BOF: ecosystem informatics, bio-informatics (and health/epidemiology)
Moderator: Judy Cushing, Evergreen State College

10 participants:

- 6 in eco, incl Community GIS
- 2 in genomics
- 1 epidemiology
- 1 both eco/benomics

Given the strong overlap[1] between research issues in our two areas[2], we looked at

1. rating common issues (low, med, high risk, short, medium, long term)

2. context, or driving forces of each of these "specialties".

    - Industry factors driving CS/ECO/MB: W3C; economic costs of invasive species, bioterrorism, health/ecosystem/disease outbreaks; open source movement; need to identify customer base for industrial partners.
    - Bio/Eco driven to CS by NBII, LTER, advances in instrumentation (Genome sequencing, sensors), having a critical mass of CS with expertise in BIO/ECO.
    - CS/IT research driven to BIO/ECO by research areas that need data or applications (data mining, dbms, computional science, spatial and time series); having a critical mass of BIO/ECO with expertise in CS.

3. Discussion of how or if to grow the partnerships that now exist among research disciplines (e.g., CS-molecular biology; CS- ecology, ecology-statistics, medical, eco (environmental health) to

    - business (a long discussion ensued on how to articulate the business value (customers) of ecology applications, e.g., partner with us on solving termporal-spatial data structures problems – it would pay off with financial applications); consider cost of public health problems like asthma and overlap between environmental health and public health.
    - agencies e.g., NPS, NFS on data management for ecology
    - Sociological and educational issues such as metadata provision and best practices compliance
    - Great divide issues between science and policy. Expertise should flow not only from science to policy but vice versa!

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[1] Overlap of the two areas :

- Terminology management with ontologies, glossaries
- Data provenance, metadata, and annotation
- Adaptive, flexible database schemas & schema management
- Support for spatio temporal data & other domain specific data types
- Uncertainty management & data cleaning
- Management of mathematical and statistical models (with data) and modeling support

[2] Differences of the two areas: for ecology: sensor networks and stronger emphasis on computational. For MB: problem of propagating uncertainty in derived data products for MB. Areas might rate six major research topics differently.

4. how we can be sure the case is made for domain-rich projects across domains, even where there is considerable overlap in the CS research area:
    - devil is in the details for these complex domains, problems will not be solved unless tested with complex data and applications
    - interesting problems might arise as sub-problems in metadata management, or spatial data types, for ecology that one might not see (at least not immediately) in bioinformatics.
    - The disciplines need the infrastructure, and “we” need experience not just in building the systems but in their use, and extension.