

# Stable, global registries

- Ontologies, datasets, standards and tools
  - Names (GNA)
  - GBRDS (Global Biodiversity Resources Discovery System)
  - Registry interoperability\*
  - Data citations, micro-attribution – engage industry and orgs who are already invested in the citation business
- GBIF
  - EOL
  - ALA
  
  - GEO BON
  - Libraries of Congress/Medicine/Agriculture
  - Earth sciences*
  - Regional data networks*
  
  - Google/Yahoo?
  
  - Responsibilities?

# User driven ontologies

- Formalize process for generation and adoption
  - Incorporate best practices in other domains (OBO, OWL)
  - Dedicated development teams?
  - Integration with existing ontological frameworks
- GBIF
  - EOL
  - PESI
  - EDIT
  - TDWG – (TDWG core ontology)
  
  - OBO (Organization for Biological Ontologies)
  - GEO BON
  - FAO
  - MMI (Marine Metadata Initiatives)
  - Key 2 Nature
  - SNOMED – physiology, anatomy, and disease
  
  - Phylo-informatics
  - Ecological ontologies

# Outreach to new user domains

- Involvement in societal meetings in other groups
- Endorse existing plans
  - GBIF
  - EOL
  - ALA
  - CBOL
  - OBIS
  - EDIT
  
  - Sister disciplines (ecology, phylogenetics, genomics, geographers, etc)
  - Education/ citizen scientists
  - Resource using organization (Forestry, fisheries, etc)

# *Integration* with computer scientists

- Take advantage of existing methodologies
  - Implement ourselves in the computer science communities and societies
  - Approach computer science departments at the university level to build collaborations and partnerships
  - Invite the computer science community – involve high level computer scientists
  - Focus on challenges in a research aspect instead of final products
- Database science
  - Network science
  - Data visualization
  - Industrial players (Wolfram alpha, IBM, Google, Deep indexers)

# Formalize linkages with policy advisers/regulators

- Understand what policy makers are looking for
- Some of these linkages need to be a mindset instead of a set of MOUs
- Formalized agreements vs multiple pathways
- Biodiversity indicators: link into existing or create
  - GBIF
  - OBIS
  - EDIT
  - EPBRS (European Platform for a Biodiversity Research Strategy)
  - LifeWatch
  - New Biodiversity Informatics Organization
  - CETAF
  
  - UNEP (CBD, WCMC, and other multilaterals)
  - IUCN

# Other issues – Considerations

- Multiple languages : foundational principle
- Killer Apps : to demonstrate our purpose to the general public and other domains of science