

Tallgrass Natural Area Vegetation Moni
OSMP Studies 3589

Study



ESCO Associates, Inc.

35.



ESCO

TALLGRASS NATURAL AREA VEGETATION MONITORING

2002

ESCO

**Tallgrass Natural Area
Vegetation Monitoring Data
2000**

City of Boulder Open Space

Data Collected for:

City of Boulder
Open Space Dept.
66 So. Cherryvale Rd.
Boulder, CO 80303

Data Collected by:

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Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE ANNUAL & BIENNIAL FORBS					
<i>Dracocephalum parviflorum</i>	0.00	16.67	0.00	0.00	0.00
<i>Erigeron divergens</i>	0.00	16.67	0.00	0.00	0.00
<i>Pterogonum alatum</i>	0.00	16.67	0.00	0.00	0.00
TOTAL NATIVE ANN. & BIEN. FORBS	0.0	33.3	0.0	0.0	0.0
INTRODUCED ANNUAL & BIENNIAL FORBS					
<i>Acosta diffusa</i>	0.00	16.67	0.00	0.00	0.00
<i>Crepis cappillaris</i>	0.17	16.67	0.33	0.17	0.29
<i>Dianthus armeria</i>	0.00	16.67	0.00	0.00	0.00
<i>Lactuca serriola</i>	0.00	16.67	0.00	0.00	0.00
<i>Melilotus officinalis</i>	0.00	33.33	0.00	0.00	0.00
<i>Neolepia campestre</i>	0.00	16.67	0.00	0.00	0.00
<i>Plantago lanceolata</i>	1.67	100.00	3.28	2.67	4.71
<i>Sonchus asper</i>	0.00	16.67	0.00	0.00	0.00
<i>Tragopogon dubius ssp. major</i>	0.00	33.33	0.00	0.00	0.00
TOTAL INTRO. ANN. & BIEN. FORBS	1.8	100.0	3.6	2.8	5.0
NATIVE PERENNIAL FORBS					
<i>Achillea lanulosa</i>	0.00	50.00	0.00	0.00	0.00
<i>Ambrosia psilostachya var. coronopifolia</i>	0.17	66.67	0.33	0.17	0.29
<i>Apocynum cannabinum</i>	0.00	16.67	0.00	0.00	0.00
<i>Artemisia ludoviciana</i>	0.00	16.67	0.00	0.00	0.00
<i>Asclepias speciosa</i>	0.33	100.00	0.66	0.33	0.59
<i>Asclepias stenophylla</i>	0.00	16.67	0.00	0.00	0.00
<i>Aster laevis var. geyeri</i>	0.00	16.67	0.00	0.00	0.00
<i>Aster lanceolatus ssp. hesperius</i>	0.00	33.33	0.00	0.00	0.00
<i>Aster porteri</i>	0.17	33.33	0.33	0.17	0.29
<i>Comandra umbellata ssp. pallida</i>	0.17	16.67	0.33	0.17	0.29
<i>Epiobium ciliatum</i>	0.00	50.00	0.00	0.00	0.00
<i>Gaillardia aristata</i>	0.00	16.67	0.00	0.00	0.00
<i>Liatris punctata</i>	0.17	16.67	0.33	0.17	0.29
<i>Lycopus americanus</i>	0.00	16.67	0.00	0.00	0.00
<i>Lythrum alatum</i>	0.50	50.00	0.98	0.50	0.88
<i>Mentha arvensis</i>	0.17	16.67	0.33	0.17	0.29
<i>Oenothera villosa</i>	0.00	16.67	0.00	0.00	0.00
<i>Oligoneuron rigidum</i>	0.00	66.67	0.00	0.00	0.00
<i>Oxalis dillenii</i>	0.00	16.67	0.00	0.00	0.00
<i>Penstemon secundiflorus</i>	0.00	16.67	0.00	0.00	0.00
<i>Psoralidium tenuiflorum</i>	0.17	66.67	0.33	0.17	0.29
<i>Sisyrinchium montanum</i>	0.00	16.67	0.00	0.00	0.00
<i>Solidago missouriensis</i>	0.00	16.67	0.00	0.00	0.00
<i>Solidago speciosa var. pallida</i>	0.00	16.67	0.00	0.00	0.00
<i>Thermopsis divaricarpa</i>	0.00	16.67	0.00	0.00	0.00
<i>Verbena hastata</i>	0.17	33.33	0.33	0.17	0.29
<i>Virgulus falcatus</i>	1.00	83.33	1.97	1.33	2.35
TOTAL NATIVE PERENNIAL FORBS	3.0	100.0	5.9	3.3	5.9

Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE	FREQUENCY	RELATIVE	AVERAGE	RELATIVE
	COVER		VEGETATION	COVER-ALL	VEGETATION
	(%)	(%)	COVER	(%)	COVER-ALL
	(%)	(%)	(%)	(%)	(%)
INTRODUCED PERENNIAL FORBS					
<i>Acetosella vulgaris</i>	0.00	33.33	0.00	0.00	0.00
<i>Breea arvensis</i>	0.50	83.33	0.98	0.67	1.18
<i>Cichorium intybus</i>	1.33	83.33	2.62	1.50	2.65
<i>Convolvulus arvensis</i>	0.00	50.00	0.00	0.00	0.00
<i>Daucus carota</i>	4.33	83.33	8.52	5.00	8.82
<i>Hypericum perforatum</i>	0.00	16.67	0.00	0.00	0.00
<i>Rumex crispus</i>	0.00	16.67	0.00	0.00	0.00
<i>Taraxacum officinale</i>	0.17	33.33	0.33	0.33	0.59
<i>Trifolium pratense</i>	0.00	16.67	0.00	0.00	0.00
<i>Trifolium repens</i>	0.00	33.33	0.00	0.00	0.00
TOTAL INTRO. PERENNIAL FORBS	6.3	100.0	12.5	7.5	13.2
NATIVE PERENNIAL GRASSES (cool)					
<i>Carex emoryi</i>	0.17	16.67	0.33	0.17	0.29
<i>Carex lanuginosa</i>	0.00	16.67	0.00	0.00	0.00
<i>Carex microptera</i>	0.67	16.67	1.31	0.67	1.18
<i>Carex nebrascensis</i>	1.17	33.33	2.30	1.17	2.06
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>	0.00	16.67	0.00	0.00	0.00
<i>Carex praegracilis</i>	1.67	66.67	3.28	1.67	2.94
<i>Carex simulata</i>	0.17	16.67	0.33	0.17	0.29
<i>Carex</i> spp.	0.00	16.67	0.00	0.00	0.00
<i>Critesion jubatum</i>	0.00	16.67	0.00	0.00	0.00
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	0.00	16.67	0.00	0.00	0.00
<i>Eleocharis palustris</i>	1.17	33.33	2.30	1.33	2.35
<i>Elymus trachycaulus</i>	0.33	33.33	0.66	0.33	0.59
<i>Juncus arcticus</i> ssp. <i>ater</i>	5.50	100.00	10.82	6.50	11.47
<i>Juncus interior</i>	0.00	16.67	0.00	0.00	0.00
<i>Juncus longistylis</i>	0.00	50.00	0.00	0.00	0.00
<i>Juncus saximontanus</i>	1.00	50.00	1.97	1.00	1.76
<i>Pascopyrum smithii</i>	0.17	16.67	0.33	0.17	0.29
<i>Poa agassizensis</i>	3.83	100.00	7.54	4.17	7.35
<i>Poa compressa</i>	0.50	83.33	0.98	0.50	0.88
<i>Typha angustifolia</i>	0.00	16.67	0.00	0.00	0.00
<i>Typha latifolia</i>	0.00	16.67	0.00	0.00	0.00
TOTAL NATIVE PERENNIAL GRASSES (c)	16.3	100.0	32.1	17.8	31.5
INTRODUCED PERENNIAL GRASSES (cool)					
<i>Agropyron x repens</i> hybrid	0.00	16.67	0.00	0.00	0.00
<i>Agrostis exarata</i>	0.00	16.67	0.00	0.00	0.00
<i>Agrostis gigantea</i>	3.00	100.00	5.90	3.83	6.76
<i>Agrostis stolonifera</i>	0.00	33.33	0.00	0.00	0.00
<i>Bromopsis inermis</i>	0.17	16.67	0.33	0.17	0.29
<i>Dactylis glomerata</i>	0.17	33.33	0.33	0.17	0.29
<i>Juncus effusus</i>	0.00	16.67	0.00	0.00	0.00
<i>Phleum pratense</i>	0.00	33.33	0.00	0.00	0.00
<i>Thinopyrum intermedium</i>	0.00	16.67	0.00	0.00	0.00
TOTAL INTRO. PERENNIAL GRASSES (c)	3.3	100.0	6.6	4.2	7.4

Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE PERENNIAL GRASSES (warm)					
<i>Andropogon gerardii</i>	1.17	83.33	2.30	1.33	2.35
<i>Aristida purpurea</i>	0.17	16.67	0.33	0.17	0.29
<i>Buchloe dactyloides</i>	0.00	16.67	0.00	0.00	0.00
<i>Chondrosium gracile</i>	0.00	33.33	0.00	0.00	0.00
<i>Muhlenbergia asperifolia</i>	0.50	66.67	0.98	0.50	0.88
<i>Muhlenbergia cuspidata</i>	0.00	16.67	0.00	0.00	0.00
<i>Panicum virgatum</i>	4.17	100.00	8.20	4.33	7.65
<i>Schizachyrium scoparium</i>	0.00	50.00	0.00	0.00	0.00
<i>Sorghastrum avenaceum</i>	6.33	100.00	12.46	6.67	11.76
<i>Spartina pectinata</i>	1.33	33.33	2.62	1.33	2.35
<i>Sporobolus asper</i>	2.33	66.67	4.59	2.67	4.71
<i>Sporobolus cryptandrus</i>	0.00	16.67	0.00	0.00	0.00
<i>Sporobolus heterolepis</i>	0.17	16.67	0.33	0.17	0.29
TOTAL NATIVE PERENNIAL GRASSES (w)	16.2	100.0	31.8	17.2	30.3
NATIVE SHRUBS					
<i>Crataegus macracantha</i> var. <i>occidentalis</i>	0.00	16.67	0.00	0.00	0.00
<i>Rosa sayi</i>	3.00	100.00	5.90	3.00	5.29
<i>Symphoricarpos occidentalis</i>	0.00	50.00	0.00	0.00	0.00
TOTAL NATIVE SHRUBS	3.0	100.0	5.9	3.0	5.3
FERNS					
<i>Hippochaete hyemalis</i> ssp. <i>affinis</i>	0.00	50.00	0.00	0.00	0.00
<i>Hippochaete laevigata</i>	0.50	33.33	0.98	0.50	0.88
TOTAL FERNS	0.5	83.3	1.0	0.5	0.9
SUCCULENT					
<i>Opuntia macrorhiza</i>	0.33	50.00	0.66	0.33	0.59
TOTAL SUCCULENT	0.3	50.0	0.7	0.3	0.6
AGAVOIDS					
<i>Yucca glauca</i>	0.00	16.67	0.00	0.00	0.00
TOTAL AGAVOIDS	0.0	16.7	0.0	0.0	0.0
Standing dead	4.83	100.00		4.83	
Litter	39.50	100.00		39.50	
Bare soil	3.50	66.67		3.50	
Rock	1.33	50.00		1.33	
TOTALS	100.0			105.8	
TOTAL VEGETATION COVER	50.8 (s=13.5)		100.0	56.7 (s=17.1)	100.0
GROUND COVER (Litter+Rock+Veg+St.Dead)	96.5			102.3	
SPECIES DENSITY (# of species/100 sq.m.)					
(AVERAGE= 36.3 Std.Dev.= 8.4)					

Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*					
	—Sample Number—					
	1	2	3	4	5	6
NATIVE ANNUAL & BIENNIAL FORBS						
<i>Dracocephalum parviflorum</i>	P					
<i>Erigeron divergens</i>		P				
<i>Pterogonum alatum</i>		P				
TOTAL NATIVE ANN. & BIEN. FORBS	P	P	--	--	--	--
INTRODUCED ANNUAL & BIENNIAL FORBS						
<i>Acosta diffusa</i>		P				
<i>Crepis capillaris</i>				1		
<i>Dianthus armeria</i>		P				
<i>Lactuca serriola</i>		P				
<i>Melilotus officinalis</i>			P			P
<i>Neolepia campestre</i>		P				
<i>Plantago lanceolata</i>	P	1	2	P	2(2)	5(4)
<i>Sonchus asper</i>				P		
<i>Tragopogon dubius</i> ssp. <i>major</i>		P	P			
TOTAL INTRO. ANN. & BIEN. FORBS	P	1	2	1	2(2)	5(4)
NATIVE PERENNIAL FORBS						
<i>Achillea lanulosa</i>		P	P			P
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>		P	P		P	1
<i>Apocynum cannabinum</i>	P					
<i>Artemisia ludoviciana</i>		P				
<i>Asclepias speciosa</i>	P	P	P	1	P	1
<i>Asclepias stenophylla</i>		P				
<i>Aster laevis</i> var. <i>geyeri</i>		P				
<i>Aster lanceolatus</i> ssp. <i>hesperius</i>				P	P	
<i>Aster porteri</i>		1	P			
<i>Comandra umbellata</i> ssp. <i>pallida</i>		1				
<i>Epilobium ciliatum</i>	P		P	P		
<i>Gaillardia aristata</i>		P				
<i>Liatris punctata</i>		1				
<i>Lycopus americanus</i>				P		
<i>Lythrum alatum</i>	3			P	P	
<i>Mentha arvensis</i>				1		
<i>Oenothera villosa</i>				P		
<i>Oligoneuron rigidum</i>		P	P	P		P
<i>Oxalis dillenii</i>		P				
<i>Penstemon secundiflorus</i>		P				
<i>Psoralidium tenuiflorum</i>		P	P		P	1
<i>Sisyrinchium montanum</i>		P				
<i>Solidago missouriensis</i>		P				
<i>Solidago speciosa</i> var. <i>pallida</i>		P				
<i>Thermopsis divaricarpa</i>						P
<i>Verbena hastata</i>	P			1		
<i>Virgulus falcatus</i>		P	4(1)	P	1(1)	1
TOTAL NATIVE PERENNIAL FORBS	3	3	4(1)	3	1(1)	4

Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*					
	—Sample Number—					
	1	2	3	4	5	6
INTRODUCED PERENNIAL FORBS						
<i>Acetosella vulgaris</i>		P	P			
<i>Breca arvensis</i>	1		1	P	(1)	1
<i>Cichorium intybus</i>		1	(1)	1	P	6
<i>Convolvulus arvensis</i>			P		P	P
<i>Daucus carota</i>		P	6(2)	4(1)	5	11(1)
<i>Hypericum perforatum</i>		P				
<i>Rumex crispus</i>				P		
<i>Taraxacum officinale</i>					P	1(1)
<i>Trifolium pratense</i>						P
<i>Trifolium repens</i>		P	P			
TOTAL INTRO. PERENNIAL FORBS	1	1	7(3)	5(1)	5(1)	19(2)
NATIVE PERENNIAL GRASSES (cool)						
<i>Carex emoryi</i>	1					
<i>Carex lanuginosa</i>	P					
<i>Carex microptera</i>				4		
<i>Carex nebrascensis</i>	P			7		
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>						P
<i>Carex praegracilis</i>	4		P	P	6	
<i>Carex simulata</i>	1					
<i>Carex</i> spp.			P			
<i>Critesion jubatum</i>	P					
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>		P				
<i>Eleocharis palustris</i>	1			6(1)		
<i>Elymus trachycaulus</i>				2	P	
<i>Juncus arcticus</i> ssp. <i>ater</i>	11(3)	2	1	19(3)	P	P
<i>Juncus interior</i>	P					
<i>Juncus longistylis</i>				P	P	P
<i>Juncus saximontanus</i>	P			6	P	
<i>Pascopyrum smithii</i>						1
<i>Poa agassizensis</i>	1	4	10(1)	1	(1)	7
<i>Poa compressa</i>	P	1	P		P	2
<i>Typha angustifolia</i>				P		
<i>Typha latifolia</i>	P					
TOTAL NATIVE PERENNIAL GRASSES (c)	19(3)	7	11(1)	45(4)	6(1)	10
INTRODUCED PERENNIAL GRASSES (cool)						
<i>Agropyron x repens</i> hybrid	P					
<i>Agrostis exarata</i>				P		
<i>Agrostis gigantea</i>	4	P	1	6(3)	5(2)	2
<i>Agrostis stolonifera</i>	P		P			
<i>Bromopsis inermis</i>			1			
<i>Dactylis glomerata</i>		1	P			
<i>Juncus effusus</i>				P		
<i>Phleum pratense</i>		P	P			
<i>Thinopyrum intermedium</i>					P	
TOTAL INTRO. PERENNIAL GRASSES (c)	4	1	2	6(3)	5(2)	2

Table 1. Cover Data - Area 3, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*					
	—Sample Number—					
	1	2	3	4	5	6
NATIVE PERENNIAL GRASSES (warm)						
<i>Andropogon gerardii</i>		1	3	1(1)	2	P
<i>Aristida purpurea</i>		1				
<i>Buchloe dactyloides</i>		P				
<i>Chondrosium gracile</i>		P			P	
<i>Muhlenbergia asperifolia</i>	3		P		P	P
<i>Muhlenbergia cuspidata</i>	P					
<i>Panicum virgatum</i>	P	2	4	3	12	4(1)
<i>Schizachyrium scoparium</i>		P	P		P	
<i>Sorghastrum avenaceum</i>	P	11	7	4(1)	11	5(1)
<i>Spartina pectinata</i>	7			1		
<i>Sporobolus asper</i>			P	4	4	6(2)
<i>Sporobolus cryptandrus</i>		P				
<i>Sporobolus heterolepis</i>		1				
TOTAL NATIVE PERENNIAL GRASSES (w)	10	16	14	13(2)	29	15(4)
NATIVE SHRUBS						
<i>Crataegus macracantha</i> var. <i>occidentalis</i>		P				
<i>Rosa sayi</i>	12	P	5	P	1	P
<i>Symphoricarpos occidentalis</i>	P	P		P		
TOTAL NATIVE SHRUBS	12	P	5	P	1	P
FERNS						
<i>Hippochaete hyemalis</i> ssp. <i>affinis</i>				P	P	P
<i>Hippochaete laevigata</i>	P		3			
TOTAL FERNS	P	—	3	P	P	P
SUCCULENT						
<i>Opuntia macrorhiza</i>		2	P		P	
TOTAL SUCCULENT	—	2	P	—	P	—
AGAVOIDS						
<i>Yucca glauca</i>		P				
TOTAL AGAVOIDS	—	P	—	—	—	—
Standing dead	1	2	5	9	7	5
Litter	50	61	45	17	42	22
Bare soil		2		1	2	16
Rock		4	2			2
TOTALS	100	100	100	100	100	100
TOTAL VEGETATION COVER	49(3)	31	48(5)	73(10)	49(7)	55(10)
GROUND COVER (Litter+Rock+Veg+St.Dead)	100(3)	98	100(5)	99(10)	98(7)	84(10)
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 36.3 Std.Dev.= 8.4)	32	52	36	38	31	29

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

Table 2. Cover Data - Area 6, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
INTRODUCED ANNUAL & BIENNIAL FORBS					
<i>Melilotus alba</i>	0.00	50.00	0.00	0.00	0.00
TOTAL INTRO. ANN. & BIEN. FORBS	0.0	50.0	0.0	0.0	0.0
NATIVE ANNUAL GRASSES					
<i>Panicum capillare</i>	0.50	50.00	0.63	1.00	0.93
TOTAL NATIVE ANN. GRASSES	0.5	50.0	0.6	1.0	0.9
NATIVE PERENNIAL FORBS					
<i>Asclepias speciosa</i>	4.50	100.00	5.70	4.50	4.21
<i>Glycyrrhiza lepidota</i>	0.00	50.00	0.00	0.00	0.00
<i>Oenothera villosa</i>	0.00	50.00	0.00	0.00	0.00
<i>Virgulus falcatius</i>	0.50	50.00	0.63	0.50	0.47
TOTAL NATIVE PERENNIAL FORBS	5.0	100.0	6.3	5.0	4.7
INTRODUCED PERENNIAL FORBS					
<i>Breca arvensis</i>	0.50	100.00	0.63	0.50	0.47
<i>Taraxacum officinale</i>	0.00	50.00	0.00	0.50	0.47
TOTAL INTRO. PERENNIAL FORBS	0.5	100.0	0.6	1.0	0.9
NATIVE PERENNIAL GRASSES (cool)					
<i>Carex brevior</i>	0.00	50.00	0.00	0.00	0.00
<i>Carex nebrascensis</i>	0.00	50.00	0.00	0.00	0.00
<i>Carex praegracilis</i>	11.00	100.00	13.92	17.00	15.89
<i>Carex vulpinoidea</i>	0.00	50.00	0.00	0.00	0.00
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	0.00	50.00	0.00	0.00	0.00
<i>Juncus arcticus</i> ssp. <i>ater</i>	4.50	100.00	5.70	9.00	8.41
<i>Poa agassizensis</i>	5.00	100.00	6.33	10.50	9.81
TOTAL NATIVE PERENNIAL GRASSES (c)	20.5	100.0	25.9	36.5	34.1
INTRODUCED PERENNIAL GRASSES (cool)					
<i>Agrostis gigantea</i>	0.50	100.00	0.63	0.50	0.47
TOTAL INTRO. PERENNIAL GRASSES (c)	0.5	100.0	0.6	0.5	0.5
NATIVE PERENNIAL GRASSES (warm)					
<i>Andropogon gerardii</i>	26.50	100.00	33.54	28.00	26.17
<i>Panicum virgatum</i>	10.50	100.00	13.29	12.50	11.68
<i>Schizachyrium scoparium</i>	0.00	50.00	0.00	0.00	0.00
<i>Sporobolus contractus</i>	0.50	50.00	0.63	0.50	0.47
TOTAL NATIVE PERENNIAL GRASSES (w)	37.5	100.0	47.5	41.0	38.3
NATIVE SHRUBS					
<i>Rosa arkansana</i>	13.50	100.00	17.09	20.50	19.16
<i>Symphoricarpos occidentalis</i>	1.00	50.00	1.27	1.50	1.40
TOTAL NATIVE SHRUBS	14.5	100.0	18.4	22.0	20.6
Standing dead	3.00	100.00		3.00	
Litter	17.00	100.00		17.00	
Bare soil	1.00	100.00		1.00	
TOTALS	100.0			128.0	
TOTAL VEGETATION COVER	79.0 (s=12.7)		100.0	107.0 (s=22.6)	100.0
GROUND COVER (Litter+Rock+Veg+St.Dead)	99.0			127.0	
SPECIES DENSITY (# of species/100 sq.m.)					
(AVERAGE= 15.5 Std.Dev.= 4.9)					

Table 2. Cover Data - Area 6, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*	
	—Sample Number—	
	1	2
INTRODUCED ANNUAL & BIENNIAL FORBS		
<i>Melilotus alba</i>		P
TOTAL INTRO. ANN. & BIEN. FORBS	—	P
NATIVE ANNUAL GRASSES		
<i>Panicum capillare</i>	1(1)	
TOTAL NATIVE ANN. GRASSES	1(1)	—
NATIVE PERENNIAL FORBS		
<i>Asclepias speciosa</i>	8	1
<i>Glycyrrhiza lepidota</i>	P	
<i>Oenothera villosa</i>	P	
<i>Virgulus falcatus</i>	1	
TOTAL NATIVE PERENNIAL FORBS	9	1
INTRODUCED PERENNIAL FORBS		
<i>Breca arvensis</i>	1	P
<i>Taraxacum officinale</i>		(1)
TOTAL INTRO. PERENNIAL FORBS	1	(1)
NATIVE PERENNIAL GRASSES (cool)		
<i>Carex brevior</i>		P
<i>Carex nebrascensis</i>	P	
<i>Carex praegracilis</i>	13(3)	9(9)
<i>Carex vulpinoidea</i>	P	
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	P	
<i>Juncus arcticus</i> ssp. <i>ater</i>	7(3)	2(6)
<i>Poa agassizensis</i>	7(7)	3(4)
TOTAL NATIVE PERENNIAL GRASSES (c)	27(13)	14(19)
INTRODUCED PERENNIAL GRASSES (cool)		
<i>Agrostis gigantea</i>	P	1
TOTAL INTRO. PERENNIAL GRASSES (c)	P	1
NATIVE PERENNIAL GRASSES (warm)		
<i>Andropogon gerardii</i>	6	47(3)
<i>Panicum virgatum</i>	2	19(4)
<i>Schizachyrium scoparium</i>	P	
<i>Sporobolus contractus</i>	1	
TOTAL NATIVE PERENNIAL GRASSES (w)	9	66(7)
NATIVE SHRUBS		
<i>Rosa arkansana</i>	21(6)	6(8)
<i>Symphoricarpos occidentalis</i>	2(1)	
TOTAL NATIVE SHRUBS	23(7)	6(8)
Standing dead	5	1
Litter	24	10
Bare soil	1	1
TOTALS	100	100
TOTAL VEGETATION COVER	70(21)	88(35)
GROUND COVER (Litter+Rock+Veg+St.Dead)	99(21)	99(35)
SPECIES DENSITY (# of species/100 sq.m.)	19	12
(AVERAGE= 15.5 Std.Dev.= 4.9)		

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

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE ANNUAL & BIENNIAL FORBS					
<i>Chenopodium</i> spp.	0.00	10.00	0.00	0.00	0.00
<i>Cirsium undulatum</i>	0.00	50.00	0.00	0.00	0.00
<i>Cryptantha</i> spp.	0.00	10.00	0.00	0.00	0.00
<i>Epilobium brachycarpum</i>	0.00	10.00	0.00	0.00	0.00
<i>Erigeron divergens</i>	0.30	60.00	0.83	0.30	0.81
<i>Grindelia squarrosa</i>	0.00	10.00	0.00	0.00	0.00
Loasaceae spp.	0.00	10.00	0.00	0.00	0.00
<i>Oreocarya virgata</i>	0.00	30.00	0.00	0.00	0.00
<i>Plantago patagonica</i>	0.00	10.00	0.00	0.00	0.00
<i>Pterogonum alatum</i>	0.00	30.00	0.00	0.00	0.00
<i>Silene antirrhina</i>	0.00	10.00	0.00	0.00	0.00
TOTAL NATIVE ANN. & BIEN. FORBS	0.3	80.0	0.8	0.3	0.8
INTRODUCED ANNUAL & BIENNIAL FORBS					
<i>Alyssum desertorum</i>	0.10	70.00	0.28	0.10	0.27
<i>Camelina microcarpa</i>	0.00	20.00	0.00	0.00	0.00
<i>Dianthus armeria</i>	0.00	70.00	0.00	0.00	0.00
<i>Lactuca serriola</i>	0.10	50.00	0.28	0.10	0.27
<i>Neolepia campestre</i>	0.00	30.00	0.00	0.00	0.00
<i>Plantago lanceolata</i>	0.90	60.00	2.49	0.90	2.42
<i>Podospermum laciniatum</i>	0.00	10.00	0.00	0.00	0.00
<i>Tragopogon dubius</i> ssp. major	0.10	70.00	0.28	0.10	0.27
<i>Verbascum thapsus</i>	0.00	10.00	0.00	0.00	0.00
TOTAL INTRO. ANN. & BIEN. FORBS	1.2	90.0	3.3	1.2	3.2
NATIVE ANNUAL GRASSES					
<i>Vulpia octoflora</i>	0.00	10.00	0.00	0.00	0.00
TOTAL NATIVE ANN. GRASSES	0.0	10.0	0.0	0.0	0.0
INTRODUCED ANNUAL GRASSES					
<i>Bromus japonicus</i>	0.10	40.00	0.28	0.10	0.27
TOTAL INTRO. ANN. GRASSES	0.1	40.0	0.3	0.1	0.3
NATIVE PERENNIAL FORBS					
<i>Achillea lanulosa</i>	0.00	20.00	0.00	0.00	0.00
<i>Allium textile</i>	0.00	10.00	0.00	0.00	0.00
<i>Ambrosia psilostachya</i> var. coronopifolia	0.10	70.00	0.28	0.10	0.27
<i>Artemisia ludoviciana</i>	0.20	60.00	0.55	0.20	0.54
<i>Asclepias stenophylla</i>	0.00	10.00	0.00	0.00	0.00
<i>Asclepias viridiflora</i>	0.00	10.00	0.00	0.00	0.00
<i>Aster porteri</i>	0.10	30.00	0.28	0.10	0.27
<i>Brickellia eupatorioides</i>	0.00	10.00	0.00	0.00	0.00
<i>Calylophus serrulatus</i>	0.00	20.00	0.00	0.00	0.00
<i>Cerastium strictum</i>	0.00	20.00	0.00	0.00	0.00
<i>Comandra umbellata</i> ssp. pallida	0.30	30.00	0.83	0.30	0.81
<i>Dalea candida</i> var. oligophylla	0.30	40.00	0.83	0.30	0.81
<i>Dalea purpurea</i>	0.00	40.00	0.00	0.00	0.00
<i>Drymocallis fissa</i>	0.00	10.00	0.00	0.00	0.00
<i>Eremogone fendleri</i>	0.00	10.00	0.00	0.00	0.00
<i>Eriogonum jamesii</i>	0.00	10.00	0.00	0.00	0.00
<i>Eriogonum lonchophyllum</i>	0.00	10.00	0.00	0.00	0.00
<i>Evolvulus nuttallianus</i>	0.00	30.00	0.00	0.00	0.00
<i>Geranium richardsonii</i>	0.10	10.00	0.28	0.10	0.27
<i>Heterotheca villosa</i>	0.00	60.00	0.00	0.00	0.00
<i>Iris missouriensis</i>	0.20	30.00	0.55	0.20	0.54
<i>Lesquerella montana</i>	0.00	30.00	0.00	0.00	0.00
<i>Liatris punctata</i>	0.00	50.00	0.00	0.00	0.00

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE PERENNIAL FORBS (CONCLUDED)					
Lithospermum ruderales	0.00	30.00	0.00	0.00	0.00
Lupinus caudatus	0.00	20.00	0.00	0.00	0.00
Lycopus americanus	0.00	10.00	0.00	0.00	0.00
Machaeranthera canescens	0.00	10.00	0.00	0.00	0.00
Nothocalais cuspidata	0.00	10.00	0.00	0.00	0.00
Oenothera villosa	0.00	10.00	0.00	0.00	0.00
Oligoneuron rigidum	0.00	10.00	0.00	0.00	0.00
Oligosporus caudatus	0.00	40.00	0.00	0.00	0.00
Oxalis dillenii	0.10	20.00	0.28	0.10	0.27
Oxybaphus hirsutus	0.00	10.00	0.00	0.00	0.00
Oxybaphus linearis	0.00	50.00	0.00	0.00	0.00
Oxytropis sericea	0.00	20.00	0.00	0.00	0.00
Paronychia jamesii	0.00	10.00	0.00	0.00	0.00
Penstemon secundiflorus	0.00	30.00	0.00	0.00	0.00
Phacelia heterophylla	0.00	30.00	0.00	0.00	0.00
Psoraleidum tenuiflorum	0.70	80.00	1.93	0.70	1.88
Ratibida columnifera	0.00	50.00	0.00	0.00	0.00
Rumex triangulivalvis	0.00	10.00	0.00	0.00	0.00
Senecio spartioides	0.00	20.00	0.00	0.00	0.00
Sisyrinchium montanum	0.00	10.00	0.00	0.00	0.00
Talinum parviflorum	0.00	10.00	0.00	0.00	0.00
Thermopsis divaricarpa	0.10	30.00	0.28	0.10	0.27
Tithymalus brachyceras	0.00	10.00	0.00	0.00	0.00
Tragia ramosa	0.30	10.00	0.83	0.30	0.81
Verbena hastata	0.00	10.00	0.00	0.00	0.00
Vicia americana	0.00	10.00	0.00	0.00	0.00
Virgulus falcatus	0.10	80.00	0.28	0.10	0.27
TOTAL NATIVE PERENNIAL FORBS	2.6	100.0	7.2	2.6	7.0
INTRODUCED PERENNIAL FORBS					
Acetosella vulgaris	0.10	70.00	0.28	0.10	0.27
Brea arvensis	0.00	20.00	0.00	0.00	0.00
Cichorium intybus	0.40	70.00	1.10	0.40	1.08
Convolvulus arvensis	0.50	60.00	1.38	0.50	1.34
Hypericum perforatum	0.00	20.00	0.00	0.00	0.00
Medicago sativa	0.00	10.00	0.00	0.00	0.00
Potentilla recta	0.00	20.00	0.00	0.00	0.00
Taraxacum officinale	0.10	10.00	0.28	0.20	0.54
Trifolium repens	0.00	10.00	0.00	0.00	0.00
TOTAL INTRO. PERENNIAL FORBS	1.1	100.0	3.0	1.2	3.2

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
NATIVE PERENNIAL GRASSES (cool)					
<i>Carex brevior</i>	0.10	40.00	0.28	0.10	0.27
<i>Carex douglasii</i>	0.00	10.00	0.00	0.00	0.00
<i>Carex emoryi</i>	0.30	20.00	0.83	0.30	0.81
<i>Carex lanuginosa</i>	0.00	10.00	0.00	0.00	0.00
<i>Carex nebrascensis</i>	0.30	20.00	0.83	0.30	0.81
<i>Carex pennsylvanica</i> ssp. <i>heliophila</i>	0.40	60.00	1.10	0.40	1.08
<i>Carex praeegracilis</i>	0.70	10.00	1.93	0.70	1.88
<i>Dichanthelium linearifolium</i>	0.00	10.00	0.00	0.00	0.00
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	0.00	40.00	0.00	0.00	0.00
<i>Eleocharis palustris</i>	0.10	20.00	0.28	0.20	0.54
<i>Elymus longifolius</i>	0.00	20.00	0.00	0.00	0.00
<i>Hesperostipa comata</i>	1.80	50.00	4.97	1.80	4.84
<i>Juncus arcticus</i> ssp. <i>ater</i>	2.60	80.00	7.18	2.90	7.80
<i>Juncus interior</i>	0.00	30.00	0.00	0.00	0.00
<i>Koeleria macrantha</i>	0.10	60.00	0.28	0.10	0.27
<i>Poa agassizensis</i>	7.60	90.00	20.99	7.80	20.97
<i>Poa compressa</i>	2.40	80.00	6.63	2.40	6.45
<i>Poa secunda</i>	0.00	40.00	0.00	0.00	0.00
TOTAL NATIVE PERENNIAL GRASSES (c)	16.4	100.0	45.3	17.0	45.7
INTRODUCED PERENNIAL GRASSES (cool)					
<i>Agropyron x repens</i> hybrid	0.00	10.00	0.00	0.00	0.00
<i>Agrostis gigantea</i>	0.00	10.00	0.00	0.00	0.00
<i>Agrostis stolonifera</i>	0.00	10.00	0.00	0.00	0.00
<i>Bromopsis inermis</i>	0.10	10.00	0.28	0.10	0.27
<i>Phleum pratense</i>	0.00	10.00	0.00	0.00	0.00
TOTAL INTRO. PERENNIAL GRASSES (c)	0.1	30.0	0.3	0.1	0.3
NATIVE PERENNIAL GRASSES (warm)					
<i>Andropogon gerardii</i>	3.70	90.00	10.22	4.00	10.75
<i>Aristida purpurea</i>	0.00	40.00	0.00	0.00	0.00
<i>Bouteloua curtipendula</i>	0.00	60.00	0.00	0.00	0.00
<i>Buchloe dactyloides</i>	0.00	40.00	0.00	0.00	0.00
<i>Calamovilfa longifolia</i>	0.10	10.00	0.28	0.10	0.27
<i>Chondrosum gracile</i>	0.50	70.00	1.38	0.50	1.34
<i>Muhlenbergia montana</i>	0.00	10.00	0.00	0.00	0.00
<i>Panicum virgatum</i>	4.20	90.00	11.60	4.20	11.29
<i>Schizachyrium scoparium</i>	0.80	90.00	2.21	0.80	2.15
<i>Sorghastrum avenaceum</i>	0.40	90.00	1.10	0.40	1.08
<i>Spartina pectinata</i>	3.10	30.00	8.56	3.10	8.33
<i>Sporobolus asper</i>	0.10	30.00	0.28	0.10	0.27
<i>Sporobolus cryptandrus</i>	0.10	40.00	0.28	0.10	0.27
<i>Sporobolus heterolepis</i>	0.40	30.00	1.10	0.40	1.08
TOTAL NATIVE PERENNIAL GRASSES (w)	13.4	100.0	37.0	13.7	36.8
NATIVE SUBSHRUBS					
<i>Artemisia frigida</i>	0.10	60.00	0.28	0.10	0.27
<i>Gutierrezia sarothrae</i>	0.10	10.00	0.28	0.10	0.27
TOTAL NATIVE SUBSHRUBS	0.2	60.0	0.6	0.2	0.5
NATIVE SHRUBS					
<i>Amorpha nana</i>	0.00	20.00	0.00	0.00	0.00
<i>Rosa sayi</i>	0.20	50.00	0.55	0.20	0.54
<i>Symphoricarpos occidentalis</i>	0.10	20.00	0.28	0.10	0.27
TOTAL NATIVE SHRUBS	0.3	50.0	0.8	0.3	0.8

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	AVERAGE COVER (%)	FREQUENCY (%)	RELATIVE VEGETATION COVER (%)	AVERAGE COVER-ALL (%)	RELATIVE VEGETATION COVER-ALL (%)
FERNS					
Hippochaete hyemalis ssp. affinis	0.10	20.00	0.28	0.10	0.27
TOTAL FERNS	0.1	20.0	0.3	0.1	0.3
MOSS					
Moss	0.00	10.00	0.00	0.00	0.00
TOTAL MOSS	0.0	10.0	0.0	0.0	0.0
SUCCULENT					
Echinocereus viridiflorus	0.00	40.00	0.00	0.00	0.00
Opuntia fragilis	0.10	40.00	0.28	0.10	0.27
Opuntia macrorhiza	0.30	70.00	0.83	0.30	0.81
Opuntia polyacantha	0.00	10.00	0.00	0.00	0.00
TOTAL SUCCULENT	0.4	80.0	1.1	0.4	1.1
PARASITE					
Aphyllon fasciculatum	0.00	10.00	0.00	0.00	0.00
TOTAL PARASITE	0.0	10.0	0.0	0.0	0.0
AGAVOIDS					
Yucca glauca	0.00	30.00	0.00	0.00	0.00
TOTAL AGAVOIDS	0.0	30.0	0.0	0.0	0.0
Standing dead	0.70	50.00		0.70	
Litter	56.10	100.00		56.10	
Bare soil	4.00	70.00		4.00	
Rock	3.00	70.00		3.00	
TOTALS	100.0			101.0	
TOTAL VEGETATION COVER	36.2 (s=11.6)		100.0	37.2 (s=12.3)	100.0
GROUND COVER (Litter+Rock+Veg+St. Dead)	96.0			97.0	
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 40.8 Std.Dev.= 15.2)					

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*									
	---Sample Number---									
	1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS										
<i>Chenopodium</i> spp.						P				
<i>Cirsium undulatum</i>		P	P			P			P	P
<i>Cryptantha</i> spp.			P							
<i>Epilobium brachycarpum</i>								P		
<i>Erigeron divergens</i>			P	P	P	P			3	P
<i>Grindelia squarrosa</i>										P
Loasaceae spp.			P							
<i>Oreocarya virgata</i>		P				P				P
<i>Plantago patagonica</i>				P						
<i>Pterogonum alatum</i>						P			P	P
<i>Silene antirrhina</i>					P					
TOTAL NATIVE ANN. & BIEN. FORBS	--	P	P	P	P	P	--	P	3	P
INTRODUCED ANNUAL & BIENNIAL FORBS										
<i>Alyssum desertorum</i>		1	P	P	P	P			P	P
<i>Camelina microcarpa</i>		P	P							
<i>Dianthus armeria</i>	P	P		P	P		P		P	P
<i>Lactuca serriola</i>	P		P		1	P				P
<i>Neolepia campestre</i>		P			P	P				
<i>Plantago lanceolata</i>	P	P		P		P	P		9	
<i>Podospermum laciniatum</i>										P
<i>Tragopogon dubius</i> ssp. major		P	1	P	P	P			P	P
<i>Verbascum thapsus</i>						P				
TOTAL INTRO. ANN. & BIEN. FORBS	P	1	1	P	1	P	P	--	9	P
NATIVE ANNUAL GRASSES										
<i>Vulpia octoflora</i>		P								
TOTAL NATIVE ANN. GRASSES	--	P	--	--	--	--	--	--	--	--
INTRODUCED ANNUAL GRASSES										
<i>Bromus japonicus</i>		P	1		P					P
TOTAL INTRO. ANN. GRASSES	--	P	1	--	P	--	--	--	--	P
NATIVE PERENNIAL FORBS										
<i>Achillea lanulosa</i>					P				P	
<i>Allium textile</i>			P							
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>		P	P	P	P	P			P	1
<i>Artemisia ludoviciana</i>	P	1	P	1	P					P
<i>Asclepias stenophylla</i>		P								
<i>Asclepias viridiflora</i>										P
<i>Aster porteri</i>	1			P						P
<i>Brickellia eupatorioides</i>						P				
<i>Calylophus serrulatus</i>						P				P
<i>Cerastium strictum</i>			P							P
<i>Comandra umbellata</i> ssp. <i>pallida</i>				2		1				P
<i>Dalea candida</i> var. <i>oligophylla</i>		1				P			2	P
<i>Dalea purpurea</i>		P	P						P	P
<i>Drymocallis fissa</i>			P							
<i>Eremogone fendleri</i>						P				
<i>Eriogonum jamesii</i>			P							
<i>Eriogonum lonchophyllum</i>			P							
<i>Evolvulus nuttallianus</i>		P	P							P
<i>Geranium richardsonii</i>					1					
<i>Heterotheca villosa</i>		P	P	P	P				P	P
<i>Iris missouriensis</i>				1	P		1			
<i>Lesquerella montana</i>		P				P				P
<i>Liatris punctata</i>		P	P	P	P					P

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*									
	—Sample Number—									
	1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL FORBS (CONCLUDED)										
Lithospermum ruderales		P	P							P
Lupinus caudatus			P							P
Lycopus americanus			P							
Machaeranthera canescens										P
Nothocalais cuspidata		P								
Oenothera villosa								P		
Oligoneuron rigidum						P				
Oligosporus caudatus		P	P			P				P
Oxalis dillenii				1		P				
Oxybaphus hirsutus						P				
Oxybaphus linearis		P	P			P			P	P
Oxytropis sericea		P				P				
Paronychia jamesii										P
Penstemon secundiflorus		P	P							P
Phacelia heterophylla		P	P			P				
Psoraleidum tenuiflorum	P	P	P	1	P	P			4	2
Ratibida columnifera			P	P	P	P			P	
Rumex triangulivalvis					P					
Senecio spartioides			P							P
Sisyrinchium montanum	P									
Talinum parviflorum										P
Thermopsis divaricarpa		P			P		1			
Tithymalus brachyceras			P							
Tragia ramosa										3
Verbena hastata								P		
Vicia americana		P								
Virgulus falcatus	P	P	P	P	P	P	P		1	
TOTAL NATIVE PERENNIAL FORBS	1	2	P	6	1	1	2	P	7	6
INTRODUCED PERENNIAL FORBS										
Acetosella vulgaris		P	P	P	P	P			1	P
Breca arvensis		P				P				
Cichorium intybus	1	P		P	1		P		2	P
Convolvulus arvensis	P	3		P	P	P			2	
Hypericum perforatum		P								P
Medicago sativa									P	
Potentilla recta						P		P		
Taraxacum officinale									1(1)	
Trifolium repens									P	
TOTAL INTRO. PERENNIAL FORBS	1	3	P	P	1	P	P	P	6(1)	P

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*									
	—Sample Number—									
	1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (cool)										
Carex brevior				P	P		P	1		
Carex douglasii							P			
Carex emoryi					3			P		
Carex lanuginosa								P		
Carex nebrascensis					P			3		
Carex pensylvanica ssp. heliophila		2	1	P	P	P				1
Carex praegracilis							7			
Dichanthelium linearifolium		P								
Dichanthelium oligosanthes var. scribnerianum		P				P	P			P
Eleocharis palustris							(1)	1		
Elymus longifolius									P	P
Hesperostipa comata		6	11		P	1				P
Juncus arcticus ssp. ater	P	1		P	4(1)	4	3(1)	14(1)	P	
Juncus interior	P	P						P		
Koeleria macrantha		1	P	P		P			P	P
Poa agassizensis		8(1)	5	3	14(1)	27	17	P	1	1
Poa compressa	15	P	P	5	P		4		P	P
Poa secunda	P						P	P		P
TOTAL NATIVE PERENNIAL GRASSES (c)	15	18(1)	17	8	21(2)	32	31(2)	19(1)	1	2
INTRODUCED PERENNIAL GRASSES (cool)										
Agropyron x repens hybrid					P					
Agrostis gigantea							P			
Agrostis stolonifera	P									
Bromopsis inermis					1					
Phleum pratense							P			
TOTAL INTRO. PERENNIAL GRASSES (c)	P	—	—	—	1	—	P	—	—	—
NATIVE PERENNIAL GRASSES (warm)										
Andropogon gerardii	P	5(1)	6	14	1	1	P		8(2)	2
Aristida purpurea		P		P					P	P
Bouteloua curtipendula		P	P	P		P			P	P
Buchloe dactyloides	P	P		P						P
Calamovilfa longifolia									1	
Chondrosum gracile	P	P	P	P		P			1	4
Muhlenbergia montana				P						
Panicum virgatum	2	8	P	1	4	11	14		1	1
Schizachyrium scoparium	1	3	P	P	P	P	1		P	3
Sorghastrum avenaceum	P	P	P	P	P	P	1		3	P
Spartina pectinata					2		P	29		
Sporobolus asper	1			P			P			
Sporobolus cryptandrus	P	1							P	P
Sporobolus heterolepis	1			P			3			
TOTAL NATIVE PERENNIAL GRASSES (w)	5	17(1)	6	15	7	12	19	29	14(2)	10
NATIVE SUBSHRUBS										
Artemisia frigida		P	1		P	P			P	P
Gutierrezia sarothrae										1
TOTAL NATIVE SUBSHRUBS	—	P	1	—	P	P	—	—	P	1
NATIVE SHRUBS										
Amorpha nana		P							P	
Rosa sayi		P			1	P	1		P	
Symphoricarpos occidentalis		1			P					
TOTAL NATIVE SHRUBS	—	1	—	—	1	P	1	—	P	—

Table 3. Cover Data - Area 7, City of Boulder Open Space - 2000.

PLANT SPECIES	Percent Foliar Cover*									
	---Sample Number---									
	1	2	3	4	5	6	7	8	9	10
FERNS										
<i>Hippochaete hyemalis</i> ssp. <i>affinis</i>						P	1			
TOTAL FERNS	--	--	--	--	--	P	1	--	--	--
MOSS										
Moss			P							
TOTAL MOSS	--	--	P	--	--	--	--	--	--	--
SUCCULENT										
<i>Echinocereus viridiflorus</i>		P	P			P				P
<i>Opuntia fragilis</i>		P	1			P				P
<i>Opuntia macrorhiza</i>	P	1		1	1	P			P	P
<i>Opuntia polyacantha</i>					P					
TOTAL SUCCULENT	P	1	1	1	1	P	--	--	P	P
PARASITE										
<i>Aphyllon fasciculatum</i>										P
TOTAL PARASITE	--	--	--	--	--	--	--	--	--	P
AGAVOIDS										
<i>Yucca glauca</i>			P			P				P
TOTAL AGAVOIDS	--	--	P	--	--	P	--	--	--	P
Standing dead	2	1	1		2		1			
Litter	70	51	56	68	63	50	45	52	48	58
Bare soil	3	5	8	1		2			11	10
Rock	3		8	1	1	3			1	13
TOTALS	100	100	100	100	100	100	100	100	100	100
TOTAL VEGETATION COVER	22	43(2)	27	30	34(2)	45	54(2)	48(1)	40(3)	19
GROUND COVER (Litter+Rock+Veg+St. Dead)	97	95(2)	92	99	100(2)	98	100(2)	100(1)	89(3)	90
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 40.8 Std.Dev.= 15.2)	25	60	49	38	43	51	26	14	43	59

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

Table 4. Frequency Data - Area 3, Transect 1, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		---Sample Number---									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Dracocephalum parviflorum</i>	10.00										P
TOTAL NATIVE ANN. & BIEN. FORBS	10.0	--	--	--	--	--	--	--	--	P	--
NATIVE PERENNIAL FORBS											
<i>Apocynum cannabinum</i>	10.00						P				
<i>Asclepias speciosa</i>	40.00	P	P	P	P						
<i>Lythrum alatum</i>	30.00								P	P	P
<i>Verbena hastata</i>	10.00									P	
TOTAL NATIVE PERENNIAL FORBS	80.0	P	P	P	P	--	P	--	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Breea arvensis</i>	60.00			P		P		P	P	P	P
TOTAL INTRO. PERENNIAL FORBS	60.0	--	--	P	--	P	--	P	P	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex lanuginosa</i>	10.00							P			
<i>Carex nebrascensis</i>	20.00								P	P	
<i>Carex praegracilis</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Critesion jubatum</i>	10.00										P
<i>Eleocharis palustris</i>	40.00					P		P	P		P
<i>Juncus arcticus ssp. ater</i>	90.00		P	P	P	P	P	P	P	P	P
<i>Juncus interior</i>	40.00			P	P	P				P	
<i>Juncus saximontanus</i>	30.00							P	P	P	
<i>Poa agassizensis</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa compressa</i>	10.00									P	
<i>Typha latifolia</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 x repens hybrid</i>	10.00				P						
<i>Agrostis gigantea</i>	50.00	P	P	P	P	P					
<i>Agrostis stolonifera</i>	10.00				P						
TOTAL INTRO. PERENNIAL GRASSES (c)	50.0	P	P	P	P	P	--	--	--	--	--
NATIVE PERENNIAL GRASSES (warm)											
<i>Muhlenbergia asperifolia</i>	70.00	P	P	P		P		P	P		P
<i>Muhlenbergia cuspidata</i>	10.00							P			
<i>Panicum virgatum</i>	20.00	P		P							
<i>Sorghastrum avenaceum</i>	40.00	P			P	P	P				
<i>Spartina pectinata</i>	30.00					P	P	P			
TOTAL NATIVE PERENNIAL GRASSES (w)	90.0	P	P	P	P	P	P	P	P	--	P
NATIVE SHRUBS											
<i>Rosa sayi</i>	60.00	P	P	P				P	P	P	
<i>Symphoricarpos occidentalis</i>	20.00			P		P					
TOTAL NATIVE SHRUBS	70.0	P	P	P	--	P	--	P	P	P	--
FERNS											
<i>Hippochaete laevigata</i>	30.00				P				P		P
TOTAL FERNS	30.0	--	--	--	P	--	--	--	P	--	P
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 9.7 Std.Dev.= 2.0)		8	7	11	10	11	6	11	11	12	10

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

Table 5. Frequency Data - Area 3, Transect 2, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Erigeron divergens</i>	10.00								P		
TOTAL NATIVE ANN. & BIEN. FORBS	10.0	—	—	—	—	—	—	—	P	—	—
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Acosta diffusa</i>	20.00								P		P
<i>Dianthus armeria</i>	80.00	P	P	P	P	P	P	P			P
<i>Lactuca serriola</i>	20.00				P				P		
<i>Neolepia campestre</i>	20.00				P				P		
<i>Plantago lanceolata</i>	70.00		P		P	P	P	P		P	P
<i>Tragopogon dubius</i> ssp. <i>major</i>	90.00	P	P	P	P		P	P	P	P	P
TOTAL INTRO. ANN. & BIEN. FORBS	100.0	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</i> var. <i>coronopifolia</i>	80.00	P	P	P	P			P	P	P	P
<i>Artemisia ludoviciana</i>	20.00			P							P
<i>Asclepias speciosa</i>	30.00				P	P	P				
<i>Asclepias stenophylla</i>	10.00			P							
<i>Aster porteri</i>	50.00	P	P	P				P			P
<i>Comandra umbellata</i> ssp. <i>pallida</i>	10.00									P	
<i>Liatris punctata</i>	60.00		P					P	P	P	P
<i>Oligoneuron rigidum</i>	60.00	P	P		P	P	P				P
<i>Oxalis dillenii</i>	20.00		P		P						
<i>Penstemon secundiflorus</i>	10.00									P	
<i>Psoraleidum tenuiflorum</i>	60.00	P	P					P	P		P
<i>Sisyrinchium montanum</i>	10.00										P
<i>Solidago missouriensis</i>	20.00		P					P			
<i>Solidago speciosa</i> var. <i>pallida</i>	10.00										P
<i>Virgulus falcatus</i>	60.00	P				P	P	P	P		P
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Acetosella vulgaris</i>	50.00		P					P	P	P	P
<i>Cichorium intybus</i>	40.00	P			P	P	P				
<i>Daucus carota</i>	10.00					P					
<i>Hypericum perforatum</i>	10.00										P
<i>Trifolium repens</i>	10.00		P								
TOTAL INTRO. PERENNIAL FORBS	90.0	P	P	—	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	60.00			P	P	P	P	P			P
<i>Juncus arcticus</i> ssp. <i>ater</i>	90.00	P	P	P	P	P		P	P	P	P
<i>Poa agassizensis</i>	80.00	P	P		P	P	P	P	P		P
<i>Poa compressa</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
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis gigantea</i>	20.00				P	P					
<i>Dactylis glomerata</i>	30.00							P	P	P	
<i>Phleum pratense</i>	20.00				P	P					
TOTAL INTRO. PERENNIAL GRASSES (c)	50.0	—	—	—	P	P	—	P	P	P	—

Table 5. Frequency Data - Area 3, Transect 2, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	50.00		P			P		P	P	P	
<i>Aristida purpurea</i>	10.00		P								
<i>Chondrosum gracile</i>	40.00	P	P				P	P			
<i>Panicum virgatum</i>	90.00	P		P	P	P	P	P	P	P	P
<i>Schizachyrium scoparium</i>	10.00									P	
<i>Sorghastrum avenaceum</i>	90.00	P	P	P	P	P	P		P	P	P
<i>Sporobolus cryptandrus</i>	30.00	P		P			P				
<i>Sporobolus heterolepis</i>	30.00			P	P	P					
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SHRUBS											
<i>Crataegus macracantha</i> var. <i>occidentalis</i>	20.00					P	P				
<i>Rosa sayi</i>	20.00								P	P	
<i>Symphoricarpos occidentalis</i>	10.00										P
TOTAL NATIVE SHRUBS	50.0	—	—	—	—	P	P	—	P	P	P
SUCCULENT											
<i>Opuntia macrorhiza</i>	40.00		P	P					P		P
TOTAL SUCCULENT	40.0	—	P	P	—	—	—	—	P	—	P
AGAVOIDS											
<i>Yucca glauca</i>	30.00		P	P				P			
TOTAL AGAVOIDS	30.0	—	P	P	—	—	—	P	—	—	—
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 18.4 Std.Dev.= 2.8)		15	22	15	19	18	20	19	17	16	23

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

Table 6. Frequency Data - Area 3, Transect 3, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		---Sample Number---									
		1	2	3	4	5	6	7	8	9	10
FERNS											
<i>Hippochaete laevigata</i>	80.00	P	P	P	P	P		P	P	P	
TOTAL FERNS	80.0	P	P	P	P	P	—	P	P	P	—
SUCCULENT											
<i>Opuntia macrorhiza</i>	10.00						P				
TOTAL SUCCULENT	10.0	—	—	—	—	—	P	—	—	—	—
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 14.8 Std.Dev.= 1.6)		14	17	13	14	14	17	14	17	15	13

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

Table 7. Frequency Data - Area 3, Transect 4, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Plantago lanceolata</i>	40.00	P					P	P	P		
<i>Sonchus asper</i>	30.00		P	P	P						
TOTAL INTRO. ANN. & BIEN. FORBS	70.0	P	P	P	P	—	P	P	P	—	—
NATIVE PERENNIAL FORBS											
<i>Asclepias speciosa</i>	80.00	P		P	P	P	P	P	P	P	
<i>Aster lanceolatus ssp. hesperius</i>	30.00			P		P	P				
<i>Epilobium ciliatum</i>	20.00				P	P					
<i>Lycopus americanus</i>	20.00									P	P
<i>Lythrum alatum</i>	10.00						P				
<i>Mentha arvensis</i>	30.00				P	P	P				
<i>Oligoneuron rigidum</i>	50.00	P		P			P	P	P		
<i>Verbena hastata</i>	20.00									P	P
<i>Virgulus falcatus</i>	50.00	P	P	P	P			P			
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Breca arvensis</i>	40.00	P			P					P	P
<i>Daucus carota</i>	80.00	P	P	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>Carex nebrascensis</i>	30.00				P					P	P
<i>Carex praeegracilis</i>	60.00	P	P	P	P	P	P				
<i>Eleocharis palustris</i>	30.00			P						P	P
<i>Elymus trachycaulus</i>	40.00	P	P	P							P
<i>Juncus arcticus ssp. ater</i>	70.00				P	P	P	P	P	P	P
<i>Juncus longistylis</i>	20.00				P	P					
<i>Juncus saximontanus</i>	40.00			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>Agrostis exarata</i>	10.00		P								
<i>Agrostis gigantea</i>	70.00		P	P	P	P	P	P	P		
TOTAL INTRO. PERENNIAL GRASSES (c)	70.0	—	P	P	P	P	P	P	P	—	—
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	10.00	P									
<i>Panicum virgatum</i>	60.00	P	P	P			P	P	P		
<i>Sorghastrum avenaceum</i>	70.00	P	P	P	P			P	P	P	
<i>Sporobolus asper</i>	10.00	P									
TOTAL NATIVE PERENNIAL GRASSES (w)	80.0	P	P	P	P	—	P	P	P	P	—
NATIVE SHRUBS											
<i>Rosa sayi</i>	30.00			P	P	P					
TOTAL NATIVE SHRUBS	30.0	—	—	P	P	P	—	—	—	—	—
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 10.6 Std.Dev.= 2.4)		12	9	14	14	11	12	9	8	10	7

*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 - Area 3, Transect 5, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Plantago lanceolata</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL INTRO. ANN. & BIEN. FORBS	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL FORBS											
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	20.00	P	P								
<i>Asclepias speciosa</i>	60.00					P	P	P	P	P	P
<i>Aster lanceolatus</i> ssp. <i>hesperius</i>	30.00								P	P	P
<i>Lythrum alatum</i>	10.00								P		
<i>Psoralea tenuiflorum</i>	20.00	P	P								
<i>Virgulus falcatus</i>	50.00	P		P	P	P	P				
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Breëa arvensis</i>	50.00				P	P	P		P	P	
<i>Cichorium intybus</i>	30.00	P	P	P							
<i>Convolvulus arvensis</i>	10.00		P								
<i>Daucus carota</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Taraxacum officinale</i>	90.00	P	P	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>Carex praegracilis</i>	40.00					P			P	P	P
<i>Elymus trachycaulus</i>	10.00								P		
<i>Juncus arcticus</i> ssp. <i>ater</i>	30.00							P		P	P
<i>Juncus longistylis</i>	10.00								P		
<i>Poa agassizensis</i>	30.00	P	P	P							
<i>Poa compressa</i>	10.00			P							
TOTAL NATIVE PERENNIAL GRASSES (c)	80.0	P	P	P	—	P	P	—	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis gigantea</i>	70.00				P	P	P	P	P	P	P
TOTAL INTRO. PERENNIAL GRASSES (c)	70.0	—	—	—	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	30.00	P	P	P							
<i>Chondrosium gracile</i>	10.00	P									
<i>Muhlenbergia asperifolia</i>	60.00	P					P	P	P	P	P
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Schizachyrium scoparium</i>	10.00				P						
<i>Sorghastrum avenaceum</i>	80.00		P	P	P	P	P	P	P	P	
<i>Sporobolus asper</i>	40.00	P		P	P	P					
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SHRUBS											
<i>Rosa sayi</i>	10.00			P							
TOTAL NATIVE SHRUBS	10.0	—	—	P	—	—	—	—	—	—	—
FERNS											
<i>Hippochaete hyemalis</i> ssp. <i>affinis</i>	20.00						P			P	
TOTAL FERNS	20.0	—	—	—	—	—	P	—	—	P	—
SUCCULENT											
<i>Opuntia macrorhiza</i>	10.00	P									
TOTAL SUCCULENT	10.0	P	—	—	—	—	—	—	—	—	—
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 11.4 Std.Dev.= 1.5)		14	11	12	10	11	12	9	12	13	10

*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 - Area 3, Transect 6, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Melilotus officinalis</i>	10.00										P
<i>Plantago lanceolata</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL INTRO. ANN. & BIEN. FORBS	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL FORBS											
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	80.00	P	P			P	P	P	P	P	P
<i>Asclepias speciosa</i>	70.00	P	P			P	P	P	P	P	
<i>Oligoneuron rigidum</i>	20.00	P									P
<i>Psoraleidum tenuiflorum</i>	10.00		P								
<i>Thermopsis divaricarpa</i>	20.00	P	P								
<i>Virgulus falcatus</i>	60.00				P	P	P	P	P	P	
TOTAL NATIVE PERENNIAL FORBS	90.0	P	P	—	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Bréea arvensis</i>	30.00							P	P	P	
<i>Cichorium intybus</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Convolvulus arvensis</i>	20.00	P									P
<i>Daucus carota</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Taraxacum officinale</i>	10.00							P			
<i>Trifolium pratense</i>	20.00			P	P						
TOTAL INTRO. PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>	10.00										P
<i>Juncus arcticus</i> ssp. <i>ater</i>	30.00							P	P	P	
<i>Juncus longistylis</i>	10.00							P			
<i>Poa agassizensis</i>	80.00	P	P	P	P	P	P		P	P	
<i>Poa compressa</i>	30.00			P		P	P				
TOTAL NATIVE PERENNIAL GRASSES (c)	90.0	P	P	P	P	P	P	P	P	P	—
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis gigantea</i>	40.00			P	P	P	P				
TOTAL INTRO. PERENNIAL GRASSES (c)	40.0	—	—	P	P	P	P	—	—	—	—
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	20.00				P			P			
<i>Muhlenbergia asperifolia</i>	10.00						P				
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Sorghastrum avenaceum</i>	80.00	P	P	P		P	P		P	P	P
<i>Sporobolus asper</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SHRUBS											
<i>Rosa sayi</i>	10.00										P
TOTAL NATIVE SHRUBS	10.0	—	—	—	—	—	—	—	—	P	—
FERNS											
<i>Hippochaete hyemalis</i> ssp. <i>affinis</i>	50.00	P	P	P				P	P		
TOTAL FERNS	50.0	P	P	P	—	—	—	P	P	—	—
SPECIES DENSITY (# of species/100 sq.m.)		13	12	11	10	12	13	14	13	14	10
(AVERAGE= 12.2 Std.Dev.= 1.5)											

*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 - Area 6, Transect 1, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL GRASSES											
<i>Panicum capillare</i>	60.00			P		P	P	P	P	P	
TOTAL NATIVE ANN. GRASSES	60.0	—	—	P	—	P	P	P	P	P	—
NATIVE PERENNIAL FORBS											
<i>Asclepias speciosa</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Glycyrrhiza lepidota</i>	10.00	P									
<i>Oenothera villosa</i>	10.00		P								
<i>Virgulus falcatus</i>	10.00										P
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Breca arvensis</i>	100.00	P	P	P	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>Carex nebrascensis</i>	10.00	P									
<i>Carex praegracilis</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Carex vulpinoidea</i>	10.00		P								
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	10.00										P
<i>Juncus arcticus</i> ssp. <i>ater</i>	90.00	P	P	P	P	P	P	P	P		P
<i>Poa agassizensis</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
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis gigantea</i>	30.00			P	P	P					
TOTAL INTRO. PERENNIAL GRASSES (c)	30.0	—	—	P	P	P	—	—	—	—	—
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	60.00	P	P	P	P	P					P
<i>Panicum virgatum</i>	40.00	P			P					P	P
<i>Schizachyrium scoparium</i>	20.00			P	P						
<i>Sporobolus contractus</i>	70.00			P	P	P	P		P	P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	90.0	P	P	P	P	P	P	—	P	P	P
NATIVE SHRUBS											
<i>Rosa arkansana</i>	90.00	P	P		P	P	P	P	P	P	P
<i>Symphoricarpos occidentalis</i>	20.00									P	P
TOTAL NATIVE SHRUBS	90.0	P	P	—	P	P	P	P	P	P	P
SPECIES DENSITY (# of species/100 sq.m.)		10	9	10	11	10	8	7	8	10	11
(AVERAGE= 9.4 Std.Dev.= 1.3)											

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

Table 11. Frequency Data - Area 6, Transect 2, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Mellilotus alba</i>	20.00							P	P		
TOTAL INTRO. ANN. & BIEN. FORBS	20.0	--	--	--	--	--	--	P	P	--	--
NATIVE PERENNIAL FORBS											
<i>Asclepias speciosa</i>	60.00	P						P	P	P	P
TOTAL NATIVE PERENNIAL FORBS	60.0	P	--	--	--	--	--	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Brea arvensis</i>	20.00							P			P
<i>Taraxacum officinale</i>	70.00	P	P	P	P	P				P	P
TOTAL INTRO. PERENNIAL FORBS	80.0	P	P	P	P	P	P	--	--	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex brevior</i>	20.00									P	P
<i>Carex praegracilis</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Juncus arcticus ssp. ater</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	90.00		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
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis gigantea</i>	30.00							P		P	P
TOTAL INTRO. PERENNIAL GRASSES (c)	30.0	--	--	--	--	--	--	P	--	P	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SHRUBS											
<i>Rosa arkansana</i>	80.00	P	P	P				P	P	P	P
TOTAL NATIVE SHRUBS	80.0	P	P	P	--	--	--	P	P	P	P
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 7.9 Std.Dev.= 1.6)		7	7	7	6	6	9	8	9	9	11

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

Table 12. Frequency Data - Area 7, Transect 1, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Dianthus armeria</i>	50.00						P	P	P	P	P
<i>Lactuca serriola</i>	20.00							P	P		
<i>Plantago lanceolata</i>	10.00										P
TOTAL INTRO. ANN. & BIEN. FORBS	50.0	--	--	--	--	--	P	P	P	P	P
NATIVE PERENNIAL FORBS											
<i>Artemisia ludoviciana</i>	30.00	P		P	P						
<i>Aster porteri</i>	40.00	P	P	P		P					
<i>Psoraleum tenuiflorum</i>	30.00			P	P			P			
<i>Sisyrinchium montanum</i>	10.00										P
<i>Virgulus falcatus</i>	60.00			P			P	P	P	P	P
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Cichorium intybus</i>	60.00	P	P	P	P	P			P		
<i>Convolvulus arvensis</i>	20.00									P	P
TOTAL INTRO. PERENNIAL FORBS	80.0	P	P	P	P	P	--	--	P	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Juncus arcticus</i> ssp. <i>ater</i>	10.00										P
<i>Juncus interior</i>	10.00									P	
<i>Poa compressa</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa secunda</i>	20.00									P	P
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agrostis stolonifera</i>	10.00										P
TOTAL INTRO. PERENNIAL GRASSES (c)	10.0	--	--	--	--	--	--	--	--	--	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	10.00	P									
<i>Chondrosum gracile</i>	30.00			P	P	P					
<i>Panicum virgatum</i>	70.00	P	P	P		P		P		P	P
<i>Schizachyrium scoparium</i>	40.00		P	P	P	P					
<i>Sorghastrum avenaceum</i>	50.00					P	P		P	P	P
<i>Sporobolus asper</i>	70.00	P	P	P	P		P		P	P	
<i>Sporobolus cryptandrus</i>	10.00							P			
<i>Sporobolus heterolepis</i>	40.00				P	P		P	P		
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
SUCCULENT											
<i>Opuntia macrorhiza</i>	30.00		P	P	P						
TOTAL SUCCULENT	30.0	--	P	P	P	--	--	--	--	--	--
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 8.3 Std.Dev.= 1.8)		7	7	11	9	8	5	8	8	9	11

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

Table 13. Frequency Data - Area 7, Transect 2, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Cirsium undulatum</i>	10.00			P							
TOTAL NATIVE ANN. & BIEN. FORBS	10.0	--	--	P	--	--	--	--	--	--	--
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Alyssum desertorum</i>	30.00	P	P				P				
<i>Camelina microcarpa</i>	10.00					P					
<i>Dianthus armeria</i>	30.00	P								P	P
<i>Neolepia campestris</i>	30.00					P	P	P			
<i>Tragopogon dubius</i> ssp. <i>major</i>	70.00	P	P		P	P		P	P	P	
TOTAL INTRO. ANN. & BIEN. FORBS	90.0	P	P	--	P	P	P	P	P	P	P
NATIVE ANNUAL GRASSES											
<i>Vulpia octoflora</i>	20.00	P	P								
TOTAL NATIVE ANN. GRASSES	20.0	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>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	60.00	P	P				P	P		P	P
<i>Artemisia ludoviciana</i>	20.00				P						P
<i>Asclepias stenophylla</i>	10.00	P									
<i>Dalea candida</i> var. <i>oligophylla</i>	20.00					P				P	
<i>Dalea purpurea</i>	20.00	P			P						
<i>Evolvulus nuttallianus</i>	30.00		P	P			P				
<i>Heterotheca villosa</i>	10.00		P								
<i>Lesquerella montana</i>	10.00			P							
<i>Liatris punctata</i>	30.00	P	P	P							
<i>Lithospermum ruderale</i>	10.00	P									
<i>Nothocalais cuspidata</i>	10.00	P									
<i>Oligosporus caudatus</i>	10.00						P				
<i>Oxybaphus linearis</i>	30.00		P	P		P					
<i>Oxytropis sericea</i>	10.00						P				
<i>Penstemon secundiflorus</i>	10.00					P					
<i>Phacelia heterophylla</i>	20.00					P	P				
<i>Psoralidium tenuiflorum</i>	60.00	P		P		P		P	P	P	
<i>Thermopsis divaricarpa</i>	10.00								P		
<i>Vicia americana</i>	10.00										P
<i>Virgulus falcatus</i>	10.00					P					
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Acetosella vulgaris</i>	20.00		P	P							
<i>Breea arvensis</i>	10.00									P	
<i>Cichorium intybus</i>	20.00	P						P			
<i>Convolvulus arvensis</i>	30.00					P			P	P	
<i>Hypericum perforatum</i>	10.00						P				
TOTAL INTRO. PERENNIAL FORBS	80.0	P	P	P	--	P	P	P	P	P	--

Table 13. Frequency Data - Area 7, Transect 2, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>	40.00			P	P	P	P				
<i>Dichanthelium linearifolium</i>	10.00	P									
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	10.00									P	
<i>Hesperostipa comata</i>	60.00		P	P	P	P	P	P			
<i>Juncus arcticus</i> ssp. <i>ater</i>	60.00	P					P	P	P	P	P
<i>Juncus interior</i>	10.00	P									
<i>Koeleria macrantha</i>	40.00			P	P	P	P				
<i>Poa agassizensis</i>	80.00	P		P	P	P	P		P	P	P
<i>Poa compressa</i>	20.00	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>	50.00			P	P	P	P	P			
<i>Aristida purpurea</i>	20.00	P	P								
<i>Bouteloua curtipendula</i>	10.00			P							
<i>Buchloe dactyloides</i>	10.00	P									
<i>Chondrosum gracile</i>	30.00	P	P				P				
<i>Panicum virgatum</i>	50.00	P						P	P	P	P
<i>Schizachyrium scoparium</i>	10.00		P								
<i>Sorghastrum avenaceum</i>	10.00							P			
<i>Sporobolus cryptandrus</i>	10.00		P								
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	30.00		P	P		P					
TOTAL NATIVE SUBSHRUBS	30.0	—	P	P	—	P	—	—	—	—	—
NATIVE SHRUBS											
<i>Rosa sayi</i>	10.00									P	
<i>Symphoricarpos occidentalis</i>	10.00									P	
TOTAL NATIVE SHRUBS	10.0	—	—	—	—	—	—	—	P	—	—
SUCCULENT											
<i>Echinocereus viridiflorus</i>	30.00				P	P	P				
<i>Opuntia fragilis</i>	80.00	P	P	P	P	P	P	P	P		
<i>Opuntia macrorhiza</i>	60.00	P	P	P			P	P	P		
TOTAL SUCCULENT	80.0	P	P	P	P	P	P	P	P	—	—
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 15.0 Std.Dev.= 5.2)		24	18	17	11	19	19	13	11	11	7

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

Table 14. Frequency Data - Area 7, Transect 3, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Cirsium undulatum</i>	10.00					P					
<i>Cryptantha</i> spp.	10.00					P					
<i>Erigeron divergens</i>	40.00		P	P	P						P
<i>Loasaceae</i> spp.	10.00					P					
TOTAL NATIVE ANN. & BIEN. FORBS	50.0	—	P	P	P	P	—	—	—	—	P
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Alyssum desertorum</i>	10.00									P	
<i>Camelina microcarpa</i>	50.00		P			P	P	P	P		
<i>Lactuca serriola</i>	10.00	P									
<i>Tragopogon dubius</i> ssp. major	40.00		P				P		P		P
TOTAL INTRO. ANN. & BIEN. FORBS	80.0	P	P	—	—	P	P	P	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>Allium textile</i>	20.00	P			P						
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	10.00					P					
<i>Artemisia ludoviciana</i>	20.00							P	P		
<i>Cerastium strictum</i>	20.00					P			P		
<i>Dalea purpurea</i>	10.00				P						
<i>Drymocallis fissa</i>	20.00	P									P
<i>Eriogonum lonchophyllum</i>	20.00	P						P			
<i>Evolvulus nuttallianus</i>	40.00		P	P	P	P					
<i>Heterotheca fulcrata</i>	10.00				P						
<i>Heterotheca villosa</i>	20.00				P				P		
<i>Liatris punctata</i>	30.00		P	P	P						
<i>Lithospermum ruderale</i>	10.00	P									
<i>Lupinus caudatus</i>	20.00				P	P					
<i>Lycopus americanus</i>	20.00		P	P							
<i>Oligosporus caudatus</i>	10.00	P									
<i>Oxybaphus linearis</i>	30.00				P			P		P	
<i>Penstemon secundiflorus</i>	10.00			P							
<i>Phacelia heterophylla</i>	10.00								P		
<i>Psoraleidium tenuiflorum</i>	40.00							P	P	P	P
<i>Ratibida columnifera</i>	10.00		P								
<i>Senecio spartioides</i>	10.00							P			
<i>Tithymalus brachyceras</i>	10.00				P						
<i>Virgulus falcatus</i>	10.00						P				
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Acetosella vulgaris</i>	20.00									P	P
TOTAL INTRO. PERENNIAL FORBS	20.0	—	—	—	—	—	—	—	—	P	P
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>	10.00			P							
<i>Hesperostipa comata</i>	90.00	P	P	P	P	P	P	P		P	P
<i>Koeleria macrantha</i>	10.00							P			
<i>Poa agassizensis</i>	60.00				P	P	P	P		P	P
<i>Poa compressa</i>	10.00	P									
TOTAL NATIVE PERENNIAL GRASSES (c)	90.0	P	P	P	P	P	P	P	—	P	P

Table 14. Frequency Data - Area 7, Transect 3, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	80.00	P	P	P	P	P			P	P	P
<i>Bouteloua curtipendula</i>	50.00				P	P	P	P			P
<i>Chondrosum gracile</i>	30.00	P		P		P					
<i>Panicum virgatum</i>	10.00	P									
<i>Schizachyrium scoparium</i>	10.00						P				
<i>Sorghastrum avenaceum</i>	10.00										P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	70.00	P	P	P		P	P	P	P		
TOTAL NATIVE SUBSHRUBS	70.0	P	P	P	—	P	P	P	P	—	—
MOSS											
Moss	10.00						P				
TOTAL MOSS	10.0	—	—	—	—	—	P	—	—	—	—
SUCCULENT											
<i>Echinocereus viridiflorus</i>	90.00	P	P	P	P	P	P	P		P	P
<i>Opuntia fragilis</i>	80.00		P	P	P	P	P		P	P	P
TOTAL SUCCULENT	100.0	P	P	P	P	P	P	P	P	P	P
AGAVOIDS											
<i>Yucca glauca</i>	40.00		P					P		P	P
TOTAL AGAVOIDS	40.0	—	P	—	—	—	—	P	—	P	P
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 13.4 Std.Dev.= 2.2)											
		14	14	13	17	17	11	13	11	11	13

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

Table 15. Frequency Data - Area 7, Transect 4, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		---Sample Number---									
		1	2	3	4	5	6	7	8	9	10
SUCCULENT											
Opuntia macrorhiza	60.00	P	P	P	P			P		P	
TOTAL SUCCULENT	60.0	P	P	P	P	--	--	P	--	P	--
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 10.2 Std.Dev.= 2.2)		8	12	9	8	11	8	10	13	14	9

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

Table 16. Frequency Data - Area 7, Transect 5, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Erigeron divergens</i>	10.00				P						
<i>Silene antirrhina</i>	10.00			P							
TOTAL NATIVE ANN. & BIEN. FORBS	20.0	--	--	P	P	--	--	--	--	--	--
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Alyssum desertorum</i>	10.00				P						
<i>Dianthus armeria</i>	40.00		P			P		P		P	
<i>Lactuca serriola</i>	20.00				P	P					
<i>Neolepia campestre</i>	20.00				P	P					
<i>Tragopogon dubius ssp. major</i>	30.00		P	P	P						
TOTAL INTRO. ANN. & BIEN. FORBS	60.0	--	P	P	P	P	--	P	--	P	--
INTRODUCED ANNUAL GRASSES											
<i>Bromus japonicus</i>	10.00				P						
TOTAL INTRO. ANN. GRASSES	10.0	--	--	--	P	--	--	--	--	--	--
NATIVE PERENNIAL FORBS											
<i>Achillea lanulosa</i>	10.00					P					
<i>Ambrosia psilostachya var. coronopifolia</i>	30.00	P			P	P					
<i>Artemisia ludoviciana</i>	30.00		P	P				P			
<i>Geranium richardsonii</i>	10.00			P							
<i>Heterotheca villosa</i>	20.00		P		P						
<i>Iris missouriensis</i>	10.00						P				
<i>Liatris punctata</i>	10.00		P								
<i>Psoralidium tenuiflorum</i>	10.00		P								
<i>Ratibida columnifera</i>	10.00			P							
<i>Thermopsis divaricarpa</i>	30.00				P	P	P				
<i>Virgulus falcatus</i>	20.00						P	P			
TOTAL NATIVE PERENNIAL FORBS	70.0	P	P	P	P	P	P	P	--	--	--
INTRODUCED PERENNIAL FORBS											
<i>Acetosella vulgaris</i>	20.00					P	P				
<i>Cichorium intybus</i>	30.00					P	P			P	
<i>Convolvulus arvensis</i>	30.00			P	P				P		
TOTAL INTRO. PERENNIAL FORBS	60.0	--	--	P	P	P	P	--	P	P	--
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex brevior</i>	10.00										P
<i>Carex emoryi</i>	40.00							P	P	P	P
<i>Carex nebrascensis</i>	10.00										P
<i>Carex pensylvanica ssp. heliophila</i>	10.00					P					
<i>Hesperostipa comata</i>	10.00		P								
<i>Juncus arcticus ssp. ater</i>	70.00	P	P	P			P	P	P		P
<i>Poa agassizensis</i>	100.00	P	P	P	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
INTRODUCED PERENNIAL GRASSES (cool)											
<i>Agropyron x repens hybrid</i>	10.00								P		
<i>Bromopsis inermis</i>	20.00						P			P	
TOTAL INTRO. PERENNIAL GRASSES (c)	30.0	--	--	--	--	--	P	--	P	P	--

Table 16. Frequency Data - Area 7, Transect 5, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	30.00	P	P	P							
<i>Panicum virgatum</i>	90.00	P	P	P	P	P	P	P	P	P	
<i>Schizachyrium scoparium</i>	20.00				P	P					
<i>Sorghastrum avenaceum</i>	10.00		P								
<i>Spartina pectinata</i>	20.00									P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	10.00			P							
TOTAL NATIVE SUBSHRUBS	10.0	--	--	P	--	--	--	--	--	--	--
NATIVE SHRUBS											
<i>Rosa sayi</i>	60.00		P			P	P	P	P		P
<i>Symphoricarpos occidentalis</i>	20.00		P	P							
TOTAL NATIVE SHRUBS	70.0	--	P	P	--	P	P	P	P	--	P
SUCCULENT											
<i>Opuntia macrorhiza</i>	30.00	P		P		P					
<i>Opuntia polyacantha</i>	10.00						P				
TOTAL SUCCULENT	40.0	P	--	P	--	P	P	--	--	--	--
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 10.5 Std.Dev.= 3.2)		6	14	13	13	15	12	9	8	8	7

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

Table 17. Frequency Data - Area 7, Transect 6, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	10.00				P						
<i>Bouteloua curtipendula</i>	10.00	P									
<i>Chondrosium gracile</i>	10.00							P			
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Schizachyrium scoparium</i>	10.00					P					
<i>Sorghastrum avenaceum</i>	10.00					P					
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	40.00	P						P	P	P	
TOTAL NATIVE SUBSHRUBS	40.0	P	—	—	—	—	—	P	P	P	—
NATIVE SHRUBS											
<i>Rosa sayi</i>	20.00		P	P							
TOTAL NATIVE SHRUBS	20.0	—	P	P	—	—	—	—	—	—	—
FERNS											
<i>Hippochaete hyemalis ssp. affinis</i>	30.00		P	P				P			
TOTAL FERNS	30.0	—	P	P	—	—	—	P	—	—	—
SUCCULENT											
<i>Echinocereus viridiflorus</i>	20.00			P	P						
<i>Opuntia fragilis</i>	10.00							P			
<i>Opuntia macrorhiza</i>	80.00	P		P		P	P	P	P	P	P
TOTAL SUCCULENT	90.0	P	—	P	P	P	P	P	P	P	P
AGAVOIDS											
<i>Yucca glauca</i>	10.00	P									
TOTAL AGAVOIDS	10.0	P	—	—	—	—	—	—	—	—	—
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 11.9 Std.Dev.= 2.6)											
		9	9	14	9	12	12	17	12	11	14

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

Table 18. Frequency Data - Area 7, Transect 7, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Dianthus ameria</i>	30.00	P							P		P
<i>Plantago lanceolata</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL INTRO. ANN. & BIEN. FORBS	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL FORBS											
<i>Iris missouriensis</i>	40.00	P				P			P	P	
<i>Thermopsis divaricarpa</i>	20.00		P								P
<i>Virgulus falcatus</i>	70.00	P	P		P	P	P	P		P	
TOTAL NATIVE PERENNIAL FORBS	90.0	P	P	—	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Cichorium intybus</i>	10.00				P						
TOTAL INTRO. PERENNIAL FORBS	10.0	—	—	—	P	—	—	—	—	—	—
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex douglasii</i>	50.00			P	P	P	P		P		
<i>Dichanthelium oligosanthes var. scribnerianum</i>	10.00							P			
<i>Eleocharis palustris</i>	40.00				P	P	P	P			
<i>Juncus arcticus ssp. ater</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Poa agassizensis</i>	90.00	P	P		P	P	P	P	P	P	P
<i>Poa compressa</i>	70.00				P	P	P	P	P	P	P
<i>Poa secunda</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>Agrostis gigantea</i>	30.00	P				P			P		
<i>Phleum pratense</i>	30.00			P	P						P
TOTAL INTRO. PERENNIAL GRASSES (c)	60.0	P	—	P	P	P	—	—	P	—	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	10.00	P									
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Sorghastrum avenaceum</i>	50.00	P	P			P				P	P
<i>Sporobolus heterolepis</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SHRUBS											
<i>Rosa sayi</i>	60.00	P	P	P					P	P	P
TOTAL NATIVE SHRUBS	60.0	P	P	P	—	—	—	—	P	P	P
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 10.2 Std.Dev.= 1.6)		12	9	7	11	12	9	9	11	11	11

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

Table 19. Frequency Data - Area 7, Transect 8, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Epilobium brachycarpum</i>	10.00										P
TOTAL NATIVE ANN. & BIEN. FORBS	10.0	--	--	--	--	--	--	--	--	P	--
NATIVE PERENNIAL FORBS											
<i>Oenothera villosa</i>	10.00								P		
<i>Verbena hastata</i>	60.00					P	P	P	P	P	P
TOTAL NATIVE PERENNIAL FORBS	60.0	--	--	--	--	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Potentilla recta</i>	10.00										P
TOTAL INTRO. PERENNIAL FORBS	10.0	--	--	--	--	--	--	--	--	P	--
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex brevior</i>	20.00			P			P				
<i>Carex emoryi</i>	10.00		P								
<i>Carex lanuginosa</i>	10.00			P							
<i>Carex nebrascensis</i>	30.00	P		P	P						
<i>Eleocharis palustris</i>	20.00				P	P					
<i>Juncus arcticus ssp. ater</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Juncus interior</i>	10.00										P
<i>Poa agassizensis</i>	10.00									P	
<i>Poa secunda</i>	10.00								P		
TOTAL NATIVE PERENNIAL GRASSES (c)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Spartina pectinata</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
SPECIES DENSITY (# of species/100 sq.m.)											
(AVERAGE= 4.1 Std.Dev.= 1.0)											
		3	3	5	4	4	4	3	5	6	4

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

Table 20. Frequency Data - Area 7, Transect 9, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		---Sample Number---									
		1	2	3	4	5	6	7	8	9	10
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	40.00				P	P	P		P		
TOTAL NATIVE SUBSHRUBS	40.0	—	—	—	P	P	P	—	P	—	—
NATIVE SHRUBS											
<i>Amorpha nana</i>	20.00							P	P		
<i>Rosa sayi</i>	60.00	P	P	P			P	P	P		
TOTAL NATIVE SHRUBS	60.0	P	P	P	—	—	P	P	P	—	—
SUCCULENT											
<i>Opuntia macrorhiza</i>	40.00					P		P	P		P
TOTAL SUCCULENT	40.0	—	—	—	—	P	—	P	P	—	P
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 13.7 Std.Dev.= 2.8)		11	12	13	16	14	12	15	20	13	11

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

Table 21. Frequency Data - Area 7, Transect 10, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE ANNUAL & BIENNIAL FORBS											
<i>Cirsium undulatum</i>	10.00										P
<i>Erigeron divergens</i>	50.00				P		P	P		P	P
<i>Grindelia squarrosa</i>	30.00	P	P		P						
<i>Oreocarya virgata</i>	20.00								P	P	
<i>Pterogonum alatum</i>	70.00		P			P	P	P	P	P	P
TOTAL NATIVE ANN. & BIEN. FORBS	90.0	P	P	—	P	P	P	P	P	P	P
INTRODUCED ANNUAL & BIENNIAL FORBS											
<i>Alyssum desertorum</i>	50.00		P	P		P	P	P			
<i>Dianthus armeria</i>	10.00				P						
<i>Lactuca serriola</i>	10.00								P		
<i>Podospermum laciniatum</i>	10.00						P				
<i>Tragopogon dubius ssp. major</i>	30.00			P	P						P
TOTAL INTRO. ANN. & BIEN. FORBS	80.0	—	P	P	P	P	P	P	P	—	P
INTRODUCED ANNUAL GRASSES											
<i>Bromus japonicus</i>	20.00	P		P							
TOTAL INTRO. ANN. GRASSES	20.0	P	—	P	—	—	—	—	—	—	—
NATIVE PERENNIAL FORBS											
<i>Ambrosia psilostachya var. coronopifolia</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Artemisia ludoviciana</i>	30.00			P	P	P					
<i>Asclepias viridiflora</i>	10.00							P			
<i>Aster porteri</i>	30.00			P	P			P			
<i>Calylophus serrulatus</i>	10.00					P					
<i>Cerastium strictum</i>	10.00							P			
<i>Comandra umbellata ssp. pallida</i>	10.00							P			
<i>Dalea candida var. oligophylla</i>	10.00			P							
<i>Dalea purpurea</i>	40.00		P			P	P		P		
<i>Evolvulus nuttallianus</i>	10.00								P		
<i>Heterotheca villosa</i>	30.00				P	P					P
<i>Lesquerella montana</i>	20.00							P			P
<i>Liatris punctata</i>	30.00			P						P	P
<i>Oligosporus caudatus</i>	40.00		P		P				P	P	
<i>Oxybaphus linearis</i>	30.00					P			P		P
<i>Paronychia jamesii</i>	80.00	P	P	P	P	P	P	P			P
<i>Penstemon secundiflorus</i>	10.00					P					
<i>Psoraleidum tenuiflorum</i>	70.00	P	P	P		P	P		P	P	
<i>Senecio spartioides</i>	60.00		P	P		P	P	P	P		
<i>Talinum parviflorum</i>	50.00	P					P	P		P	P
<i>Tragia ramosa</i>	100.00	P	P	P	P	P	P	P	P	P	P
TOTAL NATIVE PERENNIAL FORBS	100.0	P	P	P	P	P	P	P	P	P	P
INTRODUCED PERENNIAL FORBS											
<i>Acetosella vulgaris</i>	50.00					P		P	P	P	P
<i>Cichorium intybus</i>	10.00			P							
<i>Hypericum perforatum</i>	20.00				P				P		
TOTAL INTRO. PERENNIAL FORBS	70.0	—	—	P	P	P	—	P	P	P	P

Table 21. Frequency Data - Area 7, Transect 10, City of Boulder Open Space - 2000.

PLANT SPECIES	FREQUENCY (%)	Presence*									
		—Sample Number—									
		1	2	3	4	5	6	7	8	9	10
NATIVE PERENNIAL GRASSES (cool)											
<i>Carex pensylvanica</i> ssp. <i>heliophila</i>	60.00	P			P	P	P	P	P		
<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>	10.00				P						
<i>Hesperostipa comata</i>	30.00							P	P	P	
<i>Koeleria macrantha</i>	10.00								P		
<i>Poa agassizensis</i>	80.00			P	P	P	P	P	P	P	P
<i>Poa compressa</i>	30.00				P			P			P
<i>Poa secunda</i>	20.00									P	P
TOTAL NATIVE PERENNIAL GRASSES (c)	90.0	P	—	P	P	P	P	P	P	P	P
NATIVE PERENNIAL GRASSES (warm)											
<i>Andropogon gerardii</i>	70.00		P	P	P		P	P	P		P
<i>Aristida purpurea</i>	40.00			P	P	P				P	
<i>Bouteloua curtipendula</i>	80.00	P		P	P	P	P		P	P	P
<i>Chondrosium gracile</i>	90.00	P	P	P	P	P	P	P	P	P	P
<i>Panicum virgatum</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Schizachyrium scoparium</i>	50.00					P		P	P	P	P
<i>Sorghastrum avenaceum</i>	20.00	P		P					P	P	P
<i>Sporobolus cryptandrus</i>	10.00			P							
TOTAL NATIVE PERENNIAL GRASSES (w)	100.0	P	P	P	P	P	P	P	P	P	P
NATIVE SUBSHRUBS											
<i>Artemisia frigida</i>	100.00	P	P	P	P	P	P	P	P	P	P
<i>Gutierrezia sarothrae</i>	20.00		P	P							
TOTAL NATIVE SUBSHRUBS	100.0	P	P	P	P	P	P	P	P	P	P
SUCCULENT											
<i>Echinocereus viridiflorus</i>	70.00	P		P	P	P	P	P			P
<i>Opuntia fragilis</i>	40.00	P						P	P	P	
<i>Opuntia macrorhiza</i>	50.00		P	P		P	P			P	
TOTAL SUCCULENT	100.0	P	P	P	P	P	P	P	P	P	P
PARASITE											
<i>Aphyllon fasciculatum</i>	10.00							P			
TOTAL PARASITE	10.0	—	—	—	—	—	—	P	—	—	—
AGAVOIDS											
<i>Yucca glauca</i>	20.00	P	P								
TOTAL AGAVOIDS	20.0	P	P	—	—	—	—	—	—	—	—
SPECIES DENSITY (# of species/100 sq.m.) (AVERAGE= 21.8 Std.Dev.= 3.3)		16	17	25	23	24	20	26	24	21	22

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

Table 22. Species Present - All Sites and Transects, City of Boulder Open Space, CO - 2000.

SPECIES	SYNONYM	COMMON NAME	Sample Area and Transect-----									
			3-1	3-2	3-3	3-4	3-5	3-6	6-1	6-2		
Lesquerella montana		bladderpod										
Liatris punctata		gayfeather		X								
Lithospermum ruderale		wayside gromwell										
Lupinus caudatus		tailcup lupine										
Lycopus americanus		water horehound				X						
Lythrum alatum		loosestrife					X					
Machaeranthera canescens		hoary tansyaster										
Mentha arvensis		fieldmint				X						
Nothocalais cuspidata		false dandelion										
Oenothera villosa		evening-primrose				X	X		X			
Oligoneuron rigidum		<i>Solidago rigidum</i>				X						
Oligosporus caudatus		sagewort										
Oxalis dillenii		wood sorrel		X								
Oxybaphus hirsutus		umbrellawort										
Oxybaphus linearis		umbrellawort										
Oxytropis sericea		locoweed										
Paronychia jamesii		nailwort										
Penstemon secundiflorus		sidebells beard-tongue		X								
Phacelia heterophylla		varileaf scorpionweed										
Psoralea tenuiflorum		<i>Psoralea tenuiflora</i>			X	X		X				
Ratibida columnifera		prairie coneflower							X			
Rumex crispus		curly dock										
Rumex triangulivalvis		<i>R. salicifolius</i>										
Senecio spartioides		threadleaf groundsel										
Sisyrinchium montanum		blue-eyed-grass		X								
Solidago missouriensis		missouri goldenrod		X								
Solidago speciosa var. pallida		noble goldenrod		X								
Tallium parviflorum		tallium										
Thermopsis divaricarpa		golden banner							X			
Tithymalus brachyceras		<i>Tithymalus montanus</i>										
Tithymalus spurge		spurge										
Tragia ramosa		noseburn										
Verbena hastata		blue vervain		X					X			

NATIVE PERENNIAL FORBS (continued)

Table 22. Species Present - All Sites and Transects, City of Boulder Open Space, CO - 2000.

SPECIES	SYNONYM	COMMON NAME	-----Sample Area and Transect-----											
			7-1	7-2	7-3	7-4	7-5	7-6	7-7	7-8	7-9	7-10		
INTRODUCED ANNUAL GRASSES														
<i>Bromus japonicus</i>		Japanese brome		X	X			X						X
NATIVE PERENNIAL FORBS														
<i>Acetosella vulgaris</i>	<i>Rumex acetosella</i>	sheep sorrel		X	X	X	X	X					X	X
<i>Achillea lanulosa</i>		Western yarrow					X						X	
<i>Allium textile</i>		prairie onion			X									
<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>		ragweed		X	X	X	X	X					X	X
<i>Apocynum cannabinum</i>	<i>Apocynum sibiricum</i>	Indian hemp												
<i>Artemisia ludoviciana</i>		pasture sage	X	X	X	X	X							X
<i>Asclepias speciosa</i>		showy milkweed												
<i>Asclepias stenophylla</i>		milkweed		X										
<i>Asclepias viridiflora</i>		greenflower milkweed												X
<i>Aster laevis</i> var. <i>geyeri</i>		smooth aster												
<i>Aster lanceolatus</i> ssp. <i>hesperius</i>	<i>Aster hesperius</i>	aster												
<i>Aster porteri</i>		porter aster	X			X								X
<i>Brickellia eupatorioides</i>		false boneset						X						
<i>Calylophus serrulatus</i>		calylophus						X						X
<i>Cerastium strictum</i>	<i>Cerastium arvense</i>	mouse-ear			X									X
<i>Comandra umbellata</i> ssp. <i>pallida</i>		bastard toadflax				X		X						X
<i>Dalea candida</i> var. <i>oligophylla</i>		white dalea		X				X					X	X
<i>Dalea purpurea</i>		dalea		X	X								X	X
<i>Drymocallis fissa</i>	<i>Potentilla fissa</i>	bigflower cinquefoil			X									
<i>Epilobium ciliatum</i>		ciliate willow herb												
<i>Eremogone fendleri</i>	<i>Arenaria fendleri</i>	desert sandwort						X						
<i>Eriogonum jamesii</i>		wild buckwheat			X									
<i>Eriogonum lonchophyllum</i>		false buckwheat			X									
<i>Evolvulus nuttallianus</i>				X	X									X
<i>Gaillardia aristata</i>		blanket-flower												
<i>Geranium richardsonii</i>		Richardson geranium					X							
<i>Glycyrrhiza lepidota</i>		wild licorice												
<i>Heterotheca fulcrata</i>		golden aster			X									
<i>Heterotheca villosa</i>		golden aster		X	X	X	X						X	X
<i>Iris missouriensis</i>		wild iris				X	X		X					

Table 22. Species Present - All Sites and Transects, City of Boulder Open Space, CO - 2000.

SPECIES	SYNONYM	COMMON NAME	7-1	7-2	7-3	7-4	7-5	7-6	7-7	7-8	7-9	7-10
Lesquerella montana		bladderpod		X				X				X
Liatris punctata		gayfeather		X	X	X	X					
Lithospermum ruderale		wayside gromwell		X	X							X
Lupinus caudatus		tailcup lupine			X							X
Lycopus americanus		water horehound			X							
Lythrum alatum		loosestrife										
Machaeranthera canescens		hoary tansyaster										X
Mentha arvensis		fieldmint										
Nothocalais cuspidata		false dandelion		X								
Oenothera villosa		Oenothera strigosa									X	
Oligoneuron rigidum	Solidago rigidum	stiff goldenrod						X				
Oligosporus caudatus		sagewort	X	X				X				X
Oxalis dillenii		wood sorrel				X		X				
Oxybaphus hirsutus		umbrellawort						X				
Oxybaphus linearis		umbrellawort	X	X		X		X				X
Oxytropis sericea		locweed			X							
Paronychia jamesii		nailwort	X									
Penstemon secundiflorus		sidebells beard-tongue		X	X							X
Phacelia heterophylla		varileaf scorpionweed			X	X		X				
Psoralidium tenuiflorum	Psoralea tenuiflora	scurfpea	X	X	X	X	X	X				X
Ratibida columnifera		prairie coneflower				X	X	X				X
Rumex crispus		curly dock										
Rumex triangulivalvis	R. salicifolius	willow dock					X					
Senecio spartioides		threadleaf groundsel	X			X						X
Sisyrinchium montanum		blue-eyed-grass			X							
Solidago missouriensis		missouri goldenrod										
Solidago speciosa var. pallida		noble goldenrod										
Talinum parviflorum		talinum	X									
Thermopsis divaricarpa		golden banner			X	X			X			
Tithymalus brachyceras	Tithymalus montanus	spurge				X						
Tragia ramosa		noseburn	X									
Verbena hastata		blue vervain								X		

NATIVE PERENNIAL FORBS (continued)

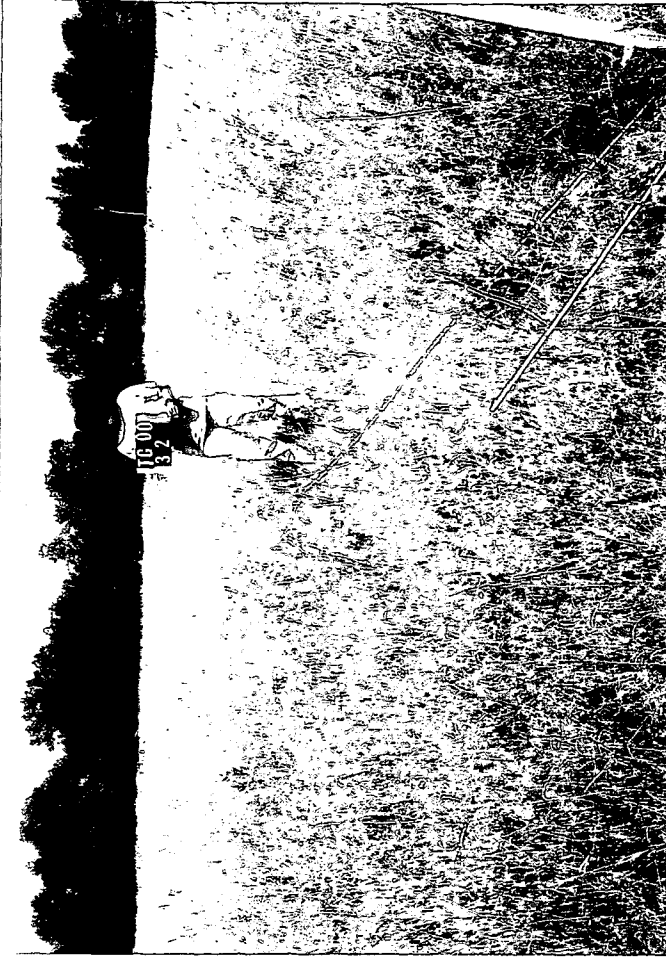
Sample Area and Transect

Table 22. Species Present - All Sites and Transects, City of Boulder Open Space, CO - 2000.

SPECIES	SYNONYM	COMMON NAME	-----Sample Area and Transect-----											
			7-1	7-2	7-3	7-4	7-5	7-6	7-7	7-8	7-9	7-10		
SUCCULENT														
<i>Echinocereus viridiflorus</i>		hen-and-chickens		X	X				X					X
<i>Opuntia fragilis</i>		brittle cactus		X	X				X					X
<i>Opuntia macrorhiza</i>		prickley-pear cactus	X	X		X	X	X				X	X	
<i>Opuntia polyacantha</i>		pricklypear cactus					X							
EPIPHYTE (PARASITE)														
<i>Aphyllon fasciculatum</i>		purple broomrape												X
AGAVOID														
<i>Yucca glauca</i>		Spanish bayonet			X			X						X



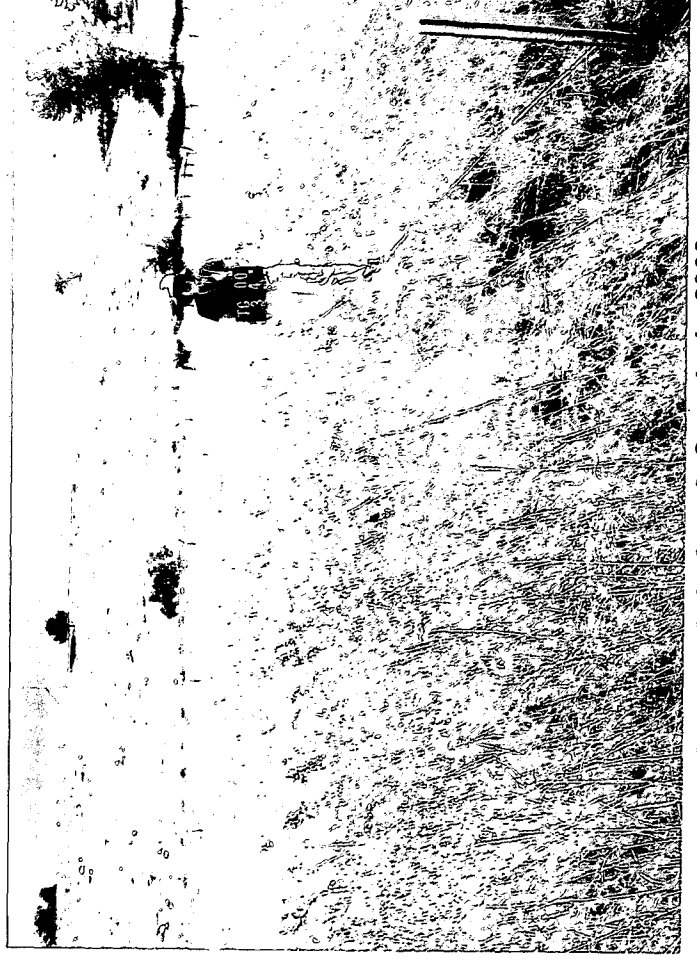
Photograph 1. Area 3. Sample 1 - 2000



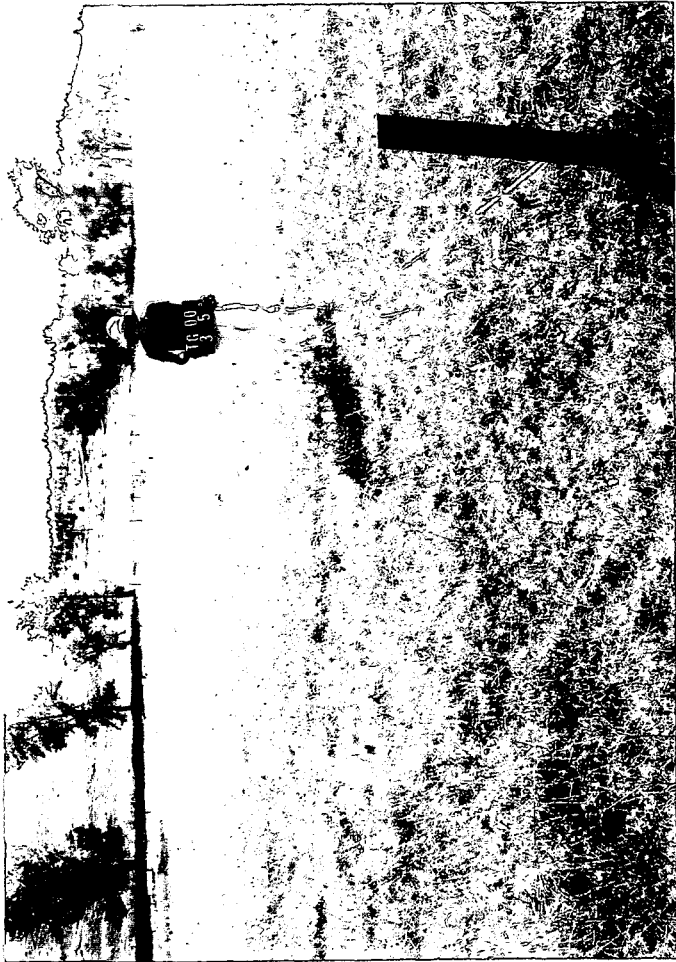
Photograph 2. Area 3. Sample 2 - 2000



Photograph 3. Area 3. Sample 3 - 2000



Photograph 4. Area 3. Sample 4 - 2000



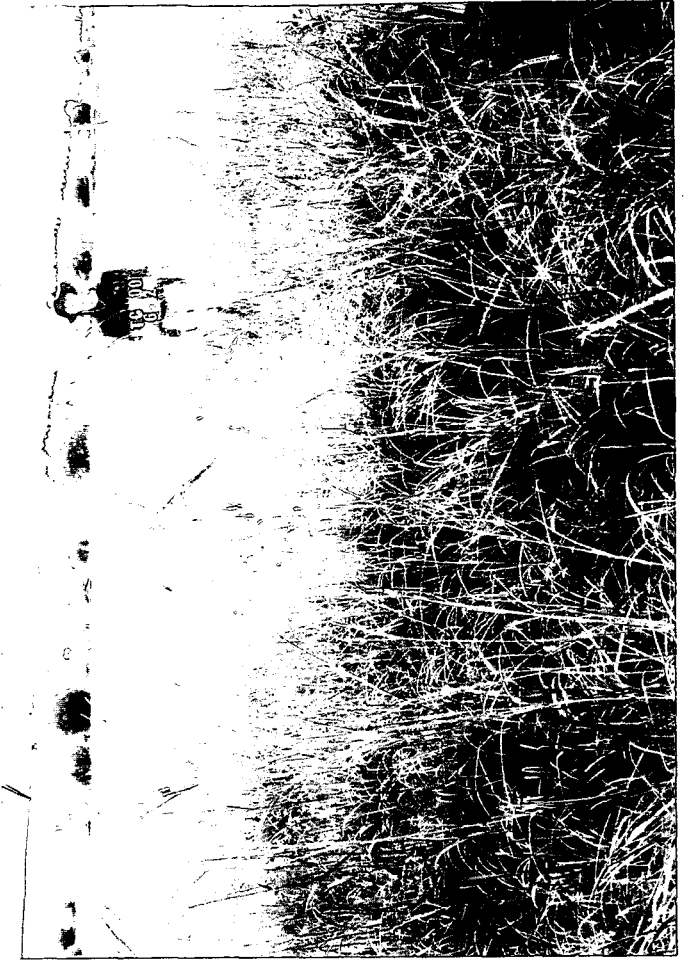
Photograph 5. Area 3. Sample 5 - 2000

PHOTO NOT AVAILABLE

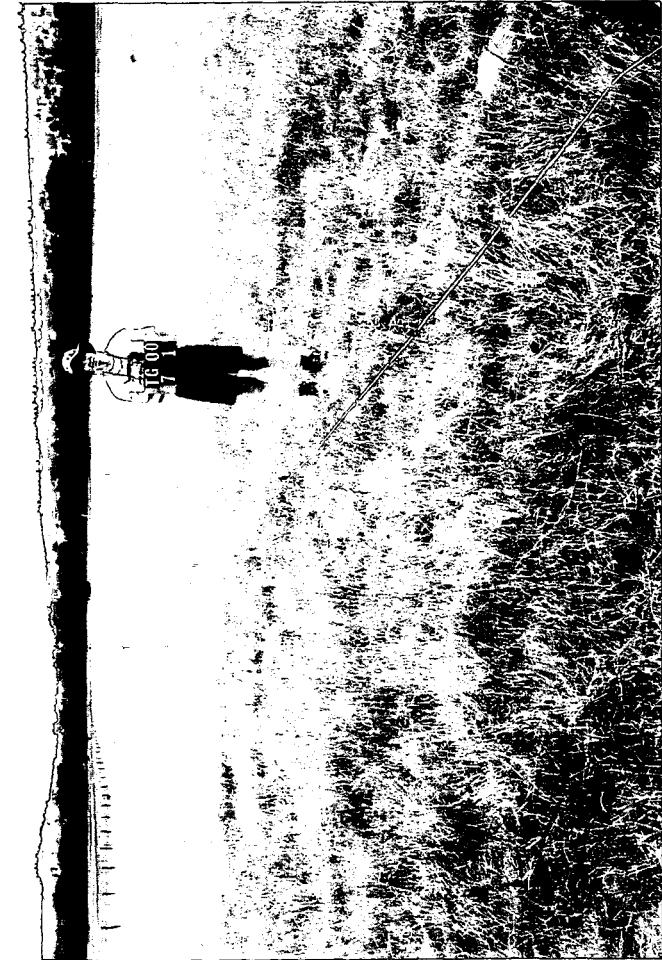
Photograph 6. Area 3. Sample 6 - 2000



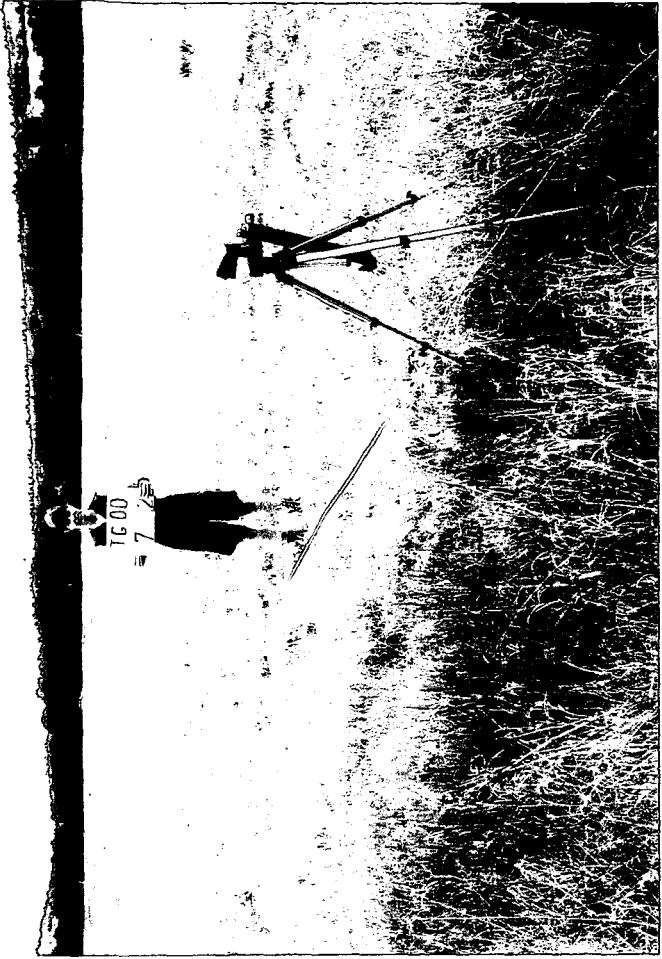
Photograph 7. Area 6. Sample 1 - 2000



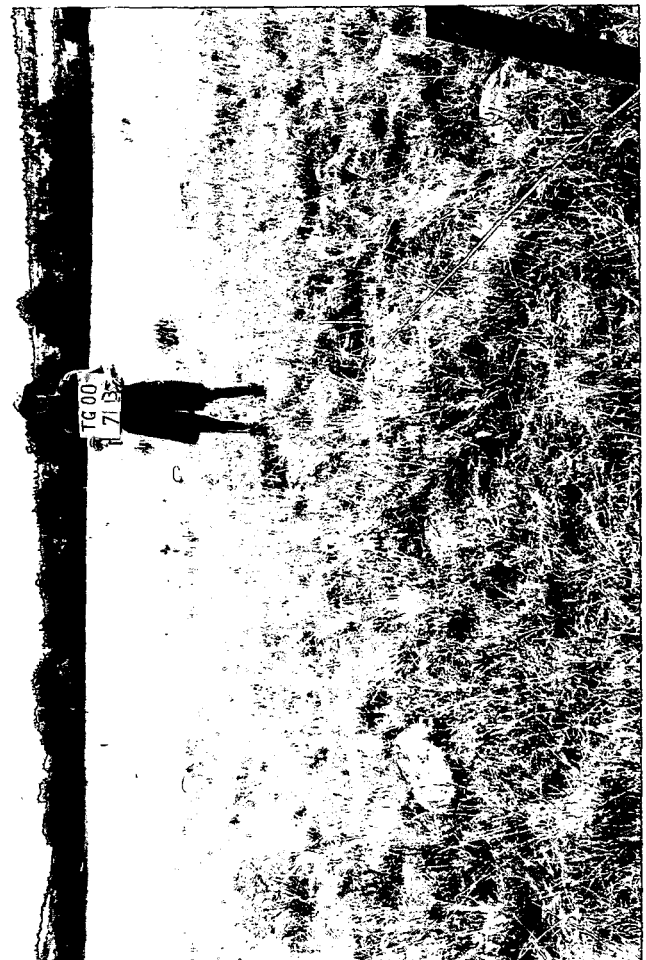
Photograph 8. Area 6. Sample 2 - 2000



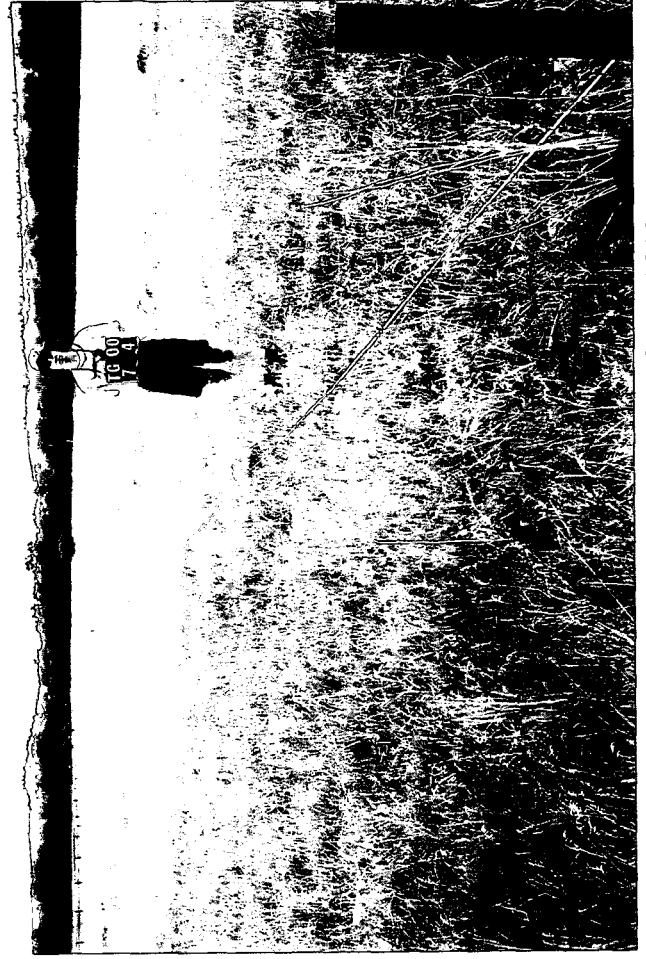
Photograph 9. Area 7. Sample 1 - 2000



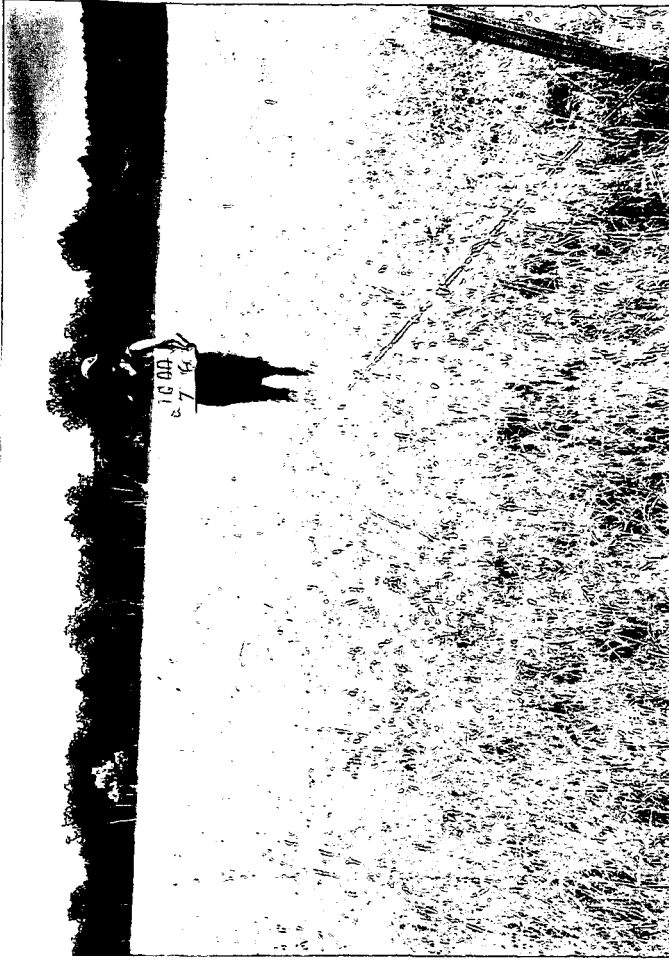
Photograph 10. Area 7. Sample 2 - 2000



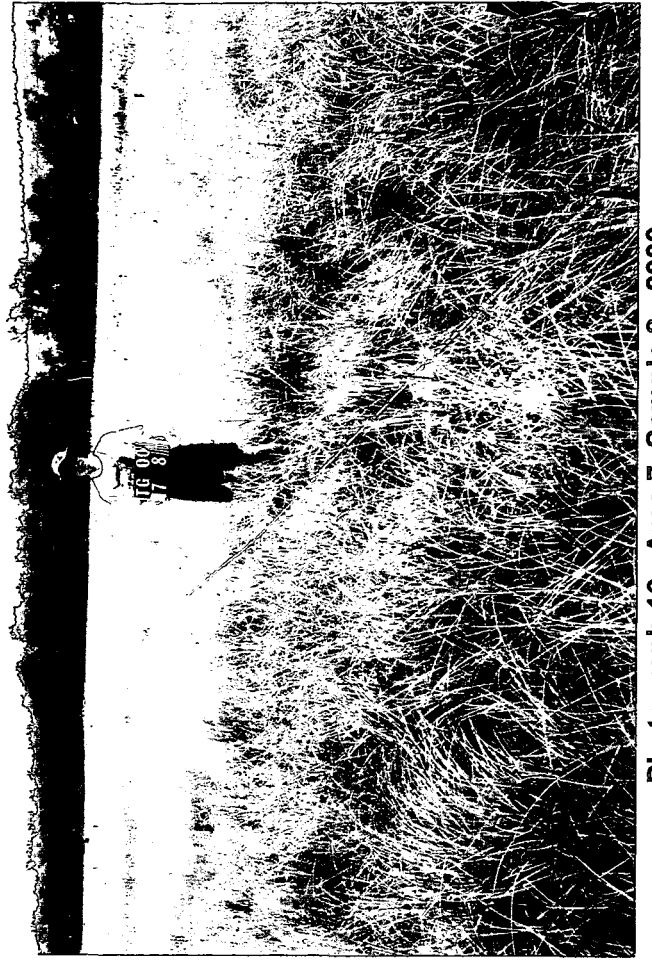
Photograph 11. Area 7. Sample 3 - 2000



Photograph 12. Area 7. Sample 4 - 2000



Photograph 14. Area 7. Sample 6 - 2000



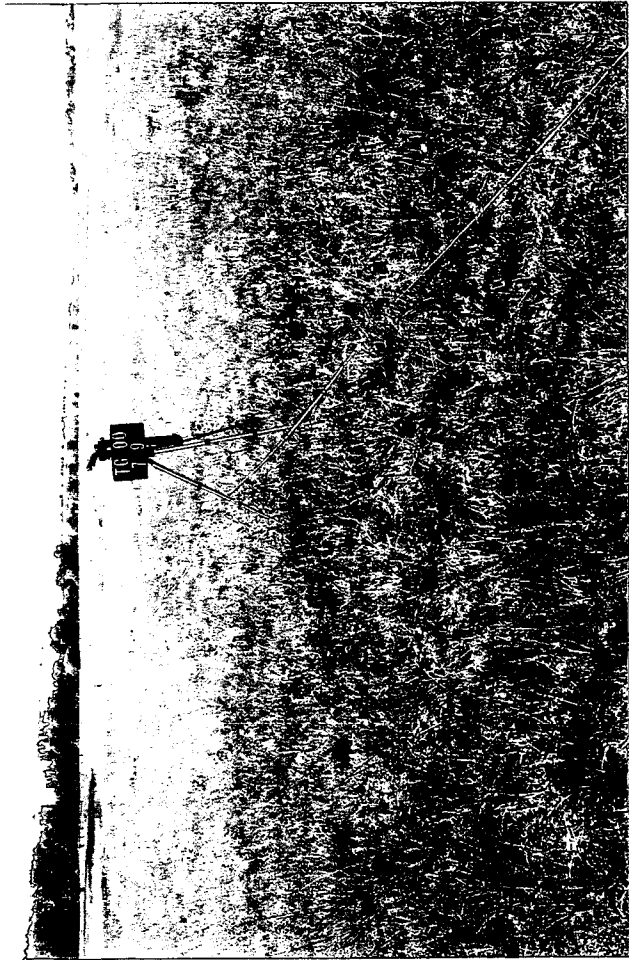
Photograph 16. Area 7. Sample 8 - 2000



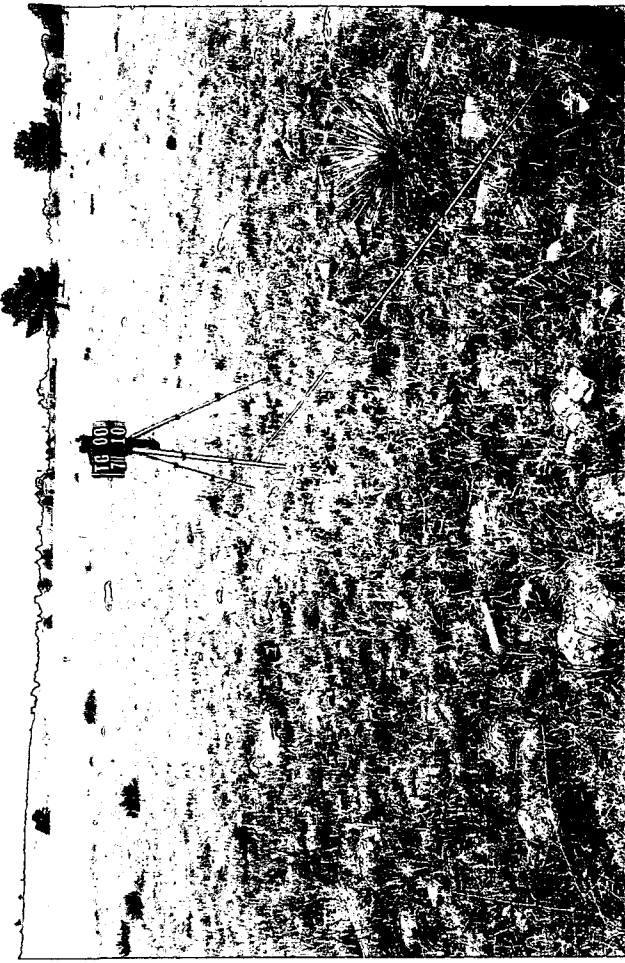
Photograph 13. Area 7. Sample 5 - 2000



Photograph 15. Area 7. Sample 7 - 2000



Photograph 17. Area 7. Sample 9 - 2000



Photograph 18. Area 7. Sample 10 - 2000