



GUIDOS: tools for the assessment of pattern, connectivity, and fragmentation

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Pattern, connectivity, and fragmentation can be considered as pillars for a quantitative analysis of digital landscape images. The free software toolbox GUIDOS (<http://forest.jrc.ec.europa.eu/download/software/guidos>) includes a variety of dedicated methodologies for the quantitative assessment of these features. Amongst others, Morphological Spatial Pattern Analysis (MSPA) is used for an intuitive description of image pattern structures and the automatic detection of connectivity pathways. GUIDOS includes tools for the detection and quantitative assessment of key nodes and links as well as to define connectedness in raster images and to setup appropriate input files for an enhanced network analysis using Conefor Sensinode. Finally, fragmentation is usually defined from a species point of view but a generic and quantifiable indicator is needed to measure fragmentation and its changes. Some preliminary results for different conceptual approaches will be shown for a sample dataset. Complemented by pre- and post-processing routines and a complete GIS environment the portable GUIDOS Toolbox may facilitate a holistic assessment in risk assessment studies, landscape planning, and conservation/restoration policies. Alternatively, individual analysis components may contribute to or enhance studies conducted with other software packages in landscape ecology.