Dynamic habitat index for ecosystem mapping and monitoring

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Dynamic Habitat Index

Indirect measurement of habitat health and biodiversity through satellite-based measures of vegetation productivity and function

**Time series** of Fraction of absorbed Photosynthetically Active Radiation (FPAR)

*structure + function vs greeness (NDVI)*

Strong link between ecosystem productivity and species richness:
- grassland bird species richness in Canada
- butterfly diversity in Canada
- species richness in Thailand
Dynamic Habitat Index

\[ \text{DHI} = C \times M \times S \]

- **C** = cumulative productivity
- **M** = minimum productivity
- **S** = seasonal variation of productivity

* Duro et al, (2007)
Dynamic Habitat Index

- Cumulative humid forests in the east
- Annual minimum agriculture
- Seasonal variation grassland and agriculture

* Coops et al., (2009)
Dynamic Habitat Index

What does this look like for changes in species richness and ecosystem function?

BLUE: minimum
RED: seasonality
GREEN: cumulative
Dynamic Habitat Index

What are the potential policy applications…

• Natural Capital Accounting – valuing healthy ecosystems
• Species Distribution Modeling – additional information about landscape for species preferences
• Climate Mitigation – monitoring forest degradation (the other “D” in REDD)
• Land Degradation – monitoring change and identifying opportunities for interventions