

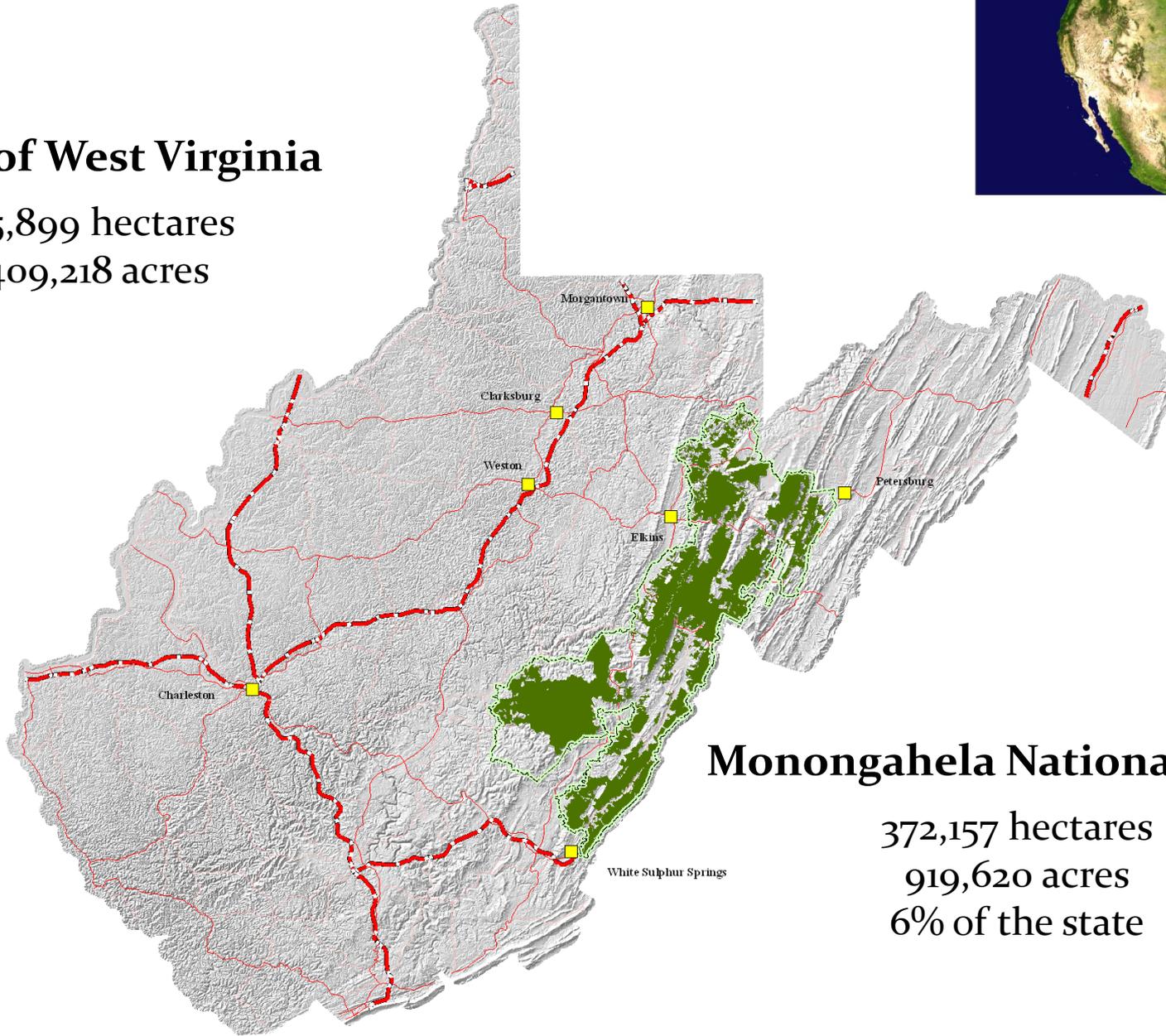
Using NRCS Soil Surveys to provide management direction for forest management

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Monongahela National Forest



State of West Virginia

6,235,899 hectares
15,409,218 acres

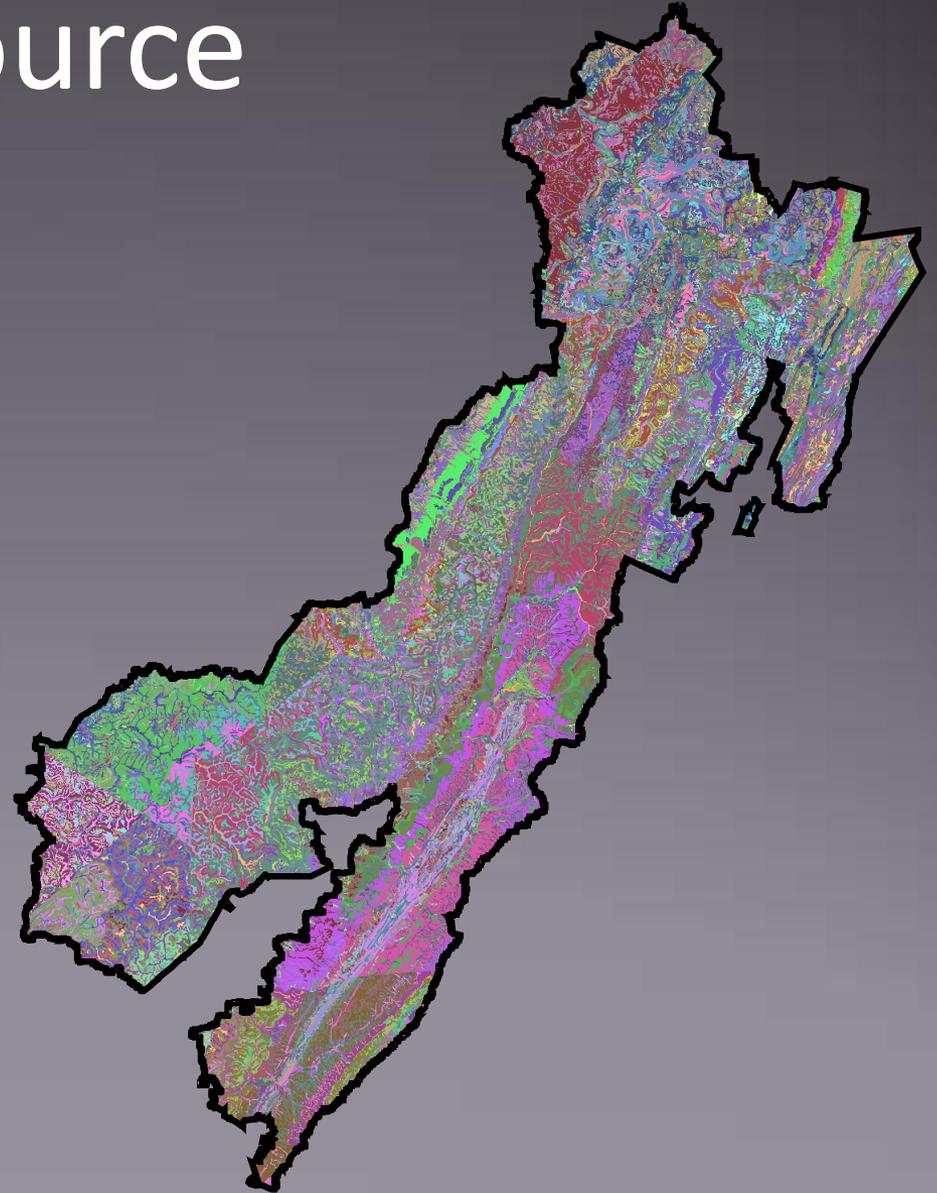


Monongahela National Forest

372,157 hectares
919,620 acres
6% of the state

MNF Soils Resource

- 10 Counties
- 1950's to 1980's
- Challenge to manage the soil survey of the MNF as one continuous management area
- 2001 worked w/ NRCS Staff to develop an "area" in NRCS and a concept with out correlating across the county boundaries
- Resulted in a soil survey area with over 500 unique map units over a million acres
- Allowed for a GIS product in ArcView

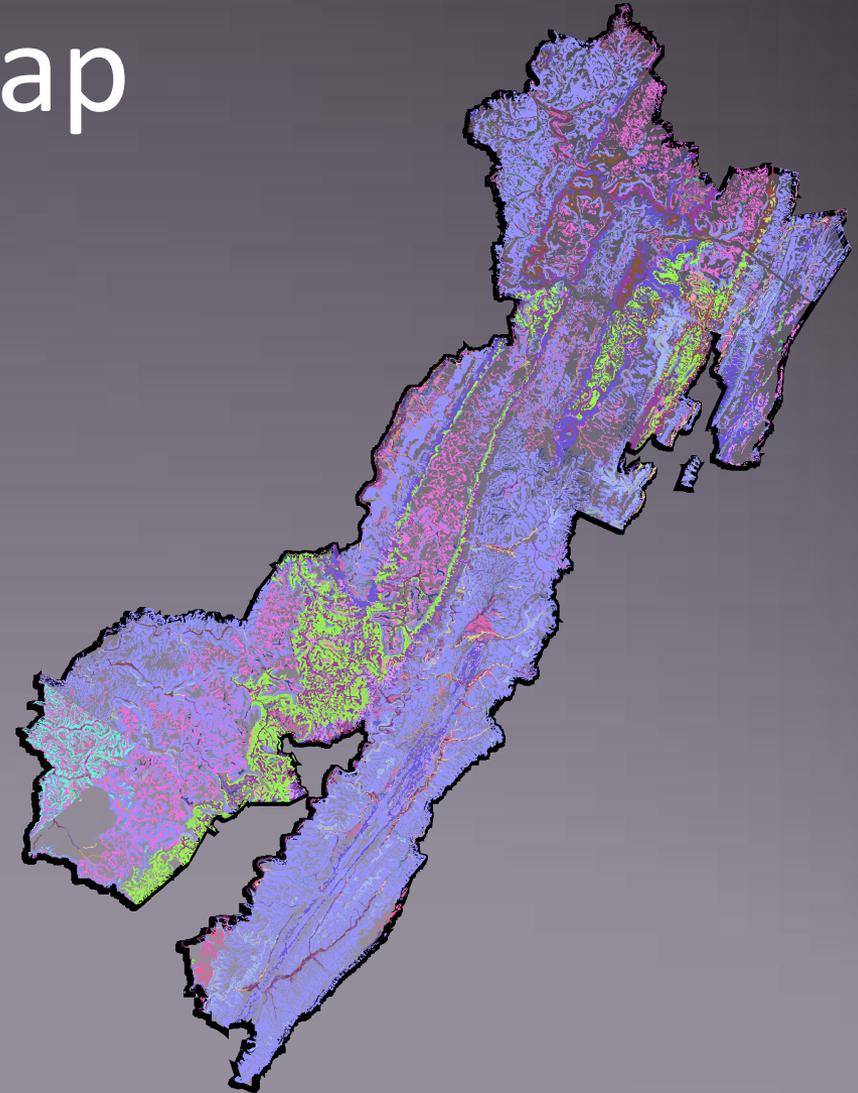


Soil Interpretations

What is relevant to a Forester, Geologist, Wildlife Biologist, Aquatic Ecologist, Hydrologist, Archeologist, Botanist, and the Soil Scientist for recommendations and mitigations for forest Management?

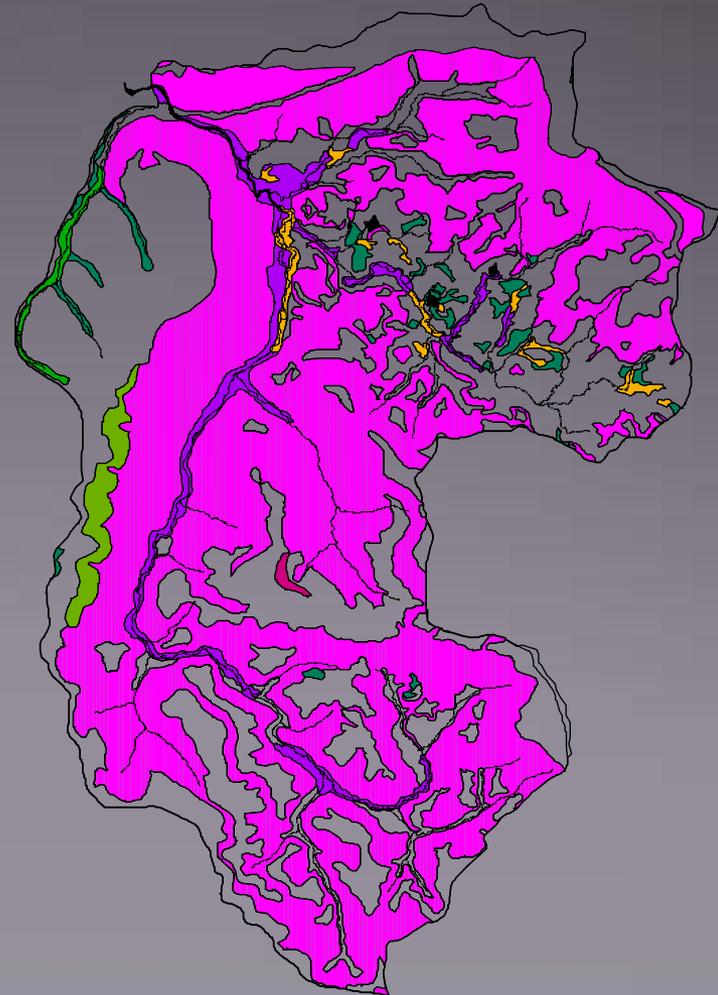
Soil Sensitivity Map

- Soils rated as sensitive require mitigation measures beyond those in the Forest Plan that are routinely applied during project implementation.
- Sensitive soils are grouped in the following categories:
 - geologies that are prone to mass wasting and/or slippage
 - slopes > 50%
 - prime farmland
 - hydric soils
 - flood plain soils
 - karst topography and limestone
 - moderately well drained or wetter



Upper Williams Watershed Multi-Resource Management Project

- 78% of landmass Mauch Chunk Geologic Formation
- Soils sensitive to mass wasting and slippage
- Analysis for effects from road building, timber harvest, and stream restoration
- Leads to site specific mitigations and design criteria



Example of the concern for disturbing “wet soils”

With the creation of the skid system, the subsurface water table is intersected in the colluvium.

Hydrologic function is disrupted and flows are brought to the surface, intersected and diverted

Mitigations can include:

- Limiting the depth of the cuts when constructing the skid system
- Specialized equipment
- Avoidance and the requirement of 200 feet of cable to pull logs to a well place skid trail or road
- The use of pipe to intersect flows and immediately disperse on the down slope side of the skid system
- Helicopter operations resulting in no disturbance



Soil Disturbance – Conventional Logging Forwarded and Skidder operation

Skid trail



Main skid haul road

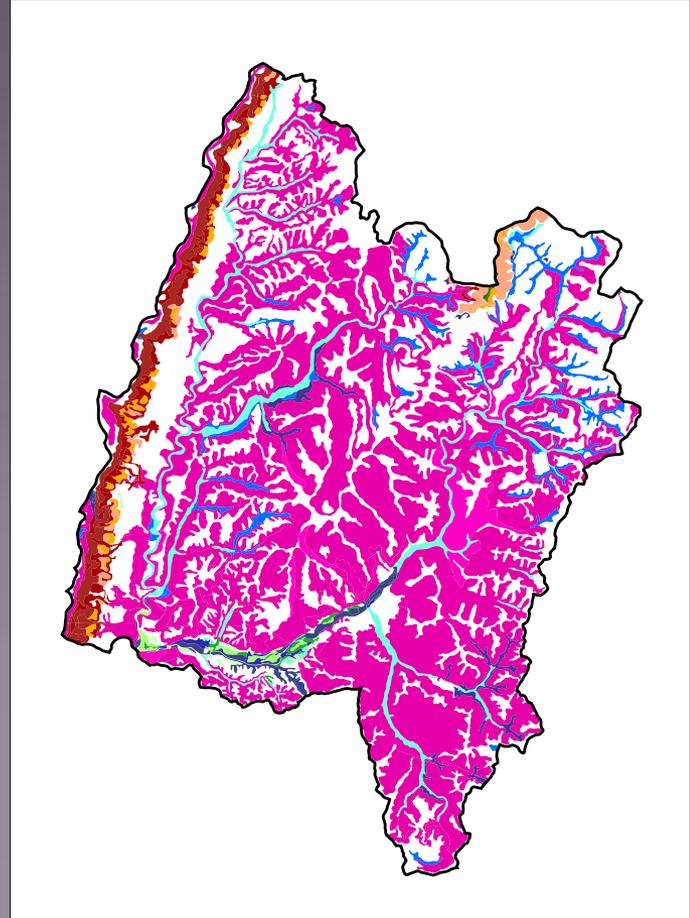
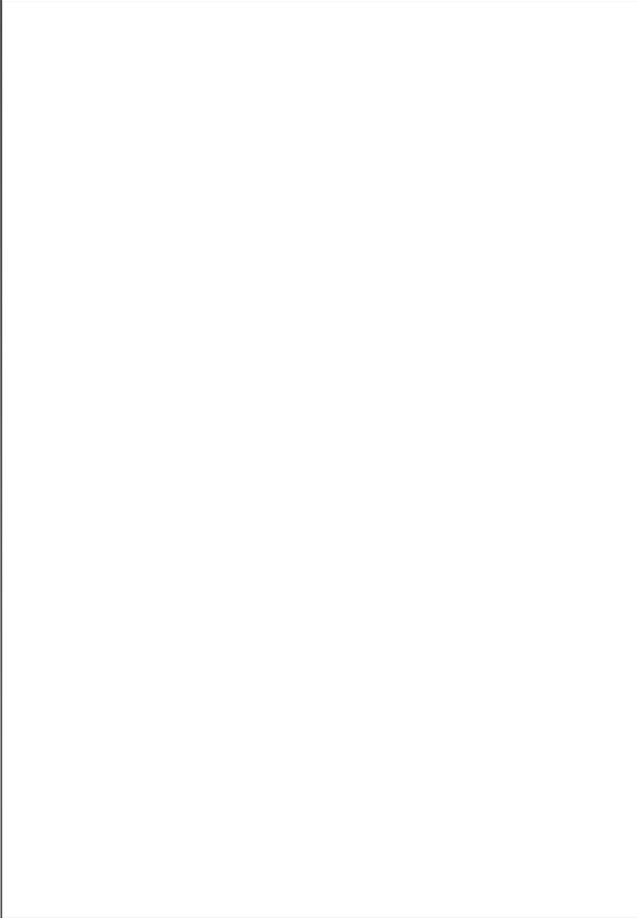


Soil Disturbance on “wet
soils prone to slippage”
in adjacent unit

Skid system – Feller
buncher overland
operation

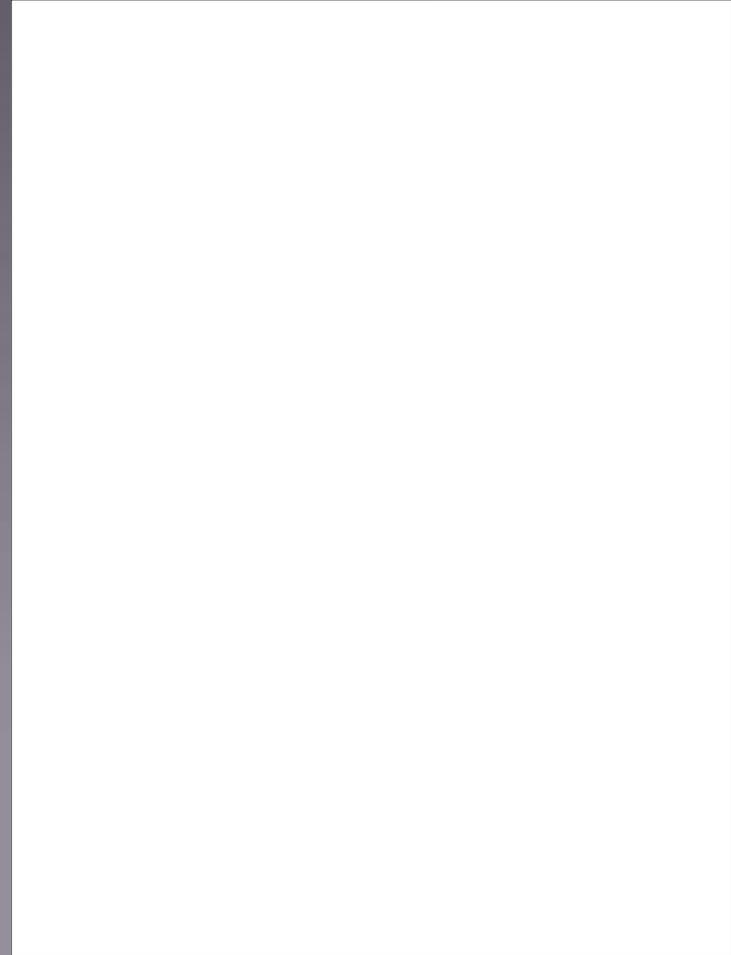


Upper Greenbrier Watershed Restoration Proposed Project Sensitive Soils Layer



Proposed Management Activities

- Harvest Units
- Logging System Planning
- Proposed Road Decommissioning
- Gas Well Access
- Restoration Units
- Herbicide Application



NRCS Web Soil Survey

- Update interpretations using Web Soil Survey
- Provide input to WV NRCS Partnership to make sure soil properties in NASIS are populated so that interpretation maps can be generated
 - i.e. Interpretations related to recreation site development for Pocahontas County
- Provide feedback to NRCS based on field observations
- Continue to upload site observations and pedons into NASIS via the partnership
- Continue on with the Cooperative Partnership