Temporal Comparison of Habitat Mapping in Natura 2000 Wetlands of Cyprus: Insights from Local Surveys and CORINE Land Cover Data

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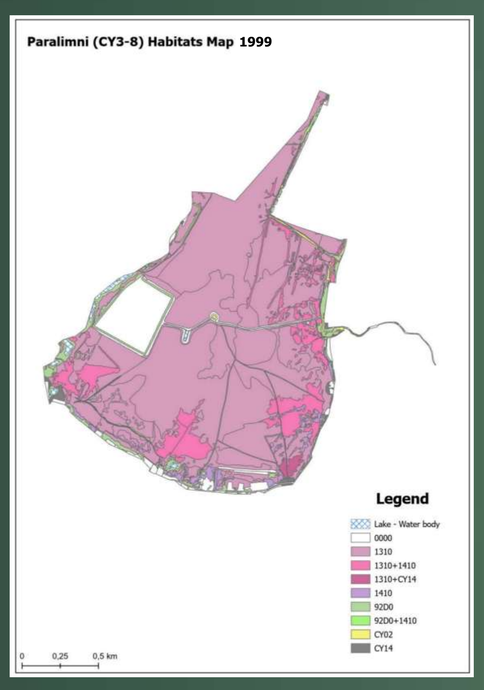
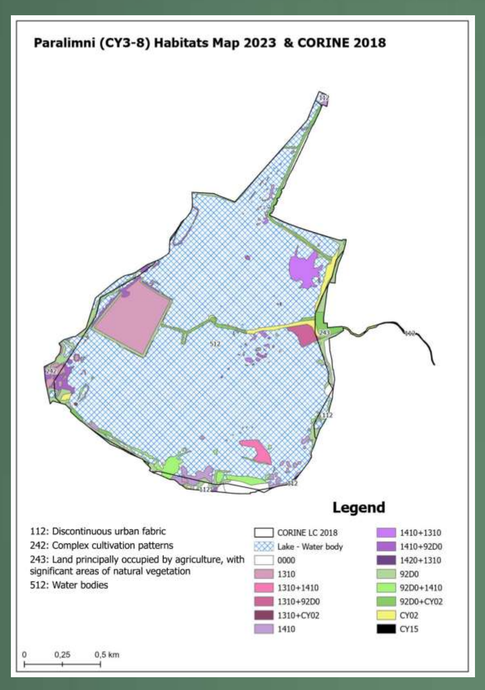
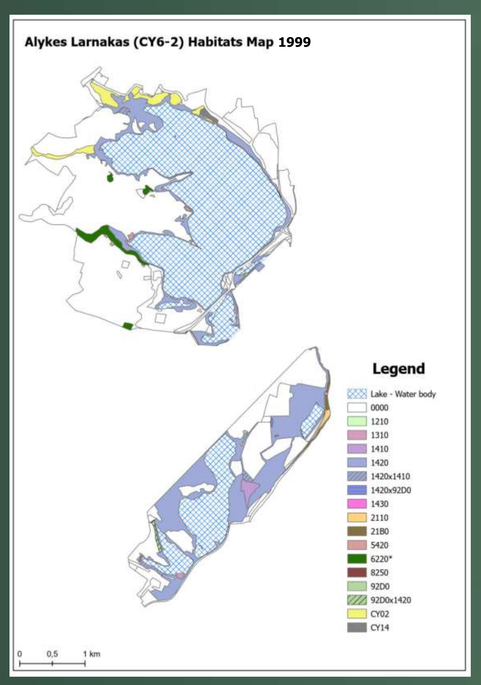
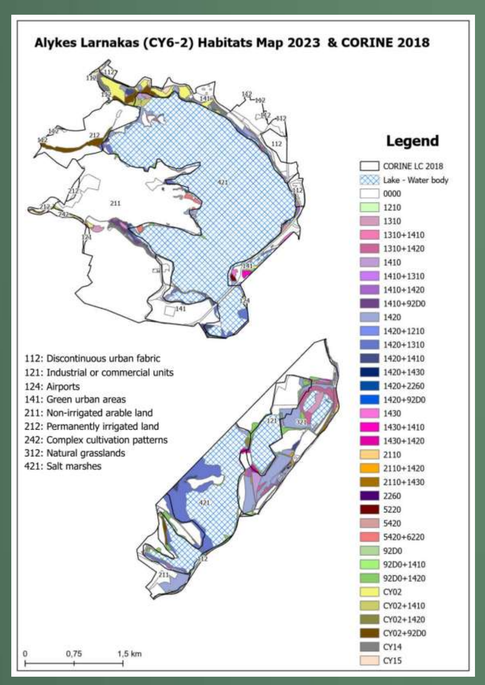
Introduction

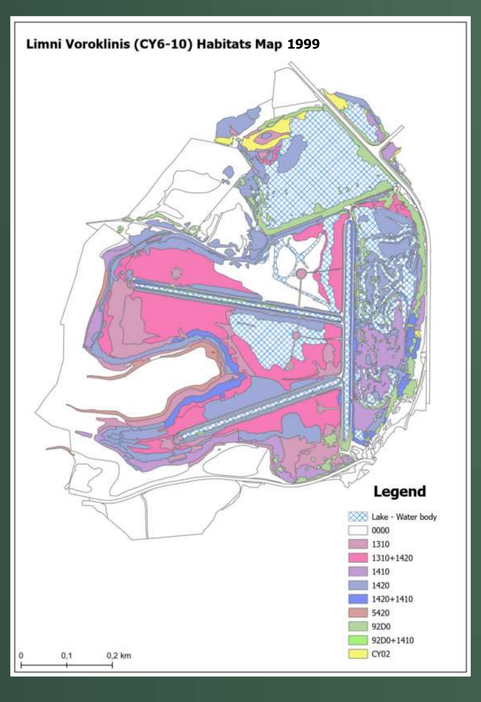
Wetlands are dynamic ecosystems critical for biodiversity conservation and ecosystem services, particularly those designated under the Natura 2000 network. This study examines temporal changes in habitat types across three Natura 2000 wetland sites of Cyprus (Limni Paralimniou – CY3000008, Alykes Larnakas – CY6000002 and Limni Oroklinis – CY6000010) using detailed habitat mapping conducted in two different periods (1999 and 2023). The mapped data were analyzed to assess spatial and compositional changes in habitat types and the 2023 data was also compared with CORINE Land Cover data (2018) to evaluate the consistency and accuracy of broad-scale datasets in capturing local habitat dynamics.

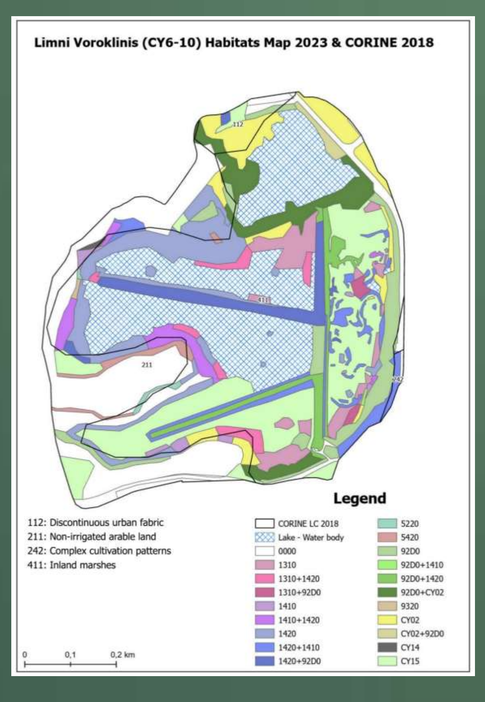










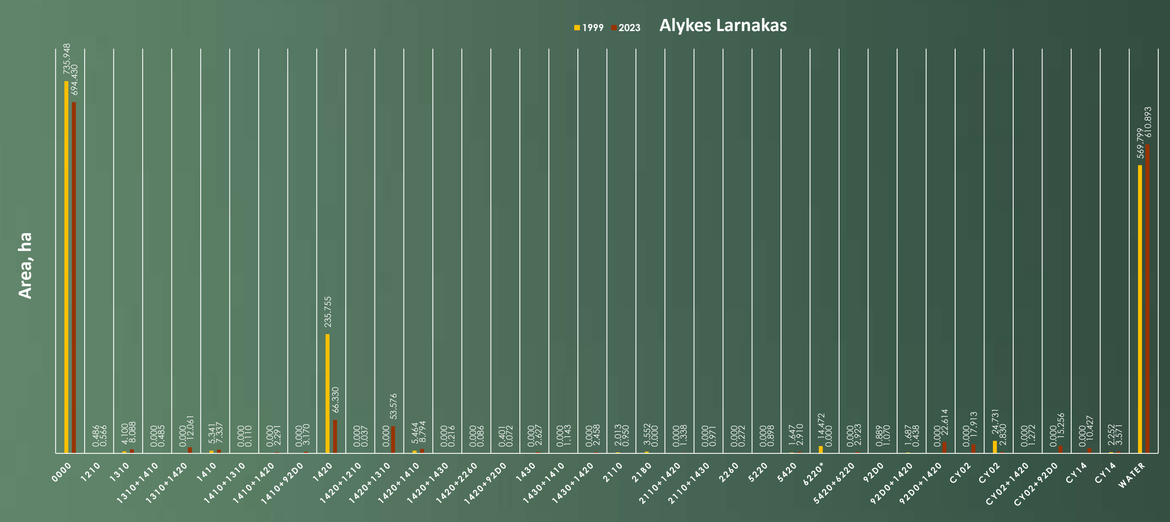


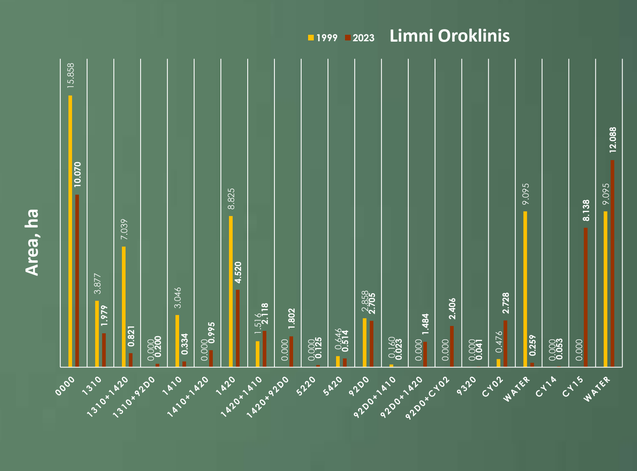
Codes with four numeric digits correspond to Annex I habitat types of the Directive 92/43/EEC. '0000' refers to areas without natural vegetation.

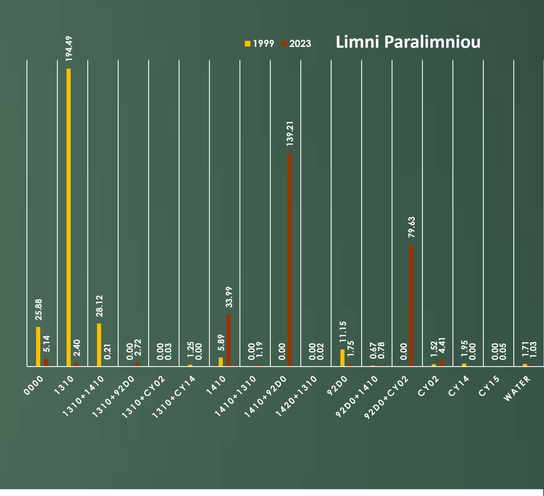
Results

Comparing 2023 habitat mapping to 1999 mapping:

- The presence of annual species that constitute habitat type 1310 (pioneer ephemeral communities) has decreased, while the presence of salt meadows (1410), halophilous scrub (1420) and riparian galleries (92D0) has increased in Limni Paralimniou.
- The pattern of different plant communities and mixed habitat types (mosaic vegetation) has increased in Alykes Larnakas.
- The overall presence of halophytic habitat types has decreased, while riparian galleries (Tamarix shrubs) and reeds have increased.
- The discrepancy between CORINE classifications and ground surveys highlights a significant mismatch between the vegetation observed in the field and the inconsistent performance of land cover captured by CORINE. This observation is particularly evident in transitional habitats, where discrepancies in habitat classification thresholds and spatial resolution become apparent. For example:
  - ❖ In Paralimni, the CORINE code 512 overlaps with nine (9) different habitat types observed in the field.
  - ❖ In Alykes Larnakas, the CORINE code 141 overlaps with eight (8) different habitat types observed in the field.
  - ❖ In Limni Voroklini, the CORINE code 411 overlaps with fourteen (14) different habitat types observed in the field.







Conclusions

- Differences in habitat mapping between years 1999 and 2023 may be attributed to:
  - ❖ ecological succession in Limni Paralimniou
  - ❖ more precise mapping in Alykes Larnakas
  - ❖ climate change-induced droughts, the spread of invasive species (reeds), land-use changes, and water management interventions in Limni Oroklinis
- The CORINE land cover inventory is coarse and not suitable for small areas, leading to inaccurate results. In CORINE, the minimum polygon size is 25 ha, and the minimum detectable change in land cover is 5 ha, which does not support fine-scale mapping.
- Overall: there is a need for regular and detailed monitoring of Natura 2000 wetlands for a better understanding of ecosystem trajectories and support adaptive management strategies in response to anthropogenic pressures and climate change.

Project Partners:

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