

Fighting the nature crisis from space: Measuring biodiversity with satellites

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As humans, we're currently facing two big environmental crises: climate change and biodiversity loss. The first managed to gain a lot of public attention and funding, whereas the latter goes on more slowly in the

background. One of the key problems the biodiversity crisis is facing, is the few ways to monitor biodiversity. In his recent publication, Prof Dr. Andrew Skidmore and his team linked existing remote sensing products to so-called essential biodiversity variables (EBVs) in order to measure biodiversity using satellites.

Changes in [biodiversity](#) can occur spatially as well as through time, make it possible to measure elements of biodiversity using remote sensing techniques such as UAVs and satellites. However, not all of these changes can be measured from space. "It's relatively easy to measure land cover in an area with a satellite and also how this changes over time. But we cannot operationally measure species abundance from space," explains Skidmore.

Bridging the gap

There is a gap in the work of ecologists and remote sensing specialists. Ecologists know what EBVs to look for to monitor biodiversity change, but do not have the knowledge of remote sensing scientists about which products can be practically mapped from space. "Both groups have to agree on what EBVs and what remote sensing products we have to focus on," says Skidmore. Linking remote sensing products to EBVs will improve reporting on the state of biodiversity from local to global scales.

Remote sensing biodiversity

In his publication, Skidmore and colleagues focused on biodiversity measures from satellite Earth observation data. The research identified nearly 120 biodiversity products that provide critical information about biodiversity and can be measured from space. For example, changes in the function and structure of an ecosystem can be measured following [forest fires](#). Skidmore explains: "Forest fires can only occur in forests,

linking it directly to life itself. Forest fires can be readily measured by satellites making the biological effects of fire disturbance a key remote sensing biodiversity product."

More information: Andrew K. Skidmore et al. Priority list of biodiversity metrics to observe from space, *Nature Ecology & Evolution* (2021). [DOI: 10.1038/s41559-021-01451-x](https://doi.org/10.1038/s41559-021-01451-x)

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