**NASA Biodiversity & Ecological Forecasting Team Meeting Breakout Session**

**Questions for the Decadal Survey: Terrestrial Applications**

**7-9 May 2014**

Participants clearly wanted to discuss non-science issues as well as science ones, so these questions are divided into two groups. Both groups may have relevance to the Decadal Survey since, for example, delivering science data is as important as having the right missions to acquire it, in terms of answering science questions.

**SCIENCE QUESTIONS**

Species

1. Changing range limits of species
   1. How do species respond to changing climate, precipitation, water, human use?
   2. What are the impacts of extreme weather events on species distributions?
   3. How do we measure and document how range limits are changing?
2. How does rate of land use change affect adaptive capacity of species?
3. How much biodiversity variation can humidity explain?
4. How can we test the viability of isolated/semi isolated populations with limited field data?
5. How can remote sensing support conservation by improving estimates of habitat abundance, distribution, and connectivity?

Ecosystems

1. If a trophic level is removed or augmented, what is the effect on the overall system?
   1. Can we pick the right trophic levels to shed insight on what is happening?
2. How can we characterize landscape stream hydrology and geomorphology to predict biology?
3. How does functional variation in ecosystems (measured using remote sensing) translate to other measures of function in the ecosystems that we can’t remotely sense?
4. How can we distinguish between plantation and forest, primary and secondary forests, and other categories?

Nutrients

1. What is the role of nutrients in 1) terrestrial biomass allocation, carbon sequestration and ecosystem processes, and 2) water quality?

**NON-SCIENCE QUESTIONS**

Data

1. Do we have sufficient mission and product continuity to monitor changes in biodiversity?
2. How can we tie ground observation to satellite observations?
3. Can we standardize data format and scales so it is easily accessible and applicable to biodiversity questions?
4. How can we make more “Dark data” accessible so it can be used to 1) validate remote sensing and 2) provide more historical data? (Dark data include gray literature, historical data such as old seafood menus and ships logs, digitized data not online, paper data in file cabinets or elsewhere…)
5. How can we distinguish plantations and secondary forests from intact forests?

Access

1. How can lessons learned be better collected and shared to improve future work?
2. Can a repository for NASA project results be created?
3. How can we simplify the process so PIs can more easily share their results?
4. How can the NASA Search and Order system be made friendlier to more user communities?

Land Use Land Cover

1. How can we get more of everything?
2. Improve spatial, temporal, and categorical resolution
3. Include agricultural products as much as possible
4. 3D structure and biomass quantities