VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

Barn Can
Grass
Sage

BARN CANYON GRASS-SAGE
REFERENCE SITE
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	30.0	68.2
	AGSP3	AGROPYRON SPICATUM	2	4.0	9.1
	BRIN	BROMUS INERMIS	1	2.0	4.5
	BRTET	BROMUS TECTORUM	4	8.0	18.2
		SUBTOTAL	22	44.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	33.3
	RIBES	RIBES SP.	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
		TOTAL	26	52.0	
BARE GROUND			3	6.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	8	16.0	40.0
	AGROP	AGROPYRON SP.	6	12.0	30.0
	BRTET	BROMUS TECTORUM	6	12.0	30.0
		SUBTOTAL	20	40.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	6	12.0	75.0

	RIBES	RIBES SP.		2	4.0	25.0
			SUBTOTAL	8	16.0	100.0
			TOTAL	29	58.0	
BARE GROUND				0	.0	
LITTER-ROCK				21	42.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	7	14.0	50.0
	BRTET	BROMUS TECTORUM	1	2.0	7.1
	PG	PERENNIAL GRASS	6	12.0	42.9
		SUBTOTAL	14	28.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
		TOTAL	22	44.0	
BARE GROUND			3	6.0	
LITTER-ROCK			25	50.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	18.2
	AGROP	AGROPYRON SP.	7	14.0	31.8
	AGSP3	AGROPYRON SPICATUM	5	10.0	22.7
	BRTET	BROMUS TECTORUM	5	10.0	22.7
	PG	PERENNIAL GRASS	1	2.0	4.5
		SUBTOTAL	22	44.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0

			SUBTOTAL	1	2.0	100.0
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		4	8.0	66.7
	ATCA	ATRIPLEX CANESCENS		2	4.0	33.3
			SUBTOTAL	6	12.0	100.0
			TOTAL	30	60.0	
BARE GROUND				0	.0	
LITTER-ROCK				20	40.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	9	18.0	42.9
	AGSP3	AGROPYRON SPICATUM	1	2.0	4.8
	BRIN	BROMUS INERMIS	1	2.0	4.8
	BRTET	BROMUS TECTORUM	10	20.0	47.6
		SUBTOTAL	21	42.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	22	44.0	
BARE GROUND			0	.0	
LITTER-ROCK			28	56.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	17.4
	AGROP	AGROPYRON SP.	9	18.0	39.1
	BRIN	BROMUS INERMIS	2	4.0	8.7
	BRTET	BROMUS TECTORUM	8	16.0	34.8
		SUBTOTAL	23	46.0	100.0

FORB	ARLUL	ARTEMISIA LUDOVICIANA	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	28	56.0	
BARE GROUND			0	.0	
LITTER-ROCK			22	44.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	5	10.0	23.8
	AGROP	AGROPYRON SP.	4	8.0	19.0
	AGSP3	AGROPYRON SPICATUM	5	10.0	23.8
	BRIN	BROMUS INERMIS	1	2.0	4.8
	BRTET	BROMUS TECTORUM	3	6.0	14.3
	STIPA	STIPA SP.	3	6.0	14.3
		SUBTOTAL	21	42.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	2	4.0	40.0
	PF	PERENNIAL FORB	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	4	8.0	80.0
	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	31	62.0	
BARE GROUND			0	.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGINI	AGROPYRON INTERMEDIUM		1	2.0	4.5
	AGROP	AGROPYRON SP.		10	20.0	45.5
	AGSP3	AGROPYRON SPICATUM		4	8.0	18.2
	BRIN	BROMUS INERMIS		1	2.0	4.5
	BRTET	BROMUS TECTORUM		6	12.0	27.3
			SUBTOTAL	22	44.0	100.0
FORB	PF	PERENNIAL FORB		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	24	48.0	
BARE GROUND				0	.0	
LITTER-ROCK				26	52.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM		2	4.0	8.7
	AGROP	AGROPYRON SP.		11	22.0	47.8
	AGSP3	AGROPYRON SPICATUM		3	6.0	13.0
	BRIN	BROMUS INERMIS		3	6.0	13.0
	BRTET	BROMUS TECTORUM		2	4.0	8.7
	STIPA	STIPA SP.		2	4.0	8.7
			SUBTOTAL	23	46.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		1	2.0	25.0
	ATCA	ATRIPLEX CANESCENS		3	6.0	75.0
			SUBTOTAL	4	8.0	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	28	56.0	
BARE GROUND				0	.0	
LITTER-ROCK				22	44.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	11	22.0	55.0
	AGSP3	AGROPYRON SPICATUM	4	8.0	20.0
	BRIN	BROMUS INERMIS	3	6.0	15.0
	STIPA	STIPA SP.	2	4.0	10.0
		SUBTOTAL	20	40.0	100.0
FORB	PF	PERENNIAL FORB	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	33.3
	ATCA	ATRIPLEX CANESCENS	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
		TOTAL	26	52.0	
BARE GROUND			0	.0	
LITTER-ROCK			24	48.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	29.4
	BRIN	BROMUS INERMIS	2	4.0	11.8
	BRTET	BROMUS TECTORUM	7	14.0	41.2
	STIPA	STIPA SP.	3	6.0	17.6
		SUBTOTAL	17	34.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	6	12.0	75.0
	RIBES	RIBES SP.	2	4.0	25.0
		SUBTOTAL	8	16.0	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	27	54.0	

BARE GROUND	1	2.0
LITTER-ROCK	22	44.0
VEGETATION, LITTER-ROCK	49	98.0

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	5.0
	AGROP	AGROPYRON SP.	9	18.0	45.0
	AGSP3	AGROPYRON SPICATUM	2	4.0	10.0
	BRIN	BROMUS INERMIS	1	2.0	5.0
	BRTET	BROMUS TECTORUM	7	14.0	35.0
		SUBTOTAL	20	40.0	100.0
FORB	PF	PERENNIAL FORB	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	8	16.0	100.0
		SUBTOTAL	8	16.0	100.0
		TOTAL	30	60.0	
BARE GROUND			1	2.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	8.0
	AGROP	AGROPYRON SP.	9	18.0	36.0
	AGSP3	AGROPYRON SPICATUM	3	6.0	12.0
	BRIN	BROMUS INERMIS	1	2.0	4.0
	BRTET	BROMUS TECTORUM	8	16.0	32.0
	STIPA	STIPA SP.	2	4.0	8.0
		SUBTOTAL	25	50.0	100.0
FORB	PF	PERENNIAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	26	52.0	

BARE GROUND	0	.0
LITTER-ROCK	24	48.0
VEGETATION, LITTER-ROCK	50	100.0

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	13.3
	AGROP	AGROPYRON SP.	4	8.0	26.7
	BRIN	BROMUS INERMIS	2	4.0	13.3
	BRTET	BROMUS TECTORUM	7	14.0	46.7
		SUBTOTAL	15	30.0	100.0
FORB	PF	PERENNIAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	1	2.0	14.3
	RIBES	RIBES SP.	6	12.0	85.7
		SUBTOTAL	7	14.0	100.0
		TOTAL	23	46.0	

BARE GROUND	0	.0
LITTER-ROCK	27	54.0
VEGETATION, LITTER-ROCK	50	100.0

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	23.5
	AGROP	AGROPYRON SP.	4	8.0	23.5
	AGSP3	AGROPYRON SPICATUM	1	2.0	5.9
	BRTET	BROMUS TECTORUM	8	16.0	47.1
		SUBTOTAL	17	34.0	100.0
FORB	PF	PERENNIAL FORB	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	2	4.0	25.0
	RIBES	RIBES SP.	6	12.0	75.0
		SUBTOTAL	8	16.0	100.0

TOTAL	27	54.0
BARE GROUND	0	.0
LITTER-ROCK	23	46.0
VEGETATION, LITTER-ROCK	50	100.0

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	55	7.3	8.0	18.2
	AGROP	AGROPYRON SP.	15	98	13.1	7.2	32.5
	AGSP3	AGROPYRON SPICATUM	15	30	4.0	3.8	9.9
	BRIN	BROMUS INERMIS	15	18	2.4	2.0	6.0
	BRTET	BROMUS TECTORUM	15	82	10.9	5.8	27.2
	PG	PERENNIAL GRASS	15	7	.9	3.1	2.3
	STIPA	STIPA SP.	15	12	1.6	2.4	4.0
		SUBTOTAL	15	302	40.3	6.2	100.0
0							
FORB	AF	ANNUAL FORB	15	1	.1	.5	4.0
	ARLUL	ARTEMISIA LUDOVICIANA	15	11	1.5	2.2	44.0
	PF	PERENNIAL FORB	15	13	1.7	2.3	52.0
		SUBTOTAL	15	25	3.3	2.7	100.0
0							
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE	15	1	.1	.5	100.0
		SUBTOTAL	15	1	.1	.5	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	4	.5	2.1	5.8
	ARTRT	ARTEMISIA TRIDENTATA	15	21	2.8	4.6	30.4
	ATCA	ATRIPLEX CANESCENS	15	25	3.3	4.8	36.2
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	1	.1	.5	1.4
	RIBES	RIBES SP.	15	16	2.4	4.2	26.1
		SUBTOTAL	15	69	9.2	6.2	100.0
0							
SUCCULENT	OPPO	OPUNTIA POLYACANTHA	15	2	.3	.7	100.0
		SUBTOTAL	15	2	.3	.7	100.0
0							

TOTAL	15	399	53.2	5.7
BARE GROUND	15	8	1.1	2.1
LITTER-ROCK	15	343	45.7	5.5
VEGETATION, LITTER-ROCK	15	742	98.9	2.1

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	12	80.0
	AGROP	AGROPYRON SP.	15	13	86.7
	AGSP3	AGROPYRON SPICATUM	15	10	66.7
	BRIN	BROMUS INERMIS	15	11	73.3
	BRTET	BROMUS TECTORUM	15	14	93.3
	PG	PERENNIAL GRASS	15	2	13.3
	STIPA	STIPA SP.	15	5	33.3
		SUBTOTAL	15	15	100.0
FORB	AF	ANNUAL FORB	15	1	6.7
	APLUL	ARTEMISIA LUDOVICIANA	15	7	46.7
	PF	PERENNIAL FORB	15	7	46.7
		SUBTOTAL	15	14	93.3
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE	15	1	6.7
		SUBTOTAL	15	1	6.7
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	1	6.7
	ARTRT	ARTEMISIA TRIDENTATA	15	7	46.7
	ATCA	ATRIPLEX CANESCENS	15	8	53.3
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	1	6.7
	RIBES	RIBES SP.	15	5	33.3
		SUBTOTAL	15	13	86.7
SUCCULENT	OPPO	OPUNTIA POLYACANTHA	15	2	13.3
		SUBTOTAL	15	2	13.3
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 2.250
VARIANCE - .015
MAXIMUM INDEX - 2.833
EVENNESS - .794
NO OF SPECIES - 17

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**** EVALUATION OF SAMPLING ADEQUACY ****
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DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 53.2
SAMPLE STANDARD DEVIATION = 5.7
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 4
Z STATISTIC = 2.54
CONFIDENCE LEVEL OBTAINED = 99.5 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 98.9
SAMPLE STANDARD DEVIATION = 2.1
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 0
Z STATISTIC = *12.78
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON GRASS-SAGE
AFFECTED AREA
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	14	28.0	93.3
	PG	PERENNIAL GRASS	1	2.0	6.7
		SUBTOTAL	15	30.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	2	4.0	28.6
	ARTRT	ARTEMISIA TRIDENTATA	5	10.0	71.4
		SUBTOTAL	7	14.0	100.0
		TOTAL	23	46.0	
BARE GROUND			8	16.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	11	22.0	100.0
		SUBTOTAL	11	22.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	3	6.0	21.4
	ARTRT	ARTEMISIA TRIDENTATA	11	22.0	78.6
		SUBTOTAL	14	28.0	100.0
		TOTAL	25	50.0	

BARE GROUND	6	12.0
LITTER-ROCK	19	38.0
VEGETATION, LITTER-ROCK	44	88.0

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	11	22.0	100.0
		SUBTOTAL	11	22.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	13	26.0	92.9
	EPHED	EPHEDRA SP.	1	2.0	7.1
		SUBTOTAL	14	28.0	100.0
		TOTAL	25	50.0	

BARE GROUND	6	12.0
LITTER-ROCK	19	38.0
VEGETATION, LITTER-ROCK	44	88.0

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
FORB	CHAL	CHENOPODIUM ALBUM	3	6.0	20.0
	SAKA	SALSOLA KALI	12	24.0	80.0
		SUBTOTAL	15	30.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	1	2.0	25.0
	ARTRT	ARTEMISIA TRIDENTATA	2	4.0	50.0
	ATCA	ATRIPLEX CANESCENS	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
		TOTAL	26	52.0	

BARE GROUND	8	16.0
LITTER-ROCK	16	32.0
VEGETATION, LITTER-ROCK	42	84.0

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
FORB	SAKA	SALSOLA KALI	22	44.0	100.0
		SUBTOTAL	22	44.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	50.0
	ATCA	ATRIPLEX CANESCENS	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
		TOTAL	31	62.0	
BARE GROUND			12	24.0	
LITTER-ROCK			7	14.0	
VEGETATION, LITTER-ROCK			36	76.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	27	54.0	100.0
		SUBTOTAL	27	54.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
		TOTAL	31	62.0	
BARE GROUND			4	8.0	
LITTER-ROCK			15	30.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	24	48.0	100.0
		SUBTOTAL	24	48.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	9	18.0	90.0
	CEMOM	CERCOCARPUS MONTANUS	1	2.0	10.0
		SUBTOTAL	10	20.0	100.0
		TOTAL	34	68.0	
BARE GROUND			3	6.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	16	32.0	100.0
		SUBTOTAL	16	32.0	100.0
FORB	ANTEN	ANTENNARIA SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	6	12.0	85.7
	RIBES	RIBES SP.	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
		TOTAL	25	50.0	
BARE GROUND			5	10.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGINI	AGROPYRON INTERMEDIUM	7	14.0	38.9
	AGROP	AGROPYRON SP.	11	22.0	61.1
		SUBTOTAL	18	36.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
		TOTAL	28	56.0	
BARE GROUND			8	16.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	30.0	75.0
	AGROP	AGROPYRON SP.	5	10.0	25.0
		SUBTOTAL	20	40.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	77.8
	BERE	BERBERIS REPENS	2	4.0	22.2
		SUBTOTAL	9	18.0	100.0
		TOTAL	29	58.0	
BARE GROUND			8	16.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	17	34.0	94.4
	AGROP	AGROPYRON SP.	1	2.0	5.6
		SUBTOTAL	18	36.0	100.0

SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	20.0
	ATCA	ATRIPLEX CANESCENS	4	8.0	80.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	23	46.0	
BARE GROUND			6	12.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	5	10.0	22.7
	AGROP	AGROPYRON SP.	10	20.0	45.5
	BRTET	BROMUS TECTORUM	7	14.0	31.8
		SUBTOTAL	22	44.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	24	48.0	
BARE GROUND			4	8.0	
LITTER-ROCK			22	44.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	6	12.0	37.5
	AGROP	AGROPYRON SP.	2	4.0	12.5
	BRTET	BROMUS TECTORUM	8	16.0	50.0
		SUBTOTAL	16	32.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	37.5
	ATCA	ATRIPLEX CANESCENS	4	8.0	50.0

	RIBES	RIBES SP.	1	2.0	12.5
		SUBTOTAL	8	16.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	25	50.0	
BARE GROUND			0	.0	
LITTER-ROCK			25	50.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	6.9
	AGROP	AGROPYRON SP.	5	10.0	17.2
	BRTET	BROMUS TECTORUM	18	36.0	62.1
	PG	PERENNIAL GRASS	4	8.0	13.8
		SUBTOTAL	29	58.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	30	60.0	
BARE GROUND			0	.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	9	18.0	40.9
	AGROP	AGROPYRON SP.	3	6.0	13.6
	PG	PERENNIAL GRASS	10	20.0	45.5
		SUBTOTAL	22	44.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	50.0
	ATCA	ATRIPLEX CANESCENS	3	6.0	50.0

		SUBTOTAL	6	12.0		100.0
BRYOPHYTE	MOSS	BRYOPHYTE	1	2.0		100.0
		SUBTOTAL	1	2.0		100.0
		TOTAL	29	58.0		
BARE GROUND			2	4.0		
LITTER-ROCK			19	38.0		
VEGETATION, LITTER-ROCK			48	96.0		

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	178	23.7	14.1	67.7
	AGROP	AGROPYRON SP.	15	37	4.9	7.4	14.1
	BRTET	BROMUS TECTORUM	15	33	4.4	10.2	12.5
	PG	PERENNIAL GRASS	15	15	2.0	5.4	5.7
		SUBTOTAL	15	263	35.1	13.4	100.0
0							
FORB	AF	ANNUAL FORB	15	1	.1	.5	2.5
	ANTEN	ANTENNARIA SP.	15	2	.3	1.0	5.0
	CHAL	CHENOPODIUM ALBUM	15	3	.4	1.5	7.5
	SAKA	SALSOLA KALI	15	34	4.5	12.5	85.0
		SUBTOTAL	15	40	5.3	13.2	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	6	.8	1.8	6.3
	ARTRT	ARTEMISIA TRIDENTATA	15	69	9.2	8.2	71.9
	ATCA	ATRIPLEX CANESCENS	15	15	2.0	2.9	15.6
	BERE	BERBERIS REPENS	15	2	.3	1.0	2.1
	CEMOM	CERCOCARPUS MONTANUS	15	1	.1	.5	1.0
	EPHED	EPHEDRA SP.	15	1	.1	.5	1.0
	RIBES	RIBES SP.	15	2	.3	.7	2.1
		SUBTOTAL	15	96	12.8	8.5	100.0
0							
TREE	ACGR	ACER GRANDIDENTATUM	15	1	.1	.5	100.0
		SUBTOTAL	15	1	.1	.5	100.0
0							
BRYOPHYTE	MOSS	BRYOPHYTE	15	8	1.1	2.1	100.0

SUBTOTAL	15	8	1.1	2.1	100.0
TOTAL	15	408	54.4	6.7	
BARE GROUND	15	80	10.7	6.6	
LITTER-ROCK	15	262	34.9	9.0	
VEGETATION, LITTER-ROCK	15	670	89.3	6.6	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	15	100.0
	AGROP	AGROPYRON SP.	15	7	46.7
	BRTET	BROMUS TECTORUM	15	3	20.0
	PG	PERENNIAL GRASS	15	3	20.0
		SUBTOTAL	15	15	100.0
FORB	AF	ANNUAL FORB	15	1	6.7
	ANTEN	ANTENNARIA SP.	15	1	6.7
	CHAL	CHENOPODIUM ALBUM	15	1	6.7
	SAKA	SALSOLA KALI	15	2	13.3
		SUBTOTAL	15	4	26.7
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	3	20.0
	ARTRT	ARTEMISIA TRIDENTATA	15	13	86.7
	ATCA	ATRIPLEX CANESCENS	15	7	46.7
	BERE	BERBERIS REPENS	15	1	6.7
	CEMOM	CERCOCARPUS MONTANUS	15	1	6.7
	EPHED	EPHEDRA SP.	15	1	6.7
	RIBES	RIBES SP.	15	2	13.3
		SUBTOTAL	15	15	100.0
TREE	ACER	ACER GRANDIDENTATUM	15	1	6.7
		SUBTOTAL	15	1	6.7
BRYOPHYTE	MOSS	BRYOPHYTE	15	4	26.7
		SUBTOTAL	15	4	26.7

TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.846
VARIANCE - .024
MAXIMUM INDEX - 2.833
EVENNESS - .652
NO OF SPECIES - 17

****

**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 54.4
SAMPLE STANDARD DEVIATION = 6.7
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 5
Z STATISTIC = 2.23
CONFIDENCE LEVEL OBTAINED = 98.7 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 89.3
SAMPLE STANDARD DEVIATION = 6.6
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 2
Z STATISTIC = 3.72
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

****

VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

SOWBELLY MIXED BRUSH
REFERENCE SITE
JULY 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	6	12.0	75.0
	STCO3	STIPA COMATA	2	4.0	25.0
		SUBTOTAL	8	16.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	20.0
	ASTRA	ASTRAGALUS SP.	1	2.0	20.0
	PF	PERENNIAL FORB	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	QUGA	QUERCUS GAMBELII	11	22.0	100.0
		SUBTOTAL	11	22.0	100.0
		TOTAL	26	52.0	
BARE GROUND			12	24.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	33.3
	PG	PERENNIAL GRASS	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	2	4.0	50.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	50.0

			SUBTOTAL	4	8.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		3	6.0	30.0
	QUGA	QUERCUS GAMBELII		7	14.0	70.0
			SUBTOTAL	10	20.0	100.0
			TOTAL	17	34.0	
BARE GROUND				3	6.0	
LITTER-ROCK				30	60.0	
VEGETATION, LITTER-ROCK				47	94.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
FORB	ASTRA	ASTRAGALUS SP.		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		4	8.0	100.0
			SUBTOTAL	4	8.0	100.0
TREE	QUGA	QUERCUS GAMBELII		8	16.0	100.0
			SUBTOTAL	8	16.0	100.0
			TOTAL	14	28.0	
BARE GROUND				6	12.0	
LITTER-ROCK				30	60.0	
VEGETATION, LITTER-ROCK				44	88.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM		3	6.0	100.0
			SUBTOTAL	3	6.0	100.0
FORB	KOSC	KOCHIA SCOPARIA		1	2.0	50.0

	LUPIN	LUPINUS SP.		1	2.0	50.0
			SUBTOTAL	2	4.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		2	4.0	50.0
	BERE	BERBERIS REPENS		1	2.0	25.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS		1	2.0	25.0
			SUBTOTAL	4	8.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		3	6.0	27.3
	QUGA	QUERCUS GAMBELII		8	16.0	72.7
			SUBTOTAL	11	22.0	100.0
			TOTAL	20	40.0	
BARE GROUND				10	20.0	
LITTER-ROCK				20	40.0	
VEGETATION, LITTER-ROCK				40	80.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
FORB	ASTRA	ASTRAGALUS SP.		1	2.0	50.0
	LUPIN	LUPINUS SP.		1	2.0	50.0
			SUBTOTAL	2	4.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA		2	4.0	13.3
	QUGA	QUERCUS GAMBELII		13	26.0	86.7
			SUBTOTAL	15	30.0	100.0
			TOTAL	24	48.0	
BARE GROUND				8	16.0	
LITTER-ROCK				18	36.0	
VEGETATION, LITTER-ROCK				42	84.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	50.0
	ERIOG	ERIOGONUM SP.	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	1	2.0	14.3
	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	42.9
	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	42.9
		SUBTOTAL	7	14.0	100.0
TREE	PIED	PINUS EDULIS	1	2.0	14.3
	PIPO	PINUS PONDEROSA	2	4.0	28.6
	QUGA	QUERCUS GAMBELII	4	8.0	57.1
		SUBTOTAL	7	14.0	100.0
		TOTAL	18	36.0	
BARE GROUND			9	18.0	
LITTER-ROCK			23	46.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	57.1
	AGTR	AGROPYRON TRACHYCAULUM	2	4.0	28.6
	PG	PERENNIAL GRASS	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	75.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	31.3
	PIED	PINUS EDULIS	2	4.0	12.5
	QUGA	QUERCUS GAMBELII	9	18.0	56.3
		SUBTOTAL	16	32.0	100.0
		TOTAL	27	54.0	

BARE GROUND	7	14.0
LITTER-ROCK	16	32.0
VEGETATION, LITTER-ROCK	43	86.0

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
FORB	ASTRA	ASTRAGALUS SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	QUGA	QUERCUS GAMBELII	20	40.0	100.0
		SUBTOTAL	20	40.0	100.0
		TOTAL	29	58.0	

BARE GROUND	7	14.0
LITTER-ROCK	14	28.0
VEGETATION, LITTER-ROCK	43	86.0

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	10	20.0	100.0
		SUBTOTAL	10	20.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	20.0
	QUGA	QUERCUS GAMBELII	12	24.0	80.0

		SUBTOTAL	15	30.0	100.0
		TOTAL	27	54.0	
BARE GROUND			9	18.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGRIPYRON SP.	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	31.3
	QUGA	QUERCUS GAMBELII	11	22.0	68.8
		SUBTOTAL	16	32.0	100.0
		TOTAL	24	48.0	
BARE GROUND			3	6.0	
LITTER-ROCK			23	46.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
FORB	ACMIM	ACHILLEA MILLEFOLIUM	1	2.0	33.3
	PENST	PENSTEMON SP.	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0

SHRUB	AMUTU	AMELANCHIER UTAHENSIS	1	2.0	16.7
	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	16.7
	ROSA	ROSA SP.	2	4.0	33.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	33.3
		SUBTOTAL	6	12.0	100.0
TREE	QUGA	QUERCUS GAMBELII	16	32.0	100.0
		SUBTOTAL	16	32.0	100.0
		TOTAL	28	56.0	
BARE GROUND			4	8.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	33.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
TREE	QUGA	QUERCUS GAMBELII	26	52.0	100.0
		SUBTOTAL	26	52.0	100.0
		TOTAL	30	60.0	
BARE GROUND			3	6.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	3	6.0	60.0
	PG	PERENNIAL GRASS	1	2.0	20.0
	STCO3	STIPA COMATA	1	2.0	20.0

			SUBTOTAL	5	10.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA		2	4.0	33.3
	KOSC	KOCHIA SCOPARIA		1	2.0	16.7
	LUPIN	LUPINUS SP.		1	2.0	16.7
	PENST	PENSTEMON SP.		2	4.0	33.3
			SUBTOTAL	6	12.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
TREE	QUGA	QUERCUS GAMBELII		4	8.0	100.0
			SUBTOTAL	4	8.0	100.0
			TOTAL	20	40.0	
BARE GROUND				11	22.0	
LITTER-ROCK				19	38.0	
VEGETATION, LITTER-ROCK				39	78.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	13.6
	QUGA	QUERCUS GAMBELII	19	38.0	86.4
		SUBTOTAL	22	44.0	100.0
		TOTAL	26	52.0	
BARE GROUND			8	16.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGROP	AGROPYRON SP.	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	4	8.0	23.5
	QUGA	QUERCUS GAMBELII	13	26.0	76.5
		SUBTOTAL	17	34.0	100.0
		TOTAL	28	56.0	
BARE GROUND			5	10.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			45	90.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	23	3.1	4.1	38.3
	AGROP	AGROPYRON SP.	15	24	3.2	5.7	40.0
	AGTR	AGROPYRON TRACHYCAULUM	15	2	.3	1.0	3.3
	BRTET	BROMUS TECTORUM	15	3	.4	1.5	5.0
	PG	PERENNIAL GRASS	15	5	.7	1.2	8.3
	STCO3	STIPA COMATA	15	3	.4	1.1	5.0
		SUBTOTAL	15	60	8.0	5.4	100.0
0							
FORB	ACMIM	ACHILLEA MILLEFOLIUM	15	1	.1	.5	4.2
	ARLUL	ARTEMISIA LUDOVICIANA	15	6	.8	1.3	25.0
	ASTRA	ASTRAGALUS SP.	15	4	.5	.9	16.7
	ERIOG	ERIOGONUM SP.	15	1	.1	.5	4.2
	KOSC	KOCHIA SCOPARIA	15	2	.3	.7	8.3
	LUPIN	LUPINUS SP.	15	3	.4	.8	12.5
	PENST	PENSTEMON SP.	15	4	.5	1.4	16.7
	PF	PERENNIAL FORB	15	3	.4	1.5	12.5
		SUBTOTAL	15	24	3.2	3.7	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	.3	.7	3.3
	ARTRT	ARTEMISIA TRIDENTATA	15	41	5.5	3.9	68.3

	BERE	BERBERIS REPENS	15	1	.1	.5	1.7
	ROSA	ROSA SP.	15	2	.3	1.0	3.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	14	1.9	2.1	23.3
		SUBTOTAL	15	60	8.0	3.5	100.0
0							
TREE	ACGR	ACER GRANDIDENTATUM	15	6	.8	2.1	2.8
	JUOS	JUNIPERUS OSTEOSPERMA	15	22	2.9	4.0	10.3
	PIED	PINUS EDULIS	15	3	.4	1.1	1.4
	PIPO	PINUS PONDEROSA	15	2	.3	1.0	.9
	QUGA	QUERCUS GAMBELII	15	181	24.1	12.2	84.6
		SUBTOTAL	15	214	28.5	11.8	100.0
0							
		TOTAL	15	358	47.7	9.8	
BARE GROUND			15	105	14.0	5.9	
LITTER-ROCK			15	287	38.3	10.7	
VEGETATION, LITTER-ROCK			15	645	86.0	5.9	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	7	46.7
	AGROP	AGROPYRON SP.	15	6	40.0
	AGTR	AGROPYRON TRACHYCAULUM	15	1	6.7
	BRTET	BROMUS TECTORUM	15	1	6.7
	PG	PERENNIAL GRASS	15	4	26.7
	STCO3	STIPA COMATA	15	2	13.3
		SUBTOTAL	15	15	100.0
FORB	ACMIM	ACHILLEA MILLEFOLIUM	15	1	6.7
	ARLUL	ARTEMISIA LUDOVICIANA	15	5	33.3
	ASTRA	ASTRAGALUS SP.	15	4	26.7
	ERIOG	ERIOGONUM SP.	15	1	6.7
	KOSC	KOCHIA SCOPARIA	15	2	13.3
	LUPIN	LUPINUS SP.	15	3	20.0
	PENST	PENSTEMON SP.	15	2	13.3
	PF	PERENNIAL FORB	15	1	6.7
		SUBTOTAL	15	10	66.7
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	13.3

	ARTRT	ARTEMISIA TRIDENTATA	15	13	86.7
	BERE	BERBERIS REPENS	15	1	6.7
	ROSA	ROSA SP.	15	1	6.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	8	53.3
		SUBTOTAL	15	15	100.0
TREE	ACGR	ACER GRANDIDENTATUM	15	2	13.3
	JUOS	JUNIPERUS OSTEOSPERMA	15	6	40.0
	PIED	PINUS EDULIS	15	2	13.3
	PIPO	PINUS PONDEROSA	15	1	6.7
	QUGA	QUERCUS GAMBELII	15	15	100.0
		SUBTOTAL	15	15	100.0
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.940
VARIANCE - .045
MAXIMUM INDEX - 3.178
EVENNESS - .611
NO OF SPECIES - 24

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 47.7
SAMPLE STANDARD DEVIATION = 9.8
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 14
Z STATISTIC = 1.33
CONFIDENCE LEVEL OBTAINED = 91.0 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 86.0
SAMPLE STANDARD DEVIATION = 5.9
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 2
Z STATISTIC = 3.99
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

****

VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CASTLE GATE MIXED BRUSH
REFERENCE SITE
JULY 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	6	12.0	85.7
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	4	8.0	40.0
	ARTRT	ARTEMISIA TRIDENTATA	6	12.0	60.0
		SUBTOTAL	10	20.0	100.0
		TOTAL	17	34.0	
BARE GROUND			19	38.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			31	62.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	6	12.0	31.6
	ARTRT	ARTEMISIA TRIDENTATA	13	26.0	68.4
		SUBTOTAL	19	38.0	100.0
TREE	PIED	PINUS EDULIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
		TOTAL	23	46.0	

BARE GROUND	12	24.0
LITTER-ROCK	15	30.0
VEGETATION, LITTER-ROCK	38	76.0

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	10	20.0	76.9
	AGSP3	AGROPYRON SPICATUM	1	2.0	7.7
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	15.4
		SUBTOTAL	13	26.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	42.9
	ATCA	ATRIPLEX CANESCENS	4	8.0	57.1
		SUBTOTAL	7	14.0	100.0
		TOTAL	20	40.0	
BARE GROUND			10	20.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	8	16.0	72.7
	AGSP3	AGROPYRON SPICATUM	1	2.0	9.1
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	18.2
		SUBTOTAL	11	22.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	5	10.0	55.6
	ATCA	ATRIPLEX CANESCENS	1	2.0	11.1
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	1	2.0	11.1
	EPVI	EPHEDRA VIRIDUS	2	4.0	22.2
		SUBTOTAL	9	18.0	100.0
		TOTAL	20	40.0	
BARE GROUND			16	32.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			34	68.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	17	34.0	100.0
		SUBTOTAL	17	34.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	1	2.0	25.0
	ATCA	ATRIPLEX CANESCENS	3	6.0	75.0
		SUBTOTAL	4	8.0	100.0
		TOTAL	21	42.0	
BARE GROUND			7	14.0	
LITTER-ROCK			22	44.0	
VEGETATION, LITTER-ROCK			43	86.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	16	32.0	100.0
		SUBTOTAL	16	32.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	17	34.0	
BARE GROUND			10	20.0	
LITTER-ROCK			23	46.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	20	40.0	95.2

	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	4.8
		SUBTOTAL	21	42.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
		TOTAL	25	50.0	
BARE GROUND			9	18.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	11	22.0	91.7
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	8.3
		SUBTOTAL	12	24.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	5	10.0	41.7
	ARTRT	ARTEMISIA TRIDENTATA	6	12.0	50.0
	ATCA	ATRIPLEX CANESCENS	1	2.0	8.3
		SUBTOTAL	12	24.0	100.0
		TOTAL	24	48.0	
BARE GROUND			9	18.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	12	24.0	100.0
		SUBTOTAL	12	24.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	100.0

		SUBTOTAL	1	2.0	100.0
		TOTAL	17	34.0	
BARE GROUND			12	24.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	2	4.0	16.7
	ARTRT	ARTEMISIA TRIDENTATA	10	20.0	83.3
		SUBTOTAL	12	24.0	100.0
		TOTAL	18	36.0	
BARE GROUND			12	24.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	14	28.0	93.3
	BRTET	BROMUS TECTORUM	1	2.0	6.7
		SUBTOTAL	15	30.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	2	4.0	66.7
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
		TOTAL	18	36.0	
BARE GROUND			17	34.0	
LITTER-ROCK			15	30.0	

VEGETATION, LITTER-ROCK	33	66.0

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	15	30.0	71.4
	BRTET	BROMUS TECTORUM	6	12.0	28.6
		SUBTOTAL	21	42.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	4	8.0	80.0
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	26	52.0	
BARE GROUND			9	18.0	
LITTER-ROCK			15	30.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	8	16.0	88.9
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	11.1
		SUBTOTAL	9	18.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	63.6
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	2	4.0	18.2
	EPVI	EPHEDRA VIRIDUS	2	4.0	18.2
		SUBTOTAL	11	22.0	100.0
		TOTAL	20	40.0	
BARE GROUND			13	26.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			37	74.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	11	22.0	78.6
	AGSP3	AGROPYRON SPICATUM	1	2.0	7.1
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	14.3
		SUBTOTAL	14	28.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	9	18.0	100.0
		SUBTOTAL	9	18.0	100.0
		TOTAL	23	46.0	
BARE GROUND			11	22.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			39	78.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	83.3
	BRTET	BROMUS TECTORUM	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	9	18.0	75.0
	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	25.0
		SUBTOTAL	12	24.0	100.0
		TOTAL	18	36.0	
BARE GROUND			13	26.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			37	74.0	

SUMMARY - ALL COVER TRANSECTS

	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	MEAN	S.D.	
GRASS	AGROP	AGROPYRON SP.	15	153	20.4	10.6	87.9
	AGSP3	AGROPYRON SPICATUM	15	3	.4	.8	1.7
	BRTET	BROMUS TECTORUM	15	8	1.1	3.1	4.6
	ORHY	ORYZOPSIS HYMENOIDES	15	10	1.3	1.6	5.7
		SUBTOTAL	15	174	23.2	11.8	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	26	3.5	5.8	20.0
	ARTRT	ARTEMISIA TRIDENTATA	15	81	10.8	8.3	62.3
	ATCA	ATRIPLEX CANESCENS	15	14	1.9	3.0	10.8
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	4	.5	1.2	3.1
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	.1	.5	.8
	EPVI	EPHEDRA VIRIDUS	15	4	.5	1.4	3.1
		SUBTOTAL	15	130	17.3	9.4	100.0
0							
TREE	JUOS	JUNIPERUS OSTEOSPERMA	15	1	.1	.5	33.3
	PIED	PINUS EDULIS	15	2	.3	1.0	66.7
		SUBTOTAL	15	3	.4	1.1	100.0
0							
		TOTAL	15	307	40.9	6.1	
BARE GROUND			15	179	23.9	6.6	
LITTER-ROCK			15	264	35.2	6.0	
VEGETATION, LITTER-ROCK			15	571	76.1	6.6	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGROP	AGROPYRON SP.	15	15	100.0
	AGSP3	AGROPYRON SPICATUM	15	3	20.0
	BRTET	BROMUS TECTORUM	15	3	20.0
	ORHY	ORYZOPSIS HYMENOIDES	15	7	46.7
		SUBTOTAL	15	15	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	5	33.3

	ARTRT	ARTEMISIA TRIDENTATA	15	13	86.7
	ATCA	ATRIPLEX CANESCENS	15	6	40.0
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	3	20.0
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	6.7
	EPVI	EPHEDRA VIRIDUS	15	2	13.3
		SUBTOTAL	15	15	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	15	1	6.7
	PIED	PINUS EDULIS	15	1	6.7
		SUBTOTAL	15	2	13.3
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.484
VARIANCE - .031
MAXIMUM INDEX - 2.485
EVENNESS - .597
NO OF SPECIES - 12

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 40.9
SAMPLE STANDARD DEVIATION = 6.1
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 7
Z STATISTIC = 1.83
CONFIDENCE LEVEL OBTAINED = 96.6 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 76.1
SAMPLE STANDARD DEVIATION = 6.6
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 2
Z STATISTIC = 3.15
CONFIDENCE LEVEL OBTAINED = 99.9 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON-MIXED BRUSH
AFFECTED AREA
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	33.3
	PG	PERENNIAL GRASS	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
SHRUB	BERE	BERBERIS REPENS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	14	28.0	50.0
	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	7.1
	QUGA	QUERCUS GAMBELII	12	24.0	42.9
		SUBTOTAL	28	56.0	100.0
		TOTAL	33	66.0	
BARE GROUND			1	2.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	2	4.0	33.3
	RIBES	RIBES SP.	2	4.0	33.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	33.3

		SUBTOTAL	6	12.0	100.0
TREE	ABCO	ABIES CONCOLOR	1	2.0	4.3
	ACGR	ACER GRANDIDENTATUM	12	24.0	52.2
	JUOS	JUNIPERUS OSTEOSPERMA	6	12.0	26.1
	QUGA	QUERCUS GAMBELII	4	8.0	17.4
		SUBTOTAL	23	46.0	100.0
		TOTAL	32	64.0	
BARE GROUND			5	10.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	ABCO	ABIES CONCOLOR	1	2.0	4.3
	ACGR	ACER GRANDIDENTATUM	3	6.0	13.0
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	13.0
	PIED	PINUS EDULIS	1	2.0	4.3
	PSMEM	PSEUDOTSUGA MENZIESII	3	6.0	13.0
	QUGA	QUERCUS GAMBELII	12	24.0	52.2
		SUBTOTAL	23	46.0	100.0
		TOTAL	31	62.0	
BARE GROUND			0	.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGROP	AGROPYRON SP.		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
SHRUB	BERE	BERBERIS REPENS		6	12.0	46.2
	RIBES	RIBES SP.		3	6.0	23.1
	SYOC	SYMPHORICARPOS OCCIDENTALIS		4	8.0	30.8
			SUBTOTAL	13	26.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		5	10.0	33.3
	QUGA	QUERCUS GAMBELII		10	20.0	66.7
			SUBTOTAL	15	30.0	100.0
			TOTAL	35	70.0	
BARE GROUND				0	.0	
LITTER-ROCK				15	30.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	DECA	DESCHAMPSIA CAESPITOSA		8	16.0	100.0
			SUBTOTAL	8	16.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS		4	8.0	100.0
			SUBTOTAL	4	8.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		11	22.0	39.3
	QUGA	QUERCUS GAMBELII		17	34.0	60.7
			SUBTOTAL	28	56.0	100.0
			TOTAL	40	80.0	
BARE GROUND				0	.0	
LITTER-ROCK				10	20.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	11.1
	BRTET	BROMUS TECTORUM	3	6.0	33.3
	PG	PERENNIAL GRASS	5	10.0	55.6
		SUBTOTAL	9	18.0	100.0
FORB	PF	PERENNIAL FORB	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
SHRUB	BERE	BERBERIS REPENS	3	6.0	23.1
	SYOC	SYMPHORICARPOS OCCIDENTALIS	10	20.0	76.9
		SUBTOTAL	13	26.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	9	18.0	69.2
	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	7.7
	QUGA	QUERCUS GAMBELII	3	6.0	23.1
		SUBTOTAL	13	26.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	39	78.0	
BARE GROUND			0	.0	
LITTER-ROCK			11	22.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	29	58.0	96.7
	POA	POA SP.	1	2.0	3.3
		SUBTOTAL	30	60.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ATCA	ATRIPLEX CANESCENS	1	2.0	16.7
	BERE	BERBERIS REPENS	3	6.0	50.0
	RIPES	RIBES SP.	1	2.0	16.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0

TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	14.3
	QUGA	QUERCUS GAMBELII	6	12.0	85.7
		SUBTOTAL	7	14.0	100.0
		TOTAL	44	88.0	
BARE GROUND			1	2.0	
LITTER-ROCK			5	10.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	3	6.0	23.1
	AGROP	AGROPYRON SP.	1	2.0	7.7
	BRTET	BROMUS TECTORUM	5	10.0	38.5
	DECA	DESCHAMPSIA CAESPITOSA	2	4.0	15.4
	PG	PERENNIAL GRASS	2	4.0	15.4
		SUBTOTAL	13	26.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	7	14.0	38.9
	BERE	BERBERIS REPENS	2	4.0	11.1
	RIBES	RIBES SP.	2	4.0	11.1
	SYOC	SYMPHORICARPOS OCCIDENTALIS	7	14.0	38.9
		SUBTOTAL	18	36.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	2	4.0	33.3
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	50.0
	QUGA	QUERCUS GAMBELII	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
		TOTAL	37	74.0	
BARE GROUND			0	.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	25.0

	POA	POA SP.	3	6.0	75.0
		SUBTOTAL	4	8.0	100.0
FORB	ACMIM	ACHILLEA MILLEFOLIUM	1	2.0	25.0
	AF	ANNUAL FORB	2	4.0	50.0
	PF	PERENNIAL FORB	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
SHRUB	CEMOM	CERCOCARPUS MONTANUS	1	2.0	16.7
	RIBES	RIBES SP.	1	2.0	16.7
	SALIX	SALIX SP.	2	4.0	33.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	33.3
		SUBTOTAL	6	12.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	14	28.0	100.0
		SUBTOTAL	14	28.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	29	58.0	
BARE GROUND			2	4.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
FORB	AF	ANNUAL FORB	2	4.0	50.0
	PF	PERENNIAL FORB	2	4.0	50.0
		SUBTOTAL	4	8.0	100.0
SHRUB	BERE	BERBERIS REPENS	1	2.0	20.0
	CEMOM	CERCOCARPUS MONTANUS	1	2.0	20.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
TREE	PSME	PSEUDOTSUGA MENZIESII	3	6.0	33.3
	QUGA	QUERCUS GAMBELII	6	12.0	66.7
		SUBTOTAL	9	18.0	100.0

		TOTAL	20	40.0
BARE GROUND			0	.0
LITTER-ROCK			30	60.0
VEGETATION, LITTER-ROCK			50	100.0

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGPOP	AGROPYRON SP.	1	2.0	33.3
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	5	10.0	83.3
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	11	22.0	84.6
	QUGA	QUERCUS GAMBELII	2	4.0	15.4
		SUBTOTAL	13	26.0	100.0
		TOTAL	23	46.0	
BARE GROUND			3	6.0	
LITTER-ROCK			24	48.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	1	2.0	25.0
	PG	PERENNIAL GRASS	3	6.0	75.0
		SUBTOTAL	4	8.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	33.3
	GRSQ	GRINDELIA SQUARROSA	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0

SHRUB	BERE	BERBERIS REPENS	1	2.0	8.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	11	22.0	91.7
		SUBTOTAL	12	24.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	11	22.0	91.7
	POSA	POPULUS SARGENTII	1	2.0	8.3
		SUBTOTAL	12	24.0	100.0
		TOTAL	31	62.0	
BARE GROUND			1	2.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	9	18.0	64.3
	POPA	POA PALUSTRIS	5	10.0	35.7
		SUBTOTAL	14	28.0	100.0
FORB	AF	ANNUAL FORB	4	8.0	44.4
	PF	PERENNIAL FORB	5	10.0	55.6
		SUBTOTAL	9	18.0	100.0
SHRUB	SALIX	SALIX SP.	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	3	6.0	60.0
	POAN	POPULUS ANGUSTIFOLIA	2	4.0	40.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	31	62.0	
BARE GROUND			2	4.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	PG	PERENNIAL GRASS		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
SHRUB	BERE	BERBERIS REPENS		1	2.0	16.7
	CEMOM	CERCOCARPUS MONTANUS		1	2.0	16.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS		4	8.0	66.7
			SUBTOTAL	6	12.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		8	16.0	47.1
	QUGA	QUERCUS GAMBELII		9	18.0	52.9
			SUBTOTAL	17	34.0	100.0
			TOTAL	28	56.0	
BARE GROUND				0	.0	
LITTER-ROCK				22	44.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS		4	8.0	80.0
	POPA	POA PALUSTRIS		1	2.0	20.0
			SUBTOTAL	5	10.0	100.0
FORB	GRSQ	GRINDELIA SQUARROSA		2	4.0	66.7
	PF	PERENNIAL FORB		1	2.0	33.3
			SUBTOTAL	3	6.0	100.0
TREE	ABLA	ABIES LASIOCARPA		5	10.0	23.8
	ACGR	ACER GRANDIDENTATUM		15	30.0	71.4
	JUOS	JUNIPERUS OSTEOSPERMA		1	2.0	4.8
			SUBTOTAL	21	42.0	100.0
			TOTAL	29	58.0	
BARE GROUND				0	.0	
LITTER-ROCK				21	42.0	
VEGETATION, LITTER-ROCK				50	100.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	4	.5	1.6	3.6
	AGROP	AGROPYRON SP.	15	15	2.0	3.2	13.5
	BRTET	BROMUS TECTORUM	15	38	5.1	14.9	34.2
	DECA	DESCHAMPSIA CAESPITOSA	15	10	1.3	4.2	9.0
	ORHY	ORYZOPSIS HYMENOIDES	15	3	.4	1.1	2.7
	PG	PERENNIAL GRASS	15	31	4.1	5.4	27.9
	POPA	POA PALUSTRIS	15	6	.8	2.6	5.4
	POA	POA SP.	15	4	.5	1.6	3.6
		SUBTOTAL	15	111	14.8	14.5	100.0
0							
FORB	ACMIM	ACHILLEA MILLEFOLIUM	15	1	.1	.5	3.1
	AF	ANNUAL FORB	15	12	1.6	2.3	37.5
	ARLUL	ARTEMISIA LUDOVICIANA	15	3	.4	1.1	9.4
	GRSQ	GRINDELIA SQUARROSA	15	4	.5	1.4	12.5
	PF	PERENNIAL FORB	15	12	1.6	2.9	37.5
		SUBTOTAL	15	32	4.3	4.8	100.0
0							
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	15	7	.9	3.6	6.5
	ATCA	ATRIPLEX CANESCENS	15	1	.1	.5	1.0
	BERE	BERBERIS REPENS	15	29	3.9	3.7	26.2
	CEMOM	CERCOCARPUS MONTANUS	15	3	.4	.8	2.9
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	.1	.5	1.0
	RIBES	RIBES SP.	15	9	1.2	2.6	8.7
	SALIX	SALIX SP.	15	5	.7	1.8	4.9
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	48	6.4	7.2	46.6
		SUBTOTAL	15	103	13.7	9.9	100.0
0							
TREE	ABCO	ABIES CONCOLOR	15	2	.3	.7	.9
	ABLA	ABIES LASIOCARPA	15	5	.7	2.6	2.1
	ACGR	ACER GRANDIDENTATUM	15	104	13.9	10.7	44.4
	CELEL	CERCOCARPUS LEDIFOLIUS	15	1	.1	.5	.4
	JUOS	JUNIPERUS OSTEOSPERMA	15	16	2.1	3.5	6.8
	PIED	PINUS EDULIS	15	1	.1	.5	.4
	POAN	POPULUS ANGUSTIFOLIA	15	16	2.1	7.2	6.8
	POSA	POPULUS SARGENTII	15	1	.1	.5	.4
	PSMEM	PSEUDOTSUGA MENZIESII	15	6	.8	2.1	2.6
	QUGA	QUERCUS GAMBELII	15	82	10.9	10.8	35.0
		SUBTOTAL	15	234	31.2	15.1	100.0
0							
BRYOPHYTE	MOSS	BRYOPHYTE	15	2	.3	.7	100.0
		SUBTOTAL	15	2	.3	.7	100.0
0							

TOTAL	15	482	64.3	12.6
BARE GROUND	15	15	2.0	2.9
LITTER-ROCK	15	253	33.7	12.3
VEGETATION, LITTER-ROCK	15	735	98.0	2.9

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	2	13.3
	AGROP	AGROPYRON SP.	15	6	40.0
	BRTET	BROMUS TECTORUM	15	4	26.7
	DECA	DESCHAMPSIA CAESPITOSA	15	2	13.3
	ORHY	ORYZOPSIS HYMENOIDES	15	2	13.3
	PG	PERENNIAL GRASS	15	8	53.3
	POPA	POA PALUSTRIS	15	2	13.3
	POA	POA SP.	15	2	13.3
		SUBTOTAL	15	15	100.0
FORB	ACMIM	ACHILLEA MILLEFOLIUM	15	1	6.7
	AF	ANNUAL FORB	15	7	46.7
	ARLUL	ARTEMISIA LUDOVICIANA	15	2	13.3
	GRSQ	GRINDELIA SQUARROSA	15	2	13.3
	PF	PERENNIAL FORB	15	5	33.3
		SUBTOTAL	15	11	73.3
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	15	1	6.7
	ATCA	ATRIPLEX CANESCENS	15	1	6.7
	BERE	BERBERIS REPENS	15	11	73.3
	CEMOM	CERCOCARPUS MONTANUS	15	3	20.0
	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	6.7
	RIBES	RIBES SP.	15	5	33.3
	SALIX	SALIX SP.	15	2	13.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	10	66.7
		SUBTOTAL	15	14	93.3
TREE	ABCO	ABIES CONCOLOR	15	2	13.3
	ABLA	ABIES LASIOCARPA	15	1	6.7
	ACGR	ACER GRANDIDENTATUM	15	12	80.0
	CELEL	CERCOCARPUS LEDIFOLIUS	15	1	6.7
	JUOS	JUNIPERUS OSTEOSPERMA	15	6	40.0
	PIED	PINUS EDULIS	15	1	6.7
	POAN	POPULUS ANGUSTIFOLIA	15	2	13.3
	POSA	POPULUS SARGENTII	15	1	6.7

	PSMEM	PSEUDOTSUGA MENZIESII		15	2	13.3
	QUGA	QUERCUS GAMBELII		15	11	73.3
			SUBTOTAL	15	15	100.0
BRYOPHYTE	MOSS	BRYOPHYTE		15	2	13.3
			SUBTOTAL	15	2	13.3
			TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 2.682
VARIANCE - .019
MAXIMUM INDEX - 3.466
EVENNESS - .774
NO OF SPECIES - 32

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 64.3
SAMPLE STANDARD DEVIATION = 12.6
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 13
Z STATISTIC = 1.40
CONFIDENCE LEVEL OBTAINED = 91.9 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 98.0
SAMPLE STANDARD DEVIATION = 2.9
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 0
Z STATISTIC = 9.17
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

DRY CANYON-MIXED BRUSH
REFERENCE SITE
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	5	10.0	55.6
	AGSP3	AGROPYRON SPICATUM	1	2.0	11.1
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	11.1
	PG	PERENNIAL GRASS	2	4.0	22.2
		SUBTOTAL	9	18.0	100.0
FORB	AF	ANNUAL FORB	4	8.0	80.0
	PF	PERENNIAL FORB	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	60.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	40.0
		SUBTOTAL	5	10.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	11.8
	QUGA	QUERCUS GAMBELII	15	30.0	88.2
		SUBTOTAL	17	34.0	100.0
		TOTAL	36	72.0	
BARE GROUND			0	.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	9	18.0	100.0
		SUBTOTAL	9	18.0	100.0
FORB	ANTEN	ANTENNARIA SP.	1	2.0	100.0

		SUBTOTAL	1	2.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	1	2.0	14.3
	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	42.9
	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	42.9
		SUBTOTAL	7	14.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	5.9
	QUGA	QUERCUS GAMBELII	16	32.0	94.1
		SUBTOTAL	17	34.0	100.0
		TOTAL	34	68.0	
BARE GROUND			2	4.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	62.5
	AGSP3	AGROPYRON SPICATUM	1	2.0	12.5
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	25.0
		SUBTOTAL	8	16.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
TREE	QUGA	QUERCUS GAMBELII	18	36.0	100.0
		SUBTOTAL	18	36.0	100.0
		TOTAL	31	62.0	
BARE GROUND			3	6.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGROP	AGROPYRON SP.		3	6.0	100.0
			SUBTOTAL	3	6.0	100.0
TREE	QUGA	QUERCUS GAMBELII		26	52.0	100.0
			SUBTOTAL	26	52.0	100.0
			TOTAL	29	58.0	
BARE GROUND				0	.0	
LITTER-ROCK				21	42.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		7	14.0	87.5
	AGSP3	AGROPYRON SPICATUM		1	2.0	12.5
			SUBTOTAL	8	16.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
TREE	QUGA	QUERCUS GAMBELII		22	44.0	100.0
			SUBTOTAL	22	44.0	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	33	66.0	
BARE GROUND				0	.0	
LITTER-ROCK				17	34.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0

SHRUB	ARTRT	ARTEMISIA TRIDENTATA		4	8.0	80.0
	RIBES	RIBES SP.		1	2.0	20.0
			SUBTOTAL	5	10.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA		1	2.0	4.0
	QUGA	QUERCUS GAMBELII		24	48.0	96.0
			SUBTOTAL	25	50.0	100.0
			TOTAL	31	62.0	
BARE GROUND				2	4.0	
LITTER-ROCK				17	34.0	
VEGETATION, LITTER-ROCK				48	96.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		3	6.0	100.0
			SUBTOTAL	3	6.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		9	18.0	100.0
			SUBTOTAL	9	18.0	100.0
TREE	QUGA	QUERCUS GAMBELII		16	32.0	100.0
			SUBTOTAL	16	32.0	100.0
			TOTAL	28	56.0	
BARE GROUND				0	.0	
LITTER-ROCK				22	44.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		1	2.0	50.0

	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
TREE	ABLA	ABIES LASIOCARPA	1	2.0	4.2
	ACGR	ACER GRANDIDENTATUM	1	2.0	4.2
	PIED	PINUS EDULIS	1	2.0	4.2
	PSMEN	PSEUDOTSUGA MENZIESII	4	8.0	16.7
	QUGA	QUERCUS GAMBELII	17	34.0	70.8
		SUBTOTAL	24	48.0	100.0
		TOTAL	27	54.0	
BARE GROUND			9	18.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	7	14.0	100.0
		SUBTOTAL	7	14.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	QUGA	QUERCUS GAMBELII	26	52.0	100.0
		SUBTOTAL	26	52.0	100.0
		TOTAL	35	70.0	
BARE GROUND			1	2.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	12.5
	AGSP3	AGROPYRON SPICATUM	6	12.0	75.0
	STIPA	STIPA SP.	1	2.0	12.5

			SUBTOTAL	6	16.0	100.0
TREE	QUGA	QUERCUS GAMBELII		21	42.0	100.0
			SUBTOTAL	21	42.0	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	30	60.0	
BARE GROUND				3	6.0	
LITTER-ROCK				17	34.0	
VEGETATION, LITTER-ROCK				47	94.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		12	24.0	75.0
	AGSP3	AGROPYRON SPICATUM		4	8.0	25.0
			SUBTOTAL	16	32.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		10	20.0	90.9
	RIBES	RIBES SP.		1	2.0	9.1
			SUBTOTAL	11	22.0	100.0
TREE	QUGA	QUERCUS GAMBELII		3	6.0	100.0
			SUBTOTAL	3	6.0	100.0
			TOTAL	30	60.0	
BARE GROUND				2	4.0	
LITTER-ROCK				18	36.0	
VEGETATION, LITTER-ROCK				48	96.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	6.7
	AGROP	AGROPYRON SP.	7	14.0	46.7
	AGSP3	AGROPYRON SPICATUM	5	10.0	33.3
	BRTET	BROMUS TECTORUM	1	2.0	6.7

	PG	PERENNIAL GRASS		1	2.0	6.7
			SUBTOTAL	15	30.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS		1	2.0	25.0
	ARTRT	ARTEMISIA TRIDENTATA		2	4.0	50.0
	ATCA	ATRIPLEX CANESCENS		1	2.0	25.0
			SUBTOTAL	4	8.0	100.0
TREE	QUGA	QUERCUS GAMBELII		16	32.0	100.0
			SUBTOTAL	16	32.0	100.0
			TOTAL	35	70.0	
BARE GROUND				0	.0	
LITTER-ROCK				15	30.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGRJP	AGROPYRON SP.		7	14.0	70.0
	AGSP3	AGROPYRON SPICATUM		1	2.0	10.0
	PG	PERENNIAL GRASS		2	4.0	20.0
			SUBTOTAL	10	20.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		7	14.0	87.5
	SYOC	SYMPHORICARPOS OCCIDENTALIS		1	2.0	12.5
			SUBTOTAL	8	16.0	100.0
TREE	QUGA	QUERCUS GAMBELII		13	26.0	100.0
			SUBTOTAL	13	26.0	100.0
			TOTAL	31	62.0	
BARE GROUND				0	.0	
LITTER-ROCK				19	38.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGINI	AGROPYRON INTERMEDIUM		1	2.0	8.3
	AGROP	AGROPYRON SP.		4	8.0	33.3
	AGSP3	AGROPYRON SPICATUM		2	4.0	16.7
	ORHY	ORYZOPSIS HYMENOIDES		2	4.0	16.7
	PG	PERENNIAL GRASS		3	6.0	25.0
			SUBTOTAL	12	24.0	100.0
FORB	AF	ANNUAL FORB		2	4.0	50.0
	PF	PERENNIAL FORB		2	4.0	50.0
			SUBTOTAL	4	8.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		5	10.0	29.4
	QUGA	QUERCUS GAMBELII		12	24.0	70.6
			SUBTOTAL	17	34.0	100.0
			TOTAL	38	76.0	
BARE GROUND				0	.0	
LITTER-ROCK				12	24.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGSP3	AGROPYRON SPICATUM		2	4.0	40.0
	ORHY	ORYZOPSIS HYMENOIDES		3	6.0	60.0
			SUBTOTAL	5	10.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
TREE	QUGA	QUERCUS GAMBELII		23	46.0	100.0
			SUBTOTAL	23	46.0	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	34	68.0	
BARE GROUND				1	2.0	
LITTER-ROCK				15	30.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	7	.9	2.6	6.1
	AGROP	AGROPYRON SP.	15	67	8.9	7.2	58.3
	AGSP3	AGROPYRON SPICATUM	15	23	3.1	3.9	20.0
	BRTET	BROMUS TECTORUM	15	1	.1	.5	.9
	ORHY	ORYZOPSIS HYMENOIDES	15	8	1.1	2.0	7.0
	PG	PERENNIAL GRASS	15	8	1.1	2.0	7.0
	STIPA	STIPA SP.	15	1	.1	.5	.9
		SUBTOTAL	15	115	15.3	9.1	100.0
0							
FORB	AF	ANNUAL FORB	15	6	.8	2.2	60.0
	ANTEN	ANTENNARIA SP.	15	1	.1	.5	10.0
	PF	PERENNIAL FORB	15	3	.4	1.1	30.0
		SUBTOTAL	15	10	1.3	3.2	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	.3	.7	2.9
	ARTRT	ARTEMISIA TRIDENTATA	15	56	7.5	6.3	80.0
	ATCA	ATRIPLEX CANESCENS	15	1	.1	.5	1.4
	RIBES	RIBES SP.	15	2	.3	.7	2.9
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	9	1.2	2.0	12.9
		SUBTOTAL	15	70	9.3	6.4	100.0
0							
TREE	ABLA	ABIES LASIOCARPA	15	1	.1	.5	.4
	ACGR	ACER GRANDIDENTATUM	15	6	.8	2.6	2.1
	JUOS	JUNIPERUS OSTEOSPERMA	15	4	.5	1.2	1.4
	PIED	PINUS EDULIS	15	1	.1	.5	.4
	PSMEM	PSEUDOTSUGA MENZIESII	15	4	.5	2.1	1.4
	QUGA	QUERCUS GAMBELII	15	268	35.7	12.2	94.4
		SUBTOTAL	15	284	37.9	12.1	100.0
0							
SUCCULENT	OPPO	OPUNTIA POLYACANTHA	15	3	.4	.8	100.0
		SUBTOTAL	15	3	.4	.8	100.0
0							
		TOTAL	15	482	64.3	6.3	

BARE GROUND	15	23	3.1	4.7
LITTER-ROCK	15	245	32.7	5.6
VEGETATION, LITTER-ROCK	15	727	96.9	4.7

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	3	20.0
	AGROP	AGROPYRON SP.	15	13	86.7
	AGSP3	AGROPYRON SPICATUM	15	9	60.0
	BRTET	BROMUS TECTORUM	15	1	6.7
	ORHY	ORYZOPSIS HYMENOIDES	15	4	26.7
	PG	PERENNIAL GRASS	15	4	26.7
	STIPA	STIPA SP.	15	1	6.7
		SUBTOTAL	15	15	100.0
FORB	AF	ANNUAL FORB	15	2	13.3
	ANTEN	ANTENNARIA SP.	15	1	6.7
	PF	PERENNIAL FORB	15	2	13.3
		SUBTOTAL	15	3	20.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	13.3
	ARTRT	ARTEMISIA TRIDENTATA	15	12	80.0
	ATCA	ATRIPLEX CANESCENS	15	1	6.7
	RIBES	RIBES SP.	15	2	13.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	5	33.3
		SUBTOTAL	15	13	86.7
TREE	ABLA	ABIES LASIOCARPA	15	1	6.7
	ACGR	ACER GRANDIDENTATUM	15	2	13.3
	JUOS	JUNIPERUS OSTEOSPERMA	15	3	20.0
	PIED	PINUS EDULIS	15	1	6.7
	PSMEM	PSEUDOTSUGA MENZIESII	15	1	6.7
	QUGA	QUERCUS GAMBELII	15	15	100.0
		SUBTOTAL	15	15	100.0
SUCCULENT	OPPO	OPUNTIA POLYACANTHA	15	3	20.0
		SUBTOTAL	15	3	20.0

TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.642
VARIANCE - .032
MAXIMUM INDEX - 3.091
EVENNESS - .531
NO OF SPECIES - 22

****

**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 64.3
SAMPLE STANDARD DEVIATION = 6.3
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 3
Z STATISTIC = 2.79
CONFIDENCE LEVEL OBTAINED = 99.7 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 96.9
SAMPLE STANDARD DEVIATION = 4.7
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 1
Z STATISTIC = 5.63
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON PINYON-JUNIPER
AFFECTED AREA
OCT/1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	5	10.0	20.8
	AGROP	AGROPYRON SP.	18	36.0	75.0
	PG	PERENNIAL GRASS	1	2.0	4.2
		SUBTOTAL	24	48.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	3	6.0	75.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
TREE	PIED	PINUS EDULIS	1	2.0	50.0
	QUGA	QUERCUS GAMBELII	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
		TOTAL	31	62.0	
BARE GROUND			1	2.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	5.3
	AGSM	AGROPYRON SMITHII	1	2.0	5.3
	AGROP	AGROPYRON SP.	16	32.0	84.2
	PG	PERENNIAL GRASS	1	2.0	5.3
		SUBTOTAL	19	38.0	100.1

SHRUB	RIBES	RIBES SP.		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
TREE	ABCO	ABIES CONCOLOR		4	8.0	44.4
	ACGR	ACER GRANDIDENTATUM		1	2.0	11.1
	JUOS	JUNIPERUS OSTEOSPERMA		4	8.0	44.4
			SUBTOTAL	9	18.0	100.0
			TOTAL	29	58.0	
BARE GROUND				7	14.0	
LITTER-ROCK				14	28.0	
VEGETATION, LITTER-ROCK				43	86.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM		1	2.0	7.7
	AGROP	AGROPYRON SP.		12	24.0	92.3
			SUBTOTAL	13	26.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA		5	10.0	45.5
	PIED	PINUS EDULIS		6	12.0	54.5
			SUBTOTAL	11	22.0	100.0
			TOTAL	24	48.0	
BARE GROUND				6	12.0	
LITTER-ROCK				20	40.0	
VEGETATION, LITTER-ROCK				44	88.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		14	28.0	100.0
			SUBTOTAL	14	28.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS		5	10.0	41.7
	JUOS	JUNIPERUS OSTEOSPERMA		4	8.0	33.3
	PIED	PINUS EDULIS		3	6.0	25.0

		SUBTOTAL	12	24.0	100.0
		TOTAL	26	52.0	
BARE GROUND			6	12.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	11	22.0	100.0
		SUBTOTAL	11	22.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	5	10.0	33.3
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	20.0
	PIED	PINUS EDULIS	5	10.0	33.3
	QUGA	QUERCUS GAMBELII	2	4.0	13.3
		SUBTOTAL	15	30.0	100.0
		TOTAL	26	52.0	
BARE GROUND			3	6.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	13	26.0	100.0
		SUBTOTAL	13	26.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	6	12.0	50.0
	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	16.7
	PIED	PINUS EDULIS	4	8.0	33.3
		SUBTOTAL	12	24.0	100.0
		TOTAL	25	50.0	
BARE GROUND			7	14.0	

LITTER-ROCK	18	36.0
VEGETATION, LITTER-ROCK	43	86.0

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	8	16.0	100.0
		SUBTOTAL	8	16.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	5.3
	JUOS	JUNIPERUS OSTEOSPERMA	7	14.0	36.8
	PIED	PINUS EDULIS	5	10.0	26.3
	PSMEM	PSEUDOTSUGA MENZIESII	4	8.0	21.1
	QUGA	QUERCUS GAMBELII	2	4.0	10.5
		SUBTOTAL	19	38.0	100.0
		TOTAL	27	54.0	
BARE GROUND			3	6.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	22	44.0	100.0
		SUBTOTAL	22	44.0	100.0
TREE	PIED	PINUS EDULIS	2	4.0	40.0
	QUGA	QUERCUS GAMBELII	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	27	54.0	
BARE GROUND			7	14.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			43	86.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	18	36.0	100.0
		SUBTOTAL	18	36.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	33.3
	PIED	PINUS EDULIS	4	8.0	66.7
		SUBTOTAL	6	12.0	100.0
		TOTAL	24	48.0	
BARE GROUND			2	4.0	
LITTER-ROCK			24	48.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	18	36.0	90.0
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	5.0
	POA	POA SP.	1	2.0	5.0
		SUBTOTAL	20	40.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	7.7
	JUOS	JUNIPERUS OSTEOSPERMA	4	8.0	30.8
	PIED	PINUS EDULIS	8	16.0	61.5
		SUBTOTAL	13	26.0	100.0
		TOTAL	33	66.0	
BARE GROUND			3	6.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	15	30.0	93.8

	POA	POA SP.	1	2.0	6.3
		SUBTOTAL	16	32.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	6	12.0	37.5
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	18.8
	PIEO	PINUS EDULIS	7	14.0	43.8
		SUBTOTAL	16	32.0	100.0
		TOTAL	32	64.0	
BARE GROUND			5	10.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	17	34.0	81.0
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	4.8
	POA	POA SP.	3	6.0	14.3
		SUBTOTAL	21	42.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	3	6.0	18.8
	JUOS	JUNIPERUS OSTEOSPERMA	13	26.0	81.3
		SUBTOTAL	16	32.0	100.0
		TOTAL	37	74.0	
BARE GROUND			3	6.0	
LITTER-ROCK			10	20.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	17	34.0	77.3
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	9.1
	POA	POA SP.	3	6.0	13.6
		SUBTOTAL	22	44.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	100.0

		SUBTOTAL	1	2.0	100.0
		TOTAL	23	46.0	
BARE GROUND			14	28.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			36	72.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	3	6.0	25.0
	AGROP	AGROPYRON SP.	9	18.0	75.0
		SUBTOTAL	12	24.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	9	18.0	50.0
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	16.7
	PIED	PINUS EDULIS	6	12.0	33.3
		SUBTOTAL	18	36.0	100.0
		TOTAL	30	60.0	
BARE GROUND			7	14.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			43	86.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	10.0
	AGROP	AGROPYRON SP.	18	36.0	90.0
		SUBTOTAL	20	40.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	7.7
	JUOS	JUNIPERUS OSTEOSPERMA	8	16.0	61.5
	PIED	PINUS EDULIS	4	8.0	30.8
		SUBTOTAL	13	26.0	100.0
		TOTAL	33	66.0	

BARE GROUND	11	22.0
LITTER-ROCK	6	12.0
VEGETATION, LITTER-ROCK	39	78.0

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	12	1.6	2.9	4.7
	AGSM	AGROPYRON SMITHII	15	1	.1	.5	.4
	AGROP	AGROPYRON SP.	15	226	30.1	7.7	89.3
	ORHY	ORYZOPSIS HYMENOIDES	15	4	.5	1.2	1.6
	PG	PERENNIAL GRASS	15	2	.3	.7	.8
	POA	POA SP.	15	8	1.1	2.1	3.2
		SUBTOTAL	15	253	33.7	9.6	100.0
0							
FORB	ARLUL	ARTEMISIA LUDOVICIANA	15	1	.1	.5	100.0
		SUBTOTAL	15	1	.1	.5	100.0
0							
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	15	3	.4	1.5	60.0
	RIBES	RIBES SP.	15	1	.1	.5	20.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	1	.1	.5	20.0
		SUBTOTAL	15	5	.7	2.1	100.0
0							
TREE	ABCO	ABIES CONCOLOR	15	4	.5	2.1	2.4
	ACGR	ACER GRANDIDENTATUM	15	1	.1	.5	.6
	CELEL	CERCOCARPUS LEDIFOLIUS	15	38	5.1	5.8	22.6
	JUOS	JUNIPERUS OSTEOSPERMA	15	58	7.7	6.9	34.5
	PIED	PINUS EDULIS	15	55	7.3	5.2	32.7
	PSMEM	PSEUDOTSUGA MENZIESII	15	4	.5	2.1	2.4
	QUGA	QUERCUS GAMBELII	15	8	1.1	2.0	4.8
		SUBTOTAL	15	168	22.4	11.1	100.0
0							
		TOTAL	15	427	56.9	8.2	
BARE GROUND			15	85	11.3	7.0	
LITTER-ROCK			15	238	31.7	9.3	
VEGETATION, LITTER-ROCK			15	665	88.7	7.0	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	5	33.3
	AGSM	AGROPYRON SMITHII	15	1	6.7
	AGROP	AGROPYRON SP.	15	15	100.0
	ORHY	ORYZOPSIS HYMENOIDES	15	3	20.0
	PG	PERENNIAL GRASS	15	2	13.3
	POA	POA SP.	15	4	26.7
		SUBTOTAL	15	15	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	15	1	6.7
		SUBTOTAL	15	1	6.7
SHRUB	ARTRT	ARTEMISIA TRIDENTATA	15	1	6.7
	RIBES	RIBES SP.	15	1	6.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	1	6.7
		SUBTOTAL	15	2	13.3
TREE	ABCO	ABIES CONCOLOR	15	1	6.7
	ACGR	ACER GRANDIDENTATUM	15	1	6.7
	CELEL	CERCOCARPUS LEDIFOLIUS	15	10	66.7
	JUOS	JUNIPERUS OSTEOSPERMA	15	12	80.0
	PIED	PINUS EDULIS	15	12	80.0
	PSMEM	PSEUDOTSUGA MENZIESII	15	1	6.7
	QUGA	QUERCUS GAMBELII	15	4	26.7
		SUBTOTAL	15	15	100.0
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.559
VARIANCE - .027

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MAXIMUM INDEX - 2.833
EVENNESS      -  .564
NO OF SPECIES -    17

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**** EVALUATION OF SAMPLING ADEQUACY ****
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DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE =  15

MEAN VEGETATION PERCENT COVER =      56.9
SAMPLE STANDARD DEVIATION =        8.2
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   7
Z STATISTIC = 1.91
CONFIDENCE LEVEL OBTAINED = 97.2 PERCENT


MEAN VEGETATION, LITTER-ROCK PERCENT COVER =      88.7
SAMPLE STANDARD DEVIATION =        7.0
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   2
Z STATISTIC = 3.49
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CRANDALL PINYON-JUNIPER
REFERENCE SITE
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	7	14.0	46.7
	AGROP	AGROPYRON SP.	8	16.0	53.3
		SUBTOTAL	15	30.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	10	20.0	76.9
	PIED	PINUS EDULIS	2	4.0	15.4
	QUGA	QUERCUS GAMBELII	1	2.0	7.7
		SUBTOTAL	13	26.0	100.0
		TOTAL	28	56.0	
BARE GROUND			1	2.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	18.2
	AGROP	AGROPYRON SP.	8	16.0	72.7
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	9.1
		SUBTOTAL	11	22.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	10	20.0	62.5
	JUOS	JUNIPERUS OSTEOSPERMA	3	6.0	18.8
	PIED	PINUS EDULIS	3	6.0	18.8
		SUBTOTAL	16	32.0	100.0

		TOTAL	28	56.0	
BARE GROUND			3	6.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	25.0
	AGROP	AGROPYRON SP.	6	12.0	75.0
		SUBTOTAL	8	16.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	3	6.0	15.8
	JUOS	JUNIPERUS OSTEOSPERMA	9	18.0	47.4
	PIED	PINUS EDULIS	7	14.0	36.8
		SUBTOTAL	19	38.0	100.0
		TOTAL	27	54.0	
BARE GROUND			8	16.0	
LITTER-ROCK			15	30.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	13.3
	AGSM	AGROPYRON SMITHII	1	2.0	6.7
	AGROP	AGROPYRON SP.	12	24.0	80.0
		SUBTOTAL	15	30.0	100.0
FORB	PHLOX	PHLOX SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	PIED	PINUS EDULIS	8	16.0	61.5
	QUGA	QUERCUS GAMBELII	5	10.0	38.5

		SUBTOTAL	13	26.0	100.0
		TOTAL	30	60.0	
BARE GROUND			5	10.0	
LITTER-ROCK			15	30.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	2	4.0	11.1
	AGSM	AGROPYRON SMITHII	2	4.0	11.1
	AGROP	AGROPYRON SP.	13	26.0	72.2
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	5.6
		SUBTOTAL	18	36.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	4	8.0	44.4
	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	55.6
		SUBTOTAL	9	18.0	100.0
		TOTAL	27	54.0	
BARE GROUND			7	14.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			43	86.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	4.2
	JUOS	JUNIPERUS OSTEOSPERMA	9	18.0	37.5
	PIED	PINUS EDULIS	8	16.0	33.3
	QUGA	QUERCUS GAMBELII	6	12.0	25.0
		SUBTOTAL	24	48.0	100.0
		TOTAL	28	56.0	

BARE GROUND			6	12.0
LITTER-ROCK			16	32.0
VEGETATION, LITTER-ROCK			44	88.0

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	2	4.0	10.5
	JUOS	JUNIPERUS OSTEOSPERMA	11	22.0	57.9
	PSMEM	PSEUDOTSUGA MENZIESII	6	12.0	31.6
		SUBTOTAL	19	38.0	100.0
		TOTAL	25	50.0	
BARE GROUND			3	6.0	
LITTER-ROCK			22	44.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	PSMEM	PSEUDOTSUGA MENZIESII	9	18.0	36.0
	QUGA	QUERCUS GAMBELII	16	32.0	64.0
		SUBTOTAL	25	50.0	100.0
		TOTAL	28	56.0	
BARE GROUND			6	12.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	12.5
	AGROP	AGROPYRON SP.	7	14.0	87.5
		SUBTOTAL	8	16.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	3	6.0	18.8
	PIED	PINUS EDULIS	13	26.0	81.3
		SUBTOTAL	16	32.0	100.0
		TOTAL	24	48.0	
BARE GROUND			9	18.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	57.1
	AGROP	AGROPYRON SP.	2	4.0	28.6
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	3	6.0	16.7
	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	11.1
	PIED	PINUS EDULIS	13	26.0	72.2
		SUBTOTAL	18	36.0	100.0
		TOTAL	25	50.0	
BARE GROUND			6	12.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			44	86.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGINI	AGROPYRON INTERMEDIUM	3	6.0	15.0
	AGROP	AGROPYRON SP.	15	30.0	75.0
	POA	POA SP.	2	4.0	10.0
		SUBTOTAL	20	40.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	25	50.0	
BARE GROUND			1	2.0	
LITTER-ROCK			24	48.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	71.4
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	28.6
		SUBTOTAL	7	14.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	9	18.0	45.0
	JUOS	JUNIPERUS OSTEOSPERMA	6	12.0	30.0
	QUGA	QUERCUS GAMBELII	5	10.0	25.0
		SUBTOTAL	20	40.0	100.0
		TOTAL	27	54.0	
BARE GROUND			4	8.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	9	18.0	100.0
		SUBTOTAL	9	18.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	9	18.0	56.3
	JUOS	JUNIPERUS OSTEOSPERMA	7	14.0	43.8

		SUBTOTAL	16	32.0	100.0
		TOTAL	25	50.0	
BARE GROUND			4	8.0	
LITTER-ROCK			21	42.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	3	6.0	37.5
	AGROP	AGROPYRON SP.	5	10.0	62.5
		SUBTOTAL	8	16.0	100.0
TREE	PIED	PINUS EDULIS	16	32.0	100.0
		SUBTOTAL	16	32.0	100.0
		TOTAL	24	48.0	
BARE GROUND			6	12.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	4	8.0	26.7
	AGROP	AGROPYRON SP.	5	10.0	33.3
	ORHY	ORYZOPSIS HYMENOIDES	3	6.0	20.0
	POA	POA SP.	3	6.0	20.0
		SUBTOTAL	15	30.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	41.7
	QUGA	QUERCUS GAMBELII	7	14.0	58.3
		SUBTOTAL	12	24.0	100.0
		TOTAL	27	54.0	
BARE GROUND			5	10.0	

LITTER-ROCK	18	36.0
VEGETATION, LITTER-ROCK	45	90.0

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	30	4.0	4.0	19.5
	AGSM	AGROPYRON SMITHII	15	3	.4	1.1	1.9
	AGROP	AGROPYRON SP.	15	108	14.4	7.5	70.1
	ORHY	ORYZOPSIS HYMENOIDES	15	8	1.1	1.8	5.2
	POA	POA SP.	15	5	.7	1.8	3.2
		SUBTOTAL	15	154	20.5	10.3	100.0
0							
FORB	AF	ANNUAL FORB	15	1	.1	.5	50.0
	PHLOX	PHLOX SP.	15	1	.1	.5	50.0
		SUBTOTAL	15	2	.3	.7	100.0
0							
SHRUB	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	.1	.5	100.0
		SUBTOTAL	15	1	.1	.5	100.0
0							
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	15	54	7.2	7.8	22.4
	JUOS	JUNIPERUS OSTEOSPERMA	15	62	8.3	7.6	25.7
	PIED	PINUS EDULIS	15	70	9.3	11.4	29.0
	PSMEM	PSEUDOTSUGA MENZIESII	15	15	2.0	5.4	6.2
	QUGA	QUERCUS GAMBELII	15	40	5.3	9.0	16.6
		SUBTOTAL	15	241	32.1	10.5	100.0
0							
		TOTAL	15	398	53.1	3.5	
BARE GROUND			15	74	9.9	4.6	
LITTER-ROCK			15	278	37.1	5.4	
VEGETATION, LITTER-ROCK			15	676	90.1	4.6	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	10	66.7
	AGSM	AGROPYRON SMITHII	15	2	13.3
	AGROP	AGROPYRON SP.	15	15	100.0
	ORHY	ORYZOPSIS HYMENOIDES	15	5	33.3
	POA	POA SP.	15	2	13.3
		SUBTOTAL	15	15	100.0
FORB	AF	ANNUAL FORB	15	1	6.7
	PHLOX	PHLOX SP.	15	1	6.7
		SUBTOTAL	15	2	13.3
SHRUB	CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	1	6.7
		SUBTOTAL	15	1	6.7
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	15	10	66.7
	JUOS	JUNIPERUS OSTEOSPERMA	15	10	66.7
	PIED	PINUS EDULIS	15	8	53.3
	PSMEM	PSEUDOTSUGA MENZIESII	15	2	13.3
	QUGA	QUERCUS GAMBELII	15	6	40.0
		SUBTOTAL	15	15	100.0
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.985
VARIANCE - .011
MAXIMUM INDEX - 2.565
EVENNESS - .774
NO OF SPECIES - 13

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**** EVALUATION OF SAMPLING ADEQUACY ****
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DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE =  15

MEAN VEGETATION PERCENT COVER =      53.1
SAMPLE STANDARD DEVIATION =        3.5
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   1
Z STATISTIC = 4.11
CONFIDENCE LEVEL OBTAINED = *100.0 PERCENT


MEAN VEGETATION, LITTER-ROCK PERCENT COVER =       90.1
SAMPLE STANDARD DEVIATION =        4.6
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   1
Z STATISTIC = 5.33
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CASTLE GATE RIPARIAN
REFERENCE SITE
JULY 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	2	4.0	40.0
	ORHY	ORYZOPSIS HYMENOIDES	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	7.7
	CLLI2	CLEMATIS LINGUSTICIFOLIA	5	10.0	38.5
	GLLE	GLYCYRRHIZA LEPIDOTA	1	2.0	7.7
	SAKA	SALSOLA KALI	2	4.0	15.4
	SMRAA	SMILACINA RACEMOSA	4	8.0	30.8
		SUBTOTAL	13	26.0	100.0
TREE	QUGA	QUERCUS GAMBELII	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
		TOTAL	23	46.0	
BARE GROUND			11	22.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			39	78.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
FORB	CLLI2	CLEMATIS LINGUSTICIFOLIA	4	8.0	33.3
	COAR2	CONVOLVULUS ARVENSIS	3	6.0	25.0
	IVAX	IVA AXILLARIS	1	2.0	8.3
	SAKA	SALSOLA KALI	4	8.0	33.3
		SUBTOTAL	12	24.0	100.0

SHRUB	AMUTU	AMELANCHIER UTAHENSIS		1	2.0	20.0
	COSTS	CORNUS STOLONIFERA		4	8.0	80.0
			SUBTOTAL	5	10.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
			TOTAL	25	50.0	
BARE GROUND				14	28.0	
LITTER-ROCK				11	22.0	
VEGETATION, LITTER-ROCK				36	72.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM		4	8.0	66.7
	POA	POA SP.		2	4.0	33.3
			SUBTOTAL	6	12.0	100.0
FORB	APANP	APOCYNUM ANDROSAEMIFOIUM		2	4.0	16.7
	CLLI2	CLEMATIS LINGUSTICIFOLIA		5	10.0	41.7
	GLLE	GLYCYRRHIZA LEPIDOTA		2	4.0	16.7
	IVAX	IVA AXILLARIS		2	4.0	16.7
	SOLID	SOLIDAGO SP.		1	2.0	8.3
			SUBTOTAL	12	24.0	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS		1	2.0	20.0
	RHRA	RHUS RADICANS		1	2.0	20.0
	RHTRT	RHUS TRILOBATA		1	2.0	20.0
	ROSA	ROSA SP.		1	2.0	20.0
	SALIX	SALIX SP.		1	2.0	20.0
			SUBTOTAL	5	10.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA		8	16.0	72.7
	QUGA	QUERCUS GAMBELII		3	6.0	27.3
			SUBTOTAL	11	22.0	100.0
			TOTAL	34	68.0	
BARE GROUND				12	24.0	
LITTER-ROCK				4	8.0	
VEGETATION, LITTER-ROCK				38	76.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	14.3
	BRTET	BROMUS TECTORUM	5	10.0	71.4
	PG	PERENNIAL GRASS	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	14.3
	CHENO	CHENOPODIUM SP.	1	2.0	14.3
	CLLI2	CLEMATIS LINGUSTICIFOLIA	1	2.0	14.3
	DESCU	DESCURAINIA SP.	1	2.0	14.3
	IVAX	IVA AXILLARIS	1	2.0	14.3
	SOLID	SOLIDAGO SP.	2	4.0	28.6
		SUBTOTAL	7	14.0	100.0
SHRUB	RHTRT	RHUS TRILOBATA	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	11	22.0	78.6
	QUGA	QUERCUS GAMBELII	3	6.0	21.4
		SUBTOTAL	14	28.0	100.0
		TOTAL	33	66.0	
BARE GROUND			12	24.0	
LITTER-ROCK			5	10.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	9	18.0	69.2
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	7.7
	STCO3	STIPA COMATA	3	6.0	23.1
		SUBTOTAL	13	26.0	100.0
FORB	CHENO	CHENOPODIUM SP.	1	2.0	7.7
	COAR2	CONVOLVULUS ARVENSIS	9	18.0	69.2
	GPSQ	GRINDELIA SQUARROSA	2	4.0	15.4
	IVAX	IVA AXILLARIS	1	2.0	7.7
		SUBTOTAL	13	26.0	100.0

		TOTAL	26	52.0
BARE GROUND			18	36.0
LITTER-ROCK			6	12.0
VEGETATION, LITTER-ROCK			32	64.0

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	35.7
	BRTET	BROMUS TECTORUM	4	8.0	28.6
	STCO3	STIPA COMATA	5	10.0	35.7
		SUBTOTAL	14	28.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	8.3
	ASTER	ASTER SP.	1	2.0	8.3
	CLLI2	CLEMATIS LINGUSTICIFOLIA	5	10.0	41.7
	SAKA	SALSOLA KALI	4	8.0	33.3
	SMRAA	SMILACINA RACEMOSA	1	2.0	8.3
		SUBTOTAL	12	24.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
		TOTAL	32	64.0	
BARE GROUND			8	16.0	
LITTER-ROCK			10	20.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	2	4.0	16.7
	BRTET	BROMUS TECTORUM	9	18.0	75.0
	STCO3	STIPA COMATA	1	2.0	8.3
		SUBTOTAL	12	24.0	100.0
FORB	CLLI2	CLEMATIS LINGUSTICIFOLIA	6	12.0	75.0
	LAOC	LAPPULA OCCIDENTALIS	1	2.0	12.5
	SIAL	SISYMBRIUM ALTISSIMUM	1	2.0	12.5
		SUBTOTAL	8	16.0	100.0

TREE	QUGA	QUERCUS GAMBELII	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
		TOTAL	26	52.0	
BARE GROUND			13	26.0	
LITTER-ROCK			11	22.0	
VEGETATION, LITTER-ROCK			37	74.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	COAR2	CONVOLVULUS ARVENSIS	13	26.0	72.2
	LAOC	LAPPULA OCCIDENTALIS	1	2.0	5.6
	SAKA	SALSOLA KALI	4	8.0	22.2
		SUBTOTAL	18	36.0	100.0
		TOTAL	19	38.0	
BARE GROUND			25	50.0	
LITTER-ROCK			6	12.0	
VEGETATION, LITTER-ROCK			25	50.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	6	12.0	85.7
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
FORB	AF	ANNUAL FORB	3	6.0	18.8
	APANP	APOCYNUM ANDROSAEMIFOIUM	2	4.0	12.5
	ASTER	ASTER SP.	4	8.0	25.0
	CLLI2	CLEMATIS LINGUSTICIFOLIA	2	4.0	12.5
	GLLE	GLYCYRRHIZA LEPIDOTA	2	4.0	12.5
	SIAL	SISYMBRIUM ALTISSIMUM	3	6.0	18.8
		SUBTOTAL	16	32.0	100.0

TREE	POAN	POPULUS ANGUSTIFOLIA		10	20.0	100.0
			SUBTOTAL	10	20.0	100.0
			TOTAL	33	66.0	
BARE GROUND				9	18.0	
LITTER-ROCK				8	16.0	
VEGETATION, LITTER-ROCK				41	82.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
FORB	CLLI2	CLEMATIS LINGUSTICIFOLIA		3	6.0	60.0
	SMRAA	SMILACINA RACEMOSA		2	4.0	40.0
			SUBTOTAL	5	10.0	100.0
SHRUB	RHTRT	RHUS TRILOBATA		6	12.0	75.0
	RICEC	RIBES CEREUM		2	4.0	25.0
			SUBTOTAL	8	16.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		2	4.0	8.0
	POAN	POPULUS ANGUSTIFOLIA		20	40.0	80.0
	QUGA	QUERCUS GAMBELII		3	6.0	12.0
			SUBTOTAL	25	50.0	100.0
			TOTAL	38	76.0	
BARE GROUND				5	10.0	
LITTER-ROCK				7	14.0	
VEGETATION, LITTER-ROCK				45	90.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
FORB	ASTER	ASTER SP.		6	12.0	66.7
	CLLI2	CLEMATIS LINGUSTICIFOLIA		3	6.0	33.3
			SUBTOTAL	9	18.0	100.0
SHRUB	ROSA	ROSA SP.		5	10.0	100.0

		SUBTOTAL	5	10.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	7	14.0	77.8
	ULPA	ULMUS PARVIFOLIA	2	4.0	22.2
		SUBTOTAL	9	18.0	100.0
		TOTAL	23	46.0	
BARE GROUND			15	30.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			35	70.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	11.1
	BRTET	BROMUS TECTORUM	7	14.0	77.8
	HOJUJ	HORDEUM JUBATUM	1	2.0	11.1
		SUBTOTAL	9	18.0	100.0
FORB	APANP	APOCYNUM ANDROSAEMIFOIUM	1	2.0	25.0
	CLLI2	CLEMATIS LINGUSTICIFOLIA	2	4.0	50.0
	OXLI	OXYBAPHUS LINEARIS	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	2	4.0	11.8
	RHTRT	RHUS TRILOBATA	7	14.0	41.2
	ROSA	ROSA SP.	4	8.0	23.5
	SALIX	SALIX SP.	4	8.0	23.5
		SUBTOTAL	17	34.0	100.0
TREE	QUGA	QUERCUS GAMBELII	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
		TOTAL	32	64.0	
BARE GROUND			2	4.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGROP	AGROPYRON SP.		1	2.0	33.3
	BRTET	BROMUS TECTORUM		2	4.0	66.7
			SUBTOTAL	3	6.0	100.0
FORB	KOSC	KOCHIA SCOPARIA		1	2.0	6.7
	MEAL	MELILOTUS ALBA		13	26.0	86.7
	RUCR	RUMEX CRISPUS		1	2.0	6.7
			SUBTOTAL	15	30.0	100.0
SHRUB	RHTRT	RHUS TRILOBATA		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
TREE	ACGLG	ACER GLABRUM		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	20	40.0	
BARE GROUND				20	40.0	
LITTER-ROCK				10	20.0	
VEGETATION, LITTER-ROCK				30	60.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM		11	22.0	91.7
	HOJUJ	HORDEUM JUBATUM		1	2.0	8.3
			SUBTOTAL	12	24.0	100.0
FORB	AF	ANNUAL FORB		1	2.0	14.3
	APANP	APOCYNUM ANDROSAEMIFOIUM		1	2.0	14.3
	ASTRA	ASTRAGALUS SP.		1	2.0	14.3
	MEAL	MELILOTUS ALBA		2	4.0	28.6
	PF	PERENNIAL FORB		1	2.0	14.3
	SAKA	SALSOLA KALI		1	2.0	14.3
			SUBTOTAL	7	14.0	100.0
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS		2	4.0	18.2
	ROSA	ROSA SP.		1	2.0	9.1
	SALIX	SALIX SP.		8	16.0	72.7
			SUBTOTAL	11	22.0	100.0
TREE	QUGA	QUERCUS GAMBELII		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0

		TOTAL	32	64.0
BARE GROUND			5	10.0
LITTER-ROCK			13	26.0
VEGETATION, LITTER-ROCK			45	90.0

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	8	16.0	88.9
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	11.1
		SUBTOTAL	9	18.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	33.3
	ASTER	ASTER SP.	1	2.0	33.3
	CLLI2	CLEMATIS LINGUSTICIFOLIA	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	2	4.0	16.7
	RHTRT	RHUS TRILOBATA	1	2.0	8.3
	SALIX	SALIX SP.	9	18.0	75.0
		SUBTOTAL	12	24.0	100.0
TREE	QUGA	QUERCUS GAMBELII	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
		TOTAL	27	54.0	
BARE GROUND			6	12.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			44	88.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	15	10	1.3	2.7	5.6

	BRTET	BROMUS TECTORUM	15	74	9.9	6.9	71.2
	HOJUJ	HORDEUM JUBATUM	15	2	.3	.7	1.9
	ORHY	ORYZOPSIS HYMENOIDES	15	6	.8	1.7	5.8
	PG	PERENNIAL GRASS	15	1	.1	.5	1.0
	POA	POA SP.	15	2	.3	1.0	1.9
	STCO3	STIPA COMATA	15	9	1.2	2.9	8.7
		SUBTOTAL	15	104	13.9	9.2	100.0
0							
FORB	AF	ANNUAL FORB	15	6	.8	1.7	3.9
	APANP	APOCYNUM ANDROSAEMIFOIUM	15	6	.8	1.5	3.9
	ASTER	ASTER SP.	15	14	1.9	3.5	9.1
	ASTRA	ASTRAGALUS SP.	15	1	.1	.5	.6
	CHENO	CHENOPODIUM SP.	15	2	.3	.7	1.3
	CLLI2	CLEMATIS LINGUSTICIFOLIA	15	37	4.9	4.3	24.0
	COAR2	CONVOLVULUS ARVENSIS	15	25	3.3	7.9	16.2
	DESCU	DESCURAINIA SP.	15	1	.1	.5	.6
	GLLE	GLYCYRRHIZA LEPIDOTA	15	5	.7	1.4	3.2
	GRSQ	GRINDELIA SQUARROSA	15	2	.3	1.0	1.3
	IVAX	IVA AXILLARIS	15	5	.7	1.2	3.2
	KOSC	KOCHIA SCOPARIA	15	1	.1	.5	.6
	LAOC	LAPPULA OCCIDENTALIS	15	2	.3	.7	1.3
	MEAL	MELILOTUS ALBA	15	15	2.0	6.7	9.7
	OXLI	OXYBAPHUS LINEARIS	15	1	.1	.5	.6
	PF	PERENNIAL FORB	15	1	.1	.5	.6
	RUCR	RUMEX CRISPUS	15	1	.1	.5	.6
	SAKA	SALSOLA KALI	15	15	2.0	3.3	9.7
	SIAL	SISYMBRIUM ALTISSIMUM	15	4	.5	1.6	2.6
	SMRAA	SMILACINA RACEMOSA	15	7	.9	2.3	4.5
	SOLID	SOLIDAGO SP.	15	3	.4	1.1	1.9
		SUBTOTAL	15	154	20.5	9.1	100.0
0							
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	.3	.7	2.9
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	6	.8	1.7	8.7
	COSTS	CORNUS STOLONIFERA	15	4	.5	2.1	5.8
	RHRA	RHUS RADICANS	15	1	.1	.5	1.4
	RHTRT	RHUS TRILOBATA	15	21	2.8	4.9	30.4
	RICEC	RIBES CEREUM	15	2	.3	1.0	2.9
	ROSA	ROSA SP.	15	11	1.5	3.2	15.9
	SALIX	SALIX SP.	15	22	2.9	6.1	31.9
		SUBTOTAL	15	69	9.2	10.7	100.0
0							
TREE	ACGLG	ACER GLABRUM	15	1	.1	.5	1.0
	ACGR	ACER GRANDIDENTATUM	15	2	.3	1.0	2.1
	POAN	POPULUS ANGUSTIFOLIA	15	64	8.5	12.0	66.7
	QUGA	QUERCUS GAMBELII	15	27	3.6	4.0	28.1
	ULPA	ULMUS PARVIFOLIA	15	2	.3	1.0	2.1
		SUBTOTAL	15	96	12.8	13.4	100.0
0							
		TOTAL	15	423	56.4	11.3	
BARE GROUND			15	175	23.3	12.4	
LITTER-ROCK			15	152	20.3	8.3	
VEGETATION, LITTER-ROCK			15	575	76.7	12.4	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGROP	AGROPYRON SP.	15	5	33.3
	BRTET	BROMUS TECTORUM	15	13	86.7
	HOJUJ	HORDEUM JUBATUM	15	2	13.3
	ORHY	ORYZOPSIS HYMENOIDES	15	4	26.7
	PG	PERENNIAL GRASS	15	1	6.7
	POA	POA SP.	15	1	6.7
	STCO3	STIPA COMATA	15	3	20.0
		SUBTOTAL	15	13	86.7
FORB	AF	ANNUAL FORB	15	4	26.7
	APANP	APOCYNUM ANDROSAEMIFOIUM	15	4	26.7
	ASTER	ASTER SP.	15	6	40.0
	ASTRA	ASTRAGALUS SP.	15	1	6.7
	CHENO	CHENOPODIUM SP.	15	2	13.3
	CLLI2	CLEMATIS LINGUSTICIFOLIA	15	11	73.3
	COAR2	CONVOLVULUS ARVENSIS	15	3	20.0
	DESCU	DESCURAINIA SP.	15	1	6.7
	GLLE	GLYCYRRHIZA LEPIDOTA	15	3	20.0
	GRSQ	GRINDELIA SQUARROSA	15	1	6.7
	IVAX	IVA AXILLARIS	15	4	26.7
	KOSC	KOCHIA SCOPARIA	15	1	6.7
	LAOC	LAPPULA OCCIDENTALIS	15	2	13.3
	MEAL	MELILOTUS ALBA	15	2	13.3
	OXLI	OXYBAPHUS LINEARIS	15	1	6.7
	PF	PERENNIAL FORB	15	1	6.7
	RUCR	RUMEX CRISPUS	15	1	6.7
	SAKA	SALSOLA KALI	15	5	33.3
	SIAL	SISYMBRIUM ALTISSIMUM	15	2	13.3
	SMRAA	SMILACINA RACEMOSA	15	3	20.0
	SOLID	SOLIDAGO SP.	15	2	13.3
		SUBTOTAL	15	15	100.0
SHRUB	AMUTU	AMELANCHIER UTAHENSIS	15	2	13.3
	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	3	20.0
	COSTS	CORNUS STOLONIFERA	15	1	6.7
	RHRA	RHUS RADICANS	15	1	6.7
	RHTRT	RHUS TRILOBATA	15	6	40.0
	RICEC	RIBES CEREUM	15	1	6.7
	ROSA	ROSA SP.	15	4	26.7
	SALIX	SALIX SP.	15	4	26.7
		SUBTOTAL	15	9	60.0

TREE	ACGLG	ACER GLABRUM	15	1	6.7
	ACGR	ACER GRANDIDENTATUM	15	1	6.7
	POAN	POPULUS ANGUSTIFOLIA	15	7	46.7
	QUGA	QUERCUS GAMBELII	15	8	53.3
	ULPA	ULMUS PARVIFOLIA	15	1	6.7
		SUBTOTAL	15	13	86.7
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 2.958
VARIANCE - .022
MAXIMUM INDEX - 3.714
EVENNESS - .797
NO OF SPECIES - 41

****

**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 56.4
SAMPLE STANDARD DEVIATION = 11.3
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 13
Z STATISTIC = 1.37
CONFIDENCE LEVEL OBTAINED = 91.6 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 76.7
SAMPLE STANDARD DEVIATION = 12.4
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 9
Z STATISTIC = 1.69
CONFIDENCE LEVEL OBTAINED = 95.5 PERCENT

****

VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CRANDALL RIPARIAN
REFERENCE SITE
JULY 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	2	4.0	22.2
	POA	POA SP.	6	12.0	66.7
	STCO3	STIPA COMATA	1	2.0	11.1
		SUBTOTAL	9	18.0	100.0
FORB	PF	PERENNIAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	PIPO	PINUS PONDEROSA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	11	22.0	
BARE GROUND			12	24.0	
LITTER-ROCK			27	54.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	5	10.0	71.4
	STCO3	STIPA COMATA	2	4.0	28.6
		SUBTOTAL	7	14.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	HODU5	HOLODISCUS DUMOSUS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0

TREE	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	10.0
	PIPO	PINUS PONDEROSA	8	16.0	80.0
	POAN	POPULUS ANGUSTIFOLIA	1	2.0	10.0
		SUBTOTAL	10	20.0	100.0
		TOTAL	19	38.0	
BARE GROUND			12	24.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	12.5
	POA	POA SP.	7	14.0	87.5
		SUBTOTAL	8	16.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
		TOTAL	15	30.0	
BARE GROUND			18	36.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			32	64.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	10.0
	POA	POA SP.	7	14.0	70.0
	STIPA	STIPA SP.	2	4.0	20.0
		SUBTOTAL	10	20.0	100.0

FORB	ACLA5	ACHILLEA LANULOSA	1	2.0	9.1
	ASTER	ASTER SP.	1	2.0	9.1
	CIRSI	CIRSIUM SP.	1	2.0	9.1
	CYOF	CYNOGLOSSUM OFFICINALE	8	16.0	72.7
		SUBTOTAL	11	22.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	1	2.0	50.0
	PSMEM	PSEUDOTSUGA MENZIESII	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
		TOTAL	25	50.0	
BARE GROUND			6	12.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	7	14.0	87.5
	POA	POA SP.	1	2.0	12.5
		SUBTOTAL	8	16.0	100.0
FORB	ASTER	ASTER SP.	3	6.0	42.9
	CYOF	CYNOGLOSSUM OFFICINALE	3	6.0	42.9
	SIAL	SISYMBRIUM ALTISSIMUM	1	2.0	14.3
		SUBTOTAL	7	14.0	100.0
SHRUB	SALIX	SALIX SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
		TOTAL	16	32.0	
BARE GROUND			15	30.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			35	70.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	10	20.0	90.9
	POA	POA SP.	1	2.0	9.1
		SUBTOTAL	11	22.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	20.0
	CYOF	CYNOGLOSSUM OFFICINALE	2	4.0	40.0
	DESCU	DESCURAINIA SP.	1	2.0	20.0
	PF	PERENNIAL FORB	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	1	2.0	50.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	1	2.0	11.1
	POAN	POPULUS ANGUSTIFOLIA	8	16.0	88.9
		SUBTOTAL	9	18.0	100.0
		TOTAL	27	54.0	
BARE GROUND			12	24.0	
LITTER-ROCK			11	22.0	
VEGETATION, LITTER-ROCK			38	76.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	5.0
	AGAL	AGROSTIS ALBA	1	2.0	5.0
	BRTET	BROMUS TECTORUM	13	26.0	65.0
	POA	POA SP.	5	10.0	25.0
		SUBTOTAL	20	40.0	100.0
GRASS-LIKE	JUNCU	JUNCUS SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	16.7
	CYOF	CYNOGLOSSUM OFFICINALE	3	6.0	50.0
	CYFR	CYSTOPTERIS FRAGILIS	1	2.0	16.7
	SIAL	SISYMBRIUM ALTISSIMUM	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	8	16.0	100.0

		SUBTOTAL	8	16.0	100.0
		TOTAL	35	70.0	
BARE GROUND			6	12.0	
LITTER-ROCK			9	18.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	9	18.0	81.8
	POA	POA SP.	2	4.0	18.2
		SUBTOTAL	11	22.0	100.0
FORB	ASTER	ASTER SP.	2	4.0	13.3
	CYOF	CYNOGLOSSUM OFFICINALE	13	26.0	86.7
		SUBTOTAL	15	30.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	9.1
	POAN	POPULUS ANGUSTIFOLIA	10	20.0	90.9
		SUBTOTAL	11	22.0	100.0
		TOTAL	37	74.0	
BARE GROUND			1	2.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	5	10.0	83.3
	STIPA	STIPA SP.	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
FORB	ASTER	ASTER SP.	2	4.0	25.0
	CIRSI	CIRSIUM SP.	1	2.0	12.5
	CYOF	CYNOGLOSSUM OFFICINALE	5	10.0	62.5
		SUBTOTAL	8	16.0	100.0

SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	1	2.0	9.1
	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	18.2
	POAN	POPULUS ANGUSTIFOLIA	8	16.0	72.7
		SUBTOTAL	11	22.0	100.0
		TOTAL	27	54.0	
BARE GROUND			5	10.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	1	2.0	16.7
	POA	POA SP.	5	10.0	83.3
		SUBTOTAL	6	12.0	100.0
FORB	ANTEN	ANTENNARIA SP.	1	2.0	50.0
	CYOF	CYNOGLOSSUM OFFICINALE	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	ROSA	ROSA SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	PIPO	PINUS PONDEROSA	7	14.0	53.8
	POAN	POPULUS ANGUSTIFOLIA	6	12.0	46.2
		SUBTOTAL	13	26.0	100.0
		TOTAL	22	44.0	
BARE GROUND			9	18.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	STIPA	STIPA SP.		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
FORB	ASTER	ASTER SP.		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA		3	6.0	20.0
	PIPO	PINUS PONDEROSA		5	10.0	33.3
	POAN	POPULUS ANGUSTIFOLIA		6	12.0	40.0
	QUGA	QUERCUS GAMBELII		1	2.0	6.7
			SUBTOTAL	15	30.0	100.0
			TOTAL	18	36.0	
BARE GROUND				8	16.0	
LITTER-ROCK				24	48.0	
VEGETATION, LITTER-ROCK				42	84.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
SHRUB	RICEC	RIBES CEREUM		1	2.0	50.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS		1	2.0	50.0
			SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		3	6.0	14.3
	JUOS	JUNIPERUS OSTEOSPERMA		1	2.0	4.8
	POAN	POPULUS ANGUSTIFOLIA		11	22.0	52.4
	PSMEM	PSEUDOTSUGA MENZIESII		6	12.0	28.6
			SUBTOTAL	21	42.0	100.0
			TOTAL	25	50.0	
BARE GROUND				4	8.0	
LITTER-ROCK				21	42.0	
VEGETATION, LITTER-ROCK				46	92.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	33.3
	PG	PERENNIAL GRASS	1	2.0	33.3
	POA	POA SP.	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	33.3
	CYOF	CYNOGLOSSUM OFFICINALE	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	6.3
	POAN	POPULUS ANGUSTIFOLIA	13	26.0	81.3
	PSMEM	PSEUDOTSUGA MENZIESII	2	4.0	12.5
		SUBTOTAL	16	32.0	100.0
		TOTAL	22	44.0	
BARE GROUND			6	12.0	
LITTER-ROCK			22	44.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
FORB	CYOF	CYNOGLOSSUM OFFICINALE	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	2	4.0	11.1
	POAN	POPULUS ANGUSTIFOLIA	9	18.0	50.0
	PSMEM	PSEUDOTSUGA MENZIESII	7	14.0	38.9
		SUBTOTAL	18	36.0	100.0
		TOTAL	22	44.0	
BARE GROUND			10	20.0	
LITTER-ROCK			18	36.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
FORB	ASTER	ASTER SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	1	2.0	4.5
	PIPO	PINUS PONDEROSA	7	14.0	31.8
	POAN	POPULUS ANGUSTIFOLIA	14	28.0	63.6
		SUBTOTAL	22	44.0	100.0
		TOTAL	26	52.0	
BARE GROUND			7	14.0	
LITTER-ROCK			17	34.0	
VEGETATION, LITTER-ROCK			43	86.0	

TRANSECT 16

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM	4	8.0	57.1
	POA	POA SP.	3	6.0	42.9
		SUBTOTAL	7	14.0	100.0
FORB	ASTER	ASTER SP.	5	10.0	83.3
	CYOF	CYNOGLOSSUM OFFICINALE	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
SHRUB	ROSA	ROSA SP.	1	2.0	20.0
	RUIDS	RUBUS IDAEUS	1	2.0	20.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	60.0
		SUBTOTAL	5	10.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	2	4.0	28.6
	PSMEM	PSEUDOTSUGA MENZIESII	5	10.0	71.4
		SUBTOTAL	7	14.0	100.0
		TOTAL	25	50.0	

BARE GROUND	8	16.0
LITTER-ROCK	17	34.0
VEGETATION, LITTER-ROCK	42	84.0

TRANSECT 17

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	50.0
	POAV	POLYGONUM AVICULARE	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	HODU5	HOLIDISCUS DUMOSUS	1	2.0	50.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA	12	24.0	70.6
	QUGA	QUERCUS GAMBELII	5	10.0	29.4
		SUBTOTAL	17	34.0	100.0
		TOTAL	24	48.0	
BARE GROUND			10	20.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 18

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
FORB	ANTEN	ANTENNARIA SP.	1	2.0	25.0
	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	25.0
	ASTER	ASTER SP.	1	2.0	25.0
	CYOF	CYNOGLOSSUM OFFICINALE	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
SHRUB	RICEC	RIBES CERFUM	2	4.0	66.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	5.0

	PIPO	PINUS PONDEROSA	1	2.0	5.0
	POAN	POPULUS ANGUSTIFOLIA	17	34.0	85.0
	PSMEM	PSEUDOTSUGA MENZIESII	1	2.0	5.0
		SUBTOTAL	20	40.0	100.0
		TOTAL	27	54.0	
BARE GROUND			10	20.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 19

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	ASTER	ASTER SP.	2	4.0	33.3
	CYOF	CYNOGLOSSUM OFFICINALE	2	4.0	33.3
	PENST	PENSTEMON SP.	1	2.0	16.7
	PF	PERENNIAL FORB	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
SHRUB	ROSA	ROSA SP.	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGLG	ACER GLABRUM	1	2.0	5.3
	POAN	POPULUS ANGUSTIFOLIA	13	26.0	68.4
	PSMEM	PSEUDOTSUGA MENZIESII	5	10.0	26.3
		SUBTOTAL	19	38.0	100.0
		TOTAL	28	56.0	
BARE GROUND			10	20.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			40	80.0	

TRANSECT 20

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	50.0

	POA	POA SP.		1	2.0	50.0
			SUBTOTAL	2	4.0	100.0
FORB	ASTER	ASTER SP.		2	4.0	66.7
	CYOF	CYNOGLOSSUM OFFICINALE		1	2.0	33.3
			SUBTOTAL	3	6.0	100.0
TREE	ACGLG	ACER GLABRUM		1	2.0	8.3
	POAN	POPULUS ANGUSTIFOLIA		4	8.0	33.3
	PSMEM	PSEUDOTSUGA MENZIESII		6	12.0	50.0
	QUGA	QUERCUS GAMBELII		1	2.0	8.3
			SUBTOTAL	12	24.0	100.0
			TOTAL	17	34.0	
BARE GROUND				8	16.0	
LITTER-ROCK				25	50.0	
VEGETATION, LITTER-ROCK				42	84.0	

TRANSECT 21

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BRTET	BROMUS TECTORUM		6	12.0	75.0
	POA	POA SP.		2	4.0	25.0
			SUBTOTAL	8	16.0	100.0
FORB	ASTER	ASTER SP.		1	2.0	50.0
	CYOF	CYNOGLOSSUM OFFICINALE		1	2.0	50.0
			SUBTOTAL	2	4.0	100.0
TREE	POAN	POPULUS ANGUSTIFOLIA		13	26.0	100.0
			SUBTOTAL	13	26.0	100.0
			TOTAL	23	46.0	
BARE GROUND				7	14.0	
LITTER-ROCK				20	40.0	
VEGETATION, LITTER-ROCK				43	86.0	

TRANSECT 22

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	BRTET	BROMUS TECTORUM	12	24.0	75.0
	POA	POA SP.	4	8.0	25.0
		SUBTOTAL	16	32.0	100.0
FORB	ACLA5	ACHILLEA LANULOSA	1	2.0	6.7
	ASTER	ASTER SP.	3	6.0	20.0
	CYOF	CYNOGLOSSUM OFFICINALE	11	22.0	73.3
		SUBTOTAL	15	30.0	100.0
		TOTAL	31	62.0	
BARE GROUND			9	18.0	
LITTER-ROCK			10	20.0	
VEGETATION, LITTER-ROCK			41	82.0	

TRANSECT 23

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	5	10.0	100.0
		SUBTOTAL	5	10.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	14.3
	CYOF	CYNOGLOSSUM OFFICINALE	4	8.0	57.1
	SOLID	SOLIDAGO SP.	2	4.0	28.6
		SUBTOTAL	7	14.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	PSMEM	PSEUDOTSUGA MENZIESII	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
		TOTAL	16	32.0	
BARE GROUND			14	28.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			36	72.0	

TRANSECT 24

				PERCENT COVER	PERCENT COVER

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	ALL CLASSES	WITHIN LIFE FORM
GRASS	POA	POA SP.	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	20.0
	CYOF	CYNOGLOSSUM OFFICINALE	3	6.0	60.0
	SOLID	SOLIDAGO SP.	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	PIPO	PINUS PONDEROSA	10	20.0	55.6
	POAN	POPULUS ANGUSTIFOLIA	8	16.0	44.4
		SUBTOTAL	18	36.0	100.0
		TOTAL	29	58.0	
BARE GROUND			11	22.0	
LITTER-ROCK			10	20.0	
VEGETATION, LITTER-ROCK			39	78.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	24	4	.3	.8	2.6
	AGAL	AGROSTIS ALBA	24	1	.1	.4	.7
	BRTET	BROMUS TECTORUM	24	62	5.2	8.7	40.5
	PG	PERENNIAL GRASS	24	4	.3	1.0	2.6
	POA	POA SP.	24	75	6.2	4.3	49.0
	STCO3	STIPA COMATA	24	3	.2	.9	2.0
	STIPA	STIPA SP.	24	4	.3	1.0	2.6
		SUBTOTAL	24	153	12.7	9.8	100.0
0							
GRASS-LIKE	JUNCU	JUNCUS SP.	24	1	.1	.4	100.0
		SUBTOTAL	24	1	.1	.4	100.0
0							
FORB	ACLA5	ACHILLEA LANULOSA	24	2	.2	.6	1.7

	ANTEN	ANTENNARIA SP.	24	2	.2	.6	1.7
	ARLUL	ARTEMISIA LUDOVICIANA	24	3	.2	.7	2.6
	ASTER	ASTER SP.	24	32	2.7	2.4	27.8
	CIRSI	CIRSIUM SP.	24	2	.2	.6	1.7
	CYOF	CYNOGLOSSUM OFFICINALE	24	62	5.2	7.0	53.9
	CYFR	CYSTOPTERIS FRAGILIS	24	1	.1	.4	.9
	DESCU	DESCURAINIA SP.	24	1	.1	.4	.9
	PENST	PENSTEMON SP.	24	1	.1	.4	.9
	PF	PERENNIAL FORB	24	3	.2	.7	2.6
	POAV	POLYGONUM AVICULARE	24	1	.1	.4	.9
	SIAL	SISYMBRIUM ALTISSIMUM	24	2	.2	.6	1.7
	SOLID	SOLIDAGO SP.	24	3	.2	.9	2.6
		SUBTOTAL	24	115	9.6	8.3	100.0
0							
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	24	1	.1	.4	3.6
	HODUS	HOLIDISCUS DUMOSUS	24	2	.2	.6	7.1
	RICEC	RIBES CEREUM	24	3	.2	.9	10.7
	ROSA	ROSA SP.	24	4	.3	1.0	14.3
	RUIDS	RUBUS IDAEUS	24	1	.1	.4	3.6
	SALIX	SALIX SP.	24	1	.1	.4	3.6
	SYOC	SYMPHORICARPOS OCCIDENTALIS	24	16	1.3	1.9	57.1
		SUBTOTAL	24	28	2.3	2.5	100.0
0							
TREE	ACGLG	ACER GLABRUM	24	2	.2	.6	.7
	ACGR	ACER GRANDIDENTATUM	24	8	.7	1.5	3.0
	CELEL	CERCOCARPUS LEDIFOLIUS	24	1	.1	.4	.4
	JUOS	JUNIPERUS OSTEOSPERMA	24	9	.7	1.5	3.3
	PIPO	PINUS PONDEROSA	24	39	3.2	6.3	14.4
	POAN	POPULUS ANGUSTIFOLIA	24	168	14.0	10.5	62.2
	PSMEM	PSEUDOTSUGA MENZIESII	24	36	3.0	4.8	13.3
	QUGA	QUERCUS GAMBELII	24	7	.6	2.1	2.6
		SUBTOTAL	24	270	22.5	13.9	100.0
0							
		TOTAL	24	567	47.2	12.6	
BARE GROUND			24	218	18.2	7.5	
LITTER-ROCK			24	415	34.6	9.8	
VEGETATION, LITTER-ROCK			24	982	81.8	7.5	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY

GRASS	AGROP	AGROPYRON SP.	24	4	16.7
	AGAL	AGROSTIS ALBA	24	1	4.2
	BRTET	BROMUS TECTORUM	24	8	33.3
	PG	PERENNIAL GRASS	24	3	12.5
	POA	POA SP.	24	22	91.7
	STCO3	STIPA COMATA	24	2	8.3
	STIPA	STIPA SP.	24	3	12.5
		SUBTOTAL	24	23	95.8
GRASS-LIKE	JUNCU	JUNCUS SP.	24	1	4.2
		SUBTOTAL	24	1	4.2
FORB	ACLA5	ACHILLEA LANULOSA	24	2	8.3
	ANTEN	ANTENNARIA SP.	24	2	8.3
	ARLUL	ARTEMISIA LUDOVICIANA	24	3	12.5
	ASTER	ASTER SP.	24	18	75.0
	CIRSI	CIRSIUM SP.	24	2	8.3
	CYOF	CYNOGLOSSUM OFFICINALE	24	17	70.8
	CYFR	CYSTOPTERIS FRAGILIS	24	1	4.2
	DESCU	DESCURAINIA SP.	24	1	4.2
	PENST	PENSTEMON SP.	24	1	4.2
	PF	PERENNIAL FORB	24	3	12.5
	POAV	POLYGONUM AVICULARE	24	1	4.2
	SIAL	SISYMBRIUM ALTISSIMUM	24	2	8.3
	SOLID	SOLIDAGO SP.	24	2	8.3
		SUBTOTAL	24	23	95.8
SHRUB	CHNAN	CHRYSOTHAMNUS NAUSEOSUS	24	1	4.2
	HODU5	HOLODISCUS DUMOSUS	24	2	8.3
	RICEC	RIBES CEREUM	24	2	8.3
	ROSA	ROSA SP.	24	3	12.5
	RUIDS	RUBUS IDAEUS	24	1	4.2
	SALIX	SALIX SP.	24	1	4.2
	SYOC	SYMPHORICARPOS OCCIDENTALIS	24	10	41.7
		SUBTOTAL	24	14	59.3
TREE	ACGLG	ACER GLABRUM	24	2	8.3
	ACGR	ACER GRANDIDENTATUM	24	5	20.8
	CELEL	CERCOCARPUS LEDIFOLIUS	24	1	4.2
	JUOS	JUNIPERUS OSTEOSPERMA	24	6	25.0
	PIPO	PINUS PONDEROSA	24	7	29.2
	POAN	POPULUS ANGUSTIFOLIA	24	20	83.3
	PSMEM	PSEUDOTSUGA MENZIESII	24	9	37.5
	QUGA	QUERCUS GAMBELII	24	3	12.5
		SUBTOTAL	24	22	91.7
		TOTAL	24	24	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 2.424
VARIANCE - .033
MAXIMUM INDEX - 3.584
EVENNESS - .676
NO OF SPECIES - 36

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 24

MEAN VEGETATION PERCENT COVER = 47.2
SAMPLE STANDARD DEVIATION = 12.6
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 23
Z STATISTIC = 1.30
CONFIDENCE LEVEL OBTAINED = 90.3 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 81.8
SAMPLE STANDARD DEVIATION = 7.5
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 3
Z STATISTIC = 3.80
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON-CONIFER
AFFECTED AREA
OCTOBER 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
TREE	ABLA	ABIES LASIOCARPA	2	4.0	7.4
	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	3.7
	JUCS	JUNIPERUS OSTEOSPERMA	2	4.0	7.4
	PIED	PINUS EDULIS	1	2.0	3.7
	PSME	PSEUDOTSUGA MENZIESII	3	6.0	11.1
	QUGA	QUERCUS GAMBELII	18	36.0	66.7
		SUBTOTAL	27	54.0	100.0
		TOTAL	37	74.0	
BARE GROUND			1	2.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGPOP	AGROPYRON SP.	9	18.0	90.0
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	10.0
		SUBTOTAL	10	20.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	100.0

		SUBTOTAL	3	6.0	100.0
TREE	ABLA	ABIES LASIOCARPA	3	6.0	17.6
	JUOS	JUNIPERUS OSTEOSPERMA	4	8.0	23.5
	PIPO	PINUS PONDEROSA	1	2.0	5.9
	PSMEM	PSEUDOTSUGA MENZIESII	6	12.0	35.3
	QUGA	QUERCUS GAMBELII	3	6.0	17.6
		SUBTOTAL	17	34.0	100.0
		TOTAL	31	62.0	
BARE GROUND			0	.0	
LITTER-ROCK			19	38.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	6	12.0	100.0
		SUBTOTAL	6	12.0	100.0
TREE	ABLA	ABIES LASIOCARPA	2	4.0	6.7
	JUOS	JUNIPERUS OSTEOSPERMA	6	12.0	20.0
	PSMEM	PSEUDOTSUGA MENZIESII	20	40.0	66.7
	QUGA	QUERCUS GAMBELII	2	4.0	6.7
		SUBTOTAL	30	60.0	100.0
		TOTAL	36	72.0	
BARE GROUND			0	.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	11	22.0	100.0
		SUBTOTAL	11	22.0	100.0
TREE	ABLA	ABIES LASIOCARPA	4	8.0	16.0
	CELEL	CERCOCARPUS LEDIFOLIUS	5	10.0	20.0

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	JUOS	JUNIPERUS OSTEOSPERMA	8	16.0	32.0
	PIED	PINUS EDULIS	1	2.0	4.0
	PSMEM	PSEUDOTSUGA MENZIESII	4	8.0	16.0
	QUGA	QUERCUS GAMBELII	3	6.0	12.0
		SUBTOTAL	25	50.0	100.0
		TOTAL	36	72.0	
BARE GROUND			6	12.0	
LITTER-ROCK			8	16.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	8	16.0	88.9
	POA	POA SP.	1	2.0	11.1
		SUBTOTAL	9	18.0	100.0
FORB	SEMU2	SENECIO MULTILOBATUS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	4	8.0	16.0
	PSMEM	PSEUDOTSUGA MENZIESII	1	2.0	4.0
	QUGA	QUERCUS GAMBELII	20	40.0	80.0
		SUBTOTAL	25	50.0	100.0
		TOTAL	36	72.0	
BARE GROUND			0	.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	5	10.0	55.6
	ORHY	ORYZOPSIS HYMENOIDES	2	4.0	22.2
	PG	PERENNIAL GRASS	2	4.0	22.2
		SUBTOTAL	9	18.0	100.0

FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	4	8.0	16.0
	PIED	PINUS EDULIS	4	8.0	16.0
	PSMEM	PSEUDOTSUGA MENZIESII	6	12.0	24.0
	QUGA	QUERCUS GAMBELII	11	22.0	44.0
		SUBTOTAL	25	50.0	100.0
		TOTAL	35	70.0	
BARE GROUND			1	2.0	
LITTER-ROCK			14	26.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	2	4.0	33.3
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	16.7
	PG	PERENNIAL GRASS	3	6.0	50.0
		SUBTOTAL	6	12.0	100.0
TREE	CELEL	CERCOCARPUS LEDIFOLIUS	2	4.0	6.9
	JUOS	JUNIPERUS OSTEOSPERMA	7	14.0	24.1
	PIED	PINUS EDULIS	1	2.0	3.4
	PSMEM	PSEUDOTSUGA MENZIESII	12	24.0	41.4
	QUGA	QUERCUS GAMBELII	7	14.0	24.1
		SUBTOTAL	29	58.0	100.0
		TOTAL	35	70.0	
BARE GROUND			3	6.0	
LITTER-ROCK			12	24.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	4	8.0	80.0
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	20.0

		SUBTOTAL	5	10.0	100.0
FORB	SENU2	SENECIO MULTILOBATUS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	5	10.0	83.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	16.7
		SUBTOTAL	6	12.0	100.0
TREE	ABLA	ABIES LASIOCARPA	7	14.0	36.8
	CELEL	CERCOCARPUS LEDIFOLIUS	2	4.0	10.5
	JUOS	JUNIPERUS OSTEOSPERMA	7	14.0	36.8
	PSMEM	PSEUDOTSUGA MENZIESII	3	6.0	15.8
		SUBTOTAL	19	38.0	100.0
		TOTAL	31	62.0	
BARE GROUND			3	6.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	4	8.0	80.0
	PG	PERENNIAL GRASS	1	2.0	20.0
		SUBTOTAL	5	10.0	100.0
TREE	ABLA	ABIES LASIOCARPA	16	32.0	53.3
	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	16.7
	PSMEM	PSEUDOTSUGA MENZIESII	5	10.0	16.7
	QUGA	QUERCUS GAMBELII	4	8.0	13.3
		SUBTOTAL	30	60.0	100.0
		TOTAL	35	70.0	
BARE GROUND			1	2.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGROP	AGROPYRON SP.		15	30.0	100.0
			SUBTOTAL	15	30.0	100.0
TREE	ABCO	ABIES CONCOLOR		2	4.0	11.8
	CELEL	CERCOCARPUS LEDIFOLIUS		3	6.0	17.6
	JUOS	JUNIPERUS OSTEOSPERMA		5	10.0	29.4
	PIED	PINUS EDULIS		2	4.0	11.8
	PSMEM	PSEUDOTSUGA MENZIESII		2	4.0	11.8
	QUGA	QUERCUS GAMBELII		3	6.0	17.6
			SUBTOTAL	17	34.0	100.0
			TOTAL	32	64.0	
BARE GROUND				1	2.0	
LITTER-ROCK				17	34.0	
VEGETATION, LITTER-ROCK				49	98.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM		2	4.0	22.2
	AGROP	AGROPYRON SP.		7	14.0	77.8
			SUBTOTAL	9	18.0	100.0
FORB	ANTEN	ANTENNARIA SP.		1	2.0	20.0
	PF	PERENNIAL FORB		4	8.0	80.0
			SUBTOTAL	5	10.0	100.0
SHRUB	CEMOM	CERCOCARPUS MONTANUS		4	8.0	66.7
	RIBES	RIBES SP.		2	4.0	33.3
			SUBTOTAL	6	12.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM		2	4.0	9.5
	CELEL	CERCOCARPUS LEDIFOLIUS		4	8.0	19.0
	JUOS	JUNIPERUS OSTEOSPERMA		8	16.0	38.1
	PIED	PINUS EDULIS		7	14.0	33.3
			SUBTOTAL	21	42.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
			TOTAL	42	84.0	
BARE GROUND				1	2.0	

LITTER-ROCK	7	14.0
VEGETATION, LITTER-ROCK	49	98.0

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGPOP	AGROPYRON SP.	11	22.0	73.3
	ORHY	ORYZOPSIS HYMENOIDES	1	2.0	6.7
	PG	PERENNIAL GRASS	3	6.0	20.0
		SUBTOTAL	15	30.0	100.0
FORB	AF	ANNUAL FORB	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	ABLA	ABIES LASIOCARPA	5	10.0	29.4
	CELEL	CERCOCARPUS LEDIFOLIUS	1	2.0	5.9
	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	5.9
	PIED	PINUS EDULIS	6	12.0	35.3
	PSMEM	PSEUDOTSUGA MENZIESII	4	8.0	23.5
		SUBTOTAL	17	34.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
		TOTAL	37	74.0	
BARE GROUND			0	.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGPOP	AGROPYRON SP.	26	52.0	100.0
		SUBTOTAL	26	52.0	100.0
FORB	ANTEN	ANTENNARIA SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0

TREE	JUOS	JUNIPERUS OSTEOSPERMA		7	14.0	58.3
	PIED	PINUS EDULIS		5	10.0	41.7
			SUBTOTAL	12	24.0	100.0
			TOTAL	40	80.0	
BARE GROUND				1	2.0	
LITTER-ROCK				9	18.0	
VEGETATION, LITTER-ROCK				49	98.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.		15	30.0	100.0
			SUBTOTAL	15	30.0	100.0
FORB	ANTEN	ANTENNARIA SP.		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
SHRUB	CEMOM	CERCOCARPUS MONTANUS		3	6.0	75.0
	RIBES	RIBES SP.		1	2.0	25.0
			SUBTOTAL	4	8.0	100.0
TREE	ABCO	ABIES CONCOLOR		1	2.0	6.3
	ABLA	ABIES LASIOCARPA		1	2.0	6.3
	JUOS	JUNIPERUS OSTEOSPERMA		13	26.0	81.3
	PSME	PSEUDOTSUGA MENZIESII		1	2.0	6.3
			SUBTOTAL	16	32.0	100.0
BRYOPHYTE	MOSS	BRYOPHYTE		5	10.0	100.0
			SUBTOTAL	5	10.0	100.0
			TOTAL	42	84.0	
BARE GROUND				1	2.0	
LITTER-ROCK				7	14.0	
VEGETATION, LITTER-ROCK				49	98.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM

GRASS	AGINI	AGROPYRON INTERMEDIUM	1	2.0	6.3
	AGROP	AGROPYRON SP.	13	26.0	81.3
	PG	PERENNIAL GRASS	2	4.0	12.5
		SUBTOTAL	16	32.0	100.0
SHRUB	CEMOM	CERCOCARPUS MONTANUS	3	6.0	42.9
	RIBES	RIBES SP.	4	8.0	57.1
		SUBTOTAL	7	14.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	26.3
	PSMEM	PSEUDOTSUGA MENZIESII	14	28.0	73.7
		SUBTOTAL	19	38.0	100.0
		TOTAL	42	84.0	
BARE GROUND			2	4.0	
LITTER-ROCK			6	12.0	
VEGETATION, LITTER-ROCK			48	96.0	

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	3	.4	1.1	1.6
	AGROP	AGROPYRON SP.	15	142	18.9	12.2	87.1
	ORHY	ORYZOPSIS HYMENOIDES	15	6	.8	1.3	3.7
	PG	PERENNIAL GRASS	15	11	1.5	2.3	6.7
	POA	POA SP.	15	1	.1	.5	.6
		SUBTOTAL	15	163	21.7	11.4	100.0
0							
FORB	AF	ANNUAL FORB	15	3	.4	.8	21.4
	ANTEN	ANTENNARIA SP.	15	4	.5	1.2	28.6
	PF	PERENNIAL FORB	15	4	.5	2.1	28.6
	SEMU2	SENECIO MULTILOBATUS	15	3	.4	1.1	21.4
		SUBTOTAL	15	14	1.9	2.7	100.0
0							
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE	15	1	.1	.5	100.0
		SUBTOTAL	15	1	.1	.5	100.0
0							

SHRUB	BERE	BERBERIS REPENS	15	5	.7	2.6	16.7
	CEMOM	CERCOCARPUS MONTANUS	15	10	1.3	2.8	33.3
	RIBES	RIBES SP.	15	7	.9	2.3	23.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	8	1.1	2.5	26.7
		SUBTOTAL	15	30	4.0	5.4	100.0
0							
TREE	ABCO	ABIES CONCOLOR	15	3	.4	1.1	.9
	ABLA	ABIES LASIOCARPA	15	40	5.3	6.6	12.2
	ACGR	ACER GRANDIDENTATUM	15	2	.3	1.0	.6
	CELEL	CERCOCARPUS LEDIFOLIUS	15	18	2.4	3.3	5.5
	JUOS	JUNIPERUS OSTEOSPERMA	15	86	11.5	5.7	26.1
	PIED	PINUS EDULIS	15	27	3.6	4.9	8.2
	PIPO	PINUS PONDEROSA	15	1	.1	.5	.3
	PSME	PSEUDOTSUGA MENZIESII	15	81	10.8	11.4	24.6
	QUGA	QUERCUS GAMBELII	15	71	9.5	13.1	21.6
		SUBTOTAL	15	329	43.9	11.5	100.0
0							
BRYOPHYTE	MOSS	BRYOPHYTE	15	10	1.3	3.2	100.0
		SUBTOTAL	15	10	1.3	3.2	100.0
0							
		TOTAL	15	547	72.9	7.4	
BARE GROUND			15	21	2.8	3.2	
LITTER-ROCK			15	182	24.3	7.9	
VEGETATION, LITTER-ROCK			15	729	97.2	3.2	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGINI	AGROPYRON INTERMEDIUM	15	2	13.3
	AGROP	AGROPYRON SP.	15	15	100.0
	ORHY	ORYZOPSIS HYMENOIDES	15	5	33.3
	PG	PERENNIAL GRASS	15	5	33.3
	POA	POA SP.	15	1	6.7
		SUBTOTAL	15	15	100.0
FORB	AF	ANNUAL FORB	15	3	20.0
	ANTEN	ANTENNARIA SP.	15	3	20.0
	PF	PERENNIAL FORB	15	1	6.7

	SEMU2	SENECIO MULTILOBATUS	15	2	13.3
		SUBTOTAL	15	8	53.3
SUB-SHRUB	XASA	XANTHOCEPHALUM SAROTHRAE	15	1	6.7
		SUBTOTAL	15	1	6.7
SHRUB	BERE	BERBERIS REPENS	15	1	6.7
	CEMOM	CERCOCARPUS MONTANUS	15	3	20.0
	RIBES	RIBES SP.	15	3	20.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	3	20.0
		SUBTOTAL	15	6	40.0
TREE	ABCO	ABIES CONCOLOR	15	2	13.3
	ABLA	ABIES LASIOCARPA	15	8	53.3
	ACGR	ACER GRANDIDENTATUM	15	1	6.7
	CELEL	CERCOCARPUS LEDIFOLIUS	15	7	46.7
	JUOS	JUNIPERUS OSTEOSPERMA	15	15	100.0
	PIED	PINUS EDULIS	15	8	53.3
	PIPO	PINUS PONDEROSA	15	1	6.7
	PSMEM	PSEUDOTSUGA MENZIESII	15	13	86.7
	QUGA	QUERCUS GAMBELII	15	9	60.0
		SUBTOTAL	15	15	100.0
BRYOPHYTE	MOSS	BRYOPHYTE	15	3	20.0
		SUBTOTAL	15	3	20.0
		TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 2.317
VARIANCE - .016
MAXIMUM INDEX - 3.178
EVENNESS - .729
NO OF SPECIES - 24

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

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MEAN VEGETATION PERCENT COVER =      72.9
SAMPLE STANDARD DEVIATION =        7.4
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   3
Z STATISTIC = 2.70
CONFIDENCE LEVEL OBTAINED = 99.7 PERCENT


MEAN VEGETATION, LITTER-ROCK PERCENT COVER =      97.2
SAMPLE STANDARD DEVIATION =        3.2
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   0
Z STATISTIC = 9.35
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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VEGETATION COVER, FREQUENCY, AND SPECIES DIVERSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CRANDALL CONIFER
REFERENCE SITE
JULY 1981

TRANSECT 1

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
FORB	CERAS	CERASTIUM SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	6.1
	PIPO	PINUS PONDEROSA	7	14.0	21.2
	PSMEM	PSEUDOTSUGA MENZIESII	23	46.0	69.7
	QUGA	QUERCUS GAMBELII	1	2.0	3.0
		SUBTOTAL	33	66.0	100.0
		TOTAL	36	72.0	
BARE GROUND			0	.0	
LITTER-ROCK			14	28.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 2

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	BERE	BERBERIS REPENS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	5	10.0	12.8
	PSMEM	PSEUDOTSUGA MENZIESII	33	66.0	84.6
	QUGA	QUERCUS GAMBELII	1	2.0	2.6

		SUBTOTAL	39	78.0	100.0
		TOTAL	42	84.0	
BARE GROUND			2	4.0	
LITTER-ROCK			6	12.0	
VEGETATION, LITTER-ROCK			48	96.0	

TRANSECT 3

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	ACLA5	ACHILLEA LANULOSA	1	2.0	25.0
	ARLUL	ARTEMISIA LUDOVICIANA	1	2.0	25.0
	CERAS	CERASTIUM SP.	1	2.0	25.0
	VIAMM	VICIA AMERICANA	1	2.0	25.0
		SUBTOTAL	4	8.0	100.0
SHRUB	BERE	BERBERIS REPENS	1	2.0	25.0
	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	75.0
		SUBTOTAL	4	8.0	100.0
TREE	PIPO	PINUS PONDEROSA	3	6.0	11.5
	PSMEM	PSEUDOTSUGA MENZIESII	23	46.0	88.5
		SUBTOTAL	26	52.0	100.0
		TOTAL	35	70.0	
BARE GROUND			0	.0	
LITTER-ROCK			15	30.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 4

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
FORB	ACLA5	ACHILLEA LANULOSA	2	4.0	40.0
	PF	PERENNIAL FORB	1	2.0	20.0
	POTEN	POTENTILLA SP.	1	2.0	20.0
	TAOF	TARAXACUM OFFICINALE	1	2.0	20.0

			SUBTOTAL	5	10.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS		7	14.0	100.0
			SUBTOTAL	7	14.0	100.0
TREE	PIPO	PINUS PONDEROSA		7	14.0	29.2
	PSMEM	PSEUDOTSUGA MENZIESII		17	34.0	70.8
			SUBTOTAL	24	48.0	100.0
			TOTAL	36	72.0	
BARE GROUND				6	12.0	
LITTER-ROCK				8	16.0	
VEGETATION, LITTER-ROCK				44	88.0	

TRANSECT 5

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS		2	4.0	100.0
			SUBTOTAL	2	4.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS		1	2.0	100.0
			SUBTOTAL	1	2.0	100.0
TREE	PIPO	PINUS PONDEROSA		17	34.0	44.7
	PSMEM	PSEUDOTSUGA MENZIESII		21	42.0	55.3
			SUBTOTAL	38	76.0	100.0
			TOTAL	41	82.0	
BARE GROUND				0	.0	
LITTER-ROCK				9	18.0	
VEGETATION, LITTER-ROCK				50	100.0	

TRANSECT 6

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME		# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS		3	6.0	75.0
	POA	POA SP.		1	2.0	25.0
			SUBTOTAL	4	8.0	100.0

FORB	ARLUL	ARTEMISIA LUDOVICIANA	2	4.0	66.7
	ASTER	ASTER SP.	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	1	2.0	4.2
	PIPO	PINUS PONDEROSA	8	16.0	33.3
	PSMEM	PSEUDOTSUGA MENZIESII	14	28.0	58.3
	QUGA	QUERCUS GAMBELII	1	2.0	4.2
		SUBTOTAL	24	48.0	100.0
		TOTAL	32	64.0	
BARE GROUND			5	10.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			45	90.0	

TRANSECT 7

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BROMU	BROMUS SP.	1	2.0	20.0
	PG	PERENNIAL GRASS	2	4.0	40.0
	POA	POA SP.	2	4.0	40.0
		SUBTOTAL	5	10.0	100.0
FORB	ASTER	ASTER SP.	1	2.0	50.0
	FRVI	FRAGARIA VIRGINIANA	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	RUIDS	RUBUS IDAEUS	1	2.0	11.1
	SYOC	SYMPHORICARPOS OCCIDENTALIS	8	16.0	88.9
		SUBTOTAL	9	18.0	100.0
TREE	PIPO	PINUS PONDEROSA	8	16.0	61.5
	PSMEM	PSEUDOTSUGA MENZIESII	4	8.0	30.8
	QUGA	QUERCUS GAMBELII	1	2.0	7.7
		SUBTOTAL	13	26.0	100.0
		TOTAL	29	58.0	
BARE GROUND			1	2.0	
LITTER-ROCK			20	40.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 8

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	BROMU	BROMUS SP.	1	2.0	50.0
	PG	PERENNIAL GRASS	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
FORB	ANTEN	ANTENNARIA SP.	1	2.0	33.3
	FRVI	FRAGARIA VIRGINIANA	1	2.0	33.3
	VIAMM	VICIA AMERICANA	1	2.0	33.3
		SUBTOTAL	3	6.0	100.0
SHRUB	BERE	BERBERIS REPENS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	ABCO	ABIES CONCOLOR	4	8.0	16.0
	PIPO	PINUS PONDEROSA	7	14.0	28.0
	PSMEM	PSEUDOTSUGA MENZIESII	14	28.0	56.0
		SUBTOTAL	25	50.0	100.0
		TOTAL	31	62.0	
BARE GROUND			3	6.0	
LITTER-ROCK			16	32.0	
VEGETATION, LITTER-ROCK			47	94.0	

TRANSECT 9

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
TREE	PIPO	PINUS PONDEROSA	8	16.0	20.5
	PSMEM	PSEUDOTSUGA MENZIESII	31	62.0	79.5
		SUBTOTAL	39	78.0	100.0

			TOTAL	41	82.0
BARE GROUND				1	2.0
LITTER-ROCK				8	16.0
VEGETATION, LITTER-ROCK				49	98.0

TRANSECT 10

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
TREE	JUOS	JUNIPERUS OSTEOSPERMA	2	4.0	6.5
	PIPO	PINUS PONDEROSA	3	6.0	9.7
	PSMEM	PSEUDOTSUGA MENZIESII	26	52.0	83.9
		SUBTOTAL	31	62.0	100.0
		TOTAL	35	70.0	
BARE GROUND			6	12.0	
LITTER-ROCK			9	18.0	
VEGETATION, LITTER-ROCK			44	88.0	

TRANSECT 11

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	3	6.0	100.0
		SUBTOTAL	3	6.0	100.0
FORB	ARLUL	ARTEMISIA LUDOVICIANA	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	4	8.0	100.0
		SUBTOTAL	4	8.0	100.0
TREE	PIPO	PINUS PONDEROSA	2	4.0	8.3
	PSMEM	PSEUDOTSUGA MENZIESII	21	42.0	87.5
	QUGA	QUERCUS GAMBELII	1	2.0	4.2

		SUBTOTAL	24	48.0	100.0
		TOTAL	33	66.0	
BARE GROUND			4	8.0	
LITTER-ROCK			13	26.0	
VEGETATION, LITTER-ROCK			46	92.0	

TRANSECT 12

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
SHRUB	BERE	BERBERIS REPENS	1	2.0	33.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	66.7
		SUBTOTAL	3	6.0	100.0
TREE	PIPO	PINUS PONDEROSA	8	16.0	20.0
	PSMEM	PSEUDOTSUGA MENZIESII	29	58.0	72.5
	QUGA	QUERCUS GAMBELII	3	6.0	7.5
		SUBTOTAL	40	80.0	100.0
		TOTAL	43	86.0	
BARE GROUND			0	.0	
LITTER-ROCK			7	14.0	
VEGETATION, LITTER-ROCK			50	100.0	

TRANSECT 13

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	POA	POA SP.	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	ANTEN	ANTENNARIA SP.	1	2.0	50.0
	ASTER	ASTER SP.	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ABCO	ABIES CONCOLOR	1	2.0	3.4

	PSMEM	PSEUDOTSUGA MENZIESII	28	56.0	96.6
		SUBTOTAL	29	58.0	100.0
		TOTAL	34	68.0	
BARE GROUND			8	16.0	
LITTER-ROCK			8	16.0	
VEGETATION, LITTER-ROCK			42	84.0	

TRANSECT 14

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	ACGR	ACER GRANDIDENTATUM	1	2.0	2.3
	PSMEM	PSEUDOTSUGA MENZIESII	42	84.0	97.7
		SUBTOTAL	43	86.0	100.0
		TOTAL	45	90.0	
BARE GROUND			1	2.0	
LITTER-ROCK			4	8.0	
VEGETATION, LITTER-ROCK			49	98.0	

TRANSECT 15

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	# OF HITS	PERCENT COVER ALL CLASSES	PERCENT COVER WITHIN LIFE FORM
GRASS	PG	PERENNIAL GRASS	1	2.0	100.0
		SUBTOTAL	1	2.0	100.0
FORB	ACLA5	ACHILLEA LANULOSA	1	2.0	50.0
	ANTEN	ANTENNARIA SP.	1	2.0	50.0
		SUBTOTAL	2	4.0	100.0
SHRUB	SYOC	SYMPHORICARPOS OCCIDENTALIS	2	4.0	100.0
		SUBTOTAL	2	4.0	100.0
TREE	PIPO	PINUS PONDEROSA	2	4.0	5.0
	PSMEM	PSEUDOTSUGA MENZIESII	36	76.0	95.0

SUBTOTAL	40	80.0	100.0	
TOTAL	45	90.0		
BARE GROUND	2	4.0		
LITTER-ROCK	3	6.0		
VEGETATION, LITTER-ROCK	48	96.0		

SUMMARY - ALL COVER TRANSECTS

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	N	# OF HITS	PERCENT COVER ALL CLASSES MEAN	PERCENT COVER ALL CLASSES S.D.	PERCENT COVER WITHIN LIFE FORM
GRASS	AGROP	AGROPYRON SP.	15	1	.1	.5	4.5
	BROMU	BROMUS SP.	15	2	.3	.7	9.1
	PG	PERENNIAL GRASS	15	15	2.0	2.1	68.2
	POA	POA SP.	15	4	.5	1.2	18.2
		SUBTOTAL	15	22	2.9	3.0	100.0
FORB	ACLA5	ACHILLEA LANULOSA	15	4	.5	1.2	16.7
	ANTEN	ANTENNARIA SP.	15	3	.4	.6	12.5
	ARLUL	ARTEMISIA LUDOVICIANA	15	5	.7	1.4	20.8
	ASTER	ASTER SP.	15	3	.4	.9	12.5
	CERAS	CERASTIUM SP.	15	2	.3	.7	8.3
	FRVI	FRAGARIA VIRGINIANA	15	2	.3	.7	8.3
	PF	PERENNIAL FORB	15	1	.1	.5	4.2
	POTEN	POTENTILLA SP.	15	1	.1	.5	4.2
	TAOF	TARAXACUM OFFICINALE	15	1	.1	.5	4.2
	VIAMM	VICIA AMERICANA	15	2	.3	.7	8.3
		SUBTOTAL	15	24	3.2	3.3	100.0
SHRUB	BERE	BERBERIS REPENS	15	7	.9	1.5	15.9
	RUIDS	RUBUS IDAEUS	15	1	.1	.5	2.3
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	36	4.8	4.8	81.8
		SUBTOTAL	15	44	5.9	4.6	100.0
TREE	ABCO	ABIES CONCOLOR	15	5	.7	2.1	1.1
	ACGR	ACER GRANDIDENTATUM	15	1	.1	.5	.2
	JUOS	JUNIPERUS OSTEOSPERMA	15	10	1.3	2.8	2.1
	PIPO	PINUS PONDEROSA	15	80	10.7	9.1	17.1
	PSMEM	PSEUDOTSUGA MENZIESII	15	364	48.5	19.7	77.8
	QUGA	QUERCUS GAMBELII	15	8	1.1	1.7	1.7

TOTAL	15	15	100.0

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX - 1.379
VARIANCE - .031
MAXIMUM INDEX - 3.135
EVENNESS - .440
NO OF SPECIES - 23

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 90.0 PERCENT

SAMPLE SIZE = 15

MEAN VEGETATION PERCENT COVER = 74.4
SAMPLE STANDARD DEVIATION = 10.4
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 6
Z STATISTIC = 1.95
CONFIDENCE LEVEL OBTAINED = 97.4 PERCENT

MEAN VEGETATION, LITTER-ROCK PERCENT COVER = 94.8
SAMPLE STANDARD DEVIATION = 5.2
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 1
Z STATISTIC = 4.97
CONFIDENCE LEVEL OBTAINED = 100.0 PERCENT

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SUBTOTAL	15	468	62.4	17.1	100.0
TOTAL	15	558	74.4	10.4	
BARE GROUND	15	39	5.2	5.2	
LITTER-ROCK	15	153	20.4	9.5	
VEGETATION, LITTER-ROCK	15	711	94.3	5.2	

VEGETATION SPECIES FREQUENCY

LIFE FORM	SPECIES CODE	SCIENTIFIC NAME	TOTAL NUMBER OF TRANSECTS	NUMBER OF TRANSECTS CONTAINING SPECIES	PERCENT FREQUENCY
GRASS	AGROP	AGROPYRON SP.	15	1	6.7
	BROMU	BROMUS SP.	15	2	13.3
	PG	PERENNIAL GRASS	15	9	60.0
	POA	POA SP.	15	3	20.0
		SUBTOTAL	15	11	73.3
FORB	ACLA5	ACHILLEA LANULOSA	15	3	20.0
	ANTEN	ANTENNARIA SP.	15	3	20.0
	ARLUL	ARTEMISIA LUDOVICIANA	15	3	20.0
	ASTER	ASTER SP.	15	3	20.0
	CERAS	CERASTIUM SP.	15	2	13.3
	FRVI	FRAGARIA VIRGINIANA	15	2	13.3
	PF	PERENNIAL FORB	15	1	6.7
	POTEN	POTENTILLA SP.	15	1	6.7
	TAOF	TARAXACUM OFFICINALE	15	1	6.7
	VIAMM	VICIA AMERICANA	15	2	13.3
		SUBTOTAL	15	9	60.0
SHRUB	BERE	BERBERIS REPENS	15	5	33.3
	RUIDS	RUBUS IDAEUS	15	1	6.7
	SYOC	SYMPHORICARPOS OCCIDENTALIS	15	12	80.0
		SUBTOTAL	15	15	100.0
TREE	ABCO	ABIES CONCOLOR	15	2	13.3
	ACGR	ACER GRANDIDENTATUM	15	1	6.7
	JUOS	JUNIPERUS OSTEOSPERMA	15	4	26.7
	PIPO	PINUS PONDEROSA	15	12	80.0
	PSMEM	PSEUDOTSUGA MENZIESII	15	15	100.0
	QUGA	QUERCUS GAMBELII	15	6	40.0
		SUBTOTAL	15	15	100.0

SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

SOWBELLY GRASS-SAGE
REFERENCE SITE
JULY 1981

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HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

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TRANSECT 1

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	23.1	76.9	.0	.0	.0	.0	.0	16.5	6.4	39	100.0	7959.2
	TOTAL	23.1	76.9	.0	.0	.0	.0	.0	16.5	6.4	39	100.0	7959.2

TRANSECT 2

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	28.1	71.9	.0	.0	.0	.0	.0	15.8	6.9	32	88.9	6530.6
QUGA	QUERCUS GAMBELII	.0	.0	25.0	75.0	.0	.0	.0	65.3	17.5	4	11.1	816.3
	TOTAL	25.0	63.9	2.8	8.3	.0	.0	.0	21.4	18.1	36	100.0	7346.9

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	44.0	56.0	.0	.0	.0	.0	.0	13.4	7.6	25	96.2	5102.0
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	3.8	204.1
	TOTAL	42.3	57.7	.0	.0	.0	.0	.0	13.7	7.6	26	100.0	5306.1

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	27.8	69.4	2.8	.0	.0	.0	.0	16.4	7.9	36	97.3	7346.9
TECA	TETRADYMIA CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.7	204.1
	TOTAL	27.0	67.6	5.4	.0	.0	.0	.0	17.0	8.7	37	100.0	7551.0

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	39.5	60.5	.0	.0	.0	.0	.0	14.1	7.4	43	97.7	8775.5
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.3	204.1
	TOTAL	38.6	61.4	.0	.0	.0	.0	.0	14.2	7.4	44	100.0	8979.6

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	17.4	60.9	17.4	4.3	.0	.0	.0	23.3	15.3	46	100.0	9387.8
	TOTAL	17.4	60.9	17.4	4.3	.0	.0	.0	23.3	15.3	46	100.0	9387.8

TRANSECT 7

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	8.5	72.3	19.1	.0	.0	.0	.0	22.6	9.5	47	94.0	9591.8
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.0	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	2	4.0	408.2
	TOTAL	8.0	70.0	18.0	.0	.0	4.0	.0	33.6	55.7	50	100.0	10204.1

TRANSECT 8

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	32.2	67.8	.0	.0	.0	.0	.0	15.2	7.1	59	100.0	12040.8
	TOTAL	32.2	67.8	.0	.0	.0	.0	.0	15.2	7.1	59	100.0	12040.8

TRANSECT 9

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	48.8	51.2	.0	.0	.0	.0	.0	12.7	7.6	43	97.7	8775.5
PIED	PINUS EDULIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.3	204.1
	TOTAL	47.7	50.0	.0	.0	2.3	.0	.0	15.8	22.0	44	100.0	8979.6

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	30.8	63.5	5.8	.0	.0	.0	.0	16.5	9.0	52	98.1	10612.2
PIED	PINUS EDULIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	1.9	204.1
	TOTAL	30.2	62.3	5.7	.0	1.9	.0	.0	19.1	20.4	53	100.0	10816.3

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	26.8	71.4	1.8	.0	.0	.0	.0	16.3	7.4	56	100.0	11428.6
	TOTAL	26.8	71.4	1.8	.0	.0	.0	.0	16.3	7.4	56	100.0	11428.6

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	19.4	80.6	.0	.0	.0	.0	.0	17.1	6.0	31	100.0	6326.5
	TOTAL	19.4	80.6	.0	.0	.0	.0	.0	17.1	6.0	31	100.0	6326.5

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	25.9	74.1	.0	.0	.0	.0	.0	16.1	6.7	27	67.5	5510.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	5.0	408.2
QUGA	QUERCUS GAMBELII	.0	27.3	.0	54.5	18.2	.0	.0	73.6	45.1	11	27.5	2244.9
	TOTAL	17.5	62.5	.0	15.0	5.0	.0	.0	32.1	35.0	40	100.0	8163.3

TRANSECT 14

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	18.2	81.8	.0	.0	.0	.0	.0	17.3	5.9	44	100.0	8979.6
	TOTAL	18.2	81.8	.0	.0	.0	.0	.0	17.3	5.9	44	100.0	8979.6

TRANSECT 15

PERCENT FREQUENCY-HEIGHT CLASSES	HEIGHT (CM)	TOTAL COUNTED	DENSITY

CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	23.3	76.7	.0	.0	.0	.0	.0	16.5	6.4	43	100.0	8775.5
	TOTAL	23.3	76.7	.0	.0	.0	.0	.0	16.5	6.4	43	100.0	8775.5

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
ARTRT	ARTEMISIA TRIDENTATA	15	27.3	68.9	3.5	.3	.0	.0	.0	16.8	8.7	623	96.1	8476.2	2047.9
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	3	.5	40.8	84.5
TECA	TETRADYMIA CANESCENS	15	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	.2	13.6	52.7
JUOS	JUNIPERUS OSTEOSPERMA	15	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	.3	27.2	105.4
PIED	PINUS EDULIS	15	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	.3	27.2	71.8
QUGA	QUERCUS GAMBELII	15	.0	17.6	5.9	52.9	11.8	11.8	.0	98.5	84.2	17	2.6	231.3	601.8
	TOTAL	15	26.2	67.4	3.7	1.7	.6	.3	.0	19.4	21.7	648	100.0	8816.3	1832.2

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

SAMPLE SIZE = 15

MEAN SHRUB DENSITY (NO./HA) = 8816.3
SAMPLE STANDARD DEVIATION = 1832.2
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 2
Z STATISTIC = 2.64
CONFIDENCE LEVEL OBTAINED = 99.6 PERCENT

****

SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

WILLOW CREEK GRASS-SAGE
REFERENCE SITE
SEPTEMBER 1981

****

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	1.8	8.9	17.9	67.9	3.6	.0	.0	65.3	26.4	56	88.9	11428.6
ATCA	ATRIPLEX CANESCENS	.0	.0	66.7	33.3	.0	.0	.0	51.7	20.2	3	4.8	612.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	50.0	50.0	.0	.0	.0	.0	.0	12.5	8.7	4	6.3	816.3
	TOTAL	4.8	11.1	19.0	61.9	3.2	.0	.0	61.3	28.4	63	100.0	12857.1

TRANSECT 2

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	1.0	204.1
ARTRT	ARTEMISIA TRIDENTATA	7.8	34.4	46.7	11.1	.0	.0	.0	34.3	18.4	90	87.4	18367.3
ATCA	ATRIPLEX CANESCENS	.0	50.0	.0	50.0	.0	.0	.0	47.5	31.8	4	3.9	816.3
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	1.0	204.1
QUGA	QUERCUS GAMBELII	.0	28.6	28.6	28.6	14.3	.0	.0	60.0	45.7	7	6.8	1428.6
	TOTAL	6.8	35.0	42.7	13.6	1.9	.0	.0	37.5	25.0	103	100.0	21020.4

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	7.5	22.5	60.0	10.0	.0	.0	.0	36.4	17.2	40	81.6	6163.3
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	6.1	612.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	16.7	66.7	16.7	.0	.0	.0	.0	20.8	11.1	6	12.2	1224.5
	TOTAL	8.2	26.5	57.1	8.2	.0	.0	.0	34.7	16.8	49	100.0	10000.0

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	1.9	21.3	54.6	20.4	1.9	.0	.0	44.3	23.8	108	100.0	22040.8
	TOTAL	1.9	21.3	54.6	20.4	1.9	.0	.0	44.3	23.8	108	100.0	22040.8

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	1.9	17.0	62.3	18.9	.0	.0	.0	42.5	17.9	53	98.1	10816.3
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	1.9	204.1
	TOTAL	1.9	18.5	61.1	18.5	.0	.0	.0	42.1	18.0	54	100.0	11020.4

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	13.9	72.1	13.1	.8	.0	.0	42.7	17.6	122	94.6	24898.0
ATCA	ATRIPLEX CANESCENS	.0	40.0	60.0	.0	.0	.0	.0	32.0	11.0	5	3.9	1020.4
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	1.6	408.2
	TOTAL	.0	16.3	70.5	12.4	.8	.0	.0	41.9	17.6	129	100.0	26326.5

TRANSECT 7

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	6.5	50.8	23.4	18.5	.8	.0	.0	35.0	24.2	124	91.9	25306.1
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	2	1.5	408.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	11.1	88.9	.0	.0	.0	.0	.0	18.3	5.0	9	6.7	1836.7
	TOTAL	6.7	52.6	23.0	17.0	.7	.0	.0	33.9	23.6	135	100.0	27551.0

TRANSECT 8

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	1.1	10.6	37.2	50.0	1.1	.0	.0	56.2	23.3	94	94.0	19183.7
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	2	2.0	408.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	33.3	66.7	.0	.0	.0	.0	.0	15.0	8.7	3	3.0	612.2
RHTRT	RHUS TRILOBATA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	1.0	204.1
	TOTAL	2.0	12.0	35.0	50.0	1.0	.0	.0	55.5	23.9	100	100.0	20408.2

TRANSECT 9

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	20.0	56.0	24.0	.0	.0	.0	44.4	19.2	25	69.4	5102.0
ATCA	ATRIPLEX CANESCENS	.0	.0	33.3	66.7	.0	.0	.0	63.3	18.1	6	16.7	1224.5
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.8	204.1
EPVI	EPHEDRA VIRIDUS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	2	5.6	408.2
QUGA	QUERCUS GAMBELII	.0	50.0	.0	50.0	.0	.0	.0	47.5	38.9	2	5.6	408.2
	TOTAL	.0	19.4	44.4	36.1	.0	.0	.0	46.8	21.4	36	100.0	7346.9

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA

ARTRT	ARTEMISIA TRIDENTATA	5.2	36.2	39.7	19.0	.0	.0	.0	37.6	21.0	58	79.5	11836.7
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	1.4	204.1
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	50.0	50.0	.0	.0	.0	57.5	19.2	6	8.2	1224.5
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	16.7	66.7	16.7	.0	.0	.0	.0	20.8	11.1	6	8.2	1224.5
RHTRT	RHUS TRILOBATA	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	2.7	408.2
	TOTAL	5.5	37.0	38.4	19.2	.0	.0	.0	37.4	21.2	73	100.0	14898.0

TRANSECT 11

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	6.9	9.2	32.2	47.1	4.6	.0	.0	57.3	31.1	87	100.0	17755.1
	TOTAL	6.9	9.2	32.2	47.1	4.6	.0	.0	57.3	31.1	87	100.0	17755.1

TRANSECT 12

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	9.9	50.4	33.1	6.6	.0	.0	.0	26.8	16.7	121	94.5	24693.9
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	28.6	71.4	.0	.0	.0	.0	.0	15.7	7.3	7	5.5	1428.6
	TOTAL	10.9	51.6	31.3	6.3	.0	.0	.0	28.0	16.6	128	100.0	26122.4

TRANSECT 13

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	1.1	18.1	30.9	50.0	.0	.0	.0	53.5	22.8	94	98.9	19183.7
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	1.1	204.1
	TOTAL	1.1	17.9	31.6	49.5	.0	.0	.0	53.4	22.7	95	100.0	19387.8

TRANSECT 14

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY

CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	6.9	70.1	11.5	11.5	.0	.0	.0	27.6	18.9	87	95.6	17755.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	25.0	75.0	.0	.0	.0	.0	.0	16.3	7.5	4	4.4	816.3
	TOTAL	7.7	70.3	11.0	11.0	.0	.0	.0	27.1	18.6	91	100.0	18571.4

TRANSECT 15

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	17.4	21.7	30.4	23.9	6.5	.0	.0	45.1	37.2	46	82.1	9387.8
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	1.8	204.1
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	33.3	66.7	.0	.0	.0	63.3	20.2	3	5.4	612.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	50.0	50.0	.0	.0	.0	.0	.0	12.5	8.7	4	7.1	816.3
QUGA	QUERCUS GAMBELII	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	2	3.6	408.2
	TOTAL	17.9	21.4	28.6	26.8	5.4	.0	.0	44.7	35.8	56	100.0	11428.6

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	.1	13.6	52.7
ARTRT	ARTEMISIA TRIDENTATA	15	4.9	29.0	39.7	25.2	1.2	.0	.0	42.6	24.9	1205	92.2	16394.6	6527.7
ATCA	ATRIPLEX CANESCENS	15	.0	14.3	53.6	32.1	.0	.0	.0	48.4	19.9	28	2.1	381.0	395.6
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	.0	.0	44.4	55.6	.0	.0	.0	59.4	18.4	9	.7	122.4	543.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	22.9	72.9	4.2	.0	.0	.0	.0	17.4	7.9	48	3.7	653.1	575.3
EPVI	EPHEDRA VIRIDUS	15	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	2	.2	27.2	105.4
RHTRT	RHUS TRILOBATA	15	.0	66.7	.0	33.3	.0	.0	.0	38.3	31.8	3	.2	40.8	114.4
QUGA	QUERCUS GAMBELII	15	.0	27.3	18.2	45.5	9.1	.0	.0	60.5	38.5	11	.8	149.7	381.5
	TOTAL	15	5.4	30.1	38.3	24.9	1.2	.0	.0	42.2	25.2	1307	100.0	17782.3	6351.8

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

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SAMPLE SIZE =  15

MEAN SHRUB DENSITY (NO./HA) =  17782.3
SAMPLE STANDARD DEVIATION =    6351.8
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   5
Z STATISTIC = 1.53
CONFIDENCE LEVEL OBTAINED = 93.7 PERCENT

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PRICE RIVER COAL COMPANY
HELPER, UTAH

BAR 1 CANYON GRASS-SAGE
REFERENCE SITE
OCTOBER 1981

****

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

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TRANSECT 1

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	57.1	28.6	14.3	.0	.0	.0	33.6	20.6	7	70.0	1429.6
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	3	30.0	612.2
	TOTAL	.0	40.0	20.0	40.0	.0	.0	.0	46.0	26.1	10	100.0	2040.8

TRANSECT 2

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	68.8	.0	6.3	12.5	12.5	.0	.0	34.1	51.4	16	88.9	3265.3
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	11.1	408.2
	TOTAL	61.1	.0	5.6	11.1	22.2	.0	.0	46.9	61.1	18	100.0	3673.5

TRANSECT 3

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	9.5	14.3	33.3	38.1	4.8	.0	.0	52.4	33.4	21	100.0	4285.7
	TOTAL	9.5	14.3	33.3	38.1	4.8	.0	.0	52.4	33.4	21	100.0	4285.7

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	35.7	7.1	28.6	21.4	7.1	.0	.0	41.4	41.4	14	77.8	2857.1
ATCA	ATRIPLEX CANESCENS	75.0	.0	25.0	.0	.0	.0	.0	13.8	17.5	4	22.2	816.3
	TOTAL	44.4	5.6	27.8	16.7	5.6	.0	.0	35.3	38.8	18	100.0	3673.5

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	35.7	21.4	.0	42.9	.0	.0	.0	38.2	33.5	14	73.7	2857.1
ATCA	ATRIPLEX CANESCENS	.0	60.0	.0	20.0	20.0	.0	.0	57.0	57.2	5	26.3	1020.4
	TOTAL	26.3	31.6	.0	36.8	5.3	.0	.0	43.2	40.1	19	100.0	3877.6

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	78.6	.0	21.4	.0	.0	.0	.0	12.5	14.9	14	87.5	2857.1
ATCA	ATRIPLEX CANESCENS	.0	.0	50.0	50.0	.0	.0	.0	57.5	24.7	2	12.5	408.2
	TOTAL	68.8	.0	25.0	6.3	.0	.0	.0	18.1	21.7	16	100.0	3265.3

TRANSECT 7

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	85.7	.0	14.3	.0	.0	55.7	41.6	7	43.8	1428.6
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	83.3	.0	16.7	.0	.0	58.3	44.9	6	37.5	1224.5
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	18.8	612.2
	TOTAL	.0	.0	87.5	.0	12.5	.0	.0	53.8	37.6	16	100.0	3265.3

TRANSECT 8

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	83.3	16.7	.0	.0	.0	.0	.0	7.5	6.1	6	75.0	1224.5
ATCA	ATRIPLEX CANESCENS	.0	.0	50.0	50.0	.0	.0	.0	57.5	24.7	2	25.0	408.2
	TOTAL	62.5	12.5	12.5	12.5	.0	.0	.0	20.0	25.5	8	100.0	1632.7

TRANSECT 9

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	16.7	204.1
ATCA	ATRIPLEX CANESCENS	.0	20.0	20.0	60.0	.0	.0	.0	57.0	25.6	5	83.3	1020.4
	TOTAL	.0	16.7	33.3	50.0	.0	.0	.0	54.2	24.0	6	100.0	1224.5

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	50.0	.0	50.0	.0	.0	.0	47.5	38.9	2	50.0	408.2
ATCA	ATRIPLEX CANESCENS	.0	.0	50.0	50.0	.0	.0	.0	57.5	24.7	2	50.0	408.2
	TOTAL	.0	25.0	25.0	50.0	.0	.0	.0	52.5	27.2	4	100.0	816.3

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ATCA	ATRIPLEX CANESCENS	.0	.0	83.3	16.7	.0	.0	.0	45.8	14.3	6	66.7	1224.5
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	3	33.3	612.2
	TOTAL	.0	.0	55.6	11.1	33.3	.0	.0	80.6	53.3	9	100.0	1836.7

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ATCA	ATRIPLEX CANESCENS	.0	.0	37.5	50.0	12.5	.0	.0	71.3	36.2	8	100.0	1632.7
	TOTAL	.0	.0	37.5	50.0	12.5	.0	.0	71.3	36.2	8	100.0	1632.7

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	33.3	66.7	.0	.0	.0	.0	.0	15.0	7.5	9	100.0	1836.7
	TOTAL	33.3	66.7	.0	.0	.0	.0	.0	15.0	7.5	9	100.0	1836.7

TRANSECT 14

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	14.3	204.1
RIBES	RIBES SP.	.0	.0	.0	66.7	33.3	.0	.0	100.0	38.7	6	85.7	1224.5
	TOTAL	.0	.0	.0	57.1	42.9	.0	.0	107.1	40.1	7	100.0	1428.6

TRANSECT 15

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	4	44.4	816.3
EPHED	EPHEDRA SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	11.1	204.1
RIBES	RIBES SP.	.0	.0	.0	50.0	50.0	.0	.0	112.5	43.3	4	44.4	816.3
	TOTAL	.0	.0	.0	77.8	22.2	.0	.0	91.7	33.1	9	100.0	1836.7

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	.0	85.7	.0	14.3	.0	.0	55.7	41.6	7	3.9	95.2	368.9
ARTRT	ARTEMISIA TRIDENTATA	15	38.2	17.3	20.9	19.1	4.5	.0	.0	34.9	36.1	110	61.8	1496.6	1427.9
ATCA	ATRIPLEX CANESCENS	15	7.3	9.8	39.0	39.0	4.9	.0	.0	54.5	31.8	41	23.0	557.8	520.1
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	.6	13.6	52.7
EPHED	EPHEDRA SP.	15	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	.6	13.6	52.7
RIBES	RIBES SP.	15	.0	.0	.0	50.0	50.0	.0	.0	112.5	38.6	19	10.1	244.9	394.8
	TOTAL	15	25.3	12.9	25.3	26.4	10.1	.0	.0	48.9	42.9	178	100.0	2421.8	1120.1

****

**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

SAMPLE SIZE = 15

MEAN SHRUB DENSITY (NO./HA) = 2421.8
SAMPLE STANDARD DEVIATION = 1120.1
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 8
Z STATISTIC = 1.18
CONFIDENCE LEVEL OBTAINED = 63.1 PERCENT

****

SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON GRASS-SAGE
AFFECTED AREA
OCTOBER 1981

****

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	41.7	58.3	.0	.0	118.8	38.6	12	30.8	2449.0
ARTRT	ARTEMISIA TRIDENTATA	11.5	50.0	38.5	.0	.0	.0	.0	26.0	12.2	26	66.7	5306.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.6	204.1
	TOTAL	7.7	35.9	25.6	12.8	17.9	.0	.0	54.4	49.2	39	100.0	7959.2

TRANSECT 2

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	8.3	8.3	8.3	75.0	.0	.0	123.8	48.9	12	27.9	2449.0
ARTRT	ARTEMISIA TRIDENTATA	13.3	23.3	53.3	10.0	.0	.0	.0	34.2	18.9	30	69.8	6122.4
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.3	204.1
	TOTAL	9.3	18.6	39.5	11.6	20.9	.0	.0	60.1	50.2	43	100.0	8775.5

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	50.0	50.0	.0	.0	112.5	53.0	2	4.5	409.2
ARTRT	ARTEMISIA TRIDENTATA	7.5	20.0	67.5	5.0	.0	.0	.0	35.1	14.7	40	90.9	8163.3
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.3	204.1
EPHED	EPHEDRA SP.	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.3	204.1
	TOTAL	6.8	18.2	63.6	9.1	2.3	.0	.0	39.7	23.6	44	100.0	8979.6

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	5.6	204.1
ARTRT	ARTEMISIA TRIDENTATA	.0	36.4	63.6	.0	.0	.0	.0	32.7	10.1	11	61.1	2244.9
ATCA	ATRIPLEX CANESCENS	.0	.0	50.0	50.0	.0	.0	.0	57.5	24.7	2	11.1	408.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	33.3	.0	66.7	.0	.0	.0	.0	28.3	20.2	3	16.7	612.2
EPHED	EPHEDRA SP.	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	5.6	204.1
	TOTAL	5.6	22.2	61.1	5.6	5.6	.0	.0	41.7	30.8	18	100.0	3673.5

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	90.9	9.1	.0	.0	.0	.0	21.8	6.0	11	45.8	2244.9
ATCA	ATRIPLEX CANESCENS	.0	76.9	.0	23.1	.0	.0	.0	32.7	24.1	13	54.2	2653.1
	TOTAL	.0	83.3	4.2	12.5	.0	.0	.0	27.7	18.7	24	100.0	4898.0

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	58.8	11.8	17.6	5.9	5.9	.0	.0	25.6	37.8	17	85.0	3469.4
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	5.0	204.1

CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	5.0	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	5.0	204.1
	TOTAL	50.0	10.0	25.0	10.0	5.0	.0	.0	29.5	36.6	20	100.0	4081.6

TRANSECT 7

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	12.5	.0	54.2	33.3	.0	.0	.0	47.3	23.0	24	72.7	4898.0
CEMOM	CERCOCARPUS MONTANUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	6.1	408.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	3.0	204.1
RIBES	RIBES SP.	.0	.0	.0	50.0	50.0	.0	.0	112.5	53.0	2	6.1	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	50.0	.0	50.0	.0	.0	95.0	63.5	4	12.1	816.3
	TOTAL	9.1	.0	48.5	27.3	15.2	.0	.0	63.0	42.5	33	100.0	6734.7

TRANSECT 8

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	23.5	8.8	61.8	2.9	2.9	.0	.0	34.3	26.5	34	82.9	6938.8
CEMOM	CERCOCARPUS MONTANUS	.0	.0	33.3	16.7	50.0	.0	.0	100.8	55.4	6	14.6	1224.5
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.4	204.1
	TOTAL	19.5	7.3	56.1	7.3	9.8	.0	.0	45.0	39.4	41	100.0	8367.3

TRANSECT 9

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	2.6	17.9	35.9	41.0	2.6	.0	.0	52.7	27.8	39	92.9	7959.2
ATCA	ATRIPLEX CANESCENS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.4	204.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.4	204.1
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.4	204.1
	TOTAL	2.4	19.0	35.7	40.5	2.4	.0	.0	52.1	27.6	42	100.0	8571.4

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	2.4	11.9	21.4	59.5	4.8	.0	.0	62.9	29.7	42	97.7	8571.4
ATCA	ATRIPLEX CANESCENS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.3	204.1
	TOTAL	2.3	14.0	20.9	56.1	4.7	.0	.0	61.9	30.0	43	100.0	8775.5

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	3.8	26.9	65.4	3.8	.0	.0	.0	34.6	13.4	26	68.4	5306.1
ATCA	ATRIPLEX CANESCENS	.0	.0	83.3	16.7	.0	.0	.0	45.8	13.6	12	31.6	2449.0
	TOTAL	2.6	18.4	71.1	7.9	.0	.0	.0	38.2	14.3	38	100.0	7755.1

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	12.0	612.2
ATCA	ATRIPLEX CANESCENS	.0	22.2	33.3	44.4	.0	.0	.0	51.1	24.0	9	36.0	1836.7
EPHED	EPHEDRA SP.	76.9	.0	.0	15.4	7.7	.0	.0	26.9	45.3	13	52.0	2653.1
	TOTAL	40.0	8.0	24.0	24.0	4.0	.0	.0	37.2	36.7	25	100.0	5102.0

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	41.7	33.3	25.0	.0	.0	79.2	45.5	12	52.2	2449.0
ATCA	ATRIPLEX CANESCENS	.0	.0	37.5	62.5	.0	.0	.0	61.9	18.1	8	34.8	1632.7
RIBES	RIBES SP.	.0	.0	.0	66.7	33.3	.0	.0	100.0	43.3	3	13.0	612.2
	TOTAL	.0	.0	34.8	47.8	17.4	.0	.0	75.9	38.3	23	100.0	4693.9

TRANSECT 14

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	46.2	53.8	.0	.0	.0	.0	.0	13.1	7.8	13	72.2	2653.1
ATCA	ATRIPLEX CANESCENS	.0	.0	25.0	50.0	25.0	.0	.0	85.0	46.4	4	22.2	816.3
EPHED	EPHEDRA SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	5.6	204.1
	TOTAL	33.3	38.9	5.6	11.1	11.1	.0	.0	36.7	46.4	18	100.0	3673.5

TRANSECT 15

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	55.6	5.6	16.7	22.2	.0	.0	.0	27.2	29.3	18	78.3	3673.5
ATCA	ATRIPLEX CANESCENS	.0	.0	25.0	75.0	.0	.0	.0	66.3	17.5	4	17.4	816.3
EPHED	EPHEDRA SP.	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	4.3	204.1
	TOTAL	43.5	4.3	21.7	30.4	.0	.0	.0	34.6	30.6	23	100.0	4693.9

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	3.7	3.7	25.9	66.7	.0	.0	121.7	42.4	27	5.7	367.3	852.7
ARTRT	ARTEMISIA TRIDENTATA	15	14.5	21.4	43.1	16.8	2.3	.0	.0	39.8	27.8	346	73.0	4707.5	2478.5
ATCA	ATRIPLEX CANESCENS	15	.0	24.6	35.1	38.6	1.8	.0	.0	50.5	26.2	57	12.0	775.5	915.6
CEMOM	CERCOCARPUS MONTANUS	15	.0	.0	25.0	12.5	62.5	.0	.0	113.1	52.0	8	1.7	108.8	326.0
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	16.7	.0	83.3	.0	.0	.0	.0	34.2	14.3	6	1.3	81.6	169.0
EPHED	EPHEDRA SP.	15	58.8	.0	17.6	11.8	11.8	.0	.0	36.5	49.2	17	3.6	231.3	676.3
RIBES	RIBES SP.	15	.0	.0	.0	71.4	28.6	.0	.0	96.4	36.6	7	1.5	95.2	186.8
SYOC	SYMPHORICARPOS OCCIDENTALIS	15	.0	16.7	33.3	16.7	33.3	.0	.0	79.2	57.7	6	1.3	81.6	215.4
	TOTAL	15	12.9	19.0	38.4	21.7	8.0	.0	.0	48.1	37.5	474	100.0	6449.0	2085.2

****

**** EVALUATION OF SAMPLING ADEQUACY ****

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**************************************
DESIRED CONFIDENCE LEVEL = 60.0 PERCENT

SAMPLE SIZE =  15

MEAN SHRUB DENSITY (NO./HA) =   6449.0
SAMPLE STANDARD DEVIATION =    2085.2
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   4
Z STATISTIC = 1.69
CONFIDENCE LEVEL OBTAINED = 95.5 PERCENT

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SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

SOWBELLY MIXED BRUSH
REFERENCE SITE
JULY 1981

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HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	9.1	90.9	.0	.0	.0	.0	.0	18.6	4.5	11	25.0	2244.9
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	3	6.8	612.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	4.5	408.2
QUGA	QUERCUS GAMBELII	14.3	28.6	.0	42.9	14.3	.0	.0	60.0	47.1	28	63.6	5714.3
	TOTAL	11.4	52.3	.0	27.3	9.1	.0	.0	45.1	42.4	44	100.0	8979.6

TRANSECT 2

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	38.5	61.5	.0	.0	.0	.0	.0	14.2	7.6	13	22.0	2653.1
CEMOM	CERCOCARPUS MONTANUS	.0	50.0	.0	.0	50.0	.0	.0	85.0	91.9	2	3.4	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	56.3	43.8	.0	.0	.0	.0	.0	11.6	7.7	16	27.1	3265.3
ACGR	ACER GRANDIDENTATUM	75.0	25.0	.0	.0	.0	.0	.0	8.8	7.5	4	6.8	816.3
QUGA	QUERCUS GAMBELII	4.2	41.7	29.2	8.3	16.7	.0	.0	51.5	48.0	24	40.7	4898.0
	TOTAL	30.5	45.8	11.9	3.4	8.5	.0	.0	30.7	39.5	59	100.0	12040.8

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	38.5	57.7	3.8	.0	.0	.0	.0	15.0	8.9	26	50.0	5306.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	50.0	.0	50.0	.0	.0	.0	.0	22.5	24.7	2	3.8	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	57.1	42.9	.0	.0	.0	.0	.0	11.4	8.0	7	13.5	1428.6
OUGA	QUERCUS GAMBELII	.0	5.9	29.4	23.5	35.3	5.9	.0	101.2	71.5	17	32.7	3469.4
	TOTAL	28.8	36.5	13.5	7.7	11.5	1.9	.0	43.0	57.8	52	100.0	10612.2

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	1.4	204.1
ARTRT	ARTEMISIA TRIDENTATA	11.8	23.5	52.9	11.8	.0	.0	.0	35.3	19.6	17	24.3	3469.4
BERE	BERBERIS REPENS	100.0	.0	.0	.0	.0	.0	.0	5.0	.0	19	27.1	3877.6
SYOC	SYMPHORICARPOS OCCIDENTALIS	8.3	16.7	75.0	.0	.0	.0	.0	33.8	11.9	12	17.1	2449.0
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	1	1.4	204.1
OUGA	QUERCUS GAMBELII	.0	30.0	10.0	30.0	10.0	15.0	5.0	112.5	117.4	20	28.6	4081.6
	TOTAL	31.4	17.1	28.6	12.9	2.9	5.7	1.4	53.2	81.2	70	100.0	14285.7

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	18.2	27.3	27.3	27.3	.0	.0	.0	37.7	27.0	11	28.9	2244.9
SYOC	SYMPHORICARPOS OCCIDENTALIS	50.0	.0	50.0	.0	.0	.0	.0	22.5	24.7	2	5.3	408.2
OUGA	QUERCUS GAMBELII	.0	.0	12.0	44.0	44.0	.0	.0	103.8	43.2	25	65.8	5102.0
	TOTAL	7.9	7.9	18.4	36.8	28.9	.0	.0	80.4	50.2	38	100.0	7755.1

TRANSECT 6

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY

CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	1.4	204.1
ARTRT	ARTEMISIA TRIDENTATA	5.9	64.7	23.5	5.9	.0	.0	.0	27.1	15.8	17	24.3	3469.4
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	50.0	50.0	.0	.0	.0	.0	30.0	11.5	4	5.7	816.3
PRVIO	PRUNUS VIRGINIANA	50.0	50.0	.0	.0	.0	.0	.0	12.5	8.2	6	8.6	1224.5
SYOC	SYMPHORICARPOS OCCIDENTALIS	28.6	57.1	14.3	.0	.0	.0	.0	18.6	11.3	14	20.0	2857.1
QUGA	QUERCUS GAMBELII	.0	46.4	17.9	3.6	25.0	7.1	.0	78.0	83.0	28	40.0	5714.3
	TOTAL	11.4	52.9	20.0	2.9	10.0	2.9	.0	44.9	59.6	70	100.0	14285.7

TRANSECT 7

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	13.9	41.7	27.8	13.9	2.8	.0	.0	34.7	29.0	36	64.3	7346.9
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	3	5.4	612.2
QUGA	QUERCUS GAMBELII	.0	.0	.0	23.5	76.5	.0	.0	132.4	32.8	17	30.4	3469.4
	TOTAL	8.9	32.1	17.9	16.1	25.0	.0	.0	63.6	54.4	56	100.0	11428.6

TRANSECT 8

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	76.9	15.4	.0	7.7	.0	.0	33.1	35.9	13	22.8	2653.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	66.7	.0	22.2	11.1	.0	.0	.0	20.6	25.4	9	15.8	1836.7
QUGA	QUERCUS GAMBELII	.0	2.9	5.7	14.3	60.0	17.1	.0	155.0	77.3	35	61.4	7142.9
	TOTAL	10.5	19.3	10.5	10.5	38.6	10.5	.0	106.0	86.9	57	100.0	11632.7

TRANSECT 9

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	5.6	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.8	204.1
QUGA	QUERCUS GAMBELII	.0	.0	36.4	51.5	12.1	.0	.0	71.4	33.9	33	91.7	6734.7
	TOTAL	.0	5.6	36.1	47.2	11.1	.0	.0	67.6	34.9	36	100.0	7346.9

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	6.7	60.0	20.0	13.3	.0	.0	.0	30.3	20.5	15	37.5	3061.2
QUGA	QUERCUS GAMBELII	.0	.0	4.0	48.0	32.0	16.0	.0	133.6	82.4	25	62.5	5102.0
	TOTAL	2.5	22.5	10.0	35.0	20.0	10.0	.0	94.9	83.0	40	100.0	8163.3

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	66.7	.0	.0	33.3	.0	.0	63.3	75.1	3	4.4	612.2
ARTRT	ARTEMISIA TRIDENTATA	25.0	62.5	12.5	.0	.0	.0	.0	18.8	10.9	8	11.8	1632.7
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	2	2.9	408.2
ROSA	ROSA SP.	.0	37.5	25.0	37.5	.0	.0	.0	45.6	25.7	8	11.8	1632.7
SYOC	SYMPHORICARPOS OCCIDENTALIS	20.0	80.0	.0	.0	.0	.0	.0	17.0	6.3	10	14.7	2040.8
QUGA	QUERCUS GAMBELII	.0	32.4	13.5	5.4	10.8	29.7	8.1	153.9	140.5	37	54.4	7551.0
	TOTAL	5.9	47.1	11.8	7.4	7.4	16.2	4.4	97.2	122.0	68	100.0	13877.6

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	80.0	.0	.0	20.0	.0	.0	46.0	58.1	5	10.0	1020.4
BERE	BERBERIS REPENS	100.0	.0	.0	.0	.0	.0	.0	5.0	.0	4	8.0	816.3
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	2	4.0	408.2
ROSA	ROSA SP.	.0	62.5	25.0	12.5	.0	.0	.0	31.9	19.6	8	16.0	1632.7
SYOC	SYMPHORICARPOS OCCIDENTALIS	10.0	80.0	10.0	.0	.0	.0	.0	20.5	8.3	10	20.0	2040.8
QUGA	QUERCUS GAMBELII	.0	14.3	4.8	9.5	23.8	23.8	23.8	214.5	143.9	21	42.0	4285.7
	TOTAL	10.0	40.0	12.0	6.0	12.0	10.0	10.0	105.9	132.7	50	100.0	10204.1

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA

ARTRT	ARTEMISIA TRIDENTATA	.0	8.0	56.0	32.0	4.0	.0	.0	54.0	27.2	25	73.5	5102.0
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	33.3	66.7	.0	.0	.0	.0	33.3	11.5	3	8.8	612.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	50.0	50.0	.0	.0	.0	.0	30.0	14.1	2	5.9	408.2
QUGA	QUERCUS GAMBELII	.0	.0	.0	50.0	50.0	.0	.0	112.5	43.3	4	11.8	816.3
	TOTAL	.0	11.8	50.0	29.4	8.8	.0	.0	57.6	34.6	34	100.0	6938.8

TRANSECT 14

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	14.3	.0	71.4	14.3	.0	.0	77.9	37.8	7	14.9	1428.6
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.1	204.1
QUGA	QUERCUS GAMBELII	.0	7.7	7.7	25.6	48.7	10.3	.0	127.7	75.0	39	83.0	7959.2
	TOTAL	.0	10.6	6.4	31.9	42.5	8.5	.0	118.0	73.3	47	100.0	9591.8

TRANSECT 15

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	5.6	5.6	27.8	61.1	.0	.0	.0	58.3	23.1	18	46.2	3673.5
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.6	204.1
QUGA	QUERCUS GAMBELII	.0	.0	20.0	20.0	60.0	.0	.0	113.0	47.9	20	51.3	4081.6
	TOTAL	2.6	5.1	23.1	38.5	30.8	.0	.0	85.4	47.4	39	100.0	7959.2

SUMMARY - ALL TRANSECTS

			PERCENT FREQUENCY - HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY (#/HA)	
CODE	SCIENTIFIC NAME	NO OF TRANSECTS	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	40.0	20.0	20.0	20.0	.0	.0	61.0	54.6	5	.7	68.0	166.6
ARTRT	ARTEMISIA TRIDENTATA	15	13.4	44.6	23.2	16.5	2.2	.0	.0	34.6	28.1	224	29.5	3047.6	1809.8
BERE	BERBERIS REPENS	15	100.0	.0	.0	.0	.0	.0	.0	5.0	.0	23	3.0	312.9	1008.3
CEMOM	CERCOCARPUS MONTANUS	15	.0	50.0	.0	.0	50.0	.0	.0	85.0	91.9	2	.3	27.2	105.4
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	6.3	50.0	43.8	.0	.0	.0	.0	27.8	11.7	16	2.1	217.7	293.4
PRVIC	PRUNUS VIRGINIANA	15	50.0	50.0	.0	.0	.0	.0	.0	12.5	8.2	6	.8	81.6	316.2

ROSA	ROSA SP.	15	.0	50.0	25.0	25.0	.0	.0	.0	38.8	23.2	16	2.1	217.7	574.5
SYOC	SYMPHORICARPOS OCCIDENTALIS	15	31.1	48.9	18.9	1.1	.0	.0	.0	19.7	13.5	90	11.8	1224.5	1104.4
ACGR	ACER GRANDIDENTATUM	15	60.0	20.0	.0	.0	.0	20.0	.0	67.0	130.4	5	.7	68.0	213.6
QUGA	QUERCUS GAMBELII	15	1.3	15.3	13.4	25.2	32.7	9.7	2.4	115.1	91.6	373	49.1	5074.8	1655.9
	TOTAL	15	12.2	29.5	17.2	18.0	17.0	4.9	1.2	71.7	79.9	760	100.0	10340.1	2528.7

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

SAMPLE SIZE = 15

MEAN SHRUB DENSITY (NO./HA) = 10340.1
SAMPLE STANDARD DEVIATION = 2528.7
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 2
Z STATISTIC = 2.24
CONFIDENCE LEVEL OBTAINED = 98.8 PERCENT

****

SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

CASTLE GATE MIXED BRUSH
REFERENCE SITE
JULY 1981

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	2	6.5	408.2
ARTRT	ARTEMISIA TRIDENTATA	14.8	18.5	18.5	48.1	.0	.0	.0	48.0	28.5	27	87.1	5510.2
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	3.2	204.1
EPVI	EPHEDRA VIRIDUS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	3.2	204.1
	TOTAL	12.9	19.4	16.1	45.2	.0	6.5	.0	64.2	68.7	31	100.0	6326.5

TRANSECT 2

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	50.0	.0	.0	.0	50.0	.0	160.0	198.0	2	4.3	408.2
ARTRT	ARTEMISIA TRIDENTATA	.0	18.2	40.9	34.1	6.8	.0	.0	55.8	33.0	44	93.6	8979.6
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.1	204.1
	TOTAL	.0	19.1	38.3	31.9	8.5	2.1	.0	62.2	49.9	47	100.0	9591

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	20.0	40.0	30.0	10.0	.0	.0	57.5	37.7	20	62.5	4081.6
ATCA	ATRIPLEX CANESCENS	.0	9.1	63.6	18.2	9.1	.0	.0	54.5	35.5	11	34.4	2244.9
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	3.1	204.1
	TOTAL	.0	15.6	46.9	28.1	9.4	.0	.0	57.0	35.9	32	100.0	6530.6

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	14.3	28.6	21.4	28.6	7.1	.0	.0	47.1	39.6	14	70.0	2857.1
ATCA	ATRIPLEX CANESCENS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	5.0	204.1
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	50.0	50.0	.0	.0	.0	57.5	20.2	4	20.0	816.3
EPVI	EPHEDRA VIRIDUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	5.0	204.1
	TOTAL	10.0	25.0	25.0	30.0	10.0	.0	.0	53.0	41.4	20	100.0	4081.6

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	70.6	11.8	5.9	11.8	.0	.0	.0	17.1	23.7	17	70.8	3469.4
ATCA	ATRIPLEX CANESCENS	16.7	.0	66.7	16.7	.0	.0	.0	40.0	22.1	6	25.0	1224.5
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	4.2	204.1
	TOTAL	54.2	8.3	25.0	12.5	.0	.0	.0	23.8	24.7	24	100.0	4898.0

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	12.5	204[illegible]
ATCA	ATRIPLEX CANESCENS	20.0	20.0	40.0	20.0	.0	.0	.0	36.0	26.3	5	62.5	1020[illegible]

CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	12.5	204.1
EPVI	EPHEDRA VIRIDUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	12.5	204.1
	TOTAL	12.5	25.0	50.0	12.5	.0	.0	.0	35.0	20.9	8	100.0	1632.7

TRANSECT 7

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	1	4.2	204.1
ARTRT	ARTEMISIA TRIDENTATA	18.2	18.2	27.3	27.3	9.1	.0	.0	49.5	42.5	11	45.8	2244.9
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	66.7	.0	33.3	.0	.0	.0	38.3	31.8	3	12.5	612.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	11.1	88.9	.0	.0	.0	.0	.0	18.3	5.0	9	37.5	1836.7
	TOTAL	12.5	50.0	12.5	16.7	4.2	4.2	.0	46.9	63.2	24	100.0	4898.0

TRANSECT 8

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	50.0	50.0	.0	225.0	106.1	2	4.2	408.2
ARTRT	ARTEMISIA TRIDENTATA	22.7	38.6	29.5	6.8	2.3	.0	.0	29.2	26.3	44	91.7	8979.6
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.1	204.1
RHTRT	RHUS TRILOBATA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.1	204.1
	TOTAL	20.8	35.4	27.1	8.3	6.3	2.1	.0	40.8	52.1	48	100.0	9795.9

TRANSECT 9

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	18.4	18.4	23.7	34.2	5.3	.0	.0	47.6	36.5	38	95.0	7755.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.5	204.1
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.5	204.1
	TOTAL	17.5	20.0	22.5	32.5	7.5	.0	.0	49.5	39.4	40	100.0	8163.3

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	20.0	20.0	40.0	20.0	.0	.0	72.0	49.6	5	14.3	1020.4
ARTRT	ARTEMISIA TRIDENTATA	10.7	25.0	21.4	42.9	.0	.0	.0	46.3	27.3	28	80.0	5714.3
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	50.0	50.0	.0	.0	.0	57.5	24.7	2	5.7	408.2
	TOTAL	8.6	22.9	22.9	42.9	2.9	.0	.0	50.6	31.4	35	100.0	7142.9

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	33.3	44.4	22.2	.0	.0	.0	.0	19.4	13.6	9	56.3	1836.7
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	.0	33.3	66.7	.0	.0	.0	63.3	20.2	3	18.8	612.2
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	6.3	204.1
PRVID	PRUNUS VIRGINIANA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	6.3	204.1
POAN	POPULUS ANGUSTIFOLIA	.0	.0	.0	.0	50.0	50.0	.0	225.0	106.1	2	12.5	408.2
	TOTAL	18.8	31.3	18.8	12.5	12.5	6.3	.0	61.6	78.5	16	100.0	3265.3

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	6.7	204.1
ATCA	ATRIPLEX CANESCENS	.0	27.3	54.5	18.2	.0	.0	.0	40.9	19.1	11	73.3	2244.9
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	6.7	204.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	6.7	204.1
EPVI	EPHEDRA VIRIDUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	6.7	204.1
	TOTAL	.0	33.3	46.7	20.0	.0	.0	.0	40.3	20.1	15	100.0	3061.2

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	17.4	47.8	34.8	.0	.0	.0	48.7	21.0	23	85.2	4693[illegible]
CHNAN	CH[illegible]THAMNUS NAUSEOSUS	.0	33.3	.0	33.3	[illegible].3	.0	.0	81.7	65.3	3	11.1	61[illegible]
EPVI	EP[illegible]RA VIRIDUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	3.7	204.1

	TOTAL	.0	18.5	40.7	33.3	7.4	.0	.0	56.1	35.1	27	100.0	5510.2

TRANSECT 14

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	1	2.3	204.1
ARTRT	ARTEMISIA TRIDENTATA	44.1	8.8	14.7	32.4	.0	.0	.0	34.1	31.1	34	77.3	6938.8
ATCA	ATRIPLEX CANESCENS	.0	25.0	12.5	62.5	.0	.0	.0	56.9	25.8	8	18.2	1632.7
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.3	204.1
	TOTAL	34.1	13.6	13.6	38.6	.0	.0	.0	38.9	31.1	44	100.0	8979.6

TRANSECT 15

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	28.6	71.4	.0	257.1	73.2	7	16.7	1428.6
ARTRT	ARTEMISIA TRIDENTATA	.0	28.1	34.4	34.4	3.1	.0	.0	49.8	29.0	32	76.2	6530.6
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.4	204.1
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	4.8	408.2
	TOTAL	.0	21.4	26.2	28.6	11.9	11.9	.0	89.8	87.3	42	100.0	8571.4

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	15.0	5.0	10.0	20.0	50.0	.0	192.5	117.6	20	4.4	272.1	427.2
ARTRT	ARTEMISIA TRIDENTATA	15	16.9	22.2	28.0	29.7	3.2	.0	.0	43.6	32.2	343	75.7	4666.7	2877.8
ATCA	ATRIPLEX CANESCENS	15	4.5	18.2	45.5	27.3	4.5	.0	.0	49.3	30.8	44	9.7	598.6	846.6
CHNAN	CHRYSOTHAMNUS NAUSEOSUS	15	.0	25.0	25.0	40.0	10.0	.0	.0	60.0	38.4	20	4.4	272.1	274.5
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	7.7	92.3	.0	.0	.0	.0	.0	18.8	4.2	13	2.9	176.9	468.4
EPVI	EPHEDRA VIRIDUS	15	.0	.0	40.0	20.0	40.0	.0	.0	91.0	55.7	5	1.1	68.0	99.6
PRVID	PRUNUS VIRGINIANA	15	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	.2	13.6	52.7
RHTRT	RHUS TRILOBATA	15	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	.2	13.6	52.7
JUOS	JUNIPERUS OSTEOSPERMA	15	.0	.0	.0	25.0	5.0	.0	.0	131.3	37.5	4	.9	54.4	121.1
POAN	PO[illegible]US ANGUSTIFOLIA	15	.0	.0	.0	.0	0.0	50.0	.0	225.0	106.1	2	.4	27.2	105.4

TOTAL	15	13.5	23.0	27.4	28.0	5.7	2.4	.0	53.1	52.0	453	100.0	6163.3	2539.9

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**** EVALUATION OF SAMPLING ADEQUACY ****
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DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

SAMPLE SIZE =  15

MEAN SHRUB DENSITY (NO./HA) =   6163.3
SAMPLE STANDARD DEVIATION =   2539.9
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =   6
Z STATISTIC = 1.33
CONFIDENCE LEVEL OBTAINED = 91.0 PERCENT

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SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON-MIXED BRUSH
AFFECTED AREA
OCTOBER 1981

****

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

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TRANSECT 1

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	37	66.1	7551.0
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	50.0	.0	.0	50.0	238.0	230.5	2	3.6	408.2
QUGA	QUERCUS GAMBELII	.0	.0	.0	5.9	5.9	.0	88.2	367.1	96.7	17	30.4	3469.4
	TOTAL	.0	.0	.0	3.6	1.8	.0	94.6	384.9	68.9	56	100.0	11428.6

TRANSECT 2

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	33.3	.0	66.7	.0	.0	.0	56.7	31.8	3	3.9	612.2
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	4	5.3	816.3
SYOC	SYMPHORICARPOS OCCIDENTALIS	4.0	4.0	92.0	.0	.0	.0	.0	37.8	7.9	25	32.9	5102.0
ABCO	ABIES CONCOLOR	.0	.0	25.0	25.0	25.0	.0	25.0	166.5	162.9	4	5.3	816.3
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	3.1	15.6	81.3	377.4	55.7	32	42.1	6530.6
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	4	5.3	81[illegible]
QUGA	QU[illegible]US GAMBELII	.0	.0	.0	25.0	[illegible].0	.0	.0	131.3	37.5	4	5.3	81[illegible]

	TOTAL	1.3	2.6	31.6	5.3	11.8	6.6	40.8	216.2	166.5	76	100.0	15510.2

TRANSECT 3

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	2	4.0	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	8	16.0	1632.7
ABCO	ABIES CONCOLOR	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	2.0	204.1
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	12.5	37.5	.0	50.0	266.1	146.3	8	16.0	1632.7
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	50.0	.0	50.0	275.5	177.5	2	4.0	408.2
PIED	PINUS EDULIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	2.0	204.1
PSMEM	PSEUDOTSUGA MENZIESII	.0	.0	.0	50.0	.0	.0	50.0	238.0	230.5	2	4.0	408.2
QUGA	QUERCUS GAMBELII	.0	.0	15.4	11.5	23.1	.0	50.0	249.9	158.1	26	52.0	5306.1
	TOTAL	.0	16.0	8.0	14.0	20.0	.0	42.0	215.3	164.9	50	100.0	10204.1

TRANSECT 4

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	.0	50.0	50.0	.0	.0	112.5	53.0	2	1.7	408.2
RIBES	RIBES SP.	.0	.0	.0	20.0	60.0	20.0	.0	165.0	82.2	5	4.3	1020.4
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	2.8	13.9	83.3	.0	.0	.0	68.6	14.8	36	31.3	7346.9
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	80.6	19.2	.0	179.8	60.3	26	22.6	5306.1
QUGA	QUERCUS GAMBELII	.0	.0	2.2	4.3	15.2	58.7	19.6	281.5	94.6	46	40.0	9387.8
	TOTAL	.0	.9	5.2	29.6	27.8	26.7	7.8	183.6	113.2	115	100.0	23469.4

TRANSECT 5

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	2.8	97.2	.0	.0	.0	.0	39.4	3.3	36	49.3	7346.9
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	27.3	.0	72.7	332.5	117.2	11	15.1	2244.9
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	7.7	11.5	80.8	370.0	72.6	26	35.6	5306.1
	TOTAL	.0	1.4	47.9	.0	6.8	4.1	39.7	201.4	172.5	73	100.0	14898.0

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	3.2	408.2
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	1.6	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	56.5	32.6	10.9	.0	.0	63.4	34.6	46	73.0	9387.8
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	7	11.1	1428.6
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	3.2	408.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	1.6	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	75.0	.0	25.0	212.8	125.5	4	6.3	816.3
	TOTAL	.0	.0	41.3	25.4	15.9	.0	17.5	129.4	131.4	63	100.0	12857.1

TRANSECT 7

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	4.9	408.2
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	7.3	612.2
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	4.9	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	3	7.3	612.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	2.4	204.1
QUGA	QUERCUS GAMBELII	.0	.0	53.3	.0	20.0	26.7	.0	131.3	111.9	30	73.2	6122.4
	TOTAL	.0	.0	46.3	.0	31.7	19.5	2.4	134.4	107.6	41	100.0	8367.3

TRANSECT 8

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	9.5	66.7	23.8	.0	.0	89.5	36.2	21	33.9	4285.7
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	3	4.8	612.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	17.6	76.5	.0	5.9	.0	.0	42.9	28.7	17	27.4	3469.4
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	4	6.5	816.3
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	66.7	22.2	.0	11.1	127.9	107.4	9	14.5	1836.7
QUGA	QUERCUS GAMBELII	.0	.0	12.5	12.5	12.5	.0	62.5	283.8	164.6	8	12.9	1632.7
	TOTAL	.0	4.8	25.8	38.7	21.0	.0	9.7	110.6	104.1	62	100.0	12653.1

TRANSECT 9

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY

CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CEMOM	CERCOCARPUS MONTANUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	3.4	204.1
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	3.4	204.1
SALIX	SALIX SP.	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	5	17.2	1020.4
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	65.7	33.3	.0	.0	.0	51.7	17.1	15	51.7	3061.2
POAN	POPULUS ANGUSTIFOLIA	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	7	24.1	1428.6
	TOTAL	.0	.0	34.5	17.2	6.9	41.4	.0	161.2	121.8	29	100.0	5918.4

TRANSECT 10

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CEMOM	CERCOCARPUS MONTANUS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	2.2	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	37.5	62.5	.0	.0	.0	.0	32.5	9.9	24	53.3	4898.0
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.2	204.1
PSMEM	PSEUDOTSUGA MENZIESII	.0	.0	33.3	66.7	.0	.0	.0	63.3	20.2	3	6.7	612.2
QUGA	QUERCUS GAMBELII	.0	.0	31.3	56.3	6.3	.0	6.3	89.1	87.5	16	35.6	3265.3
	TOTAL	.0	20.0	46.7	24.4	4.4	.0	4.4	65.5	79.7	45	100.0	9193.7

TRANSECT 11

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	2	3.0	408.2
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	45	68.2	9183.7
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	19	28.8	3877.6
	TOTAL	.0	.0	3.0	.0	28.8	.0	68.2	317.8	124.1	66	100.0	13469.4

TRANSECT 12

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	5	6.4	1020.4
SALIX	SALIX SP.	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	7	9.0	142[illegible]
SYOC	SYMPHORICARPOS OCCIDENTALIS	7.7	56.4	35.9	.0	.0	.0	.0	26.0	11.3	39	50.0	7959.[illegible]
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	11.1	88.9	369.8	32.3	27	34.6	5510.2

	TOTAL	3.8	28.2	17.9	.0	.0	12.8	37.2	200.6	178.6	78	100.0	15918.4

TRANSECT 13

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
SALIX	SALIX SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	13	46.4	2653.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	5	17.9	1020.4
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	4	14.3	816.3
POAN	POPULUS ANGUSTIFOLIA	.0	.0	.0	75.0	.0	.0	25.0	156.5	163.0	4	14.3	816.3
POSA	POPULUS SARGENTII	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	7.1	408.2
	TOTAL	.0	.0	.0	28.6	46.4	.0	25.0	191.3	127.4	28	100.0	5714.3

TRANSECT 14

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CEMOM	CERCOCARPUS MONTANUS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	3.0	408.2
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	3.0	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	11	16.4	2244.9
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	32.4	51.4	16.2	267.7	90.2	37	55.2	7551.0
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	15	22.4	3061.2
	TOTAL	.0	.0	.0	16.4	23.9	50.7	9.0	236.3	103.4	67	100.0	13673.5

TRANSECT 15

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	35.0	.0	65.0	313.2	122.8	20	100.0	4081.6
	TOTAL	.0	.0	.0	.0	35.0	.0	65.0	313.2	122.8	20	100.0	4081.6

SUMMARY - ALL TRANSECTS

CODE	SCIENTIFIC NAME	NO OF TRANSECTS	PERCENT FREQUENCY - HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY (#/HA) MEAN	STD.DEV.
AMUTU	AMELANCHIER UTAHENSIS	15	.0	.0	.0	.0	28.6	.0	71.4	329.3	122.5	7	.8	95.2	276.7
ARTRT	ARTEMISIA TRIDENTATA	15	.0	3.6	7.1	60.7	28.6	.0	.0	92.0	39.6	28	3.2	381.0	1098.7
ATCA	ATRIPLEX CANESCENS	15	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	.3	40.8	158.1
CEMOM	CERCOCARPUS MONTANUS	15	.0	.0	.0	.0	75.0	.0	25.0	212.8	125.5	4	.5	54.4	121.1
CHVIV	CHRYSOTHAMNUS VISCIDIFLORUS	15	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	2	.2	27.2	105.4
RIBES	RIBES SP.	15	.0	.0	.0	35.0	60.0	5.0	.0	131.3	53.7	20	2.3	272.1	333.3
SALIX	SALIX SP.	15	.0	.0	.0	.0	52.0	48.0	.0	222.0	76.5	25	2.9	340.1	773.9
SYOC	SYMPHORICARPOS OCCIDENTALIS	15	1.5	17.0	53.2	24.9	3.4	.0	.0	48.5	27.1	265	30.5	3605.4	3218.2
ABCO	ABIES CONCOLOR	15	.0	.0	20.0	20.0	20.0	.0	40.0	213.4	175.8	5	.6	68.0	213.6
ACGR	ACER GRANDIDENTATUM	15	.0	.0	.0	.4	19.8	12.4	67.4	337.6	100.7	258	29.7	3510.2	3189.9
CELEL	CERCOCARPUS LEDIFOLIUS	15	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	.2	27.2	105.4
JUOS	JUNIPERUS OSTEOSPERMA	15	.0	.0	.0	35.0	20.0	.0	45.0	236.7	154.9	20	2.3	272.1	491.9
PIED	PINUS EDULIS	15	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	.1	13.6	52.7
POAN	POPULUS ANGUSTIFOLIA	15	.0	.0	.0	27.3	.0	63.6	9.1	247.8	114.9	11	1.3	149.7	411.6
POSA	POPULUS SARGENTII	15	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	.2	27.2	105.4
PSMEM	PSEUDOTSUGA MENZIESII	15	.0	.0	20.0	60.0	.0	.0	20.0	133.2	150.5	5	.6	68.0	183.6
QUGA	QUERCUS GAMBELII	15	.0	.0	12.8	6.1	23.2	25.1	30.8	244.9	134.7	211	24.3	2870.7	2795.5
	TOTAL	15	.5	5.3	20.4	14.0	17.5	12.1	30.3	203.6	152.3	869	100.0	11823.1	4907.3

****

**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

SAMPLE SIZE = 15

MEAN SHRUB DENSITY (NO./HA) = 11823.1
SAMPLE STANDARD DEVIATION = 4907.3
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL = 6
Z STATISTIC = 1.32
CONFIDENCE LEVEL OBTAINED = 90.7 PERCENT

****

SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

BARN CANYON PINYON-JUNIPER
AFFECTED AREA
OCT/1981

****

HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	4.5	54.5	40.9	.0	.0	.0	53.4	18.9	22	53.7	4489.8
RIBES	RIBES SP.	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	2	4.9	408.2
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	100.0	.0	.0	.0	.0	.0	20.0	.0	6	14.6	1224.5
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	33.3	33.3	33.3	.0	175.0	114.6	3	7.3	612.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.4	204.1
PIED	PINUS EDULIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	2.4	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	6	14.6	1224.5
	TOTAL	.0	17.1	29.3	24.4	24.4	2.4	2.4	87.1	77.9	41	100.0	8367.3

TRANSECT 2

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	6.7	26.7	60.0	6.7	.0	.0	67.0	30.0	15	45.5	3061.[illegible]
CEMOM	CERCOCARPUS MONTANUS	.0	.0	.0	75.0	[illegible]	.0	.0	93.8	37.5	4	12.1	816.[illegible]
RIBES	RIBE[illegible]	.0	.0	.0	100.0	[illegible]	.0	.0	75.0	.0	1	3.0	204.1
SYOC	SYMP[illegible]CARPOS OCCIDENTALIS	.0	60.0	40.0	.0	.0	.0	.0	28.0	11.0	[illegible]	[illegible]	[illegible]

ABCO	ABIES CONCOLOR	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	3.0	204.1
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	4	12.1	816.3
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	6.1	408.2
PIED	PINUS EDULIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	3.0	204.1
	TOTAL	.0	12.1	18.2	39.4	6.1	.0	24.2	145.5	149.7	33	100.0	6734.7

TRANSECT 3

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	50.0	50.0	.0	225.0	106.1	2	28.6	408.2
PIED	PINUS EDULIS	.0	40.0	.0	20.0	20.0	.0	20.0	133.2	158.9	5	71.4	1020.4
	TOTAL	.0	28.6	.0	14.3	28.6	14.3	14.3	159.4	143.9	7	100.0	1428.6

TRANSECT 4

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	40.0	.0	60.0	300.6	137.5	5	100.0	1020.4
	TOTAL	.0	.0	.0	.0	40.0	.0	60.0	300.6	137.5	5	100.0	1020.4

TRANSECT 5

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	25.0	.0	75.0	338.3	125.5	4	30.8	816.3
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	7.7	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	62.5	37.5	.0	.0	103.1	38.8	8	61.5	1632.7
	TOTAL	.0	.0	.0	38.5	38.5	.0	23.1	179.1	131.1	13	100.0	2653.1

TRANSECT 6

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA

CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	78.6	.0	.0	7.1	14.3	110.1	141.2	14	100.0	2857.1
	TOTAL	.0	.0	78.6	.0	.0	7.1	14.3	110.1	141.2	14	100.0	2857.1

TRANSECT 7

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	7.1	204.1
QUGA	QUERCUS GAMBELII	38.5	38.5	.0	15.4	.0	.0	7.7	52.0	107.6	13	92.9	2653.1
	TOTAL	35.7	35.7	.0	14.3	.0	.0	14.3	76.9	139.3	14	100.0	2857.1

TRANSECT 8

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	50.0	.0	.0	.0	50.0	220.5	255.3	2	25.0	408.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	12.5	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	80.0	.0	20.0	200.2	112.3	5	62.5	1020.4
	TOTAL	.0	.0	25.0	.0	50.0	.0	25.0	185.3	141.6	8	100.0	1632.7

TRANSECT 9

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	63.6	36.4	.0	.0	.0	.0	.0	10.5	7.6	11	100.0	2244.9
	TOTAL	63.6	36.4	.0	.0	.0	.0	.0	10.5	7.6	11	100.0	2244.9

TRANSECT 10

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA

CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	25.0	50.0	25.0	.0	168.8	94.4	4	28.6	816.3
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	40.0	40.0	20.0	260.2	108.7	5	35.7	1020.4
PIED	PINUS EDULIS	.0	20.0	.0	.0	.0	20.0	60.0	304.6	165.0	5	35.7	1020.4
	TOTAL	.0	7.1	.0	7.1	28.6	28.6	28.6	249.9	131.5	14	100.0	2857.1

TRANSECT 11

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	28.6	57.1	14.3	271.6	90.9	7	43.8	1428.6
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	3	18.8	612.2
PIED	PINUS EDULIS	.0	16.7	.0	.0	16.7	16.7	50.0	278.8	160.5	6	37.5	1224.5
	TOTAL	.0	6.3	.0	.0	18.8	50.0	25.0	279.6	109.6	16	100.0	3265.3

TRANSECT 12

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	45.5	45.5	9.1	241.0	91.9	11	84.6	2244.9
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	2	15.4	408.2
	TOTAL	.0	.0	.0	.0	38.5	38.5	23.1	265.6	103.2	13	100.0	2653.1

TRANSECT 13

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	50.0	.0	.0	50.0	.0	170.0	183.8	2	15.4	408.2
QUGA	QUERCUS GAMBELII	.0	.0	.0	45.5	45.5	9.1	.0	129.5	67.8	11	84.6	2244.9
	TOTAL	.0	.0	7.7	38.5	38.5	15.4	.0	135.8	83.0	13	100.0	2653.1

TRANSECT 14

	PERCENT FREQUENCY-HEIGHT CLASSES	HEIGHT (CM)	TOTAL COUNTED	DENSITY

CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	16.7	33.3	33.3	16.7	229.3	123.2	6	60.0	1224.5
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	10.0	204.1
PIED	PINUS EDULIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	3	30.0	612.2
	TOTAL	.0	.0	.0	10.0	20.0	20.0	50.0	298.0	127.6	10	100.0	2040.8

TRANSECT 15

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
CELEL	CERCOCARPUS LEDIFOLIUS	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	2	28.6	408.2
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	.0	.0	50.0	50.0	350.5	71.4	2	28.6	408.2
PIED	PINUS EDULIS	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	3	42.9	612.2
	TOTAL	.0	.0	.0	.0	.0	42.9	57.1	357.7	54.0	7	100.0	1428.6

SUMMARY - ALL TRANSECTS

			PERCENT FREQUENCY - HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY (#/HA)	
CODE	SCIENTIFIC NAME	NO OF TRANSECTS	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	MEAN	STD.DEV.
ARTRT	ARTEMISIA TRIDENTATA	15	14.6	12.5	33.3	37.5	2.1	.0	.0	47.8	30.0	49	21.9	653.1	1418.5
CEMON	CERCOCARPUS MONTANUS	15	.0	.0	.0	75.0	25.0	.0	.0	93.9	37.5	4	1.8	54.4	210.8
RIBES	RIBES SP.	15	.0	.0	.0	33.3	66.7	.0	.0	125.0	43.3	3	1.4	40.8	114.4
SYOC	SYMPHORICARPOS OCCIDENTALIS	15	.0	81.8	18.2	.0	.0	.0	.0	23.6	8.1	11	5.0	149.7	396.8
ABCO	ABIES CONCOLOR	15	.0	.0	.0	.0	.0	.0	100.0	401.0	.0	1	.5	13.6	52.7
ACGR	ACER GRANDIDENTATUM	15	.0	.0	.0	14.3	14.3	14.3	57.1	304.1	137.7	7	3.2	95.2	254.3
CELEL	CERCOCARPUS LEDIFOLIUS	15	.0	.0	21.7	3.3	25.0	28.3	21.7	220.5	134.8	60	27.4	816.3	837.9
JUOS	JUNIPERUS OSTEOSPERMA	15	.0	.0	5.6	.0	22.2	33.3	38.9	291.5	115.7	13	5.9	244.9	290.7
PIED	PINUS EDULIS	15	.0	16.7	.0	4.2	8.3	8.3	62.5	294.6	156.3	24	11.0	326.5	448.4
QUGA	QUERCUS GAMBELII	15	11.6	11.6	.0	27.9	41.9	2.3	4.7	112.3	90.5	43	19.6	585.0	931.6
	TOTAL	15	5.5	11.0	14.6	17.4	20.1	12.3	19.2	165.4	143.0	219	100.0	2979.6	1990.3

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**** EVALUATION OF SAMPLING ADEQUACY ****

DESIRED CONFIDENCE LEVEL = 80.0 PERCENT

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SAMPLE SIZE =  15

MEAN SHRUB DENSITY (NO./HA) =   2979.6
SAMPLE STANDARD DEVIATION =    1990.3
MINIMUM SAMPLE SIZE TO PROVIDE DESIRED CONFIDENCE LEVEL =  16
Z STATISTIC =  .82
CONFIDENCE LEVEL OBTAINED = 79.4 PERCENT

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SHRUB HEIGHT AND DENSITY ESTIMATES

PRICE RIVER COAL COMPANY
HELPER, UTAH

DRY CANYON-MIXED BRUSH
REFERENCE SITE
OCTOBER 1981

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HEIGHT CLASSES

CODE	RANGE (CM)	MID-POINT (CM)
A	0-10	5
B	11-30	20
C	31-50	40
D	51-100	75
E	101-200	150
F	201-400	300
G	OVER 400	-

****

TRANSECT 1

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	60.0	40.0	.0	.0	.0	.0	28.0	11.0	5	10.9	1020.4
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	5	10.9	1020.4
QUGA	QUERCUS GAMBELII	.0	.0	.0	19.4	33.3	.0	47.2	253.9	143.6	36	78.3	7346.9
	TOTAL	.0	6.5	15.2	15.2	26.1	.0	37.0	206.1	156.4	46	100.0	9387.8

TRANSECT 2

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	1	3.4	204.1
ARTRT	ARTEMISIA TRIDENTATA	.0	16.7	66.7	16.7	.0	.0	.0	42.5	17.8	6	20.7	1224.5
RIBES	RIBES SP.	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	3.4	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	37.5	62.5	.0	.0	.0	.0	32.5	10.4	8	27.6	1632.7
QUGA	QUERCUS GAMBELII	.0	.0	.0	7.7	.0	53.8	38.5	321.5	89.3	13	44.8	2653.1
	TOTAL	.0	13.8	34.5	6[illegible]	.0	27.6	17.2	173.6	155.7	29	100.0	5[illegible]

TRANSECT 3

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.0	204.1
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	55.6	22.2	22.2	.0	.0	72.2	46.5	9	18.4	1836.7
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.0	204.1
QUGA	QUERCUS GAMBELII	.0	.0	2.6	.0	18.4	.0	76.9	345.3	110.7	38	77.6	7755.1
	TOTAL	.0	.0	14.3	4.1	20.4	.0	61.2	284.9	151.0	49	100.0	10000.0

TRANSECT 4

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	42.9	42.9	14.3	.0	.0	70.7	39.1	7	18.9	1428.6
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	28.6	71.4	.0	.0	.0	.0	34.3	5.8	7	18.9	1428.6
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	.0	26.1	73.9	374.7	45.3	23	62.2	4693.5
	TOTAL	.0	5.4	21.6	8.1	2.7	16.2	45.9	252.8	163.5	37	100.0	7551.0

TRANSECT 5

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	5.0	612.2
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	5.3	68.4	26.3	314.7	59.9	57	95.0	11632.7
	TOTAL	.0	.0	5.0	.0	5.0	65.0	25.0	304.5	64.6	60	100.0	12244.9

TRANSECT 6

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	20.0	80.0	.0	[illegible]	.0	.0	36.0	8.4	[illegible]	35.6	[illegible]
RIBES	RIBES SP.	.0	.0	.0	50.0	50.0	.0	.0	112.5	53.0	2	5.1	408.2

SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.6	204.1
JUOS	JUNIPERUS OSTEOSPERMA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.6	204.1
QUGA	QUERCUS GAMBELII	.0	.0	4.0	12.0	20.0	16.0	48.0	281.1	136.2	25	64.1	5102.0
	TOTAL	.0	5.1	25.6	12.8	15.4	10.3	30.8	198.1	157.2	39	100.0	7956.2

TRANSECT 7

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	10.0	.0	60.0	30.0	.0	.0	.0	47.0	22.1	10	27.0	2040.8
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.7	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	38.5	.0	.0	61.5	275.6	161.7	26	70.3	5306.1
	TOTAL	2.7	.0	18.9	35.1	.0	.0	43.2	267.5	172.0	37	100.0	7551.0

TRANSECT 8

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	66.7	33.3	.0	.0	.0	51.7	17.5	9	16.1	1836.7
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	83.3	16.7	.0	.0	.0	.0	23.3	8.2	6	10.7	1224.5
ACGR	ACER GRANDIDENTATUM	.0	.0	.0	4.8	85.7	.0	9.5	170.3	78.4	21	37.5	4285.7
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	45.0	.0	55.0	286.1	128.1	20	35.7	4081.6
	TOTAL	.0	8.9	12.5	7.1	46.2	.0	23.2	177.6	132.7	56	100.0	11428.6

TRANSECT 9

		PERCENT FREQUENCY-HEIGHT CLASSES							HEIGHT (CM)		TOTAL COUNTED		DENSITY
CODE	SCIENTIFIC NAME	A	B	C	D	E	F	G	MEAN	STD.DEV.	NO.	PERCENT	#/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.4	204.1
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	2.4	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.4	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	41.0	20.5	2.6	35.9	213.2	146.6	39	92.9	7956.2
	TOTAL	.0	.0	.0	42.9	21.4	2.4	33.3	205.1	146.4	42	100.0	8571.4

TRANSECT 10

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	11.1	612.2
ATCA	ATRIPLEX CANESCENS	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	3.7	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	25.1	47.8	21.7	4.3	174.0	94.4	23	85.2	4693.9
	TOTAL	.0	.0	11.1	25.9	40.7	18.5	3.7	159.4	98.1	27	100.0	5510.2

TRANSECT 11

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	30.8	69.2	.0	.0	.0	64.2	16.8	13	68.4	2653.1
RIBES	RIBES SP.	.0	.0	.0	100.0	.0	.0	.0	75.0	.0	1	5.3	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	5.3	204.1
QUGA	QUERCUS GAMBELII	.0	.0	.0	.0	50.0	.0	50.0	275.5	144.9	4	21.1	816.3
	TOTAL	.0	.0	26.3	52.6	10.5	.0	10.5	109.0	107.6	19	100.0	3877.6

TRANSECT 12

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	.0	100.0	.0	300.0	.0	1	2.9	204.1
ARTRT	ARTEMISIA TRIDENTATA	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	3	8.6	612.2
ATCA	ATRIPLEX CANESCENS	.0	.0	100.0	.0	.0	.0	.0	40.0	.0	1	2.9	204.1
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	50.0	50.0	.0	.0	.0	.0	30.0	14.1	2	5.7	408.2
QUGA	QUERCUS GAMBELII	.0	.0	21.4	3.6	39.3	25.0	10.7	189.1	119.3	28	80.0	5714.3
	TOTAL	.0	2.9	31.4	2.9	31.4	22.9	8.6	165.4	123.2	35	100.0	7142.9

TRANSECT 13

CODE	SCIENTIFIC NAME	PERCENT FREQUENCY-HEIGHT CLASSES A	B	C	D	E	F	G	HEIGHT (CM) MEAN	STD.DEV.	TOTAL COUNTED NO.	PERCENT	DENSITY #/HA
AMUTU	AMELANCHIER UTAHENSIS	.0	.0	.0	.0	100.0	.0	.0	150.0	.0	1	2.3	204.1
ARTRT	ARTEMISIA TRIDENTATA	6.3	.0	81.3	12.5	[illegible]	.0	.0	42.2	1[illegible].5	16	36.4	326[illegible]
SYOC	SYMPHORICARPOS OCCIDENTALIS	.0	.0	.0	83.3	[illegible].7	.0	.0	67.5	30.6	6	13.6	1224[illegible]
QUGA	QUERCUS GAMBELII	.0	.0	28.6	23.8	23.8	.0	22.8	150.5	143.5	21	47.7	4285.7