajiny v katastru Růžová**

**Results**

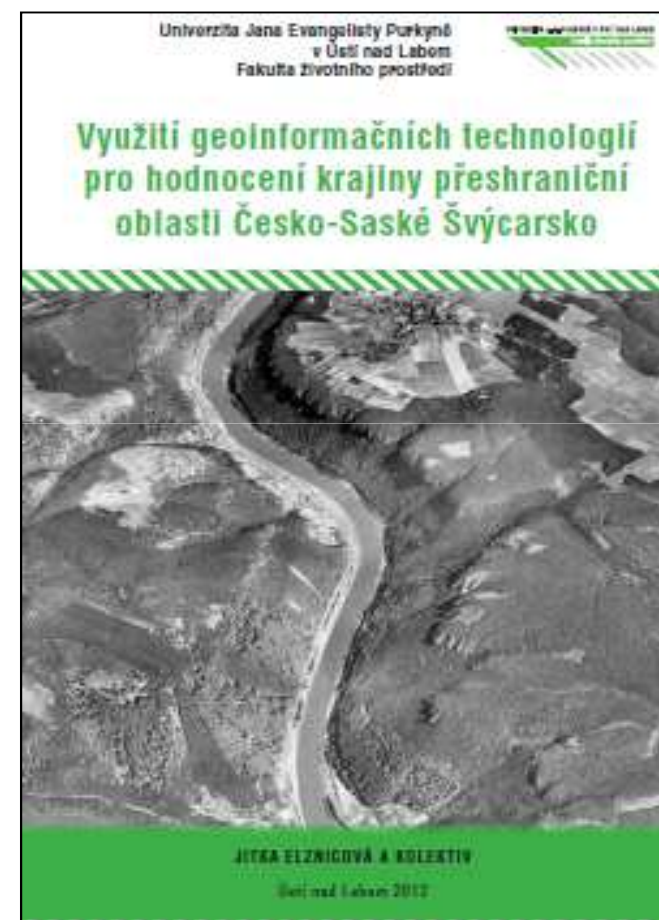
**Map Contents**

Růžová

- ☒ hranice katastru
- ☒ Rastrové podklady
  - ☒ Stablní katastr 1843
  - ☐ Letecký snímek 1953
  - ☐ Letecký snímek 1989
- ☐ Vektorové podklady
  - ☒ Krajinný pokryv rok 1843
  - ☐ Krajinný pokryv rok 1953
  - ☐ Krajinný pokryv rok 1989
  - ☒ Krajinný pokryv rok 2007
- ☒ Vývoj zástavby
  - ☒ rok 1843
  - ☐ rok 1953
  - ☐ rok 1989
  - ☒ rok 2007
- ☐ Vývoj pozemků orné půdy
  - ☒ rok 1843
  - ☒ rok 2007
- ☐ Celková změna



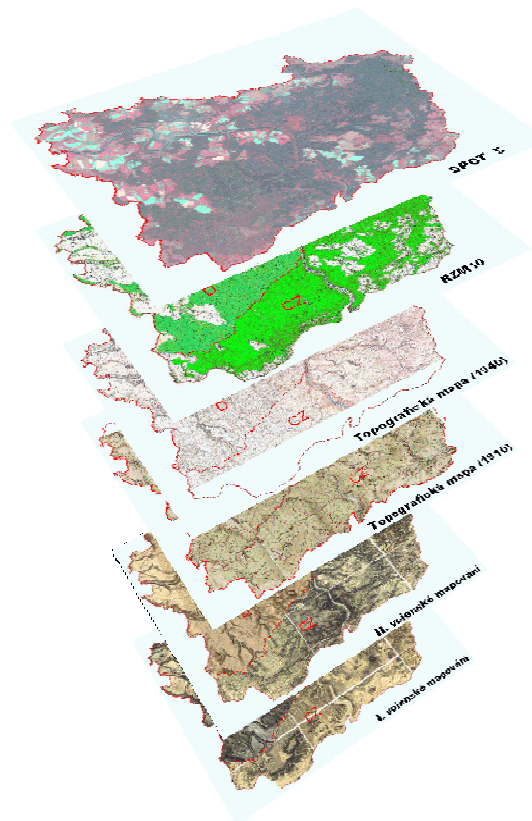
## Book – only Czech





## Layers for Bohemian Switzerland area:

- 1<sup>st</sup> military survey 1764-1768 and 1780-1783 (rectification) (raster and vector)
- 2<sup>nd</sup> military survey 1836-1852 (raster and vector)
- Topographical map Messtischblatt 1900-1924 (raster)
- Meinholdkarte 1910 (raster and vector)
- 3<sup>rd</sup> military survey 1920-1934 (raster and vector)
- Topographical map Messtischblatt 1940 (raster, vector only NP)
- Archive orthophotos 1953/1954 (raster)
- Archive orthophotos 1968 (raster)
- Archive orthophotos 1989 (raster)
- Satellite data SPOT 2001/2000 (raster)
- Vector data ZABAGED 2000 (vector)
- Satellite data SPOT 2004 (raster)
- Archive and actual orthophotos 2000 - 2015 (geoportal.gov.cz) (raster)



## Layers for research areas of Bohemian Switzerland:

- Stabile cadaster 1845 (raster and vector)
- Archive orthophotos 1938 (vector)
- Archive orthophotos 1953/1954 (vector)
- Archive orthophotos 1968 (vector)
- Archive orthophotos 1989 (vector)
- Actual orthophotos 2007 (vector)

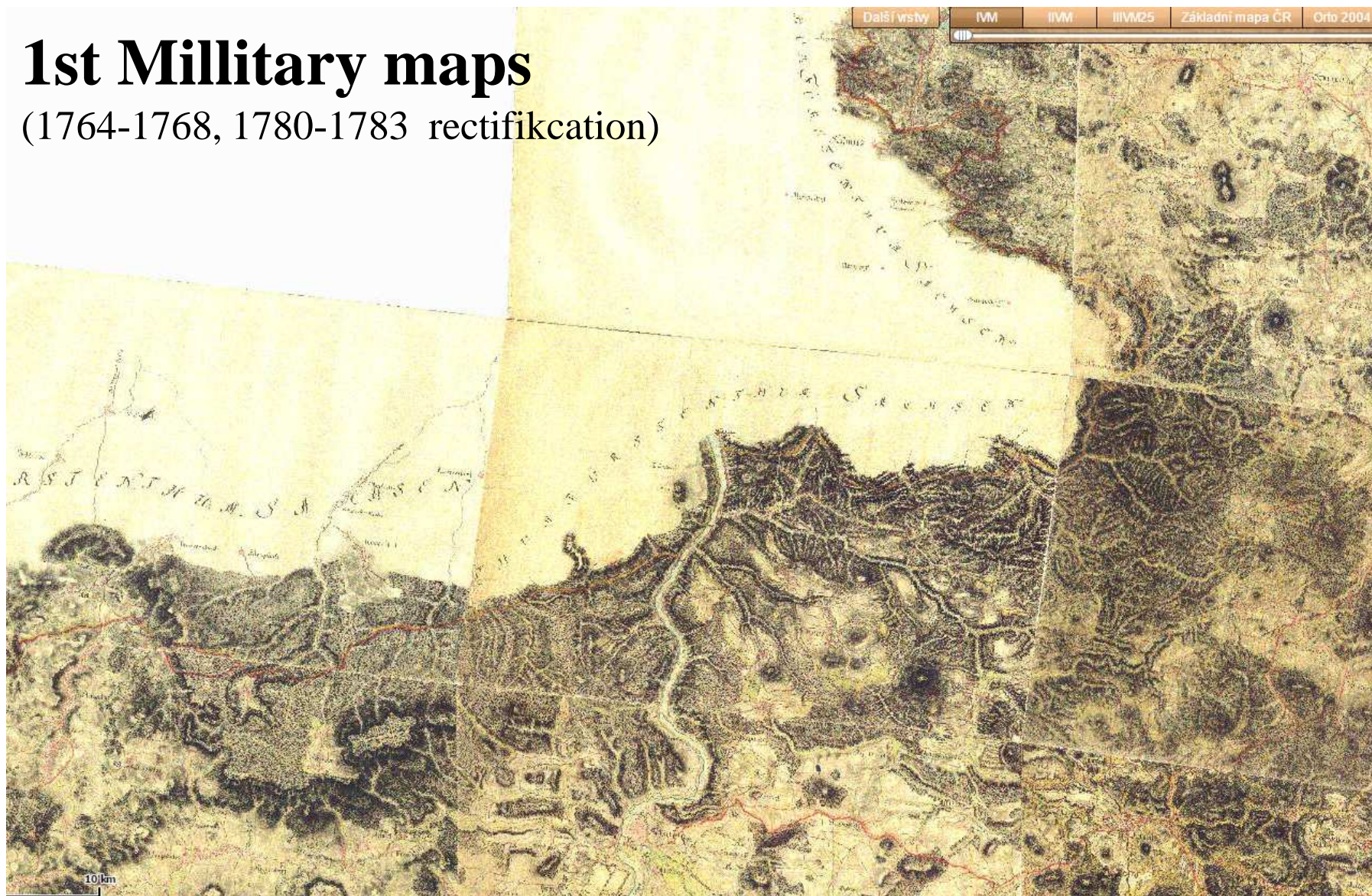


<http://mapserver.ujep.cz/projekty/transeconet/>

[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

# 1st Military maps

(1764-1768, 1780-1783 rectification)



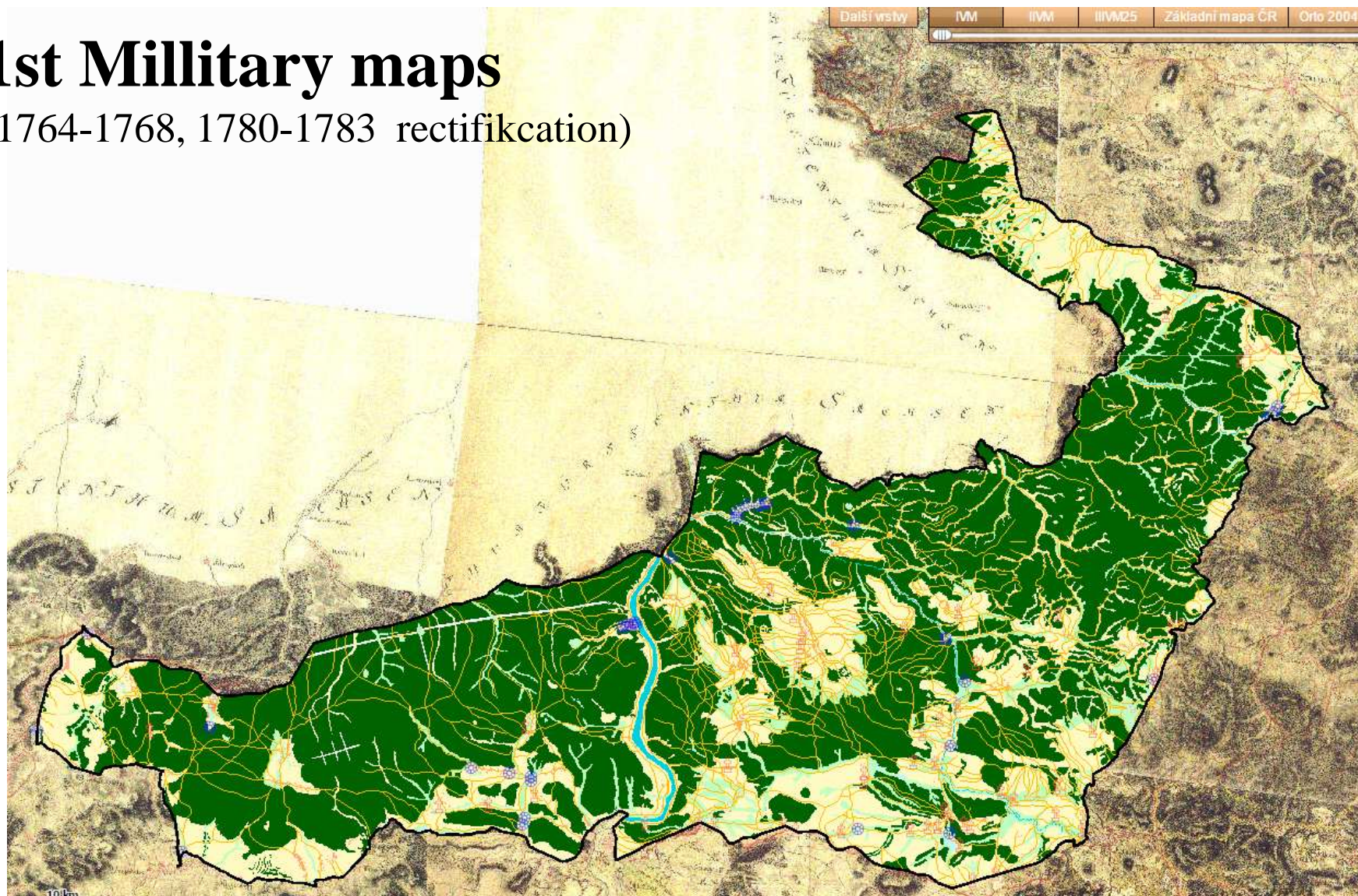


<http://mapserver.ujep.cz/projekty/transeconet/>

[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

# 1st Military maps

(1764-1768, 1780-1783 rectification)





<http://mapserver.ujep.cz/projekty/transeconet/>

[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

## 2nd Military maps (1806-1869)

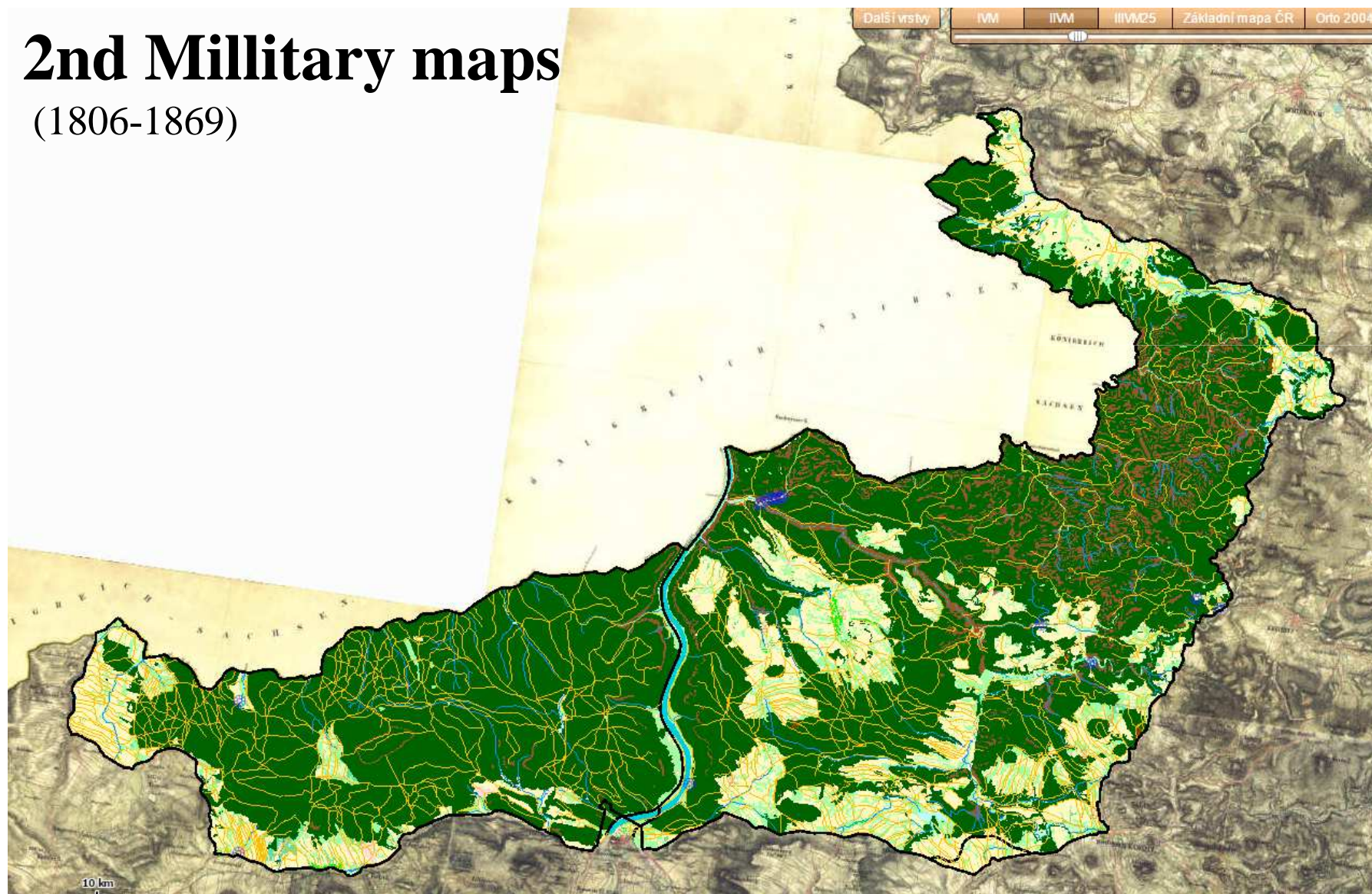




<http://mapserver.ujep.cz/projekty/transeconet/>

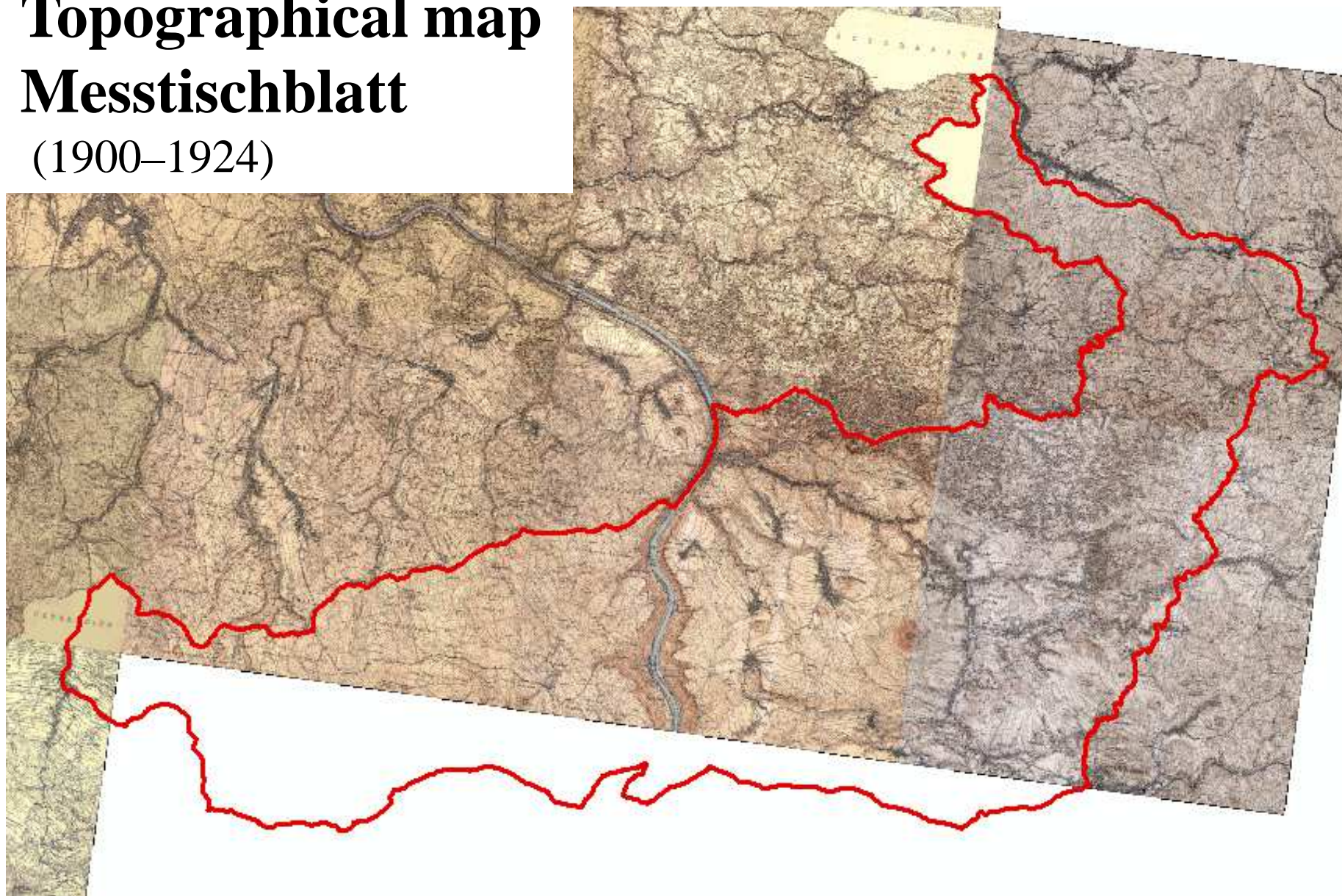
[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

## 2nd Military maps (1806-1869)



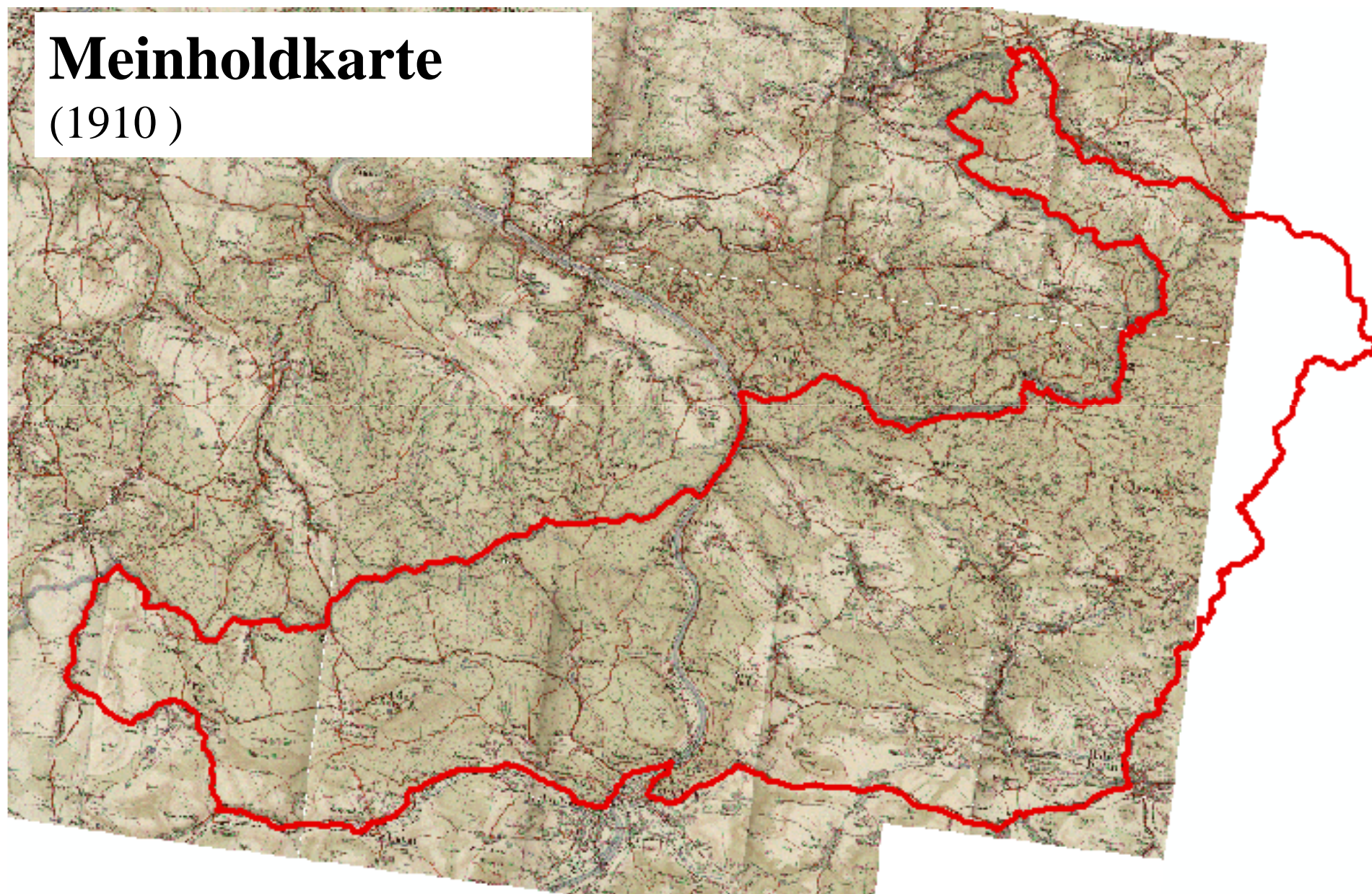


# Topographical map Messtischblatt (1900–1924)



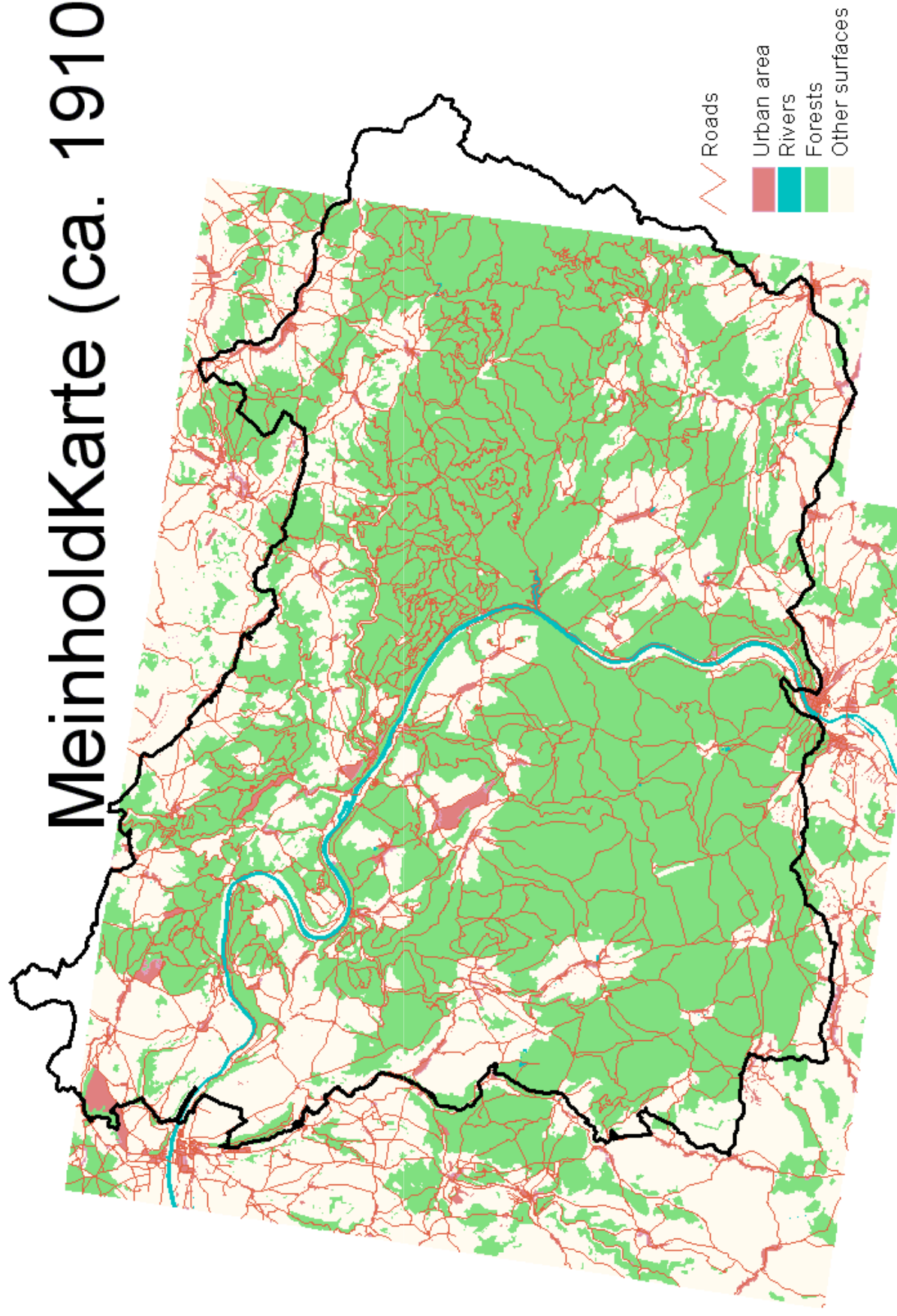


# Meinholdkarte (1910 )



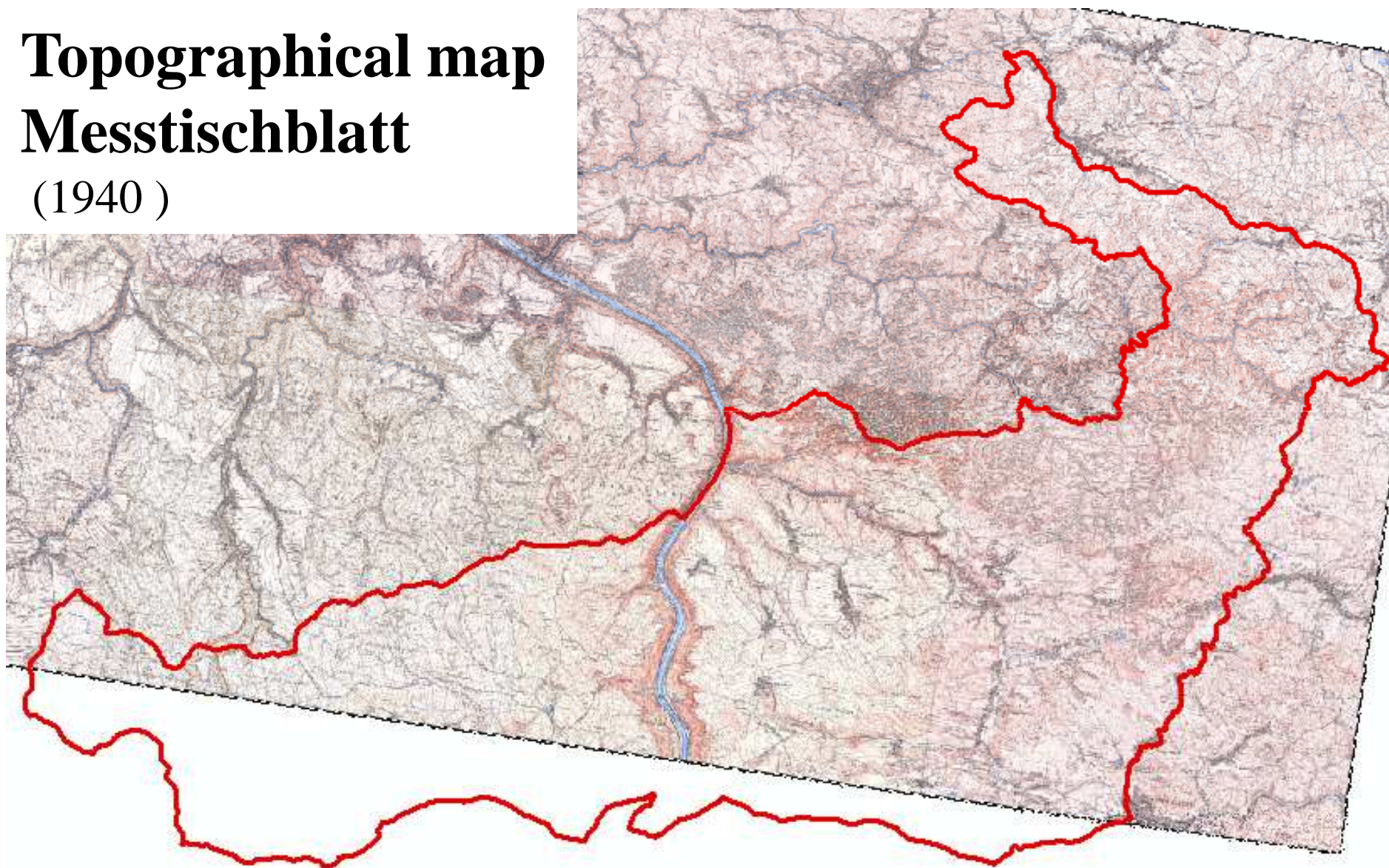


# MeinholdKarte (ca. 1910)



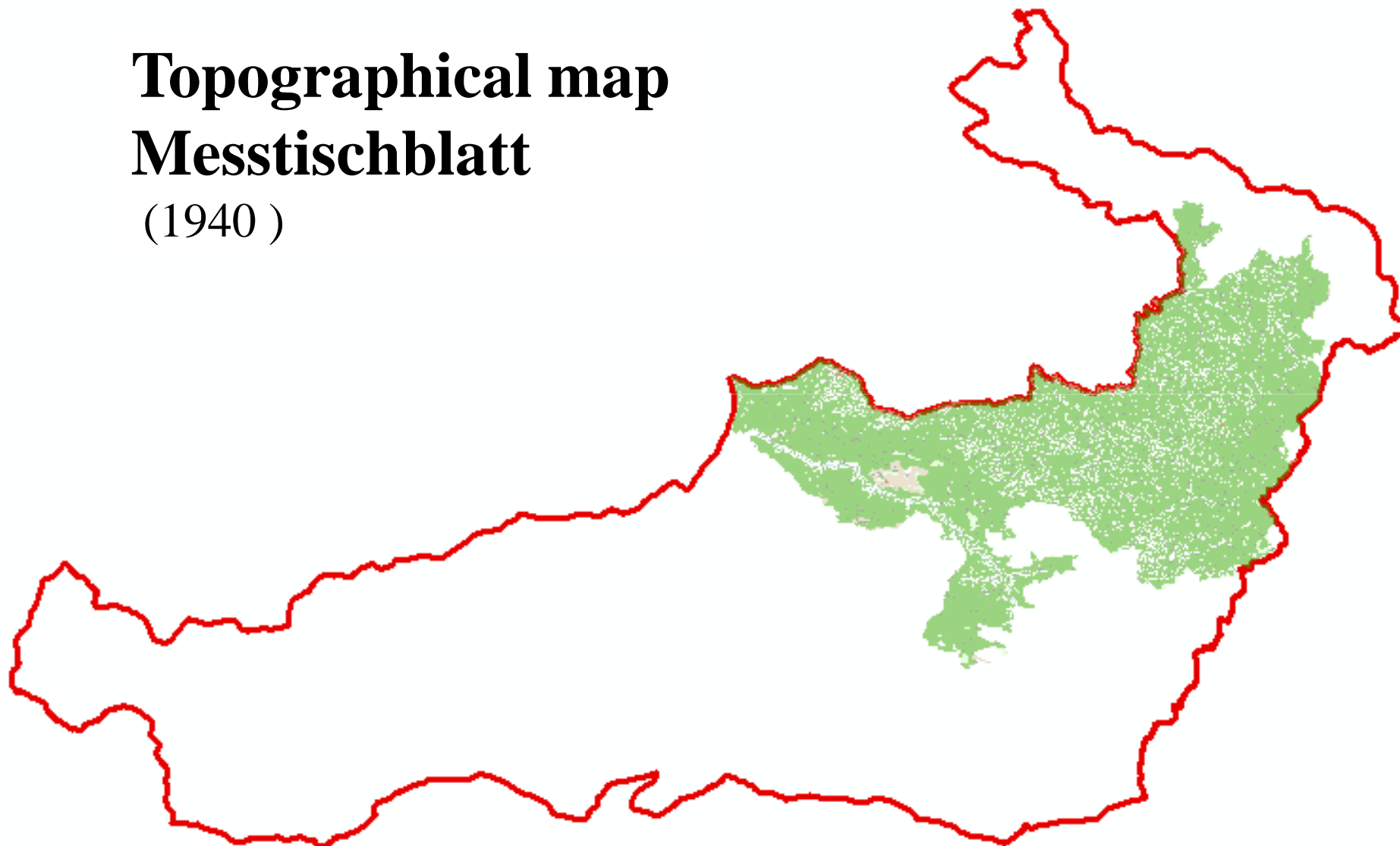


# Topographical map Messtischblatt (1940 )





# Topographical map Messtischblatt (1940 )

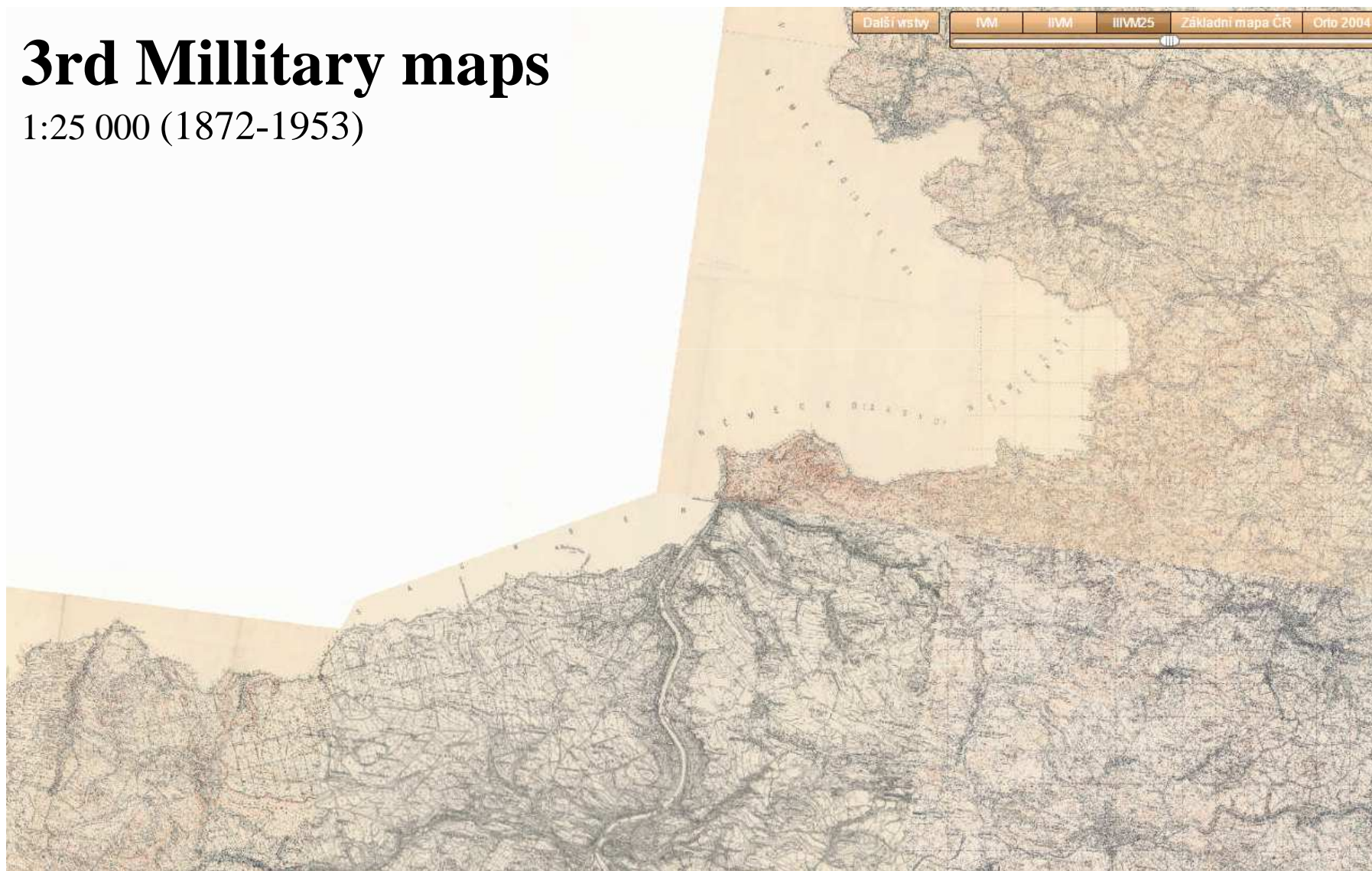


<http://mapserver.ujep.cz/projekty/transeconet/>

[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

## 3rd Military maps

1:25 000 (1872-1953)





<http://mapserver.ujep.cz/projekty/transeconet/>

[http://195.113.140.12/projekty/Transeconet/Labske\\_piskovce/](http://195.113.140.12/projekty/Transeconet/Labske_piskovce/)

## 3rd Military maps

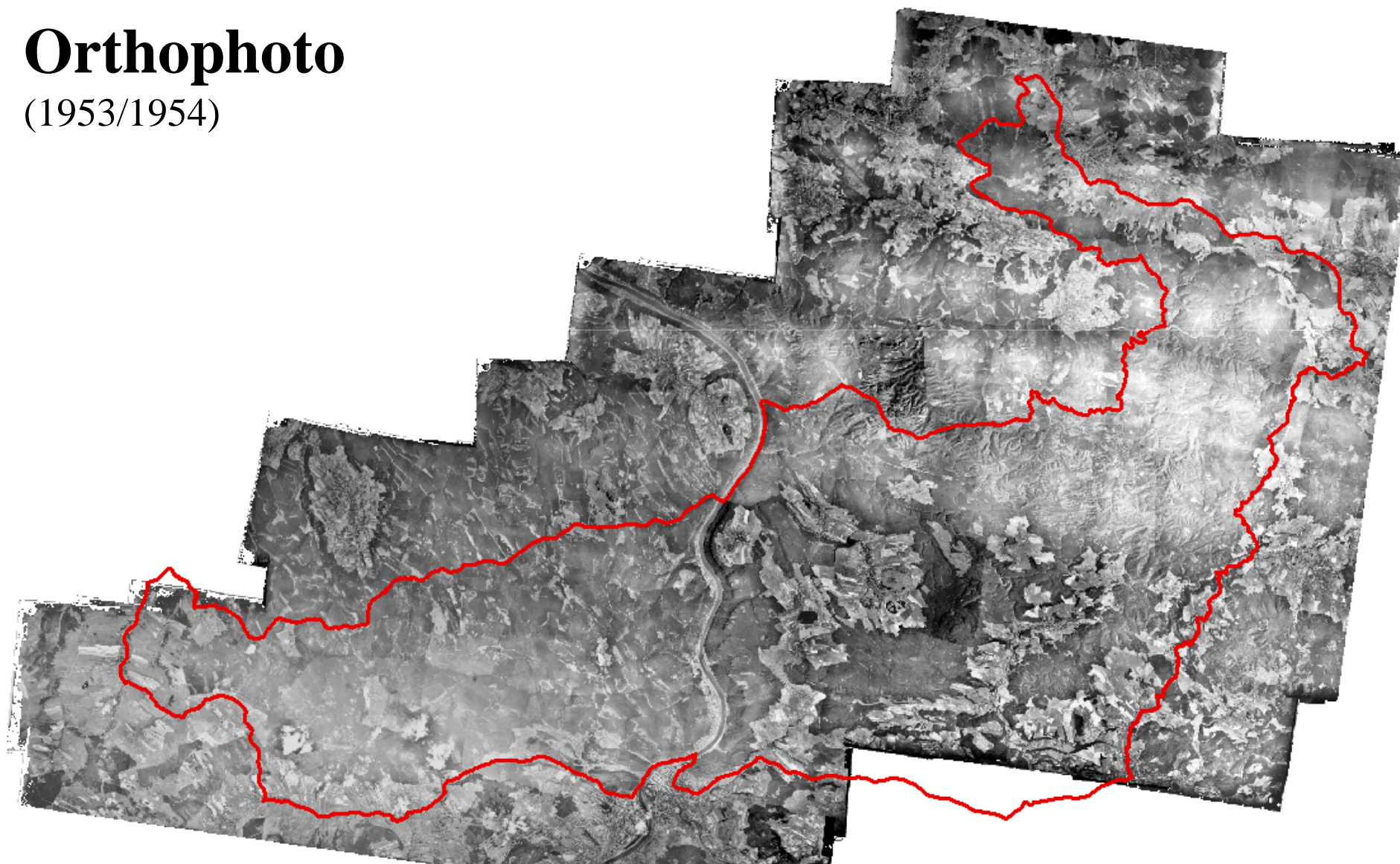
1:25 000 (1872-1953)





# Orthophoto

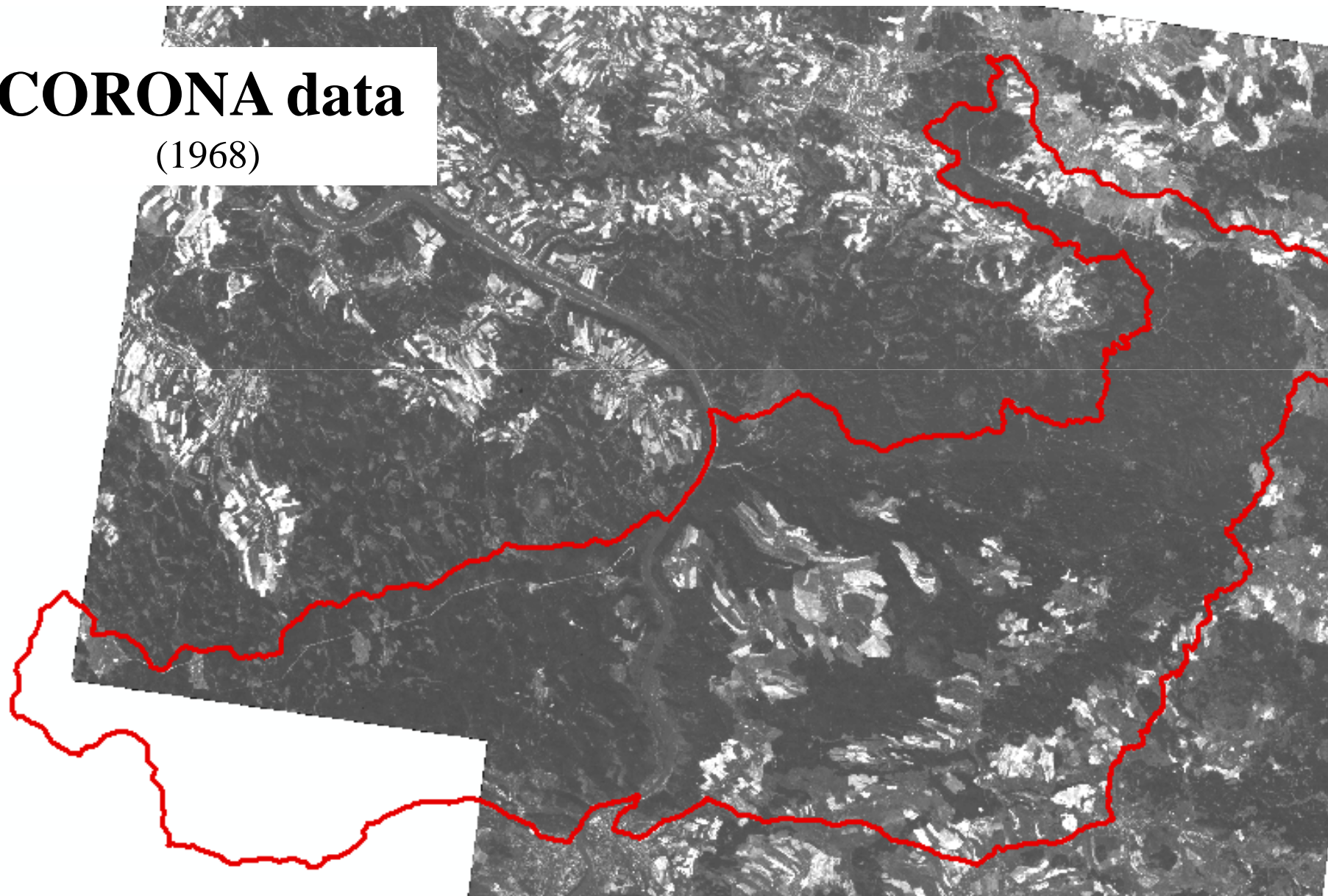
(1953/1954)





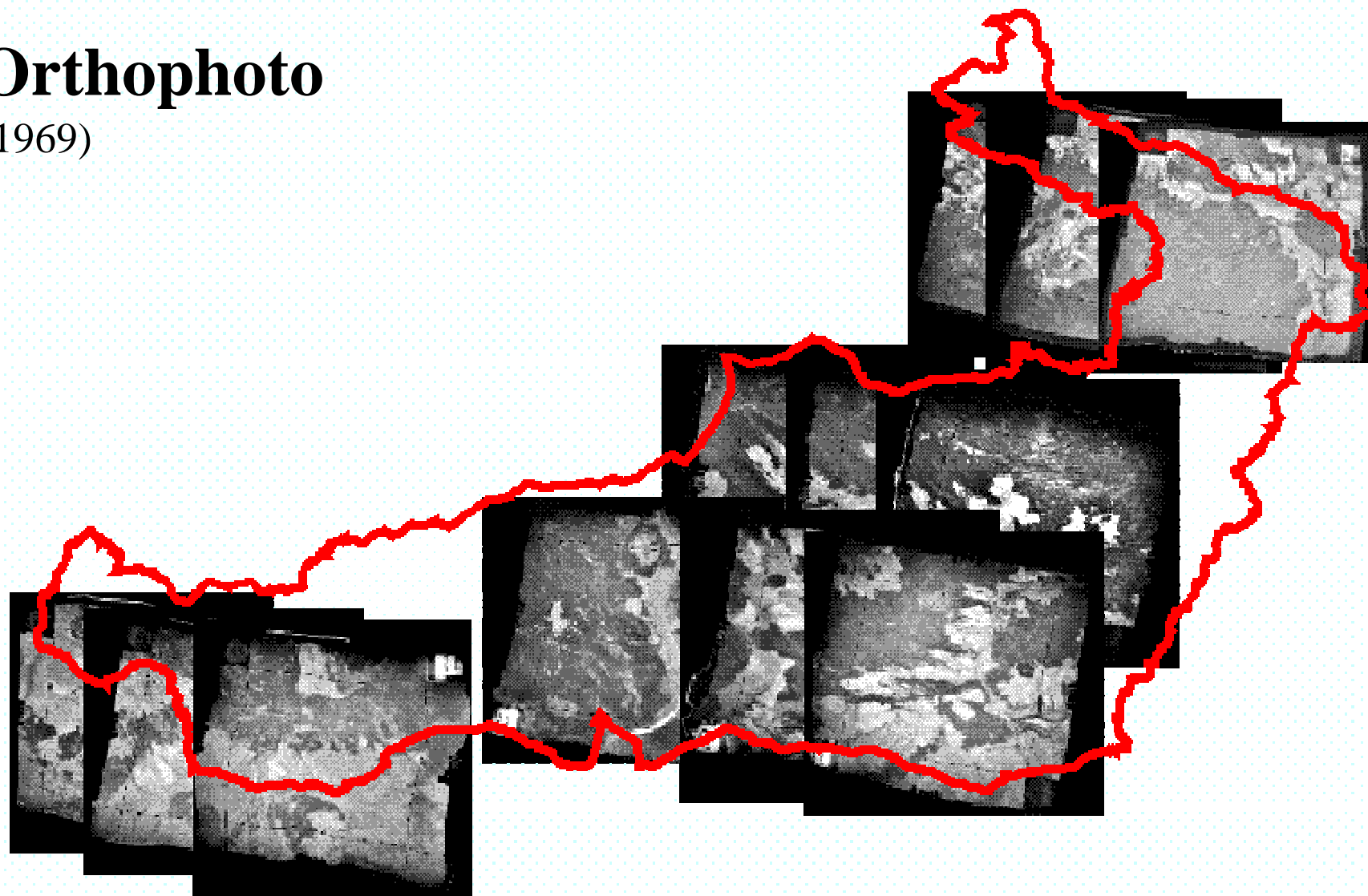
# CORONA data

(1968)



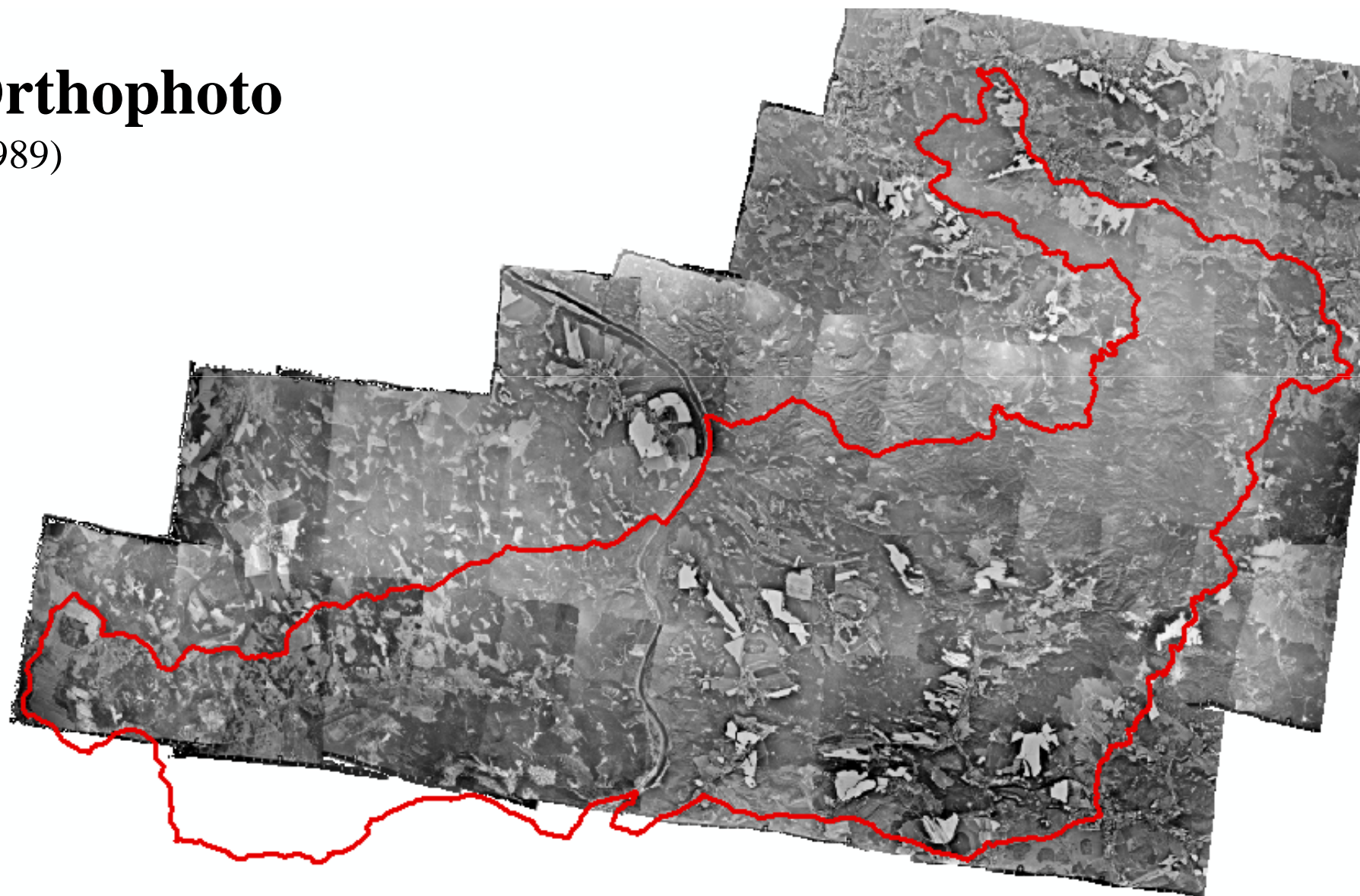
# Orthophoto

(1969)



# Orthophoto

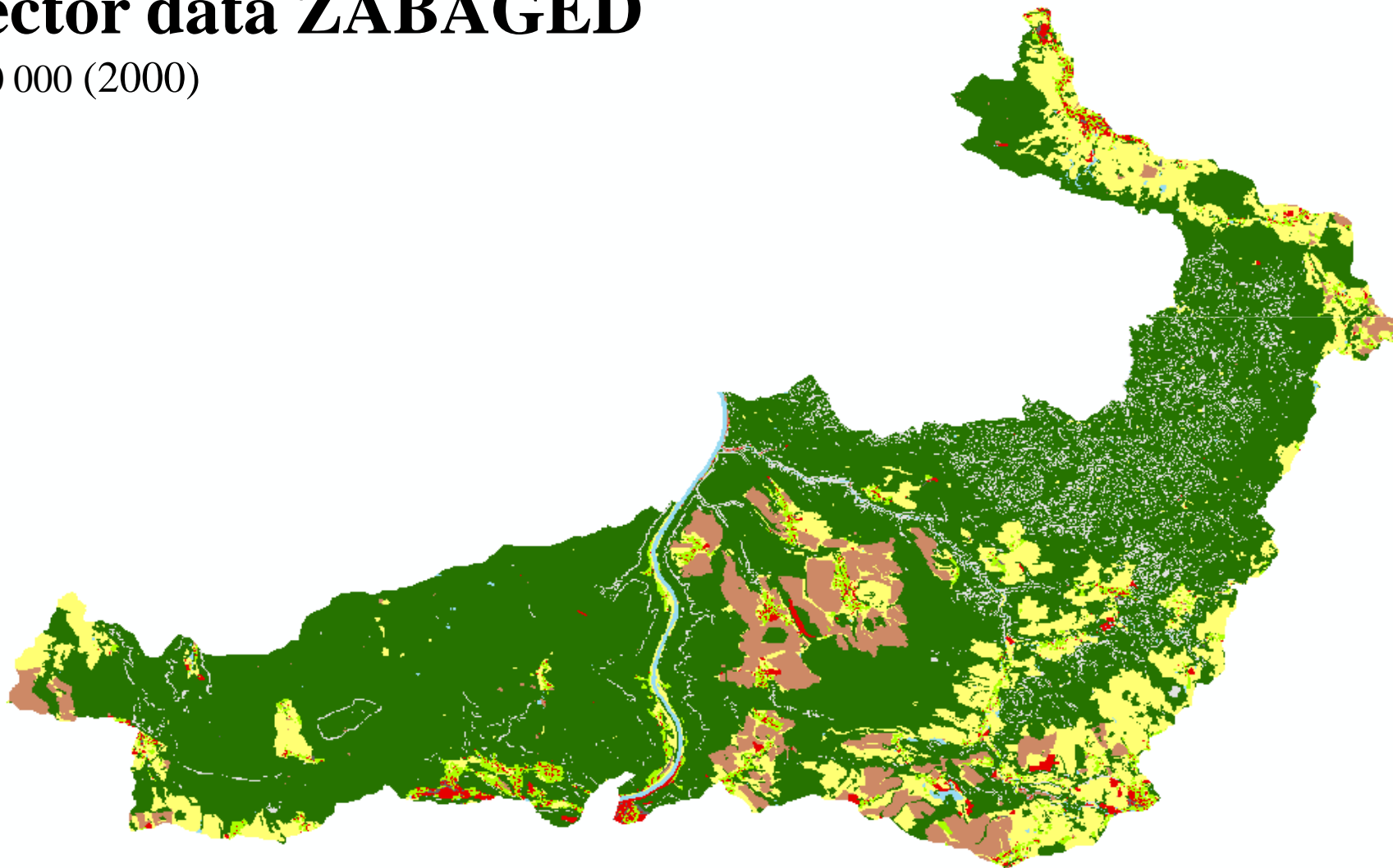
(1989)





# Vector data ZABAGED

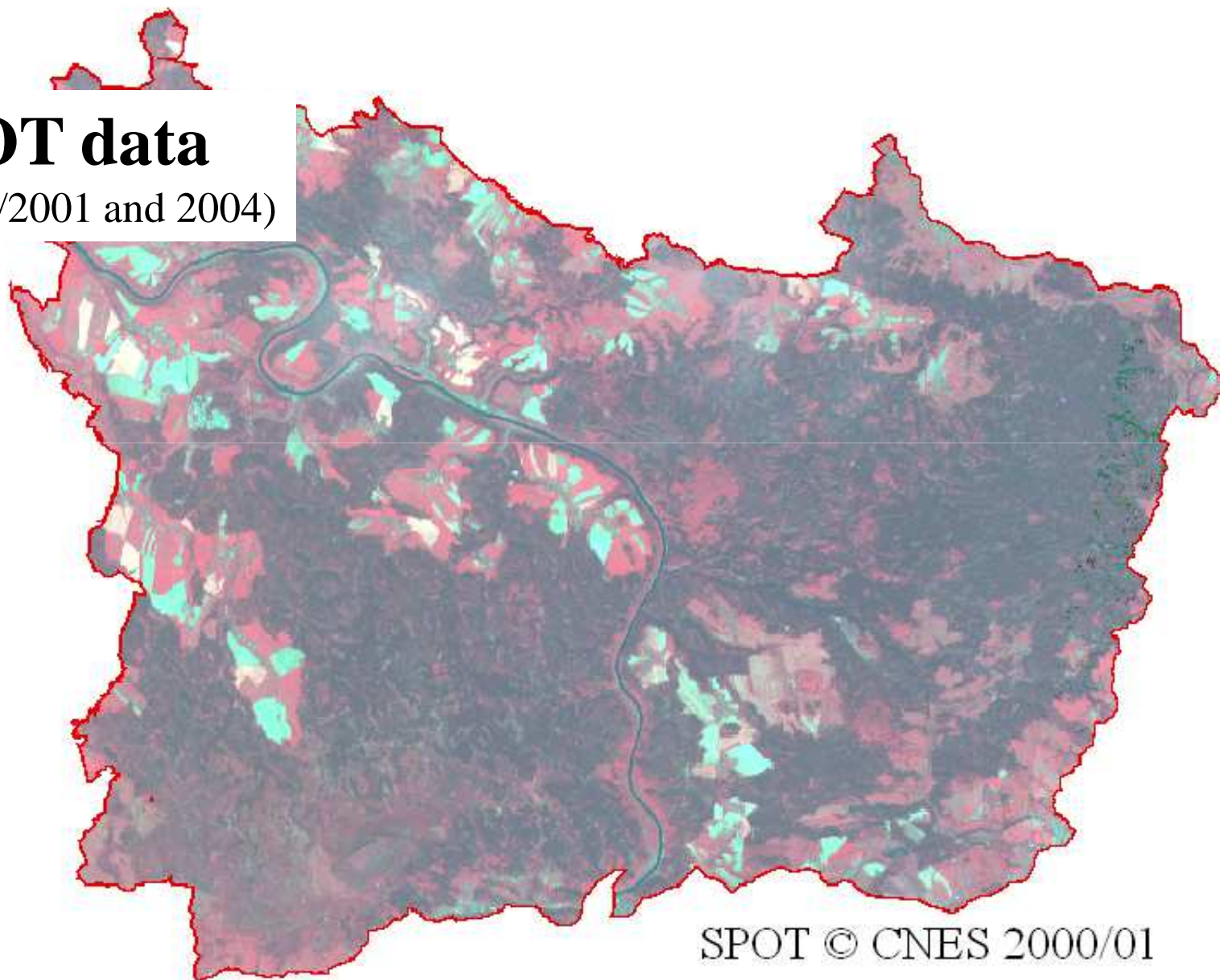
1:10 000 (2000)





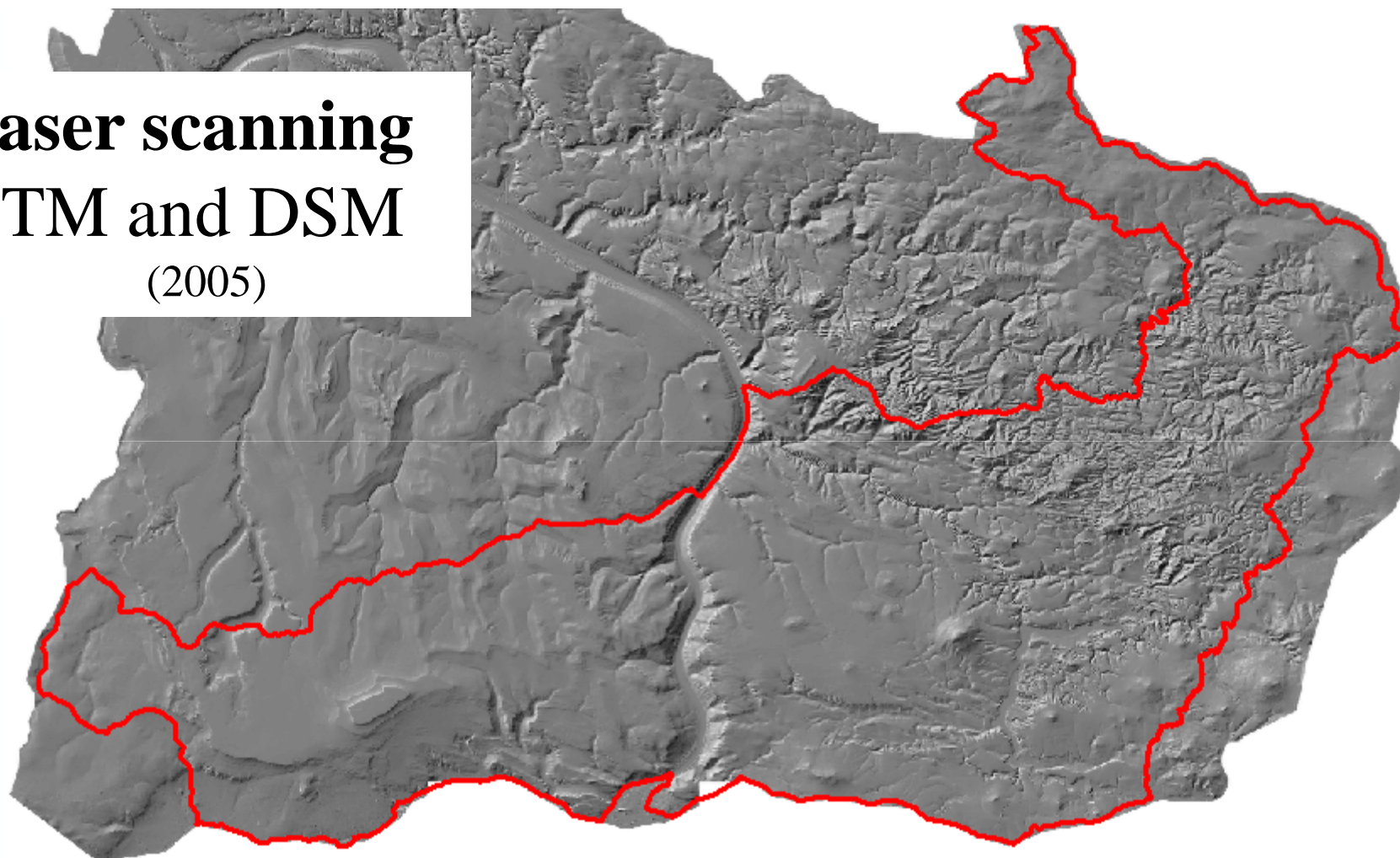
# SPOT data

(2000/2001 and 2004)

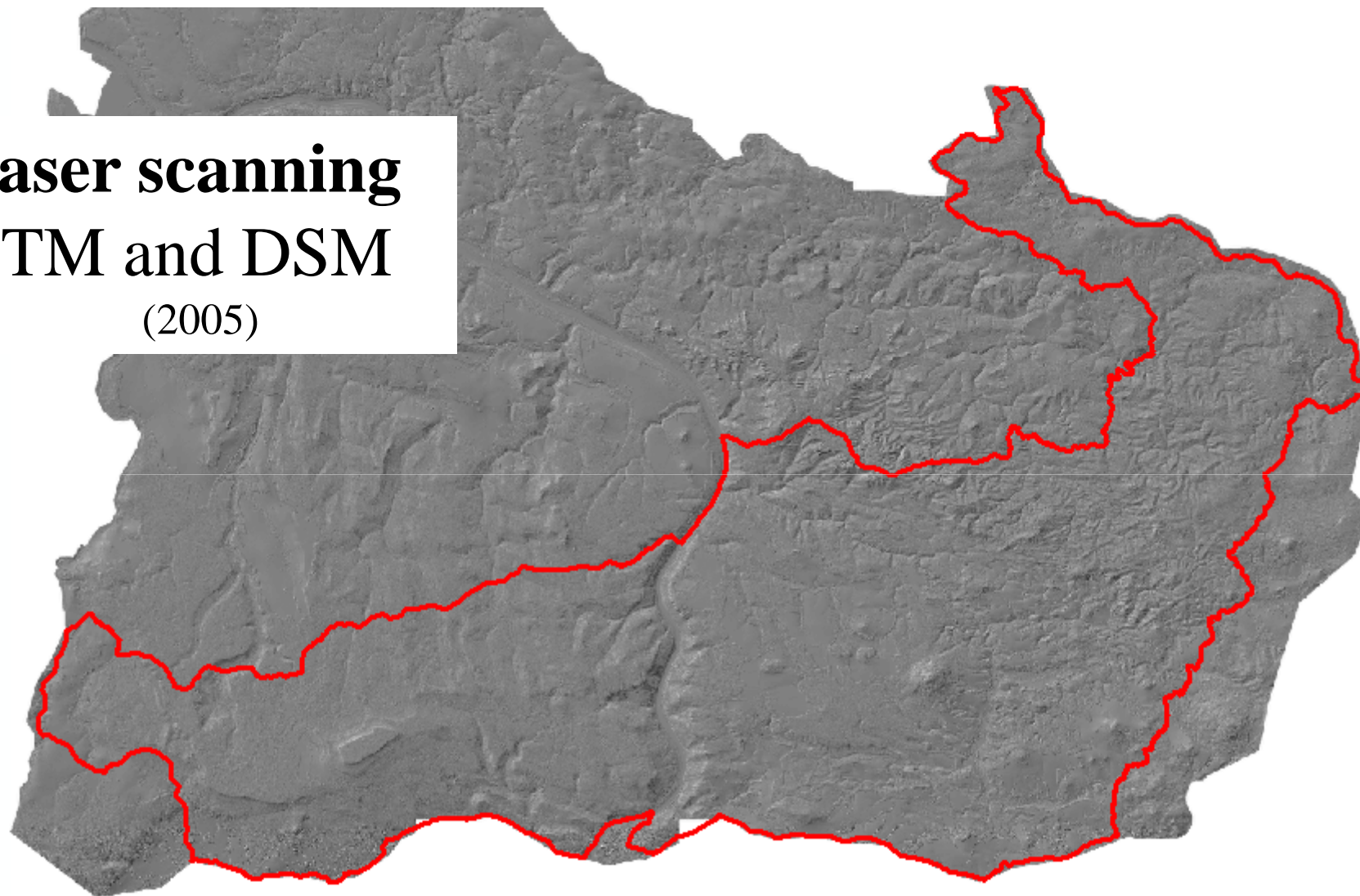


SPOT © CNES 2000/01

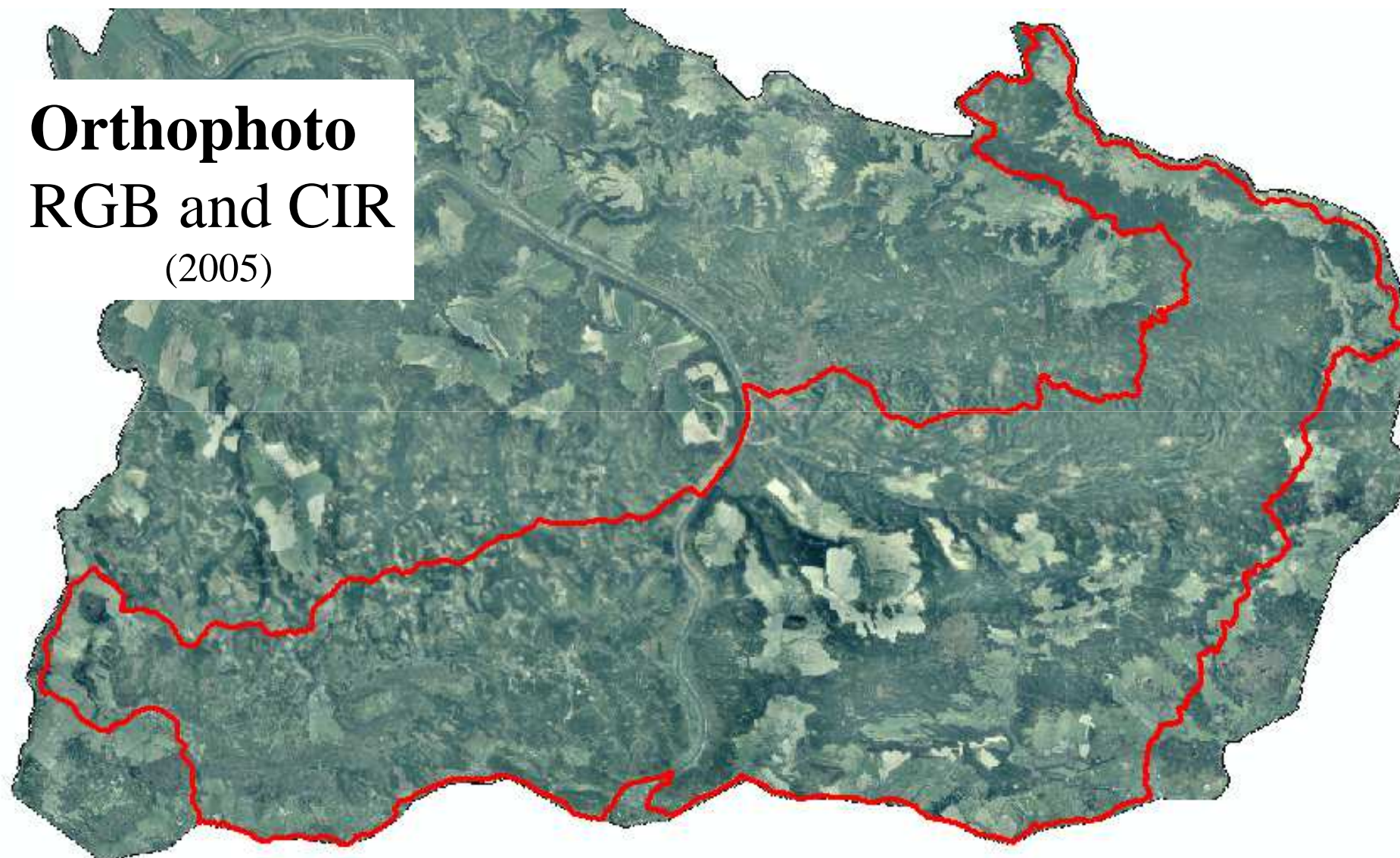
# Laser scanning DTM and DSM (2005)



# Laser scanning DTM and DSM (2005)

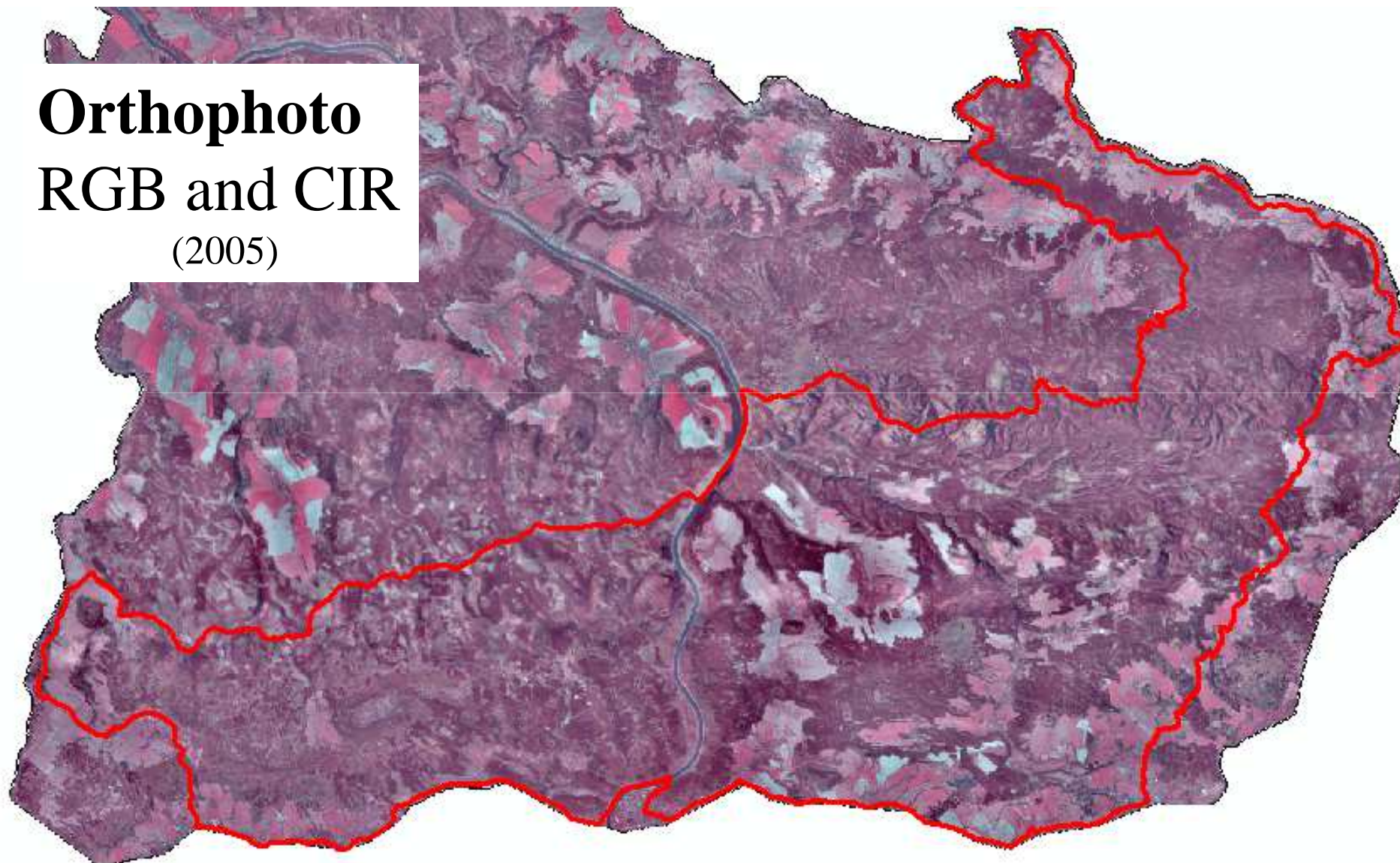








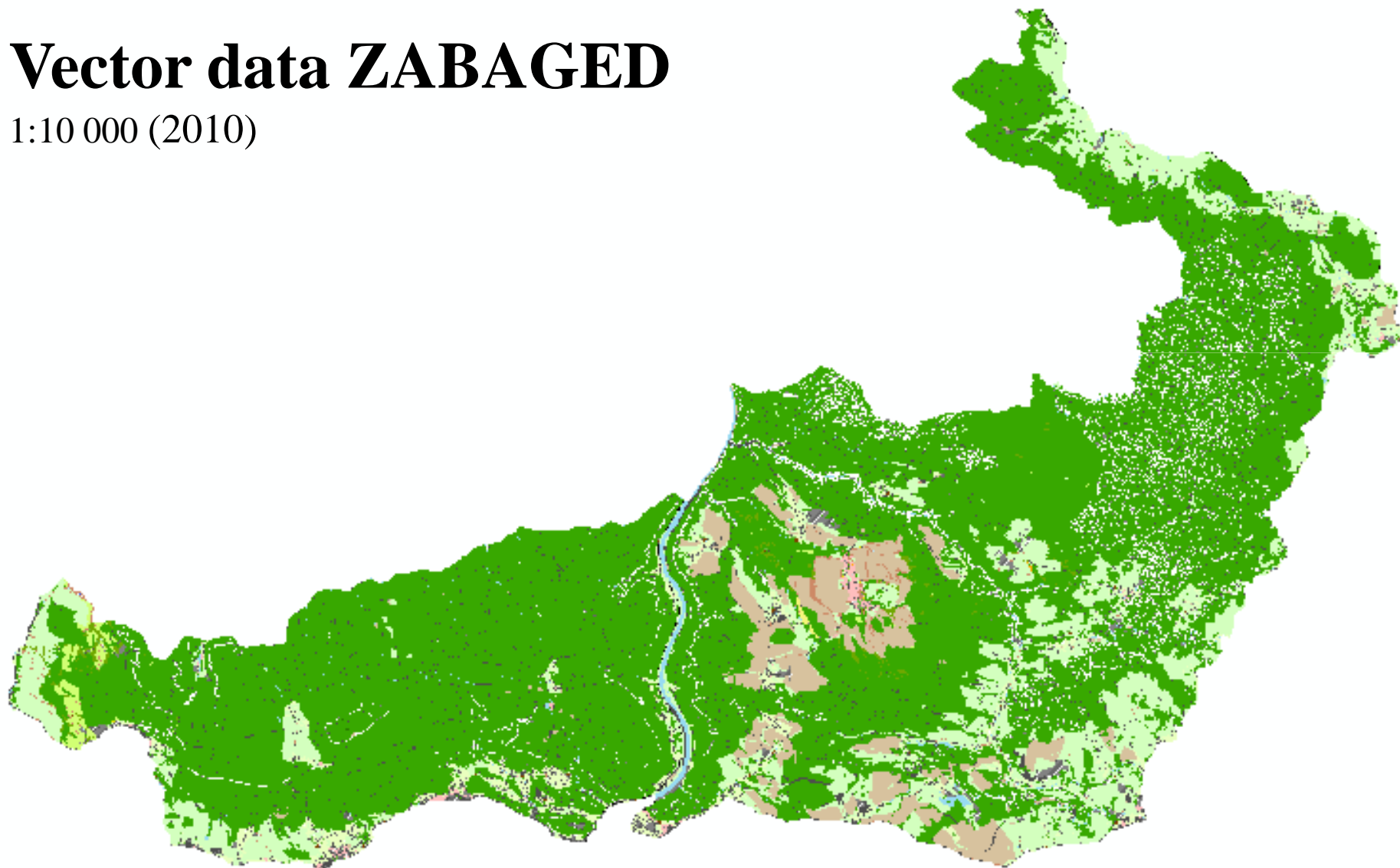
# Orthophoto RGB and CIR (2005)





# Vector data ZABAGED

1:10 000 (2010)





# SN-CZ – Landscape memory (2016 – 2019)





# SN-CZ – Landscape memory 2017

## Development of landscape structures

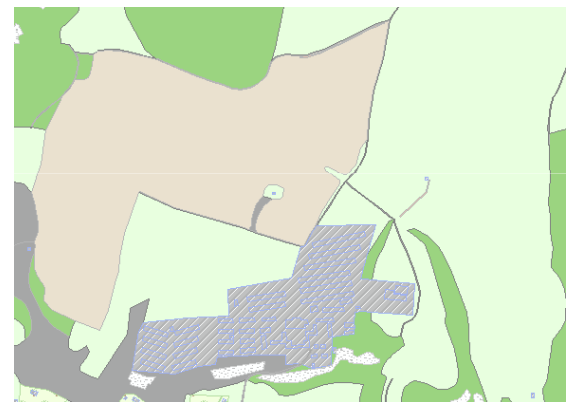
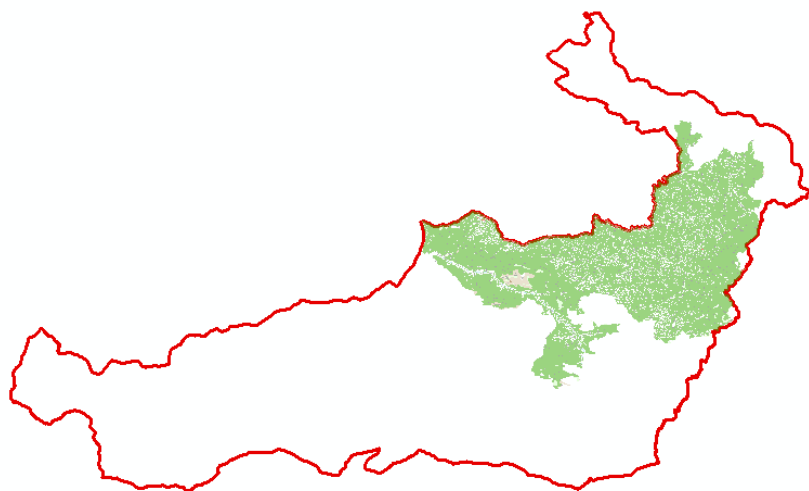
### 1. Sorting and selecting data for evaluation

název zdroje	typ zdroje	časové pokrytí	prostorové pokrytí	měřítko	stav zpracování	poznámky
Meilenblätter/1. vojenské mapování	rastr/vektor	(1764–1768, 1780–1783 rektifikace)	D - celé, CZ - celé	D - 1:12000, CZ - 1:25.000	rastr i vektor, D - celé, CZ - celé	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a> , CZ:
Königreiches Sachsen /2. vojenské	rastr/vektor	D- 1880, CZ - (1806–1869)	D - celé, CZ - celé	1:25.000	rastr i vektor, D - celé, CZ - celé	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a> , CZ:
otisky map stabilního katastru Čech	rastr/vektor	~1843	D - ?, CZ - částečně (BP a DP)	1:2.880	rastr i vektor, D - ?, CZ - částečně dle BP	Kamenická stráž-celé, Vysoká Lípa-celé, Tisá částečně, Petrovice-částečně
Topografická mapa (Messtischblätter)	rastr	~1900	část a kousek SV část	1:25.000	rastr, D - vektor celé, CZ - nepracované	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a>
Turistická mapa (Meinholdkarte)	rastr/vektor	~1910	D - celé, CZ - chybí V část	1:25.000	rastr i vektor, D - celé, CZ - celé, ale -	CZ: <a href="http://fzp.ujez.cz/kig/vav/pharebc/">http://fzp.ujez.cz/kig/vav/pharebc/</a>
?/3. vojenské mapování	rastr/vektor	CZ - (1806–1869)	D - ?, CZ - celé	1:25.000	rastr i vektor, D - ?, CZ - celé	<a href="http://projekty.fzp.ujez.cz/transecenet/vysledky.php">http://projekty.fzp.ujez.cz/transeconet/vysledky.php</a>
Topografická mapa (Messtischblätter)	rastr/vektor	~1940	D - celé, CZ - chybí J část	1:25.000	rastr, D - vektor celé, CZ - vektor kem NP	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a>
TK 25 a TK10/RZM10	rastr	D- 1992, CZ - ~2000	D - celé, CZ - celé	D: 1:25.000/1:10 000, CZ: 1:10 000	rastr, D - celé, CZ - celé	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a> , CZ:
ATKIS/ZABAGED	vektor	D- 1992, CZ - ~2000	D - celé, CZ - celé	D: 1:25.000, CZ: 1:10 000	vektor, D - celé, CZ - celé	<a href="https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html">https://www.ioer.de/sistemaparc/html/vis_iframe_fw.html</a> , CZ:
Satelitní snímky SPOT4	panchromatické snímky	2001/část 2000	D - celé, CZ - celé	mzlišení 20 m	rastr, D - celé, CZ - celé	<a href="http://fzp.ujez.cz/kig/vav/pharebc/">http://fzp.ujez.cz/kig/vav/pharebc/</a>

2. Unification of the legend
3. Vectorisation ( or check) of all area of interest from archival map

**ZABAGED data 2000, 2010**

**Topographical map 1940**

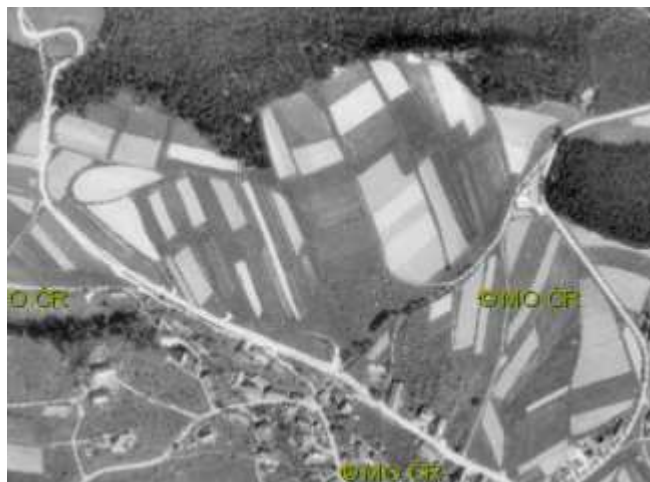




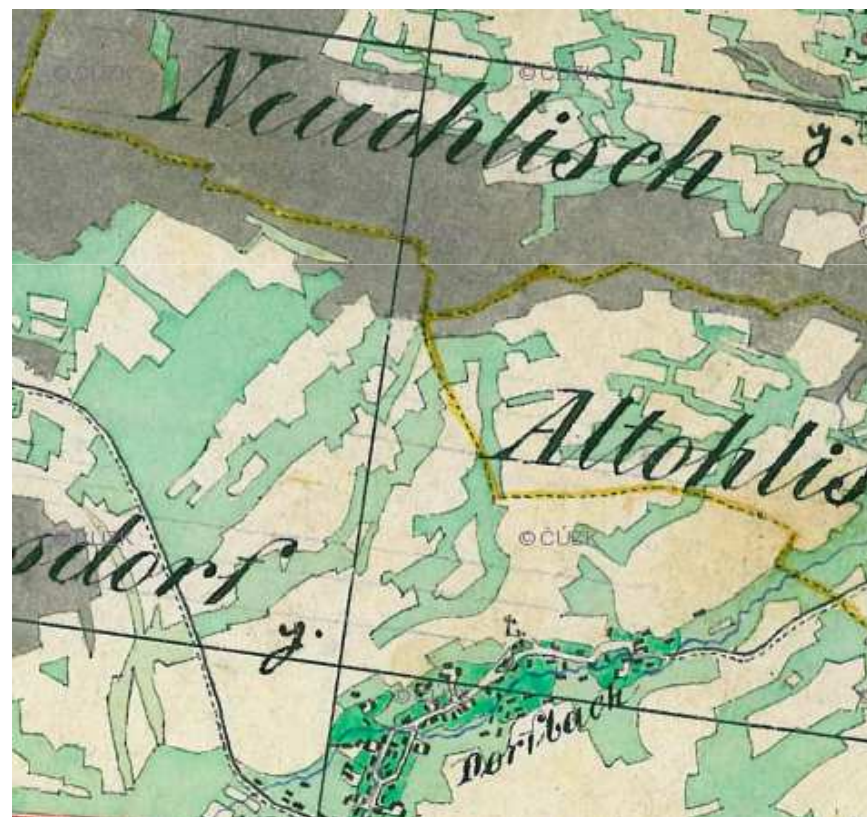
# Imperial Obligatory Imprints of the Stable Cadastre - 1843



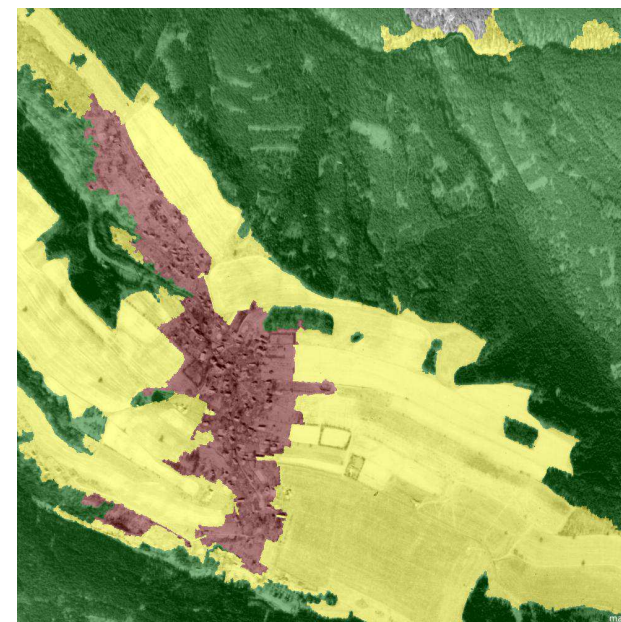
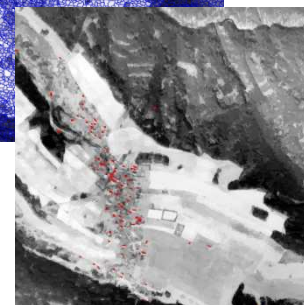
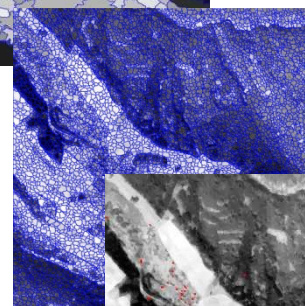
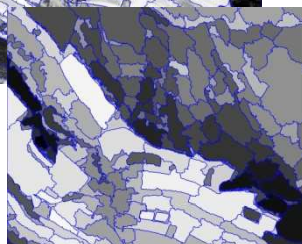
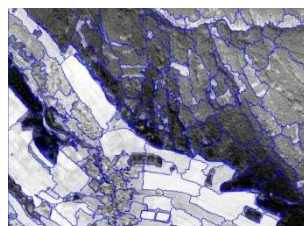
## Orthophoto 1938



## Maps of Cultivation of the Stable Cadastre 1837-1844



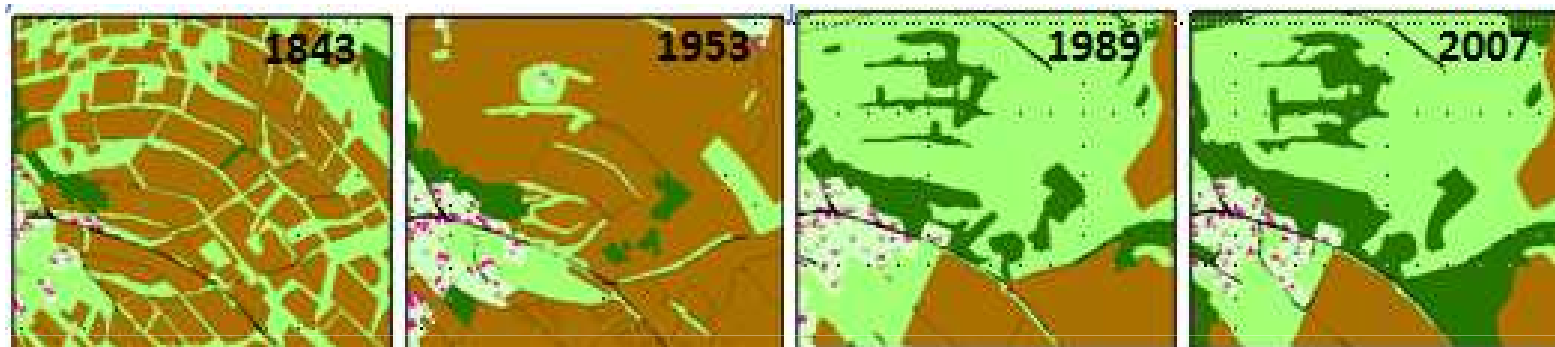
## 5. Multiresolution segmentation of orthophotos and CORONA data (PP2 – IBOT)





## 6. Development of landscape structures

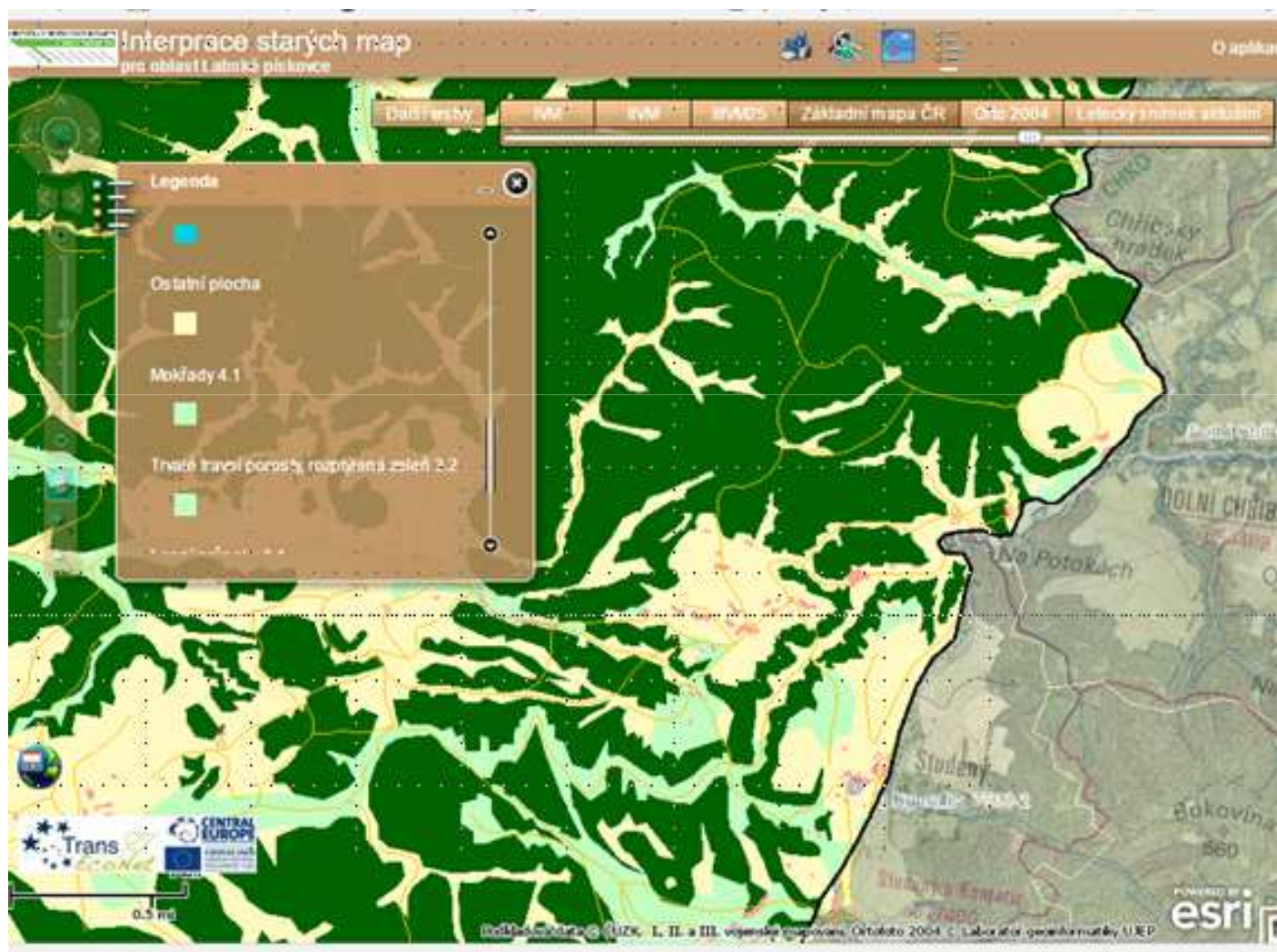
**Arable land development** - agriculture transformation **PP1 - UJEP**



**Settlements development** - defunct settlements **PP2 - IBOT**



## 6. Publish all data in mapserver UJEP





**Thanks for attention**