



Soil Mapping in Bavaria

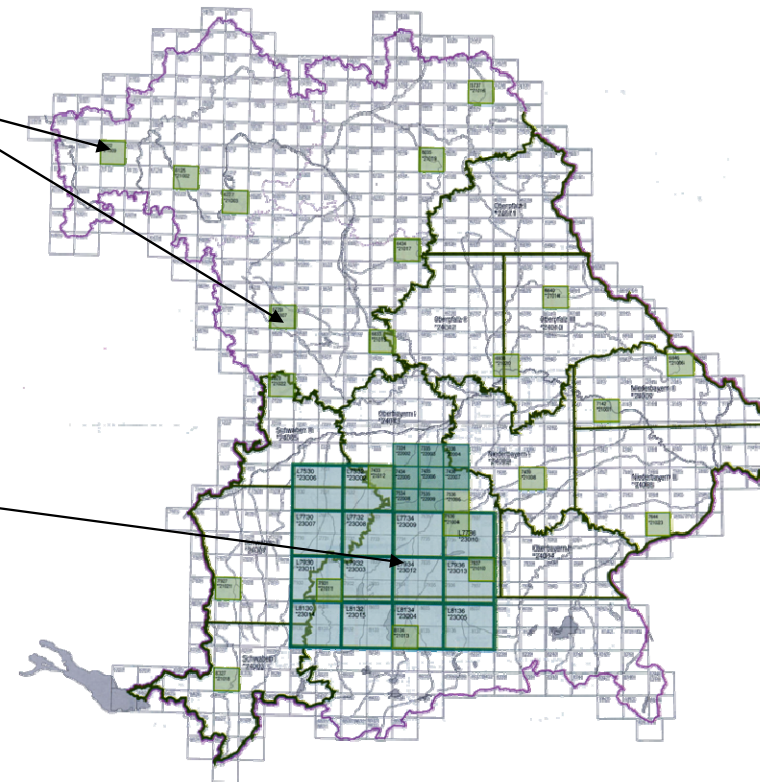
Past - Present - Future





•Between 1955 and 1978 23 soil maps (scale 1:25 000) from different landscapes have been published to get a general idea about appearing soils in Bavaria

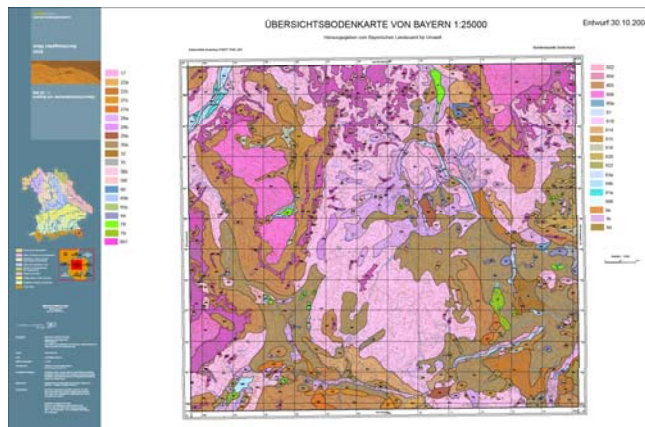
•Due to german standard mapping was carried out at a scale of 1:50 000 later on



Bayern:	70 549 km ² (546 sheets)
Catalunya:	32 091 km ²
Emiglia - Romagna:	22 123 km ²



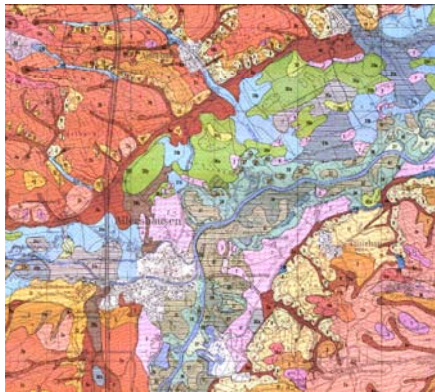
In order to complete a first countrywide soil survey of Bavaria in a reasonable time period, the compilation of an **outline soil map** ("Übersichtsbodenkarte") 1:25 000 (ÜBK 25) started in the early 90ies.



This is a conceptual map, which is verified in the field.



Comparison soil map – outline soil map



section of soil map 7535 Allershausen



section of outline soil map 7939 Wasserburg a. Inn

Soil map 1:25 000

Number of manual drills: 7000-8000

Time spent in the field: 100 days or 20 weeks

The difference: grade of accuracy (content and lines)

Outline soil map 1:25 000 (ÜBK25)

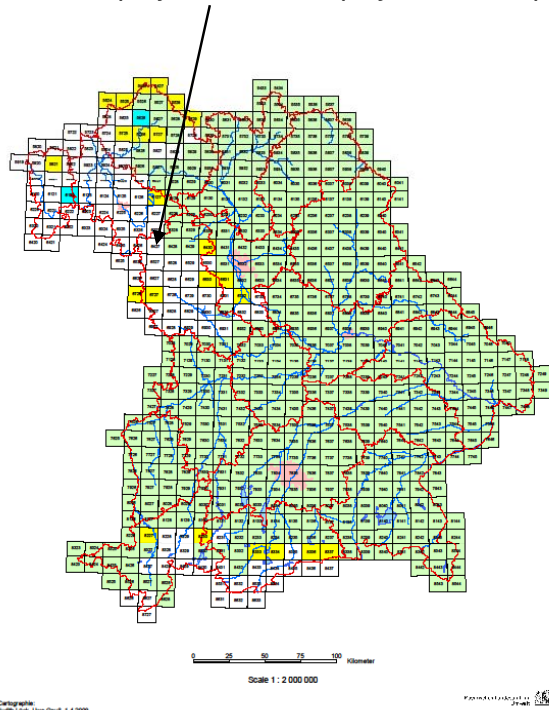
Number of manual drills : (150)-500

Time spent in the field: 8-20 days or 1,5-4 weeks



Present state

- As most of the mapping has to be carried out in NW- Bavaria the entire project team is deployed there supported by external companies.



Green: map digital available (about 80% of the territory)

Yellow: field work finished

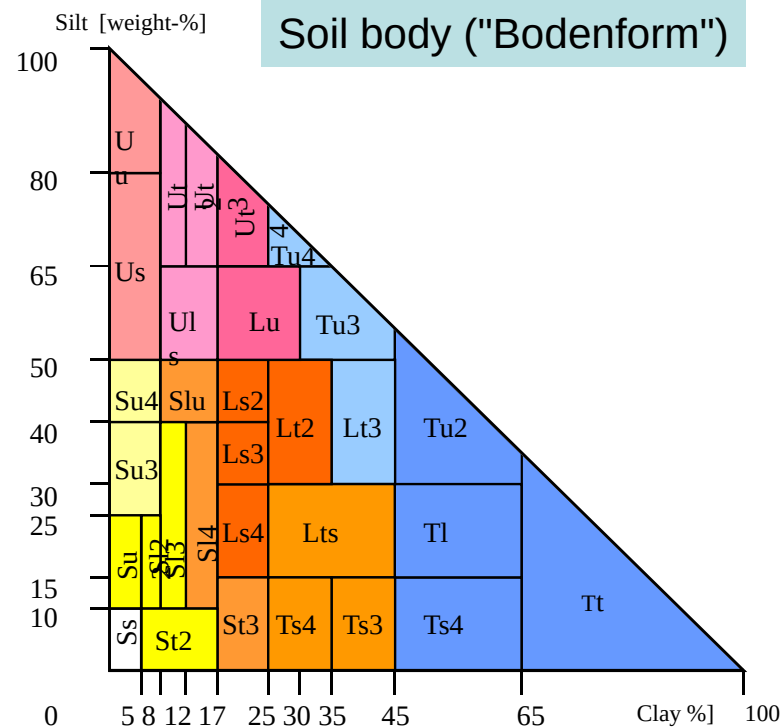
White: remaining gaps in Northwest and Southern Bavaria will be closed till 2015 in a running project



The core of the map: the mapping unit with 3 fundamental particulars



Soil type
incl. spatial ratio



Texture (fine and coarse fraction)



Parent material



Soil mapping unit - an example

Predominat Cambisol, rare Podsol
on sandy loam over sand
(Sandstone)

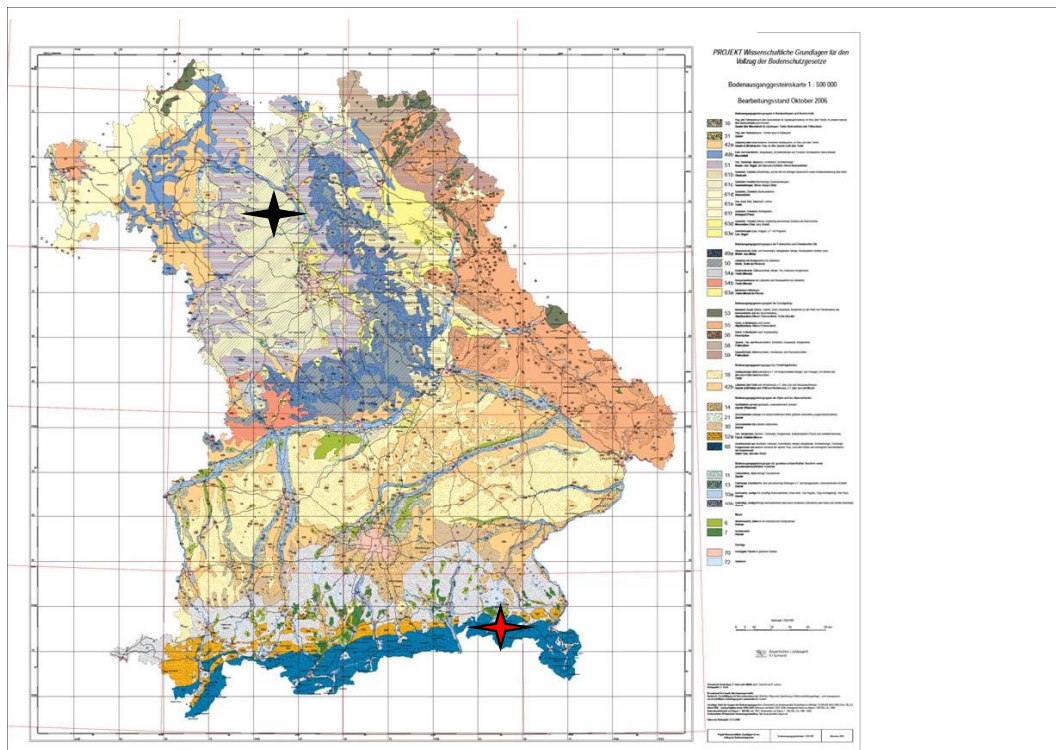
Bodenkundliche
Kartieranleitung

5. verbesserte und erweiterte Auflage
Hannover 2006

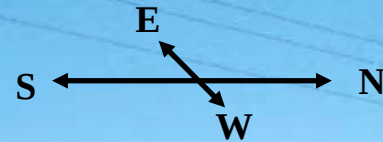
German guideline for soil mapping



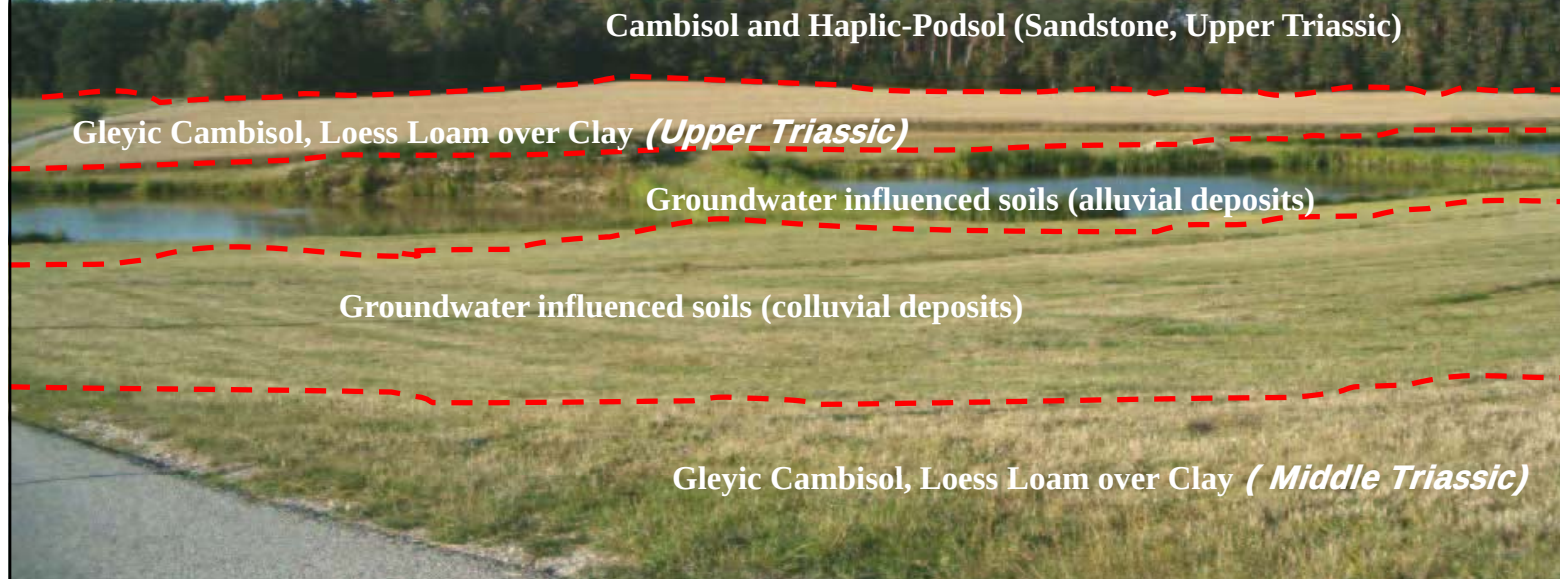
Many different landscapes demand different approaches to develop applicable mapping units and a corresponding map legend

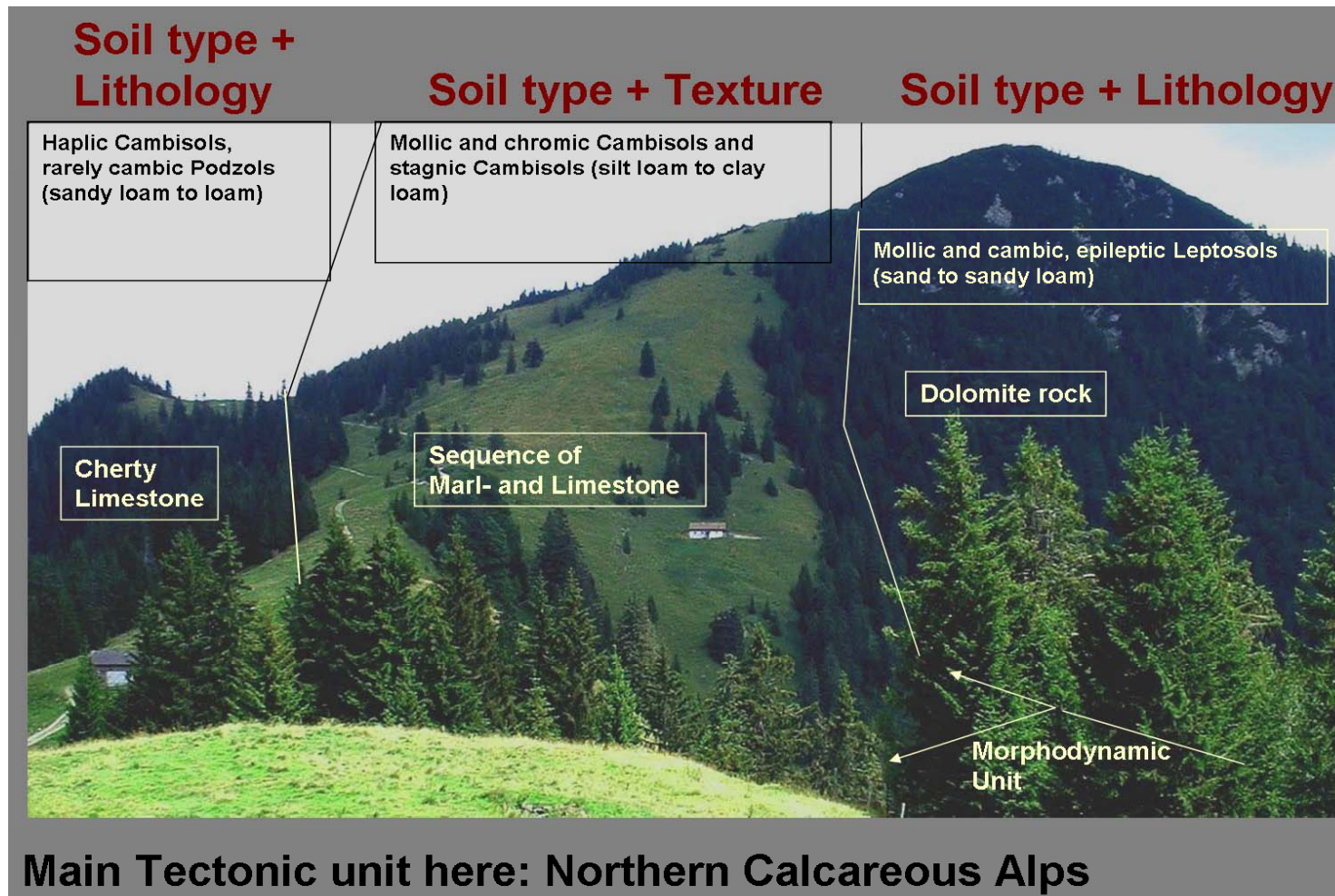


Survey of soil parent material in Bavaria 1:500 000



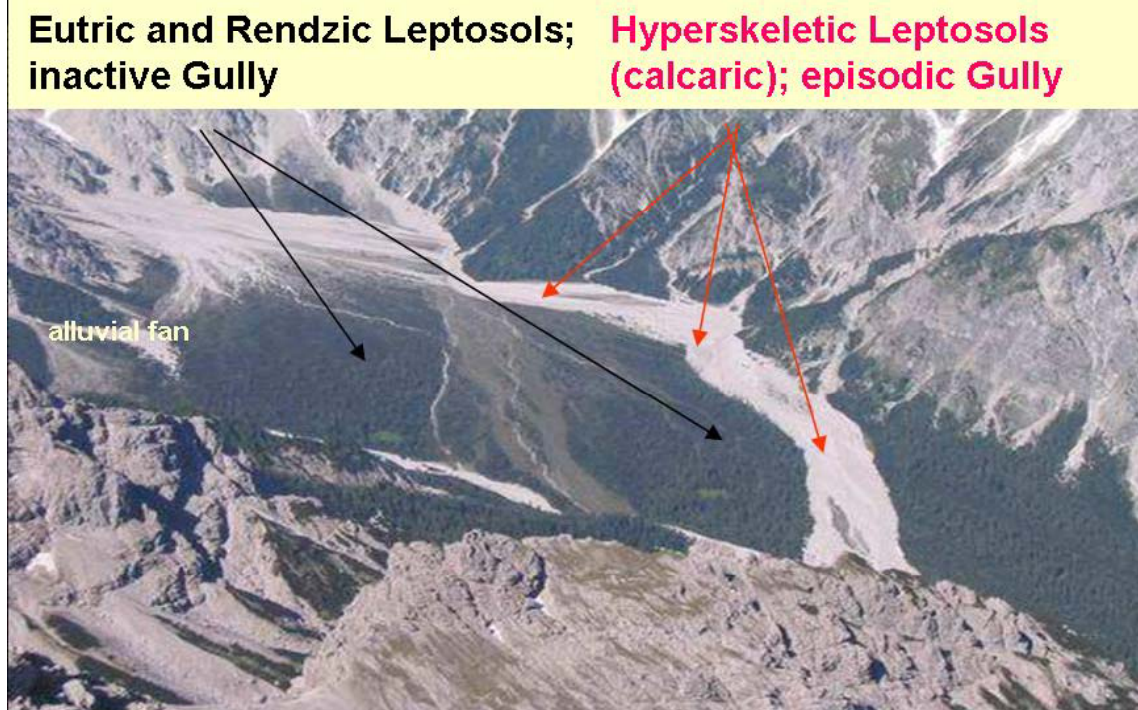
Stratigraphic division of mapping units





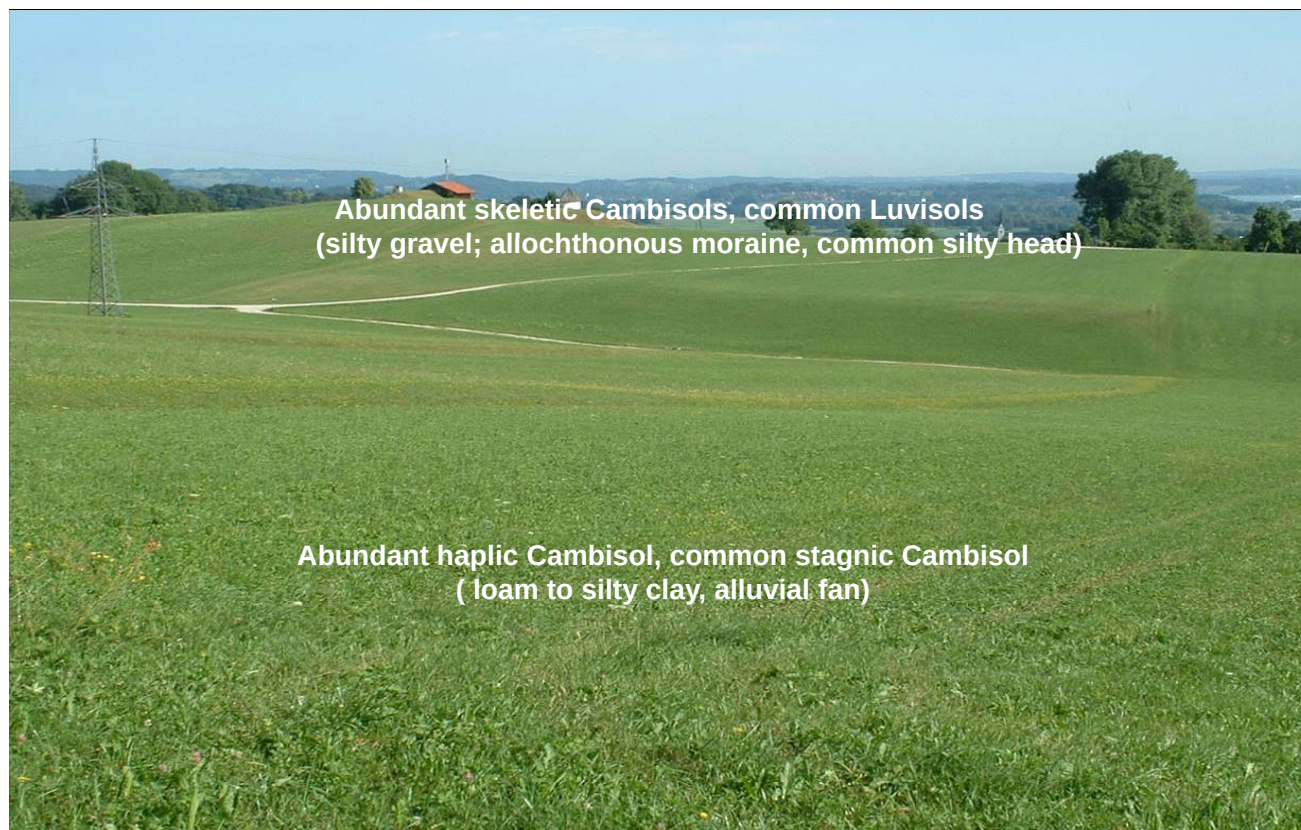


Morphodynamic units





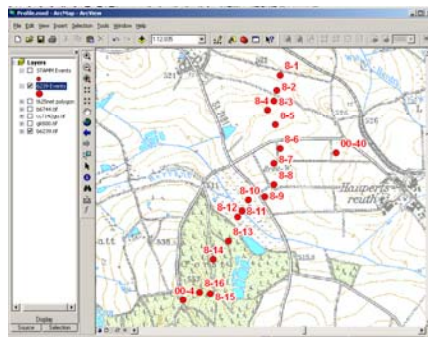
Morphological division



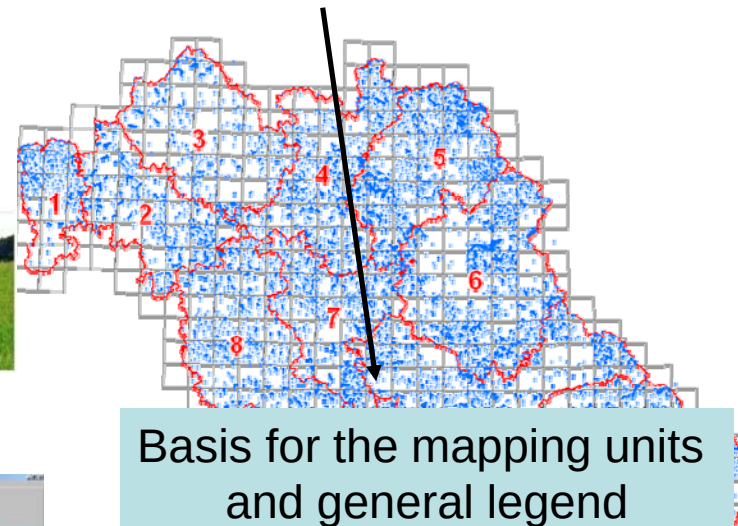


Soil mapping – 1) Evaluation of punctiform data

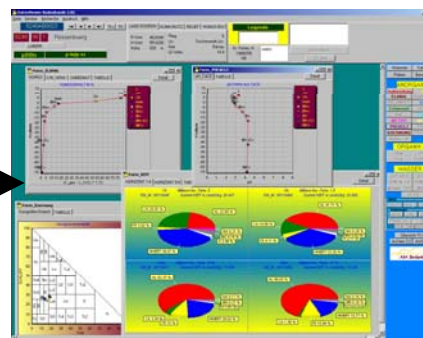
Soil profiles (pits) und manual drills according to the catena principle (total 32 000)



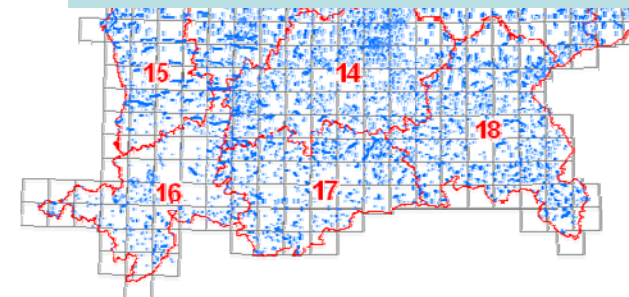
26000



6 000



15 500 sites with samples
10 700 sites were analysed

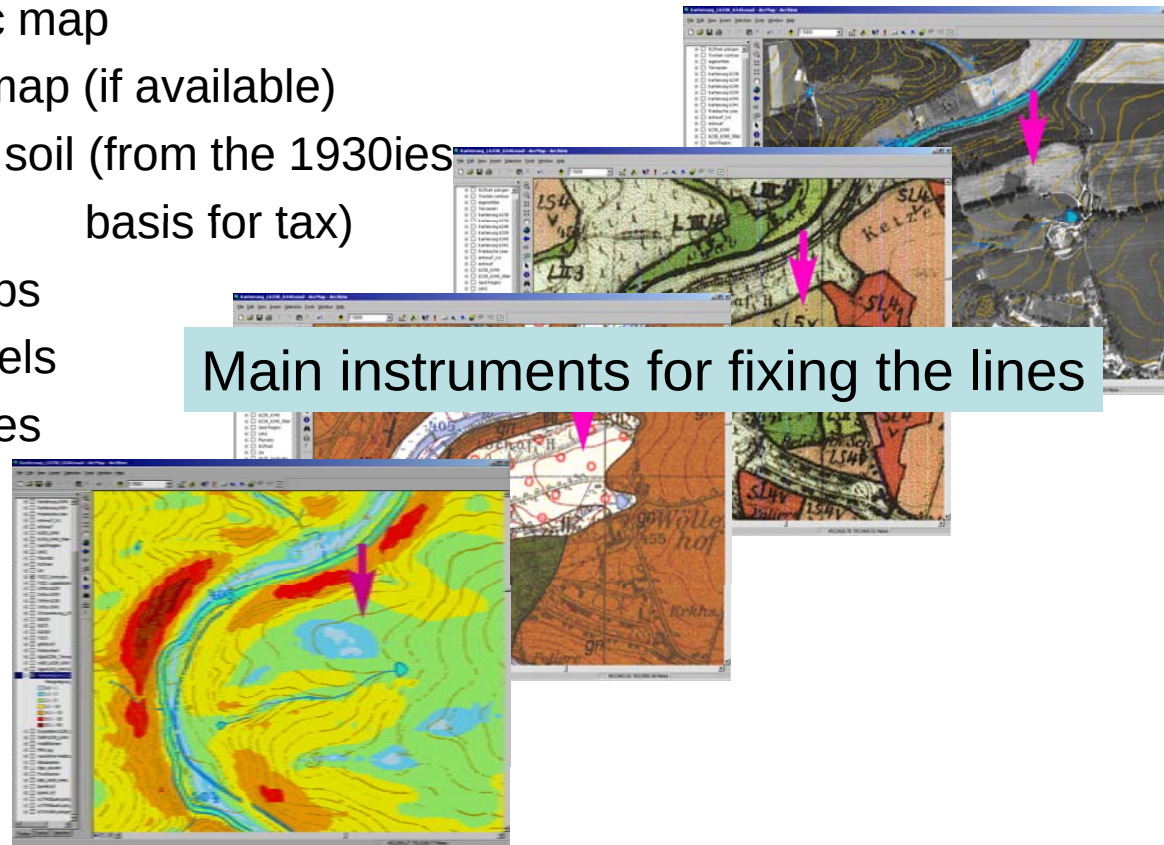




Soil mapping – 2) Evaluation of information about surface

- Topographic map
- Geological map (if available)
- Appraisal of soil (from the 1930ies basis for tax)
- Forestal maps
- Terrain models
- Aerial pictures

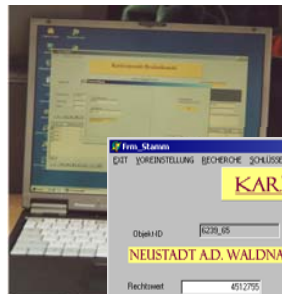
Main instruments for fixing the lines





Soil mapping – 3) Evaluation of the concept in the field

- Manual drills to 1 oder 1,5 m depth
- Digital data collecting



KARTIERPUNKT BODENKUNDE

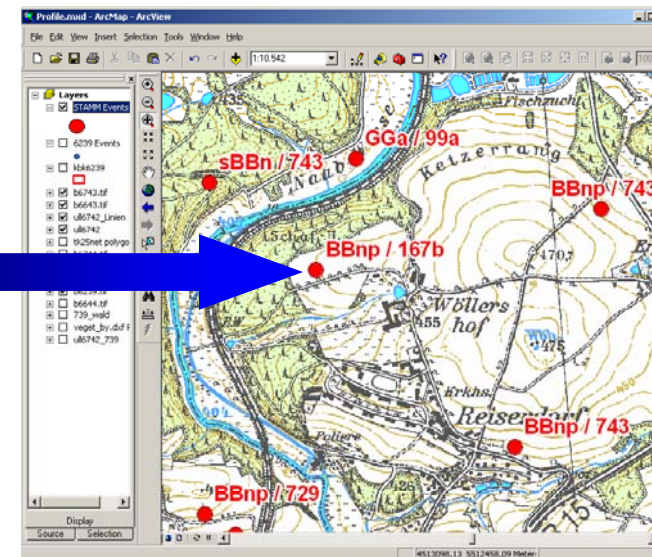
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 NEUSTADT A.D. WALDNA Nummer: 65

Rechtswert: 451.2755 Aufnahme: J. A. J. d.
 Merkswert: 551.2599 Aufnahmezeitpunkt: 10.06.2000
 Höhe: 440

218 PROFILE

Info zu den Horizonten
 OBJ ID HORIZ SCHICHT NR HORIZYM

ausführliche Beschreib:
 Horizonte Zusatz Info
 Kristallin ArcView 3.2 ArcGIS 8.2 V.2.1
 © J. H. H. H.





Manual work ist still in demand

Last but not least: Expert knowledge

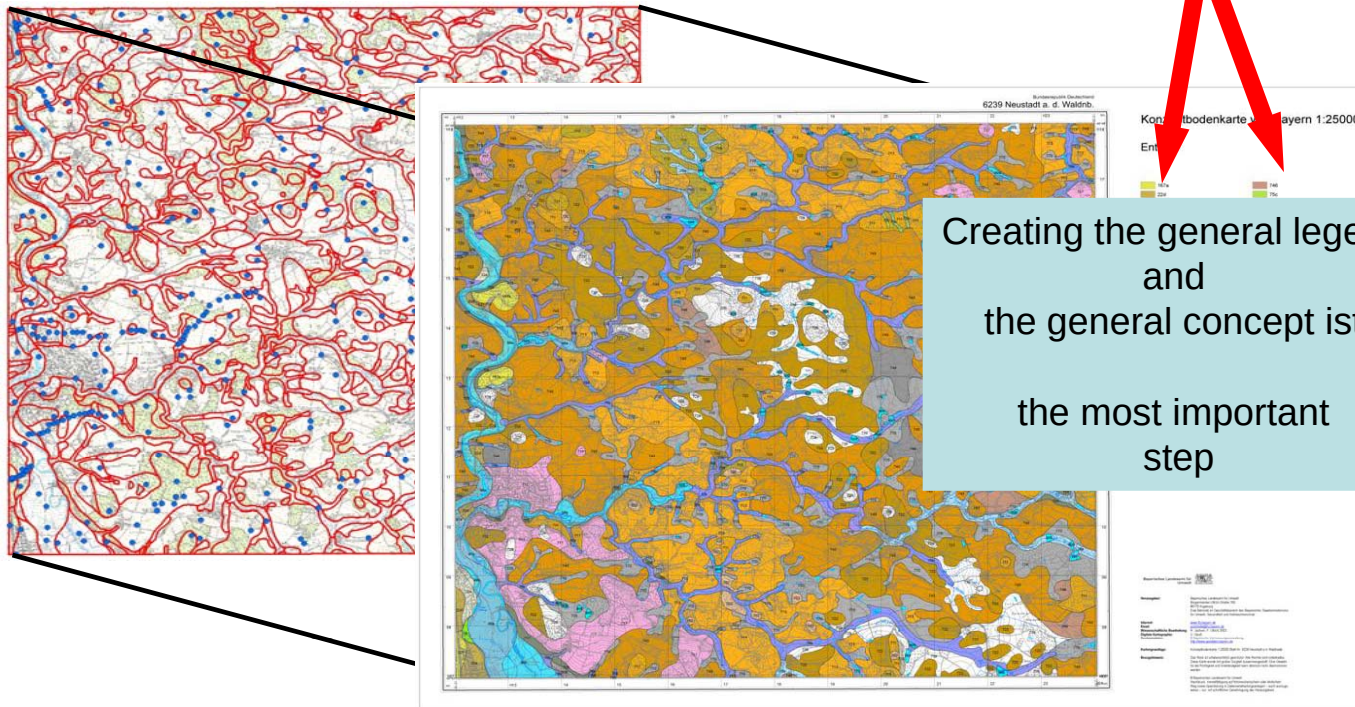


**Do not hesitate to accept
help
from (bavarian) natives**



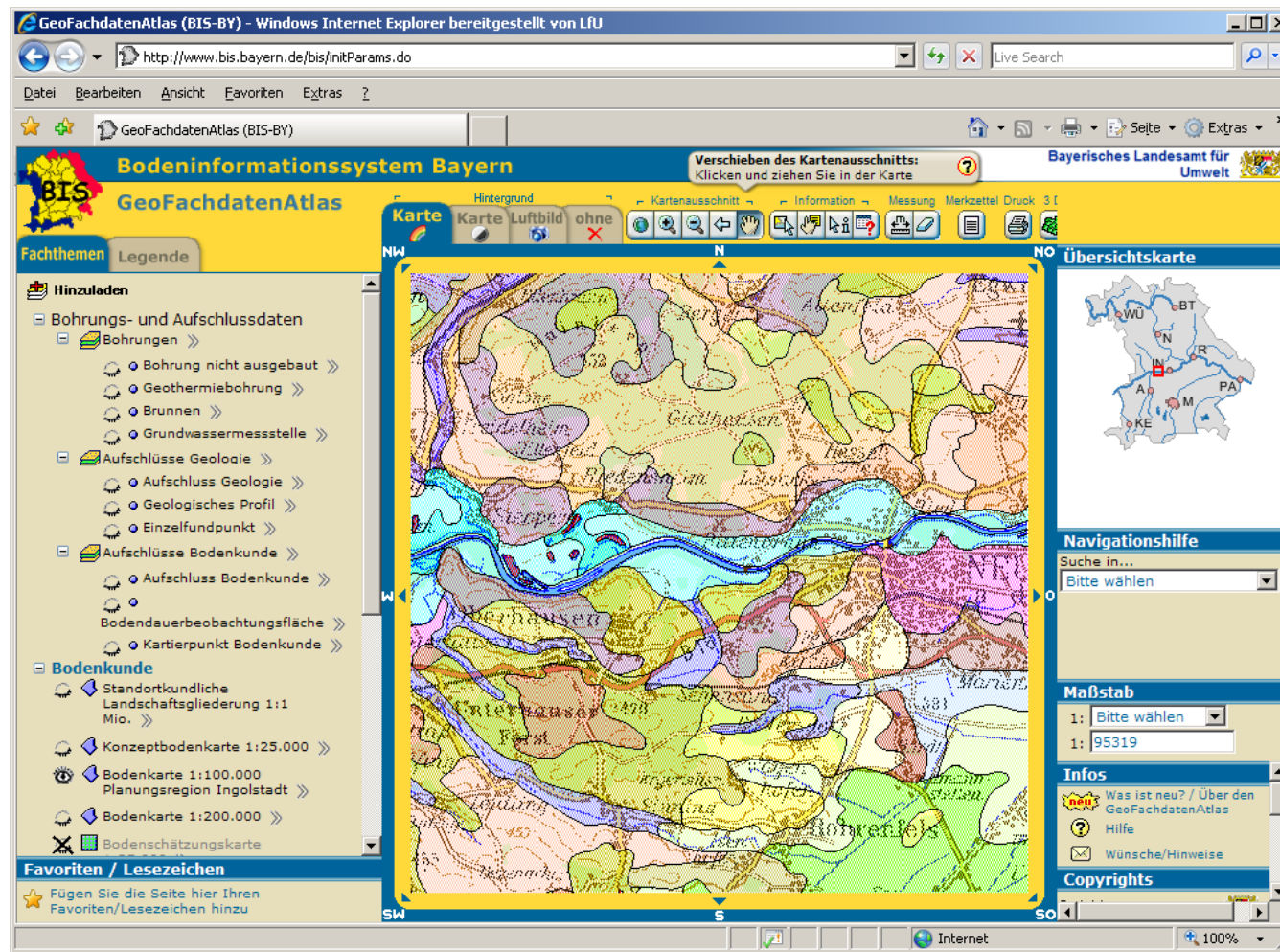
The final product – digital soil map

- A seamless cartography of Bavaria





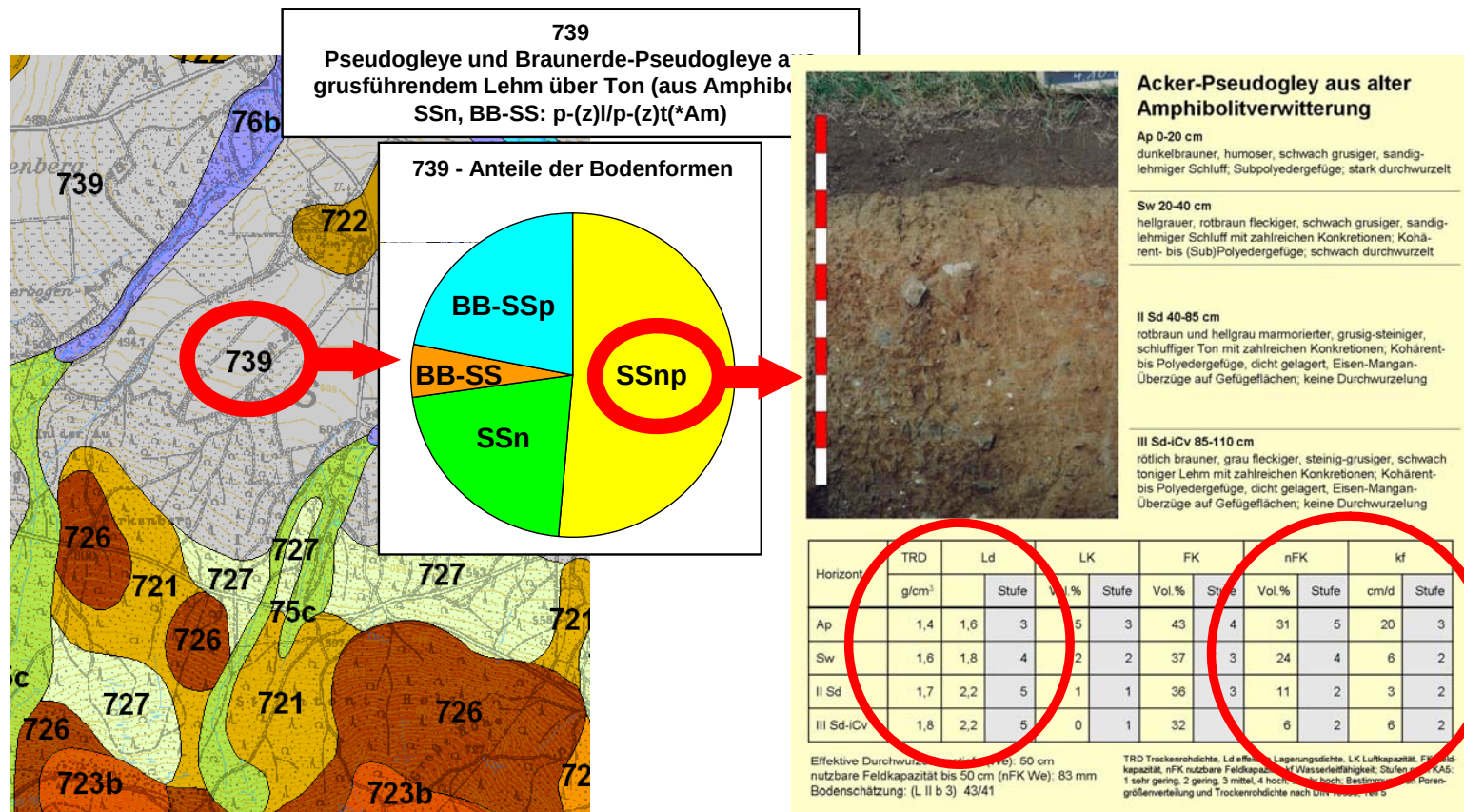
Access to the digital maps by internet: www.bis.bayern.de



Dr. Robert Traidl /
04.06.2009



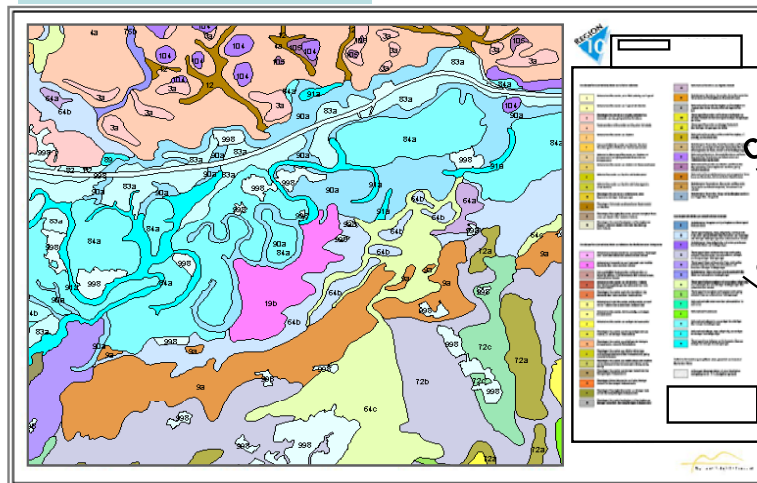
Soil map and corresponding data as basis for application



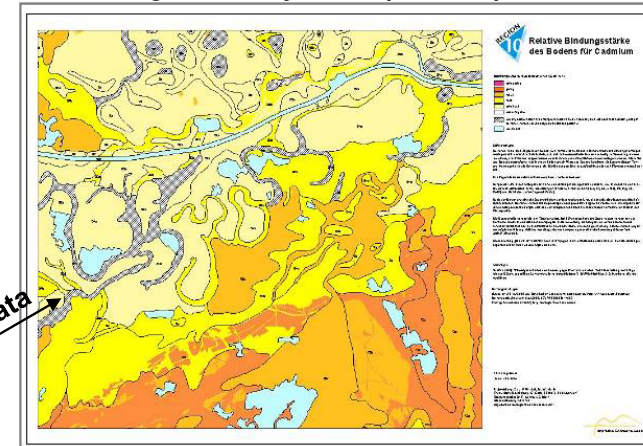
section of ÜBK25 Neukirchen b. Hl. Blut



Digital soil map



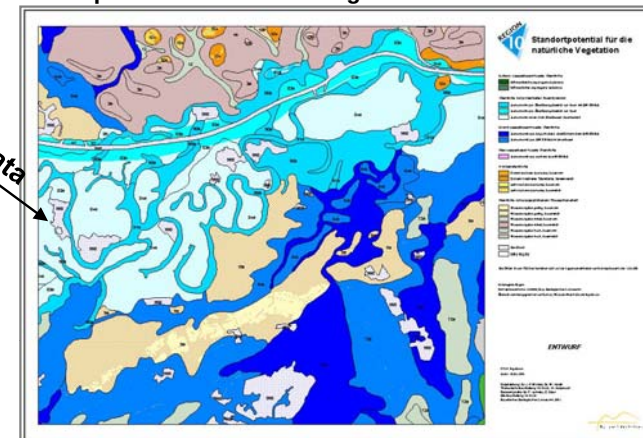
Bond strength for heavy metals (cadmium)



Corresponding data

Habitat potential for natural vegetation

Soil function map



Corresponding data



Range of applications

- Science (Universities)
- Agriculture
- Forestry
- Nature conservation
- **Soil protection (soil functions)**
- Regional planning



The social and political development of a country is
unpredictable .

Therefore you have to face this uncertainty with a
plan that has the highest possible capacity for a quick reaction.



So better be prepared

Such a plan can be
a soil map with corresponding data
which enables a
wide range of application



THE END