

Raindrops—Why Their Fate Matters to Us All

Think of a raindrop as a football, more specifically a football in a forward pass. If the raindrop falling from the sky hits the leaves of a plant and stays there, eventually evaporating back into the air, that is the equivalent of an incomplete pass, because the football never reached its intended receiver, the ground.

But if the raindrop makes it all the way to the ground, two things can happen. It can be intercepted and run off the land. Or, it can reach the ground and soak in, a completed pass. If you own land, or if you drink water, you want that completed pass, you want the raindrop to soak into the ground.

Once the raindrop has soaked into the ground, there are still several things that can happen. It can evaporate back into the air. It can be taken up by the roots of plants and used either in photosynthesis (thus becoming part of the plant) or in transpiration (evaporating from the leaves back into the air). The raindrop could infiltrate deeper into the ground, moving slowly downhill where it eventually comes out in seeps or springs that feed our creeks and rivers, or possibly joining a deep aquifer becoming part of our groundwater supply.

How many of the raindrops fall on vegetation and evaporate back off depends on the size, type and abundance of the plants. Bigger plants and plants with high leaf surface areas will naturally catch and hold more raindrops than smaller plants. So, yes, cedar bushes (Ashe juniper) catch and hold more water than grasses, how much more depends both on how big the cedar is and also how heavy the rainfall. In light rains, the cedar catches a lot of the rainfall, in heavy rains, it catches only a small percentage (once the leaves are completely wet, all subsequent rainfall falls to the ground).

How many of the raindrops run off depends on the type of soil, the slope, and the vegetation. Native bunch grasses form the most porous, sponge-like soil of all other vegetation, and they also slow down the runoff, so less water runs off from a landscape with good, healthy native grasses. Slowing the flow of water greatly reduces erosion, some of which is caused by raindrops hitting bare ground and dislodging the soil.

Once soaked into the ground, the fate of the raindrop depends on the type of vegetation, the temperature, and whether or not it is an active growing season; the more active the plant growth, the more water will be taken up by the roots. Once beyond the root zone, the fate of the raindrop depends mainly on the type of soil and the underlying geological formations, whether it is conducive to local springs and seeps or whether the path to the underground aquifer is porous or fractured or not.

So a lot of different things can happen to our raindrop. If you own the land, you want the raindrop to soak into the ground to nourish the vegetation and possibly also to feed any seeps and springs. If you live in the city, you still want the same thing. If all the raindrops run off without soaking into the ground, there will be possible floods, silting of reservoirs, and the water will run down the river and into the gulf before your water company can capture any of it for your use. (Yes, of course we need fresh water flowing into the estuaries of the gulf, but a slow constant flow is preferable to a storm flood). When water soaks into the ground, it is acting like an underground reservoir, releasing water slowly and steadily, providing the base flow of the river.

How the land is managed determines a lot about how all of this works. A property where the cedar has been well managed, (leaving cedar on steep slopes to prevent erosion and removing much, but not all, of the remaining bushes), and where grazing has also been controlled (to prevent overgrazing and to establish a good stand of native grasses) will capture a greater portion of our natural rainfall and allow it to soak into the ground than a property that is less-well managed.

So we all have a stake in how land is managed, and a moral obligation to manage ours well. We also have an obligation to conserve our precious raindrops, it's all we have and all we ever will.

Until next time.

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