

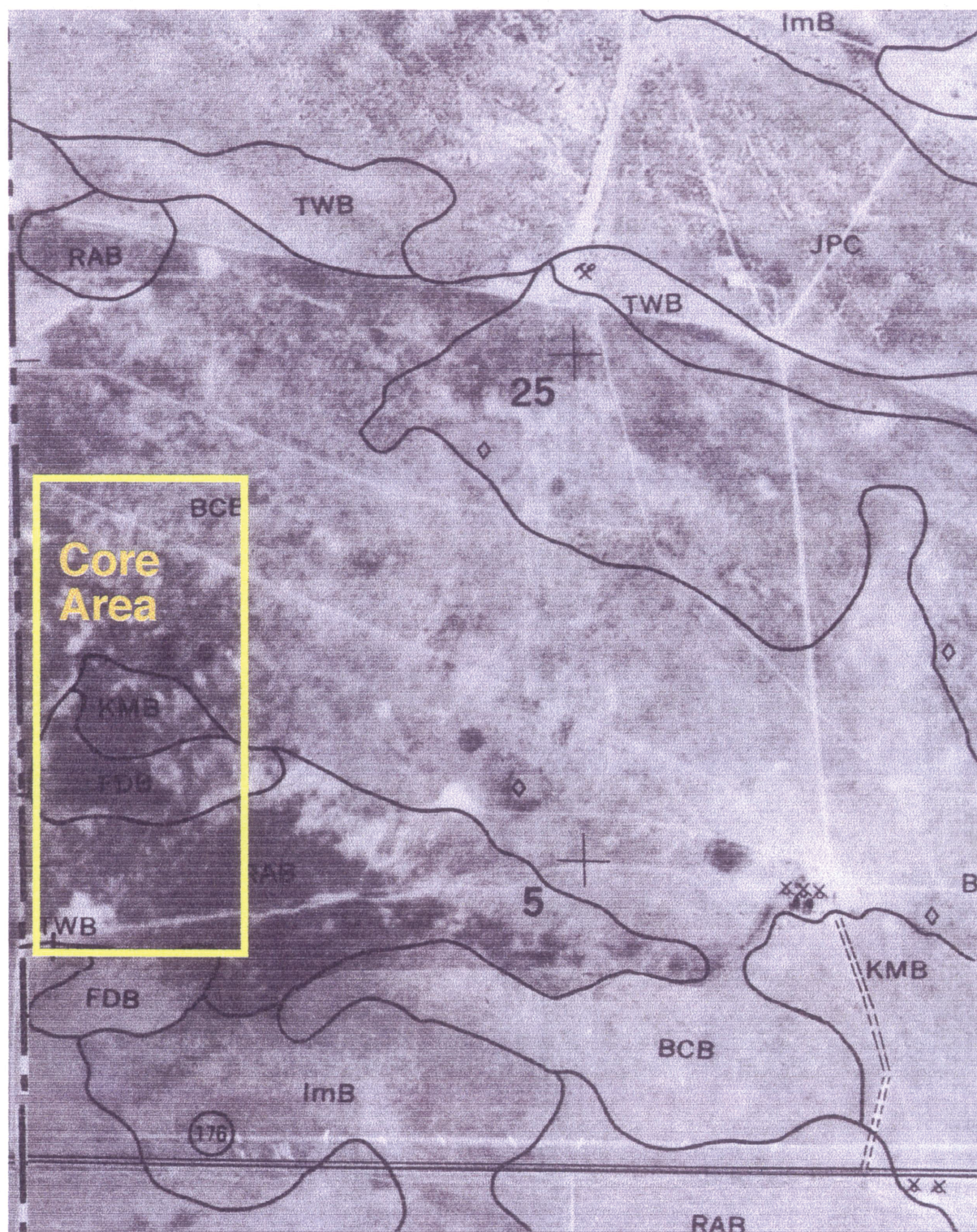


Figure 2. Soils associations at the WCS Ranch, Andrews Co., Texas. Based on Soil survey of Andrews County done by the Soil Conservation Service 1974.

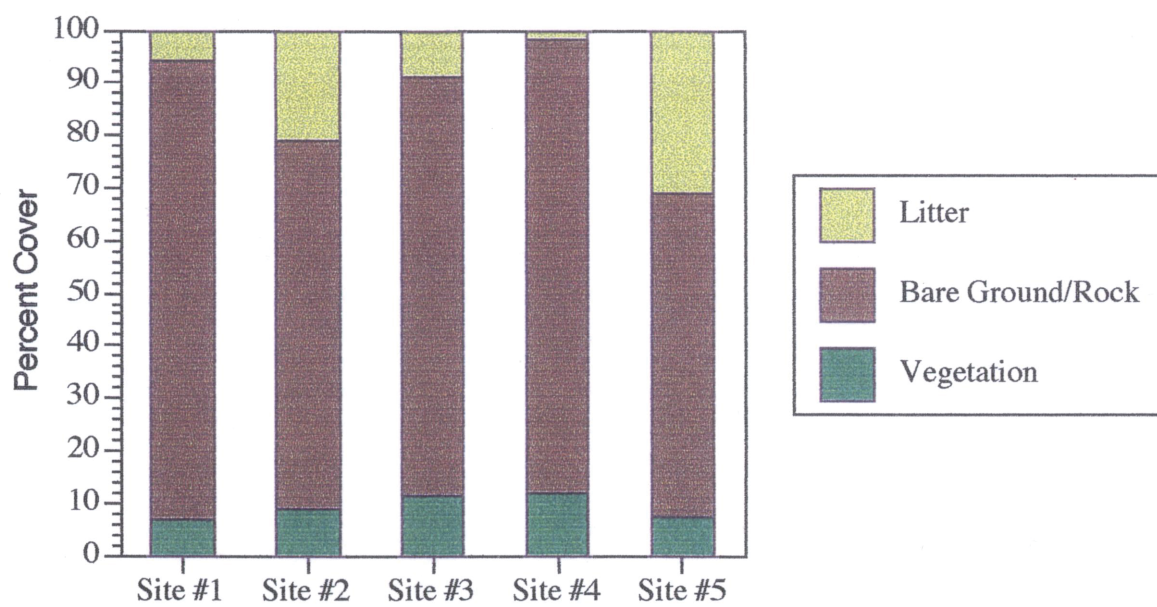


Figure 3. Percent cover of vegetation, bare ground/rock, and litter in the different sites at the WCS Ranch, Andrews Co., Texas, May 1997.

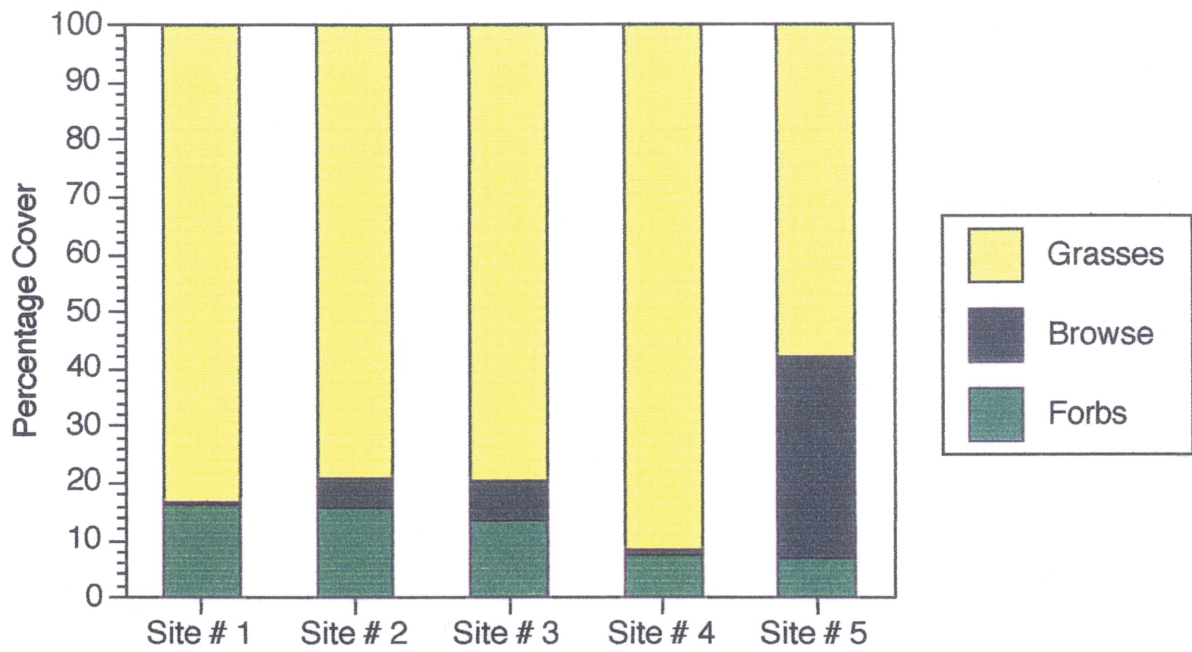


Figure 4. Percent cover of the herb and shrub layers in the different sites. WCS Ranch, Andrews Co., Texas, May 1997.

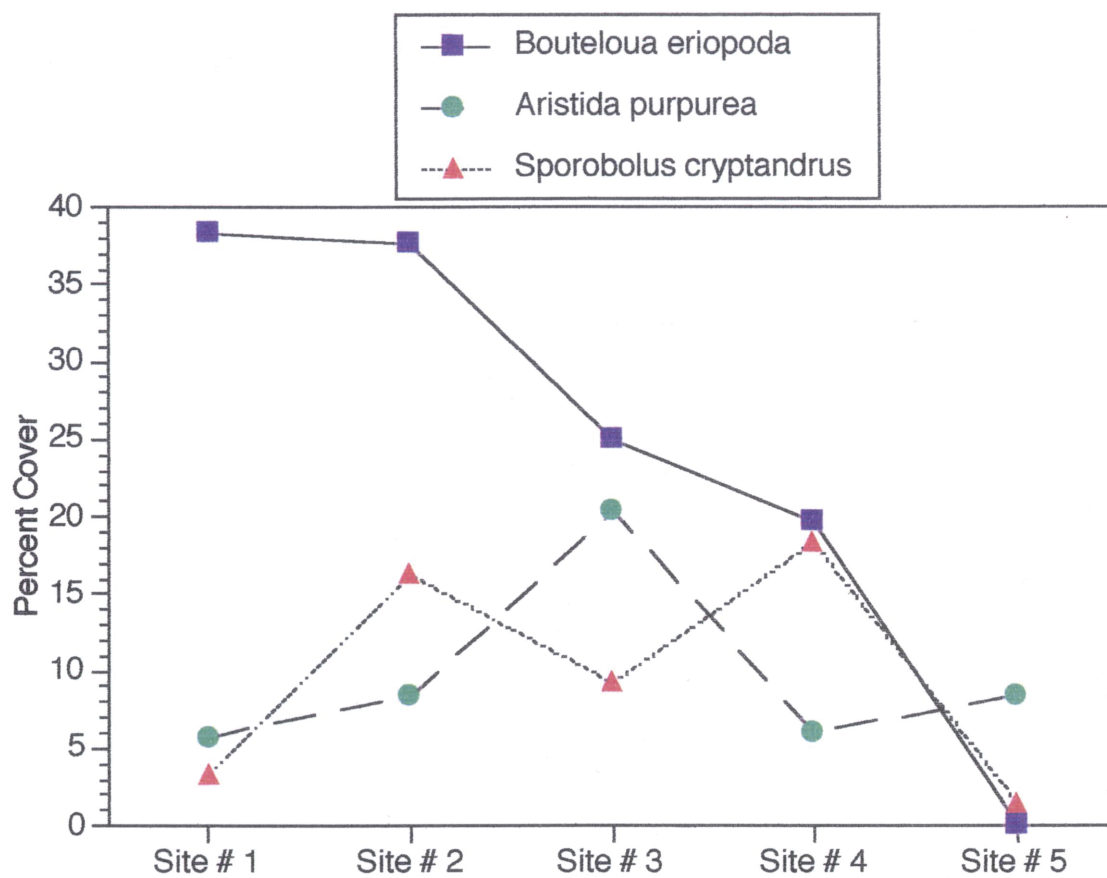


Figure 5. Percent cover of the most dominant types of grasses in the different sites. WCS Ranch, Andrews Co., Texas, May 1997.

Table 1. Plant species found at the WCS Ranch, Andrews Co., Texas, May 1996.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
FORBS						
Milkweed	<i>Aeclepias sp.</i>		X			
Western ragweed	<i>Ambrosia psilostachya</i>					X
Sagewort	<i>Artemisia dracunculoides</i>		X			
Wooly loco	<i>Astragalus mollisimus</i>		X			
Green eyes	<i>Berlandiera lyrata</i>	X	X	X		
Sundrop	<i>Calylophus hartwegii</i>	X				
Sundrop	<i>Calylophus serrulatus</i>		X			X
Senna	<i>Cassia roemeriana</i>		X			
Lambsquarter	<i>Chenopodium incanum</i>				X	
Lambsquarter	<i>Chenopodium leptophyllum</i>				X	
Thistle	<i>Cirsium sp.</i>		X			
Day flower	<i>Commelina erecta</i>					X
Bindweed	<i>Convolvulus equitans</i>		X			
Marestail	<i>Conyza coulteri</i>				X	
Croton	<i>Croton dioicus</i>	X	X	X		
Cryptantha	<i>Cryptantha minima</i>	X	X			
Buffalo gourd	<i>Cucurbita sp.</i>		X			
Dalea	<i>Dalea nana</i>					X
Larkspur	<i>Delphinium sp.</i>			X		
Tansy mustard	<i>Descurainia pinnata</i>				X	
Spectacle pod	<i>Dythyrea wiseni</i>	X				
Fleabane	<i>Erigeron modestus</i>	X		X		
Fleabane	<i>Erigeron sp.</i>		X			
Annual buckwheat	<i>Eriogonum annuum</i>					X
Mat spurge	<i>Euphorbia sp.</i>		X	X		
Spurge	<i>Euphorbia sp.</i>	X				
Leafy spurge	<i>Euphorbia sp.</i>				X	
Indian blanket	<i>Gallardia pinnatifida</i>		X	X		

Table 1. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
Indian blanket	<i>Gallardia pulchelus</i>	x	x	x		
Gaura	<i>Gaura villosa</i>			x		x
Scarlet gaura	<i>Guaracoccinia</i>	x	x			
Perennial broomweed	<i>Gutierrezia sarothrae</i>	x	x			x
Bluet	<i>Hedyotis humifusa</i>			x		x
	<i>Heliothophum sp.</i>		x			
Whitlow wart	<i>Hoffman seggia jameessi</i>					x
Rushpea	<i>Hoffman segia densiflora</i>	x				
	<i>Hydrophalaceae sp.</i>	x				
Whoolywhite	<i>Hymenopappus flavescens</i>					x
Ratany	<i>Krameria sp.</i>					x
Pepperweed	<i>Lepidium densiflorum</i>	x				
Bladderpod	<i>Lesquerella gordonii</i>	x	x	x		
Baby white aster	<i>Leucelene ericoides</i>		x	x		
Flax	<i>Linum rigidum</i>					x
Spinny daisy	<i>Machaeranthera pinnatifida</i>	x		x		x
Tahoka daisy	<i>Machaeranthera tanacetifolia</i>	x		x		
Blackfoot	<i>Melampodium leucanthum</i>					x
Stick leaf	<i>Mentzelia sp.</i>	x				x
Four O'clock	<i>Mirabilis linearis</i>		x			x
Rough nama	<i>Nama hispida</i>	x	x			
Primrose	<i>Oenothera alacineata</i>	x				
Primrose	<i>Oenothera speciosa</i>		x			
Catus	<i>Opuntia</i>		x	x		
Penstemon	<i>Penstemon fendleri</i>					x
Leaf flower	<i>Phyllanthus abnormis</i>					x
Groundcherry	<i>Physalis sp.</i>	x	x	x		
Ground cherry	<i>Physalis viscosa</i>	x				
Plantain	<i>Plantago patagonica</i>			x		
Redstem plantain	<i>Plantago rhodosperma</i>	x				

Table 1. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
Hairy paperflower	<i>Psilostrophe villosa</i>			X		
Prairie coneflower	<i>Ratibida columnaris</i>	X				
Russian thistle	<i>Salsola iberica</i>	X				
Groundsel	<i>Senecio longilobus</i>			X		
Riddell's groundsel	<i>Senecio riddellii</i>	X				X
Silverleaf nightshade	<i>Solanum eleagnifolium</i>	X			X	
Buffalo bur	<i>Solanum rostratum</i>	X				
Silky sophora	<i>Sophora nuttalliana</i>		X			
Mallow	<i>Sphaera angustifolia</i>	X	X			
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	X				
Germander	<i>Teucrium laciniatum</i>		X			
Greenthread	<i>Thelesperma megapotamicum</i>			X		X
Noseburn	<i>Tragiaramosa</i>	X				
Wooly tidesstromia	<i>Tridestromia lanuginosa</i>	X				
Verbena	<i>Verbenaplicata</i>	X				
Sleepdaisy	<i>Xanthisma texanum</i>			X		
Annual broomweed	<i>Xanthocephalum dracunculoides</i>	X		X		
Unknown forb #1		X				
Unknown forb #2			X			

Table 1. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
SHRUBS						
Acacia	<i>Acacia sp.</i>	x				
Sand sagebrush	<i>Artemesia filifolia</i>					x
Rabbit brush	<i>Chrysothamnus pulchellus</i>					x
	<i>Echinocactus texensis</i>	x				
Cholla	<i>Opuntiaimbricata</i>	x				
Prickly pear	<i>Opuntia sp.</i>	x				
mesquite	<i>Prosopis glandulosa</i>	x	x		x	x
Sand shin oak	<i>Quercus havardii</i>					x
Soapweed	<i>Yucca sp.</i>			x		x
Unknown woody #1			x			

Table 1. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
<i>Grasses</i>						
Sand bluestem	<i>Andropogon hallii</i>					X
Purple three-awn	<i>Aristida purpurea</i>		X	X		X
Black grama	<i>Bouteloua eriopoda</i>	X		X		X
Blue grama	<i>Bouteloua gracilis</i>	X		X		
Hairy grama	<i>Bouteloua hirsuta</i>					X
Buffalograss	<i>Buchloe dactyloides</i>		X		X	
Sandbur	<i>Cenchrus incertus</i>	X				
Hooded windmillgrass	<i>Chloris cucullata</i>			X		X
Arizona Cottontop	<i>Digitaria californica</i>	X				
	<i>Enneapogon desvauxii</i>	X				
Stinkgrass	<i>Eragrostis cillianensis</i>	X	X			
Gummy lovegrass	<i>Eragrostis curtispedicelata</i>					X
Red lovegrass	<i>Eragrostis oxylepis</i>					X
Fall witchgrass	<i>Leptoloma cognatum</i>					X
	<i>Lycurus phleoides</i>	X				
Muhly	<i>Muhlenbergia sp.</i>	X	X	X		
Halls panicum	<i>Panicum hallii</i>			X		
Vine mesquite	<i>Panicum obtusum</i>	X				
Sand paspalum	<i>Paspalum setaceum</i>					X
Tumblegrass	<i>Schedonnardus paniculatus</i>	X				
Little bluestem	<i>Schizachyrium scoparium</i>					X
Burrograss	<i>Scleropogon brevifolius</i>	X				
Plains bristegrass	<i>Setaria leucophila</i>	X				
Sand dropseed	<i>Sporobolus cryptandrus</i>	X		X		X
Mesa dropseed	<i>Sporobolus flexuosa</i>		X	X		X
Giant dropseed	<i>Sporobolus giganteus</i>					X
Slim tridens	<i>Tridens muticus</i>		X			
Unknown grass #1		X				

Table 2. Plant species abundance rating at the WCS Ranch, Andrews Co., Texas, September 1996.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
FORBS						
	<i>Amaranthus sp.</i>				1	
Western ragweed	<i>Ambrosia psilostachya</i>					3
	<i>Aphanostephus sp.</i>				3	
	<i>Artemiacondata</i>					3
Sundrop	<i>Calylophus serralatus</i>					3
	<i>Cassia sp.</i>		1		1	
Lambsquarter	<i>Chenopodium leptophyllum</i>			1		
Day flower	<i>Commelinaerecta</i>		1	1		1
	<i>Croton sp.</i>			1		
Dalea	<i>Daleanana</i>					2
Spectacle pod	<i>Dythyræa wilenzii</i>					3
Fleabane	<i>Erigeron sp.</i>	2				
Annual buckwheat	<i>Eriogonum annuum</i>					3
	<i>Erodium sp.</i>			1		
	<i>Euphorbia missourica</i>					2
	<i>Euphorbia sp.</i>	2	1			1
	<i>Froelichiafloridiana</i>		1		1	3
	<i>Gallardia sp.</i>					1
Gaura	<i>Gauravillosa</i>					3
Scarlet gaura	<i>Guaracoccinia</i>			1		
	<i>Heliothropum sp.</i>					1
	<i>Heterotheca sp.</i>		1			
	<i>Hymenopappus sp.</i>					3
	<i>Kallestronia sp.</i>				1	
Bladderpod	<i>Lesquerella gordonii</i>	3				
Flax	<i>Linum rigidum</i>					2
	<i>Lygodesnia sp.</i>			1		
Spinny daisy	<i>Machaerantherapinnitifida</i>	2		2		3
Tahoka daisy	<i>Machaerantheratanecitifolia</i>					1
Blackfoot	<i>Melampodium leucanthum</i>	1		1		

Table 2. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
	<i>Mirabilis sp.</i>					2
	<i>Mollugo verticellata</i>				1	
	<i>Nothoscordum bivalve</i>	1				
Primrose	<i>Oenothera lacineata</i>	3				
Primrose	<i>Oenothera speciosa</i>	3				
	<i>Palafoxias phacelata</i>			1		3
	<i>Parthenium sp.</i>		1	1		
Leaf flower	<i>Phyllanthus abnormis</i>					1
Groundcherry	<i>Physalis sp.</i>	1				
	<i>Portulaca sp.</i>	1	3		5	1
Hairy paperflower	<i>Psilostrophe villosa</i>			1		
Prairie coneflower	<i>Ratibida columnaris</i>				1	
Russian thistle	<i>Salsola iberica</i>		1			
Groundsel	<i>Senecio longilobus</i>				1	
Riddell's groundsel	<i>Senecio riddellii</i>					1
	<i>Sida sp.</i>	1			1	
Silverleaf nightshade	<i>Solanum eleagnifolium</i>	1	1	1	1	
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	3	1		1	
Greenthread	<i>Thelesperma megapotamicum</i>					3
Wooly tidestromia	<i>Tridestromia lanuginosa</i>	1	1		1	
	<i>Verbena sp.</i>	3	1	5	3	
	<i>Verbesina encelioides</i>		1			
Sleepdaisy	<i>Xanthisma texanum</i>			1		
Annual broomweed	<i>Xanthocephalum dracunculoides</i>	2		1		

Table 2. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
SHRUBS						
	<i>Ephedra sp.</i>			1		
Prickly pear	<i>Opuntia sp.</i>					2
mesquite	<i>Prosopis glandulosa</i>	5	5	5	5	
Sand shin oak	<i>Quercus havardii</i>					5
	<i>Xanthocephallum sarothrae</i>					1
Soapweed	<i>Yucca sp.</i>			1		3

Table 2. Cont.

Table 2. Cont.

Common Name	Scientific Name	Sites				
		1	2	3	4	5
<i>Grasses</i>						
	<i>Andropogon gerardii</i>					1
	<i>Aristida adscenionis</i>					2
Purple three-awn	<i>Aristida purpurea</i>	1	2	4	3	3
	<i>Bothriochloa barbinodis</i>					2
Black grama	<i>Bouteloua eriopoda</i>	4	5	5	4	
Blue grama	<i>Bouteloua gracilis</i>		1		4	
Hairy grama	<i>Bouteloua hirsuta</i>					3
	<i>Bouteloua sp.</i>				1	
Sandbur	<i>Cenchrus incertus</i>					3
Hd. windmillgrass	<i>Chloris cucullata</i>	3	2	3	3	3
	<i>Cyperus sp.</i>					3
Arizona Cottontop	<i>Digitaria californica</i>		1		1	
	<i>Enneapogon desvauxii</i>				1	
Gummy lovegrass	<i>Eragrostis curtipediceolata</i>					1
	<i>Eragrostis megastachya</i>				1	
Red lovegrass	<i>Eragrostis oxylepis</i>					3
	<i>Eragrostis sp.</i>		1			
	<i>Erioneuron pilosum</i>	1	1			
Fall witchgrass	<i>Leptoloma cognatum</i>					3
	<i>Mulhenbergia arenacea</i>		2	1	2	
	<i>Mulhenbergia porteri</i>			1		
Muhly	<i>Mulhenbergia sp.</i>	3				
	<i>Munroa squarrosa</i>				1	
Halls panicum	<i>Panicum hallii</i>	3	1	1	2	
Sand paspalum	<i>Paspalum setaceum</i>					1
Little bluestem	<i>Schizachyrium scoparium</i>					1
	<i>Scledomardus paniculatus</i>				1	
Plains bristegrass	<i>Setaria leucophila</i>		2		1	
Sand dropseed	<i>Sporobolus cryptandrus</i>	2	3	3	3	4
Mesa dropseed	<i>Sporobolus flexuosa</i>					2
Slim tridens	<i>Tridens muticus</i>	4	1			

Table 3. Frequency (percentage) of forage classes in each site at the WCS Ranch, Andrews Co., Texas. May 1997.

Forage Classes	Sites					Average
	1	2	3	4	5	
Forbs	16.3	16.0	13.3	7.3	7.0	12.0
Shrubs	0.3	4.7	7.0	1.0	35.0	9.6
Grasses	83.3	79.3	79.7	91.7	58.0	78.4
<i>Total</i>	100	100	100	100	100	100

Table 4. Plant frequency (percentage) of the most important plants in the different sites at the WCS Ranch, Andrews Co., Texas. May 1997.

Scientific Name	1	2	Sites 3	4	5	Average
Forbs						
Ambrosia psilostachia					3.33	3.33
Atragalus mollisimus					0.33	0.33
Croton dioicus		0.33		0.33		0.33
Daleanana		0.33			0.33	0.33
Gutierreziasarothrae	1.00	0.33	3.67	0.33	0.33	1.13
Hymenopappus flavescens			0.33		0.67	0.50
Lesquerella gordonii	14.33	5.33	1.33	3.67		6.17
Melampodium leucanthum		8.00	6.67			7.33
Mirabilis linearis					0.67	0.67
Opuntia species			0.33	0.33		0.33
Psilostrophe villosa	0.33		0.33			0.33
Salsola iberica			0.33			0.33
Solanum eleagnifolium		0.33				0.33
Sphaeralceacoccinea	0.33		0.33	2.67		1.11
Stillingia sylvatica					0.33	0.33
Verbenaplicata	0.33	1.00				0.67
Xanthocephalus dracunculoides		0.33			1.00	0.67

Table 4. Cont.

Scientific Name	Sites					Average
	1	2	3	4	5	
Shrubs						
<i>Prosopis glandulosa</i>	0.33	4.33	2.33	1.00		2.00
<i>Quercus harvardii</i>		0.33	4.67		32.00	12.33
<i>Yucca species</i>					3.00	3.00

Table 4. Cont.

Scientific Name	1	2	Sites 3	4	5	Average
Grasses						
<i>Andropogon gerardii</i>					1.67	1.67
<i>Aristida longiseta</i>	0.67		1.33			1.00
<i>Aristida purpurea</i>	5.67	8.33	20.33	6.00	8.33	9.73
<i>Bouteloua eriopoda</i>	38.33	37.67	25.00	19.67		30.17
<i>Bouteloua gracilis</i>				13.67		13.67
<i>Bouteloua hirsuta</i>			1.00		0.67	0.83
<i>Cenchrus insertus</i>	0.67				7.00	3.83
<i>Chloris cucullata</i>	0.33	8.67	18.33		0.67	7.00
<i>Cyperus uniloides</i>		1.00	2.00		2.67	1.89
<i>Eragrostis oxylepis</i>					4.33	4.33
<i>Eragrostis curtisii</i>	0.33	0.33				0.33
<i>Leptoloma cognatum</i>		3.00			28.33	15.67
<i>Mulhenbergia arenacea</i>	0.66					0.66
<i>Mulhenbergia porteri</i>		0.67	1.33			1.00
<i>Mulhenbergia torreyi</i>				2.00		2.00
<i>Panicum hallii</i>				1.33	0.33	0.83
<i>Panicum spp.</i>	2.00			2.67		2.33
<i>Schizachyrium scoparium</i>					2.67	2.67
<i>Scleropogon brevifolius</i>			0.67	3.67		2.17
<i>Setaria leucopila</i>		3.33	0.33	1.33		1.67
<i>Sporobolus cryptandrus</i>	3.33	16.33	9.33	18.33	1.33	9.73
<i>Tridens muticus</i>	31.33			23.00		27.17

Table 5. Species richness and Shannon's diversity index for the different sites at the WCS Ranch, Andrews Co., Texas, May 1997.

	Sites				
	1	2	3	4	5
Species Richness	20	17	19	16	21
Shannon's Diversity Index	2.180	1.629	2.054	2.142	2.064

Table 6. Test t-Student to test diversity when comparing sites. WCS Ranch, Andrews Co., Texas. May 1997.

t-Student	Site 1	Site 2	Site 3	Site 4	Site 5
Site 1	1	6.26	1.43	0.48	1.26
Site 2		1	4.67	6.15	4.55
Site 3			1	1.06	0.10
Site 4				1	0.89
Site 5					1

dF	Site 1	Site 2	Site 3	Site 4	Site 5
Site 1	1	497	512	748	410
Site 2		1	615	841	508
Site 3			1	827	492
Site 4				1	286
Site 5					1

Significance	Site 1	Site 2	Site 3	Site 4	Site 5
Site 1	1	***	NS	NS	NS
Site 2		1	***	***	***
Site 3			1	NS	NS
Site 4				1	NS
Site 5					1

Note: *** = diversity significantly ($P=0.001$) different between pair of sites; NS = diversity no significantly different ($P=0.001$) between pair of sites.

Table 7. Order and Families of insects collected by using a pit traps in the different sites at WCS Ranch, Andrews Co. Texas. August-September 1996.

		Sites				
		1	2	3	4	5
ORDER						
Scorpionida	scorpions	X				X
Solifugae	windscorpions		X			
FAMILY						
Anthophoridae	diggerbees				X	
Carabidae	groundbeetles	X	X	X	X	X
Cerambycidae	longhornbeetles			X		
Chalcidoidea	wasp		X	X		
Cicadellidae	leafhoppers		X			
Formicidae	ants	X	X	X	X	X
Meloidae	blisterbeetles					X
Orthoptera	grasshoppers	X	X	X	X	X
Pentatomidae	stinkbugs					X
Tenebrionidae	darklingbeetles	X	X	X	X	X
Vespidae	hornets					X

Table 8. Families of insects collected by sweepnetting over the entire area at WCS Ranch, Andrews Co. Texas. August-September 1996.

Family	Insect Type
Bostricidae	twig borers
Carabidae	ground beetles
Cerambycidae	longhorn beetles
Cicadidae	cicadas
Curculionidae	weevils
Mantidae	Praying Mantis
Orthoptera	grasshoppers & crickets
Otitidae	picturewing flies
Phasmidae	walking sticks
Reduviidae	ambush bugs
Scarabidae	June bugs
Scutellidae	Shield back bugs
Tenebrionidae	darkling beetles
Trombidiidae	velvet mites

Table 9. Small mammals collected at WCS Ranch, Andrews Co. Texas. May 1996.

		Sites					
		1	2	3	4	5	TOTAL
FAMILY HETEROMYIDAE: Pocket Mice and Kangaroo Rats							
Hispid Pocket Mouse	<i>Chaetodipus hispidus</i>			2		2	4
Ord's Kangaroo Rat	<i>Dipodomys ordii</i>					1	1
FAMILY MURIDAE: Mice and Rats							
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	2	1	2	4	5	14
	<i>Peromyscus</i> spp.			3			3
TOTAL		2	1	7	4	8	22

Table 10. Small mammals captured / collected at WCS Ranch, Andrews Co. Texas.
December 1996.

		Sites					TOTAL*
		1	2	3	4	5	
FAMILY HETEROMYIDAE: Pocket Mice/Kangaroo Rats							
Hispid Pocket Mouse	<i>Chaetodipus hispidus</i>	2	1	1			4 / 4
Ord's Kangaroo Rat	<i>Dipodomys ordii</i>	4	1	23	1	52	81 / 10
Banner-tailed Kangaroo Rat	<i>Dipodomis spectabilis</i>		1	3	1		5 / 2
Silky Pocket Mouse	<i>Perognatus flavus</i>	17	17	2	25	1	62 / 14
FAMILY MURIDAE: Mice and Rats							
Southern Plains Woodrat	<i>Neotoma micropus</i>	1	3	0	5	3	12 / 7
Hispid Cotton Rat	<i>Onychomys leucogaster</i>	22	9	10	44	37	122 / 4
South Plains Woodrat	<i>Peromyscus maniculatus</i>	3	13	4	5	4	29 / 15
Plains Harvest Mouse	<i>Reithrodontomys montanus</i>	3	3	5			11 / 3
TOTAL		52	48	48	81	97	326

* Animals captured / animals collected

REFERENCES

- Bonham, C.D. 1989. Measurements for terrestrial vegetation. John Wiley & Sons. NY.
- Davis, W.B. and D.J. Schmidly. 1994. The mammals of Texas. Texas Parks and Wildlife. Austin, TX.
- Dixon, J.R. 1987. Amphibians and reptiles Texas. Texas A&M Press, College Station, TX.
- Tenannt, A. The snakes of Texas. Texas Monthly Press, Austin, TX.
- Texas Organization for Endangered Species. 1988. Endangered, threatened, and watch list of vertebrates of Texas. TOES Publication No. 6.
- Weaver, J.E. 1920. Root development in the grassland formation. Carnegie Institution of Washington Publication 286. Washington D.C.

RESEARCHERS VITA

Dr. Fred Bryant, wildlife ecologist, has taught wildlife ecology and conducted research on wildlife for the past 19 years at Texas Tech University (1977 - present). He studied white-tailed deer while working on his Ph.D. at Texas A & M University (1974-1977). His Master's research was on wild turkeys in southern Utah and his degree was from Utah State University (1971-1974). In 1970, he was awarded the B.S. degree from the Department of Range and Wildlife Management, Texas Tech University. Dr. Bryant has directed Ph.D. student research on flora and fauna of Andrews County (1990-1992) and in the Chihuahuan Desert (1990-1992).

Dr. Russell D. Pettit, range ecologist, has been a practicing botany for over 30 years. He taught plant identification at Texas Tech University for 20 years. His Ph.D. was awarded from Oregon State University (1968) and his M.S. at Texas Tech University (1965). He is a native of Kansas and received his B.S. from Ft. Hays State University, Kansas (1963). Dr. Pettit has conducted floristic studies encompassing many counties in and around the site. For example, he and his colleagues did floristic studies on (1) vegetation damage from oil spills near Jal, NM--1972; (2) ranches in Andrews, Winkler, Gaines, Yoakum, Cochran, and Bailey Counties, TX--1974-75; (3) the Gissler Ranch near Artesia, NM--1977; (4) Ortero Mesa, Lea County, NM--1979; and (5) the Pantex Plant, Carson County, TX--1995. Thus, he has extensive experience with vegetation from Chihuahuan Desert, Sand Shin Oak, and Shortgrass Prairie habitats.

Dr. Kent Rylander, ornithologist, has taught ornithology at Texas Tech University since 1965. He received his Master's Degree in Biology from the University of North Texas, with a thesis on the birds of Denton County, Texas; and his Ph.D. from Tulane University in 1965, with a dissertation on the systematics of North American shorebirds. Since 1980, he has conducted ecological assessments for the Texas Low-level Radioactive Waste Disposal Authority in Hudspeth County, Texas; and for the Pantex Reservation in Carson County, Texas.

Dr. Morty Ortega, wildlife ecologist, has conducted field research for the past 20 years and taught at Texas Tech University for the past 6 years. He has worked with many species including small mammals in Bolivia and Chile, guanacos in Chile, prairie dogs in South Dakota, and white-tailed deer in Texas. He received his B.S. from the Ecology and Evolution Department at the Austral University of Chile (1973-1976), his Master's Degree from the Department of

Animal Ecology at Iowa State University (1979-1985), and his Ph.D. from the Department of Range and Wildlife at Texas Tech University (1985-1991). Conducted post-doctoral research in the panhandle of Texas.

Camille Landry, entomologist, has conducted research on insects for the past 4 years, including insect pest in the panhandle of Texas and fire ants in Louisiana. She had done extensive insect collection in Mexico. Ms. Landry received a B.S. from the University of Southwestern Louisiana (1989-1993), and her Master's Degree from the Department of Plant Soil Science at Texas Tech University (1993-1995) on a work related to the management of the red imported fire ant.

APPENDICES

Appendix 1. Plant scientific names and its abbreviation.

Abbreviation Scientific Name

Amdr	<i>Amphiachyris dracunculoides</i>
Amps	<i>Ambrosia psilistachia</i>
Ange	<i>Andropogon gerardii</i>
Arlo	<i>Aristida longiseta</i>
Arpu	<i>Aristida purpurea</i>
Asmo	<i>Aragalus mollissimus</i>
Boer	<i>Bouteloua eriopoda</i>
Bogr	<i>Bouteloua gracilis</i>
Bohi	<i>Bouteloua hirsuta</i>
Cein	<i>Cenchrus insertus</i>
Cheu	<i>Chloris cucullata</i>
Crdr	<i>Croton dioicus</i>
Cyum	<i>Cyperus uniloides</i>
Dana	<i>Daleanana</i>
Dica	<i>Digitaria californica</i>
Ercu	<i>Eragrostis curtispendicelata</i>
Erpi	<i>Erioneurin pilosum</i>
Erox	<i>Eragrostis oxylepis</i>
Gusa	<i>Gutierrezia sarothrae</i>
Hyfl	<i>Hymenopappus flavescens</i>
Leco	<i>Leptoloma cognatum</i>
Lego	<i>Lasquerella gordonii</i>
Mele	<i>Melampodium leucanthum</i>
Mili	<i>Mirabilis linearis</i>
Muar	<i>Mulhenbergia arenacea</i>
Mupo	<i>Mulhenbergia porteri</i>
Muto	<i>Mulhenbergia torreyi</i>
Op sp.	<i>Opuntia species</i>
Paha	<i>Panicum hallii</i>
Para	<i>Panicum ra</i>
Popi	<i>Portulaca pilosum</i>
Prgl	<i>Prosopis glandulosa</i>
Psvi	<i>Psilostrophe villosa</i>
Quha	<i>Quercus harvardii</i>
Saib	<i>Salsola iberica</i>
Scbr	<i>Scleropogon brevifolius</i>
Scsc	<i>Schizachyrium scoparium</i>
Sele	<i>Setaria leucopila</i>
Soel	<i>Solanum eleagnifolium</i>
Spcu	<i>Sphaeralcea coccinea</i>
Spcr	<i>Sporobolus cryptandrus</i>
Stsy	<i>Stillingia sylvatica</i>
Trnu	<i>Tridens nuticus</i>
Vepl	<i>Verbenaplicata</i>
Yusp.	<i>Yucca species</i>

Appendix 2. Raw data of plant cover collected in Site 1 to 5.

Site #1

Date:30 April 97

Data Type:Step Pt.

Step	Hit	Near Plt.	Veg	BG	Ltr	Rock
1		Trmu		1		
2		Boer		1		
3		Trmu		1		
4		Trmu		1		
5		Trmu		1		
6		Trmu		1		
7		Trmu		1		
8		Trmu		1		
9		Trmu		1		
10		Trmu		1		
11		Boer		1		
12		Lego		1		
13		Boer		1		
14		Trmu		1		
15		Trmu			1	
16		Boer		1		
17		Trmu				1
18		Trmu		1		
19		Trmu		1		
20		Spcr		1		
21		Trmu		1		
22		Trmu		1		
23		Lego		1		
24		Spcr			1	
25		Spcr		1		
26		Trmu		1		
27	Trmu		1			
28		Lego		1		
29		Arpu		1		
30		Spcr			1	
31	Trmu		1			
32		Boer		1		
33		Lego		1		
34		Trmu			1	
35		Trmu			1	
36		Lego			1	
37		Boer		1		
38		Boer		1		
39		Trmu		1		
40		Boer			1	
41		Lego		1		
42		Trmu		1		
43		Trmu		1		
44		Boer		1		
45		Trmu		1		
46		Trmu		1		
47		Trmu		1		
48		Lego		1		
49		Lego		1		
50		Boer		1		
51		Trmu		1		
52		Boer		1		
53		Boer		1		
54		Boer		1		
55		Boer		1		
56		Trmu		1		
57		Trmu		1		
58		Boer		1		
59		Boer		1		
60		Boer		1		
61		Boer		1		

Data Vegetation WCS - May97

62	Boer	1		
63	Trmu	1		
64	Trmu	1		
65	Trmu	1		
66	Trmu	1		
67	Trmu	1		
68	Lego	1		
69	Lego	1		
70	Trmu	1		
71	Boer	1		
72	Lego		1	
73	Lego	1		
74	Boer	1		
75	Trmu	1		
76	Boer	1		
77	Boer	1		
78	Lego	1		
79	Lego	1		
80	Trmu	1		
81	Trmu	1		
82	Boer	1		
83	Trmu	1		
84	Boer	1		
85	Boer	1		
86	Trmu	1		
87	Spco	1		
88	Boer	1		
89	Arpu	1		
90	Boer	1		
91	Boer	1		
92	Boer	1		
93	Lego		1	
94	Trmu			1
95	Trmu	1		
96	Trmu	1		
97	Trmu	1		
98	Boer	1		
99	Lego	1		
100	Boer	1		
101	Boer		1	
102	Trmu	1		
103	Boer	1		
104	Trmu	1		
105	Trmu	1		
106	Trmu	1		
107	Boer	1		
108	Lego	1		
109	Boer	1		
110	Boer	1		
111	Trmu	1		
112	Arpu	1		
113	Boer	1		
114	Boer	1		
115	Boer	1		
116	Boer	1		
117	Boer	1		
118	Trmu	1		
119	Trmu	1		
120	Lego	1		
121	Lego	1		
122	Boer	1		
123	Trmu		1	
124	Lego		1	
125	Boer	1		

Data Vegetation WCS - May97

126		Boer		1
127		Chcu		1
128	Arpu		1	
129		Boer		1
130		Spcr		1
131		Boer		1
132		Boer		1
133		Boer		1
134		Boer		1
135		Gusa		1
136		Arpu		1
137		Para		1
138		Boer		1
139	Arpu		1	
140		Boer		1
141	Arpu		1	
142		Para		1
143		Para		1
144	Boer		1	
145		Boer		1
146	Arpu		1	
147		Para		1
148		Para		1
149		Boer		1
150		Lego		1
151		Boer		1
152		Lego		1
153	Lego		1	
154		Boer		1
155		Boer		1
156		Lego		1
157		Boer		1
158		Para		1
159		Boer		1
160		Boer		1
161	Trmu		1	
162		Lego		1
163		Boer		1
164		Trmu		1
165		Boer		1
166		Trmu		1
167		Boer		1
168		Lego		1
169		Trmu		1
170		Lego		1
171		Boer		1
172		Gusa		1
173		Trmu		1
174		Boer		1
175	Vepl		1	
176		Gusa		1
177		Lego		1
178		Lego		1
179		Boer		1
180		Lego		1
181		Spcr		1
182		Spcr		1
183	Lego		1	
184		Boer		1
185		Trmu		1
186		Lego		1
187		Psvi		1
188		Trmu		1
189		Trmu		1

Data Vegetation WCS - May97

190		Lego		1	
191		Boer		1	
192		Boer		1	
193		Lego		1	
194		Boer		1	
195		Trmu		1	
196		Trmu		1	
197		Boer			1
198		Trmu			1
199		Boer		1	
200	Trmu		1		
201		Trmu		1	
202		Trmu		1	
203	Boer		1		
204		Trmu		1	
205		Lego		1	
206		Trmu		1	
207		Boer		1	
208		Lego		1	
209	Lego		1		
210		Boer		1	
211		Trmu		1	
212		Trmu		1	
213		Lego		1	
214		Trmu		1	
215	Prgl		1		
216		Trmu		1	
217		Boer		1	
218		Boer		1	
219		Boer		1	
220	Trmu		1		
221		Ercu			1
222		Trmu			1
223		Trmu		1	
224		Trmu		1	
225		Boer		1	
226		Trmu		1	
227		Boer		1	
228		Trmu		1	
229		Boer		1	
230		Trmu		1	
231		Boer		1	
232		Boer		1	
233		Lego		1	
234		Boer		1	
235		Trmu		1	
236		Boer		1	
237	Muar		1		
238		Boer		1	
239		Trmu		1	
240		Trmu		1	
241		Trmu		1	
242		Lego		1	
243		Arpu		1	
244		Lego		1	
245		Lego		1	
246		Arpu		1	
247	Boer		1		
248		Lego		1	
249		Trmu		1	
250		Arlo		1	
251		Trmu		1	
252		Boer		1	
253		Muer		1	

Data Vegetation WCS - May97

254	Arlo		1				
255	Boer		1				
256	Boer		1				
257	Cein		1				
258	Boer		1				
259	Arpu		1				
260	Boer		1				
261	Boer		1				
262	Arpu		1				
263	Trmu		1				
264	Boer		1				
265	Arpu				1		
266	Boer		1				
267	Trmu		1				
268	Boer		1				
269	Boer		1				
270	Boer	1					
271	Arpu		1				
272	Boer		1				
273	Boer		1				
274	Boer		1				
275	Boer		1				
276	Boer		1				
277	Boer		1				
278	Boer		1				
279	Trmu		1				
280	Trmu		1				
281	Arpu		1				
282	Spcr		1				
283	Arpu		1				
284	Trmu		1				
285	Boer		1				
286	Spcr				1		
287	Boer		1				
288	Arpu		1				
289	Boer		1				
290	Boer		1				
291	Boer		1				
292	Boer		1				
293	Boer		1				
294	Spcr		1				
295	Boer		1				
296	Trmu		1				
297	Cein		1				
298	Trmu	1					
299	Boer		1				
300	Trmu		1				
Total		20	260	18	2	300	
Percentage		6.67	86.67	6.00	0.67		

Site #2 Date: 1 May 1997 Data Type: Step Pt.

Step	Hit	Near Pt.	Veg	BG	Ltr	Rock
1		Spcr			1	
2		Boer		1		
3		Boer		1		
4	Boer		1			
5		Boer		1		
6		Sele		1		
7	Spcr		1			
8		Spcr		1		
9		Spcr			1	
10		Boer		1		
11		Boer		1		
12		Leco		1		
13		Boer			1	
14	Boer		1			
15		Spcr			1	
16		Spcr		1		
17		Sele			1	
18		Boer		1		
19		Boer		1		
20		Boer		1		
21		Spcr		1		
22		Boer		1		
23		Sele			1	
24		Spcr			1	
25		Boer			1	
26		Boer			1	
27		Boer		1		
28		Boer			1	
29		Spcr			1	
30		Spcr			1	
31	Spcr		1			
32		Boer		1		
33		Prgl			1	
34		Sele			1	
35		Leco		1		
36		Spcr		1		
37		Boer			1	
38		Spcr		1		
39		Boer		1		
40		Spcr		1		
41		Spcr			1	
42		Spcr		1		
43		Gusa		1		
44		Prgl			1	
45		Prgl			1	
46		Spcr			1	
47		Boer		1		
48		Leco		1		
49		Alpu		1		
50		Boer			1	
51		Alpu		1		
52		Boer		1		
53		Chcu		1		
54		Boer		1		
55		Boer		1		
56	Boer		1			
57		Cyun		1		
58		Chcu		1		
59		Spcr		1		
60		Chcu		1		
61		Boer		1		

Data Vegetation WCS - May97

62		Citli		1	
63		Chcu		1	
64	Spcr		1		
65		Boer			1
66		Lego			1
67		Spcr		1	
68		Spcr		1	
69		Boer			1
70		Boer			1
71		Spcr			1
72		Spcr			1
73		Arpu			1
74		Boer		1	
75		Lego		1	
76		Soel		1	
77		Prgl			1
78		Boer			1
79		Spcr			1
80		Spcr		1	
81		Spcr			1
82		Prgl			1
83		Sele			1
84		Boer		1	
85	Boer		1		
86		Spcr		1	
87		Boer		1	
88		Spcr		1	
89		Spcr			1
90		Boer			1
91		Lego		1	
92		Spcr		1	
93		Boer		1	
94		Lego		1	
95	Spcr		1		
96		Mele		1	
97		Boer		1	
98		Lego		1	
99		Lego			1
100		Boer		1	
101		Chcu			1
102		Sele			1
103		Arpu		1	
104		Prgl			1
105		Spcr			1
106		Chcu		1	
107		Arpu		1	
108		Arpu		1	
109		Arpu		1	
110		Chcu		1	
111		Boer		1	
112		Arpu		1	
113	Spcr		1		
114		Chcu		1	
115		Boer		1	
116		Spcr		1	
117	Boer		1		
118		Boer		1	
119		Arpu		1	
120		Boer		1	
121		Boer		1	
122		Lego		1	
123		Boer		1	
124		Boer		1	
125	Spcr		1		

Data Vegetation WCS - May97

126	Spcr		1		
127		Boer			1
128		Boer		1	
129		Boer		1	
130		Boer		1	
131		Boer		1	
132		Boer		1	
133		Boer		1	
134		Boer			1
135		Boer		1	
136		Boer		1	
137		Boer		1	
138		Boer		1	
139		Boer		1	
140		Boer		1	
141		Boer		1	
142		Boer		1	
143		Boer		1	
144		Arpu		1	
145		Arpu		1	
146		Spcr		1	
147	Pigl		1		
148	Chcu		1		
149		Boer		1	
150		Boer		1	
151		Boer		1	
152		Boer		1	
153		Arpu		1	
154		Cyun		1	
155		Lego		1	
156		Arpu		1	
157		Spcr		1	
158		Vepl		1	
159		Boer		1	
160		Arpu		1	
161		Arpu		1	
162		Boer		1	
163		Vepl		1	
164		Lego			1
165		Boer		1	
166		Lego			1
167		Chcu			1
168	Pigl			1	
169		Selo			1
170		Spcr			1
171		Pigl			1
172		Pigl			1
173	Spcr		1		
174		Boer			1
175		Selo			1
176		Boer			1
177		Boer		1	
178		Lego		1	
179		Lego		1	
180		Boer		1	
181		Mele		1	
182		Boer		1	
183		Mele		1	
184		Mele		1	
185		Mele		1	
186		Mele		1	
187		Arpu		1	
188		Mele		1	
189	Chcu		1		

Data Vegetation WCS - May97

190		Boer		1	
191		Mele		1	
192		Mele		1	
193		Arpu		1	
194		Arpu		1	
195		Chcu		1	
196		Chcu		1	
197	Boer		1		
198		Pigl			1
199		Mupo			1
200		Vepl		1	
201		Mele		1	
202		Boer		1	
203	Spcr		1		
204		Mele			1
205		Sele			1
206		Arpu			1
207		Spcr			1
208	Boer		1		
209	Boer		1		
210		Mele		1	
211		Boer		1	
212		Boer		1	
213		Spcr		1	
214		Chcu		1	
215		Mupo			1
216		Sele		1	
217		Boer		1	
218	Boer		1		
219		Boer		1	
220		Leco		1	
221		Spcr		1	
222		Boer		1	
223		Spcr		1	
224		Mele		1	
225		Boer		1	
226		Mele		1	
227		Arpu		1	
228		Boer		1	
229		Chcu		1	
230		Mele		1	
231		Leco		1	
232		Spcr		1	
233		Leco		1	
234		Chcu		1	
235		Boer		1	
236		Boer		1	
237		Boer		1	
238		Pigl		1	
239		Andr		1	
240		Boer		1	
241		Chcu		1	
242		Arpu		1	
243		Boer			1
244		Boer		1	
245		Boer		1	
246		Leco		1	
247		Mele		1	
248		Spcr		1	
249		Boer		1	
250		Mele		1	
251		Mele		1	
252		Boer		1	
253	Chcu			1	

Data Vegetation WCS - May97

254		Leco		1				
255		Leco		1				
256		Aipu		1				
257		Boer		1				
258		Aipu		1				
259		Chcu		1				
260		Chcu		1				
261		Boer		1				
262		Ercu		1				
263		Spcr		1				
264		Chcu		1				
265	Boer		1					
266		Lego		1				
267		Boer		1				
268		Mele				1		
269				1				
270	Boer		1					
271		Aipu		1				
272		Boer		1				
273		Boer		1				
274		Boer		1				
275		Cyui		1				
276		Leco		1				
277		Chcu		1				
278	Aipu		1					
279		Dana		1				
280		Spcr		1				
281		Boer		1				
282		Lego		1				
283	Lego		1					
284		Chcu		1				
285		Boer		1				
286		Boer		1				
287		Mele		1				
288		Prgl		1				
289		Mele		1				
290		Chcu		1				
291		Boer		1				
292		Mele		1				
293		Mele		1				
294		Mele		1				
295		Chcu		1				
296		Boer		1				
297		Boer				1		
298		Chcu		1				
299		Quia				1		
300		Boer		1				
Total			27	210	63	0	300	
Percentage			9.00	70.00	21.00	0.00		

Site #3	Date:1 MAY 1997	Data Type:Step Pt.				
Step	Hit	Near Plt.	veg	BG	Ltr	Rock
1		Arpu		1		
2		Spcr		1		
3		Boer		1		
4		Gusa		1		
5		Boer		1		
6		Chcu		1		
7		Arpu		1		
8		Spcr		1		
9		Arpu		1		
10		Gusa		1		
11		Arpu		1		
12		Arpu		1		
13		Arpu		1		
14		Gusa		1		
15		Chcu		1		
16		Boer		1		
17		Boer		1		
18		Boer		1		
19		Gusa		1		
20		Boer		1		
21		Arpu		1		
22		Prgl		1		
23		Boer		1		
24	Boer		1			
25		Mele		1		
26		Cyun		1		
27		Boer		1		
28		Chcu		1		
29		Cyun		1		
30		Arpu		1		
31	Boer		1			
32		Boer		1		
33		Boer		1		
34		Chcu		1		
35		Boer		1		
36		Mele		1		
37		Bohi		1		
38		Mele		1		
39		Chcu		1		
40	Boer		1			
41		Mele		1		
42	Arpu		1			
43		Arpu		1		
44		Arpu		1		
45		Arpu		1		
46		Scbr		1		
47		Prgl			1	
48		Spcr		1		
49		Scbr		1		
50		Arpu		1		
51		Arpu		1		
52		Chcu		1		
53		Chcu		1		
54		Chcu		1		
55		Chcu		1		
56	Chcu		1			
57		Chcu			1	
58		Mele		1		
59		Chcu		1		
60		Chcu		1		
61		Spcr		1		

Data Vegetation WCS - May97

62		Arpu		1	
63		Chcu		1	
64		Chcu		1	
65		Arpu			1
66		Boer		1	
67	Boer		1		
68		Arpu		1	
69		Boer		1	
70		Boer		1	
71		Mele		1	
72	Chcu		1		
73		Chcu		1	
74		Chcu		1	
75	Chcu		1		
76		Mele		1	
77		Chcu		1	
78		Chcu		1	
79		Spcr		1	
80		Mele		1	
81		Chcu		1	
82		Chcu		1	
83		Arpu			1
84		Chcu		1	
85		Gusa		1	
86	Arpu		1		
87		Quha		1	
88		Mele			1
89		Arpu		1	
90		Arpu		1	
91		Mele		1	
92		Arpu		1	
93	Gusa		1		
94	Chcu		1		
95	Boer		1		
96		Boer		1	
97		Mele		1	
98		Boer		1	
99		Boer			1
100		Arpu		1	
101	Boer		1		
102		Spcr		1	
103		Arpu		1	
104		Quha		1	
105		Chcu		1	
106		Chcu		1	
107		Mele		1	
108		Chcu			1
109		Quha			1
110	Chcu		1		
111		Arpu			1
112		Quha			1
113		Quha			1
114		Chcu			1
115		Chcu		1	
116	Prgi		1		
117		Chcu		1	
118		Arpu		1	
119	Arpu		1		
120		Quha		1	
121		Mele		1	
122		Cyun		1	
123		Spcr		1	
124		Arpu		1	
125		Chcu		1	

Data Vegetation WCS - May97

126		Saib		1	
127		Chcu		1	
128		Chcu		1	
129	Arpu		1		
130		Chcu		1	
131		Arpu		1	
132		Chcu		1	
133		Mupo		1	
134		Sele			1
135		Chcu		1	
136		Arpu		1	
137		Spcr		1	
138		Arpu		1	
139		Arpu		1	
140		Spcr		1	
141		Chcu			1
142	Quha		1		
143		Prgl			1
144		Spcr		1	
145		Spcr		1	
146		Spcr		1	
147		Spcr		1	
148		Arpu			1
149		Spcr		1	
150		Arpu		1	
151		Arpu		1	
152		Mele		1	
153		Arpu		1	
154		Spcr		1	
155		Boer		1	
156	Opsp.		1		
157		Spcr		1	
158		Arpu		1	
159		Boer		1	
160		Arpu		1	
161		Boer		1	
162		Boer		1	
163		Boer		1	
164		Boer		1	
165	Boer		1		
166		Arpu		1	
167		Boer		1	
168	Arpu		1		
169		Arpu		1	
170		Boer		1	
171		Boer		1	
172		Gusa		1	
173		Cyun		1	
174		Mele		1	
175		Arpu		1	
176		Boer		1	
177	Arpu		1		
178		Mupo			1
179	Quha		1		
180	Boer		1		
181		Boer		1	
182		Arpu		1	
183		Gusa		1	
184		Chcu		1	
185		Boer		1	
186		Boer		1	
187	Arpu		1		
188		Boer		1	
189	Boer		1		

Data Vegetation WCS - May97

190		Gusa		1	
191		Boer		1	
192		Chcu		1	
193		Mele		1	
194	Boer		1		
195		Prgl			1
196	Prgl		1		
197		Arpu		1	
198		Boer		1	
199		Bohi		1	
200		Boer		1	
201		Mele		1	
202		Arpu		1	
203		Boer		1	
204		Boer		1	
205		Chcu		1	
206		Cyun		1	
207		Spcr		1	
208		Chcu		1	
209		Boer		1	
210		Chcu		1	
211		Mele			1
212		Boer		1	
213		Arpu		1	
214		Mele		1	
215		Arpu		1	
216		Spcr		1	
217		Arpu		1	
218	Arpu		1		
219		Arpu		1	
220		Quha			1
221		Quha		1	
222		Chcu		1	
223		Arpu		1	
224		Quha			1
225		Quha			1
226		Boer			1
227		Spcr		1	
228		Mupo		1	
229		Quha		1	
230		Spco			1
231		Bohi			1
232		Chcu		1	
233		Mupo		1	
234		Chcu		1	
235	Spcr		1		
236		Arpu		1	
237		Boer		1	
238		Boer		1	
239		Mele		1	
240		Gusa		1	
241		Chcu		1	
242		Quha		1	
243		Arpu		1	
244		Chcu		1	
245		Chcu		1	
246		Boer		1	
247		Spcr		1	
248		Lego		1	
249		Gusa		1	
250		Psvi		1	
251		Boer		1	
252		Boer		1	
253		Boer		1	

Data Vegetation WCS - May97

254		Boer		1				
255		Boer		1				
256		Chcu		1				
257		Arlo		1				
258		Arlo		1				
259	Boer		1					
260		Spcr		1				
261		Boer		1				
262		Prgl				1		
263	Spcr		1					
264		Chcu		1				
265		Cyun		1				
266		Lego		1				
267	Chcu		1					
268		Spcr		1				
269		Spcr		1				
270		Boer		1				
271		Spcr		1				
272		Arpu		1				
273		Arpu		1				
274		Boer		1				
275		Boer		1				
276		Boer		1				
277		Boer		1				
278		Boer		1				
279		Arlo				1		
280		Chcu		1				
281		Arlo		1				
282		Chcu		1				
283		Spcr		1				
284		Arpu		1				
285		Arpu		1				
286		Boer		1				
287		Boer		1				
288		Boer		1				
289		Boer		1				
290		Boer		1				
291	Boer		1					
292		Arpu		1				
293		Lego		1				
294		Spcr		1				
295		Boer		1				
296		Boer		1				
297		Lego		1				
298		Boer		1				
299		Hyfl		1				
300		Boer		1				
		Total	34		239	27	0	300
		Percentage	11.33		79.67	9.00	0.00	

Site #4

Date:30 APRIL 97

Data Type:Step Pt.

Step	Hit	Near Plt.	Veg	BG	Ltr	Rock
1		Spcr		1		
2		Spcr			1	
3	Spcr		1			
4		Trmu		1		
5		Spcr		1		
6		Trmu		1		
7	Trmu		1			
8	Boer		1			
9		Spcr		1		
10		Trmu		1		
11	Trmu		1			
12	Bogr		1			
13		Trmu		1		
14		Spcr		1		
15		Spcr				1
16		Bogr		1		
17		Bogr		1		
18		Trmu		1		
19		Bogr		1		
20		Spcr				1
21		Spcr		1		
22		Trmu				1
23		Spcr		1		
24	Bogr		1			
25		Bogr		1		
26		Bogr				1
27		Spcr		1		
28	Bogr		1			
29		Boer		1		
30		Boer		1		
31	Spcr		1			
32		Spcr		1		
33	Arpu		1			
34		Boer		1		
35		Spcr		1		
36		Prgl		1		
37		Spco		1		
38		Opsp.			1	
39		Trmu		1		
40		Trmu		1		
41		Spco		1		
42	Boer		1			
43		Boer		1		
44		Spcr		1		
45		Spcr		1		
46		Scbr				1
47		Spcr				1
48		Spco		1		
49		Trmu		1		
50		Trmu		1		
51		Scbr		1		
52		Spcr		1		
53		Arpu		1		
54		Boer		1		
55		Boer		1		
56		Spco		1		
57	Spcr		1			
58		Spcr		1		
59		Spcr		1		
60		Trmu		1		
61		Spcr		1		

Data Vegetation WCS - May97

62		Spcr		1	
63		Spcr		1	
64		Spcr		1	
65		Spcr		1	
66		Spcr		1	
67		Spcr		1	
68		Spcr		1	
69		Boer		1	
70		Spcr		1	
71		Spcr		1	
72		Spco		1	
73		Spcr		1	
74		Spcr		1	
75		Bogr		1	
76		Arpu		1	
77		Boer		1	
78		Trmu		1	
79		Muto		1	
80		Spcr		1	
81		Boer		1	
82		Boer		1	
83		Bogr			1
84		Bogr		1	
85		Bogr		1	
86		Spcr		1	
87		Bogr		1	
88		Bogr		1	
89		Bogr		1	
90		Bogr		1	
91	Bogr		1		
92	Bogr		1		
93	Bogr		1		
94		Bogr			1
95		Bogr			1
96		Bogr			1
97		Bogr			1
98		Bogr			1
99		Bogr			1
100		Bogr			1
101		Bogr			1
102	Trmu		1		
103		Bogr			1
104		Bogr			1
105		Trmu			1
106		Bogr			1
107		Bogr			1
108		Trmu			1
109		Bogr			1
110	Boer		1		
111	Spcr		1		
112		Trmu			1
113		Trmu			1
114		Trmu			1
115		Boer			1
116		Trmu			1
117		Trmu			1
118		Trmu			1
119		Boer			1
120	Paha		1		
121		Arpu			1
122		Boer			1
123	Trmu		1		
124		Crdi			1
125		Arpu			1

Data Vegetation WCS - May97

126	Boer		1	
127		Trmu		1
128		Bogr		1
129		Trmu		1
130		Boer		1
131		Muto		1
132		Spco		1
133		Trmu		1
134		Spco		1
135		Boer		1
136		Bogr		1
137		Trmu		1
138		Trmu		1
139		Trmu		1
140		Lego		1
141		Trmu		1
142		Sele		1
143		Sele		1
144		Sele		1
145		Bogr		1
146		Spco		1
147		Boer		1
148		Bogr		1
149		Scbr		1
150		Trmu		1
151		Boer		1
152		Trmu		1
153		Boer		1
154		Trmu		1
155	Boer		1	1
156		Boer		1
157		Spcr		1
158	Trmu		1	1
159		Spcr		1
160		Trmu		1
161		Trmu		1
162		Trmu		1
163		Muto		1
164		Trmu		1
165		Trmu		1
166		Scbr		1
167		Scbr		1
168		Scbr		1
169		Scbr		1
170		Scbr		1
171		Trmu		1
172		Scbr		1
173	Trmu		1	
174		Trmu		1
175		Boer		1
176		Boer		1
177	Spcr		1	
178		Spcr		1
179		Spcr		1
180		Arpu		1
181		Spcr		1
182		Trmu		1
183		Scbr		1
184		Trmu		1
185		Trmu		1
186		Spcr		1
187		Trmu		1
188		Trmu		1
189		Spcr		1

Data Vegetation WCS - May97

190		Spcr	1	
191		Boer	1	
192		Scbr	1	
193		Bogr	1	
194		Bogr	1	
195		Paha	1	
196	Paha		1	
197		Paha		1
198		Sele	1	
199		Spcr	1	
200	Muto		1	
201		Boer		1
202		Bogr		1
203		Boer		1
204		Boer		1
205	Bogr		1	
206		Muto		1
207		Boer		1
208		Bogr		1
209	Muto		1	
210		Boer		1
211		Boer		1
212		Boer		1
213		Boer		1
214		Trmu		1
215		Trmu		1
216		Spcr		1
217		Spcr		1
218		Boer		1
219		Spcr		1
220		Para		1
221		Para		1
222		Trmu		1
223		Boer		1
224	Spcr		1	
225		Boer		1
226		Para		1
227	Para		1	
228		Arpu		1
229		Boer		1
230		Arpu		1
231		Spcr		1
232		Boer		1
233		Para		1
234		Arpu		1
235		Para		1
236		Arpu		1
237		Para		1
238		Para		1
239		Spcr		1
240	Arpu		1	
241		Boer		1
242		Boer		1
243	Boer		1	
244		Lego		1
245	Spcr		1	
246	Arpu		1	
247		Boer		1
248		Boer		1
249		Boer		1
250		Lego		1
251		Lego		1
252		Spcr		1
253		Trmu		1

Data Vegetation WCS - May97

254		Arpu		1				
255	Arpu		1					
256		Lego		1				
257		Lego		1				
258		Lego		1				
259		Arpu					1	
260		Arpu		1				
261		Arpu		1				
262		Trmu		1				
263		Trmu		1				
264		Boer		1				
265		Trmu		1				
266		Lego		1				
267		Trmu		1				
268		Gusa		1				
269		Lego		1				
270		Trmu		1				
271		Trmu		1				
272		Lego		1				
273		Boer		1				
274		Boer		1				
275		Spcr		1				
276		Trmu		1				
277		Prgl		1				
278		Trmu		1				
279		Trmu					1	
280		Prgl			1			
281		Boer		1				
282		Boer		1				
283		Trmu		1				
284		Trmu		1				
285		Trmu		1				
286		Trmu		1				
287		Boer		1				
288		Trmu		1				
289		Trmu		1				
290		Lego		1				
291		Boer		1				
292		Boer		1				
293	Boer		1					
294		Trmu		1				
295		Boer		1				
296		Arpu					1	
297		Boer		1				
298		Boer		1				
299		Boer		1				
300		Trmu		1				
		Total	36	246	5	13		300
		Percentage	12.00	82.00	1.67	4.33		