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HEALTHY SOIL = CLEAN WATER

WHEN IT COMES TO RESTORING, CONSERVING AND PROTECTING WATERSHEDS, IT'S IMPORTANT TO CONSIDER THE ROLE OF HEALTHY SOILS. SOIL AND WATER ARE CONNECTED. HEALTHY SOILS EQUATE TO HEALTHIER WATER SUPPLIES FOR HUMANS, PLANTS, FISH AND WILDLIFE.

Healthy, high-functioning soils store more water and exhibit higher rates of water infiltration. More water infiltration means less winter run-off, less soil erosion, and less sediment flow into streams and rivers. The improved capacity of soils to receive and store water also increases the summer base flow in streams, which is important to dilute pollutants, decrease stream temperatures and increase dissolved oxygen in the water column. Healthy soils tighten nutrient cycles for nitrogen, phosphorus, and sulfur, creating highly-functional upland ecosystems while preventing stream **eutrophication**. Healthy soils also retain and/or break down pesticides, heavy metals, and other pollutants, preventing **non-point source pollution** from reaching aquifers and waterways.

This intricate connection expands the opportunity for conservation practices to simultaneously promote healthy soils and clean water. In short, the benefits of soil health explain why effective conservation programs focus on watersheds rather than water ways.

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unlock the SECRETS IN THE SOIL

SOIL HEALTH DEFINITIONS

eutrophication

The process by which a body of water becomes enriched in dissolved nutrients (as phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen

nonpoint source pollution

Nonpoint source pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. Non-point source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

example of healthy roots

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The NRCS uses the **four** Soil Health Principles to promote high functioning soils.

Soil Health Principles	Practices	Healthy Soil	Clean Water
Keep the Soil Covered	• Cover cropping • Mulching • Residue management • Forest biomass planting	Good cover protects the soil from erosion and supplies organic matter, which builds strong aggregates to increase infiltration and water storage.	Reducing erosion and runoff and increasing infiltration and storage keeps sediment out of waterways. Increased infiltration improves hydrologic function by reducing winter streamflows and increasing summer flows.
Minimize Disturbance	• Reduced tillage • No-till • Contour buffer strips • Field borders • Grassed waterways	Reduced disturbance promotes strong aggregates and increases infiltration and water storage.	
Keep a Living Root in the Soil	• Cover cropping • Conservation Cover • Strip cropping • Forage harvest management	A living root supplies the soil ecosystem with energy to build organic matter and retain and cycle nutrients.	Efficient nutrient cycling keeps excess nutrients from leaving the soil system and entering aquifers and waterways, and reduces negative impacts to water quality.
Diversity Above for Diversity Below	•Cover cropping •Crop rotation	Biodiversity above ground promotes biodiversity below ground. With more diversity in the soil ecosystem, the soil can more effectively breakdown pollutants.	Capture and breakdown of potential non-point source pollutants before they enter the aquifer and waterways is critical to keeping water clean.

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