MODELLING FFH AREAS IN FORESTS USING OBJECT BASED CLASSIFICATIONS OF REMOTE SENSING DATA AND GIS IN THURINGIA

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ABSTRACT:

European Union directive EEC/92/43, adopted by EU member states on the 21st May 1992, provides for the establishment of a network of 'special areas of conservation' (SAC) intended to protect natural and semi-natural habitats, and wild fauna and flora. These so-called flora, fauna and habitat (FFH) areas together with the 'special protection areas' (SPA) established for the conservation of wild bird communities under EU directive EEC/79/409, comprise the European nature protection network NATURA 2000. European habitats deemed to require special protection are defined in Annex 1 of the habitats directive.

According to the FFH directive, every EU country is required to map these special areas of conservation, and to provide reports on the present status and any changes to occur within these areas every six years.

Delineating the borders of these FFH areas using terrestrial mapping methods is both time consuming and expensive, which has lead many countries to seek more affordable and automated alternatives. Remote sensing technology can be used to map and analyse very large areas quickly, cost-effectively and with a high level of automation. The following questions have yet to be answered, however:
What information pertaining to FFH areas can be extracted from different remote sensing data using an object based approach? How can the remote sensing information be integrated into a model for FFH mapping?

The aim of this research study is to determine whether FFH areas in forests can be detected using a selection of remote sensing data in order to ascertain the level of mapping detail that is possible, and to identify ways in which these maps can be improved using GIS technology and additional data. Three 3x3 km areas in the German state Thuringia have been selected as test areas for this study.

The first step is to describe the methodologies and parameters currently being used by selected European countries to map each of their respective FFH forest biotopes.

The second step is to classify the distinguishing features identified within the study areas using remote sensing technology. Spot 5 satellite data will be used in conjunction with the eCognition image interpretation software.

The third step is the development of a model integrating different sources of information for FFH mapping.