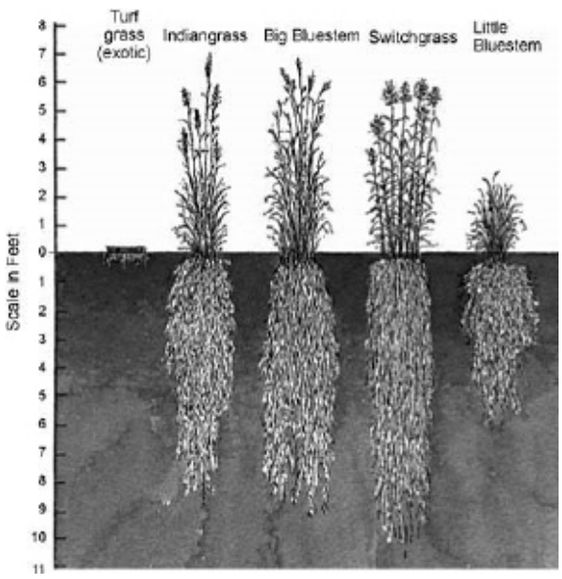
Water Quality, Soil Conservation, Soil Function, Air Quality

Native vegetation improves water quality.

Reduced soil erosion – Native vegetation possesses significantly greater root mass than non-native grasses, providing reinforcing structure to hold soil in place. The above ground biomass of native grasses intercepts and dissipates the energy of falling rain. Native grasses hold from 50% to 97% of the rain that falls, keeping it from impacting the soil.[1] Accumulated leaf and stem material protects the surface as well.

Increased nutrient/sediment retention – Native grasses trap up to 50% of coarse sediments, many of which are nutrient and pesticide laden. In studies, switchgrass removed significantly more N and P that cool-season filter strips.[2] Native grasses are known to facilitate microbial breakdown of organic matter, pesticides and heavy metals.[3]

Reduced water flow velocity and runoff – Accumulated residual leaf and stem material on the ground surface retards runoff, slowing flow functioning the same as miniature runoff retention ponds. Tall, stiff-stemmed native grasses are resistant to flow and slow water velocity and maintain their effectiveness as filters longer than short, sod-forming grasses.[4,5]



Native vegetation promotes soil conservation.

Reducing soil erosion – The extensive root mass, rainfall interception and leaf/stem material at the ground surface protect the soil from erosion.

Increased soil organic carbon – Native perennial plants eliminate cultivation which depletes soil organic carbon. As much as 70% of native grasses root systems die and regenerate annually,[1] increasing soil organic carbon and native vegetation sequesters carbon from the atmosphere and stores it as organic matter in the soil.[6]

Native vegetation improves air quality.

Carbon sequestration – Native vegetation sequesters more carbon than introduced grasses.[8] Due to the annual death and regeneration of parts of the extensive root system, more than 95% of the carbon in native grasses is below the ground in soil organic matter.[9]

Native vegetation improves soil function.

Increased infiltration rate – Increased soil organic matter and macropore space in native vegetation increases the infiltration rate.[1] Accumulated leaf and stem material at ground level retard runoff, allowing more time for infiltration.[7]

Increased water-holding capacity – The increased soil organic matter in native vegetation acts like a sponge and increases the water holding capacity. Micropore space created by decaying fine root structure and mycorrhizae create capillary action in the soil which increases water holding capacity.[1]

Increased soil fertility – Decay of fine root masses increase soil organic matter and deep roots access nutrients otherwise inaccessible by shallower rooted plants.[1]

Reduce soil compaction – Deep roots reduce soil compaction.[1]

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