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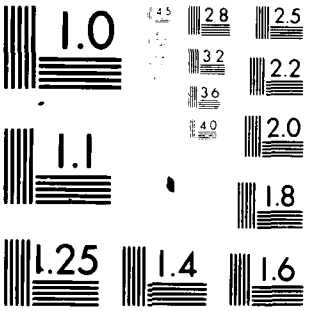

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Results of the Biological Resources field survey in the Coyote Spring, Milford and Beryl operational bases in Nevada and Utah show that Coyote Springs OBTS has the least variety of plants and fewer bird species. The Milford alternate site contains the greatest number of plant associations, families, and species, and the greatest number of mammal and bird species.

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DTN/OBTS FIELD SURVEYS
VOLUME III
BIOLOGICAL RESOURCES
NEVADA AND UTAH

Prepared for:

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30 November 1981

FOREWORD

The field surveys were performed under Change Order P00026 to Contract No. F04704-80-C-0006. The three volumes represent a compilation of data, rather than a formal report, and reflect the status of the surveys as of 2 October 1981. The request for this format is contained in the Stop Work Order, dated 15 October 1981, Item F.

This volume, Volume III, presents the results of the biological resources survey that were completed. Volume I presents a brief program overview and a geotechnical summary and Volume II presents the results of the cultural resources survey.

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1.0 INTRODUCTION

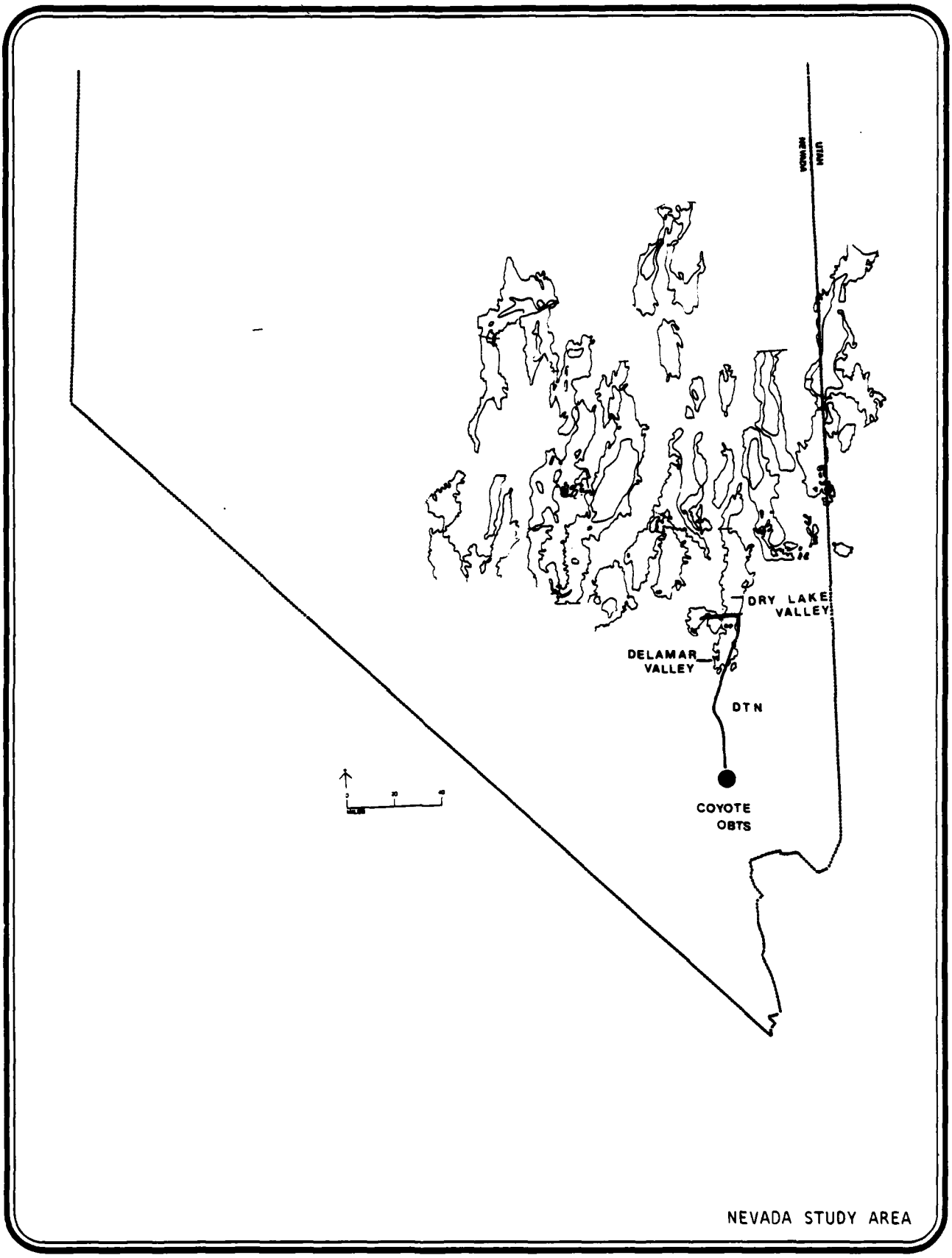
1.1 OBJECTIVE

In mid-1981, the AFRCE proposed biological and cultural resources field studies in selected Nevada and Utah locations under consideration as potential Operational Base Test Sites (OBTS) and adjacent portions of the Designated Transportation Network (DTN). Field surveys were undertaken during August and September of 1981 for operational bases at Coyote Spring Valley, Nevada, preferred and alternate locations near Milford, Utah, and one location near Beryl, Utah. Sixty-four miles of DTN and connecting road in Nevada and 49 miles in Utah were also surveyed. The Nevada and Utah study areas are shown in Figures 1-1 and 1-2.

The objective of the surveys was to identify the type and extent of cultural and biological resources within the study areas. This would allow for a relative comparison of the base areas and a determination of possible constraints. It would also provide data to support the land withdrawal application the U.S. Air Force intended to submit to Congress.

1.2 REPORT ORGANIZATION

This report is intended to compile results of the OBTS/DTN surveys and contains a minimum of background information. Section 2.0 provides background information, Section 3.0 describes the methodology, Section 4.0 discusses data for the Nevada OBTS at Coyote and the associated DTN, and Section 5.0



NEVADA STUDY AREA

FIGURE 1-1

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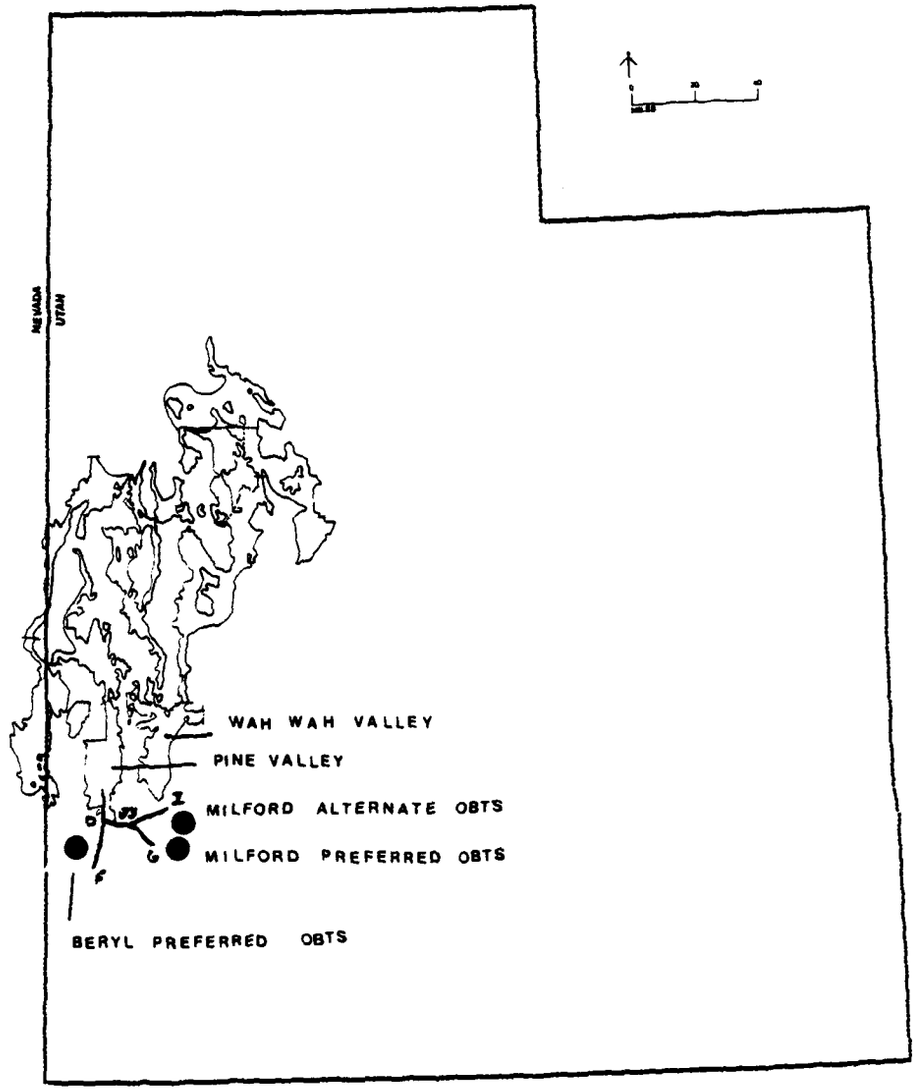

UTAH STUDY AREA

FIGURE 1-2

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discusses data for the Utah OBTS and DTN areas. Section 6.0 contains conclusions, and Section 7.0 lists the references cited. Appendices contain trapping, bird census, releve quadrat vegetation data and wildlife data for all of the sites, and a list of preparers.

2.0 BACKGROUND

Background information concerning biological resources on the Operational Base (OB) areas, and results of a very preliminary field reconnaissance survey, are summarized in a report published in early 1981 by Fugro Northwest, Inc. (now Ertec Northwest, Inc.). A more in-depth field reconnaissance was later made of these same areas by EDAW (1981). The OB areas are adjacent to the OBTS and DTN areas studied in this report, and the habitats, wildlife and vegetation of both areas are very similar. Because background information on the expected wildlife and vegetation of the OBTS/DTN vicinity has been well summarized in the above studies, it will not be repeated here.

Existing information on biological resources in the vicinity of the OB and OBTS/DTN study areas was obtained from a review of the literature and from communications with state and federal agencies, other state and local organizations, and private individuals. Because a large number of species occur in the vicinity of the study areas, it was necessary to concentrate efforts primarily on those species and habitats that state and federal agencies consider important or sensitive. Threatened and endangered plant and animal species as listed in the Federal Register (1980a, 1980b) are considered important, as are furbearers, raptors, and game animals. Specific concerns regarding wildlife and lists of sensitive species and habitats were obtained from the Nevada Department of Wildlife and the Utah Department of Natural Resources. Other listings of sensitive species compiled by agencies or organizations such as the Northern Nevada Native Plant Society, the Utah Native Plant Society, the Nevada Fish and Game Commission, and

the U.S. Fish and Wildlife Service were also obtained and taken into consideration.

Emphasis on these species does not mean that other species were considered unimportant; it is recognized that each organism in the ecosystem plays an important role. But these species were felt to deserve additional prominence, due to their scarcity and/or usefulness to man.

3.0 METHODOLOGY

Biological surveys were conducted for four OBTS and 96 miles of DTN in Nevada and Utah. The OBTS were large, polygonal areas, while the DTN consisted of linear, variable-width corridors. Because of this difference, there was some variation in sampling methodology, although an attempt was made to standardize methods as much as possible while still preserving flexibility. All biological resources were inventoried, but a special attempt was made to obtain information on threatened, endangered, or sensitive species and unique habitats.

3.1 AREA SURVEYED

The OBTS and DTN study areas were mapped on 1:62,500 (1 inch = 1 mile) scale topographic maps. Layout personnel previously classified segments of the DTN corridor as being fully restricted or non-restricted, depending on topographic or land use constraints, projected MX facility locations and other factors. These segment classifications were marked on the maps for each side of the DTN center line, along with land ownership information.

In segments considered restricted on both sides, the biological study area was limited to 75 feet on either side of the surveyors' stakes that marked the center line of the DTN. In areas where the DTN was expected to follow the existing road, an area extending 75 feet to each side of the existing roadway was sampled. In non-restricted areas, the sample area could be extended up to a mile on either side of the center line or the existing road. This corridor width provided flexibility in the actual road location; if discovery of a biological

or cultural resource was made in one area, it would then be possible to sample adjacent areas and to locate a more acceptable route for the DTN.

The area biologically surveyed for the OBTS sites was considerably larger than the area expected to be directly impacted by the OBTS. A buffer zone approximately one mile wide was surveyed outside the perimeter of each site to allow for indirect impacts during facility construction or operation.

3.2 VEGETATION SAMPLING

Since it was not known which portions of the OBTS would accommodate which activities, the relative degree of impact on individual areas of the OBTS could not be estimated. Emphasis was therefore placed on understanding the site as an ecosystem by determining the various habitats and organisms present in each area, rather than attempting to study scattered portions of the site in great detail.

The sampling methodology was a modification of the stratified random sampling technique. This method allowed data to be obtained for all major habitat areas, while ensuring that information would also be obtained for each section of OBTS or each linear mile of the DTN, regardless of habitat.

Because of the large size of the study area, and time and budgetary limitations, releve quadrats were selected as a relatively quick and accurate method of obtaining quantitative vegetation data. Releve quadrats were placed in all observed habitats of the OBTS, DTN, and OBTS buffer zone. The general locations of the quadrats were randomly selected, although

care was taken to place the quadrat within representative habitat in each sample area.

Most of the vegetation in the study area was fairly low growing, and individual plants were quite small; a 5 by 5 meter releve quadrat was therefore felt to be large enough to provide a representative sample of vegetation for the area. In the Joshua tree association in northern Delamar Valley, and in the pinyon-juniper areas of Utah, a 10 by 10 meter quadrat was used because the larger quadrat was felt to provide a more unbiased coverage estimate when larger types of vegetation were involved.

The quadrat area was measured out, and the corners marked by red pin flags. All plant species within the boundary of the quadrat were listed, an estimate of average height to the nearest decimeter, percent cover (canopy cover relative to the area of the quadrat), and a stratum symbol describing the vegetation layer (tree, shrub, or herb) were noted for each species. Percent cover of litter, bare ground, and rock were also estimated. In areas of pinyon-juniper the branches were sometimes high above the ground, exposing the area beneath the tree. This area was categorized as litter, although the coverage was previously tabulated as tree cover. This resulted in a coverage of greater than 100 percent in these areas.

Associated plant species adjacent to the releve quadrats were also recorded for each vegetation association. For this reason, species not listed in the releve data of the appendix will occasionally appear on summary species lists in the text. Soil, disturbance, and topographic features were also noted.

One data sheet was completed for each releve quadrat, all releves were numbered, and their locations plotted on USGS 7.5 minute topographic maps or, if these were not available, on 15 minute maps.

Private land in the OBTS and DTN areas was avoided. On BLM lands, releves were placed to obtain a minimum of 3-4 per section, and to include all major habitat areas.

In the DTN corridors, for segments marked as restricted on both sides of the corridor, sampling was confined to an area within 75 feet of each side of the staked center line. Only one releve was made per vegetation type per mile, on each side of the center line, unless unusual vegetation or habitats were found. In such areas, additional releves were made. In segments non-restricted on both sides of the corridor, the study area extended one mile on either side of the center line, and three releves were normally made on each side.

The majority of the DTN was restricted on only one side, so in areas of uniform habitat four releves were normally completed per mile: one on the restricted side, and three on the non-restricted side of the center line. Generally releves were located close to the center line, as opposed to the outer edges, as it was felt likely that the DTN would follow the surveyor's stakes unless there was sufficient reason to move it elsewhere within the corridor. If significant biological resources were located near the staked DTN route, or if vegetation associations in outlying areas differed from those of the center line area, then releves were also made for the areas farther from the center line.

Releve data were segregated by habitat type, synthesized into tables, and average cover and frequency were calculated for each species and habitat type. The original intent was to use this information in conjunction with aerial photography to obtain a vegetative map of the study areas; however, a change in the direction of the MX program has rendered this unnecessary at this time. Should a vegetative map be desired in the future, use of these data should make vegetative mapping relatively simple.

3.3 WILDLIFE OBSERVATIONS

Wildlife observations were made concurrently with the releves. However, because of the small size of the releves and the mobility of the wildlife, wildlife observations from adjacent releves and surrounding areas were combined on a single data sheet.

Particular attention was paid to the location of threatened, endangered or sensitive species. For these animals, the location of live animal sightings and sign such as shells, scat or tracks were recorded on topographic maps.

Wildlife activity varied according to time of day, and wildlife observed on the releves and in adjacent areas was not felt to completely represent organisms present in the various habitats. To supplement this information, small mammal trapping and bird censusing were also undertaken.

3.4 BIRD CENSUSING

Bird transects 1000 meters in length were made in each of the OBTS areas. These were placed in a variety of habitats in

order to obtain as wide a diversity of species as possible. Red flagging was placed every 100 meters and the sections of transect were numbered for data recording purposes. In pinyon-juniper, flagging was placed every 50 meters to aid in following the transect through the thick foliage.

A biologist with binoculars walked each bird transects for three consecutive mornings. Censusing was conducted early in the morning when birds are generally most active. It required 30 to 40 minutes to walk a transect.

While walking the transect, the biologist recorded the transect section number, the number and species of birds, and the estimated distance of the bird from the center line of the transect to a maximum of 50 meters on either side. The bird was also recorded as having been seen, heard, or flushed. Time of day, temperature, wind, and percent cloud cover were also recorded and transect locations marked on USGS 7.5 minute topographic maps. Data from the transects are summarized in Appendix A.

3.5 SMALL MAMMAL TRAPPING

To supplement observations made during the day, a 730 meter small mammal trapping transect was sampled in each area. Seventy-four collapsible Sherman live traps were placed at approximately 10-meter intervals along the transect and numbered from 1 to 74. Each trap was baited with rolled oats, opened in the evening, and checked in the morning for three consecutive days. Data from these transects are summarized in Appendix B.

Small mammal identification was based on Burt and Grossenheider (1976) and Hall (1946). For each animal trapped, the trap number, species, sex, and reproductive condition were recorded. Animals were weighed using 100 gram and 500 gram Pesola scales. The animals were then released and the traps closed until evening. In addition to the time of day, the temperature, wind, and percent cloud cover were also recorded. Transect locations were marked on USGS 7.5 minute topographic maps, together with the important animal sightings.

4.0 DISCUSSION AND DATA SUMMARY: NEVADA

This section summarizes the biological findings in the Nevada OBTS, DTN, and connecting road. No in-depth data analysis is attempted at this time. However, additional information from releve quadrats, bird census transects, small mammal trapping transects, and wildlife observations is given in appendices A-D.

4.1 COYOTE OBTS AND CONNECTING ROAD

The biological survey of the Coyote OBTS and connecting road was undertaken from August 2 through 13, 1981. Approximately 4 miles of road corridor, 7,000 acres of OBTS and a buffer zone approximately one mile in width around the OBTS perimeter were sampled. A total of 126 releve quadrats for vegetation, 3 small mammal trapping transects, 3 bird census transects, and numerous miscellaneous wildlife observations were made within the OBTS and along the connecting road. Trapping was also attempted in the wash which crosses the connecting road, but a flash flood washed away many of the traps on the first day, and trapping was discontinued. Results of the survey are discussed below.

4.1.1 Overview of Vegetation

Five major vegetation associations were observed on the Coyote OBTS site. Of the 126 quadrats, there were 15 in a Mohave yucca (*Yucca schidigera*) association, 2 in a shadscale (*Atriplex confertifolia*) association, 2 in a holly-leafed saltbush (*Atriplex hymenelytra*) association, 76 in a creosote bush-white bursage (*Larrea tridentata-Ambrosia dumosa*) association,

and 31 in a wash association. Data obtained concerning the associations is given by site in Appendix C. Table 4-1 contrasts the associations, and Table 4-2 lists the vegetation species present on the site. Figure 4-1 shows quadrat locations.

All of the associations in the Coyote OBTS area contained more species of shrubs and succulents than forbs and grasses. The wash association had the highest average percent vegetative cover (23.6 percent) and the highest number of species recorded (49). The shadscale association contained the least vegetative cover (8.5 percent) and the fewest species recorded (5).

4.1.2 Overview of Wildlife

Wildlife observations from the Coyote OBTS study area are summarized by vegetation association in Table 4-3, and site-specific data are contained in Appendix D.

Since wildlife are mobile and the releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas surrounding a group of releve quadrats. Locations of these areas are shown in Figure 4-2.

Nine species of mammals, 9 species of birds, and 8 species of reptiles were detected during the survey. Coyotes (*Canis latrans*) and kit foxes (*Vulpes macrotis*) were the most common predators observed. Blacktailed jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus audubonii*),

TABLE 4-1

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE COYOTE OBTS AND CONNECTING ROAD*

Association Number of Quadrats	Mojave Yucca 15		Shadscale 2		Holly-leaved Saltbrush 2		Creosotebush-White Bursage 76		Wash Association 31	
	# Species	Ave. Cover (%)	# Species	Ave. Cover (%)	# Species	Ave. Cover (%)	# Species	Ave. Cover (%)	# Species	Ave. Cover (%)
Trees	0	0	0	0	0	0	0	0	0	0
Shrubs/Succulents	13	16.7	4	8.0	6	9.0	15	15.2	33	21.8
Forbs	8	0.3	0	0	1	0.5	7	0.4	11	0.5
Grasses	4	0.1	1	0.5	1	1.5	5	0.1	5	1.4
Total Vegetative Cover	25	17.0	5	8.5	8	11.0	27	15.7	49	23.6
Bare Ground	—	11.6	—	42.0	—	5.0	—	14.7	—	27.5
Rock/Gravel	—	68.9	—	46.0	—	82.0	—	67.4	—	44.4
Litter	—	2.5	—	3.5	—	2.0	—	2.0	—	4.3

* Based upon 126 releve quadrats in the area

TABLE 4-2

PLANT SPECIES OBSERVED ON THE COYOTE OBTS

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AGAVACEAE			
Yucca schidigera	Spanish dagger	S	MY,W
ASTERACEAE			
Acamptopappus shockleyi	Shockley goldenhead	S	MY,CW,W
Ambrosia dumosa	White bursage	S	MY,S,CW,W,HS
Ambrosia eriocentra	Ragweed	S	W
Baileya multiradiata	Desert baileya	F	MY,W, CW
Brickellia sp.	Brickellbush	S	W
Dyssodia cooperi	Cooper's dogweed	F	W
Dyssodia pentachaeta	Dogweed	F	MY
Chrysothamnus viscidiflous	Viscid rabbitbrush	S	W
Chrysothamnus sp.	Rabbitbrush	S	W
Encelia frutecens	Encelia	S	W
Gutierrezia microcephala	Snakeweed	S	W
Hymenoclea salsola	Cheeseweed	S	W
Psilostrophe cooperii	Whitestem paperflower	S	W
Porophyllum gracile	Slender poreleaf	F	W
Stephanomeria pauciflora	Wire lettuce	S	W
BRASSICACEAE			
Descurainia sp.	Tansy mustard	F	CW,W
Sisymbrium sp.	Tumble mustard	F	MY,CW
Lepidium fremontii	Desert pepperweed	F	CW,W
CACTACEAE			
Echinocereus engelmannii	Hedgehog cactus	S	MY
Ferocactus acanthodes	Ferocactus	S	MY,W
Opuntia erinacea	Prickly pear	S	MY,CW
Opuntia basilaris	Beavertail prickly pear	S	CW
Opuntia echinocarpa	Strawtop prickly pear	S	CW,W

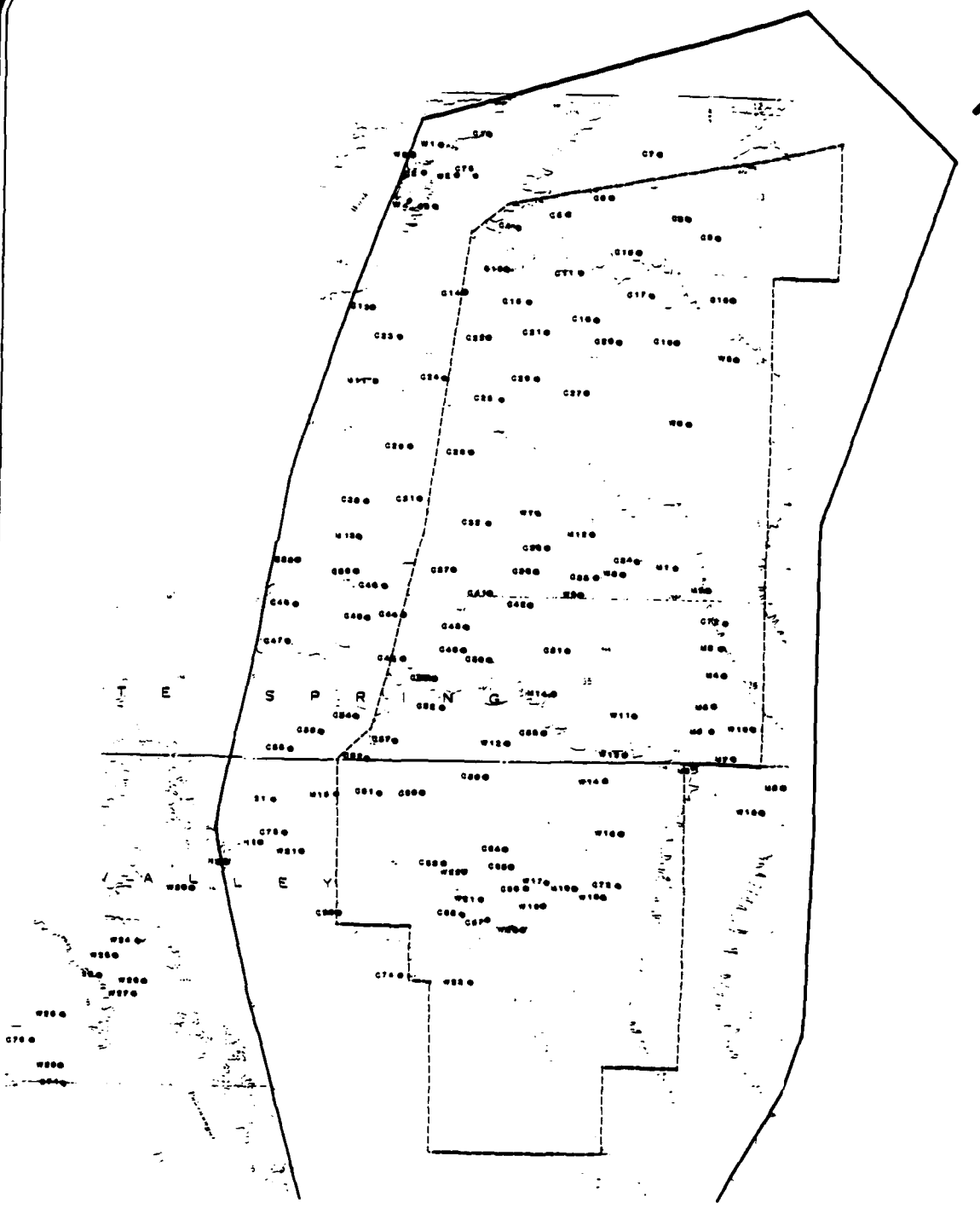
1 S = shrub; F = forb; G = grass
2 MY = Mojave yucca; SH = shadscale; HS - hollyleaved saltbush; CW = Creosotebush-white bursage; W = Wash.

TABLE 4-2 (cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	W
Atriplex confertifolia	Shadscale	S	SH
Atriplex hymenelytra	Desertholly saltbush	S	HS
Atriplex polycarpa	Saltbush	S	W
Grayia spinosa	Spiny hopsage	S	CW,W
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	MY,HS,CW,W
Ephedra sp.	Mormon tea	S	HS,CW,W
FABACEAE			
Psorothamnus fremontii	Psorothamnus	S	MY,HS,CW,W
Psorothamnus sp.	Psorothamnus	S	CW
Acacia greggii	Catclaw acacia	S	W
KRAMERIACEAE			
Krameria grayi	Ratany	S	MY,SH,HS,CW,W
Krameria parvifolia	Ratany	S	
LAMIACEAE			
Salvia dorii	Sage	S	W
Salazaria mexicana	Bladdersage	S	MY,W
MALVACEAE			
Sphaeralcea ambigua	Desert globemallow	F	MY,CW,W
Sphaeralcea sp.	Globemallow	F	MY,CW,W
OLEACEAE			
Menodora spinescens	Spiny menodora	S	CW
PLANTAGINACEAE			
Plantago sp.	Plantain	F	MY,W

TABLE 4-2 (cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
POACEAE			
Aristida purpurea	Purple threeawn	G	MY,W
Blepharidachne kingii	King desertgrass	G	MY,CW,W
Bromus rubens	Red brome	G	MY,SH,HS,CW,W
Bromus tectorum	Cheatgrass	G	W
Erioneuron puchellum	Erioneuron	G	CW
Hilaria jamesii	Galleta grass	G	MY
Hilaria rigida	Dixiegrass	G	MY,CW,W
Oryzopsis hymenoides	Indian ricegrass	G	CW
Stipa sp.	Needlegrass	G	CW
POLYGONACEAE			
Chorizanthe rigida	Spineflower	F	CW
Eriogonum inflatum	Desert trumpet eriogonum	F	MY,HS,CW,W
Eriogonum fasciculatum	Flattop eriogonum	S	W
Eriogonum sp.	Wild buckwheat	F	W
ROSACEAE			
Purshia tridentata	Bitterbrush	S	W
Prunus fasciculata	Desert almond	S	W
RUTACEAE			
Thamnosa montana	Turpentine bush	S	MY,W
SOLANCEAE			
Lycium sp.	Wolfberry	S	W
ZYGOPHYLLACEAE			
Larrea tridentata	Creosotebush	S	MY,SH,CW,W



KEY
C=Creosote bush
H=Holly-leafed Saltbush
S=Shadscale
M=Mojave Yucca
W=Wash

QUADRAT LOCATIONS IN THE COYOTE OBTS AND CONNECTING ROAD

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FIGURE 4-1

TABLE 4-3

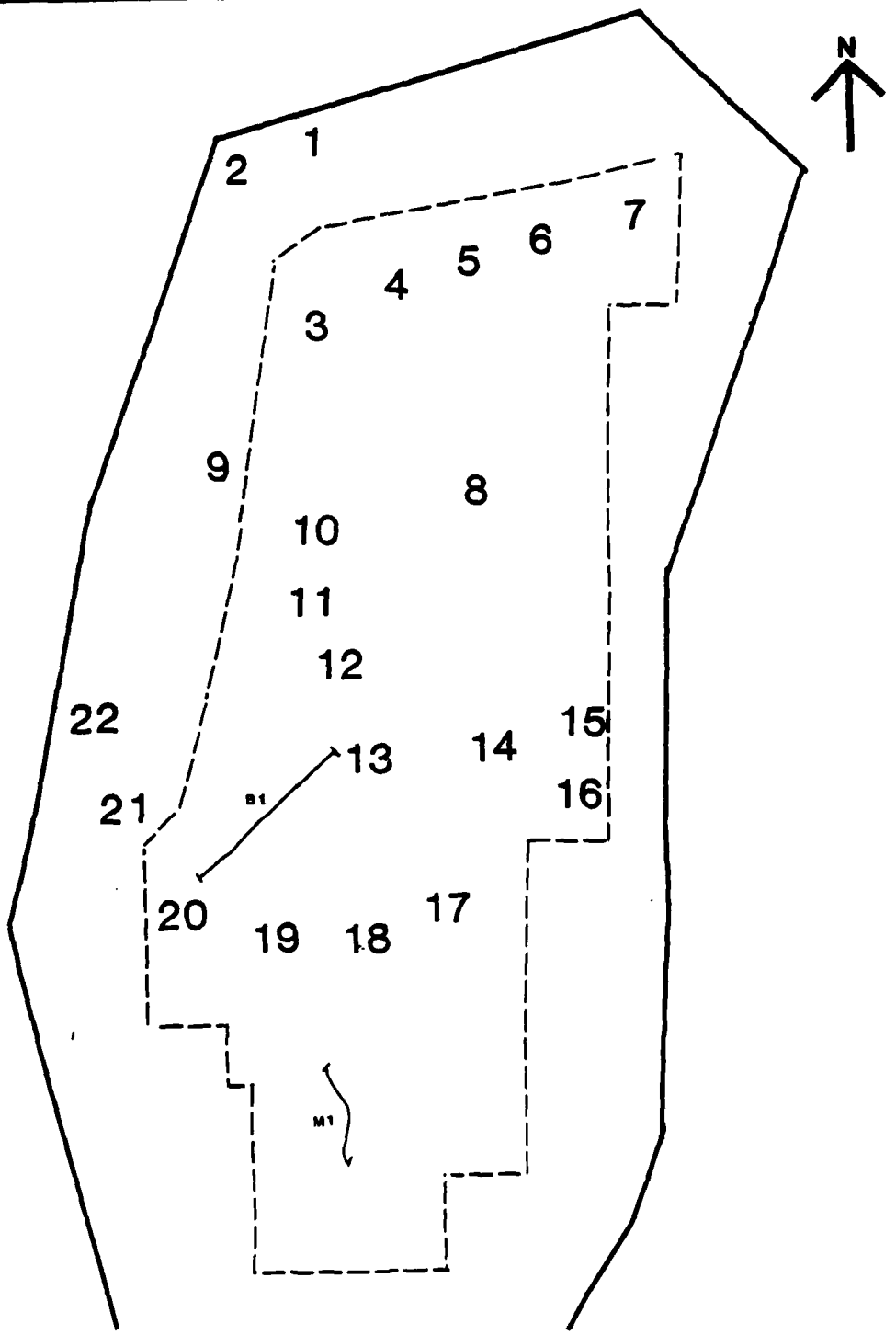
WILDLIFE SIGN AND SIGHTINGS OBSERVED
ON THE COYOTE OBTS

Species	Habitats Where Observed MY	SH	HS	CW	W
MAMMALS					
Bat species (Unidentified)				X	
Desert cottontail (*Sylvilagus audubonii*)					X
Black-tailed jackrabbit (*Lepus californicus*)				X	X
White-tailed antelope squirrel (*Ammospermophilus leucurus*)	X			X	
Merriam's kangaroo rat (*Dipodomys merriami*)				X	
Kangaroo rat (*Dipodomys* sp)				X	
Mouse species (Unidentified)				X	
Coyote (*Canis latrans*)				X	
Kit fox (*Vulpes macrotis*)				X	
Badger (*Taxidea taxus*)				X	
BIRDS					
Quail species (Unidentified)					X
Mourning dove (*Zenaida macroura*)	X				
Hummingbird species (Unidentified)				X	
Western kingbird (*Lyrannus verticalis*)					X
Rough-winged swallow (*Stelgidopteryx ruficollis*)				X	X
Cactus wren (*Campylorhynchus brunneicapillum*)				X	X
Thrasher species (Unidentified)				X	

MY = Mojave yucca; SH = Shadscale; HS = Hollyleaved saltbush; CW = Creosotebush-white bursage; W = Wash

TABLE 4-3 (cont.)

Species	Habitats Where Observed MY	SH	HS	CW	W
Loggerhead shrike (*Lanius ludovicianus*)				X	
Black-throated sparrow (*Amphispiza bilineata*)	X			X	X
REPTILES					
Desert tortoise (*Gopherus agassizi*)	X			X	
Zebra-tailed lizard (*Callisaurus draconoides*)	X			X	
Leopard lizard (*Crotaphytus wislizenii*)				X	X
Side-blotched lizard (*Uta stansburiana*)	X			X	
Desert horned lizard (*Phrynosoma platyrhinos*)				X	
Western whiptail (*Cnemidophorus tigris*)	X			X	X
Lizard species (Unidentified)				X	X
Red racer (*Masticophis flagellum piceus*)				X	



KEY
M=Mammal transect
B=Bird transect

WILDLIFE OBSERVATION AREAS IN THE COYOTE OBTS

FIGURE 4-2

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white-tailed antelope squirrels (Ammospermophilus leucurus) and kangaroo rats (Dipodomys sp.) were the most commonly observed prey species.

No raptors were observed in the Coyote OBTS area, and the only game birds observed were mourning doves (Zenaida macroura) and an unidentified species of quail. The bird observed on the greatest number of sites was the black-throated sparrow (Amphispiza bilineata).

The reptile most frequently observed was the side-blotched lizard (Uta stansburiana). A red racer (Masticophis flagellum piceus) was observed on the site, and the shells of desert tortoise (Gopherus agassizi) were observed in two locations.

4.1.3 Species of Concern

No threatened or endangered animals were observed in the Coyote OBTS survey area, although the kit fox, a sensitive species (Molini 1980), was observed. Empty shells of the desert tortoise indicated the presence of this rare reptile species in the study area, but no live animals were observed.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of species were observed including a number of raptors, which are generally of special concern to the state.

The cactus Ferocactus acanthodes, Echinocereus engelmannii and Opuntia basilaris were found during the survey. Because of their scarcity, cacti are often considered species of special concern, but these species were not identified as the

varieties listed as Currently Under Review in the Federal Register (1980a).

4.2 Nevada DTN

The biological survey of the DTN was made concurrently with the Coyote OBTS survey, from August 2 through 13, 1981. The surveyed portion of the DTN extends from the vicinity of Pahroc Summit Pass to just south of the Lincoln County-Clark County boundary. Much of the corridor is adjacent to existing roadways. Approximately two-thirds of the road corridor was designated as fully restricted, with the remaining one-third designated as non-restricted.

Two hundred fourteen releve quadrats were sampled for vegetation along the 64 miles of Nevada DTN. Wildlife observations were compiled, but trapping and bird census transects were not conducted. Because of the linear distance involved, the difficulty of returning to the same site to trap or observe over a 3 day period, and the similarity of habitats along the DTN and within the OBTS, it was felt that the value of additional trapping would be minimal.

Results of the Nevada DTN survey are discussed below.

4.2.1 Overview of Vegetation

The Nevada DTN corridor runs through a gradation of vegation types ranging from the big sagebrush-rabbitbrush associations of the cold northern desert to the creosotebush-Joshua tree associations of the Mojave Desert. Six major associations were noted along the DTN corridor. Of the 214 releves, there were

49 located in a Joshua tree-Spring hopsage (Yucca brevifolia - Grayia spinosa) association, 23 in a winterfat-mixed shrub (Ceratoides lanata - Atriplex confertifolia - Grayia spinosa) association; 28 in a blackbrush-mixed shrub (Coleogyne ramosissima) association; 55 in a Creosotebush-bursage (Larrea tridentata - Ambrosia dumosa) association; 28 in an acacia-bursage-wash (Acacia gregii - Ambrosia dumosa) association; and 31 in a big sagebrush-rabbitbrush (Artemisia tridentata - Chrysothamnus sp.) association. Vegetative data obtained is given by site in Appendix C. Table 4-4 contrasts the associations and Table 4-5 lists the species observed. Figure 4-3 shows quadrat locations in the DTN corridor.

4.2.2 Overview of Wildlife

Wildlife observations from the Nevada DTN corridor are listed in Table 4-6, and area-specific data are continued in Appendix D. Since wildlife are mobile and releve quadrats fairly small, wildlife observations were combined for each 3-mile road segment. Because the road covers a long linear area, this was felt to be preferable to grouping by vegetation associations, which might be scattered over many miles.

Nine species of mammals, 20 species of birds, and 7 species of reptiles were noted along the Nevada DTN corridor and are listed in Table 4-6. Mammal predator species included coyote (Canis latrans), kit fox (Vulpes macrotis), and badger (Taxidea taxus). Prey species included blacktailed jackrabbits (Lepus californicus), desert cottontail rabbits (Sylvilagus audubonii), and several rodents.

Several raptors were observed, including turkey vultures (Cathartes aura) and golden eagles (Aquila chrysaetos). Game

TABLE 4-4

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ALONG THE NEVADA DTN CORRIDOR*

Association Number of Quadrats	Joshua tree-Spring hopsage 49		Winterfat-Mixed shrub 23		Blackbrush-Mixed shrub 28		Creosotebush-Bursage 55		Acacia-bursage-Wash 28		Big sagebush-Rabbitbrush 31	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	1	3.9	0	0.0	1	0.6	1	0.0	0	0.0	0	0.0
Shrubs/Succulents	17	13.8	11	18.2	23	22.0	23	18.1	27	15.2	16	18.2
Forbs	16	0.7	9	0.3	9	0.1	12	0.5	11	1.3	12	0.6
Grasses	10	8.6	6	2.1	11	4.8	10	1.2	6	1.0	6	5.0
Total Vegetative Cover	44	26.6	26	22.4	44	27.5	46	20.2	44	18.1	34	23.9
Bare Ground	—	41.2	—	64.6	—	31.9	—	27.8	—	7.5	—	22.7
Rock/Gravel	—	16.6	—	7.5	—	52.1	—	48.3	—	71.0	—	47.5
Litter	—	11.8	—	5.4	—	4.3	—	3.8	—	3	—	6.2

* Based on 214 releve quadrats in the area.

TABLE 4-5

PLANT SPECIES OBSERVED ALONG THE NEVADA DTN CORRIDOR

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AGAVACEAE			
Yucca baccata	Spanish dagger	S	JS,BM, CB,AW,BS
Yucca brevifolia	Joshua tree	T	JS,BM,CB
Yucca schidigera	Spanish dagger	S	CB,SW
ASTERACEAE			
Acamptopappus shockleyi	Shockley goldenhead	S	BM,CB,AW
Ambrosia dumosa	White bursage	S	CB,AW
Ambrosia eriocentra	Ragweed	F	JS
Artemisia nova	Black sagebrush	S	BS
Artemisia spinescens	Spiny sagebrush	S	JS,WM,BM,BS
Artemisia tridentata	Big sagebrush	S	JS,BS
Baileya multiradiata	Desert baileya	F	BM,CB,AW
Baileya sp.	Baileya	F	JS,AW
Bebbia juncea	Rush bebbia	F	AW
Brickellia sp.	Brickellbush	S	BS
Chrysothamnus greenei	Greene's rabbitbrush	S	JS,WM,BM
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	JS,BM,BS
Chrysothamnus sp.	Rabbitbrush	S	JS,WM,BS
Dyssodia cooperi	Cooper's dogweed	F	JS
Dyssodia pentachaeta	Firehair dogweed	F	CB,AW
Encelia frutecens	Encelia	S	BM,AW
Gutierrezia microcephala	Snakeweed	S	JS,AW,BS
Hymenoclea salsola	Cheeseweed	S	BB,CB,AW,BS
Leucelene ericoides	Leucelene	F	JS
Machaeranthera canescens	Aster	F	WM,BM,BS
Machaeranthera sp.	Aster	F	BS
Porophyllum gracile	Slender poreleaf	F	AW
Stephanomeria pauciflora	Wire lettuce	F	AW
Tetradymia axillaris	Horsebrush	S	JS,BM
Tetradymia glabrata	Horsebrush	S	JS,WM,BS
Viguiera multiflora	Showy goldeneye	F	CB

1 S = shrub; F = forb; G = grass
2 JS = Joshua tree-spring hopsage; WM = Winterfat-mixed shrub; BM = Blackbrush-mixed shrub; CB = Creosotebush-bursage; AW = Acacia-bursage-wash vegetation; BS = Big sagebrush-rabbitbrush.

TABLE 4-5 (cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
BETULACEAE			
Chilopsis linearis	Desert willow	S	AW
BORAGINACEAE			
Lappula redowskii	Stickseed	F	BM
Tequila nuttallii	Nuttall coldenia	F	AW
BRASSICACEAE			
Caulanthus pilosus	Hairy wildcabbage	F	JS
Caulanthus sp.	Wildcabbage	F	JS
Descurainia sp.	Tansy mustard	F	CB,BS
Lepidium fremontii	Desert pepperweed	S	CB,AW
Lepidium sp.	Pepperweed	F	MS
Sisymbrium altissimum	Tumble mustard	F	JS
Sisymbrium sp.	Tumble mustard	F	BS
CACTACEAE			
Echinocereus engelmannii	Engelmannii hedgehog cactus	S	AW
Ferocactus acanthodes var. *lecontei*	Ferocactus	S	AW
Opuntia basilaris	Beavertail prickly pear	S	JS,AW
Opuntia echinocarpa	Strawtop prickly pear	S	AW,JS,BM,CB
Opuntia erinacea	Grizzlybear prickly pear	S	JS,WM,BM
Opuntia sp.	Pickly pear	S	BM,CB
CAPPARIDACEAE			
Cleome sp.	Beeplant	F	BS
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	BS,JS,WM, BM,CB
Atriplex confertifolia	Shadscale	S	WM,CB

TABLE 4-5 (cont.)

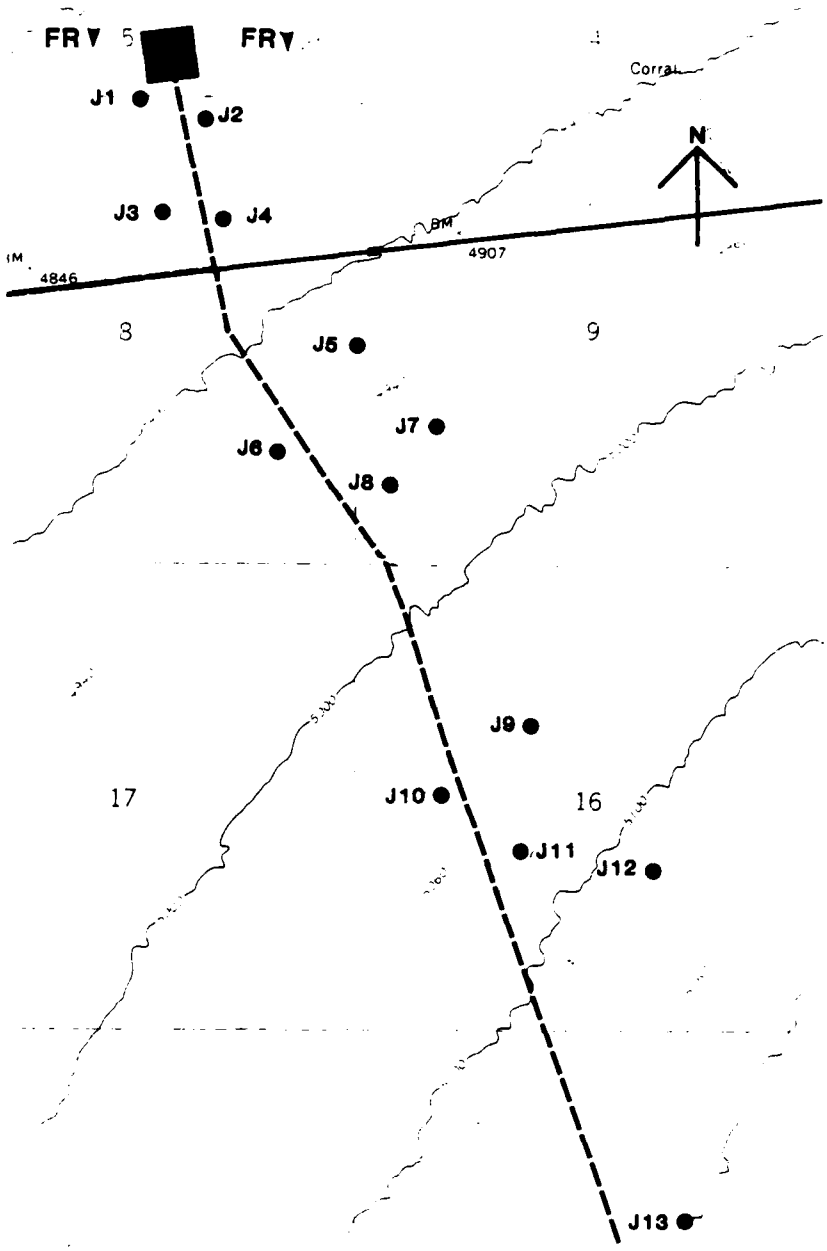
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
CHENOPODIACEAE (cont.)			
Atriplex polycarpa	Cattle saltbush	S	CB,AW
Atriplex sp.	Saltbush	S	WM
Ceratoides lanata	Winterfat	S	JS,WM,BM, BS
Grayia spinosa	Spiny hopsage	S	JS,WM,CB, BM,BS
Halogeton glomeratus	Halogeton	F	WM
Salsola iberica	Russian thistle	S	WM,CB
Salsola sp.	Russian thistle	S	CB,AW
Suaeda americana	Seepweed	F	WM
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	JS,BM,CB, AW,BS
Ephedra viridis	Mormon tea	S	BS
Ephedra sp.	Mormon tea	S	BM,CB,AW
EUPHORBIACEAE			
Euphorbia sp.	Euphorbia	F	BS
FABACEAE			
Acacia greggii	Catclaw acacia	S	AW
Astragalus lentiginosus	Milkvetch	F	JS,MW,BS
Astragalus sp.	Milkvetch	F	JS,WM
Psorothamnus fremontii	Psorothamnus	S	BM,CB,AW
KRAMERIACEAE			
Krameria sp.	Ratany	S	BM,CB,AW
LAMIACEAE			
Salazaria mexicana	Bladdersage	S	BM

TABLE 4-5 (cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
MALVACEAE			
Sphaeralcea ambigua	Desert globemallow	F	JS,WM,BM, CB,BS,AW
Sphaeralcea sp.	Globemallow	F	JS,BM,AW,BS
OLEACEAE			
Menodora spinescens	Spiny menodora	S	BM,CB,AW
PLANTAGINACEAE			
Plantago insularis	Desert plantain	F	CB,AW
Plantago sp.	Plantain	F	JS
POACEAE			
Aristida purpurea	Purple threeawn	G	JS,AW
Blepharidachne kingii	King desertgrass	G	JS,WM,BM, CB,AW
Bromus rubens	Red brome	G	JS,BM,CB, AW,BS
Bromus tectorum	Cheatgrass	G	JS,WM,BM, CB,BS
Hilaria jamesii	Galleta grass	G	JS,WM,BM,BS
Hilaria rigida	Dixiegrass	G	CB,BS
Hordeum jubatum	Foxtail barley	G	AW
Muhlenbergia porteri	Bush muhly	G	JS,BM
Oryzopsis hymenoides	Indian ricegrass	G	JS,WM,BM, CB,AW,BS
Sitanion hystrix	Bottlebrush squirreltail	G	JS,WM,BM
Sitanion sp.	Squirreltail	G	JS,WM,BM,BS
Sporobolus cryptandrus	Sand dropseed	G	BM,CB
Sporobolus sp.	Dropseed	G	JS
Stipa sp.	Needlegrass	G	BM
POLYGONACEAE			
Chorizanthe rigida	Spineflower	F	CB
Eriogonum cernuum	Nodding eriogonum	F	JS,WM

TABLE 4-5 (cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
POLYGONACEAE (cont.)			
Eriogonum deflexum	Skeletonweed eriogonum	F	JS
Eriogonum fasciculatum	Flattop eriogonum	S	BM,CB,AW
Eriogonum inflatum	Desert trumpet eriogonum	F	BM,CB,AW
Eriogonum sp.	Eriogonum	F	JS,WM,BM AW,BS
Rumex hymenosepalus	Canaigre	F	CB
ROSACEAE			
Coleogyne ramosissima	Blackbrush	S	BM,CB
Cowania mexicana	Cliffrose	S	BS
RUTACEAE			
Thamnosa montana	Turpentine bush	S	AW
SCROPHULARIACEAE			
Penstemon palmeri	Palmer's penstemon	F	JS
SOLANCEAE			
Lycium andersonii	Anderson wolfberry	S	BM
ZYGOPHYLLACEAE			
Larrea tridentata	Creosotebush	S	BM,CB,AW



KEY
J=Joshua tree
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

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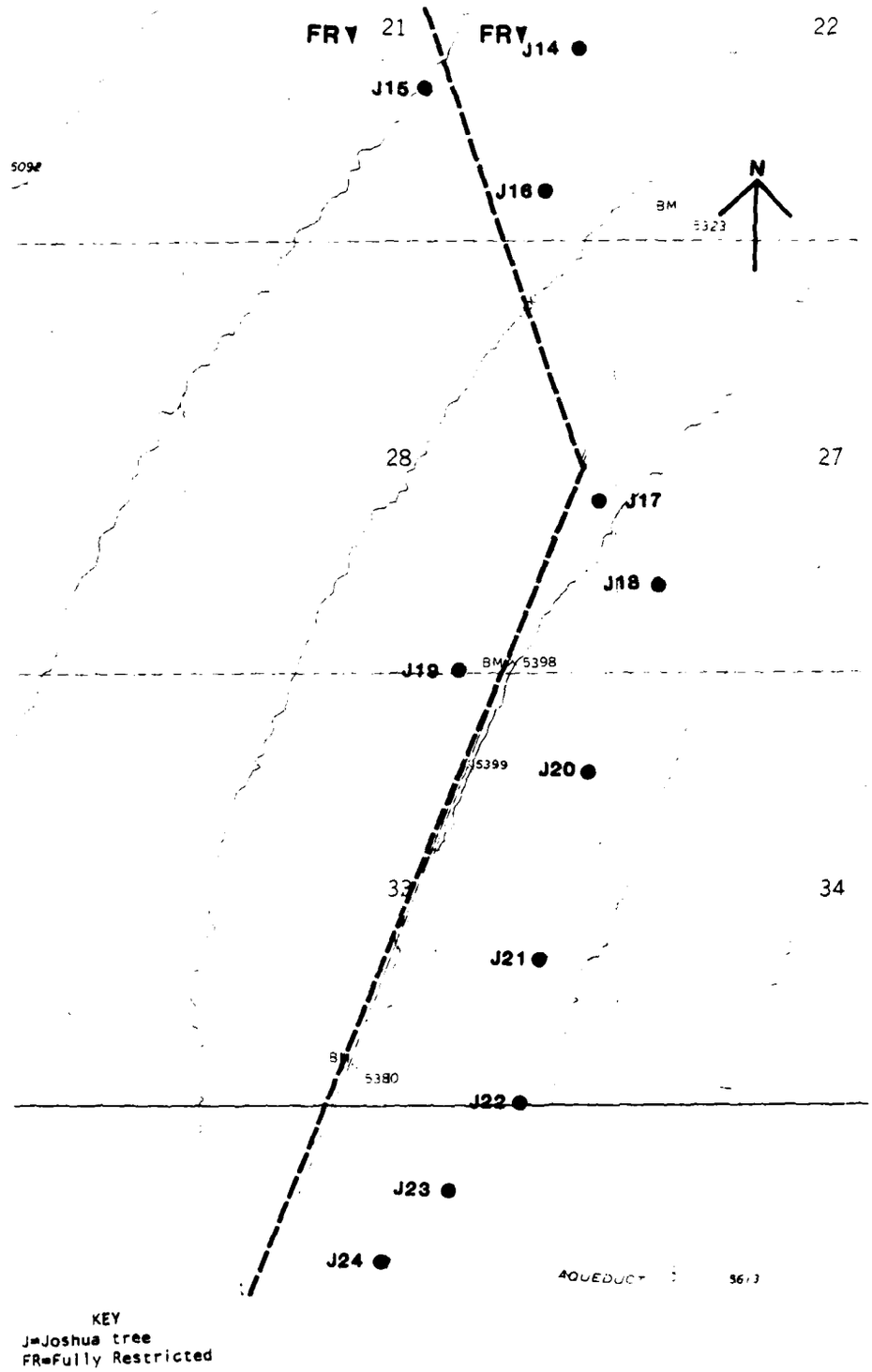
FIGURE 4-3a



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

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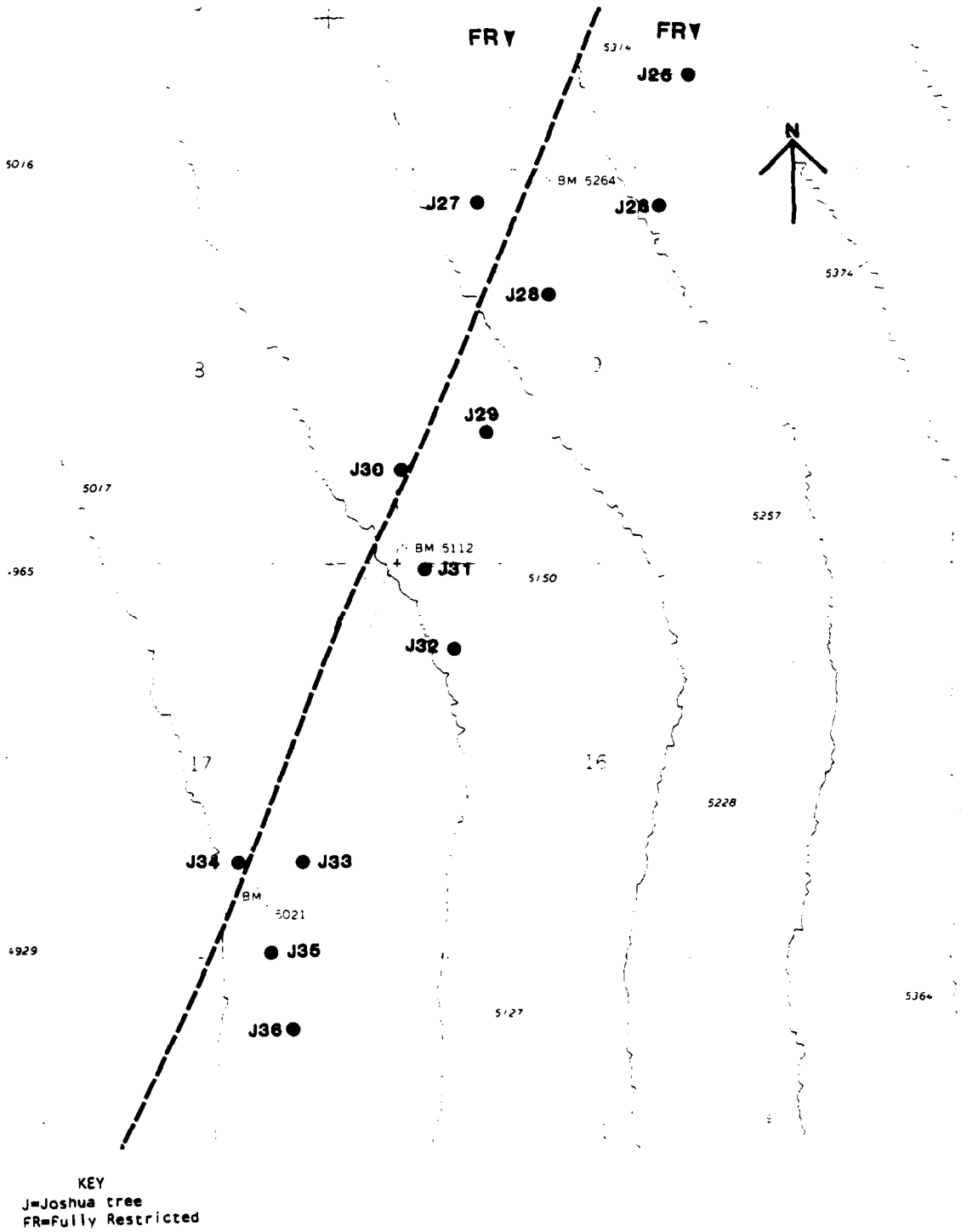
FIGURE 4-3b



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

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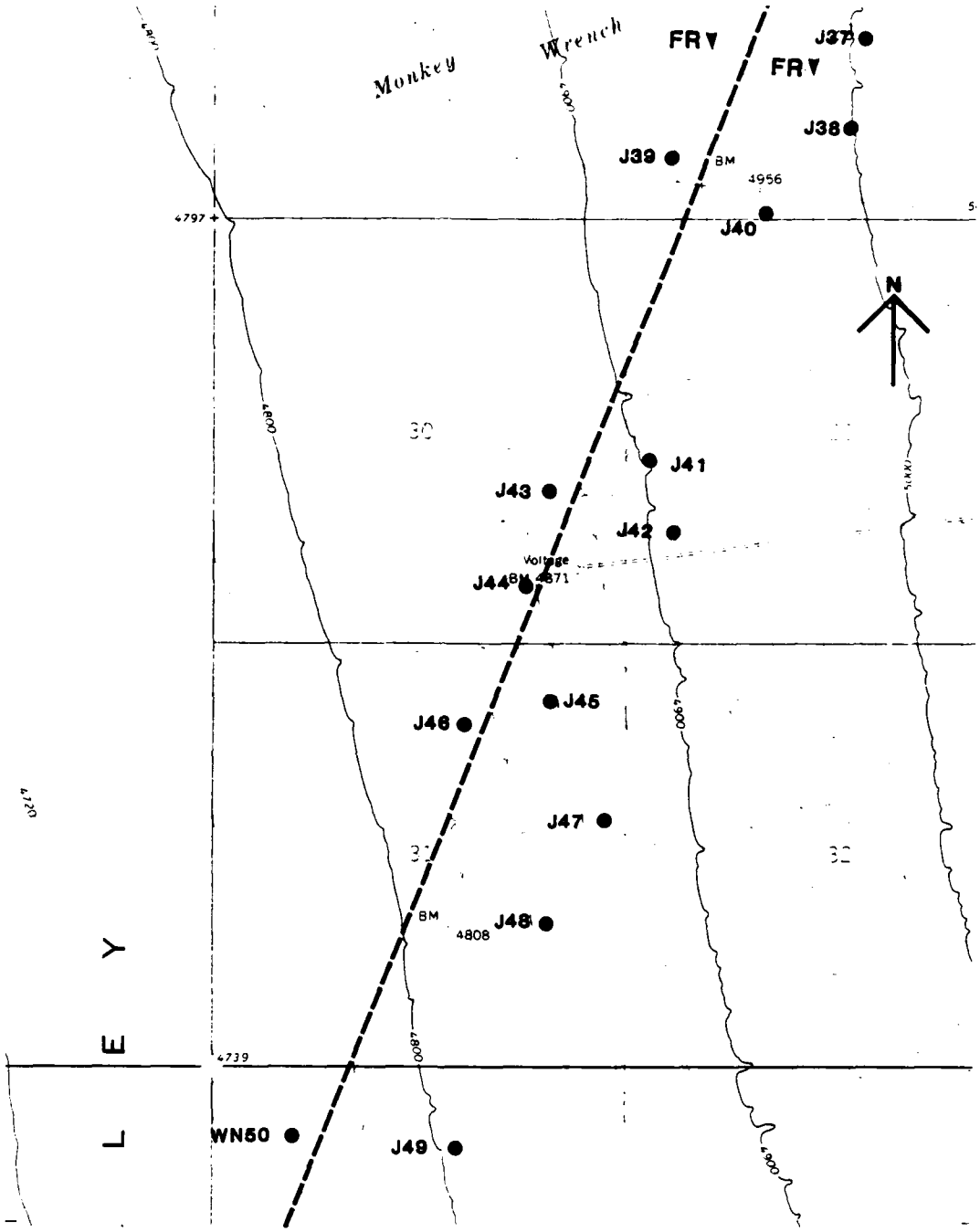
FIGURE 4-3c



KEY
J=Joshua tree
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3d

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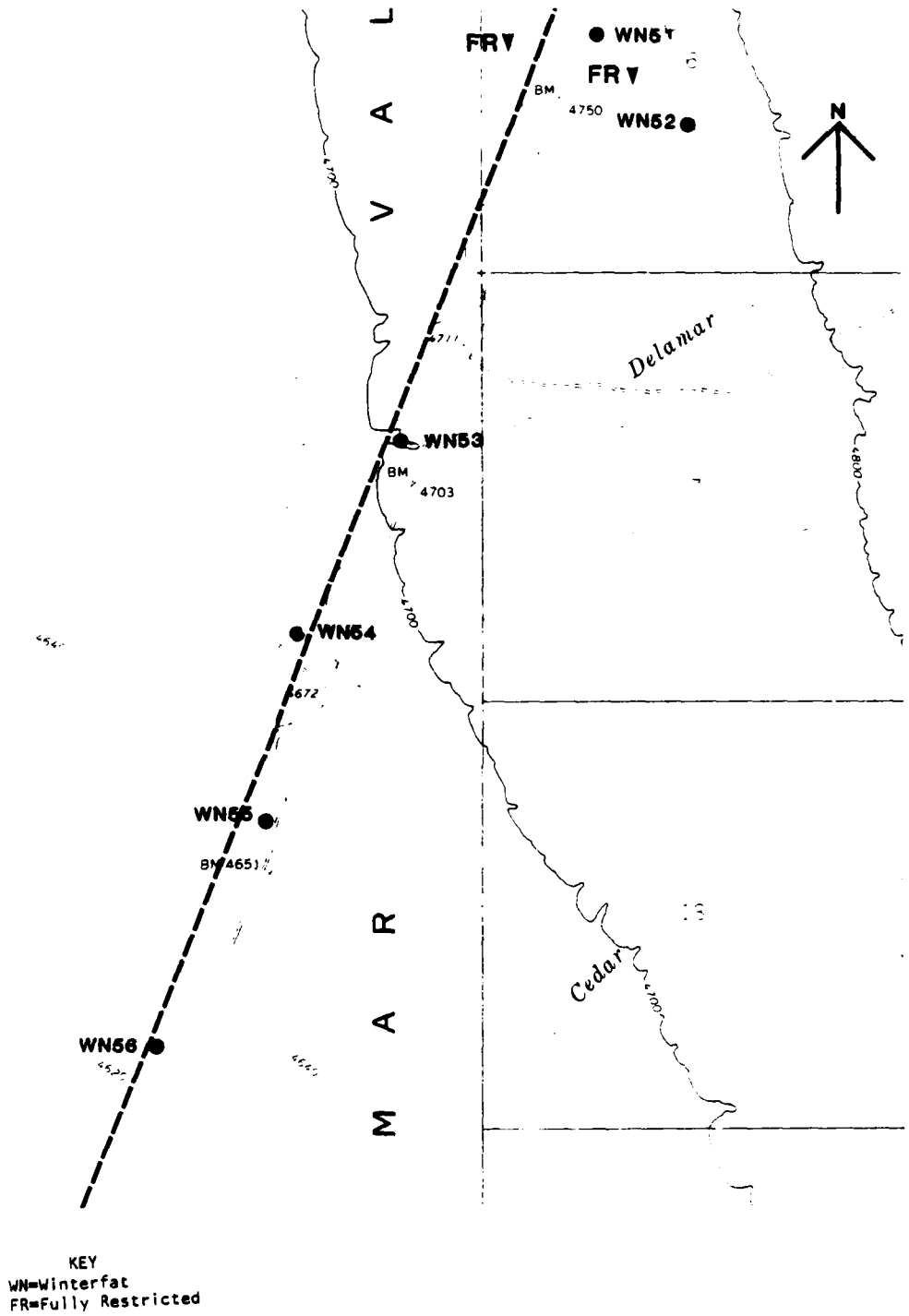
The Earth Technology Corporation



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3c

Ertec
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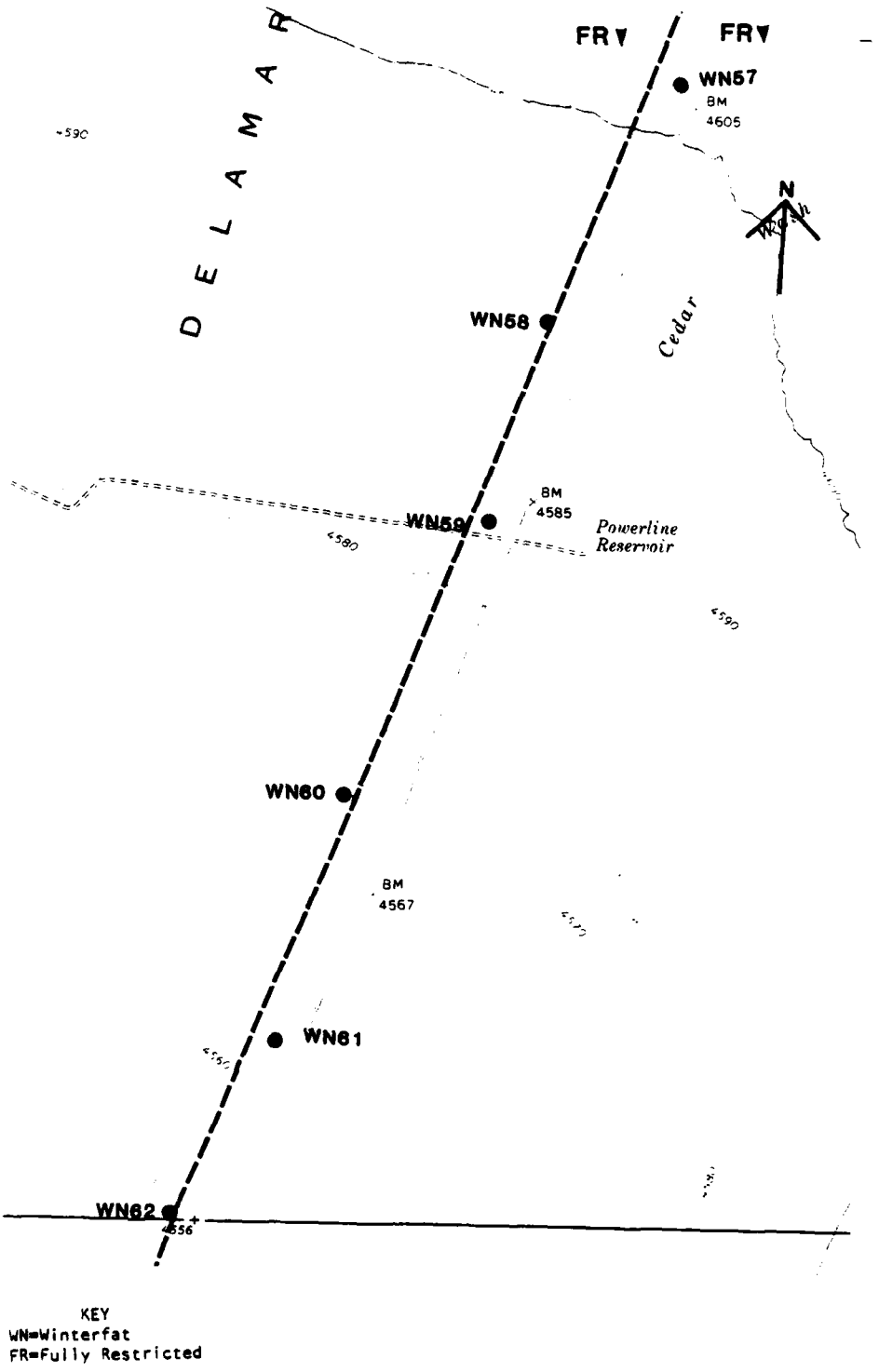

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

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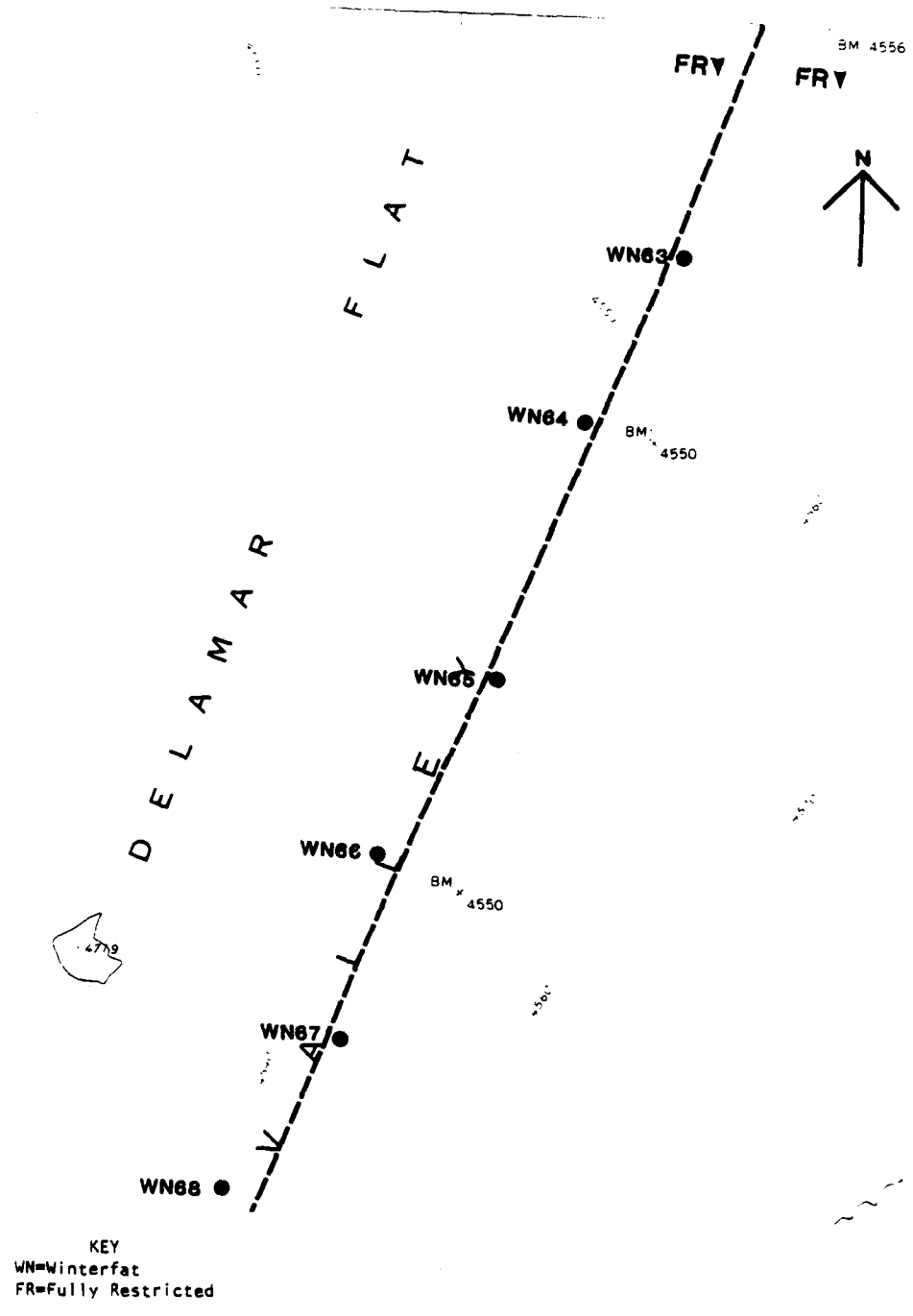
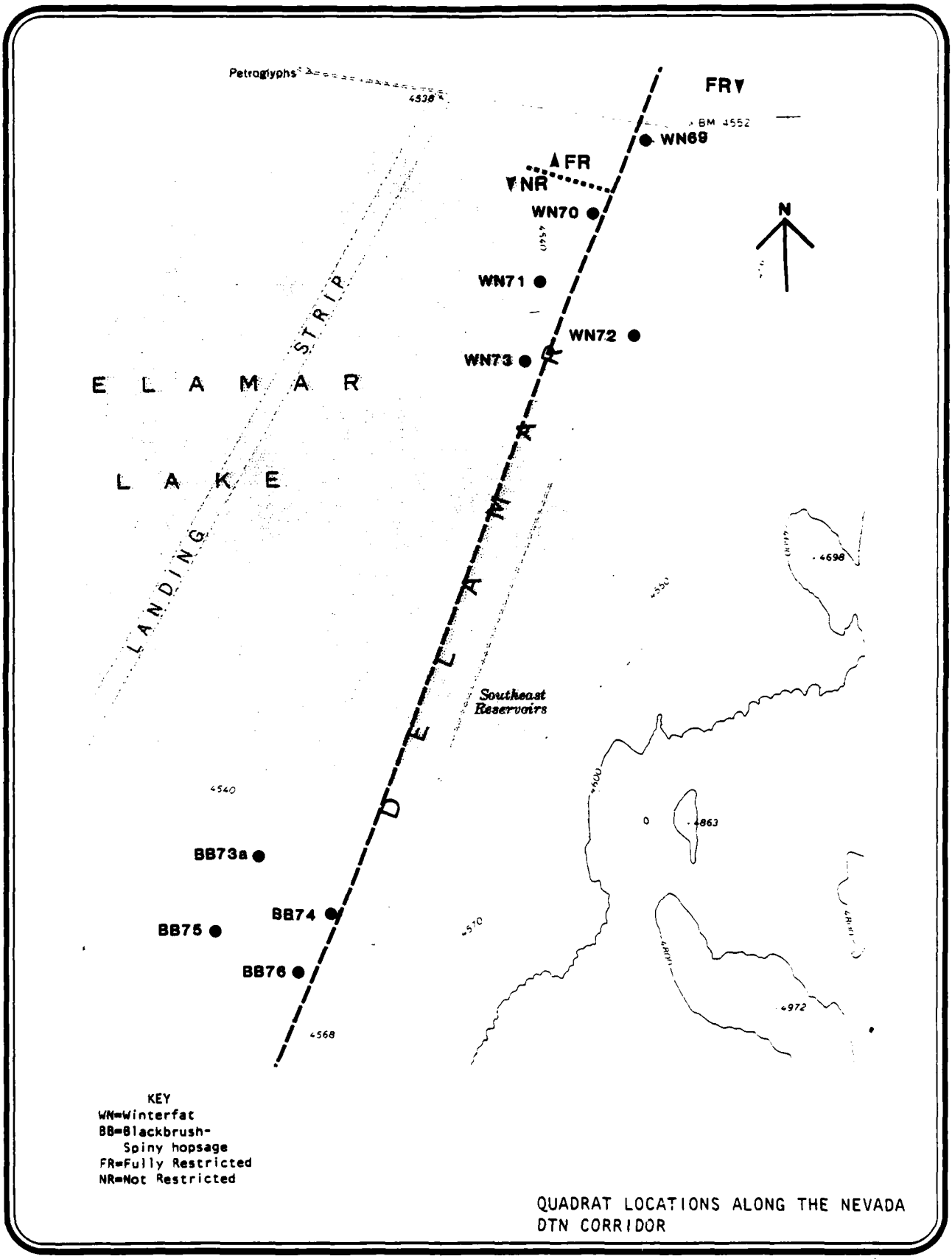
FIGURE 4-3f



QUADRAT LOCATIONS ALONG THE NEVADA CTN CORRIDOR

Ertec
The Earth Technology Corporation

FIGURE 4-3a



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3h

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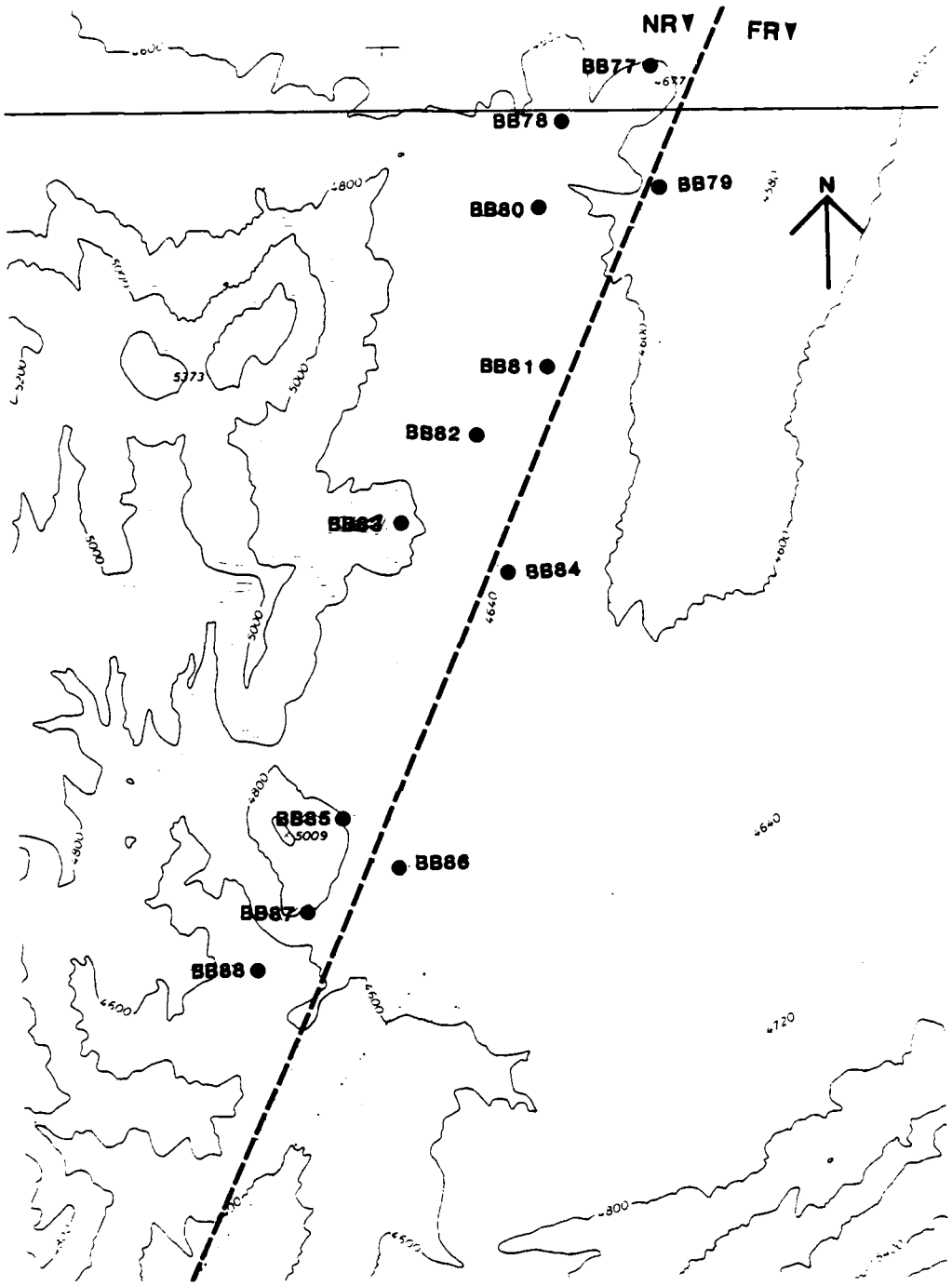

KEY
BB=Blackbrush-
Spiny hopsage
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3i

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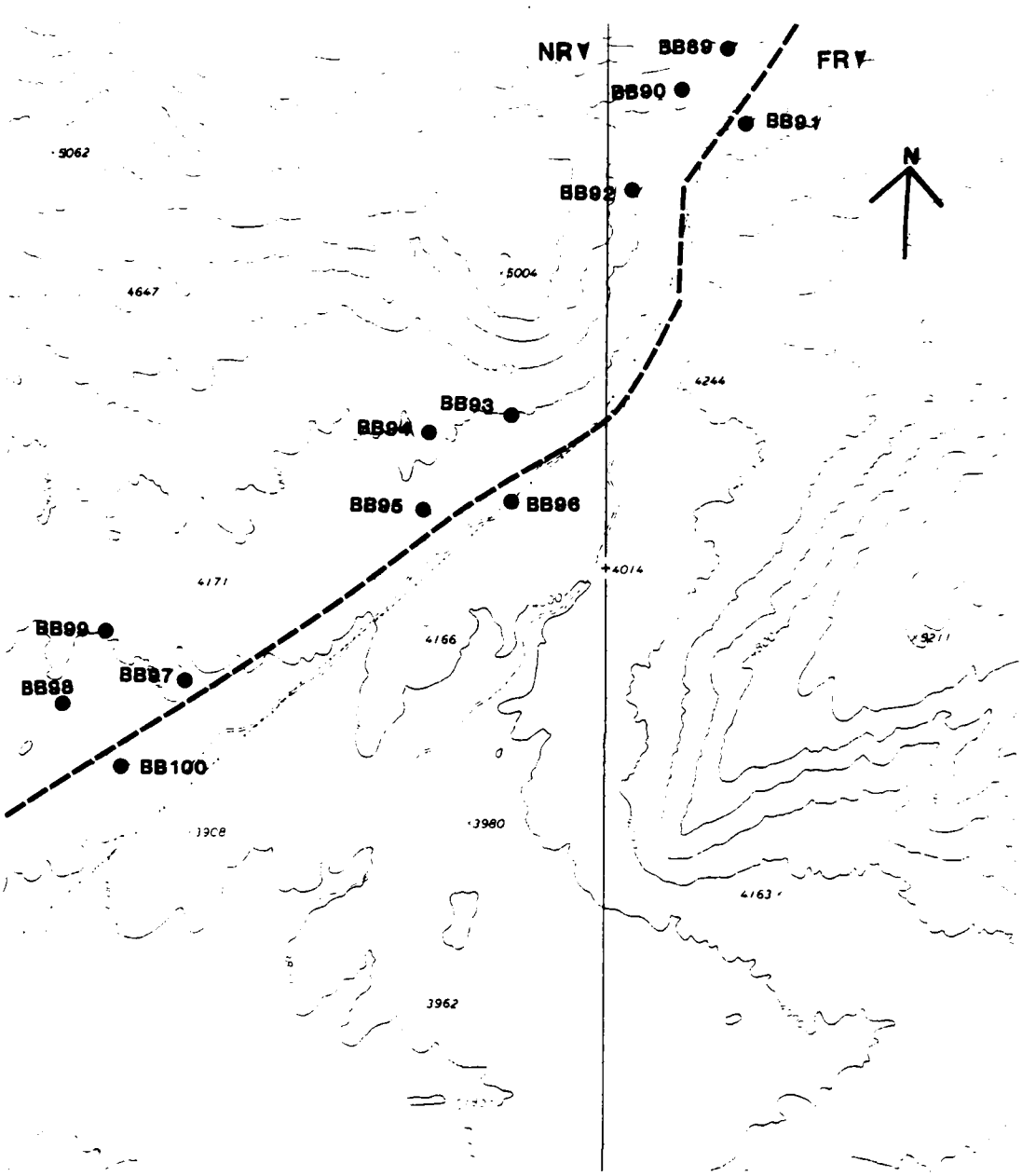

KEY
BB=Blackbrush-
Spiny hopsage
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3j

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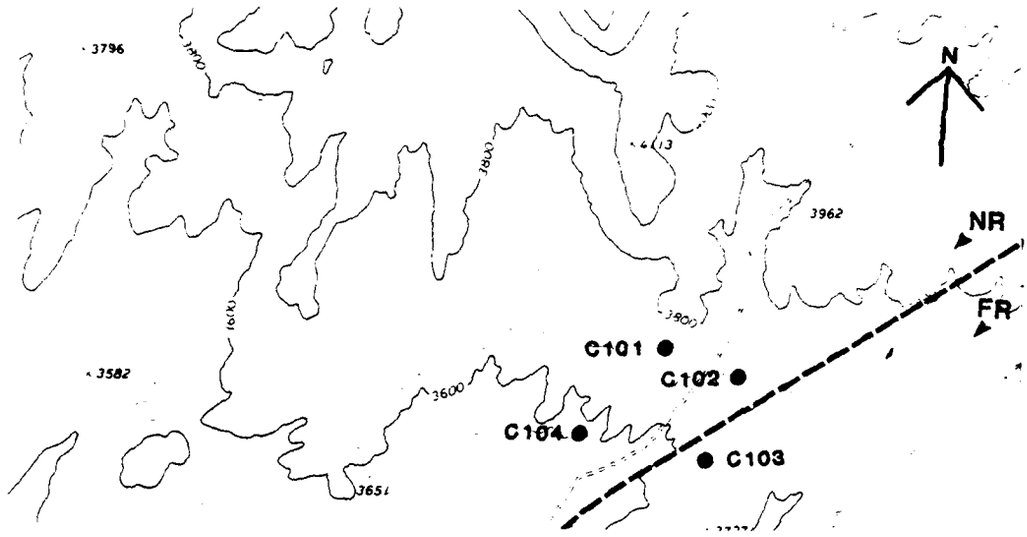

KEY
C=Creosote bush
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3k

Ertec
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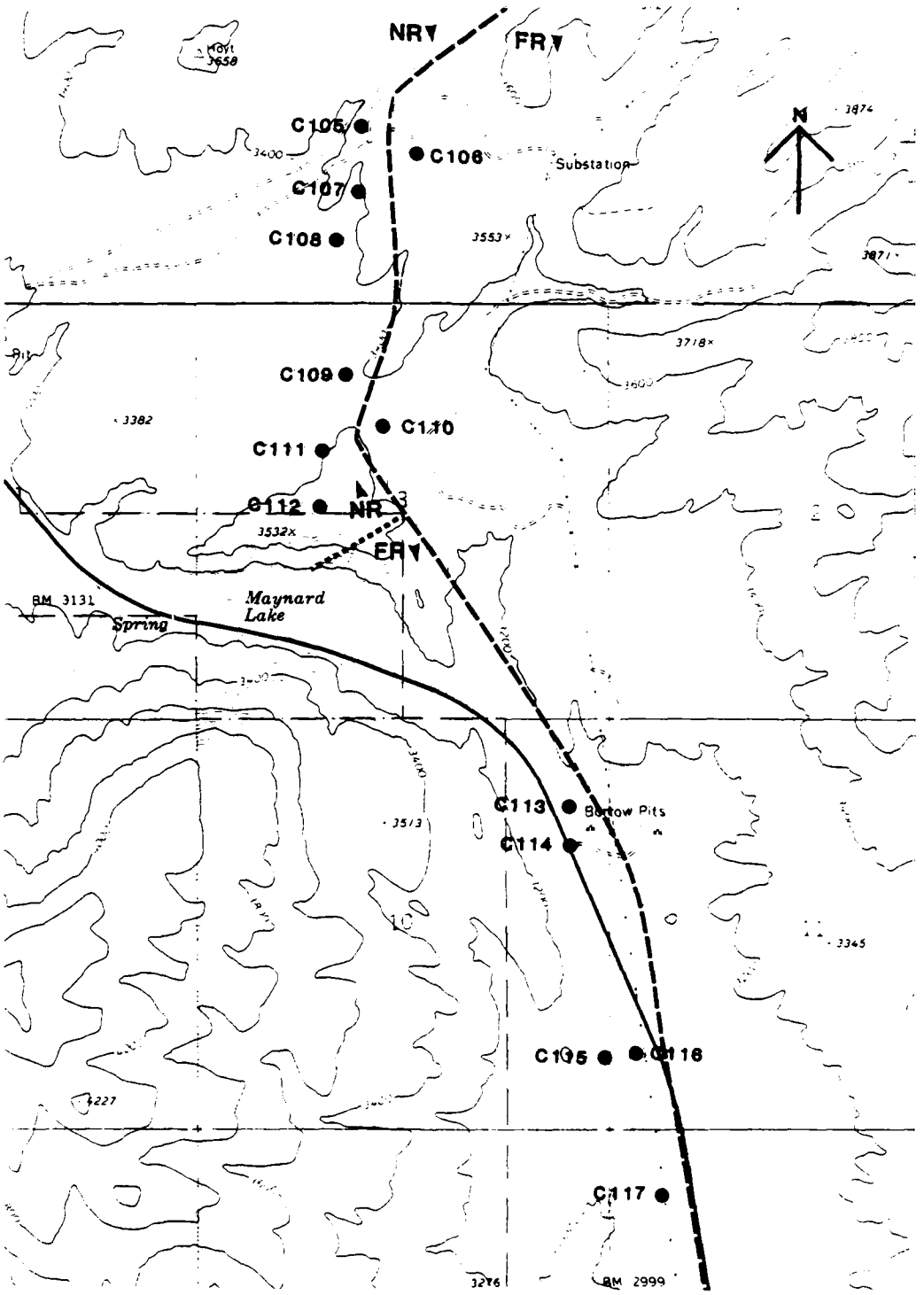

KEY
C=Creosote bush
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-31

Ertec
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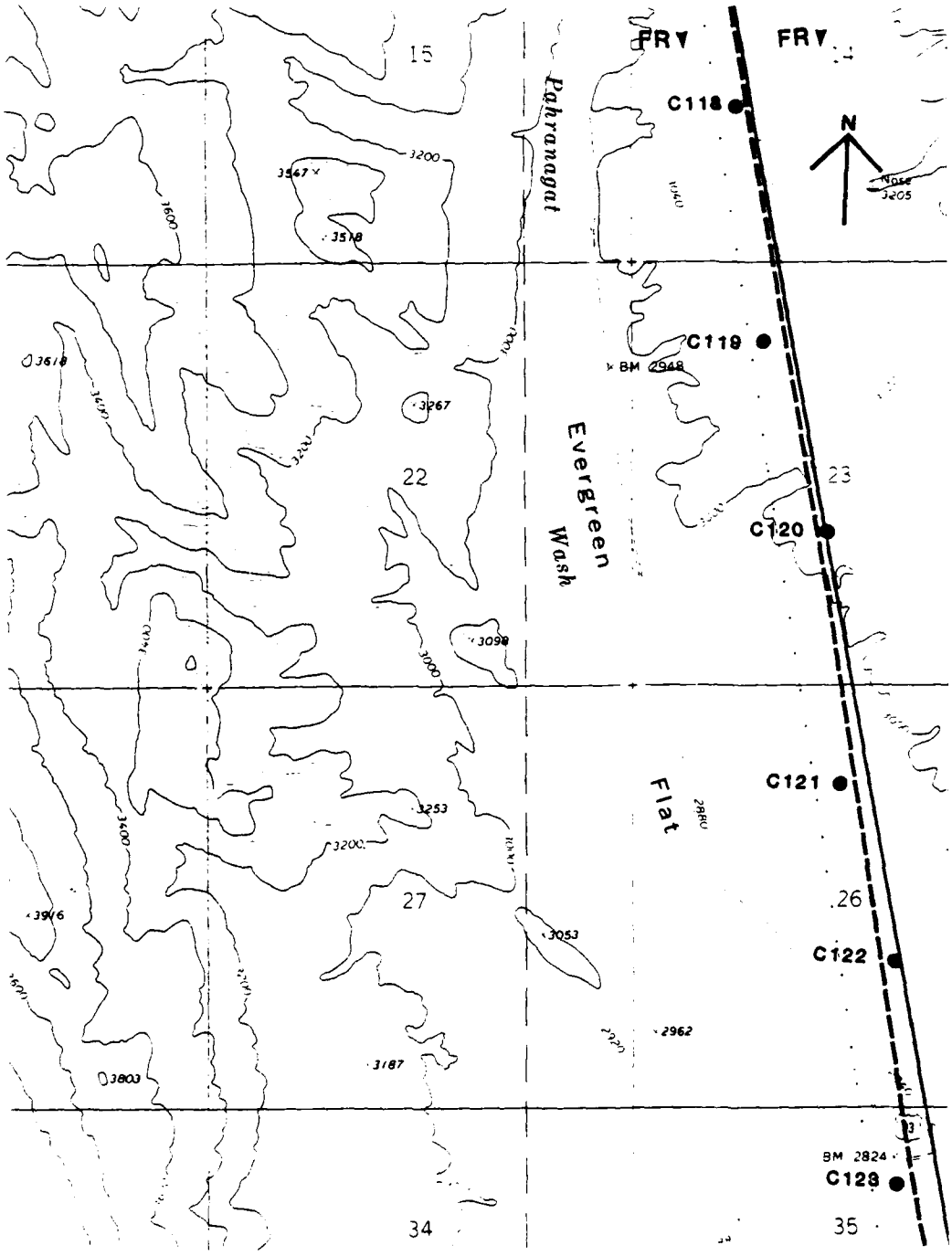

KEY
C=Creosote bush
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3m

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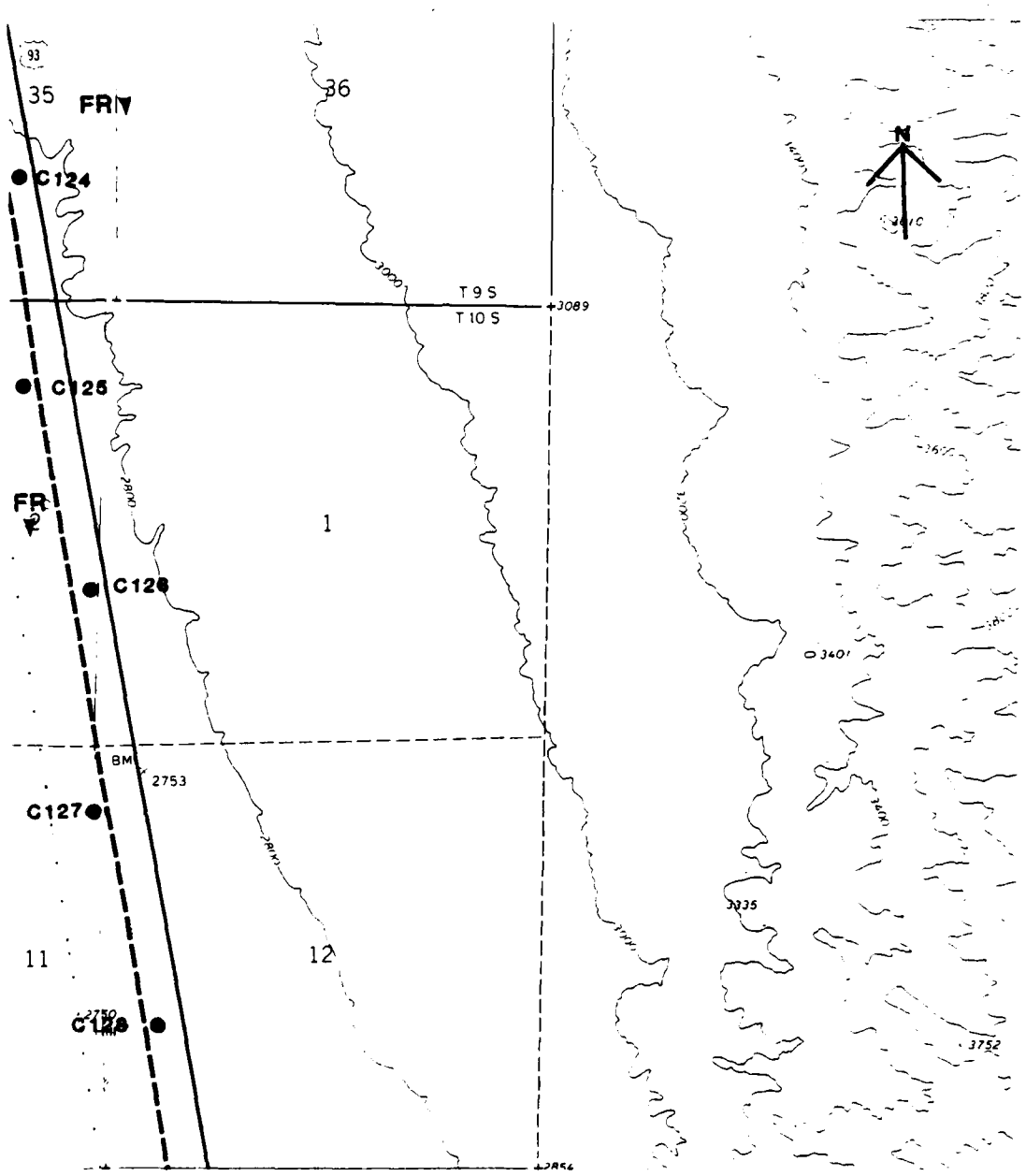
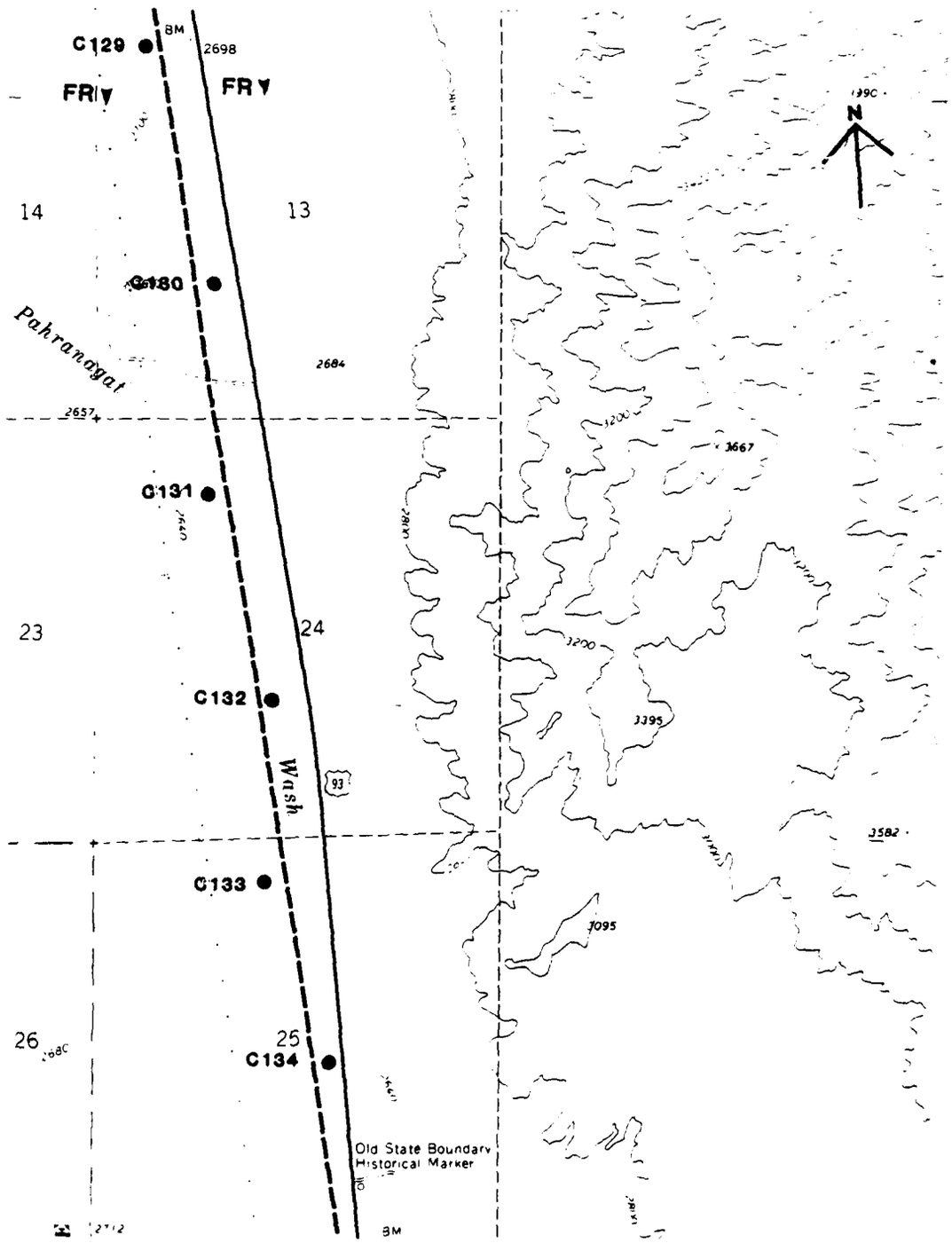


KEY
C=Creosote bush
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3n

Ertec
The Earth Technology Corporation



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

Ertec
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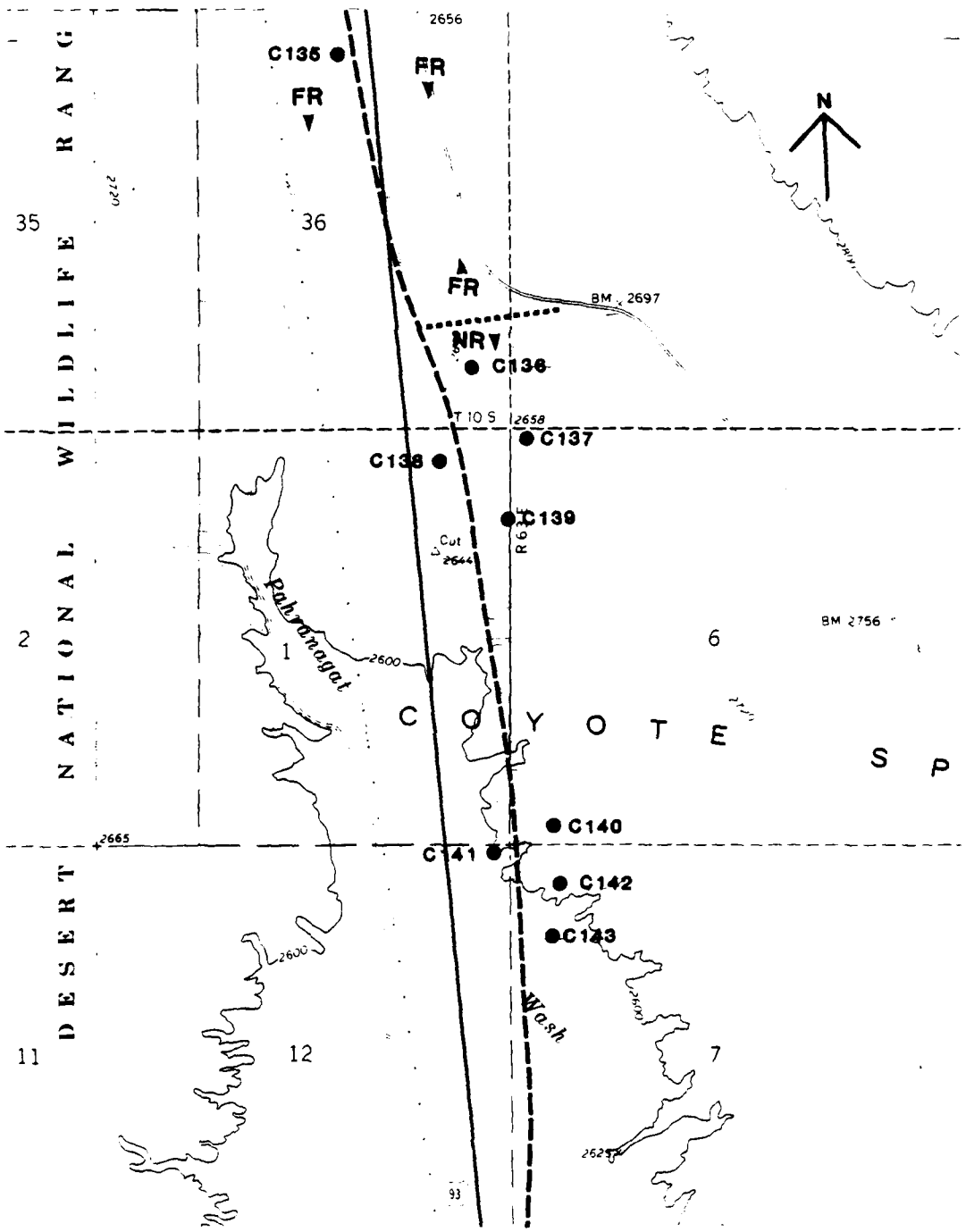
FIGURE 4-30

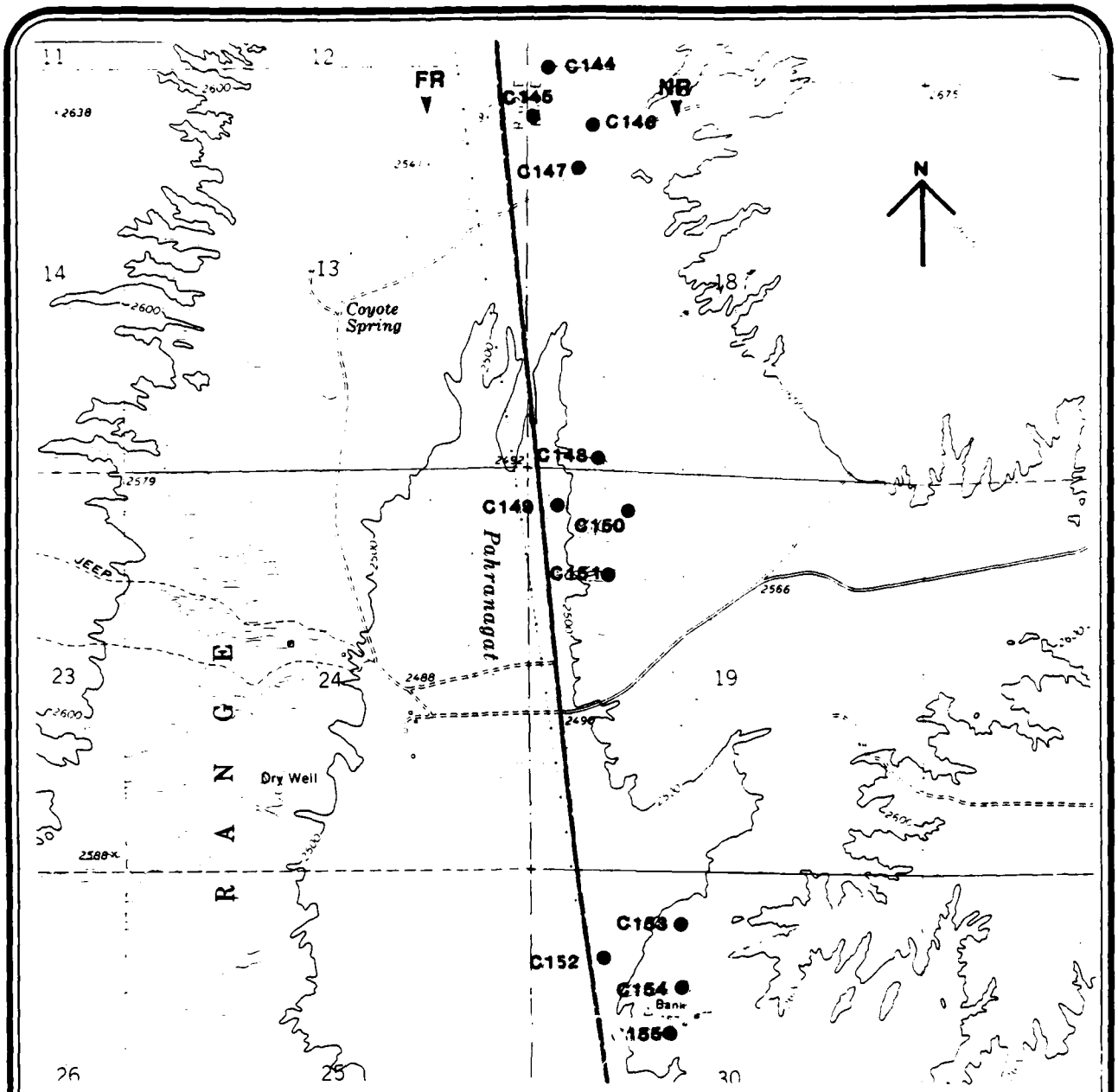


KEY
C=Creosote bush
FR=Fully Restricted
NR=Not Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

Ertec
The Earth Technology Corporation

FIGURE 4-3p

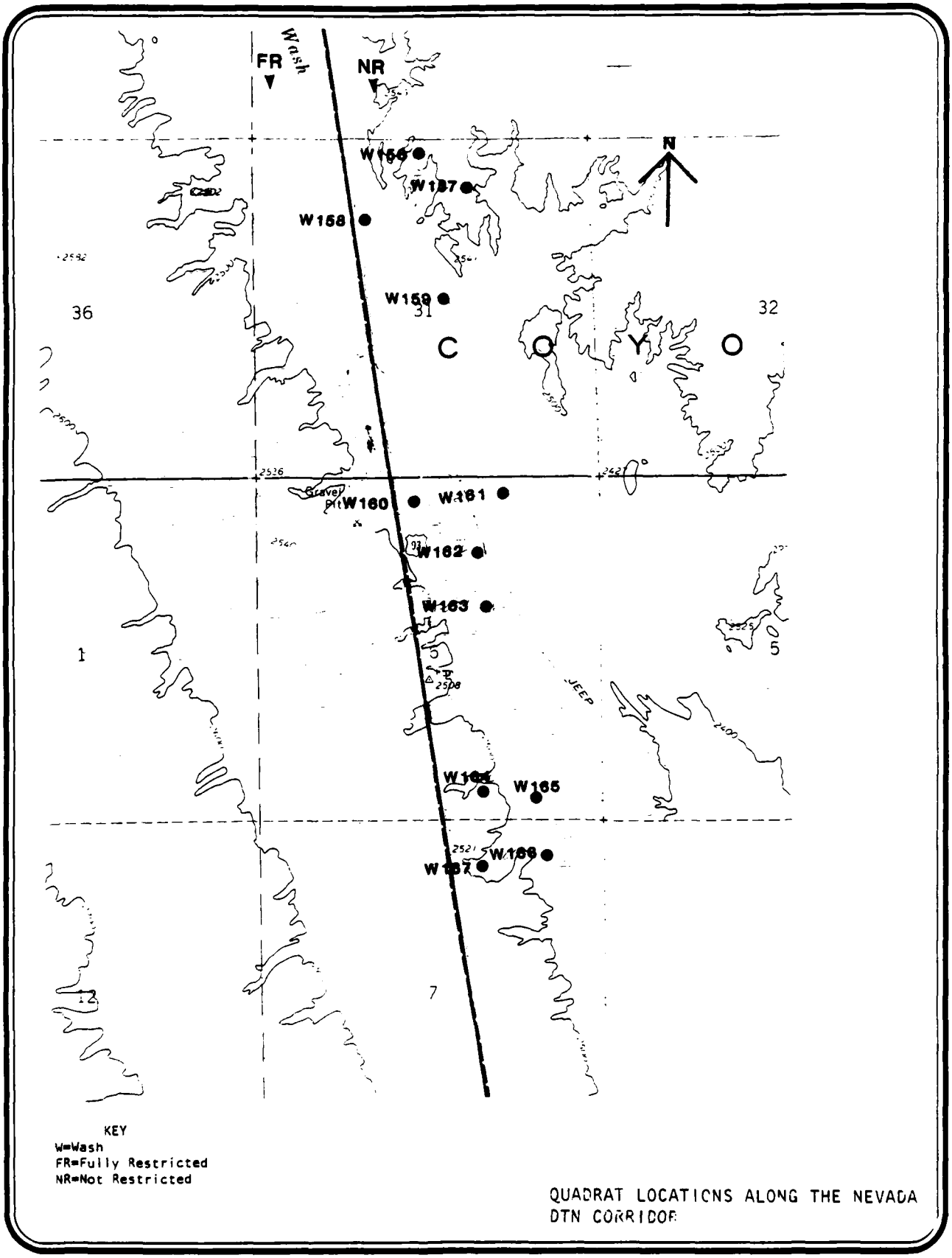


KEY
C=Creosote bush
FR=Fully Restricted
NR=Not Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3a

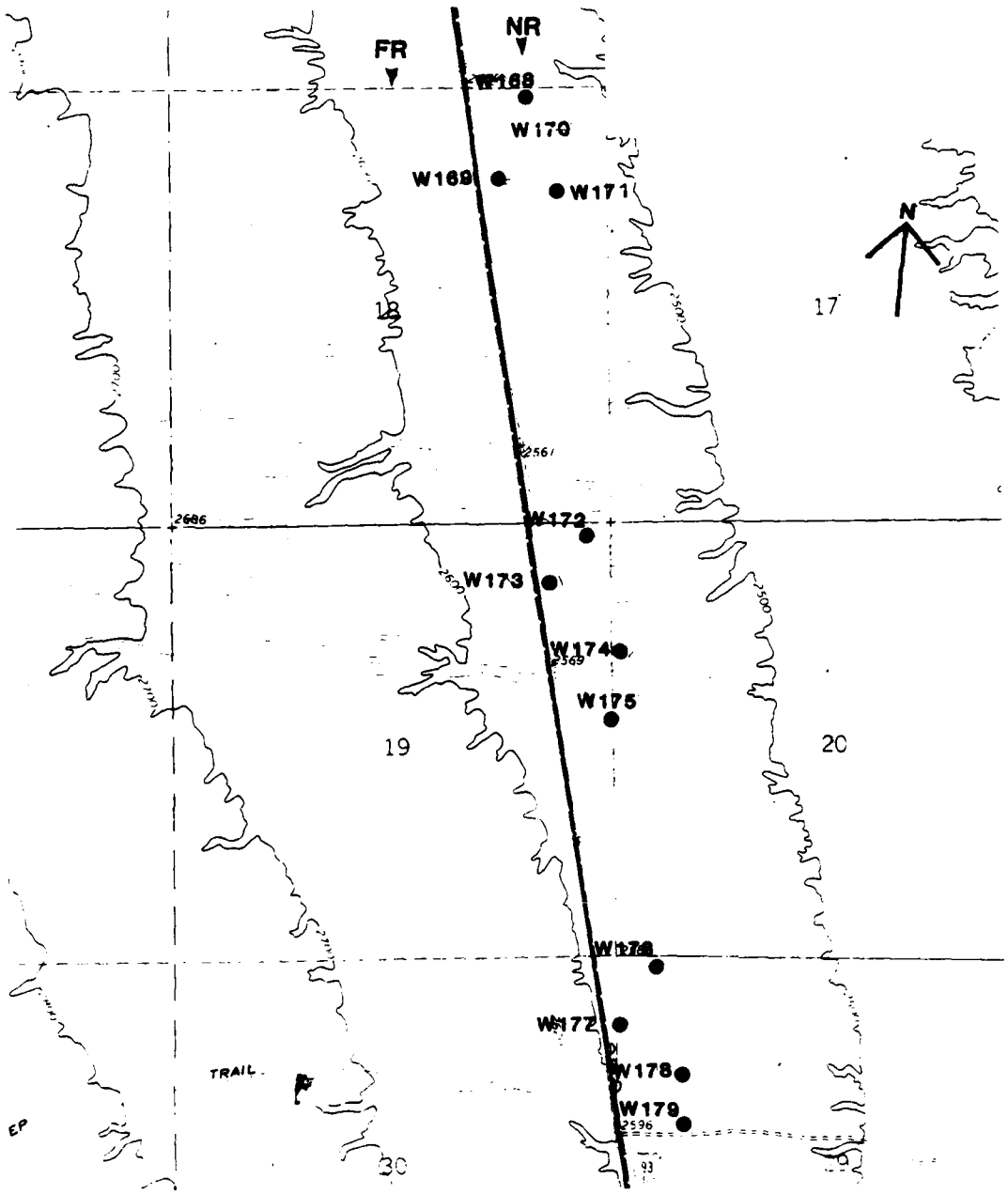
Ertec
The Earth Technology Corporation



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3r

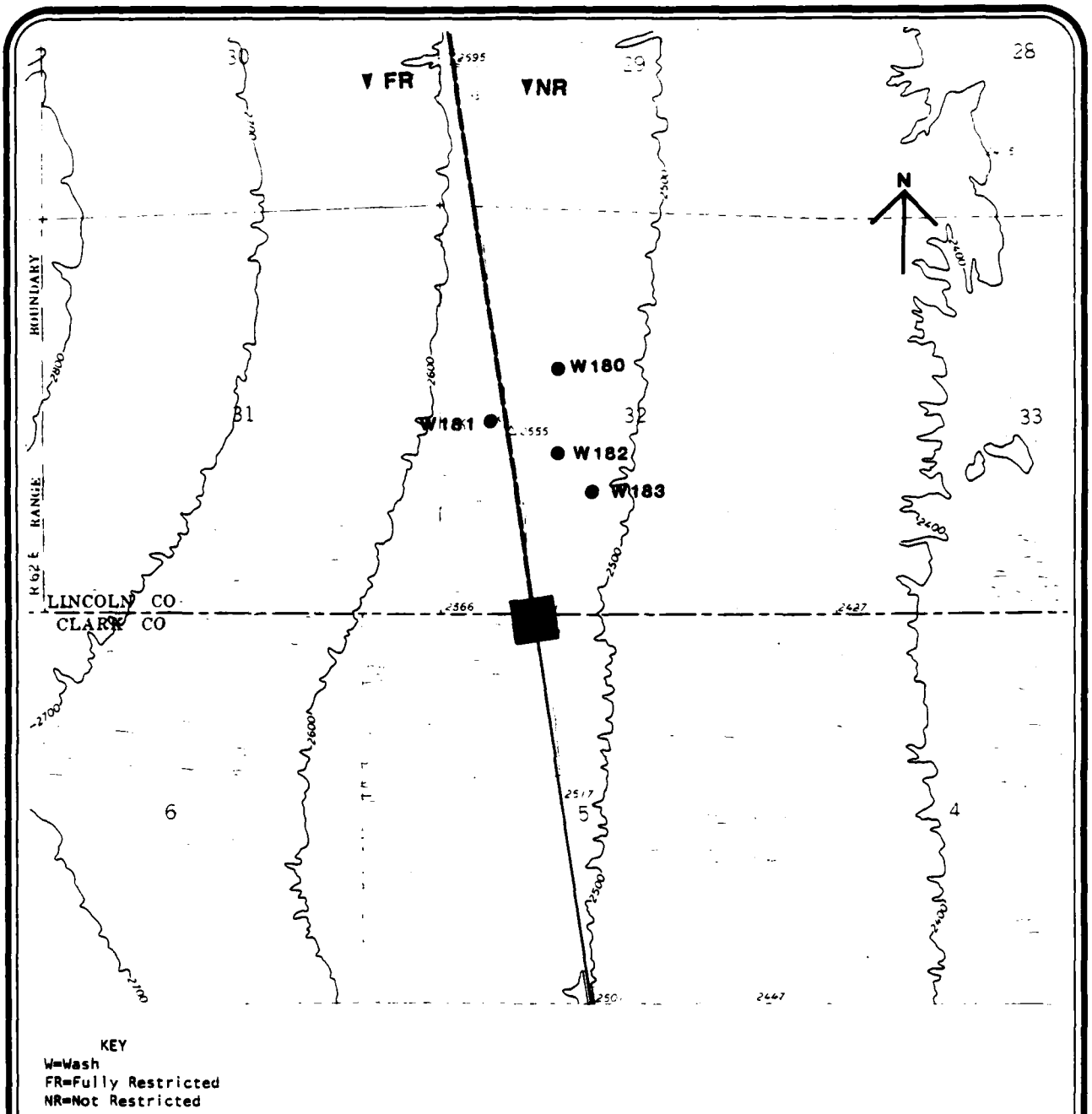
Ertec
The Earth Technology Corporation



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3c

Ertec
The Earth Technology Corporation

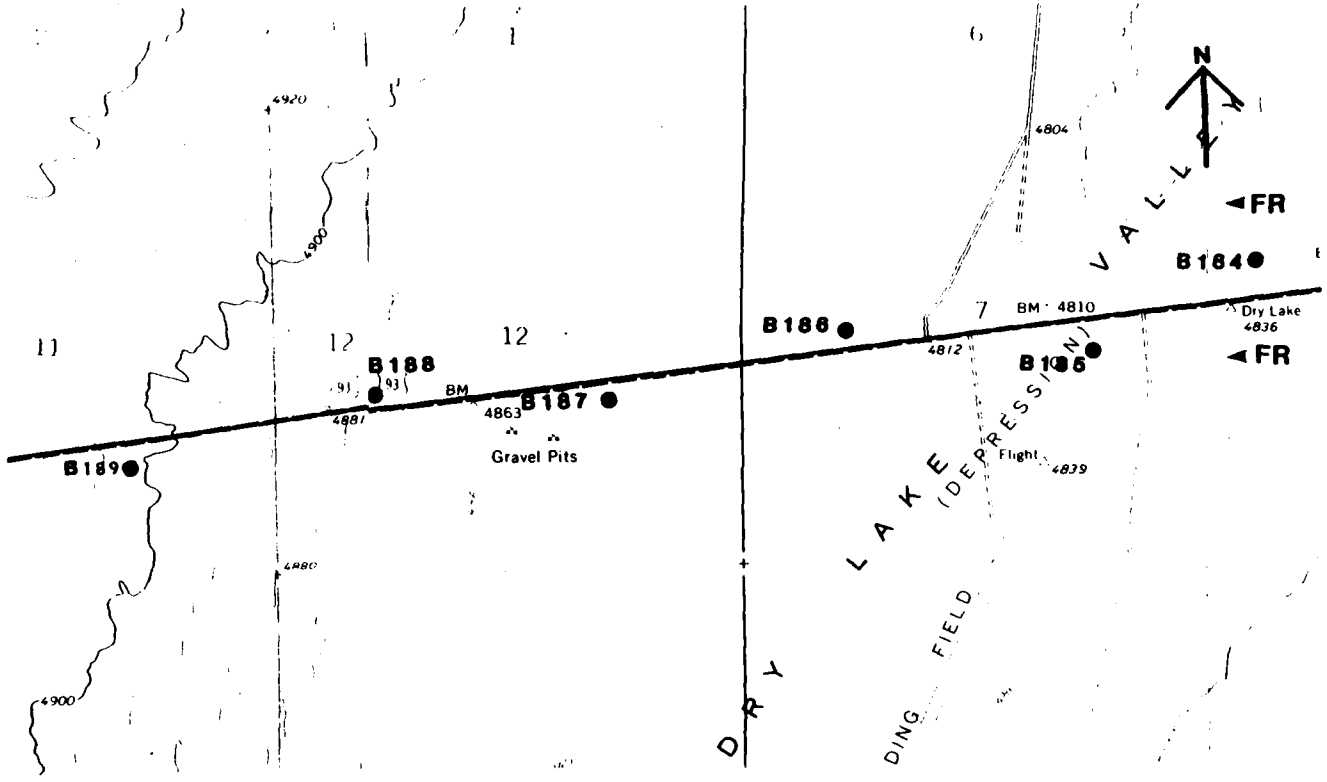


KEY
W=Wash
FR=Fully Restricted
NR=Not Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3t

Ertec
The Earth Technology Corporation

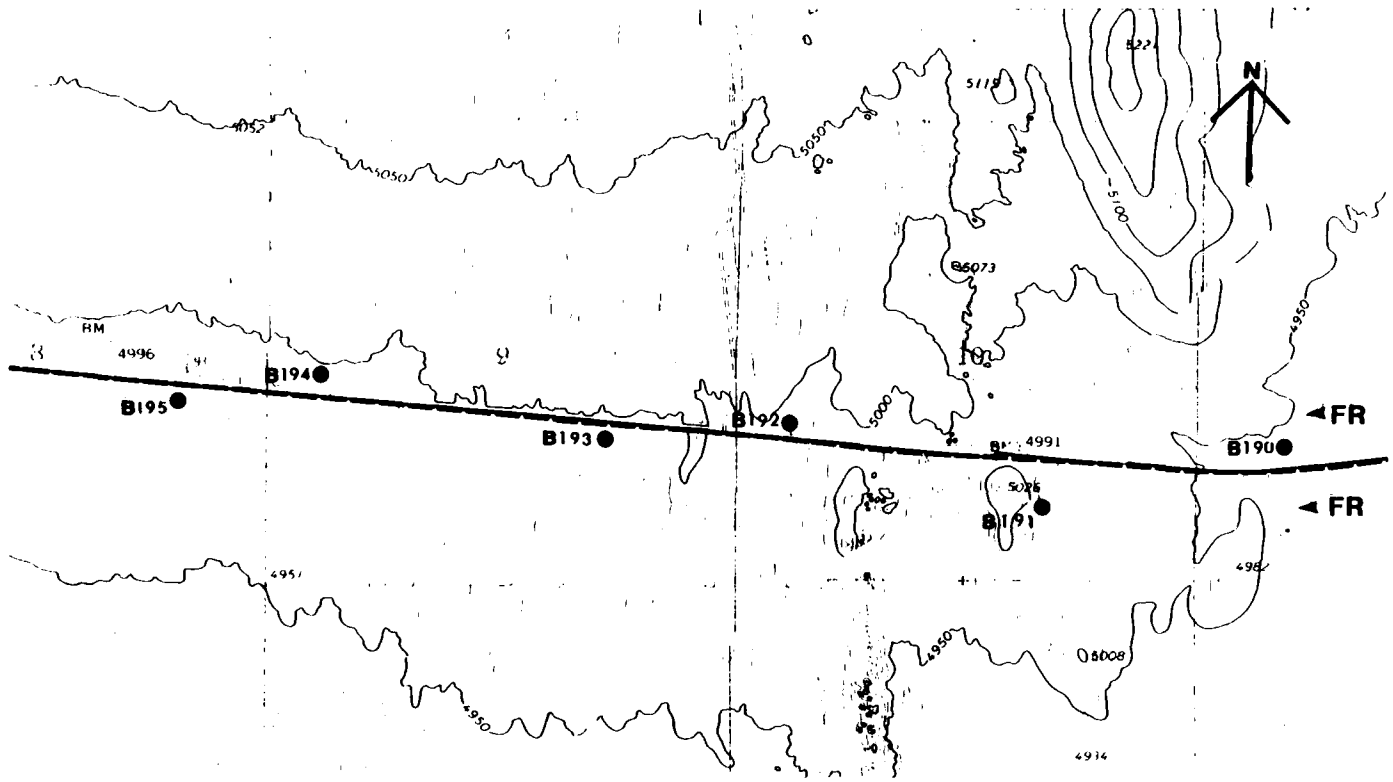


KEY
B=Big Sagebrush
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3u

Ertec

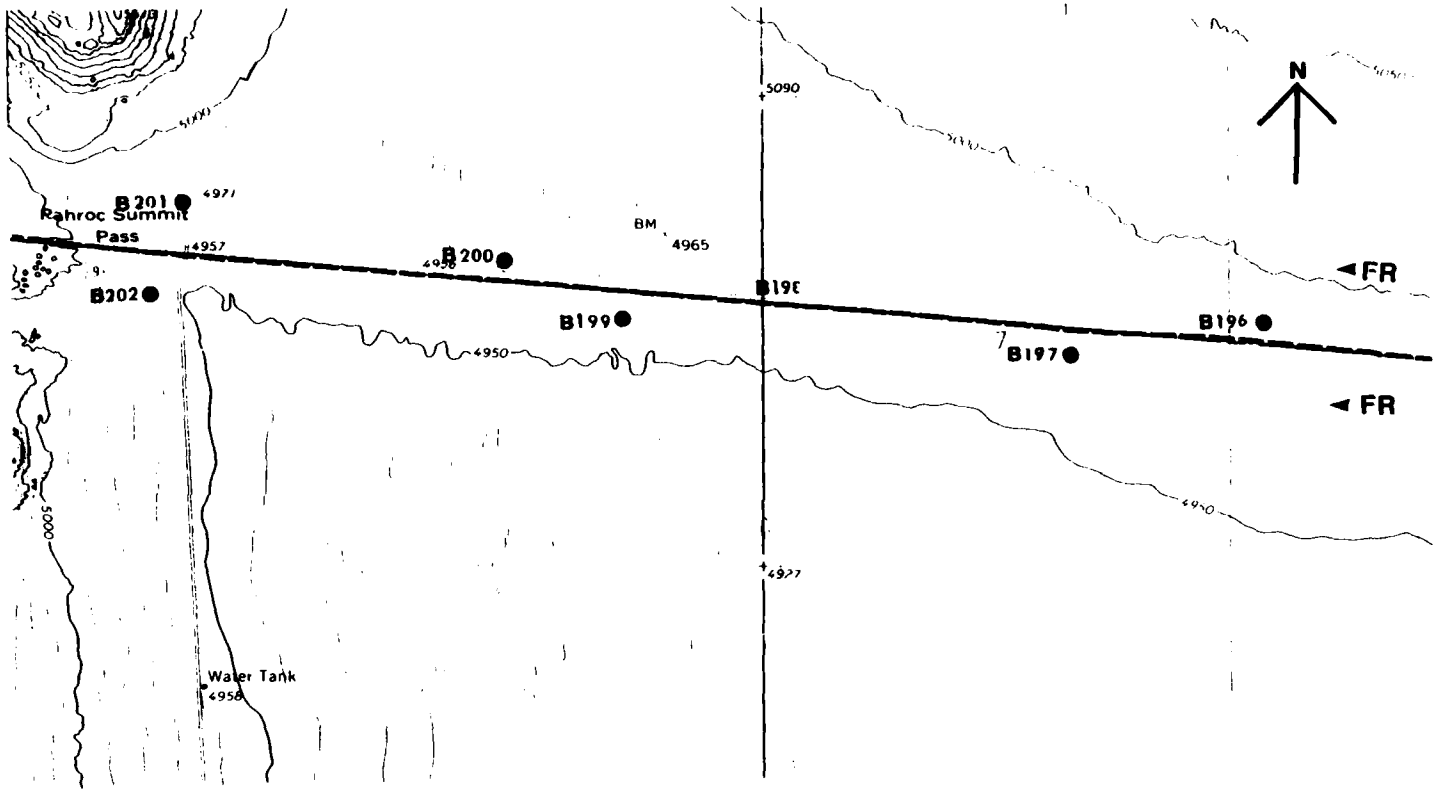


KEY
B=Big Sagebrush
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3v

Ertec
The Earth Technology Corporation

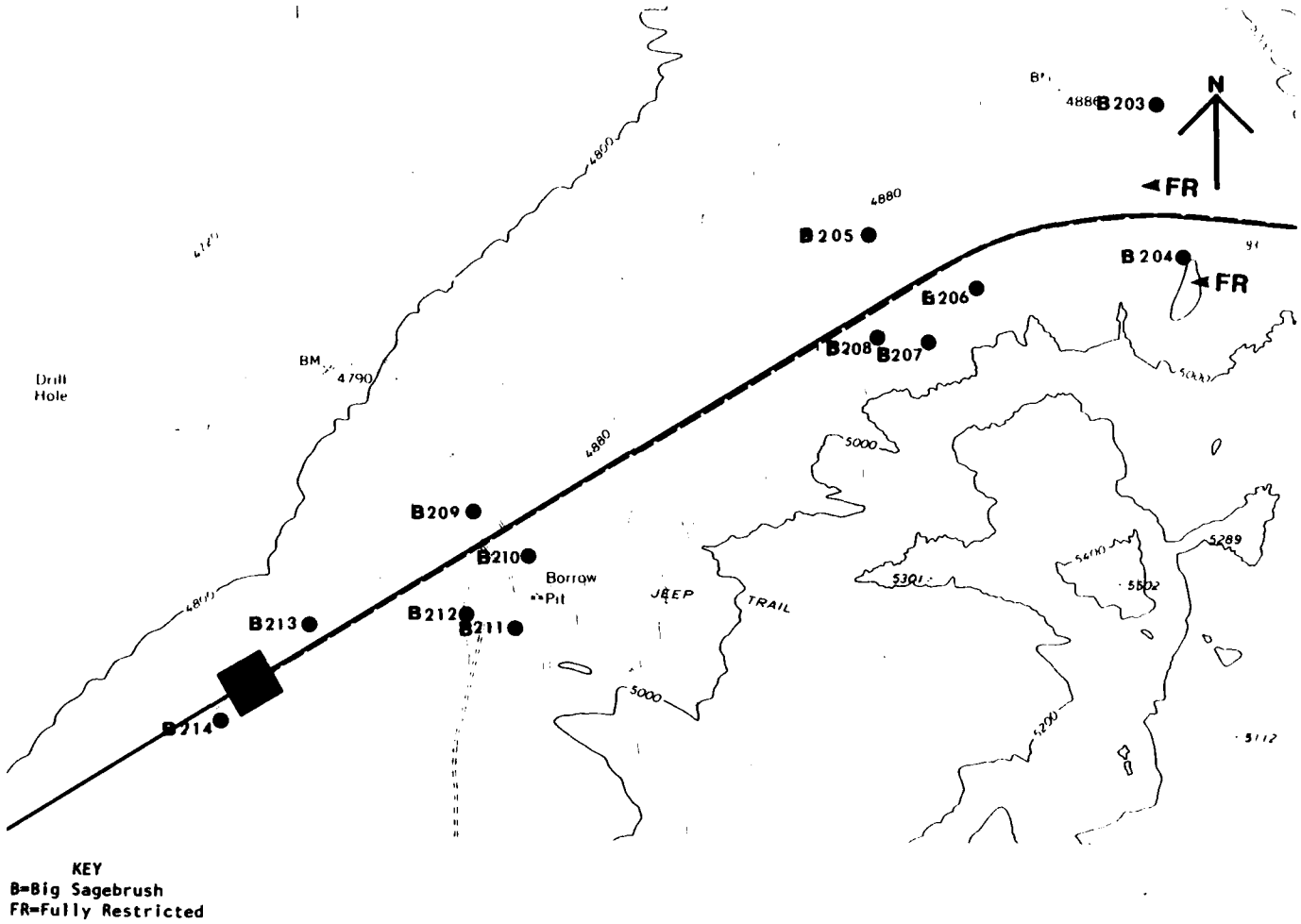


KEY
B=Big Sagebrush
FR=Fully Restricted

QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3w

Ertec
The Earth Technology Corporation



QUADRAT LOCATIONS ALONG THE NEVADA DTN CORRIDOR

FIGURE 4-3x

Ertec
The Earth Technology Corporation

TABLE 4-6

WILDLIFE SIGN AND SIGHTINGS ALONG THE NEVADA DTN CORRIDOR

MAMMALS	
Desert cottontail	*Sylvilagus audubonii*
Black-tailed jackrabbit	*Lepus californicus*
White-tailed antelope squirrel	*Ammospermophilus leucurus*
Antelope squirrel	*Ammospermophilus* sp.
Kangaroo rat	*Dipodomys* sp.
Woodrat	*Neotoma* sp.
Coyote	*Canis latrans*
Kitfox	*Vulpes macrotis*
Badger	*Taxidea taxus*
BIRDS	
Turkey vulture	*Cathartes aura*
Redtailed hawk	*Buteo jamaicensis*
Swainson's hawk	*Buteo swainsoni*
Golden eagle	*Aquila chrysaetos*
American kestrel	*Falco sparverius*
Gambel's quail	*Lophortex gambeii*
Mourning dove	*Zenaida macroura*
Roadrunner	*Geococcyx californianus*
Common nighthawk	*Chordeiles minor*
Western kingbird	*Tyrannus verticalis*
Horned lark	*Eremophila alpestris*
Common raven	*Corvus corax*
Cactus wren	*Campylorhynchus brunneicapillum*
Mockingbird	*Mimus polyglottos*
Sage thrasher	*Oreoscoptes montanus*
Bluegray gnatcatcher	*Polioptila caerula*
Loggerhead shrike	*Lanius ludovicianus*
Black-throated sparrow	*Amphispiza bilineata*
Unidentified sparrow	
Unidentified buteo	
REPTILES	
Zebra-tailed lizard	*Callisaurus draconoides*
Leopard lizard	*Crotaphytus wislizenii*
Western fence lizard	*Sceloporus occidentalis*
Side-blotched lizard	*Uta stansburiana*
Western whiptail lizard	*Cnemidophorus tigris*
Lizard species	Unidentified
Striped whipsnake	*Masticophis taeniatus*

birds observed included mourning dove (Zenaida macroura), and Gambel's quail (Lophortyx gambeli).

Reptiles included numerous lizards and one snake tentatively identified as a striped whipsnake (Masticophis taeniatus).

4.2.3 Species of Concern

No threatened or endangered animal species were observed along the Nevada DTN corridor, although sign of kit fox, a sensitive species (Molini 1980), was noted.

Most birds in the area have protected status under special laws such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of species were observed, including a number of raptors, a group of general concern to the state. Golden eagles (Aquila chrysaetos), were observed in two areas, and the redtailed hawk, Swanson's hawk, American kestrel and turkey vulture were also noted.

Cacti are often considered of special concern, and several species were found, including Echinocereus sp. and Opuntia basilaris. However, it is not believed that these are the varieties listed as Currently Under Review in the Federal Register (1980a).

5.0 DISCUSSION AND DATA SUMMARY: UTAH

This section summarizes the biological findings in the three Utah OBTS areas and the adjacent DTN segments. No in-depth data analysis is attempted at this time. However, additional information from releve quadrats, small mammal trapping transects, bird census transects and general wildlife observations is given in Appendices A, B, E, and F.

5.1 MILFORD PREFERRED OBTS

The biological survey of the Milford and Beryl OBTS areas and Utah DTN segments was undertaken from August 17 through September 29, 1981. Approximately 6000 acres of test site and a buffer zone approximately one mile in width around the perimeter of the Milford preferred site were sampled. A total of 122 releve quadrats for vegetation, 3 small mammal trapping transects, and 3 bird census transects were sampled within the area. Wildlife observations were also tabulated. Results of the survey are discussed below.

5.1.1 Overview of Vegetation

Five major vegetation associations were observed on the Milford preferred OBTS site. Of the 122 quadrats, there were 7 in a pinyon-juniper (*Pinus-Juniperus*) association, 5 in a black sagebrush (*Artemisia nova*) association, 72 in a big sagebrush (*Artemisia tridentata*) association, 25 in a perennial grassland (Poaceae) association, and 13 in a wash association. Vegetative data are given by site in Appendix E. Table 5-1 contrasts the associations, and Table 5-2 lists the vegetation species present on the site. Figure 5-1 shows quadrat locations.

TABLE 5-1

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE MILFORD PREFERRED OBTS*

Association Number of Quadrats	Pinyon-Juniper 7		Black Sagebrush 5		Big sagebrush 72		Perennial Grassland 25		Wash Areas 13	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	1	23.1	0	0.0	1	0.0	1	4.0	1	3.1
Shrubs/succulents	10	11.1	6	12.2	8	19.3	10	8.8	12	21.5
Forbs	16	0.9	2	0.9	17	0.9	10	0.0	7	0.4
Grasses	7	4.4	5	5.2	14	6.5	9	24.0	8	13.1
Total Vegetative Cover	34	39.6	13	17.4	40	26.4	30	32.8	28	38.2
Bare Ground	—	27.1	—	18.2	—	31.8	—	32.8	—	26.6
Rock/Gravel	—	23.3	—	59.2	—	32.6	—	18.6	—	26.1
Litter	—	13.7	—	5.2	—	8.7	—	13.2	—	14.5

* Based upon 122 releve quadrats in the area.

TABLE 5-2

PLANT SPECIES OBSERVED ON THE MILFORD PREFERRED OBTS

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AMARANTHACEAE			
Amaranthus graecizans	Pigweed	F	D
ASTERACEAE			
Ambrosia acanthicarpa	Ragweed	F	BS,W,D
Artemisia filifolia	Sand sagebrush	S	BS
Artemisia nova	Black sagebrush	S	BLS,PJ
Artemisia tridentata	Big sagebrush	S	BS,PJ,W
Chaenactis douglasii	Douglas chaenactis	F	PJ,BS
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BS,BLS PG,W
Erigeron sp.	Fleabane	F	PJ
Gutierrezia sarothrae	Snakeweed	S	S,PJ,BS, BLS,PG, W
Hymenopappus filifolius	Hymenopappus	F	BS
Leucelene ericoides	Leucelene	F	BS

1 S = Shrub; F = Forb; G = Grass; Gl = Grasslike.

2 PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; PG = perennial grassland; W = Wash; D = Disturbed area.

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Machaeranthera canescens	Aster	F	BS,W
Senecio multilobatus	Butterweed	F	PJ,BS
Stephanomeria exigua	Wire lettuce	F	BS,W
Townsendia incana	Easter daisy	F	BS
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,PJ
BRASSICACEAE			
Arabis sp.	Rockcress	F	BS
Descurainia pinnata	Tansy mustard	F	BS,BLS,PJ, PG
Descurainia sophia	Tansy mustard	F	BS,D
Descurainia sp.	Tansy mustard	F	BS
Physaria chambersii	Twinpod	F	PJ
Sisymbrium altissimum	Tumble mustard	F	BS,D
Streptanthella longirostris	Streptanthella	F	BS,W
Streptanthella cordatus	Twist flower	F	PJ
CACTACEAE			
Echinocereus triglochidiatus	Hedgehog cactus	S	BIS
Opuntia erinacea	Prickly pear	S	PJ,BS,BLS, PG,W
Opuntia whipplei	Whipple cholla	S	BS,PG

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
CAPPARIDACEAE			
Cleome lutea	Yellow beeplant	F	BS,D
Cleome serrulata	Rocky Mountain beeplant	F	D
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	W
Ceratoides lanata	Winterfat	S	BS,BLS,PG
Chenopodium sp.	Goosefoot	F	PG
Grayia spinosa	Spiny hopsage	S	BS
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,W
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	PJ,BS,BLS, PG
Ephedra viridis	Mormon tea	S	PJ
EUPHORBIACEAE			
Euphorbia glyptosperma	Spurge	F	W
FABACEAE			
Astragalus lentiginosus	Milkvetch	F	PJ,BS,BLS PG
Astralagus sp.	Milkvetch	F	BS,PG
Lathyrus sp.	Pea-vine	F	PJ

TABLE 5-2 (Cont.)

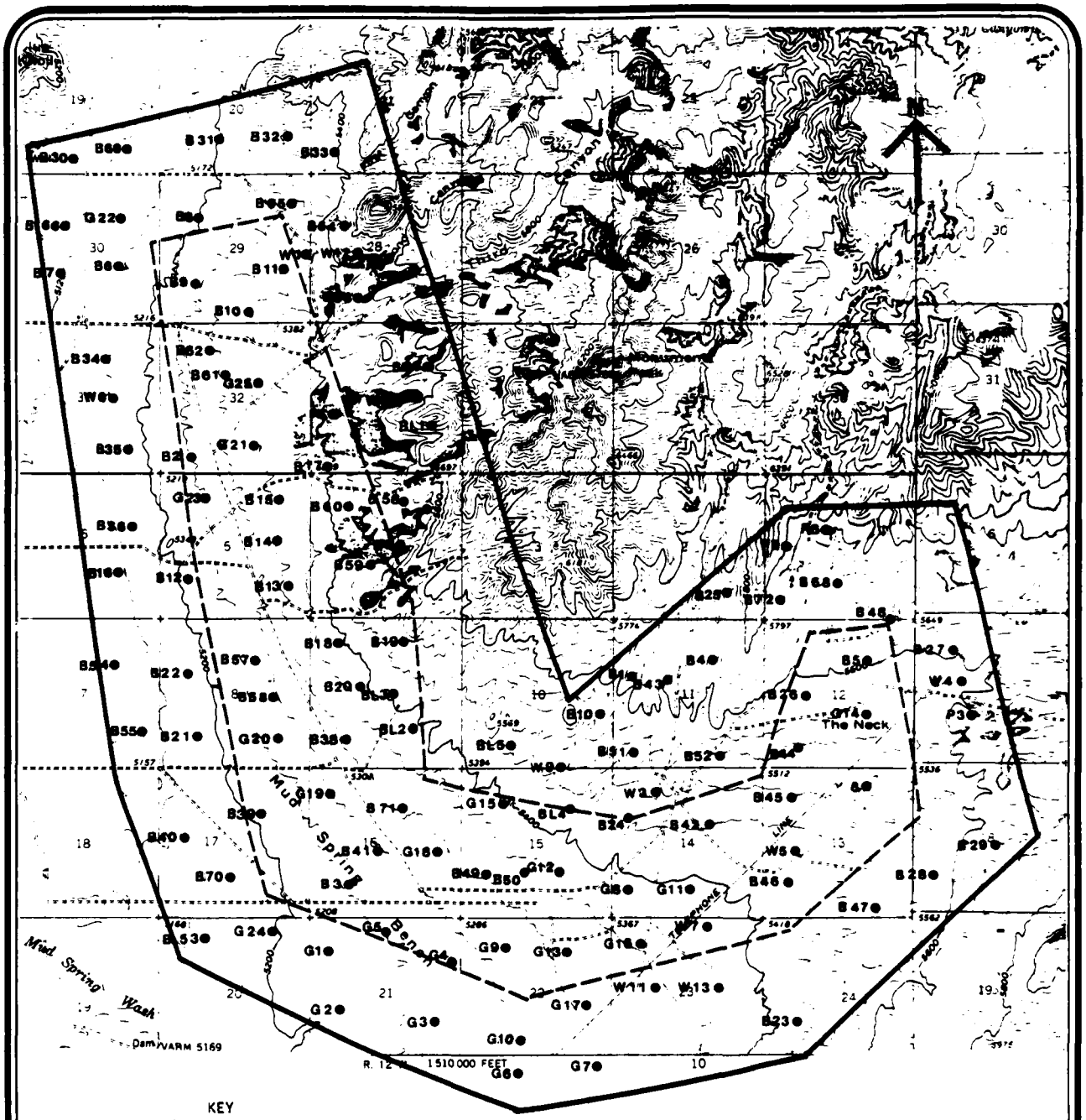
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
LAMIACEAE			
Marrubium vulgare	Common horehound	F	D
MALVACEAE			
Sphaeralcea coccinea	Scarlet globemallow	F	BS,PG
NYCTAGINACEAE			
Abronia fragrans	Sand verbena	F	BS
ONAGRACEAE			
Oenothera sp.	Evening primrose	F	BS,PG
PLANTAGINACEAE			
Plantago sp.	Plantain	F	BS,PG
POACEAE			
Agropyron cristatum	Crested wheatgrass	G	BS,D
Agropyron smithii	Western wheatgrass	G	W
Aristida purpurea	Purple threeawn	G	PJ,BS,BLS PG,W
Bouteloua gracilis	Blue grama	G	BS,PG
Bromus tectorum	Cheatgrass	G	PJ,BS,BLS, PG, W,D
Hilaria jamesii	Galleta grass	G	PJ,BS,BLS PG
Hordeum jubatum	Foxtail barley	G	W

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS PG,W
Poa sandbergii	Sandberg bluegrass	G	BS
Sitanion hystrix	Bottlebrush squirreltail	G	PJ,BS,BLS, PG,W
Sitanion sp.	Squirreltail	G	PJ
Sporobolus cryptandrus	Sand dropseed	G	PJ,BS,PG,
Stipa comata	Needle-and-thread	G	PJ,BS,PG
Vulpia octoflora	Six-weeks fescue	G	PJ,BS,BLS
POLEMONIACEAE			
Gilia sp.	Gilia	F	BS
Ipomopsis congesta	Ballhead gilia	F	BS
Leptodactylon pungens	Prickleygilia	S	PJ,BLS,BS
POLYGONACEAE			
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BS,BLS
Eriogonum ovalifolium	Cushion eriogonum	F	PJ,BS
Eriogonum sp.	Eriogonum	S	PJ,BS,BLS
Polygonum aviculare	Knotweed	F	D
ROSACEAE			
Purshia tridentata	Bitterbrush	S	PJ

TABLE 5-2 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
SANTALACEAE			
Comandra umbellata	Bastard toadflax	F	BS
SCROPHULARIACEAE			
Penstemon sp.	Penstemon	F	PJ
SOLANCACEAE			
Lycium pallidum	Pale wolfberry	S	W



QUADRAT LOCATIONS IN THE MILFORD PREFERRED OBTS

FIGURE 5-1

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The only tree recorded on any releve quadrat in the study area was juniper (Juniperus osteosperma). It was present in all associations except the black sagebrush association, and it was the dominant species in the pinyon-juniper association. The big sagebrush association contained the highest number of species recorded. All associations contained an average of 40 percent or less vegetative cover. The black sagebrush association had the least amount of vegetative cover (17.4 percent) and the lowest number of species (13). Cacti in the survey area included prickly pear (Opuntia polycantha) in all associations except pinyon-juniper, and Whipple cholla (Opuntia whipplei) in big sagebrush and perennial grassland associations.

5.1.2 Overview of Wildlife

Wildlife observations from the Milford Preferred OBTS study area are summarized in Table 5.3, and area-specific data are contained in Appendix F.

Since wildlife are mobile, and the releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas surrounding a group of releve quadrats. Locations of these areas are shown in Figure 5.2.

Twelve species of mammals or mammal sign, 31 species of birds, and 9 species of reptiles were observed during the survey. Black-tailed jackrabbits (Lepus californicus) were the most commonly observed mammal species. An unidentified species of bat was also observed. Mule deer (Odocoileus hemionus) and pronghorn antelope (Antilocapra americana) sign were found

TABLE 5-3

WILDLIFE SIGN AND SIGHTINGS ON THE MILFORD PREFERRED OBTS

Species	Habitat Observed					
	BS	BLS	PG	PJ	W	D
MAMMALS						
Vespertilionid bat (Family Vespertilionidae)	X					
Blacktailed jackrabbit (Lepus californicus)	X	X	X	X	X	X
Desert cottontail (Sylvilagus audubonii)	X					X
White-tail antelope ground squirrel (Ammospermophilus leucurus)	X					
Little pocket mouse (Perognathus longimembris)						
Long-tailed pocket mouse (Perognathus formosus)						
Deer mouse (Peromyscus maniculatus)						
Northern grasshopper mouse (Onychomys leucogaster)	X					
Woodrat (Neotoma sp.)						
Coyote (Canis latrans)						
Bobcat (Felis rufus)						
Mule deer (Odocoileus hemionus)			X	X		
Pronghorn antelope (Antilocapra americana)	X		X			
BIRDS						
Sharp-skinned hawk (Accipiter striatus)	X					
Red-tailed hawk (Buteo jamaicensis)	X	X		X		
Swainson's hawk (Buteo swainsoni)	X					
Golden eagle (Aquila chrysaetos)	X					
Bald eagle (Haliaeetus leucocephalus)	X					

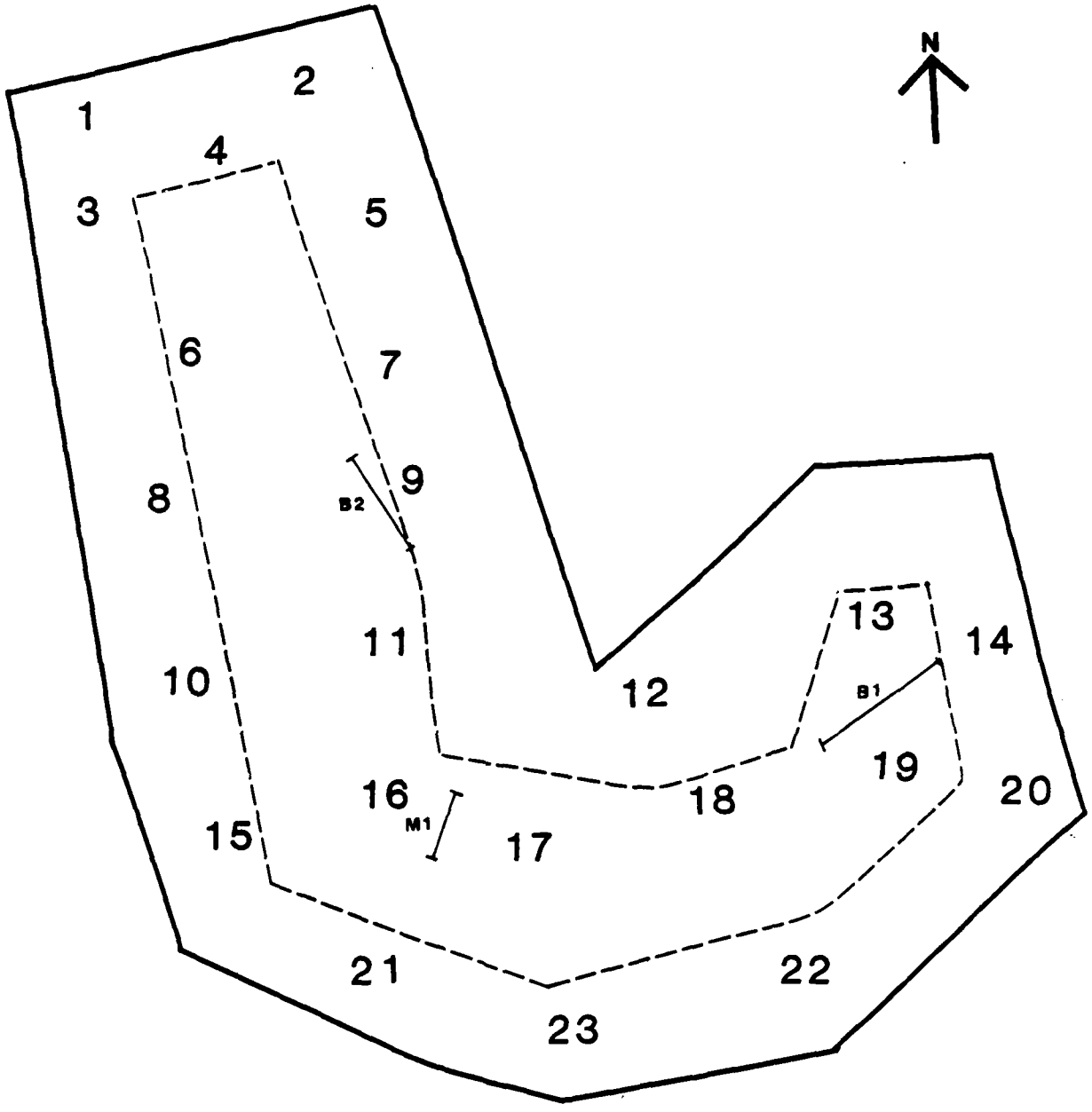
BS = Big sagebrush; BLS = Black sagebrush; PG = perennial grassland; PJ = Pinyon-Juniper; W = Wash; D = Disturbed area.

TABLE 5-3 (Cont.)

Species	Habitat Observed BS	BLS	PG	PJ	W	D
BIRDS (Cont.)						
Northern harrier (*Circus cyaneus*)	X					
Prairie falcon (*Falco mexicanus*)						
American kestrel (*Falco sparverius*)	X	X		X		
Mourning dove (*Zenaida macroura*)	X			X		
Barn owl (*Lyto alba*)						X
Great-horned owl (*Bubo virginianus*)						
Burrowing owl (*Athene cunicularia*)	X				X	
Poor-will (*Phalaenoptilus nuttallii*)						
Common nighthawk (*Chordeiles minor*)						
Broad-tailed hummingbird (*Selasphorus platycercus*)	X					
Horned lark (*Eremophila alpestris*)	X		X			
Say's phoebe (*Sayornis saya*)	X					
Scrub jay (*Aphelocoma coerulescens*)				X		
Common raven (*Corvus corax*)	X					
Pinyon jay (*Gymnorhinus cyanocephalus*)	X	X		X		
Plain titmouse (*Parus inornatus*)	X	X		X		
Bushtit (*Psaltriparus minimus*)	X	X		X		
Bewick's wren (*Thryomanes bewicki*)						
Sage thrasher (*Oreoscaptes montanus*)	X				X	
Loggerhead shrike (*Lanius ludovicianus*)	X					
Western meadowlark (*Sturnella neglecta*)	X		X		X	

TABLE 5-3 (Cont.)

Species	Habitat Observed					
	BS	BLS	PG	PJ	W	D
BIRDS (Cont.)						
Vesper sparrow (*Poecetes gramineus*	X		X			
Lark sparrow (*Chondestes grammacus*)					X	
Black-throated sparrow (*Amphispiza bilineata*)						
Sage sparrow (*Amphispiza belli*)	X		X		X	
Brewer's sparrow (*Spizella breweri*)	X		X			
REPTILES						
Desert horned lizard (*Phrynosoma platyrhinos*)	X					
Short-horned lizard (*Phrynosoma douglassi*)						
Leopard lizard (*Crotaphytus wislizenii*)	X					
Plateau whiptail (*Cnemidophorous velox*)	X			X		
Side-blotched lizard (*Uta stansburiana*)	X					
Sagebrush lizard (*Sceloporus graciosus*)	X					
Western fence lizard (*Sceloporus occidentalis*)	X			X		
Western whiptail (*Cnemidophorous tigris*)						
Gopher snake (*Pituophis melanoleucus*)	X					



KEY
M=Mammal transect
B=Bird transect

WILDLIFE OBSERVATION AREAS IN THE MILFORD PREFERRED OBTS

FIGURE 5-2

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during the survey. Several raptors were observed during the surveys, including the bald eagle (Haliaeetus leucocephalus), golden eagle (Aquila chrysaetos), prairie falcon (Falco mexicanus), and burrowing owl (Athene cunicularia). The most common birds observed were Brewer's sparrows (Spizella breweri) and sage sparrows (Amphispiza belli).

Several lizard species were observed; the most common were side-blotched lizards (Uta stansburiana). Gopher snakes (Pituophis melanoleucus) were observed on two sites.

Evidence of cattle grazing was present on most sites.

5.1.3 Species of Concern

No threatened or endangered mammals or reptiles were observed in the Milford Preferred OBTS survey area, although mule deer and antelope sign indicated the presence of these protected game species.

Most birds in the area have protected status under special law such as the Bald Eagle Act or Migratory Bird Treaty Act. A large number of species were observed, including several raptors, which are generally considered to be of concern to the state. These included the bald eagle (Haliaeetus leucocephalus) and golden eagle (Aquila chrysaetos), both protected by the Bald Eagle Act. The bald eagle is listed as endangered in the Federal Register (1980b).

No threatened or endangered plants were observed in the study area. Cacti are generally considered species of concern, and several species were observed during the survey, including Opuntia whipplei, but it is not believed to be the variety listed as Currently Under Review in the Federal Register (1980a).

5.2 MILFORD ALTERNATE OBTS

The biological survey of the Beryl and Milford OBTS sites and adjacent DTN segments was undertaken from August 17 through September 29, 1981. Approximately 3000 acres of test site and a buffer zone approximately one mile in width outside of the site perimeter were sampled on the Milford Alternate Site. A total of 106 releve quadrats for vegetation, 3 small mammal trapping transects, 3 bird census transects, and wildlife observations were made within the area. Results of the survey are discussed below.

5.2.1 Overview of Vegetation

Six major vegetation associations were observed in the alternate Milford site. Of the 106 quadrats sampled there were 6 in pinyon-juniper (Pinus-Juniperus) associations, 62 in big sagebrush (Artemisia tridentata), 4 in sand sagebrush (Artemisia filifolia), 11 in black sagebrush (Artemisia nova), 5 in greasewood-saltbush (Sarcobatus-Atriplex) and 13 in wash areas. Data were also compiled for areas heavily disturbed by human activity. Vegetative data are given by site in Appendix E. Table 5-4 contrasts the associations and Table 5-5 lists the species observed. Figure 5-3 shows quadrat locations.

The big sagebrush association appeared to support the largest number of species (32), but this may have been merely a function of the larger number of releves made within this association. As expected, disturbed areas such as roadsides, stockponds and corrals, supported a lower number of species (15) than other areas.

The pinyon-juniper association had the highest amount of vegetative cover (49.9 percent), and the sand sagebrush association had the lowest (16.1 percent).

TABLE 5-4

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE MILFORD ALTERNATE OBTS*

Association Number of Quadrats	Pinyon-Juniper 6		Black Sagebrush 11		Big sagebrush 62		Sand Sagebrush 4		Greasewood-Saltbrush 5		Wash Areas 13		Disturbed Areas 5	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	1	31.8	—	—	—	—	—	—	—	—	1	0.P	—	—
Shrubs/succulents	6	11.3	10	24.2	11	21.4	6	15.8	7	28.8	9	20.3	6	7.0
Forbs	6	0	5	0	11	0.2	7	0.3	5	0	9	0	4	6.0
Grasses	8	6.8	7	1.6	10	3.7	4	0	5	1.6	5	4.3	5	13.6
Total Vegetative Cover	21	49.9	22	25.8	32	25.3	17	16.1	17	31.6	24	25.4	15	26.€
Bare Ground	—	6.7	—	2.5	—	11.7	—	45.5	—	43.6	—	20.3	—	26.6
Rock/Gravel	—	31.5	—	67.9	—	51.4	—	26.3	—	19.6	—	45.5	—	37.8
Litter	—	28.3	—	2.6	—	8.1	—	11.8	—	5.0	—	8.5	—	8.8

* Based upon 106 releve quadrats in the area.

TABLE 5-5

PLANT SPECIES OBSERVED ON THE MILFORD ALTERNATE OBTS

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AMARANTHACACEAE			
Amaranthus graecizans	Pigweed	F	D
ASTERACEAE			
Ambrosia acanthicarpa	Ragweed	F	D,SaS
Artemisia filifolia	Sand sagebrush	S	SaS
Artemisia nova	Black sagebrush	S	BLS,PJ
Artemisia pygmaea	Pygmy sagebrush	S	BS
Artemisia spinescens	Spiny sagebrush	S	GS
Artemisia tridentata	Big sagebrush	S	BS,PJ,GS, W
Brickellia oblongifolia	Brickellbush	S	W
Chaenactis douglasii	Douglas chaenactis	F	PJ,BS
Chrysothamnus greenei	Greene's rabbitbrush	S	BS,BLS,GS, SaS
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BS,BLS W

1 T = Tree; S = Shrub/Succulent; F = Forb; G = Grass; Gl = Grasslike.

2 PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; SS = Shadscale-sagebrush; GS = Greasewood-saltbush; SaS = Sand sagebrush, W = Wash; D = Disturbed area.

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Gutierrezia sarothrae	Snakeweed	S	PJ,BS,BLS, GS,SaS,W
Haplopappus acaulis	Haplopappus	S	PJ,BS
Hymenopappus filifolius	Hymenopappus	F	SaS,
Machaeranthera canescens	Aster	F	PJ,BS,BLS, SaS,W
Senecio multilobatus	Butterweed	F	PJ,BS,
Stephanomeria exigua	Wire lettuce	F	BS,W
Tetradymia spinosa	Spiny horsebrush	S	GS
Townsendia florifer	Easter daisy	F	BS
Townsendia incana	Easter daisy	F	BS
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,PJ
BRASSICACEAE			
Arabis sp.	Rockress	F	BS
Descurainia pinnata	Tansy mustard	F	BS,BLS,GS SaS
Descurainia sophia	Tansy mustard	F	BS,GS
Lepidium montanum	Montana pepperweed	S	GS
Lepidium perfoliatum	Clasping pepperweed	F	D
Sisymbrium altissimum	Tumble mustard	F	BS,D
Streptanthella longirostris	Streptanthella	F	BS,SaS,GS
Streptanthella cordatus	Twist flower	F	PJ,BS

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
CACTACEAE			
Coryphantha vivipara	Coryphantha	S	PJ,BS
Echinocereus triglochidiatus	Hedgehog cactus	S	PJ
Opuntia polycantha	Prickly pear	S	PJ,BS,BLS, GS,SaS,W
Opuntia sp.	Opuntia	S	BS
CAPPARIDACEAE			
Cleome lutea	Yellow beeplant	F	W,D
Cleome serrulata	Rocky Mountain beeplant	F	BS,W,D
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	GS,W
Atriplex confertifolia	Shadscale	S	GS
Ceratoides lanata	Winterfat	S	BS,BLS,GS
Grayia spinosa	Spiny hopsage	S	GS
Halogeton glomeratus	Halogeton	F	BS,GS,SS,D
Salsola iberica	Russian thistle	F	BS,GS,D
Sarcobatus vermiculatus	Greasewood	S	GS,W
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,W

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	PJ,BS,BLS
Ephedra viridis	Mormon tea	S	PJ
EUPHORBIACEAE			
Euphorbia glyptosperma	Spurge	F	PJ,W
Euphorbia sp.	Spurge	F	PJ,W
FABACEAE			
Astragalus lentiginosus	Milkvetch	F	PJ,BS,BLS, SaS
Astragalus sp.	Milkvetch	F	BS
LAMIACEAE			
Marrubium vulgare	Common horehound	F	D
LINACEAE			
Linum perenne	Flax	F	BS,W
MALVACEAE			
Sphaeralcea coccinea	Scarlet globemallow	F	BS
Sphaeralcea sp.	Globemallow	F	BS
NYCTAGINACEAE			
Abronia fragrans	Sand verbena	F	W,SaS
Oxybaphus linearis	Oxybaphus	F	BS

TABLE 5-5 (Cont.)

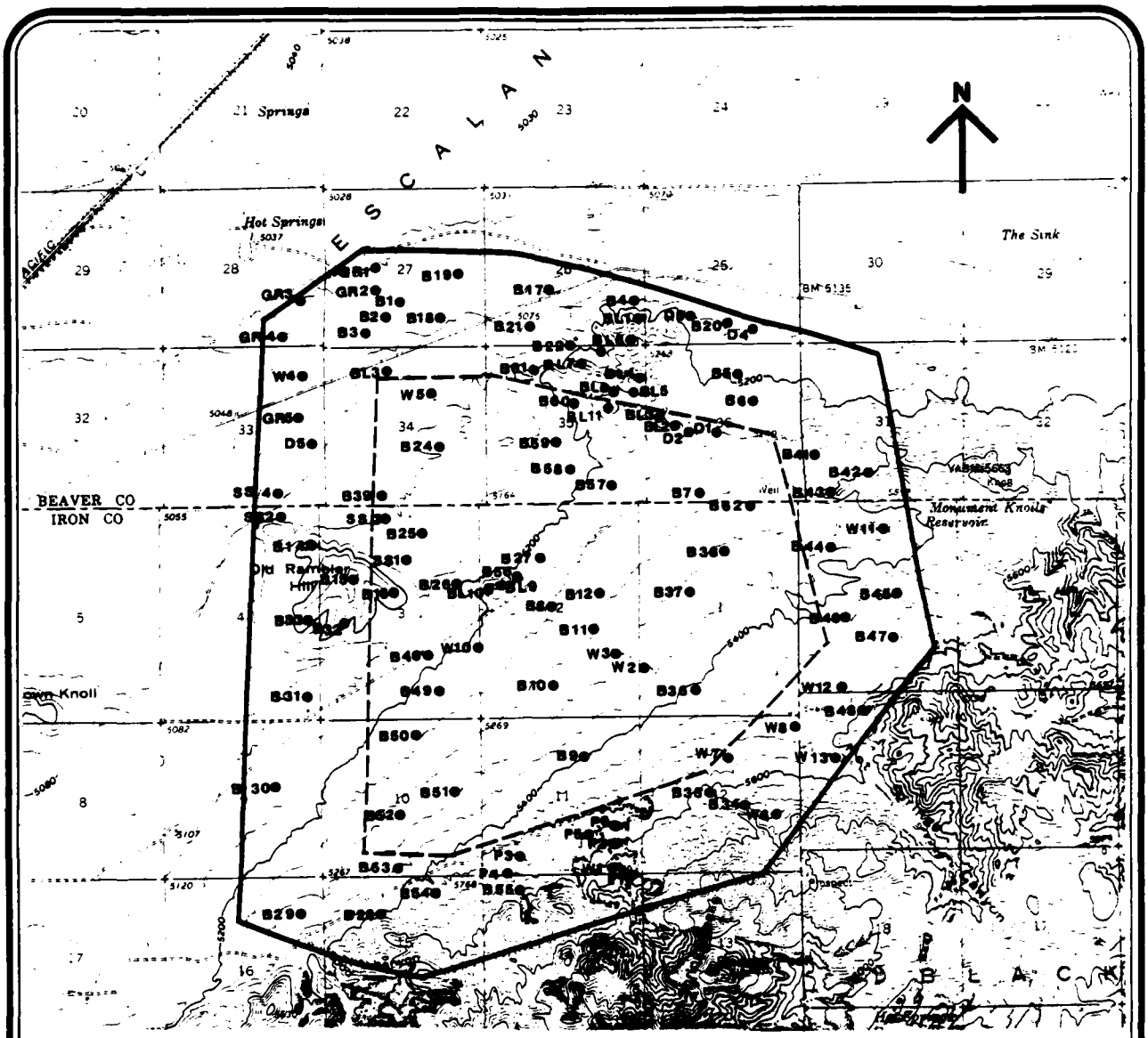
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
ONAGRACEAE			
Oenothera deltoides	Evening primrose	S	BS
Oenothera pallida	Evening primrose	F	SaS
Oenothera trichocalyx	Evening primrose	F	BS,SaS
Oenothera sp.	Evening primrose	F	PJ,BS,BLS, SaS
PAPAVERACEAE			
Argemone munita	Prickly poppy	F	D
PINACEAE			
Pinus monophylla	Pinyon pine	T	PJ
PLANTAGINACEAE			
Plantago insularis	Desert plantain	F	BS
Plantago sp.	Plantain	F	PJ,BS
POACEAE			
Agropyron smithii	Western wheatgrass	G	GS,W
Agropyron spicatum	Bluebunch wheatgrass	G	BIS
Agropyron sp.	Wheatgrass	G	BS
Aristida purpurea	Purple threeawn	G	PJ,BS,BLS, W
Bromus tectorum	Cheatgrass	G	PJ,BS,BLS GS,SaS,W,D

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Festuca octoflora	Six-weeks fescue	G	PJ,BS,BLS
Hilaria jamesii	Galleta grass	G	PJ,BS,BLS GS
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS, GS,Sas
Poa sandbergii	Sandberg bluegrass	G	BS,BIS
Sitanion hystrix	bottlebrush squirreltail	G	PJ,BS,BLS, GS,SaS,W
Sporobolus airoides	Alkali sacaton	G	GS
Sporobolus cryptandrus	Sand dropseed	G	PJ,BS,SaS
Stipa comata	Needle-and-thread	G	PJ,BS,SaS SaS
POLEMONIACEAE			
Gilia sp.	Gilia	F	PJ,BS,BLS
Leptodactylon pungens	Prickleygilia	S	PJ,BLS,BS
POLYGONACEAE			
Eriogonum cernuum	Nodding eriogonum	F	PJ,BS
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BS,BLS
Eriogonum ovalifolium	Cushion eriogonum	F	PJ,BS,BLS
Polygonum aviculare	Knotweed	F	D
ROSACEAE			
Cowania mexicana	Cliffrose	S	PJ,W

TABLE 5-5 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
SANTALACEAE			
Comandra umbellata	Bastard toadflax	F	PJ,BS
SCROPHULARIACEAE			
Penstemon palmeri	Palmer beardtongue	F	W
Penstemon sp.	Penstemon	F	PJ,BS,
SOLANACEAE			
Nicotiana attenuata	Coyote Tobacco	F	W,D



KEY
B=Big Sagebrush
GR=Greasewood-Saltbush
SS=Sand Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
D=Disturbed

QUADRAT LOCATIONS IN THE MILFORD ALTERNATE OBTS

FIGURE 5-3

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The pinyon-juniper association contained the only tree species (Juniperus osteosperma) observed in any quadrat, although pinyon pine was observed elsewhere in the area.

5.2.2 Overview of Wildlife

Wildlife observations for the Milford alternate OBTS are summarized by vegetative association in Table 5-6, and area specific data are contained in Appendix F.

Since wildlife are mobile, and the releve quadrats were fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on specific composition. Observations were therefore made over a larger area, surrounding a group of releve quadrats. Location of these areas is shown in Figure 5-4.

Thirteen species of mammals and mammal sign, 25 species of birds, and 7 species of reptiles were observed during the survey. The most common species of mammal was the blacktailed jackrabbit, observed in nearly every area. Coyote scat, feral horse sign, white-tailed antelope ground squirrel, desert cottontail, and inactive badger dens were also noted. Many additional rodent species were noted from the trapping transects (Appendix A). Disturbance by domestic cattle was observed in all areas but one.

Many raptors were noted, including golden eagles, red-tailed hawks and northern harriers, but the most common bird species were sage and Brewer's sparrows and horned larks. All reptiles observed were lizards common to the area.

TABLE 5-6

WILDLIFE SIGN AND SIGHTINGS ON THE MILFORD ALTERNATE OBTS

Species	Habitats Where Observed BS	GS	BLS	PJ	W
MAMMALS					
Blacktail jackrabbit (*Lepus californicus*)	X	X	X	X	
Desert cottontail (*Sylvilagus audubonii*)	X	X			
White-tail antelope ground squirrel (*Ammospermophilus leucurus*)	X				
Little pocket mouse (*Perognathus longimembris*)	X				
Great Basin pocket mouse (*Perognathus parvus*)	X				
Dark kangaroo mouse (*Microdipodops megacephalus*)	X				
Ord kangaroo rat (*Dipodomys ordii*)	X				
Northern grasshopper mouse (*Onychomys leucogaster*)	X				
Deer mouse (*Peromyscus maniculatus*)	X				
Desert woodrat (*Neotoma lepida*)	X				
Western harvest mouse (*Reithrodontomys megalotis*)	X				
Coyote (*Canis latrans*)	X	X	X	X	
Feral Horse (*Equus caballus*)					
BIRDS					
Red-tailed hawk (*Buteo jamaicensis*)	X			X	
Golden eagle (*Aquila chrysaetos*)	X	X	X	X	
Northern harrier (*Circus cyaneus*)	X				

BS = Big Sage; GS = Greasewood-Saltbush, BLS = Black Sage, PJ = Pinyon-Juniper; W = Wash.

TABLE 5-6 (Cont.)

Species	Habitats Where Observed BS	GS	BLS	PJ	W
BIRDS (Cont.)					
Prairie falcon (*Falco mexicanus*)	X	X			
American kestrel (*Falco sparverius*)	X		X	X	
Sage grouse (*Centrocercus urophasianus*)	X				
Mourning dove (*Zenaida macroura*)	X			X	X
Great horned owl (*Bubo virginianus*)				X	
Burrowing owl (*Athene cunicularia*)	X	X			
Short-eared owl (*Asio flammeus*)				X	
Common flicker (*Colaptes auratus*)					
Horned lark (*Eremophila alpestris*)	X	X	X		
Common raven (*Corvus corax*)	X				
Rock wren (*Salpinctes obsoletus*)	X		X		
Mockingbird (*Mimus polyglottos*)				X	
Bewick's wren (*Thryomanes bewickii*)				X	
Plain titmouse (*Parus inornatus*)	X			X	
Common bushtit (*Psaltriparus minimus*)				X	
Loggerhead shrike (*Lanius ludovicianus*)	X				
Western meadow lark (*Sturnella neglecta*)	X				
Vesper sparrow (*Pooecetes gramineus*)	X		X		
Sage sparrow (*Amphispiza belli*)	X	X	X	X	

TABLE 5-6 (Cont.)

Species	Habitats Where Observed BS	GS	BLS	PJ	W
BIRDS (Cont.)					
Brewer's sparrow (*Spizella breweri*)	X		X	X	
White-crowned sparrow (*Zonotrichia leucophrys*)	X			X	
Unidentified sparrow	X			X	
REPTILES					
Desert horned lizard (*Phrynosoma platyrhinos*)	X			X	
Leopard lizard (*Crotaphytus wislizenii*)	X			X	
Plateau whiptail (*Cnemidophorous velox*)					
Great Basin Whiptail (*Cnemidophorus tigris tigris*)					
Side-blotched lizard (*Uta stansburiana*)	X	X	X	X	
Western fence lizard (*Sceloporus occidentalis*)				X	
Sagebrush lizard (*Sceloporus graciosus*)	X				

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MX SITING INVESTIGATION. DTN/OBTS FIELD SURVEYS. VOLUME III. BI--ETC(U)
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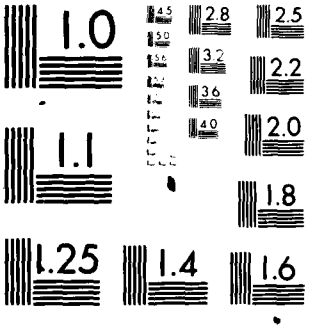

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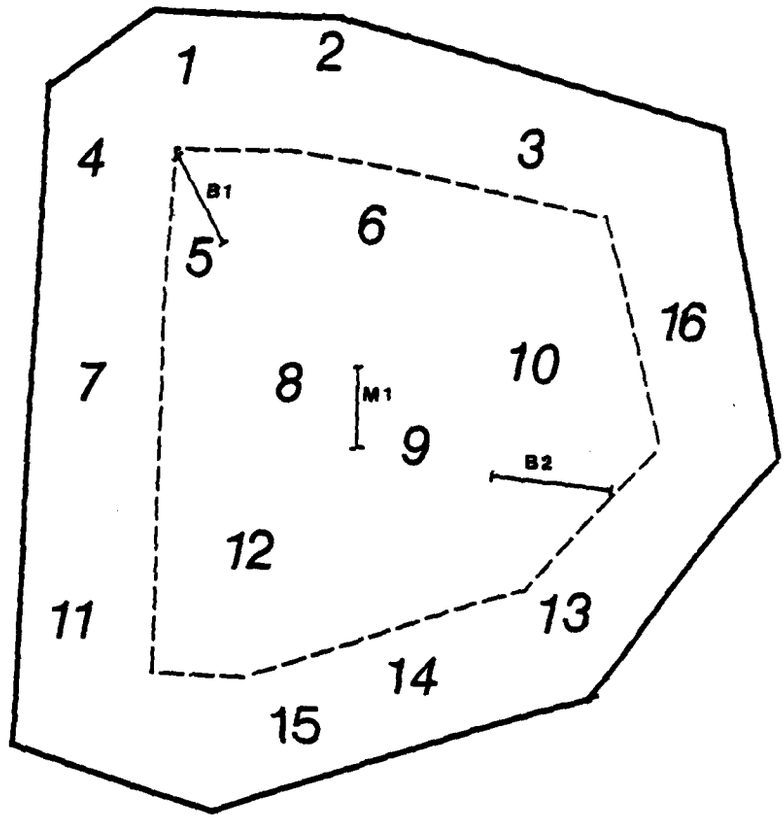

KEY
M=Mammal transect
B=Bird transect

WILDLIFE OBSERVATION AREAS IN THE MILFORD ALTERNATE OBTS

FIGURE 5-4

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5.2.3 Species of Concern

Plant species of concern in the study area included scattered individuals of *Coryphantha vivipara* var. *rosea*, a cactus species listed in the *Federal Register* (1980a) as Currently Under Review. This species was observed within the study area, but was not found within the releve quadrats.

Most birds in the area have protected species status either by special law, such as the Bald Eagle Act, the Migratory Bird Treaty Act, or similar legislation. A number of bird species were observed, including raptor species, which are generally of concern to the state. However, no species of wildlife listed in the *Federal Register* (1980b) as threatened or endangered were observed within the study area.

5.3 BERYL PREFERRED OBTS

The biological survey of the Beryl Preferred OBTS site and adjacent DTN areas was undertaken from August 17 through September 29, 1981. Approximately 6500 acres of test site and a buffer zone approximately one mile in width outside of the site perimeter were sampled. Relevé quadrats for vegetation, 6 small mammal trapping transects, 3 bird census transects, and wildlife observations were made within the OBTS. Results of the survey are discussed below.

5.3.1 Overview of Vegetation

Five major vegetation associations were observed on the Beryl preferred OBTS site. Of the 92 vegetation quadrats, there were 30 in a pinyon-juniper (*Pinus monophylla-Juniperus osteosperma*) association, 11 in a black sagebrush (*Artemisia nova*) association, 31 in a big sagebrush (*Artemisia tridentata*) association, 11 in a big sagebrush-crested wheatgrass (*Artemisia tridentata-Agropyron cristatum*) association, and 9 in wash areas. Vegetative data are given by site in Appendix E. Table 5-7 contrasts the associations, and Table 5-8 lists the plant species observed. Figure 5-5 shows the quadrat locations.

The pinyon-juniper association had the greatest amount of vegetative cover (45.2 percent) and the largest number of plant species (51). The big sagebrush-crested wheatgrass association had the lowest amount of vegetative cover (24.4 percent), and the second lowest number of plant species (30). The wash areas had the lowest total number of plant species (22) with moderate (37.3 percent) cover. The pricklypear cactus (*Opuntia polycantha*) was found in all vegetation associations. Pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) were found in all associations except the wash association.

TABLE 5-7

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ON THE BERYL PREFERRED OBTS*

Association Number of Quadrats	Pinyon-Juniper 30		Black Sagebrush 11		Big sagebrush 31		Big sagebrush-crested wheat-grass (11)		Wash Areas 9	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	2	29.6	2	1.7	2	1.3	2	0.9	0	0.0
Shrubs/succulents	17	10.6	8	24.5	14	17.5	9	10.1	7	31.4
Forbs	23	0.7	15	1.1	20	0.5	12	0.4	9	0.0
Grasses	9	3.4	8	0.4	8	7.9	7	12.8	6	5.2
Total Vegetative Cover	51	45.2	33	35.2	44	28.2	30	24.4	22	37.3
Bare Ground	—	21.9	—	23.9	—	22.1	—	31.3	—	35.4
Rock/Gravel	—	30.2	—	23.9	—	32.8	—	24.9	—	11.2
Litter	—	25.4	—	9.2	—	16.5	—	19.4	—	15.9

* Based upon 92 releve quadrats for the site.

TABLE 5-8

PLANT SPECIES OBSERVED ON THE BERYL PREFERRED OBTS

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AMARANTHACEAE			
Amaranthus graecizans	Pigweed	F	D
ASTERACEAE			
Ambrosia acanthicarpa	Ragweed	F	D
Artemisia frigida	Fringed sagewort	S	W
Artemisia nova	Black sagebrush	S	BLS,PJ
Artemisia tridentata	Big sagebrush	S	BS,PJ,W
Chaenactis douglasii	Douglas chaenactis	F	PJ,BLS,BS
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BLS,BS W
Erigeron sp.	Fleabane	F	PJ,BLS,BS
Gutierrezia sarothrae	Snakeweed	S	PJ,BLS,BS, W,D
Haplopappus spinulosus	Haplopappus	F	BLS,BS
Leucelene ericoides	Leucelene	F	PJ,BLS,BS
Lygodesmia spinosa	Thorn skeletonweed	S	PJ,BLS,BS
Machaeranthera canescens	Aster	F	PJ,BLS,BS, W

1 T = Tree; S = Shrub or Succulent; F = Forb; G = Grass.

2 PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; W = Wash; D = Disturbed area.

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Senecio multilobatus	Butterweed	F	PJ,BLS,BS
Stephanomeria exigua	Wire lettuce	F	BLS,BS,W
Stephanomeria pauciflora	Wire lettuce	S	BS
Stephanomeria sp.	Wire lettuce	F	BS,BLS,W
Tetradymia nuttalii	Nuttall horse-brush	S	BS
Townsendia incana	Easter daisy	F	BS
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,BLS,PJ, W
Lappula sp.	Stickseed	F	BS,BLS,PJ
BRASSICACEAE			
Arabis sp.	Rockcress	F	PJ,BS,BLS
Descurainia pinnata	Tansy mustard	F	BS,BLS,W
Descurainia sp.	Tansy mustard	F	BS,BLS
Physaria chambersii	Twinpod	F	PJ, BLS,W
Sisymbrium altissimum	Tumble mustard	F	D
Streptanthella longirostris	Streptanthella	F	BS,BLS
Streptanthella cordatus	Twist flower	F	PJ
CACTACEAE			
Coryphantha vivipara var. *rosea*	Coryphantha	S	PJ, BLS

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Opuntia polycantha	Prickly pear	S	PJ,BS,BLS, W,D
Opuntia sp.	Opuntia	S	BS,W
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	BS
Ceratoides lanata	Winterfat	S	BS,BLS
Salsola iberica	Russian thistle	F	D
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,W
FABACEAE			
Astragalus lentiginosus	Milkvetch	F	BS,BLS
Astralagus spp.	Milkvetch	F	PJ,BS,BLS
Lupinus hillii	Lupine	F	BS,W
Lupinus sp.	Lupine	F	PJ,BS,BLS, W
LAMIACEAE			
Marrubium vulgare	Common horehound	F	D
MALVACEAE			
Sphaeralcea coccinea	Scarlet globemallow		BS,BLS
Sphaeralcea sp.	Globemallow		PJ,BS,BLS, W

TABLE 5-8 (Cont.)

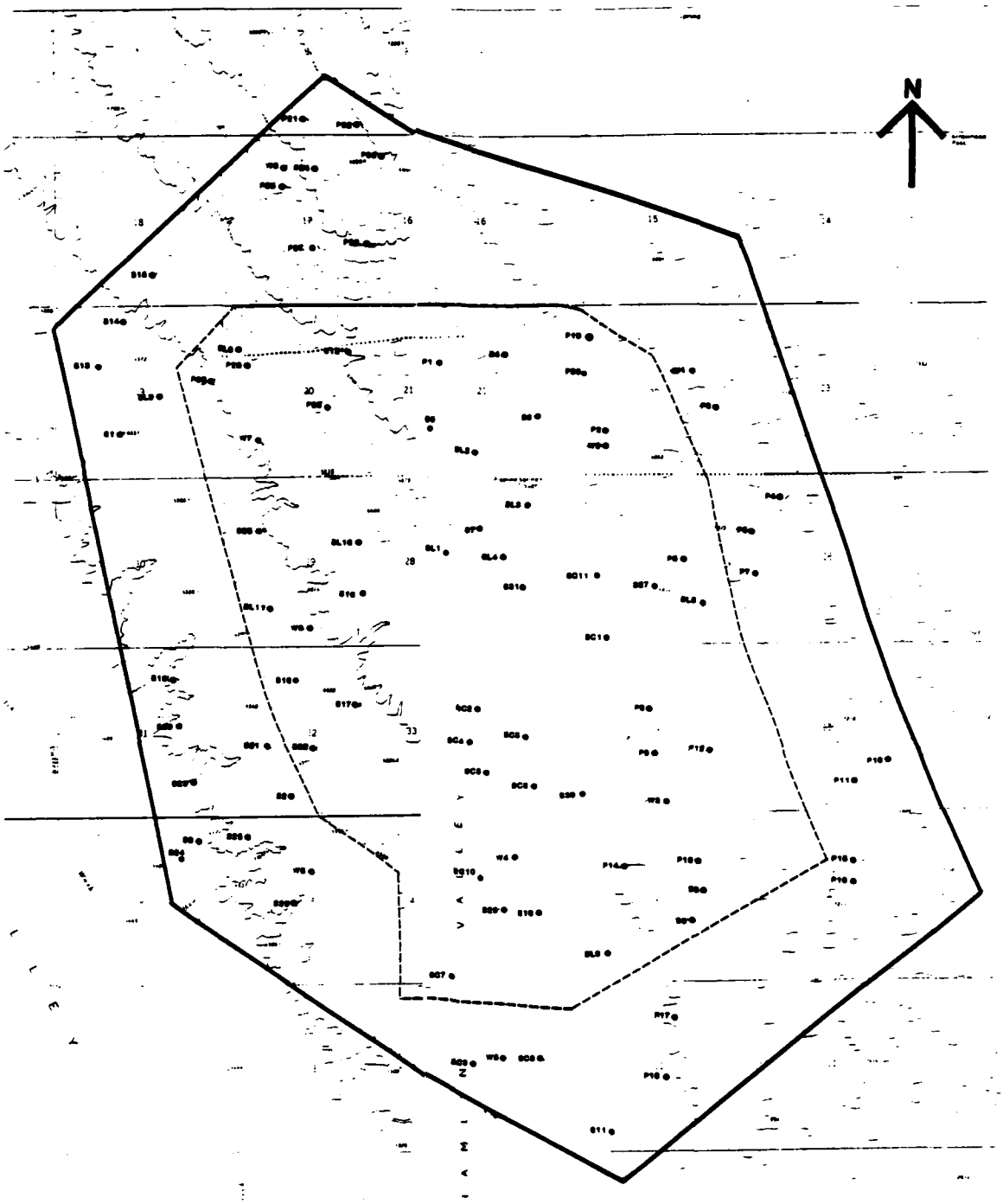
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
ONAGRACEAE			
Oenothera sp.	Evening primrose	F	PJ,BS
OROBANCHACEAE			
Orobanche sp.	Broomrape	F	BS,W
PINACEAE			
Pinus monophylla	Pinyon pine	T	PJ,W
POACEAE			
Agropyron cristatum	Crested wheatgrass	G	BS,D
Agropyron smithii	Western wheatgrass	G	BS,W
Aristida purpurea	Purple threeawn	G	PJ,BS,BLS, D
Bouteloua gracilis	Blue grama	G	BS,BLS
Bromus tectorum	Cheatgrass	G	D
Elymus sp.	Ryegrass	G	W
Hordeum jubatum	Foxtail barley	G	PJ,D
Koeleria cristata	Prairie junegrass	G	BS
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS
Sitanion hystrix	Bottlebrush squirreltail	G	PJ,BS,BLS, W
Sporobolus sp.	Dropseed	G	PJ,BS,BLS
Stipa comata	Needle-and-thread	G	BS,BLS
Stipa lettermani	Letterman needlegrass	G	PJ,BS

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
POLEMONIACEAE			
Gilia sp.	Gilia	F	BS
Ipomopsis congesta	Ballhead gilia	F	PJ,BS,BLS
Leptodactylon pungens	Pricklygilia	S	PJ,BS,BLS
Leptodactylon sp.	pricklygilia	S	BS
Phlox sp.	Phlox	F	BS,BLS
POLYGONACEAE			
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BLS,BS, W
Eriogonum umbellatum	Sulfur eriogonum	F	PJ,BLS
Eriogonum sp.	Eriogonum	F	PJ,BLS,BS
PORTULACACEAE			
Portulaca oleracea	Purslane	F	W
POTAMOGETONACEAE			
Potamogeton sp.	Water weed	F	D
ROSACEAE			
Cowania mexicana	Cliffrose	S	PJ,W
Purshia tridentata	Bitterbrush	S	PJ
SANTALACEAE			
Comandra umbellata	Bastard toadflax	F	BS

TABLE 5-8 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
SCROPHULARIACEAE			
Cordylanthus parviflorus	Bird's beak	F	PJ
Cordylanthus racemosus	Bird's beak	F	BS
Penstemon sp.	Penstemon	F	PJ,BS,BLS, W
Unknown Scrophulariaceae		F	PJ
TYPHACEAE			
Typha latifolia	Cattail	F	D



KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
BC=Big Sagebrush-
Crested Wheatgrass
W=Wash

QUADRAT LOCATIONS IN THE BERYL
PREFERRED OBTS

FIGURE 5-5

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5.3.2 Overview of Wildlife

Wildlife observations from the Beryl preferred OBTS study area are listed in Table 5-9, and area-specific data are contained in Appendix F. Since wildlife are mobile, and releve quadrats are fairly small, observations obtained only from the releves would not have provided sufficient data on species composition. Observations were therefore made over larger areas, which contained a group of releve quadrats. Locations of these areas are shown in Figure 5-6.

Twelve species of mammals or mammal sign, 36 species of birds, and 5 species of reptiles were observed during the surveys. The commonest mammal observed was the black-tailed jackrabbit (*Lepus californicus*). Pronghorn antelope (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) sign were observed within the study area. Two bobcats (*Lynx rufus*) and fox (*Vulpes* sp.) tracks were observed during the August survey, and bobcat and coyote (*Canis latrans*) tracks were observed during the September survey.

The bird species observed were diverse. Raptors included goshawks (*Accipiter gentilis*), Cooper's hawks (*Accipiter cooperii*), sharp-shinned hawks (*Accipiter striatus*), and golden eagles (*Aquila chrysaetos*).

Several lizard species were observed; the side-blotched lizard (*Uta stansburiana*) was the most frequently noted.

TABLE 5-9

WILDLIFE SIGN AND SIGHTINGS ON THE BERYL PREFERRED OBTS

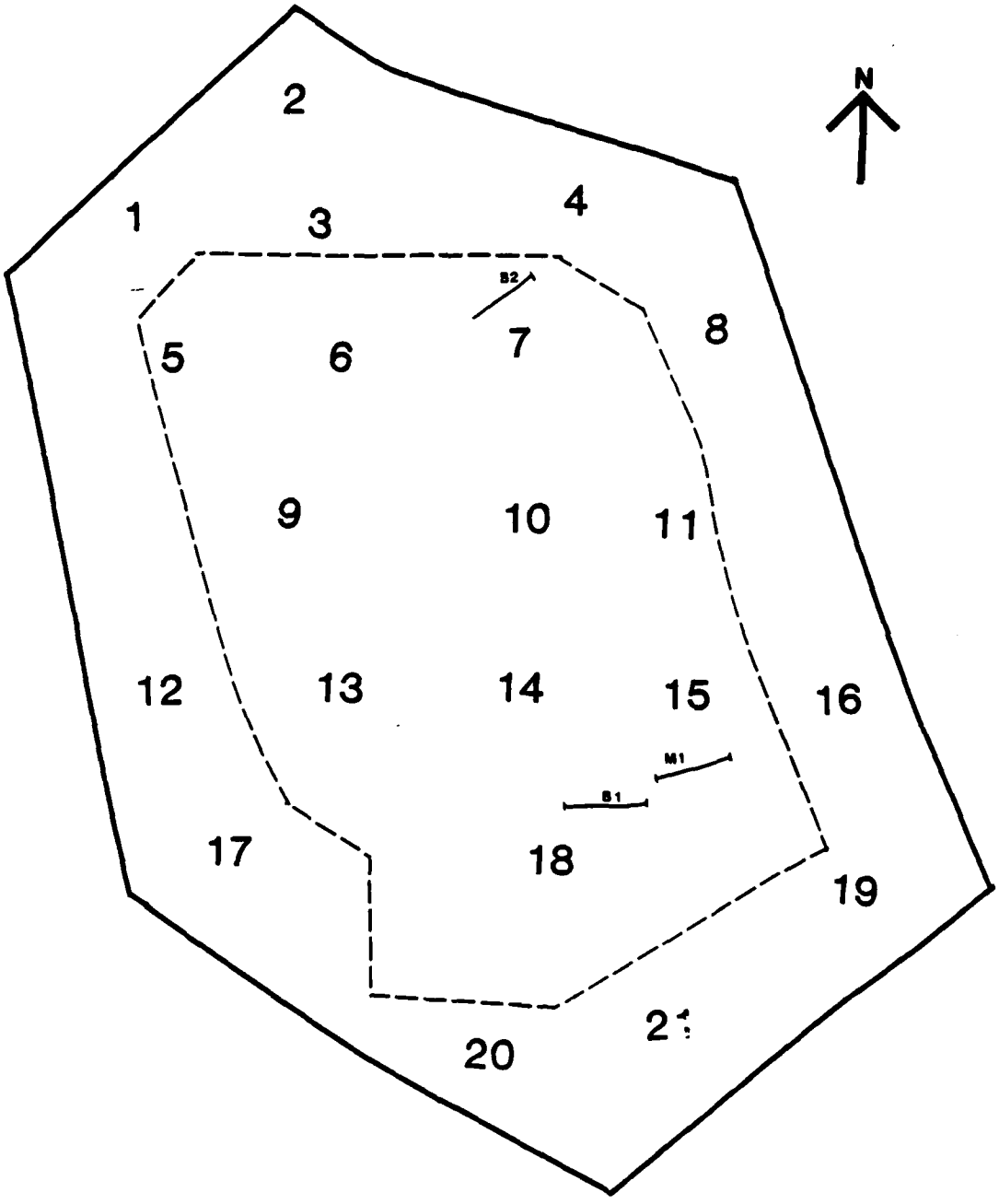
Species	Habitat Observed BS	BLS	BC	PJ
Mammals				
Black-tailed jackrabbit (*Lepus californicus*)	X	X	X	X
Desert cottontail (*Sylvilagus audubonii*)		X		
Rock squirrel (*Spermophilus variegatus*)				X
Least chipmunk (*Eutamias minimus*)	X		X	
Cliff chipmunk (*Eutamias dorsalis*)			X	X
White-tailed antelope squirrel (*Ammospermophilus leucurus*)			X	
Great Basin pocket mouse (*Perognathus parvus*)[a]				
Pinyon mouse (*Peromyscus truei*)				
Deer mouse (*Peromyscus maniculatus*)[a]				
Sagebrush vole (*Lagurus curtatus*)[a]				
Coyote (*Canis latrans*)	X		X	X
Bobcat (*Lynx rufus*)			X	X
Mule deer (*Odocoileus hemionus*)			X	X
Pronghorn antelope (*Antilocapra americana*)	X	X	X	X
Feral horse (*Equus caballus*)			X?	X
Badger (*Taxidea taxus*)				X
Fox (*Vulpes* sp.)				X
Gopher (Unidentified burrow)	X			
Birds				
Goshawk (*Accipiter gentilis*)				X
Sharp-shinned hawk (*Accipter striatus*)				X
Cooper's hawk (*Accipiter cooperii*)				X
Golden eagle (*Aquila chrysaetos*)	X		X	X
American kestrel (*Falco sparverius*)	X		X	
Northern harrier (*Circus cyaneus*)	X			
Sage grouse (*Centrocercus urophasianus*)			X	
Mourning dove (*Zenaida macroura*)				

PJ - Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; BC = Big sage-crested wheatgrass; W = Wash.

[a] Trapped.

TABLE 5-9 (Cont.)

Species	Habitat Observed BS	BLS	BC	PJ
Great horned owl (Bubo virginianus)				
Owl species (Unidentified)	X			
Poor-will (Phalaenoptilus nuttallii)	X			
Common nighthawk (Chordeiles minor)				X
Common flicker (Colaptes auratus)				X
Hairy woodpecker (Dendrocopos villosus)				X
Ash-throated flycatcher (Myiarchus cinerascens)	X			
Gray flycatcher (Empidonax wrightii)				X
Horned lark (Eremophila alpestris)	X		X	
Scrub jay (Aphelocoma coerulescens)			X	X
Common raven (Corvus corax)	X	X	X	
Pinyon jay (Gymnorhinus cyanocephalus)	X	X	X	X
Clark's nutcracker (Nucifraga columbiana)				X
Mountain chickadee (Parus gambeli)	X		X	X
Plain titmouse (Parus inornatus)	X			X
Bushtit (Psaltriparus minimus)	X	X	X	X
White-breasted nuthatch (Sitta carolinensis)				X
Red-breasted nuthatch (Sitta canadensis)				X
Bewick's wren (Thryomanes bewickii)				X
American robin (Turdus migratorius)				
Mountain bluebird (Sialia currucoides)	X	X	X	
Blue-gray gnatcatcher (Polioptila caerulea)				
Black-throated gray warbler (Dendroica nigrescens)				
Audubon's warbler (Dendroica auduboni)	X	X		
Western meadowlark (Sturnella neglecta)	X		X	
Vesper sparrow (Pooecetes gramineus)	X		X	
Sage sparrow (Amphispiza belli)		X		
Chipping sparrow (Spizella passerina)				X
Brewer's sparrow (Spizella breweri)	X		X	
Reptiles				
Desert horned lizard (Phrynosoma platyrhinos)		X	X	
Short-horned lizard (Phrynosoma douglassi)	X			
Sagebrush lizard (Sceloporus graciosus)	X	X	X	X
Side-blotched lizard (Uta stansburiana)	X		X	X
Western fence lizard (Sceloporus occidentalis)	X			X
Great Basin whiptail (Cnemidophorus tigris tigris)			X	



KEY
M=Mammal transect
B=Bird transect

WILDLIFE OBSERVATION AREAS IN THE BERYL PREFERRED OBTS

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FIGURE 5-6

5.3.3 Species of Concern

No threatened or endangered mammals or reptiles were observed on the Beryl preferred OBTS study area, although mule deer and antelope, protected as game species, were noted in the area.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of bird species were observed, including 8 species of raptors, a group of general concern to the state.

The cactus *Coryphantha vivipara* var. *rosea*, Currently Under Review in the *Federal Register* (1980a), was observed in the survey area. No other plants observed in the study area are believed to be rare varieties.

5.4 UTAH DTN: SEGMENT I-D

The biological survey of the DTN was undertaken concurrently with the Utah OBTS survey, during the period of August 17 through September 29, 1981. Segment I-D of the proposed road runs from the vicinity of Lamoseaux Well to north of Mackleprang Reservoir. Most of it was along existing unimproved roads and was designated as non-restricted, except for topographic restrictions in the vicinity of Red Hill.

Segment I-D covered approximately 22 miles. A total of 113 releve quadrats were made along its length. As trapping transects and bird census transects were made in the adjacent OBTS area, these were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

5.4.1 Overview of Vegetation

Six major vegetation associations were observed on this DTN Segment. Of the 113 quadrats, there were 46 in a pinyon-juniper (*Pinus* sp. - *Juniperus osteosperma*) association, 6 in a black sagebrush (*Artemisia nova*) association, 30 in a big sagebrush (*Artemisia tridentata*) association, 15 in a rabbitbrush (*Chrysothamnus* sp.) association, 2 in a winterfat (*Ceratoides lanata*) association, and 14 in a wash association. Vegetation data are given by site in Appendix E. Table 5-10 contrasts the associations, and Table 5-11 lists the plant species observed. Figure 5-7 shows the quadrat locations.

The only trees found in the area were Utah juniper (*Juniperus osteosperma*) and two species of pinyon pine (*Pinus edulis* and

TABLE 5-10

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ALONG UTAH DTN CORRIDOR SEGMENT I-D*

Association Number of Quadrats	Pinyon-Juniper 46		Black Sagebrush 6		Big sagebrush 30		Rabbitbrush 15		Winterfat 2		Wash Areas 14	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	3	31.6	1	3.2	3	0.7	0	0.0	0	0.0	2	0.7
Shrubs/succulents	15	6.5	8	19.5	15	25.0	5	22.8	1	44.0	8	26.3
Forbs	34	0.8	6	0.5	18	0.6	7	0.6	3	0.5	20	1.3
Grasses	12	1.3	5	1.7	10	3.2	8	14.2	1	0.5	8	1.3
Total Vegetative Cover	64	40.4	20	24.8	46	29.5	20	37.6	5	45.0	38	30.1
Bare Ground	—	22.2	—	16.7	—	30.6	—	34.4	—	49.5	—	35.0
Rock/Gravel	—	33.0	—	53.5	—	32.5	—	24.0	—	1.0	—	26.0
Litter	—	22.0	—	4.8	—	7.0	—	3.9	—	3.5	—	8.5

* Based upon 113 releve quadrats in the area.

TABLE 5-11

PLANT SPECIES OBSERVED ALONG UTAH
DTN CORRIDOR SEGMENT I-D

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
AMARANTHACEAE			
Amaranthus albus	Pigweed	F	W
Amaranthus sp.	Pigweed	F	W
ASTERACEAE			
Artemisia nova	Black sagebrush	S	BLS,PJ,BS
Artemisia tridentata	Big sagebrush	S	BS,BLS,R, WF
Artemisia sp.	Sagebrush	S	PJ
Brickellia oblongifolia	Brickellbush	S	W
Chaenactis douglasii	Douglas chaenactis	F	PJ,BS
Chrysothamnus greenei	Greene's rabbitbrush	S	BS,BLS,R,W
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W,BS
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BS,BLS, R,W
Chrysothamnus sp.	Rabbitbrush	S	PJ,BS
Erigeron sp.	Fleabane	F	PJ,BS,BLS
Gutierrezia sarothrae	Snakeweed	S	PJ,BS,BLS, R,W

1 T= Tree; S = Shrub or Succulent; F = Forb; G = Grass.

2 PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; R = Rabbitbrush; WF = Winterfat; W = Wash.

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Haplopappus acaulis	Haplopappus	S	PJ
Leucelene ericoides	Leucelene	F	BS
Machaeranthera canescens	Aster	F	PJ,BS,R,W
Machaeranthera grindelioides	Aster	S	PJ
Machaeranthera sp.	Aster	F	R
Petradoria pumila	Petradoria	S	PJ,BLS
Senecio multilobatus	Butterweed	F	PJ,BS
Townsendia incana	Easter daisy	F	BS
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,BLS,PJ,W
Lappula sp.	Stickseed	F	WF
BRASSICACEAE			
Arabis sp.	Rockcress	F	BS,PJ
Descurainia pinnata	Tansy mustard	F	BS,R,WF,W
Descurainia sp.	Tansy mustard	F	BS,R,WF
Lepidium montanum	Montana pepperweed	F	PJ
Physaria chambersii	Twinpod	F	PJ,W
Physaria sp.	Tumble mustard	F	PJ
Streptanthella longirostris	Streptanthella	F	BS,BLS
Strepthanthus cordatus	Twist flower	F	PJ

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
CACTACEAE			
Coryphantha vivipara	Coryphantha	S	PJ
Opuntia polycantha	Prickly pear	S	PJ,BS
CARYOPHYLLACEAE			
Paronychia sp.	Nailwort	F	BS
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	BS,W
Ceratoides lanata	Winterfat	S	BS,R,WF,W
Grayia spinosa	Spiny hopsage	S	BLS
Salsola iberica	Russian thistle	F	W
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,BLS,BS, W
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	PJ,BS
Ephedra viridis	Mormon tea	S	PJ,BLS,BS
EUPHORBIACEAE			
Euphorbia sp.	Spurge	F	PJ,BS,W
FABACEAE			
Astragalus calycosus	Milkvetch	F	PJ,BLS,BS

TABLE 5-11 (Cont.)

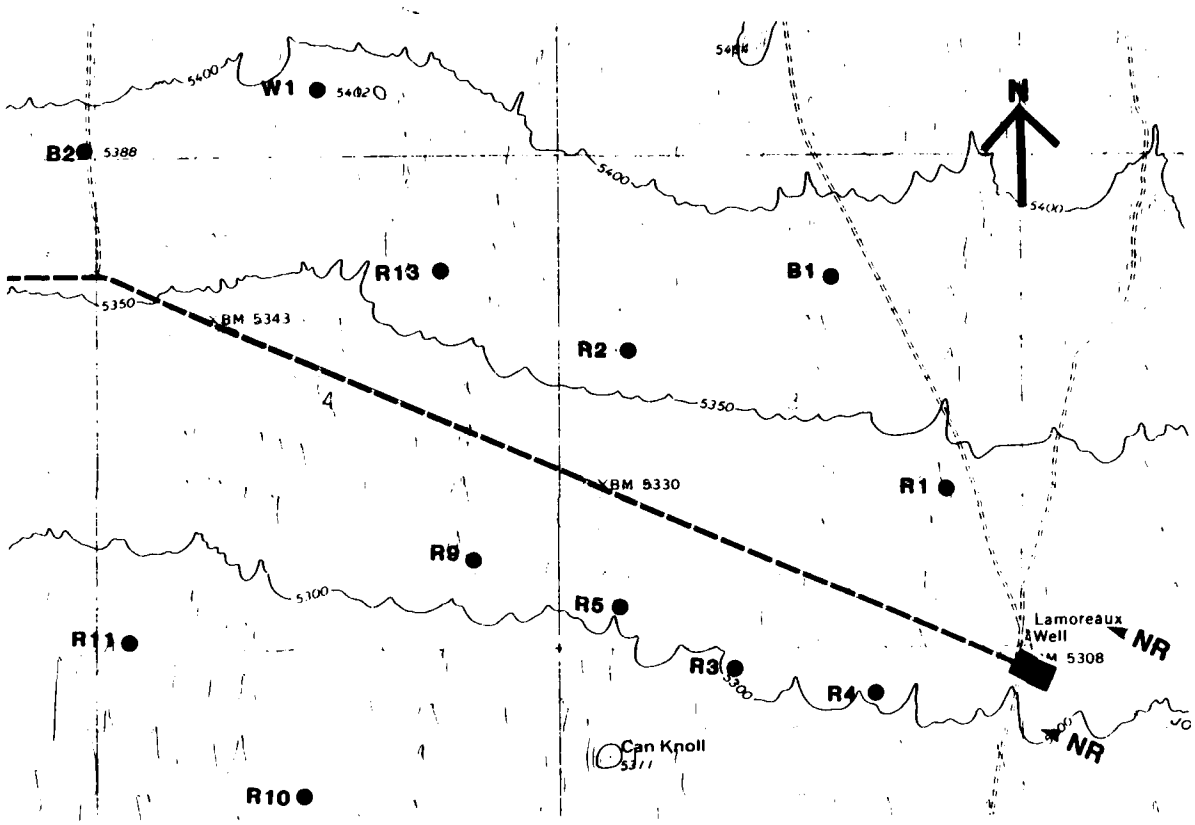
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Astragalus kentrophyta	Milkvetch	F	W, PJ
Astragalus lentiginosus	Milkvetch	F	PJ,BS,BLS,
Astragalus sp.	Milkvetch	F	PJ,R
Lupinus sp.	Lupine	F	PJ,BS,W
GENTIANACEAE			
Frasera albomarginata	Frasera	F	PJ,W
MALVACEAE			
Sphaeralcea ambigua	Desert globe-mallow	F	W
Sphaeralcea coccinea	Scarlet globemallow	F	R
Sphaeralcea grossulariifolia	Sphaeralcea	F	BS,PJ,R,W
Sphaeralcea sp.	Sphaeralcea	F	W,PJ,BS
ONAGRACEAE			
Oenothera sp.	Evening primrose	F	PJ,W
PAPAVERACEAE			
Argemone munita	Prickly poppy	F	W
PINACEAE			
Pinus edulis	Pinyon pine	T	PJ,BS,WF

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Pinus monophylla	Pinyon pine	T	PJ,BS
POACEAE			
Agropyron cristatum	Crested wheatgrass	G	BS,R,W
Agropyron smithii	Western wheatgrass	G	BS,PJ,W
Aristida purpurea	Purple threeawn	G	W
Bouteloua gracilis	Blue grama	G	PJ,BS
Bromus tectorum	Cheatgrass	G	PJ,BS,BLS, R,WF
Hilaria jamesii	Galleta grass	G	PJ,BS,R,W
Munroa squarrosa	False buffalo-grass	G	BS,W,PJ
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS, R,W
Poa sandbergii	Sandberg bluegrass	G	BLS,PJ
Poa sp.		G	W
Sitanion hystrix	Bottlebrush squirreltail	G	PJ,BS,BLS,R
Sitanion sp.	Squirreltail	G	PJ,W,BS,R
Sporobolus contractus	Dropseed	G	BS
Sporobolus cryptandrus	Sand dropseed	G	PJ,R
Stipa comata	Needle-and-thread	G	BS,BLS,R
POLEMONIACEAE			
Gilia sp.	Gilia	F	PJ
Ipomopsis congesta	Ballhead gilia	F	PJ,W

TABLE 5-11 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Leptodactylon pungens	Pricklygilia	S	PJ,BS,BLS
Phlox sp.	Phlox	F	BS,PJ,BLS
POLYGONACEAE			
Eriogonum caespitosum	Matted eriogonum	F	PJ
Eriogonum cernuum	Nodding eriogonum	F	PJ
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BS,
Eriogonum sp.	Eriogonum	F	W
ROSACEAE			
Cowania mexicana	Cliffrose	S	PJ,W
Purshia tridentata	Bitterbrush	S	PJ
SCROPHULARIACEAE			
Cordylanthus parviflorus	Bird's beak	F	PJ
Penstemon concinnus	Penstemon	F	PJ
Penstemon palmeri	Palmer beardtongue	F	W
Penstemon sp.	Penstemon	F	PJ,BS,W



KEY
B=Big Sagebrush
R=Rabbitbrush
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

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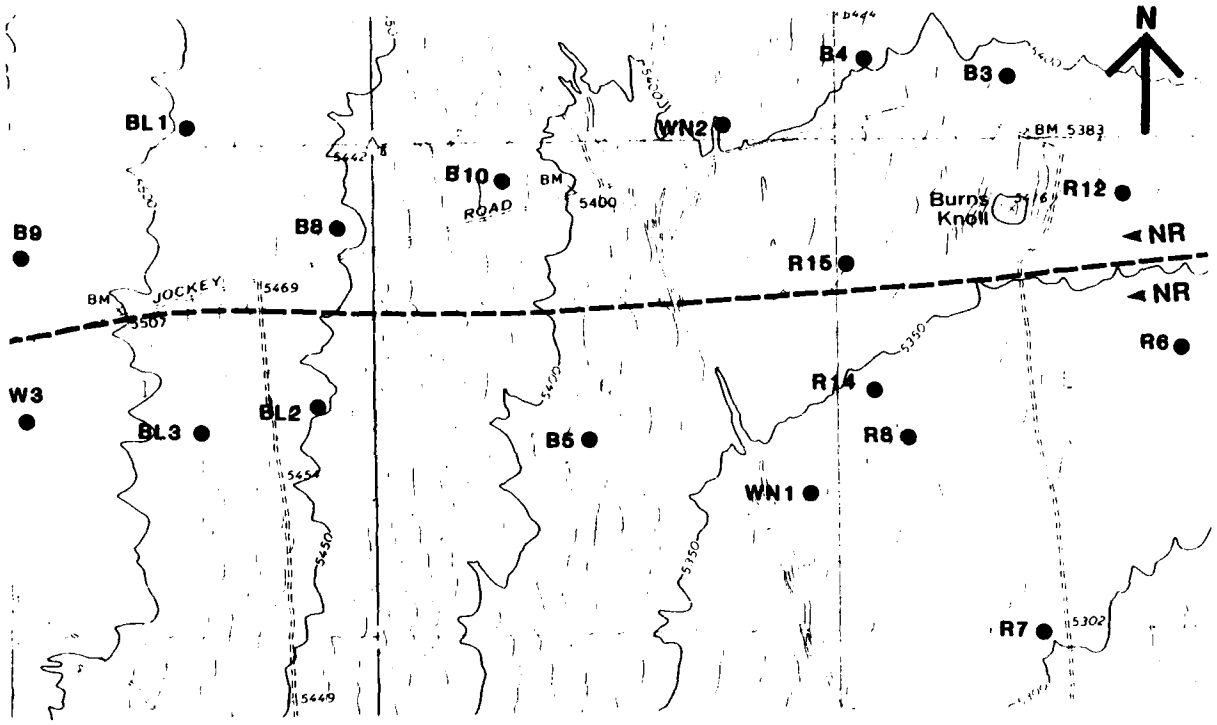
FIGURE 5-7a



KEY
B=Big Sagebrush
BL=Black Sagebrush
R=Rabbitbrush
WN=Winterfat
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT I-D

FIGURE 5-7b

Ertec
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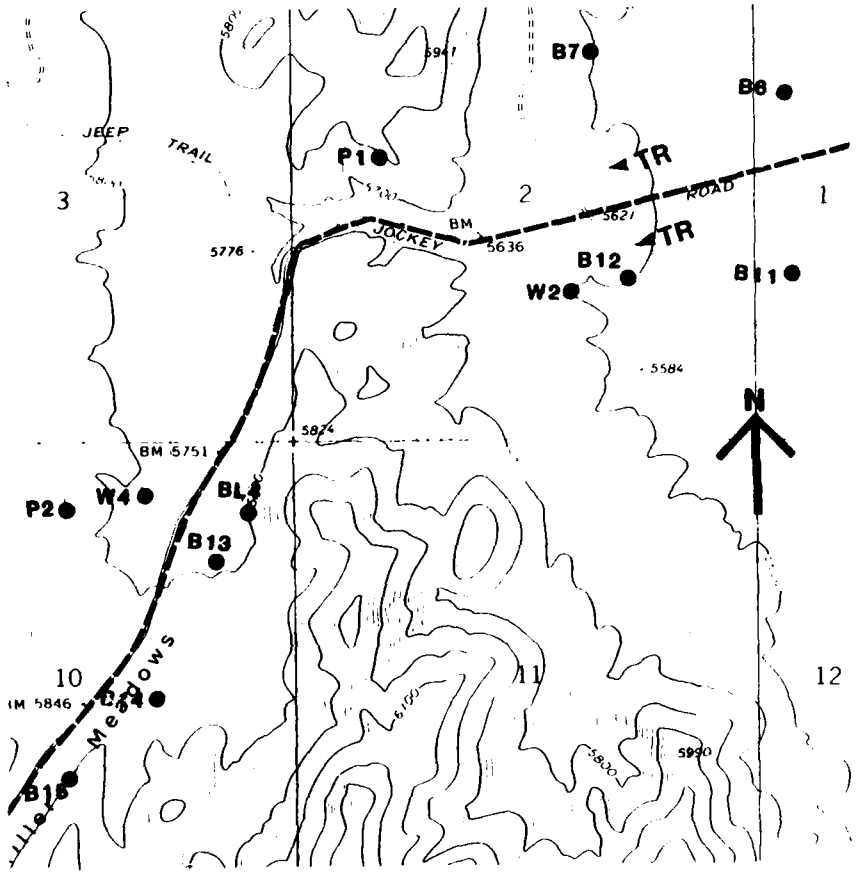

KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
TR=Topographically Rest[illegible]

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

FIGURE 5-7c

Ertec
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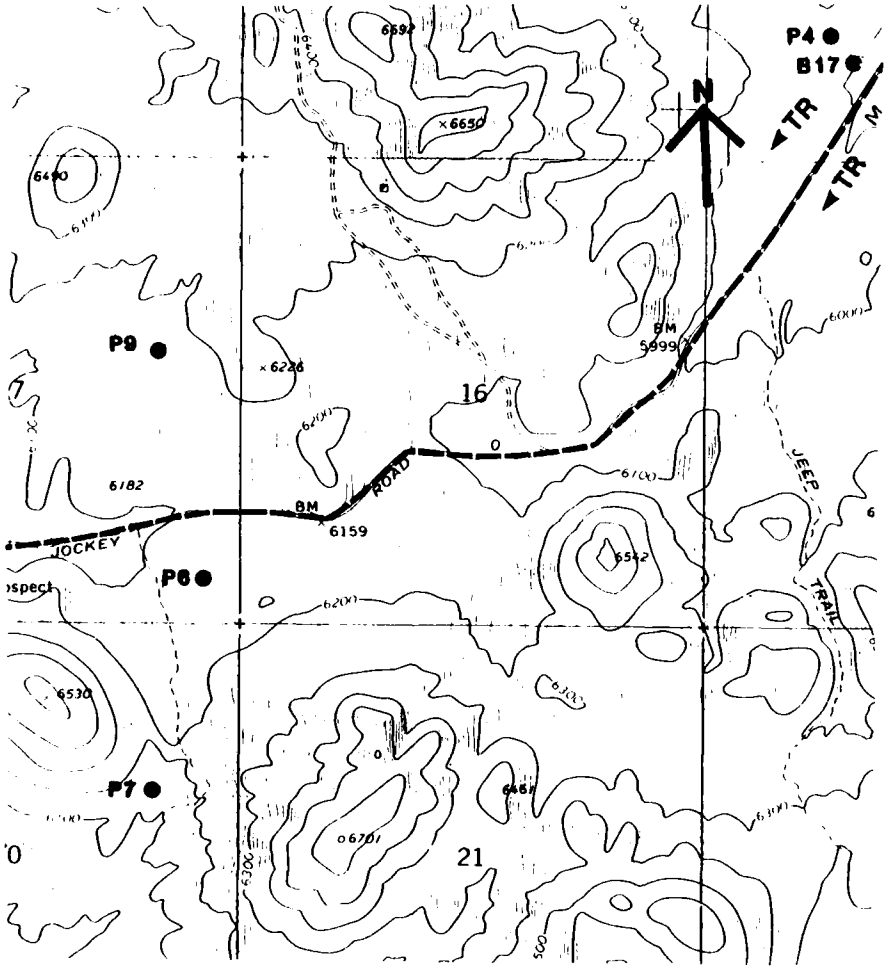

KEY
B=Big Sagebrush
P=Pinyon-Juniper
TR=Topographically Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

FIGURE 5-7d

Ertec
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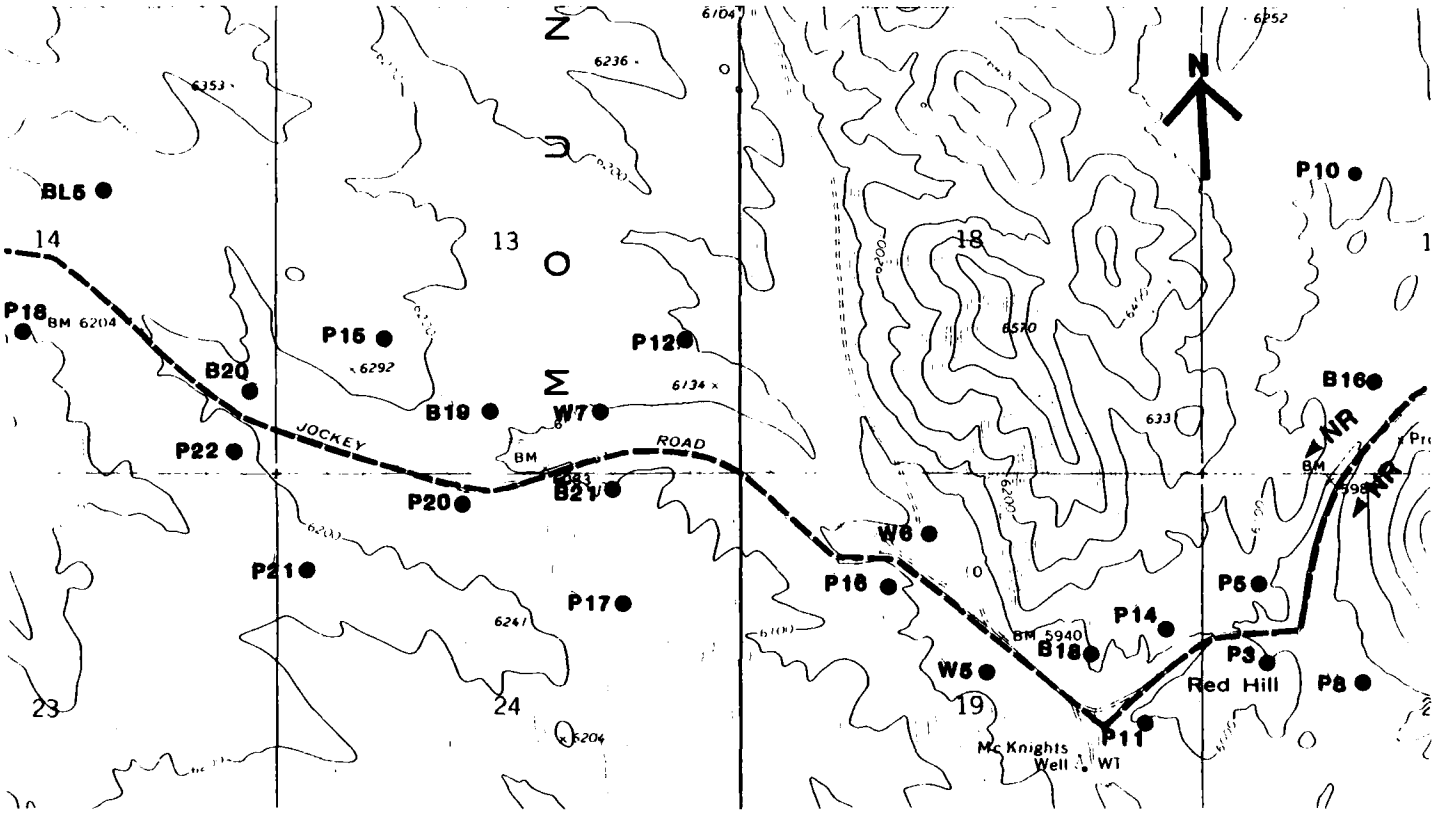

KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

FIGURE 5-7e

Ertec
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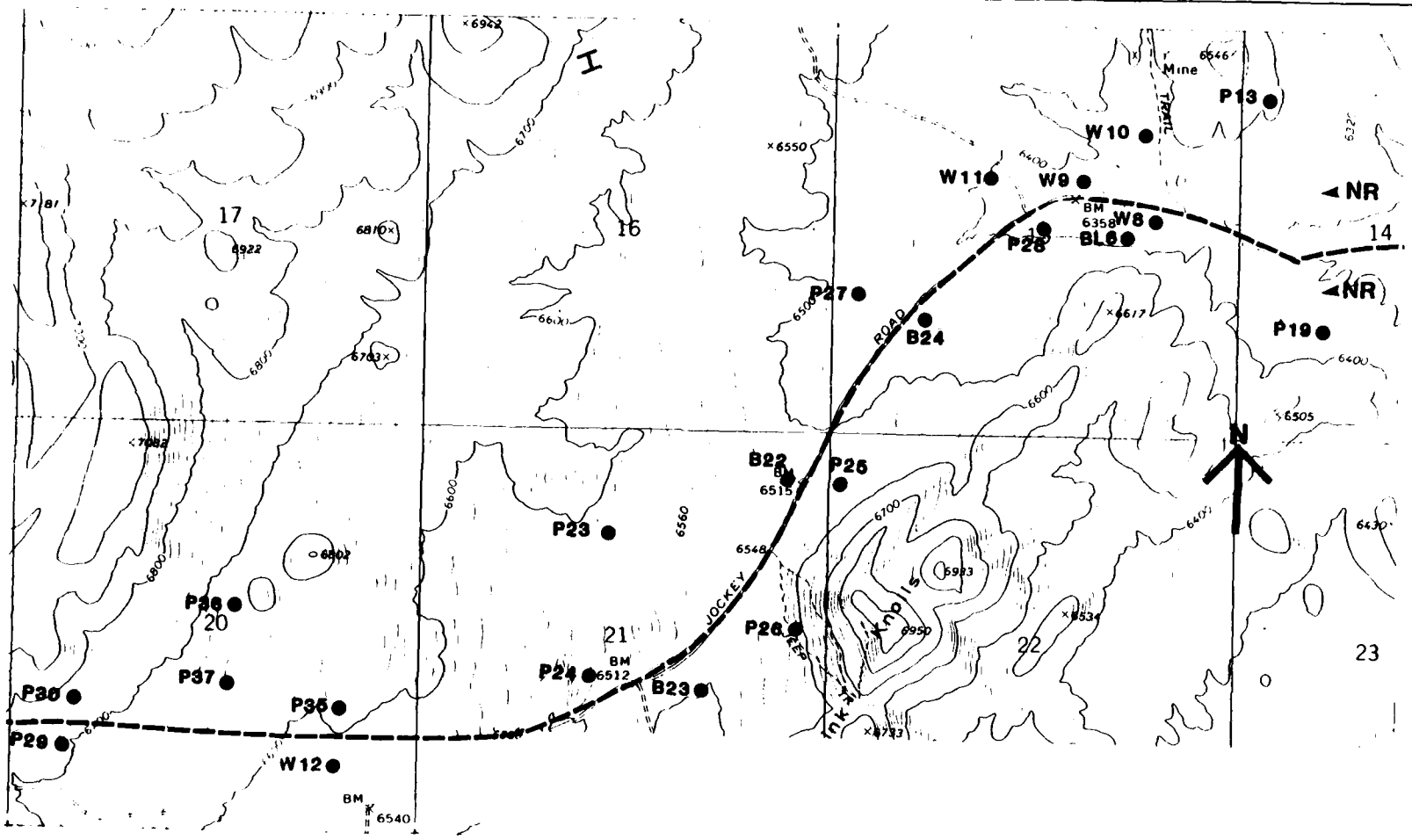

KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT I-D

FIGURE 5-7f

Ertec
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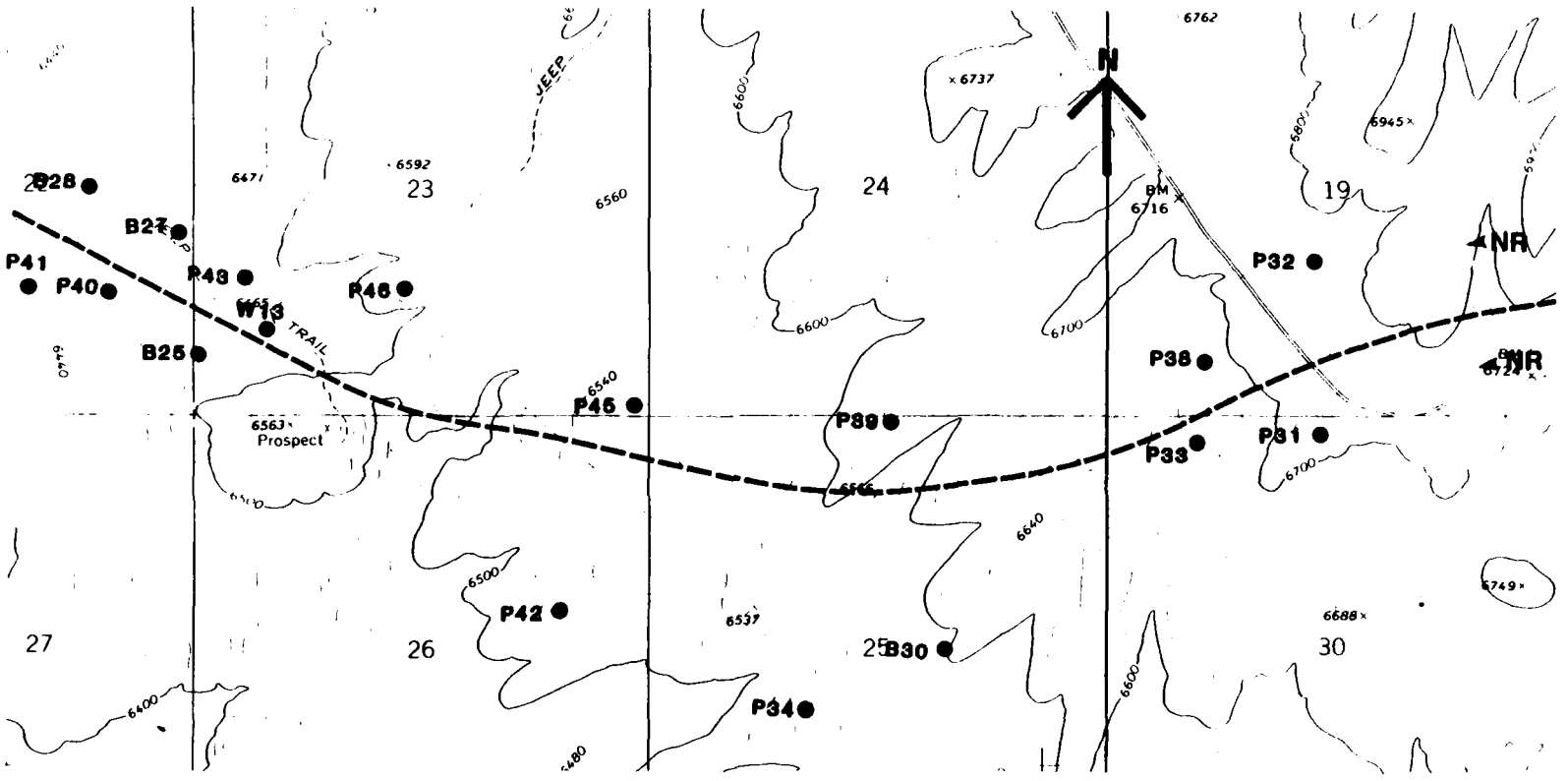

KEY
B=Big Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

FIGURE 5-7g

Ertec
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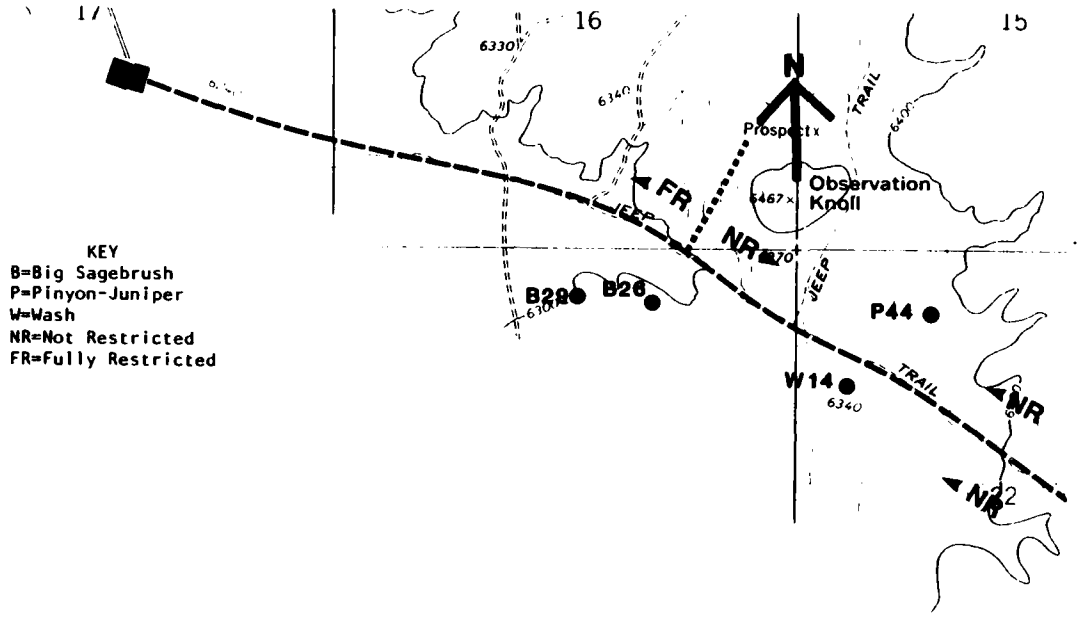

KEY
B=Big Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT I-D

FIGURE 5-7h

Ertec
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Pinus monophylla). The pinyon-juniper association contained the largest number of plant species (64), and the second highest amount of cover (40.4 percent). The highest amount of cover (45.0 percent) was found in the winterfat association. This association also had the lowest number of species observed (5), because winterfat tended to occur in nearly pure stands.

Cacti included the common pricklypear (Opuntia polycantha) and the rare Coryphantha vivipara var. rosea, listed as Currently Under Review in the Federal Register (1980).

5.4.2 Overview of Wildlife

Wildlife observations from the Utah DTN Segment I-D study area are listed in Table 5-12, and area-specific data are contained in Appendix F.

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would not have provided sufficient data on species composition, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this would be preferable to grouping observations by vegetation associations, which might be scattered over many miles.

Eight species of mammals or mammal sign were observed within this DTN corridor segment. The most common mammal species was the black-tailed jackrabbit (Lepus californicus). The only game animal sign observed was mule deer (Odocoileus hemionus) tracks and scat.

TABLE 5-12

WILDLIFE SIGN AND SIGHTINGS ALONG
UTAH DTN CORRIDOR SEGMENT I-D

Common Name	Scientific Name
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Desert cottontail	*Sylvilagus audubonii*
Chipmunk	*Eutamias* sp.
Woodrat	*Neotoma* sp.
Coyote	*Canis latrans*
Badger	*Taxidea taxus*
Mule deer	*Odocoileus hemionus*
Feral horse	*Equus caballus*
Birds	
Sharp-shinned hawk	*Accipter striatus*
Golden eagle	*Aquila chrysaetos*
Northern harrier	*Circus cyaneus*
American kestrel	*Falco sparverius*
Mourning dove	*Zenaida macroura*
Great horned owl	*Bubo virginianus*
Hairy woodpecker	*Dendrocopos villosus*
Common flicker	*Colaptes auratus*
Horned lark	*Eremophila alpestris*
Common raven	*Corvus corax*
Pinyon jay	*Gymnorhinus cyanocephalus*
Mountain chickadee	*Parus gambeli*
Plain titmouse	*Parus inornatus*
Common bushtit	*Psaltriparus minimus*
Bewick's wren	*Thryomanes bewickii*
Rock wren	*Salpinctes obsoletus*
Bluebird	*Sialia* sp.
Northern oriole	*Icterus galbula*
Sage sparrow	*Amphispiza belli*
Chipping sparrow	*Spizella passerina*
Brewer's sparrow	*Spizella breweri*
Reptiles	
Desert horned lizard	*Phrynosoma platyrhinos*

TABLE 5-12 (Cont.)

Common Name	Scientific Name
Reptiles (Cont.)	
Short-horned lizard	*Phrynosoma douglassi*
Leopard lizard	*Crotaphytus vislizenii*
Side-blotched lizard	*Uta stansburiana*
Sagebrush lizard	*Sceloporus graciosus*
Western fence lizard	*Sceloporus occidentalis*
Plateau lizard	*Sceloporus undulatus*
Garter snake	*Thamnophis* sp.

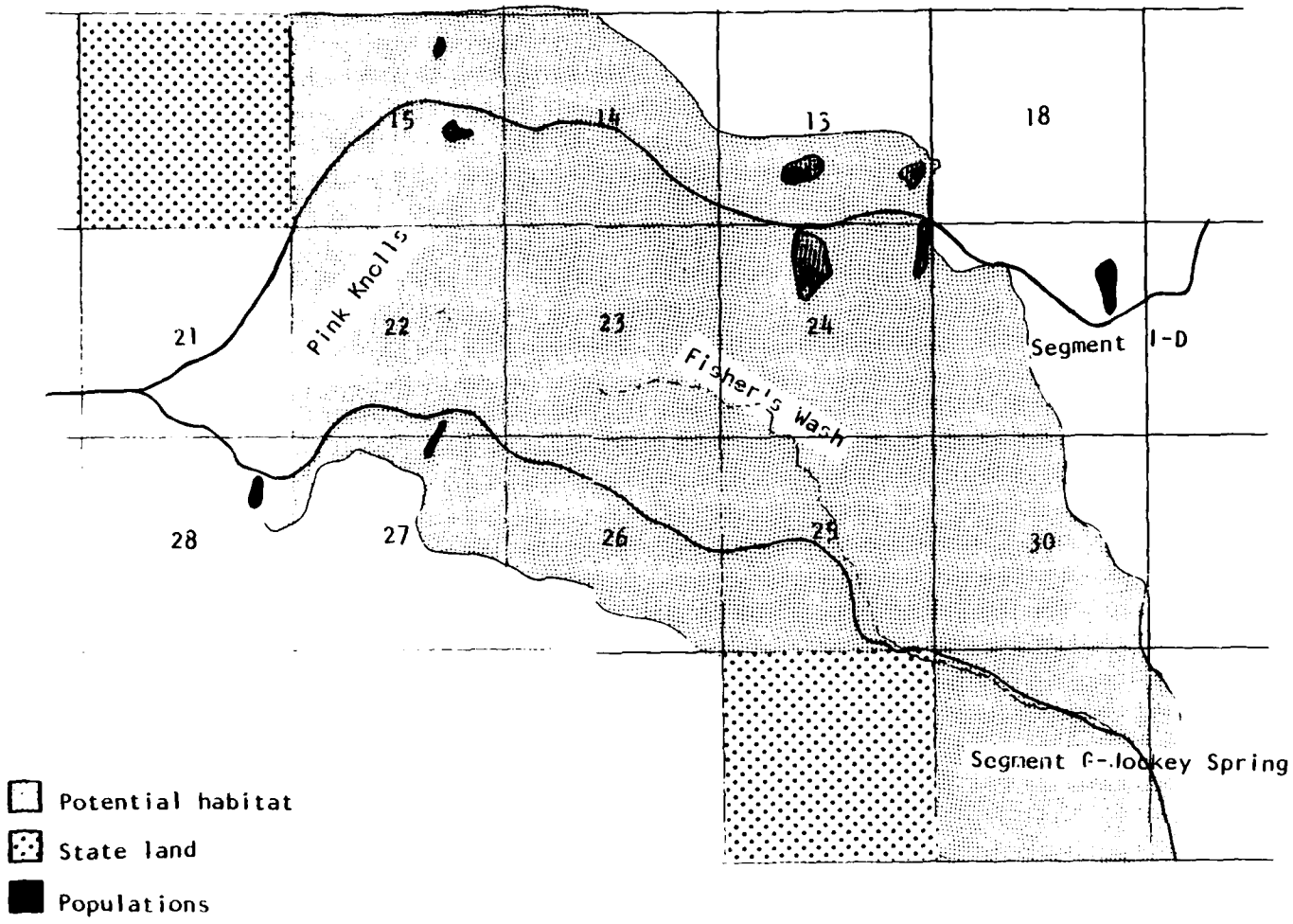
Twenty two species of birds, including several raptors were observed. Golden eagles (Aquila chrysaetos) were noted on three sites, and the sharp-shinned hawk (Accipiter striatus), northern harrier (Circus cyaneus), American Kestrel (Falco sparverius), and great horned owl (Bubo virginianus) were also noted. The only game bird observed was the mourning dove (Zenaida macroura). Seven species of common lizards and one garter snake (Thamnophis sp.) were observed during the survey.

5.4.3 Species of Concern

No threatened or endangered animals were observed on the Utah DTN Segment I-D, although mule deer, protected as a game species, were noted.

Most birds in the area have protected status by special law such as the Bald Eagle Act or Migratory Bird Treaty Act. A large number of bird species were observed, including 5 species of raptors, generally a group of special concern to the state.

Several populations of the plant Penstemon concinnus, a species Currently Under Review in the Federal Register (1980a), were noted in the vicinity of this segment, and a large area between and surrounding portions of Segment I-D and Segment G-Jockey Spring lie within P. concinnus habitat. Location of the observed populations and the probable habitat boundary are shown in Figure 5-8.



LOCATION OF PENSTEMON CONCINNUS
POPULATIONS AND HABITAT

FIGURE 5-8

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5.5 UTAH DTN: SEGMENT G - JOCKEY SPRING

The biological survey of the DTN was made concurrently with the Utah OBTS sites, from August 17 through September 29, 1981. Segment G to Jockey Spring runs from the vicinity of Broze Knoll, in Iron County, Utah, to Jockey Spring in Beaver County, Utah. Parts of it were along existing unimproved roads. The road corridor was designated as non-restricted.

This segment covered approximately 10 miles, and a total of 59 releve quadrats were made along its length. As trapping transects and bird census transects were made in the adjacent OBTS areas, these were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

5.5.1 Overview of Vegetation

Five major vegetation associations were observed on this DTN Segment. Of the 59 quadrats, there were 27 in a pinyon-juniper (*Pinus-Juniperus*) association, 5 in a black sagebrush (*Artemisia nova*) association, 11 in a big sagebrush (*Artemisia tridentata*) association, 8 in a rabbitbrush (*Chrysothamnus* sp.) association, and 8 in a wash association. Vegetation data are given by site in Appendix E. Table 5-13 contrasts the associations, and Table 5-14 lists the plant species observed. Figure 5-9 shows the quadrat locations.

The pinyon-juniper association contained the the largest number of species observed (57), and the greatest amount of vegetative cover (38.7 percent). Of the species observed in the pinyon-juniper association, 40 were classed as forbs or

TABLE 5-13

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ALONG UTAH DTN CORRIDOR SEGMENT G - JOCKEY SPRING*

Association Number of Sites	Pinyon-Juniper 27		Black Sagebrush 5		Big sagebrush 11		Rabbitbrush 8		Wash Areas 8	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	3	28.8	1	0.8	0	0.0	1	1.9	2	4.5
Shrubs/succulents	14	7.2	8	18.0	7	25.4	10	20.5	5	24.4
Forbs	30	1.0	8	+	9	0.7	8	0.4	9	0.5
Grasses	10	1.6	6	1.4	10	6.6	8	5.1	7	3.3
Total Vegetative Cover	57	38.7	23	20.2	26	32.8	27	27.9	23	32.7
Bare Ground	—	18.4	—	24.2	—	35.1	—	28.5	—	33.6
Rock/Gravel	—	37.3	—	50.2	—	27.4	—	37.3	—	19.9
Litter	—	20.2	—	4.6	—	5.2	—	4.3	—	18.0

* Based upon 59 releve quadrats in the area.
\+ Trace.

TABLE 5-14

PLANT SPECIES OBSERVED ALONG UTAH
DTN SEGMENT G - JOCKEY SPRING

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
ASTERACEAE			
Artemisia nova	Black sagebrush	S	BLS,PJ,R
Artemisia tridentata	Big sagebrush	S	BS,PJ,R,W
Artemisia sp.	Sagebrush	S	PJ,BLS
Brickellia oblongifolia	Brickellbush	S	PJ
Chaenactis douglasii	Douglas chaenactis	F	PJ
Chrysothamnus greenei	Greene's rabbit-brush	S	PJ,BS,BLS, R,W
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BS,BLS, R
Chrysothamnus sp.	Rabbitbrush	S	PJ,BS
Erigeron sp.	Fleabane	F	PJ,BS
Gutierrezia sarothrae	Snakeweed	S	PJ,BS,BLS
Haplopappus acaulis	Haplopappus	F	PJ
Leucelene ericoides	Leucelene	F	PJ,BLS
Lygodesmia spinosa	Thorn skeletonweed	S	PJ
Machaeranthera canescens	Aster	F	PJ,BLS

1 T = Tree; S = Shrub or succulent; F = Forb; G = Grass; GL = Grasslike.

2 PJ = Pinyon-Juniper; BS = Big sagebrush; BLS = Black sagebrush; R = Rabbitbrush; W = Wash.

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,BLS,PJ
BRASSICACEAE			
Descurainia sp.	Tansy mustard	F	BS,R,W
Lepidium montanum	Montana pepperweed	F	PJ,R,W
Physaria chambersii	Twinpod	F	PJ
Physaria sp.	Twinpod	F	PJ
Sisymbrium altissimum	Tumble mustard	F	BS,D
Stanleya pinnata	Prince's plume	F	BS,W
Streptanthella longirostris	Streptanthella	F	BS
Strepthanthus cordatus	Twist flower	F	PJ
CACTACEAE			
Opuntia polycantha	Prickly pear	S	PJ,BS,R
CARYOPHYLLACEAE			
Paronychia sp.	Nailwort	F	BLS
CHENOPODIACEAE			
Atriplex canescens	Fourwing saltbush	S	BS,W,R
Ceratoides lanata	Winterfat	S	R
Sarcobatus vermiculatus	Greasewood	S	BS
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,W,BLS,R

TABLE 5-14 (Cont.)

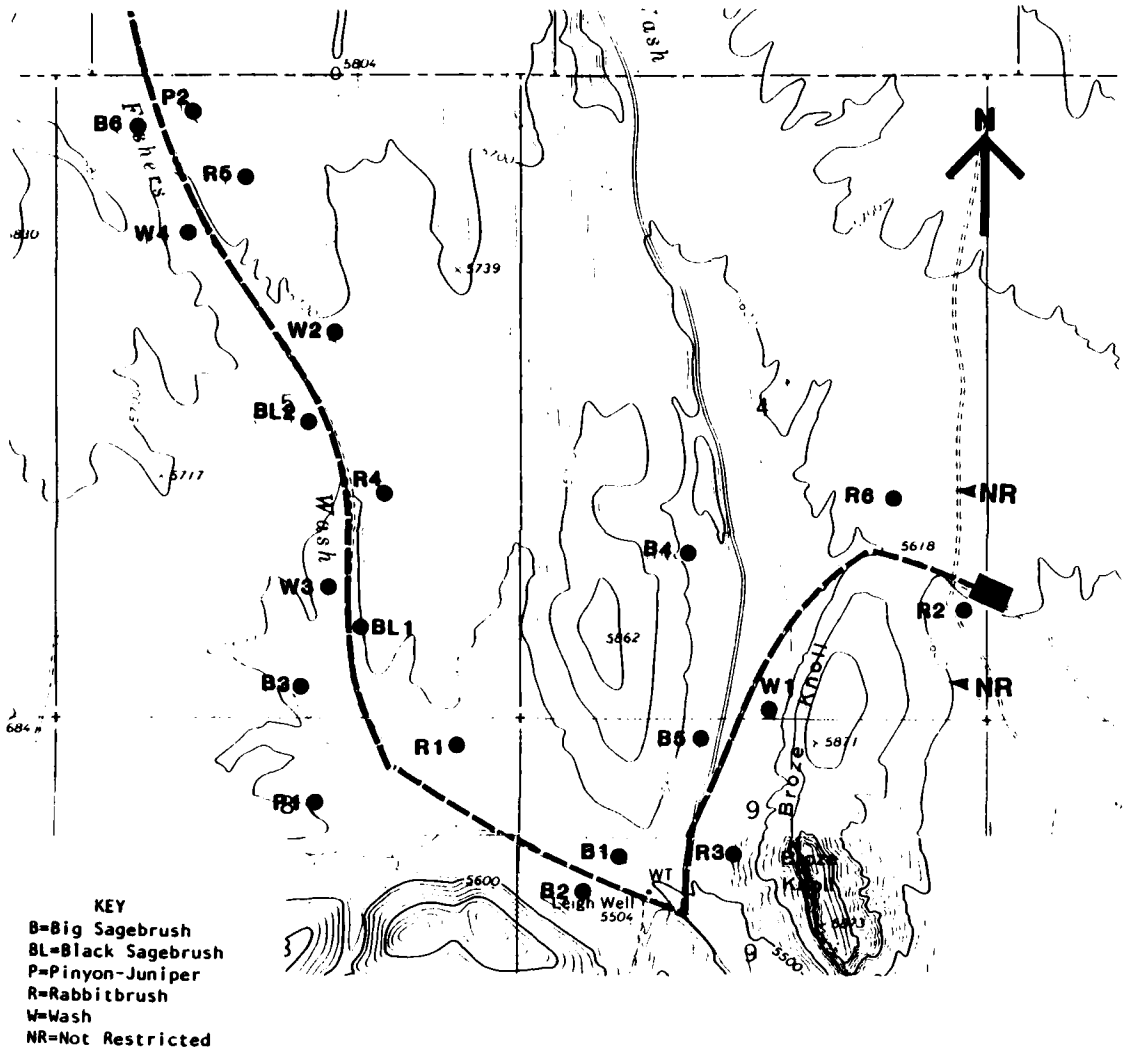
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
EPHEDRACEAE			
Ephedra nevadensis	Nevada Mormon tea	S	PJ,BLS,R
Ephedra viridis	Mormon tea	S	PJ
EUPHORBIACEAE			
Euphorbia glyptosperma	Spurge	F	BLS,BS,W
Euphorbia sp.	Spurge	F	BLS,BS,R,W
FABACEAE			
Astragalus calycosus	Milkvetch	F	PJ,R
Astragalus lentiginosus	Milkvetch	F	PJ,BS
Astragalus sp.	Milkvetch	F	PJ,BS,BLS
Lupinus sp.	Lupine	F	PJ,BS,W
GENTIANACEAE			
Frasera albomarginata	Frasera	F	PJ
JUNCACEAE			
Juncus sp.	Rush	Gl	BS
MALVACEAE			
Sphaeralcea sp.	Globemallow	F	R
NYCTAGINACEAE			
Mirabilis sp.	Four-o'clock	F	W

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
ONAGRACEAE			
Oenothera sp.	Evening primrose	F	PJ,W
OROBANCHACEAE			
Orobanche sp.	Broomrape	F	BS
PINACEAE			
Pinus edulis	Pinyon pine	T	PJ,W
Pinus monophylla	Pinyon pine	T	PJ
POACEAE			
Agropyron smithii	Western wheatgrass	G	BS,W
Aristida purpurea	Purple threeawn	G	PJ,R
Bouteloua gracilis	Blue grama	G	PJ,BS,R,W
Bromus tectorum	Cheatgrass	G	PJ,BS,BLS, R,W
Hilaria jamesii	Galleta grass	G	PJ,BS,BLS, R,W
Munroa squarrosa	False buffalo-grass	G	PJ,R
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS, R,W
Poa sandbergii	Sandberg bluegrass	G	BS,BLS
Poa sp.	Bluegrass	G	PJ
Sitanion hystrix	Bottlebrush squirreltail	G	PJ,BS,BLS,W
Sitanion sp.	Squirreltail	G	PJ,BLS,BS,R
Sporobolus cryptandrus	Sand dropseed	G	BS,W

TABLE 5-14 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
Stipa comata	Needle-and-thread	G	PJ,BS,BLS,R
POLEMONIACEAE			
Ipomopsis congesta	Ballhead gilia	F	PJ
Leptodactylon pungens	Prickleygilia	S	PJ
Phlox sp.	Phlox	F	PJ,BLS
POLYGONACEAE			
Eriogonum cernuum	Nodding eriogonum	F	BS
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BLS,R
Eriogonum shockleyi	Shockley eriogonum	F	PJ,R,BLS
Eriogonum sp.	Eriogonum	F	PJ
ROSACEAE			
Cowania mexicana	Cliffrose	S	PJ
Purshia tridentata	Bitterbrush	S	PJ
SCROPHULARIACEAE			
Cordylanthus parviflorus	Bird's beak	F	PJ
Penstemon concinnus	Penstemon	F	
Penstemon palmeri	Palmer beardtongue	F	W
Penstemon sp.	Penstemon	F	PJ,R
VERBENACEAE			
Verbena bracteata	Verbena	F	W



QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR
SEGMENT G-JOCKEY SPRING

FIGURE 5-9a

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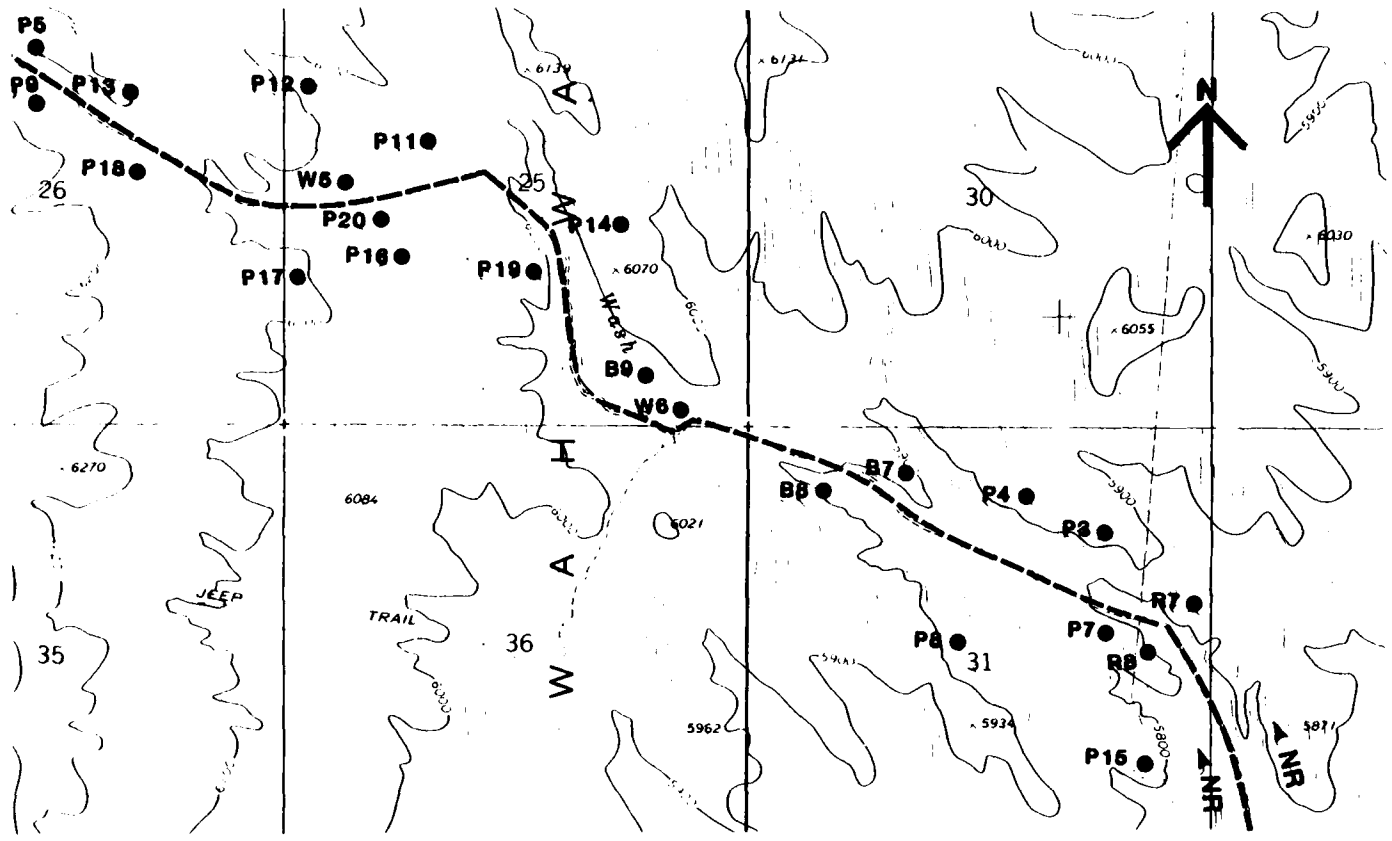

KEY
B=Big Sagebrush
P=Pinyon-Juniper
R=Rabbitbrush
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR
SEGMENT G-JOCKEY SPRING

FIGURE 5-9b

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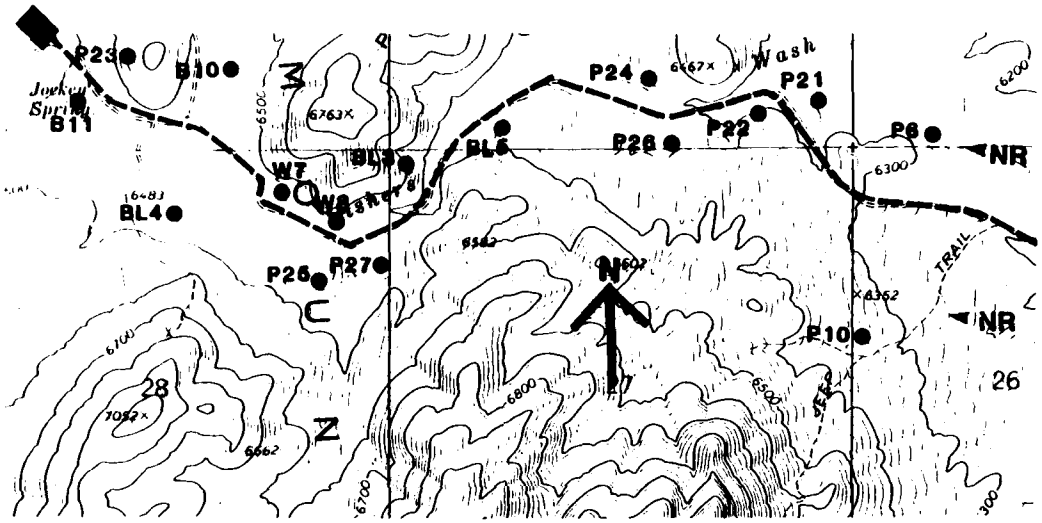

KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR
SEGMENT G-JOCKEY SPRING

FIGURE 5-9c

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grasses, and only 17 were classed as shrubs or trees. However, shrubs and trees contributed the majority of the vegetative cover present in all associations. Forbs contributed one percent or less of the total vegetative cover in all associations. The only cactus observed within this DTN segment was Opuntia polycantha, the pricklypear.

5.5.2 Overview of Wildlife

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would have provided insufficient data on species composition, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this would be preferable to grouping observations by vegetation associations, which might be scattered over many miles. Table 5-15 lists wildlife observed in this Utah DTN Segment and Appendix F provides data by road segment.

Eleven species of mammals or mammal sign were observed within this DTN segment. The most common species was the black-tailed jackrabbit (Lepus californicus). Game species sign included pronghorn antelope (Antilocapra americana) and mule deer (Odocoileus hemionus). Predators included coyote (Canis latrans) and badger (Taxidea taxus). Horse sign was also observed on one site.

Twenty-seven species of birds were observed in the study area. There were several raptors, including sharp-shinned hawks (Accipiter striatus), a Cooper's hawk (Accipiter cooperii), a

TABLE 5-15

WILDLIFE SIGN AND SIGHTINGS ALONG
UTAH DTN CORRIDOR SEGMENT G - JOCKEY SPRING

Common Name	Scientific Name
Mammals	
Desert cottontail	*Sylvilagus audubonii*
Black-tailed jackrabbit	*Lepus californicus*
Cliff Chipmunk	*Eutamias dorsalis*
Squirrel(?)	*Ammospermophilus* sp.(?)
Woodrat	*Neotoma* sp.
Coyote	*Canis latrans*
Badger	*Taxidea taxus*
Skunk	*Mephitis* sp.
Mule deer	*Odocoileus hemionus*
Pronghorn antelope	*Antilocapra americana*
Feral horse	*Equus caballus*
Birds	
Sharp-shinned hawk	*Accipter striatus*
Cooper's hawk	*Accipiter cooperii*
Golden eagle	*Aquila chrysaetos*
Northern harrier	*Circus cyaneus*
Prairie falcon	*Falco mexicanus*
American kestrel	*Falco sparverius*
Mourning dove	*Zenaida macroura*
Common nighthawk	*Chordeiles minor*
Hairy woodpecker	*Dendrocopos villosus*
Say's phoebe	*Sayornis saya*
Scrub jay	*Aphelocoma coerulescens*
Common raven	*Corvus corax*
Pinyon jay	*Gymnorhinus cyanocephalus*
Mountain chickadee	*Parus gambeli*
Plain titmouse	*Parus inornatus*
Common bushtit	*Psaltriparus minimus*
Bewick's wren	*Thryomanes bewickii*
Rock wren	*Salpinctes obsoletus*
Mountain bluebird	*Sialia currucoides*
Bluebirds	unidentified species
Loggerhead shrike	*Lanius ludovicianus*
Sage sparrow	*Amphispiza belli*
Chipping sparrow	*Spizella passerina*
Brewer's sparrow	*Spizella breweri*

TABLE 5-15 (Cont.)

Common Name	Scientific Name
Reptiles	
Leopard lizard	*Crotaphytus vislizenii*
Side-blotched lizard	*Uta stansburiana*
Sagebrush lizard	*Sceloporus graciosus*
Western fence lizard	*Sceloporus occidentalis*
Western whiptail	*Cnemidophorus tigris*

northern harrier (Circus cyaneus), prairie falcons (Falco mexicanus), an American kestrel (Falco sparverius), and a golden eagle (Aquila chrysaetos). The most frequently observed bird was the pinyon jay (Gymnorhinus cyanocephala).

Five species of lizard were observed, with the side-blotched lizard (Uta stansburiana) as the most frequently found species.

5.4.3 Species of Concern

No threatened or endangered species were observed on this Utah DTN Segment, although mule deer and antelope, protected as game species, were noted.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or the Bald Eagle Act. A large number of bird species were observed, including 6 species of raptors, generally a group of special concern to the state.

No threatened or endangered plants were observed during the surveys in this area, although portions of Penstemon concinnus habitat are in the area (see Section 5.4.3 and Figure 5-8) and two populations were noted along this road segment. A search of the entire habitat would likely result in the identification of additional populations. P. concinnus is Currently Under Review in the Federal Register (1980a).

5.6 UTAH DTN: SEGMENT F-D

The biological survey of the DTN was made concurrently with that of the Utah OBTS sites, from August 17 through September 29, 1981. Segment F-D of the proposed road runs from approximately two miles northwest of Webster's Knolls in Iron County, Utah, to near Mackleprang Reservoir in Beaver County, Utah. Most of it is along existing unimproved roads. The majority of the road corridor was designated as non-restricted, except for a portion approximately four miles long near the northern end of the DTN segment. This was fully restricted because of a proposed wilderness area. This segment covered approximately 21 miles, and 77 releve quadrats were made along its length. Since trapping transects and bird census transects were made in the adjacent OBTS areas, these activities were not repeated along the DTN corridor. Results of the DTN survey in this segment are discussed below.

5.6.1 Overview of Vegetation

Six major vegetation associations were observed on this DTN corridor segment. Of the 77 quadrats, there were 26 in a pinyon-juniper (*Pinus* sp. - *Juniperus osteosperma*) association, 8 in a black sagebrush (*Artemisia nova*) association, 28 in a big sagebrush (*Artemisia tridentata*) association, 2 in a rabbitbrush (*Chrysothamnus* sp.) association, 5 in perennial grassland, and 8 in a wash association. Vegetation data are given by site in Appendix E. Table 5-16 contrasts the associations, and Table 5-17 lists the plant species observed. Figure 5-10 shows the quadrat locations.

TABLE 5-16

SUMMARY AND COMPARISON OF VEGETATION ASSOCIATIONS OBSERVED ALONG UTAH DTN CORRIDOR SEGMENT F-D*

Association Number of Sites	Pinyon-Juniper 26		Black Sagebrush 8		Big sagebrush 28		Rabbitbrush 2		Perennial Grassland 5		Wash Areas 8	
	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)	# Species	Avg. Cover (%)
Trees	3	27.6	1	+	3	0.4	0	0.0	0	0.0	0	0.0
Shrubs/succulents	13	9.1	9	18.6	17	18.6	2	28.0	5	6.2	4	43.6
Forbs	23	0.2	9	0.4	21	0.4	1	+	3	+	9	0.5
Grasses	7	2.4	11	5.5	14	8.4	4	13.0	6	27.0	6	1.3
Total Vegetation Cover	46	39.9	30	25.1	55	28.1	7	41.0	14	33.2	19	45.9
Bare Ground	—	22.0	—	26.7	—	33.6	—	35.5	—	25.6	—	25.7
Rock/Gravel	—	29.1	—	43.5	—	32.1	—	20.0	—	36.4	—	17.4
Litter	—	22.4	—	3.5	—	6.8	—	2.0	—	4.6	—	11.9

* Based upon 77 releve quadrats in the area.
\+ Trace.

TABLE 5-17

PLANT SPECIES OBSERVED ALONG UTAH
DTN SEGMENT F-D

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
ASTERACEAE			
Artemisia frigida	Fringed sagewort	S	BS
Artemisia nova	Black sagebrush	S	BLS,PJ,BS
Artemisia tridentata	Big sagebrush	S	BS,PJ,BLS, G,W
Chaenactis douglasii	Douglas chaenactis	F	PJ,BS
Chrysothamnus greenei	Greene's rabbit-brush	S	BS
Chrysothamnus nauseosus	Rubber rabbitbrush	S	W,BS
Chrysothamnus viscidiflorus	Viscid rabbitbrush	S	PJ,BS,G, BLS
Chrysothamnus sp.	Rabbitbrush	S	PJ,BLS,BS, R,G
Erigeron pumilis	Fleabane	F	BS
Erigeron sp.	Fleabane	F	BS
Gutierrezia sarothrae	Snakeweed	S	PJ,BS,BLS, G,W
Leucelene ericoides	Leucelene	F	PJ,BS,BLS
Lygodesmia spinosa	Thorn skeletonweed	S	BS
Machaeranthera canescens	Aster	F	BS
Senecio multilobatus	Butterweed	F	BS
Townsendia sp.	Easter daisy	F	BS

1 T = Tree; S = Shrub or succulent; F = Forb; G = Grass.

2 PJ = Pinyon-Juniper; BS = Big Sagebrush; BLS = Black sagebrush; G = Grassland; W = Wash.

TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
BORAGINACEAE			
Cryptantha sp.	Catseye	F	BS,BLS,PJ
BRASSICACEAE			
Descurainia pinnata	Tansy mustard	F	PJ,BS,W
Lepidium densiflorum	Peppergrass	F	PJ,BS,G
Physaria chambersii	Twinpod	F	PJ
Strepthanthus cordatus	Twist flower	F	PJ
CACTACEAE			
Coryphantha vivipara var. rosea	Coryphantha	S	PJ
Echinocereus triglochidiatus	Hedgehog cactus	S	PJ,BS
Opuntia erinacea	Prickly pear	S	PJ,BS
Opuntia sp.	Opuntia	S	BS
CARYOPHYLLACEAE			
Paronychia sp.	Nailwort		
CHENOPODIACEAE			
Ceratoides lanata	Winterfat	S	BS,R,G
CUPRESSACEAE			
Juniperus osteosperma	Utah juniper	T	PJ,BS
EPHEDRACEAE			
Ephedra nevadensis	Mormon tea	S	BS
Ephedra viridis	Mormon tea	S	PJ,BS

TABLE 5-17 (Cont.)

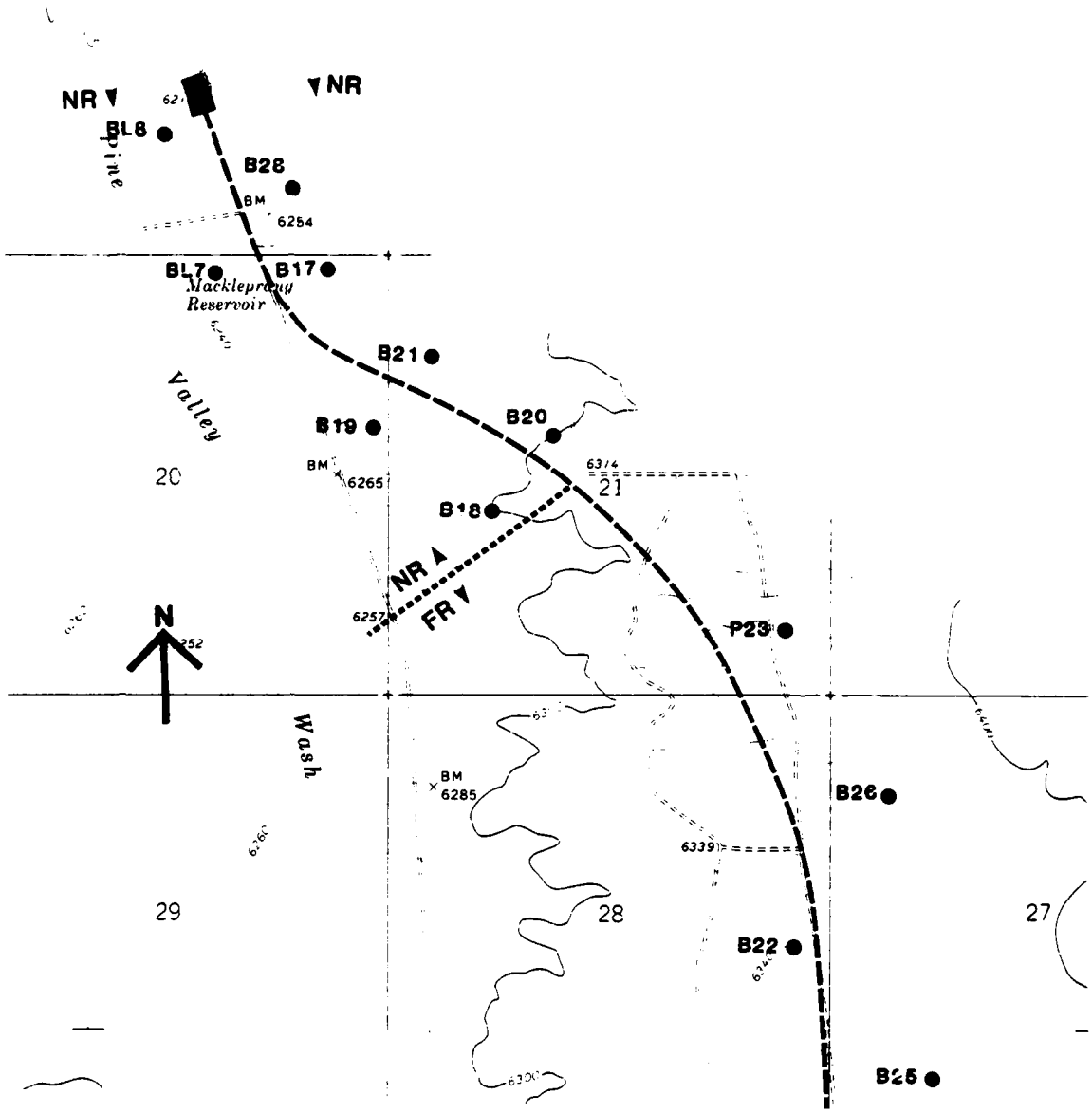
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
EUPHORBIACEAE			
Euphorbia fendleri	Fendler spurge	F	PJ
Euphorbia sp.	Spurge	F	PJ,W
FABACEAE			
Astragalus calycosus	Milkvetch	F	PJ
Astragalus lentiginosus	Milkvetch	F	BLS
Astragalus sp.	Milkvetch	F	PJ,BS,R,G,W
Lupinus sp.	Lupine	F	PJ,BS,W
Dalea searlsiae	Prairie clover	F	PJ
Lotus utahensis	Lotus	F	PJ
MALVACEAE			
Sphaeralcea coccinea	Scarlet globemallow	F	BS,BLS
Sphaeralcea grossulariifolia	Globemallow	F	BS
Sphaeralcea sp.	Globemallow	F	PJ,W,BLS,BS
ONAGRACEAE			
Oenothera sp.	Evening primrose	F	PJ,BS,BLS,W
PAPAVERACEAE			
Argemone munita	Prickly poppy	F	W

TABLE 5-17 (Cont.)

Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
PINACEAE			
Pinus edulis	Pinyon pine	T	PJ,BS
Pinus monophylla	Pinyon pine	T	PJ,BLS,BS
POACEAE			
Agropyron cristatum	Crested wheatgrass	G	BS,W
Agropyron smithii	Western wheatgrass	G	W,BS
Agropyron spicatum	Bluebunch wheatgrass	G	BLS
Aristida purpurea	Purple threeawn	G	PJ,BS,BLS,W
Bouteloua gracilis	Blue grama	G	PJ,BS
Bromus tectorum	Cheatgrass	G	PJ,BS,BLS, R,G,W
Hilaria jamesii	Galleta grass	G	PJ,BS,BLS, R,G
Koeleria cristata	Prairie junegrass	G	BS,BLS
Oryzopsis hymenoides	Indian ricegrass	G	PJ,BS,BLS, R,G,W
Poa sandbergii	Sandberg bluegrass	G	BS,BLS
Sitanion hystrix	Bottlebrush squirreltail	G	W,BLS,BS,G
Sitanion jubatum	Squirreltail	G	PJ
Sporobolus cryptandrus	Sand dropseed	G	BLS,R,G
Sporobolus sp.	Dropseed	G	BS
Stipa comata	Needle-and-thread	G	BS,BLS,W
Stipa sp.	Needlegrass	G	BS

TABLE 5-17 (Cont.)

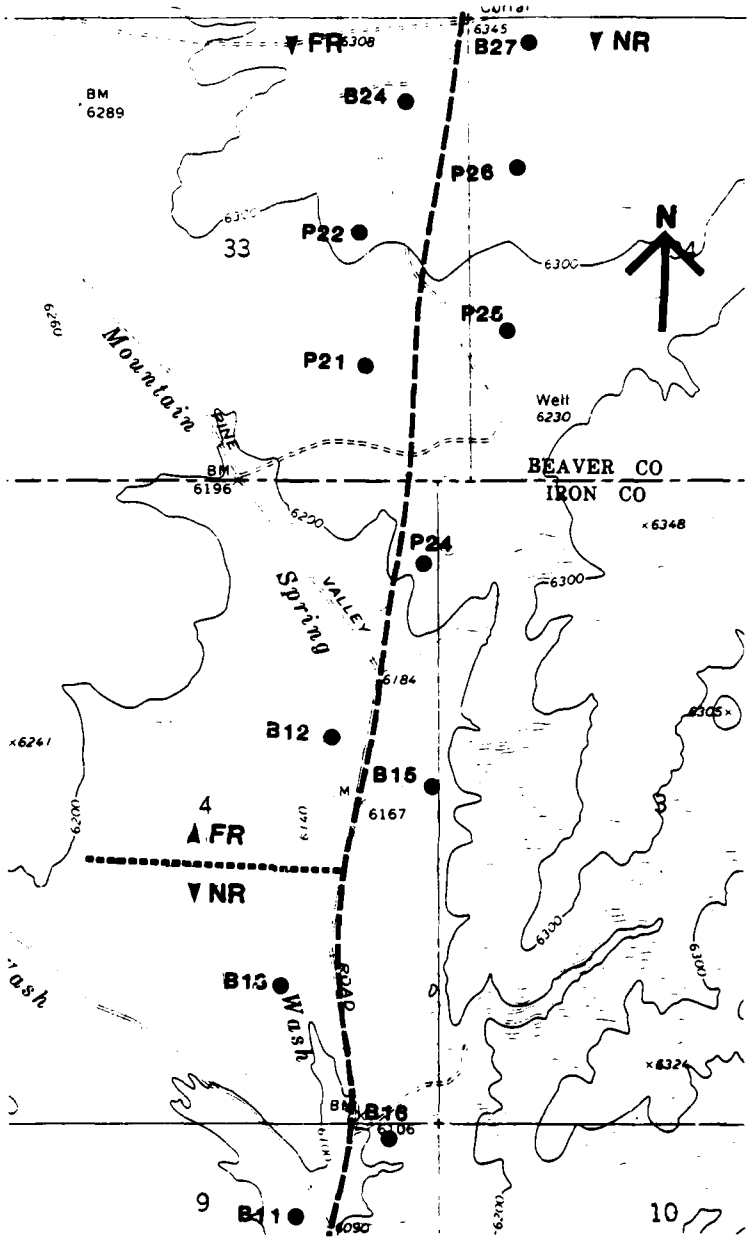
Scientific Name	Common Name	Growth Form[1]	Habitat Type[2]
POLEMONIACEAE			
Ipomopsis congesta	Ballhead gilia	F	PJ,BLS,W
Leptodactylon pungens	Prickleygilia	S	PJ,BS,BLS,W
Phlox sp.	Phlox	F	PJ,BS,BLS
POLYGONACEAE			
Eriogonum cernuum	Nodding eriogonum	F	PJ,BS,G
Eriogonum microthecum	Slenderbush eriogonum	S	PJ,BS,BLS
Eriogonum ovalifolium	Cushion eriogonum	F	PJ
Eriogonum shockleyi	Shockley eriogonum	F	BS
Eriogonum sp.	Eriogonum	F	PJ,BS
ROSACEAE			
Cowania mexicana	Cliffrose	S	PJ,BS
Purshia tridentata	Bitterbrush	S	PJ
SANTALACEAE			
Comandra umbellata	Bastard toadflax	F	PJ,BLS
SCROPHULARIACEAE			
Cordylanthus parviflorus	Bird's beak	F	PJ
Penstemon sp.	Penstemon	F	PJ,BS,BLS
SOLANACEAE			
Nicotiana attenuata	Coyote tobacco	F	W



QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT F-D

FIGURE 5-10a

Ertec
The Earth Technology Corporation

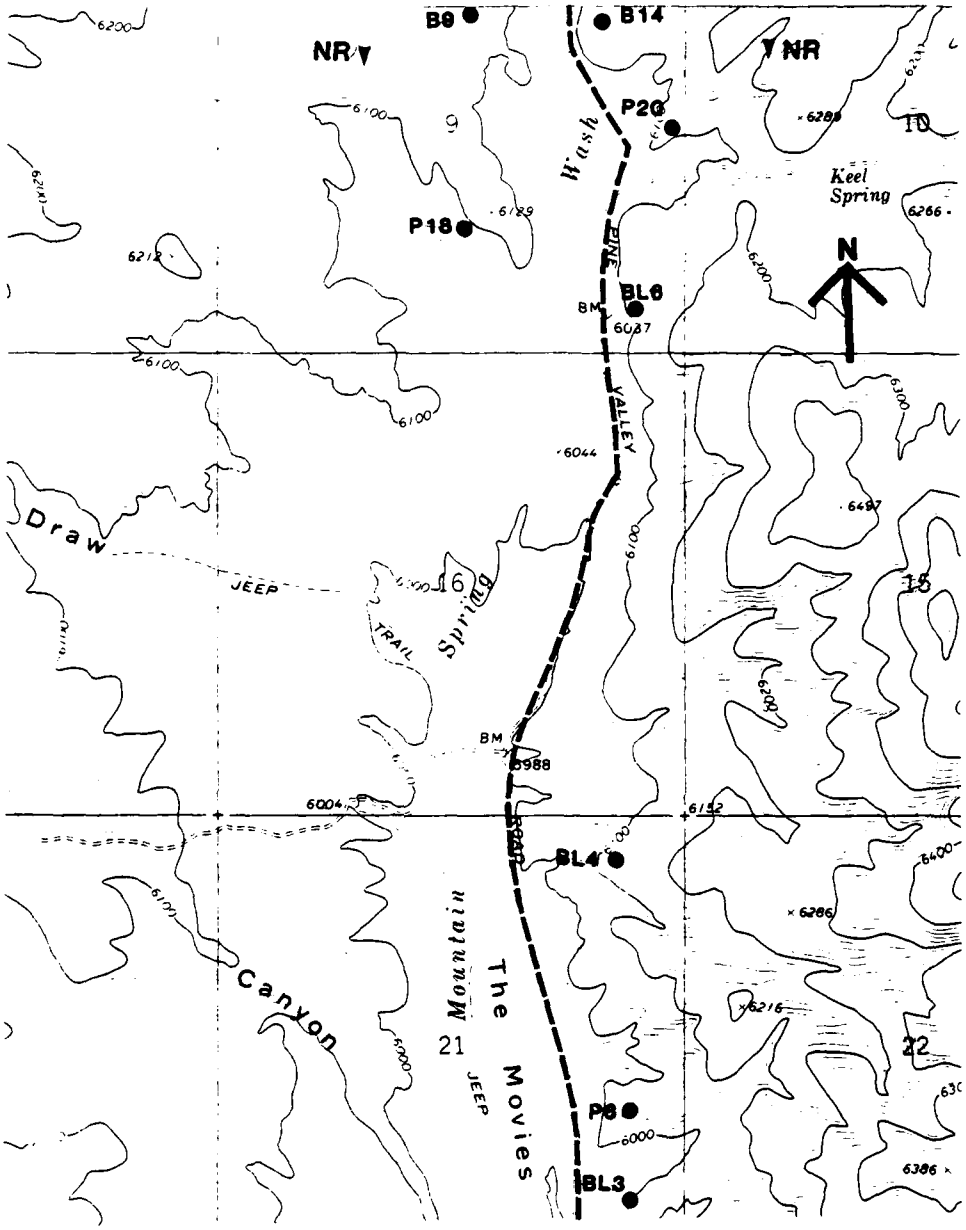


KEY
B=Big Sagebrush
P=Pinyon-Juniper
NR=Not Restricted
FR=Fully Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT F-D

FIGURE 5-10b

Ertec
The Earth Technology Corporation

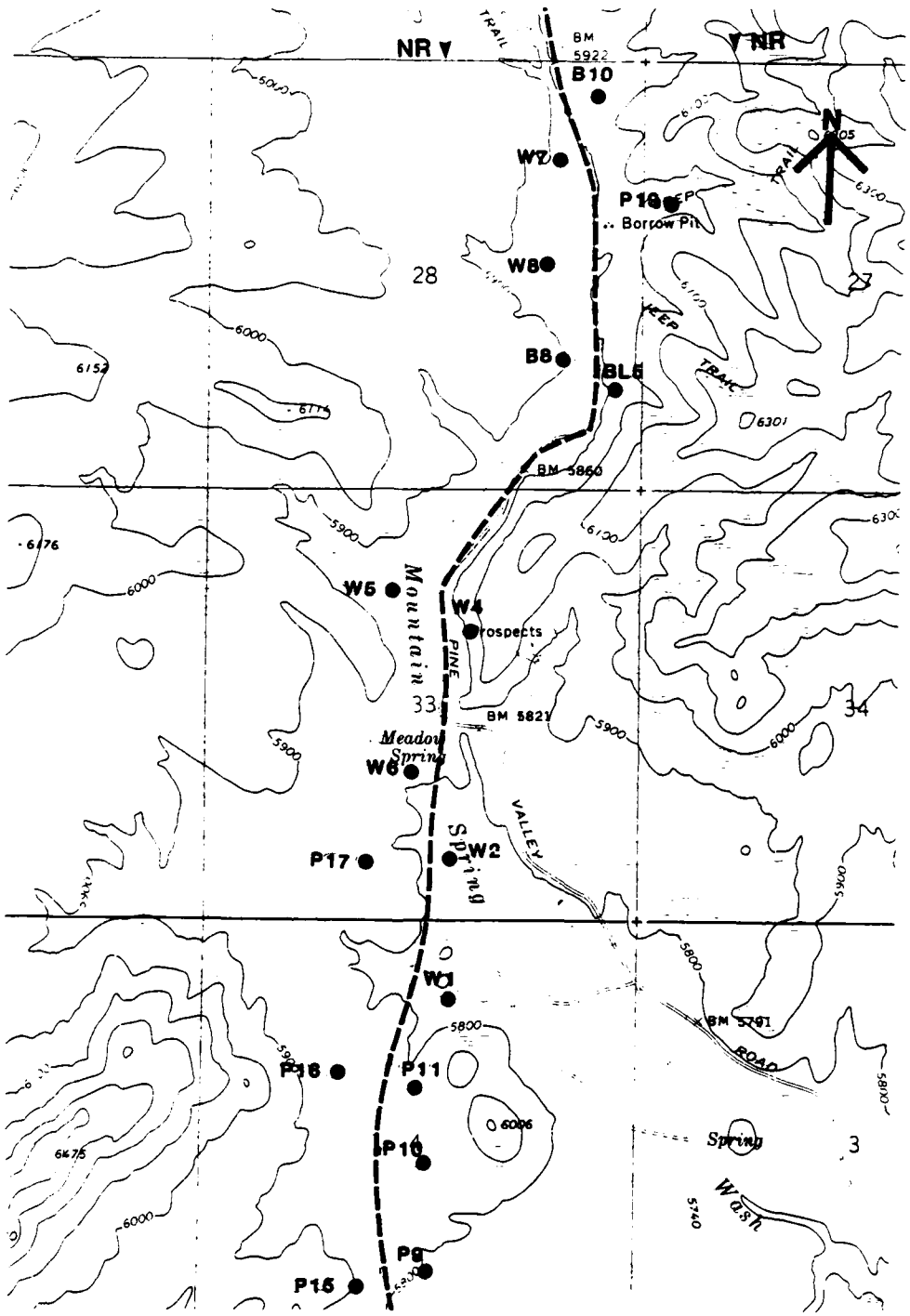


KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT F-D

FIGURE 5-10c

Ertec
The Earth Technology Corporation

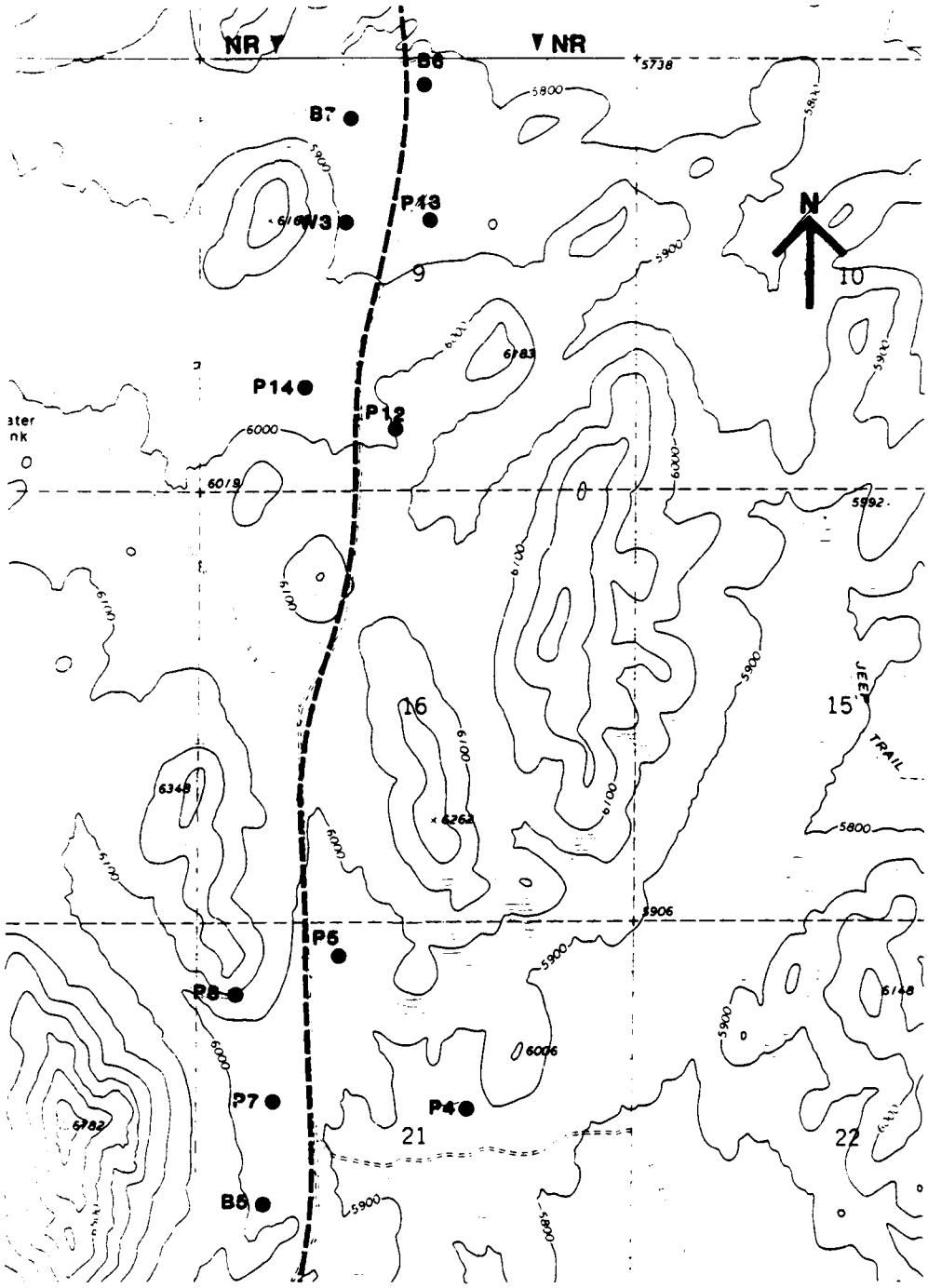


KEY
B=Big Sagebrush
BL=Black Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT F-D

FIGURE 5-10d

Ertec
The Earth Technology Corporation

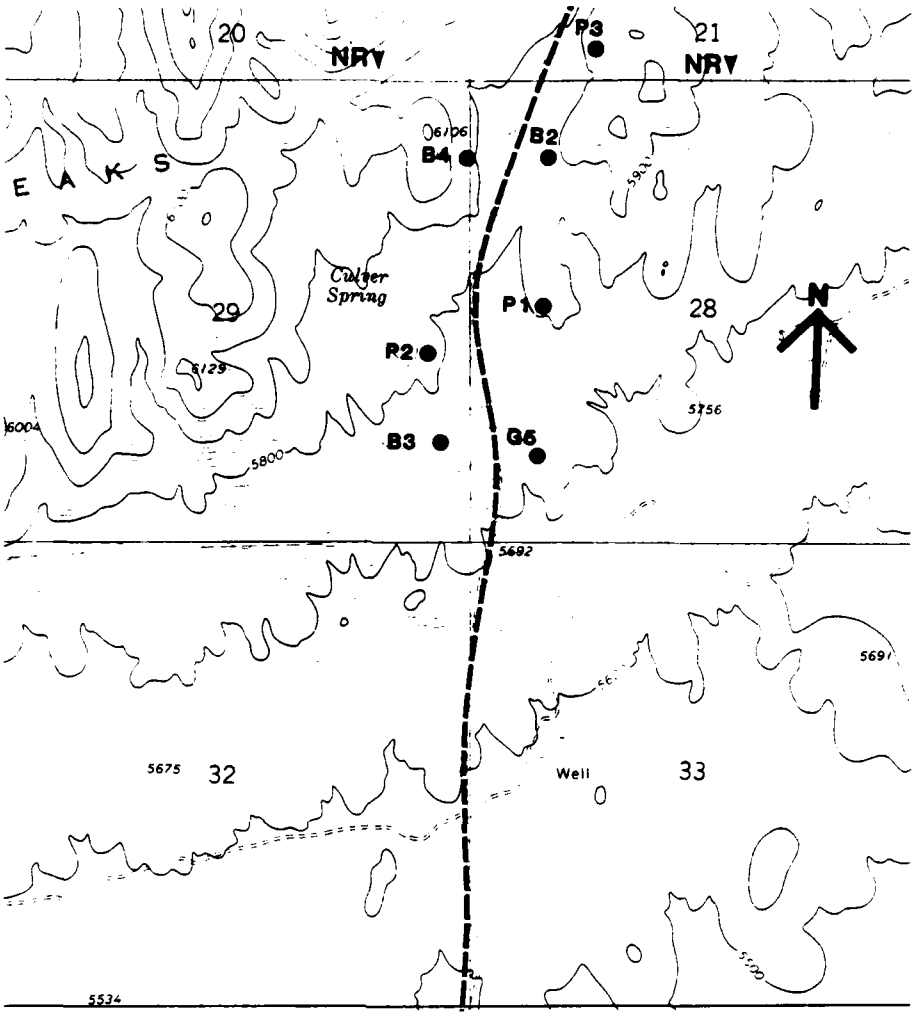


KEY
B=Big Sagebrush
P=Pinyon-Juniper
W=Wash
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT F-D

FIGURE 5-10c

Ertec
The Earth Technology Corporation

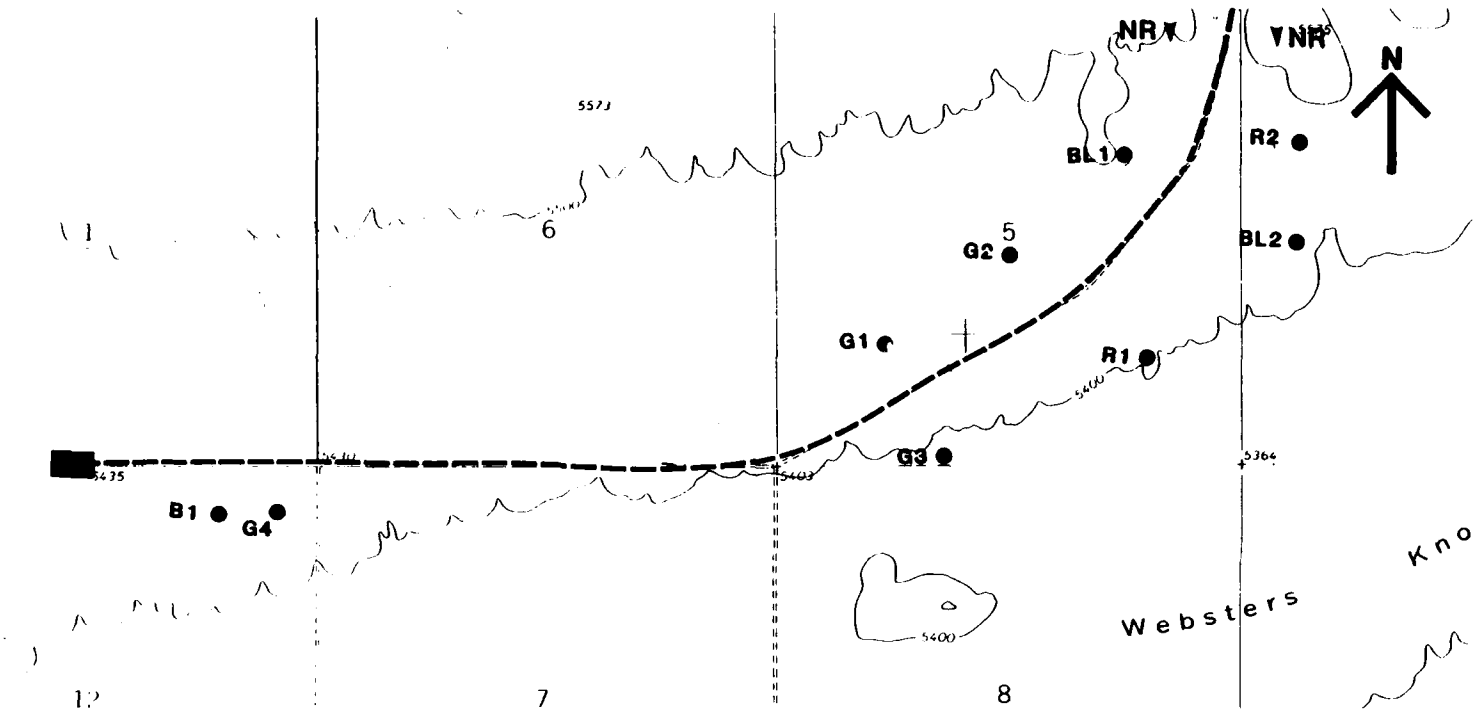


KEY
B=Big Sagebrush
G=Grassland
P=Pinyon-Juniper
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH DTN CORRIDOR SEGMENT F-D

FIGURE 5-10f

Ertec
The Earth Technology Corporation



KEY
B=Big Sagebrush
BL=Black Sagebrush
R=Rabbitbrush
G=Grassland
NR=Not Restricted

QUADRAT LOCATIONS ALONG UTAH
DTN CORRIDOR SEGMENT F-D

FIGURE 5-10g

Ertec
The Earth Technology Corporation

The greatest amount of vegetative cover (45.9 percent) was observed in wash areas, and the lowest amount (25.1 percent) was observed in the black sagebrush association. The largest number of species (55) was observed in the big sagebrush association, and the smallest number of species (7) was found in the rabbitbrush association.

Trees (mostly Juniperus sp.) were found in three associations; the pinyon-juniper association, the black sagebrush association and the big sagebrush association. Shrubs were present in all associations, and formed the greatest portion of the vegetative cover in all but the pinyon-juniper and perennial grassland associations. Forbs were present in all associations, but never provided more than 6 percent of the total vegetative cover.

Cacti observed in the study area included the common prickly-pear (Opuntia polycantha), the less common hedgehog cactus (Echinocereus triglochidiatus) and the rare Coryphantha vivipara var. rosea, listed as Currently Under Review in the 1980 Federal Register.

5.6.2 Overview of Wildlife

Since wildlife are mobile, and releve quadrats are fairly small, wildlife observations obtained only from the releves would have provided insufficient data on species distribution, so observations were combined for 3-mile road segments. Because the road covers a large linear area, it was felt this bould be preferable to grouping wildlife observations by vegetation associations, which might be scattered over many miles. Table 5-18 lists wildlife observed on this Utah DTN Segment, and Appendix F gives data by road segment.

TABLE 5-18

WILDLIFE SIGN AND SIGHTINGS ALONG
UTAH DTN CORRIDOR SEGMENT F-D

Common Name	Scientific Name
Mammals	
Black-tailed jackrabbit	Lepus californicus
Desert cottontail	Sylvilagus audubonii
Cliff chipmunk	Eutamias dorsalis
Pocket gopher	Family Geomyidae
Woodrat	Neotoma sp.
Coyote	Canis latrans
Feral horse	Equus caballus
Pronghorn antelope	Antilocapra americana
Mule deer	Odocoileus hemionus
Birds	
Red-tailed hawk	Buteo jamaicensis
Northern harrier	Circus cyaneus
American kestrel	Falco sparverius
Screech owl	Otus asio
Common flicker	Colaptes auratus
Horned lark	Eremophila alpestris
Scrub jay	Aphelocoma coerulescens
Common raven	Corvus corax
Pinyon jay	Gymnorhinus cyanocephalus
Mountain chickadee	Parus gambeli
Plain titmouse	Parus inornatus
Common bushtit	Psaltriparus minimus
Nuthatch	Sitta sp.
Bewick's wren	Thryomanes bewickii
Rock wren	Salpinctes obsoletus
Loggerhead shrike	Lanius ludovicianus
Shrike sp.	Lanius sp.
Western meadowlark	Sturnella neglecta
Rufous-sided towhee	Pipilo erythrothalmus
Vesper sparrow	Pooecetes gramineus
Sage sparrow	Amphispiza belli
Brewer's sparrow	Spizella breweri
Reptiles	
Short-horned lizard	Phrynosoma douglassi
Side-blotched lizard	Uta stansburiana
Sagebrush lizard	Sceloporus graciosus

Nine mammal species or their sign were observed in the study area. The most common mammal species was the black-tailed jackrabbit (Lepus californicus). Game species included mule deer (Odocoileus hemionus) and pronghorn antelope (Antilocapra americana). The only predator sign observed in the area was that of the coyote (Canis latrans).

Twenty-one species of birds were observed in the study area. Brewer's sparrow (Spizella breweri) and pinyon jay (Gymnorhinus cyanocephala) were the most common birds observed in the area. Raptor observations included the red-tailed hawk (Buteo jamaicensis) and northern harrier (Circus cyaneus). Three species of lizards were the only reptiles observed.

5.6.3 Species of Concern

No threatened or endangered animal species were observed along this DTN Segment, although mule deer and antelope, protected as game species, were both noted.

Most birds in the area have protected status by special law such as the Migratory Bird Treaty Act or Bald Eagle Act. A large number of bird species were observed, including 4 species of raptors, generally a group of special concern to the state.

Several individuals of Coryphantha vivipara var. rosea, a cactus listed as Currently Under Review in the Federal Register (1980a), were observed in the pinyon-juniper association.

6.0 SUMMARY

In August and September of 1981, a biological survey was conducted at four Operational Base Test Sites (OBTS) and adjacent portions of the Designated Transportation Network (DTN) in Nevada and Utah. The Nevada survey included samples within one 6500 acre site in Coyote Spring Valley and a surrounding buffer zone approximately one mile wide, 4 miles of connecting road, and approximately 64 miles of DTN. The Utah surveys included samples within two sites in the vicinity of Milford of approximately 6000 and 3200 acres, and one site near Beryl of approximately 6400 acres. A buffer zone approximately one mile wide surrounding each site and approximately 49 miles of DTN were also surveyed in Utah.

The surveys were designed to provide an overview of vegetation associations and the larger and/or more important associated organisms expected in the area. The survey was designed primarily as an inventory, and this report is basically a data compilation; it does not discuss ecosystem relationships. Background information on many of the wildlife species is available from earlier reports (Fugro 1981, EDAW 1981).

The study areas and results are briefly summarized in Table 6-1 below. This table is not meant to provide a comparative evaluation of the areas, as their sizes varied widely, and sampling methodology was designed to provide maximum information on each site, rather than to provide equivalence in percentage of sample areas and other factors which would be necessary for statistical evaluation.

TABLE 6-1

BIOLOGICAL RESOURCES OBSERVED ON THE NEVADA AND UTAH STUDY AREAS
AUGUST AND SEPTEMBER 1981

	Approximate Study Area (Buffer Zone)*	# Releve Quadrats	Botanical Resources		Wildlife Resources		
			Vegetation Associations	Plant Species (Families)	Mammal Species	Bird Species	Reptile Species
Coyote OBTS/ Connecting Road	6500(3400) 4 miles	126	5	60 (18)	10	9	8
Nevada DTN	64 miles	214	6	98 (24)	9	20	7
Milford Preferred OBTS	6000(10000)	122	5	71 (23)	12	31	9
Milford Alternate OBTS	3200(5400)	106	6	87 (26)	13	25	7
Beryl Preferred OBTS	6400(7000)	92	5	76 (22)	12	36	5
Utah DTN Segment I-D	20 miles	113	6	84 (20)	8	22	7
Utah DTN Segment G-Jockey Spring	8 miles	59	5	72 (23)	11	27	5
Utah DTN Segment F-D	21 miles	76	6	62 (15)	9	21	3

* Measurements in acres, unless otherwise specified.

However, it can be noted that although the Coyote OBTS was the largest of the four OBTS areas, less variety of plants (both families and species), and many fewer bird species were observed. In contrast, the Milford Alternate Site, approximately half the size of the other areas, appeared to contain the greatest number of plant associations, families, and species, and the greatest number of mammal species. Many bird species were also observed. Because of the greater variety of associations, the Milford Alternate Site was relatively more heavily sampled than the other areas.

The species lists contained in the report provide an overview of each area but it should be recognized that both plant and animal species are often seasonal and unevenly distributed. The survey was not undertaken during the optimum period; a May survey would undoubtedly add a number of plant species to the listing. The wildlife species present may also vary depending upon migration, hibernation, seasonal range changes and other factors; a yearlong survey would provide a more complete listing of wildlife species using the area.

Except for 2 bald eagles noted in the Milford Preferred OBTS, no threatened or endangered species were observed in the study areas, although scattered individuals of Coryphantha vivipara, listed as Currently Under Review in the Federal Register (1980a), were observed in some locations.

One area stands out as being more likely to contain rare plants than others. A number of scattered populations of Penstemon concinnus were observed between the DTN segments I-D and G-Jockey Spring near Fisher's Wash. A large portion of the area is potential habitat for this plant, and a more in-depth survey would likely locate more populations. The populations and habitat are mapped in Section 5.4.

7.0 REFERENCES CITED

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_____, 1980b. Republication of the lists of endangered and threatened species and corrections of technical errors in final rules. Vol. 44, No. 99, pp. 33768-33780. May 20.

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APPENDIX A

BIRD CENSUS TRANSECT RESULTS

TABLE A-1

BIRD SPECIES OBSERVED ON THE
COYOTE OBTS BIRD TRANSECT*
AUGUST 8-10, 1981

Species	Date	Number Seen	Number Heard
Rough-winged swallow (*Stelgidopteryx ruficolllis*)	8/8/81	0	0
	8/9/81	0	0
	8/10/81	1	0
Loggerhead strike (*Lanius ludovicianus*)	8/8/81	0	0
	8/9/81	0	0
	8/10/81	1	0

* T11S, R63E, 34, NE/SW

TABLE A-2

BIRD SPECIES OBSERVED ON THE
MILFORD PREFERRED OBTS BIRD TRANSECTS
AUGUST 25-27, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Mourning dove	8/25/81	3	0
(*Zenaida macroura*)	8/26/81	2	1
	8/27/81	2	1
Horned lark	8/25/81	0	0
(*Eremophila alpestris*)	8/26/81	0	0
	8/27/81	0	2
Pinyon jay	8/25/81	1	0
(*Gymnorhinus*	8/26/81	0	0
cyanocephala)	8/27/81	0	0
Mockingbird	8/25/81	0	0
(*Mimus polyglottos*)	8/26/81	0	0
	8/27/81	1	0
Sage sparrow	8/25/81	16	5
(*Amphispiza belli*)	8/26/81	6	3
	8/27/81	13	4
Brewer's sparrow	8/25/81	4	0
(*Spizella breweri*)	8/26/81	4	4
	8/27/81	1	3
Transect 2**			
Northern harrier	8/25/81	0	0
(*Circus cyaneus*)	8/26/81	0	0
	8/27/81	1	0
Mourning dove	8/25/81	32	1
(*Zenaida macroura*)	8/26/81	28	0
	8/27/81	22	3

* T32S, R12W, Sec. 12, S 1/2
** T32S, R12W, Sec. 4, NW/SE

TABLE A-2 (cont.)

Species	Date	Number Seen	Number Heard
Poor-will (*Phalaenoptilus nuttallii*)	8/25/81	1	0
	8/26/81	0	0
	8/27/81	0	0
Common nighthawk (*Chordeiles minor*)	8/25/81	1	0
	8/26/81	0	0
	8/27/81	0	0
Horned lark (*Eremophila alpestris*)	8/25/81	0	2
	8/26/81	0	0
	8/27/81	0	0
Scrub jay (*Aphelocoma coerulescens*)	8/25/81	0	0
	8/26/81	0	0
	8/27/81	0	1
Plain titmouse (*Parus inornatus*)	8/25/81	3	0
	8/26/81	2	0
	8/27/81	5	1
Common bushtit (*Psaltriparus minimus*)	8/25/81	3	4
	8/26/81	5	3
	8/27/81	5	6
Bewick's wren (*Thryomanes bewickii*)	8/25/81	1	0
	8/26/81	1	0
	8/27/81	0	0
Black-throated sparrow (*Amphispiza bilineata*)	8/25/81	1	0
	8/26/81	0	1
	8/27/81	0	0
Sage sparrow (*Amphispiza belli*)	8/25/81	0	0
	8/26/81	3	0
	8/27/81	13	2
Brewer's sparrow (*Spizella breweri*)	8/25/81	3	1
	8/26/81	1	0
	8/27/81	1	2

TABLE A-3

BIRD SPECIES OBSERVED ON THE
MILFORD ALTERNATE OBTS BIRD TRANSECTS 1 AND 2
SEPTEMBER 1-3, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Horned lark	9/1/81	3	0
(*Eremophila alpestris*)	9/2/81	7	1
	9/3/81	0	0
Common raven	9/1/81	0	0
(*Corvus corax*)	9/2/81	2	0
	9/3/81	0	0
Sage sparrow	9/1/81	6	2
(*Amphispiza belli*)	9/2/81	8	1
	9/3/81	11	5
Brewer's sparrow	9/1/81	1	1
(*Spizella breweri*)	9/2/81	0	2
	9/3/81	0	0
Transect 2**			
Common raven	9/1/81	0	0
(*Corvus corax*)	9/2/81	0	0
	9/3/81	1	0
Western meadowlark	9/1/81	1	2
(*Sturnella neglecta*)	9/2/81	0	0
	9/3/81	0	0
Sage sparrow	9/1/81	9	3
(*Amphispiza belli*)	9/2/81	9	7
	9/3/81	10	7
Brewer's sparrow	9/1/81	5	3
(*Spizella breweri*)	9/2/81	0	0
	9/3/81	0	0

* T30S, R12W, Sec. 34, NW to SE
** T31S, R12W, Sec. 1, SE/SW

TABLE A-4

BIRD SPECIES OBSERVED ON THE
BERYL PREFERRED OBTS BIRD TRANSECTS 1 AND 2
AUGUST 19-21, 1981

Species	Date	Number Seen	Number Heard
Transect 1*			
Horned lark	8/19/83	3	2
(*Eremophila alpestris*)	8/20/81	8	0
	8/21/81	5	1
Western meadowlark	8/19/81	0	0
(*Sturnella neglecta*)	8/20/81	1	0
	8/21/81	0	0
Vesper sparrow	8/19/81	0	0
(*Pooecetes gramineus*)	8/20/81	0	0
	8/21/81	1	0
Brewer's sparrow	8/19/81	4	1
(*Spizella breweri*)	8/20/81	6	0
	8/21/81	9	4
Transect 2**			
Cooper's hawk	8/19/81	0	0
(*Accipiter cooperii*)	8/20/81	1	0
	8/21/81	0	0
Great horned owl	8/19/81	1	0
(*Bubo virginianus*)	8/20/81	0	0
	8/21/81	0	0
Gray flycatcher	8/19/81	1	0
(*Empidonax wrightii*)	8/20/81	0	0
	8/21/81	0	0
Pinyon jay	8/19/81	42	3
(*Gymnorhinus*	8/20/81	5	5
cyanocephalus)	8/21/81	1	3

* T31S, R18W, Sec. 33, SE/SE
** T31S, R18W, Sec. 21, NE/NE

TABLE A-4 (cont.)

Species	Date	Number Seen	Number Heard
Mountain chickadee (*Parus gambeli*)	8/19/81	0	0
	8/20/81	0	1
	8/21/81	2	0
Plain titmouse (*Parus inornatus*)	8/19/81	0	0
	8/20/81	0	0
	8/21/81	1	2
Common bushtit (*Psaltriparus minimus*)	8/19/81	2	0
	8/20/81	0	1
	8/21/81	0	5
Bewick's wren (*Thryomanes bewickii*)	8/19/81	0	0
	8/20/81	1	0
	8/21/81	0	0
Blue-gray gnatcatcher (*Polioptila caerulea*)	8/19/81	0	0
	8/20/81	1	0
	8/21/81	0	0
Vesper sparrow (*Pooecetes gramineus*)	8/19/81	1	0
	8/20/81	0	0
	8/21/81	0	0

APPENDIX B

SMALL MAMMAL TRAPPING RESULTS

TABLE B-1

RESULTS OF SMALL MAMMAL TRAPPING*
COYOTE OBTS
AUGUST 8-10, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope ground squirrel *Ammospermophilus leucurus*	8/8/81	0	0	0	1	
	8/9/81	0	0	0		
	8/10/81	1	0	1		
Merriam kangaroo rat *Dipodomys merriami*	8/8/81	1	4	5	17	1 escaped before sexing
	8/9/81	3	3	6		
	8/10/81	2	3	6		
Unidentified species (Desert kangaroo rat *Dipodomys deserti*?)	8/8/81	0	0	0	1	Escaped
	8/9/81	0	0	0		
	8/10/81	0	0	1		
Traps sprung without animals	8/8/81			2		Kit fox scat on 1 trap
	8/9/81			4		Kit fox scat on 2 traps
	8/10/81			3		
Total number of species taken	8/8/81			1	3(?)	
	8/9/81			1		
	8/10/81			3(?)		

* 74 sherman live traps set per day.

TABLE B-2

RESULTS OF SMALL MAMMAL TRAPPING*
MILFORD PREFERRED OBTS
AUGUST 25-27, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope ground squirrel *Ammospermophilus leucurus*	8/25/81	0	0	0	2	
	8/26/81	1	0	1		
	8/27/81	0	1	1		
Little pocket mouse *Perognathus longimembris*	8/25/81	1	0	1	7	
	8/26/81	2	0	2		
	8/27/81	2	2	4		
Longtail pocket mouse *Perognathus formosus*	8/25/81	0	0	0	3	
	8/26/81	1	0	1		
	8/27/81	1	1	2		
Deer mouse *Peromyscus maniculatus*	8/25/81	1	1	2	5	
	8/26/81	1	1	2		
	8/27/81	1	0	1		
Northern grasshopper mouse *Onychomys leucogaster*	8/25/81	0	0	0	1	
	8/26/81	0	0	0		
	8/27/81	0	1	1		
Traps sprung without animals	8/25/81			0		
	8/26/81			0		
	8/27/81			2		
Total number of species taken	8/25/81			2	5	
	8/26/81			4		
	8/27/81			5		

* 74 sherman live traps set per day.

TABLE B-3

RESULTS OF SMALL MAMMAL TRAPPING*
MILFORD ALTERNATE OBTS
SEPTEMBER 1-3, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
White-tailed antelope ground squirrel *Ammospermophilus leucurus*	9/1/81	0	0	0	2	
	9/2/81	0	0	0		
	9/3/81	2	0	2		
Little pocket mouse *Perognathus longimembris*	9/1/81	0	1	1	1	
	9/2/81	0	0	0		
	9/3/81	0	0	0		
Great Basin pocket mouse *Perognathus parvus*	9/1/81	4	5	9	36	
	9/2/81	6	7	13		
	9/3/81	9	5	14		
Dark kangaroo mouse *Microdipodops megacephalus*	9/1/81	4	0	4	9	
	9/2/81	1	1	2		
	9/3/81	3	0	3		
Ord kangaroo rat *Dipodomys ordi*	9/1/81	1	0	1	3	
	9/2/81	0	1	1		
	9/3/81	0	1	1		
Western harvest mouse *Reithrodontomys megalotis*	9/1/81	1	4	6	20	1 escaped before sexing
	9/2/81	1	4	5		
	9/3/81	3	6	9		
Deer mouse *Peromyscus maniculatus*	9/1/81	6	10	16	51	
	9/2/81	5	10	15		
	9/3/81	8	12	20		
Northern grasshopper mouse *Onychomys leucogaster*	9/1/81	0	0	0	1	
	9/2/81	0	0	0		
	9/3/81	1	0	1		
Desert woodrat *Neotoma lepida*	9/1/81	1	1	2	2	
	9/2/81	0	0	0		
	9/3/81	0	0	0		

* 74 sherman live traps set per day.

TABLE B-3 (cont.)

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Traps sprung without animals	9/1/81			2	12	
	9/2/81			3		
	9/3/81			7		
Total number of species taken	9/1/81			7	9	
	9/2/81			5		
	9/3/81			7		

TABLE B-4

RESULTS OF SMALL MAMMAL TRAPPING*
BERYL PREFERRED OBTS
AUGUST 19-21 AND SEPTEMBER 23-25, 1981

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Cliff chipmunk	8/19/81	0	0	0	2	
Eutamias dorsalis	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/24/81	0	1	1		
	9/25/81	0	1	1		
Great Basin pocket mouse	8/19/81	1	0	1	9	
	8/20/81	2	0	2		
Perognathus parvus	8/21/81	2	3	5		
	9/23/81	0	0	0		
	9/24/81	1	0	1		
	9/25/81	0	0	0		
Deer mouse	8/19/81	9	13	24	107	9 escaped before sexing
Peromyscus maniculatus	8/20/81	8	12	21		2 with tumors
	8/21/81	13	16	35		1 with large wound
	9/23/81	3	4	7		
	9/24/81	1	7	8		
	9/25/81	6	6	12		
Pinyon mouse	8/19/81	0	0	0	7	
Peromyscus truei	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/23/81	0	0	0		
	9/24/81	2	2	4		
	9/25/81	1	2	3		
Sagebrush vole	8/19/81	1	0	1	1	
Lagurus curtatus	8/20/81	0	0	0		
	8/21/81	0	0	0		
	9/23/81	0	0	0		
	9/24/81	0	0	0		
	9/25/81	0	0	0		

* 74 sherman live traps set per day.

TABLE B-4 (cont.)

Species	Dates Trapped	Number Female	Number Male	Daily Total	Species Total	Remarks
Traps sprung without animals	8/19/81			2		
	8/20/81			0		
	8/21/81			1		
	9/23/81			2		
Total number of species taken	8/19/81			3	5	
	8/20/81			2		
	8/21/81			2		
	9/23/81			1		
	9/24/81			4		
	9/25/81			3		

APPENDIX C

RELEVE QUADRAT
DATA FOR
NEVADA

TABLE C-1a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS AND CONNECTING ROAD
— MOJAVE YUCCA ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents																	
Acamptopappus shockleyi			1													0.1	7
Ambrosia dumosa	9			8	3	3	6	5	5	2	11	11	6	17	5	6.1	87
Echinocereus engelmannii						+	+	+								+	20
Ephedra nevadensis												1				0.1	7
Ferocactus acanthodes							1									0.1	7
Krameria sp.	1	1		1	3	2	2		+	2				1		0.9	60
Larrea tridentata	5	9	4	7		3	3		5			6	8		5	3.7	67
Opuntia erinacea						1		2								0.2	13
Psorothamnus fremontii			5		2	2		4	2							1.0	67
Salazaria mexicana										3						0.2	7
Thamnosma montana			4	3	4	4		3	3							1.4	60
Yucca schidigera	4		3		3	2	4		4	15	2	2	2	1	2	2.9	80
TOTAL	19	10	17	19	15	17	16	14	19	22	13	20	16	19	12	16.5	——
Forbs																	
Baileya multiradiata									+							+	7
Chorizanthe rigida												+				+	7
Dyssodia pentachaeta								+								+	7
Eriogonum inflatum			1			1		1						+		0.2	27
Plantago sp.		1					+									0.1	13
Sisymbrium sp.									+							+	7
Sphaeralcea ambigua											+		+			+	13
Sphaeralcea sp.									1							0.1	7
TOTAL	0	1	1	0	0	1	+	1	1	0	+	+	+	+	0	0.3	——

TABLE C-1a (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Avg. Cover(%)	Frequency (%)
Grasses																	
Aristida purpurea									1							0.1	7
Blepharidachne kingii				+		+	+		+							+	27
Hilaria jamesii			+					+								+	13
Hilaria rigida										1						0.1	7
TOTAL	0	0	+	+	0	+	+	+	1	1	0	0	0	0	0	0.1	---
TOTAL VEGETATIVE COVER	19	11	18	19	15	18	16	15	21	23	13	20	16	19	12	17.0	---
BARE GROUND	9	7	9	3	10	6	10	8	5	35	15	10	8	29	10	11.6	---
GRAVEL AND ROCK	70	79	70	77	73	73	72	74	70	41	70	66	75	50	74	68.9	---
LITTER	2	3	3	1	2	3	2	3	4	1	2	4	1	2	4	2.5	---
TOTAL	81	89	82	81	85	82	84	85	79	77	87	80	84	81	88	83.0	---

TABLE C-1b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS
— SHADSCALE ASSOCIATION --

Species	Releve Number 1	Releve Number 2	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents				
Ambrosia dumosa	4	2	3.0	100
Atriplex confertifolia	2	5	3.5	100
Krameria sp.	2		1.0	50
Larrea tridentata		1	0.5	50
TOTAL	8	8	8.0	---
Grasses				
Bromus rubens		1	0.5	50
TOTAL	0	1	0.5	---
TOTAL VEGETATIVE COVER	8	9	8.5	---
BARE GROUND	3	81	42.0	---
GRAVEL AND ROCK	88	4	46.0	---
LITTER	1	6	3.5	---
TOTAL	92	91	91.5	---

TABLE C-1c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS
— HOLLY-LEAFED SALTBUSH ASSOCIATION —

Species	Releve Number 1	Releve Number 2	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents				
Ambrosia dumosa	2	1	1.5	100
Atriplex hymenelytra	4	2	3.0	100
Ephedra nevadensis	6		3.0	50
Ephedra sp.		1	0.5	50
Krameria sp.	2		1.0	50
Psorothamnus fremontii		+	0.0	50
TOTAL	14	4	9.0	---
Forbs				
Eriogonum inflatum	1		0.5	50
TOTAL	1	0	0.5	---
Grasses				
Bromus rubens	3		1.5	50
TOTAL	3	0	1.5	---
TOTAL VEGETATIVE COVER	18	4	11.0	---
BARE GROUND	7	3	5.0	---
GRAVEL AND ROCK	72	92	82.0	---
LITTER	3	1	2.0	---
TOTAL	82	96	89.0	---

TABLE C-1d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS
— CREOSOTE BUSH / WHITE BURSAGE ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Shrubs and Succulents																		
Acamptopappus shockleyi																		
Ambrosia dumosa	9	9	8	9	11	10	9	12	21	13	7	10	7	5	8	9	14	16
Ephedra nevadensis																		
Ephedra sp.	1																+	
Grayia spinosa																		
Krameria sp.				3		3	+	+	+		4	4			3	4	1	
Larrea tridentata	5	5	5	4	4	3		2	4	6	2	4	+	8	3	3	5	8
Lepidium fremontii																		
Menodora spinescens																		
Opuntia echinocarpa																		
Opuntia erinacea	+																	
Psorothamnus fremontii																		
Psorothamnus sp.																		
Stephanomeria pauciflora																		
TOTAL	15	14	13	16	15	16	9	14	25	19	13	18	7	13	14	16	20	24
Forbs																		
Baileya multiradiata																		
Chorizanthe rigida																		
Descurainia sp.						+							1				+	+
Eriogonum inflatum						+												
Sisymbrium sp.																		
Sphaeralcea ambigua													1					
Sphaeralcea sp.				2	+		1		+	+		1			1	2	+	+
TOTAL	0	0	0	2	+	+	1	0	+	+	0	1	2	0	1	2	+	+

TABLE C-1d (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Grasses																		
Blepharidachne kingii						+												
Bromus rubens			+	+		+		+		+	1		1	+			+	+
Hilaria rigida																		
Oryzopsis hymenoides		+																
Stipa sp.															1			
TOTAL	0	+	+	+	0	+	0	+	0	+	1	0	1	+	1	0	+	+
TOTAL VEGETATIVE COVER	15	14	13	18	15	16	10	14	25	19	14	19	10	13	16	18	20	24
BARE GROUND	17	9	5	4	4	5	5	5	8	8	3	3	52	8	7	3	20	10
GRAVEL AND ROCK	65	76	81	77	81	75	84	78	63	69	82	77	35	78	76	78	55	63
LITTER	3	1	1	1	+	2	1	2	3	3	1	1	3	1	1	1	3	2
TOTAL	85	86	87	82	85	82	90	85	74	80	86	81	90	87	84	82	78	75

TABLE C-1d (Cont.)

Species	Releve Number 19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Shrubs and Succulents															
Acamptopappus shockleyi															
Ambrosia dumosa	18	9	12	6	6	12	9	11	9	6	14	10	8	8	7
Ephedra nevadensis						3									
Ephedra sp.													3		4
Grayia spinosa															
Krameria sp.		4			2					1					
Larrea tridentata	2	3	5	5			8	4	7	12	3	3		6	5
Lepidium fremontii															
Menodora spinescens															
Opuntia echinocarpa															
Opuntia erinacea															
Psorothamnus fremontii															
Psorothamnus sp.															
Stephanomeria pauciflora															
TOTAL	20	16	17	11	8	15	17	15	16	19	17	13	11	14	16
Forbs															
Baileya multiradiata															
Chorizanthe rigida					+										
Descurainia sp.	+										+				
Eriogonum inflatum															
Sisymbrium sp.															
Sphaeralcea ambigua					1	1							+		
Sphaeralcea sp.									3					1	1
TOTAL	+	0	0	0	1	1	0	0	3	0	+	0	+	1	1

TABLE C-1d (Cont.)

Species	Releve Number 19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Grasses															
Blepharidachne kingii															
Bromus rubens	2														
Hilaria rigida															
Oryzopsis hymenoides															
Stipa sp.															
TOTAL	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VEGETATIVE COVER	22	16	17	11	9	16	17	15	19	19	17	13	11	15	17
BARE GROUND	60	3	5	4	5	7	5	14	5	5	8	10	5	4	3
GRAVEL AND ROCK	15	79	77	84	85	75	77	70	75	74	73	76	82	80	79
LITTER	3	2	1	1	1	2	1	1	1	2	2	1	2	1	1
TOTAL	78	84	83	89	91	84	83	85	81	81	83	87	89	85	83

TABLE C-1d (Cont.)

Species	Releve Number 34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Shrubs and Succulents																
Acamptopappus shockleyi																
Ambrosia dumosa	8	10	6	9	8	8	5	7	13	7	12	6	9	9	11	8
Ephedra nevadensis																
Ephedra sp.	3		4							1	2					2
Grayia spinosa									1							
Krameria sp.	2									4						
Larrea tridentata	6	8		4	4	3	7	8	6	3	4	6	6	4	7	5
Lepidium fremontii																
Menodora spinescens																
Opuntia echinocarpa		1				1										
Opuntia erinacea																
Psorothamnus fremontii																
Psorothamnus sp.			2								1					
Stephanomeria pauciflora																
TOTAL	19	19	12	13	12	12	12	15	20	15	19	12	15	13	18	15
Forbs																
Baileya multiradiata																
Chorizanthe rigida																
Descurainia sp.					+				+				2	1		
Eriogonum inflatum										+						+
Sisymbrium sp.																
Sphaeralcea ambigua							+					+				
Sphaeralcea sp.			1	2						2	1					
TOTAL	0	0	1	2	+	0	+	0	+	2	1	+	2	1	0	+

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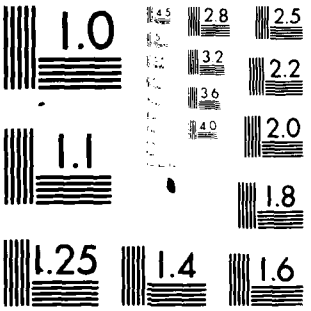

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

TABLE C-1d (Cont.)

Species	Releve Number 34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Grasses																
Blepharidachne kingii																
Bromus rubens					1								+	+		+
Hilaria rigida																
Oryzopsis hymenoides																
Stipa sp.																
TOTAL	0	0	0	0	1	0	0	0	0	0	0	0	+	+	0	+
TOTAL VEGETATIVE COVER	19	19	13	15	13	12	12	15	20	17	20	12	17	14	18	15
BARE GROUND	6	5	4	6	57	8	8	3	8	3	8	5	55	64	4	5
GRAVEL AND ROCK	73	71	82	78	38	79	79	81	69	79	71	81	25	10	76	79
LITTER	2	5	1	1	3	1	1	1	3	1	1	2	3	2	2	1
TOTAL	81	81	87	85	98	88	88	85	80	83	80	88	83	76	82	85

TABLE C-1d (Cont.)

Species	Releve Number 50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Shrubs and Succulents																
Acamptopappus shockleyi																
Ambrosia dumosa	16	18	13	7	9	4	3	14	10	11	11	18	8	7	10	10
Ephedra nevadensis																
Ephedra sp.		2	2	4		1	+		1			1	2	2		
Grayia spinosa																
Krameria sp.				2				1							1	
Larrea tridentata	5	6	4	5	3	3	10	6	1	5	5	6		3	3	5
Lepidium fremontii																
Menodora spinescens		1							+							
Opuntia basilaris																
Opuntia echinocarpa		+									+					
Opuntia erinacea									+							
Psorothamnus fremontii						2		+					3			
Psorothamnus sp.																
Stephanomeria pauciflora																
TOTAL	21	27	19	18	12	10	13	21	12	16	16	25	13	12	14	15
Forbs																
Baileya multiradiata																
Chorizanthe rigida																
Descurainia sp.	+								+		+	+				
Eriogonum inflatum																
Sisymbrium sp.																
Sphaeralcea ambigua													1			
Sphaeralcea sp.	+	+		1				+		+						
TOTAL	+	+	0	1	0	0	0	+	+	+	+	+	1	0	0	0

TABLE C-1d (Cont.)

Species	Releve Number 50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Grasses																
Blepharidachne kingii											+					
Bromus rubens			+								+	+			+	
Hilaria rigida			3													
Oryzopsis hymenoides																
Stipa sp.																
TOTAL	0	0	3	0	0	0	0	0	0	0	+	+	0	0	+	0
TOTAL VEGETATIVE COVER	21	27	22	19	12	10	13	21	12	16	16	25	14	12	14	15
BARE GROUND	25	10	42	10	12	3	4	2	5	3	10	44	75	2	8	45
GRAVEL AND ROCK	48	59	30	69	75	86	82	70	80	80	70	28	10	84	76	35
LITTER	5	3	6	2	1	1	1	6	2	1	2	2	1	2	2	5
TOTAL	78	72	78	81	88	90	87	78	87	84	82	74	86	88	86	85

TABLE C-1d (Cont.)

Species	Releve Number 66	67	68	69	70	71	72	73	74	75	76	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents													
Acamptopappus shockleyi						2						0.0	1.3
Ambrosia dumosa	11	3	8	15	9	2	8	1	7	11	10	9.5	100.0
Ephedra nevadensis			1									0.0	1.3
Ephedra sp.											5	0.5	23.7
Grayia spinosa												0.0	1.3
Krameria sp.	2			+								0.4	26.3
Larrea tridentata	1	5		6		3	7	3	4	5	4	4.3	89.5
Lepidium fremontii						1							
Menodora spinescens												0.0	3.9
Opuntia echinocarpa					1							0.0	6.6
Opuntia erinacea												+	1.3
Psorothamnus fremontii												0.1	7.9
Psorothamnus sp.					2	3					+	0.1	2.6
Stephanomeria pauciflora												0.0	1.3
TOTAL	14	11	9	21	12	11	15	4	11	16	19	15.2	——
Forbs													
Baileya multiradiata			+									+	1.3
Chorizanthe rigida		+										+	2.6
Descurainia sp.												0.1	18.4
Eriogonum inflatum					+	1						0.0	6.6
Sisymbrium sp.			+									+	1.3
Sphaeralcea ambigua												0.1	9.2
Sphaeralcea sp.				+			+		+			0.2	32.9
TOTAL	0	+	+	+	+	1	+	0	+	0	0	0.4	——

TABLE C-1d (Cont.)

Species	Releve Number 66	67	68	69	70	71	72	73	74	75	76	Avg. Cover(%)	Frequency (%)
Grasses													
Blepharidachne kingii						+						0.0	3.9
Bromus rubens	+		+						+		1	0.1	30.3
Hilaria rigida	1											0.1	2.6
Oryzopsis hymenoides			2									0.0	2.6
Stipa sp.												0.0	1.3
TOTAL	1	0	2	0	0	+	0	0	+	0	1	0.1	---
TOTAL VEGETATIVE COVER	15	11	11	21	12	12	15	4	11	16	20	15.7	---
BARE GROUND	53	10	50	49	6	5	7	4	21	34	8	14.7	---
GRAVEL AND ROCK	30	75	34	26	80	80	75	92	65	48	70	67.4	---
LITTER	3	4	5	3	2	3	3	+	2	2	2	2.0	---
TOTAL	86	89	89	78	88	88	85	96	88	84	80	84.1	---

TABLE C-1e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE COYOTE OBTS
— WASH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Shrubs and Succulents																				
Acacia greggii					3	6	15	5	9	15		25	5	6			8	22		25
Acamptopappus shockleyi							2				12		3			12				
Ambrosia dumosa		1	2		5	8	1	+	5	2		+	4	7	8	1	2		4	
Ambrosia eriocentra		2		+																
Atriplex canescens																			1	
Atriplex confertifolia																				
Atriplex sp.																				
Brickellia sp.							2													
Chrysothamnus viscidiflorus															+					
Chrysothamnus sp.	12			18																
Encelia frutecens					4															
Encelia sp.								2			+									
Ephedra nevadensis							2			2									3	
Ephedra sp.						7			4											
Eriogonum fasciculatum										2										
Ferocactus acanthodes															2					
Grayia spinosa			10						+											
Gutierrezia microcephala														3				+		
Hymenoclea salsola	3	12	9		7	4	2					2		2		1	3			5
Krameria sp.			+			+	2		5				3	5				3		
Larrea tridentata	1	1	4	2											4	2	8			
Lycium sp.													4							
Menodora spinescens									5											
Opuntia echinocarpa							+						+		1					
Prunus fasciculata	2																1	4		
Psilostrophe cooperii								5												
Psorothamnus fremontii			3		2						3	12								
Salazaria mexicana					6	4	3	8				6		3		1	1	1		2
Salvia dorrii											4					2				
Stephanomeria pauciflora							1		+											
Thamnosma montana										1	3				2					
Yucca schidigera																				
TOTAL	18	16	28	20	27	29	30	20	28	22	22	45	19	26	17	19	23	30	8	32

TABLE C-1e (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs																				
Baileya multiradiata									+					1						
Descurainia sp.	+					+														
Dyssodia cooperi																		+		
Dyssodia sp.							1				+			2						
Eriogonum inflatum						+	+			+				1	1					
Eriogonum sp.																				
Plantago sp.															+					
Porophyllum gracile																			5	
Sphaeralcea ambigua																			+	
Sphaeralcea sp.											2			+						
TOTAL	+	0	0	0	0	+	1	0	+	+	2	0	0	4	1	0	0	+	5	0
Grasses																				
Aristida purpurea														+						
Blepharidachne kingii					+								+		+					
Bromus rubens	4	+	5		3	1			4		+	3								
Bromus tectorum																			3	
Hilaria rigida																				
TOTAL	4	+	5	0	3	1	0	0	4	0	+	3	+	+	+	0	0	0	3	0
TOTAL VEGETATIVE COVER	22	16	33	20	30	30	31	20	32	22	24	48	19	30	18	19	23	30	16	32
BARE GROUND	6	15	5	35	35	25	32	39	26	35	9	27	25	34	3	25	15	60	64	15
GRAVEL AND ROCK	69	66	60	41	31	41	32	35	38	38	65	15	50	32	78	51	60	8	10	52
LITTER	3	3	2	4	4	3	5	6	3	5	2	10	6	4	1	5	2	1	10	1
TOTAL	78	84	67	80	70	69	69	80	67	78	76	52	81	70	82	81	77	69	84	68

TABLE C-1e (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents													
Acacia greggii		20	3					3	3			5.6	51.6
Acamptopappus shockleyi								1				1.0	16.1
Ambrosia dumosa	3	3			5		5			2	14	2.6	67.7
Ambrosia eriocentra						10						0.4	10.0
Atriplex canescens			1							5		0.2	10.0
Atriplex confertifolia				3								0.1	3.2
Atriplex sp.						15						0.5	3.2
Brickellia sp.				5								0.2	6.4
Chrysothamnus viscidiflorus								2				0.1	6.4
Chrysothamnus sp.						4						1.1	10.0
Encelia frutecenssis												0.1	3.2
Encelia sp.												0.1	6.4
Ephedra nevadensis								2			2	0.4	16.1
Ephedra sp.												0.4	6.4
Eriogonum fasciculatum		2						3				0.2	10.0
Ferocactus acanthodes												0.1	3.2
Grayia spinosa												0.3	6.4
Gutierrezia microcephala												0.1	6.4
Hymenoclea salsola		2	+	5	1			3		2	3	2.1	58.1
Krameria sp.												0.6	22.6
Larrea tridentata			4		1	5	6	2		4	3	1.5	45.2
Lycium sp.												0.1	3.2
Menodora spinescens												0.2	3.2
Opuntia echinocarpa								+				0.0	12.9
Prunus fasciculata			8									0.5	12.9
Psilostrophe cooperii												0.2	3.2
Psorothamnus fremontii									2			0.7	16.1
Salazaria mexicana	7		14									1.8	38.7
Salvia dorrii												0.2	6.4
Stephanomeria pauciflora								1				0.1	10.0
Thamnosma montana									1			0.2	12.9
Yucca schidigera									7				
TOTAL	10	27	30	13	7	34	11	17	13	13	22	21.8	

TABLE C-1e (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	Avg. Cover(%)	Frequency (%)
Forbs													
Baileya multiradiata												0.0	6.4
Descurainia sp.												+	6.4
Dyssodia cooperi												+	3.2
Dyssodia sp.								+				0.1	12.9
Eriogonum inflatum								+	+			0.1	22.6
Eriogonum sp.										1		0.0	3.2
Plantago sp.												+	3.2
Porophyllum gracile								1				0.2	6.4
Sphaeralcea ambigua												+	3.2
Sphaeralcea sp.	+		+									0.1	12.9
TOTAL	+	0	+	0	0	0	0	1	+	1	0	0.5	---
Grasses													
Aristida purpurea								4				0.1	6.4
Blepharidachne kingii								1	+			0.1	16.1
Bromus rubens	+	+	4	5	1	+					2	1.0	48.4
Bromus tectorum												0.1	3.2
Hilaria rigida												0.1	
TOTAL	2	+	4	5	1	+	0	5	+	0	2	1.4	---
TOTAL VEGETATIVE COVER	12	27	34	18	8	34	11	23	13	14	24	23.6	---
BARE GROUND	10	22	47	2	85	57	15	30	8	15	31	27.5	---
GRAVEL AND ROCK	74	47	12	73	5	1	71	39	76	67	40	44.4	---
LITTER	4	4	6	7	2	8	3	8	2	4	5	4.3	---
TOTAL	88	73	65	82	92	66	89	77	86	86	76	76.2	---

TABLE C-2a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 1-3
— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 1 1	2	3	4	5	6	7	8	Mile 2 9	10	11	12	Mile 3 13	14	15	Avg. Cover(%)	Frequency (%)
Trees																		
Yucca brevifolia						5	16	4	16	8	7	25	26	14	6	11	9.2	73.3
TOTAL		0	0	0	0	5	16	4	16	8	7	25	26	14	6	11	9.2	73.3
Shrubs and Succulents																		
Artemisia spinescens							+										+	6.7
Artemisia tridentata															12	6	1.2	13.3
Atriplex canescens				2													0.1	6.7
Ceratoides lanata		1	1	1	1			+				2			1		0.5	46.7
Chrysothamnus greenei			5			2		2		5	4			2		3	1.5	46.7
Chrysothamnus viscidiflorus		2							5			4	6		2		1.3	33.3
Ephedra nevadensis				+		4	3		2	1	1		5	3	4	1	1.6	66.7
Grayia spinosa		15		14	6	4	4	6		2	6	8	9	1		5	5.3	80.0
Opuntia echinocarpa					+	+	+	+	+	+							+	40.0
Opuntia erinacea					+				1	+							0.1	20.0
Tetradymia axillaris										1	+	1					0.1	20.0
Tetradymia glabrata			3	4	2	2		1	3	1							1.1	46.7
TOTAL		18	9	21	8	12	7	9	11	10	11	15	20	6	19	15	12.7	100.0
Forbs																		
Astragalus lentiginosus		+	+		+	+		3		+				1		+	0.3	53.3
Astragalus sp.							+		+			1	1		+		0.1	33.3
Baileya sp.					+												+	6.7
Leucelene ericoides									+								+	6.7
Sisymbrium altissimum										+				+			+	13.3
Sphaeralcea ambigua		+	+	1	+	+	+	+	+								0.1	53.3
Sphaeralcea sp.															+		+	6.7
TOTAL		+	+	1	+	+	+	3	+	+	0	1	1	1	+	+	0.5	100.0

TABLE C-2a (Cont.)

Species	(Road Mile) (Releve #)	Mile 1							Mile 2					Mile 3			Avg. Cover(%)	Frequency (%)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Grasses																		
Aristida purpurea		1		1		+			+		1	2	+	+			0.3	53.3
Hilaria jamesii		2	2	5	1	7	15	5	10	4	3	14	8	2	3	+	5.4	100.0
Muhlenbergia porteri												+					+	6.7
Oryzopsis hymenoides			+			+	1			+	+			+	+	+	+	53.3
Sitanion hystrix			+			1		1		2	4			1		+	0.6	46.7
Sitanion sp.					2							+					0.1	13.3
TOTAL		3	3	6	3	8	16	6	10	6	8	16	8	3	3	+	6.6	100.0
TOTAL VEGETATIVE COVER		22	13	28	14	27	40	23	39	26	27	57	55	30	29	28	27.2	----
BARE GROUND		71	85	62	82	57	49	69	52	69	67	16	17	65	61	70	59.5	----
GRAVEL AND ROCK		3	0	4	0	10	4	2	6	2	1	20	18	1	4	0	5.0	----
LITTER		4	2	6	4	6	6	6	3	3	5	7	10	4	6	2	4.9	----
TOTAL		78	87	72	86	73	59	77	61	74	73	43	45	70	71	72	69.4	----

TABLE C-2b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 4-6
— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION —

Species	(Road Mile)	Mile 4		Mile 5				Mile 6			Avg.	Frequency
	(Releve #)	16	17	18	19	20	21	22	23	24	Cover(%)	(%)
Trees												
Yucca brevifolia		12	5	5	4	2	4	3		6	4.6	88.9
TOTAL		12	5	5	4	2	4	3	0	6	4.6	88.9
Shrubs and Succulents												
Ambrosia eriocentra							1				0.1	11.1
Artemisia tridentata		8			6	5		7	2		3.1	55.6
Atriplex canesecens			3								0.3	11.1
Ceratoides lanata			1								+	11.1
Chrysothamnus viscidiflorus		4	5	5	4	4	3	2	4	3	3.8	100.0
Ephedra nevadensis		2	1	2	3	2	3	3	4	4	2.7	100.0
Grayia spinosa			3	3	2	3	3		6	5	2.8	77.8
Gutierrezia microcephala			1	1	1		2	+	1	1	0.8	77.8
Opuntia basilaris				+							+	11.1
Opuntia echinocarpa			+				2				0.2	22.2
Opuntia erinacea					+						+	11.1
Tetradymia axillaris			1	2					1		0.4	33.3
Tetradymia glabrata				2				2	1	1	0.7	44.4
Yucca baccata		1	3			4		1	5	5	2.1	66.7
TOTAL		25	18	14	16	18	14	15	24	19	18.1	100.0
Forbs												
Astragalus lentiginosus			+	1	2	+		1	+	+	0.4	77.8
Astragalus sp.		1									0.1	11.1
Caulanthus pilosus		+									+	11.1
Caulanthus sp.					2						0.2	11.1
Eriogonum cernuum			1	+							0.1	22.2
Machaeranthera canescens			2								0.2	11.1
Penstemon palmeri				+							+	11.1
Plantago sp.				+							+	11.1
Sphaeralcea ambigua				+							+	11.1
TOTAL		1	3	3	4	+	0	1	+	+	1.3	88.9

TABLE C-2b (Cont.)

Species	(Road Mile) (Releve #)	Mile 4 16	17	Mile 5 18	19	20	21	Mile 6 22	23	24	Avg. Cover(%)	Frequency (%)
Grasses												
Aristida purpurea				1						2	0.3	22.2
Blepharidachne kingii*			1						+		0.1	22.2
Hilaria jamesii		3	3	2	4	2	1	1	1	2	2.1	100.0
Oryzopsis hymenoides			1	+	1	1					0.3	44.4
Sitanion sp.					1		+	1			0.2	33.3
Sporobolus sp.			+				2				0.2	33.3
TOTAL		3	5	3	6	3	3	2	1	4	3.3	100.0
TOTAL VEGETATIVE COVER		31	31	24	30	23	21	22	26	29	26.3	----
BARE GROUND		54	35	39	40	12	9	10	20	21	26.7	----
GRAVEL AND ROCK		8	5	7	10	20	20	45	40	35	21.1	----
LITTER		7	29	30	20	45	50	23	13	15	25.8	----
TOTAL		69	69	76	70	77	79	78	73	71	73.6	----

* May possibly be Erioneuron puchellum; the two species were not distinguishable.

TABLE C-2c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 7-9
— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 7 25	26	27	28	Mile 8 29	30	31	32	Mile 9 33	34	35	36	Avg. Cover(%)	Frequency (%)
Trees															
Yucca brevifolia		3			6	3			1	3		3	2	1.8	58.3
TOTAL		3	0	0	6	3	0	0	1	3	0	3	2	1.8	58.3
Shrubs and Succulents															
Artemisia spinescens		1				2	1	1	4	3				1.0	50.0
Atriplex canesecens											2	2		0.3	16.7
Ceratoides lanata					1	+		+	1					0.2	33.3
Chrysothamnus viscidiflorus			2		2		2		1					0.6	33.3
Ephedra nevadensis		2	3	2	5	1	3	2	1	1		4	1	2.1	91.7
Grayia spinosa		3	4	6		4	2	8	4	4	7	3	5	4.2	91.7
Gutierrezia microcephala					1									0.1	8.3
Opuntia basilaris					+									+	8.3
Opuntia echinocarpa			1		1				1					0.3	25.0
Opuntia erinacea						2								0.2	8.3
Tetradymia axillaris		1	1	1	1	2	1					1		0.7	58.3
Tetradymia glabrata		2	1	3										0.5	25.0
Yucca baccata		3	2	2	2	2								0.9	41.7
TOTAL		12	14	14	13	13	9	11	12	8	9	10	6	10.9	100.0
Forbs															
Astragalus lentiginosus		1	+	1	+	1	1	+		1				0.4	66.7
Astragalus sp.									1					0.1	8.3
Eriogonum cernuum											1			0.1	8.3
Eriogonum sp.										+		1		0.1	16.7
Sphaeralcea ambigua								+						+	8.3
TOTAL		1	+	1	+	1	1	+	1	1	1	1	0	0.7	91.7

TABLE C-2c (Cont.)

Species	(Road Mile) (Releve #)	Mile 7 25	26	27	28	Mile 8 29	30	31	32	Mile 9 33	34	35	36	Avg. Cover(%)	Frequency (%)
Grasses															
Aristida purpurea								2		1	1		3	0.6	33.3
Blepharidachne kingii*			+	+	1	1			1	1	+		+	33.3	66.7
Hilaria jamesii		10	3	20	3	4	5	25	10	4	15	16	12	10.6	100.0
Oryzopsis hymenoides		1	2		1	1	1	2	1		1	1	1	1.0	83.3
Sitanion hystrix		1				1	1							0.3	25.0
Sitanion sp.					2			2	2					0.5	25.0
TOTAL		12	5	20	7	7	7	31	14	6	17	17	16	13.3	100.0
TOTAL VEGETATIVE COVER		28	20	35	26	24	17	43	28	18	27	31	24	26.8	---
BARE GROUND		56	71	17	21	38	55	12	10	67	66	29	25	38.9	---
GRAVEL AND ROCK		12	6	33	38	35	25	30	42	10	5	30	36	25.2	---
LITTER		4	3	15	15	3	3	15	20	5	2	10	15	9.2	---
TOTAL		72	80	65	74	76	83	57	72	82	73	69	76	73.3	---

TABLE C-2d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 10-12
— JOSHUA TREE / SPINY HOPSAGE ASSOCIATION —

Species	(Road Mile)	Mile 10				Mile 11						Mile 12			Avg.	Frequency
	(Releve #)	37	38	39	40	41	42	43	44	45	46	47	48	49	Cover(%)	(%)
Trees																
Yucca brevifolia				1											0.1	7.7
TOTAL				1											0.1	7.7
Shrubs and Succulents																
Artemisia spinescens		1	2			3	3	1	1	2	3		1	+	1.3	76.9
Ceratoides lanata		+		1	1	1	1			+	+		+	2	0.5	69.2
Chrysothamnus greenei										1	2				0.2	15.4
Chrysothamnus viscidiflorus				+		2	1					4			0.5	30.8
Chrysothamnus sp.													3		0.2	7.7
Grayia spinosa		5	6	5	8	6	4	10	20	12	7	14	20	15	10.2	100.0
Opuntia echinocarpa			1	1											0.2	15.4
Opuntia erinacea							1			1					0.2	15.4
Tetradymia axillaris											1				0.1	7.7
Tetradymia glabrata			1	+	1										0.2	23.1
TOTAL		6	10	7	10	12	10	11	21	16	13	18	24	17	13.5	100.0
Forbs																
Astragalus lentiginosus		2	+	1	+	1	1				+			+	0.4	61.5
Caulanthus pilosus												+			+	7.7
Dyssodia cooperi												+			+	7.7
Eriogonum deflexum											+				+	7.7
Eriogonum sp.														+	+	7.7
Sphaeralcea ambigua						+					+				+	15.4
TOTAL		2	+	1	+	1	1	0	0	0	+	+	0	+	0.4	69.2

TABLE C-2d (Cont.)

Species	(Road Mile) (Releve #)	Mile 10 37	38	39	40	Mile 11 41	42	43	44	45	46	Mile 12 47	48	49	Avg. Cover(%)	Frequency (%)
Grasses																
Aristida purpurea						1									0.1	7.7
Blepharidachne kingii*			1	+	+	1	1					1		+	0.3	53.8
Bromus rubens												+			+	7.7
Bromus tectorum													+		+	7.7
Hilaria jamesii		4	9	15	15	5	5	15	12	10	15	4	4	5	9.1	100.0
Oryzopsis hymenoides				+	1	2	1	3	1	2	3	+			1.0	69.2
Sitanion hystrix		1				2	3			+	+			+	0.5	46.2
Sitanion sp.									+			+	1		0.1	23.1
TOTAL		5	10	15	16	11	10	18	13	12	18	5	5	5	11.0	100.0
TOTAL VEGETATIVE COVER		13	20	26	27	24	21	29	34	29	33	27	30	24	25.9	——
BARE GROUND		78	60	28	30	63	60	23	26	16	23	26	30	53	39.7	——
GRAVEL AND ROCK		5	15	10	35	10	15	40	35	50	40	40	35	20	26.9	——
LITTER		4	5	36	8	3	4	8	5	5	4	7	5	3	7.5	——
TOTAL		87	80	74	73	76	79	71	66	71	67	73	70	76	74.1	——

TABLE C-2e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 13-15
— WINTERFAT / MIXED SHRUB ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 13 50	51	52	Mile 14 53	54	Mile 15 55	56	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents										
Artemisia spinescens			3						0.4	14.3
Atriplex canescens			1						0.1	14.3
Ceratoides lanata		4	3	5	13	10	22	21	11.1	100.0
Grayia spinosa		3	5	3					1.6	42.9
Opuntia erinacea								+	+	14.3
Tetradymia glabrata		10							1.4	14.3
TOTAL		17	12	8	13	10	22	21	14.7	100.0
Forbs										
Astragalus lentiginosus		+	+						+	28.6
Astragalus sp.				+					+	14.3
Eriogonum deflexum		+							+	14.3
Eriogonum sp.				+					+	14.3
Machaeranthera canescens		+							+	14.3
Salsola iberica			+		8	2	5	+	2.1	71.4
TOTAL		+	+	+	8	2	5	+	2.1	100.0
Grasses										
Blepharidachne kingii*			1	2					0.4	28.6
Bromus tectorum			+		3				0.4	28.6
Hilaria jamesii		9	3	8	5	5	2		4.6	85.7
Oryzopsis hymenoides		1	2	1		+			0.6	57.1
Sitanion hystrix		+							+	14.3
TOTAL		10	6	11	8	5	2	0	6.0	85.7
TOTAL VEGETATIVE COVER		30	19	20	29	17	29	22	23.7	----
BARE GROUND		36	15	37	60	68	59	73	49.7	----
GRAVEL AND ROCK		30	60	35	5	7	5	1	20.4	----
LITTER		4	6	8	6	8	7	4	6.1	----
TOTAL		70	81	80	71	83	71	78	76.3	----

TABLE C-2f

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 16-18
— WINTERFAT / MIXED SHRUB ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 16 57	58	Mile 17 59	Mile 18 60	61	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents								
Artemisia spinescens					+		+	20.0
Atriplex confertifolia						8	1.6	20.0
Atriplex sp.				+	1		0.2	40.0
Ceratoides lanata		18	29	19	7	5	15.6	100.0
Chrysothamnus sp.					6		1.2	20.0
Opuntia erinacea					+		+	20.0
TOTAL		18	29	19	14	13	18.6	100.0
Forbs								
Eriogonum sp.		+	+	1		+	0.2	80.0
Halogeton glomeratus		1	2	3	3	+	1.8	100.0
TOTAL		1	2	4	3	+	2.0	100.0
Grasses								
Oryzopsis hymenoides					+	+	+	40.0
TOTAL		0	0	0	+	+	+	40.0
TOTAL VEGETATIVE COVER		19	31	23	18	14	21.0	----
BARE GROUND		74	63	70	77	83	73.4	----
GRAVEL AND ROCK		0	0	0	0	0	0.0	----
LITTER		7	6	7	5	3	5.6	----
TOTAL		81	69	77	82	86	79.0	----

TABLE C-2g

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 19-21
— WINTERFAT / MIXED SHRUB ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 19 62	63	64	Mile 20 65	66	67	Mile 21 68	69	70	71	72	73	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents															
Artemisia spinescens				3	2	1	4	3		1	1	4	1	1.7	75.0
Atriplex confertifolia		13	23	18	18	23	11		16	2	2	2	4	11.0	91.6
Ceratoides lanata		4					7	2	2	20	17	9	10	5.9	66.7
Chrysothamnus greenei								25						2.1	8.3
Chrysothamnus sp.									+					+	8.3
Opuntia erinacea					2									0.2	8.3
Suaeda americana					1	4								0.4	16.7
TOTAL		17	23	21	23	28	22	30	18	23	20	15	15	21.3	100.0
Forbs															
Eriogonum cernuum												+		+	8.3
Eriogonum sp.					+		+		+		+			+	33.3
Halogeton glomeratus		1	+	+	1				3					0.4	41.6
Salsola iberica							+	+	+					+	25.0
Sphaeralcea ambigua												1		0.1	8.3
TOTAL		1	+	+	1	0	+	+	3	0	+	1	0	0.5	75.0
Grasses															
Bromus tectorum					1	1	+							0.2	25.0
Hilaria jamesii							+							+	8.3
Oryzopsis hymenoides			+	+										+	16.7
Sitanion hystrix												+		+	8.3
Sitanion sp.		+						+	+					+	25.0
TOTAL		+	+	+	1	1	+	+	+			+		0.2	75.0
TOTAL VEGETATIVE COVER		18	24	22	25	29	24	31	23	23	20	17	15	22.6	----
BARE GROUND		76	68	74	67	67	63	57	62	73	77	81	83	70.7	----
GRAVEL AND ROCK		0	0	0	0	0	7	8	7	1	1	1	1	2.2	----
LITTER		6	8	4	8	4	6	4	8	3	2	1	1	4.6	----
TOTAL		82	76	78	75	71	76	69	77	77	80	83	85	77.4	----

TABLE C-2h

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 22-24
— BLACKBRUSH / MIXED SHRUB ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 22 73a	74	75	76	77	78	79	90	Mile 23 81	82	83	84	Mile 21 85	86	87	88	89	Avg. Cover(%)	Frequency (%)
Trees																				
Yucca brevifolia														11			4		0.9	11.8
TOTAL														11			4		0.9	11.8
Shrubs and Succulents																				
Acamptopappus shockleyi																		1	0.1	5.9
Artemisia spinescens		4	6	6	4	9	+	6	2		4	2	+						2.5	65.7
Atriplex canescens				3															0.2	5.9
Ceratoides lanata						17	14	14	5	[illegible]	[illegible]	3	9						4.0	47.1
Chrysothamnus greenei										2	[illegible]								0.8	11.8
Chrysothamnus viscidiflorus		12	3	11	2							[illegible]	4						2.2	50.0
Coleogyne ramosissima														17	18	18	16	13	4.8	29.4
Ephedra nevadensis										+							1		0.1	11.8
Ephedra sp.														5	8	1		4	1.1	23.5
Grayia spinosa		4	9	5	12	4	12		8	21	13	17	16	+	1				7.2	76.5
Hymenoclea salsola			2															+	0.1	11.8
Lycium andersonii				2	2				5										0.5	17.6
Opuntia echinocarpa		1														+			0.1	11.8
Opuntia erinacea																	+		+	5.9
Opuntia sp.			+																+	5.9
Psorothamnus fremontii															5	2	2	2	0.6	23.5
Tetradymia axillaris												3			+	4			0.4	17.6
Yucca baccata																1			0.1	5.9
TOTAL		21	20	27	20	30	26	20	20	25	33	31	29	22	32	26	23	20	25.0	100.0

TABLE C-2h (Cont.)

Species	(Road Mile) (Releve #)	Mile 22 73a	74	75	76	77	78	79	80	Mile 23 81	82	83	84	Mile 21 85	86	87	88	89	Avg. Cover(%)	Frequency (%)
Forbs																				
Eriogonum sp.							+	+											+	11.7
Lappula redowskii						+													+	5.9
Unknown forb (Tonios heal)					+														+	5.9
Machaeranthera canescens					+														+	5.9
Salazaria mexicana								+											+	5.9
Sphaeralcea ambigua		1		1					+										0.1	17.6
TOTAL		1		1	+	+	+	+	+										0.1	41.2
Grasses																				
Blepharidachne kingii*											+		+						+	11.7
Bromus rubens												1	+	+	3	+	1		0.3	35.3
Bromus tectorum										1	+	1	1	6	4	7	10	3	1.9	52.9
Hilaria jamesii		5	4	4	3							+							0.9	29.4
Muhlenbergia porteri																		+	+	5.9
Oryzopsis hymenoides				1		+				1	+	2							0.2	29.4
Sitanion hystrix						+	+			2									0.1	17.6
Sitanion sp.		4		1					2		+		+	+				+	0.4	41.2
Sporobolus cryptandrus					2														0.1	5.9
TOTAL		9	4	6	5	+	+		2	4	+	4	1	6	7	7	11	3	4.1	94.1
TOTAL VEGETATIVE COVER		31	24	34	25	31	27	21	22	29	35	35	32	40	39	34	34	24	30.1	——
BARE GROUND		33	44	33	44	65	45	75	66	1	1	17	28	3	1	3	3	3	27.4	——
GRAVEL AND ROCK		33	30	28	25	0	25	0	7	65	60	45	35	55	58	59	60	72	38.6	——
LITTER		3	2	5	5	4	3	4	5	5	4	3	5	2	2	4	3	1	3.5	——
TOTAL		69	76	66	74	69	73	79	78	71	65	65	68	60	61	66	66	76	69.5	——

TABLE C-2i

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 25-27
— BLACKBRUSH / MIXED SHRUB ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 25				Mile 26				Mile 27			Avg. Cover(%)	Frequency (%)
		90	91	92	93	94	95	96	97	98	99	100		
Trees														
Yucca brevifolia						3							0.3	27.3
TOTAL		0	0	0	0	3	0	0	0	0	0	0	0.3	27.3
Shrubs and Succulents														
Acamptopappus shockleyi		+	1	3							6		0.9	36.4
Atriplex canescens				2									0.2	9.1
Coleogyne ramosissima		10	5		18	14	7	10					5.8	54.5
Encelia frutecens										1			0.1	9.1
Ephedra sp.		1	2	7	5			3	3	2	1		2.2	72.7
Eriogonum fasciculatum										1		2	0.3	18.2
Grayia spinosa		2	2		+		6	13	2		1	1	2.5	72.7
Krameria sp.											2	2	0.4	18.2
Larrea tridentata							11		11		12		3.1	27.3
Menodora spinescens		2											0.2	9.1
Opuntia echinocarpa											1	+	0.1	18.2
Psorothamnus fremontii		3				2			17	5		9	3.3	45.5
TOTAL		18	10	12	23	16	24	26	33	9	23	14	18.9	100.0
Forbs														
Baileya multiradiata				+								+	+	9.1
Eriogonum inflatum			+										+	9.1
Sphaeralcea ambigua									+				+	18.2
Sphaeralcea sp.												+	+	9.1
TOTAL			+	+					+			+	+	36.4

TABLE C-2i (Cont.)

Species	(Road Mile) (Releve #)	Mile 25 90	91	92	93	Mile 26 94	95	96	97	Mile 27 98	99	100	Avg. Cover(%)	Frequency (%)
Grasses														
Blepharidachne kingii*			3	2				+	+	+	2	3	0.9	63.6
Bromus rubens			4	2	2	+	+	2	5	3	3	4	2.3	90.9
Bromus tectorum		3											0.3	9.1
Hilaria rigida		2	3	7	+	1							1.2	45.5
Muhlenbergia porteri			4	2									0.5	18.2
Oryzopsis hymenoides			1										0.1	9.1
Stipa sp.										2			0.2	9.1
TOTAL		5	15	13	2	1	+	2	5	5	5	7	5.5	100.0
TOTAL VEGETATIVE COVER		23	25	25	26	20	24	28	39	14	28	22	24.9	----
BARE GROUND		2	5	3	5	5	7	0	4	8	3	7	4.5	----
GRAVEL AND ROCK		73	55	59	68	67	67	70	55	74	67	67	65.6	----
LITTER		2	15	13	1	8	2	2	2	4	2	4	5.0	----
TOTAL		77	75	75	74	80	76	72	61	86	72	78	75.1	----

TABLE C-2j

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 28-30
— CREOSOTE BUSH / BURSAGE ASSOCIATION --

Species	(Road Mile)	Mile 28				Mile 29							Mile 30		Avg.	Frequency
	(Releve #)	101	102	103	104	105	106	107	108	109	110	111	112	113	Cover(%)	(%)
Trees																
Yucca brevifolia													1		0.1	7.7
TOTAL													1		0.1	7.7
Shrubs and Succulents																
Acamptopappus shockleyi		8												5	1.0	15.4
Ambrosia dumosa														7	0.5	7.7
Coleogyne ramosissima			9	6		9	17	+	1	22	23	16	13		8.9	76.9
Ephedra sp.		6	+			6		1					2		1.2	38.5
Eriogonum fasciculatum														1	0.1	7.7
Grayia spinosa		1			5	4	1								0.8	30.8
Hymenoclea salsola								12	16					2	2.3	23.1
Krameria sp.		4		1	6										0.8	23.1
Larrea tridentata		12	15	11	7	4	9			7	4		8	6	6.4	76.9
Menodora spinescens					+							3			0.2	15.4
Psorothamnus fremontii		3			4	2	8	+	2	4	5	2	3		2.5	76.9
TOTAL		34	24	18	22	25	35	13	19	33	32	21	26	21	24.8	100.0
Forbs																
Baileya multiradiata								+							+	7.7
Eriogonum inflatum					+										+	7.7
Sphaeralcea ambigua						+				+			+		+	23.1
Viguiera multiflora					+										+	7.7
TOTAL					+	+		+		+			+		+	38.5

TABLE C-2j (Cont.)

Species	(Road Mile) (Releve #)	Mile 28 101	102	103	104	Mile 29 105	106	107	108	109	110	111	Mile 30 112	113	Avg. Cover(%)	Frequency (%)
Grasses																
Blepharidachne kingii*					+	+		1							0.1	23.1
Bromus rubens		4	5	2	1	1	+	+		1	+	+	3		1.3	84.6
Hilaria rigida						+									0.0	7.7
Oryzopsis hymenoides								+			+				0.0	15.4
Sporobolus cryptandrus								+							0.0	7.7
Unknown annual grass														1	0.1	7.7
TOTAL		4	5	2	1	1	+	1		1	+	+	3	1	1.4	92.3
TOTAL VEGETATIVE COVER		38	29	20	25	27	35	17	19	34	33	21	27	27	27.1	——
BARE GROUND		16	22	12	11	10	12	38	35	5	8	4	15	63	19.3	——
GRAVEL AND ROCK		40	43	63	60	61	51	40	42	59	57	72	53	8	49.9	——
LITTER		6	6	5	4	2	2	5	4	2	2	3	5	2	3.7	——
TOTAL		62	71	80	75	73	65	83	81	66	67	79	73	73	72.9	——

TABLE C-2k

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 31-33
-- CREOSOTE BUSH / BURSAGE ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 31 114	115	116	117	Mile 32 118	119	Mile 33 120	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents										
Acamptopappus shockleyi		3	2	9				1	2.1	57.1
Ambrosia dumosa		5	10	4	2	12	8	7	6.9	100.0
Ceratoides lanata				2			4		0.9	28.6
Ephedra nevadensis					4		1	2	1.0	42.9
Grayia spinosa						2	1		0.4	28.6
Hymenoclea salsola					4	3			1.0	28.6
Krameria sp.		2				1	1		0.6	42.9
Larrea tridentata		3	4	4	8	5	6		4.3	85.7
Opuntia echinocarpa						1			0.1	14.3
Opuntia sp.					+				+	14.3
Psorothamnus fremontii			2		3	1	1	3	1.4	71.4
Yucca schidigera						4	1		0.7	28.6
TOTAL		13	18	19	21	29	23	13	19.4	100.0
Forbs										
Chorizantha rigida								+	+	14.3
Descurainia sp.		4							0.6	14.3
Eriogonum inflatum					1			2	0.4	28.6
Eriogonum sp.								+	+	14.3
Salsola sp.			+						+	14.3
Sphaeralcea ambigua						1	1		0.3	28.6
TOTAL		4	+		1	1	1	2	1.3	85.7

TABLE C-2k (Cont.)

Species	(Road Mile) (Releve #)	Mile 31 114	115	116	117	Mile 32 118	119	Mile 33 120	Avg. Cover(%)	Frequency (%)
Grasses										
Blepharidachne kingii*					1	+		+	0.1	42.9
Bromus rubens		2	1				+		0.4	42.9
Bromus tectorum				3		1			0.6	28.6
Oryzopsis hymenoides			1						0.1	14.3
TOTAL		2	2	3	2	1	+	+	1.4	100.0
TOTAL VEGETATIVE COVER		15	20	22	24	31	24	16	21.7	----
BARE GROUND		9	1	71	13	5	4	5	15.4	----
GRAVEL AND ROCK		68	74	4	60	60	70	77	59.0	----
LITTER		8	5	3	3	4	2	2	3.9	----
TOTAL		85	80	78	76	69	76	84	78.3	----

TABLE C-21

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 34-36
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 34 121	122	123	Mile 35 124	125	Mile 36 126	127	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents										
Acamptopappus shockleyi		2	5	1		3			1.6	57.1
Ambrosia dumosa		4	7	16	9	9	3	12	8.6	100.0
Atriplex confertifolia			1						0.1	14.3
Ephedra nevadensis		5	3			1			1.3	42.9
Ephedra sp.								2	0.3	14.3
Krameria sp.			2		2		1	4	1.3	57.1
Larrea tridentata		2	1	6	3	2	1	4	2.7	100.0
Opuntia echinocarpa						4			0.6	14.3
Opuntia sp.							2		0.3	14.3
Psorothamnus fremontii		2	2				4		1.1	42.9
Yucca schidigera		5	1					5	1.6	42.9
TOTAL		20	22	23	14	19	11	27	19.4	100.0
Forbs										
Chorizantha rigida		1	+	+		1	1		0.4	71.4
Descurainia sp.					1				0.1	14.3
Dyssodia pentachaeta							2		0.3	14.3
Eriogonum inflatum							2		0.3	14.3
Sphaeralcea ambigua							+		+	14.3
TOTAL		1	+	+	1	1	5	0	1.1	85.7
Grasses										
Blepharidachne kingii*		+							+	14.3
Bromus rubens					+				+	14.3
Bromus tectorum		+							+	14.3
Unknown annual grass					+				+	14.3
TOTAL		+	0	0	+	0	0	0	+	28.6
TOTAL VEGETATIVE COVER		22	22	23	16	20	16	27	20.9	----
BARE GROUND		5	5	15	49	7	5	17	14.7	----
GRAVEL AND ROCK		70	70	59	30	70	76	50	60.7	----
LITTER		3	3	3	5	3	3	6	3.7	----
TOTAL		78	78	77	84	80	84	73	79.1	----

TABLE C-2m

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 37-39
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 37 128	129	Mile 38 130	131	Mile 39 132	133	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents									
Ambrosia dumosa		7	2	9	3		2	3.8	83.3
Ceratoides lanata					2			0.3	16.7
Krameria sp.		2		3				0.8	33.3
Larrea tridentata			3	4	5	8	10	5.0	83.3
TOTAL		9	5	16	10	8	12	10.0	100.0
Forbs									
Chorizantha rigida		+						+	16.7
Eriogonum sp.						+		+	16.7
TOTAL		+	0	0	0	+	0	+	33.3
Grasses									
Hilaria rigida					3			0.5	16.7
TOTAL					3			0.5	16.7
TOTAL VEGETATIVE COVER		9	15	16	13	8	12	12.2	——
BARE GROUND		7	20	41	77	86	61	48.7	——
GRAVEL AND ROCK		81	63	40	5	2	20	35.2	——
LITTER		3	2	3	5	4	7	4.0	——
TOTAL		91	85	84	87	92	88	87.8	——

TABLE C-2n

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 40-42
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 40 134	135	Mile 41 136	137	138	139	Mile 42 140	141	142	143	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents													
Ambrosia dumosa			2	9	16	6	13	5	3	21	9	8.4	90.0
Atriplex canescens											2	0.2	10.0
Ephedra sp.				+	5	+		1				0.6	40.0
Hymenoclea salsola									5		2	0.7	20.0
Krameria sp.						+		1		1		0.2	30.0
Larrea tridentata		3	5	2	14	11	9	3	1	5	23	7.6	100.0
Psorothamnus fremontii							+					+	10.0
TOTAL		3	7	11	35	17	22	10	9	27	36	17.7	100.0
Forbs													
Chorizantha rigida								+				+	10.0
Descurainia sp.							+					+	10.0
Eriogonum inflatum											+	+	10.0
Eriogonum sp.		1	1									0.2	20.0
Plantago insularis								+				+	10.0
Sphaeralcea sp.		+										+	10.0
TOTAL		1	1	0	0	0	+	+	0	0	+	0.2	50.0
Grasses													
Bromus rubens				+	+	+	1	+	1	1	9	1.2	80.0
Hilaria rigida					2	+						0.2	20.0
Oryzopsis hymenoides				+								+	10.0
TOTAL		0	0	+	2	+	1	+	1	1	9	1.4	80.0
TOTAL VEGETATIVE COVER		5	8	12	37	19	24	11	13	28	45	20.2	---
BARE GROUND		90	84	80	5	34	13	10	65	0	41	42.2	---
GRAVEL AND ROCK		+	1	5	55	40	60	77	20	70	6	33.4	---
LITTER		5	7	3	3	7	3	2	2	2	8	4.2	---
TOTAL		95	92	88	63	81	76	89	87	72	55	79.8	---

TABLE C-2o

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 43-45
— CREOSOTE BUSH / BURSAGE ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 43 144	145	146	147	Mile 44 148	149	150	151	Mile 45 152	153	154	155	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents															
Ambrosia dumosa		8	3	19	12	4	1	11	6	+	5	10	14	7.8	100.0
Atriplex confertifolia						2	6	2	2		1			1.1	41.7
Atriplex polycarpa		1												0.1	8.3
Chrysothamnus sp.										9				0.8	8.3
Ephedra sp.													2	0.2	8.3
Hymenoclea salsola										1				0.1	8.3
Larrea tridentata		4	7	7	11	+	14	4	5		6	7	10	6.3	91.7
Lepidium fremontii											+			+	8.3
Psorothamnus fremontii						1			7			3	2	1.1	33.3
Yucca baccata											1			0.1	8.3
TOTAL		13	10	26	23	7	21	17	20	10	13	20	28	17.3	100.0
Forbs															
Chorizantha rigida											+			+	8.3
Descurainia sp.					+									+	8.3
Eriogonum inflatum									1			+	+	0.1	25.0
Rumex hymenosepalus		+												+	8.3
Sphaeralcea ambigua													+	+	8.3
TOTAL		+	0	0	+	0	0	0	1		+	+	+	0.1	50.0
Grasses															
Blepharidachne kingii*												2		0.2	8.3
Bromus rubens		+	+	4	3			1	+	2		+	+	0.8	75.0
TOTAL		+	+	4	3			1	+	2		2	+	1.0	75.0
TOTAL VEGETATIVE COVER		14	10	30	26	8	21	18	21	12	14	23	29	18.8	---
BARE GROUND		68	83	30	31	3	74	3	3	8	2	4	8	26.4	---
GRAVEL AND ROCK		14	5	34	38	87	0	77	77	77	81	71	60	51.8	---
LITTER		4	2	6	5	2	5	2	4	3	3	2	3	3.4	---
TOTAL		86	90	70	74	92	79	82	84	88	86	77	71	81.6	---

TABLE C-2p

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 46-48
— ACACIA / BURSAGE / WASH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 46 156	157	158	159	Mile 47 160	161	162	163	Mile 48 164	165	166	167	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents															
Acacia greggii						10						30	4	2.8	25.0
Ambrosia dumosa		4	16			1	4	7	13	8	5	11	2	5.9	83.3
Atriplex polycarpa				3										0.3	8.3
Chilopsis linearis				26										2.2	8.3
Encelia frutecens							1						3	0.3	16.7
Ephedra sp.							1	3	1	1	3			0.8	41.7
Eriogonum fasciculatum						2								0.2	8.3
Gutierrezia microcephela												+		+	8.3
Krameria sp.			+					2				+		0.2	33.3
Larrea tridentata		4	1	4	12	3	1	1	6	4		3		3.3	83.3
Lepidium fremontii										2				0.2	8.3
Opuntia echinocarpa											1			0.1	8.3
Stephanomeria pauciflora													+	+	8.3
Yucca baccata		+												+	8.3
Yucca schidigera			+				8							0.7	16.7
TOTAL		8	17	33	12	16	15	13	20	15	9	44	9	17.6	100.0
Forbs															
Baileya sp.													+	+	8.3
Dyssodia pentachaeta						+								+	8.3
Eriogonum inflatum											+	+	1	0.1	25.0
Eriogonum sp.			+		+									+	16.7
Salsola sp.				1										0.1	8.3
Sphaeralcea ambigua						+			+			+	5	0.4	33.3
Sphaeralcea sp.							+							+	8.3
Tiquila nuttallii											+			+	8.3
TOTAL		0	+	1	+	+	+	0	+	0	+	+	6	0.6	75.0

TABLE C-2p (Cont.)

Species	(Road Mile) (Releve #)	Mile 46 156	157	158	159	Mile 47 160	161	162	163	Mile 48 164	165	166	167	Avg. Cover(%)	Frequency (%)
Grasses															
Blepharidachne kingii*						+	+				+		6	0.5	33.3
Bromus rubens			+		6	+	+							0.5	33.3
Hordeum jubatum				+										+	8.3
Oryzopsis hymenoides					+									+	8.3
TOTAL		0	+	+	6	+	+	0	0	0	+	0	6	1.0	58.3
TOTAL VEGETATIVE COVER		8	19	34	24	18	16	13	20	15	10	46	22	20.4	100.0
BARE GROUND		6	8	30	71	10	12	4	10	4	4	3	3	13.8	100.0
GRAVEL AND ROCK		83	71	25	0	67	65	82	68	79	84	49	70	61.9	100.0
LITTER		3	2	11	5	5	7	1	2	2	2	2	5	3.9	100.0
TOTAL		92	81	66	76	82	84	87	80	85	90	54	78	79.6	100.0

TABLE C-2q

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 49-51
— ACACIA / BURSAGE / WASH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 49 168	169	170	171	Mile 50 172	173	174	175	Mile 51 176	177	178	179	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents															
Acacia greggii					2	1		18						1.8	25.0
Acamptopappus shockleyi						1					1		2	0.3	25.0
Ambrosia dumosa		7	10	7	6	1	10	2	7	2	3	6	4	5.4	100.0
Echinocereus engelmannii									+					+	8.3
Ephedra nevadensis		4					3				3			0.8	25.0
Ephedra sp.			4	+				3				1		0.7	33.3
Eriogonum fasciculatum						4		2						0.5	16.6
Ferocactus acanthodes var. lecontei											1			0.1	8.3
Gutierrezia microcephela						1		6						0.6	16.6
Hymenoclea salsola										4	3			0.6	16.6
Krameria sp.						3							3	0.5	16.6
Larrea tridentata		1	4	3	1		3		4	+	2	2		1.7	75.0
Menodora spinescens													1	0.1	8.3
Opuntia basilaris										1				0.1	8.3
Opuntia echinocarpa							1							0.1	8.3
Porophyllum gracile						2								0.2	8.3
Psorothamnus fremontii									2			+		0.2	16.7
Thamnosma montana											2			0.2	8.3
Yucca schidigera		5			4					6				1.3	25.0
TOTAL		17	18	10	13	13	17	31	13	13	15	9	10	14.9	100.0
Forbs															
Baileya multiradiata			1										+	0.1	16.7
Baileya sp.										1				0.1	8.3
Dyssodia pentachaeta					+	2								0.2	16.7
Eriogonum inflatum			1	+						1	1			0.3	33.3
Eriogonum sp.		+					1		+		+		+	0.1	41.7

TABLE C-2q (Cont.)

Species	(Road Mile) (Releve #)	Mile 49 168	169	170	171	Mile 50 172	173	174	175	Mile 51 176	177	178	179	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)															
Plantago insularis				+										+	8.3
Sphaeralcea ambigua		1	1		+	2	2	+	1	3				0.8	66.7
Sphaeralcea sp.												+		+	8.3
TOTAL		1	3	+	+	4	3	+	1	5	1	+	+	1.5	100.0
Grasses															
Aristida purpurea					+	1			+				+	0.1	33.3
Blepharidachne kingii*			1		+	1	+	+	+	3	1		+	0.5	75.0
TOTAL		0	1	0	+	2	+	+	+	3	1	0	+	0.6	75.0
TOTAL VEGETATIVE COVER		18	22	11	15	18	20	32	16	21	17	10	12	17.7	——
BARE GROUND		5	6	4	9	5	1	15	6	2	2	2	8	5.4	——
GRAVEL AND ROCK		76	70	81	73	75	77	49	75	72	80	85	77	74.2	——
LITTER		1	2	4	3	1	2	4	3	5	1	3	3	2.7	——
TOTAL		82	78	89	85	81	80	68	84	79	83	90	88	82.3	——

TABLE C-2r

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILE 52
— ACACIA / BURSAGE / WASH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 52 180	181	182	183	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents							
Ambrosia dumosa			9	8	2	4.8	75.0
Bebbia juncea					6	1.5	25.0
Echinocereus engelmannii		1				0.3	25.0
Ephedra nevadensis		3				0.8	25.0
Hymenoclea salsola		3			1	1.0	50.0
Krameria sp.		1	1	2	1	1.3	100.0
Larrea tridentata			4	5		2.3	50.0
Opuntia echinocarpa			1			0.3	25.0
Thamnosma montana			4			1.0	25.0
TOTAL		8	19	15	10	13.0	100.0
Forbs							
Encelia frutecens		5				1.3	25.0
Eriogonum inflatum		2			+	0.4	50.0
TOTAL		7	0	0	+	1.4	50.0
Grasses							
Aristida purpurea		3				0.6	25.0
Blepharidachne kingii*			2	1	+	0.6	75.0
TOTAL		3	2	1	+	1.2	75.0
TOTAL VEGETATIVE COVER		18	21	16	10	16.3	----
BARE GROUND		2	2	4	5	3.3	----
GRAVEL AND ROCK		76	74	77	80	76.8	----
LITTER		3	3	3	4	3.3	----
TOTAL		81	79	84	89	83.3	----

TABLE C-2s

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 53 AND 54
-- BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 53 184	185	186	Mile 54 187	188	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents								
Artemisia tridentata						5	1.0	20.0
Atriplex canescens		4	1	2			1.4	60.0
Ceratoides lanata		1	3	4	4		2.4	80.0
Chrysothamnus viscidiflorus			15	12	5	5	7.4	80.0
Ephedra nevadensis					6	4	2.0	40.0
Grayia spinosa					2	1	0.6	40.0
Gutierrezia microcephala						5	1.0	20.0
Tetradymia glabrata		3	1		3	2	1.8	80.0
TOTAL		8	20	18	20	22	17.6	100.0
Forbs								
Astragalus lentiginosus					1		0.2	20.0
Brickellia sp.		4					0.8	20.0
Cleome sp.		+					+	20.0
Descurainia sp.		1					0.2	20.0
Eriogonum sp.		1					0.2	20.0
Lepidium sp.				+			+	20.0
Machaeranthera sp.				1			0.2	20.0
Sisymbrium sp.		+	+		1		0.2	60.0
Sphaeralcea sp.		1					0.2	20.0
TOTAL		7	+	1	2	0	2.0	80.0
Grasses								
Bromus rubens		5	+		1	+	1.2	100.0
Hilaria rigida			2	3			1.0	40.0
Oryzopsis hymenoides		2	3	2	4	1	2.4	100.0
Sitanion sp.		10		1		1	2.4	60.0
TOTAL		17	5	6	5	2	7.0	
TOTAL VEGETATIVE COVER		32	25	25	27	24	26.6	---
BARE GROUND		21	34	20	20	35	26.0	---
GRAVEL AND ROCK		1	35	52	50	35	34.6	---
LITTER		48	4	2	3	6	12.6	---
TOTAL		70	73	74	73	76	73.2	---

TABLE C-2t

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 55-57
— BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 55 189	190	Mile 56 191	192	193	Mile 57 194	195	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents										
Artemisia spinescens				4					0.6	14.3
Artemisia tridentata		20	13		9				6.0	42.9
Ceratoides lanata						1	2	3	0.9	42.9
Chrysothamnus viscidiflorus				4	8	5		10	3.9	57.1
Cowania mexicana			6						0.9	14.3
Ephedra nevadensis		9	6	3	3				3.0	57.1
Grayia spinosa				6		6			1.7	28.6
Gutierrezia microcephala			5	3		10			2.6	42.9
Hymenoclea salsola							13		1.9	14.3
Tetradymia glabrata					1			4	0.7	28.6
TOTAL		29	30	20	21	22	15	17	22.0	100.0
Forbs										
Astragalus lentiginosus		+					+		+	28.6
Sisymbrium sp.								+	+	14.3
TOTAL		+	0	0	0	0	+	+	+	42.9
Grasses										
Bromus rubens				+	+	+	+	+	+	71.4
Hilaria jamesii							2		0.3	14.3
Oryzopsis hymenoides				1	2	2	3		1.1	57.1
Sitanion sp.				1					0.1	14.3
TOTAL		0	0	2	2	2	5	+	1.6	71.4
TOTAL VEGETATIVE COVER		29	30	22	23	24	21	18	23.9	----
BARE GROUND		39	5	10	10	8	8	5	12.1	----
GRAVEL AND ROCK		28	50	65	62	65	69	75	59.1	----
LITTER		4	15	3	5	3	2	2	4.9	----
TOTAL		71	70	78	77	76	79	82	76.1	----

TABLE C-2u

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 58-61
— BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	Mile 58 196	Mile 59 197	Mile 59 198	Mile 60 199	Mile 60 200	Mile 61 201	Mile 61 202	Mile 61 203	Mile 61 204	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents												
Artemisia nova						12					1.3	11.1
Artemisia spinescens		1		4				3	2	1	1.2	55.6
Ceratoides lanata		14		3	1						2.0	33.3
Chrysothamnus viscidiflorus			15	2	13			2		7	4.3	55.6
Chrysothamnus sp.						3	9		3		1.7	33.3
Cowania mexicana							3				0.3	11.1
Ephedra nevadensis						5	3	4	2	2	1.7	55.6
Grayia spinosa		3	1	4				10	12	5	3.9	66.7
Hymenoclea salsola							1	3		2	0.7	33.3
Tetradymia glabrata					6		2				0.9	22.2
TOTAL		18	16	13	20	20	18	22	19	17	18.1	100.0
Forbs												
Euphorbia sp.							1				0.1	11.1
Machaeranthera canescens									+		+	11.1
Sisymbrium sp.								+			+	11.1
Sphaeralcea ambigua		2									0.2	11.1
TOTAL		2	0	0	0	0	1	+	+	0	0.3	44.4
Grasses												
Bromus rubens		1	+	1	+			+		1	0.3	66.7
Hilaria jamesii			6		1						0.8	22.2
Oryzopsis hymenoides		3	1	1	2		2	1			1.1	66.7
Sitanion sp.			1	2	2	1	2	5	3	2	2.0	88.9
TOTAL		4	8	4	5	1	4	6	3	3	4.2	100.0
TOTAL VEGETATIVE COVER		24	24	17	25	21	23	29	22	20	22.8	----
BARE GROUND		4	8	12	22	56	62	5	62	5	26.2	----
GRAVEL AND ROCK		60	65	69	50	17	13	74	11	73	48.0	----
LITTER		12	3	2	3	6	2	2	5	2	4.1	----
TOTAL		76	76	83	75	79	77	81	78	80	78.3	----

TABLE C-2v

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE NEVADA DTN
MILES 62-64
— BIG SAGEBRUSH / RABBITBRUSH ASSOCIATION —

Species	(Road Mile) (Releve #)	Mile 62 205	206	207	208	Mile 63 209	210	211	212	213	Mile 64 214	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents													
Artemisia spinescens						2	3	3				0.8	30.0
Ceratoides lanata						1					2	0.3	20.0
Chrysothamnus viscidiflorus			3	2	3		3				2	1.3	50.0
Chrysothamnus sp.		5				4						0.9	20.0
Ephedra nevadensis		9		1	5	2	3		5	1		2.6	70.0
Ephedra viridis			5									0.5	10.0
Grayia spinosa		4	4	10	11	6	5	7	10	4	4	6.5	100.0
Hymenoclea salsola			5	2	1	1	4					1.3	50.0
Yucca baccata				6							2	0.8	20.0
TOTAL		18	17	21	20	16	18	10	15	5	10	15.0	100.0
Forbs													
Sphaeralcea sp.								1				0.1	10.0
TOTAL		0	0	0	0	0	0	1	0	0	0	0.1	10.0
Grasses													
Bromus rubens				2	+			1			1	0.4	40.0
Bromus tectorum		1										0.1	10.0
Hilaria jamesii						1		5	5	7	8	2.6	50.0
Oryzopsis hymenoides						2	1		1	3	1	0.8	50.0
Sitanion sp.		2			2	3	4	5	3	9	4	3.2	80.0
TOTAL		3	0	2	2	6	5	11	9	19	14	7.1	90.0
TOTAL VEGETATIVE COVER		21	17	23	22	22	23	22	24	25	24	22.3	----
BARE GROUND		66	10	5	15	64	25	10	23	22	25	26.5	----
GRAVEL AND ROCK		11	70	67	61	12	50	66	50	50	45	48.2	----
LITTER		2	3	5	2	2	2	2	3	3	6	3.0	----
TOTAL		79	83	77	78	78	77	78	76	75	76	77.7	----

APPENDIX D

WILDLIFE DATA FOR NEVADA

TABLE D-1

WILDLIFE SIGN AND SIGHTINGS
COYOTE OBTS

Species	Observation Area 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Mammals																		
Unidentified bat possibly *Myotis* sp.												1						
Desert cottontail															1	1	1	
Black-tailed jackrabbit		1					1	1	1		1	2						
White-tailed antelope squirrel																1		
Kangaroo rat							X											
Mouse										X								
Coyote							X						X					
Kit fox										X								
Kit fox den			1		1		1					1						
Badger den						2			1									
Unidentified burrows	X	X	X		X	X			X			X	X		X			
Birds																		
Quail sp.		1																
Mourning dove	1																	
Hummingbird sp.															1			
Western kingbird		1																
Rough-winged swallow														2			6	
Cactus wren												1					4	
Thrasher sp.											X							
Loggerhead shrike						1												
Black-throated sparrow	2	1						4									1	

X = Sign observed
Number = Actually observed

TABLE D-1 (cont.)

Species	Observation Area 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Reptiles																		
Desert tortoise (shell)	1							2										
Zebra-tailed lizard																1		1
Leopard lizard								1						1				
Side-blotched lizard	1					1				1		2						1
Western whiptail	10	3	2	1	1	3	3	13	1	1		3	1	11	6	8		3

TABLE D-1 (cont.)

Species	Observation Area 19	20	21	22
Mammals				
Black-tailed jackrabbit		1		1
Rabbit		X		X
Kangaroo rat burrow	X			X
Burrows	X	X		X
Birds				
Western kingbird				2
Rough-winged swallow		1		2
Cactus wren				X
Loggerhead shrike	1			
Black-throated sparrow		2		
Reptiles				
Leopard lizard	1	1		1
Side-blotched lizard	2			
Desert horned lizard		1		
Western whiptail lizard	3	6	3	3
Red racer		1		

TABLE D-2a

WILDLIFE SIGN AND SIGHTINGS
NEVADA DTN: MILES 0 - 24

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
Mammals								
Black-tailed jackrabbit	34	1		3	2			1
Desert cottontail	2	1	1					
Rabbit (pellets)	X	X	X	X	X	X	X	X
White-tailed antelope squirrel		1						
Antelope squirrel sp.	3							
Woodrat	X							
Coyote	X	X		1		1		X
Kit fox (den)					2			
Badger (den)					2			X
Unidentified burrows	X			X	X	X	X	X
Birds								
Turkey vulture	1	1	1					
Red-tailed hawk		1						
Golden eagle				1	1			
American kestrel		1	1					
Western kingbird			1					
Nighthawk sp.	2							
Mockingbird	1							
Raven	2	2	1					
Sage thrasher	2							
Horned lark	2				10	26	30	4
Loggerhead shrike	2	1						
Blue-gray gnatcatcher		1						
Black-throated sparrow	12							
Sparrow sp.	6							

X = Sign; Number = Actual sighting.

TABLE D-2a (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
Reptiles								
Side-blotched lizard	21	5	10	8	5	2	3	6
Western whiptail lizard	3	1	2	1				1
Leopard lizard		1	1					
Western fence lizard		1						
Striped whipsnake			1?					

TABLE D-2b

WILDLIFE SIGN AND SIGHTINGS
NEVADA DIN: MILES 24 - 42

Road Mile	24-27	27-30	30-33	33-36	36-39	39-42
Mammals						
Coyote	X	X				
Badger (den)	X					
Black-tailed jackrabbit	1					
Desert cottontail		1				1
Rabbit (pellets)	X	X				X
White-tailed antelope squirrel			1			1
Woodrat						X
Unidentified ground squirrel				1		
Unidentified burrows	X	X		X	X	X
Birds						
Gambel's quail		5				
Roadrunner				2*		
Cactus wren	5					
Horned lark	1	*				
Reptiles						
Side-blotched lizard		8	12	11		
Western whiptail	7		2	1	X	
Leopard lizard			1			
Zebra-tailed lizard	1					
Unidentified lizard	1					

* Sighted on returning from the field.

TABLE D-2c

WILDLIFE SIGN AND SIGHTINGS
NEVADA DIN: MILES 42 - 66

Road Mile	42-45	45-48	48-51	51-54	54-57	57-60	60-63	63-66
Mammals								
Coyote	X	X			X	X	X	
Kangaroo rat	X							
Black-tailed jackrabbit	1					1		X
Desert cottontail		2						
Rabbit	X	X	X		X	X	X	X
Kangaroo rat					X			X
Antelope squirrel		1						
Unidentified rodent sp.					1			
Unidentified burrows	X	X	X		X	5	1	X
Birds								
Black-throated sparrow	1							
Swainson's hawk					4			
Turkey vulture						2		
Horned larks					13	11	1	
Mourning dove		1			10			
Loggerhead shrike					1	1		
Unidentified buteo						1		
Reptiles								
Side-blotched lizard				1	10	2	1	1
Western whiptail	6	6	1	1	4	1	1	
Leopard lizard		1				1		
Lizard	X							

APPENDIX E

RELEVE QUADRAT
DATA FOR
UTAH

TABLE E-1a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS
— PINYON-JUNIPER ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	Avg. Cover(%)	Frequency (%)
Trees									
Juniperus osteosperma	18	28	26	25	20	28	17	23.1	100.0
TOTAL	18	28	26	25	20	28	17	23.1	----
Shrubs									
Artemisia nova		4						0.6	14.3
Artemisia spinescens							+	+	14.3
Artemisia tridentata	12	6		14	12	5	3	7.4	85.7
Chrysothamnus viscidiflorus						2		0.3	14.3
Chrysothamnus sp.							7	1.0	14.3
Ephedra nevadensis							1	0.1	14.3
Eriogonum microthecum			+				2	0.3	28.6
Gutierrezia sarothrae	3	+	4	1	1			1.3	71.4
Leptodactylon pungens						+	+	+	28.6
Purshia tridentata						1		0.1	14.3
TOTAL	15	10	4	15	13	8	13	11.1	----
Forbs									
Arabis sp.	+							+	14.3
Astragalus lentiginosus						1	+	0.1	28.6
Astragalus sp.	+		+					+	28.6
Chaenactis douglasii						+		+	14.3
Cryptantha sp.			+			+		+	28.6
Descurainia pinnata				1				0.1	14.3
Descurainia sp.						1		0.1	14.3
Eriogonum sp.						2		0.3	28.6
Euphorbia sp.							+	+	14.3
Lathyrus sp.						+		+	14.3
Lepidium montanum							+	+	14.3
Penstemon sp.						+		+	14.3
Physaria chambersii						+		+	14.3
Senecio multilobatus						+		+	14.3
Stephanomeria exigua				1				0.1	14.3
Streptanthus cordatus						+		+	14.3
TOTAL	+	0	+	2	0	4	+	0.9	----

+ = trace, less than 1%

TABLE E-1a (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	Avg. Cover(%)	Frequency (%)
Grasses									
Aristida purpurea	1		+	1			1	0.4	57.1
Bromus tectorum	1	2	+		15	1	+	2.7	85.7
Hilaria jamesii	1		2	1	1	+		0.7	71.4
Oryzopsis hymenoides					+			+	14.3
Sitanion hystrix						+	+	+	28.6
Sporobolus cryptandrus		+		2				0.3	28.6
Stipa comata	+			1	1			0.3	42.9
TOTAL	3	2	2	5	17	1	1	4.4	---
TOTAL VEGETATIVE COVER	36	40	32	47	50	41	31	39.6	---
BARE GROUND	52	25	14	28	20	20	31	27.1	---
GRAVEL AND ROCK	1	7	58	10	27	30	30	23.3	---
LITTER	10	34	25	15	3	5	4	13.7	---
TOTAL	63	66	97	53	50	55	65	64.1	---

TABLE E-1b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS
-- BLACK SAGEBRUSH ASSOCIATION --

Species	Releve Number 1	2	3	4	5	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents							
Artemisia nova	4	8	11	4	3	6.0	100.0
Ceratoides lanata		2	2	1	3	1.6	80.0
Chrysothamnus viscidiflorus		4	4	5	9	4.4	80.0
Eriogonum microthecum	+			1		0.2	40.0
Gutierrezia sarothrae	+	+	+			+	60.0
Opuntia polycantha				+		+	20.0
TOTAL	4	14	17	11	15	12.2	---
Forbs							
Descurainia pinnata				+		+	20.0
Eriogonum ovalifolium		+				+	20.0
TOTAL	0	+	0	+	0	+	---
Grasses							
Bromus tectorum	2	1	2	2	3	2.0	100.0
Hilaria jamesii		+	+	3		0.6	60.0
Oryzopsis hymenoides		2	2	3	3	2.0	80.0
Sitanion hystrix		1	+			0.2	40.0
Stipa comata	+		+		2	0.4	60.0
TOTAL	2	4	4	8	8	5.2	---
TOTAL VEGETATIVE COVER	6	18	21	19	23	17.4	---
BARE GROUND	0	45	36	5	5	18.2	---
GRAVEL AND ROCK	91	31	36	73	65	59.2	---
LITTER	3	6	7	3	7	5.2	---
TOTAL	94	82	79	81	77	82.6	---

TABLE E-1c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS
— BIG SAGEBRUSH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma																				
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Artemisia tridentata	5	4	4	6	4	18	33	38	15	20	32	18	20	12	30	33	35	30	20	18
Chrysothamnus viscidiflorus	10	8	7	9	8							2	15			1				1
Ephedra nevadensis				+									+	+						
Grayia spinosa																				
Gutierrezia sarothrae				1		3		+	1	1	2			1		4			2	
Lycium pallidum																				
Opuntia polycantha		+		+				+												
Opuntia whipplei																				
TOTAL	15	12	11	16	12	21	33	38	16	21	34	20	35	13	30	38	35	30	22	19
Forbs																				
Arabis sp.												+				+				
Astragalus lentiginosus					3															
Astragalus sp.															+	+				
Chaenactis douglasii																				
Comandra umbellata															2					
Cryptantha sp.																				
Descurainia pinnata								1								1	+			
Erigeron sp.												+								
Eriogonum sp.																				
Euphorbia glyptosperma																				
Gilia sp.																+				
Leucelene ericoides																				
Sisymbrium altissimum																				
Sphaeralcea coccinea													+							
Sphaeralcea sp.																				
Stephanomeria exigua																			+	
Streptanthella longirostris																				
TOTAL	0	0	0	0	3	0	0	1	0	0	0	+	+	0	2	1	+	0	+	0

TABLE E-1c (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses																				
Agropyron cristatum					4															
Agropyron smithii																				
Aristida purpurea																	1		7	
Bouteloua gracilis																				2
Bromus tectorum	6	1	+	4	1	5			+	3	+		+		+		1	12	1	1
Vulpia octoflora		1							1		3			4	+		+			
Hilaria jamesii		2			+	7		1	4	10	5		2	+	1		4	3		
Hordeum jubatum																				
Oryzopsis hymenoides			4	+								3		1	+		+		13	+
Poa sandbergii																				
Sitanion hystrix		+	1	+	+							+			+					
Sitanion sp.																				
Sporobolus cryptandrus		+			+				+	+			2	8						+
Stipa comata			+									+	+		1		+		1	10
TOTAL	6	4	5	4	5	12	0	1	5	13	8	3	4	13	2	0	6	15	22	13
TOTAL VEGETATIVE COVER	21	16	16	20	20	33	44	40	21	34	42	23	39	26	34	39	41	45	44	32
BARE GROUND	25	50	50	24	19	50	46	45	43	49	37	60	49	56	49	40	47	10	26	37
GRAVEL AND ROCK	49	28	29	45	33	2	3	5	25	2	18	5	5	10	5	5	7	37	10	20
LITTER	5	6	5	11	28	15	7	10	8	4	3	10	5	7	10	15	3	8	20	10
TOTAL	79	84	84	80	80	67	56	60	76	55	58	75	59	73	64	60	57	55	56	67

TABLE E-1c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Trees																				
Juniperus osteosperma																				
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Artemisia tridentata	15	25	22	24	15	23	12	25	18	22	14	5	14	12	6	5	6	8	12	18
Chrysothamnus viscidiflorus	5	2		4	6		5					3		3	3	2		3	4	3
Ephedra nevadensis												1				+				
Grayia spinosa																	1			
Gutierrezia sarothrae				1			+			1	+	1	1	1	2	3	+	2	3	
Lycium pallidum															+					
Opuntia polycantha							+		1	+										
Opuntia whipplei																				
TOTAL	20	27	22	29	21	23	17	25	19	23	14	10	15	16	11	10	7	13	19	21
Forbs																				
Arabis sp.	+	+																		
Astragalus lentiginosus																				
Astragalus sp.								+			+									
Chaenactis douglasii																				
Comandra umbellata																				
Cryptantha sp.																				
Descurainia pinnata	+					+				+		+		+	+	+				+
Erigeron sp.					+															
Eriogonum sp.																				
Euphorbia glyptosperma																				
Gilia sp.																				
Leucelene ericoides																				
Sisymbrium altissimum																				
Sphaeralcea coccinea	+									+		+								
Sphaeralcea sp.							+													
Stephanomeria exigua																				
Streptanthella longirostris											+		+		+	+		+	+	
TOTAL	+	+	0	0	+	+	+	+	0	+	+	+	+	+	+	+	0	+	+	+

TABLE E-1c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Grasses																				
Agropyron cristatum							2													
Agropyron smithii																				
Aristida purpurea				+	+													1		
Bouteloua gracilis																				
Bromus tectorum			9	30	+	1	1	1	1	2	+	3	2	1			3			
Vulpia octoflora										+					+		+	+		
Hilaria jamesii		5	4	+		+	1	1				2	4		3		+	2	+	
Hordeum jubatum																				
Oryzopsis hymenoides			15										+		1			+	+	+
Poa sandbergii																	1			
Sitanion hystrix								+	+	1	+	+	4	1	+	+	+	+	+	1
Sitanion sp.																				
Sporobolus cryptandrus	1									1		+	+		4			+		
Stipa comata		1				+									+			+		
TOTAL	1	6	28	30	+	1	4	2	1	4	+	5	10	2	8	+	4	3	+	1
TOTAL VEGETATIVE COVER	21	33	50	59	21	24	21	27	20	27	15	15	25	18	19	10	11	16	19	22
BARE GROUND	54	47	10	16	25	48	50	20	15	53	20	19	28	27	28	70	4	51	49	66
GRAVEL AND ROCK	15	15	26	13	50	20	21	45	60	7	60	60	40	50	41	16	81	25	26	8
LITTER	8	5	14	12	4	7	6	8	5	13	5	6	7	5	12	4	4	8	6	4
TOTAL	77	67	50	41	79	75	77	73	80	73	85	75	75	82	81	90	89	84	81	78

TABLE E-1c (Cont.)

Species	Releve Number 41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Trees																				
Juniperus osteosperma																				
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Artemisia tridentata	7	14	12	35	14	28	9	6	10	7	10	8	15	30	10	4	3	8	11	5
Chrysothamnus viscidiflorus	6		1					6					4		3	4	2	1		
Ephedra nevadensis								+		2						+	1		1	
Grayia spinosa									1	3		2								
Gutierrezia sarothrae	3	2	2		5				4	3	2		7			2	2		2	4
Lycium pallidum											5									
Opuntia polycantha								+	1							+				
Opuntia whipplei					2															
TOTAL	16	16	15	35	21	28	9	12	16	15	17	10	26	30	13	10	8	9	14	9
Forbs																				
Arabis sp.																				
Astragalus lentiginosus							1	2						1						
Astragalus sp.																				
Chaenactis douglasii																				
Comandra umbellata																		3		
Cryptantha sp.								+												
Descurainia pinnata	+			+	+	+							2							
Erigeron sp.																				
Eriogonum sp.																1				
Euphorbia glyptosperma			+																	
Gilia sp.																				
Leucelene ericoides																				
Sisymbrium altissimum																				
Sphaeralcea coccinea			+	+																+
Sphaeralcea sp.																				
Stephanomeria exigua																+	2			
Streptanthella longirostris																				
TOTAL	+	0	+	+	+	+	1	2	0	0	0	0	2	1	0	1	2	3	0	+

TABLE E-1c (Cont.)

Species	Releve Number 41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Grasses																				
Agropyron cristatum																				
Agropyron smithii																			+	
Aristida purpurea							2									2		1	1	
Bouteloua gracilis																				
Bromus tectorum	+	+	6	+	+	+	6	5	5	4	15	15	+						+	1
Vulpia octoflora																1		1		+
Hilaria jamesii					3			1	1	3	5	2					2	2	2	
Hordeum jubatum																				
Oryzopsis hymenoides	2							1	5	5		4				2	3	2	1	4
Poa sandbergii																				
Sitanion hystrix	+	1		+	4	1	2						2						+	
Sitanion sp.			+																	
Sporobolus cryptandrus																2	5			3
Stipa comata		7	+					2		5		4				2	1	2	2	3
TOTAL	2	8	6	+	7	1	10	9	11	17	20	25	2	0	0	9	11	8	6	11
TOTAL VEGETATIVE COVER	18	24	21	35	28	29	20	23	27	32	37	35	30	31	13	20	21	20	20	20
BARE GROUND	62	55	15	49	58	15	3	2	15	20	23	28	35	18	55	25	19	15	5	5
GRAVEL AND ROCK	15	14	56	4	2	42	67	69	38	40	25	10	25	40	25	34	50	50	72	72
LITTER	5	7	8	12	12	14	10	6	20	8	15	25	10	11	7	20	10	15	3	3
TOTAL	82	76	79	65	72	71	80	77	73	68	63	63	70	69	87	79	79	80	80	80

TABLE E-1c (Cont.)

Species	Releve Number 61	62	63	64	65	66	67	68	69	70	71	72	Avg. Cover(%)	Frequency (%)
Trees														
Juniperus osteosperma			3	+									0.04	2.8
TOTAL	0	0	3	+	0	0	0	0	0	0	0	0	0.04	——
Shrubs and Succulents														
Artemisia tridentata	7	11	14	18	19	13	17	18	8	9	6	26	15.4	100.0
Chrysothamnus viscidiflorus	4	4		2				5		2	1		2.1	51.4
Ephedra nevadensis													0.1	13.9
Grayia spinosa		3											0.1	6.9
Gutierrezia sarothrae	1		2	1	3	+			12	12	7		1.5	56.9
Lycium pallidum													0.1	2.8
Opuntia polycantha					1			+				+	0.0	16.7
Opuntia whipplei													0.0	1.4
TOTAL	12	18	16	21	23	13	17	23	20	23	14	26	19.3	——
Forbs														
Arabis sp.													+	5.6
Astragalus lentiginosus				+			+	2					0.1	9.7
Astragalus sp.													+	5.6
Chaenactis douglasii		+											+	1.4
Comandra umbellata					1								0.9	4.2
Cryptantha sp.								+					+	2.8
Descurainia pinnata		+							+	+			0.1	26.4
Erigeron sp.													+	2.8
Eriogonum sp.													0.0	1.4
Euphorbia glyptosperma													+	1.4
Gilia sp.													+	1.4
Leucelene ericoides								+					+	1.4
Sisymbrium altissimum								+					+	1.4
Sphaeralcea coccinea					+	+			+				+	13.9
Sphaeralcea sp.													+	1.4
Stephanomeria exigua													0.0	4.2
Streptanthella longirostris													+	8.3
TOTAL	0	+	0	+	1	+	+	2	+	+	0	0	0.9	——

TABLE E-1c (Cont.)

Species	Releve Number 61	62	63	64	65	66	67	68	69	70	71	72	Avg. Cover(%)	Frequency (%)
Grasses														
Agropyron cristatum													0.1	2.8
Agropyron smithii													+	1.4
Aristida purpurea												1	0.2	12.5
Bouteloua gracilis													0.0	1.4
Bromus tectorum	4	5	1	5	1	+	+	1	+		3	+	2.2	25.0
Vulpia octoflora			+		1				3				0.2	20.8
Hilaria jamesii			1	1	3			+	4			1	1.3	54.2
Hordeum jubatum						+							+	1.4
Oryzopsis hymenoides	1	1			+						4		1.0	38.9
Poa sandbergii													0.0	1.4
Sitanion hystrix			2	1		2			+	+		+	0.3	45.8
Sitanion sp.								2					0.0	2.8
Sporobolus cryptandrus									1				0.4	23.6
Stipa comata			+					+			3		0.6	33.3
TOTAL	5	6	4	7	5	2	+	3	8	+	10	2	6.5	——
TOTAL VEGETATIVE COVER	17	24	28	28	29	21	17	28	28	23	24	28	26.4	——
BARE GROUND	5	15	5	2	19	70	5	4	64	41	19	10	31.8	——
GRAVEL AND ROCK	73	55	60	64	43	3	72	63	3	28	50	58	32.6	——
LITTER	5	6	7	6	9	6	6	2	5	8	7	3	8.7	——
TOTAL	83	76	72	72	71	79	83	69	72	77	76	71	72.9	——

TABLE E-1d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS
— PERENNIAL GRASSLAND --

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma																				
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Atriplex canescens																1				
Artemisia tridentata	5			7							+	3		4	8	4			5	
Ceratoides lanata			3				5		2							2	9			
Chrysothamnus viscidiflorus	1	4	2	4	12				4									3	1	2
Ephedra nevadensis	10	12		2														5		1
Eriogonum microthecum																				1
Gutierrezia sarothrae				2				5			1	1			1			4	10	5
Lycium pallidum														+						
Opuntia polycantha																				+
Opuntia whipplei														8						
TOTAL	16	16	5	15	12	0	5	5	6	0	1	4	0	12	9	7	9	12	16	9
Forbs																				
Astragalus lentiginosus																				+
Astragalus sp.																				
Chenopodium sp.										+										
Comandra umbellata																				
Descurainia pinnata														+			1			
Ipomopsis congesta																				+
Plantago sp.											+									
Salsola iberica										+										
Sphaeralcea coccinea																		+		
Stephanomeria exigua																				
TOTAL	0	0	0	0	0	0	0	0	0	+	+	0	0	+	0	0	1	+	0	+

TABLE E-1d (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses																				
Agropyron smithii														1						
Aristida purpurea																				
Bromus tectorum	+		2		11	1	1	10	1	+	1	7	+	1		10	1	4		
Vulpia octoflora	1	2		+							+						+		1	1
Hilaria jamesii	7	10	5	9		9	3			32	2	2	2	8	+		10	1		1
Oryzopsis hymenoides	25	10	23	18	17	38	40	3	12	5	8	6	35		6	17	10	10	11	7
Sitanion hystrix									2	1		1	1	3	1					
Sporobolus cryptandrus	+			1		1	+		5	+	1	+							2	1
Stipa comata		4				3		23	5	+	7	6	7		8				2	5
TOTAL	33	26	30	28	28	52	44	36	25	38	19	22	45	13	15	27	21	15	16	15
TOTAL VEGETATIVE COVER	49	42	35	43	40	52	49	41	31	38	20	26	45	25	24	34	31	27	32	24
BARE GROUND	22	43	40	33	—	25	20	41	39	48	67	22	51	60	20	28	32	20	10	15
GRAVEL AND ROCK	18	5	18	12	—	+	+	3	22	2	7	41	2	3	53	4	2	43	48	21
LITTER	10	10	7	12	—	23	30	15	8	12	6	11	4	12	3	34	35	10	10	40
TOTAL	50	58	65	57	—	48	50	59	69	62	80	74	57	75	76	66	69	73	68	76

TABLE E-1d (Cont.)

Species	Releve Number 21	22	23	24	25	Avg. Cover(%)	Frequency (%)
Trees							
Juniperus osteosperma							
TOTAL	0	+	0	0	0	+	4.0
Shrubs and Succulents							
Atriplex canescens						0.0	4.0
Artemisia tridentata	6	2			+	1.8	44.0
Ceratoides lanata						0.8	20.0
Chrysothamnus viscidiflorus	6	2		3	6	2.0	52.0
Ephedra nevadensis			1			1.2	24.0
Eriogonum microthecum						0.0	4.0
Gutierrezia sarothrae	1	3	25	2	4	2.6	52.0
Lycium pallidum						+	4.0
Opuntia polycantha	+					+	8.0
Opuntia whipplei						0.3	4.0
TOTAL	13	7	26	5	10	8.8	----
Forbs							
Astragalus lentiginosus						+	4.0
Astragalus sp.			+			+	4.0
Chenopodium sp.						+	4.0
Comandra umbellata			+			+	4.0
Descurainia pinnata						0.0	8.0
Ipomopsis congesta						+	4.0
Plantago sp.						+	4.0
Salsola iberica						+	4.0
Sphaeralcea coccinea						+	4.0
Stephanomeria exigua	+				+	+	8.0
TOTAL	+	0	+	0	+	0.0	----

TABLE E-1d (Cont.)

Species	Releve Number 21	22	23	24	25	Avg. Cover(%)	Frequency (%)
Grasses							
Agropyron smithii						0.0	4.0
Aristida purpurea		2		+		0.1	8.0
Bromus tectorum		3		5	1	2.4	72.0
Vulpia octoflora	2	+	1		1	0.4	44.0
Hilaria jamesii		4	1			4.2	68.0
Oryzopsis hymenoides	2		3	3		12.4	88.0
Sitanion hystrix						0.4	24.0
Sporobolus cryptandrus	3				5	0.8	48.0
Stipa comata	7	3	5		1	3.4	60.0
TOTAL	14	12	10	8	8	24.0	----
TOTAL VEGETATIVE COVER	27	19	36	13	18	32.8	----
BARE GROUND	20	43	57	35	29	32.8	----
GRAVEL AND ROCK	47	30	+	35	49	18.6	----
LITTER	6	8	5	17	4	13.2	----
TOTAL	73	81	62	87	82	64.7	----

TABLE E-1e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD PREFERRED OBTS
— WASH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	Avg. Cover(%)	Frequency (%)
Trees															
Juniperus osteosperma		40												3.1	7.7
TOTAL	0	40	0	0	0	0	0	0	0	0	0	0	0	3.1	---
Shrubs and Succulents															
Artemisia filifolia												5		0.4	7.7
Artemisia nova										2				0.2	7.7
Artemisia tridentata	18	17	19	25	43		12	5	6	11	3		2	12.4	84.6
Atriplex canescens								3			3			0.5	15.4
Ceratoides lanata											1			0.1	7.7
Chrysothamnus nauseosus							14	4	7					1.9	23.1
Chrysothamnus viscidiflorus			29			12			3	3			12	4.5	38.5
Ephedra nevadensis												2		0.2	7.7
Grayia spinosa										3				0.2	7.7
Gutierrezia sarothrae	5								3			1		0.7	23.1
Lycium pallidum						4						1		0.5	15.4
Opuntia polycantha	1				+					1				0.2	23.1
TOTAL	24	17	48	25	43	16	26	12	19	20	7	9	14	21.5	---
Forbs															
Ambrosia acanthicarpa						+								+	7.7
Astragalus lentiginosus												1		0.1	7.7
Astragalus sp.	+					+			+					+	23.1
Descurainia pinnata					4	+	+	+						0.3	30.8
Sphaeralcea coccinea					+									+	7.7
Sphaeralcea sp.									+	+				+	15.4
Streptanthella longirostris						+								+	7.7
TOTAL	+	0	0	0	4	+	+	+	+	+	0	1	0	0.4	---

TABLE E-1e (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	Avg. Cover(%)	Frequency (%)
Grasses															
Agropyron cristatum				2				4						46.2	15.4
Aristida purpurea									3					23.1	7.7
Bromus tectorum	3	50	13	8	3	1		10	2	6	14	5	1	8.9	92.3
Hilaria jamesii	1	+			1	2						7	3	1.1	46.1
Oryzopsis hymenoides					+				1	4	15		5	1.9	38.5
Sitanion hystrix								+					+	+	15.4
Sporobolus cryptandrus	+								1					0.1	15.4
Stipa comata	+				1				2	2				0.4	30.8
TOTAL	4	50	13	10	5	3	0	14	9	12	29	12	9	13.1	---
TOTAL VEGETATIVE COVER	29	107	61	35	52	19	26	26	29	32	36	22	23	38.2	---
BARE GROUND	62	20	15	40	40	24	20	15	1	1	31	26	51	26.6	---
GRAVEL AND ROCK	5	25	19	5	3	50	31	4	65	57	3	50	22	26.1	---
LITTER	3	20	5	20	5	7	23	55	5	10	30	2	4	14.5	---
TOTAL	70	65	39	65	48	81	74	74	71	68	64	78	77	67.2	---

TABLE E-2a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
-PINYON-JUNIPER ASSOCIATION-

Species	Releve Number 1	2	3	4	5	6	Avg. Cover(%)	Frequency (%)
Trees								
Juniperus osteosperma	35	36	25	35	45	15	31.8	100.0
TOTAL	35	36	25	35	45	15	31.8	----
Shrubs and Succulents								
Artemisia tridentata	15	6	6	12	1	20	10.0	100.0
Chrysothamnus greenei						1	0.2	16.7
Chrysothamnus viscidiflorus		4	+	+	+		0.7	66.7
Ephedra nevadensis		1		+			0.2	33.3
Ephedra viridis	1						0.2	16.7
Gutierrezia sarothrae	+			+	1	+	0.2	66.7
TOTAL	16	11	6	12	2	21	11.3	----
Forbs								
Abronia sp.			+				+	16.7
Astragalus lentiginosus		+	+	+	+		+	66.7
Cryptantha sp.					+		+	16.7
Machaeranthera canescens				+			+	16.7
Sphaeralcea sp.				+			+	16.7
Townsendia incana				+	+		+	33.3
TOTAL	0	+	+	+	+	0	+	----
Grasses								
Agropyron sp.	+						+	16.7
Bromus tectorum	8	+	12	9	8	2	6.5	83.3
Hilaria jamesii	+		1	+		+	0.2	50.0
Oryzopsis hymenoides		+	+	+		+	+	66.7
Poa sp.	+						+	16.7
Sitanion hystrix	+	+		+		1	0.2	66.7
Sporobolus cryptandrus			+				+	16.7
Stipa comata		+					+	16.7
TOTAL	8	+	13	9	8	3	6.8	----
TOTAL VEGETATIVE COVER	59	47	44	56	55	39	50.0	----
BARE GROUND	5	4	8	15	5	3	6.7	----
GRAVEL AND ROCK	30	39	22	25	30	43	31.5	----
LITTER	34	8	30	35	48	15	28.3	----
TOTAL	69	51	60	75	83	61	66.5	----

TABLE E-2b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
-BLACK SAGEBRUSH ASSOCIATION-

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
Shrubs													
Artemisia nova	18	23	28	22	30	27	22	12	15	15	20	21.1	100
Artemisia tridentata									2			0.2	9.1
Atriplex canescens										2		0.2	9.1
Ceratoides lanata								+				+	9.1
Chrysothamnus viscidiflorus	4	2	3	2	2	+	1	2			+	1.5	81.8
Ephedra nevadensis			1									0.1	9.1
Eriogonum microthecum						3	+	+				0.3	27.3
Grayia spinosa				1								0.1	9.1
Gutierrezia sarothrae	1			+		1	1	1	2		3	0.8	63.6
Opuntia polycantha		+										+	9.1
TOTAL	23	25	32	25	32	31	24	15	19	17	23	24.2	——
Forbs													
Astragalus lentiginosus			+						+			+	18.2
Eriogonum ovalifolium						+						+	9.1
Gilia sp.			+			+						+	18.2
Haplopappus acaulis								+				+	9.1
Sphaeralcea sp.						+		+				+	18.2
TOTAL	0	0	+	0	0	+	0	+	+	0	0	+	——
Grasses													
Bromus tectorum	2	6		+	+	+	+	+	1	4	2	1.4	90.9
Hilaria jamesii						1						0.1	9.1
Oryzopsis hymenoides	+		+		+		+			+		+	45.4
Poa sandbergii				+			+					+	18.2
Poa sp.								+				+	9.1
Sitanion hystrix			+		+	+	+	+	+	+	1	0.1	72.7
Stipa comata						1						0.1	9.1
TOTAL	2	6	+	+	+	2	+	+	1	4	3	1.6	——
TOTAL VEGETATIVE COVER	25	31	32	25	32	33	24	15	22	21	26	26.0	——
BARE GROUND	2	3	4	3	1	2	1	1	6	3	1	2.5	——
GRAVEL AND ROCK	70	61	60	69	64	61	72	80	69	69	72	67.9	——
LITTER	3	5	2	2	2	1	1	1	3	7	1	2.6	——
TOTAL	75	69	66	74	67	64	74	82	78	79	74	72.9	——

TABLE E-2c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
— BIG SAGEBRUSH ASSOCIATION --

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Shrubs																				
Artemisia nova													2							
Artemisia pygmaea													1							
Artemisia tridentata	25	14	30	10	18	15	20	45	18	33	26	28	35	18	32	24	14	9	11	9
Atriplex canescens		5																		
Chrysothamnus greenei	6			1	3	4												1	2	3
Chrysothamnus viscidiflorus				8					3		3			3	1		1			
Cowania mexicana																				
Ephedra nevadensis																				
Grayia spinosa		8																		
Gutierrezia sarothrae				5	2								1					2	3	2
Opuntia polycantha		+			+															
TOTAL	31	27	30	24	23	19	20	45	21	33	29	28	39	21	33	24	15	12	16	14
Forbs																				
Astragalus lentiginosus	+	+	+	+	+			+		+		+			+	+		+	+	
Brickellia sp.																				
Cryptantha sp.																				
Descurainia pinnata								+									+	+	+	
Descurainia sp.		+													+					
Eriogonum ovalifolium									+											
Eriogonum sp.																				
Oenothera sp.																		+		
Sphaeralcea sp.																				
Streptanthella longirostris	+		+																	
Townsendia incana																				
TOTAL	+	+	+	+	+	0	0	+	+	+	0	+	0	0	+	+	+	+	+	0
Grasses																				
Agropyron spicatum																				
Aristida purpurea																				
Bromus tectorum		+		5	8	25	9	3		+		1	5	+	+	+				3

TABLE E-2c (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses (Cont.)																				
Vulpia octoflora																				
Hilaria jamesii				+			10				+	1	+							3
Oryzopsis hymenoides				+	+	+			+									+		1
Poa sandbergii																				
Sitanion hystrix			+					+	+	1	+	+		+		+	+			1
Sporobolus cryptandrus																				
Stipa comata				1					+				1							
TOTAL	0	+	+	6	8	25	19	3	+	1	+	2	6	+	+	+	+	+	0	8
TOTAL VEGETATIVE COVER	31	27	30	30	31	44	39	48	21	34	29	30	45	21	33	24	17	13	18	22
BARE GROUND	32	3	18	48	30	18	35	13	9	5	7	22	5	1	6	3	5	3	5	4
GRAVEL AND ROCK	30	60	45	15	30	30	15	35	65	57	61	45	43	76	57	71	57	65	69	69
LITTER	6	8	6	6	8	8	11	3	3	3	2	2	7	1	3	1	11	9	8	5
TOTAL	68	71	69	69	68	56	61	51	77	65	70	69	55	78	66	75	73	77	82	78

TABLE E-2c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Shrubs																				
Artemisia nova																				
Artemisia pygmaea																				
Artemisia tridentata	8	16	28	23	35	28	38	23	14	18	42	14	23	22	8	22	14	18	27	11
Atriplex canescens																				
Chrysothamnus greenei	6	+	3	6	+	2			4		+									2
Chrysothamnus viscidiflorus													+	4			5			
Cowania mexicana															12					
Ephedra nevadensis									1											
Grayia spinosa																				
Gutierrezia sarothrae	4	1						2	+	+	2			4					1	
Opuntia polycantha																				
TOTAL	18	17	31	29	35	30	38	25	19	18	44	14	23	30	20	22	19	18	28	13
Forbs																				
Astragalus lentiginosus					+		+				+	+	+				1	+		
Brickellia sp.																				
Cryptantha sp.														+						
Descurainia pinnata	+	+	+	+		+	+			+					+					+
Descurainia sp.																				
Eriogonum ovalifolium																				
Eriogonum sp.														+						
Oenothera sp.																				
Sphaeralcea sp.																				
Streptanthella longirostris	+			+	+	+	+			+	+								+	
Townsendia incana																				
TOTAL	+	+	+	+	+	+	+	0	0	+	+	+	+	+	+	0	1	+	+	+
Grasses																				
Agropyron spicatum														3						
Aristida purpurea						+													1	
Bromus tectorum		+			+		+	8	7	1	3	+	+	2	3	5	1	+		

TABLE E-2c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Grasses (Cont.)																				
Vulpia octoflora			2																	
Hilaria jamesii								+	3	2				3		+		2		
Oryzopsis hymenoides							+													
Poa sandbergii														+						
Sitanion hystrix	+	+	1	+	1	+	+	+	+	+	+	+	+	+	+	1	3	4	+	+
Sporobolus cryptandrus																				
Stipa comata																				
TOTAL	+	+	3	+	1	+	+	8	10	3	3	+	+	8	3	6	4	6	1	+
TOTAL VEGETATIVE COVER	18	18	35	29	38	30	39	34	29	25	47	14	23	38	23	28	24	24	29	13
BARE GROUND	56	4	8	4	8	12	6	3	35	22	31	8	7	5	5	3	4	20	32	22
GRAVEL AND ROCK	14	75	33	60	48	49	51	55	32	45	18	75	66	43	69	62	66	53	36	57
LITTER	12	3	14	7	6	9	4	8	4	8	4	3	4	14	3	7	6	3	3	8
TOTAL	82	82	55	71	62	70	61	66	71	75	53	86	77	62	77	72	76	76	71	87

TABLE E-2c (Cont.)

Species	Releve Number 41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Shrubs																				
Artemisia nova																				
Artemisia pygmaea																				
Artemisia tridentata	7	16	13	15	8	22	25	6	8	14	12	12	11	10	18	15	17	6	13	14
Atriplex canescens																				
Chrysothamnus greenei	5	1	2		4	4	2		6								+	4	3	3
Chrysothamnus viscidiflorus																				
Cowania mexicana																				
Ephedra nevadensis						+														
Grayia spinosa																				
Gutierrezia sarothrae									2		2	1	+		+			5	3	4
Opuntia polycantha					1								+							
TOTAL	12	17	15	15	13	26	27	6	16	14	14	13	11	10	18	15	17	15	19	21
Forbs																				
Astragalus lentiginosus	+	+	1			2			1	1						+	+	1	1	+
Brickellia sp.								3												
Cryptantha sp.		+																		
Descurainia pinnata									+	+						+		+	1	+
Descurainia sp.																				
Eriogonum ovalifolium																				
Eriogonum sp.																				
Oenothera sp.																				
Sphaeralcea sp.			+																	
Streptanthella longirostris																				
Townsendia incana																+				
TOTAL	+	+	1	0	0	2	0	3	1	1	0	0	0	0	0	+	+	1	2	+
Grasses																				
Agropyron spicatum							2													
Aristida purpurea																		1		
Bromus tectorum	3	1	1	+	1	1	2	2	+	+	7	+	8	1	5					

TABLE E-2c (Cont.)

Species	Releve Number 41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Grasses (Cont.)																				
Vulpia octoflora																				
Hilaria jamesii	1			1				+	1	+		1	2	1	+		2		3	
Oryzopsis hymenoides			+				+				+			+	+					
Poa sandbergii																				
Sitanion hystrix	1	1	1	2	3	2	+					1		2		2	4		1	
Sporobolus cryptandrus						+						1								
Stipa comata																				
TOTAL	5	2	2	3	4	3	4	2	1	+	7	3	10	4	5	2	6	1	4	0
TOTAL VEGETATIVE COVER	17	19	18	18	18	31	31	11	18	15	21	16	21	14	23	17	23	17	25	21
BARE GROUND	12	10	5	10	7	—	2	—	12	10	9	10	20	5	2	5	5	3	10	3
GRAVEL AND ROCK	66	62	70	64	60	—	57	—	50	58	45	59	34	67	65	65	71	70	57	64
LITTER	5	9	7	8	15	—	10	—	20	17	25	15	25	14	10	13	11	10	8	12
TOTAL	83	81	82	82	82	—	69	—	82	85	79	84	79	86	77	83	87	83	75	79

TABLE E-2c (Cont.)

Species	Releve Number 61	62	Avg. Cover(%)	Frequency (%)
Shrubs				
Artemisia nova			0.0	1.6
Artemisia pygmaea			0.0	1.6
Artemisia tridentata	8	+	18.3	98.4
Atriplex canescens			0.1	1.6
Chrysothamnus greenei	4		1.3	45.2
Chrysothamnus viscidiflorus			0.5	14.5
Cowania mexicana			0.2	1.6
Ephedra nevadensis			0.0	3.2
Grayia spinosa			0.1	1.6
Gutierrezia sarothrae	2	3	0.8	38.7
Opuntia polycantha			0.0	6.4
TOTAL	14	3	21.4	---
Forbs				
Astragalus lentiginosus			0.2	48.4
Brickellia sp.			0.1	1.6
Cryptantha sp.			+	3.2
Descurainia pinnata	+	+	1.6	32.3
Descurainia sp.			+	3.2
Eriogonum ovalifolium			+	1.6
Eriogonum sp.			+	1.6
Oenothera sp.			+	1.6
Sphaeralcea sp.			+	1.6
Streptanthella longirostris			+	16.1
Townsendia incana			+	1.6
TOTAL	+	+	0.2	---
Grasses				
Agropyron spicatum			0.1	3.2
Aristida purpurea			0.0	4.8
Bromus tectorum		5	2.0	69.3

TABLE E-2c (Cont.)

Species	Releve Number 61	62	Avg. Cover(%)	Frequency (%)
Grasses (Cont.)				
Vulpia octoflora			0.0	1.6
Hilaria jamesii		25	1.0	38.7
Oryzopsis hymenoides			0.0	19.3
Poa sandbergii			+	1.6
Sitanion hystrix			0.5	67.7
Sporobolus cryptandrus	1		0.0	4.8
Stipa comata			0.0	48.0
TOTAL	0	31	3.8	----
TOTAL VEGETATIVE COVER	14	34	25.6	----
BARE GROUND	3	21	11.7	
GRAVEL AND ROCK	73	30	51.4	----
LITTER	10	15	8.1	----
TOTAL	86	66	71.3	----

TABLE E-2d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
— SAND SAGEBRUSH ASSOCIATION —

Species	Releve Number 1	2	3	4	Avg. Cover(%)	Frequency (%)
Shrubs						
Artemisia filifolia	9	14	2	4	7.3	100.0
Artemisia tridentata	8		1		2.3	50.0
Chrysothamnus greenei		2	5	3	2.5	75.0
Chrysothamnus viscidiflorus	5	4		2	2.8	75.0
Ephedra nevadensis			1		0.3	25.0
Gutierrezia sarothrae	+	1	2		0.8	75.0
TOTAL	22	21	11	9	15.8	—
Forbs						
Abronia sp.		+			+	25.0
Ambrosia acanthicarpa		+		1	0.3	50.0
Astragalus lentiginosus			+		+	25.0
Descurainia pinnata		+	+	+	+	75.0
Oenothera pallida			+	+	+	50.0
Salsola iberica				+	+	25.0
Streptanthella longirostris	+				+	25.0
TOTAL	+	+	+	1	0.3	—
Grasses						
Bromus tectorum	+	+			+	50.0
Hilaria jamesii	+				+	25.0
Oryzopsis hymenoides			+	+	+	50.0
Stipa comata		+			+	25.0
TOTAL	+	+	+	+	+	—
TOTAL VEGETATIVE COVER	22	21	11	10	16.0	—
BARE GROUND	67	55	30	30	45.5	—
GRAVEL AND ROCK	5	20	50	30	26.3	—
LITTER	4	4	9	30	11.8	—
TOTAL						

TABLE E-2e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
— GREASEWOOD/SALTBUSH ASSOCIATION --

Species	Releve Number 1	2	3	4	5	Avg. Cover(%)	Frequency (%)
Shrubs							
Artemisia spinescens			3	1	1	1.0	60.0
Artemisia tridentata				1		0.2	20.0
Atriplex confertifolia			4	3	8	3.0	60.0
Chrysothamnus greenei		25	1	2		5.6	60.0
Gutierrezia sarothrae		5	2	1	4	2.4	80.0
Opuntia polycantha				+		+	20.0
Sarcobatus vermiculatus	50	18	12	3	0	16.6	80.0
TOTAL	50	48	22	11	13	28.8	----
Forbs							
Astragalus lentiginosus		+				+	20.0
Descurainia pinnata					+	+	20.0
Descurainia sp.		+				+	20.0
Gilia sp.					+	+	20.0
Lepidium montanum	+					+	20.0
TOTAL	+	+	0	0	+	+	----
Grasses							
Bromus tectorum			+	+	+	+	60.0
Vulpia octoflora				1		0.2	20.0
Oryzopsis hymenoides				+		+	20.0
Sitanion hystrix			1	+	3	0.8	60.0
Sporobolus airoides				3		0.6	20.0
TOTAL	0	0	1	4	3	1.6	----
TOTAL VEGETATIVE COVER	50	48	25	18	17	31.6	----
BARE GROUND	46	16	67	15	74	43.6	----
GRAVEL AND ROCK		30	2	63	3	19.6	----
LITTER	4	5	6	4	6	5.0	----
TOTAL	50	51	75	82	83	68.2	----

TABLE E-2f

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
— WASH ASSOCIATION --

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	Avg. Cover(%)	Frequency (%)
Trees															
Juniperus osteosperma											10			0.8	7.7
TOTAL	0	0	0	0	0	0	0	0	0	0	10	0	0	0.8	——
Shrubs															
Artemisia spinescens				+										+	7.7
Artemisia tridentata	18	5			16	18	6			32	5			7.6	53.8
Atriplex confertifolia				2										0.2	7.7
Brickellia oblongifolia		1	3				+					3	2	0.7	38.5
Chrysothamnus greenei					4					1	3			0.6	23.1
Chrysothamnus nauseosus			8					28	16			17	20	6.9	38.5
Cowania mexicana	15					10	23							3.7	23.1
Gutierrezia sarothrae					2									0.2	7.7
Sarcobatus vermiculatus				6										0.5	7.7
TOTAL	33	6	11	8	22	28	29	28	16	33	8	20	22	20.3	——
Forbs															
Astragalus lentiginosus											+			+	7.7
Astragalus sp.	+													+	7.7
Chaenactis douglasii		+												+	7.7
Descurainia pinnata					+					+				+	15.4
Euphorbia glyptosperma							+	+	+					+	23.1
Lepidium perfoliatum				+										+	7.7
Oenothera pallida													+	+	7.7
Sphaeralcea sp.										+				+	7.7
Streptanthella longirostris					+					+				+	15.4
TOTAL	+	+	0	+	+	0	+	+	+	+	+	0	+	+	——

TABLE E-2f (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	Avg. Cover(%)	Frequency (%)
Grasses															
Bromus tectorum	2	7	2	+	+	14	8	6	2		4	2	3	3.9	92.3
Hilaria jamesii											1			0.1	7.7
Oryzopsis hymenoides											1	1		0.2	15.4
Poa sandbergii						+	+							+	15.4
Sitanion hystrix				+	+	+	+	+	+	2	1			0.2	61.5
TOTAL	2	7	2	+	+	14	8	6	2	2	7	3	3	4.3	——
TOTAL VEGETATIVE COVER	35	13	13	8	23	43	39	34	18	35	25	23	25	25.7	——
BARE GROUND	16	10	5	88	33	6	2	2	10	42	5	20	25	20.3	——
GRAVEL AND ROCK	45	71	79	2	40	42	54	58	69	11	58	37	25	45.5	——
LITTER	4	6	3	2	4	9	5	6	3	12	12	20	25	8.5	——
TOTAL	65	87	87	92	77	57	61	66	82	65	75	77	75	74.3	——

TABLE E-2g

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE MILFORD ALTERNATE OBTS
— DISTURBED AREAS* --

Species	Releve Number 1	2	3	4	5	Avg. Cover(%)	Frequency (%)
Shrubs							
Artemisia spinescens		1				0.2	20.0
Artemisia tridentata			3			0.6	20.0
Artemisia sp.		8				1.6	20.0
Chrysothamnus greenei	4		4	3		1.2	60.0
Chrysothamnus viscidiflorus		2				0.4	20.0
Gutierrezia sarothrae	5	1	2	2		1.0	80.0
TOTAL	9	12	9	5	0	7.0	---
Forbs							
Descurainia pinnata					4	0.8	20.0
Halogeton glomeratus					23	4.6	20.0
Oenothera trichocalyx				1		0.2	20.0
Sphaeralcea sp.				2		0.4	20.0
TOTAL	0	0	0	3	27	6.0	---
Grasses							
Bromus tectorum	18	10	9	20		11.4	80.0
Hilaria jamesii	4					0.8	20.0
Oryzopsis hymenoides	+			2		0.4	40.0
Sporobolus cryptandrus				2		0.4	20.0
Stipa comata	+		3			0.6	40.0
TOTAL	22	10	12	24	0	13.6	---
TOTAL VEGETATIVE COVER	31	22	21	32	27	26.6	---
BARE GROUND	52	5	3	10	63	26.6	---
GRAVEL AND ROCK	6	65	66	50	2	37.8	---
LITTER	10	8	10	8	8	8.8	---
TOTAL	68	78	79	68	73	73.2	---

* Roadsides, watering areas, corrals.

TABLE E-3a

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS
— PINYON/JUNIPER ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma	32	25	18	40	20	25	6	10	12	20	21	15	28	35	3	10	35	18	5	6
Pinus monophylla	1	15	7	20	15	25	3	4	25	15	18	5	15		22	5	2		4	6
TOTAL	33	40	25	60	35	50	9	14	37	35	39	20	43	35	25	15	37	18	9	12
Shrubs and Succulents																				
Artemisia frigida																				
Artemisia nova	3	18	6	10			1	8	20	15	4	10		7	3		8	15	8	8
Artemisia tridentata			9	2	2	1	4	6	+				8	5			7			
Chrysothamnus viscidiflorus			+				+						2	2			2			
Coryphantha vivipara					+			+			+									
Cowania mexicana																				+
Eriogonum microthecum	1	+	+									+					1	+		
Gutierrezia sarothrae		+	2	+	+			+	+	1	2	+	4	3	1					
Leptodactylon pungens	1		+				+										1			
Leptodactylon sp.				1				1	+	+		1							5	2
Lygodesmia spinosa								+												
Opuntia polycantha	+	+			+	+							+		+	+				
Opuntia sp.															+					
Penstemon sp.							+			+	1					+				
Phlox sp.												1								
Purshia tridentata																				
TOTAL	5	18	17	13	2	1	5	15	20	16	7	11	15	17	4	+	19	15	13	10
Forbs																				
Arabis sp.																+				
Astragalus lentiginosus															+					
Astragalus sp.		+					+	+		+				+			+	+		+
Chaenactis douglasii							1			+			+	+	+	+	+			
Cordylanthus parviflorus											+									
Comandra umbellata			+																	
Cryptantha sp.								+						+				+		
Erigeron sp.												+	+							
Eriogonum umbellatum				1				+				1				+				

TABLE E-3a (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs (Cont.)																				
Eriogonum sp.							2			1	+		+		1	1			+	1
Gilia sp.																				
Haplopappus spinulosus									+											
Ipomopsis congesta								+											+	+
Lupinus hillii			+																	
Lupinus sp.								+												
Machaeranthera canescens			+					2	+											
Penstemon sp.	+	+		+				+		+		+					+	1		
Phlox sp.		3	1				1								1	3				
Physaria chambersii	+										+									
Senecio multilobatus							+			+						+				
Sphaeralcea coccinea																				
Streptanthus cordatus										+							+			
Unknown Scrophulariaceae								+				+								+
TOTAL	+	3	1	1	0	0	4	2	0	1	+	1	+	+	2	4	+	1	+	1
Grasses																				
Agropyron smithii				+				+				+	2	1						
Aristida purpurea							1								1		1			
Bouteloua gracilis		4	2		3		7	2		2		1	1	1	+			5	5	1
Hordeum jubatum																				
Koeleria cristata							3									+				
Oryzopsis hymenoides		1	1	+	+	1			2		+	1	1	2			1			
Sitanion hystrix	+		1							+	+		2	2	+	1	2	+	1	
Stipa comata									1							2		1	2	
Stipa lettermani										2					+					
TOTAL	+	5	4	+	3	1	11	2	3	4	+	2	6	6	1	3	4	6	8	1
TOTAL VEGETATIVE COVER	38	71	48	74	40	52	29	34	60	57	46	34	66	58	32	24	61	40	34	24
BARE GROUND	22	35	23	20	10	20	16	25	30	35	7	50	18	12	2	2	15	30	6	5
GRAVEL AND ROCK	38	20	22	15	75	40	50	20	15	25	38	10	18	30	60	69	3	15	50	60
LITTER	42	25	35	65	15	20	5	15	20	15	40	10	45	40	6	5	40	25	10	10
TOTAL	102	80	80	100	100	80	71	60	65	75	85	70	81	82	68	76	58	70	66	75

TABLE E3a (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	Avg. Cover(%)	Frequency (%)
Trees												
Juniperus osteosperma	34	12	8	3	13	20	28	27	20	20	19.0	100.0
Pinus monophylla	28	41	22	3	4	5	8	+			10.6	87.0
TOTAL	62	53	30	6	17	25	36	27	20	20	29.6	—
Shrubs and Succulents												
Artemisia frigida										+	0.0	3.0
Artemisia nova	1	2	6	3	3		2	+	6		5.6	80.0
Artemisia tridentata	6			1				18	4	25	3.3	50.0
Chrysothamnus viscidiflorus	+							+	+	1	0.2	30.0
Coryphantha vivipara											0.0	10.0
Cowania mexicana											0.0	3.0
Eriogonum microthecum									+		0.1	23.0
Gutierrezia sarothrae	1			3	1	+	1	+		1	0.7	63.0
Leptodactylon pungens											0.1	13.0
Leptodactylon sp.	+					+			+	+	0.3	37.0
Lygodesmia spinosa											0.0	3.0
Opuntia polycantha	+	+			+			+			0.0	37.0
Opuntia sp.											0.0	3.0
Penstemon sp.											0.0	13.0
Phlox sp.											0.0	3.0
Purshia tridentata			2	5	3	1					0.4	13.0
TOTAL	8	2	8	12	7	1	3	18	10	27	10.6	—
Forbs												
Arabis sp.				+							+	7.0
Astragalus lentiginosus											+	3.0
Astragalus sp.		+	+		+	+					+	40.0
Chaenactis douglasii	+			+				+	+		+	37.0
Cordylanthus parviflorus											+	3.0
Comandra umbellata											+	3.0
Cryptantha sp.	+								+		+	17.0
Erigeron sp.									+		+	10.0
Eriogonum umbellatum				+	+			+			0.1	23.0
Eriogonum sp.	+	+			+	+	+	+			0.2	47.0

TABLE E-3a (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)												
Gilia sp.									+		+	3
Haplopappus spinulosus											+	3
Ipomopsis congesta							+				+	13
Lupinus hillii				+	+						+	10
Lupinus sp.											+	3
Macaeranthera canescens								+			0.1	13
Penstemon spp.	+		+			+	+	+	+	+	+	50
Phlox sp.											0.3	17
Physaria chambersii	+										+	10
Senecio multilobatus							+				+	13
Sphaeralcea coccinea										+	+	3
Streptanthus cordatus							+	+	+		+	17
Unknown Scrophulariaceae											+	10
TOTAL	+		+	+	+	+	+	+	+	+	0.7	90
Grasses												
Agropyron smithii										+	0.1	20
Aristida purpurea											0.1	10
Bouteloua gracilis	3			1					3	+	1.4	57
Hordeum jubatum								10			0.3	3
Koeleria cristata											0.1	7
Oryzopsis hymenoides	+			1				1	2	1	0.5	53
Sitanion hystrix	2		+	1	+		+	2			0.5	57
Stipa comata				1			1	+	2		0.3	27
Stipa lettermani						+	1				0.1	13
TOTAL	5	0	+	4	+	+	2	13	7	1	3.4	97
TOTAL VEGETATIVE COVER	75	55	38	22	24	28	45	61	39	48	45.2	—
BARE GROUND	12	18	6	30	35	68	30	20	35	20	21.9	—
GRAVEL AND ROCK	12	42	54	42	26	20	15	1	18	3	30.2	—
LITTER	45	32	12	6	15	10	45	45	30	35	25.4	—
TOTAL	69	92	72	78	76	98	90	66	83	58	77.5	—

TABLE E-3b

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS
— BLACK SAGEBRUSH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
Trees													
Juniperus osteosperma					5					8		1.2	18
Pinus monophylla					6							0.5	9
TOTAL	0	0	0	0	11	0	0	0	0	8	0	1.7	18
Shrubs and Succulents													
Artemisia nova	4	38	21	45	9	16	10	12	12	25	20	19.3	100
Artemisia tridentata	4	3	18		1	6		1	2	1		3.3	73
Chrysothamnus viscidiflorus	6	+						1	1		2	0.9	45
Eriogonum microthecum	1			+		1			+	+		0.2	45
Gutierrezia sarothrae	2	2	+		1	+		2	1		2	0.9	73
Lygodesmia spinosa						+		+				+	18
Opuntia polycantha				+				+				+	18
Phlox sp.						+						+	9
TOTAL	17	43	39	45	11	23	10	16	16	26	24	24.5	—
Forbs													
Astragalus sp.		+		+		+	+		+		+	+	55
Chaenactis douglasii			+			+	+			+	+	+	45
Cryptantha sp.		+				+		2		+	+	0.2	45
Erigeron sp.			1			+	+			+		0.1	36
Eriogonum umbellatum					+						+	+	18
Eriogonum sp.				+					+			+	18
Ipomopsis congesta							+		+			+	18
Lupinus sp.	1	+					+					0.1	27
Machaeranthera canescens		1		+						+		0.1	27
Orobanche sp.						+						+	9
Penstemon sp.			+	+			+		+	+		+	45
Phlox sp.		2			+				3			0.5	27
Senecio multilobatus	+	+										+	18
Sphaeralcea coccinea	+		+				+				+	+	36
Stephanomeria exigua										1		0.1	9
TOTAL	1	3	1	+	+	+	+	2	3	1	+	1.1	—

TABLE E-3b (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
Grasses													
Agropyron smithii	1	1	+			1	1		+		3	0.7	64
Aristida purpurea					1			+		+		0.1	27
Bouteloua gracilis	1		12			3	15		1	5		3.4	55
Koeleria cristata					1							0.1	9
Oryzopsis hymenoides	1	2		+		1		2	+			0.5	55
Sitanion hystrix			1		1			2		2	1	0.6	45
Sporobolus sp.								+				+	9
Stipa comata	3			3	4				+	1		1.0	45
TOTAL	6	3	13	3	7	5	16	4	1	8	4	6.4	—
TOTAL VEGETATIVE COVER	24	52	54	48	29	29	26	26	25	46	28	35.2	—
BARE GROUND	6	30	19	25	—	20	43	20	48	5	47	23.9	—
GRAVEL AND ROCK	65	4	13	15	—	41	18	45	15	39	8	23.9	—
LITTER	5	14	10	8	—	10	10	9	10	10	15	9.2	—
TOTAL	76	48	42	48	—	71	71	74	73	54	70	57.0	—

TABLE E-3c

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS
— BIG SAGEBRUSH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma						8		4			3									
Pinus monophylla				4																
TOTAL	0	0	0	4	0	8	0	4	0	0	3	0	0	0	0	0	0	0	0	0
Shrubs and Succulents																				
Artemisia nova				5	7	7						5								
Artemisia tridentata	3	1		12	8	7	10	13	8	32	22	8	16	8	7	10	9	8	5	25
Atriplex canescens									3											
Ceratoides lanata									+											
Chrysothamnus nauseosus									2											
Chrysothamnus viscidiflorus	18	8	13		5	1	6		1			1	1	4	5	7	+	4		
Eriogonum microthecum							+					+				1				
Gutierrezia sarothrae			1	+	+							3				1			5	+
Leptodactylon pungens				+	1	+				+										
Leptodactylon sp.							+													+
Lygodesmia spinosa						+														
Opuntia polycantha	+	2	+		+						+	+	1		1	1	+	1	+	
Opuntia sp.																				
Phlox sp.								1			1									
TOTAL	21	11	14	17	21	15	16	14	14	32	23	17	18	12	13	20	9	13	10	25
Forbs																				
Astragalus lentiginosus														+						
Astragalus sp.			1			+	+	+				+				+		+		
Chaenactis douglasii							+	+				+							+	
Comandra umbellata											+									
Cryptantha sp.	+	+	1								+	1			1	+	+			+
Erigeron sp.						+	+	+		+	+	+	+	+			+	+		
Eriogonum umbellatum																				+
Eriogonum sp.								+			+									

TABLE E-3c (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs (Cont.)																				
Ipomopsis congesta	+		+			+	+					+		+		+		+		
Lappula sp.																	+	+		
Leucelene ericoides	+																			
Machaeranthera canescens						+	+													
Oenothera sp.																+				
Penstemon sp.				1		+				+									+	+
Phlox sp.												2								
Senecio multilobatus							+					+	+							
Sphaeralcea coccinea											+	+	+	+			+	+	+	
Sphaeralcea grossulariifolia	+																			
Stephanomeria exigua		+										1								
Stephanomeria sp.							1													
TOTAL	+	+	2	1	0	+	1	+	0	+	+	4	+	+	1	+	+	+	+	+
Grasses																				
Agropyron cristatum										+										
Agropyron smithii			2		+		1		9		1		2	5	3	3		8		
Aristida purpurea		2												1	1		+		1	
Bouteloua gracilis		+		2	4	2	1	6			6		1	4	3	4	15		6	
Oryzopsis hymenoides	2	3		2	1	1		2	+	4	1	2	3	4	3		1	1	1	1
Sitanion hystrix	2		1	+	+	+	1	1	1	1	1	1	2	3	5	2	3	2		
Stipa comata	2		4		+		1	1		+		2		5	1	1				
Stipa lettermani																				3
TOTAL	6	5	7	4	5	3	4	10	10	5	9	5	8	22	16	10	19	11	8	4
TOTAL VEGETATIVE COVER	29	16	23	28	26	26	21	29	24	41	35	30	28	34	30	30	30	25	18	30
BARE GROUND	24	30	23	8	8	12	5	7	45	14	10	10	28	12	28	15	12	12	43	35
GRAVEL AND ROCK	36	45	39	52	52	38	65	45	3	28	35	50	32	42	30	25	43	41	15	20
LITTER	11	9	15	12	14	24	9	19	28	17	20	10	12	12	12	30	15	22	22	13
TOTAL	71	84	77	72	74	74	79	71	76	59	65	70	72	66	70	70	70	75	80	68

TABLE E-3c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	Avg. Cover(%)	Frequency (%)
Trees													
Juniperus osteosperma							22					1.2	13
Pinus monophylla												0.1	3
TOTAL	0	0	0	0	0	0	22	0	0	0	0	1.3	16
Shrubs and Succulents													
Artemisia nova												0.8	13
Artemisia tridentata	15	30	25	13	23	22	8	6	10	12	18	12.7	97
Atriplex canescens												0.1	3
Ceratoides lanata												+	3
Chrysothamnus nauseosus												0.1	3
Chrysothamnus viscidiflorus		2					1	1			3	2.6	58
Eriogonum microthecum										+		+	13
Gutierrezia sarothrae				2	1		1	+	+	1	5	0.6	45
Leptodactylon pungens					+		+		2			0.1	23
Leptodactylon sp.			1									+	10
Lygodesmia spinosa												+	3
Opuntia polycantha	+	4	+	1	2							0.4	55
Opuntia sp.												+	0
Phlox sp.												0.1	6
TOTAL	15	36	26	16	26	22	10	7	12	13	26	17.5	—
Forbs													
Astragalus lentiginosus												+	3
Astragalus sp.								+				+	26
Chaenactis douglasii								+	+			+	19
Comandra umbellata												+	3
Cryptantha sp.	+		+	+	+	+	+			+		+	52
Erigeron sp.	+		+	+	+				1	+		+	52
Eriogonum umbellatum								+				+	6
Eriogonum sp.							+				+	+	13

TABLE E-3c (Cont.)

Species	Releve Number 21	22	23	24	25	26	27	28	29	30	31	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)													
Ipomopsis congesta				+								+	29
Lappula sp.												+	6
Leucelene ericoides								+			+	+	10
Machaeranthera canescens												+	6
Oenothera sp.												+	3
Penstemon sp.									+	+		+	23
Phlox sp.			3								1	0.2	10
Senecio multilobatus												+	10
Sphaeralcea coccinea	+				+			1				+	32
Sphaeralcea grossulariifolia												+	3
Stephanomeria exigua												+	6
Stephanomeria sp.												+	3
TOTAL	+	0	3	+	+	+	+	1	1	+	1	0.5	90
Grasses													
Agropyron cristatum							4	3	3	3	2	0.5	19
Agropyron smithii				1	1	1		2			1	1.3	50
Aristida purpurea			2									0.2	19
Bouteloua gracilis				1		2	2	7	9	15	4	3.0	65
Oryzopsis hymenoides	2	+	+			3					+	1.2	71
Sitanion hystrix	1	1							1			0.9	65
Stipa comata				1	1						+	0.6	42
Stipa lettermani			3									0.2	6
TOTAL	3	1	5	3	2	6	6	12	13	18	7	7.9	100
TOTAL VEGETATIVE COVER	18	37	37	19	28	28	40	20	27	32	35	28.2	---
BARE GROUND	35	17	37	30	15	24	23	50	8	36	30	22.1	---
GRAVEL AND ROCK	35	11	10	31	27	36	25	15	52	20	20	32.8	---
LITTER	12	35	15	20	30	12	12	23	13	10	15	16.5	---
TOTAL	82	63	62	81	72	72	60	88	73	66	65	71.8	---

TABLE E-3d

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS
— BIG SAGEBRUSH/CRESTED WHEATGRASS ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
Trees													
Juniperus osteosperma		5	5									0.9	18
Pinus monophylla								+				+	9
TOTAL	0	5	5	0	0	0	0	+	0	0	0	0.9	27
Shrubs and Succulents													
Artemisia nova					1							0.1	9
Artemisia tridentata	8	6	8	8	8	4	6	5	7	15	14	8.1	100
Ceratoides lanata				+							1	0.1	18
Chrysothamnus viscidiflorus	2			1	2	+					3	0.7	45
Eriogonum microthecum		1	1									0.2	18
Gutierrezia sarothrae	1	2	1									0.4	27
Leptodactylon pungens	+	+	2		+							0.2	36
Lygodesmia spinosa									2			0.2	9
Opuntia polycantha		1				1			+		+	0.2	36
TOTAL	11	10	12	9	11	5	6	5	9	15	18	10.1	—
Forbs													
Astragalus lentiginosus								+	+			+	18
Astragalus sp.						1						0.1	9
Cryptantha sp.								+		+		+	18
Erigeron sp.						+		+				+	18
Eriogonum umbellatum			1									0.1	9
Eriogonum sp.		+		1		+				+		0.1	36
Leucelene ericoides	+											+	9
Lupinus hillii								1	+			0.1	18
Machaeranthera canescens					+							+	9
Sphaeralcea coccinea	+	+	+	+	+	+				+		+	64
Stephanomeria exigua			+	+				+				+	27
TOTAL	+	+	1	1	+	1	0	1	+	+	0	0.4	82

TABLE E-3d (Cont.)

Species	Releve Number 1	2	3	4	5	6	7	8	9	10	11	Avg. Cover(%)	Frequency (%)
Grasses													
Agropyron cristatum	6	10	7	2	7	10	11	6	5	10	10	7.6	100
Agropyron smithii		1		1		+	1			+		0.3	45
Aristida purpurea		1	2				2					0.5	27
Bouteloua gracilis	1	5	5	4	4			8	10	1		3.5	73
Oryzopsis hymenoides	1					+						0.1	18
Sitanion hystrix	+											+	9
Stipa comata			1	7	1	1						0.9	36
TOTAL	8	17	15	14	12	11	14	14	15	11	10	12.8	—
TOTAL VEGETATIVE COVER	19	32	33	24	23	17	20	20	24	26	30	24.4	—
BARE GROUND	25	28	17	25	30	30	30	30	25	62	42	31.3	—
GRAVEL AND ROCK	35	30	35	25	36	45	35	10	5	5	13	24.9	—
LITTER	21	10	15	26	10	8	15	40	46	7	15	19.4	—
TOTAL	81	68	67	76	76	83	80	80	76	74	70	75.5	—

TABLE E-3e

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE BERYL PREFERRED OBTS
— WASH ASSOCIATION —

Species	Releve Number 1	2	3	4	5	6	7	8	9	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents											
Artemisia frigida			+			1				0.1	22
Artemisia tridentata	34	25	25	15	6	40	40	32	35	28.0	100
Chrysothamnus nauseosus					6					0.7	11
Chrysothamnus viscidiflorus	+	7			+	1	1			1.0	55
Eriogonum microthecum	+									+	11
Gutierrezia sarothrae	+	5	+		1	2			+	0.9	66
Opuntia polycantha	1	+	+				+	1	5	0.8	66
TOTAL	35	37	25	15	13	44	41	33	40	31.4	—
Forbs											
Cryptantha sp.					+			+		+	22
Descurainia sp.							+			+	11
Erigeron sp.			+						+	+	22
Eriogonum umbellatum			+							+	11
Lupinus hillii	+									+	11
Penstemon sp.		+	+							+	22
Physaria chambersii	+									+	11
Senecio multilobatus	+									+	11
Sphaeralcea coccinea						+	+			+	22
TOTAL	+	+	+	0	+	+	+	+	+	+	88
Grasses											
Agropyron cristatum			4	5	4					1.4	33
Agropyron smithii				+		1	2			0.3	33
Bouteloua gracilis	2		12		+	+	5			2.1	55
Oryzopsis hymenoides	+	1				2				0.3	33
Sitanion hystrix	+	1				2	2	2	2	1.0	66
Stipa comata							+			+	11
TOTAL	2	2	16	5	4	5	9	2	2	5.2	100
TOTAL VEGETATIVE COVER	39	39	41	20	17	49	54	35	42	37.3	—
BARE GROUND	45	50	36	70	41	33	26	8	10	35.4	—
GRAVEL AND ROCK	7	0	15	2	12	5	10	32	18	11.2	—
LITTER	9	10	8	8	30	13	10	25	30	15.9	—
TOTAL	61	60	59	80	83	51	46	65	58	62.6	—

TABLE E-4a

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— PINYON-JUNIPER ASSOCIATION —

Species	(Road Mile)	3-6					6-9									9-12				
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Trees																			
Juniperus osteosperma		8	24	24	5	25	19	8	21	4	14	18	7	12	35	7	24	25	4
Pinus edulis			33	45	3	25				1		25	12		10	5		15	40
Pinus monophylla							5	7	1										
TOTAL		8	57	69	8	50	24	15	22	5	14	43	19	12	45	12	24	40	44
Shrubs and Succulents																			
Artemisia nova		5	2		10		+	2	7			6		3		7	12	10	7
Artemisia tridentata					4					4	+		7						
Artemisia sp.																			
Chrysothamnus viscidiflorus			+		8						2	+	5		+		12		
Chrysothamnus sp.																			
Cowania mexicana		5								8									
Coryphantha vivipara																+			
Ephedra nevadensis			+												+				
Ephedra viridis									+							1		2	
Eriogonum microthecum						+	+		+		+	+		+	1	+			
Gutierrezia sarothrae		1			1	1				+	+		1	2	3	+			
Leptodactylon pungens						+	+	+			1					+			
Opuntia polycantha					+		2	+				+	1	1		+	+	+	
Purshia tridentata							+	+			1								
TOTAL		11	2	0	23	1	2	2	7	12	4	6	14	6	4	8	24	12	7
Forbs																			
Arabis sp.																			
Astragalus calycosus														+					
Astragalus kentrophyta																			
Astragalus lentiginosus							+					+							
Astragalus sp.																			
Chaenactis douglasii																			
Cordylanthus parviflorus								+				+							
Cryptantha sp.		+	+	+					+	+		+			+	1			

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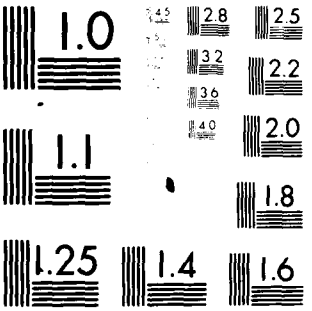

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TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	3-6 1	2	3	4	5	6-9 6	7	8	9	10	11	12	13	9-12 14	15	16	17	18
Forbs (Cont.)																			
Eriogonum caespitosum														5					
Eriogonum cernuum										+									
Eriogonum sp.							3				+					+			
Euphorbia sp.				+						+			+						
Frasera albomarginata				+					+		1					+			+
Gilia sp.												+							
Haplopappus acaulis		1																	+
Ipomopsis congesta																			
Lepidium montanum																			
Lotus utahensis										+						+			
Lupinus sp.				+		+		+			1								
Machaeranthera canescens																			
Machaeranthera grindelioides															+				
Oenothera sp.			+																
Penstemon sp.			+	+			+	+			+	+			+	+			+
Dalea searislie																			
Petradoria pumila			+	+		1		1						4		+			
Phlox sp.														1					
Physaria chambersii														+					
Physaria sp.									+										
Poa sp.										1									
Senecio multilobatus																			
Sphaeralcea grossulariifolia										+									
Sphaeralcea sp.													+						
Streptanthus cordatus														+					
Streptanthus sp.																			
TOTAL		1	+	+	0	1	3	1	0	1	2	+	+	10	+	1	0	0	+
Grasses																			
Agropyron smithii																			
Bouteloua gracilis												+							
Bromus tectorum		1	8		5								3				1		
Hilaria jamesii					+	+				+	2			2	+		2		
Munroa squarrosa													+						
Oryzopsis hymenoides		1	+	+	+		+		1		+		1			1			+

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	3-6 1	2	3	4	5	6-9 6	7	8	9	10	11	12	13	9-12 14	15	16	17	18
Grasses (Cont.)																			
Poa sandbergii			+																
Sitanion hystrix			1		+										+				+
Sitanion sp.											+								
Sporobolus cryptandrus					+														
TOTAL		2	9	+	5	+	+	0	1	1	2	+	4	2	+	1	3	0	+
TOTAL VEGETATIVE COVER		21	69	69	39	52	29	18	30	18	22	51	37	30	49	22	51	52	51
BARE GROUND		13	5	25	15	10	41	18	15	1	2	20	40	16	10	56	28	6	7
GRAVEL AND ROCK		60	35	10	50	50	20	55	50	74	69	30	18	50	40	9	15	31	33
LITTER		5	64	6[illegible]	15	30	7	6	3	4	4	55	2	4	40	8	6	11	6
TOTAL		78	104	100	80	90	68	79	68	79	75	105	60	70	90	73	49	48	46

TABLE E-4a (Cont.)

Species (Road Mile) (Releve #)	9-12 (Cont.) 19	20	21	22	12-15 23	24	25	26	27	28	15-18 29	30	31	32	33	34	35	36
Trees																		
Juniperus osteosperma	35	37	13	8	10	21	9	11	35	34	28	22	15	5	30		10	10
Pinus edulis							5		25	22	20	55			10	20	15	4
Pinus monophylla	10	1	14		4	1		+					25	40		25		
TOTAL	45	38	27	8	14	22	14	11	60	56	48	77	40	45	40	45	25	14
Shrubs and Succulents																		
Artemisia nova		3	4	3	+		2							2	1	2		3
Artemisia tridentata				6		17											2	
Artemisia sp.	6																	
Chrysothamnus viscidiflorus		+		4														
Chrysothamnus sp.								+										
Cowania mexicana									+								1	3
Coryphantha vivipara																+		
Ephedra nevadensis									1									
Ephedra viridis								1						1				1
Eriogonum microthecum			+	+	+	+	+				+	+						
Gutierrezia sarothrae		+	+	1	2		+	1	+	+							+	
Leptodactylon pungens		1	2			+				+	+	+						
Opuntia polycantha					+	+	+	1		+	+	+	1	+	+	1		1
Purshia tridentata					5	1	1								2			
TOTAL	6	4	6	14	7	18	3	3	1	+	+	+	1	3	3	3	3	8
Forbs																		
Arabis sp.													+					
Astragalus calycosus																		
Astragalus kentrophyta									+									
Astragalus lentiginosus																		
Astragalus sp.			+		+		+											
Chaenactis douglasii																		+
Cordylanthus parviflorus										+								
Cryptantha sp.								+										+

TABLE E-4a (Cont.)

Species	(Road Mile)	9-12 (Cont.)				12-15						15-18							
	(Releve #)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Forbs (Cont.)																			
Eriogonum caespitosum																			
Eriogonum cernuum																			2
Eriogonum sp.								+		+		4	1						
Euphorbia sp.			+				+	+		+									1
Frasera albomarginata								+											
Gilia sp.																			
Haplopappus acaulis																			
Ipomopsis congesta						+		+	+							+	+		+
Lepidium montanum				+															
Lotus utahensis								+	+										
Lupinus sp.						+		+		+									+
Machaeranthera canescens							+									+			
Machaeranthera grindelioides																			
Oenothera sp.																			
Dalea searislie																			
Penstemon concinnus			+																
Penstemon sp.		+		2	+	+		1	+	1				+	+	+	+	+	+
Petradoria pumila																			
Phlox sp.		+				+													
Physaria chambersii																+			+
Physaria sp.								+		+			+			+			+
Senecio multilobatus																			
Sphaeralcea grossulariifolia									+										
Sphaeralcea sp.																			
Streptanthus cordatus																			
Streptanthus sp.								+	+										
TOTAL		+	+	2	+	+	+	1	+	1	+	4	1	+	+	+	+	+	3
Grasses																			
Agropyron smithii																			
Bouteloua gracilis		+																	
Bromus tectorum																			
Hilaria jamesii					5		+	+											
Munroa squarrosa																	1		
Oryzopsis hymenoides		+		1	1	+		+	+	+		+	+			+			

TABLE E-4a (Cont.)

Species	(Road Mile)	9-12 (Cont.)				12-15						15-18							
	(Releve #)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Grasses (Cont.)																			
Poa sandbergii																			
Poa sp.																			
Sitanion hystrix		+									+		+					1	
Sitanion sp.														+	+		+		
Sporobolus cryptandrus																			
TOTAL		+	0	1	6	+	+	+	+	+	+	+	+	+	+	+	+	2	0
TOTAL VEGETATIVE COVER		51	42	36	28	21	40	18	14	62	56	52	80	41	48	43	49	30	25
BARE GROUND		7	18	13	43	41	40	67	3	25	12	3	3	38	17	37	29	25	30
GRAVEL AND ROCK		37	30	45	20	25	10	5	73	40	18	45	28	10	25	7	5	50	35
LITTER		3	8	4	8	8	7	3	6	30	68	60	70	47	52	47	60	25	5
TOTAL		47	56	62	71	74	57	75	82	95	98	108	101	95	94	91	94	100	70

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	15-18 (Cont.) 37	38	39	18-end 40	41	42	43	44	45	46	Avg. Cover(%)	Frequency (%)
Trees													
Juniperus osteosperma		9	7	33	40	32	25	20	15	23	36	18.6	98
Pinus edulis		15										8.8	46
Pinus monophylla			8	7			15			25	2	4.1	37
TOTAL		24	15	40	40	32	40	20	15	48	38	31.6	——
Shrubs and Succulents													
Artemisia nova			6	12	3	3		7	2	2	12	3.0	64
Artemisia tridentata		+				5			+			1.0	22
Artemisia sp.												0.1	2
Chrysothamnus viscidiflorus					3			+	+			0.7	26
Chrysothamnus sp.												0.0	2
Cowania mexicana		2					4					0.5	15
Coryphantha vivipara								+				0.0	7
Ephedra nevadensis												0.0	7
Ephedra viridis			+	+								0.1	17
Eriogonum microthecum			+		+	+			+		1	0.0	43
Gutierrezia sarothrae		+				+		1	+			0.3	48
Leptodactylon pungens			+	+	1	2		1	+	+	+	0.2	41
Opuntia polycantha		1	1									0.2	50
Purshia tridentata			3				+					4.6	20
TOTAL		3	10	12	7	10	4	9	2	2	13	6.5	——
Forbs													
Arabis sp.												+	2
Astragalus calycosus												+	2
Astragalus kentrophyta												+	2
Astragalus lentiginosus						+						+	4
Astragalus sp.												+	7
Chaenactis douglasii								+				+	4
Cordylanthus parviflorus		+										+	9
Cryptantha sp.		+			+			+				+	28

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	15-18 (Cont.) 37	38	39	18-end 40	41	42	43	44	45	46	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)													
Eriogonum caespitosum							+					0.2	7
Eriogonum cernuum													
Eriogonum sp.												0.2	17
Euphorbia sp.												+	15
Frasera albomarginata												0.0	13
Gilia sp.												+	2
Haplopappus acaulis								+				+	4
Ipomopsis congesta								+				+	15
Lepidium montanum			+									+	4
Lotus utahensis												+	9
Lupinus sp.												0.0	17
Machaeranthera canescens												+	4
Machaeranthera grindelioides												+	2
Oenothera sp.												+	2
Dalia searislie											+	+	
Penstemon sp.		1			+	+				+	+	0.1	61
Petradoria pumila					+	+					3	0.2	20
Phlox sp.		1						+				0.0	15
Physaria chambersii		+				+						+	17
Physaria sp.										+		+	4
Senecio multilobatus		+						+				+	7
Sphaeralcea grossulariifolia												+	2
Sphaeralcea sp.												+	2
Streptanthus cordatus		+										+	9
Streptanthus sp.												+	4
TOTAL		3	+	0	+	+	+	+	0	+	3	0.8	——
Grasses													
Agropyron smithii									+			+	2
Bouteloua gracilis					2							0.0	7
Bromus tectorum												0.4	11
Hilaria jamesii									4			0.4	26
Munroa squarrosa												+	2
Oryzopsis hymenoides			1	+	2	+	+		3	1	1	0.3	61

TABLE E-4a (Cont.)

Species	(Road Mile) (Releve #)	15-18 (Cont.) 37	38	39	18-end 40	41	42	43	44	45	46	Avg. Cover(%)	Frequency (%)
Grasses (Cont.)													
Poa sandbergii												+	2
Poa sp.												0.0	2
Sitanion hystrix					+	2		2	3		+	0.2	28
Sitanion sp.							+					+	11
Sporobolus cryptandrus												+	2
TOTAL		0	1	+	4	2	+	2	10	1	1	1.3	——
TOTAL VEGETATIVE COVER		30	26	52	51	45	44	32	27	51	55	40.4	——
BARE GROUND		26	55	10	14	29	16	20	40	19	15	22.2	——
GRAVEL AND ROCK		47	12	30	30	18	35	55	35	25	25	33.0	——
LITTER		3	6	7	45	40	3	22	30	4	4	22.0	——
TOTAL		76	73	47	89	87	54	97	105	48	44	77.2	——

TABLE E-4b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— BLACK SAGEBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	3-6 1	2	3	6-9 4	9-12 5	12-15 6	Avg. Cover(%)	Frequency (%)
Trees									
Juniperus osteosperma					8	9	2	3.2	50
TOTAL		0	0	0	8	9	2	3.2	----
Shrubs									
Artemisia nova		22	8	9	17	20	18	15.7	100
Artemisia tridentata			4					0.7	17
Chrysothamnus greenei		4	1	1				1.0	50
Chrysothamnus viscidiflorus					1	3		0.7	33
Ephedra viridis					2			0.3	17
Grayia spinosa						1		0.2	17
Gutierrezia sarothrae					5	1	+	1.0	50
Leptodactylon pungens							+	0.2	17
TOTAL		26	13	10	25	25	18	19.5	----
Forbs									
Astragalus calycosus						1		0.2	17
Astragalus lentiginosus			+	+				+	33
Cryptantha sp.					+	+		+	33
Petradoria pumila							1	0.2	17
Phlox sp.					1			0.2	17
Streptanthella longirostris		+						+	17
TOTAL		+	+	+	1	1	1	0.5	----
Grasses									
Bromus tectorum					2			0.3	17
Oryzopsis hymenoides			+	1		3	+	0.7	67
Poa sandbergii					3			0.5	17
Sitanion hystrix					+		1	0.2	33
Stipa comata					+			+	17
TOTAL		0	+	1	5	3	1	1.7	----
TOTAL VEGETATIVE COVER		26	13	11	39	38	22	24.8	----
BARE GROUND		25	15	20	1	23	16	16.7	----
GRAVEL AND ROCK		43	66	66	56	35	54	53.3	----
LITTER		6	6	3	3	3	8	4.8	----
TOTAL		74	87	89	60	61	78	74.8	----

TABLE E-4c

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— BIG SAGEBRUSH ASSOCIATION —

Species	(Road Mile)	0-3							3-6						6-9			
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Trees																		
Juniperus osteosperma															6			
Pinus edulis															4			
Pinus monophylla																		
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0
Shrubs																		
Artemisia nova																		
Artemisia tridentata		11	6	7	6	10	10	55	26	18	12	30	24	25	35	12	30	3
Atriplex canescens																	8	
Ceratoides lanata		+	1	1	4	6										+		
Chrysothamnus greenei		3				10	7		3	3	12	2						
Chrysothamnus nauseosus																		
Chrysothamnus viscidiflorus			5	4				7					5	2	3	2	1	10
Chrysothamnus sp.					6													
Ephedra nevadensis														1				
Ephedra viridis															2			
Eriogonum microthecum							+											
Gutierrezia sarothrae								5					1	1	+			12
Leptodactylon pungens																		
Opuntia polycantha					+					+					+	+		
TOTAL		14	12	12	16	26	17	67	29	21	24	32	30	29	40	14	39	25
Forbs																		
Arabis sp.															+			
Astragalus calycosus														+				
Astragalus lentiginosus										+								
Chaenactis douglasii															+			
Cryptantha sp.							+								1			
Descurainia pinnata						1			+									
Descurainia sp.					+													
Euphorbia sp.																		
Leucelene ericoides														+				

TABLE E-4c (Cont.)

Species	(Road Mile)	0-3							3-6						6-9			
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Forbs (Cont.)																		
Lupinus sp.																		
Machaeranthera canescens															+			
Paronychia sp.																		
Penstemon sp.																		
Phlox sp.															2			
Senecio multilobatus											+							
Sphaeralcea grossulariifolia																		
Sphaeralcea sp.															+	+		
Streptanthella longirostris									+									
Townsendia incana		+																
TOTAL		+	0	0	+	1	+	0	+	+	+	0	0	+	3	+	0	0
Grasses																		
Agropyron cristatum																		
Agropyron smithii																		
Bouteloua gracilis																		
Bromus tectorum		4	3	10	5	1		+							1	+		3
Hilaria jamesii		4	1	+									3			2		3
Oryzopsis hymenoides			1	+	1	1		3		+		+	+	+				
Sitanion hystrix		+				+	2						+					
Sitanion sp.			+		1													
Sporobolus cryptandrus																		
Stipa comata		1												1				
TOTAL		9	5	10	7	2	2	3	0	+	0	+	3	1	1	2	0	6
TOTAL VEGETATIVE COVER		23	17	22	23	29	19	70	29	21	24	32	33	30	54	16	39	32
BARE GROUND		46	77	65	64	15	20	16	24	18	58	10	37	8	4	60	55	9
GRAVEL AND ROCK		22	5	11	11	53	62	8	35	46	16	57	25	60	37	20	2	54
LITTER		9	1	1	1	2	3	6	12	15	2	1	4	2	2	2	4	5
TOTAL		77	83	77	76	70	85	30	71	79	76	68	66	70	43	82	61	68

TABLE E-4c (Cont.)

Species	(Road Mile) (Releve #)	9-12				12-15			15-18					18-end	Avg. Cover(%)	Frequency (%)
		18	19	20	21	22	23	24	25	26	27	28	29	30		
Trees																
Juniperus osteosperma								6							0.4	7
Pinus edulis															0.1	3
Pinus monophylla												4			0.1	3
TOTAL		0	0	0	0	0	0	6	0	0	0	4	0	0	0.7	——
Shrubs																
Artemisia nova									9						0.3	3
Artemisia tridentata		1	21	30	35	15	15	35	12	28	5	5	35	8	18.8	100
Atriplex canescens															0.3	3
Ceratoides lanata															0.4	20
Chrysothamnus greenei															1.3	23
Chrysothamnus nauseosus				4											0.1	3
Chrysothamnus viscidiflorus		+	1			5	3	2	2	2				1	1.8	57
Chrysothamnus sp.															0.2	3
Ephedra nevadensis															0.0	3
Ephedra viridis															0.1	3
Eriogonum microthecum															+	3
Gutierrezia sarothrae		15	3	1	+	+	3		+	1	1	+		2	1.5	53
Leptodactylon pungens							+								+	3
Opuntia polycantha		+						+						1	0.0	23
Paronychia sp.									1						0.0	3
TOTAL		16	25	35	35	20	21	37	24	31	6	5	35	12	25.0	——
Forbs																
Arabis sp.															+	3
Astragalus calycosus															+	3
Astragalus lentiginosus															+	3
Chaenactis douglasii												+			+	3
Cryptantha sp.							+					+			0.0	13
Descurainia pinnata															0.0	7
Descurainia sp.															+	3
Euphorbia sp.						+									+	3
Leucelene ericoides									1						0.0	7

TABLE E-4c (Cont.)

Species	(Road Mile) (Releve #)	9-12 18	19	20	21	12-15 22	23	24	15-18 25	26	27	28	29	18-end 30	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)																
Lupinus sp.						1								+	0.0	7
Machaeranthera canescens												+			+	7
Penstemon sp.				+		7	1	+	+						0.3	17
Phlox sp.						2								+	0.1	10
Senecio multilobatus															+	3
Sphaeralcea grossulariifolia							+								+	3
Sphaeralcea sp.											+				+	10
Streptanthella longirostris															+	3
Townsendia incana															+	3
TOTAL		0	0	+	0	10	1	+	1	1	+	+	0	+	0.6	----
Grasses																
Agropyron cristatum														5	0.2	3
Agropyron smithii									4		1		2		0.2	10
Bouteloua gracilis									1	3					0.1	7
Bromus tectorum			1	2	1		+				1			+	1.1	50
Hilaria jamesii		+	2		2	+		2				2			0.7	40
Oryzopsis hymenoides			1		+				+	3	1				0.4	47
Sitanion hystrix								+		3	5	3	1		0.5	30
Sitanion sp.															0.0	7
Sporobolus cryptandrus											+				+	3
Stipa comata								+							0.1	10
TOTAL		+	4	2	3	+	+	2	5	9	8	5	3	5	3.2	----
TOTAL VEGETATIVE COVER		16	29	37	38	30	22	45	32	40	14	14	38	17	29.5	----
BARE GROUND		5	4	55	24	45	4	22	35	20	25	15	44	35	30.6	----
GRAVEL AND ROCK		74	64	2	33	20	70	15	22	25	30	62	0	35	32.5	----
LITTER		5	3	6	4	3	2	18	11	15	31	9	18	12	7.0	----
TOTAL		84	71	63	61	68	76	55	68	60	86	86	62	82	70.1	----

TABLE E-4d

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— RABBITBRUSH ASSOCIATION —

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	5	6	7	8	9	10	11	12	13	3-6 14	15	Avg. Cover(%)	Frequency (%)
Shrubs																		
Artemisia tridentata					1		+	7									0.5	20
Ceratoides lanata			2	2	+	6	17	8	15	3	3	13	5	+	10	8	6.1	93
Chrysothamnus greenei		8		6	12	5									30	28	5.9	40
Chrysothamnus viscidiflorus							13	24	26	11	23	36	9	11			10.2	53
Gutierrezia sarothrae		+			+												+	13
TOTAL		8	2	8	13	11	30	39	41	14	26	49	14	11	40	36	22.8	---
Forbs																		
Astragalus sp.				+						+				+			+	20
Descurainia pinnata															5	+	0.3	13
Descurainia sp.									+								+	7
Machaeranthera canescens										2		+		2			0.3	20
Machaeranthera sp.				+													+	7
Sphaeralcea coccinea						+											+	7
Sphaeralcea grossulariifolia												+		+			+	13
TOTAL		0	0	+	0	+	0	0	+	2	0	+	0	2	5	+	0.6	---
Grasses																		
Agropyron cristatum						1								3			0.3	13
Bromus tectorum		3	8	+	3	2	25	7	17	14	9	12	7		3	+	7.3	93
Hilaria jamesii		6	24				2		3								2.3	27
Oryzopsis hymenoides		+	+	7	1	2	2	2	1	12	8	7	1	4	4	1	3.5	100
Sitanion hystrix				1	+	1											0.1	20
Sitanion sp.														1			0.1	7
Sporobolus cryptandrus		+				1											0.1	13
Stipa comata										8							0.5	7
TOTAL		9	32	8	4	7	29	9	21	34	17	19	8	8	7	1	14.2	---
TOTAL VEGETATIVE COVER		17	34	16	17	18	59	48	62	50	43	68	22	21	52	37	37.6	---
BARE GROUND		25	39	15	50	22	25	30	18	17	30	24	69	69	30	53	34.4	---
GRAVEL AND ROCK		44	15	66	30	55	12	20	16	30	25	5	8	8	18	8	24.0	---
LITTER		14	12	3	3	5	4	2	4	3	2	2	1	1	2	1	3.9	---
TOTAL		83	66	84	83	82	41	52	38	50	57	31	78	78	50	62	62.3	---

TABLE E-4e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— WINTERFAT ASSOCIATION —

Species	(Road Mile) (Releve #)	3-6 1	2	Avg. Cover(%)	Frequency (%)
Shrubs					
Ceratoides lanata		48	40	44.0	100.0
TOTAL		48	40	44.0	----
Forbs					
Descurainia pinnata		1		0.5	50.0
Descurainia sp.			+	+	50.0
Lappula sp.			+	+	50.0
TOTAL		1	+	0.5	----
Grasses					
Bromus tectorum		1		0.5	50.0
TOTAL		1	0	0.5	----
TOTAL VEGETATIVE COVER		50	40	45.0	----
BARE GROUND		48	51	49.5	----
GRAVEL AND ROCK		1	1	1.0	----
LITTER		1	6	3.5	----
TOTAL		50	58	54.0	----

TABLE E-4f

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT I-D
— WASH ASSOCIATIONS —

Species	(Road Mile)	0-3	3-6		6-9	9-12				12-15			15-18	18-end		Avg.	Frequency
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Cover(%)	(%)
Trees																	
Juniperus osteosperma												10				0.7	7
Pinus edulis												5				0.4	7
TOTAL		0	0	0	0	0	0	0	0	0	0	15	0	0	0	1.1	---
Shrubs																	
Artemisia tridentata		1	1	11	8	14	50	5	15	25	8	+	8	22	52	15.7	100
Atriplex canescens											4					0.3	7
Ceratoides lanata		+												3		0.2	14
Chrysothamnus greenei				3												0.2	7
Chrysothamnus nauseosus		7	11		6	14	20	8	18	1			15			7.1	64
Chrysothamnus viscidiflorus		+							2	6		13	+			1.5	36
Cowania mexicana												1	2			0.2	14
Gutierrezia sarothrae				1		1		1		2	4	1	3		1	1.0	57
TOTAL		8	12	15	14	29	70	14	35	34	16	15	28	25	53	26.3	---
Forbs																	
Amaranthus albus					1											0.1	7
Amaranthus sp.		+														+	7
Argemone munita			1													0.1	7
Astragalus kentrophyta											+					+	7
Brickellia oblongifolia								2		3						0.4	14
Cryptantha sp.										1			+			0.1	14
Descurainia pinnata					+											+	7
Eriogonum sp.													1			0.1	7
Euphorbia sp.								+		1	+	+				0.1	21
Frasera albomarginata												+				+	7
Ipomopsis congesta											+	+				+	14
Lupinus sp.											+	4				0.3	14
Machaeranthera canescens													+			+	7
Oenothera sp.												+				+	7

TABLE E-4f (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	3-6 2	3-6 3	6-9 4	9-12 5	9-12 6	9-12 7	12-15 8	12-15 9	12-15 10	12-15 11	15-18 12	18-end 13	18-end 14	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)																	
Penstemon palmeri								+	1							0.1	14
Penstemon sp.						+					2	1				0.2	21
Physaria chambersii					+						+	+				+	21
Salsola iberica		+														+	7
Sphaeralcea ambigua		+														+	7
Sphaeralcea grossulariifolia		+														+	7
TOTAL		+	1	0	1	+	0	2	1	5	2	5	1	0	0	1.3	——
Grasses																	
Agropyron cristatum		+														+	7
Agropyron smithii											1			6	+	0.5	21
Aristida purpurea													1			0.1	7
Bromus tectorum		2			1			2	1	1	+					0.5	43
Hilaria jamesii				1									1			0.1	14
Oryzopsis hymenoides		+												+		+	14
Poa sp.		+														+	7
Sitanion hystrix				+										+	1	0.1	21
TOTAL		2	0	1	1	0	0	2	1	1	1	0	2	6	1	1.3	——
TOTAL VEGETATIVE COVER		10	13	16	16	29	70	18	37	40	19	35	31	31	56	30.1	——
BARE GROUND		79	35	4	23	12	20	30	53	40	53	25	34	60	22	35.0	——
GRAVEL AND ROCK		6	46	73	51	51	0	47	6	16	20	30	5	3	10	26.0	——
LITTER		1	6	7	10	8	10	3	4	4	8	10	30	6	12	8.5	——
TOTAL		86	87	84	84	71	30	80	63	60	81	65	69	69	44	69.5	——

TABLE E-5a

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G -- JOCKEY SPRING
— PINYON-JUNIPER ASSOCIATION —

Species (Road Mile)	0-3										3-6									
(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Trees																				
Juniperus osteosperma	5	13	15	18	13	4	12	12	14	28	13	3	25	5	15	28	30	25	34	40
Pinus edulis					5	23						9	7	9	35		10	8		
Pinus monophylla							35		5	11										
TOTAL	5	13	15	18	18	27	47	12	19	39	13	12	32	14	50	28	40	33	34	40
Shrubs and Succulents																				
Artemisia nova	+	3	4	3	10		2	13	3		3	2	2	14					16	3
Artemisia tridentata													1							
Artemisia sp.																2		3		
Chrysothamnus greenei														1						
Chrysothamnus viscidiflorus		3									2	1							2	2
Chrysothamnus sp.	18		1	2				+												
Cowania mexicana						2				1										
Ephedra nevadensis			+					1							1					
Ephedra viridis			+					+											+	+
Eriogonum microthecum	2	1	+	+			+				1	1	+		+	+	+	+		1
Gutierrezia sarothrae	11	1	+	1							1	1	+		1	1	1	+	2	+
Leptodactylon pungens					+											+			+	
Opuntia polycantha	+		+			+					+	+					1	+	+	
Purshia tridentata									+	4										
TOTAL	31	8	5	6	10	2	2	14	3	5	7	5	3	15	2	3	2	3	20	6
Forbs																				
Astragalus calycosus											1	+	+			+	+			
Astragalus lentiginosus		+		+																
Astragalus sp.	+		+			+	+	+				+		+					+	
Brickellia oblongifolia																				
Caulanthus crassicaulis																+	+			
Chaenactis douglasii											+	+	+							
Chaenactis sp.			+		+															
Cordylanthus parviflorus																			+	
Cryptantha sp.	+	+	+	+	+		+				1	+	1						+	+

TABLE E-5a (Cont.)

Species (Road Mile)	0-3										3-6									
(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Forbs (Cont.)																				
Erigeron sp.																			+	
Eriogonum shockleyi				+		+														
Eriogonum sp.	1		+	1	+						+									5
Euphorbia sp.		+											+							
Frasera albomarginata	+								+		2					+	+	+		
Haplopappus acaulis																				+
Ipomopsis congesta				+							+					+	+			
Lepidium montanum																				
Leucelene ericoides																				
Lithospermum incisum																		+		
Lupinus sp.													+							
Lygodesmia spinosa																				
Machaeranthera canescens														+						
Oenothera sp.																				
Penstemon sp.		+	+		+	+	1	+	1	1	+	2	2		+	+	1		+	+
Dalia searislie													1							
Phlox sp.									+		2		+		+	+	1	+		
Physaria chambersii			+			+						+	+							
Physaria sp.										+										
Streptanthus cordatus		+			+	+	+	+			+	+	+			+	+			+
Unknown forb						+														
TOTAL	+	+	+	1	+	+	1	+	1	1	6	2	4	+	+	+	2	+	+	5
Grasses																				
Aristida purpurea			+	1													+			
Bouteloua gracilis														+						
Bromus tectorum														+					+	+
Hilaria jamesii	7			1			+	1			3			1		5		+		4
Munroa squarrosa		+																		
Oryzopsis hymenoides		5	+	1	+			2				3				1	+		+	1
Poa sp.				+																
Sitanion hystrix	+													1					1	1
Sitanion sp.					+										+					

TABLE E-5a (Cont.)

Species	(Road Mile)	0-3										3-6									
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Grasses (Cont.)																					
Stipa comata			+												+		2				
TOTAL		7	5	+	3	+	0	+	3	0	0	3	3	0	2	+	8	+	+	1	6
TOTAL VEGETATIVE COVER		44	26	20	28	28	29	50	29	23	45	29	22	39	31	52	39	44	36	55	58
BARE GROUND		25	25	3	56	6	7	15	50	22	37	21	7	30	20	5	6	3	40	10	12
GRAVEL AND ROCK		25	54	64	8	52	52	25	11	50	10	45	67	22	60	34	44	45	15	45	20
LITTER		3	3	7	5	10	9	8	8	4	8	4	1	4	15	50	35	42	39	42	50
TOTAL		53	82	74	69	68	68	48	69	76	55	70	75	56	95	89	85	90	94	97	82

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)	21	22	23	24	25	26	27	Avg. Cover(%)	Frequency (%)
				6-end						
Trees										
Juniperus osteosperma		11	41	8	25	22	28	12	18.5	100
Pinus edulis		3		3	10	15	34	52	8.3	52
Pinus monophylla			4						2.0	15
TOTAL		14	45	11	35	37	62	64	28.8	---
Shrubs and Succulents										
Artemisia nova			1				4	2	3.2	63
Artemisia tridentata		+		5	12				0.7	15
Artemisia sp.						8			0.5	11
Chrysothamnus greenei									[illegible].0	4
Chrysothamnus viscidiflorus				1					0.4	22
Chrysothamnus sp.									[illegible]	15
Cowania mexicana					3			3	[illegible]	15
Ephedra nevadensis									[illegible]	11
Ephedra viridis									+	15
Erioyonum microthecum									0.2	48
Gutierrezia sarothrae				1	1	+			0.8	59
Leptodactylon pungens				+			+		+	19
Opuntia polycantha		+		1	+			+	0.1	44
Purshia tridentata									0.2	7
TOTAL		+	1	8	16	8	4	5	7.2	---
Forbs										
Astragalus calycosus									0.0	19
Astragalus lentiginosus									+	7
Astragalus sp.									+	30
Brickellia oblongifolia				+					+	4
Caulanthus crassicaulis									+	7
Chaenactis douglasii				+					+	15
Chaenactis sp.					+				+	11
Cordylanthus parviflorus									+	4
Cryptantha sp.				+					0.1	44

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)	21	22	23	24	25	26	27	Avg. Cover(%)	Frequency (%)
				6-end						
Forbs (Cont.)										
Erigeron sp.									+	4
Eriogonum shockleyi									+	7
Eriogonum sp.								+	0.3	26
Euphorbia sp.				1					0.0	11
Frasera albomarginata									0.1	22
Haplopappus acaulis									+	4
Ipomopsis congesta				+		+			+	22
Lepidium montanum			+						+	4
Leucelene ericoides				1					0.0	4
Lithospermum incisum									+	4
Lotus utahensis									+	4
Lupinus sp.				+					+	7
Lygodesmia spinosa				1					0.0	4
Machaeranthera canescens									+	4
Oenothera sp.					+				+	4
Penstemon sp.		+	1		1		+		0.4	74
Dalea searislie				+					0.1	7
Phlox sp.			+						0.1	30
Physaria chambersii		+							+	19
Physaria sp.									+	4
Streptanthus cordatus					+				+	44
TOTAL		+	1	3	1	+	+	+	1.0	----
Grasses										
Aristida purpurea									0.0	11
Bouteloua gracilis				1					0.0	7
Bromus tectorum									+	11
Hilaria jamesii				1					0.9	37
Munroa squarrosa									+	4
Oryzopsis hymenoides									0.5	37
Poa sp.									+	4
Sitanion hystrix					+				0.1	19
Sitanion sp.						+			+	11

TABLE E-5a (Cont.)

Species	(Road Mile) (Releve #)	21	22	23	24	25	26	27	Avg. Cover(%)	Frequency (%)
		6-end								
Grasses (Cont.)										
Stipa comata									0.1	11
TOTAL		0	0	2	+	+	0	0	1.6	----
TOTAL VEGETATIVE COVER		14	47	24	52	45	66	69	38.7	----
BARE GROUND		10	14	30	30	3	8	2	18.4	----
GRAVEL AND ROCK		68	35	40	15	46	25	29	37.3	----
LITTER		6	3	5	40	5	72	68	20.2	----
TOTAL		84	52	75	85	54	105	99	75.9	----

TABLE E-5b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G — JOCKEY SPRING
— BLACK SAGEBRUSH ASSOCIATION —

Species	(Road Mile) (Releve #)	0-3 1	2	6-end 3	4	5	Avg. Cover(%)	Frequency (%)
Trees								
Juniperus osteosperma			4				0.8	20
TOTAL		0	4	0	0	0	0.8	----
Shrubs and Succulents								
Artemisia nova		12	8	5		23	9.6	80
Artemisia sp.					15		3.0	20
Chrysothamnus greenei		6		3			1.8	40
Chrysothamnus viscidiflorus			3				0.6	20
Ephedra nevadensis		2	3				1.0	40
Eriogonum microthecum				+			+	20
Gutierrezia sarothrae		1	1	8		+	2.0	80
Paronychia sp.			+				+	20
TOTAL		21	15	16	15	23	18.0	----
Forbs								
Astragalus sp.		+		+			+	40
Cryptantha sp.		+					+	20
Eriogonum shockleyi		+					+	20
Euphorbia glyptosperma			+				+	20
Euphorbia sp.		+					+	20
Leucelene ericoides		+					+	20
Machaeranthera canescens					+		+	20
Phlox sp.					+		+	20
TOTAL		+	0	+	+	0	+	60
Grasses								
Bromus tectorum		1	+	+			0.2	60
Hilaria jamesii		+	2				0.4	40
Oryzopsis hymenoides		1		+	+		0.2	60

TABLE E-5b (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	2	6-end 3	4	5	Avg. Cover(%)	Frequency (%)
Grasses (Cont.)								
Sitanion hystrix			1			+	0.2	40
Sitanion sp.		1					0.2	20
Stipa comata		1					0.2	20
TOTAL		4	3	+	+	+	1.4	---
TOTAL VEGETATIVE COVER		25	22	16	15	23	20.2	---
BARE GROUND		9	14	15	75	8	24.2	---
GRAVEL AND ROCK		61	58	64	4	64	50.2	---
LITTER		2	6	5	5	5	4.6	---
TOTAL		72	78	84	84	77	79.0	---

TABLE E-5c

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G — JOCKEY SPRING
— BIG SAGEBRUSH ASSOCIATION —

Species	(Road Mile)	0-3						3-6			6-end		Avg.	Frequency
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	Cover(%)	(%)
Shrubs and Succulents														
Artemisia tridentata		16	22	23	32	22	18	10	23	9	20	18	19.4	100
Chrysothamnus greenei			8							1			0.8	18
Chrysothamnus viscidiflorus					4	7					5	3	1.7	36
Chrysothamnus sp.		+						9	14				2.1	27
Gutierrezia sarothrae						4					5		0.8	18
Opuntia polycantha					+								+	9
Sarcobatus vermiculatus				7									0.6	9
TOTAL		16	30	30	36	33	18	19	37	10	30	21	25.4	—
Forbs														
Astragalus lentiginosus		2			+								0.2	18
Astragalus sp.		+											+	9
Cryptantha sp.									+				+	9
Descurainia sp.				6									0.6	9
Eriogonum cernuum		+											+	9
Erigeron sp.		1											0.1	9
Euphorbia sp.				+									+	9
Lupinus sp.												+	+	9
Orobanche sp.			+										+	9
TOTAL		2	+	6	+	0	0	0	+	0	0	+	0.7	—
Grasses														
Agropyron smithii										3			0.3	9
Bouteloua gracilis								1					0.1	9
Bromus tectorum		2	9		3	8	2	3	3	+	2		1.2	82
Hilaria jamesii		4					3	4	2	4		1	1.6	55
Juncus sp.											10		0.9	9
Oryzopsis hymenoides		1			+		1	4				+	1.0	45
Sitanion hystrix														

TABLE E-5c (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	5	6	3-6 7	8	9	6-end 10	11	Avg. Cover(%)	Frequency (%)
Grasses (Cont.)														
Sitanion sp.		+						+					0.1	18
Sporobolus cryptandrus										+			+	9
Stipa comata							1	1		+			0.2	27
TOTAL		8	9	0	3	8	7	13	5	7	12	1	6.6	——
TOTAL VEGETATIVE COVER		26	39	36	39	41	25	32	42	17	42	22	32.8	——
BARE GROUND		3	43	60	3	2	37	53	43	18	55	69	35.1	——
GRAVEL AND ROCK		67	25	1	54	53	35	12	12	40	0	2	27.4	——
LITTER		2	3	3	3	4	3	2	3	25	3	6	5.2	——
TOTAL		72	71	64	60	59	75	67	58	83	58	77	67.6	——

TABLE E-5d

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G -- JOCKEY SPRING
— RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	5	6	3-6 7	8	Avg. Cover(%)	Frequency (%)
Trees											
Juniperus osteosperma								9	6	1.9	25
TOTAL		0	0	0	0	0	0	0	0	1.9	---
Shrubs and Succulents											
Artemisia nova		5	5		5	3	12			3.8	63
Artemisia tridentata				3				4	7	1.8	38
Atriplex canescens									1	0.1	13
Ceratoides lanata			3				+			0.4	25
Chrysothamnus greenei		18			6	4				3.5	38
Chrysothamnus viscidiflorus			15	20			12	10	20	9.6	63
Eriogonum microthecum			1							0.1	13
Ephedra nevadensis		+	1		1					0.3	38
Gutierrezia sarothrae			1					4	2	0.9	38
Opuntia erinacea		+						1		0.1	25
TOTAL		23	26	23	12	7	24	19	30	20.5	---
Forbs											
Astragalus calycosus			+					+		+	25
Cryptantha sp.		+				+		+	+	+	50
Descurainia pinnata				1						0.1	13
Eriogonum shockleyi		1								0.1	13
Euphorbia sp.		+			+				1	0.1	38
Lepidium sp.		+								+	13
Penstemon sp.								+	+	+	25
Sphaeralcea sp.				+			+	+	+	+	50
TOTAL		1	+	1	+	+	+	+	1	0.4	---
Grasses											
Aristida purpurea		+				+				+	25
Bouteloua gracilis								2		0.3	13
Bromus tectorum		1	10	7			1		1	2.5	63

TABLE E-5d (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	5	6	3-6 7	8	Avg. Cover(%)	Frequency (%)
Grasses (Cont.)											
Hilaria jamesii		1			2	+		5	2	1.1	63
Munroa squarrosa				+						+	13
Oryzopsis hymenoides		+	1	+			+			0.1	50
Sitanion sp.		+								+	13
Stipa comata		1			2	5				1.0	38
TOTAL		3	11	7	4	5	1	7	3	5.1	---
TOTAL VEGETATIVE COVER		27	37	31	16	12	25	35	40	27.9	---
BARE GROUND		64	30	11	35	9	4	25	50	28.5	---
GRAVEL AND ROCK		4	30	55	39	64	65	35	6	37.3	---
LITTER		1	3	3	10	5	5	3	4	4.3	---
TOTAL		69	63	69	84	78	74	63	60	70.0	---

TABLE E-5e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT G -- JOCKEY SPRING

— WASH ASSOCIATIONS --

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	3-6 5	6	6-end 7	8	Avg. Cover(%)	Frequency (%)
Trees											
Juniperus osteosperma			25			5				3.8	25
Pinus edulis									6	0.8	13
TOTAL		0	25	0	0	5	0	0	6	4.5	---
Shrubs											
Artemisia tridentata		5	1	8	28	6	14	4	1	8.4	100
Atriplex canescens						1	22			2.9	25
Chrysothamnus greenei			+	5		1	1		+	0.9	63
Chrysothamnus nauseosus		7		3	6	8		60	7	11.4	75
Gutierrezia sarothrae			1			2		1	3	0.9	50
TOTAL		12	2	16	34	18	37	65	11	24.4	---
Forbs											
Descurainia pinnata		+								+	13
Euphorbia glyptosperma					+		+			+	25
Euphorbia sp.		+	+							+	25
Lepidium sp.				+	+					+	25
Lupinus sp.						1			1	0.3	25
Mirabilis sp.					+					+	13
Oenothera sp.					+					+	13
Penstemon palmeri				1						0.1	13
Verbena bracteata									+	+	13
TOTAL		+	1	1	+	1	+	0	1	0.5	---
Grasses											
Agropyron smithii									+	+	13
Bouteloua gracilis			1							0.1	13
Bromus tectorum		10	2	1	4	+	2		1	2.5	88
Hilaria jamesii			2							0.3	13
Oryzopsis hymenoides			1							0.1	13
Sitanion hystrix				+	+	1	+			0.1	50
Sporobolus cryptandrus			+			1				0.1	25
TOTAL		10	6	1	4	2	2	0	1	3.3	---

TABLE E-5e (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	3-6 5	6	6-end 7	8	Avg. Cover(%)	Frequency (%)
TOTAL VEGETATIVE COVER		22	35	18	38	26	39	65	19	32.7	---
BARE GROUND		67	15	66	15	29	27	25	25	33.6	---
GRAVEL AND ROCK		5	60	4	31	15	4	5	35	19.9	---
LITTER		5	25	12	16	30	30	5	21	18.0	---
TOTAL		77	100	82	62	74	61	35	81	71.5	---

TABLE E-6a

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D
— PINYON-JUNIPER ASSOCIATION —

Species	(Road Mile)			3-6								6-9						9-12	
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Trees																				
Juniperus osteosperma		10	50	17	3	7	3	47	22	24	35	0	10	20	50	16	39	18	35	28
Pinus edulis									8											
Pinus monophylla					4	2	2		4	3	10	25	4	2	2	28	4			
TOTAL		10	50	17	7	9	5	47	34	27	45	25	14	22	52	44	43	18	35	28
Shrubs and Succulents																				
Artemisia nova							5			15		18					2	26	1	6
Artemisia tridentata		2		12		4	4		18					+	4	2			15	
Chrysothamnus viscidiflorus					1	1	1													
Chrysothamnus sp.																				
Cowania mexicana					2	1														
Coryphantha vivipara		+																		
Echinocereus triglochidiatus								+												
Ephedra viridis				1		1				1			1				+			
Eriogonum microthecum					+												+			
Gutierrezia sarothrae		5	1		1	1	3			1			1	+		+				4
Leptodactylon pungens													+	+		+				+
Opuntia polycantha			+		2	1			1	1	+		1	1		+				
Purshia tridentata											3		2				3			
TOTAL		7	1	13	6	9	13	+	19	18	3	18	5	1	4	2	5	26	16	10
Forbs																				
Astragalus calycosus						+	+													
Astragalus sp.					+								+							
Chaenactis douglasii						+	+									+	+			
Comandra umbellata																	+			
Cordylanthus parviflorus						+							+							
Cryptantha sp.		+		+	+	1	+				+		+				+		+	+
Descurainia pinnata			+																	
Eriogonum cernuum			+													+				
Eriogonum ovalifolium									+											

TABLE E-6a (Cont.)

Species	(Road Mile) (Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
					3-6								6-9						9-12	
Forbs (Cont.)																				
Eriogonum sp.					+										+			1		+
Euphorbia fendleri											+	+								
Euphorbia sp.													+							
Ipomopsis congesta											+									
Lepidium densiflorum							+													
Leucelene ericoides									+											
Lotus utahensis											+		+	+						
Penstemon sp.				1	+				+									+		
Dalea searlsiae					1															
Phlox sp.					+	+														
Physaria chambersii					+	+							+							
Sphaeralcea sp.							+													
Streptanthus cordatus		+			+	+							+	+	+	+				
TOTAL		+	+	1	1	1	+	0	+	0	+	+	+	+	+	+	+	1	+	+
Grasses																				
Aristida purpurea		2	1				1													
Bouteloua gracilis		1					2						1						1	2
Bromus tectorum							+													+
Hilaria jamesii		5	1						+							+				
Oryzopsis hymenoides		1		2					+				1		+		+		+	+
Sitanion hystrix			1	3			1	+	2						1	+				3
Sitanion sp.		+								1			+						1	
TOTAL		9	3	5	0	0	4	+	2	1	0	0	2	0	1	+	+		2	5
TOTAL VEGETATIVE COVER		28	56	36	14	19	22	49	57	49	48	44	21	24	57	46	48	45	53	44
BARE GROUND		4	5	17	37	30	3	14		18	37	42	5	24	5	32	20	29	6	8
GRAVEL AND ROCK		63	55	45	38	38	43	49	28	18	5	11	67	5	15	10	23	20	32	41
LITTER		3	40	4	5	3	2	45	35	42	53	28	3	45	70	8	6	6	43	35
TOTAL		70	100	66	80	78	75	97	77	78	95	81	75	74	90	50	49	55	81	84

TABLE E-6a (Cont.)

Species	(Road Mile) (Releve #)	12-15 19	20	21	15-18 22	23	24	25	Avg. Cover(%)	Frequency (%)
Trees										
Juniperus osteosperma		18	35	40	42	18	13	21	23.9	96
Pinus edulis									0.3	4
Pinus monophylla									3.4	46
TOTAL		18	35	40	42	18	13	21	27.6	——
Shrubs and Succulents										
Artemisia nova		4	+	1			8	30	4.5	46
Artemisia tridentata			1		+	5			2.6	46
Chrysothamnus viscidiflorus									0.1	12
Chrysothamnus sp.							3		0.1	4
Cowania mexicana									0.1	8
Coryphantha vivipara									+	4
Echinocereus triglochidiatus									+	4
Ephedra viridis									0.2	19
Eriogonum microthecum			+		+			+	+	19
Gutierrezia sarothrae		6	+		2	+			1.0	54
Leptodactylon pungens		+					+		+	23
Opuntia polycantha									0.3	35
Purshia tridentata									0.3	12
TOTAL		10	1	1	2	5	11	30	9.1	——
Forbs										
Astragalus calycosus				+					+	12
Astragalus sp.									+	8
Chaenactis douglasii							+		+	19
Comandra umbellata									+	4
Cordylanthus parviflorus									+	8
Cryptantha sp.									0.0	38
Descurainia pinnata									+	4
Eriogonum cernuum									+	8
Eriogonum ovalifolium									+	4

TABLE E-6a (Cont.)

Species	(Road Mile) (Releve #)	12-15 19	20	21	15-18 22	23	24	25	Avg. Cover(%)	Frequency (%)
Forbs (Cont.)										
Eriogonum sp.									0.0	15
Euphorbia fendleri									+	8
Euphorbia sp.									+	4
Ipomopsis congesta									+	4
Lepidium densiflorum									+	4
Leucelene ericoides									+	4
Lotus utahensis									+	12
Penstemon sp.		+	1				+	+	0.1	31
Dalea searlsiae						+			+	4
Phlox sp.									+	12
Physaria chambersii									+	12
Sphaeralcea sp.									+	4
Streptanthus cordatus			+						+	31
TOTAL		+	1	+	0	+	+	+	0.2	——
Grasses										
Aristida purpurea		2							0.2	15
Bouteloua gracilis				1		12			0.8	27
Bromus tectorum									+	8
Hilaria jamesii		7							0.5	19
Oryzopsis hymenoides		3	1	+	+	1	+	1	0.4	58
Sitanion hystrix		+			1	+		+	0.5	46
Sitanion sp.			+						0.1	19
TOTAL		12	1	1	1	13	+	1	2.4	——
TOTAL VEGETATIVE COVER		40	38	42	45	36	24	52	39.9	——
BARE GROUND		20	50	19	27	22	38	23	22.0	——
GRAVEL AND ROCK		35	6	3	22	35	30	20	29.1	——
LITTER		4	4	35	48	6	6	4	22.4	——
TOTAL		59	60	57	97	63	74	47	73.5	——

TABLE E-6b

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D
— BLACK SAGEBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3 1	2	3-6 3	4	9-12 5	12-15 6	15-18 7	18-21 8	Avg. Cover(%)	Frequency (%)
Trees											
Pinus monophylla				+						+	13
TOTAL		0	0	+	0	0	0	0	0	+	——
Shrubs and Succulents											
Artemisia nova		8	16	12	16	12	10	5	5	10.5	100
Artemisia tridentata				2			16	4		2.8	38
Chrysothamnus viscidiflorus					3			5	5	1.6	38
Chrysothamnus sp.		+	3							0.4	25
Eriogonum microthecum					2					0.3	13
Gutierrezia sarothrae				3	9	2	3	3	2	2.8	75
Leptodactylon pungens				+				1		0.1	25
Opuntia polycantha		+								+	13
Paronychia sp.						2				0.3	13
TOTAL		8	19	17	30	16	29	18	12	18.6	——
Forbs											
Astragalus lentiginosus		+								+	13
Comandra umbellata				+						+	13
Cryptantha sp.				+				+		+	25
Ipomopsis congesta					+					+	3
Leucelene ericoides				+	+	1				0.1	38
Penstemon sp.								1		0.1	13
Phlox sp.				+				1		0.1	25
Sphaeralcea coccinea						+				+	13
Sphaeralcea sp.								+		+	13
TOTAL		+	0	+	+	1	0	2	+	0.4	——

TABLE E-6b (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	2	3-6 3	4	9-12 5	12-15 6	15-18 7	18-21 8	Avg. Cover (%)	Frequency (%)
Grasses											
Agropyron spicatum						7				0.9	13
Aristida purpurea									1	0.1	13
Bromus tectorum		+	2	+		4	2			1.0	63
Hilaria jamesii						2	12			1.8	25
Koeleria cristata				3						0.4	13
Oryzopsis hymenoides		+	1	+	+	1	+	1		0.4	88
Poa sandbergii				+						+	13
Sitanion hystrix			1	2	2	2	1			1.0	63
Sitanion sp.		+								+	13
Sporobolus cryptandrus		+								+	13
Stipa comata				+						+	13
TOTAL		+	4	5	2	16	15	1	1	5.5	---
TOTAL VEGETATIVE COVER		8	23	22	34	36	44	21	13	25.1	---
BARE GROUND		85	15	13	25	5	15	30	26	26.7	---
GRAVEL AND ROCK		3	60	55	36	51	39	44	60	43.5	---
LITTER		1	2	5	5	8	2	4	1	3.5	---
TOTAL		89	77	73	66	64	56	78	87	73.7	---

TABLE E-6c

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D
— BIG SAGEBRUSH ASSOCIATION --

Species	(Road Mile)	0-3	3-6				6-9		9-12				12-15				
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Trees																	
Juniperus osteosperma			2						1							4	
Pinus edulis			+														
Pinus monophylla					2		1										
TOTAL		0	2	0	2	0	1	0	1	0	0	0	0	0	0	4	0
Shrubs and Succulents																	
Artemisia nova									1								
Artemisia tridentata		3	19	17	18	14	21	25	5	25	16	45	18	17	24	7	10
Ceratoides lanata		2															
Chrysothamnus greenei																	
Chrysothamnus nauseosus																	
Chrysothamnus viscidiflorus		1											+				
Chrysothamnus sp.																	
Cowania mexicana																1	
Echinocereus triglochidiatus									1								
Ephedra nevadensis				+													
Ephedra viridis						1											
Eriogonum microthecum																	
Gutierrezia sarothrae					1			1	2		+		1	5			3
Leptodactylon pungens									+	+						+	
Opuntia erinacea														+			
Opuntia sp.				4													
TOTAL		6	19	21	19	15	21	26	9	25	16	45	19	22	24	8	13
Forbs																	
Astragalus sp.														+			
Chaenactis douglasii											+			+			+
Cryptantha sp.					+					+				+		1	
Descurainia pinnata																	
Erigeron pumilus																	
Erigeron sp.													1				
Eriogonum cernuum														+			
Eriogonum shockleyi																	

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	0-3 1	3-6 2	3	4	5	6-9 6	7	8	9-12 9	10	11	12-15 12	13	14	15	16
Forbs (Cont.)																	
Eriogonum sp.		1															
Lepidium densiflorum		1															
Leucelene ericoides											+		+				+
Lupinus sp.								+									
Lygodesmia spinosa										1				1		+	
Machaeranthera canescens					+												
Penstemon sp.																	
Phlox sp.														+	+		
Senecio multilobatus														+			
Sphaeralcea coccinea									+		+						
Sphaeralcea grossulariifolia														+			
Sphaeralcea sp.																	
Townsendia sp.																	
TOTAL		2	0	0	+	0	0	+	+	1	+	0	1	1	+	1	+
Grasses																	
Agropyron cristatum								10									
Agropyron smithii							3							8			+
Aristida purpurea				+						+						2	1
Bouteloua gracilis									2	5	2		2	3		3	4
Bromus tectorum		10	2	+			4		2					1	4		
Hilaria jamesii			5	+	2	+	3	+			1				11		
Koeleria cristata									+								
Oryzopsis hymenoides					2	2			2				7	1	1		
Poa sandbergii									2								
Sitanion hystrix				1	2	4			1		3				+		
Sitanion sp.			2							+			1	3			
Sporobolus sp.																	
Stipa comata									2		+						
Stipa sp.																	
TOTAL		10	9	1	6	6	10	10	11	5	6	0	10	16	16	5	5
TOTAL VEGETATIVE COVER		18	30	22	27	27	32	36	21	31	26	45	29	39	40	18	18

TABLE E-6c (Cont.)

Species	(Road Mile)	0-3	3-6				6-9		9-12				12-15				
	(Releve #)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BARE GROUND		40	7	10	10	5	59	7	14	5	12	41	60	44	5	50	41
GRAVEL AND ROCK		59	59	60	52	64	3	43	55	61	58	3	7	8	52	26	41
LITTER		3	4	8	11	4	6	14	10	2	4	11	2	5	2	5	2
TOTAL		102	70	78	73	73	68	64	79	68	74	55	69	57	59	81	84

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	17	18	19	20	21	15-18 22	23	24	25	26	27	28	Avg. Cover(%)	Frequency (%)
Trees															
Juniperus osteosperma														0.3	11
Pinus edulis														+	4
Pinus monophylla														0.1	7
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0.4	——
Shrubs and Succulents															
Artemisia nova														0.0	4
Artemisia tridentata		15	14	15	1	22	2	10	25	12	12	28	16	16.3	100
Ceratoides lanata														0.1	4
Chrysothamnus greenei										+	3			0.1	7
Chrysothamnus nauseosus															
Chrysothamnus viscidiflorus		1		2	+		3	2	9				2	0.7	32
Chrysothamnus sp.														0.4	4
Cowania mexicana														0.0	4
Echinocereus triglochidiatus														0.0	4
Ephedra nevadensis														+	4
Ephedra viridis														0.0	4
Eriogonum microthecum															
Gutierrezia sarothrae					+	1	1	1		2	1		1	0.7	50
Leptodactylon pungens													+	+	14
Opuntia polycantha														+	4
Opuntia sp.														0.1	4
TOTAL		16	14	17	1	23	6	13	34	14	16	40	19	18.6	——
Forbs															
Astragalus sp.					+	+								+	11
Chaenactis douglasii														+	11
Cryptantha sp.							+						+	+	21
Descurainia pinnata															
Erigeron pumilus									+					+	4
Erigeron sp.				1										0.1	7
Eriogonum cernuum														0+	4
Eriogonum shockleyi		+		1										0.0	7

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	17	18	19	20	21	22	23	24	25	26	27	28	Avg. Cover(%)	Frequency (%)
						15-18									
Forbs (Cont.)															
Eriogonum sp.							+							+	7
Lepidium densiflorum														+	4
Leucelene ericoides		+												+	14
Lupinus sp.						+								+	7
Lygodesmia spinosa														0.1	11
Machaeranthera canescens				+										+	7
Penstemon sp.					+	+							+	+	11
Phlox sp.				2										0.1	11
Senecio multilobatus														+	4
Sphaeralcea coccinea					+									+	11
Sphaeralcea grossulariifolia				+									+	+	11
Sphaeralcea sp.								+						+	4
Townsendia sp.						+								+	4
TOTAL		+	0	4	+	+	+	+	+	0	0	0	+	0.4	---
Grasses															
Agropyron cristatum			16		20		13		4		18			2.9	21
Agropyron smithii				+										0.4	14
Aristida purpurea														0.1	14
Bouteloua gracilis										1				0.8	29
Bromus tectorum														0.8	25
Hilaria jamesii		7				1						+		1.1	39
Koeleria macrantha														0	4
Oryzopsis hymenoides						1				+		3	5	0.9	36
Poa sandbergii														0.1	4
Sitanion hystrix						2				1	+	1		0.5	36
Sitanion sp.		1											+	0.3	21
Sporobolus sp.													1	0.0	4
Stipa comata						1						+		0.1	14
Stipa sp.				14										0.5	4
TOTAL		8	16	14	20	5	13	0	4	2	18	4	6	8.4	---
TOTAL VEGETATIVE COVER		24	30	35	21	28	19	13	38	16	34	44	25	28.1	---

TABLE E-6c (Cont.)

Species	(Road Mile) (Releve #)	17	18	19	20	21	15-18 22	23	24	25	26	27	28	Avg. Cover(%)	Frequency (%)
BARE GROUND		65	49	65	39	20	40	43	15	51	48	33	63	33.6	----
GRAVEL AND ROCK		7	14	6	15	37	37	40	42	15	8	20	7	32.1	----
LITTER		3	7	3	23	15	3	4	5	18	10	2	3	6.8	----
TOTAL		75	70	74	77	72	80	87	62	84	66	55	73	72.5	----

TABLE E-6d

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D
— RABBITBRUSH ASSOCIATION --

Species	(Road Mile) (Releve #)	0-3 1	0-3 2	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents					
Ceratoides lanata		+	8	4.0	100
Chrysothamnus sp.		22	26	24.0	100
TOTAL		22	34	28.0	——
Forbs					
Astragalus sp.		+	+	+	100
TOTAL		+	+	+	——
Grasses					
Bromus tectorum		9	3	6.0	100
Hilaria jamesii		+	12	6.0	100
Oryzopsis hymenoides		+	+	+	100
Sporobolus cryptandrus		2		1.0	50
TOTAL		11	15	13.0	——
TOTAL VEGETATIVE COVER		33	49	41.0	——
BARE GROUND		48	23	35.5	——
GRAVEL AND ROCK		15	25	20.0	——
LITTER		2	2	2.0	——
TOTAL		65	50	57.5	——

TABLE E-6e

PERCENT COVER AND FREQUENCY OF VEGETATION ON UTAH DTN SEGMENT F-D
— PERENNIAL GRASSLAND —

Species	(Road Mile) (Releve #)	0-3 1	2	3	4	3-6 5	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents								
Artemisia tridentata						5	1.0	20
Ceratoides lanata			2		+		0.4	40
Chrysothamnus viscidiflorus					8		1.6	20
Chrysothamnus sp.		1	5	9			3.0	60
Gutierrezia sarothrae		1			+		0.2	40
TOTAL		2	7	9	8	5	6.2	---
Forbs								
Astragalus sp.						+	+	20
Eriogonum cernuum						+	+	20
Lepidium densiflorum				+			+	20
TOTAL		0	0	+	0	+	+	---
Grasses								
Bromus tectorum		3	2	12	6		4.6	80
Hilaria jamesii		15	18	35	14	10	18.4	100
Oryzopsis hymenoides			1			3	0.8	40
Sitanion hystrix					+		+	20
Sitanion sp.						+	+	20
Sporobolus cryptandrus		+	2	12	2		3.2	80
TOTAL		18	23	59	22	13	27.0	---
TOTAL VEGETATIVE COVER		20	30	68	30	18	33.2	---
BARE GROUND		71	10	20	15	12	25.6	---
GRAVEL AND ROCK		4	55	10	47	66	36.4	---
LITTER		5	5	2	8	3	4.6	---
TOTAL		80	70	32	70	81	66.6	---

TABLE E-6f

PERCENT COVER AND FREQUENCY OF VEGETATION ON THE DTN SEGMENT F-D
— WASH ASSOCIATION —

Species	(Road Mile) (Releve #)	6-9 1	2	3	4	5	6	9-12 7	8	Avg. Cover(%)	Frequency (%)
Shrubs and Succulents											
Artemisia tridentata		2	40	4	12	28	68	25	29	26.0	100
Chrysothamnus nauseosus		25	20	8	2	42	13	25	1	17.0	100
Gutierrezia sarothrae				5						0.6	13
Leptodactylon pungens					+					+	13
TOTAL		27	60	17	14	70	81	50	30	43.6	——
Forbs											
Argemone munita		+								+	13
Astragalus sp.				+						+	13
Descurainia pinnata						2				0.3	13
Euphorbia sp.				+						+	13
Ipomopsis congesta		+								+	13
Lupinus sp.				2						0.3	13
Nicotiana attenuata		+								+	13
Oenothera sp.		+								+	13
Sphaeralcea sp.					+					+	13
TOTAL		+	0	2	+	2	0	0	0	0.5	——
Grasses											
Agropyron cristatum				2						0.3	13
Agropyron smithii					+					+	13
Bromus tectorum				1	5					0.8	25
Oryzopsis hymenoides				1						0.1	13
Sitanion hystrix								+	1	0.3	25
Stipa comata					+					+	13
TOTAL		0	0	4	5	0	0	+	1	1.3	——

TABLE E-6f (Cont.)

Species	(Road Mile) (Releve #)	6-9 1	2	3	4	5	6	9-12 7	8	Avg. Cover(%)	Frequency (%)
TOTAL VEGETATIVE COVER		27	64	23	19	72	81	50	31	45.9	——
BARE GROUND		51	29	38	5	8	16	20	39	25.7	——
GRAVEL AND ROCK		15	3	30	69	2	0	15	5	17.4	——
LITTER		5	4	10	5	18	3	25	25	11.9	——
TOTAL		71	36	78	79	28	19	60	69	55.0	——

APPENDIX F

WILDLIFE
DATA FOR
UTAH

TABLE F-1

WILDLIFE SIGN AND SIGHTINGS
MILFORD PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mammals																							
Unidentified bat							1																
Black-tailed jackrabbit	1	3	3	5	6	6	2	2		5	7	2	4	3	8	4	4	6	5		1	2	1
Rabbit (pellets)	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Antelope ground squirrel												1		1									
Coyote		X			X		X								X							X	
Badger (den)												X									X		
Mule deer												X		X			X						
Pronghorn antelope										X		X	X	X	X		X	X	X	X			X
Birds																							
Sharp-shinned hawk				1																			
Red-tailed hawk					1							1											
Swanson's hawk												1											
Golden eagle																				1			
Northern harrier	1					1		2									1		1				
American kestrel					1				1			2		2				1		2			1
Mourning dove																	25						
Unidentified owl (nest)			1																				
Hummingbird (broad-tailed?)															1								
Horned lark			25							2						4	6	1			5	68	4
Says' phoebe			1																				
Common raven		1	1	1							1			2									
Pinyon jay					1																		
Plain titmouse					2									2									

X = Sign
Number = Actual siting

TABLE F-1 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Birds (cont.)																							
Bushtit					6																		
Bewick's wren					2																		
Sage thrasher															1	2	1						
Loggerhead shrike		1	2																				
Western meadowlark																		2				3	10
Vesper sparrow																	1	2			1	2	4
Lark sparrow																		1					
Sage sparrow		1	7	1	1	4		3	1	3	7				4	2		1	2		3		
Brewer's sparrow	5	1	3	4	2	3	2	4		10	3		2		12	3	14	22	2	2	4	1	8
Reptiles																							
Leopard lizard		1									2	1					10				1		
Sagebrush lizard		3		2	5	1	2	2	3	2	1	1				4	33		1		3		
Side-blotched lizard	3		5	5	4	5		6		5	5	2	2	2	6	3	7				10	8	3
Short-horned lizard																					1		
Desert horned lizard					1												2						
Plateau whiptail															1		8						
Gopher snake					X	1																	

TABLE F-2

WILDLIFE SIGN AND SIGHTINGS
MILFORD ALTERNATE OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mammals																
Black-tailed jackrabbit	11	12	24	5	6	7	7	1	1	2	4	5	3	12		7
Desert cottontail				1			1									
Rabbit (pellets)	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
White-tailed antelope squirrel					1					2						
Coyote	1		X				X	X		X		X	X	X		X
Badger (den)						X	X									
Feral horse		X														
Birds																
Red-tailed hawk						1			1					1		
Golden eagle				1		2	4						1			
Northern harrier			1				2		1							
American kestrel			1			1	1		2			1		1		
Prairie falcon				2		1										
Burrowing owl	3			2												
Great horned owl														1		
Short eared owl														4		
Mourning dove										2				3		
Sage grouse						10										
Horned lark	3	6	59	4	4	33	10	1		2						
Common raven	1	2	2	2					1	2	2		1			
Plain titmouse															1	
Common bushtit														1		
Bewick's wren														1		
Rock wren						1	2									
Mockingbird										1				1		

X = Sign
Number = Actual siting

TABLE F-2 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Birds (cont.)																
Western meadowlark			17							1						
Vesper sparrow		1	5				1									
Sage sparrow	10	9	11	3	11	20	2	3	4	17	2	3	1		1	1
White crowned sparrow													2			
Loggerhead shrike			1				1			1						
Brewer's sparrow					2	4	4	3	1	5	1		2	2		
Sparrow sp.			2										1			

TABLE F-3

WILDLIFE SIGN AND SIGHTINGS
BERYL PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Mammals																					
Black-tailed jackrabbit	3	2		(1)	2	21(3)	(1)				1		8	1	2	1	5(24)	2	1	1	
Desert cottontail						(1)															
Rabbit (pellets)	X	X	X	(X)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Least chipmunk											1			3			X				
Cliff chipmunk				(1)		(2)		2								3					
White-tailed antelope squirrel					2	1															
Rock squirrel				(2)			1														
Gopher													X							X	
Coyote			X		X	1	1	1			X		X	X			3	X	X		X
Kit fox							X														
Badger							X														
Bobcat						(2)															
Mule deer		X	X	(X)		X	X			1					X	X	X	X			X
Pronghorn antelope	X	X	X		X	X						6	X				1				
Feral horse	X					X									X	1					
Birds																					
Sharp-shinned hawk		1					1														
Goshawk				(1)			(2)														
Coopers hawk						1															
Golden eagle											1				1						
American kestrel	1								1(1)	1	7	3	1	1	2		1			1	1
Sage grouse																	(X)				
Northern harrier						1							1	1							
Mourning dove									(3)												

( ) = observed during earlier reconnaissance in August; X = Sign; Number = Actual siting.

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Birds (cont.)																					
Owl sp.									1												
Poorwill																	(1)				
Nighthawk				(12)		(4)															
Common flicker		1													1			1			
Gray flycatcher				(3)		(2)	(1)														
Ash throated flycatcher													(1)								
Hairy woodpecker				(1)												1					
Horned lark									6		1		7	6	4		(47)	7		3	
Scrub jay			1	(2)		(2)					2										
Raven					1	1		2	(1)	7		1	3	2	2			4		7	4
Pinyon jay		3		(2)	1	90	180	19		190	9			(8)		5		3	90	2	
						(8)	(4)														
Clark's nutcracker					1	(1)										2					
Mountain chickadee		10	2	(6)		(5)	4(3)	9						(3)				3	5		
Plain titmouse		3	1	(6)		(5)	11	2			3			(2)	4	2		2			2
Common bushtit		5				(3)	7(5)	9			2			3(18)	4	2		14	5		4
White-breasted nuthatch							(2)								1						
Red-breasted nuthatch				(1)		(3)	1	1			2							1			
Unidentified nuthatch																			11		
Bewick's wren				(4)		(1)					1			(1)							
Robin									(1)												
Mountain bluebird								4	1(1)	7		2	6				1				
Audubon warbler								2		2											
Unidentified warbler								1			1										
Western meadowlark												1								1	
Sage sparrow															1						
Chipping sparrow				(4)														2			
Brewers sparrow				(1)			1		1	5	2				1		7(22)			2	
Vesper sparrow																	(1)				

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Reptiles																					
Side-blotched lizard	8	1	2	(5)	3	3	10	2	3		1	1	5	5	2		1			1	2
						(4)	(11)							(4)			(29)				
Sagebrush lizard				(2)	2	(4)	2				5			(1)		5	1	6			
																	(20)				
Short-horned lizard					1																
Western fence lizard						(1)										1					
Desert horned lizard																	(2)				

TABLE F-4

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
Mammals							
Desert cottontail	1			1		1	
Black-tailed jackrabbit	4	16	1	3	3	7	2
Rabbit (pellets)	X	X		X	X	X	
Chipmunk sp.				1			
Woodrat (inactive nest)				1			
Coyote	X	X			X		
Badger (inactive den)				1			
Mule deer			X	X	X	X	X
Horse	X						
Unidentified burrows	X			X	X	X	
Birds							
Sharp-shinned hawk				2			
Golden eagle		1			1	1	
Northern harrier	1						
American kestrel	5	3		1			
Mourning dove	5			12			
Great horned owl					1		
Hairy woodpecker						1	
Common flicker					1		
Horned lark	96	*	2		3		
Common raven	3	1					
Pinyon jay		5	1	12	10	8	2

X = Sign
Number = Actual sighting
* = Numerous.

TABLE F-4 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
Birds (Cont.)							
Mountain chickadee				5		14	
Plain titmouse				7	5	12	
Common bushtit				33	3	13	
Bewick's wren				2			
Rock wren				2			
Bluebird sp.		2	2				4
Northern oriole						1	
Sage sparrow		17	*			4	
Chipping sparrow				7			
Brewer's sparrow	6	3	2	9		4	
Reptiles							
Desert horned lizard		2					
Short-horned lizard						1	
Leopard lizard	6	3	1	5			
Side-blotched lizard	52	*	7	34	22	2	
Sagebrush lizard	8	3		2	1	3	
Western fence lizard				3	3		
Northern plateau lizard (?)			1				
Garter snake			1				

TABLE F-5

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-end
Mammals			
Desert cottontail	1	2	2
Black-tailed jackrabbit	11	3	3
Rabbit (pellets)	X	X	X
Cliff chipmunk		5	
Unidentified squirrel	1		
Woodrat	X		X
Coyote		1	
Badger (inactive den)	X		
Skunk	X		
Mule deer	X		X
Pronghorn antelope	X		
Feral horse		X	
Unidentified burrows	X	X	X
Birds			
Sharp-shinned hawk	2		
Cooper's hawk	1		
Golden Eagle	1		
Northern harrier		1	
Prairie falcon	1	1	1
American kestrel	1		
Mourning dove			1
Common nighthawk		1	

X = Sign; Number = Actual sighting; * = Numerous.

TABLE F-5 (Cont.)

Road Mile	0-3	3-6	6-end
Birds (Cont.)			
Hairy woodpecker		1	
Say's phoebe	1		
Scrub jay			1
Common raven		1	1
Pinyon jay	13	71	39
Mountain chickadee		1	1
Plain titmouse	1	11	4
Common bushtit	10	15	9
Bewick's wren	2	1	
Rock wren	3		
Mountain bluebird	1		
Bluebird sp.	3		
Rufous-sided towhee		1	
Sage sparrow	11		
Chipping sparrow		1	
Brewers sparrow	31	3	
Reptiles			
Leopard lizard		2	1
Side-blotched lizard	13	*	*
Sagebrush lizard	6	3	1
Western fence lizard	1	3	
Western whiptail		3	

TABLE F-6

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
Mammals								
Desert cottontail					1	1	3	1
Black-tailed jackrabbit		2	2	5		4	10	2
Rabbit (pellets)	X	X	X	X		X	X	X
Cliff chipmunk			5		1		1	
Chipmunk sp.		1						
Gopher			X					
Woodrat				X				
Coyote			X	X		X		
Mule deer			X			X		
Pronghorn antelope					X			5
Horse			X					
Birds								
Red-tailed hawk		1	1					
Northern harrier							1	
American kestrel	3							
Screech owl						1		
Common flicker			1					
Horned lark	55-65					5		6
Scrub jay				1		1		
Common raven	2			1				1
Pinyon jay		5	39	1		7	5	32
Mountain chickadee		3	3					

X = Sign; Number = Actual Sighting.

TABLE F-6 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
Birds (Cont.)								
Plain titmouse		2	6			6		
Common bushtit		5	16	2		7		
Nuthatch (?)			1					
Bewick's wren		1						
Rock wren				2				
Meadowlark	1		1					
Rufous-sided towhee				1				
Vesper sparrow	1	6	1	6	2	2		
Sage sparrow							2	
Brewers sparrow		3	6	9	2	9	15	4
Reptiles								
Short-horned lizard				1			1	
Side-blotched lizard							3	
Sagebrush lizard							3	

APPENDIX G

LIST OF PREPARERS

APPENDIX G

LIST OF PREPARERS

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APPENDIX F

WILDLIFE
DATA FOR
UTAH

TABLE F-1

WILDLIFE SIGN AND SIGHTINGS
MILFORD PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mammals																							
Unidentified bat							1																
Black-tailed jackrabbit	1	3	3	5	6	6	2	2		5	7	2	4	3	8	4	4	6	5		1	2	1
Rabbit (pellets)	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Antelope ground squirrel												1		1									
Coyote		X			X		X								X							X	
Badger (den)												X									X		
Mule deer												X		X			X						
Pronghorn antelope										X		X	X	X	X		X	X	X	X			X
Birds																							
Sharp-shinned hawk				1																			
Red-tailed hawk					1							1											
Swanson's hawk												1											
Golden eagle																				1			
Northern harrier	1					1		2									1		1				
American kestrel					1				1			2		2				1		2			1
Mourning dove																	25						
Unidentified owl (nest)			1																				
Hummingbird (broad-tailed?)															1								
Horned lark			25							2						4	6	1			5	68	4
Says' phoebe			1																				
Common raven		1	1	1							1			2									
Pinyon jay					1																		
Plain titmouse					2									2									

X = Sign
Number = Actual siting

TABLE F-1 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Birds (cont.)																							
Bushtit					6																		
Bewick's wren					2																		
Sage thrasher															1	2	1						
Loggerhead shrike		1	2																				
Western meadowlark																		2				3	10
Vesper sparrow																	1	2			1	2	4
Lark sparrow																		1					
Sage sparrow		1	7	1	1	4		3	1	3	7				4	2		1	2		3		
Brewer's sparrow	5	1	3	4	2	3	2	4		10	3		2		12	3	14	22	2	2	4	1	8
Reptiles																							
Leopard lizard		1									2	1					10				1		
Sagebrush lizard		3		2	5	1	2	2	3	2	1	1				4	33		1		3		
Side-blotched lizard	3		5	5	4	5		6		5	5	2	2	2	6	3	7				10	8	3
Short-horned lizard																					1		
Desert horned lizard					1												2						
Plateau whiptail															1		8						
Gopher snake					X	1																	

TABLE F-2

WILDLIFE SIGN AND SIGHTINGS
MILFORD ALTERNATE OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mammals																
Black-tailed jackrabbit	11	12	24	5	6	7	7	1	1	2	4	5	3	12		7
Desert cottontail				1			1									
Rabbit (pellets)	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
White-tailed antelope squirrel					1					2						
Coyote	1		X				X	X		X		X	X	X		X
Badger (den)						X	X									
Feral horse		X														
Birds																
Red-tailed hawk						1			1					1		
Golden eagle				1		2	4						1			
Northern harrier			1				2		1							
American kestrel			1			1	1		2			1		1		
Prairie falcon				2		1										
Burrowing owl	3			2												
Great horned owl														1		
Short eared owl														4		
Mourning dove										2				3		
Sage grouse						10										
Horned lark	3	6	59	4	4	33	10	1		2						
Common raven	1	2	2	2					1	2	2		1			
Plain titmouse															1	
Common bushtit														1		
Bewick's wren														1		
Rock wren						1	2									
Mockingbird										1				1		

X = Sign
Number = Actual siting

TABLE F-2 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Birds (cont.)																
Western meadowlark			17							1						
Vesper sparrow		1	5				1									
Sage sparrow	1,	9	11	3	11	20	2	3	4	17	2	3	1		1	1
White crowned sparrow													2			
Loggerhead shrike			1				1			1						
Brewer's sparrow					2	4	4	3	1	5	1		2	2		
Sparrow sp.			2										1			

TABLE F-3

WILDLIFE SIGN AND SIGHTINGS
BERYL PREFERRED OBTS

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Mammals																					
Black-tailed jackrabbit	3	2		(1)	2	2(3)	(1)				1		8	1	2	1	5(24)	2	1	1	
Desert cottontail						(1)															
Rabbit (pellets)	X	X	X	(X)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Least chipmunk											1			3			X				
Cliff chipmunk				(1)		(2)		2								3					
White-tailed antelope squirrel					2	1															
Rock squirrel				(2)			1														
Gopher													X							X	
Coyote			X		X	1	1	1			X		X	X			3	X	X		X
Kit fox							X														
Badger							X														
Bobcat						(2)															
Mule deer		X	X	(X)		X	X			1					X	X	X	X			X
Pronghorn antelope	X	X	X		X	X						6	X				1				
Feral horse	X					X									X	1					
Birds																					
Sharp-shinned hawk		1					1														
Goshawk				(1)			(2)														
Coopers hawk						1															
Golden eagle											1				1						
American kestrel	1							1(1)		1	7	3	1	1	2		1			1	1
Sage grouse																	(X)				
Northern harrier						1							1	1							
Mourning dove								(3)													

( ) = observed during earlier reconnaissance in August; X = Sign; Number = Actual siting.

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Birds (cont.)																					
Owl sp.									1												
Poorwill																	(1)				
Nighthawk				(12)		(4)															
Common flicker		1													1			1			
Gray flycatcher				(3)		(2)	(1)														
Ash throated flycatcher													(1)								
Hairy woodpecker				(1)												1					
Horned lark									6		1		7	6	4		(47)	7		3	
Scrub jay			1	(2)		(2)					2										
Raven					1	1		2	(1)	7		1	3	2	2			4		7	4
Pinyon jay		3		(2)	1	90	180	19		190	9			(8)		5		3	90	2	
						(8)	(4)														
Clark's nutcracker					1	(1)										2					
Mountain chickadee		10	2	(6)		(5)	4(3)	9						(3)				3	5		
Plain titmouse		3	1	(6)		(5)	11	2			3			(2)	4	2		2			2
Common bushtit		5				(3)	7(5)	9			2			3(18)	4	2		14	5		4
White-breasted nuthatch							(2)								1						
Red-breasted nuthatch				(1)		(3)	1	1			2							1			
Unidentified nuthatch																			11		
Bewick's wren				(4)		(1)					1			(1)							
Robin									(1)												
Mountain bluebird								4	1(1)	7		2	6				1				
Audubon warbler								2		2											
Unidentified warbler								1			1										
Western meadowlark												1								1	
Sage sparrow															1						
Chipping sparrow				(4)														2			
Brewers sparrow				(1)			1		1	5	2				1		7(22)			2	
Vesper sparrow																	(1)				

TABLE F-3 (cont.)

Observation Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Reptiles																					
Side-blotched lizard	8	1	2	(5)	3	3	10	2	3		1	1	5	5	2		1			1	2
						(4)	(11)							(4)			(29)				
Sagebrush lizard				(2)	2	(4)	2				5			(1)		5	1	6			
																	(20)				
Short-horned lizard					1																
Western fence lizard						(1)										1					
Desert horned lizard																	(2)				

TABLE F-4

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
Mammals							
Desert cottontail	1			1		1	
Black-tailed jackrabbit	4	16	1	3	3	7	2
Rabbit (pellets)	X	X		X	X	X	
Chipmunk sp.				1			
Woodrat (inactive nest)				1			
Coyote	X	X			X		
Badger (inactive den)				1			
Mule deer			X	X	X	X	X
Horse	X						
Unidentified burrows	X			X	X	X	
Birds							
Sharp-shinned hawk				2			
Golden eagle		1			1	1	
Northern harrier	1						
American kestrel	5	3		1			
Mourning dove	5			12			
Great horned owl					1		
Hairy woodpecker						1	
Common flicker					1		
Horned lark	96	*	2		3		
Common raven	3	1					
Pinyon jay		5	1	12	10	8	2

X = Sign
Number = Actual sighting
* = Numerous.

TABLE F-4 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-end
Birds (Cont.)							
Mountain chickadee				5		14	
Plain titmouse				7	5	12	
Common bushtit				33	3	13	
Bewick's wren				2			
Rock wren				2			
Bluebird sp.		2	2				4
Northern oriole						1	
Sage sparrow		17	*			4	
Chipping sparrow				7			
Brewer's sparrow	6	3	2	9		4	
Reptiles							
Desert horned lizard		2					
Short-horned lizard						1	
Leopard lizard	6	3	1	5			
Side-blotched lizard	52	*	7	34	22	2	
Sagebrush lizard	8	3		2	1	3	
Western fence lizard				3	3		
Northern plateau lizard (?)			1				
Garter snake			1				

TABLE F-5

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-end
Mammals			
Desert cottontail	1	2	2
Black-tailed jackrabbit	11	3	3
Rabbit (pellets)	X	X	X
Cliff chipmunk		5	
Unidentified squirrel	1		
Woodrat	X		X
Coyote		1	
Badger (inactive den)	X		
Skunk	X		
Mule deer	X		X
Pronghorn antelope	X		
Feral horse		X	
Unidentified burrows	X	X	X
Birds			
Sharp-shinned hawk	2		
Cooper's hawk	1		
Golden Eagle	1		
Northern harrier		1	
Prairie falcon	1	1	1
American kestrel	1		
Mourning dove			1
Common nighthawk		1	

X = Sign; Number = Actual sighting; * = Numerous.

TABLE F-5 (Cont.)

Road Mile	0-3	3-6	6-end
Birds (Cont.)			
Hairy woodpecker		1	
Say's phoebe	1		
Scrub jay			1
Common raven		1	1
Pinyon jay	13	71	39
Mountain chickadee		1	1
Plain titmouse	1	11	4
Common bushtit	10	15	9
Bewick's wren	2	1	
Rock wren	3		
Mountain bluebird	1		
Bluebird sp.	3		
Rufous-sided towhee		1	
Sage sparrow	11		
Chipping sparrow		1	
Brewers sparrow	31	3	
Reptiles			
Leopard lizard		2	1
Side-blotched lizard	13	*	*
Sagebrush lizard	6	3	1
Western fence lizard	1	3	
Western whiptail		3	

TABLE F-6

WILDLIFE SIGN AND SIGHTINGS
UTAH DTN SEGMENT I-D

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
Mammals								
Desert cottontail					1	1	3	1
Black-tailed jackrabbit		2	2	5		4	10	2
Rabbit (pellets)	X	X	X	X		X	X	X
Cliff chipmunk			5		1		1	
Chipmunk sp.		1						
Gopher			X					
Woodrat				X				
Coyote			X	X		X		
Mule deer			X			X		
Pronghorn antelope					X			5
Horse			X					
Birds								
Red-tailed hawk		1	1					
Northern harrier							1	
American kestrel	3							
Screech owl						1		
Common flicker			1					
Horned lark	55-65					5		6
Scrub jay				1		1		
Common raven	2			1				1
Pinyon jay		5	39	1		7	5	32
Mountain chickadee		3	3					

X = Sign; Number = Actual Sighting.

TABLE F-6 (Cont.)

Road Mile	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-end
Birds (Cont.)								
Plain titmouse		2	6			6		
Common bushtit		5	16	2		7		
Nuthatch (?)			1					
Bewick's wren		1						
Rock wren				2				
Meadowlark	1		1					
Rufous-sided towhee				1				
Vesper sparrow	1	6	1	6	2	2		
Sage sparrow							2	
Brewers sparrow		3	6	9	2	9	15	4
Reptiles								
Short-horned lizard				1			1	
Side-blotched lizard							3	
Sagebrush lizard							3	

APPENDIX G

LIST OF PREPARERS

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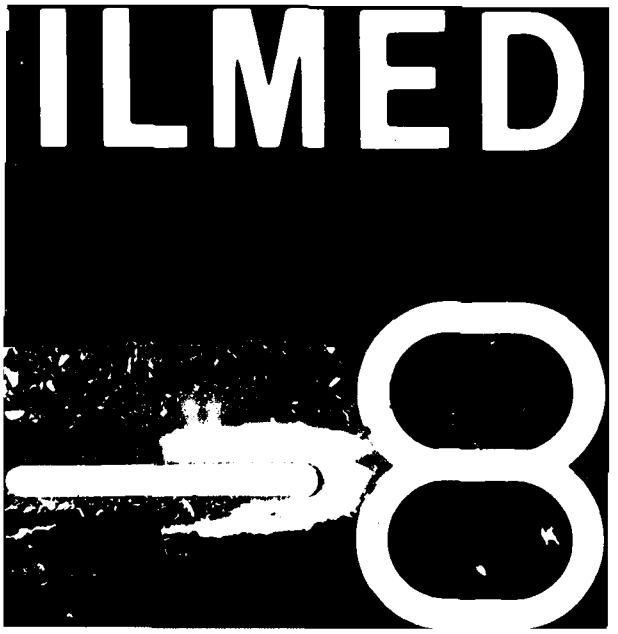
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