A Virtual, 2-Day Tour of Yellow Jacket and Flodine Park Park Allotment Areas Canyons of the Ancients National Monument Colorado

What you'll see on this tour:

- 1. In the past ten years of no cattle grazing, light and dark cyanobacterial (early seral) biological soil crusts are developing in areas that would be open to trampling if grazed by cattle.
- 2. Later-seral biocrusts (lichen, moss) are present mostly under shrubs where they have been protected from heavy grazing in the past.
- 3. Soil is lacking mid- or later-seral biocrust where ungulates have been trampling.
- 4. There are some areas that have been less grazed by cattle in the recent past (e.g., parts of the Yellow Jacket South stop; parts of the Horny Toad (Flodine Park) stop. These areas show some of the potential for diversity that exists on the Monument, but which has been largely depleted by past grazing
- 5. Large expanses of exotic, invasive species that are not eaten often by cattle: Russian thistle, cheatgrass. Cheatgrass has a short fire return interval, threatening shrub viability. Both Russian thistle and cheatgrass are often highly dominant on a site, reducing diversity.
- 6. Mixtures of cheatgrass and native species in both allotments. As cheatgrass is only briefly palatable early In the season, the cheatgrass will likely increase as nearby native bunchgrasses will be heavily grazed.
- 7. The most common native grass seen in the two allotments are near-monocultures of galleta grass (*Hilaria jamesii*), which is an increaser under heavy grazing. Other native grasses that are more palatable to cattle tend to be eliminated, while increasers are plants less likely to be eaten and thus they are more likely to retain seedheads and reproduce. Little diversity is present in most of the galleta grass areas on the Monument.
- 8. Rapidly-invading Russian olive. Tamarisk has some beetles (a biological control) on It, but tamarisk is another invasive exotic.
- 9. Scattered headcutting and gullies that will be extended and deepened if not protected from cattle grazing
- 10. Extensive areas with depleted grass or forb production, little "forage" for cattle.
- 11. Many dung piles from trespass horses; trespass horses may be seen. Horse hooves often trample biocrusts, which either eliminates them or sets them back toward early seral stages (e.g., light cyanobacteria).
- 12. Some strongly invasive, exotic knapweed, which will rapidly spread unless eradicated. Livestock grazing will help spread seeds, which will readily establish in land disturbed by livestook hooves.

Mary O'Brien • Grand Canyon Trust • <u>maryobrien10@gmail.com</u> • <u>www.grandcanyontrust.org</u> 10/28/2015

Yellow Jacket Virtual Tour (7 stops)











Yellow Jacket Stop #5: Yellow Jacket North 1



Fig. 21 Two soils (red in distance, light in foreground) supporting biocrust



Fig. 22 Native galleta grass and exotic, invasive cheatgrass; could be tipped to cheatgrass with livestock grazing



Fig. 23 Little "forage" in sagebrush treatment

Yellow Jacket Stop #6: Yellow Jacket North 2



Fig. 24 Light cyanobacteria developing in open space



Fig. 25 Lichen diversity (late seral crust) in area likely little used in the past by livestock;protected by rock



Fig. 26 Crust developing among galleta grass

Yellow Jacket Stop #7: Yellow Jacket North (Sagebrush) Treatment Fig. 27 (b) Incising of unstable soils Fig. 27 (a) Headcuts Fig. 28 Early-seral biocrusts forming throughout the area Fig. 30 Sagebrush, galleta, trampling in biocrusts Fig. 29 Numerous gullies; soil prone to erosion Fig. 32 Cheatgrass and galleta mixture; could be returned to cheatgrass with grazing Fig. 31 Russian thistle and some (native) galleta grass

Flodine Park Virtual Tour (7 stops)



Flodine Park Stop #1: McElmo Creek













Flodine Park Stop #7: Horny Toad (refugium) (I.e., has not been so heavily grazed in recent past; shows potential for native diversity, biocrust in the Monument)

