

Criterion 4: Conservation and maintenance of soil & water resources

- 4.1. Protective function:
 - 17. Area and percent of forest whose designation or land management focus is the protection of soil and water resources.



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- 4.2. Soil:
 - 18. Proportion of forest management activities that meet best management practices or other relevant legislation to protect soil resources.
 - 19. Area and percent of forest land with significant soil degradation.



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- 4.3. Water:
 - 20. Proportion of forest management activities that meet best management practices, or other relevant legislation, to protect water related resources such as riparian zones, water quality, quantity, and flow regulation.
 - 21. Area and percent of water bodies, or stream length, in forest areas with significant change in physical, chemical, or biological properties from reference conditions.



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- Protective function & BMP indicators:
 - 17. Protected area designations.
 - 18. BMPs to protect soil resources.
 - 20. BMPs to protect water resources.
- Resource condition indicators:
 - 19. Forest soil condition & trend – significant soil degradation.
 - 21. Forested area water quality condition & trend – significant change from reference conditions.



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- 17. Protected area designations.
- 18 & 20. BMPs to protect soil & water resources.
- Technical challenges:
 - Do necessary databases exist for forested areas?
 - Where are they?
 - How to analyze, summarize & interpret?



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Available Data

- Forest soil condition & trend:
 - FIA Soil Indicator datasets:
 - 2000 to 2006
 - 45 states
 - 1 plot per 39,000 ha (96,000 acres)
 - 4 field physical soil properties
 - 19 lab physical & chemical soil properties
 - Soil quality index (SQI)
- Forested area water quality condition & trend:
 - USGS flow & water quality databases
 - Water quality index (WQI)

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- USGS flow & water quality databases:
 - Hydrologic Benchmark Network (HBN): 63 relatively small, minimally-disturbed watersheds
 - National Stream Quality Accounting Network (NASQAN): 618 larger, more developed watersheds
 - National Water Quality Assessment (NAWQA): 51 study units (river basins & aquifers)
 - National Water Information System (NWIS) – the everything water database

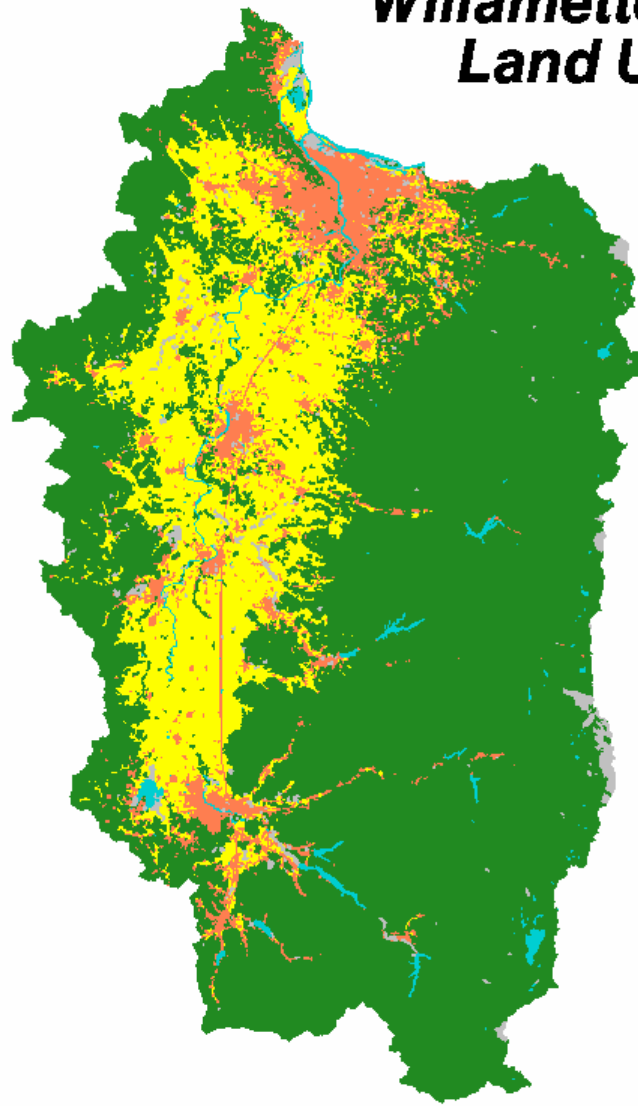





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- Soil indicator technical challenges:
 - Defining significant change.
 - Defining soil degradation.
- Water indicator technical challenges:
 - Analyzing data by land use classification: forest/nonforest, grassland, rangeland, agriculture, urban
 - Mixed land uses strongly influence water quality & quantity
 - Defining significant change.
 - Defining reference conditions.



Willamette Basin Land Use



-  ***Urban***
-  ***Agricultural***
-  ***Forested***
-  ***Water***
-  ***Misc***