Overview of Soil Information and Soil protection policies in Greece

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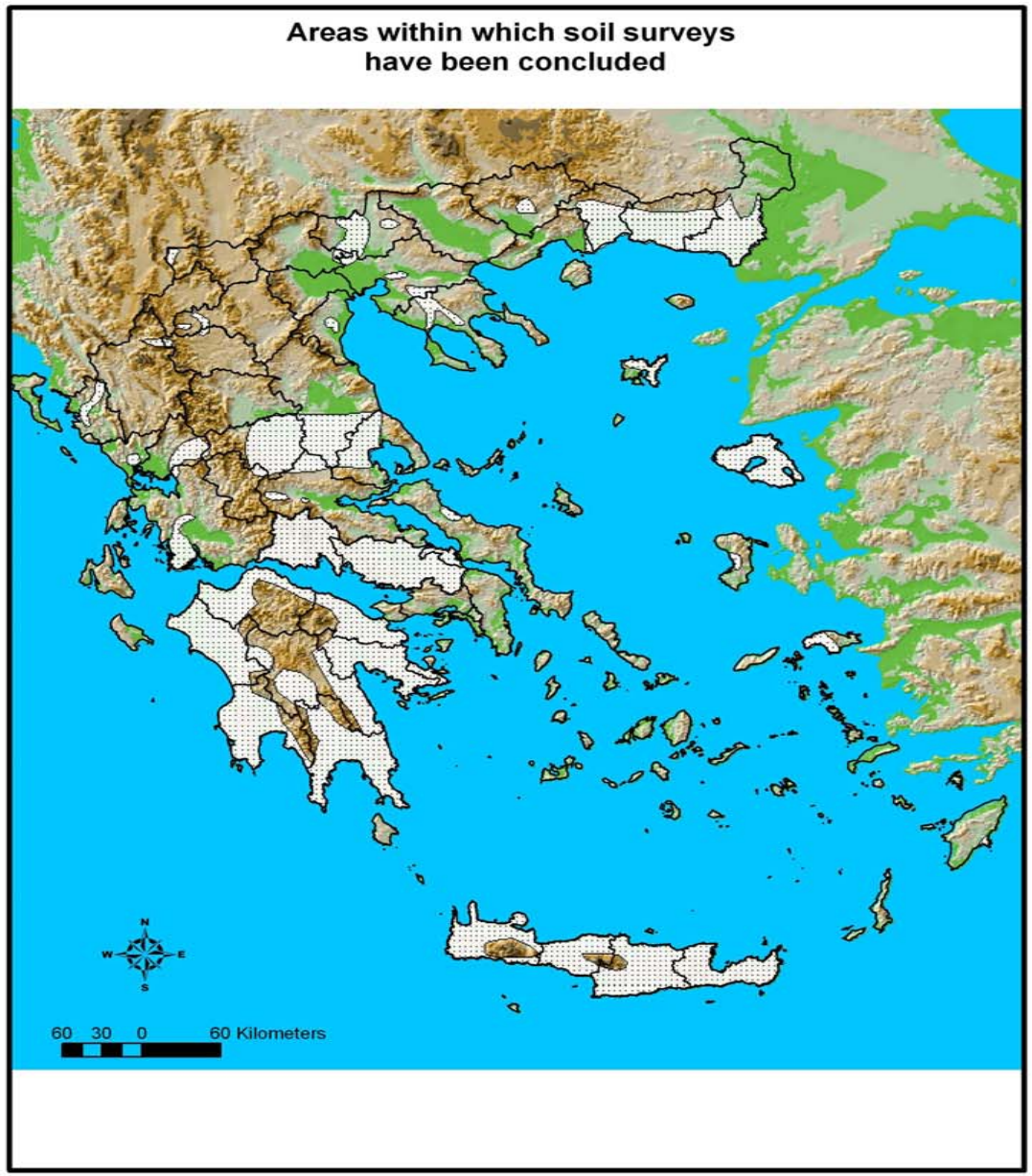
SOIL MAPPING-DATA AVAILABILITY

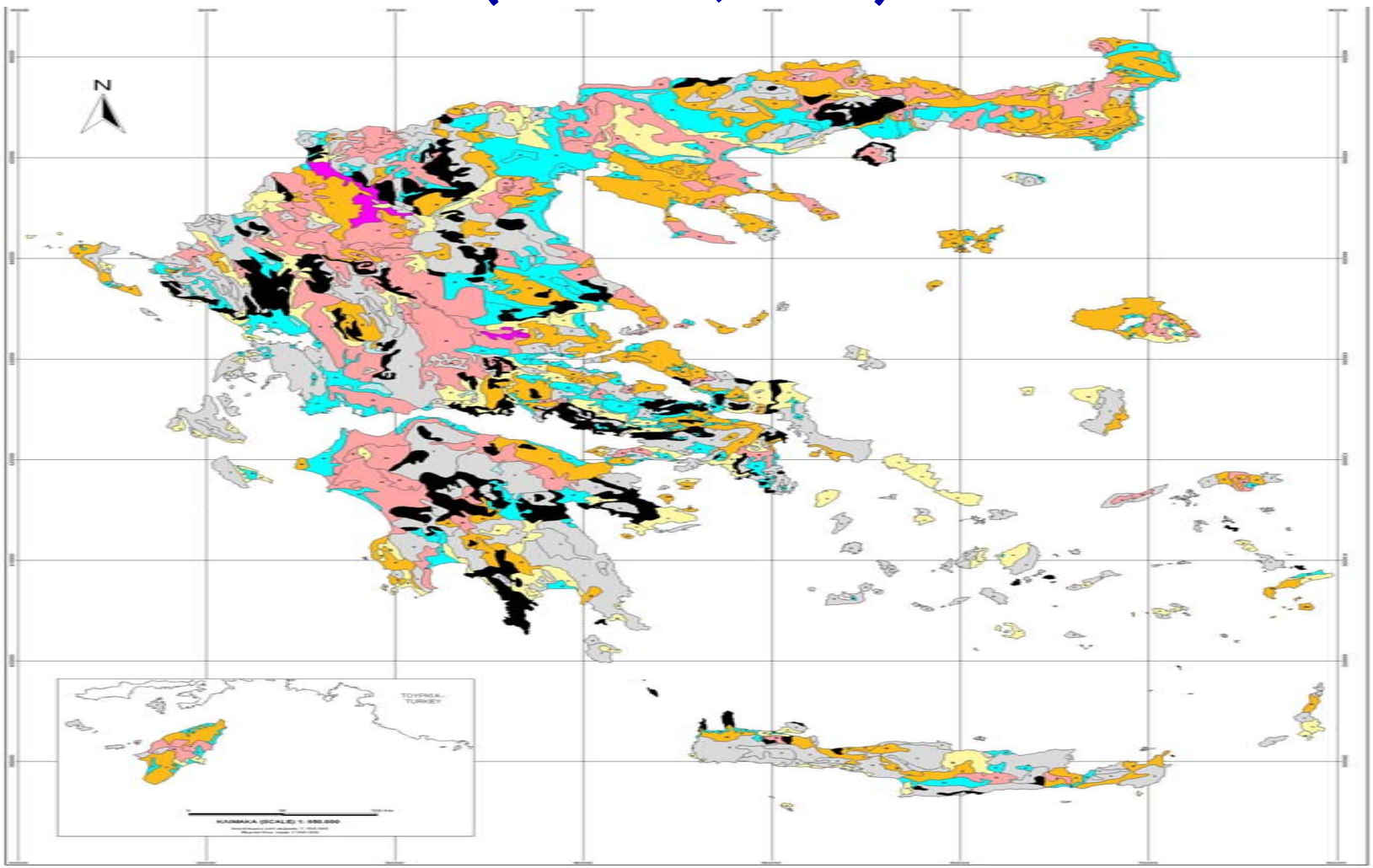
- Soil Mapping is carried out:
  - NAGREF:
    - Soil Science Institutes:
      - Athens, Larisa and Thessaloniki
    - Forestry Research Institutes:
      - Athens and Thessaloniki
  - Others:
    - Land Reclamation Service, Ministry of Rural Development & Food(MRD&F)
    - Agricultural University of Athens
    - Aristotle University of Thessaloniki
    - etc


Areas within which soil surveys
have been concluded
N
W
E
S
60 30 0 60 Kilometers

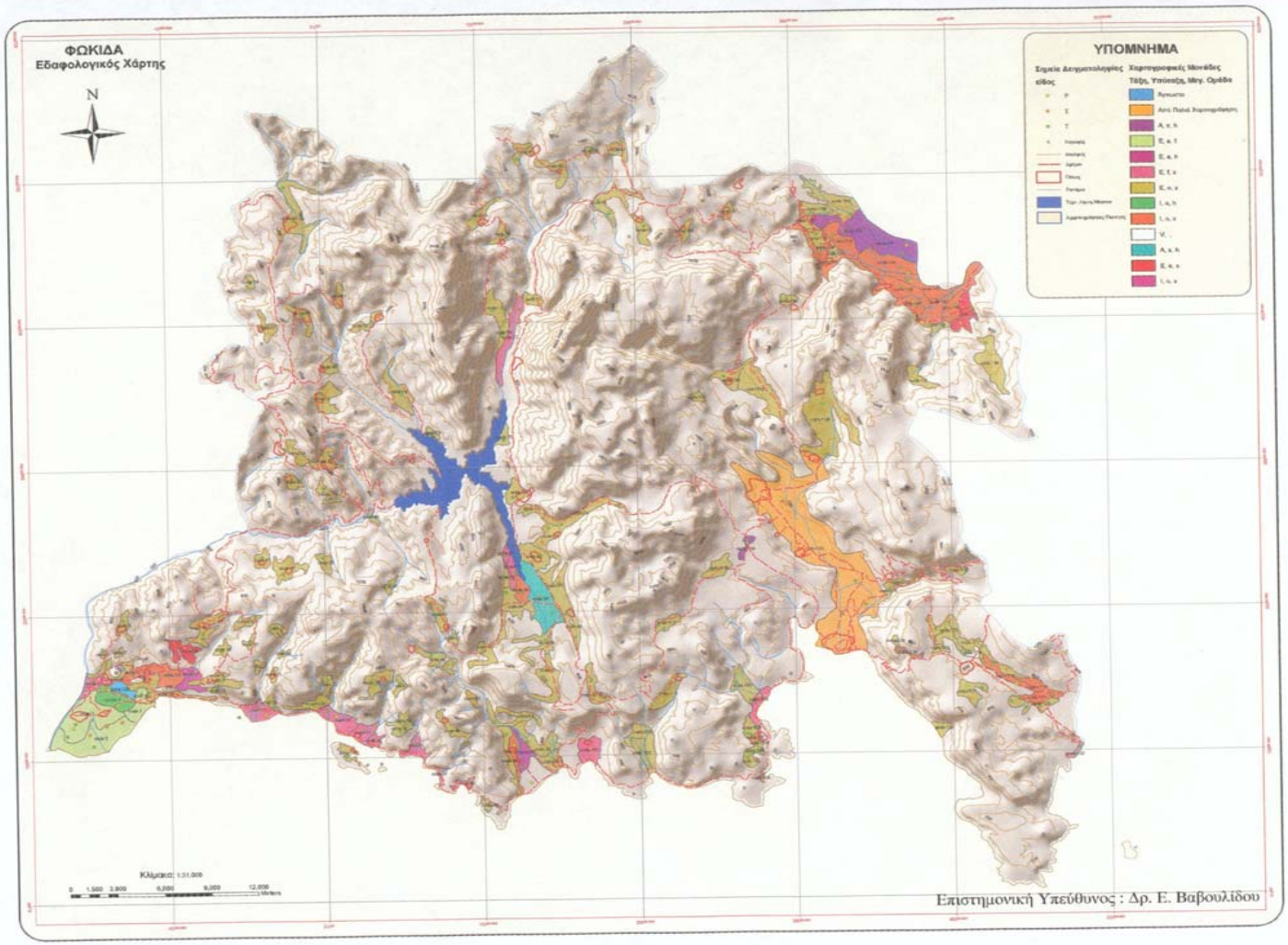
Area Mapped-Scale of the Mapping

- **Agricultural Land:**
  - **Area mapped:50%**
    - **2,000,000 ha (out of 3,943,590 ha)**
    - **Detailed mapping: 20% (780,000 ha)**
    - **In electronic form: 18% (350,000 ha)**
  - **Scale of mapping:**
    - **Deatailed, Semidetailed, reconnaissance, small scale**
- **Forestry Land:**
  - **100% in electronic form**
  - **Scale: 1:50,000**

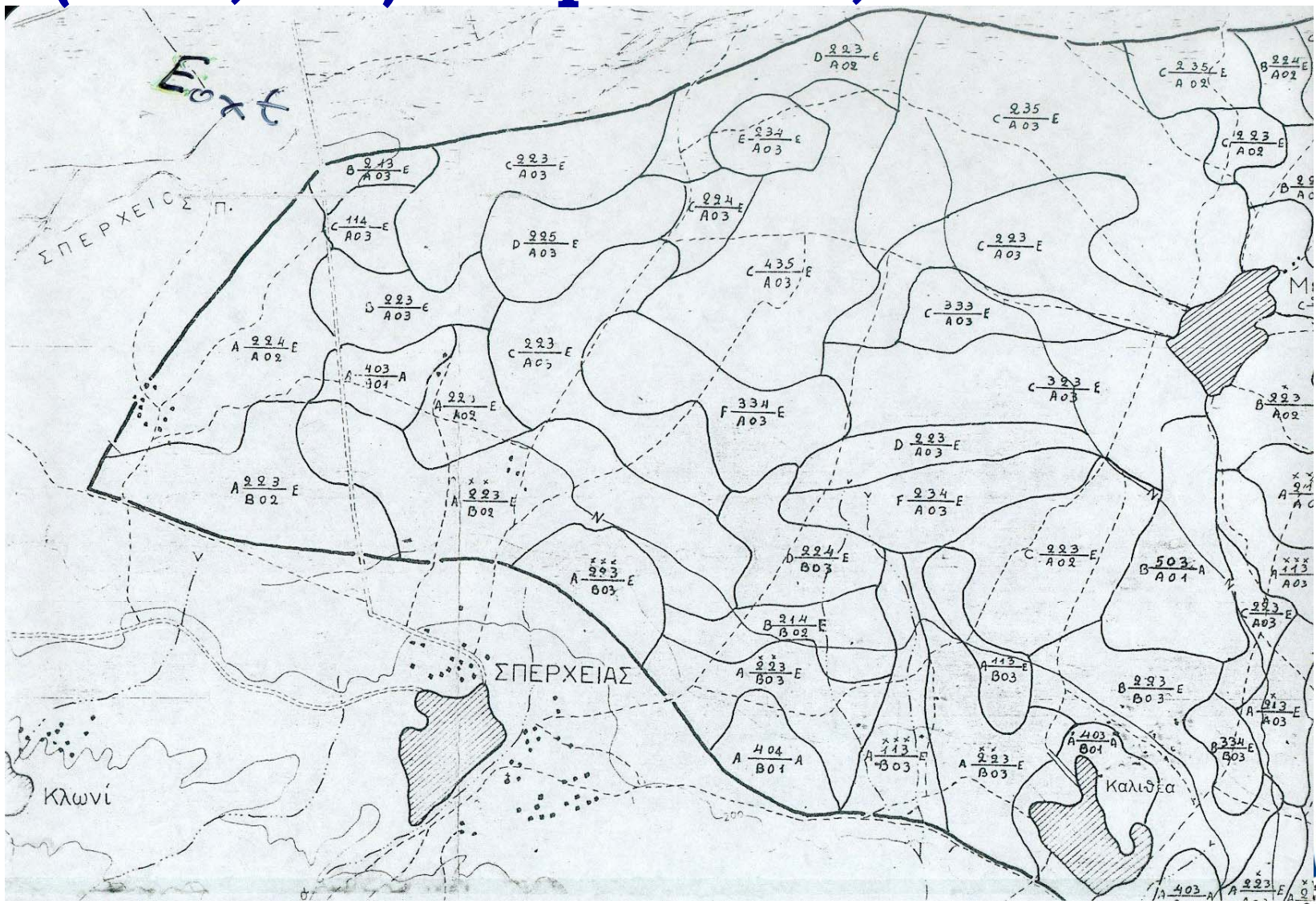
Soil Associations Map of Greece (1:500,000)



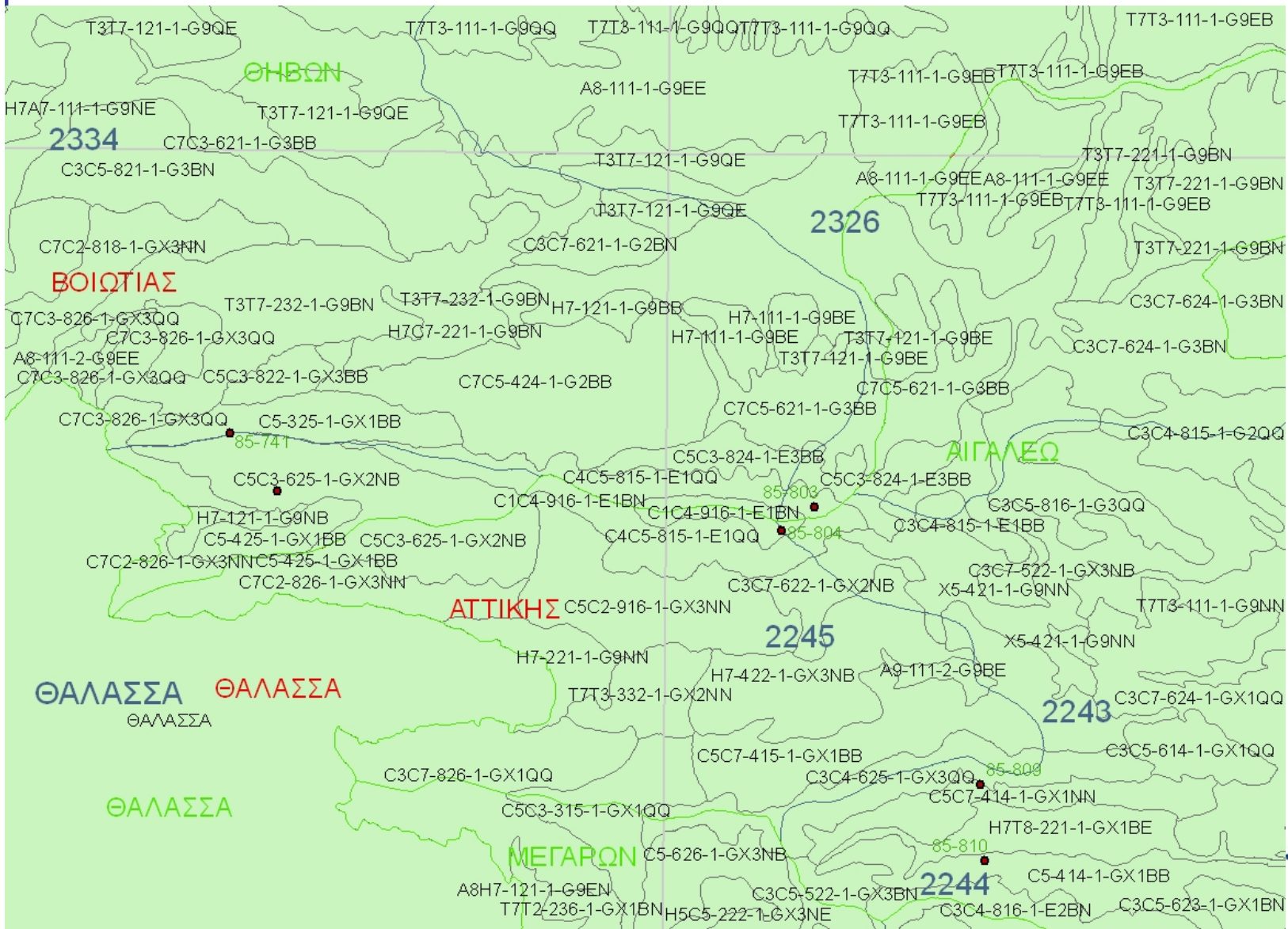
Digitized Soil Map of Fokis (1:100,00)



Sample of non Digitized Soil Map (1:20,000) of Sperchias, C. Greece.



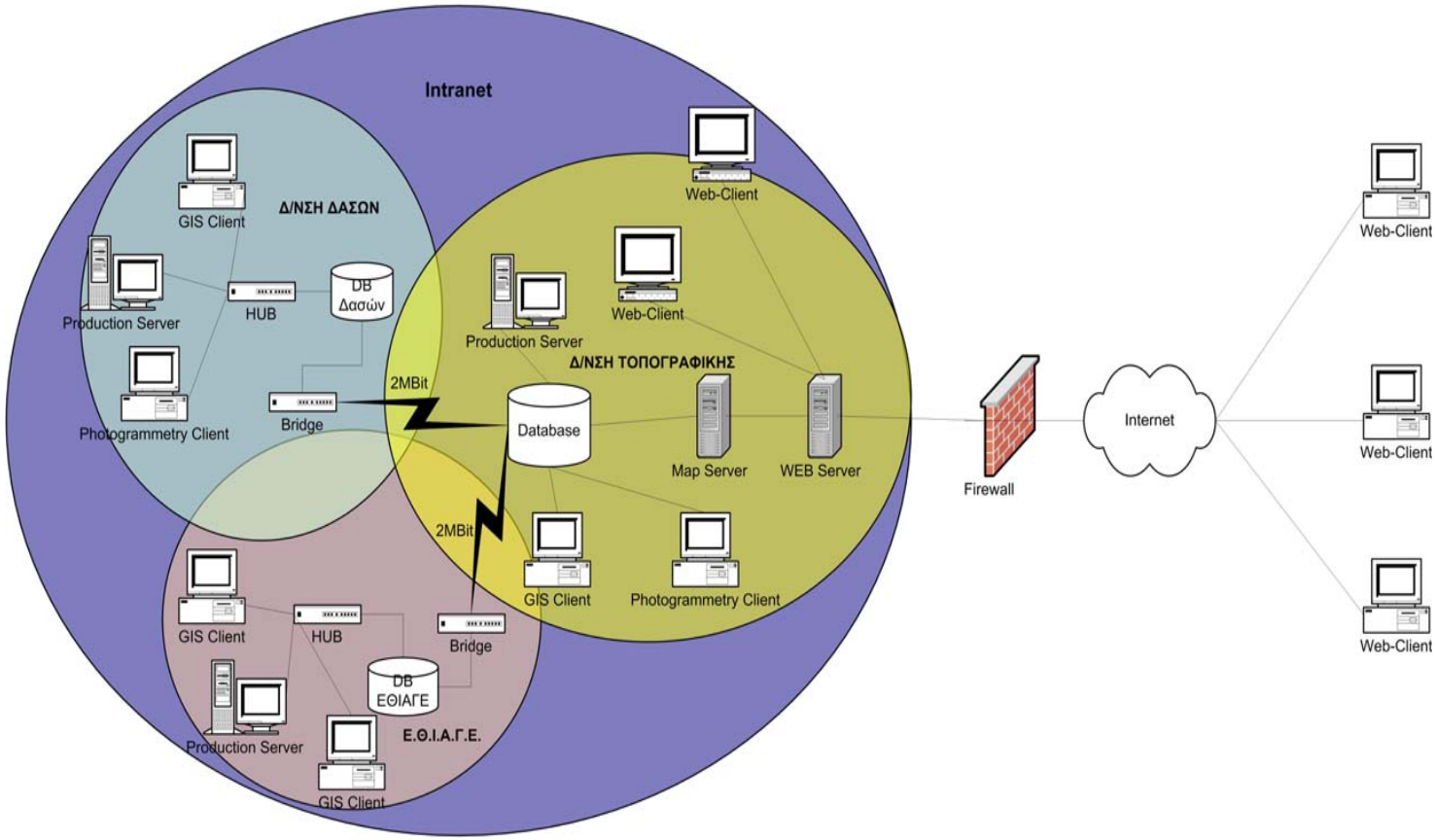
Forestry Land Map



SOIL INFORMATION SYSTES (SIS)

- **Data bases**
  - **NAGREF**
    - **Soil Science Institutes**
    - **Forestry Research Insitutes**
  - **Agricultural Universities**
  - **AGRO-Land (Public Agricultural Land)**
- **Problems:**
  - **not all data in electronic form**
  - **not interconected**
  - **data not widely used**

GIS System for Dissemination of Agricultural Spatial Data



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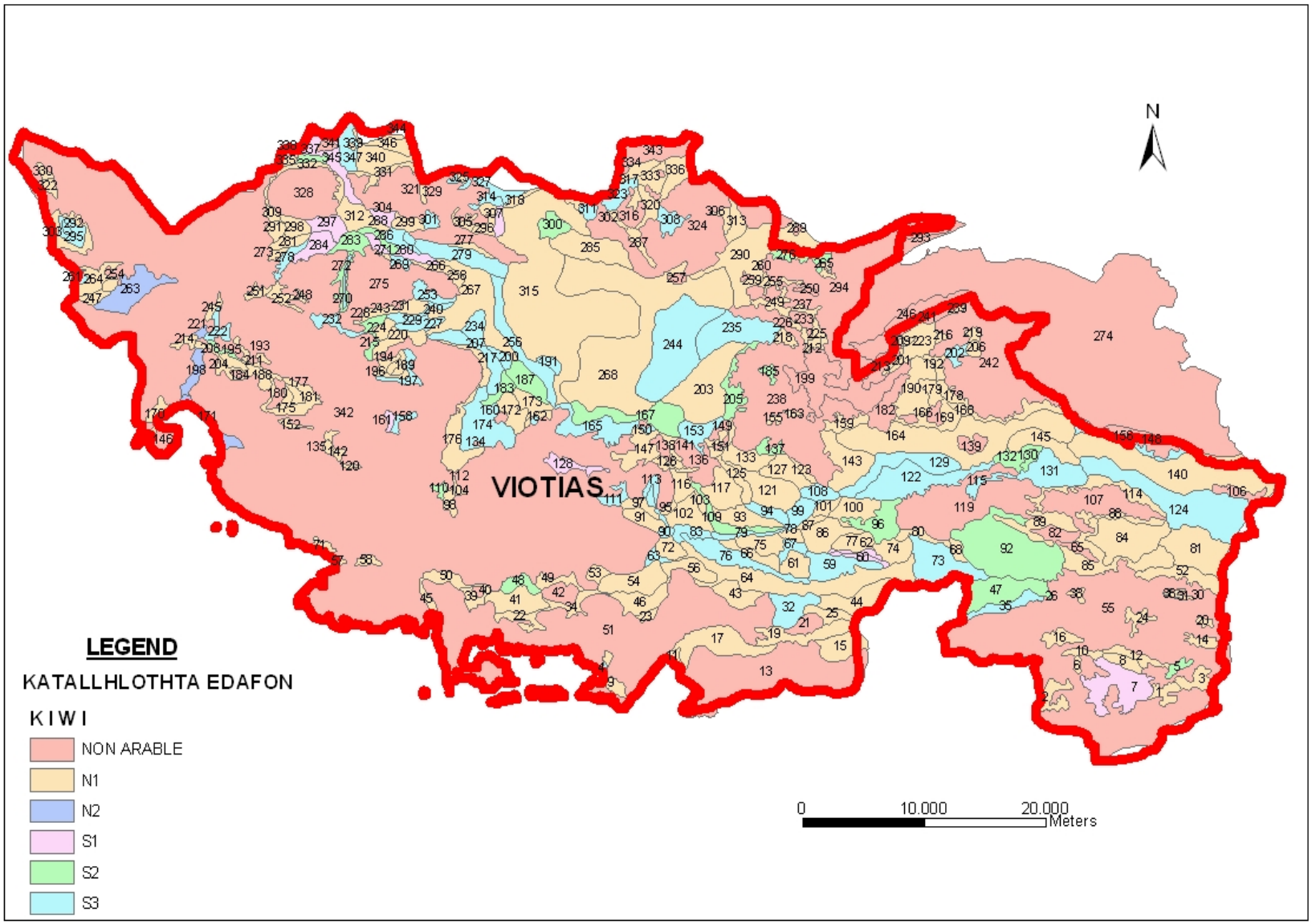
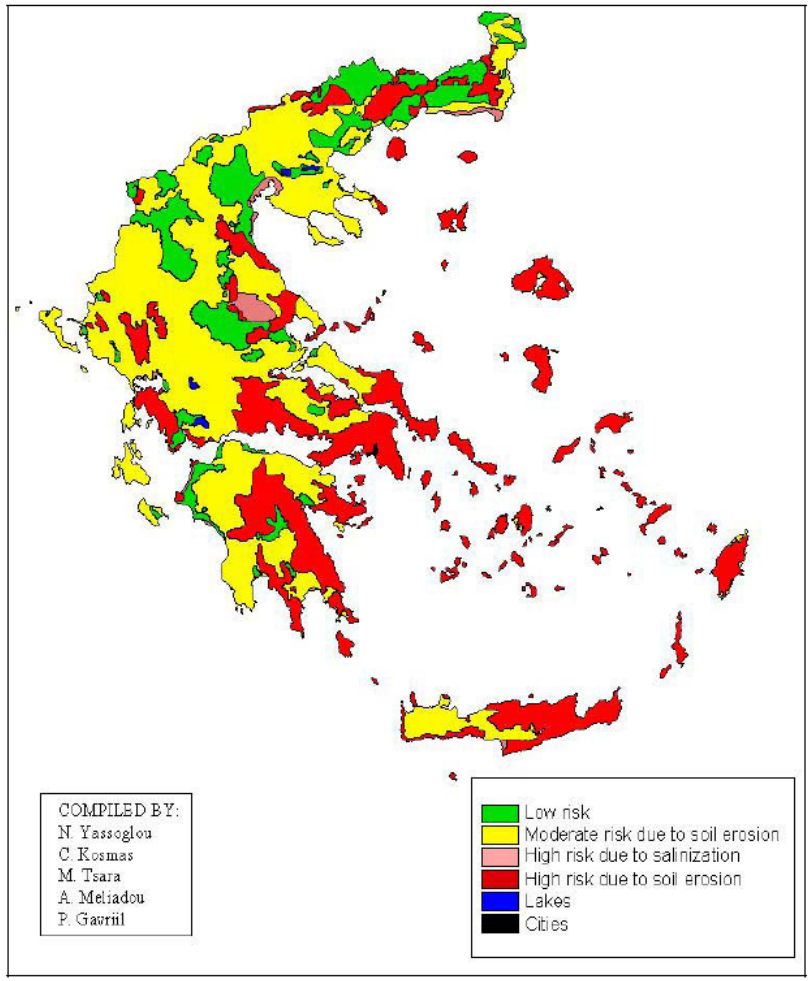
Use of SIS-Land Evaluation

- **Maps of:**
  - **Land capability**
  - **Land suitability/crop selection**
  - **Fertilization of crops**
  - **Land degradation**
  - **Environmental assessment**
  - **Land reclamation**

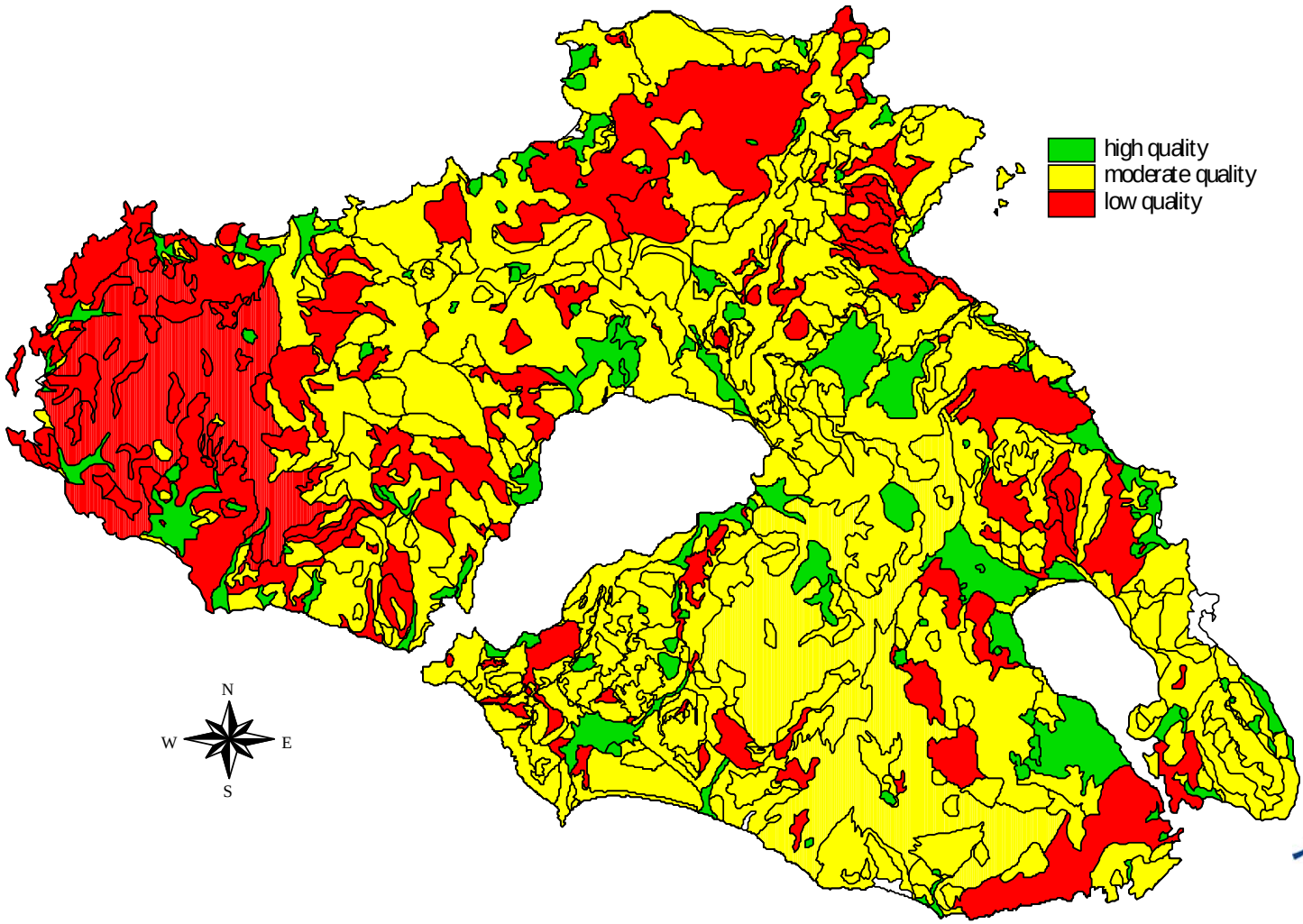
LAND SUITABILITY FOR KIWI FRUIT



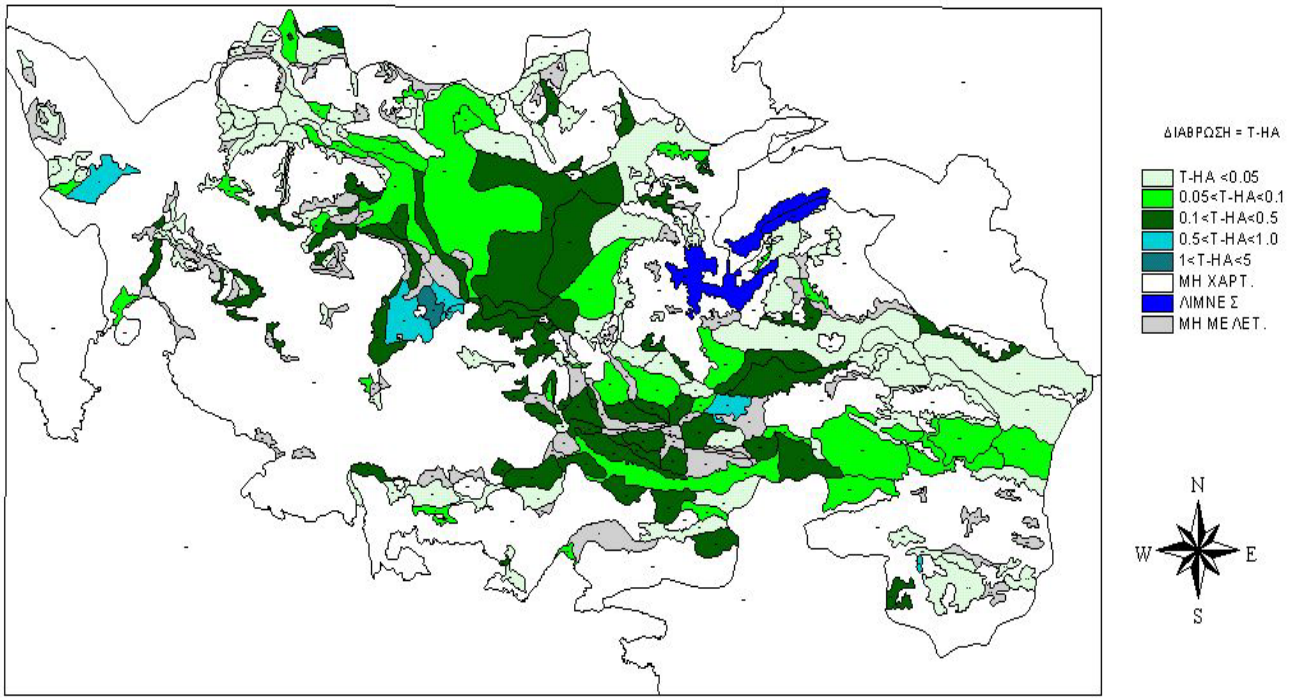
Desertification Risk Map



Environmentally Sesnsitive Areas (Kosmas et al., 2005)

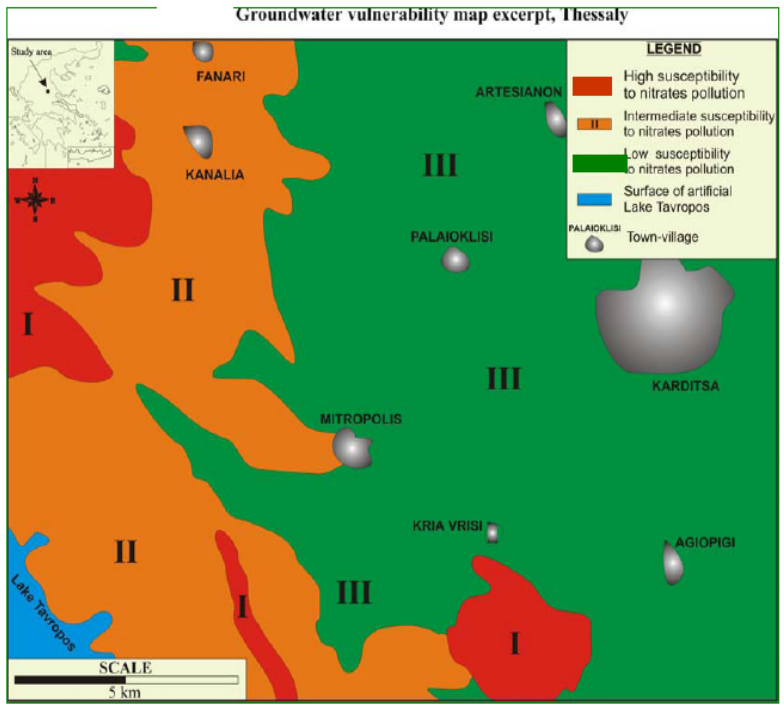


Predicted Erosion Rates (Theocharopoulos et al., 1996)

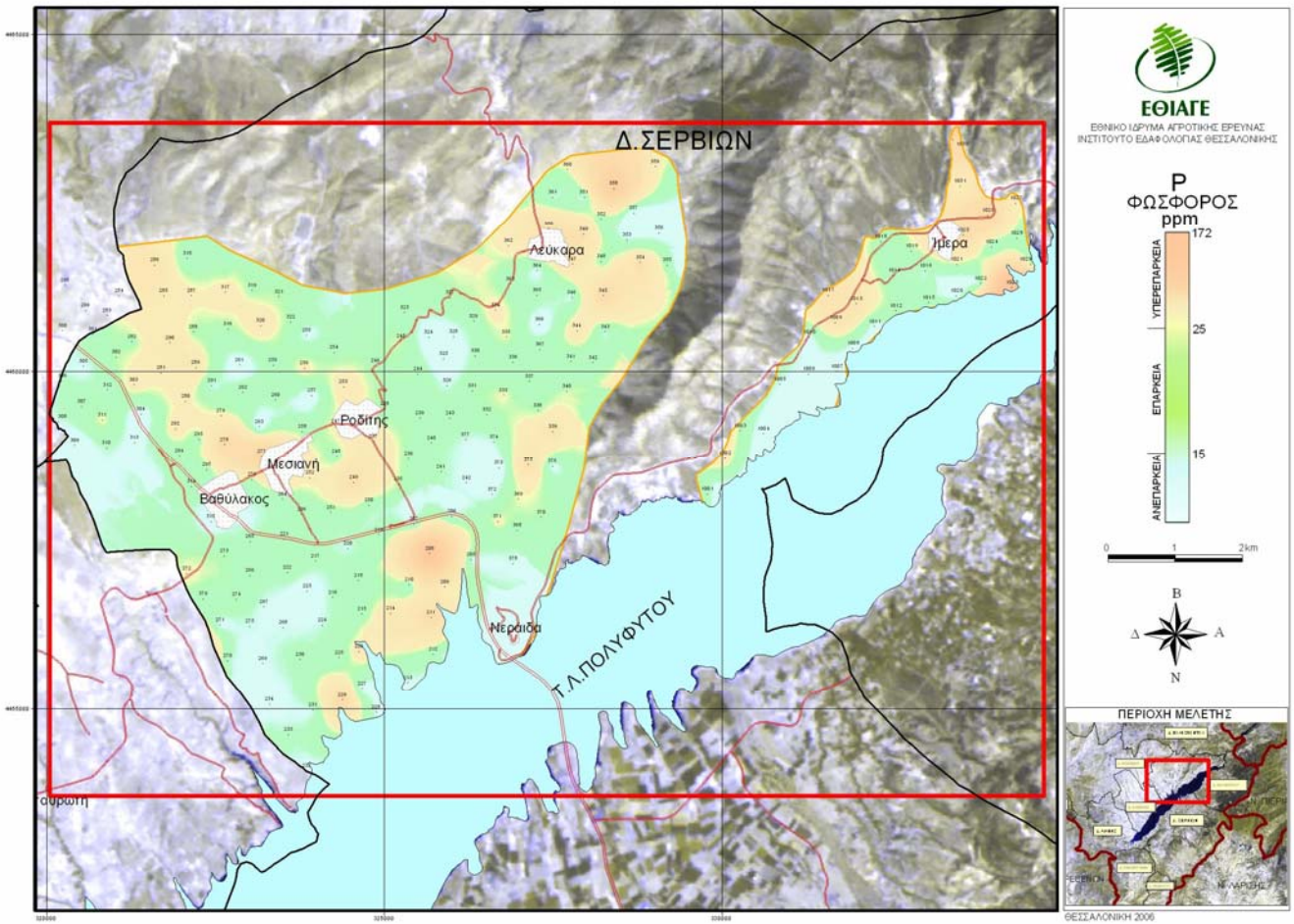


Potential Risk of Nitrates Pollution (Karyotis et al.,2002)

Soil Class	Total Nitrogen kg/ha	Applications	Total irrigation mm	Applications
I	8	3	400	13
II	13	3	350	10
III	11	3	300	8
IV	2	1	200	8
V	Not	suitable	for	Cotton
VI	11	3	400	13
VII	11	3	350	10
VIII	8	3	300	8



P-Olsen in the soils of the Municipality of W.Serbion.



SOIL PROTECTION POLICY

- **Soil Threats Identified:**
  - **Erosion**
  - **Organic matter decline**
  - **Salinisation**
  - **Contamination**
  - **Compaction**
  - **Soil sealing**
  - **Decline of soil biodiversity**
  - **Floods and landslides**

Soil Monitoring

- Monitoring does not exist at the momment
- Forestry Research Institute of Athens:
  - effect of air pollution to the forest ecosystems
  - Reg. (EU): 3526/86,1091/94, 690/95, 1390/97
    - Level I: 15 forest experimental sites
    - Level II: 4 intensively monitored sites

Soil Protection Actions

- **Erosion:**
  - **National Committee to combat desertification prepared the National Action Plan**
- **Nitrates:**
  - **Action Plan: implementation of nitrates directive 91/676/EEC in the vulnerable to nitrate leaching areas.**

Soil Protection Actions

- **Organic Matter Decline:**
  - **code of Good Agricultural Practice (CGAP)**
- **Contamination:**
  - **sewage sludge use according to EC Council Dir 86/278)**
- **Compaction, biodiversity…**
  - **(CGAP)**

Soil Protection Actions (Indirectly)

- **Mininstry of RD& F**
  - **Agro-environment Programme:**
    - **Reg (EU) 1257/99 incorporates environment to rural development, friendly to the environment practices:**
      - **anti-erosion measures**
      - **nitrares**
      - **protection of soils through water ecosystems protection (lake etc)**
      - **other initiatives**
        - » **organic farming**
        - » **extensification of animal husbandry**
        - » **long time set aside land**
        - » **protection of slopping landscape**
        - » **etc**

CONCLUSIONS & RECOMMENDATIONS

- **Global Sustainable Development**
  - **EU: New CAP, WTO seeks for:**
    - **safe, healthy, competitive, and top-quality food**
    - **sustainable rural development**
    - **protection of the environment and face the climate change**
    - **knowledge base and system economy at the service of:**
      - **policy, industry, civil society and scientific community**
  - **Enhances use of soil map and soil databases**
  - **Growing demand for soil data, monitoring and protection**

CONCLUSIONS & RECOMMENDATIONS

- **Soil data should be digitized and stored in global, user friendly GIS, linked to national and international bases:**
  - **Mapping (traditional or digital) of agricultural land should be completed (if not at detailed scale at least to semidetailed)**
  - **Research and pilot projects using new technologies in collecting, classifying, developing pedotranfer functions to manage and interpret and use soil data, should be enhanced.**

CONCLUSIONS & RECOMMENDATIONS

- **A National Harmonized (at EU scale) Monitoring System, has to be established in each EU Country Member:**
  - based on new technologies
  - minimum set of parameters/indicators
  - quality control/assurance procedures of soil sampling, treatment and analysis
  - traceability rules to be followed

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