Integrated Data and Tools for Assessing Watershed Condition

*Photo by D. Merritt

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WO Watershed, Fish Wildlife, Air and Rare Plants (WFWARP)

Watershed Condition Framework

- Challenge/Request from NFS Leadership:
  - Develop nationally consistent objective measures of watershed condition on NFS lands
- Meeting Objectives:
  - Understand opportunities, gaps, and scientific challenges for assessing watershed condition within the context of the Watershed Condition Framework;
  - How to address the different temporal and geospatial scales among existing WCC indicators?
  - Identify possible “game-changing” approaches to measuring watershed health using remote sensing, modeling, and other approaches

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Spectrum of Outcomes

We need your expert guidance on moving forward

WCC 1.0
Keep current implementation

WCC 2.0
Apply remote sensing, models, and observations to current WCC

WCA
Define a "new" approach based on current and future remote sensing, modeling, and observational technologies

WCC 1.0:

- Continue with current data and technology
- WCC based on expert judgement

WCC 2.0:

- Identify WCC variables estimated with Remote Sensing/models/obs
- Work with agency partners to develop new data tools
- Centralized data and tools
- Link to other USFS Assessment efforts (TCA, Forest Planning, etc.)
- What else?

WCA:

- Task A
- Task B
- What else?

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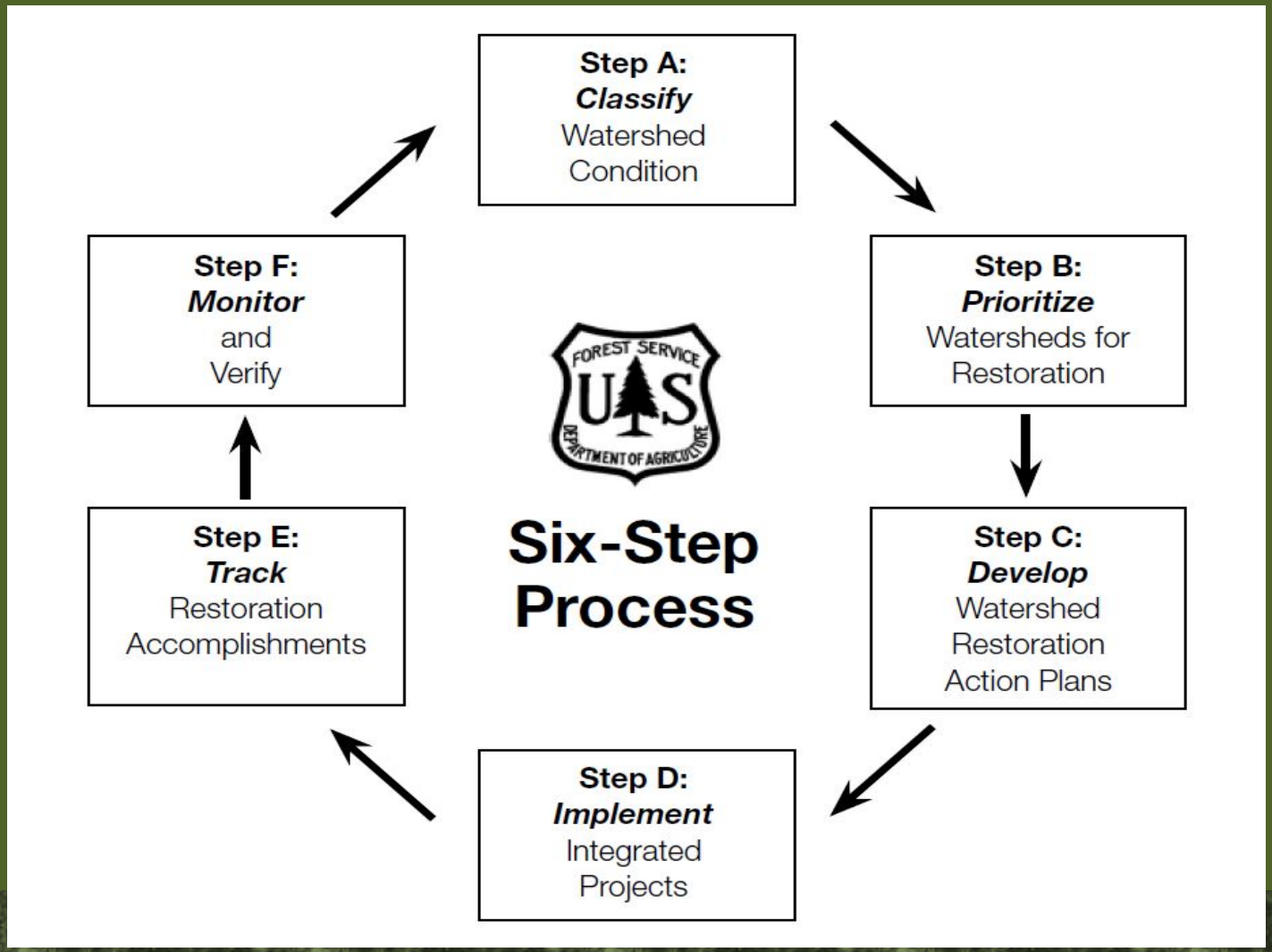
Watershed Condition Framework

- Framework for assessing watershed condition and prioritizing restoration or maintenance:



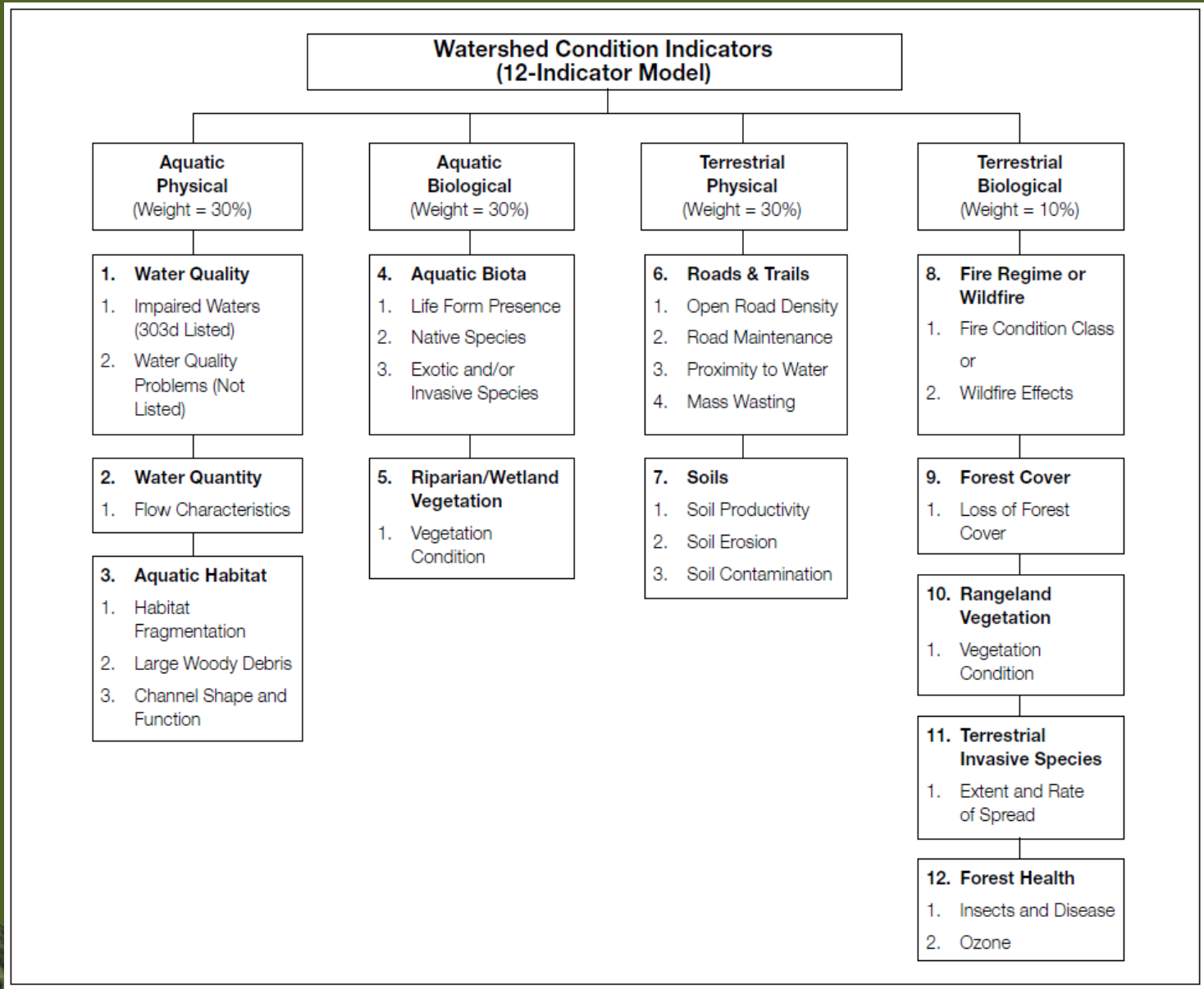
Watershed Condition Framework

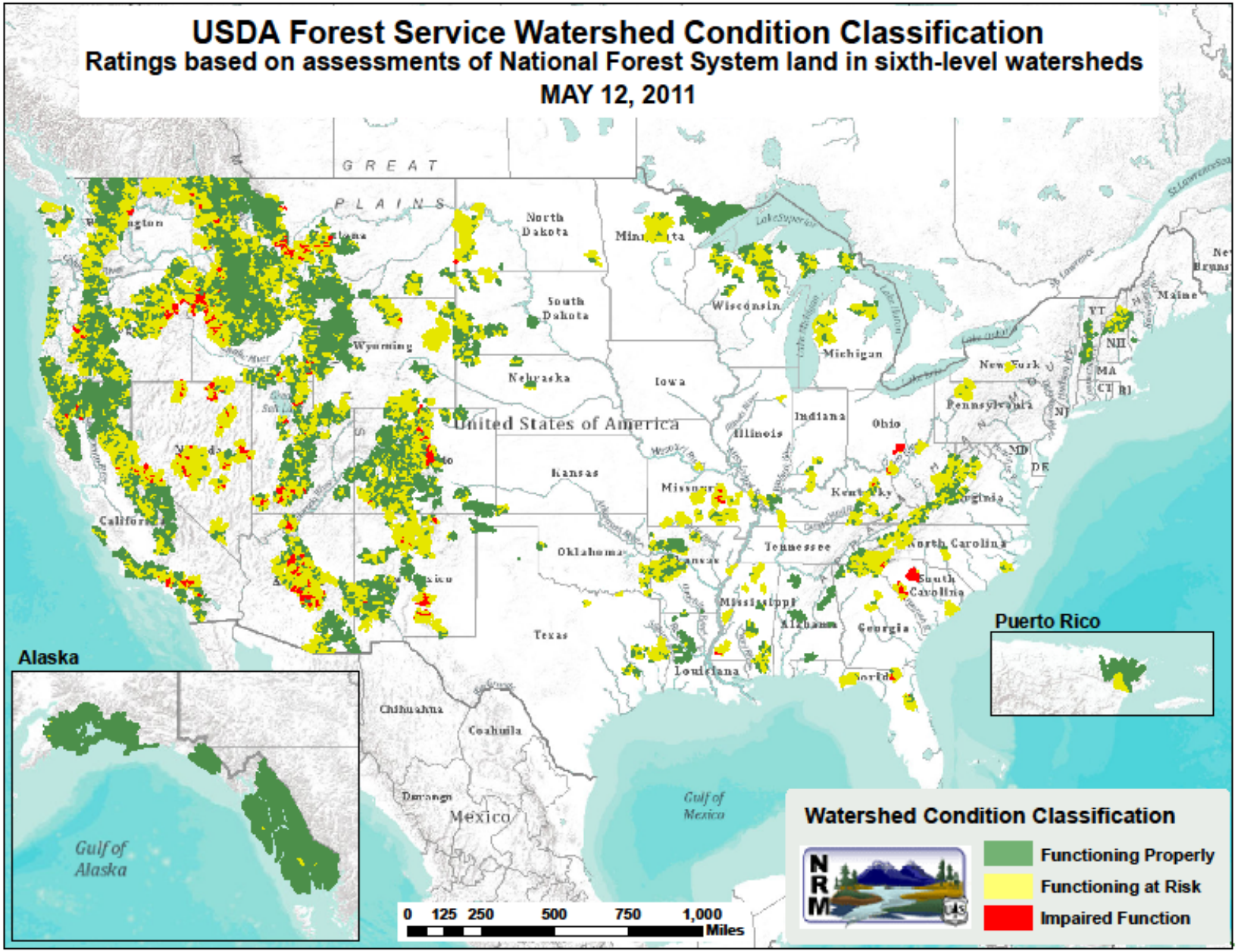
- First national system for assessing the condition of watersheds on NFS lands – Step A: Watershed Condition Classification (WCC)

- Initial WCC assessment completed in 2011:
  - All 15,000+ 6th Level HUC Watersheds
- Watershed Condition Classes:
  - Class 1 – Functioning Properly
  - Class 2 – Functioning at Risk
  - Class 3 – Functioning Impaired

Watershed Condition Classification

12-Indicator / 24 Attribute Model




USDA Forest Service Watershed Condition Classification
Ratings based on assessments of National Forest System land in sixth-level watersheds
MAY 12, 2011
GREAT PLAINS
United States of America
Alaska
Gulf of Alaska
Puerto Rico
Gulf of Mexico
Mexico
Watershed Condition Classification
Functioning Properly
Functioning at Risk
Impaired Function
0 125 250 500 750 1,000
Miles

Watershed Condition Framework

- *Grand Challenge:*
  - Explore new data/tools for WCC
  - Identify a subset of WCC indicators that can be consistently measured/estimated
  - Allows for routine assessments of watershed condition

- Aquatic Physical (30%):
  - Water quantity/quality; aquatic habitat
- Aquatic Biological (30%):
  - Aquatic Biota (eDNA); Riparian/Wetland Vegetation
- Terrestrial Physical (30%):
  - Roads & Trails; Soils
- Terrestrial Biological (10%):
  - Fire Condition; Forest Cover; Rangeland Vegetation; Invasive Species; Forest Health

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Watershed Condition Framework

- Significant Challenges:
  - Integrating remote sensing and modeling of the different aquatic and terrestrial WCC Indicators
  - Addressing the geospatial disconnect b/w project-level monitoring and watershed-scale assessments
  - How best to engage R&D and non-FS partners in future efforts?
- Next Steps:
  - Plan for developing and validating integrated data and tools for assessing watershed condition
  - Identify Priority Watersheds for pilot projects and initial opportunities to focus limited resources
  - Full Workshop Spring of 2018

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Thank You!

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