

Trend Study 16R-4-04

Study site name: Price Pipeline North.

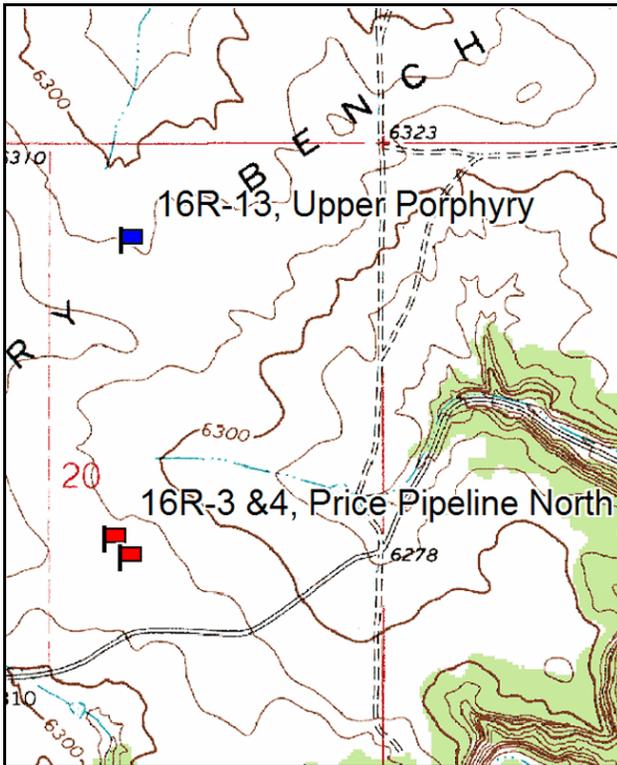
Vegetation type: Grass.

Compass bearing: frequency baseline 15 degrees magnetic.

There are no frequency belts on this site. The quadrats are placed on the baseline every five feet, alternating left and right sides. The quadrats point down the line.

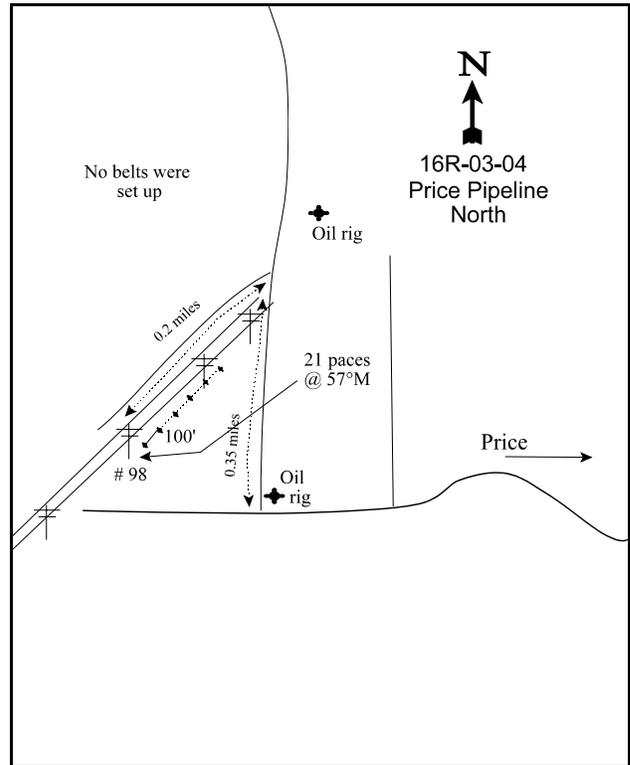
LOCATION DESCRIPTION

Take Westwood Blvd (1550 W) northwest out of Price 2.35 miles to a major intersection. Turn left onto Gordon Creek Road and travel 0.45 miles to a fork. Bear left away from Gordon Creek, going 0.1 miles to a gravel pit. Continue 5.6 miles on the Pinnacle Peak Road to a 3-way fork at the top of the bench with an oil rig near the intersection. Drive 0.35 miles north to a small road that goes under the powerlines. Turn left (southwest) and travel 0.2 miles to power pole number 98. From this pole walk 21 paces at 57 degrees magnetic to the 0-foot stake. The study is marked by 12-18 inch high, green, steel fenceposts.



Map name: Pinnacle Peak

Township 14S, Range 9E, Section 20



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4382177 N, 505544 E

DISCUSSION

Price Pipeline North - Trend Study No. 16R-4

This trend study monitors rehabilitation of a natural gas pipeline on Porphyry Bench west of Price. A rangeland drill was used to seed the pipeline after the disturbance. This trend study was established in 1997 along with 16R-3 to compare the pipeline to the undisturbed community. Elevation is 6,330 feet, with a slope of 6% and aspect to the north. This area is critical winter range for deer. Pellet group data was much less abundant for deer on the pipeline (15 ddu/acre, 38 ddu/ha) than in the native sagebrush (90 ddu/ac, 222 ddu/ha). Livestock use was higher on the pipeline since grass cover was higher. On the pipeline there was 20 cow days use/acre (50 cdu/ha), compared to 14 cow days use/ac (34 cdu/ha) in the sagebrush.

Effective rooting depth was almost 14 inches. Soil texture is classified as sandy loam. Rocks are very rare throughout the profile. This soil is susceptible to erosion because there is very little protective cover. When cover is used on a relative scale, bare ground decreased from 80% in 1997 to 64% in 2004. Vegetation cover increased from 6% to 24%, most of which is grass cover which is good at holding soil. An erosion class index in 2004 rated erosion on this site as stable.

No significant browse were found on the pipeline site. Sagebrush has not recovered from the disturbance. A few fourwing saltbush seedlings were seen. They were probably seeded from the seed mix.

No data was available on what was seeded. Crested wheatgrass and Russian wildrye were encountered that were likely seeded with the rangeland drill on the pipeline. Crested wheatgrass has established very successfully. In 1997, crested wheatgrass was present in 98% of the quadrats. This declined significantly to 56% in 2004. Cover was 2% in 1997, but as the plants matured they increased to 8% cover in 2004. Loss of abundance may be due to drought and self thinning as the population matured. Russian wildrye was only found in 1% of the quadrats. Western wheatgrass is a more drought tolerant species and has increased significantly during the drought period. It is found in large patches as it is a rhizomatous species. It had 12% cover in 2004. Alfalfa was seeded onto the pipeline. Initially, it was very successful and was found in 97% of the quadrats with 3% cover. In 2004, it declined significantly probably due to drought and was found in only 8% of the quadrats. Cover of alfalfa was only 0.6%. Scarlet globemallow has increased significantly and was robust with 3% cover in 2004. Perennial forbs were nearly five times less abundant in 2004. Five annual forbs were sampled in 2004, while none were sampled in 1997.

2004 TREND ASSESSEMENT

Soil trend is slightly up. Bare ground has decreased with the increase in perennial grass cover. No signs of erosion were found in 2004. Herbaceous understory trend is stable. Crested wheatgrass declined, but is being replaced by western wheatgrass. Perennial grass abundance has remained stable and cover is eight times higher. Drought conditions have been detrimental for alfalfa as it was much less abundant. The drought tolerant native, scarlet globemallow increased and cover was much higher. Annual forbs increased on this site. The Desirable Components Index (see methods) rating was poor in 1997, but increased to fair in 2004 with increased grass cover. The lack of browse cover after treatment is not good winter range.

TREND ASSESSMENT

soil - slightly up (4)

browse - n/a

herbaceous understory - stable (3)

1997 winter range condition (DC Index) - 11 (poor) Wyoming big sagebrush type

2004 winter range condition (DC Index) - 38 (fair) Wyoming big sagebrush type

HERBACEOUS TRENDS --
Management unit 16R, Study no: 4

Type	Species	Nested Frequency		Average Cover %	
		'97	'04	'97	'04
G	<i>Agropyron cristatum</i>	_b 326	_a 165	2.39	8.34
G	<i>Agropyron smithii</i>	_a 47	_b 182	.12	11.51
G	<i>Agropyron spicatum</i>	-	1	-	.00
G	<i>Bouteloua gracilis</i>	-	3	-	.00
G	<i>Elymus junceus</i>	-	1	-	.15
G	<i>Oryzopsis hymenoides</i>	_a -	_b 16	-	.03
G	<i>Sitanion hystrix</i>	-	4	-	.06
G	<i>Sporobolus cryptandrus</i>	-	4	-	.02
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		373	376	2.51	20.13
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F	<i>Chenopodium fremontii</i> (a)	_a -	_b 13	-	.10
F	<i>Chenopodium leptophyllum</i> (a)	_a -	_b 32	-	.63
F	<i>Descurainia pinnata</i> (a)	_a -	_b 16	-	.12
F	<i>Gilia</i> spp. (a)	_a -	_b 27	-	.13
F	<i>Haplopappus gracilis</i>	-	1	-	.00
F	<i>Lappula occidentalis</i> (a)	-	2	-	.04
F	<i>Lactuca serriola</i>	-	3	-	.00
F	<i>Lygodesmia</i> spp.	-	3	-	.03
F	<i>Medicago sativa</i>	_b 324	_a 14	3.01	.64
F	<i>Sphaeralcea coccinea</i>	_a 26	_b 55	.17	3.05
F	Unknown forb-annual (a)	4	3	.04	.00
Total for Annual Forbs		4	93	0.03	1.03
Total for Perennial Forbs		350	76	3.19	3.73
Total for Forbs		354	169	3.23	4.77

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 16R, Study no: 4

Type	Species	Strip Frequency		Average Cover %	
		'97	'04	'97	'04
B	Artemisia tridentata wyomingensis	0	0	-	.00
B	Chrysothamnus viscidiflorus viscidiflorus	0	0	-	.03
Total for Browse		0	0	0	0.04

BASIC COVER --

Management unit 16R, Study no: 4

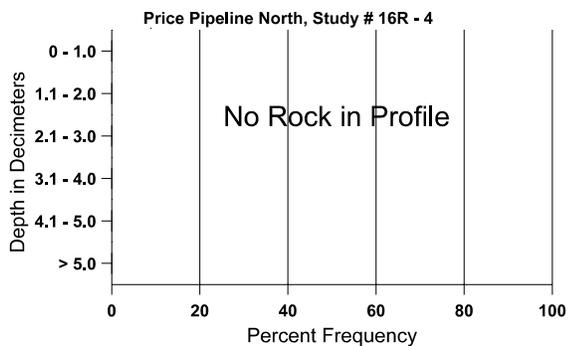
Cover Type	Average Cover %	
	'97	'04
Vegetation	5.14	26.03
Rock	1.97	.68
Pavement	3.40	.60
Litter	7.65	11.53
Cryptogams	.04	0
Bare Ground	71.12	70.51

SOIL ANALYSIS DATA --

Management unit 16R, Study no: 4, Study Name: Price Pipeline North

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
13.6	59.3 (15.5)	7.9	47.6	29.8	22.6	1.2	13.7	86.4	0.5

Stoniness Index



PELLET GROUP DATA --
 Management unit 16R, Study no: 4

Type	Quadrat Frequency		Days use per acre (ha) '04
	'97	'04	
Rabbit	8	59	-
Elk	-	1	-
Deer	11	27	15 (38)
Cattle	3	6	20 (50)

BROWSE CHARACTERISTICS --
 Management unit 16R, Study no: 4

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
<i>Chrysothamnus nauseosus</i>												
97	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	20	-	-	-	-	0	0	-	-	0	-/-
<i>Chrysothamnus viscidiflorus viscidiflorus</i>												
97	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	1400	-	-	-	-	0	0	-	-	0	-/-
<i>Opuntia</i> spp.												
97	0	-	-	-	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	20	0	0	-	-	0	-/-