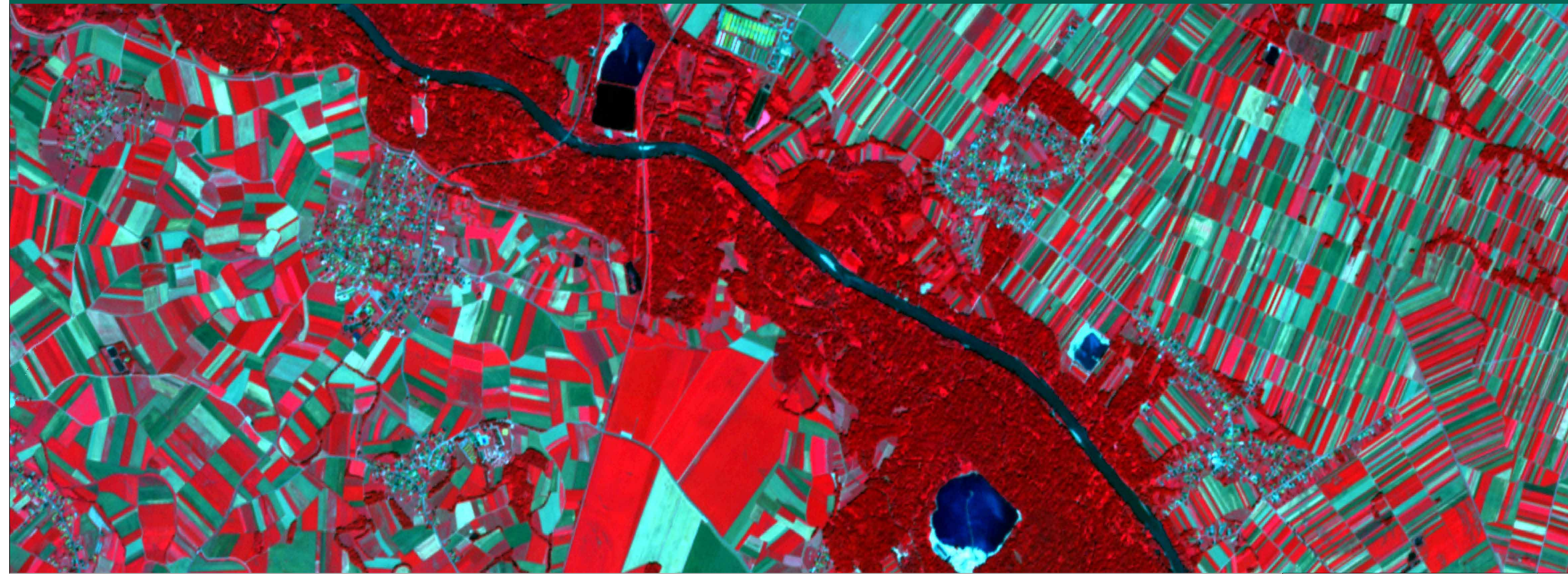
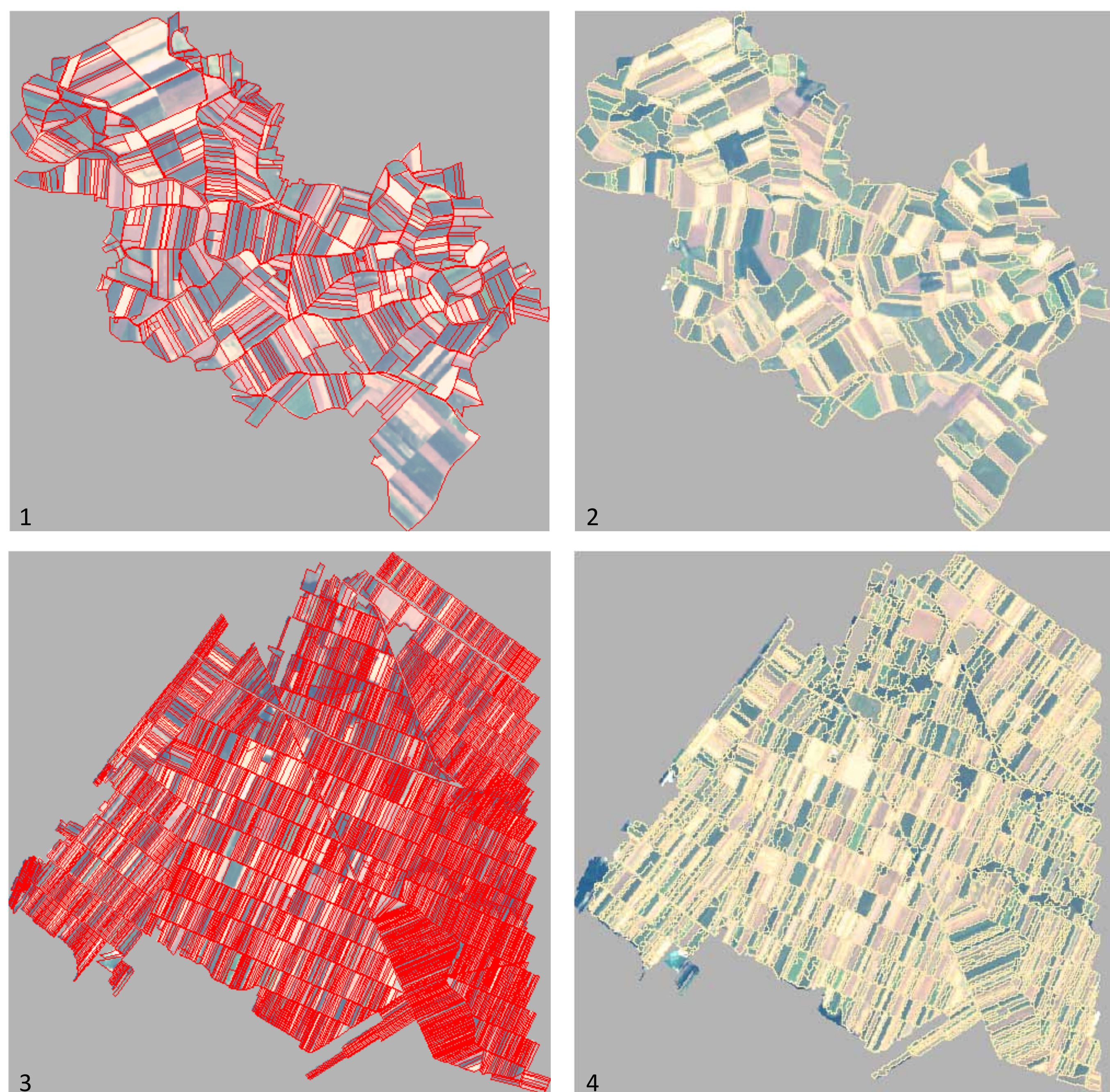


# Comparison of Lot Sizes And Shapes on the Opposite Banks of the Mura River



There is a considerable difference of lot sizes and shapes on the Mura river banks. The reason for this are natural factors, influence of people and the differences in farming. The aim of this research is to numerically define the differences of lot characteristics, such as area and elongation. For calculating this values, two specific areas have been analyzed.



Two selected areas, on which the analysis has been performed. Lower data layers: subsets of right (images 1 and 2) and left (images 3 and 4) bank area, of true color composites of Rapid Eye image. Upper data layers: cadastral map (images 1 and 3) and object based analysis of Rapid Eye image (images 2 and 4).

## Problem overview

Students coming from the Prekmurje and Prlekija regions had noticed that the opposite banks of the Mura river greatly differ with respect to agricultural lots. However, to measure them physically is not only time-consuming, but essentially meaningless. Therefore, it was decided to take a look at these cultivated areas from the air or even better from the space to see the real situation of the fields as well.

## Data

- Color digital orthophoto for 2010 (0.5 m).
- RapidEye for 2011 (6.5 m).
- Cadastral map.

## Methods

- Object based image analysis (OBIA) of Rapid Eye image.
- Analysis of cadastral data and data, obtained from object based analysis.



Different heredity laws played a very important role in the development of the lots on each river bank. On the left bank (Hungarian laws) the whole property was traditionally divided among all the children (if there were 5 children, each got one fifth). On the other bank, the right bank (Austrian law) the oldest son traditionally inherited all the property.

Bank	Right	Left
average lot size [m <sup>2</sup> ] - cadastre map	9799	2053
average ratio perimeter/area - cadastre map	0.0895	0.2374
average lot size [m <sup>2</sup> ] - object classification	9024	4489
elongation - object classification	2.60	3.32

The table above shows clearly that the lots on the left bank are much smaller and elongated. This is confirmed by the analysis of cadastral data and data, obtained from object based analysis. The most noticeable difference in values shown in the table is the average lot size, which is much smaller in the cadastral map analysis. This is due to cadastral map properties. Each polygon is a parcel of land, mostly belonging to different owners. For this reason, one cultivated land, field, could be divided into more parcels. Nevertheless, the difference in size between the lots on the left and right banks is substantial.

## Conclusions

- The parcel lots on the left bank of the Mura river are at least half a size smaller than those on the opposite bank, and also much more elongated.
- The reasons for differences are: history, different governments, different heredity laws and different farming techniques.
- There is an increase in the cultivation of combined smaller neighboring lots.