ENHANCING COMPETENCIES OF CENTRAL ASIAN UNIVERSITIES IN AGRICULTURAL POLICY FOCUSED ON ENVIRONMENTAL PROTECTION & LAND MANAGEMENT

"ECAP", Erasmus+ Programme of the European Union
Capacity Building in the field of Higher Education
No. 561590-EPP-1-2015-1-SK-EPPKA2-CBHE-JP

LAND DEGRADATION:
Management and Improvement by data and information

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Nitra training, 10 – 14 September 2017

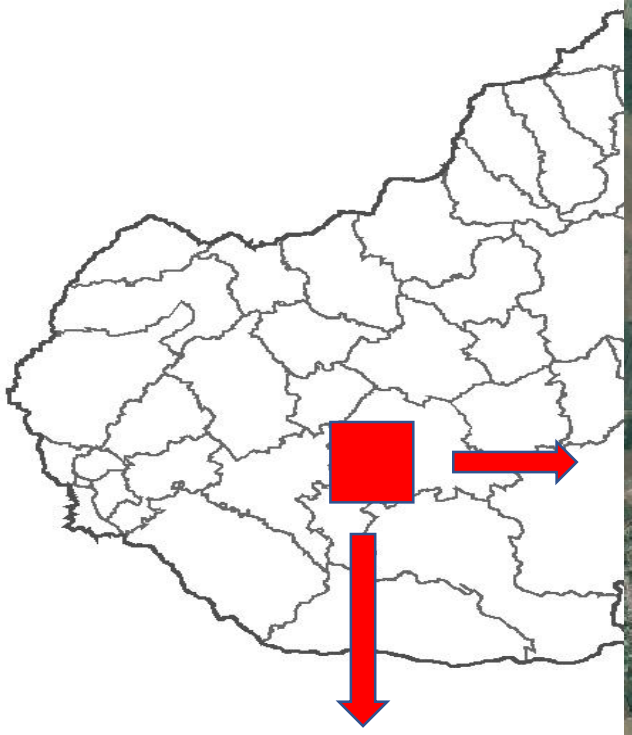
What we have to do for it?
What is the real situation in Slovakia?

Soil data collection: soil survey
geochemical survey of soils
data surveys by permanent soil monitoring
hard versions of soil maps creations

Information systems creation: georeferencing of collected data
digital soil maps creation
generalized interpretations

Expert systems creation: advanced products for electronic advisory services

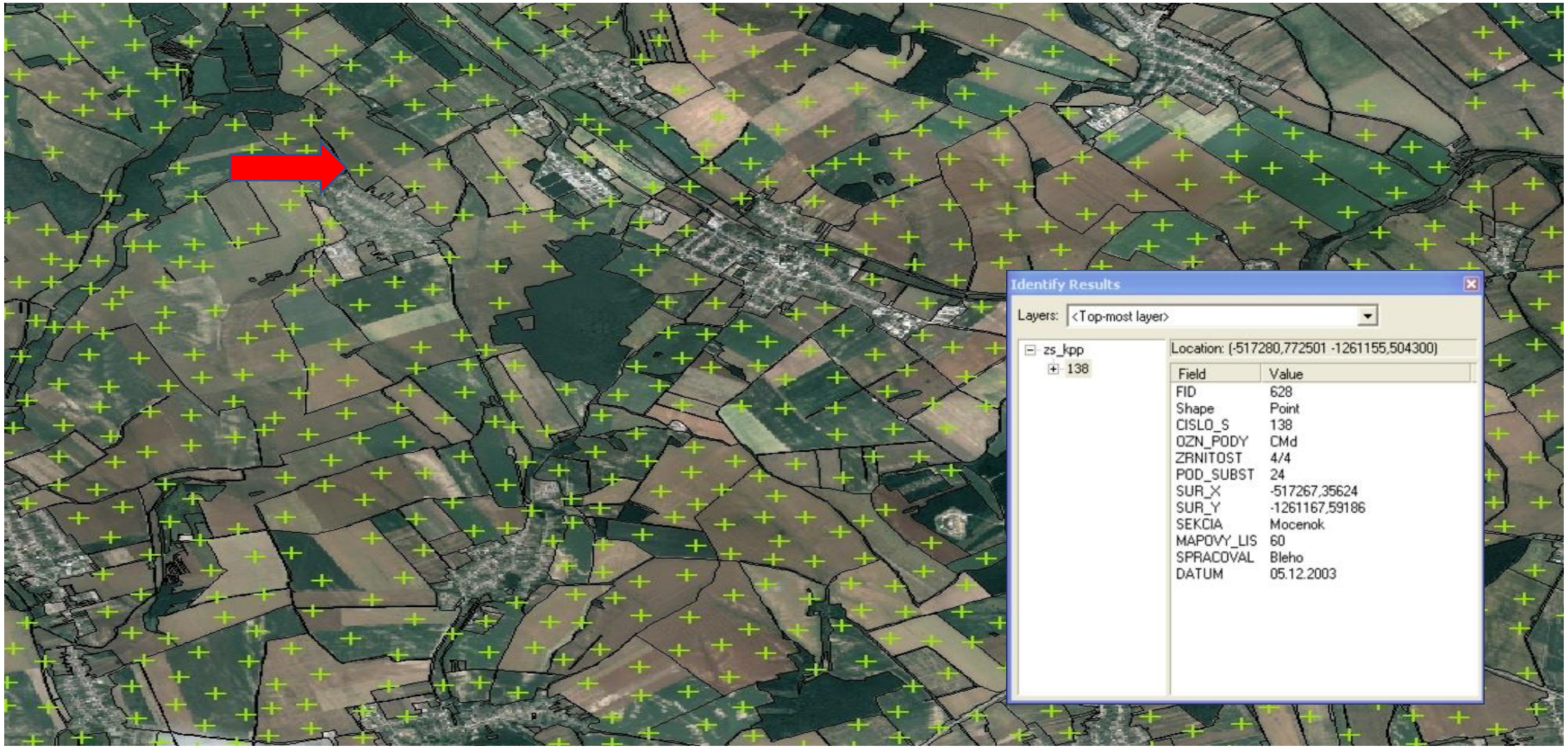
Territory of Slovakia – window of presentation



23 895 ha

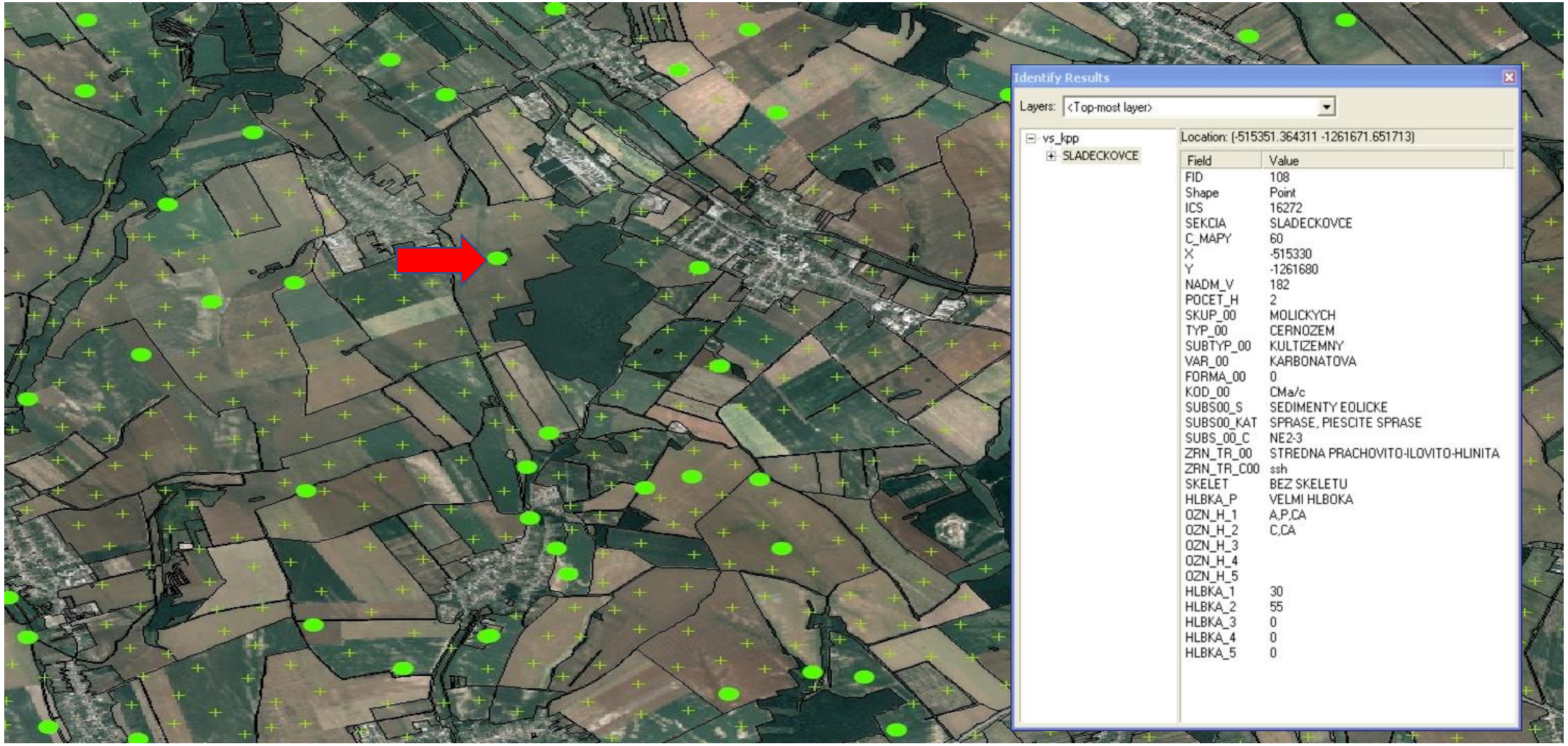
Soil Survey of Slovakia

performed in density of 1 pit per 14 ha of soil cover, taken out about 174 700 soil samples (according of horizons), hard soil (types) maps created (1:10000), all data digitalized and put on orthophotomaps



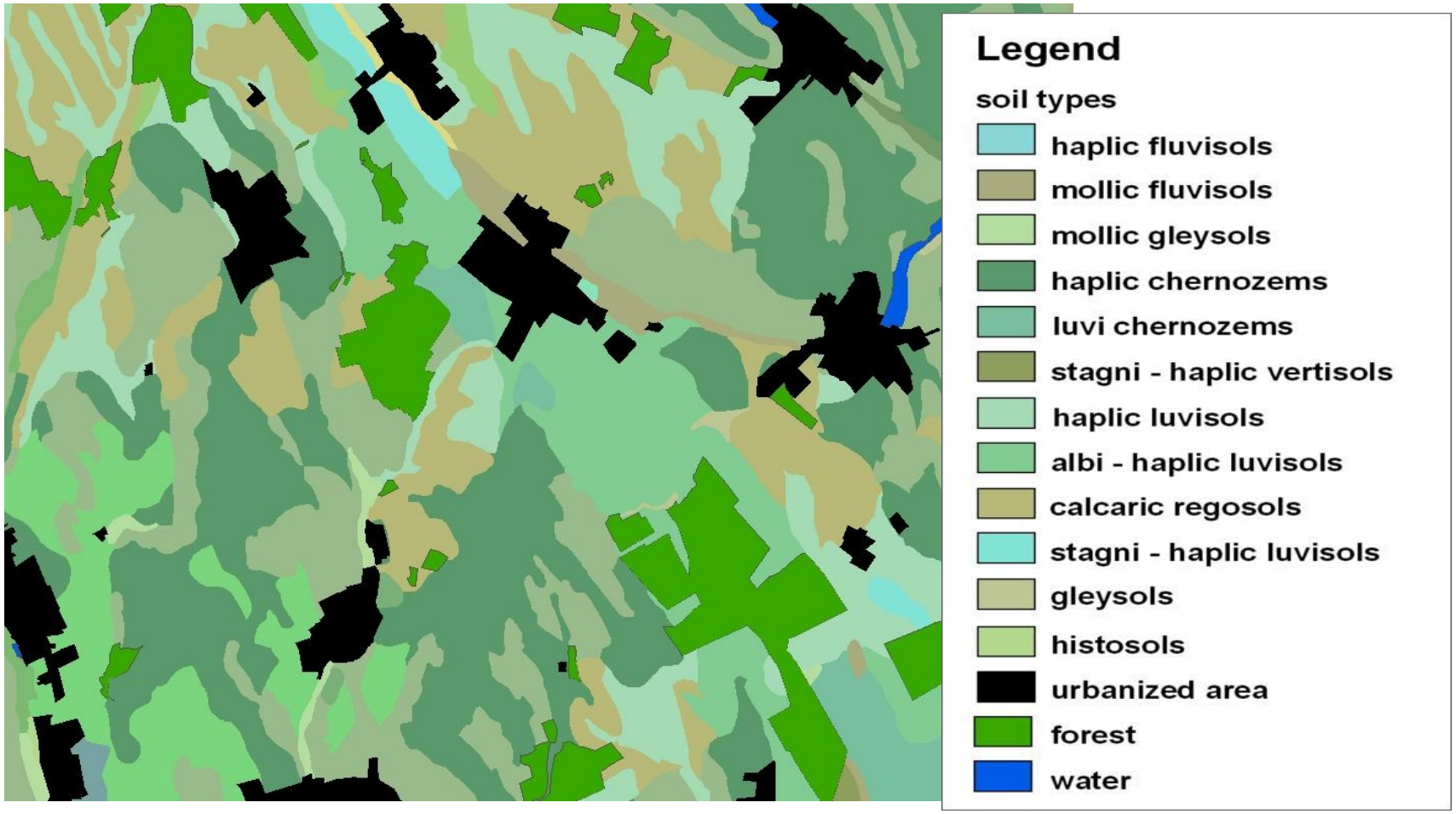
Soil survey of Slovakia – selected probes

more detailed analysis of samples taken out from every 10 pits



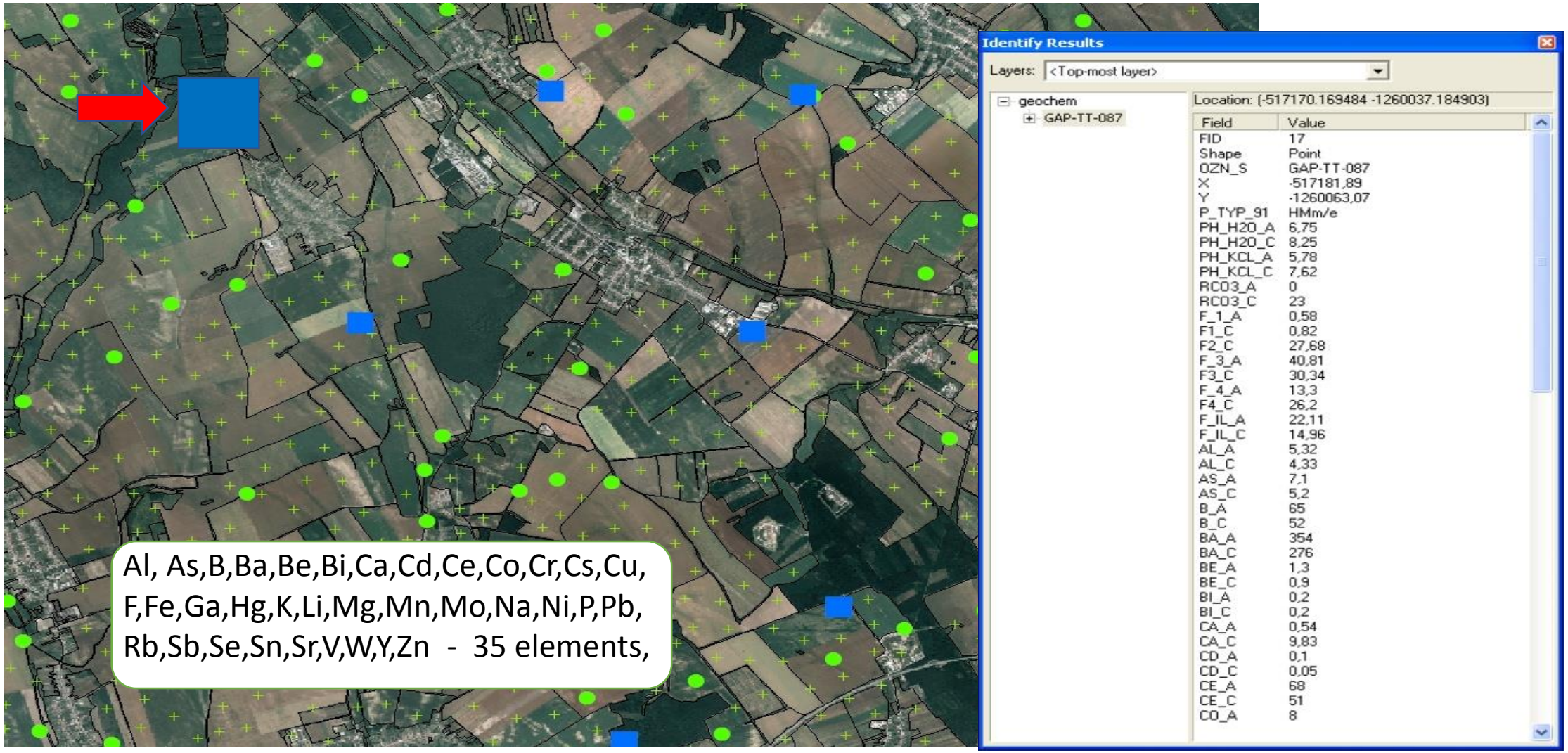
Soil Types of Slovakia

Morphogenetic Classification System of Slovakian Soils (respecting WRB), on Slovakian territory is identified 27 main soil units (about 320 in Europe), hard copies of maps 1:10000 are available for all territory of Slovakia

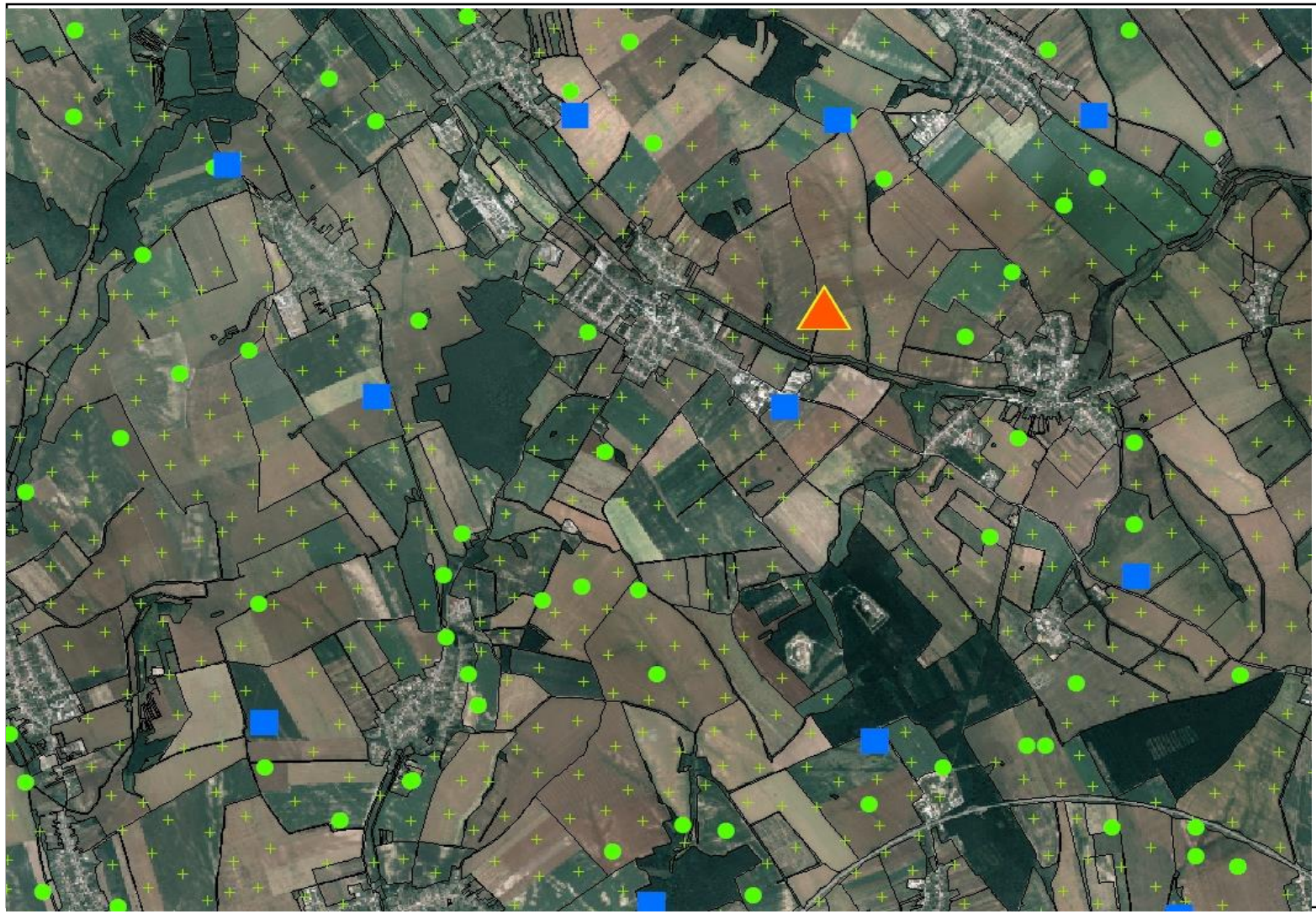


Geochemical Survey

Soil sampling every 10 km-2, 2 depths, agr. and forest, databases, 83 digi maps and atlas printed



Soil Monitoring in Slovakia



From 1993

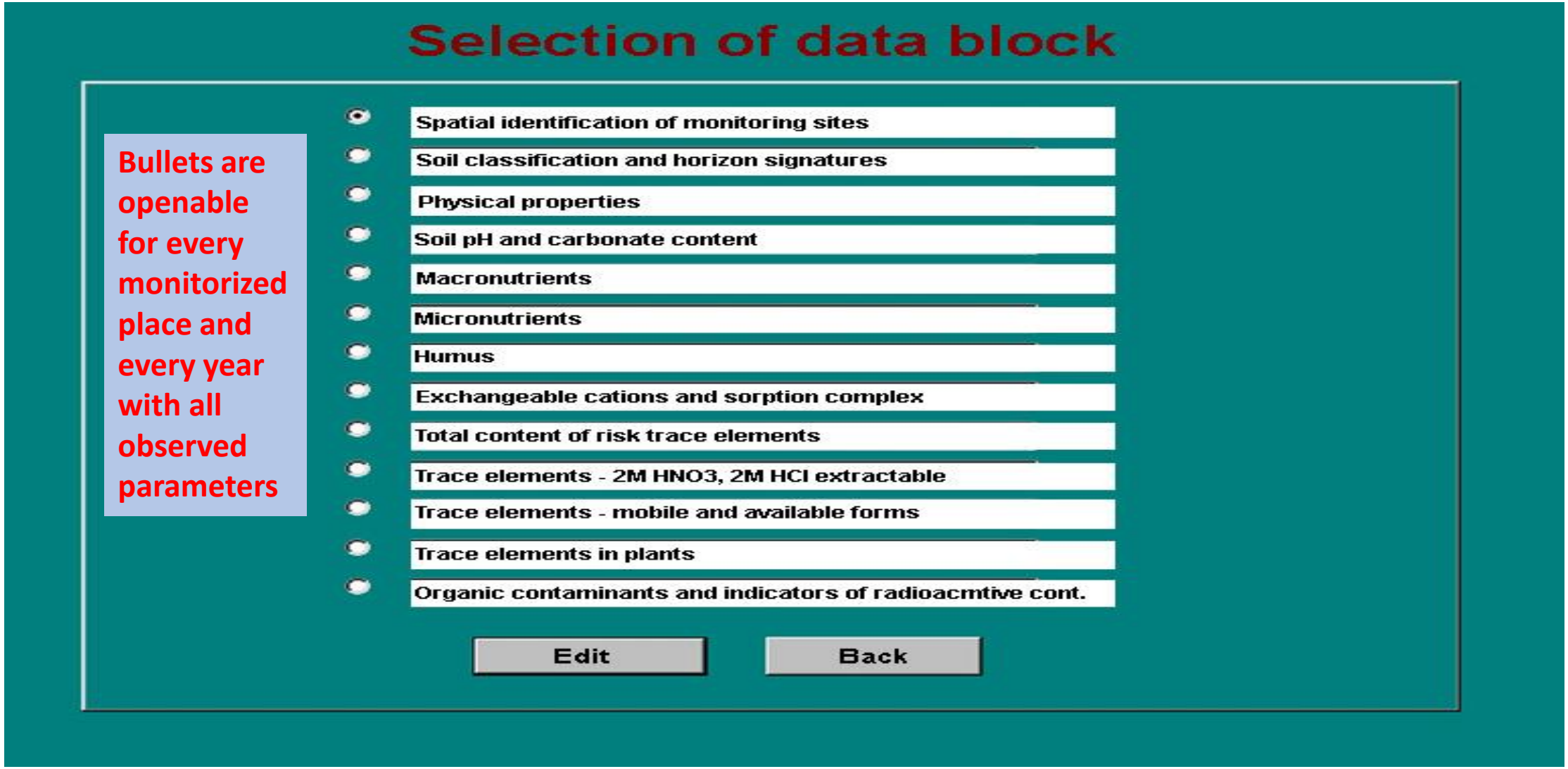
Observation of 318 agricultural and 112 forest places

Plus 21 key fields with specific observations

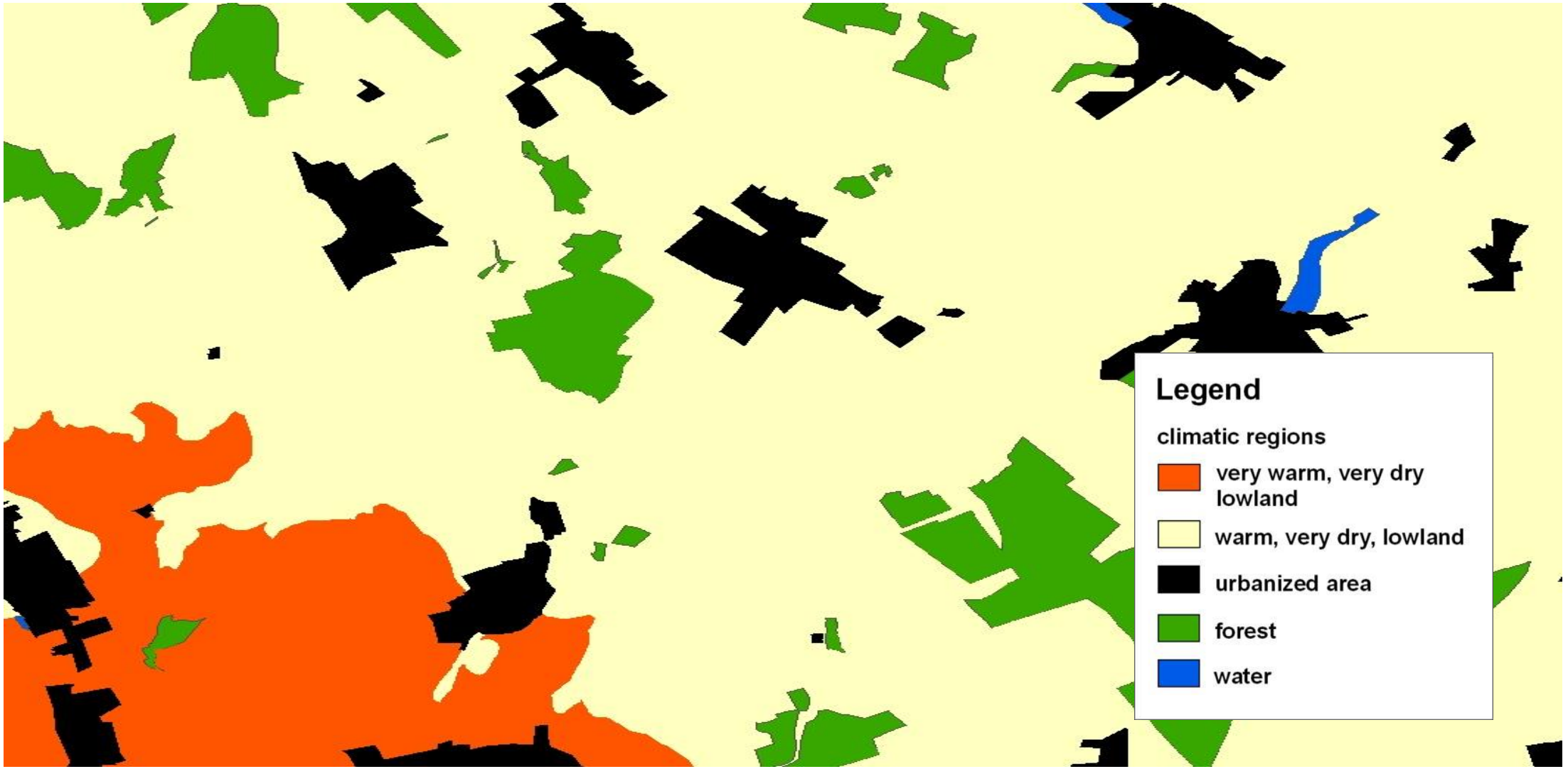
Observation frequency depends on parameter, yearly, or every 3 or 5 years

Database and information system on-line available

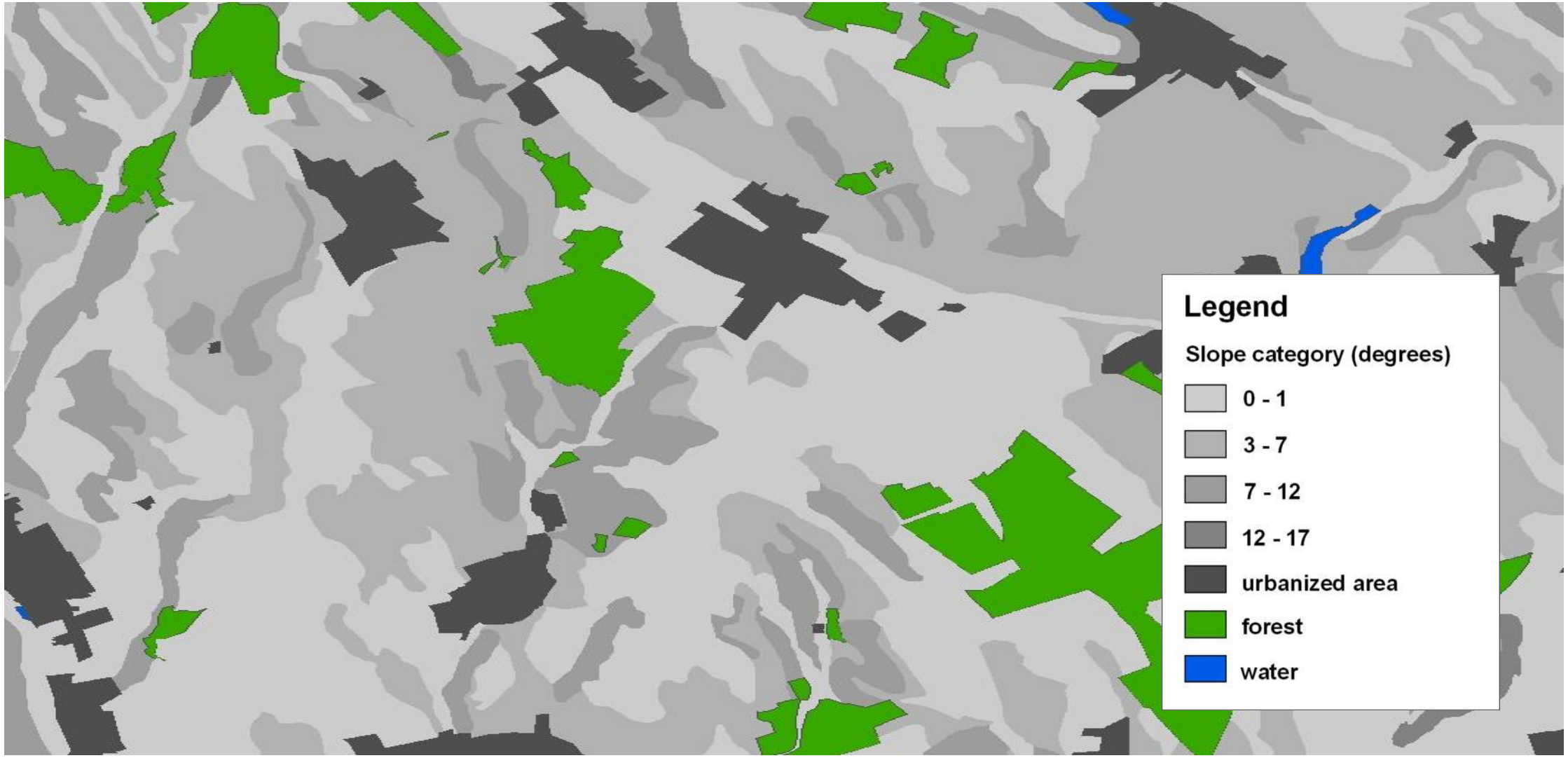
Examples of Soil Monitoring Information System contents



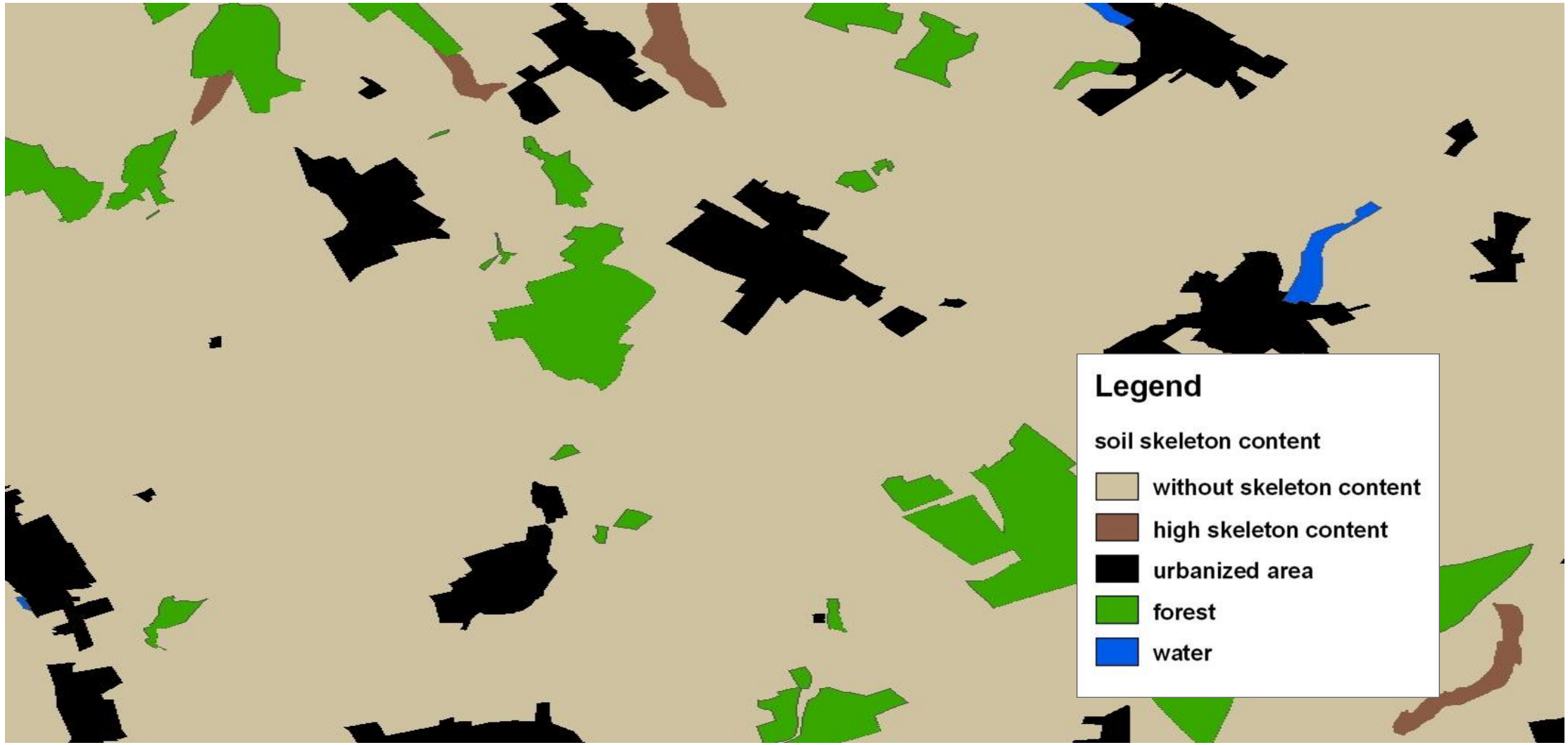
Climatic regions – according climate maps of SK



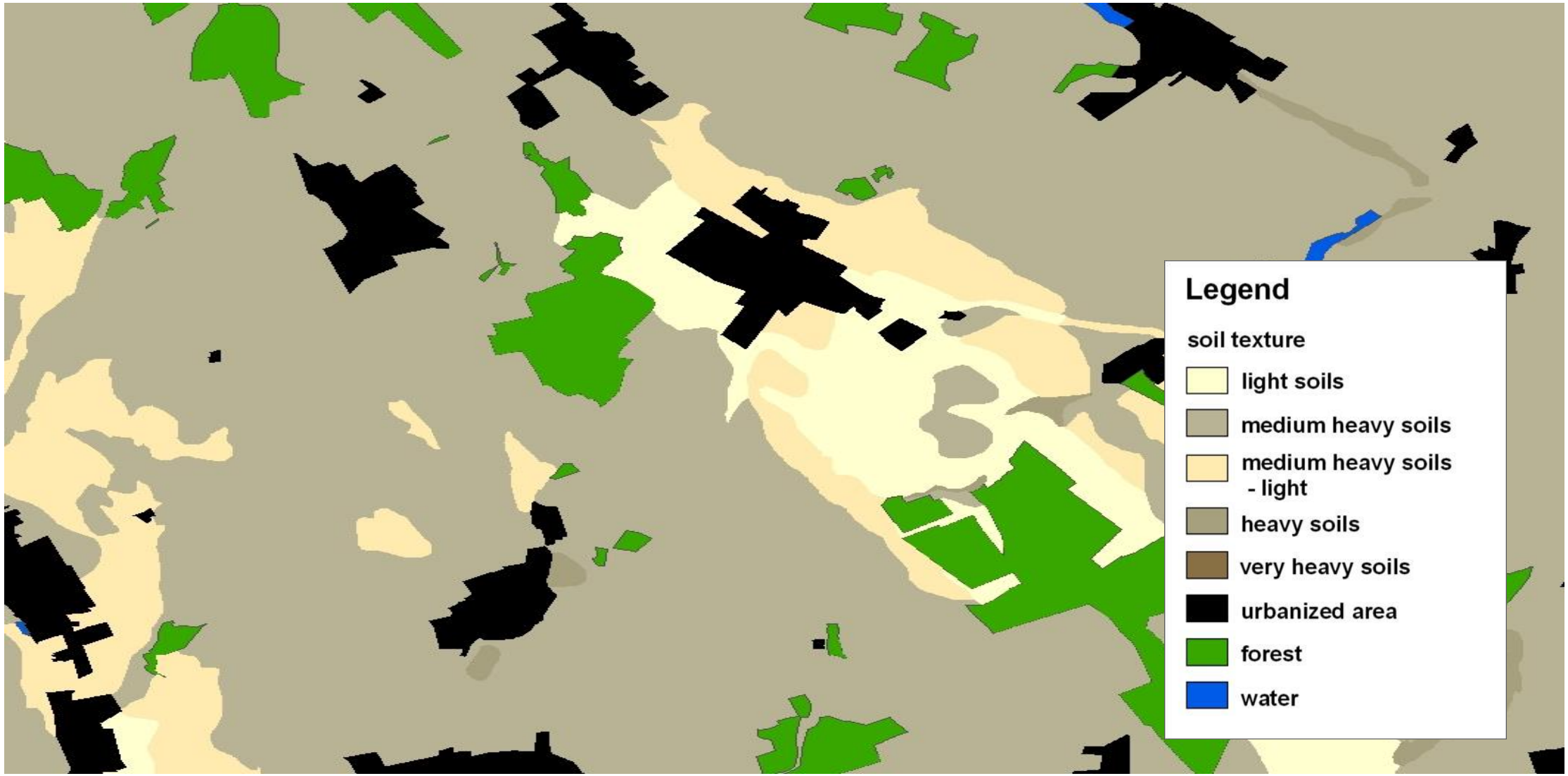
Soil slopes


Legend
Slope category (degrees)
0 - 1
3 - 7
7 - 12
12 - 17
urbanized area
forest
water

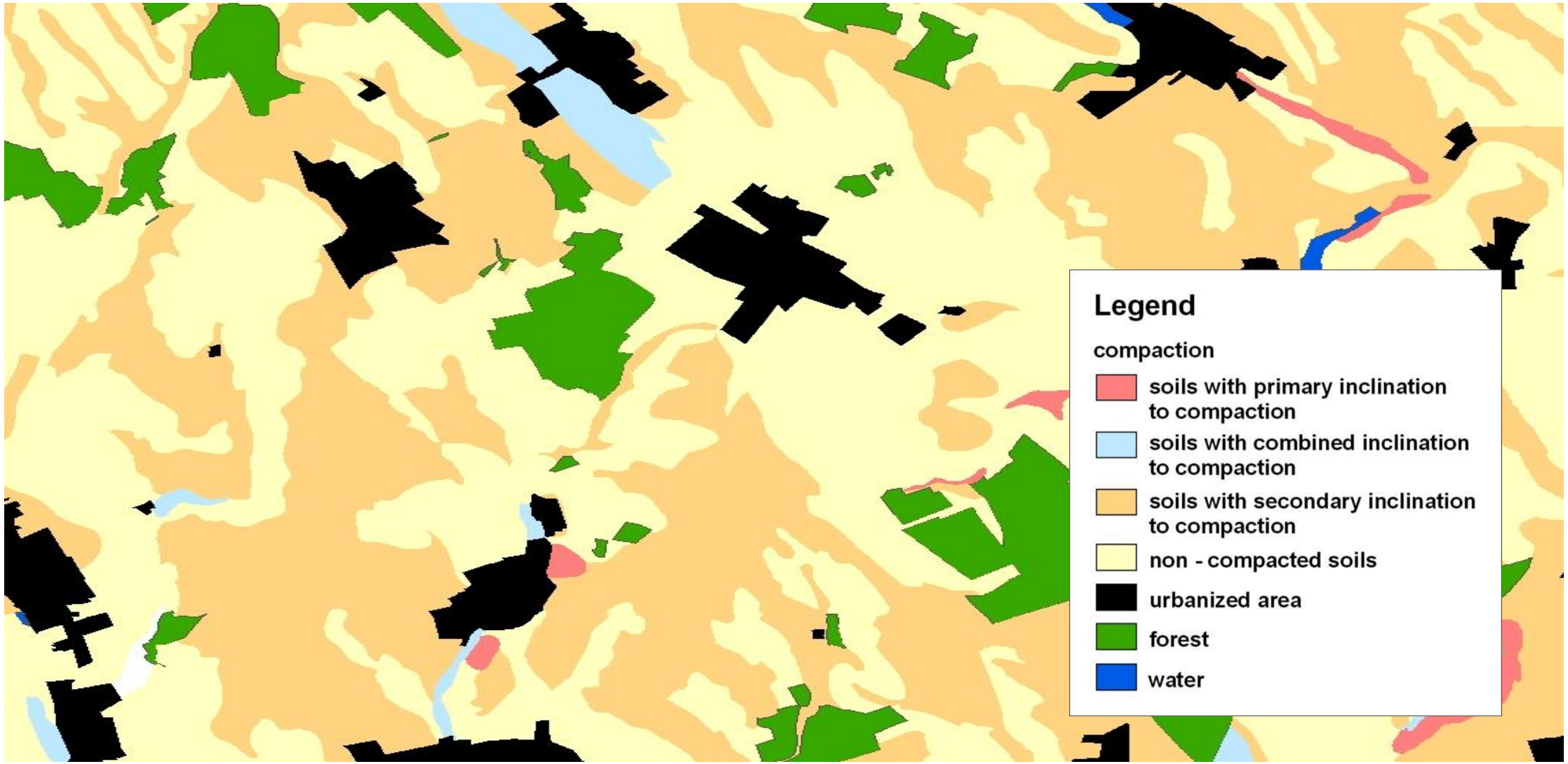
Soil skeleton content



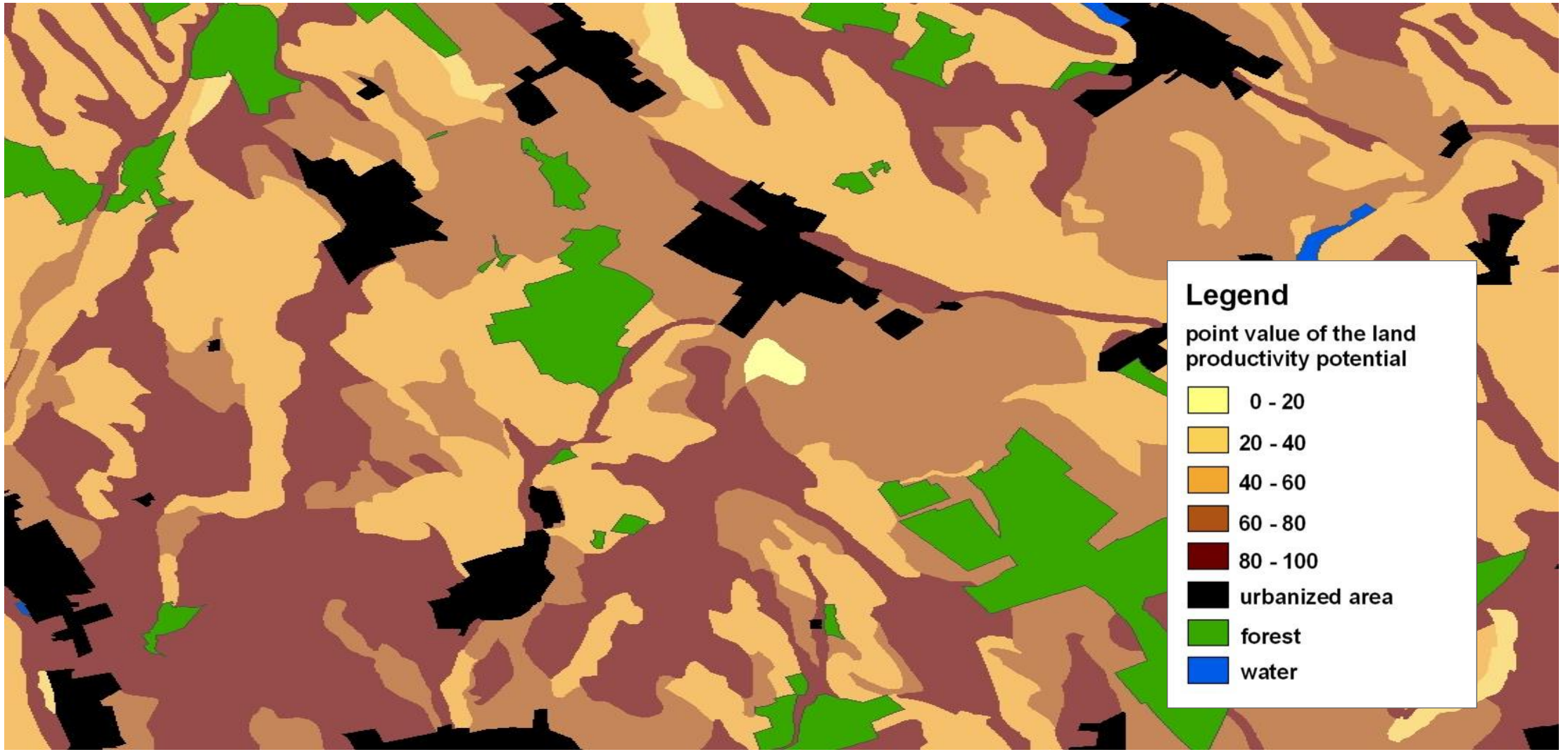
Soil textures



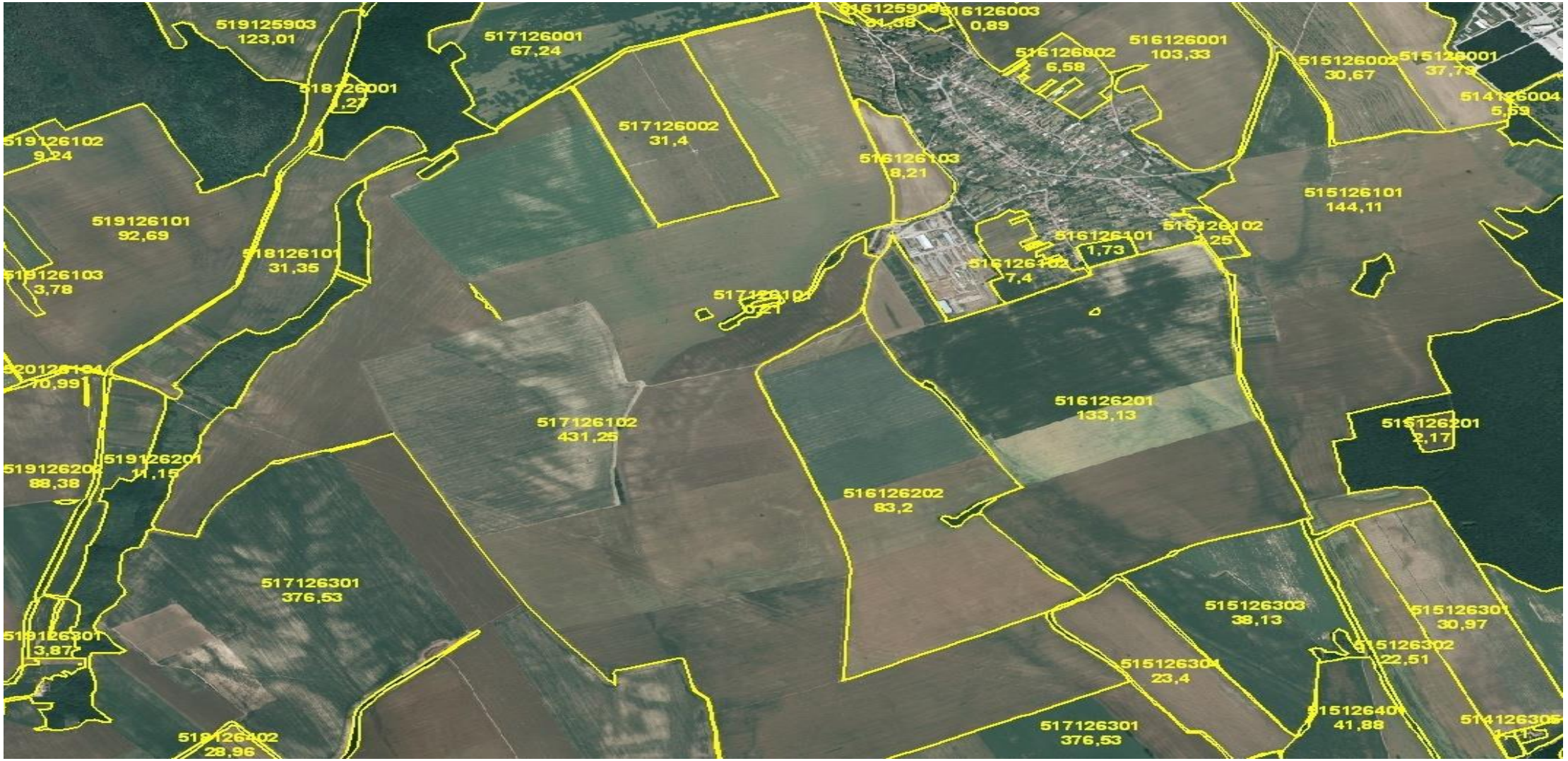
Potentials of soil compaction



Land productivity potentials



Land Parcel Identification System (LPIS) for EU agricultural policy implementation in Slovakia



Expert systems

--those information products which have been created by using of several parameters of land

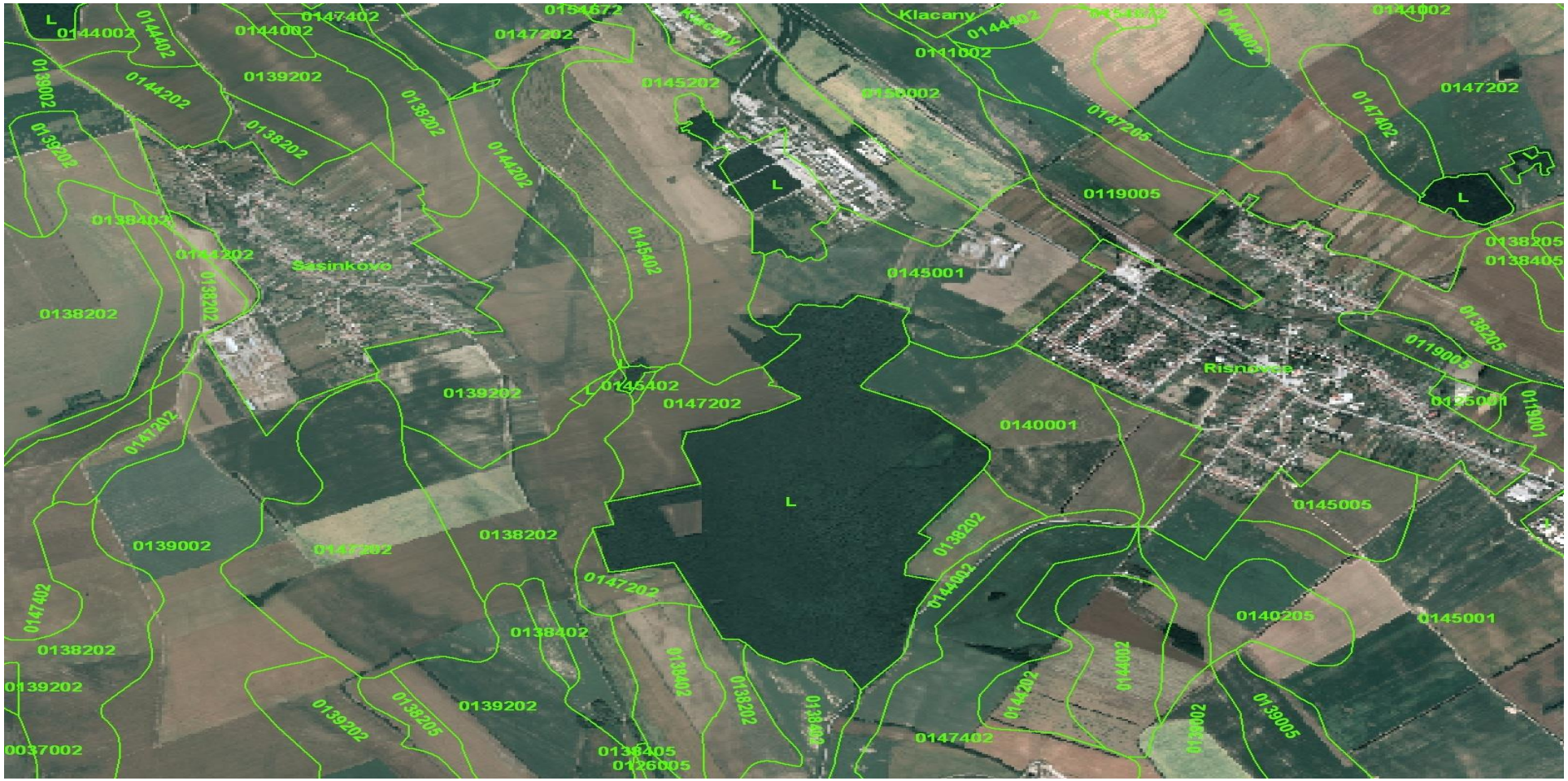
and

--those information products which are serving as advisory sources in connection to question of users

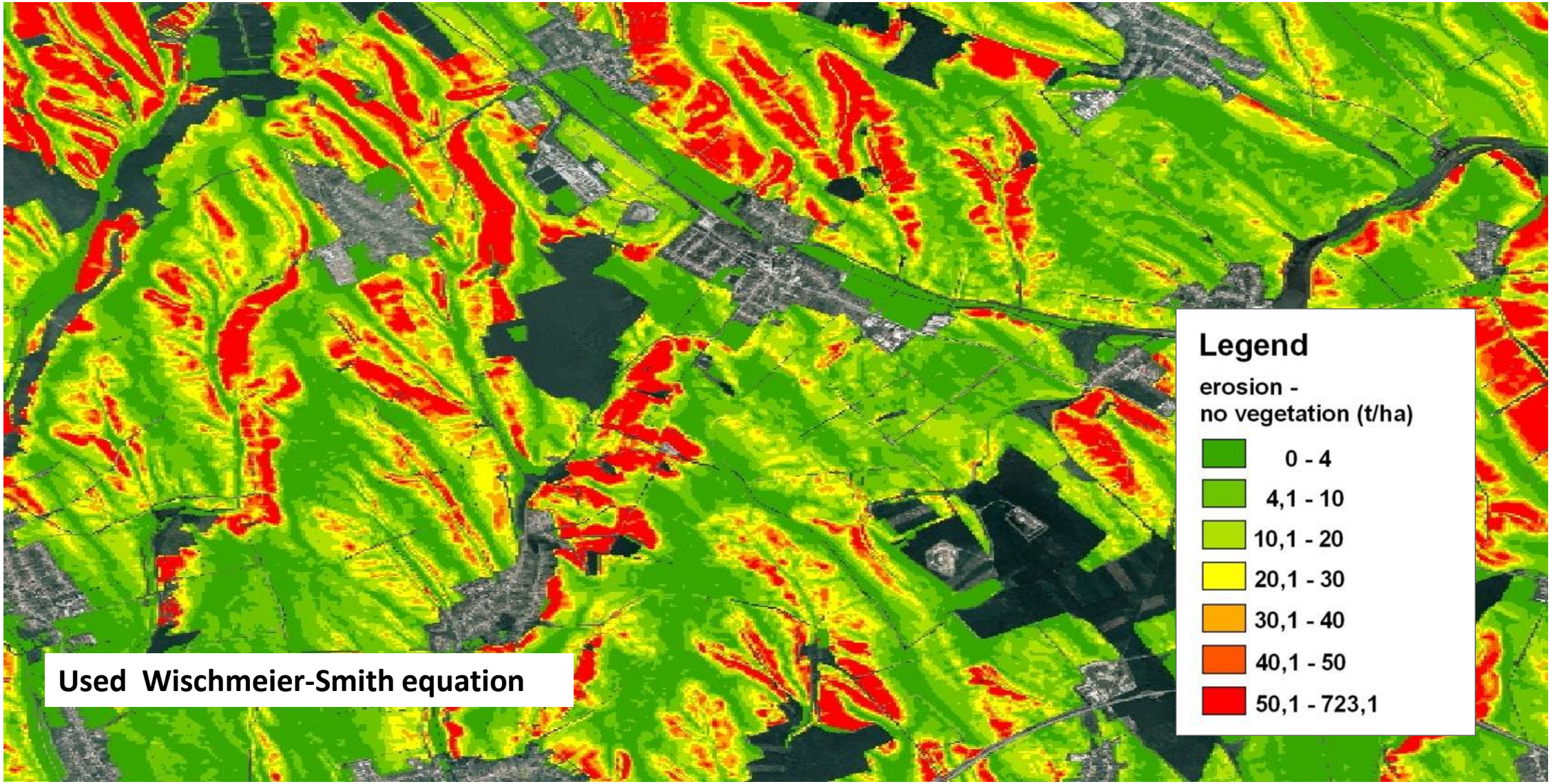
examples to be continued

Pedo-ecological units – codes of land potentials

(soil parameters evaluated commonly-climatic region,geological substrate,soil types,slope,exposition,skeleton content,soil deep and texture of soil

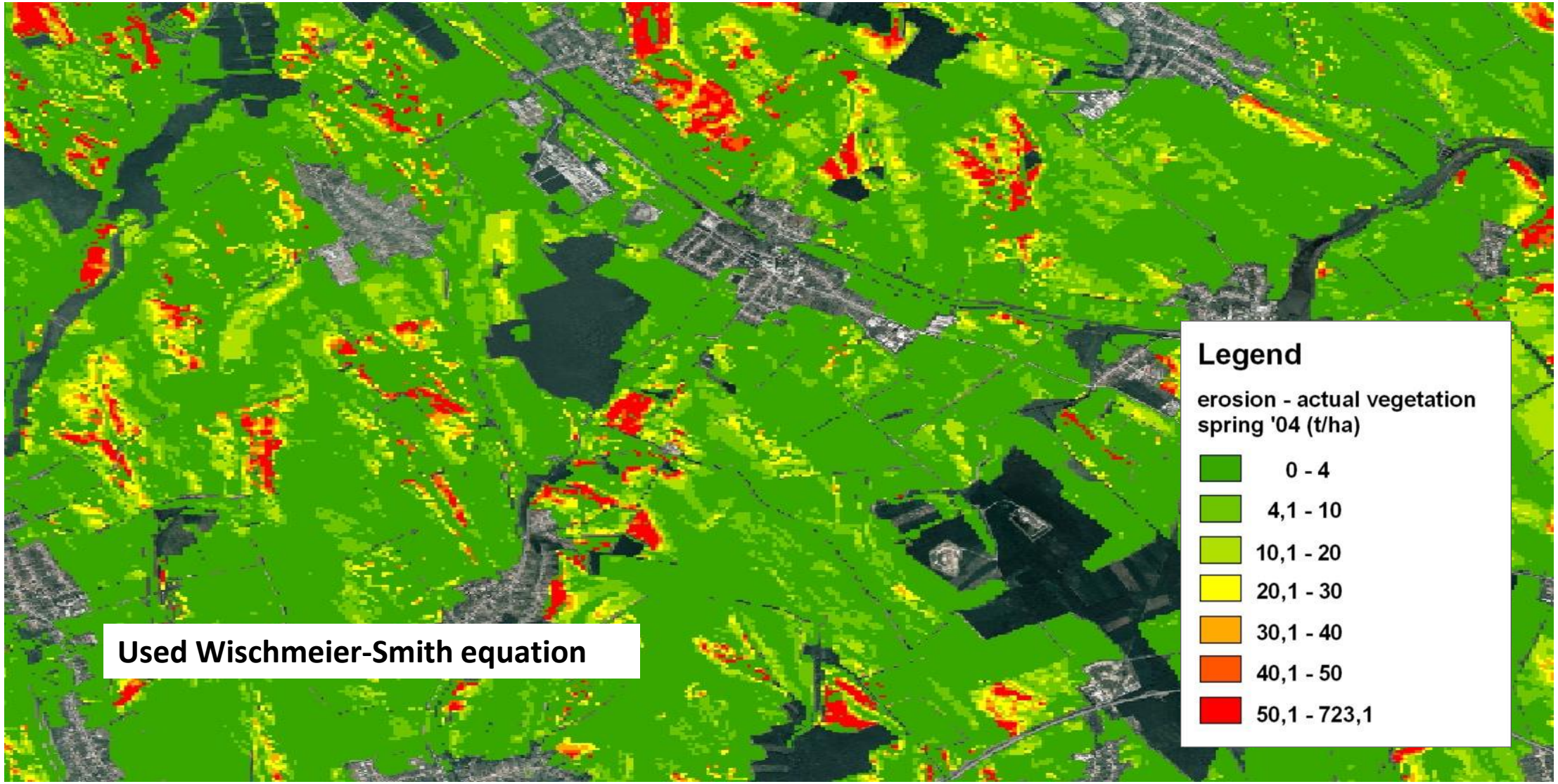


Soil erosion potentials – no vegetation

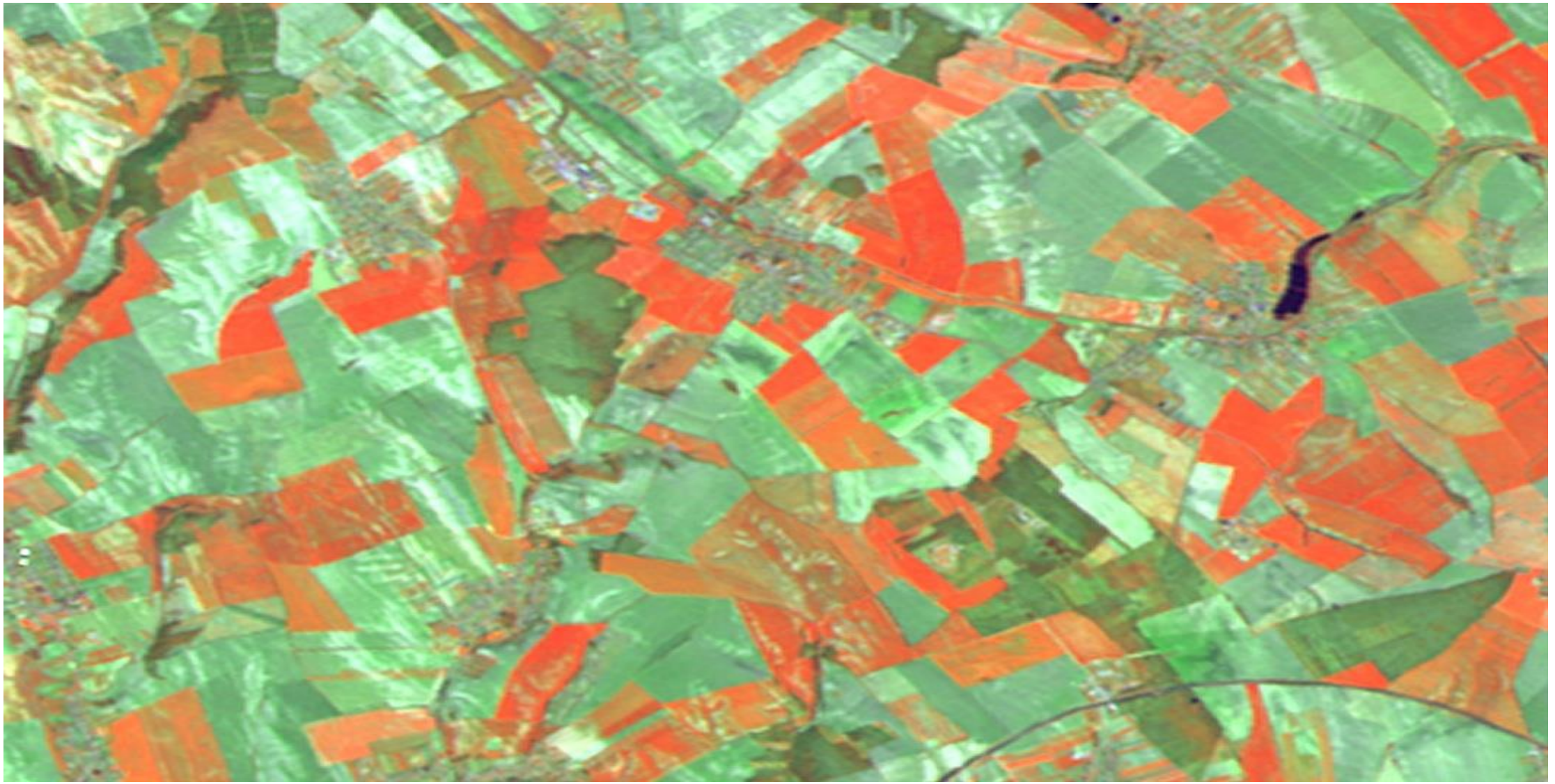


Soil erosion potentials - permanent grassland

Soil erosion potentials – actual vegetation (2008)

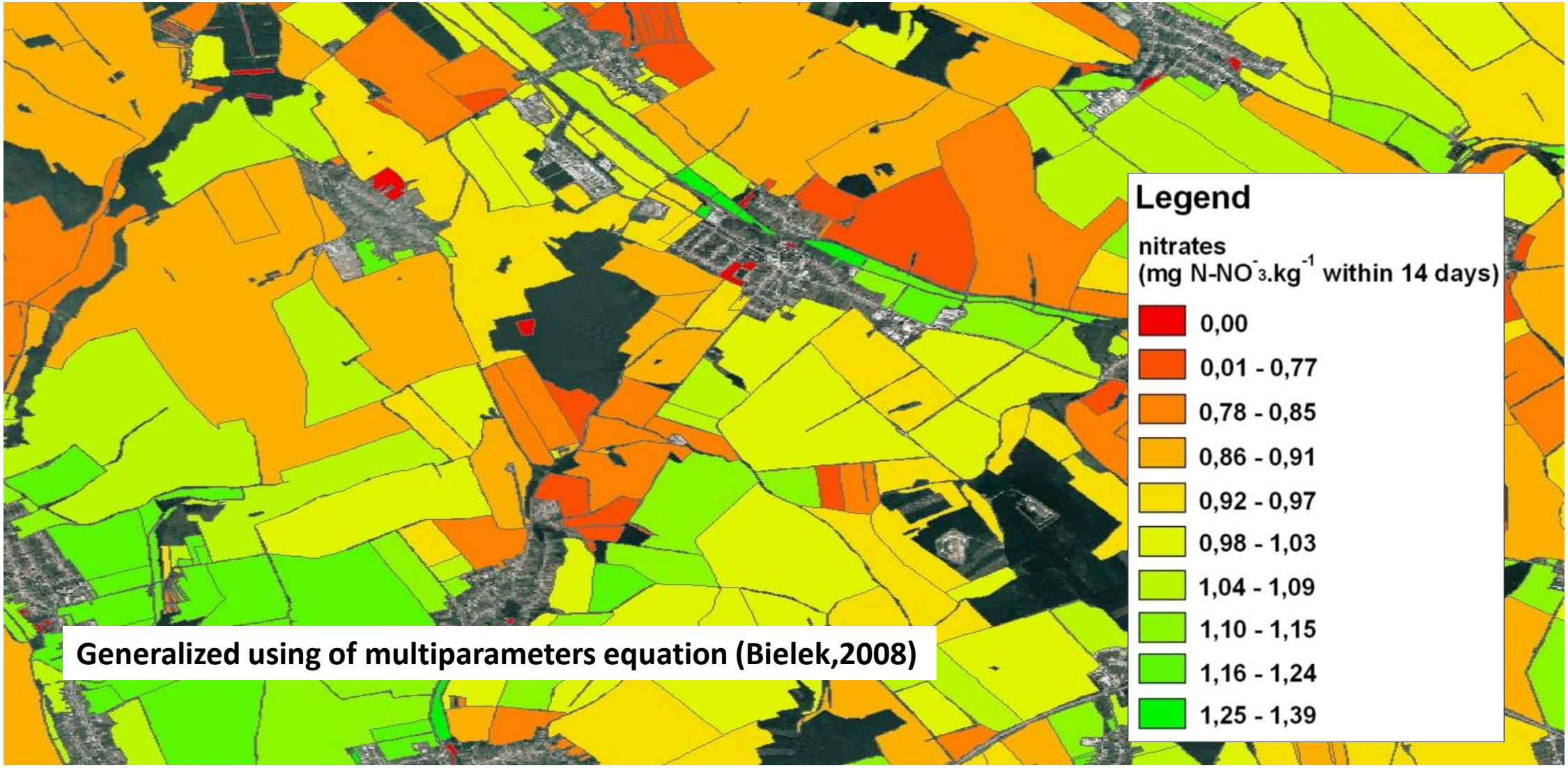


Plant inventory - satellite image (Landsat),summer



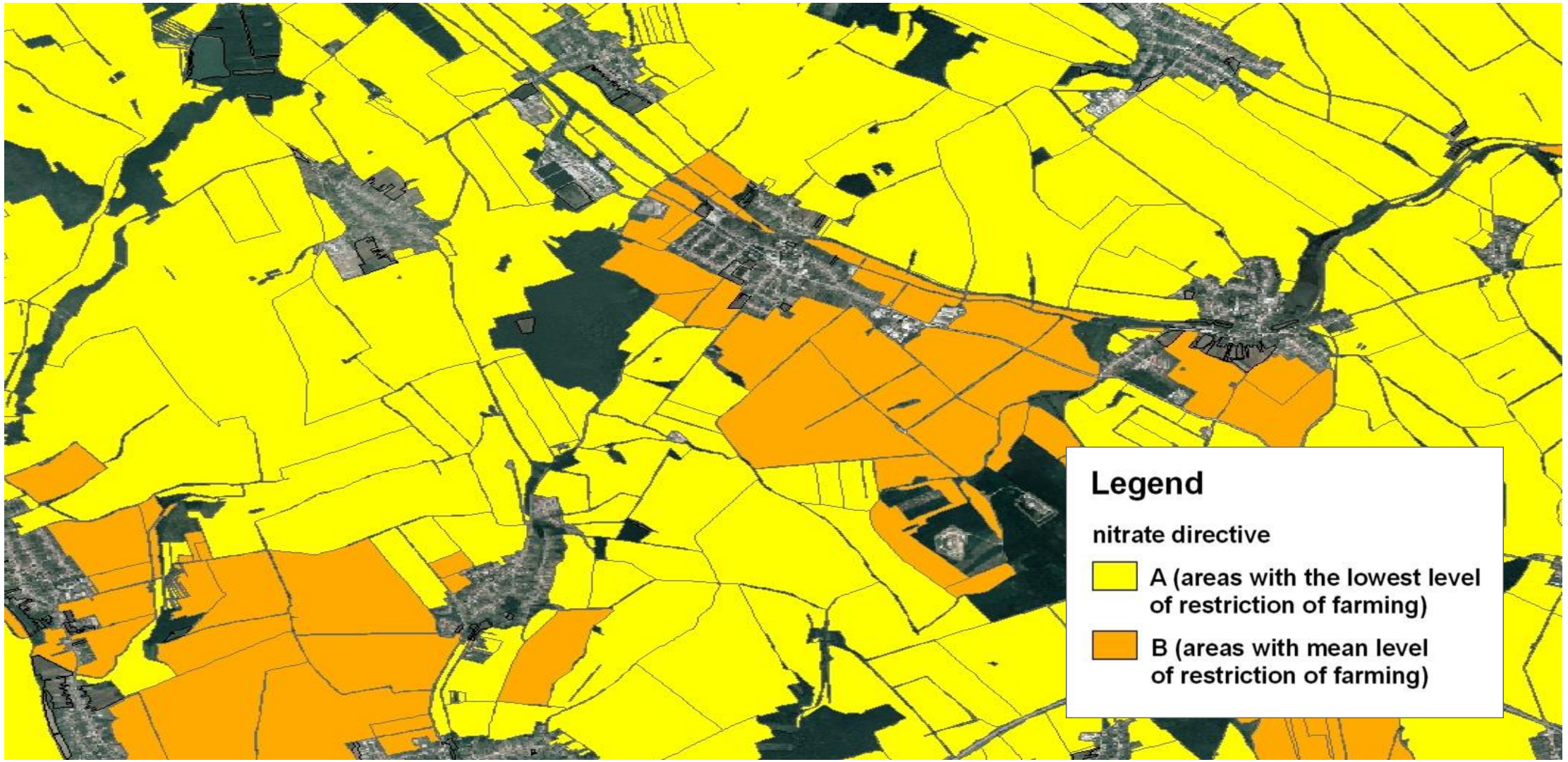
Plant inventory by satellite (Spot)

Nitrates production (mobilization) in soils

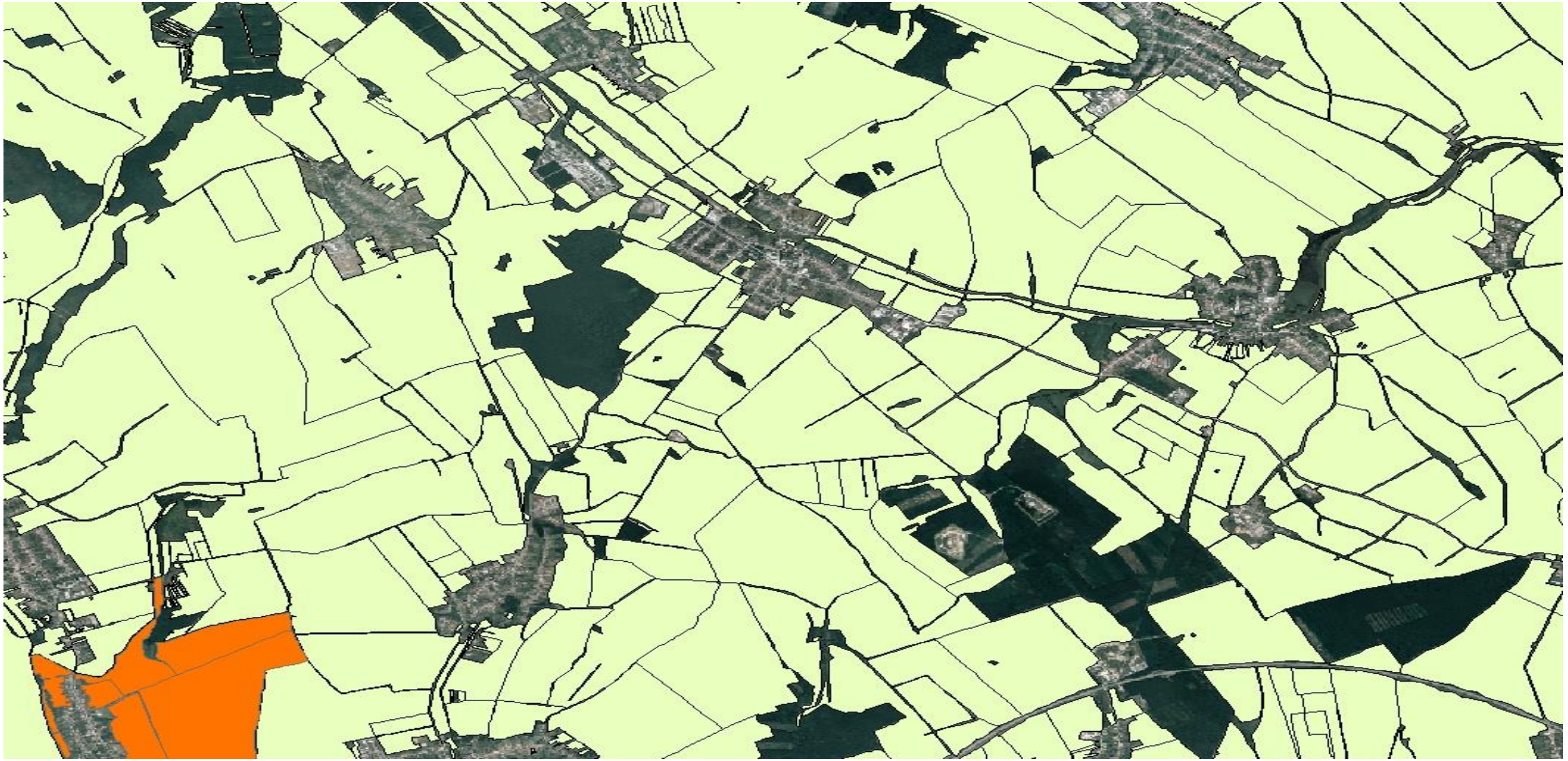


Generalized using of multiparameters equation (Bielek,2008)

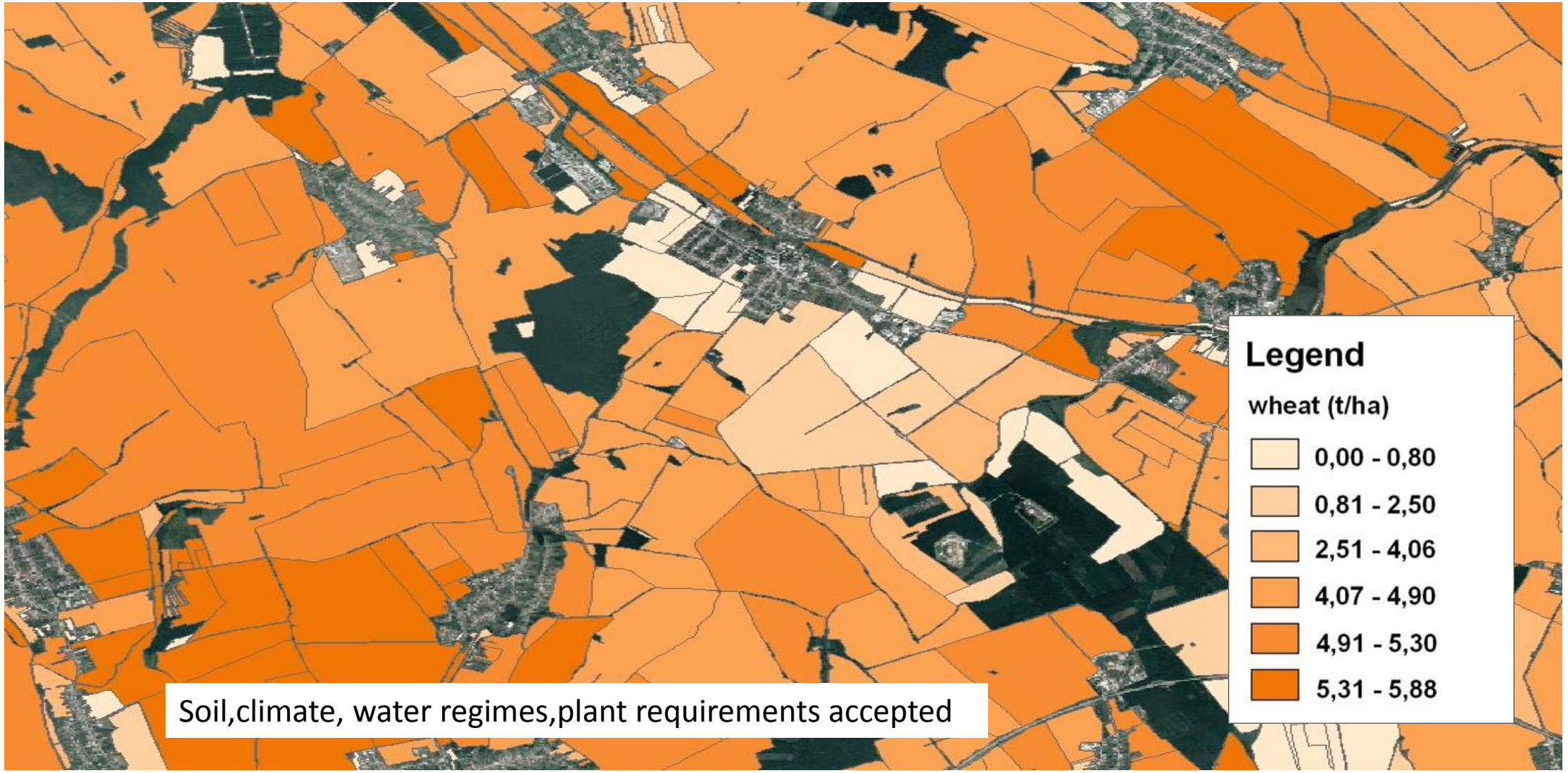
Nitrate Directive allocation



Less Favourable Areas (LFA) allocations



Suitability for winter wheat cultivation



Suitability for rape cultivation

Soil,climate,water regimes,plant requirements are accepted

Suitability for spring barley cultivation

Soil,climate,water regimes,plant requirements accepted

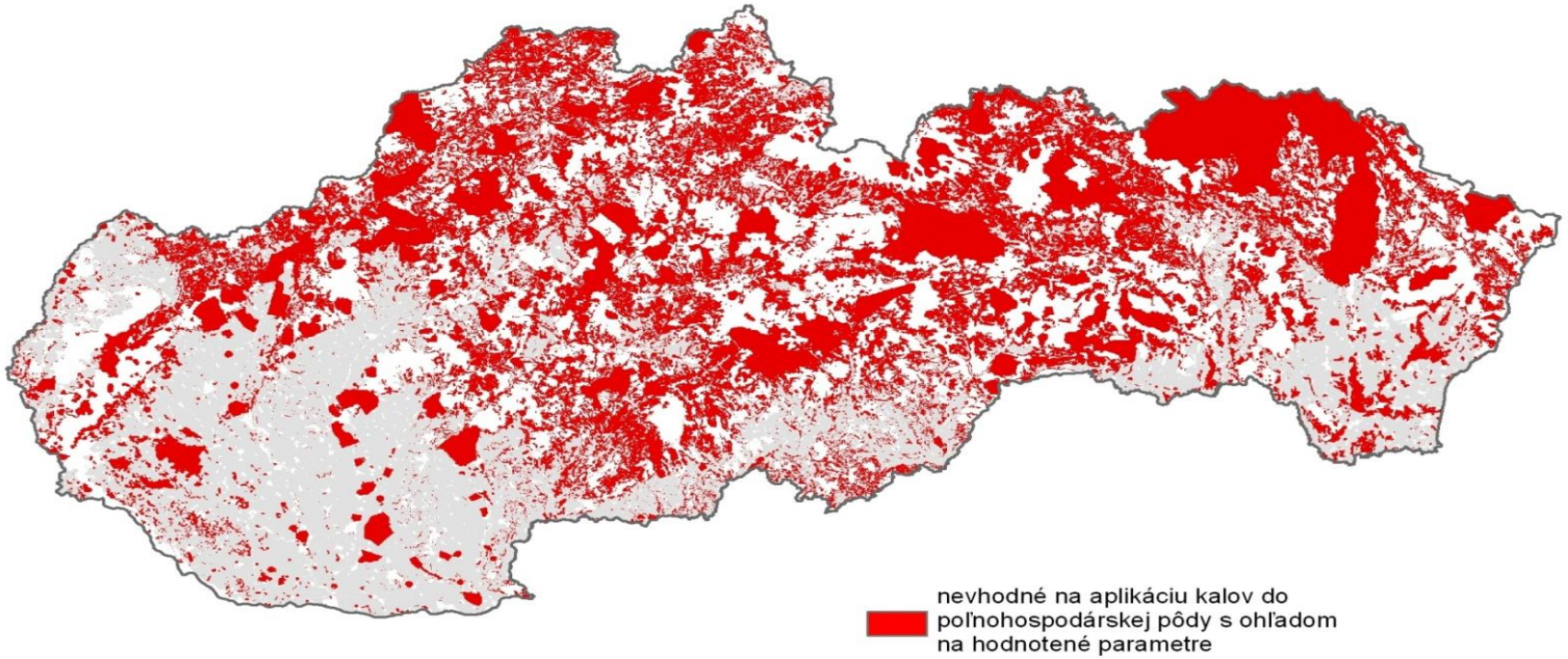
Suitability for maize cultivation

Soil, climate,water regime,plant requirements accepted

Suitability for sugar beet cultivation

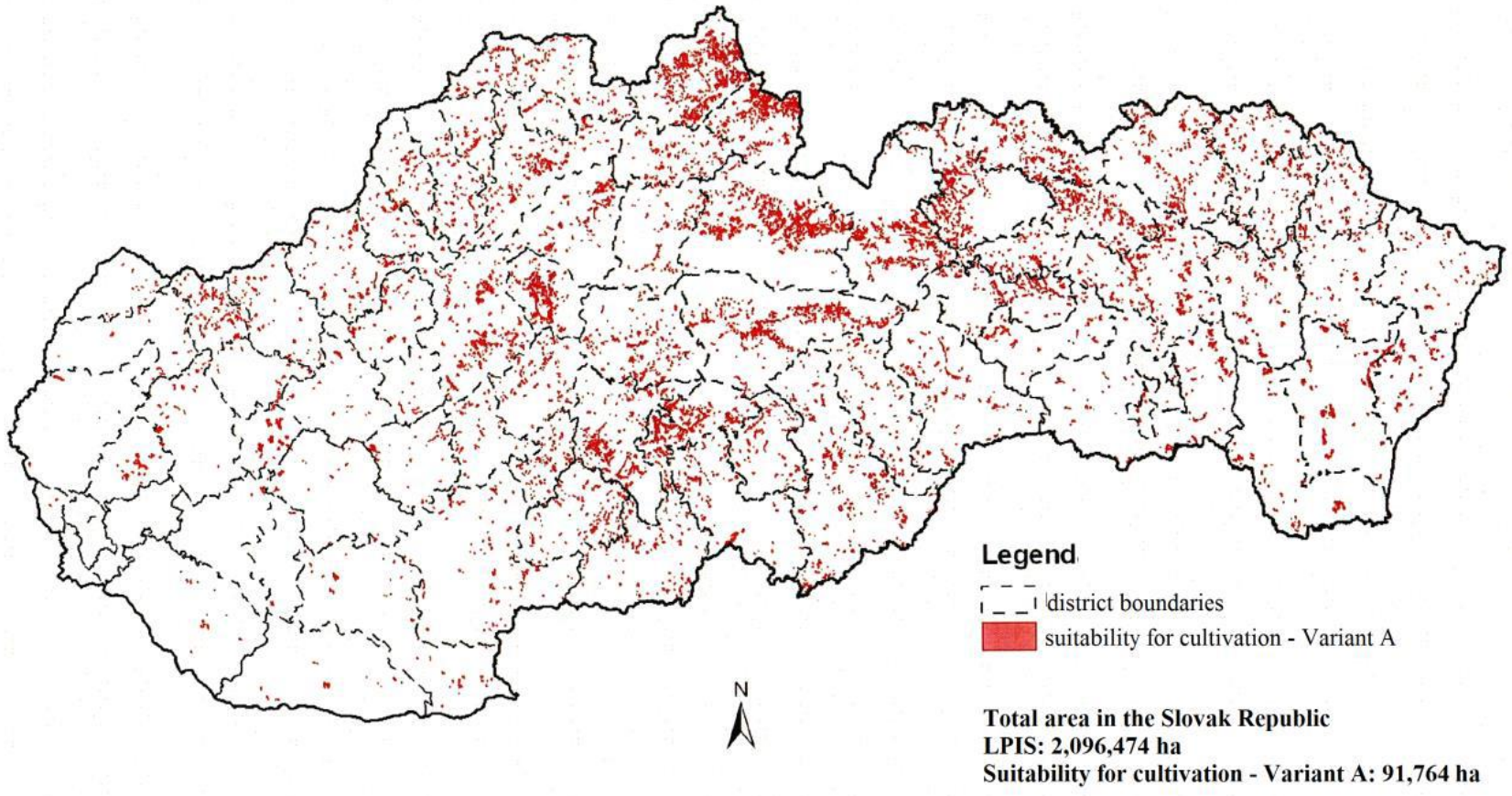
Soil,climate,water regime,plant requirements accepted

Not suitable soils for sewage sludge applications (according of principles of the Act 203/2009 - soil, geological, hydrological and another parameters applied)



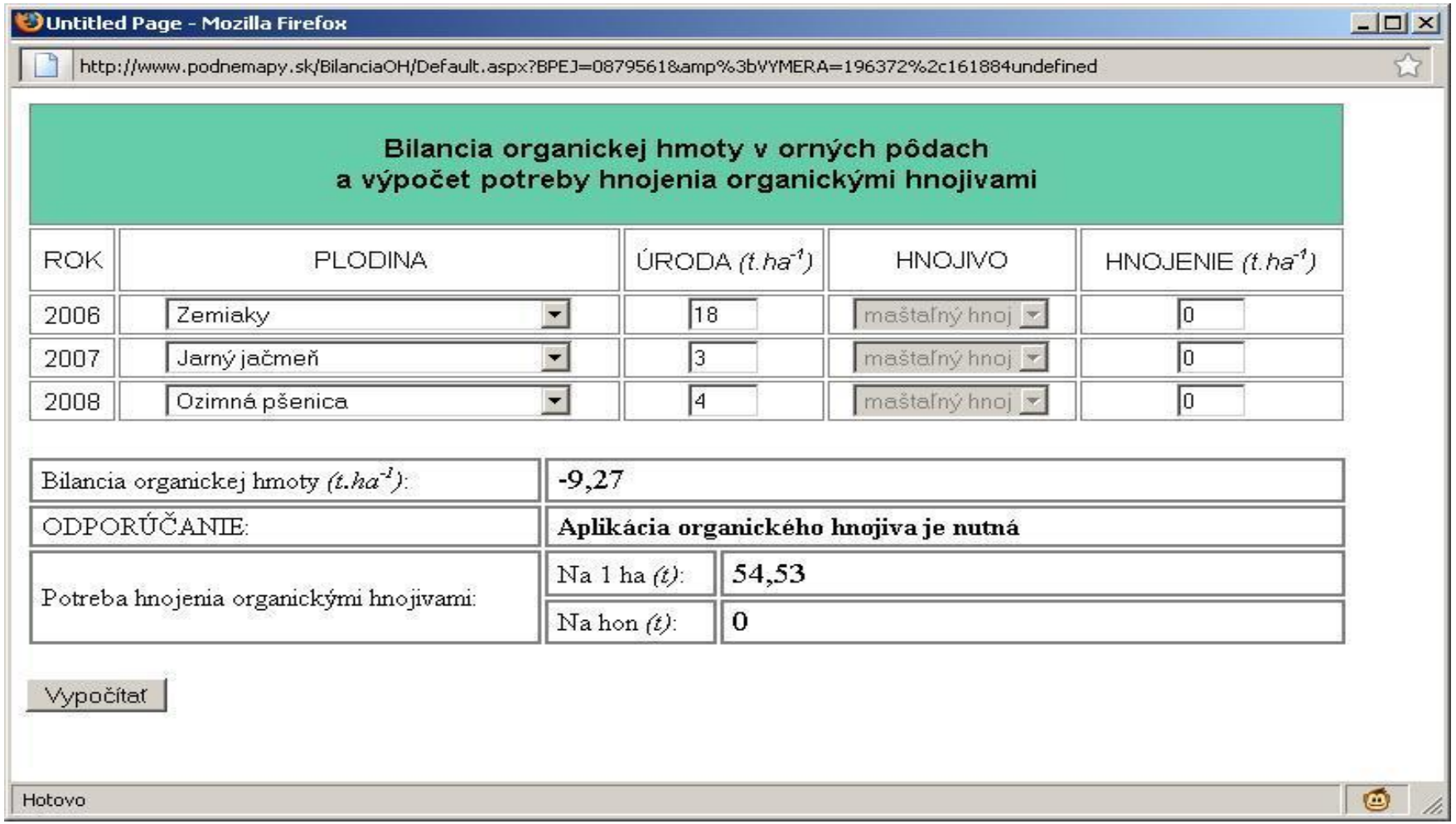
Non-suitable soils for sewage sludge applications

Soil suitability for cultivation of fast-growing energy tree species (soil parameters and plant needs are used)



Balance of soil organic matter – expert system

Find your field in soil information system, put name of cultivated plant, put data about yields,organic and inorganic fertilizers applications, ask for balance calculation (-9.27 t), and received how much organic fertilizers is necessary to aply



Several another products are available for all who need it

More information you can find in:

Bielek,P. Poľnohospodárske pôdy Slovenska a perspektívy ich využitia. Bratislava, VÚPOP, 2008,140pp.,ISBN 978-80-89128-41-9

Bielek,P-Jurčová,O. Metodika bilancie pôdnej organickej hmoty a stanovenie potreby organického hnojenia poľnohospodárskych pôd. Bratislava, VÚPOP,2010,145 pp., ISBN 978-80-89128-80-8

Bielek,P. Kompendium praktického pôdoznalectva. Nitra,SPU,2014,244pp., ISBN 978-80-552-1155-8

Bandlerová,A.-Bielek,P.-Schwarcz,P-Palšová,L. EU land policy-the pathway towards sustainable Europe. SPU Nitra, 2016, 222pp., ISBN 978-80-552-1499-3

www.vupop.sk

Thank you for your attention!

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