An Analysis of Plant Species and Usages in the Absaroka Mountains: Park County, Wyoming.

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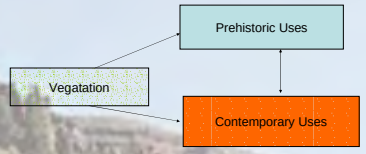
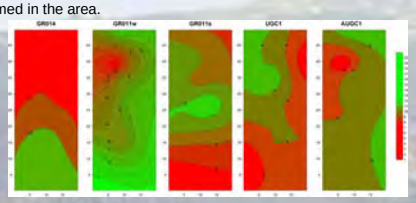
For thousands of years, the headwaters of the Greybull River, located in northwestern Wyoming in the Absaroka Mountains, has provided a subsistence base for hunter-gatherer groups. In 2002, a systematic analysis was conducted on various plant communities and archaeological site locations. This coupled dataset provides a clearer picture of the overall vegetative landscape, a monitor the specific uses for the plants known for prehistoric use and a monitor of the resources in the area. Plant ecologists from CSU noted in 2002 that during the 20 day field school they did not find a single invasive plant. A Modified-Whittaker sample frame was used to collect both percent coverage and total speciation counts for a series of subplots located within the 50 by 20 meter sampling frame. The Modified-Whittaker was shown by Stohlgren and others (1995:1998) to capture more data on rare and exotic rangeland plant species, independent frequency data and more accurate species area curves. Sites varied from river level willow covered areas to sage grasslands to areas of high elevation. A basic model for potential floral availability variation and use (both in terms of direct human use and a forage for game animals), adds to the potential for interpreting the types of activities hunter-gatherer groups would have performed in the area.

To see specific human usages and other information about these plants please visit us on the web at: www.Greybull.org



The plant species were taken using the Modified –Whittaker sampling design. The Modified Whittaker is a 20x50 m unit, used in ecological studies of plant diversity (Stohlgren et. al 1995). This sampling design is also used by archaeologists for survey of artifacts and other cultural material (Burger 2002). The Modified-Whittaker contains a K unit which is 20m by 50m around the perimeter. From within the K there are two 2 m by 5 m plots (A and B located in opposite corners); a 5 m by 20 meter plot (C located in the center of the K); and ten 50 cm by 200 cm subplots, six that are spaced around the interior of the C plot and four that are spaced around the C plot exterior.



RPC2	OBWillow	OBSage	AUGC1	UGC1
DR 1	Acla	Ant	Anemone	Ant
Allium cernuum	Ant	Artr	Ant	**Artemisia frigida**
Ant	Aquilegia	Buam	Artr	Artr
Arfr	Artr	Carex	**Bupleurum americanum**	Carex
Artr	Aster	Cela	Carex	Cela
Buam	Aster 2	Coum	**Comandra umbellata**	**Comandra umbellata**
Campanula rountifolia	Carex	DR 1	DR 1	DR 1
Carex	Chive	**DR 3**	DR 2	DR 2
Cedum lanceolatum	Cisc	Elsm	Elsm	Elsm
DF	Eltr	Elsp	Eltr	Erov
Elsp	Epan	Eltr	Erpu	Erpu
Erov	Feov	**Eriogonum umbellatum**	Erum	Feov
Erpu	Frve	Erov	Feov	FU 1
Feov	Gepr	Erpu	Gepr	Getr
Getr	Getr	Feov	Getr	Leuki
Leuki	Hobr	Getr	Juncus	**Lianthus pungens**
Luar	Juncus	Juncas 2	Juncus 2	Pabr
Pabr	Lupine	Leuki	Leuki	Pea1
Pea 1	Mast	Lipu	Lipu	**penatified**
Pea 2	Mufi	Lupine	Pabr	Phlox
Phlox	Muri	Pea 2	Pea 2	Poa 1
Poa 1	Pea 3	**Pea 2**	Pea 4	Potentilla
Potentilla	Pediculatis	Pea 4	Pea 5	**Scenecio s.**
Scs	Pepr	Pea 5	Pea 6	**UP**
UF 2	Picea	**Penstemon richardsonii**	**Pedicularus sp**	**URD 2**
UF 3	Poa	Phlox	Pepr	
UR 1	Pofr	Poa 1	Phlox	
UR 2	Potentilla	Potentilla	Pinus	
	Ribes	Scs	Poa 1	
	Salix		Pofr	
	UG3	**Scat**	Potentilla	
	WEED	E	Scs	
		CDE	Sela	
	Scat		**Stipa sp**	
	H		**UR 4**	
	HE		**UYF**	
	H			
			Scat	
			DE	
			E	
			ED	

Initials	Scientific Name
Acla	Achillea lanulosa
Alce	Allium cernuum
Chive	Allium svhoenoprasum
Anemone	Anemone sp
Ant	Antennaria sp
Aquilegia	Aquilegia sp
Arfr	Artemisia frigida
Artr	Artemisia tridentata
Pea1	Astragalus sp.
Pea5	Astragalus sp.
Buam	Bupleurum americanum
	Campanula rountifolia
Carex	Carex sp.
Pabr	Castilleja sp.
WEED	Chenopodium atrovirens
Cisc	Cirsium scariosum
Coum	Comandra umbellata
Elsm	Elymus smithii
Elsp	Elymus spicatum
Eltr	Elymus trachycaulus
Epan	Epilobium angustifolium
Erpu	Erigeron pumilus
Erov	Eriogonum ovalifonum
Erum	Eriogonum umbellatum
Feov	Festuca ovina
Frve	Fragaria vesca
Gepr	Gentiana prostrata
Getr	Geum triflorum
Hobr	Hordeum brachyantherum
Juncus	Juncus balticus
Juncus 2	Juncus castaneus
Leuki	Leucopoa kingii
Lipu	Linathus pungens
UF2	Linum lewsii
Lupine	Lupinus argenteus
Aster	Machaerantnera canescens
Mast	Maantherum stellatum
Mufi	Muhlenbergia filiformis
Muri	Muhlenbergia richardsonis
Pea2	Oxytropis sp.
Pediculatis	Pediculans sp.
	Pediculans sp.
	Pediculatus sp.
Pepr	Penstemon procerus
	Penstemon richardsonii
Phlox	Phlox hoodii
Picea	Picea engelmanii
Pinus	Pinus sp.
Poa 1	Poa sp.
Pofr	Potentilla fruticosa
Potentilla	Potentilla gracilis
Ribes	Ribes sp.
Salix	Salix sp.
Cela	Sedum lanceolatum
Scs	Senecio sphaerocephalus
	Stipa sp.
Aster2	Unknown
DF	Unknown
DR1	Dead Rosette
DR2	Unknown
FU1	Unknown
Pea3	Unknown
Pea4	Unknown
Pea6	Unknown
UG3	Unknown
UR1	Unknown
UR2	Unknown

The picture of this site is similar to RPC2.

The picture site is a similar setting to OBWillow and OB sage.

***View the topographic landscape of bare ground, species**

***Understanding the visibility of artifacts on specific ground surfaces**

***Comparable data analysis with ecologists in the research design**

***Researching the modern and ethnographic usages of the flora**

***Record faunal usages in the area through scat counts**

***Monitor rare and exotic plant species**

***Resurveying can evaluate change**

Original Modified-Whittaker sampling design (based on Stohlgren et al 1995 and 1998)

Shannon, the botanist, surveying the Modified-Whittaker

The Greybull survey has relieved its pristine natural state. No exotic species were documented during the 2002 survey. The Modified-Whittaker frame work provides specific cluster to study. There are many entities to consider while studying these cluster samples when looking at the involvement of humans of the landscape with a mixture of interests. Within the species of plants there are factors that will affect their availability and longevity. For example, there are certain species like the parasitic *Pedicularis* that are toxic to ingest when the host is a *Senecio* or *Lupinus*, but is benign of toxins when it is attached to a Rose. Plants have certain behavior characterists such as the *Pedicularis* that diminishes with the loss of species diversity. The *Artemisia tridentata* is a social shrub that preempts vast acres and drives out every other similar growth.

Certain species thrive in certain soil types like the *Muhlenbergia richardsonis* that grows in sandy soils, the *Juncus castaneus* that grows in bogs and run-off streams and the *Sedum lanceolatum* that grows on dry rocky slopes. Some exist in rarity in high elevations like the *Penstemon sp.*

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