## ZION NATIONAL PARK August 19, 2004

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Most people come to a National Park with the expectation that they are witnessing a landscape that is the same as it has always been. Unfortunately, not only is that impossible (simply because wildlands change all the time), but it is so far from true as to constitute a massive fraud on the public. As you see and read these picture books, perhaps you will be as outraged as I am at the scale of the mess that has become "Our National Parks."



This is cheat grass (*Bromus tectorum*). Cheat is a non-native winter annual. It displaces native grasses because it germinates very early and dries out the soil such that its competitors die for lack of moisture (such as the rabbit brush in the foreground). Green, it is nutritious, dry it provides very poor forage. The dark shrub is Ephedra (*E. nevadensis*,). The lime green shrubs, often with yellow flowers) are "rabbit brush" (*Chrysothamnus viscidiflorus*). Although both are native, they are relatively poor forage for wildlife.



This is cheat grass, up close. Note that there is little diversity in the photo; it is a near monoculture. Its roots exude hormones that inhibit germination of many annuals. Notice how little leaf there is, making for very little food value compared to native perennials. The seed is on the large side and can be injurious to grazing animals.



There are ungulate trails in the background, (probably deer), but (except in winter) they don't eat cheat unless they're starving. They don't prefer rabbit bush either.



This is Arch Rock in Pine Creek Valley. Decadent dying gamble oak, juniper, and more cheat grass. This is actually more vegetation than you see in most of the Virgin River Canyon in Zion. As you shall see, compared to Canyonlands National Park, this is a virtual paradise.

Photo by Mark Vande Pol July 201

Maybe the grass is dead because it is August? Well, this too is Pine Creek Valley (near Checkerboard Mesa) in early July (late spring at this elevation of 5600'). Remember this shot, because you will see another taken the same day, not far down the road. This is what happens as the vegetation becomes more decadent. The dying gamble oak and juniper eventually weaken even the cheat grass (yellow in the foreground). As the soil dries out and becomes more fungal, the landscape hardly supports grasses at all.



Most native perennial grasses, like the remains of this one, are gone. Very little grows around it. There are no animal tracks or any other sign of disturbance. Both the mineral composition and rainfall are adequate to support grasses. This is a result of mismanagement.



It's not like there isn't any water in the area. This is the Virgin River running in the mid-August monsoon seeason. The water is not being retained in the soil for local habitat; it is striking impermeable ground to run off to an agrourban reservoir. In a healthy riparian corridor, there would be far more and younger cottonwood than here.



And, surprise, surprise, there is cheat here too. This is alluvial bottom-land, probably the best soil in the Zion for growing grass. If the river flooded, how much erosion resistance would you get from grasses like this? Does it look like there is much for animals to eat? Let's take a closer look.



Here, among the cheat, is "sand drop" (Sporobolus cryptandrus), a native grass. The native is bright green in Southern Utah in mid-August, so the problem is NOT high temperature or lack of rain. Note the wider leaves; this is a good forage grass. In a soil managed for nutrition, it will out compete the cheat. If it isn't managed...



The cheat wins.



And the native perennials lose. Note again the prevalence of bare mineral soil bereft of organic matter.



When the grasses aren't grazed, the thatch dries out the clump and deprives new blades of light. The lack of organic cover raises soil temperature and dries out the surface. The cheat dries out the upper subsurface and adds allelopathic chemicals to the soil. The native bunch grass dies.



Here is a native perennial seedling nearby (probably needle grass). There is no thatch and little cheat. It's doing just fine.



Believe it or not, this represents the goal of the Park Service for fighting cheat. These are "**cryptogamic crusts**," similar to a type of lichen. As you can see, almost nothing grows in this stuff, even cheat.



According to the US Geological Survey, these crusts now cover 85% of the Park.\* But is it really a bad thing? Aren't these crusts "Natural"? \*Source is detailed as an end note to this picture book.



More crusts, with impoverished cheat grass as the dominant vegetation (there are a couple of sand drop seedlings that probably won't make it). The Park Service claims that cryptogamic crusts, "preserve moisture." The problem with the crust is that rain doesn't penetrate it either. Instead, it runs off until the flow cuts through. Then you get a rill which turns into a gulley, the walls of which are subject to collapse. They'll also tell you "it prevents erosion."



Oops! Where are we? Well, this is grazing land just outside Zion National Park. Same day, same geology, different management. People did this, using cattle. Where is all that erosion they were worried about? This place is just as dry as the Park, if not more so, because Zion has so much area of sandstone and crust to collect water that will run off to supply soils where there should be vegetation, but isn't.



This abundant grazed needle grass shields the soil from the impact of rainfall and retains soil particles better than cryptogamic crusts. The grass also aids rainwater absorption and retention instead of running off with a load of silt cutting gullies through bare ground along the way. If you look carefully, there are forbs here too.



Now that this native grass has dropped seed, it's ready for grazing. Just think: the ranchers are making food for you and for wildlife in the deal, so long as you let them. Their lives depend upon the outcome of their management decisions. If their livelihood depended upon wildlife too, it would be even better.



Did you see wildflowers in the Park? They are abundant here, not only as nutritious forage for cattle, but for wild animals and insects as well. Note also the way the sage has been beaten back, that forces up fresh growth. If what you want is for sage grouse to recover, they need cover from sage, but also seed to eat.



Note that not only is there rabbit brush, and oak, but healthy sage is also present *because* it is browsed and crunched down by rubbing. Animal foraging prevents sage from becoming woody and decadent. And you probably thought this region was a desert! It doesn't have to be. This difference is up to you.



If government and activists regulate the ranchers out of business, you'll get a cheat grass desert, like the Park.



Here is that contrasting photo I promised: This is early July, just east of Zion National Park. Nor did I go looking for an outstanding example of this contrast. It is simply the first grazed pasture I found outside the Park. Notice how things change at the fence line. The principal differences are disturbance and nutrients. The foreground gets even more water than the pasture because of the runoff that the road does not absorb. It's seeded too.



There is still a little cheat here, but it is two to three times as big as inside the Park. Note how the brush is bright and the mallow (red) and other wildflowers are in bloom. There are also both sand drop and what appears to be gramma grass heading out. Not perfect, but more productive for native plants and wildlife than inside the Park.



This is farther down the hill off US 89 farther away from the mountains where there is less rain. Again, it is not hard to see the difference in vegetation, and why. The difference is management. This is what Zion could be, easily. It could even make a profit.

So, which do you want: PRIVATE, OR "PUBLIC"? MANAGED, OR "NATURAL"?

You may not have that choice for long. Over a fifth of the Park is now closed, due to "Budget Cuts." "Natural" is what you get.

Based upon these photos, which environmental management service would you prefer to hire? National Park Service policy is made in Washington DC. How can they truly understand the facts on location? Park "managers" are insulated from accountability with virtual lifetime employment (until the system collapses). Ranchers have a personal life-or-death stake in the health of the land. You do have a choice, for now. Source on Cryptogamic Crust Coverage: Cogan, Dan; et al. Technical Memorandum 8260-03-01, *Zion National Park, 1999-2003 VEGETATION MAPPING PROJECT,* U.S. Geological Survey, Center for Biological Informatics, Remote Sensing and GIS Group, Technical Service Center, Bureau of Reclamation, Denver, Colorado, p A-259, "Zion National Park Vegetation: Cryptogamic crust constitutes 85% of the ground cover."

[1]

This source was not easy to find and moved while in publication. The current location is not externally searchable, so one must figure out where they've put this type of data, now at: http://biology.usgs.gov/npsveg/zion/zionrpt.pdf



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