

DEVELOPMENT AND HISTORY OF PONDS IN THE AUSTRIAN LANDSCAPE

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Introduction

Carp farming has been practiced in Austria since the 12th century, with a peak in the 16th century. Today it is concentrated in north-western Lower Austria (NUTS 3 region*: Waldviertel) and southern and eastern Styria (NUTS 3 regions*: East Styria and South and West Styria). Ponds are important elements of the cultural landscape, but as the cultural landscape changes over the centuries, ponds disappear and reappear over time. Ponds play an important role in the landscape. They replace lost small water bodies, increase biodiversity and serve to retain and provide water in the landscape. With this in mind, it is worth looking back historically to explore the potential for restoring or revitalising old ponds.

* https://en.wikipedia.org/w/index.php?title=Nomenclature_of_Territorial_Units_for_Statistics&oldid=1168714259, 2023-08-09

Material and Methods

Digital georeferenced maps of the entire Austrian territory in WMTS format are available free of charge at www.basemap.de. Digital georeferenced historical maps in WMTS format (e.g. Franziszeischer Kataster 19th century) are partly available free of charge via the federal provinces (e.g. Styria) or for a fee via the map service www.mapire.eu. On the basis of this map material, selected areas in the three NUTS 3 regions mentioned above were investigated with regard to their current and historical stock of ponds. In addition, one area in the NUTS 3 region Weinviertel was included in the study. The data were processed with the free open source software QGIS (www.qgis.org).

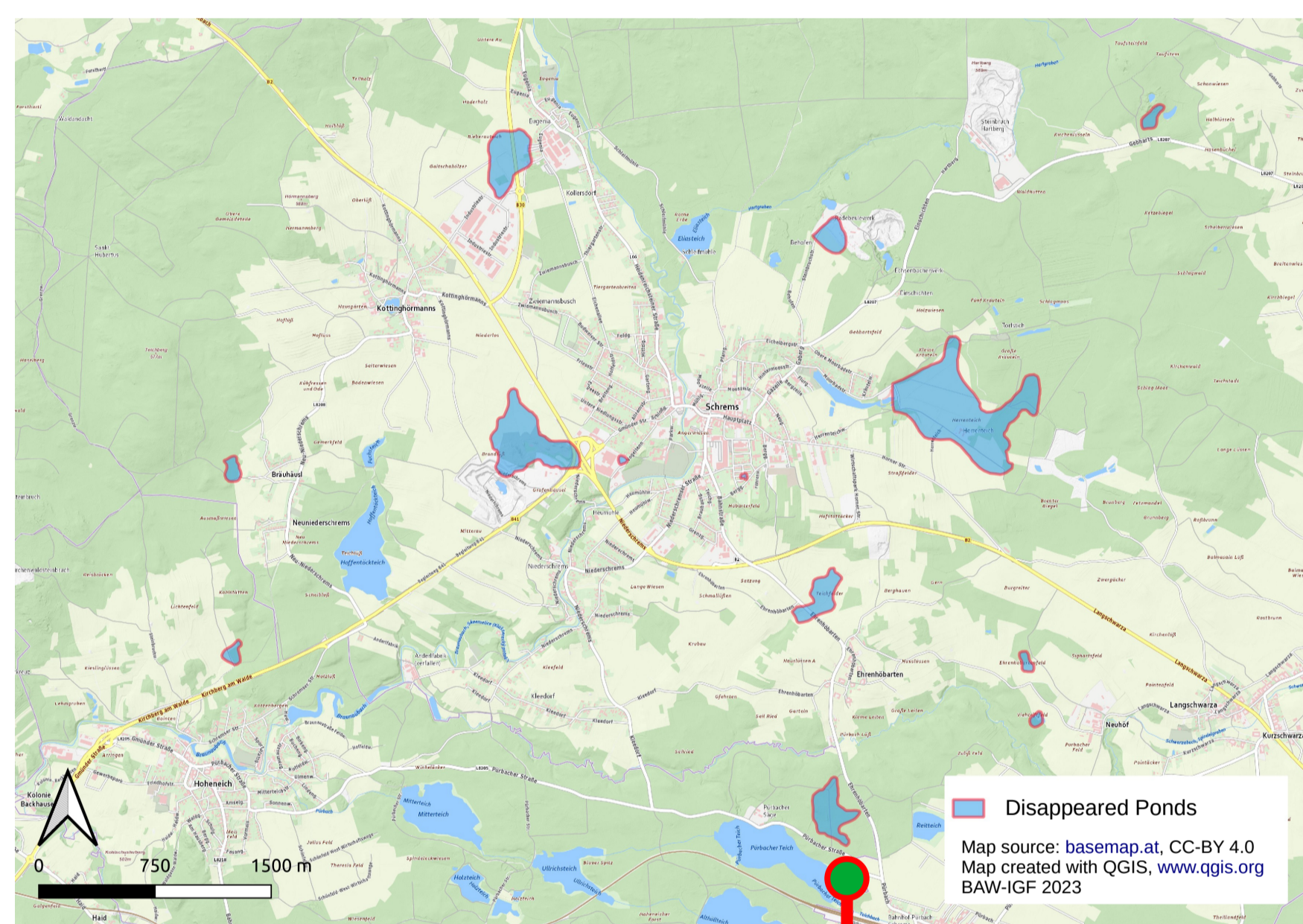


Figure 2: Map of Schrems surroundings (Lower Austria) depicting still existing and disappeared ponds (red outlined).

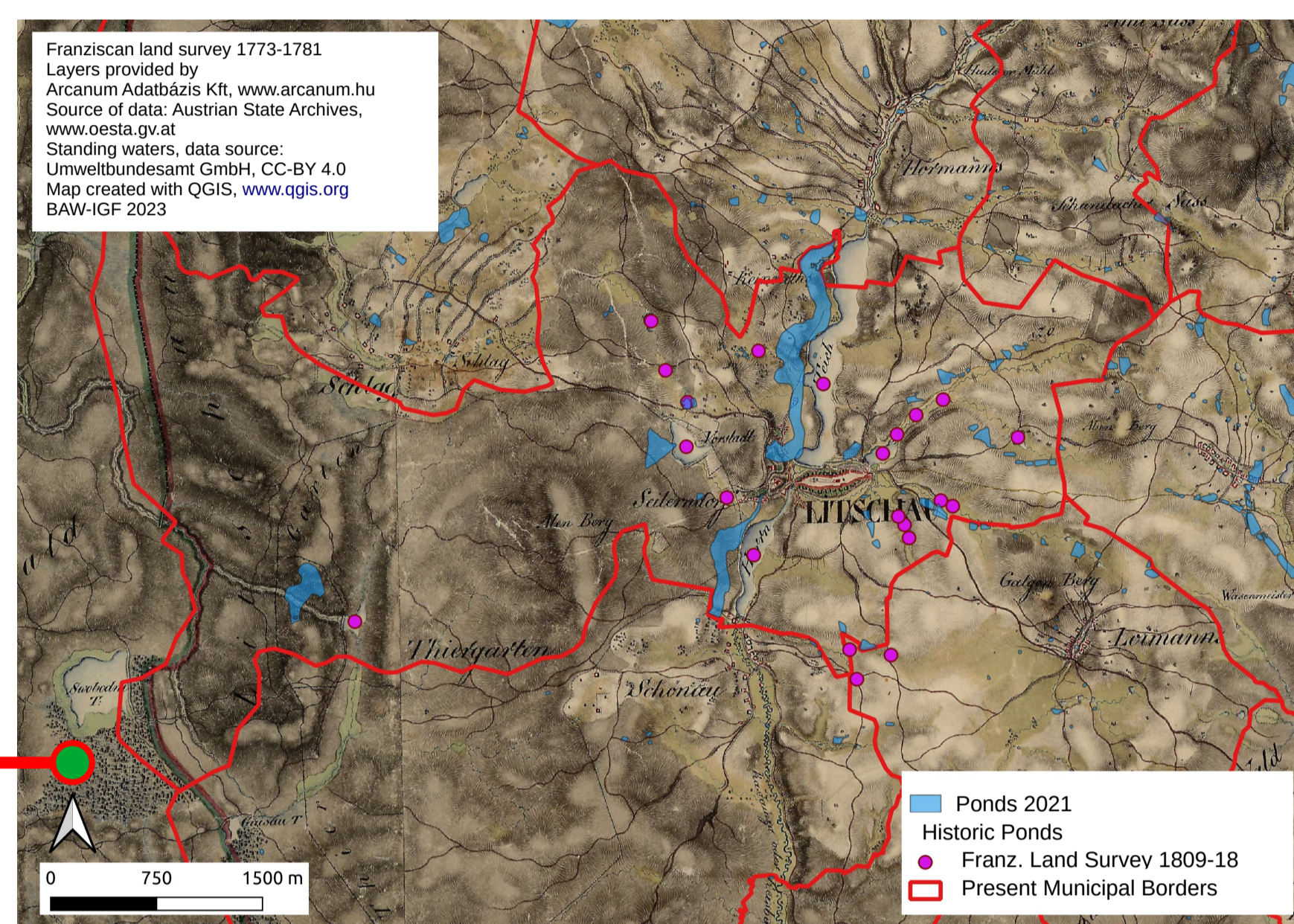


Figure 1: Historical map of Litschau surroundings (Lower Austria), from the 19th century, supplemented by the current situation of the ponds.

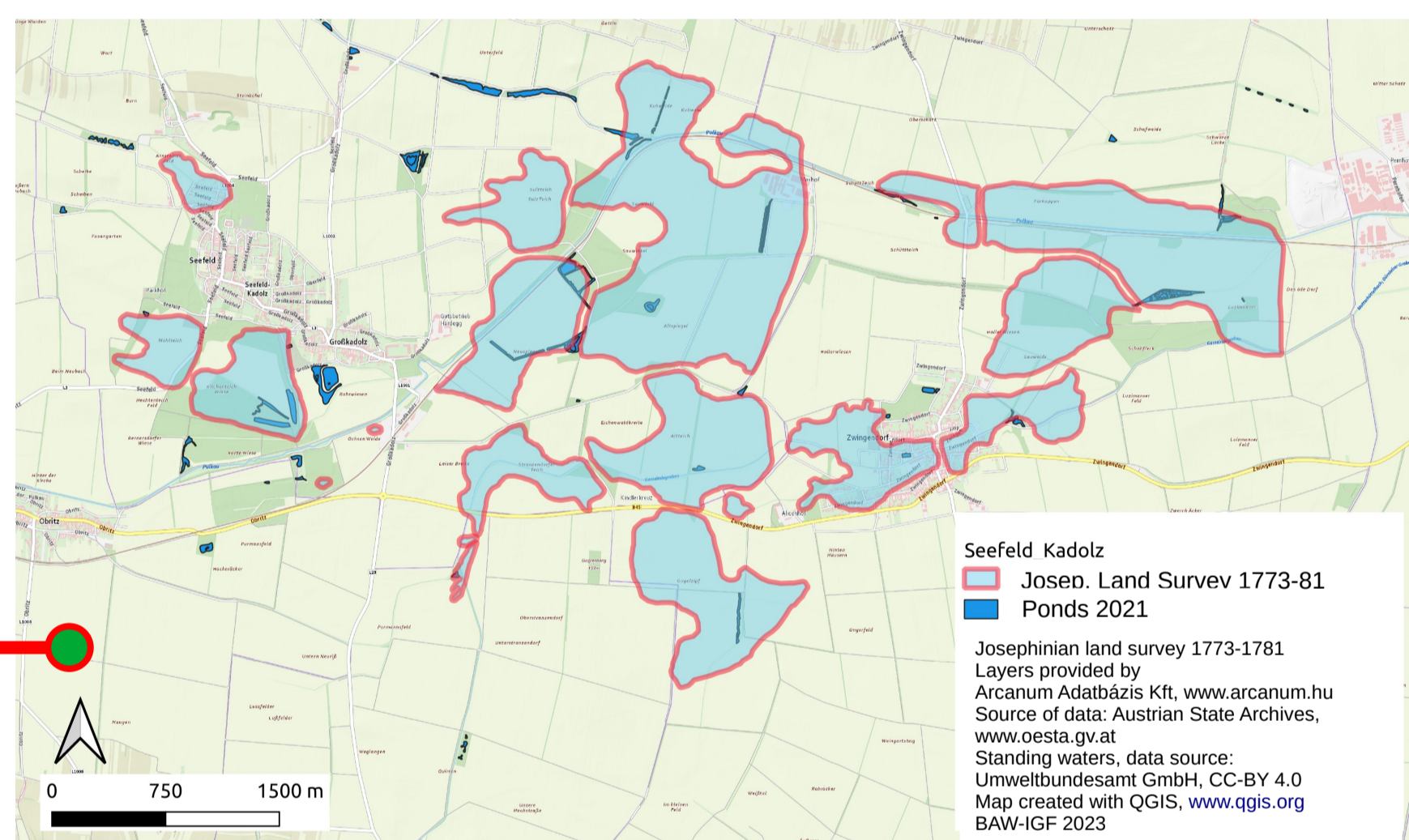
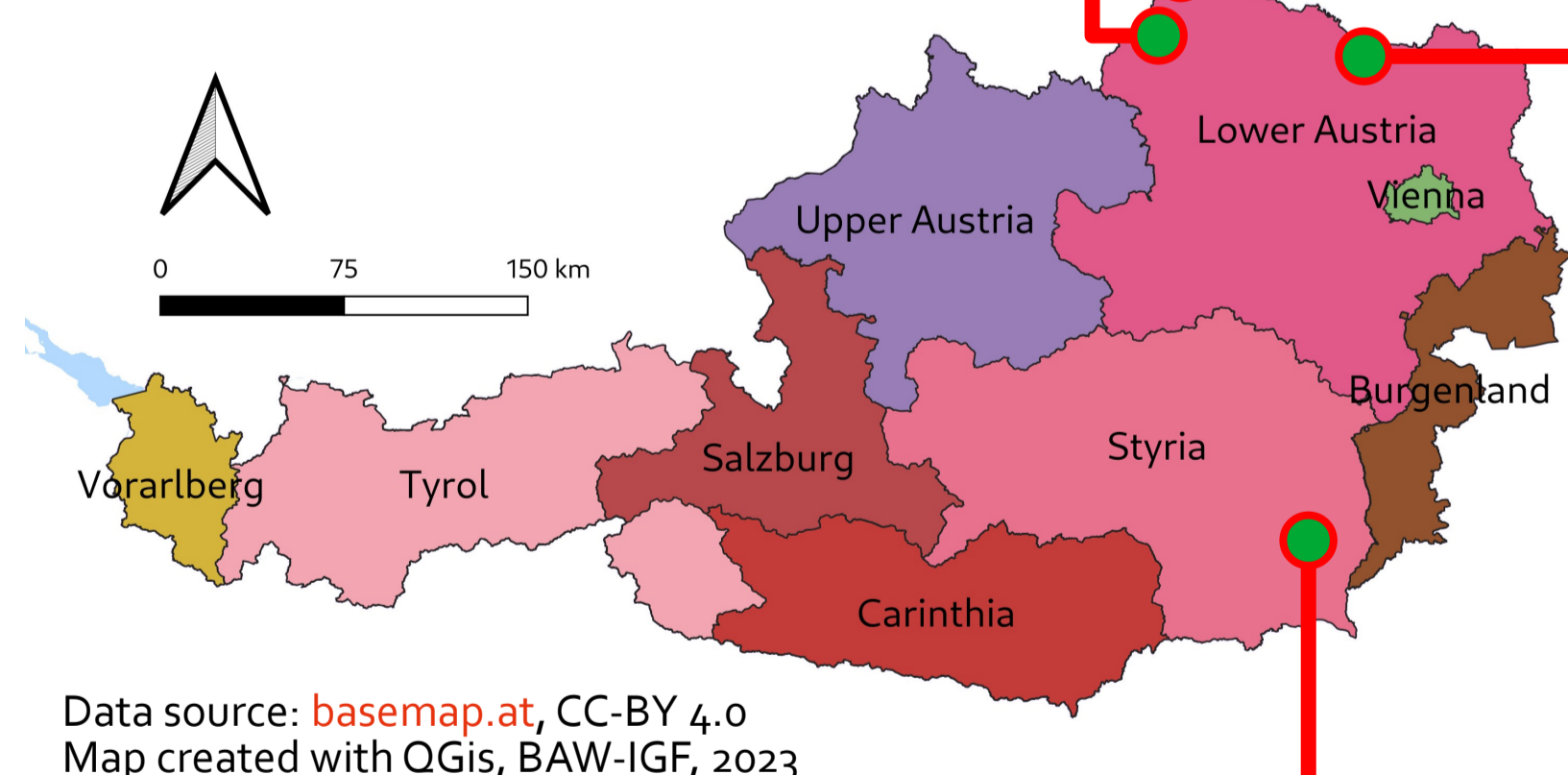


Figure 3: Map of Seefeld-Kadolz (Lower Austria). Nearly all ponds have disappeared (red outlined) since the 18th century.



Data source: basemap.at, CC-BY 4.0
Map created with QGIS, BAW-IGF, 2023

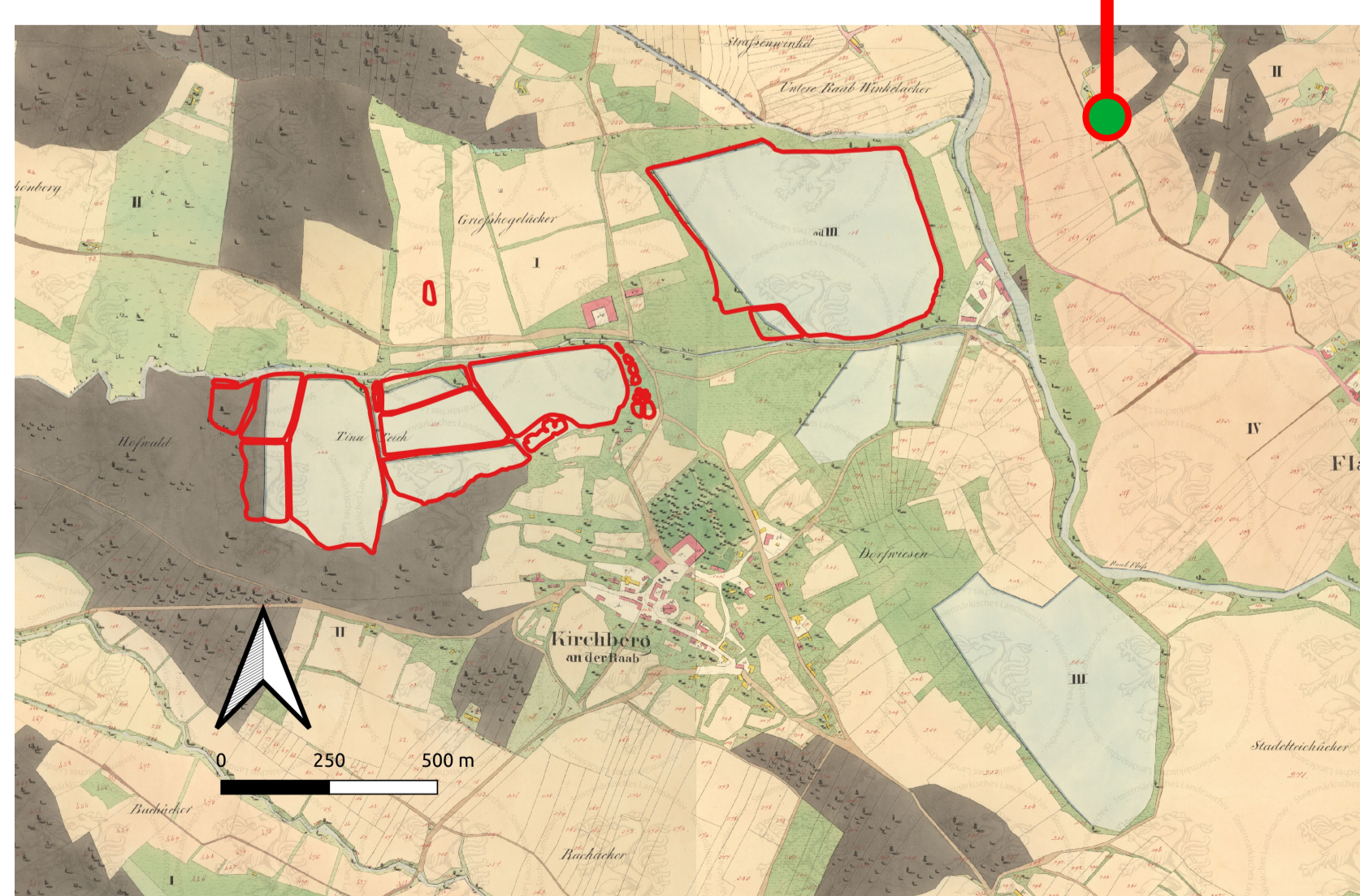


Figure 4: Historical map of Eastern Styria from the 19th century, supplemented by the current situation of the ponds (red outlined). Data of the current ponds: Umweltbundesamt GmbH, CC-BY 4.0; Map source: Franziszeischer Kataster, Steiermärkisches Landesarchiv, CC-BY 4.0; Map created with QGIS, BAW-IGF, 2023

Results and Discussion

The evolution of the number of ponds can vary considerably from region to region. While in some parts of the NUTS 3 region Waldviertel the number of ponds has not decreased dramatically since the 19th century (e.g. municipality Litschau -3 ponds, Fig 1), the losses are higher elsewhere (e.g. municipality Schrems -12 ponds, Fig. 2). In the municipality of Seefeld-Kadolz in the NUTS 3 region Weinviertel, not only have ponds been lost since the 18th century, but the remaining ponds have only a fraction of their original area (Fig. 3). In most cases, the reason for the disappearance of ponds is a change in land use. For example, sheep or arable farming have replaced fish farming. In the NUTS 3 region of Eastern Styria there is a good example of how a still existing carp pond farm has changed since the 19th century (Fig. 4). In the 19th century the pond economy consisted of 8 larger ponds, today 3 of them have completely disappeared, while originally 2 ponds became a total of 6 ponds due to the construction of new dams. In addition to showing the changes in the cultural landscape, the analysis of historical maps and current geography also allows the identification of former ponds that could be reconstructed, especially in the light of efforts to increase aquaculture production. In the Waldviertel region there are indeed examples of planned or realized re-establishments of ponds that have been abandoned at least since the 19th century. In one case the old drainage pipe of the former pond, made of silver fir (*Abies alba*) cut down in 1638, was recovered.