Mesita de los Ladrones 12-13 May 1983 Transects of 30 microplots each 2x5 dm.

TAXA	% cover / % frequency Plots: ①	②	③	④ [1]
Juniperus monosperma	15	10	15	3
Pinus edulis		+		
Stipa neomexicana	36/97			
Sitanion hystrix		+		a1
Bouteloua gracilis	12/67	46/100	7/50	55
Bouteloua eriopoda	8/70	4/13	30/83	
Bouteloua curtipendula	2/20	4/53	7/23	3
Bouteloua hirsuta	1/13	1/ 7	3/30	
Aristida		2/33	.0/ 3	
Sporobolus cryptandrus	0.2/10	0.3/17	0.3/13	0.3
Lycurus phleoides	.0/ 3	a4/17	a2/ 3	
Muhlenbergia torreyi	0.5/ 3	[illegible]		0.1
Eragrostis intermedia			+	
Panicum obtusum				4
Ceratioides lanata				0.3
Opuntia imbricata	0/ 3	0.1/ 7	0.5/ 3	8
Opuntia phaeacantha		+		
Opuntia polyacantha		+	0.5/ 3	
Hymenoxys acaulis	0.5/ 7		0.1/ 3	
Gutierrezia sarothrae	1/ 7	0.2/10		
Lycium pallidum			0.1/ 3	
Rhus aromatica		+		+
Yucca glauca		+		
Yucca baccata				
Artemisia dracunculoides				4
Leucelene ericoides	0.1/10	+		
Cymopteris		a2/ 7		0.1
Hymenopappus filifolia		0.3/17		
Lesquerella	1/53		05/20	
Melampodium leucanthum			0.6/17	
Sphaeralcea		a2/ 7		
Selaginella			1/10	
Other forbs		a4/23	0.5/17	
Cryptogams [1]	5	2	15	
Basal area	9	27	10	
Litter	30	14	21	
Soil	33	57	43	
Gravels <3"	22		8	
Gravels 3-10"	1		2	
Cobbles >10"			1	
Bedrock			+	

[1] Cover only

Mesita de los Ladrones 12-13 May 1983 Transects of 30 microplots each 2x5 dm.

TAXA Plots:	% cover / % frequency ①	②	③	④ 1/
Juniperus monosperma	15	10	15	3
Pinus edulis		+		
Stipa neomexicana	36/97			
Sitanion hystrix		+		a1
Bouteloua gracilis	12/67	46/100	7/50	55
Bouteloua eriopoda	8/70	4/13	30/83	
Bouteloua curtipendula	2/20	4/53	7/23	3
Bouteloua hirsuta	1/13	1/7	3/30	
Aristida		2/33	.0/3	
Sporobolus cryptandrus	0.2/10	0.3/17	0.3/13	0.3
Lycurus phleoides	.0/3	a4/17	a2/3	
Muhlenbergia torreyi	0.5/3	~~a6/17~~		0.1
Eragrostis intermedia			+	
Panicum obtusum				4
Ceratioides lanata				0.3
Opuntia ~~imbricata~~	0/3	0.1/7	0.5/3	8
Opuntia phaeacantha		+		
Opuntia polyacantha		+	0.5/3	
Hymenoxys acaulis	0.5/7		0.1/3	
Gutierrezia sarothrae	1/7	0.2/10		
Lycium pallidum			0.1/3	
Rhus aromatica		+		+
Yucca glauca		+		
Yucca baccata				
Artemisia dracunculoides				4
Leucelene ericoides	0.1/10	+		
Cymopteris		a2/7		a1
Hymenopappus filifolia		0.3/17		
Lesquerella	1/53		05/20	
Melampodium leucanthum			0.6/17	
Sphaeralcea		a2/7		
Selaginella			1/10	
Other forbs		a4/23	0.5/17	
Cryptogams 1/	5	2	15	
Basal area	9	27	10	
Litter	30	14	21	
Soil	33	57	43	
Gravels <3"	22		8	
Gravels 3-10"	1		2	
Cobbles >10"			1	
Bedrock			+	

1/ Cover only

(1.)

Aquadst. Mesita Ladrones 12 May 1183

	Values (points 1–30)	Σ
Litter	1 7 20 15 1 8 7 18 59 42 6 78 4 26 80 60 47 10 55 59 65 24 23 80 35 16 10 20 10 16	30.1
BA	9 5 8 9 1 7 6 15 11 10 5 15 8 9 10 8 9 3 12 9 15 10 9 7 9 4 18 4 12 14	9.0
Cryptogams	25 3 15 35 2 0 3 1 3 6 1 1 9 5 0 2 0 4 0 2 4 10 3 4 1 1 6 2 2 10	5.1
Gravel < 3"	8 10 1 20 85 80 30 40 4 12 20 3 45 30 4 15 4 50 3 15 8 35 50 4 15 17 10 14 5 15	21.7
Soil	57 75 56 21 11 5 54 25 20 30 60 3 30 30 6 15 40 33 30 15 10 30 15 5 40 60 56 60 71 35	33.3
Gravel > 3"	— 2 3 8 7 4 [illegible] 2	0.9
Stipa	2 3 2 1 0 0 3 4 4 4 3 3 2 3 5 4 3 4 5 5 2 2 4 2 2 5 1 2 2	36 ✓
Boer	3 1 2 3 2 2 1 2 1 2 1 0 1 1 1 1 2 1 2 1 3	8 ✓
Bocu	1 1 1 1 1 3	2
Bogr	1 1 2 1 1 3 2 2 4 2 2 2 3 3 0 2 3 2 3 1	12 13 12
Bohi	0 3 2 1	1
Lebg	1 1 0 1 1 1 0 1 1 1 1 1 0 0 1 1	1
Hym	0 2	.5
Gusa	3 0	.8
Lyph	1	t
Leucelene	0 0 1	t
Sper	1 1 1	.1
Linum	0 0	t
Muto	2	.1
Opspinosior	0	t

	P	L	
Grass	23	24	19
Forb	2	0	0
Tree-shrub	7	0	1
Litter	15	5	24
Gra <½	0	2	4
Gra .5-3"	12	17	14
Cobb	8	4	0
Stone 3-10"	3	4	—
BR/Boulders	2/3	0	1
Soil	22	38	33
Cryp	4	5	5

400
600
3|10.80
36

120
122
3|24 2

100
110
120
42
|382

Typic Ustochrept, (USC. 4-1) loamy, skeletal [illegible] deep; [illegible]

(2) Alesia [illegible] 13 Aug 83 Pedon #2 Typic haplustalf, fine, mixed, mesic 3% NE Eff [illegible] 53 cm

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Σ
Boer	1	3	1	4																											4
Bogr	3	2	3	1	4	4	3	5	4	3	2	2	3	4	3	3	2	3	3	4	4	4	4	4	4	3	4	4	3	4	46 ✓
Aris		1	1								2		2				2	1	2	0	1		1								2
Bocu	1								1	1	1	1				2	2	3	2			1		1	1		1	1	2	1	4
Lyph	1	1		1												1									1						.4
Sper					1																		1			1	1	0			.3
Bohi											2	2																			1
BA	9	15	8	14	25	25	10	45	30	13	18	14	12	20	17	22	11	31	50	45	55	40	25	30	50	14	66	30	39	40	27.2
Litter	3	40	10	35	10	12	5	35	25	2	3	10	3	8	10	3	20	50	20	6	12	9	10	3	15	16	10	5	11	8	13.6
Soil	88	44	79	50	65	63	85	20	45	83	75	70	84	70	73	73	65	10	28	45	30	47	64	64	35	67	30	67	40	44	56.8
Cryp.		1	3	1	0					2	2	4	1	2		2	4	1	2	4	3	4	1	3	0	3		6	10	8	2.3
Gaum																							0	0							
Tragia	0																					1									
Erig div.	1																														
Stepanomer																											1				
Op spin							0					1																			
Hyfi										0		1			0							1	1								
Gusa												1	0														1				
Plantago															0												0	0	0	0	
Evolvulus																										1					
Thele																		0													
Hasp																			0												
Cymopterus																						1				1					
Sphaeralcea																							1			1					
Astragalus mi																										1					

* Bogr pedestalled 1-2 cm

Grassy Jumo corridor
Jumo 10%
Pied t (under Jumo)

Sihy under Opspin
Deam cool
Mamm. maiacantha
Echi vir
Oppoly
Op phae
Allium
Psle
Arlu - under Jumo
Phus arom P
Yugl
Op spinosior 1%
Leer t
Echinocereus triglo. var. melanacanthus

BA	BS	RF	[illegible]
	5?	22	27

40 [illegible] [illegible] off
[illegible]

65

(1.)

[illegible] Mesita Ladrones 12 May 1983

[illegible] , calc., [illegible]
62 cm R

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Σ
Litter	1	7	~~80~~ 20	15	1	8	7	18	59	42	6	78	4	26	80	60	47	10	55	59	65	24	23	80	35	16	10	20	10	16	30.1
BA	9	5	8	9	1	7	6	15	11	10	5	15	8	9	10	8	9	3	12	9	15	10	9	7	9	4	18	4	12	14	9.0
Cryptogams	25	3	15	35	2	0	3	2	3	6	1	1	9	5	0	2	0	4	0	2	4	10	3	4	1	1	6	2	2	10	5.1
Gravel < 3"	8	10	1	20	85	80	30	40	4	12	20	3	45	30	4	15	4	50	3	15	8	35	50	4	15	17	10	14	5	15	21.7
Soil	57	75	56	21	11	5	54	25	20	30	60	3	30	30	6	15	40	33	30	15	10	30	15	5	40	60	56	60	71	35	33.3
Gravel > 3"	—					2			3		8	7	4		[illegible]											2					0.9
Stipa	2	3	2	1		0	0	3	4	4	4	3	3	2	3	5	4	3	4	5	5	2	2	4	2	2	5	1	2	2	36 ✓
Boer	3	1	2	3	2				2			1	2	1	2	1	0	1		1	1			1	2	1		2	1	3	8 ✓
Bocu	1					1	1	1		1					3																2
Bagr	1	1	2		1		1	3	2	2		4		2						2	2	3	3	0	2	3	2		3	1	~~12~~ 13 12
Bohi					0	3	2				1																				1
Lebz	1	1		0	1		1	1		0		1				1		1	1	1						0	0	1	1		1
Hym	0			2																											.5
Gusa		3						0																							.8
Lyph											1																				t
Leucelene												0			0									1							t
Sper																			1						1					1	.1
Linum																								0		0					t
Muto																												2			.1
Opspinosior																														0	t

100 pace

	P	O	W
Grass	23	24	19
Forb	2	0	0
Tree-shrub	7	0	1
Litter	15	5	24
Gra < [illegible]	0	2	4
Gra .5-3"	12	17	14
Cobb	8	4	0
Stones 3-10"	3	4	—
BR/Boulders	2/3	0	1
Soil	22	38	33
Cryp	4	5	5

100
600
3 | 10.8 0
36

120
121
3 | 27 2

100
110
120
92
383

Mesita Ladrones 13 May 25 Sandstone 8° NE Lithic Jumo corridor

(3)

					5					10					15					20					25					30	
Bogr	3	4				2	1							2		1	1	2	1		2	1	2			1	1			1	6.5
Boer	3	1	5	5	5	0	4	5	5	5	3	4	0	1	1	1	2	3	2	4	2	2	1		1		1				29.6
Bocu						4									2		3										2	4	2	1	7.0
Sper						1								1	1								1								0.3
Lyph						1														1											0.2
Bohi														1									1	1	3	2	0	2	2	1	3.0
Litter	52	10	88	40	45	46	26	45	62	46	15	9	0	7	8	1	20	20	1	5	6	1	4		25	5	2	36	5	3	21.4
Soil	20	61	3	15	20	30	10	7	25	45	40	50	12	78	70	88	57	47	84	77	73	44	80	5	44	35	34	3	4	50	43.0
BA	25	20	6	12	9	17	12	12	6	6	3	6		7	4	1	8	11	4	11	4	3	9	1	16	10	4	32*	110*	5	10.1
Gravel <3		1			1	1	2	1	2		2	1	4	1	5	6	0	2	6	0	2	2	0	90	2	20	20	5	24	23	7.4
Stone >3 }																							2			20		5	2	5	2.2
Cobbles 3-10																								4	5		20	3			
Crypt	3	8	3	25	25	6	50	35	5	3	40	35	4	7	13	4	15	20	5	7	15	50	5	–	8	10	15	11	20	2	15.0
Boulders >10																											5	5	5	12	0.9
Evolvulus				1						1.	0										1						1				
Arist.d						0																									
Lycium pallidum							1																								
Melamp											0			0						2	0					0					
Lesq															1	1	1	1	1	1											
Opspin																		2.													
Hyac																		1													
Hoop																				0											
Op polya																								2							
Erin																										+					
Selaginella																											1	2	2		

* includes selaginella

Jumo 15%
Rhus aromatica
Opun
Gusa
Asclepias (c)
Lithospermum
Mammal wrights
Yugl
Leucelene
Yuba under Jumo

Calcareous
at mid transect - Lithic Ustochrept, lo-sk, mixed

Carbonatic Sandstone and neutral sandstone

Typic ustochrept at start of transect

Stop # 2

SITE DESCRIPTION

USDA-FS
R-3 12/6/82

SOIL			
Map symbol	Soil: Typic Haplustalfs, fine-loamy, mixed, mesic	Phase	
		Surf. rock frag. class	–
Climax cat.	Veg.: Juniper	Rock outcrop class	–
		Erosion class	–
P.m. residuum from sandstone	MAP cm	Drainage class	3
Fm.	Elev. m	Surf. runoff class	med.
Lf. Plain (Mesa)	O.M. <0.5 %	Soil Temp. @ cm °C	

Slope gradient	3 %	By PP/OC/RF	Date 5/13/83
Slope complexity	simple	Grad. 5	NCSS
Shape contour	concave	For. Santa Fe	RD. Las Vegas
Shape slope	convex	Area El Pueblo	
Slope length	300 ft 100 m	St./Co. NM/San Miguel	
Slope aspect	90 deg.	Sec. T. R.	
Position on slope	midslope	Photo 624	Stop No. 5

Horiz/Layer Symb.	Depth Thick. cm	Bound.	Text USDA (%C)	R.F. g.c. s.b. %/vol.	Soil Color Phy. State b/d b/m	c/d r/m	Mottling Qu. Si. Co. Sh.	Mun. (d/m)	Stru. Gr. Si. Sh.	Surf. Feat. Amt. Dist. Mun. Text. Kd. Loc.	Conc. Amt. Qua. Sh. Com.	Cemt. Agent	Consis. St. d/m P. S.	Other	Pores Si. Qu. Sh.	Roots Si. Qu. Lo.	React. pH ( )	CaCO3
A	0-5	AS	sl 15	–		10YR 5/3; 10YR 4/3			1fgr	—	—		so fr; so po		3vfi	3vf f	6.8 hl	e0
Bt1	5-35	cs	scl 30	–	10YR 4.5/3; 10YR 4/3	10YR 5/3; 10YR 4/3			2msbk	3 d k pf	—		h fi; s p		2f/mt	2vf f	7.0 bl	e0
Bt2	35-53	cs	scl 27	–	10YR [illegible]; 10YR 4/3				1co 2m/csbk	2 d mk pf	—		sh fr; ss ps		2vf mt	1f 1c	7.2 [illegible]	e0
Btk	53-72	cs	[illegible] 29	–	10YR 5/3; 10YR 4/3				2mtc sbk	2 d mk pf	—		sh fr; ss ps		2ft	1f 1c	7.8 cr	es
Ck	72-80+	—	scl [illegible]	–	10YR 7/2; 10YR 5/3				m	—	Birr, / rou	CaCO3	h fr; ss ps		2ft	1f/1c	8.2 cr	ev

Classification: Typic Haplustalfs, fine-loamy, mixed, mesic Control section: to cm

Diag. Surf: ochric Thickness: 0 to 5 cm

Diag. Subsurf: argillic Thickness: 5 to 55 cm approx 25% clay

Notes:

Surface soil has a vesicular crust 2mm thick

VEGETATION (375m2 plot)

Trees	%CC	Regn#	Shrubs	%CC	Forbs	%CC	Graminoids	%CC
Juniperus monosperma	7	1	Opuntia imbricata	1	Hymenopappus filifolius	.5	Bouteloua gracilis	45
Pinus edulis	3		Yucca glauca	P	Cymopterus spp.	T	Bouteloua curtipendula	5
					Erigeron divergens	.5	Aristida spp	2
					Guara coccinea	T	Lycurus phleoides	.5
					Sphaeralcea digitata v. digit.	T	Bouteloua hirsuta	1
							Sporobolus cryptandrus	.5
Group Canopy Cover	10%			1%		3%		55%

JCC + PP measured (100 paces)

GROUND COVER

	Pace Transect		Ocular	Woodland Zig - Zag Transect					
Category	Hits	%	%	Species	Dist.	Diam.	Species	Dist.	Diam.
Graminoid. (BA)		48	22						
Forb (BA)		1							
Tree/Shrub(BA)		1							
Litter		14	22						
Gravel(.2-.5cm)									
Gravel(.5-7.6cm)		1							
Cobble(7.6-25cm)									
Stone(25-60cm)									
Boulder(60cm+)									
Rock outcrop									
Bare soil		35	55	D+X Spacing			total		
Dir. from pedon	deg.	100	100				average		

Forest

Forest Species		Avg. SI			Avg. SI	
height						
age						
SI						
Forest Species		Avg. SI			Avg. SI	
height						
age						
SI						

Woodland			Accessory Information	
Spec.	BA	SI	Depression Storage	
			Step subfactor	
			Contour tillage (S-F)	
			Crown cover (E-H)	
			Overstory cover (%)	

Stop # 1

SITE DESCRIPTION

USDA-FS R-3 12/6/82

SOIL			
Map symbol	Soil: Typic Ustochrepts, loamy-skel., mixed, mesic	Phase	
Climax cat.	Veg.: Juno	Surf. rock frag. class	
		Rock outcrop class	2
		Erosion class	–
P.m. [illegible] Limestone	MAP cm	Drainage class	3
Fm.	Elev. m	Surf. runoff class	med
LF. [illegible]	O.M. < 1 %	Soil Temp.@ cm °C	

Slope gradient	5 %	By JOC PP RF WM	Date 5/1[illegible]/83
Slope complexity	simple	Grad. 5	NCSS
Shape contour	linear	For. Santa Fe	RD. [illegible]
Shape slope	convex	Area [illegible]	
Slope length	(200 ft) m	St./Co. NM [illegible]	
Slope aspect	NNW 330° deg.	Sec. T. R.	
Position on slope	midslope	Photo [illegible]	Stop No. 7

Horiz/Layer Symb.	Depth Thick. cm	Bound.	Text USDA (%C)	R.F. g.c. s.b. %/vol.	Soil Color Phy. State b/d b/m	c/d r/m	Mottling Qu. Si. Co. Sh.	Mun. (d/m)	Stru. Gr. Si. Sh.	Surf. Feat. Amt. Dist. Mun. Text. Kd. Loc.	Conc. Amt. Qua. Sh. Com.	Cemt. Agent	Consis. St. d/m P. S.	Other	Pores Si. Qu. Sh.	Roots Si. Qu. Lo.	React. ( ) pH	CaCO3
													s fr		1vf f	1vf		
A	0-5	cs	gl 15	15		10YR 4/2; 10YR 3/3	–	–	1vf gr	–			so po; so fr		1 m; 3vf,f	1vf	7.8 cr	ev
Bw1	5-13	[illegible]	gl	25		10YR 5/3; 10YR 3/3	–	–	1f sbk; 1vf gr	–			so ps; so fr		1m; 2vf+f	2vf	7.8 cr	ev
Bw2	13-28	[illegible]	[illegible]	[illegible]		10YR 5.5/3; 10YR 4/3	–	–	1f sbk; 1vf gr	–			so ps; so fr		1m; 1vf,f	–	7.8 cr	ev
Ck1	28-43	[illegible]	vscl	30 50	10YR 7/2; 10YR 5/3		–	–	mass	–			ss ps		1m; 1c	–	8.[illegible] cr	ev
Ck2	43-62	[illegible]		70 25	10YR 5/[illegible]; [illegible]		–	–	mass	–		CaCO3					8.2 cr	ev
R	62+	–	[illegible] Limestone Bedrock															

Classification: [illegible] Ustochrept, loamy-skeletal, mixed, mesic. Control section: to cm

Diag. Surf: [illegible] Thickness: 0 to 5 cm

Diag. Subsurf: Cambic Thickness: 5 to 28 cm

Notes:

[illegible] cm [illegible] is weakly crust / roots are clustered around plants / second Ck horizon [illegible]

[illegible] / [illegible] on rock fragments

VEGETATION (375m2 plot)

Trees	%CC	Regn#	Shrubs	%CC	Forbs	%CC	Graminoids	%CC
Juniperus [illegible]	5%		Opuntia [illegible]cala	1%	Lesquerella [illegible]	3%	Bouteloua gracilis	5
Pinus edulis	P		Yucca [illegible]	P	Leucelene ericoides	T	Stipa neomexicana	35
			P. [illegible]	1%	Tragia spp.	T	Bouteloua curtipendula	3
			Opuntia fragilis	T	Echinocereus triglochidiatus	P	Bouteloua eripoda	10
			Hymenopappus scabiosaeus v. linearis	T	Gutierrezia sarothrae	P	Piptochaetium fimbriatum	2
					Melampodium leucanthum	P	Eragrostis intermedia	T
					Viguiera spp.	T	Sporobolus cryptandrus	T
			Ephedra [illegible]	P			Bouteloua hirsuta	T
Group Canopy Cover	5%			2%		3%		55%

Quercus [illegible] | [illegible] areas

Normal CC [illegible] 11% (live)

prod. est → 600 lbs/ac

GROUND COVER

	Pace Transect		Ocular
Category	Hits	%	%
Graminoid (BA)		21	23
Forb (BA)		0	2
Tree/Shrub(BA)		0	7
Litter		5	15
Gravel(.2-.5cm)		2	0
Gravel(.5-7.6cm)		17	12
Cobble(7.6-25cm)		4	8
Stone(25-60cm)		4	3
Boulder(60cm+)		0	2
Rock outcrop			
Bare soil		38	22
Dir. from pedon deg.		100	100

South

Woodland

Zig - Zag Transect

Species	Dist.	Diam.	Species	Dist.	Diam.
D+X Spacing			total		
			average		

Forest

Forest Species		Avg. SI			Avg. SI
height					
age					
SI					
Forest Species		Avg. SI			Avg. SI
height					
age					
SI					

Woodland Spec.	BA	SI

Accessory Information	
Depression Storage	
Step subfactor	
Contour tillage (S-F)	
Crown cover (E-H)	
Overstory cover (%)	

Mesita de los Ladrones 12-13 May 1983 Transects of 30 microplots each 2x5 dm.

% cover / % frequency

TAXA Plots:	①	②	③	④ 1/
Juniperus monosperma	15	10	15	3
Pinus edulis		+		
Stipa neomexicana	36/97			
Sitanion hystrix		+		a1
Bouteloua gracilis	12/67	46/100	7/50	55
Bouteloua eriopoda	8/70	4/13	30/83	
Bouteloua curtipendula	2/20	4/53	7/23	3
Bouteloua hirsuta	1/13	1/ 7	3/30	
Aristida		2/33	.0/ 3	
Sporobolus cryptandrus	0.2/10	0.3/17	0.3/13	0.3
Lycurus phleoides	.0/ 3	0.4/17	0.2/ 3	
Muhlenbergia torreyi	0.5/ 3			0.1
Eragrostis intermedia			+	
Panicum obtusum				4
Ceratioides lanata				0.3
Opuntia imbricata	0/ 3	0.1/ 7	0.5/ 3	8
Opuntia phaeacantha		+		
Opuntia polyacantha		+	0.5/ 3	
Hymenoxys acaulis	0.5/ 7		0.1/ 3	
Gutierrezia sarothrae	1/ 7	0.2/10		
Lycium pallidum			0.1/ 3	
Rhus aromatica		+		+
Yucca glauca		+		
Yucca baccata				
Artemisia dracunculoides				4
Leucelene ericoides	0.1/10	+		
Cymopteris		0.2/ 7		0.1
Hymenopappus filifolia		0.3/17		
Lesquerella	1/53		0.5/20	
Melampodium leucanthum			0.6/17	
Sphaeralcea		0.2/ 7		
Selaginella			1/10	
Other forbs		0.4/23	0.5/17	
Cryptogams 1/	5	2	15	
Basal area	9	27	10	
Litter	30	14	21	
Soil	33	57	43	
Gravels <3"	22		8	
Gravels 3-10"	1		2	
Cobbles >10"			1	
Bedrock			+	

1/ Cover only

Mesita de los Ladrones 12-13 May 1983 Transects of 30 microplots each 2×5 dm.

TAXA Plots:	% cover / % frequency ①	②	③	④ 1/
Juniperus monosperma	15	10	15	3
Pinus edulis		+		
Stipa neomexicana	36/97			
Sitanion hystrix		+		a1
Bouteloua gracilis	12/67	46/100	7/50	55
Bouteloua eriopoda	8/70	4/13	30/83	
Bouteloua curtipendula	2/20	4/53	7/23	3
Bouteloua hirsuta	1/13	1/7	3/30	
Aristida		2/33	.0/3	
Sporobolus cryptandrus	0.2/10	0.3/17	0.3/13	0.3
Lycurus phleoides	.0/3	a4/17	a2/3	
Muhlenbergia torreyi	0.5/3	~~a6/17~~		0.1
Eragrostis intermedia			+	
Panicum obtusum				4
Ceratioides lanata				0.3
Opuntia imbricata	0/3	0.1/7	0.5/3	8
Opuntia phaeacantha		+		
Opuntia polyacantha		+	0.5/3	
Hymenoxys acaulis	0.5/7		0.1/3	
Gutierrezia sarothrae	1/7	0.2/10		
Lycium pallidum			0.1/3	
Rhus aromatica		+		+
Yucca glauca		+		
Yucca baccata				
Artemisia dracunculoides				4
Leucelene ericoides	0.1/10	+		
Cymopteris		a2/7		a1
Hymenopappus filifolia		0.3/17		
Lesquerella	1/53		05/20	
Melampodium leucanthum			0.6/17	
Sphaeralcea		a2/7		
Selaginella			1/10	
Other forbs		a4/23	0.5/17	
Cryptogams 1/	5	2	15	
Basal area	9	27	10	
Litter	30	14	21	
Soil	33	57	43	
Gravels <3"	22		8	
Gravels 3-10"	1		2	
Cobbles >10"			1	
Bedrock			+	

1/ Cover only

(1.)

Mesita Ladrones 12 May 1983

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Σ
Litter	1	7	20	15	1	8	7	18	59	42	6	78	4	26	80	60	47	10	55	59	65	24	23	80	35	16	10	20	10	16	30.1
BA	9	5	8	9	1	7	6	15	11	10	5	15	8	9	10	8	9	3	12	9	15	10	9	7	9	4	18	4	12	14	9.0
Cryptogams	25	3	15	35	2	0	3	1	3	6	1	1	9	5	0	2	0	4	0	2	4	10	3	4	1	1	6	2	2	10	5.1
Gravel < 3"	8	10	1	20	85	80	30	40	4	12	20	3	45	30	4	15	4	50	3	15	8	35	50	4	15	17	10	14	5	15	21.7
Soil	57	75	56	21	11	5	54	28	20	30	60	3	30	30	6	15	40	33	30	15	10	30	15	5	40	60	56	60	71	35	33.3
Gravel > 3"	—					2			3		8	7	4		[illegible]												2				0.9
Stipa	2	3	2	1		0	0	3	4	4	4	3	3	2	3	5	4	3	4	5	5	2	2	4	2	2	5	1	2	2	36 ✓
Boer	3	1	2	3	2				2			1	2	1	2	1	0	1		1	1			1	2	1		2	1	3	8 ✓
Bocu	1					1	1	1		1					3																2
Bogr	1	1	2		1		1	3	2	2		4		2						2	2	3	3	0	2	3	2		3	1	12 13 12
Bohi					0	3	2				1																				1
Lebg	1	1		0	1		1	1		0		1				1		1	1	1						0	0	1	1		.5
Hym	0			2																											.8
Gusa		3						0																							t
Lyph											1													1							t
Leucelene												0			0				1						1					1	.1
Sper																								0		0					t
Linum																												2			.1
Muto																														0	t
Opspinosior																															

110 pace

	P	O	W
Grass	23	24	19
Forb	2	0	0
Tree-shrub	7	0	1
Litter	15	5	24
Gra < ½	0	2	4
Gra .5-3"	12	17	14
Cobb	8	4	0
Stone 3-10"	3	4	—
BR/Boulders	2/3	0	1
Soil	22	38	33
Cryp	4	5	5

400
600
80
3|10.80
36

120
122
3|242

100
110
170
42
|382

Typic Ustochrept, (USC, 4-1) loamy, skeletal [illegible] deep; [illegible]

(2)

[illegible] 13 Aug 83 ① Pedon #2 Type haplustalf, fine, mixed, mesic 3% NE Eff stone at 53 cm

Stars (*) printed above columns 6, 7, 13, 14, 15, 20.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Σ
Boer	1	3	1	4																											4
Bogr	3'	2'	3'	1	4'	4'	3'	5'	4'	3'	2'	2'	3'	4'	3'	3	2'	3'	3	4'	4'	4'	4'	4'	4'	3'	4'	4'	3'	4'	46 ✓
Aris		1	1								2		2				2	1	2	0	1		1								2
Bocu	1								1	1	1	1				2	2	3	2			1		1	1		1	1	2:	1	4
Lyph	1	1		1												1									1						.4
Sper					1																		1			1	1	0			.3
Bohi											2	2																			1
BA	9	15	8	14	25	25	10	45	30	13	18	14	12	20	17	22	11	37	50	45	55	40	25	30	50	14	66	30	39	40	27.2
Litter	3	40	10	35	10	12	5	35	25	2	3	10	3	8	10	3	20	50	20	6	12	9	10	3	15	16	10	5	11	8	13.6
Soil	88	44	79	50	65	63	85	20	45	83	75	70	84	70	73	73	65	10	28	45	30	47	64	64	35	67	30	69	40	44	56.8
Cryp.		1	3	1	0					2	2	4	1	2		2	4	1	2	4	3	4	1	3	0	3		6	10	8	2.3
Gaun																							0	0							
Tragia	0																					1									
Erig div.	1																						Stepanomer			1					
Op spin							0					1																			
Hyfi										0		1				0						1	1								
Gusa												1	0													1					
Plantago																0							Evolvulus 1			0	0	0	0		
Thele																		0													
Hasp																			0												
Cymopterus																						1				1					
Sphaeralcea																							1			1					
Astragalus mi																										1					

* Bogr pedastalled 1-2 cm

Grassy Jumo corridor
Jumo 10%
Pied t (under Jumo)

Sihy under Opspin
Deam cool
Mamm. maiacantha
Echi vir
Oppoly
Op phae
Allium
Psle
Arlu - under Jumo
Phus arom P
Yugl
Op spinosior 1%
Leer t
Echinocereus triglo. var. melanacanthus

65

BA PS RF (1)
50 22 27

40 not too far off
Good site

Mesita Ladrones 13 May 85 Sandstone SITE Lithic Jumo corridor

③

	5	10	15	20	25	30	
Bogr	3 4 2 1		2 1 1 2 1 2 1 2		1 1 1		6.5
Boer	3 1 5 5 5 0 4 5 5 5 3 4 0	1 1 1 2 3 2 4 2 2 1	1 1 1		29.6
Bocu	4	2 3	2 4 2 1		7.0
Sper	1	1 1 1			0.3
Lyph	1	1			0.2
Bohi	1	1 1 3 2 0 2 2 1			3.0
Litlea	52 10 88 48 45 46 26 45 62 46 15 9 0	7 8 1 20 20 1 5 6 1 4	25 5 2 36 5 3		21.4
Soil	20 61 3 15 20 30 10 7 25 45 40 50 92	78 70 88 57 47 84 77 73 44 80	5 44 35 34 3 4 50		43.0
BA	25 20 6 12 9 17 12 12 6 6 3 6	7 4 1 8 11 4 11 4 3 9	1 16 10 4 32 *10* 5		10.1
Gravel <3	1 1 1 1 2 1 2 2 1 4	1 5 6 0 2 6 0 2 2 0	90 2 20 20 5 24 23		7.4
Stone >3	}	} 2	20 5 } 2 5		2.2
Cobbly 3-10			4 5 20 3 }		
Crypt	3 8 3 25 25 6 50 35 5 3 40 35 4	7 13 4 15 20 5 7 15 50 5	– 8 10 15 11 20 2		15.0
Boulders >10			5 5 5 12		0.9
Evolvulus	1 1.0	1	1		
Aristida	0				
Lycium pallidum	1				
Melamp	0	0 2 0	0		
Lesq		1 1 1 1 1 1			
Opspin		2.			
Hyac		1			
Hasp		0			
Op polya			2		
Erin			+		
Selaginella			1 2 2		

* Includes selaginella

Jumo 15%
Rhus aromi
Open
Gusa
Asclepias (c)
Lithospermum
Mammal weights
Yugl
Leuelene
Yuba unto Jumo

Calcareous
at mid transect - Lithic Ustochrept / Lo-sk, mixed

Carbonatic Sandstone and neutral sandstone

Typic ustochrept at start of transect

Stop # 2

SITE DESCRIPTION

USDA-FS
R-3 12/6/82

SOIL

Field	Value	Field	Value	Field	Value	Field	Value
Map symbol	Soil: Typic Haplustalfs, fine-loamy, mixed, mesic	Phase		Slope gradient	3 %	By	PP/OC/RF
		Surf. rock frag. class	—	Slope complexity	simple	Grad.	5
Climax cat.	Veg.: Jumo	Rock outcrop class	—	Shape contour	concave	For.	Santa Fe
		Erosion class	—	Shape slope	convex	Area	El Pueblo
P.m.	residuum from sandstone	MAP cm		Drainage class	3	Slope length	300 ft 100 m
Fm.		Elev. m		Surf. runoff class	med.	Slope aspect	90 deg.
Lf.	Plain (Mesa)	O.M.	<0.5 %	Soil Temp. @ cm °C		Position on slope	midslope
Date	5/13/83	NCSS		RD.	Las Vegas	St./Co.	NM/San Miguel
Sec.		T.		R.		Photo	624
Stop No.	5						

Horiz/Layer Symb.	Depth Thick. cm	Bound.	Text USDA (%C)	R.F. g.c. s.b. %/vol.	Soil Color Phy. State b/d b/m	c/d r/m	Mottling Qu. Si. Co.Sh.	Mun. (d/m)	Stru. Gr. Si. Sh.	Surf. Feat. Amt.Dist.Mun. Text.Kd. Loc.	Conc. Amt.Qua. Sh. Com.	Cemt. Agent	Consis. St.d/m P. S.	Other	Pores Si.Qu. Sh.	Roots Si.Qu. Lo.	React. ( ) pH	CaCO3
A1	0-5	AS	sil	—		10YR 5/3			1fgr	—	—		so fr		3vf1	3vf+f	6.8	eo
			15			10YR 4/3							so po				nl	
Bt1	5-35	cs	sicl	—	10YR 4.5/3	10YR 5/3			2msbk	3 d k pf	—		h fi		2f/mt	2vf+f	7.0	eo
			30		10YR 4/3	10YR 4/3							s p				bl	
Bt2	35-53	cs	sicl	—	10YR [illegible]				1co	2 d mk pf	—		sh fr		2f/mt	1f	7.2	eo
			37		10YR 4/3				2m/csbk				ss ps			1c	nl	
Btk	53-72	cs	sicl	—	10YR 5/3				2mfc	2 d mk pf	—		sh fr		2ft	1f	7.8	es
			29		10YR 4/3				sbk				ss ps			1c	cr	
Ck	72-80+	—	sicl	—	10YR 7/2				m	—	3 irr	CaCO3	h fr		2ft	1f/1c	8.2	ev
			[illegible]		10YR 5/3						1 rou		ss ps				cr	

Classification: Typic Haplustalfs, fine-loamy, mixed, mesic

Control section: to cm

Diag. Surf: ochric Thickness: 0 to 5 cm

Diag. Subsurf: argillic Thickness: 5 to 55 cm approx 25% clay

Notes:

Surface soil has a vesicular crust 2mm thick

VEGETATION (375m2 plot)

Trees	%CC	Regn#	Shrubs	%CC	Forbs	%CC	Graminoids	%CC
Juniperus monosperma	7	1	Opuntia imbricata	1	Hymenopappus filifolius	.5	Bouteloua gracilis	45
Pinus edulis	3		Yucca glauca	P	Cymopterus spp.	T	Bouteloua curtipendula	5
					Erigeron divergens	.5	Aristida spp	2
					Guara coccinea	T	Lycurus phleoides	.5
					Sphaeralcea digitata ? digit.	T	Bouteloua hirsuta	1
							Sporobolus cryptandrus	.5
Group Canopy Cover	10%			1%		3%		55%

JCC + PP Measured (100 paces)

Est. ocular

GROUND COVER

	Pace Transect		Ocular	Woodland Zig - Zag Transect					
Category	Hits	%	%	Species	Dist.	Diam.	Species	Dist.	Diam.
Graminoid. (BA)		48	22						
Forb (BA)		1							
Tree/Shrub(BA)		1							
Litter		14	23						
Gravel(.2-.5cm)									
Gravel(.5-7.6cm)		1							
Cobble(7.6-25cm)									
Stone(25-60cm)									
Boulder(60cm+)									
Rock outcrop									
Bare soil		35	55	D+X Spacing			total		
Dir. from.pedon ? deg.		100	100				average		

Forest						
Forest Species		Avg.SI			Avg.SI	
height						
age						
SI						
Forest Species		Avg.SI			Avg.SI	
height						
age						
SI						

Woodland			Accessory Information	
Spec.	BA	SI	Depression Storage	
			Step subfactor	
			Contour tillage (S-F)	
			Crown cover (E-H)	
			Overstory cover (%)	

Slop # 1.

SITE DESCRIPTION

USDA-FS
R-3 12/6/82

SOIL

Map symbol	Soil Typic Ustochrepts, loamy-skel., mixed, mesic	Phase		Slope gradient	5 %
		Surf. rock frag. class		Slope complexity	simple
Climax cat.	Veg. Juniperus	Rock outcrop class	2	Shape contour	linear
		Erosion class	–	Shape slope	convex
P.m. [illegible] Limestone	MAP cm	Drainage class	3	Slope length	(200 ft) m
Fm.	Elev. m	Surf. runoff class	med	Slope aspect	NNW 330° deg.
Lf. Plain [illegible]	O.M. < 1 %	Soil Temp. @ cm °C		Position on slope	midslope

By JOC PP RF WM	Date 5/14/83
Grad. 5	NCSS
For. Santa Fe	RD. [illegible]
Area Ladrones [illegible]	
St./Co. NM [illegible]	
Sec.	T. R.
Photo [illegible]	Stop No. 7

Horiz/Layer Symb.	Depth Thick. cm	Bound.	Text USDA (%C)	R.F. g.c. s.b. %/vol.	Soil Color Phy. State b/d b/m	c/d r/m	Mottling Qu. Si. Co.Sh.	Mun. (d/m)	Stru. Gr. Si. Sh.	Surf. Feat. Amt.Dist.Mun. Text.Kd. Loc.	Conc. Amt.Qua. Sh. Com.	Cemt. Agent	Consis. St.d/m P. S.	Other	Pores Si.Qu. Sh.	Roots Si.Qu. Lo.	React. ( ) pH	CaCO3
													s fr		1vf f	1vf	pH	
A	0-5	cs	gl	15		10YR 4/3	–	–	1vf gr	–			so po		1m		7.8	EV
			15			10YR 3/3							so fr		3vf, f	1vf	cr	
Bw1	5-13	[illegible]	gl	25		10YR 5/3	–	–	1 f sbk	–			so ps		1m		7.8	EV
						10YR 3/3			1 vf gr				so fr		2vf f	2vf	cr	
Bw2	13-28	[illegible]	l	[illegible]		10YR 5.5/3	–	–	1 f sbk	–			so ps		1m		7.8	EV
			[illegible]			10YR 4/3			1 vf gr				so fr		1vf, f	–	cr	
Ck1	28-43	[illegible]	fscl	30 50	10YR 7/2		–	–	mass	–			ss ps		1m		[illegible]	EV
			[illegible]		10YR [illegible]										1c	–	cr	
Ck2	43-62	aw		40 25	10YR 7/1		–	–	mass	–		CaCO3					[illegible].2	EV
					[illegible] 6/2												cr	
R	62 +	---	[illegible]	Limestone	Bedrock													

Classification: [illegible] Ustochrept, loamy-skeletal, mixed, mesic
Diag. Surf: Ochric Thickness: 0 to 5 cm Control section: to cm
Diag. Subsurf: Cambic Thickness: 5 to 28 cm
Notes:

[illegible] cm [illegible] is [illegible] crust / roots are clustered around plants / second Ck horizon [illegible]
[illegible] / [illegible] coatings on rock fragments

VEGETATION (375m2 plot)

Trees	%CC	Regn#	Shrubs	%CC	Forbs	%CC	Graminoids	%CC
Juniperus mo[illegible]	5%		Opuntia imbricata	1%	Lesquerella [illegible]	3%	Bouteloua gracilis	5
Pinus edulis	P		yucca	P	Leucelene ericoides	T	Stipa neomexicana	35
			[illegible]	1%	Tragia spp.	T	Bouteloua curtipendula	3
			Opuntia [illegible]	T	Echinocereus triglochidiatus	P	Bouteloua eriopoda	10
			Hymenopappus scaposa v. linea	T	Gutierrezia sarothrae	P	Piptochaetium fimbriatum	2
					Melampodium leucanthum	P	Eragrostis intermedia	T
					Viguiera spp	T	Sporobolus cryptandrus	T
			Eurotia lanata	P			Bouteloua hirsuta	T
Group Canopy Cover	5%			2%		3%		55%

Quercus [illegible] rocky [illegible] white areas

Normal [illegible] 10% (live)

prod. est → 600 lbs/ac

GROUND COVER

Category	Pace Transect Hits	Pace Transect % (soil mons.)	Ocular % (pp mons.)
Graminoid (BA)		24	23
Forb (BA)		0	2
Tree/Shrub(BA)		0	7
Litter		5	15
Gravel(.2-.5cm)		2	0
Gravel(.5-7.6cm)		17	12
Cobble(7.6-25cm)		4	8
Stone(25-60cm)		4	3
Boulder(60cm+)		0	2
Rock outcrop			
Bare soil		38	22
Dir. from pedon deg.		100	100

South

Woodland — Zig - Zag Transect

Species	Dist.	Diam.	Species	Dist.	Diam.

D+X Spacing ______ total ______ average ______

Forest

Forest Species		Avg.SI		Avg.SI
height				
age				
SI				

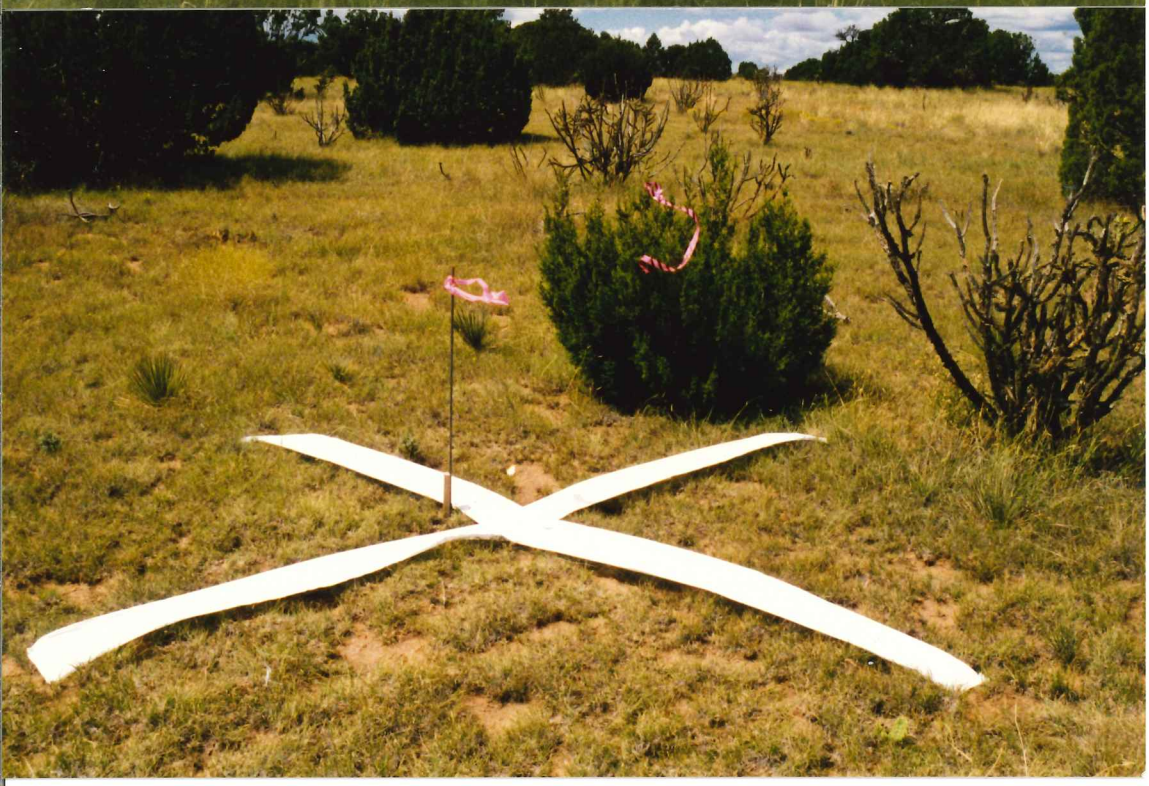
Forest Species		Avg.SI		Avg.SI
height				
age				
SI				

Woodland

Spec.	BA	SI

Accessory Information

Depression Storage	
Step subfactor	
Contour tillage (S-F)	
Crown cover (E-H)	
Overstory cover (%)	



MESITA DE LOS LADRONES SPECIES LIST

Collections made by Reggie Fletcher--1982, 1983

Allium perducle	R
Amaranthus viridus	R
Andropogon ~~barbinoidis~~ spring fieldii	I
Andropogon gerardii	I
Andropogon scoparius	I
Arabis fendleri var. spatifolia	R
Arabis perennans	R
Aristida adscensionis	R
Aristida arizonica	C
Aristida ~~hamulosa~~ divaricata	R
Aristida longiseta	R
Artemisia bigelovii	R
Artemisia carruthii	R
Artemisia dranunculoides	I
Artemisia ludoviciana	C
Asclepias asperula	R
Asclepias macrotis	R
Asclepias nyctaginifolia	R
Asclepias uncialis	R
Astragalus mollissimus var. mollissimus	I
Atriplex canescens	I
Baccharis pternoides	R
Baccharis wrightii	R
Bahia dissecta	I
Berlandiera lyrata	I
Bouteloua curtipendula	C
Bouteloua eriopoda	C
Bouteloua gracilis	C
Bouteloua hirsuta	C
Brickellia brachyphylla	I
Brickellia californica	R
Bromus purgans	R
Cassia roemeriana	R
Castilleja integra	R
Cercocarpus montanus	R
Cheilanthes eatonii	R
Chrysopsis canescens	C
Cirsium canescens	R
Commelina dianthifolia	C
Convovulus incanus	R
Cryptantha crassisepala var. elachantha	I
Cryptantha jamesii	R
Cuscuta salina	R
Cymopterus montanus	C
Cyperus esculentus	I
Cyperus fendlerianus	I

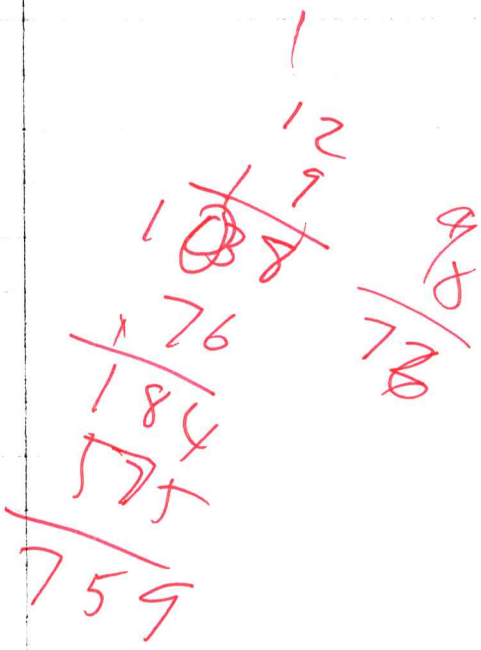
Cyperus rusbyi	I	
Dalea formosa	R	
Dalea jamesii	R	
Descurainia richardsonii ssp. viscosa	R	
Desmanthus cooleyi	I	
Drymaria fendleri	R	
Dyssodia papposa	R	
Echinocereus fendleri	R	
Echinocereus triglochidiatus var. triglochidiatus	R	
Echinocereus triglochidiatus var. melanacanthus	R	
Echinocereus triglochidiatus var. neomexicanus	R	
Echinocereus viridiflorus var. viridiflorus	C	
Eragrostis intermedia	C	
Erigeron bellidiastrum var. bellidiastrum	R	
Erigeron divergeus	I	
Erigeron flagellaris	I	
Erigeron nudiflorus	C	
Eriogonum jamesii	I	
Eriogonum tenellum	I	
Eupatorium herbaceum	R	
Euphorbia dentata var. dentata	R	
Euphorbia fendleri var. chaetocalyx	R	
Euphorbia fendleri var. fendleri	R	
Eurotia lanata	I	
Evovulus pilosus	R	
Evovulus sericeus	R	
Franseria confertiflora	R	
Gaillardia pinnatifida	I	
Gaura coccinea	R	
Gnaphalium wrightii	I	
Guilleminea densa var. aggregata	R	
Gutierrezia sarothrae	I	
Haplopappus spinulosus	I	
Hedyotis rubra	R	
Heterosperma bipinnata	I	
Hilaria jamesii	I	
Hybanthus verticillatus	R	
Hymenopappus filifolius var. cinereus	I	
Hymenoxys scaposa var. linearis	C	
Ipomoea costellata	R	
Ipomoea leptophylla	R	
Ipomopsis aggregata	R	
Ipomopsis longiflora ssp. longiflora	R	
Juniperus monosperma	C	
Kuhnia chlorolepis	I	
Lappula redowskii	R	
Leptochloa dubia	R	
Leptoloma cognatum	R	
Lesquerella fendleri	C	
Lesquerella praecox	I	endemic to central NM
Leucelene ericoides	C	

Linum lewisii	R
Linum puberulum	I
Lithospermum incisum	R
Lycium pallidum	I
Lycurus phleoides	C
Mammillaria meiacantha	I
Mammillaria wrightii	R
Melampodium leucanthum	I
Menodora scabra	R
Mirabilis multiflora	C
Muhlenbergia emersleyi	R
Muhlenbergia pauciflora	R
Muhlenbergia richardsonis	R
Muhlenbergia torreyi	C
Muhlenbergia wrightii	R
Nicotiana trigonophylla	R
Nolina microcarpa	I
Notholaena standleyi	R
Oenothera albicaulis	R
Opuntia erinacea	I
Opuntia imbricata	C
Opuntia phaeacantha	C
Opuntia polyacantha	C
Oryzopsis micrantha	R
Oxybaphus linearis var. subhispidus	R
Panicum hallii	I
Panicum obtusum	C
Pectis angustifolia	I
Penstemon barbatus	R
Penstemon fendleri	I
Penstemon jamesii var. jamesii	R
Petalostemum purpureum	R
Physalis sp.	R
Pinus edulis	C
Pinus ponderosa	R
Plantago purshii	I
Poa fendleriana	R
Polygala alba	R
Portulaca mundula	I
Portulaca retusa	I
Psoralea tenuiflora	R
Quercus grisea	R
Quercus undulata	C
Ratibida columnifera	R
Rhus trilobata var. pilosissima	R
Sanvitalia abertii	R
Sarcostemma crispum	R
Selaginella densa var. scopulorum	C
Senecio douglasii	R

Sisymbrium linearifolium	I	diminutive variant possibly undescribed ssp.
Sitanion hystrix	I	
Solanum eleagnifolium	C	
Solidago mollis	I	
Solidago wrightii	I	
Sorghastum nutans	R	only 2nd spot I have seen this on NF in NM
Sphaeralcea digitata var. digitata	C	
Sporobolus contractus	R	
Sporobolus cryptandrus	C	
Stephanomeria pauciflora	R	
Stipa neomexicana	C	two forms, one with plumose awn and one little more than barbellate
Thelesperma megapotamicum	R	
Thelypodium wrightii	R	
Tragia stylaris	I	
Tragopogon dubius	R	
Tridens pilosus	I	
Tridens pulchellus	I	
Verbena bipinnatifida	R	
Verbena plicata	R	
Vicia exigua	R	
Viguiera dentata	I	
Yucca baccata	I	
Yucca glauca	I	

C = Common
I = Infrequent
R = Rare

		need to walk on		line slope
Mid Tree.				
~~Pin~~	350+5.9	0.	+ 45 2 − 15 2.	5
Jun.	350+22.3	12.3	+19 − 10	5



250 to (250+75) is a drainage. W to E slope. ~6°.

Photo 1, 2 S from ~250.

3, 4 N " ~250 (pink = 250 w. 2 flags

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT 093JT2001 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	14.6 7.1 7.3 (29)	16.0
PIED	3.5	10.0
Jumo	12.9	14.0

3

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	9.3	10.0
Jumo	3.2	7.5

2

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT 093JT2002 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	25.1 6.5 (31.6)	15.0
Jumo	19.3	15.5
Jumo	13.9 DEAD	12.0
Jumo	4.1	8.5
Jumo	3.5	8.5
Jumo	4.3 1.8 (6.1)	9.0
Jumo	2.9 2.8 1.0 5.1 (11.8)	9.0
Jumo	21.4	14.5

8

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	9.3	10.0
Jumo	15.2	12.0
Jumo	10.3 2.1 3.2 (15.6)	10.5
Jumo	5.3	8.0
Jumo	3.6 2.9 1.3 (7.3)	11.0
Jumo	11.4	11.0

6

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT Q93JT2003 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	12.8	9.0
Jumo	22.6	18.5
Jumo	3.3 8.6 3.2 (15.1)	11.5

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT Q93JT2004 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.0 12.6 (16.6)	10.0
Jumo	3.6	7.5
Jumo	7.8 2.6 7.1 (17.5)	9.0
Jumo	4.3	8.5
Jumo	4.2	7.0
Jumo	7.1 9.1 3.5 6.2 15.9	14.0
Jumo	11.8	13.0
Jumo	2.4	7.0
Jumo	5.8	9.5
Jumo	5.8	10.5
Jumo	4.5	6.5
Jumo	4.2	6.5
Jumo	4.0	8.0
Jumo	4.2	9.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt201

04-12-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
21.4	88.2	1.3

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
854.9	855

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
5.0	849.9

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	3.5	10
JUNIPER	4	13.6	12

jt202

04-12-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
52.0	61.2	0.9

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2079.7	2080

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	2079.7

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	14	12.6	11

jt203

04-12-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
19.1	97.5	1.4

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT 93TT2005 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	12.3	13.0
Jumo	5.6	7.5
Jumo	5.3 5.3 3.5 10.3 (24.4)	15.0
Jumo	10.2	13.0
Jumo	10.6	7.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	24.2 DEAD	19.0
Jumo	10.5 15.7 (26.2)	15.0
Jumo	4.1	6.0
Jumo	14.1	16.0
Jumo	8.8 7.2 (16)	11.5
Jumo	1.5	3.5

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT 93TT2006 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.3 3.2 7.1 7.9 6.1 (28.1)	11.5
Jumo	7.9	11.5
Jumo	6.2	14.0
Jumo	9.0 9.1 (18.1)	11.0
Jumo	4.1 2.9 5.3 (12.3)	9.5

PIED < 1.5" _____

JUMO < 1.5" _____

jt205

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
54.7	37.8	0.5

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2188.1	2188

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	2188.1

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	11	13.6	12

jt206

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
19.3	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
770.9	771

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	770.9

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	5	14.5	12

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT Q93JT2007 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	15.8	18.5
Jumo	4.0 .1 2.8 DEAD (6.9)	9.5
PIED	2.9	8.5
Jumo	11.6 8.1 (19.9)	14.5
PIED	5.6	16.0
Jumo	8.1	11.0
Jumo	8.4	12.0
PIED	1.4	9.5
PIED	6.5	11.5
Jumo	2.4 2.5 3.5 3.6 2.8 (14.8)	10.0
Jumo	7.3 2.5 6.5 2.0 2.1 4.5	13.5
X	2.8 6.9 1.0 1.1 (36.6)	
Jumo	.9 .9 .5 (2.3)	2.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	6.3 5.9 21.8 (34)	16.5

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT Q93JT2008 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	3.4 4.4 2.4 2.5 2.6 3.1 (16.4)	7.5
Jumo	18.2	15.0
Jumo	3.0 3.1 5.6 8.1 10.1 (29.9)	16.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

jt207

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
65.4	27.3	0.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2617.3	2617

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
50.8	2566.5

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	4	4.1	11
JUNIPER	9	16.3	12

jt208

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
28.7	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1148.0	1148

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1148.0

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	3	22.2	13

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT 93JT2009 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	7.8	12.0
PIED	33	12.0
Jumo	1.2 5.1 3.3 3.6 5.3 5.4	10.0
	(23.9)	

3

75 0
B | A
0

PIED < 1.5" •

JUMO < 1.5" •

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	14.6	17.0
Jumo	10.3 2.1 1.0 (13.4)	11.0
PIED	1.0	4.0
Jumo	9.4	13.0

4

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT 93JT2010 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
	(29.1)	
Jumo	7.9 9.3 3.1 2.9 2.8 3.1	11.5
Jumo	5.6 5.0 3.2 .5 (14.3)	13.0
PIED	1.4	6.5
Jumo	1.6 1.9 .4 .4 .1 .1	8.0
X	.4 (4.9)	
Jumo	9.7 2.0 (11.7)	13.0
Jumo	1.5	5.0
Jumo	2.8 1.5 (4.3)	7.0

7

PIED < 1.5" _____

JUMO < 1.5" _____

jt209

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
16.6	1.6	0.0

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
663.5	664

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
41.5	622.0

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	3	4.0	9
JUNIPER	4	15.3	13

jt210

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
18.1	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
723.1	723

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
-0.6	723.7

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	1.4	7
JUNIPER	6	11.0	10

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT 93JT204 Record ____ Read ____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	15.8	16
Jumo	1.5 2.1 .8 1.0 (5.4)	4.0
Jumo	1.1 .3 (1.4)	4.0
Jumo	3.2	9.0
PIED	4.2	9.0
Jumo	3.0 3.0 1.9 (7.9)	7.0
PIED	3.6	7.5

PIED < 1.5" •

JUMO < 1.5" •

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" ____

JUMO < 1.5" ____

PLOT 93JT2012 Record ____ Read ____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	7.2 3.4 7.5 7.8 (25.9)	13.5

PIED < 1.5" ____

JUMO < 1.5" •

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	2.1 1.5 4.8 7.0 8.0 5.7	14
X	4.0 (41.1)	
Jumo	3.2 9.0 8.7 8.8 4.8 4.0	15.0
X	2.5 2.7 (43.7)	
Jumo	1.6	9.0

PIED < 1.5" •

JUMO < 1.5" • •

jt211

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
6.1	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
243.4	243

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
10.6	232.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	2	3.9	8
JUNIPER	5	6.7	8

jt212

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
74.2	65.5	1.0

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2968.9	2969

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	2968.9

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	4	28.1	13

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT 2013 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	15.0 6.3 6.0 18.8 11.0 (57.1)	13.0
PIED	2.0	11.0

PIED < 1.5" • •

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.8 2.0 1.9 1.5 1.0 2.3	6.5
X	2.4 1.8 1.8 (19.5)	

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT 2014 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt213

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
50.6	86.9	1.3

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2023.1	2023

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
1.0	2022.0

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	2.0	11
JUNIPER	2	38.3	10

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2015 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2016 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	4.0 2.0 4.2 5.0 5.2 6.5	15.0
~~X~~	5.0 6.1 2.0 4.2 13.2 3.2	
~~X~~	6.5 6.5 (67.1)	
PIED	3.0	15.0
JUMO	2.1	4.5

PIED < 1.5" _____

JUMO < 1.5" _____

jt216

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
73.6	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2944.5	2945

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
5.6	2938.9

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	3.0	15
JUNIPER	2	34.6	10

jt217

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
49.1	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1965.3	1965

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
16.5	1948.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	4.8	15
JUNIPER	1	55.6	14

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2017 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	7.8 5.0 6.1 3.0 5.0 11.2	14.0
X	2.1 4.2 2.0 9.2 (55.6)	
X		
PIED	4.8	15.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2018 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	7.8 4.0 6.3 6.0 4.8 4.5	10.0
X	3.0 3.1 3.3 3.8 4.2 3.0	
X	8.2 4.0 6.8 (72.8)	
Jumo	1.5	5.5
PIED	1.5 1.0 (2.5)	8.0

PIED < 1.5" _____

JUMO < 1.5" _____

2

3

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2019 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	3.1	8.0
PIED	1.5	5.5
JUMO	4.6 3.4 1.0 2.0 1.6 4.5	13.0
→ X	2.2 3.2 1.5 (24)	
JUMO	1.7	6.0
JUMO	2.2 1.7 1.0 (4.9)	6.0
JUMO	9.0 4.2 6.3 5.0 3.8 3.0	13.0
X	4.0 7.3 7.4 (50)	
JUMO	1.5 1.5 (3)	5.6
JUMO	1.5	5.0
JUMO	1.5	5.0

* Assumption buried equals NEW INDIVIDUALS. Separation of >20cm

PIED < 1.5" _____

JUMO < 1.5" ∅

PLOT QJT2020 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

jt218

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
58.7	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2347.4	2347

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
1.3	2346.1

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	2.5	8
JUNIPER	2	37.2	8

jt219

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
47.8	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1912.3	1912

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
2.1	1910.2

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	2	2.3	7
JUNIPER	7	12.4	8

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2021 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	2.5 7.5 6.0 8.1 4.2 8.3	14.5
~~JUMO~~	2.0 5.0 5.0 (48.6)	
PIED	2.2	9.0

PIED < 1.5" _____

JUMO < 1.5" _____

2

PLOT QJT2022 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	3.7 4.7 2.0 4.3 2.1 4.0	12.0
~~JUMO~~	1.5 4.0 1.6 5.0 5.0 1.5	
~~JUMO~~	1.0 3.3 2.0 3.0 5.4 2.4	
~~JUMO~~	4.0 4.1 2.2 2.4 (69.2)	

PIED < 1.5" _____

JUMO < 1.5" _____

1

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2023 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	3.3 3.3 4.2 4.0 3.0 1.0	14.5
X	3.5 5.0 3.0 3.8 3.1 6.5	
X	6.9 2.8 4.0 2.4 2.0 4.1	
X	7.8 73.7	
PIED	1.5	3.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

2

PLOT QJT2024 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2025 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2026 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT DJT2027 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT DJT2028 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2029 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2030 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	8.0 5.0 1.6 2.1 1.5 3.5	10.5
~~JUMO~~	3.0 2.1 3.2 2.0 3.0 1.1	
	1.0 4.0 (41.1)	
JUMO	3.8 1.0 4.0 3.6 5.0 3.9	9.5
~~JUMO~~	1.0 9.0 2.4 2.5 2.7 2.0	
	1.5 (42.4)	

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

2

jt223

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
84.9	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%3394.3	3394

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
-0.9	3395.2

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	1.5	3
JUNIPER	1	73.7	15

jt230

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
43.5	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1741.4	1741

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1741.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	2	41.8	10

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2033 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2034 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	6.5 1.0 3.0 3.6 7.4 5.0	13.0
~~JUMO~~	3.4 29.9	
PIED	1.0	4.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

2

jt232

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
29.0	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1158.4	1158

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1158.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	2	30.5	12

jt234

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
15.3	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
610.4	610

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
-1.0	611.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	1.0	4
JUNIPER	1	29.9	13

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2035 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2036 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2037 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	20.8	15.0
PIED	1.0	4.0
JUMO	5.0 2.1 1.0 3.8 5.0 3.0	10.0
X	2.0 5.2 6.7 2.0 4.5 4.1	
	44.4	

PIED < 1.5" _____

JUMO < 1.5" _____

3

PLOT QJT2038 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT 2039 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT 2040 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT JJT2041 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	1.0	2.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT JJT2042 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt237

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
34.1	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1362.4	1362

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
-1.0	1363.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	1.0	4
JUNIPER	2	32.6	13

jt241

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.0	-97.5	-1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-0.6	-1

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-0.6

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	1.0	2

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT 2043 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	3.1 4.1 2.9 5.3 3.2 5.0	13.0
~~X~~	3.5 5.1 6.8 5.5 2.0 1.1	
~~X~~	4.6 52.2	

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT 2044 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt243

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
40.7	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1626.1	1626

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1626.1

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	52.2	13

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2045 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2046 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	16.1	13.0
JUMO	3.0 1.5 2.0 12.1 2.9 2.7 .7 4.0 3.4 (323)	13.6
JUMO	1.5 .5 1.5 2.0 2.6 2.0 .5 (10.6)	7.0
▲	If all 3 are 1, then (59)	13
JUMOS ARE GOOD POSSIBILITY TREE	SPACED BY ≈ 30 cm - THAT THEY ARE SAME	
JUMO	5.8 4.2 2.0 2.9 2.0 8.1 3.3 4.5 2.0 4.0 9.9 5.2 2.0 .4 2.1 5.6 (59)	13.0

PIED < 1.5" _____

JUMO < 1.5" _____

JT2044 4 OF = 12 JT2046

jt246a

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
73.4	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2935.3	2935

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	2935.3

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	4	29.5	12

jt246b

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
101.5	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%4059.2	4059

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	4059.2

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	2	59.0	13

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT JJT 2047 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT JJT 2048 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2049 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	1.5	2.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	2.0 .5 .5 .5 (3.5)	3.0

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2050 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	4.1 2.0 1.8 .8 .4 1.0	8.0
X	1.8 5.2 (17.1)	

PIED < 1.5" _____

JUMO < 1.5" _____

jt249

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.0	-44.8	-0.7

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-1.5	-1

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-1.5

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	2	2.5	3

jt250

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
2.6	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
103.2	103

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	103.2

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	17.1	8

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2051 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
~~Ø~~		13.0
		11.0
		11.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
~~Ø~~		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2052 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	6.5	13.6
Jumo	11.9 4.4 4.6 4.2 (25.1)	
Jumo	5.2 4.9 4.3 2.8 1.0 3.0	
~~X~~	.9 .5 (22.6)	

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.1 4.8 6.4 2.8 3.1 3.1	11.0
~~X~~	4.1 4.0 (32.4)	

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2053 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2054 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	20.4 8.1 (28.5)	16.0
JUMO	3.4	6.8
PIED	3.0 1.5 (4.5)	7.0
PIED	3.8	11.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	4.2	10.0

PIED < 1.5" _____

JUMO < 1.5" _____

jt252

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
32.3	5.6	0.1

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1290.6	1291

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1290.6

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	4	21.7	12

jt254

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
17.5	95.3	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
698.3	698

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
20.6	677.7

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	3	4.2	9
JUNIPER	2	15.9	11

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2055 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	7.3	15.0
Jumo	4.0 6.1 5.4 5.0 4.4 (24.9)	8.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2056 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.5 2.2 8.2 5.6 (20.5)	13.5
Jumo	14.0	13.0
Jumo	3.7	7.0
Jumo	1.5	2.0
Jumo	7.3 3.6 (10.9)	13.0
Jumo	3.0	4.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2057 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	6.6	17.0
JUMO	19.3 3.0 (22.3)	13.5
JUMO	2.8 1.0 (3.8)	5.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2058 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

3

jt257

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
9.9	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
395.9	396

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
37.6	358.3

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	6.6	17
JUNIPER	2	13.0	10

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2059 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	1.5	2.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
ϕ		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2060 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	13.4 5.5 (18.9)	15.0
PIED	1.5	6.0
Jumo	1.0 2.0 (3)	4.5
Jumo	3.5 2.9 2.0 2.0 (10.4)	9.0
PIED	2.1 .5 (2.6)	5.5
Jumo	2.9	4.5
PIED	8.4	13.0
Jumo	3.1	11.0
Jumo	11.1	14.0
Jumo	7.2	12.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
ϕ		

PIED < 1.5" _____

JUMO < 1.5" _____

jt259

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.0	-97.5	-1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-0.5	-0

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-0.5

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	1.5	2

jt260

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
11.8	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
471.3	471

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
47.5	423.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	3	4.2	8
JUNIPER	7	8.1	10

PLOT QJT2061 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	7.1	9.0
Jumo	10.4	11.0
Jumo	5.4	13.5
Jumo	11.2	16.0
PIED	5.6	10.0

PIED < 1.5" _____

JUMO < 1.5" ∅

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2062 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	9.8 2.8 2.5 6.2 (21.3)	15.0
Jumo	6.1 4.0 3.5 5.0 5.2 4.9	10.0
X	1.0 (29.7)	
Jumo	3.5 2.8 (6.3)	10.0
Jumo	4.5 4.9 2.3 4.5 3.6 (29.8) 10.8	15.5
Jumo	1.5	6.0
Jumo	2.2 2.0 (4.2)	5.0
Jumo	8.7	13.0
Jumo	9.0	13.0
Jumo	1.5 1.5 3.1 2.0 6.8 2.8	11.0
X	3.5 (21.2)	
PIED	3.3	11.0
Jumo	2.6	11.0
Jumo	3.3	9.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅	IN B	
	CONTINUATION OF QUAD A	
Jumo	20.8	16.0
Jumo	3.1	17.5
Jumo	2.8	7.0
Jumo	2.5 1.9 (4.4)	7.0

PIED < 1.5" _____

JUMO < 1.5" _____

jt261

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
5.0	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
199.6	200

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
14.9	184.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	5.6	10
JUNIPER	4	8.5	12

jt262

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
58.5	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2341.5	2341

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
4.9	2336.6

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	3.3	11
JUNIPER	15	11.2	10

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT 2063 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	2.2 .8 ___ (3) ___	8.0
Jumo	7.7 7.0 4.4 7.7 8.1 7.6	
X	4.5 5.5 4.0 (56.5)	13.5
Jumo	2.0	7.0
PIED	4.1	11.5
PIED	3.8	13.5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT 2064 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	4.5 4.8 4.6 5.9 5.0 4.5	12.0
X	7.5 6.3 4.0 1.0 1.5 (49.6)	

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt263

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
49.0	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1961.6	1962

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
19.8	1941.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	3	3.6	11
JUNIPER	2	29.3	10

jt264

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
34.6	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%1382.1	1382

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	1382.1

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	49.6	12

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT 2JT065 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	12.4 1.0 .6 (14)	10.5

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT 2JT066 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	9.1 7.1 6.9 9.6 6.5 3.0	17.0
X	9.0 19.1 (70.3)	
Jumo	1.5	3.5
Jumo	1.7	3.0
Jumo	1.7	3.0

PIED < 1.5" _____

JUMO < 1.5" X

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø	IN (B)	

LARGE TRUNKED JUMO IS SPLIT IN MIDDLE BY PLOTS 66 AND 67 - QUAD A - DECIDED TO PUT JUMO IN QUAD A of PLOT 66

PIED < 1.5" _____

JUMO < 1.5" _____

4

1

jt265

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
2.2	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
89.4	89

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	89.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	14.0	11

jt266

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
90.2	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%3607.9	3608

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	3607.9

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	4	18.8	7

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2067 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2068 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	1.5	3.0

PIED < 1.5" _____

JUMO < 1.5" _____

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2069 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	7.8	7.0

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2070 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Ø		

PIED < 1.5" _____

JUMO < 1.5" _____

jt268

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.0	-97.5	-1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-0.4	-0

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-0.4

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	1.5	3

jt269

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
0.4	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
17.8	18

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	17.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	7.8	7

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2071 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	1.5	4.5
JUMO	2.2 5.6 1.8 7.2 6.0 5.8	13.0
~~X~~	4.9 5.2 4.5 2.8 6.7 1.5	
~~X~~	8.4 2.0 1.7 3.0 1.8 3.0	
	(74.1)	

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2072 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
JUMO	2.0	3.5

PIED < 1.5" _____

JUMO < 1.5" _____

jt271

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
77.4	97.5	1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%3094.4	3094

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
-0.7	3095.1

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	1	1.5	5
JUNIPER	1	74.1	13

jt272

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.0	-97.5	-1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-0.0	-0

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-0.0

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	1	2.0	4

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2073 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	1.0	3.0
Jumo	1.0	1.0
Jumo	.5 .5 .5 (1.5)	2.5

3

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
∅		

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT QJT2074 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
PIED	2.3	11.5
Jumo	5.2 22.7 (27.9)	16.0
PIED	1.5	4.0
Jumo	7.1 4.5 7.5 3.8 3.9 9.2	14.5
~~X~~	4.0 3.8 4.0 (47.8)	
PIED	6.1	16.0

5

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	10.9 9.1 5.4 5.6 (31)	13.0
PIED	3.1	7.0

2

PIED < 1.5" _____

JUMO < 1.5" _____

jt273

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
-0.1	-97.5	-1.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
-3.5	-3

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
0.0	-3.5

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	0	0.0	0
JUNIPER	3	1.2	2

jt274

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
71.7	53.0	0.8

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2866.6	2867

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
33.1	2833.5

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	4	3.3	10
JUNIPER	3	35.6	15

Mesita De Los Ladrones 1993 -- Tree Inventory - NMNHP

PLOT QJT2075 Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	20.2 3.1 (23.3)	14.5
Jumo	11.4	12.5
Jumo	4.9 1.0 (5.9)	12.0
PIED	3.9	6.0
Jumo	3.0 2.5 (5.5)	5.0
Jumo	3.1 5.6 (8.7)	9.0
Jumo	3.0 2.2 .5 1.0 1.9 (10.8) 2.2	7.0
Jumo	4.0 5.5 5.5 2.0 .9 (17.9)	9.0
Jumo	11.4	11.0
PIED	1.0	5.0
Jumo	3.8	9.0
Jumo	3.8	8.0
Jumo	2.7 1.0 2.8 (6.5)	8.0
Jumo	10.1	10.0

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)
Jumo	22.8	12.0
PIED	3.1	9.5
Jumo	3.1 5.2 4.1 5.2 1.6 4.8 (24)	10.5
Jumo	8.2 3.9 3.4 4.1 3.2 5.4	13.0
~~X~~	2.6 (30.8)	
Jumo	4.9 4.5 6.2 (15.6)	11.0
Jumo	4.1 3.6 (7.7)	10.0
Jumo	10.7	9.5
		14.5

? not used

PIED < 1.5" _____

JUMO < 1.5" _____

PLOT _____ Record _____ Read _____

QUAD A

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)

PIED < 1.5" _____

JUMO < 1.5" _____

QUAD B

SPECIES CODE	DRC/EDRC (Inches)	HEIGHT (Ft.)

PIED < 1.5" _____

JUMO < 1.5" _____

jt275

04-13-1994

AVE VOL PER PLOT	SAMPLING ERROR (AS A % OF MEAN)	COEF VAR (SD/MEAN)
59.3	28.4	0.4

AVERAGE VOLUME PER ACRE	ESTIMATED TOTAL VOLUME
%2370.6	2371

ESTIMATED TOTAL PINYON VOLUME	ESTIMATED TOTAL JUNIPER VOLUME
5.9	2364.8

SAMPLE TREE AVERAGES

	NUMBER OF TREES	DIAMETER	HEIGHT
PINYON	3	2.7	7
JUNIPER	18	12.8	10

VEGETATION SURVEY HANDBOOK

NEW MEXICO NATURAL HERITAGE PROGRAM

DEPARTMENT OF BIOLOGY

UNIVERSITY OF NEW MEXICO

DRAFT

JUNE 1995

FORM II SITE CHARACTERISTICS INSTRUCTIONS NMNHP -- 1995

PLOT ID (seven-character alphanumeric code)

Record in order the year (2-digits), the first and second initial of the principal examiner (2-characters), and the plot ascension number (3-digits).

> Example: The 33rd plot sampled in 1991 by Hank Gleason would be entered as 91HG033.

PROJECT. Enter project code -- for example: WSMR95R. If no code is available, enter temporary project designation.

MO DATE YEAR. Two digit month, day and year numbers.

FIELD NO. The field number from your field notebook or log; Field number form as follows: year (2-digits), the first three letters of your last name followed by a two digit sequential record number. Example : 94MUL23.

SURVEYORS. Last names of sampling personnel, lead by the person responsible for botanical determinations.

CT. Community Type - the plant association to which vegetation data refers to. Use six letter species acronyms. For example: PINPON/QUEGAM. Who ever makes the CT determination must date and initial the designation.

CT Comment . Comments about community type designations. Were there any specific *ad hoc* decision rules? Was a key used? If CT is questionable, make notes concerning the problem.

SURVEY SITE

Name assigned to the plot site at the time it is sampled. In many cases, this name will be equivalent to the "Sitename" given on the Site Survey Form, except will include modifiers to differentiate this specific plot from the general site.

> Example: A plot in the eastern portion of the block Mountain standard Site might have the Survey Site name "Block Mountain East".

A few standards in naming follow:

1. do not use element names in the site name
2. use local place names when available

3. use names of features on topographic maps when local names do not exist

COUNTY CODE

NMNHP code for the county -- assigned when entered into BCD

QUADNAME

USGS map name

QUADCODE

NMNHP USGS quadrangle code

MARGNUM

Margin number on the field map associated with the mapped plot position. Each plot position within the map is marked with a dot and associated margin number. The margin number for the plot is also placed along the margin of the topographic map. Associated with each margin number is a margin note indicating the Plotid, CT acronym and, in parentheses, the 10,10 (described below).

10,10 The 10,10 is an imaginary grid over the map, 10 ten cells across and ten cells down to facilitate locating the dot at a later time on the map. For example, (5,6) indicates 5 cells across from left to right and 6 cells down from top to bottom. This would be almost half way across the map, and more than half way down.

T R S 4/s

Township, Range Section and quarter section indicating location of occurrence

UTM

Enter Northing and Easting UTM coordinates

POS METH

Enter how position was determined:
MAP -- from topographic map.
GPSRAW -- from raw, uncorrected global positioning system (GPS).
GPSCOR -- from corrected GPS, either real time or post-processed.
OTHER -- specify under DIRECTIONS.

ACCURACY

Accuracy of plot location:

Radius in meters e.g. +/- 30 m

S Second - mappable within a three-second radius

M minute - mappable within a one-minute radius (approximately 2km or 1.5 miles)

G general - mappable to quad or place name precision only (precision within about 8 km or 5 miles)

GPS WPT's/FILE -- enter the Global Positioning System (GPS) file or waypoint numbers associated with the plot position.

TIME -- enter the GPS time and indicate if this local time or universal.

AERIAL PHOTO NO. If the plot has been located on aerial photos indicate the flight line and photo number and year. Locate plots on the back side of a aerial photo, or with a transparent stick-on dot, and indicate plot number on the back side of photo.

DIRECTIONS -- Directions to plot - enter precise directions to the plot using a readily locatable landmark (e.g., a city, a major highway, etc.) as the starting point on a state or local roadmap. Use clear complete sentences that will be understandable to someone who is unfamiliar with the area, needs to get to the plot, and has only your directions to follow. Cite distances as closely as possible to the 1/10 of a mile, use compass directions (N, S, E, and W), and be sure to specify the best access to the plot, such as where to park or which trail to use.

ELEV -- enter the elevation in feet unless otherwise noted

ASPECT (up to three-digits number)

Aspect - enter the direction of the slope on which the plot occurs in degrees azimuth, corrected for declination.

SLOPE % (up to three-digit number)

Enter the steepness of the slope on which the plot occurs in percent

HORIZON ANGLE (%) (up to three-digit numbers). -- Enter the angle from horizontal to the horizon at each cardinal direction from the plot.

LANDFORM (six number code) -- Enter the landform and code as classified in the NMNHP classification

SLOPE SHAPE (one-character code) -- enter one of the following codes to indicate the vertical shape of the slope on which the plot lies:

S - straight or even
R - rounded or convex
D - depression or concave
P - patterned (micro-relief of hummocks and swales)
U - undulating pattern or low ridges or knolls and draws
X - other

IFSLOPE/VALLEY If the landform is a slope indicate distance from top of slope to upper edge of plot; indicate units of measurement and circle SLOPE.

If the landform is a valley, indicate the distance of the plot edge from either the mid valley point or the active channel edge, and circle VALLEY.

EROSION TYPE (two-character code)

Enter one of the following codes to indicate the dominant type of erosion occurring on the plot:

NO - none
SE - sheet erosion
RE - rill erosion
GE - gully erosion
DE - deposition
WE - wind erosion
SC - soil creep
SL - slump (earth flow)
TD - terrace development
SL - slide

LANDFORM COMMENT -- additional comments, special features and description of the geomorphology of the site.

SURFACE ROCK TYPE (four-character code)

Enter the code for the dominant surface rock type:

Sedimentary
SETU - type unknown

LIME - limestone
DOLO - dolomite
SAND - sandstone
CASA - calcareous sandstone
SILT - siltstone
CASI - calcareous siltstone
SHAL - shale
RESH - red shale
CASH - calcareous shale
CONG - conglomerate
CACO - calcareous conglomerate

Metamorphic
METU - type unknown
ARGI - argilliate
CAAR - calcareous argillite
SILI - siltite
QUAR - quartzite
SLAT - slate
PHYL - phyllite
SCHI - schist
BISC - biotite schist
MISC - mica schist
GNBG - gneiss and biotite gneiss

Igneous
IGTU - type unknown
BASA - basalt (including obsidian)
ANDE - andesite
DIGA - diorite to gabbro
LATI - latite
QUMO - quartz monzonite
TRSY - trachyte and syenite
RHYO - rhyolite
GRBG - granite and biotite granite
WETU - welded tuf (tufa)
SCOR - scoria (porcelanite), clinker

Miscellaneous
GRAL - gravelly alluvium
SAAL - sandy alluvium
SIAL - silty alluvium
CLAL - clayey alluvium
MIAL - mixed alluvium

GLTI - glacial till, mixed origin
ASHT - ash (of any origin)
MISE - mixed sedimentary
MIME - mixed metamorphic
MIIG - mixed igneous
LOES - loess
MIRT - mix of tow or more rock types
DUNE - sand dunes

SOIL SURFACE TEXTURE indicate the soil texture by feel using standard SCS techniques and the soil triangle.

SUR SOIL COLOR indicate the Munsel Soil Color and code -- indicate if it is dry, moist ped or crushed and rubbed.

SOIL TAXON/MAP UNIT

Enter the taxonomic soil name to the family if possible, or the soil map unit the site falls within on a soil survey map. If not known, enter "-".

NSH # -- enter the National Soil Code for the soil taxon indicated above

EROSION POTENTIAL (two-character code)

Enter one of the following codes to indicate the potential for erosion on the plot:

SA - soil surface is stable with no evidence of accelerated erosion

UC - soil surface is unstable because of compaction

UD - soil surface is unstable because of displacement and/or churning of the soil

UP - soil surface is unstable because of lack of protective vegetation cover

UA - unable to assess

GROUND SURFACE

Enter % cover for each of the following types of ground cover:

S - bare soil (particles < 1/16 in. dia.)

G - gravel (particles 1/16 to 3 in. dia.)
R - rock (particles > 3 in. dia.)
L/BV - litter duff, and basal vegetation. Litter includes freshly-fallen leaves, needles, twigs, bark, fruits; duff is fermentation layer and humus layer. BV is the area occupied by root crowns and stems, not canopy cover. Values rarely exceed 30%, and are usually very low.
W - wood (downed fragments > 1/4 in. dia.)
M - moss component of cryptogams
LC - lichens and algae component of cryptogams.

DL (one-character code)

Dominant Life Form - enter one of the following codes to describe the dominant live life form currently present on the plot (Note: dominate life form = life form with the greatest foliar volume):

A - aquatic species dominate
B - broadleaf trees dominate
C - coniferous trees dominate
F - forbs dominate
G - graminoids dominate
H - herbs (graminoid/form mixture) dominate
M - moss or lichens dominate
N - non-vegetated soil
P - agricultural cropland
R - rock or scree
S - shrubs dominate

VEGETATION SUMMARY

Description (a "word picture") of the site and community sampled. Indicate stand dominants using common names, the structure and physiognomy of the community.

SITE FEATURES. Landscape position and site features narrative. Indicate any special features.

ADJACENT COMMUNITIES. Indicate the spatial relationship of the occurrence to surrounding communities in the landscape. Indicate the width of ecotones.

ANIMALS. Animal use evidence: sightings, bird calls, tracks, scat and animal disturbances such as beaver dens, gopher holes etc.

DISTURBANCE disturbances both natural and otherwise (fire, pests, roads, logging, grazing, obstructions etc.). Estimate frequency, and indicated degree of disturbance (light, moderate,

on this overall grade, i.e., EORANKCOM.

THREATS

Management Comments - comment on any management (new or additional) needed to ensure continued existence of the community occurrence, and chances (and means) of bringing it about. Any other pertinent comments go here as well, e.g., "... clearing of competing vegetation has been tried in the past but without success".

35 MM PHOTO -photo taken of plot? Roll # and Photo #, or N for no photo.

Indicate how many photos were taken of the plot and any details regarding the photo(s), e.g., "One photo taken looking N across entire plot".

SURVEY Method of locating plot. Enter one of the following:

A - plot subjectively located to represent vegetation in occurrence (typically used in inventory)

B - plot subjectively located to represent stand, and will be used to monitor vegetation change through time with or without treatment

C - plot is part of series of replicated plots systematically or randomly located within occurrence to describe the occurrence

E - plot is part of series of replicated plots systematically or randomly located in treatment or control area to measure vegetation change with treatment over time

F - plot is part of predetermined stratified sampling design (e.g., gradsect)

FORMS

Plot documentation :

S - Survey Site Designation and Description Form [Form1]
C - Community Element Occurrence Survey [this form, Form2]
R - Releve Vegetation Data Form [Form3]

M - Microplot Vegetation Data Form [Form 3b]
T - Tree Measurement Form
E - Soil Characterization Form
L - Litter/debris
O - Other specify

ACCESS Date. entry date to MicroSoft ACCESS database and by whom.

EOR Date. entry date of data to BCD and by whom.

EOCODE (14-character alphanumeric code)

Element occurrence Code - enter this code in the field only if it's known. Record in order the NMNHP element code (10-characters), a period, and occurrence ascension number (3-digits).

> Example: The 23rd occurrence of the Douglas-fir/little bluestem plant association would be entered as C2ABBABF0.

FORM III -- RELEVE VEGETATION DATA INSTRUCTIONS -- NMNHP 1995

Releves are reconnaissance vegetation plots which are designed to quickly acquire floristic data on an occurrence of a vegetation community for classification and inventory purposes.

Header Information:

DATE. Date of vegetation inventory. Two digit month, day and year numbers.

SURVEYORS. Last names of sampling personnel, lead by the person responsible for botanical determinations.

PLOT ID (seven-character alphanumeric code) that corresponds to the Form2 -- Site characteristics form plot id,

CT. Community Type - the plant association to which vegetation data refers to. Use six letter species acronyms (you can write it out if you wish). For example: PINPON/QUEGAM. Who ever makes the CT determination must date and initial the designation.

Species List Conventions:

All species within the plot and in the stand are listed by Strata/lifeform categories. You can use accepted acronyms from the current NMNHP species list. If the species is not on the list, spell it out. Tree species can occur in several height strata. These should be listed separately under different acronyms representing different operating taxonomic units (OTU's). A number is attached to the end of the six-letter acronym to indicate which strata the OTU is from. For example: PINPON1 represents *Pinus ponderosa* seedlings, PINPON2 are saplings of the shrub layer, PINPON3 are mature trees of the tree layer

TREES: generally over 6 meters tall (but that is not an absolute).

SHRUBS: generally multi-stemmed woody species less than 6 meters, but also included are spiny rosettes (cacti, yuccas and agave etc.) greater than 0.1 meter). Suffrutescent species that are only woody at the base or at the root-crown are usually considered forbs.

GRAMINOIDS: grass-like plants including sedges and rushes, but not Iridaceae or Liliaceae.

FORBS: Non-woody perennial and annual species that are not grass-like (includes Iridaceae, Liliaceae, Commelineceae)

Species number. Each species that is listed has a line number associated with it by strata/lifeform. (T1, S3, G10, F20, etc.). If a voucher specimen is taken for species, the species number MUST be associated with the tag or sheet of the voucher. CIRCLE each

species number for species that are vouchered. Blank species number lines are available on the forb side of the form for additions grasses, shrubs, and trees.

Total Cov. For each strata the total percent aerial cover is estimated.

CV. The percent cover (CV) is estimated for each species within the plot using cover classes listed below and at the bottom of the form. Species outside the plot, but within the stand are given a presence value of "+0".

HT Modal Height of each species is estimated using the following conventions (also at the bottom of the form):

Phenology. After each species acronym or name use a superscript "*" for flowering or "@" for fruiting (leave blank for vegetative).

SITE/VEG CHARACTERISTICS -- SHORT FORM -- 1995

PLOT ID_____ PROJECT _____ MO___ DAY___ YEAR___
CT_____SURVEYORS_____
SURVEY SITE_____
QUADNAME_____ QUADCODE _ _ _ _ _ _ _ T____ R____ S____ MARGNUM ___ 10,10 ___
UTM: Northing_____ Easting_____ Datum_____ POSLOC_____ ACCURACY____
GPS FILE/WPTS_____ TIME_____(Loc/UTC) AERIAL PHOTO NO._____
DIRECTIONS_____
_____
ELEV _____ ASPECT _____ SLOPE _____% ANGLE HORZ (%):N_____ E_____ S_____ W_____
LANDFORM: _____/ __ __ __ __ __ __
SLOPE SHAPE_____/____ IF SLOPE/VALLEY _____(m) EROSION TYPE_____/_____
SURFACE ROCK TYPE _____/_____
SUR SOIL TEXTURE_____ Color_____/_____
GROUND SURFACE S_____ G_____ R_____ L/BV_____ W_____ M_____ LI_____=100% DL_____
OCC SIZE_____Ha__/Ac__ *OCC CONDITION____ OCC VIABILITY____ OCC DEFENSIBILTY____ EO RANK___*
SUMMARY DESCRIPTION:_____
_____
_____
_____
_____

Circle vouchered spp. number and indicate *=Flowering or #@=fruiting

TREES Total Cov____%	**ACRONYM**	**CV**	**HT**
T1			
T2			
T3			
T4			
T5			

SHRUBS Total Cov____ %	**ACRONYM**	**CV**	**HT**
S1			
S2			
S3			
S4			
S5			
S6			
S7			

GRAMINOIDS Tot Cov____ %	**ACRONYM**	**CV**	**HT**
G1			
G2			
G3			
G4			
G5			
G6			
G7			
G8			

FORBS Total Cover____%	**ACRONYM**	**CV**	**HT**
F1			
F2			
F3			
F4			
F5			
F6			
F7			
F8			
F9			
F10			
F11			
F12			
F13			
F14			
F15			
F16			
F17			
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Cover Scale: +=solitary or very few [<20x20 cm] 3=1-4%[≥4m²] 6=25-33% 9=>75%
[400m² basis] 1=seldom cover <0.1% [<.5 m²] 4=5-10% 7=33-50% +0= outside
2=very scattered <1% [<4 m²] 5=10-25% 8=50-75% plot

CV=Canopy Cover
HT=Average Spp Height [Trees nearest m, Shrubs neareast 0.5 m, Grasses & Forbs nearest .1m]

GPS LOG June 1994 NMNHP

File Name Session ID	Way Pts	Date	Time (24hr)	2D/3D ?	Raw Field Position Easting	Northing	Elev. Field	Recorder Notes

3-22-93

WOODY DEBRIS IN UNDISTURBED PINYON-JUNIPER WOODLANDS OF NEW MEXICO

Kristina A. Ernest, Earl F. Aldon, and Esteban Muldavin[1]

Abstract--In pinyon-juniper woodlands, standing dead and down woody materials play significant ecological roles both physically and with respect to nutrient relationships. These semi-arid ecosystems have slow decomposition rates and woody debris may remain intact for extended periods of time. The presence of debris over long periods inhibits soil erosion directly by covering the surface and preventing sheet erosion and by creating debris dams that slow runoff. The purpose of this study was to describe the structure of two undisturbed, uneven-aged mature pinyon-juniper stands in New Mexico and to quantify the volume of standing dead and down pinyon and juniper wood in areas isolated from human disturbance. These data provide a baseline with which to determine more precisely the contribution of dead woody debris to the pinyon-juniper ecosystem and the impact of woody debris removal.

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INTRODUCTION

In pinyon-juniper woodlands, standing dead and down woody materials may play significant ecological roles both physically and with respect to nutrient relationships. These semi-arid ecosystems have slow decomposition rates and woody debris may remain intact for extended periods of time. The presence of debris over long periods inhibits soil erosion directly by covering the surface and preventing sheet erosion and by creating debris dams that slow runoff. These micro-catchments may also provide microsites for germination and establishment of grasses and forbs. Standing dead snags provide shelter for cavity nesting birds. Standing dead and associated below-ground dead rooting systems also decay slowly. Thus, standing dead wood can act as a soil binder, slowing soil loss from disturbance. Despite slow decomposition rates, downed woody materials are important storage and recycling points for nutrients in these systems. This material is also important to ensure the colonization of ectomycorrhizal fungi by tree roots.

Pinyon-juniper woodlands are and historically have been subject to extensive resource use, particularly for fuelwoods. Much of the standing dead debris and intact downed debris is removed by fuelwood harvesters. Thus, in effect, an important component of the pinyon-juniper ecosystem may be removed, leading to long-term degradation of the resource.

Pinyon-juniper woodlands cover an extensive portion of the southwestern United States. Estimates range from 43 to 100

million acres (17-40 million ha) (Tueller et al. 1979). Dick-Peddie (1993) estimates 10.4 million (4.1 million ha) of coniferous and mixed woodlands in New Mexico alone with an additional 7.7 million acres (3.1 million ha) of the Juniper savanna ecotone. Despite their abundance, undisturbed uneven-aged mature pinyon-juniper woodlands are extremely rare due to heavy use by both people and domestic animals. The long history of intensive human use of pinyon-juniper woodlands has made undisturbed woodlands "one of the most significant and difficult ecosystems to represent" (USDA Forest Service 1983).

One of the first steps in understanding the importance of woody debris to the pinyon-juniper system is to quantify woody debris in undisturbed, uneven-aged mature pinyon-juniper woodlands. The purpose of this study was to describe the structure of these pinyon-juniper stands in New Mexico and to quantify the volume of standing dead and down pinyon and juniper wood in areas isolated from human disturbance. These data should provide a baseline with which to determine more precisely the contribution of dead woody debris to the pinyon-juniper ecosystem and the impact of woody debris removal.

STUDY AREAS

Two pinyon-juniper areas were chosen for study. Both are designated as candidate Research Natural Areas (RNAs). Because

of their relative isolation from human disturbance, these areas represent good examples of uneven-aged mature pinyon-juniper woodland.

Comanche Canyon

The proposed Comanche Canyon RNA, in the Carson National Forest of northern New Mexico, was identified as an outstanding example of pinyon-juniper woodland and was recommended for designation as an RNA (USDA Forest Service 1989). The extreme remoteness of Comanche Canyon has protected it from both fuelwood collecting and post cutting. The site is inaccessible to domestic livestock, and the last large fire in this area occurred more than 100 years ago (USDA Forest Service 1986).

The Comanche Canyon area is located approximately 10 miles (16 km) directly west of El Rito, Rio Arriba County, New Mexico. The center is located at latitude 36° 21′ N., longitude 106° 21′ W. Elevation ranges from 7200 feet (2182 m) to 7737 feet (2344 m). Annual precipitation at Abiquiu Dam, approximately 8 miles (12.8 km) southwest of the site, is highly variable, ranging from 12.7 to 21.9 inches (32.3 - 55.6 cm), and is divided between summer rains and winter snows. Frost-free days average about 160-180 per year, and annual insolation is 80% (Tuan et al. 1973). Average temperature ranges from 28-72° F (-2 to 22.2° C), with a low of -25° F (-31.6° C) and a high of 95° F (35° C).

The area covers approximately 450 acres (180 hectares) of pinyon-juniper forest. A distinctive mesa slopes down to a

gentle grade on the north side of the area, where thick pinyon-juniper forest is periodically interspersed with large flats of big sage (*Artemisia tridentata* Nutt.). The south side of the ridge drops off fairly steeply to a series of sandstone cliffs which lead down to an intermittent stream in the canyon bottom.

Pinyon pine (*Pinus edulis* Engelm.) is the dominant tree throughout the area of Comanche Canyon, with the exception of a few open stands of sagebrush and some small grassland meadows. Utah juniper (*Juniperus osteosperma* [Torr.] Little) is often co-dominant; one-seed juniper (*Juniperus monosperma* [Engelm.] Sarg.) and Rocky Mountain juniper (*Juniperus scopulorum* [Sarg.]) are present as well, but are less common. The pinyon-juniper vegetation type covers approximately 360 acres (144 ha), Great Basin sagebrush cover 76 acres (31 ha), and grama-galleta steppe covers 14 acres (5 ha). Most of the pinyon-juniper woodland at Comanche Canyon is closely associated with the *Pinus edulis* Engelm./*Bouteloua gracilis* (H. B. K.) Steud. habitat type of Dick-Peddie (1993).

Hymenoxys richardsonii (Hook.) Cockll. (pinque), *Bahia dissecta* (Greg) Britt., *Erysimum capitatum* (Dougl.) Greene are some of the principal forb species; *Boutelous gracilis* (H. B. K.) Steud. (blue grama) is the most common of the many grasses. *Yucca baccata* Torr. and various species of cacti (*Opuntia, Echinocereus, Coryphanthus,* and *Mammilaria* spp.) are also found here. Mountain mahogany (*Cerococarpus montanus* Raf.) becomes co-dominant with pinyon in the southwestern portion of the area.

Big sage is a common shrub occurring in both pinyon-sage woodland and in nearly pure stands of sagebrush, especially in the southwestern portion of the area.

Soils at the site, formed from sandstone and shale, are classified as Eutroboralfs. They are mesic, sandy-mixed, or sandy loam residuum (Hunt 1978) and are highly variable. The soil on the mesa top is very fine and is covered with a layer of small stones. The soils on the slopes and knolls are also fine, but these areas are very cobbly. Soils in the pinyon-juniper woodland and in the sagebrush areas are very fine and have a moderate organic material content (site description in more detail in Merola 1992).

Largo Mesa

The proposed Largo Mesa RNA is located in the Apache National Forest of west-central New Mexico, approximately 13 mi (21 km) SW of Quemado, Catron County, longitude 108° 35′ W, latitude 34° 10′ N. The elevation ranges from 7760 ft (2360 m) to 8025 ft (2450 m) on the mesa top. The average annual rainfall is 16 in (41 cm); most falls from May to October. Average annual snowfall in this region is 31 in (79 cm). The mean annual temperature is 48° F (8.9° C); approximately 150 days per year are frost-free.

The area encompasses approximately 300 acres (121 ha) of pinyon-juniper woodland. The vegetation is pinyon-juniper woodland surrounded by blue grama grassland. One-seed is the

only juniper species on the site. A grass layer is nearly continuous in the woodland. Shrub and forb cover is low. Mountain mahogany, rabbitbrush (*Chrysothamnus nauseosus* [Pall.] Britt.), and snakeweed (*Gutierrezia sarothrae* [Pursh.] Britt. and Rusby) are the most common shrubs. This pinyon-juniper woodland is more open than on the mesa top at Comanche Creek.

Largo Mesa derives from a Tertiary volcanic ash flow. The mesa top is flat, with steep scarps descending from all sides. Soils are Ustochrepts of generally fine, sandy loam or loam textures.

Largo Mesa is somewhat less isolated than Comanche Canyon from human disturbance. There is no developed water source and cattle rarely graze on the site, but past woodcutting may have occurred. More complete descriptions of the site are presented in USDA Forest Service (1992).

METHODS

Three sites were chosen for study at Comanche Canyon: mesa top, mesa slope, and sage-pinyon woodland. The flat mesa top was characterized by a relatively pure pinyon-juniper woodland. The steep northern slope was rocky; Gambel's oak (*Quercus gambelii* [Nutt.]) occurred in scattered patches. The sagebrush site runs along the toe-slope of the mesa, where pinyon-juniper woodland is interrupted by patches of big sagebrush. Only the flat mesa top was studied at Largo Mesa.

Two types of surveying methods were used in this study. First, woody debris (defined here as dead tree trunks and branches lying on the ground) was quantified along line transects. Standing trees, live and dead, and canopy characteristics were quantified within circular plots, the second surveying method. All measurements include only pinyon and juniper. One-seed juniper and Utah juniper, similar in habit and ecology, were lumped together for all measurements.

Methods for quantifying woody debris follow "Guidelines for Conducting Logged Area Analysis" (USDA Forest Service 1979). Fifteen 100-ft (328-m) transects were randomly oriented within each of the three sites at Comanche Canyon and on the top of Largo Mesa. Along each transect line, the diameter of each piece of pinyon and juniper debris that crossed the line was recorded. Diameter, perpendicular to the length of the debris, was measured at the point of intersection of the transect line with the central axis of the debris. Only debris $\geq$ 2.0 in (5 cm) diameter and $\geq$ 2.0 ft (0.6 m) long was included. On every fourth transect line, debris length and diameters at the small and large ends were also measured. Pinyon and juniper debris were difficult to differentiate and are combined for most analyses.

Debris volumes were calculated on a personal computer using the LAA program. This program calculates cubic foot

volume/acre, V, as $[\pi^2 (\Sigma D^2)/8L] * [43560/144]$, where D = debris diameter (inches), L = debris length (feet). Tons/acre (W) are calculated as $W = 11.6437\ S\ (\Sigma D^2)/L$, where S = specific gravity (60% moisture content is assumed). Specific gravity of pinyon is 0.38, and of juniper is 0.36.

Standing dead and live mature trees, canopy characteristics, and regeneration (young trees) were quantified in 0.05-acre (0.02-ha) circular plots with a radius of 26.3 ft. (8.03 m). These overstory measurements approximately follow the methods of Gottfried (1989). One plot was established at the midpoint of every third transect line, for a total of five plots in each habitat. On each plot, the following were recorded: tree species, whether alive or dead, diameter at root collar (DRC) of all stems, number of stems, height, maximum canopy diameter, and canopy diameter perpendicular to the maximum diameter. Mature trees were defined as those with DRC $\geq$ 2.0 in (5 cm). Numbers of seedlings (DRC < 2.0 in (5 cm), height < 4.5 ft (1.3 m)) and saplings (DRC < 2.0 in (5 cm) and height $\geq$ 4.5 ft (1.3 m)) of pinyon and juniper were recorded.

Density (number of stems/plot) and live and dead tree basal area were calculated for each species. Basal area is the sum of the cross-sectional areas (at the root collar) of all mature trees on the plot. For trees with stems divided at the root crown, the Equivalent Diameter at Root Collar (EDRC) was calculated as $\sqrt{\Sigma(DRC_i)^2}$ (Chojnacky 1985).

Cubic-foot volume/acre of standing trees was calculated based on equations for trees in the Colorado Plateau States (Colorado, eastern Utah, Wyoming). The following equations were used (from Chojnacky 1985):

Pinyon:

$$V = [-0.20296 + 0.150283(DRC^2 \times HT)^{1/3} + 0.054178 (STEM)]^3,$$

Rocky Mountain juniper:

$$V = [0.02434 + 0.119106(DRC^2 \times HT)^{1/3}]^3,$$

Utah juniper:

$$V = [-0.08728 + 0.135420(DRC^2 \times HT)^{1/3} - 0.019587 (STEM)]^3,$$

where:

V	=	gross volume (cubic feet) of tree, including bark,
DRC	=	diameter or equivalent diameter at root collar (in),
HT	=	tree height (ft),
STEM	=	1 if single-stemmed, 0 if multiple-stemmed.

The equation for Utah juniper was used for the mixture of Utah and one-seed junipers. Chojnacky (1985) based his equations on measurements of all branches 1.5 inches (3.8 cm) or greater in diameter. In this study, a minimum branch diameter was 2.0 in (5 cm) was used. Adjustments can be made for these differences, but the overall trends are unlikely to change significantly. Another potential source of error is introduced when Chojnacky's

equations, which were derived from data collected in a wide geographic area, are applied to a local area (Chojnacky 1985). However, specific equations for the Comanche Canyon and Largo Mesa sites are not available, and the general equations should provide a reasonable estimate of volumes.

Data were logarithmic transformed and analysis of variance (ANOVA) was carried out on measurements of debris volume, stand density and volume, seedlings, saplings (as the dependent variables) and site (Comanche Canyon, Largo Mesa), species (pinyon, juniper), and status (living or dead) as the independent variables. The habitats within Comanche Canyon and between the Comanche Canyon mesa top and the Largo Mesa mesa top were compared. All measurements were calculated in English units and converted as needed to metric. Conversion values are listed in the tables.

RESULTS

Stand Characteristics

The total volume of mature, standing trees of both genera, live and dead, ranged from 1137.2 cubic feet/acre (79.6 m^3 ha^{-1}) on the mesa slope to 1631.6 cubic feet/acre (114.2 m^3 ha^{-1}) on the mesa top at Comanche Canyon (table 1). The overall ANOVA for total volume was significant ($p = 0.01$). The differences among sites were not significant, but both tree status (alive or dead) ($p = 0.01$) and species ($p = 0.01$) were significant. Standing dead trees contributed significantly less to total volume than

did living trees. The volume of pinyon was greater than that of juniper at Comanche Canyon, but less at Largo Mesa (Table 1).

Densities (number of stems/acre) of standing pinyon and juniper varied from 384 (949 stems ha^{-1}) at Largo Mesa to 876 (2165 ha^{-1}) on the mesa slope at Comanche Canyon (Table 1). Densities were significantly different among sites ($p = 0.05$), between live and dead trees ($p = 0.01$), and between species ($p = 0.01$). Density of living trees was greater than that of dead trees, as expected for a healthy stand. The density of pinyon was greater than that of juniper at Comanche Canyon, but less at Largo Mesa (table 1). Of the contrasts in densities among sites, the mesa slope and sage habitats at Comanche Canyon were significantly different ($p = 0.05$). The mesa top and mesa slope at Comanche Canyon were not significantly different. The mesa top and sage habitats at Comanche Canyon were not significantly different, nor were the mesa tops at Comanche Canyon and Largo Mesa.

Tree size also varied among habitats. Pinyons and junipers were largest (in diameter) and tallest on the mesa tops at both sites and smallest and shortest on the mesa slope at Comanche Canyon (table 2). The mean DRC of pinyon (all standing, mature trees) varied from 5.4 in (13.5 cm) on the mesa slope to 8.2 in (20 cm) on the mesa top at Comanche Canyon. Mean height varied from 12 to 16 ft (3.8 to 4.9 m). The mean DRC of juniper ranged from 6.8 in (17 cm) on the mesa slope at Comanche Canyon to 14.4 in (36 cm) at Largo Mesa. Mean height was between 10 and 14 ft

(3.1 to 4.2 m) (table 2). Distribution of basal area by tree diameter classes is shown in figure 1 for pinyon and in figure 2 for juniper.

Regeneration was occurring on all sites (table 3). Both site ($p = 0.01$) and species ($p = 0.01$) were significant for number of seedlings. Only species ($p = 0.01$) was a significant factor for number of saplings. More pinyon than juniper seedlings and saplings were growing in all surveyed areas. The mesa slope had significantly more seedlings (mean 1228/acre [3042 ha^{-1}]) than did the mesa top (mean 500/acre [1239 ha^{-1}]) ($p = 0.01$) or sage (mean 672/acre [1664 ha^{-1}]) ($p = 0.05$) sites. Sapling densities ranged from 8 to 56/acre (20 to 139 ha^{-1}) (table 3).

Volume and Weights

The volumes and weights of woody debris were variable among transect lines within and among sites (table 4). The mean volume of woody debris (segments $\geq$ 2.0 ft [0.6 m] long and $\geq$ 2.0 in [5 cm] diam.) of pinyon and juniper combined ranged from 66.2 ($\pm$ 117.3 S. D.) cubic feet/acre (4.6 m^3 ha^{-1}) in the sage site to 469.5 ($\pm$ 346.9 S. D.) cubic feet/acre (32.8 m^3 ha^{-1}) on the mesa slope at Comanche Canyon. The amount of debris was intermediate at Largo Mesa, with a mean of 231.8 ($\pm$ 303.5 S. D.) cubic feet/acre (16.2 m^3 ha^{-1}). Site was a significant factor in the analysis of debris volume ($p = .01$). Volumes differed significantly between the mesa top and sage sites and between the

mesa slope and sage sites at Comanche Canyon, and between the mesa tops of Comanche Canyon and Largo Mesa ($p = .01$). All woody debris at Comanche Canyon was pinyon pine; juniper contributed a small amount of woody debris at Largo Mesa. Weight of debris followed the patterns of volume (table 4).

To better understand these values, stand volume ratios of live standing to dead standing, live standing to dead down, and dead down to dead standing have been calculated (table 5). Of these, the values of live standing to dead down is the more significant ratio. In this study the sage site had less dead down material in relation to live standing volume. Both mesa tops had similar ratios where for every 100 cubic feet per acre (7 m^3ha^{-1}) of stand volume you could expect 20 to 25 cubic feet per acre (1.4 - 1.8 m^3ha^{-1}) of down material.

DISCUSSION

Debris and overstory measurements showed considerable variability at all levels: among transect lines or plots, among sites at Comanche Canyon, and between the two locations. Pinyon-juniper woodland is not a uniform habitat (Aro 1971, cited in Ronco 1987). Variation in slope, aspect (Pieper and Lymbery 1987), elevation, soils, and other physical features contribute to variation in the biotic features.

Variability in the measurements was especially high on the mesa slope at Comanche Canyon. All transect lines and plots were located on the northwest slope, so aspect is not the source of

the variability. Understory vegetation did vary noticeably among survey units. The cover of Gambel's oak ranged from 0 to 30%. This could have increased the variability in debris quantity and density of mature trees along the slope. A similar patchiness was observed in the percent cover of big sagebrush in the sage site at Comanche Canyon.

Despite high variability, some general trends were seen. Several measures of debris quantity, overstory characteristics and regeneration differed significantly among sites at Comanche Canyon. The mesa top and mesa slope seemed to have much higher volumes of woody debris than did the sage site at Comanche Canyon. All of the woody debris at Comanche Canyon and most of it at Largo Mesa was pinyon, despite the conspicuous presence of junipers at both locations. Volume of standing trees in the overstory did not differ significantly among sites, but the density of trees was highest on the mesa slope at Comanche Canyon. Regeneration was also greatest on the mesa slope.

The density of live pinyons on the mesa slope at Comanche Canyon was 560/acre (1384 ha^{-1}). This compares very closely with the density of 555/acre (1371 ha^{-1})on a northwestern slope of 11-20% in central New Mexico (Pieper and Lymbery 1987).

Regeneration may be higher in sites without debris removal. Survival of one-seed juniper seedlings planted near Grants, New Mexico was higher when mulched with wood chips than when no mulch was applied (Fisher et al. 1987). A similar enhancement of seedling survival may occur in undisturbed pinyon-juniper

woodlands, where woody debris breaks down and acts as a mulch.

This study has shown the importance and extent of dead and down material in these particular types of pinyon-juniper stands. For mesa tops and slopes in these stands, it would be reasonable to manage so that for every 15 or 20 cubic feet per acre (1.1 - 1.4 m^3ha^{-1}) of live tree volume there would be 4 - 5 cubic feet per acre (.3 - .4 m^3ha^{-1}) of dead and down material. Leaving material in place or adding material through slash disposal after cutting are important management components that should be used in this ecosystem.

Other sites (e.g., south slope, grass-woodland transition, mountain mahogany-pinyon) exist in the pinyon-juniper woodland at Comanche Canyon. In addition, 11 other pinyon, one-seed juniper habitat types are present in New Mexico (Dick-Peddie 1993). Surveying these habitats for debris and overstory traits would help better define the structure of pinyon-juniper woodlands. This study provides an undisturbed benchmark for a broader study.

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Table 1.--Densities (# stems/A), basal area (sq ft/A), and volume (cu ft/A) of standing trees (live and dead) at Comanche Canyon and Largo Mesa.

Measure	Species	Status	Site			
			Comanche Canyon			Largo Mesa
			Mesa Top	Mesa Slope	Sage	Mesa Top
Density	Pinyon	Alive	344[1]	560	416	104
		Dead	24	92	24	24
	Juniper	Alive	208	208	52	252
		Dead	8	16	4	4
Basal Area	Pinyon	Alive	133.8[2]	101.0	116.1	43.5
		Dead	6.5	27.0	27.3	9.9
	Juniper	Alive	61.3	35.7	11.0	120.4
		Dead	0	5.0	0.1	9.5
Volume	Pinyon	Alive	1262.4[3]	739.2	967.2	420.8
		Dead	27.2	165.2	65.6	53.6
	Juniper	Alive	342.0	189.6	152.6	710.8
		Dead	0	43.2	0.1	53.2
Volume Total			1631.6	1137.2	1205.5	1238.4

[1]To convert to stems ha^{-1}, multiply by 2.471.

[2]To convert to m^2 ha^{-1}, multiply by 0.2296.

[3]To convert to m^3 ha^{-1}, multiply by 0.06997.

Table 2.--Average diameter (in) at root collar (DRC) and height (ft) of pinyon-juniper at two sites.

Species Species	Average Tree Size	Site			
		Comanche Canyon			Largo Mesa
		Mesa Top	Mesa Slope	Sage	Mesa Top
Pinyon	DRC	8.21[1]	5.4	6.7	8.1
	Ht.	16.02[2]	12.0	14.0	16.0
Juniper	DRC	12.8	6.8	11.5	14.4
	Ht.	14.0	10.0	13.0	13.0

[1]To convert to cm, multiply by 2.54.

[2]To convert to m, multiply by 0.305.

Table 3.--Regeneration (# of trees/A) of pinyon and juniper at two sites.

Size Class		Site			
		Comanche Canyon			Largo Mesa
		Mesa Top	Mesa Slope	Sage	Mesa Top
Seedlings [<4.5 ft ht <2.0 in DRC]	Pinyon	485[1]	1180	636	428
	Juniper	16	48	36	16
Saplings [≥4.5 ft ht <2.0 in DRC]	Pinyon	24	52	32	8
	Juniper	0	4	16	0

[1]To convert to trees ha^{-1}, multiply by 2.477.

Table 4.--Mean volume (ft^3/A) and weight (tons/A) of dead and down pinyon and juniper at Comanche Canyon and Largo Mesa.

Debris Quantity	Species	Site			
		Comanche Canyon			Largo Mesa
		Mesa Top	Mesa Slope	Sage	Mesa Top
Volume	Pinyon and Juniper	422.2[1]	469.5	66.2	231.8
Weight	Pinyon and Juniper	8.0[2]	8.7	1.2	4.3

[1]To convert to m^3 ha^{-1}, multiply by .06997.

[2]To convert to Mg ha^{-1}, multiply by 2.24.

Table 5.--Ratio of live standing (LS) to dead standing (DS) and dead down (DD) volume of pinyon and juniper at two sites.

Site		Ratio		
		LS/DS	LS/DD	DD/DS
Comanche Canyon	Mesa Top	59:1	4:1	16:1
	Mesa slope	4:1	2:1	2:1
	Sage	17:1	17:1	1:1
Largo Mesa	Mesa Top	11:1	5:1	2:1

Figure 1.--Distribution (%) of basal area by diameter classes and sites.

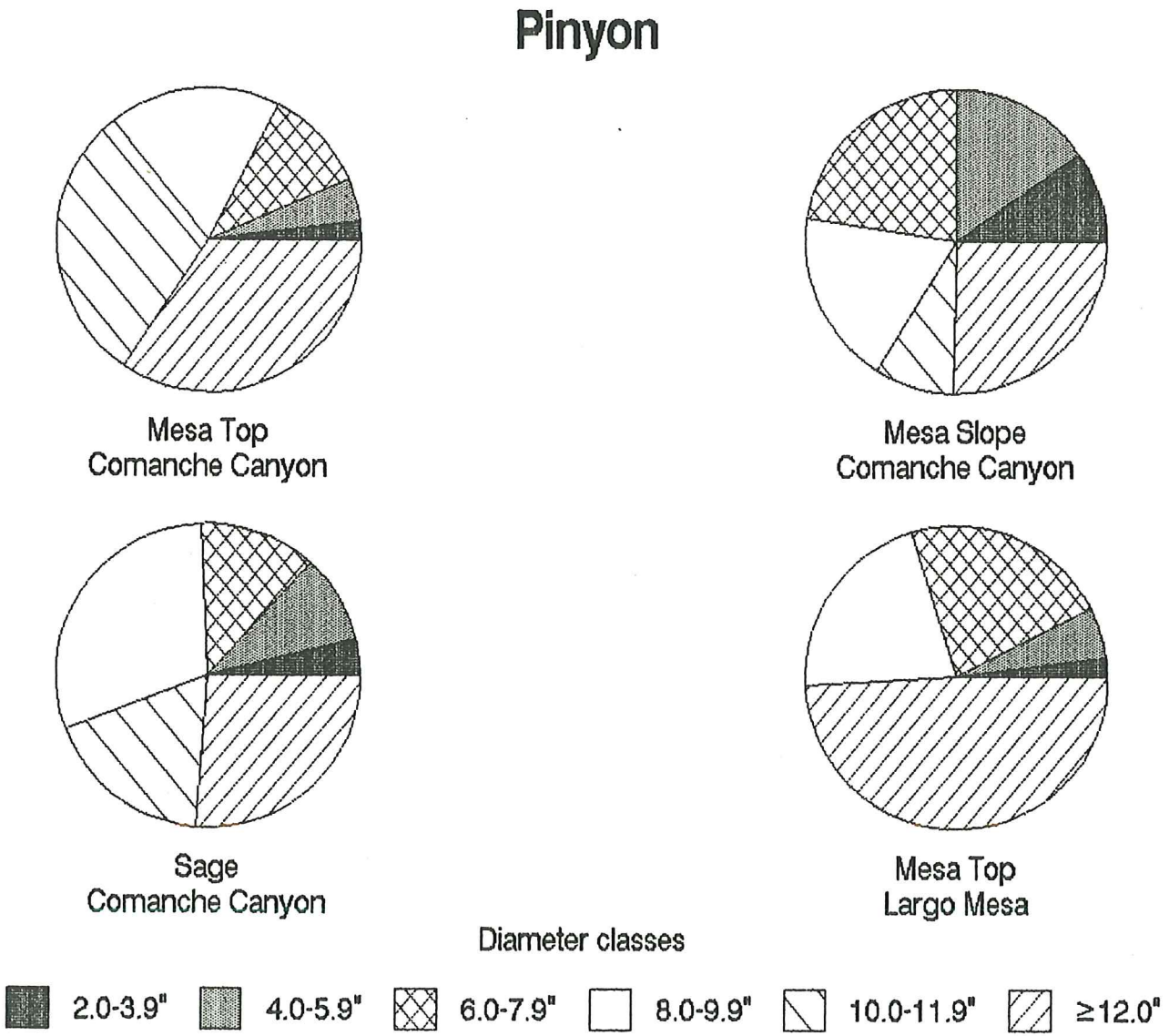

Figure 2.--Distribution (%) of basal area by diameter classes and sites.