

1997

Report of Findings

Revegetation Monitoring Studies
Conda Quarry
City of Boulder Open Space
Boulder, CO

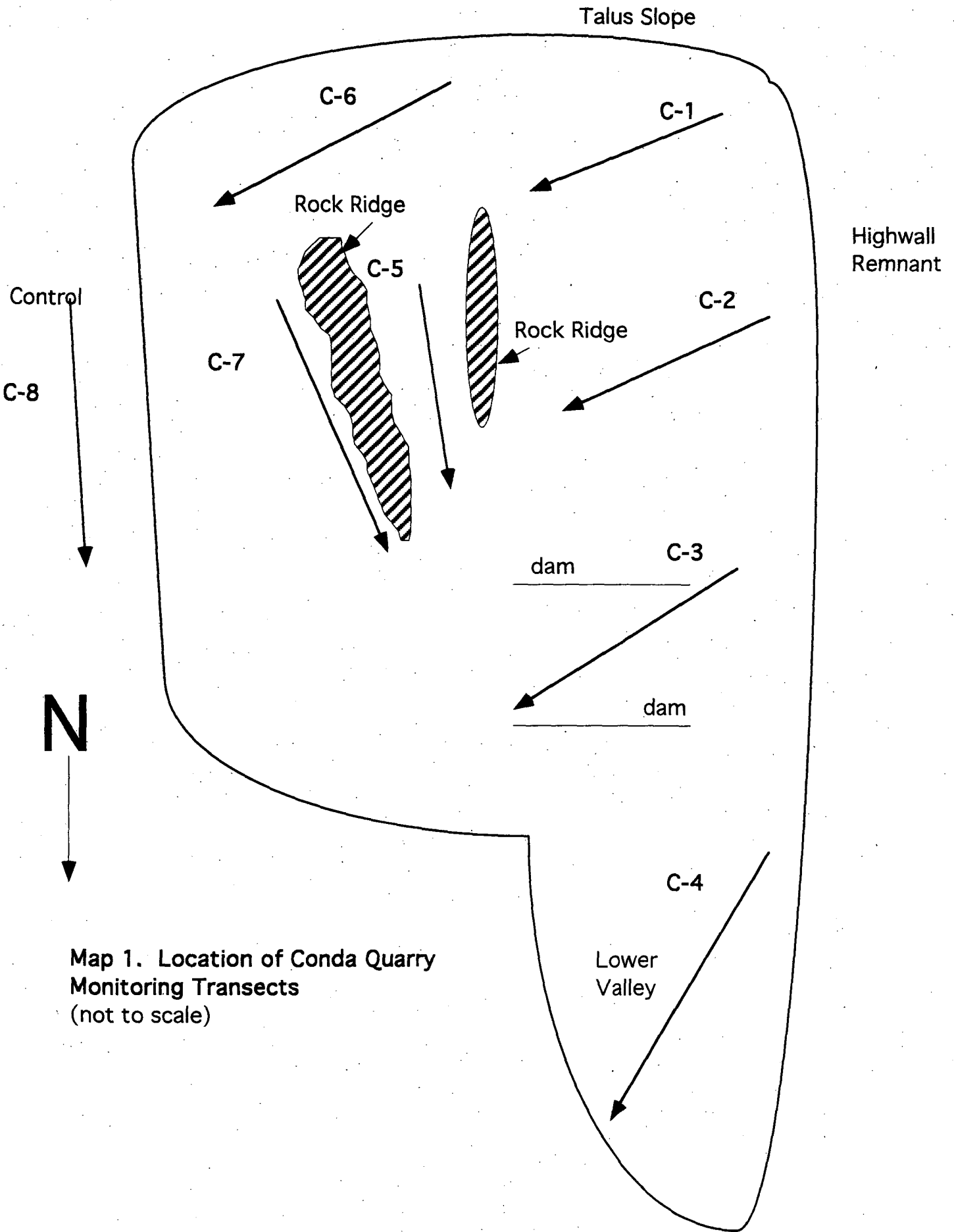
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Map 1. Location of Conda Quarry Monitoring Transects (not to scale)

Table 1. Cover Data – Reclaimed Transects, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE ANNUAL & BIENNIAL FORBS					
<i>Acroasia albicaulis</i>	0.00	28.57	0.00	0.00	0.00
<i>Cyclachaena xanthifolia</i>	0.00	14.29	0.00	0.00	0.00
<i>Grindelia squarrosa</i>	0.14	85.71	0.43	0.14	0.41
<i>Helianthus annuus</i>	0.43	71.43	1.30	0.43	1.24
<i>Oligosporus pacificus</i>	0.00	14.29	0.00	0.00	0.00
<i>Polygonum douglasii</i>	0.00	42.86	0.00	0.00	0.00
TOTAL NATIVE ANN. & BIEN. FORBS	0.6	100.0	1.7	0.6	1.7
INTRODUCED ANNUAL & BIENNIAL FORBS					
<i>Acosta diffusa</i>	2.00	100.00	6.06	2.14	6.20
<i>Alyssum desertorum</i>	0.00	14.29	0.00	0.00	0.00
<i>Carduus nutans ssp. macrolepis</i>	0.00	28.57	0.00	0.00	0.00
<i>Cynoglossum officinale</i>	0.00	57.14	0.00	0.00	0.00
<i>Erodium cicutarium</i>	0.14	28.57	0.43	0.14	0.41
<i>Lactuca serriola</i>	0.00	71.43	0.00	0.00	0.00
<i>Lepidium densiflorum</i>	0.00	14.29	0.00	0.00	0.00
<i>Medicago lupulina</i>	0.00	57.14	0.00	0.00	0.00
<i>Melilotus alba</i>	0.00	28.57	0.00	0.00	0.00
<i>Melilotus officinalis</i>	0.29	71.43	0.87	0.29	0.83
<i>Noccaea montana</i>	0.00	14.29	0.00	0.00	0.00
<i>Podospermum laciniatum</i>	0.00	14.29	0.00	0.00	0.00
<i>Polygonum arenastrum</i>	0.00	14.29	0.00	0.00	0.00
<i>Salsola australis</i>	0.14	85.71	0.43	0.14	0.41
<i>Tragopogon dubius ssp. major</i>	0.00	85.71	0.00	0.00	0.00
<i>Verbascum blattaria</i>	0.00	14.29	0.00	0.00	0.00
<i>Verbascum thapsus</i>	0.00	57.14	0.00	0.00	0.00
TOTAL INTRO. ANN. & BIEN. FORBS	2.6	100.0	7.8	2.7	7.9
INTRODUCED ANNUAL GRASSES					
<i>Anisantha tectorum</i>	0.00	28.57	0.00	0.00	0.00
<i>Bromus japonicus</i>	0.14	71.43	0.43	0.14	0.41
<i>Secale cereale</i>	0.00	14.29	0.00	0.00	0.00
<i>Triticum aestivum</i>	0.00	42.86	0.00	0.00	0.00
TOTAL INTRO. ANN. GRASSES	0.1	71.4	0.4	0.1	0.4
NATIVE PERENNIAL FORBS					
<i>Achillea lanulosa</i>	0.14	71.43	0.43	0.14	0.41
<i>Adenolinum lewisii</i>	0.29	28.57	0.87	0.29	0.83
<i>Ambrosia psilostachya var. coronopifolia</i>	2.29	100.00	6.93	2.43	7.02
<i>Artemisia ludoviciana</i>	0.00	14.29	0.00	0.00	0.00
<i>Aster laevis var. geyeri</i>	0.00	57.14	0.00	0.00	0.00
<i>Aster porteri</i>	0.00	14.29	0.00	0.00	0.00
<i>Heliomeris multiflora</i>	0.14	28.57	0.43	0.14	0.41
<i>Heterotheca fulcrata</i>	0.00	28.57	0.00	0.00	0.00
<i>Lupinus argenteus</i>	0.00	14.29	0.00	0.00	0.00
<i>Lupinus caudatus</i>	0.14	42.86	0.43	0.14	0.41
<i>Monarda fistulosa var. menthifolia</i>	0.14	71.43	0.43	0.29	0.83
<i>Penstemon secundiflorus</i>	0.00	28.57	0.00	0.00	0.00
<i>Penstemon strictus</i>	0.00	42.86	0.00	0.00	0.00
<i>Phacelia heterophylla</i>	0.14	71.43	0.43	0.14	0.41
<i>Ratibida columnifera</i>	0.14	71.43	0.43	0.14	0.41
<i>Rumex triangulivalvis</i>	0.00	14.29	0.00	0.00	0.00
<i>Sphaeralcea coccinea</i>	0.00	14.29	0.00	0.00	0.00
<i>Virgulus novae-angliae</i>	0.00	14.29	0.00	0.00	0.00
TOTAL NATIVE PERENNIAL FORBS	3.4	100.0	10.4	3.7	10.7
INTRODUCED PERENNIAL FORBS					
<i>Breca arvensis</i>	0.14	71.43	0.43	0.14	0.41
<i>Convolvulus arvensis</i>	0.86	100.00	2.60	0.86	2.48
<i>Hypericum perforatum</i>	0.00	28.57	0.00	0.00	0.00
<i>Taraxacum officinale</i>	0.00	42.86	0.00	0.00	0.00
<i>Verbena bracteata</i>	0.00	85.71	0.00	0.14	0.41
TOTAL INTRO. PERENNIAL FORBS	1.0	100.0	3.0	1.1	3.3

Table 1. Cover Data – Reclaimed Transects, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE PERENNIAL GRASSES (cool)					
<i>Achnatherum hymenoides</i>	0.00	14.29	0.00	0.00	0.00
<i>Dicanthelium oligosanthes</i> var. <i>scribnerianum</i>	0.00	42.86	0.00	0.00	0.00
<i>Elymus canadensis</i>	0.00	28.57	0.00	0.00	0.00
<i>Elymus glaucus</i>	0.14	14.29	0.43	0.14	0.41
<i>Elymus lanceolatus</i> fm. <i>dasystachya</i>	1.43	100.00	4.33	1.71	4.96
<i>Elymus longifolius</i>	0.00	14.29	0.00	0.00	0.00
<i>Elymus trachycaulus</i>	0.57	85.71	1.73	0.57	1.65
<i>Elymus virginicus</i>	0.00	42.86	0.00	0.00	0.00
<i>Hesperostipa comata</i>	0.71	57.14	2.16	0.71	2.07
<i>Koeleria macrantha</i>	0.00	42.86	0.00	0.00	0.00
<i>Nassella viridula</i>	0.14	85.71	0.43	0.29	0.83
<i>Pascopyrum smithii</i>	19.00	100.00	57.58	19.57	56.61
<i>Poa agassizensis</i>	0.43	57.14	1.30	0.43	1.24
<i>Poa compressa</i>	0.14	57.14	0.43	0.14	0.41
<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>	0.00	14.29	0.00	0.00	0.00
TOTAL NATIVE PERENNIAL GRASSES (c)	22.6	100.0	68.4	23.6	68.2
INTRODUCED PERENNIAL GRASSES (cool)					
<i>Agropyron cristatum</i> ssp. <i>desertorum</i>	0.00	28.57	0.00	0.00	0.00
<i>Bromopsis inermis</i>	0.00	28.57	0.00	0.00	0.00
<i>Dactylis glomerata</i>	0.00	14.29	0.00	0.00	0.00
<i>Echinochloa crus-galli</i>	0.00	42.86	0.00	0.00	0.00
<i>Festuca arundinacea</i>	0.71	57.14	2.16	0.71	2.07
<i>Thinopyrum intermedium</i>	1.43	28.57	4.33	1.43	4.13
TOTAL INTRO. PERENNIAL GRASSES (c)	2.1	100.0	6.5	2.1	6.2
NATIVE PERENNIAL GRASSES (warm)					
<i>Andropogon gerardii</i>	0.57	71.43	1.73	0.57	1.65
<i>Bouteloua curtipendula</i>	0.00	57.14	0.00	0.00	0.00
<i>Chondrosum gracile</i>	0.00	14.29	0.00	0.00	0.00
<i>Panicum virgatum</i>	0.00	28.57	0.00	0.00	0.00
<i>Sporobolus asper</i>	0.00	14.29	0.00	0.00	0.00
TOTAL NATIVE PERENNIAL GRASSES (w)	0.6	71.4	1.7	0.6	1.7
NATIVE SHRUBS					
<i>Cercocarpus montanus</i>	0.00	14.29	0.00	0.00	0.00
<i>Rhus aromatica</i> ssp. <i>trilobata</i>	0.00	14.29	0.00	0.00	0.00
TOTAL NATIVE SHRUBS	0.0	14.3	0.0	0.0	0.0
Standing dead	2.29	85.71		2.29	
Litter	32.71	100.00		32.71	
Bare soil	28.86	100.00		28.86	
Rock	3.14	100.00		3.14	
TOTALS	100.0			101.6	
TOTAL VEGETATION COVER	33.0 (s=9.1)		100.0	34.6 (s=9.7)	100.0
GROUND COVER (Litter+Rock+Veg+St.Dead)	71.1			72.7	
SPECIES DENSITY (# of species/100 sq.m.)					
(AVERAGE= 34.0 Std.Dev.= 5.5)					

Table 1. Cover Data – Reclaimed Transects, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	Percent Foliar Cover*						
	----- SAMPLE NUMBER -----						
	1	2	3	4	5	6	7
NATIVE ANNUAL & BIENNIAL FORBS							
<i>Acrolasia albicaulis</i>						P	P
<i>Cyclachaena xanthifolia</i>						P	
<i>Grindelia squarrosa</i>	P		P	1	P	P	P
<i>Helianthus annuus</i>		P	P	3		P	P
<i>Oligosporus pacificus</i>	P						
<i>Polygonum douglasii</i>	P					P	P
TOTAL NATIVE ANN. & BIEN. FORBS	P	P	P	4	P	P	P
INTRODUCED ANNUAL & BIENNIAL FORBS							
<i>Acosta diffusa</i>	6	1	P	1(1)	P	6	P
<i>Alyssum desertorum</i>			P				
<i>Carduus nutans ssp. macrolepis</i>		P					P
<i>Cynoglossum officinale</i>		P	P	P	P		
<i>Erodium cicutarium</i>				P		1	
<i>Lactuca serriola</i>	P	P		P		P	P
<i>Lepidium densiflorum</i>		P					
<i>Medicago lupulina</i>		P		P		P	P
<i>Melilotus alba</i>				P			P
<i>Melilotus officinalis</i>	P	P	P		P		2
<i>Noccaea montana</i>				P			
<i>Podospermum laciniatum</i>							P
<i>Polygonum arenastrum</i>				P			
<i>Salsola australis</i>	P		P	P	P	P	1
<i>Tragopogon dubius ssp. major</i>	P	P	P	P		P	P
<i>Verbascum blattaria</i>				P			
<i>Verbascum thapsus</i>	P	P				P	P
TOTAL INTRO. ANN. & BIEN. FORBS	6	1	P	1(1)	P	7	3
INTRODUCED ANNUAL GRASSES							
<i>Anisantha tectorum</i>			P		P		
<i>Bromus japonicus</i>			P	P	P	1	P
<i>Secale cereale</i>					P		
<i>Triticum aestivum</i>			P	P		P	
TOTAL INTRO. ANN. GRASSES	---	---	P	P	P	1	P
NATIVE PERENNIAL FORBS							
<i>Achillea lanulosa</i>	P	P		1		P	P
<i>Adenolinum lewisii</i>					P		2
<i>Ambrosia psilostachya var. coronopifolia</i>	4	4	P	5(1)	P	3	P
<i>Artemisia ludoviciana</i>	P						
<i>Aster laevis var. geyeri</i>	P	P	P			P	
<i>Aster porteri</i>							P
<i>Heliomeris multiflora</i>	1	P					
<i>Heterotheca fulcrata</i>				P		P	
<i>Lupinus argenteus</i>				P			
<i>Lupinus caudatus</i>	P	1				P	
<i>Monarda fistulosa var. menthifolia</i>	(1)	P		1		P	P
<i>Penstemon secundiflorus</i>	P	P					
<i>Penstemon strictus</i>				P	P		P
<i>Phacelia heterophylla</i>	P	P		P	P	1	
<i>Ratibida columnifera</i>	1	P		P		P	P
<i>Rumex triangulivalvis</i>			P				
<i>Sphaeralcea coccinea</i>			P				
<i>Virgulus novae-angliae</i>				P			
TOTAL NATIVE PERENNIAL FORBS	6(1)	5	P	7(1)	P	4	2
INTRODUCED PERENNIAL FORBS							
<i>Breca arvensis</i>	1			P	P	P	P
<i>Convolvulus arvensis</i>	P	P	1	4	P	1	P
<i>Hypericum perforatum</i>		P				P	
<i>Taraxacum officinale</i>				P		P	P
<i>Verbena bracteata</i>	P	P	P	(1)	P		P
TOTAL INTRO. PERENNIAL FORBS	1	P	1	4(1)	P	1	P

Table 1. Cover Data – Reclaimed Transects, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	Percent Foliar Cover*						
	----- SAMPLE NUMBER -----						
	1	2	3	4	5	6	7
NATIVE PERENNIAL GRASSES (cool)							
<i>Achnatherum hymenoides</i>							P
<i>Dicanthelium oligosanthes</i> var. <i>scribnerianum</i>				P	P		P
<i>Elymus canadensis</i>					P		P
<i>Elymus glaucus</i>						1	
<i>Elymus lanceolatus</i> fm. <i>dasystachya</i>	P	1	P	1(1)	5(1)	2	1
<i>Elymus longifolius</i>			P				
<i>Elymus trachycaulus</i>	P	P	P		1	P	3
<i>Elymus virginicus</i>	P	P	P				
<i>Hesperostipa comata</i>		P	P		P		5
<i>Koeleria macrantha</i>		P		P		P	
<i>Nassella viridula</i>	P	P	P	1	P		(1)
<i>Pascopyrum smithii</i>	22	28	38	17(1)	15(1)	13(2)	P
<i>Poa agassizensis</i>	P		P	P		3	
<i>Poa compressa</i>			P		1	P	P
<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>			P				
TOTAL NATIVE PERENNIAL GRASSES (c)	22	29	38	19(2)	22(2)	19(2)	9(1)
INTRODUCED PERENNIAL GRASSES (cool)							
<i>Agropyron cristatum</i> ssp. <i>desertorum</i>				P	P		
<i>Bromopsis inermis</i>				P	P		
<i>Dactylis glomerata</i>			P				
<i>Echinochloa crus-galli</i>				P	P		P
<i>Festuca arundinacea</i>	P	P		4		1	
<i>Thinopyrum intermedium</i>					10		P
TOTAL INTRO. PERENNIAL GRASSES (c)	P	P	P	4	10	1	P
NATIVE PERENNIAL GRASSES (warm)							
<i>Andropogon gerardii</i>	1	P		3	P		P
<i>Bouteloua curtipendula</i>	P	P		P			P
<i>Chondrosium gracile</i>				P			
<i>Panicum virgatum</i>				P			P
<i>Sporobolus asper</i>				P			
TOTAL NATIVE PERENNIAL GRASSES (w)	1	P	---	3	P	---	P
NATIVE SHRUBS							
<i>Cercocarpus montanus</i>			P				
<i>Rhus aromatica</i> ssp. <i>trilobata</i>			P				
TOTAL NATIVE SHRUBS	---	---	P	---	---	---	---
Standing dead	2	2		2	1	7	2
Litter	58	56	29	33	20	27	6
Bare soil	3	6	27	20	42	31	73
Rock	1	1	5	3	5	2	5
TOTALS	100	100	100	100	100	100	100
TOTAL VEGETATION COVER	36(1)	35	39	42(5)	32(2)	33(2)	14(1)
GROUND COVER (Litter+Rock+Veg+St.Dead)	97(1)	94	73	80(5)	58(2)	69(2)	27(1)
SPECIES DENSITY (# of species/100 sq.m.)	31	32	30	43	28	34	40
(AVERAGE= 34.0 Std.Dev.= 5.5)							

*P=Present within 1 m. on either side of the cover transect, but not quantitatively encountered.

Table 2. Cover Data – Control Transect, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION		RELATIVE VEGETATION		Percent Foliar Cover* SAMPLE NUMBER – 8
			COVER (%)	COVER-ALL (%)	COVER-ALL (%)	COVER-ALL (%)	
NATIVE ANNUAL & BIENNIAL FORBS							
<i>Frasera speciosa</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Grindelia squarrosa</i>	0.00	100.00	0.00	1.00	1.30		(1)
<i>Polygonum douglasii</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Pterogonum alatum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Silene antirrhina</i>	0.00	100.00	0.00	0.00	0.00		P
TOTAL NATIVE ANN. & BIEN. FORBS	0.0	100.0	0.0	1.0	1.3		(1)
INTRODUCED ANNUAL & BIENNIAL FORBS							
<i>Alyssum minus</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Lactuca serriola</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Tragopogon dubius ssp. major</i>	0.00	100.00	0.00	0.00	0.00		P
TOTAL INTRO. ANN. & BIEN. FORBS	0.0	100.0	0.0	0.0	0.0		P
INTRODUCED ANNUAL GRASSES							
<i>Bromus japonicus</i>	6.00	100.00	9.09	6.00	7.79		6
TOTAL INTRO. ANN. GRASSES	6.0	100.0	9.1	6.0	7.8		6
NATIVE PERENNIAL FORBS							
<i>Achillea lanulosa</i>	0.00	100.00	0.00	1.00	1.30		(1)
<i>Allium cernuum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Allium textile</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Ambrosia psilostachya var. coronopifolia</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Antennaria rosea</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Artemisia frigida</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Artemisia ludoviciana</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Aster porteri</i>	3.00	100.00	4.55	3.00	3.90		3
<i>Calochortus gunnisonii</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Cerastium strictum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Comandra umbellata ssp. pallida</i>	3.00	100.00	4.55	3.00	3.90		3
<i>Delphinium nuttallianum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Drymocallis fissa</i>	6.00	100.00	9.09	6.00	7.79		6
<i>Eriogonum umbellatum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Gaillardia aristata</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Geranium caespitosum ssp. caespitosum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Gutierrezia sarothrae</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Helianthus pumilus</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Heliomeris multiflora</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Heterotheca fulcrata</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Lathyrus leucanthus</i>	1.00	100.00	1.52	1.00	1.30		1
<i>Lesquerella montana</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Liatris punctata</i>	1.00	100.00	1.52	1.00	1.30		1
<i>Monarda fistulosa var. menthifolia</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Oligoneuron rigidum</i>	1.00	100.00	1.52	1.00	1.30		1
<i>Oligosporus dracunculus ssp. glaucus</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Penstemon virens</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Psoralidium tenuiflorum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Scutellaria brittonii</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Senecio integerrimus</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Toxicoscordion venenosum</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Virgulus falcatus</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Virgulus novae-angliae</i>	1.00	100.00	1.52	1.00	1.30		1
TOTAL NATIVE PERENNIAL FORBS	16.0	100.0	24.2	17.0	22.1		16(1)
INTRODUCED PERENNIAL FORBS							
<i>Hypericum perforatum</i>	0.00	100.00	0.00	0.00	0.00		P
TOTAL INTRO. PERENNIAL FORBS	0.0	100.0	0.0	0.0	0.0		P
NATIVE PERENNIAL GRASSES (cool)							
<i>Achnatherum nelsonii</i>	4.00	100.00	6.06	4.00	5.19		4
<i>Carex pensylvanica ssp. heliophila</i>	4.00	100.00	6.06	9.00	11.69		4(5)
<i>Elymus longifolius</i>	1.00	100.00	1.52	1.00	1.30		1
<i>Hesperostipa comata</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Koeleria macrantha</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Poa agassizensis</i>	13.00	100.00	19.70	16.00	20.78		13(3)
<i>Poa compressa</i>	9.00	100.00	13.64	9.00	11.69		9
TOTAL NATIVE PERENNIAL GRASSES (c)	31.0	100.0	47.0	39.0	50.6		31(8)

Table 2. Cover Data – Control Transect, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER		RELATIVE VEGETATION COVER-ALL		Percent Foliar Cover*
			COVER (%)	COVER-ALL (%)	COVER-ALL (%)	SAMPLE NUMBER – 8	
NATIVE PERENNIAL GRASSES (warm)							
<i>Andropogon gerardii</i>	1.00	100.00	1.52	1.00	1.30		1
<i>Muhlenbergia montana</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Schizachyrium scoparium</i>	0.00	100.00	0.00	0.00	0.00		P
<i>Sporobolus heterolepis</i>	1.00	100.00	1.52	1.00	1.30		1
TOTAL NATIVE PERENNIAL GRASSES (w)	2.0	100.0	3.0	2.0	2.6		2
NATIVE SHRUBS							
<i>Padus virginiana</i> ssp. <i>melanocarpa</i>	2.00	100.00	3.03	3.00	3.90		2(1)
<i>Rosa sayi</i>	2.00	100.00	3.03	2.00	2.60		2
<i>Symphoricarpos occidentalis</i>	2.00	100.00	3.03	2.00	2.60		2
<i>Yucca glauca</i>	1.00	100.00	1.52	1.00	1.30		1
TOTAL NATIVE SHRUBS	7.0	100.0	10.6	8.0	10.4		7(1)
NATIVE TREES							
<i>Pinus ponderosa</i> ssp. <i>scopulorum</i>	4.00	100.00	6.06	4.00	5.19		4
TOTAL NATIVE TREES	4.0	100.0	6.1	4.0	5.2		4
SUCCULENT							
<i>Opuntia macrorhiza</i>	0.00	100.00	0.00	0.00	0.00		P
TOTAL SUCCULENT	0.0	100.0	0.0	0.0	0.0		P
Litter	31.00	100.00		31.00			31
Bare soil	1.00	100.00		1.00			1
Rock	2.00	100.00		2.00			2
TOTALS	100.0			111.0			100
TOTAL VEGETATION COVER	66.0 (s=0.0)		100.0	77.0 (s=0.0)	100.0		66(11)
GROUND COVER (Litter+Rock+Veg+St.Dead)	99.0			110.0			99(11)
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 60.0 Std.Dev.= 0.0)							60

*P=Present within 1 m. on either side of the cover transect, but not quantitatively encountered.

Table 3. Frequency Data – Transect 1, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----										
		1	2	3	4	5	6	7	8	9	10	
NATIVE ANNUAL & BIENNIAL FORBS												
<i>Grindelia squarrosa</i>	10.00											P
<i>Oligosporus pacificus</i>	10.00		P									
<i>Polygonum douglasii</i>	10.00									P		
TOTAL NATIVE ANN. & BIEN. FORBS	30.0	---	P	---	---	---	---	---	---	P	---	P
INTRODUCED ANNUAL & BIENNIAL FORBS												
<i>Acosta diffusa</i>	80.00	P	P	P	P		P	P			P	P
<i>Lactuca scariola</i>	20.00	P							P			
<i>Melilotus officinalis</i>	10.00											P
<i>Salsola australis</i>	10.00										P	
<i>Tragopogon dubius ssp. major</i>	20.00								P		P	
TOTAL INTRO. ANN. & BIEN. FORBS	90.0	P	P	P	P	---	P	P	P	P	P	P
NATIVE PERENNIAL FORBS												
<i>Achillea lanulosa</i>	30.00			P	P				P			
<i>Ambrosia psilostachya var. coronopifolia</i>	50.00			P	P		P	P			P	
<i>Aster laevis var. geyeri</i>	30.00			P	P					P		
<i>Heliomeris multiflora</i>	10.00											P
<i>Lupinus caudatus</i>	10.00							P				
<i>Monarda fistulosa var. menthifolia</i>	70.00	P	P	P	P			P		P		P
<i>Penstemon secundiflorus</i>	10.00							P				
<i>Phacelia heterophylla</i>	10.00				P							
<i>Ratibida columnifera</i>	30.00		P							P		P
TOTAL NATIVE PERENNIAL FORBS	90.0	P	P	P	P	---	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS												
<i>Breea arvensis</i>	10.00							P				
<i>Convolvulus arvensis</i>	10.00				P							
<i>Verbena bracteata</i>	30.00		P		P							P
TOTAL INTRO. PERENNIAL FORBS	40.0	---	P	---	P	---	P	---	---	---	---	P
NATIVE PERENNIAL GRASSES (cool)												
<i>Elymus lanceolatus fm. dasystachya</i>	20.00			P				P				
<i>Elymus trachycaulus</i>	30.00			P	P	P						
<i>Elymus virginicus</i>	40.00		P			P	P	P	P			
<i>Nassella viridula</i>	30.00				P				P		P	
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	20.00			P	P							
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)												
<i>Festuca arundinacea</i>	10.00									P		
TOTAL INTRO. PERENNIAL GRASSES (c)	10.0	---	---	---	---	---	---	---	---	P	---	---
NATIVE PERENNIAL GRASSES (warm)												
<i>Andropogon gerardii</i>	40.00		P		P				P	P		
<i>Bouteloua curtipendula</i>	10.00				P							
TOTAL NATIVE PERENNIAL GRASSES (w)	40.0	---	P	---	P	---	---	---	P	P	---	---
SPECIES DENSITY (# of species/5 sq.m.) (AVERAGE= 7.7 Std.Dev.= 3.1)		4	8	9	14	3	9	7	9	6	8	

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 4. Frequency Data – Transect 2, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE*									
		----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Helianthus annuus</i>	30.00	P		P							P
TOTAL NATIVE ANN. & BIEN. FORBS	30.0	P	---	P	---	---	---	---	---	---	P
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Acosta diffusa</i>	70.00	P	P	P	P		P	P			P
<i>Cynoglossum officinale</i>	10.00			P							
<i>Lactuca serriola</i>	10.00										P
<i>Medicago lupulina</i>	10.00						P				
<i>Melilotus officinalis</i>	20.00	P								P	
<i>Tragopogon dubius</i> ssp. <i>major</i>	10.00										P
TOTAL INTRO. ANN. & BIEN. FORBS	80.0	P	P	P	P	---	P	P	---	P	P
NATIVE PERENNIAL FORBS											
<i>Achillea lanulosa</i>	10.00										P
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	70.00	P		P	P	P		P		P	P
<i>Heliomeris multiflora</i>	10.00									P	
<i>Monarda fistulosa</i> var. <i>menthifolia</i>	10.00									P	
<i>Penstemon secundiflorus</i>	20.00		P						P		
<i>Ratibida columnifera</i>	20.00				P			P			
TOTAL NATIVE PERENNIAL FORBS	90.0	P	P	P	P	P	---	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Convolvulus arvensis</i>	30.00	P				P					P
<i>Verbena bracteata</i>	20.00									P	P
TOTAL INTRO. PERENNIAL FORBS	40.0	P	---	---	---	P	---	---	---	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Elymus lanceolatus</i> fm. <i>dasystachya</i>	50.00					P	P	P	P		P
<i>Elymus trachycaulus</i>	40.00		P		P					P	P
<i>Hesperostipa comata</i>	10.00										P
<i>Koeleria macrantha</i>	10.00								P		
<i>Nassella viridula</i>	20.00	P		P							
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	20.00							P			P
<i>Bouteloua curtipendula</i>	10.00								P		
TOTAL NATIVE PERENNIAL GRASSES (w)	30.0	---	---	---	---	---	---	P	P	---	P
SPECIES DENSITY (# of species/5 sq.m.)											
(AVERAGE= 6.1 Std.Dev.= 2.7)											
		7	4	6	5	4	4	6	5	7	13

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 5. Frequency Data – Transect 3, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----										
		1	2	3	4	5	6	7	8	9	10	
INTRODUCED ANNUAL & BIENNIAL FORBS												
<i>Acosta diffusa</i>	10.00											P
<i>Melilotus officinalis</i>	10.00		P									
<i>Salsola australis</i>	10.00	P										
TOTAL INTRO. ANN. & BIEN. FORBS	30.0	P	P	---	---	---	---	---	---	---	---	P
INTRODUCED ANNUAL GRASSES												
<i>Anisantha tectorum</i>	10.00											P
<i>Bromus japonicus</i>	40.00	P				P						P
<i>Triticum aestivum</i>	10.00					P						
TOTAL INTRO. ANN. GRASSES	40.0	P	---	---	---	P	---	---	---	---	---	P
NATIVE PERENNIAL FORBS												
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	20.00				P			P				
<i>Rumex triangulivalvis</i>	10.00				P							
<i>Sphaeralcea coccinea</i>	10.00					P						
TOTAL NATIVE PERENNIAL FORBS	30.0	---	---	---	P	P	P	---	---	---	---	---
INTRODUCED PERENNIAL FORBS												
<i>Convolvulus arvensis</i>	20.00	P			P							
<i>Verbena bracteata</i>	10.00						P					
TOTAL INTRO. PERENNIAL FORBS	30.0	P	---	---	P	P	---	---	---	---	---	---
NATIVE PERENNIAL GRASSES (cool)												
<i>Elymus lanceolatus</i> fm. <i>dasystachya</i>	30.00								P	P		P
<i>Elymus trachycaulus</i>	40.00	P	P				P					P
<i>Elymus virginicus</i>	60.00		P	P	P				P	P		
<i>Nassella viridula</i>	10.00								P			
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	20.00						P					P
<i>Poa compressa</i>	10.00						P					
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)												
<i>Dactylis glomerata</i>	10.00							P				
TOTAL INTRO. PERENNIAL GRASSES (c)	10.0	---	---	---	---	---	---	P	---	---	---	---
SPECIES DENSITY (# of species/5 sq.m.) (AVERAGE= 4.4 Std.Dev.= 1.3)		5	4	5	6	6	4	3	2	4	5	

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 6. Frequency Data – Transect 4, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Grindelia squarrosa</i>	50.00			P			P	P	P	P	
<i>Helianthus annuus</i>	30.00							P	P	P	
TOTAL NATIVE ANN. & BIEN. FORBS	50.0	---	---	P	---	---	P	P	P	P	---
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Acosta diffusa</i>	50.00			P		P	P	P			P
<i>Cynoglossum officinale</i>	20.00			P		P					
<i>Erodium cicutarium</i>	10.00								P		
<i>Lactuca serriola</i>	10.00							P			
<i>Medicago lupulina</i>	10.00							P			
<i>Melilotus alba</i>	10.00			P							
<i>Noccaea montana</i>	10.00	P									
<i>Polygonum arenastrum</i>	30.00			P				P	P		
<i>Salsola australis</i>	20.00			P						P	
<i>Tragopogon dubius ssp. major</i>	20.00			P						P	
TOTAL INTRO. ANN. & BIEN. FORBS	70.0	P	---	P	---	P	P	P	P	P	---
INTRODUCED ANNUAL GRASSES											
<i>Bromus japonicus</i>	30.00		P		P						P
TOTAL INTRO. ANN. GRASSES	30.0	---	P	---	P	---	---	---	---	---	P
NATIVE PERENNIAL FORBS											
<i>Ambrosia psilostachya var. coronopifolia</i>	60.00		P	P			P	P	P	P	
<i>Heterotheca fulcrata</i>	10.00					P					
<i>Monarda fistulosa var. menthifolia</i>	10.00		P								
<i>Penstemon strictus</i>	10.00		P								
<i>Virgulus novae-angliae</i>	20.00		P			P					
TOTAL NATIVE PERENNIAL FORBS	70.0	---	P	P	---	P	P	P	P	P	---
INTRODUCED PERENNIAL FORBS											
<i>Breea arvensis</i>	20.00			P							P
<i>Convolvulus arvensis</i>	80.00	P		P	P	P	P	P	P	P	P
<i>Verbena bracteata</i>	60.00		P	P	P		P	P	P	P	
TOTAL INTRO. PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Elymus lanceolatus fm. dasystachya</i>	50.00					P		P	P	P	P
<i>Nassella viridula</i>	50.00			P		P		P	P	P	
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	10.00					P					
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agropyron cristatum ssp. desertorum</i>	10.00		P								
<i>Bromopsis inermis</i>	10.00		P								
<i>Echinochloa crus-galli</i>	20.00				P		P				
<i>Festuca arundinacea</i>	20.00	P			P						
TOTAL INTRO. PERENNIAL GRASSES (c)	40.0	P	P	---	P	---	P	---	---	---	---
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	30.00		P	P	P						
<i>Bouteloua curtipendula</i>	40.00	P		P	P	P					
<i>Chondrosium gracile</i>	40.00	P		P	P			P			
<i>Panicum virgatum</i>	30.00	P				P			P		
TOTAL NATIVE PERENNIAL GRASSES (w)	70.0	P	P	P	P	P	---	P	P	---	---
SPECIES DENSITY (# of species/5 sq.m.)											
(AVERAGE= 9.8 Std.Dev.= 3.3)		7	10	16	9	11	7	12	11	11	4

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 7. Frequency Data – Transect 5, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Grindelia squarrosa</i>	30.00		P	P			P				
TOTAL NATIVE ANN. & BIEN. FORBS	30.0	---	P	P	---	---	P	---	---	---	---
INTRODUCED ANNUAL GRASSES											
<i>Anisantha tectorum</i>	10.00					P					
<i>Bromus japonicus</i>	10.00						P				
<i>Secale cereale</i>	10.00					P					
TOTAL INTRO. ANN. GRASSES	20.0	---	---	---	---	P	P	---	---	---	---
NATIVE PERENNIAL FORBS											
<i>Adenolinum lewisii</i>	10.00		P								
TOTAL NATIVE PERENNIAL FORBS	10.0	---	P	---	---	---	---	---	---	---	---
INTRODUCED PERENNIAL FORBS											
<i>Convolvulus arvensis</i>	10.00									P	
<i>Verbena bracteata</i>	10.00			P							
TOTAL INTRO. PERENNIAL FORBS	20.0	---	---	P	---	---	---	---	---	P	---
NATIVE PERENNIAL GRASSES (cool)											
<i>Elymus canadensis</i>	10.00										P
<i>Elymus lanceolatus</i> fm. <i>dasystachya</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Elymus trachycaulus</i>	40.00					P	P		P	P	
<i>Hesperostipa comata</i>	10.00		P								
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa compressa</i>	10.00							P			
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Bromopsis inermis</i>	30.00			P	P		P				
<i>Thinopyrum intermedium</i>	80.00	P	P	P	P	P	P	P		P	
TOTAL INTRO. PERENNIAL GRASSES (c)	80.0	P	P	P	P	P	P	P	---	P	---
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	10.00										P
TOTAL NATIVE PERENNIAL GRASSES (w)	10.0	---	---	---	---	---	---	---	---	---	P
SPECIES DENSITY (# of species/5 sq.m.) (AVERAGE= 4.8 Std.Dev.= 1.4)		3	6	6	4	6	7	4	3	5	4

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 8. Frequency Data – Transect 6, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Grindelia squarrosa</i>	70.00	P		P		P	P	P	P	P	
<i>Helianthus annuus</i>	40.00		P	P				P	P		
<i>Polygonum douglasii</i>	10.00						P				
TOTAL NATIVE ANN. & BIEN. FORBS	80.0	P	P	P	---	P	P	P	P	P	---
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Acosta diffusa</i>	80.00	P		P		P	P	P	P	P	P
<i>Lactuca serriola</i>	20.00					P	P				
<i>Salsola australis</i>	40.00		P	P	P		P				
<i>Tragopogon dubius ssp. major</i>	30.00						P	P			P
TOTAL INTRO. ANN. & BIEN. FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED ANNUAL GRASSES											
<i>Bromus japonicus</i>	60.00	P	P		P				P	P	P
TOTAL INTRO. ANN. GRASSES	60.0	P	P	---	P	---	---	P	P	P	---
NATIVE PERENNIAL FORBS											
<i>Achillea lanulosa</i>	40.00					P	P	P			P
<i>Ambrosia psilostachya var. coronopifolia</i>	90.00	P		P	P	P	P	P	P	P	P
<i>Aster laevis var. geyeri</i>	40.00							P	P	P	P
<i>Heterotheca fulcrata</i>	10.00							P			
<i>Monarda fistulosa var. menthifolia</i>	10.00										P
<i>Phacelia heterophylla</i>	20.00	P				P					
<i>Ratibida columnifera</i>	10.00								P		
TOTAL NATIVE PERENNIAL FORBS	90.0	P	---	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Brea arvensis</i>	10.00	P									
<i>Convolvulus arvensis</i>	50.00	P	P		P			P			P
<i>Hypericum perforatum</i>	10.00				P						
<i>Taraxacum officinale</i>	10.00							P			
TOTAL INTRO. PERENNIAL FORBS	50.0	P	P	---	P	---	---	P	---	P	---
NATIVE PERENNIAL GRASSES (cool)											
<i>Elymus lanceolatus fm. dasystachya</i>	50.00		P			P			P	P	P
<i>Elymus trachycaulus</i>	10.00							P			
<i>Pascopyrum smithii</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	50.00	P			P	P	P	P			
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
SPECIES DENSITY (# of species/5 sq.m.)											
(AVERAGE= 8.6 Std.Dev.= 2.4)		9	6	6	7	9	11	13	9	10	6

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 9. Frequency Data – Transect 7, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Acroclasia albicaulis</i>	30.00				1	2	1				
<i>Helianthus annuus</i>	40.00	1				1	1				1
<i>Polygonum douglasii</i>	10.00	2									
TOTAL NATIVE ANN. & BIEN. FORBS	50.0	3	---	---	1	3	2	---	---	---	1
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Acosta diffusa</i>	10.00	4									
<i>Lactuca serriola</i>	10.00	2									
<i>Medicago lupulina</i>	10.00	3									
<i>Melilotus alba</i>	10.00										P
<i>Melilotus officinalis</i>	10.00									2	
<i>Podospermum laciniatum</i>	10.00	1									
<i>Salsola australis</i>	50.00	21				12	7	6			2
TOTAL INTRO. ANN. & BIEN. FORBS	60.0	31	---	---	---	12	7	6	---	2	2
INTRODUCED ANNUAL GRASSES											
<i>Bromus japonicus</i>	20.00	1			3						
TOTAL INTRO. ANN. GRASSES	20.0	1	---	---	3	---	---	---	---	---	---
NATIVE PERENNIAL FORBS											
<i>Achillea lanulosa</i>	10.00								2		
<i>Adenolinum lewisii</i>	90.00		6	3	9	3	3	2	5	8	2
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	70.00	49				11	5	6	24	1	18
<i>Aster porteri</i>	20.00	1							2		
<i>Monarda fistulosa</i> var. <i>menthifolia</i>	40.00		5		7		1	1			
<i>Penstemon strictus</i>	60.00		1	1	3	1	1				1
<i>Ratibida columnifera</i>	10.00								3		
TOTAL NATIVE PERENNIAL FORBS	100.0	50	12	4	19	15	10	9	36	9	21
INTRODUCED PERENNIAL FORBS											
<i>Convolvulus arvensis</i>	10.00								1		
<i>Verbena bracteata</i>	20.00			1				1			
TOTAL INTRO. PERENNIAL FORBS	30.0	---	---	1	---	---	---	1	1	---	---
NATIVE PERENNIAL GRASSES (cool)											
<i>Dicanthelium oligosanthes</i> var. <i>scribnerianum</i>	10.00			2							
<i>Elymus canadensis</i>	10.00								1		
<i>Elymus trachycaulus</i>	60.00		7	7	5	3	3		1		
<i>Hesperostipa comata</i>	90.00		5	9	17	5	5	3	6	3	6
<i>Nassella viridula</i>	30.00		2		4					P	
<i>Pascopyrum smithii</i>	60.00	16		4		2			3	2	12
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	16	14	22	26	10	8	3	11	5	18
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Echinochloa crus-galli</i>	30.00		2						1	1	
<i>Thinopyrum intermedium</i>	20.00		1				1				
TOTAL INTRO. PERENNIAL GRASSES (c)	40.0	---	3	---	---	---	1	---	1	1	---
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	50.00			3			1	1	2		4
<i>Boüteloua curtipendula</i>	30.00			2					1		1
<i>Panicum virgatum</i>	90.00		4	6	8	6	3	2	2	5	5
TOTAL NATIVE PERENNIAL GRASSES (w)	90.0	---	4	11	8	6	4	3	5	5	10
SPECIES DENSITY (# of species/5 sq.m.) (AVERAGE= 10.2 Std.Dev.= 1.8)		11	9	10	9	10	12	8	14	9	10

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.

Table 10. Frequency Data – Control Transect, Conda Mine, Boulder City Open Space, CO – 1997

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----										
		1	2	3	4	5	6	7	8	9	10	
NATIVE ANNUAL & BIENNIAL FORBS												
<i>Polygonum douglasii</i>	10.00										P	
<i>Pterogonum alatum</i>	10.00											P
TOTAL NATIVE ANN. & BIEN. FORBS	20.0										P	P
INTRODUCED ANNUAL & BIENNIAL FORBS												
<i>Alyssum minus</i>	20.00									P		P
<i>Lactuca serriola</i>	10.00								P			
<i>Tragopogon dubius ssp. major</i>	10.00											P
TOTAL INTRO. ANN. & BIEN. FORBS	30.0								P	P		P
INTRODUCED ANNUAL GRASSES												
<i>Bromus japonicus</i>	70.00	P		P				P	P	P	P	P
TOTAL INTRO. ANN. GRASSES	70.0	P		P				P	P	P	P	P
NATIVE PERENNIAL FORBS												
<i>Achillea lanulosa</i>	40.00	P		P	P					P		
<i>Allium textile</i>	30.00	P		P				P				
<i>Antennaria rosea</i>	20.00							P				P
<i>Artemisia frigida</i>	20.00	P			P							
<i>Artemisia ludoviciana</i>	40.00	P						P		P	P	
<i>Aster porteri</i>	70.00		P	P	P			P	P	P	P	P
<i>Cerastium strictum</i>	30.00	P								P		P
<i>Comandra umbellata ssp. pallida</i>	90.00	P	P	P	P	P		P	P		P	P
<i>Delphinium nuttallianum</i>	20.00	P			P							
<i>Drymocallis fissa</i>	80.00	P	P	P				P	P	P	P	P
<i>Eriogonum umbellatum</i>	40.00							P	P	P	P	
<i>Gutierrezia sarothrae</i>	10.00						P					
<i>Heliomeris multiflora</i>	30.00								P		P	P
<i>Heterotheca fulcrata</i>	10.00	P										
<i>Lathyrus leucanthus</i>	40.00	P	P		P						P	
<i>Lesquerella montana</i>	10.00											P
<i>Liatris punctata</i>	40.00				P				P	P		P
<i>Monarda fistulosa var. menthifolia</i>	20.00				P							P
<i>Oligoneuron rigidum</i>	30.00		P	P								P
<i>Oligosporus dracunculus ssp. glaucus</i>	10.00											P
<i>Penstemon virens</i>	20.00	P										P
<i>Senecio integerrimus</i>	30.00		P	P	P							
<i>Toxicoscordion venenosum</i>	10.00											P
<i>Virgulus falcatus</i>	10.00								P			
<i>Virgulus novae-angliae</i>	20.00	P			P							
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS												
<i>Hypericum perforatum</i>	50.00			P	P				P	P	P	
TOTAL INTRO. PERENNIAL FORBS	50.0			P	P				P	P	P	
NATIVE PERENNIAL GRASSES (cool)												
<i>Achnatherum nelsonii</i>	80.00	P	P	P	P			P	P	P		P
<i>Carex pensylvanica ssp. heliophila</i>	70.00	P	P	P	P				P	P		P
<i>Elymus longifolius</i>	40.00	P		P			P	P				
<i>Hesperostipa comata</i>	10.00											P
<i>Koeleria macrantha</i>	30.00	P		P								P
<i>Poa agassizensis</i>	70.00	P		P			P	P	P	P	P	
<i>Poa compressa</i>	50.00		P	P	P			P				P
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (warm)												
<i>Andropogon gerardii</i>	10.00											P
TOTAL NATIVE PERENNIAL GRASSES (w)	10.0											P
NATIVE SHRUBS												
<i>Padus virginiana ssp. melanocarpa</i>	20.00							P			P	
<i>Rosa sayi</i>	70.00		P		P	P	P			P	P	P
<i>Symphoricarpos occidentalis</i>	30.00					P				P	P	
<i>Yucca glauca</i>	10.00					P						
TOTAL NATIVE SHRUBS	70.0		P		P	P	P	P		P	P	P

PLANT SPECIES	FREQUENCY (%)	PRESENCE* ----- SAMPLE NUMBER -----									
		1	2	3	4	5	6	7	8	9	10
SUCCULENT											
<i>Opuntia macrorhiza</i>	10.00					P					
TOTAL SUCCULENT	10.0					P					
SPECIES DENSITY (# of species/5 sq.m.) (AVERAGE= 14.5 Std.Dev.= 4.1)		18	10	15	15	8	14	13	15	14	23

*P=Present within 1m X 5m plot on right side (when standing at origin and facing the endpoint) of the cover transect.



Photograph 2. Conda Mine Reclamation, '97 Sample 2.



Photograph 4. Conda Mine Reclamation, '97 Sample 4.



Photograph 1. Conda Mine Reclamation, '97 Sample 1.



Photograph 3. Conda Mine Reclamation, '97 Sample 3.



Photograph 5. Conda Mine Reclamation, '97 Sample 5.



Photograph 7. Conda Mine Reclamation, '97 Sample 7.



Photograph 6. Conda Mine Reclamation, '97 Sample 6.



Photograph 8. Conda Mine Reclamation, '97 Sample 8.