

Potential of satellite remote sensing to monitor species diversity

April 4 2016

The importance of measuring species diversity as an indicator of ecosystem health has been long recognized and it seems that satellite remote sensing (SRS) has proven to be one of the most cost-effective approaches to identify biodiversity hotspots and predict changes in species composition. What is the real potential of SRS and what are the pitfalls that need to be avoided to achieve the full potential of this method is the topic of a new research, published in the journal *Remote Sensing in Ecology and Conservation*.

The new study, supported by the FP7 funded EU project [EU BON](#) takes the assessment of diversity in plant communities as a case study. Showing the difficulties to achieve high results by relying only on field data, the paper discusses the advantages of SRS methods.

"In contrast to field-based methods, SRS allows for complete spatial coverages of the Earth's surface under study over a short period of time. Furthermore, it provides repeated measures, thus making it possible to study temporal changes in [biodiversity](#)," explains Dr. D. Rocchini from Fondazione Edmund Mach, lead author and WP deputy leader / task leader in EU BON. "In our research we provide a concise review of the potential of satellites to help track changes in plant [species diversity](#), and provide, for the first time, an overview of the potential pitfalls associated with the misuse of satellite imagery to predict species diversity. "

Traditionally, assessment of biodiversity at local and regional scales relies on the one hand on local diversity, or the so called alpha-diversity,

and on the other, on species turnover, or beta-diversity. Only in combination of these two measures can lead to an estimate of the whole diversity of an area.

While the assessment of alpha-diversity is relatively straightforward, calculation of beta-diversity could prove to be quite challenging. This is where increased collaboration between the [remote sensing](#) and biodiversity communities is needed in order to properly address future challenges and developments.

The new research shown the high potential of remote sensing in biodiversity studies while also identifying the challenges underpinning the development of this interdisciplinary field of research.

"Further sensitivity studies on environmental parameters derived from remote sensing for biodiversity mapping need to be undertaken to understand the pitfalls and impacts of different data collection processes and models. Such information, however, is crucial for a continuous global biodiversity analysis and an improved understanding of our current global challenges." concludes Dr. Rocchini.

More information: Rocchini, D., Boyd, D. S., Féret, J.-B., Foody, G. M., He, K. S., Lausch, A., Nagendra, H., Wegmann, M., Pettorelli, N. (2016), Satellite remote sensing to monitor species diversity: potential and pitfalls. *Remote Sensing in Ecology and Conservation*, 2: 25-36. [DOI: 10.1002/rse2.9](https://doi.org/10.1002/rse2.9)

Provided by Pensoft Publishers

Citation: Potential of satellite remote sensing to monitor species diversity (2016, April 4) retrieved 24 April 2024 from

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