

Foundation: a field guide

If you like coming here...

do yourself a favor and learn what makes it tick. No matter what activity has brought you to this trail system, you'll enjoy your time here more if you get to know the land better. Just think—when you stop to catch your breath or eat a snack, wouldn't it be nice to look around and really understand what you're seeing, along with the how and why of it all?

Sports and activities are fun on their own—they are a great way to escape the daily grind, improve your skill and fitness, and free your mind. It's even better when you get to have the experience in a beautiful natural landscape. Because, deep down we also have a connection to Nature. In each of us there's an ancient ability to understand the land—we just need to awaken it. This book aims to do that for Wagon Wheel Trails. It looks at the land here from many angles, weaving the different elements together, and explaining the stories behind them. Read this and you will end up with an understanding and respect for the land. And the next time you're out here, your experience will be that much richer for it.

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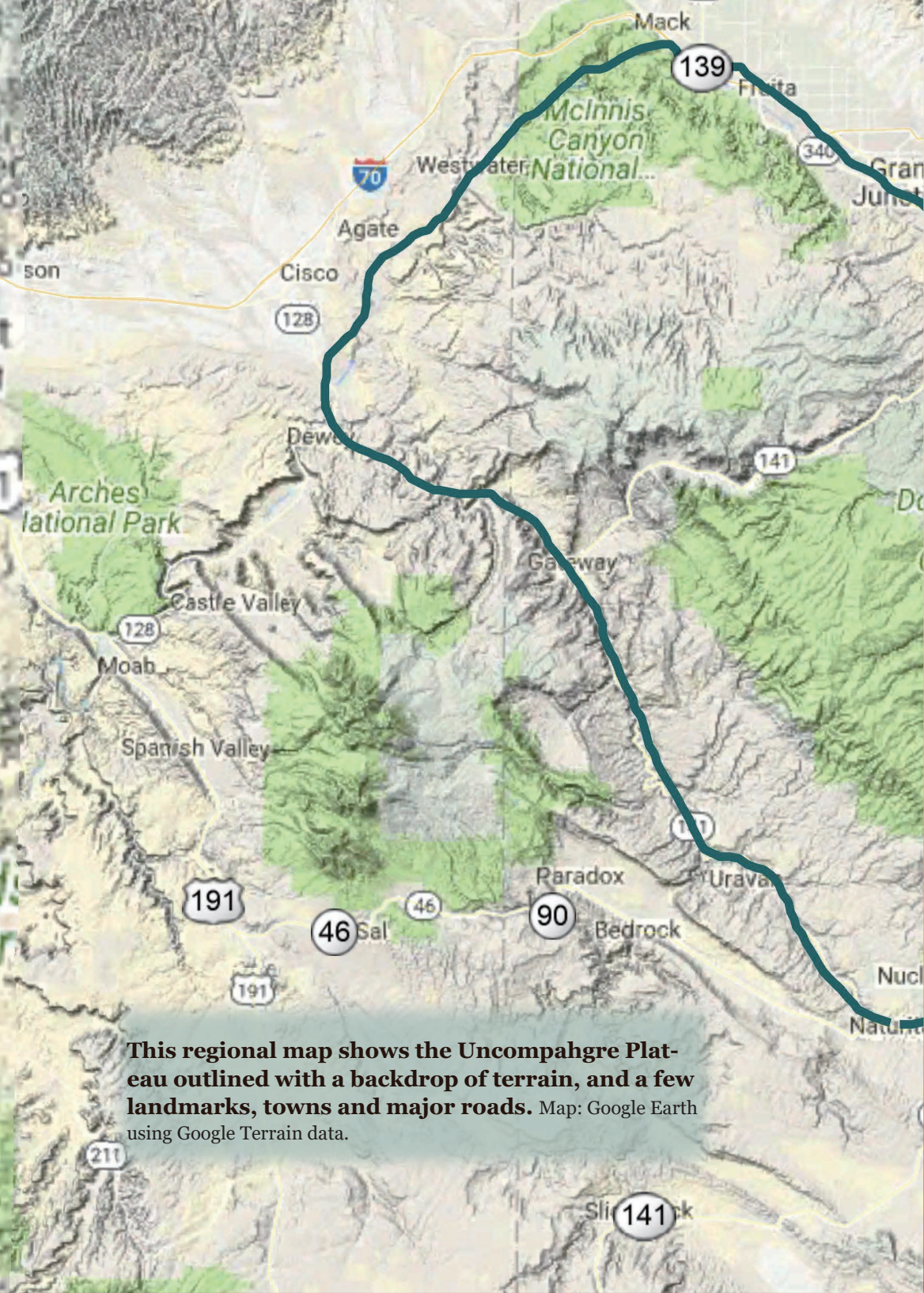
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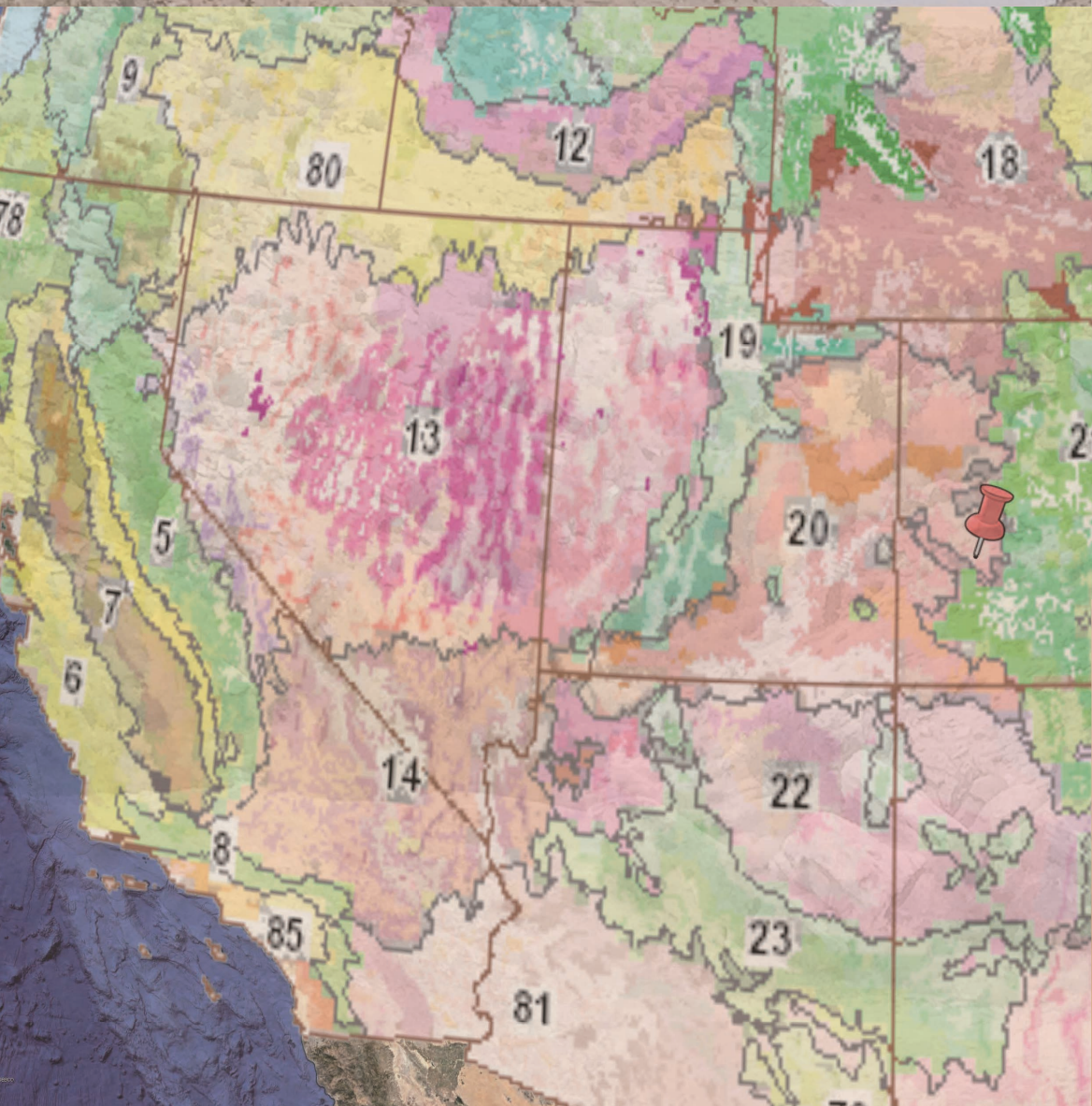
Wagon Wheel Trails

by Applied Ecological Services

for Your Land Explained



This regional map shows the Uncompahgre Plateau outlined with a backdrop of terrain, and a few landmarks, towns and major roads. Map: Google Earth using Google Terrain data.



The large map shows where Wagon Wheel Trails lies within the Level III ecoregions, and the inset at right shows its location and nearby Level IV units. Images: Google Earth with data from Landsat / Copernicus, SIO, NOAA, US Navy, NGA, GEBCO, LDEO-Columbia, NSF, NOAA Landsat / Copernicus and ORD/USEPA Ecoregions Level III and IV

Terrain: land and its physical features

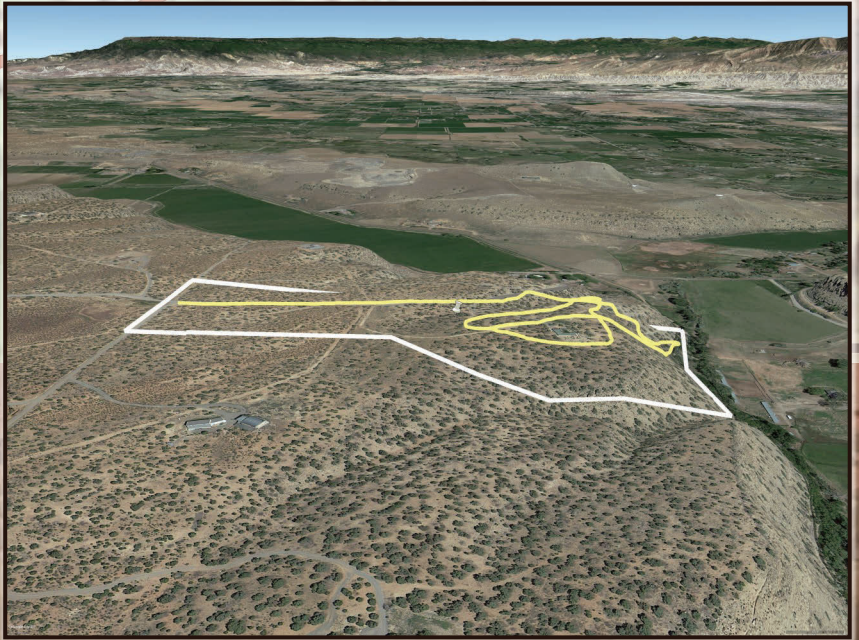
Think about...

a sheet of paper and how uniform it is. To an ant walking across it, there are no shady parts or steep parts. If the paper is crumpled up and laid out, imagine how different the ant's journey becomes—steep inclines and drops, intense sun in some parts, cool shade in others. Like the ant, our experience of land is deeply affected by the terrain.

Terrain plays a big role in determining how the natural environment feels to a person. Elevation, slope, aspect, and landform combine to create terrain. Aspect can dictate how much sunlight falls on a piece of land; and elevation is responsible for how thin the air feels and how intensely the sun shines there. Slope affects how much rain sinks into its soil, while landform and elevation modify the local wind and weather patterns around it. The different combinations lead to different environmental conditions— or microclimates.

This trail system is one sample from a broader ecoregion recognized for having abrupt differences in elevation, and a variety of landforms including benches, mesas, alluvial fans, hillslopes, cliffs and canyons. Check out the topographic map and corresponding bird's eye view on the next few pages to see how the terrain here fits within this description. Looking at the map, you can also see the elevation at the center of Wagon Wheel Trails is 6,344 feet above sea level. The contour lines on the map show how much this changes as you move across the land, with their spacing indicating how steep the slopes are and their orientations showing aspect. In contrast, a flat and level surface would have no contour lines.

Terrain can make an area wetter or drier, warmer or cooler depending on its aspect and slope combinations. Combinations that most directly face the sun are warmest and driest, and those that face away are cooler

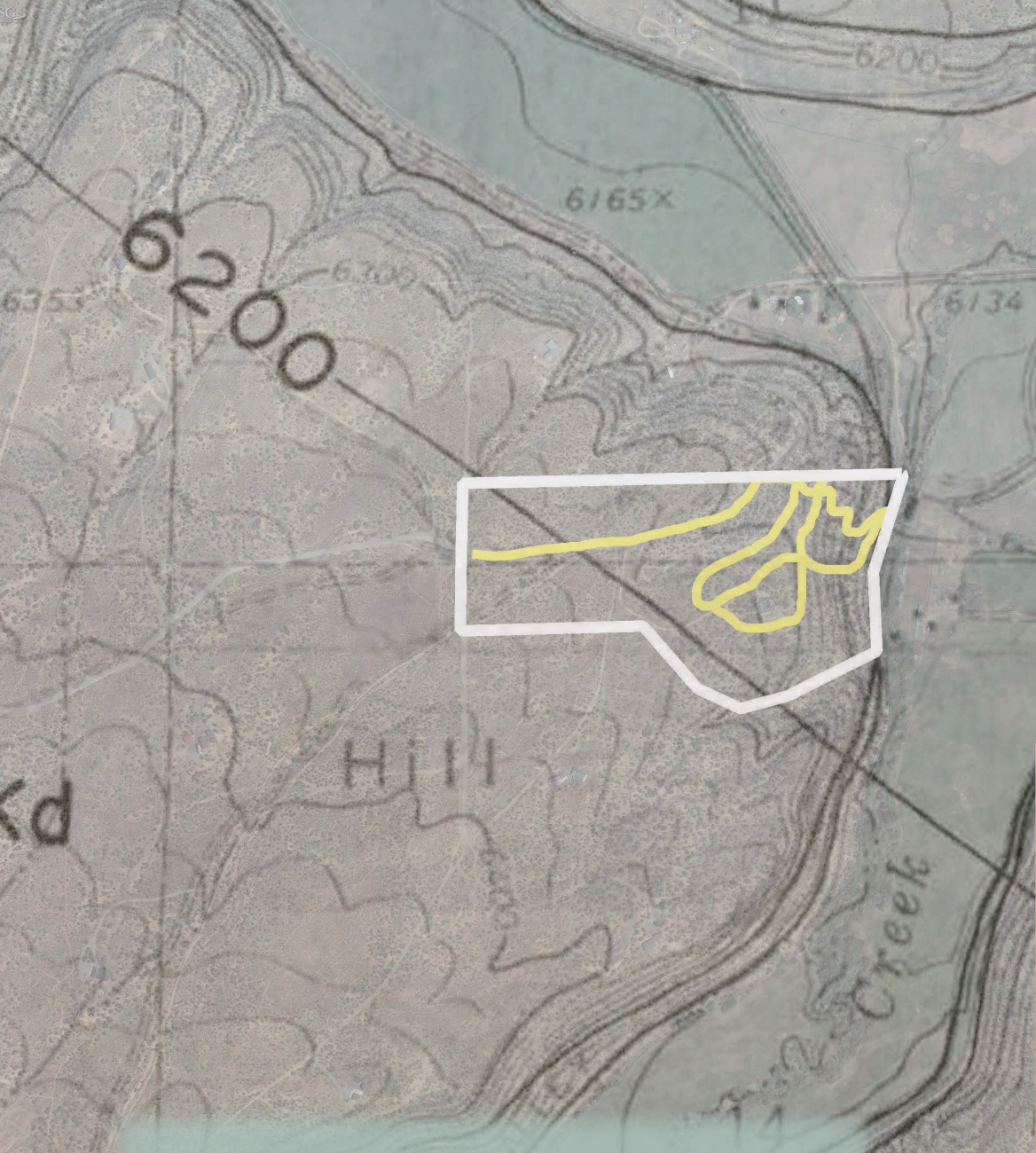




Looking at the Land

How to read a landscape...

Just like books, landscapes hold stories once you learn to read them. To make sense of what can seem chaotic and meaningless, it helps to look for what you understand about the land. First check if the landforms and vegetation match what you'd expect for the ecoregion. Next focus on the terrain and how it shapes the environment, then on signs of climate and its effects. Image: Google Earth with data from Landsat / Copernicus



The map displays the major surface rock formations in the area, labeled with their geologic symbols. The picture shows an example of the Naturita Formation.

Image: Google Maps with data from Landsat / Copernicus and USGS / AASG Geologic Map Database

Soil: the upper layer of earth where plants grow

Imagine a recipe that takes centuries...

The ingredients are rock, water, roots, air and a myriad of tiny organisms. The mixture slowly dissolves minerals from the rock, adding new molecules, and decaying plants. Finally, the soil— a fragrant, tightly woven web of living fibers, mineral particles, and microorganisms—is fully formed.

It's not just dirt, and it is definitely not all alike. Despite all sharing this same general formation process, soils vary from one another. Properties like texture, depth, and chemistry are used to tell them apart. These properties affect what vegetation can grow, how fragile and erode each soil is, and how people can use the land.

In this part of the ecoregion, a variety of sedimentary rocks and landforms have contributed to the complex array of different soils, but nearly all are dry and poorly developed. They have been mapped, classified based on their properties, and given descriptive names. The following pages show the soil map for this area. It is generalized, with map units that group together individual soils into complexes.

According to the soil map, the most widespread unit across Wagon Wheel Trails is #30 Barboncito-Rock outcrop complex. Within this unit, the largest component is the Barboncito soil, which is slightly alkaline, very shallow, well drained, and absorbs water at a moderate rate. It was formed from windblown dust and sand, and sediment from eroding upslope areas.

The profile diagram on the map shows what the soil is like underneath its surface. This soil stores only a small amount of water for plant growth. Secondly, only some of the precipitation that falls on it sinks into the soil leaving most to run off the surface, so water erosion is a major threat. This soil is moderately vulnerable to wind erosion, and will support only limited grazing, woodland or wildlife habitat manage-

There can be hundreds of plant species you might encounter on a piece of land, so focus on the ones that are dominating the vegetation as a starting point. You can think of these as the major players in the ecosystem, and it helps to understand some of their characteristics before moving on to the secondary plants.



Utah juniper is a small, dull green evergreen tree from the cypress family. It succeeds in this environment because it tolerates drought, requires little water, and is long-lived, eventually outgrowing most other plants to become dominant. You'll recognize it by its scale covered needles and large blue or purple, berry-like seeds.



Colorado pinyon is a short-statured, evergreen tree from the pine family. It's successful here because it uses scarce water efficiently, outgrows and overshadows most other plants, and has nutritious seeds that wildlife effectively plant for it. Look for needles growing in bundles of 2, and small cones and pinyon nut shells littering the ground.



Brittle prickly pear is a thorny and succulent member of the cactus family. It survives here because it endures long, dry periods, grows new plants from pads that break off and root, and wards off herbivores with its spines. Recognize it by its big yellow or pink blooms, and the sudden pain when its pad sticks to your leg.

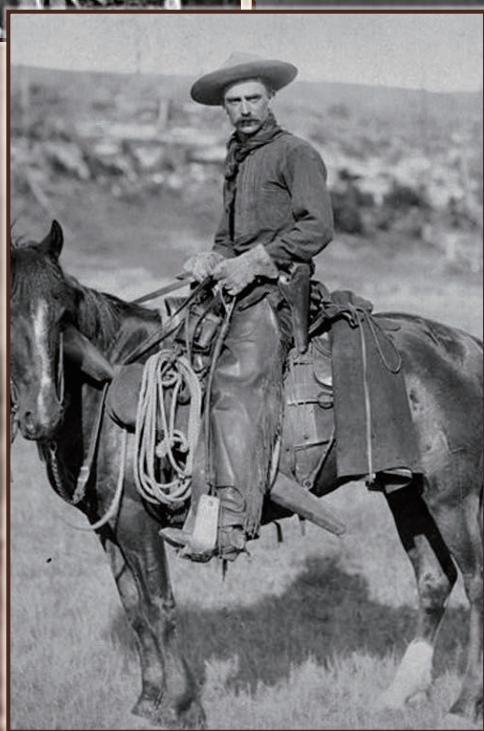
Each of these species is here because of some habitat feature that attracts them. Correspondingly, their presence affects the environment itself and the other animals that share it.

Mule deer are common in this region. Most active in morning and evening, they eat a wide variety of plants--preferring shrubs, trees, and forbs over grasses. They are social animals, forming larger groups in the fall when the rut (mating season) starts, when dominant bucks compete for females. Does usually have twins about 200 days after mating. They usually winter at lower elevations in sagebrush and pinyon-juniper habitat before migrating to higher elevations when the snow melts. When numbers are high, they can suppress browse plants, favoring grasses. You'll find them at Wagon Wheel Trails using the winter range here.



The least chipmunk is a small, agile rodent adapted to many habitat types here. Active during the day, they feed on, and collect and cache seeds, berries, nuts, fruits and insects. Once they've exhausted the food resources in an area, they mark it off with urine. To survive the winter, these chipmunks go into a state of torpor, awakening occasionally to feed on food cached in their burrow. They breed after emerging in the spring, and have one litter a year of 3-7 pups. As well as being prey, they help many plants to disperse seeds. They come here for the conifer seeds.





Leave No Trace: taking care of land

Make your mark...

and do right by the land. There's no denying that we have an impact wherever we go. But we can turn that impact into a force for good— one that leaves a place a little better than we found it. To do so will benefit the creatures that live there, and the other people who use it. Two attitudes underpin this approach: an affection for the land and a willingness to learn what it needs.

They're not making anymore land, so each of us needs to be mindful that we still count on it for our survival. It is nurturing us in a myriad of ways, from cleansing and replenishing our air and water, to giving us food, fiber and fuel, to providing beautiful and exciting places to recreate. These are called ecosystem services, and lands in their natural state are good at providing many of them.

In the case of Wagon Wheel Trails, its woodlands are reducing air pollution, capturing and storing water, removing pollutants from runoff, sustaining biodiversity and providing scenic value. How well its land does this depends on how it is used and how people—the owners, stewards, and land users—take care of it.

Recreation is a central land use for Wagon Wheel Trails. Ideally, it would give people a place where they can safely enjoy outdoor activities, experience some of the delights of being in Nature, and recover from the daily grind. Each square foot of land that is not directly being used for infrastructure would be in a healthy natural state so that it could continue to produce ecosystem services. Advice to the land's stewards includes: recreational infrastructure should be designed, constructed and maintained so that it improves people's experiences and doesn't diminish the natural values. Recreationists need to follow the rules in support of this, and help out where they can.