UFZ Centre for Environmental Research
Leipzig-Halle
in the Helmholtz Association

Arizona State University
Interdisciplinary Graduate Education and
Research Training (IGERT) in Urban Ecology

Urban tree cover in Leipzig, Germany

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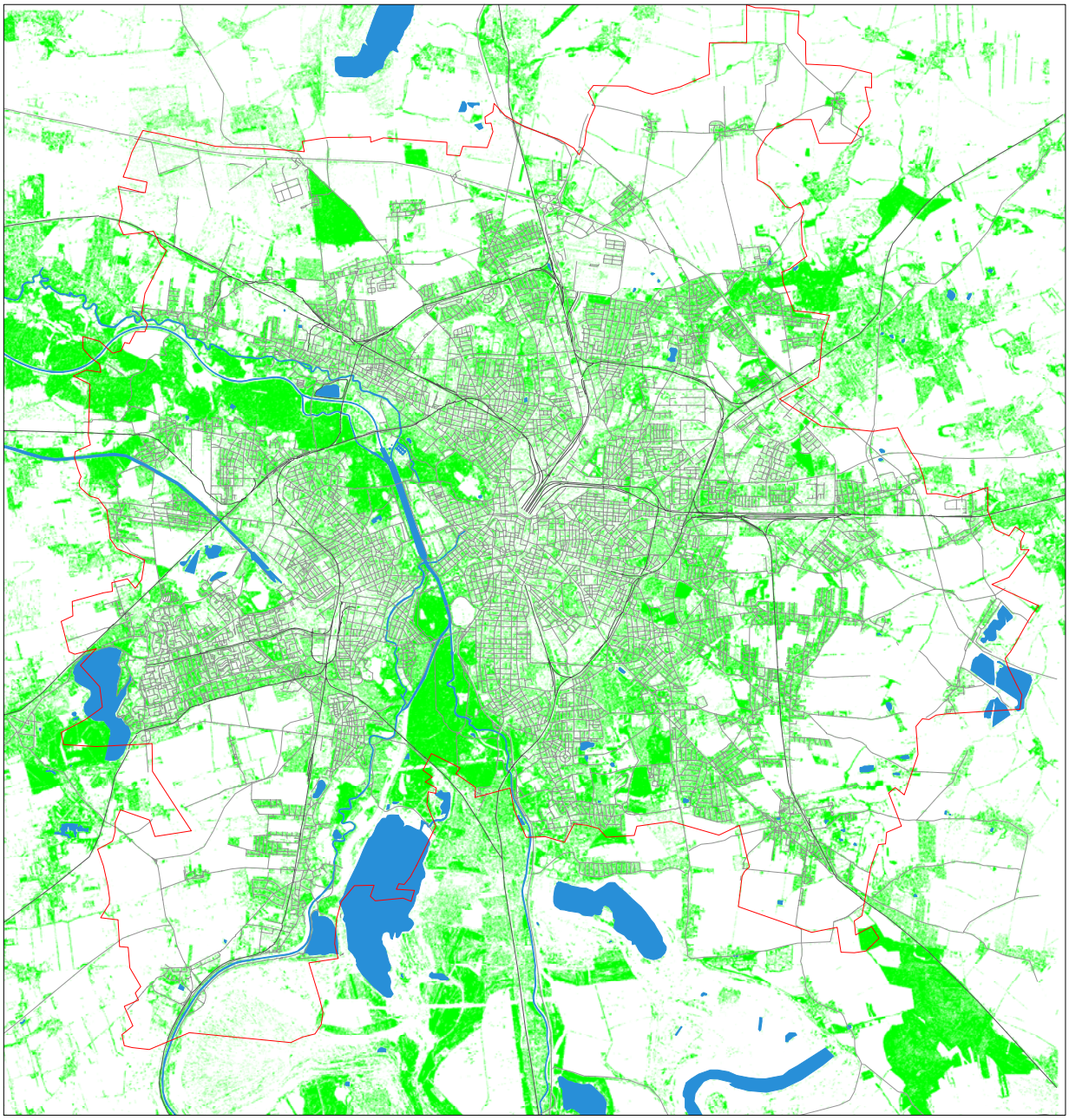

Figure 1. Urban tree cover for the city of Leipzig and its surrounding region

High-resolution, color-infrared photography (fig. 2) was used to extract tree cover through an object-oriented classification procedure, which takes into account intrinsic information (i.e. within-pixel spectra values and object texture) as well as neighborhood characteristics making possible the extraction of real-world objects, proper in shape, as the basic units for analysis. The entire image was subdivided into small, relatively homogeneous polygons as defined by a segmentation algorithm, in essence creating patches as the fundamental unit of analysis (fig. 3). These objects were then classified based on contextual relationships, such as spectral signatures, texture, and shape metrics in order to produce a binary classification: (1) woody vegetation and (2) all other landcover types (figs. 1 and 4).

Figure 2. Color-Infrared Orthophotos
Acquired by the Saxony Department of Forest (Landesforst-präsidium, Graupa). Flight campaign ordered by the Saxony Department of Forest to a scale of 1:10.000 (ground resolution of 0.4 m). Date of acquisition: 29/30 July 2002.

Figure 3. Pre-classified segmented image
Polygons are raw objects used in succeeding classification procedure.

Figure 4. Close-up of urban forest classification.
Underneath is panchromatic aerial photography used in classification.

Poster layout: Gundula Schulz, Department of Applied Landscape Ecology, Centre for Environmental Research Leipzig-Halle