2012\_ScienceNeedsPortfolio\_(4)\_Wetlands\_Restructured.docx

**Thematic Area (4) Wetlands**

**MISSION:** [*Yet to be articulated by COP*.]

*[science objective]* to inventory significant regional wetland habitats, evaluate the condition and importance of these habitats, and identify regional threats impacting those resources.

*[management objective]* so that LCC partners and stakeholders can develop and implement cohesive regional management strategies to protect and manage wetlands across jurisdictions.

A. Heading: Regional Level

**1. PROGRAM: Landscape-level Disturbances & System-level Response**

[*Examines major disturbances* (*includes climate change) as well as the impacts associated with these, regardless of ecological organization (e.g., community, species, population)*]

(Grouping) – *Foundational/Stock-taking Assessment/Classification System*

(Grouping) – *Climate Change Science and abiotic or mechanical aspects*

(Grouping) – *Climate Change Impacts on Ecological Function and Response to Changes*

* **Project Description:** **[S]**Model effects of climate change on wetland habitats and species. Identify wetlands vulnerability to climate change.

(Grouping) – *Energy and Related Infrastructure and Roads*

(Grouping) – *Urbanization, Population Growth and (Domestic or Industrial) Water Demands*

(Grouping) – *Agricultural Expansion and (Ag-related) Water Demands*

(Grouping) – *Effects of Air Pollution*

(Grouping) – *Cumulative Impacts*

* **Project Description: [S]** Determine relative impacts of various land uses to all wetland communities/ecosystems, including naturally functioning floodplains.
  + **(related):****[S]** Identify and quantify effects of urbanization and impervious surfaces on the viability of vernal pools.

B. Heading: Human Dimensions

**2. PROGRAM: Social Component**

[*No specific Projects articulated by COP*.]

(Grouping) – *Value/Ecosystem Services and Conflict*

(Grouping) – *Recreational, Commercial, Subsistence Use*

C. Heading: System Level

**3. PROGRAM: Ecological Functions of Managed/Human-Altered Systems**

(Grouping) – *Foundational/Stock-taking Assessment/Classification System*

* **Project Description:** **[S]** Determine current extent of wetland connectivity to perennial streams compared to historical connectivity.
* **Project Description:** **[S]** Develop wetland IBI for LCC region. [Index of Biological Integrity]

(Grouping) – *Barriers (flows and species movement)*

(Grouping) – *Mitigating Ag and Forestry Impacts*

(Grouping) – *Protection & Restoration Approaches*

* **Project Description:** **[S]** Identify wetland persistence as it relates to habitat fragmentation.
  + **(related) Project Description:** Identify areas for bog restoration.
* **Project Description:** **[S]** Develop restoration of hyporheic exchange (subsurface flow) techniques to connect wetlands to perennial streams.
* **Project Description:** **[S]** Evaluate success of created or restored wetlands.

**4. PROGRAM: Ecological Functions of Natural/Intact Systems**

**PROGRAM DESCRIPTION:** Determine how these systems are supposed to work; understand the systems and how they are inter-related and dependent.

(Grouping) – *Foundational/Stock-taking Assessment/Classification System*

* **Project Description:** Identify and quantify the extent of naturally functioning floodplain habitat to support priority habitat and species.

(Grouping) – *Effects of Fire on Ecosystems*

(Grouping) – *Relationship/ Ecological flows and Nutrient dynamics*

* **Project Description:** Quantify ecosystem services of wetlands and their contribution to nutrient cycling to both aquatic and terrestrial systems.
* **Project Description:** **[S]** Use of groundwater and effects on wetland hydrology.

(Grouping) – *Ecosystem Integrity / Resiliency*

* **Project Description: [S]** Determine how and if conversion of wetland types effects ecosystem services associated with aquatic species.

D. Heading: Community Level

**5. PROGRAM: Community level (description and function or basic community ecology)**

(Grouping) – *Basic Ecology/Ecological Relationships*

E. Heading: Species/Population Level

**6. PROGRAM: Basic Biological Understanding (Species-level)**

(Grouping) *– Basic Biological Information*

* **Project Description: [S]**Document ephemeral wetlands as sites of concentration and transfer of heavy metals through amphibian reproduction and immigration.

(Grouping) – At-Risk Species/Populations & Endemics

* **Project Description:** **[S]** Assess presence of rare and invasive wetland species using contemporary genetic techniques.
* **Project Description:****[S]**Assess meta-population structure among vernal pool species.

(Grouping) – *Contaminants/Pollutants Effects on Species/Populations*

(Grouping) – *Invasive organisms effect on species and populations*

* **Project Description:** **[S]** Determine characteristics that make wetlands vulnerable to invasion and invasive species establishment.

(Grouping) – *Effects of Disease (on a species or taxonomic group)*

F. Heading: “How (the LCC) Should Do Business”

* **[S]** For the stressors currently politically impossible to correct (agriculture, forestry, urban growth, mining, etc.), develop and communicate culturally viable solutions to address these stressors across the landscape.

**Notes:** version posted: 2012-12-18