Remote Sensing of Essential Biodiversity Variables (EBVs) as novel remote sensing indicators of BD variables

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This presentation focuses on progress in using remote sensing for monitoring of Essential Biodiversity Variable (EBVs) to predict the consequences of changes in the global drivers of biodiversity.

EBVs are the key variables required to observe, understand and report on change in the state of biodiversity, providing a link to policy commitments such as the Convention on Biological Diversity (CBD) Aichi Targets.

EBVs guide the observation system in terms of what it should measure. Their intermediate position between observations and indicators isolates those indicators from changes in observation technology.

Satellite remote sensing (RS) can play a crucial role in the measurement of EBVs, particularly for a subset of EBVs which we denote by RS-EBVs. For RS-EBVs the global and periodic nature of satellite remote sensing greatly simplifies data capture, making RS an ideal method for understanding change at national and other scales.

Using the EBV framework (Pereira et al. 2013) three workshops were held by the Group on Earth Observations – Biodiversity Observation Network (GEO-BON) to develop a list of candidate RS-EBVs, published in Skidmore et al. (2015). Candidate RS-EBVs include continuous and biophysical variables (such as leaf area index and species traits), as well as others that use somewhat arbitrary class boundaries, such as land cover and disturbed areas. Also, a number of RS-EBVs are actually groups of related variables that describe a phenomenon of interest (e.g, phenology, or disturbance).

With this list as a starting point, the next steps in the process can begin, with the ultimate goal of putting a plan in place to acquire the needed RS observations to generate the related EBVs.

The current approach for this process is described as well as the role of the EU H2020 research programs and possible linkages with Finland. The key organizations for this are the CBD, IPBES, CEOS, and GEO BON, with GEO playing a facilitative role, however the broader biodiversity community is also very important. A key goal is to meet as many as possible of the reporting needs that CBD signatory countries have for the Aichi targets.

Short CV
Professor Andrew Skidmore is Professor of Spatial Ecology at ITC, the University of Twente, and Macquarie University, including 20 years as Chairman of the Department of Natural Resources. His interest in research relates to biodiversity and vegetation monitoring under fragmentation, using hyperspectral remote sensing and LiDAR. His career includes 12 years employment in the forest industry before moving to university work. He has an H-index of 65 and is cited more than 18800 times (Google scholar).