

wpa Beratende Ingenieure

Soil as an indicator for flood occurrences

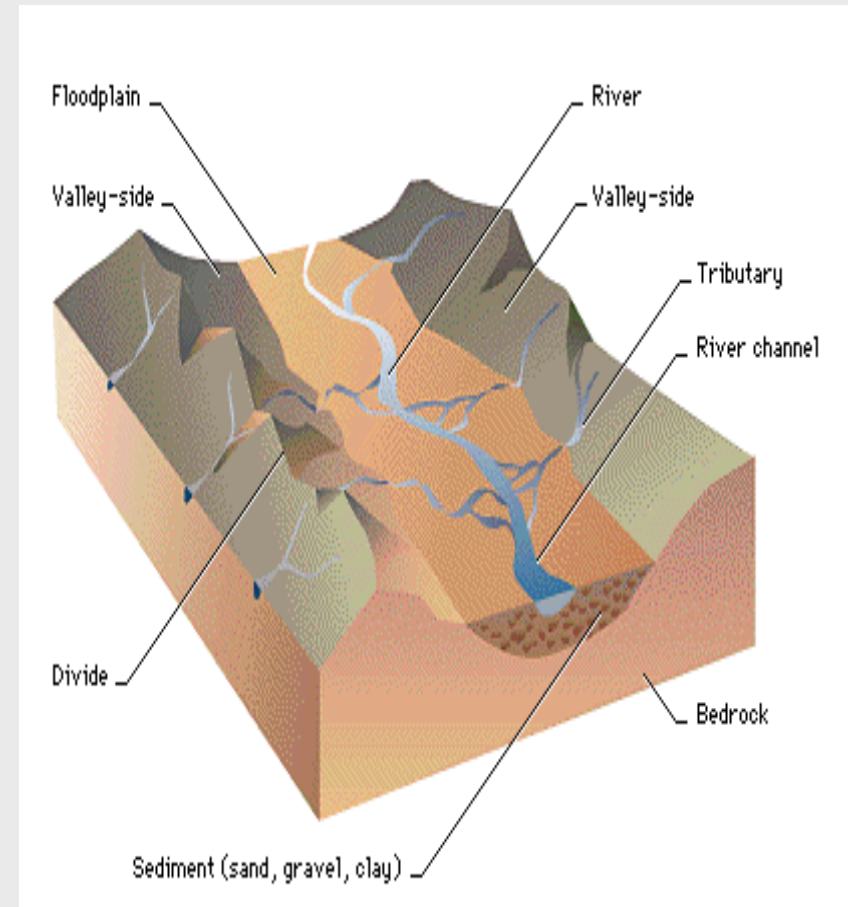
Definition

A floodplain is a flat land adjacent to a river that stretches from the banks of its channel to the base of the enclosing valley walls.



Definition

Geologically ancient floodplains are often represented in the landscape as fluvial terraces. These are old floodplains that remain relatively high above the present floodplain and indicate former courses of a stream.



Soil maps

Provide soil maps
useful indicators for
high river stage forecasting?

Austrian Soil Map 1 : 25.000

Agricultural land (3 Mio. ha)

Maps almost finished

Available from Bundesforschungszentrum für
Wald

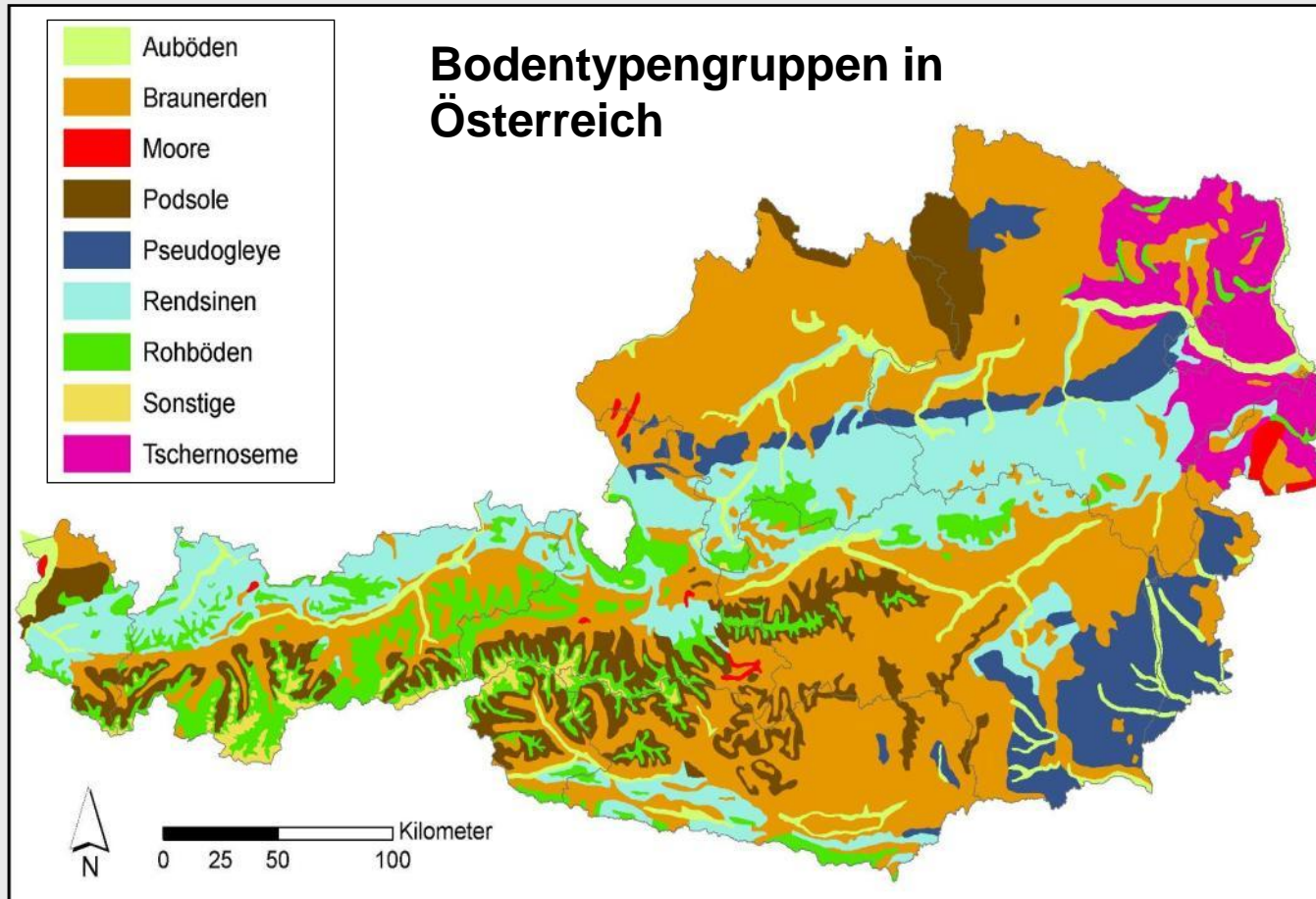
- Printed version (sale)
- www based eBOD (free of charge)

Recording resolution 1 / ha

Austrian Soil Taxonomy (Fink 1969)

- Grauer Auboden
- Brauner Auboden
- Both compare to “Fluvisol” according to WRB

Austrian Soil Map



Quelle: Österreichische Bodenkundliche Gesellschaft & Umweltbundesamt

Map of Austrian Tax Authorities

Agricultural land

Free of charge locally available at

- Tax Authority offices
- Office of Metrology and Surveying (BEV)

Digital version exists (sale)

Recording resolution: 40 m grid

Only for arable land

- AI (Alluvial soils)
- AID (Alluvial soils without Groundwater influence 1 m)

Map of Austrian Tax Authorities



BEV, 2011

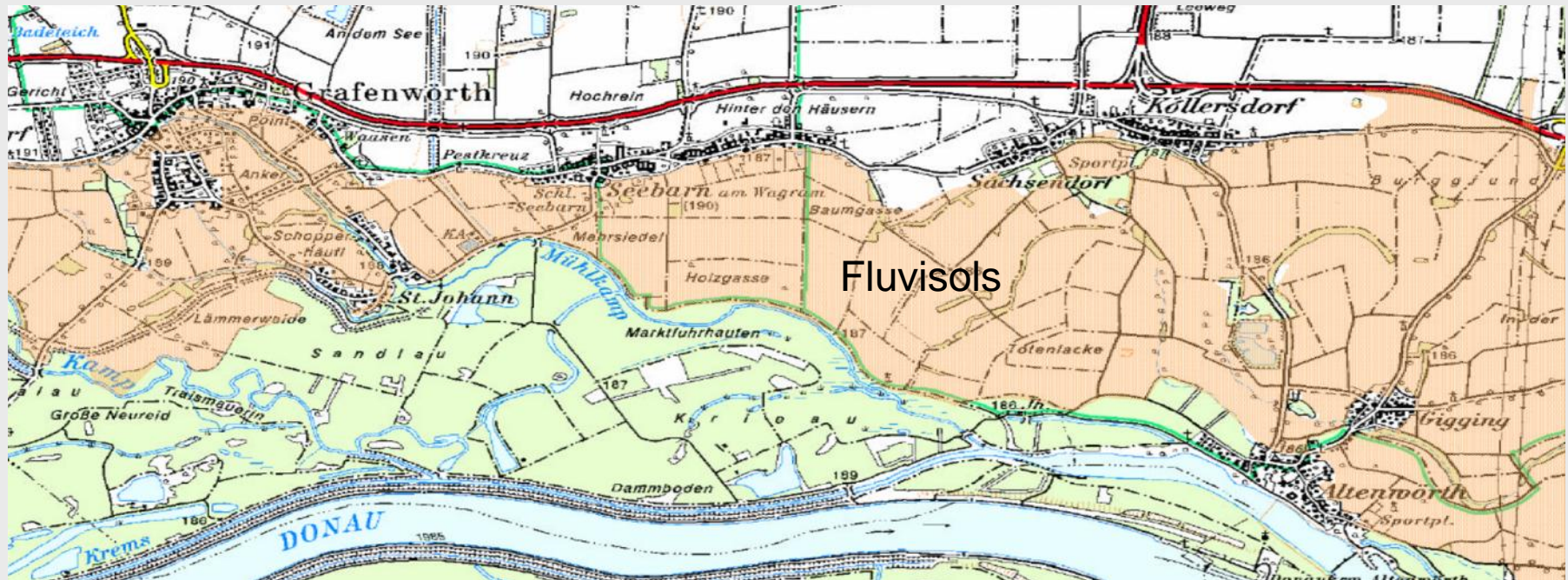
Soil as an indicator



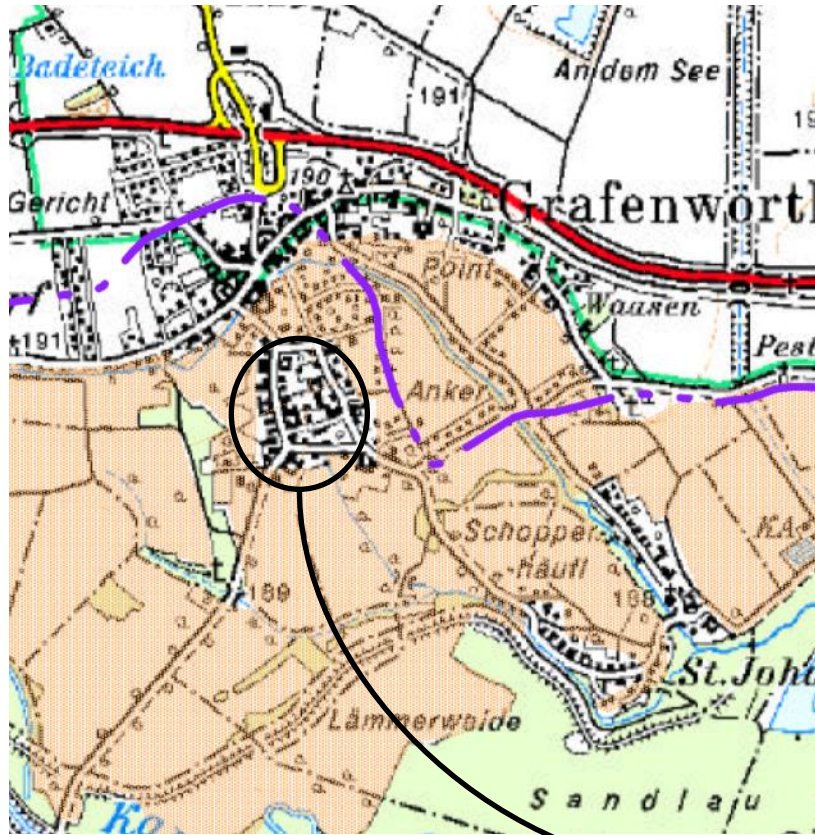
Fluvisol

Soil Map 1 : 25.000

Fluvisols along the Danube



Soil map gives in some parts even better results than high river stage assessment of Austrian Hydro Powers (AHP) from the year 2002



S. Tichy

Kuderna et al., 2006: Soil indicators for forecasting high river stages. ÖBG, Wien

Affected aereas

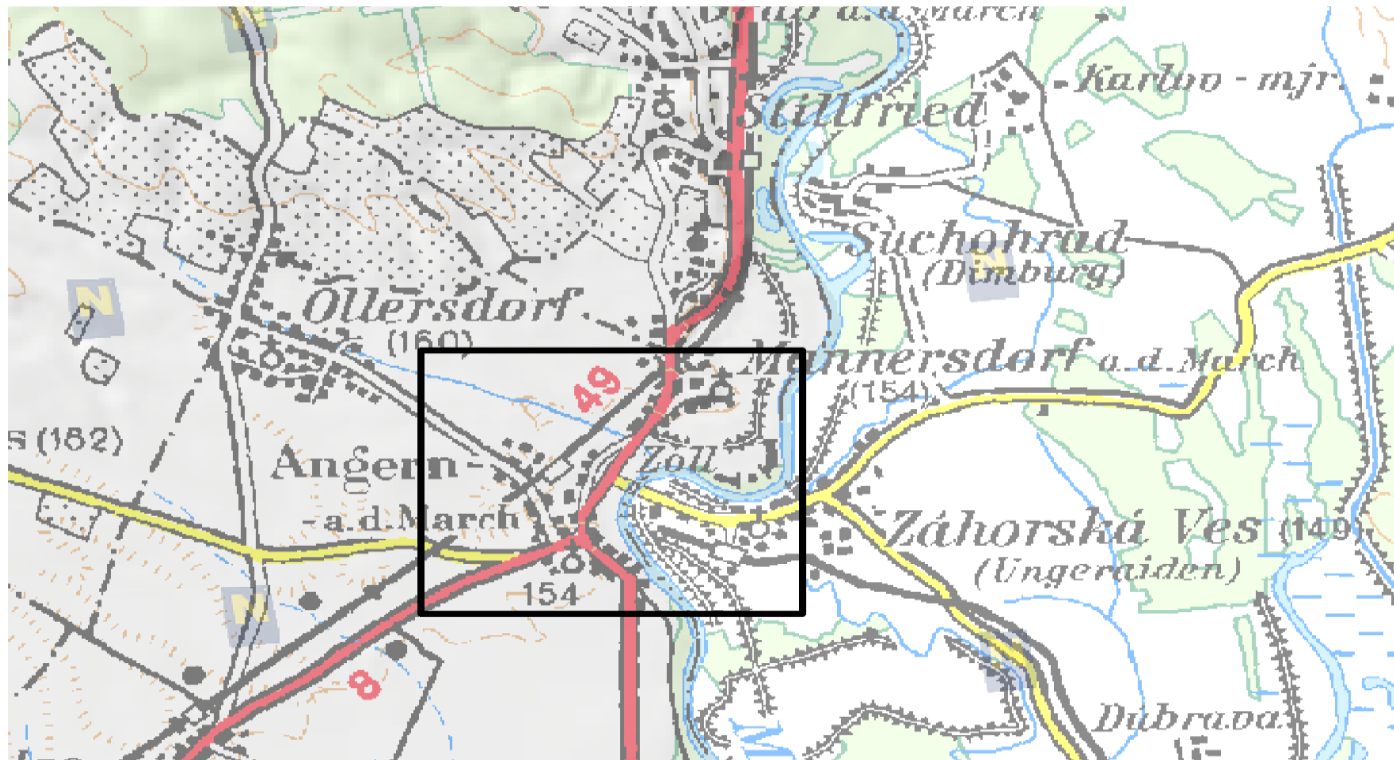



Dürnkrot

Flooded area
March 2006

Foto: Bundesheer/Dragan
TATIC

Investigation area



 Untersuchungsgebiet

(c) Land Niederösterreich, NÖ Atlas
kartographische Bearbeitung: wpa Beratende Ingenieure GmbH

ohne Maßstab



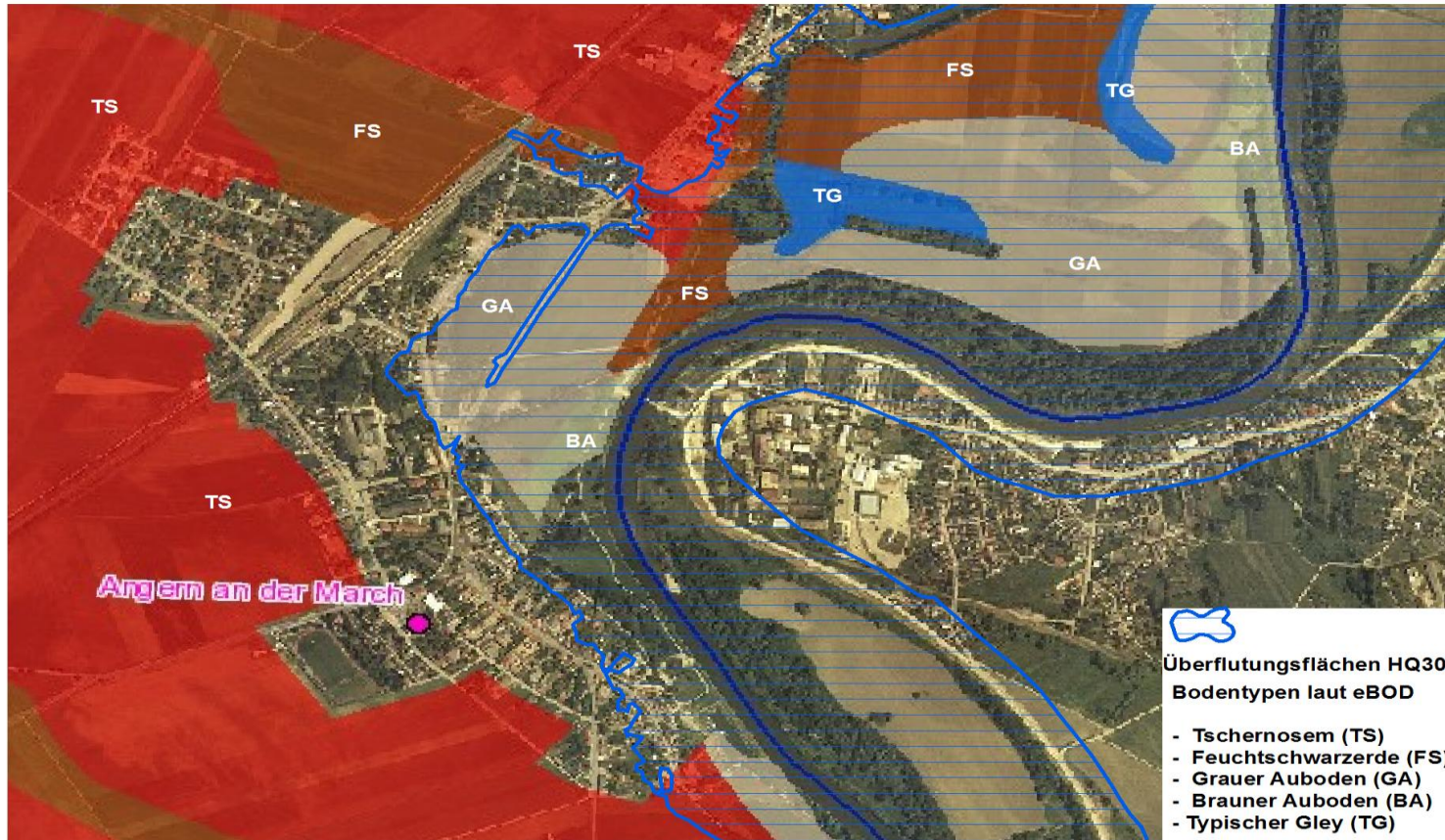
Flooded area



(c) Land Niederösterreich, NÖ Atlas
kartographische Bearbeitung: wpa Beratende Ingenieure GmbH

High river
stage
assessment
HQ 300

Soil map (eBOD) 1:25.000



(c) (1) Land Niederösterreich, NÖ Atlas; (2) Bodenkarte: BFW
kartographische Bearbeitung: wpa Beratende Ingenieure GmbH

0 250 500
Meter

Soil map Zahorska Ves

1:25.000

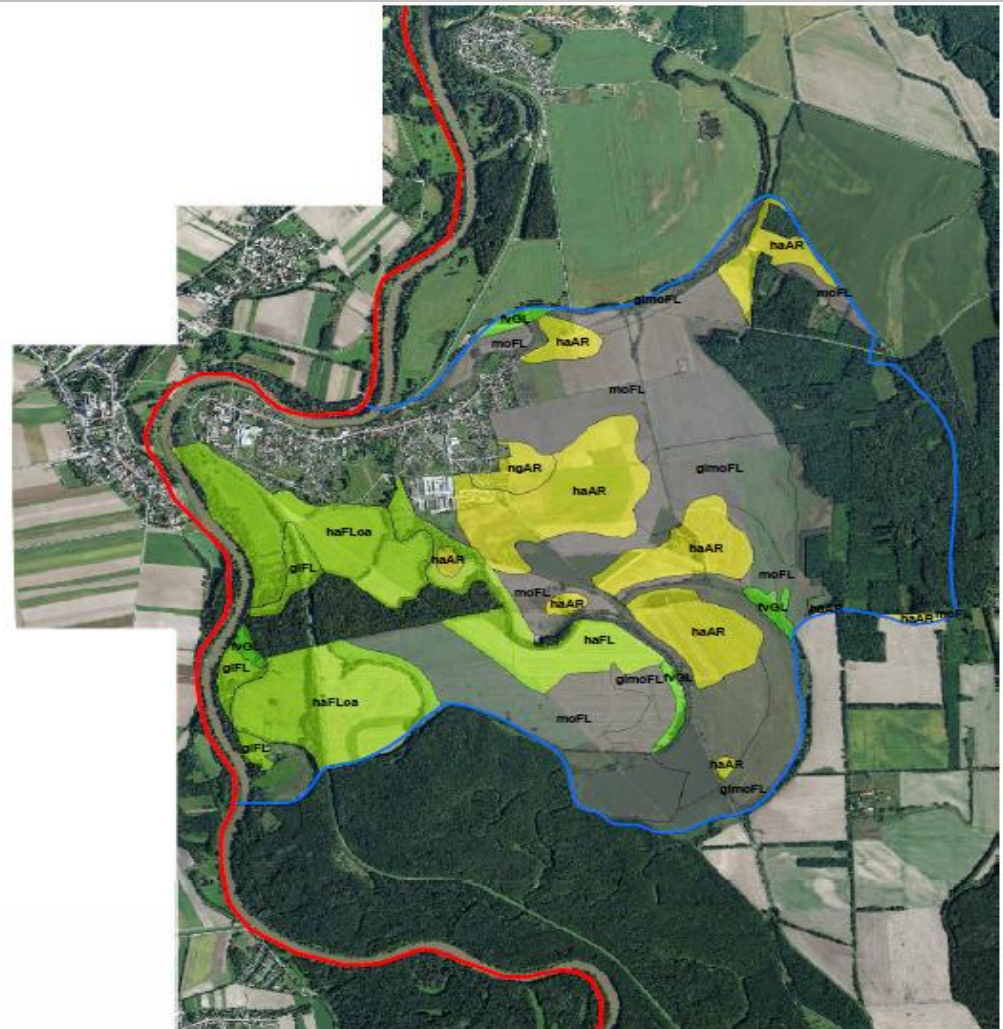
Soil types and soil subtypes of Zahorska Ves cadastre

Legend:

according to:
World Reference Base
for Soil Resources, 2006
(updated version 2007)

- haFL Haplic Fluvisol
- haFLoa Haplic Fluvisol Calcic
- qIFL Gleyic Fluvisol
- moFL Mollic Fluvisol
- qimoFL Gleyic Mollic Fluvisol
- haAR Haplic Arenosol
- ngAR Endogleyic Arenosol
- fvGL Fluvic Gleysol
- Non-agricultural land

- state border line
- border line of Zahorska Ves cadastre



SOBOCKA, 2011

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Thank you for your attention