Breakout Sessions (3) on concrete next steps
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Given the charge from the Deputy Chief for National Forests and Grasslands to "review the WCC to see if there are new approaches for collecting consistent watershed condition information and determine how these new approaches can be implemented", please address all the questions below:

1. **What are the existing/cutting edge approaches** (tools/processes/techniques) available now or within the next year to respond to the charge?
    a. New data
        i. "10": new approach using shrub data layers
        ii. evaluate existing vegetation data from the regions
        iii. Forest cover data from different sources
        iv. MTBS Monitoring Trends and Burn Severity
        v. Tsengdar Lee, R&A Earth Science Division
        vi.
    b. Tools
        i. Critical loads mapper, EPA
        ii. Web-Map Viewers … wms services
        iii. Google Earth engine as a computing and data integration tool
        iv. NEX NASA Earth Exchange / Ames ARC

2. **a) What WCC variables lend themselves to new approaches and which do not?**
   b) What WCC attributes and indicators should be considered for addition/replacement?

   - *Might need glossary about terms: for consistent application of definitions*
   - *Challenge: local / regional / national dataset coverage but local implementation*

    a. Variables
        i. Key is updates on essential data layers in central database: EDW (authorative)
        ii. "11": invasive species are assessed at State level
        iii. "10": new approach using shrub data layers
        iv. evaluate existing vegetation data from the regions
        v. Forest cover data from different sources
        vi. "2": modernize approach? Use of indicators of hydrologic alteration (IHA)
        vii. Soil: maybe contamination not needed
    b. Attributes / Indicators
        i. Encroachment
        ii. "7.3" could McNulty dataset offer info at state level
        iii. AirQuality tool for accessing data and information on air quality
        iv. …

3. What are some game-changing or grand-challenges here? For example
   - How to assess watershed condition at much higher spatial/temporal resolutions (daily at 1m)?
   - Can/should we fully automated some/all WCC collection?
   - How might/could/should we take the current condition assessment and project future conditions to help inform management decisions today?

   Assessment organization: Framing this iterative process into layers: management, science, operation

   Automating / Supporting Assessment/Scoring: Portal that integrates tools and datasets as a one-stop place

   Nation-wide, consistent assessment approach:
   - broad brush assessment with near-automation,
   - combined with a strategic selection of priority watersheds and processes / attributes to validate (using Ecological Regions – make use of multi-scale information)
   - implement DSS on a broad scale
   - potentially add information on transient events
     - o understand past processes
     - o anticipate where challenges are evolving faster,
     - o plan targeted actions, plan towards an anticipated future

   Improving of the watershed prioritization process: Pilot watersheds selected through broader group (managers / scientists / diff. levels to represent rich suite of criteria to get full range of issues / questions)

4. Who (individuals/entities) should be at the next meeting to address the charge?
   a. Data experience:
      i. Remote sensing (e.g. GTEC
      ii. DSS Modeling: Keith
      iii. GIS (Dave, Rob
   b. Forest Health – FAHST (Frank Sapio)
   c. FIA (Greg Reams)
   d. NFS management reps
      i. Natural resource directors – point to key expertise
      ii. Fish / wildlife expertise
   e. Hydrologic System / Watershed / Landscape / Ecosystem modeling (Jason Lynch)
   f. Some local experts in priority watersheds (focus / pilot watersheds … based on smart selection)
   g. Cross-agency information on activities, data, models, standards: Program managers can identify key people,
      i. EPA : water quality monitoring
      ii. USGS (Mike McHale / Reference watersheds database)
      iii. CUAHSI / National Water Center : Klein?