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“Looking for the trees in the forest“
**An attempt to finding the best segmentation-based methodology to
discriminate deciduous trees in the Dubbarp area, Sweden**

Remote sensing is the scientific field which allows researchers to analyze Earth's features from a far. It makes use of a wide array of modern technologies such as the analysis of aerial and satellite imagery. Remote sensing has many applications including the study of vegetal associations and ecosystem functionality. The Green Infrastructure Project, coined by the Swedish Environmental Protection Agency (in Swedish: Naturvårdsverket) intends to create a network of natural corridors that would enable species to spread and move in the landscape and protect vulnerable species, including old trees. Old trees are home to a wide variety of species and their identification in the field would be essential to trace the contours of the future green corridors. Such an attempt would be very time consuming by employing specialists to do field recognition. Therefore the usage of remote sensing based solutions has been proposed. This paper presents an attempt to use a remote sensing specific methodology to automatically recognize trees worthy of protection (old) based on satellite and aerial imagery. A study area near Osby, Scania, covered mainly by deciduous forest is chosen to test the success rate of a remote sensing imagery processing algorithm, the multi-resolution segmentation for identifying the crowns of the trees worthy of protection. The multi-resolution segmentation algorithm creates “image patches”, known as *objects*, based on input imagery and user defined parameters of the algorithm. A number of 14 experiments which test different parameter configurations of the algorithm demonstrate that elevation and near-infrared information are not enough to provide an accurate description of tree crowns in the study area.

Keywords: Physical Geography and Ecosystem analysis, Segmentation analysis, Tree crown recognition, Scania, Sweden

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