

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

①

M-X/MPS

ENVIRONMENTAL
TECHNICAL REPORT

AD-A149 921

DTIC FILE COPY

PRELIMINARY FEIS
REVIEW COPY 2 OCTOBER 1981

S DTIC
ELECTE
FEB 4 1985
D
D

ETR 30
INDIRECT EFFECTS MODEL

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

DEPLOYMENT AREA SELECTION
AND LAND WITHDRAWAL/
ACQUISITION
85 02 04 005

DEPARTMENT OF THE AIR FORCE

58

INDIRECT EFFECTS MODEL

Prepared for
United States Air Force
Ballistic Missile Office
Norton Air Force Base, California

By
Henningson, Durham & Richardson, Inc.
Santa Barbara, California

REVIEW COPY OF WORK IN PROGRESS

2 October 1981

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330



OFFICE OF THE ASSISTANT SECRETARY

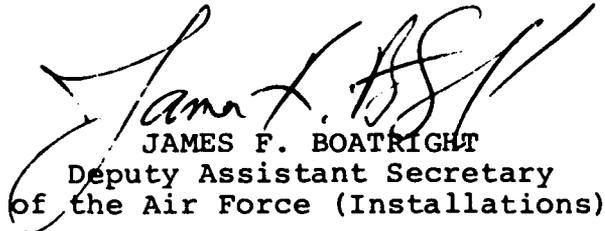
Federal, State and Local Agencies

On October 2, 1981, the President announced his decision to complete production of the M-X missile, but cancelled the M-X Multiple Protective Shelter (MPS) basing system. The Air Force was, at the time, ~~of these decisions~~, working to prepare a Final Environmental Impact Statement (FEIS) for the MPS site selection process. These efforts have been terminated and the Air Force no longer intends to file a FEIS for the MPS system. However, the attached preliminary FEIS captures the environmental data and analysis in the document that was nearing completion when the President decided to deploy the system in a different manner. — to file 1

The preliminary FEIS and associated technical reports represent an intensive effort at resource planning and development that may be of significant value to state and local agencies involved in future planning efforts in the study area. Therefore, in response to requests for environmental technical data from the Congress, federal agencies and the states involved, we have published limited copies of the document for their use. Other interested parties may obtain copies by contacting:

National Technical Information Service
United States Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161
Telephone: (703) 487-4650

Sincerely,


JAMES F. BOATRIGHT
Deputy Assistant Secretary
of the Air Force (Installations)

1 Attachment
Preliminary FEIS

TABLE OF CONTENTS

	Page
1.0 Introduction	1
2.0 The Indirect Effects Model	3
2.1 Derivation of the Model	4
2.2 Implementation of the Model	7
3.0 Discussion	11
Bibliography	13
Appendix A	15

LIST OF FIGURES

No.		Page
2.2-1	Comparison of observed to predicted recreation use of Nevada/Utah sites	9
A-1	Peak year increase in recreation demand, Proposed Action, Nevada	36
A-2	Peak year increase in recreation demand, Proposed Action, Utah	37
A-3	Long-term increase in recreation demand, Proposed Action, Nevada	38
A-4	Long-term increase in recreation demand, Proposed Action, Utah	39
A-5	Peak year increase in recreation demand, Alternative 1, Nevada	40
A-6	Peak year increase in recreation demand, Alternative 1, Utah	41
A-7	Long-term increase in recreation demand, Alternative 1, Nevada	42
A-8	Long-term increase in recreation demand, Alternative 1, Utah	43
A-9	Peak year increase in recreation demand, Alternative 2, Nevada	44
A-10	Peak year increase in recreation demand, Alternative 2, Utah	45
A-11	Long-term increase in recreation demand, Alternative 2, Nevada	46
A-12	Long-term increase in recreation demand, Alternative 2, Utah	47
A-13	Peak year increase in recreation demand, Alternative 3, Nevada	48
A-14	Peak year increase in recreation demand, Alternative 3, Utah	49
A-15	Long-term increase in recreation demand, Alternative 3, Nevada	50
A-16	Long-term increase in recreation demand, Alternative 3, Utah	51
A-17	Peak year increase in recreation demand, Alternative 4, Nevada	52
A-18	Peak year increase in recreation demand, Alternative 4, Utah	53
A-19	Long-term increase in recreation demand, Alternative 4, Nevada	54
A-20	Long-term increase in recreation demand, Alternative 4, Utah	55
A-21	Peak year increase in recreation demand, Alternative 5, Nevada	56
A-22	Peak year increase in recreation demand, Alternative 5, Utah	57

No.		Page
A-23	Long-term increase in recreation demand, Alternative 5, Nevada	58
A-24	Long-term increase in recreation demand, Alternative 5, Utah	59
A-25	Peak year increase in recreation demand, Alternative 6, Nevada	60
A-26	Peak year increase in recreation demand, Alternative 6, Utah	61
A-27	Long-term increase in recreation demand, Alternative 6, Nevada	62
A-28	Long-term increase in recreation demand, Alternative 6, Utah	63
A-29	Peak year increase in recreation demand, Alternative 7, Texas/New Mexico	64
A-30	Long-term increase in recreation demand, Alternative 7, Texas/New Mexico	65
A-31	Peak year increase in recreation demand, Alternative 8A, Nevada	66
A-32	Peak year increase in recreation demand, Alternative 8A, Utah	67
A-33	Long-term increase in recreation demand, Alternative 8A, Nevada	68
A-34	Long-term increase in recreation demand, Alternative 8A, Utah	69
A-35	Peak year increase in recreation demand, Alternative 8B, Texas/New Mexico	70
A-36	Long-term increase in recreation demand, Alternative 8B, Texas/New Mexico	71

LIST OF TABLES

No.		Page
2.1-1	Activity preferences for the state of Utah	6
A-1	Comparison of 1980 recreation use to predicted recreation use in Nevada and Utah	15
A-2	The twenty-five recreation sites receiving the heaviest use from M-X personnel	26

1.0 INTRODUCTION

Because much of the indirect effects of the M-X project will result from recreational activities of the construction workers and military personnel, an analysis of recreational trends is necessary. The addition of a large number of people to the area will require USDA Forest Service, National Park, and BLM managers to plan for increased use of campgrounds, picnic areas, and wilderness. This planning can be aided by a model capable of identifying areas most likely to be impacted and predicting the level of use. Such a model is described below.

*Additional Agencies: M-X projects, Nevada,
Utah, Texas, New Mexico.*

2.0 THE INDIRECT EFFECTS MODEL

The model used in this analysis is a modification of the familiar "gravity model" (Cesario, 1969). This model is used to predict the use (in visitor-days per year) of all dispersed and developed recreation sites in the region of interest. It takes population estimates of the communities in the study area and beyond, and uses quantified estimates of their recreational preferences, as well as travel-time from each population center to each recreation area, to predict the use of recreation areas.

Each recreation site is inventoried with respect to the availability and quality of certain recreational activities: swimming, camping, picnicking, hiking, off-road vehicle (ORV) use, boating, water-skiing, and fishing. Snow skiing and hunting were not analyzed because these activities do not follow the primary assumption of the gravity model: All things being equal, more people will recreate closer to home than farther away. Hunting, particularly big game hunting, is controlled largely by the awarding of tags often specific to a region. Skiing is a commercial enterprise which, at least in Utah, attracts numerous people from out of state and is localized in extent. Minor sports, such as white-water canoeing or bird watching, are not evaluated because their numbers are lost in the variance.

Each state was divided into units of approximately 290 sq mi (17 mi X 17 mi) for estimation of dispersed recreation. Travel time (in hours) was estimated from each population center to each recreation area. Population centers were defined at the township or (in Utah) division level and identified by the name of a city or town within the population center. Because the average person in Utah spends approximately 9.7 days per year in the activities considered here (Utah SCORP, 1980), the amount of visitor-days available is easily calculated. A fraction of these people will recreate out of state, and numerous visitors travel into the region. These factors are included in the model.

The model was calibrated by recursively comparing predictions to observed use figures for more than 500 of the 983 Nevada/Utah recreation sites and adjusting the appeal indexes associated with the activity inventories of the sites. The model accounted for 99 percent of the variance in use of the sites, with normally distributed residuals. For the analysis, the model was run for the 12-year period 1982 to 1994, using population projections (ETR-37) for baseline with and without other projects, with and without M-X for the Proposed Action, and for all eight alternatives.

This model fits observed recreation patterns very well, but calibration for areas for which no data exist can only be based on an inventory of, or speculation on, available activities. Experience demonstrated that the inventories alone, without corroborating use figures, tend to cause overprediction of low use areas and underprediction of popular areas. However, the bulk of the recreation use is in USFS areas and state and national parks, for which use data are available. The model's estimates are good for those areas in general, however, there are areas for which predictions are off.

2.1 DERIVATION OF THE MODEL

The model is based upon the gravity model approach (Cesario, 1969; 1973), sometimes called the "travel cost" approach (Smith and Kopp, 1980). This approach is reviewed by Vickerman (1974). The formulation of the model resembles that of Klein (1979). The model can be best understood in its matrix form:

$$A = QR + \Omega \quad (1)$$

where

- A = Vector of use of all recreation sites (visitor-days);
- Q = Matrix of probability of travel from population centers to recreation areas;
- R = Vector of recreation pool from all population centers (visitor-days);
- Ω = Vector of out-of-state use of recreation areas (visitor-days)

The matrix Q is derived by multiplying each element of a matrix of the probability of travel from a population center j to recreation area i by a weighting factor:

$$q_{ij} = \frac{p_{ij} w_i}{\sum_j p_{ij} w_i} \quad (2)$$

where

$$p_{ij} = \frac{\exp(-kx_{ij})}{\sum_j \exp(-kx_{ij})} \quad (3)$$

which is the probability of travel from j to i if all sites i were equally attractive. The numerator is a representation of the assumption that use of recreation areas by people from a population center j declines exponentially with travel time, $x(ij)$ * (Klein, 1979). The constant $k(j)$ is a coefficient determining the slope of the travel-time function for various localities (e.g., people in Nevada might be willing to travel farther than people in Utah).

The denominators in equations (2) and (3) normalize the probability matrices so that the column sums equal one. This ensures that all the visitors from each population center j are distributed among all the areas.

The term $w(i)$ in equation (2) is the appeal index (weight) of recreation area i. Each area is assigned a weight by solution of the matrix equation

$$W = SN \quad (4)$$

where S is a matrix of available activity quality scores for all recreation areas and N is a vector of participation rates for the activities considered in this analysis. The activities considered are swimming, picnicking, camping, hiking, off-road vehicle (ORV) use, boating, water skiing, and fishing. Each recreation area is evaluated with respect to these activities. If a given activity is available, then a score greater than zero was assigned; otherwise a score of zero was assigned. Descriptions of the recreation areas, as well as 1980-use data, were used to assign

* $X(ij) = X_{ij}$

scores to each area. These scores are multiplied by the fraction of time spent by an average citizen of Utah participating in that activity (the vector N). N was obtained from the Utah Statewide Comprehensive Outdoor Recreation Plan (SCORP) (1980), which listed the average number of visitor days (1 person/ 12 hours) spent enjoying the activities analyzed. These figures were normalized to give the vector N (fraction of use row in Table 2.1-1).

The appeal index expressed algebraically is

$$w_i = \sum_{\sigma} s_{i\sigma} n_{\sigma} \quad (5)$$

where σ is the index of sport (activity). If $s(i\sigma) = 0$, then no participation in that activity is possible on site i.

The matrix S is, then, an inventory of available resources on a site and an index of that site's relative popularity. Further discussion of S is deferred to the section on model calibration.

The vector R in equation (1) is the set of visitor-days available from each population center. The average person in Utah spends 9.7 days per year in the activities analyzed (Utah SCORP, 1980). The resource for each population center is given by Equation (6).

$$r_j = 9.7\pi_j (1-t_j) \quad (6)$$

where $\pi(j)$ = population of center j, and t is the fraction of that population assumed to recreate in areas other than the ones considered.

Because Nevada SCORP (1977) lists activity preference by activity occasions, those data were not usable for this analysis because activity occasions are not directly convertible to visitor-days. All populations in Nevada were assumed to behave similarly to those of Utah. New Mexico participation rates were used for the Texas/New Mexico analysis.

The algebraic representation of the model is equation (7)

$$a_i = \sum_j \left[\frac{p_{ij} \sum_{\sigma} s_{i\sigma} n_{\sigma}}{\sum_j (p_{ij} \sum_{\sigma} s_{i\sigma} n_{\sigma})} \right] 9.7\pi_j (1-t_j) + \omega_i \quad (7)$$

where the term is ω_i is out-of-state visitors to site i. Not all areas get significant out-of-state visitation, but the so-called Golden Circle of southern Utah (i.e., Zion, Bryce Canyon, and Cedar Breaks) does. Out-of-state use was estimated as a fraction of in-state (+ Nevada) use and added to the solution for a(i):

$$\omega_i = \left\{ \sum_j \left[\frac{p_{ij} \sum_{\sigma} s_{i\sigma} n_{\sigma}}{\sum_j (p_{ij} \sum_{\sigma} s_{i\sigma} n_{\sigma})} \right] 9.7\pi_j (1-t_j) \right\} f_i \quad (8)$$

where f(i) is out-of-state use fraction for area i. Equation (8) took the value of zero for most areas. Estimates of f(i) were obtained from USFS, Park Service, and BLM district personnel.

Table 2.1-1. Activity preferences for the state of Utah.

	Swimming	Picnicking	Camping	Hiking	ORV	Boating	W-Ski	Fishing
Visitor-days	0.6	0.7	5.2	0.5	0.4	0.5	0.2	1.6
Fraction of use	0.062	0.072	0.54	0.051	0.041	0.052	0.021	0.16

T5386/9-23-81/F

Source: Utah SCORP 1980.

2.2 IMPLEMENTATION OF THE MODEL

The states of Nevada and Utah were sectioned into units of approximately 290 sq mi (17 mi x 17 mi). Each developed recreation area, wilderness, and state and national park was located within a grid unit. Dispersed recreation is referenced to each grid unit. Travel time from each population center to each grid unit was calculated by identifying the best route and dividing the mileage by average speed. Average speed was assumed to be 55 mph on paved roads, 45 mph on gravel, and 35 mph on unimproved roads. Average speed on trails was assumed to be 4 mph (hiking speed). The resulting matrix of travel times (X) was very large: 983 sites and 92 population centers were used in the Nevada/Utah analysis. Thus, the X, P, and Q matrices were of rank (983 x 92), or nearly 100,000 elements.

Because of the necessity to include rural and urban populations, population centers were defined on township or (in Utah) division lines. These centers were identified by the name of a city or town in the township.

The population centers included the operating base at Coyote Spring Valley and construction camps. There were 18 camps in Nevada and Utah, 15 camps in Texas and New Mexico. Other operating bases were not individually identified; their populations were added to the population center to which they were closest.

U.S. Census (1980) figures were used for the calibration, and HDR population projections for trend and high baseline with and without M-X (ETR-37) were used for the analysis. The vector A was expanded to a three-dimensional matrix where $A(\text{alt}, y, l)^*$ is the use of recreation areas by alternative, year, and population level. Recreation use for the Proposed Action and all eight alternatives was analyzed for the years 1982 to 1994, given trend population baseline, trend baseline plus M-X, high population baseline, and high baseline plus M-X (ETR-37). For this, A was defined as a matrix of rank (983 x 14 x 4). For most analyses, the difference between baseline and baseline plus M-X use is the measure of effect. Sometimes the percent change was used.

The model was encoded in Pascal, and run on HDR's Cyber 173 computer, requiring nearly 1.1 hours of CPU time to run. Large arrays were defined as file types, and stored on disk in core image format. This step allowed the program to fit in approximately 45,000 octal words of central memory; over 2 million words of central memory would have been required had arrays been stored in core.

The results of the analysis are presented and discussed in Chapter 4, EIS, ETR-18, and in the appendix of this report (Table A-2, Figures A-1 through A-26).

CALIBRATION

Use-data for 1980 were obtained for more than 500 sites in Nevada and Utah. These included USDA Forest Service data on use of all developed recreation sites as well as district totals for dispersed areas. Dispersed use figures were allocated to appropriate 17 mi square map units on a proportional basis. The Forest Service data were obtained from each regional office.

*Parentheses denote subscript.

National Park Service data were available in the form of total visitor-days and a breakdown of backcountry use. BLM data were available for a few sites, other estimates were obtained from BLM district personnel. The latter types were rough estimates. Data on use of non-Forest Service wilderness were especially difficult to obtain. These data were estimates from BLM personnel.

The model was recursively fit to the data. Such parameters as the travel time coefficients, $k(j)$, the out of state travel fractions, $f(j)$, and out of state visitors, $\omega(j)$, were adjusted somewhat. For example, Molyneux (personal communication, 1981) estimated that 60 percent of use of the portions of Dixie National Forest was by out-of-state visitors, mostly from Nevada and California. The model allocated approximately 30 percent of the users from Nevada, the rest was added by means of the out-of-state term (Equation 8).

The primary method of calibration was to adjust the inventory scores in matrix S by comparison of the observed use $A(o)$ to the predicted use $A(p)$. The inventory scores of areas for which the predictions were poor were changed until a reasonable agreement was reached. The sum of squares due to the model is obtained by difference $SSM = SST - SSR$ (Draper and Smith, 1966) where:

$$SSR = \sum (A_o - A_p)^2 = \text{residual sum of squares}$$

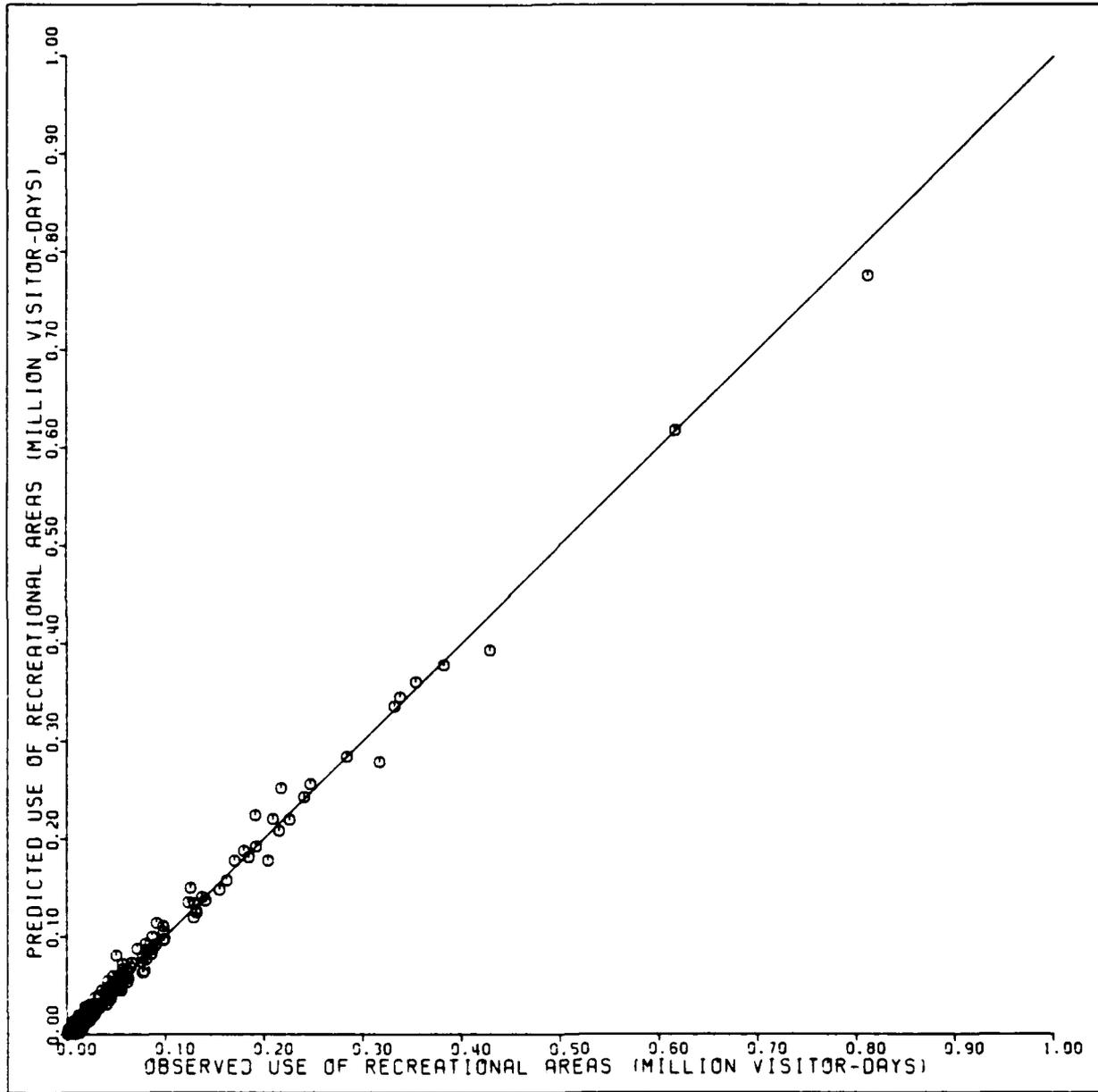
$$SST = \sum A_p^2 - (\sum A_p)^2/n = \text{total sum of squares}$$

The percent of variation explained by the model is:

$$R^2 = 100 \times SSM/SST$$

The calibration procedure was repeated until $R^2 = 99$ percent. The agreement of the model with the data is illustrated in Figure 2.2-1. The residuals were normally distributed about zero. Comparison of the model to the data is given in Table 2.2-1 in Appendix.

Although the model fit observed data very well, data were available for only half of the areas. Therefore, the error of prediction for the rest of the areas is unknown. However, since USFS land is the most heavily used, and since data were available for all USFS land, the general predictability of the model is probably good.



CA-0050C

Figure 2.2-1. Comparison of observed to predicted recreation use of Nevada/Utah sites.

3.0 DISCUSSION

Hunting and skiing were not analyzed with this model because these activities do not obey gravity model assumptions. Hunters tend to go to areas with abundant game or are assigned by tag to specific areas. Skiers have to travel to ski areas. Commercial recreation was not analyzed because it is presumed to benefit from increased use.

Although the overall fit of the model was excellent, the residuals ranged from very small to quite large. Thus, use of a specific area could be significantly overpredicted or underpredicted.

It is possible to extract the number of persons predicted by the model that participate in a given activity at a site:

$$a_{i\sigma} = \sum_j \frac{p_{ij} s_{i\sigma} n_{i\sigma}}{\sum_j (p_{ij} s_{i\sigma} n_{i\sigma})} r_j + c_{\sigma} \omega_i \quad (9)$$

where

- $a_{i\sigma}$ = visitor days per year in activity
- σ = activity index
- c_{σ} = fraction of out-of-state visits participating in activity.

The other symbols are defined above.

This step is not currently reliable because the use data did not include activity breakdowns. Should such data become available, more detailed analysis would be possible.

Certain improvements could be made to increase theoretical accuracy or realism, but they were considered to be unjustified at this stage of development. The travel-time coefficient, $k(j)$, could vary with activity, giving a set of parameters where $k(\sigma j)$ would be the travel coefficient for the sport σ and population center (j). This step would require the convolution of the several probability distributions or, at the minimum, require σ probability matrices. This could make the model intractable.

It can be argued that the activity preference vector N used in the model should be expanded to account for state-to-state differences and for the expected differences between the current population and construction and military personnel. Because no such data were available, it was impossible to incorporate those differences. However, a study could be performed by letting N take a variety of distributions and observing the effect on the output.

Finally, it can be argued that the assumption of independence of the activities is in error. For example, fishing is often associated with camping. While this is true, such distinctions would greatly complicate the model or would require a network-type model.

In conclusion, the model predicts the use of developed and dispersed recreation resources very well and allows realistic simulation of future use. It does not allow

reliable breakdowns of percent activity at a given area. It can be easily calibrated, and appears to be highly appropriate for large-scale or regional planning.

BIBLIOGRAPHY

- Cesario, F.J., 1969. Operations research in outdoor recreation, J. Leisure Res. 1:33-53.
- Cesario, F.J., 1973. A generalized trip distribution model, J. Regional Sci. 13:233-248.
- Draper, N.R., and H. Smith, 1966. Applied Regression Analysis, New York: Wiley.
- ETR-18. Wilderness. USAF.
- ETR-37. Community population allocation model, USAF.
- Molyneux, M., 1981. personal communication MX80-HDRS-MISC-1003.
- Klein, D.H., 1979. A recreation needs assessment process - an origin destination approach, Trans. Plann. and Tech. 5:169-182.
- Nevada State Comprehensive Outdoor Recreation Plan (SCORP), 1977. Nevada State Park System, Carson City, Nev. 89701.
- Smith, V.K., and R.J. Kopp, 1980. The spatial limits of the travel cost recreational demand model, Land Econ. 56:64-72.
- Utah State Comprehensive Outdoor Recreation Plan (SCORP), 1980. Utah Outdoor Recreation Agency, Salt Lake City, Utah 84102.
- Vickerman, R.W., 1974. Accessibility, attraction, and potential: a review of some concepts and their use in determining mobility, Environ. and Planning. 6:675-691.

APPENDIX A

PREVIOUS PAGE
IS BLANK

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
N003	W-RADLANDS	400 0	120 0	280 0	70 000
N004		14500 0	10800 2	3699 8	25 516
N005	JARRIDGE	5400 0	6026 2	-626 2	-11 596
N005	PINE CREEK	4500 0	6026 2	-1526 2	-33 916
N005		16295 0	13369 0	2926 0	17 956
N006		29000 0	23857 0	5143 0	17 734
N008	W-OWYHEE CYN	200 0	502 1	-302 1	-151 090
N010		2145 0	1744 7	400 3	18 662
N011		4875 0	5626 0	-751 0	-15 405
N023	BIG BEND	8400 0	6958 1	1441 9	17 165
N023	W-ROUGH HILLS	450 0	515 9	-65 9	-14 644
N023		6692 0	4618 8	2073 2	30 980
N024	WILDHORSE	7100 0	5405 8	1694 2	23 862
N024		32347 0	39706 3	-7359 3	-22 751
N025		7808 0	5499 0	2309 0	29 572
N028		975 0	5913 2	-4938 2	-506 482
N029	LYE CREEK	8100 0	1961 5	6138 5	75 784
N033	W-BLUE LAKES	6505 0	2147 4	4357 6	66 988
N042	JACK CREEK	1500 0	3053 6	-1553 6	-103 573
N042		21193 0	20547 9	645 1	3 044
N047		2340 0	2937 8	-597 8	-25 547
N058	ANGEL CREEK	12400 0	9774 1	2625 9	21 177
N058	ANGEL LAKE	23400 0	28507 7	-5107 7	-21 828
N076		29875 0	26131 7	3743 3	12 530
N091	W-BLUEBELL	300 0	511 9	-211 9	-70 633
N094		17925 0	19035 3	-2889 7	-16 121
N095	TERRACES	6300 0	3872 5	2427 5	38 532
N095	THOMAS CANYON	32800 0	27660 8	5139 2	15 668
N095		17925 0	13000 6	4924 4	27 472
N109	W-GOSHUTE PEAK	300 0	436 8	-136 8	-45 600
N110	W-SO PEGUOP	300 0	72 4	227 6	75 867
N113		28680 0	30261 8	-1581 8	-5 515
N114	W-CEDAR RIDGE	100 0	438 9	-338 9	-338 900
N114	W-RED SPRING	100 0	438 9	-338 9	-338 900
N131		23900 0	28931 6	-5031 6	-21 053
N132	W-LITTLE HUMBOLDT R	100 0	23 8	76 2	76 200
N164	EAST CREEK	2900 0	7602 4	-4702 4	-162 152
N164		9035 0	9883 2	-848 2	-9 388
N181		5560 0	6000 4	-440 4	-7 921
N182	BERRY CREEK	1200 0	3296 0	-2096 0	-174 667
N182	BIRD CREEK	1100 0	947 6	152 4	13 855
N182	TIMBER CREEK	3000 0	4614 4	-1614 4	-53 813
N182		11120 0	11865 5	-745 5	-6 704
N188		11144 0	9414 3	1729 7	15 521
N189		3184 0	2830 3	353 7	11 109
N190	BIG CREEK	12500 0	11114 8	1385 2	11 082

SOURCE: HDR SCIENCES

CT 1091

Table A-1.
COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
N190	BOB SCOTT	18400 0	13523 0	4877 0	26.505
N190		14050 0	10698 0	3352 0	23.858
N199	LEHMAN CR TRAILER	5700 0	7550 7	-1850 7	-32.468
N199	LEHMAN CR VIS CTR	8300 0	7550 7	749 3	9.028
N199		12510 0	9576 5	2933 5	23.449
N200	CLEVE CREEK	1400 0	2987 1	-1587 1	-113.364
N200		13900 0	11151 8	2748 2	19.771
N201	WARD MT REC AREA	8800 0	5934 1	2865 9	32.567
N201		1470 0	3120 5	-1650 5	-112.279
N202		1960 0	3612 9	-1652 9	-84.332
N203		5635 0	2873 5	2761 5	49.006
N206		19104 0	16330 7	2773 3	14.517
N207		17512 0	16472 6	1039 4	5.935
N208	KINGSTON	8900 0	5958 2	2941 8	33.054
N208		18265 0	24329 2	-6064 2	-33.201
N209		19670 0	22443 4	-2773 4	-14.100
N217	PAKER CREEK	2900 0	3385 4	-485 4	-16.738
N217		600 0	507 8	92 2	15.367
N217	LEHMAN CAVES	200 0	2708 3	-2508 3	-1254.150
N217	SNAKE CREEK	6300 0	9140 7	-2840 7	-45.090
N217	WHEELER PEAK	15290 0	14218 8	1071 2	7.006
N220	WHITE RIVER	500 0	1839 6	-1339 6	-267.920
N220		2695 0	3311 3	-616 3	-22.868
N221	CURRENT CREEK	900 0	1549 9	-649 9	-72.211
N221		3675 0	2983 5	691 5	18.816
N224		17512 0	17169 4	342 6	1.956
N225	PINE CREEK	11800 0	9368 4	2431 6	20.607
N225		17512 0	12824 3	4687 7	26.769
N225		9835 0	10523 5	-688 5	-7.001
N227	BERLIN-ICHTH ST MON	41400 0	47597 7	-6197 7	-14.970
N227		29505 0	26400 6	3104 4	10.522
N228		12645 0	12158 4	486 6	3.848
N235		2085 0	2922 7	-837 7	-40.177
N242		11144 0	13215 3	-2071 3	-18.587
N243		15920 0	15823 6	96 4	0.606
N244	PEAVINE	11144 0	8265 9	2878 1	25.826
N245		20800 0	18291 8	2508 2	12.059
N245		26695 0	23241 4	3453 6	12.937
N256		2205 0	3355 9	-1150 9	-52.195
N260		20696 0	15823 6	4872 4	23.543
N261		3184 0	2030 1	1153 9	36.241
N265		1722 0	1411 5	310 5	18.031
N266	ALUM CREEK	1700 0	3171 7	-1471 7	-86.571
N266		13776 0	15263 8	-1487 8	-10.800
N267		10332 0	9232 0	1100 0	10.647
N272	CHEPPY CREEK	300 0	3050 6	-2750 6	-916.867

SOURCE: HDR SCIENCES

CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
N272		3185 0	2936 2	248 8	7.812
N273		3185 0	3890 8	-705 8	-22.160
N276	SAULSBURY WASH	17100 0	19344 6	-2244 6	-13.126
N276		14328 0	15364 8	-1036 8	-7.236
N281		10332 0	11090 4	-758 4	-7.340
N282		17220 0	14808 7	2411 3	14.003
N288		735 0	920 0	-185 0	-25.170
N356	HILLTOP	1700 0	1031 0	669 0	39.353
N356	MAHUGANY GROVE	3700 0	1933 1	1766 9	47.754
N356		64576 0	68785 8	-4209 8	-6.519
N357	DEER CREEK	3700 0	3852 5	-152 5	-4.122
N357	DOLOMITE	1500 0	880 6	619 4	41.293
N357	FOXTAIL CANYON	3800 0	963 1	2836 9	74.655
N357	MCWILLIAMS	49800 0	47880 5	1919 5	3.854
N357	OLD MILL	20000 0	18161 6	1838 4	9.192
N357		226016 0	219589 8	6426 2	2.843
N364	KYLE CANYON	23100 0	26868 0	-3768 0	-16.312
N364		60540 0	58533 8	2006 2	3.314
N365	CATHEDRAL ROCK	44200 0	46309 6	-2109 6	-4.773
N365	FLETCHER VIEW	11400 0	17033 4	-5633 4	-49.416
N365		52468 0	54294 0	-1826 0	-3.480
U003	CLEAR CREEK	2200 0	4635 1	-2435 1	-110.686
U003		86600 0	88015 6	-1415 6	-1.635
U007	SMITHFIELD CANYON	10100 0	8620 7	1479 3	14.647
U008	CHINA RUN	1100 0	5638 7	-4538 7	-412.609
U008	COTTONWOOD	300 0	704 8	-404 8	-134.933
U008	HIGH CREEK	6200 0	5638 7	561 3	9.053
U008	LEWIS M TURNER	4700 0	5638 7	-938 7	-19.972
U008	RED BANKS	6100 0	7048 4	-948 4	-15.548
U008	SUNRISE	14200 0	13438 9	761 1	5.360
U008	TONY GROVE LAKE	16400 0	17292 0	-892 0	-5.439
U008	TWIN BRIDGES	1500 0	5638 7	-4138 7	-275.913
U008	WOOD CAMP	9500 0	12405 1	-2905 1	-30.580
U008	W MT NAOMI	7000 0	8270 1	-1270 1	-18.144
U008		128754 0	119399 2	9354 8	7.266
U016	W WELLSVILLE MTN	5000 0	4298 3	701 7	14.034
U016		98235 0	96283 0	1952 0	1.987
U017	BEIRDNEAU	400 0	283 8	116 2	29.050
U017	BRIDGER	5800 0	4627 3	1172 7	20.219
U017	BROWNS RULL-OFF	600 0	283 8	316 2	52.700
U017	CARD	1300 0	1986 6	-686 6	-52.815
U017	CHUCK CHERRY	1300 0	1986 6	-686 6	-52.815
U017	DEWITT	1100 0	2418 5	-1318 5	-119.864
U017	FRIENDSHIP	8700 0	8329 1	370 9	4.263
U017	GUINAVAH	2600 0	24678 7	1321 3	5.082
U017	LODGE	6100 0	7403 6	-1303 6	-21.370

SOURCE HRP SCIENCES

CT 1091

Table A-1.

COMPARISON OF 1990 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U017	MALIBU	16700 0	16904 9	-204 9	-1.227
U017	NOOK	400 0	283 8	116 2	29.050
U017	PIONEER	8700 0	8329 1	370 9	4.263
U017	PRESTON VALLEY	6500 0	7403 6	-903 6	-13.902
U017	SHENDAH	2300 0	1727 5	572 5	24.891
U017	SPRING HOLLOW	13900 0	11352 2	2547 8	18.329
U017	SPRING	1700 0	925 5	774 5	45.559
U017		204099 0	177686 8	26412 2	12.941
U025	BOX ELDER	42100 0	38038 0	4062 0	9.648
U025	WILLARD BASIN	2200 0	950 9	1249 1	56.777
U025		130990 0	126363 5	4626 5	3.532
U026	MONTE CRISTO	24700 0	21515 1	3184 9	12.894
U026		155153 0	147833 7	7319 3	4.717
U034	ANDERSON COVE	61500 0	53785 9	7714 1	12.543
U034	BLUFFS	78600 0	64936 6	13663 4	17.383
U034	FERNWOOD	3200 0	2295 7	904 3	28.259
U034	JEFFERSON HUNT	6000 0	6149 3	-149 3	-2.488
U034	MAGPIE	17300 0	12298 6	5001 4	28.910
U034	PORT	8000 0	4591 5	3408 5	42.606
U034	THE MAPLES	4000 0	4837 4	-837 4	-20.935
U034		184700 0	181199 3	3500 7	1.895
U035	BOTTS	10000 0	12213 8	-2213 8	-22.138
U035	HOBBLE	4600 0	6106 9	-1506 9	-32.759
U035	MEADOWS	14000 0	17425 0	-3425 0	-24.464
U035	SKULL CRACK	3500 0	7979 7	-4479 7	-127.991
U035	SOUTH FORK	23800 0	20682 0	3118 0	13.101
U035	WILLOWS	6900 0	12213 8	-5313 8	-77.012
U035		85974 0	82076 4	3897 6	4.533
U036	LOST CREEK LAKE	900 0	1104 8	-204 8	-22.756
U036		45799 0	42423 3	3375 7	7.371
U043	BOUNTIFUL PEAK	15400 0	12390 0	3010 0	19.545
U043	BUCKLAND FLAT	1600 0	1470 0	130 0	8.125
U043	MUELLER PARK	15600 0	13440 0	2160 0	13.846
U043	SUNSET	10200 0	12390 0	-2190 0	-21.471
U043		428627 0	393121 1	35505 9	8.284
U046	BEAR RIVER	1200 0	5455 9	-4255 9	-354.658
U046	BEAVER VIEW	10500 0	14237 3	-3737 3	-35.593
U046	CHRISTMAS MEADOW	5500 0	5819 6	-319 6	-5.811
U046	EAST FORK	3000 0	5455 9	-2455 9	-81.863
U046	HAYDENS FORK	4800 0	5455 9	-655 9	-13.665
U046	STILLWATER	14000 0	13198 0	802 0	5.729
U046		192033 0	192047 1	-14 1	-0.007
U047	BRIDGER LAKE	9900 0	10871 6	-971 6	-9.814
U047	CHINA MEADOWS	3000 0	6177 0	-3177 0	-105.900
U047	LITTLE LYMAN LAKE	5800 0	10459 8	-4659 8	-80.341
U047	MARSH LAKE	13900 0	11036 3	2863 7	20.602

SOURCE HDR SCIENCES

CT 1091

Table A-1.

COMPARISON OF 1960 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U059	LIP CREEK	2000 0	3970 7	-1170 7	-41 811
U059	JORGAN PINES	11800 0	9667 9	2132 1	18 069
U059	MAPLE CUTE	2300 0	3970 7	-1670 7	-72 639
U059	MAPLE GROVE	3700 0	3970 7	-270 7	-7 316
U059	MOSS LEDGE	2600 0	1208 5	1391 5	53 519
U059	PEDRIAN	27600 0	21925 3	5674 7	20 561
U059	TANNERS FLAT	24800 0	21925 3	2874 7	11 592
U059	TERRACES	8600 0	6042 4	2557 6	29 740
U059	THE SPRUDES	600 0	1381 1	-781 1	-130 183
U059		353866 0	360473 1	-6607 1	-1 867
U060	BEAVER CREEK	6500 0	11572 6	-5072 6	-78 040
U060	LEDGE FORK	44600 0	37032 2	7567 8	16 968
U060	LOWER PRAIRY	4600 0	11572 6	-6972 6	-151 578
U060	L SOUTH HORSEHOUSE	8100 0	12652 7	-4552 7	-56 206
U060	PINE VALLEY	54100 0	45518 7	8581 3	15 862
U060	SHINGLE CREEK	11900 0	11572 6	327 4	2 751
U060	TAYLORS FORK	4900 0	11572 6	-6672 6	-136 176
U060	WATER-COTTONWOOD	7300 0	4629 0	2671 0	36 589
U060	YELLOW PINE	9600 0	7302 6	2297 4	23 931
U060		616811 0	617820 0	-1009 0	-0 164
U061	BALD MOUNTAIN	2100 0	1940 3	159 7	7 605
U061	BUTTERFLY LAKE	7200 0	9130 6	-1930 6	-26 814
U061	CORNEREST	8500 0	14494 8	-5994 8	-70 527
U061	HIGHLINE TRAILHEAD	6300 0	8331 7	-2031 7	-32 249
U061	LILLY LAKE	4300 0	7304 5	-3004 5	-69 872
U061	LOST CREEK	11700 0	14494 8	-2794 8	-23 887
U061	MIRROR LAKE	40700 0	39718 1	981 9	2 413
U061	MOUSEHORN LAKE	11500 0	14494 8	-2994 8	-26 042
U061	SHADY DELL	11400 0	14494 8	-3094 8	-27 147
U061	SUNSTONE	23400 0	20429 7	2970 3	12 694
U061	SULPHUR	3300 0	7304 5	-4004 5	-121 348
U061	TRIAL LAKE	23600 0	22370 0	1230 0	5 212
U061	UPPER PRATO RIVER	2000 0	5136 0	-3136 0	-156 800
U061	WOLF CREEK	7000 0	7761 0	-761 0	-10 871
U061		811355 0	776101 6	35253 4	4 345
U062	MOON LAKE	56700 0	58626 5	-1926 5	-3 398
U062	W-HIGH UINTA	47000 0	59936 9	-12936 9	-27 525
U062	W-HUPA	247000 0	256094 2	-9094 2	-3 682
U062		19312 0	24209 3	-4897 3	-25 359
U063	SWIFT CREEK	4400 0	4383 7	16 3	0 370
U063	UINTA CANYON	1200 0	3868 0	-2668 0	-222 333
U063	WANDIN	1500 0	4125 8	-2625 8	-175 053
U063	W-LELIDY EAST	1000 0	5363 6	-4363 6	-436 360
U063		123167 0	135018 4	-11851 4	-9 622
U064	PARADISE PARK	4100 0	4049 9	50 1	1 222
U064	POLF CREEK	4200 0	3811 7	388 3	9 245
	SOURCE HDR SCIENTIFIC				CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U064	WHITE ROCKS	3800 0	6289 1	-2489 3	-65.508
U064	W-DRY FORK NORTH	1000 0	4002 3	-3002 3	-300.230
U064		91089 0	113731 0	-22642 0	-24.857
U065	EAST PARK	4200 0	5304 5	-1104 5	-26.298
U065	KALER HOLLOW	1400 0	2464 3	-1064 3	-76.021
U065	OAKS PARK	4500 0	3132 6	1367 4	30.387
U055		52584 0	54131 0	-1547 0	-2.942
U066	W-DIAMOND BREAKS	1000 0	240 7	759 3	75.930
U066	W-WILD MTN	600 0	577 8	22 2	3.700
U071	BUY SCOUT	4100 0	11280 9	-7180 9	-175.144
U071	COTTONWOOD	2700 0	10072 3	-7172 3	-247.321
U071	INTAKE	1600 0	2014 5	-414 5	-25.906
U071	LOOP	2100 0	8595 0	-6495 0	-309.286
U071	LOWER NARROWS	2000 0	5036 1	-3036 1	-151.805
U071	UPPER NARROWS	5700 0	6043 4	-343 4	-6.025
U071	W-STANBURY	5000 0	4297 5	702 5	14.050
U073	W-LONE PEAK	55000 0	45202 1	9797 9	17.814
U074	ALTAMONT	10200 0	11193 4	-993 4	-9.739
U074	ECHO	5900 0	6558 6	-658 6	-11.163
U074	GRANITE FLAT	137200 0	140441 9	-3241 9	-2.363
U074	GRAY CLIFF	2000 0	2011 3	-11 3	-0.565
U074	HANGING ROCK	1400 0	2011 3	-611 3	-43.664
U074	HOUSE ROCK	9200 0	9182 1	17 9	0.195
U074	LITTLE MILL	55900 0	52469 0	3431 0	6.138
U074	MARTIN	6700 0	6558 6	141 4	2.110
U074	MT TIMPANOGOS	21200 0	21162 5	37 5	0.177
U074	NORTH MILL	8400 0	6558 6	1841 4	21.921
U074	ROADHOUSE	7300 0	5246 9	2053 1	28.125
U074	THEATRE IN THE PINES	2300 0	2973 2	-673 2	-29.270
U074	TIMPOONEKE	25200 0	27983 4	-2783 4	-11.045
U074	WARNICK	6500 0	5246 9	1253 1	19.278
U074		332041 0	335801 3	-3760 3	-1.132
U075	WKSKEY SPRINGS	3300 0	4768 7	-1468 7	-44.506
U075		337630 0	344926 4	-7306 4	-2.164
U076	ASPEN	15800 0	16495 2	-695 2	-4.400
U076	MILL HOLLOW	15800 0	9741 3	6058 7	38.344
U076		170278 0	177680 8	-7402 8	-4.347
U077		14385 0	13691 7	693 3	4.820
U078	BRIDGE	1000 0	4576 4	-3576 4	-357.640
U078	YELLOWSTONE	5000 0	4576 4	423 6	8.472
U081	DINOSAUR NAT MON	77030 0	80019 9	-2989 9	-3.881
U081	W-BULL CANYON	500 0	463 9	36 1	7.220
U081	W-DANIELS CANYON	300 0	515 4	-215 4	-71.800
U081	W-DINOSAUR	51550 0	55666 0	-4116 0	-7.984
U089	BALSAM	13100 0	10377 4	2722 6	20.783
U089	BIRCH	3700 0	5188 7	-1988 7	-62.147

SOURCE HDR SCIENCES

CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U089	CHERRY PICNIC	3800 0	4842 8	-1042 8	-27.442
U089	DIAMOND	25900 0	27673 1	-1773 1	-6.846
U089	DRY CREEK	4100 0	5534 6	-1434 6	-34.990
U089	HOP	14300 0	19198 2	-4898 2	-34.253
U089	KOIP	11700 0	19457 6	-7757 6	-66.304
U089	LONG FIR	4200 0	2594.4	1605 6	38.229
U089	PALMIRA	40500 0	30959.3	9540.7	23.557
U089	ROCK CANYON	13900 0	19198 2	-5298 2	-38.117
U089	WHITING	15100 0	13836 5	1263 5	8.368
U090	BRYANT'S FORKS	191269 0	224152 0	-32883 0	-17.192
U090	HAWTHORNE	24300 0	23656.2	643 8	2.649
U090	THREE FORKS	1800 0	2004 8	-204 8	-11.378
U090		1400 0	1002 4	397 6	28.400
U090		240701 0	242843 2	-2142 2	-0.890
U099	FISH SPRINGS NWR	432 0	2767 7	-2335 7	-540.671
U101	LITTLE VALLEY	2400 0	7910 2	-5510 2	-229.592
U101		25500 0	25312 7	187 3	0.735
U103	W-SANTAGUIN	12000 0	10571 9	1428 1	11.901
U103		43688 0	49128 0	-5440 0	-12.452
U104	BEAR CANYON	15100 0	9947 4	5152 6	34.123
U104	MAPLE BENCH	8800 0	13736 9	-4936 9	-56.101
U104	TRUMBOLT PICNIC	5000 0	2723 7	2276 3	45.526
U104	W-BIRDSEYE	15000 0	8052 7	6947 3	46.315
U104		140622 0	136776 7	3845 3	2.734
U105	FISH CREEK	1300 0	8792 8	-7492 8	-576.369
U105		162307 0	157448 9	4858 1	2.993
U106	AVINTAGUIN	8700 0	12228 1	-3528 1	-40.553
U106		79888 0	86368 1	-6480 1	-8.111
U107	TINNEY FLAT	9000 0	12919 3	-3919 3	-43.548
U107		42835 0	38757 9	4077 1	9.518
U108		17262 0	11753 5	5508 5	31.911
U117	LITTLE SAHARA	217338 0	251861 8	-34523 8	-15.885
U117		3905 0	377 3	3527 7	90.338
U118	CHICKEN CREEK	4500 0	6724 3	-2224 3	-49.429
U118	W-NEPHI	6000 0	7620 8	-1620 8	-27.013
U119	COTTONWOOD	2800 0	9710 6	-6910 6	-246.807
U119	PONDEROSA	26300 0	22618 5	3681 5	13.998
U120	FLAT CANYON	20500 0	19350 7	1149 3	5.606
U120	FORKS OF HUNTINGTON	6600 0	13729 3	-7129 3	-108.020
U120	GOOSEBERRY	10700 0	13729 3	-3029 3	-28.311
U120		131560 0	124536 4	7023 6	5.339
U125	W-WINTER RIDGE	700 0	171 4	528 6	75.514
U132	PAK CREEK	17600 0	16163 2	1436 8	8.164
U132		33391 0	31623 6	1767 4	5.293
U134	LAKO HILL	5800 0	12625 0	-6825 0	-117.672
U134	SPRING CITY	1300 0	695 9	604 1	46.469
	SOURCE HDR SCIENCES				CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

PAGE 9

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U134		27058 0	21472 4	6425 6	23 032
U135	JUFS VALLEY RES	35700 0	31537 6	4162 4	11 659
U136		129589 0	134034 6	-4445 6	-3 431
U147	MAPLE HOLLOW	6022 0	6749 0	-727 0	-12 072
U147		3200 0	6979 2	-3779 2	-118 100
U147		27142 0	20152 4	6989 6	25 752
U149	FERRON RESERVOIR	18900 0	14727 2	4172 8	22 078
U149	MANTI COMMUNITY	8500 0	10165 0	-1665 0	-19 588
U149	PINCHOT	5900 0	10165 0	-4265 0	-72 288
U149	TWELVERTILE FLAT	11000 0	10165 0	835 0	7 591
U149		76747 0	73956 3	2790 7	3 636
U150	FERRON CANYON	700 0	7047 6	-6347 6	-906 800
U150		86335 0	87014 1	-679 1	-0 787
U152	N-CEDAR MTN	1250 0	401 1	848 9	67 912
U155	W-COTTONWOOD CYN	2000 0	2813 1	-813 1	-40 655
U162	BUCKSKIN CHARLEY	700 0	1256 5	-556 5	-79 500
U162	COPLEY COVE	2100 0	5026 2	-2926 2	-139 343
U162	MAPLE GROVE	29300 0	28844 5	455 5	1 555
U162	PISTOL ROCK	2400 0	6282 7	-3882 7	-161 779
U162	SHINGLE MILL	2000 0	6282 7	-4282 7	-214 135
U162		54284 0	60471 0	-6187 0	-11 397
U163		57060 0	61126 0	-4066 0	-7 126
U164	GOOSEBERRY	5300 0	5753 6	-453 6	-8 558
U164		179756 0	187796 1	-8040 1	-4 473
U165		18500 0	21381 4	-2881 4	-15 575
U176		52931 0	50732 3	2198 7	4 154
U177	ADELAIDE	5500 0	6382 0	-782 0	-14 218
U177	CASTLE ROCK	4800 0	5978 4	-1178 4	-24 550
U177		56554 0	63296 1	-6742 1	-11 922
U178	MONROVIAN	5300 0	1756 6	3543 4	66 857
U178		28004 0	104481 5	-6477 5	-6 609
U179	BOUFERY	26400 0	28213 3	-1813 3	-6 869
U179	FRYING PAN	4000 0	4713 3	-713 3	-17 832
U179	MACKINAW	35600 0	45141 2	-9541 2	-26 801
U179	TWIN CREEKS	3700 0	2190 7	1509 3	40 792
U179		125453 0	149779 9	-24326 9	-19 391
U185	ARCHES NATL PARK	71568 0	87639 7	-16071 7	-22 457
U185	MOAL SLICKROCK	2500 0	176 7	2323 3	92 932
U185	W-ARCHES	3686 0	441 7	3244 3	88 017
U186	OWAH LAKE	4700 0	2806 0	1894 0	40 298
U186	WARREN	13600 0	12113 9	1486 1	10 927
U186		27648 0	29566 0	-1918 0	-6 937
U191	LITTLE COTTONWOOD	15500 0	7687 3	7810 7	50 392
U191		55704 0	62796 0	-7092 0	-12 732
U192	CITY CREEK	3900 0	4660 2	-760 2	-19 492
U192		66007 0	73397 9	-7390 9	-11 197
SOURCE HDR SCIENCES					CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSPVEIN VD	PREDICTED VD	RESIDUAL	PER CENT
U193		56468 0	72098 4	-15630 4	-27.680
U194	EL KHORN	2700 0	3874 9	-1174 9	-43.515
U194	SUNGLOW	2900 0	3572 2	-672 2	-23.179
U194		44691 0	44319 7	371 3	0.831
U195	CAPITOL REEF	56844 0	66880 5	-10036 5	-17.656
U195	W-CAPITOL REEF	3672 0	5901 2	-2229 2	-60.708
U199	W-CANYONLANDS	80024 0	93133 4	-13109 4	-16.382
U200	HATCH POINT CAMPGR	536 0	1458 0	-922 0	-172.015
U201	PACK CREEK	9200 0	2575 5	6624 5	72.005
U201		40857 0	36471 9	4385 1	10.733
U206	ANDERSON MEADOW	6800 0	7980 6	-1380 6	-20.918
U206	KENTS LAKE	11400 0	4951 4	6448 6	56.567
U206	LE BARON LAKE	2400 0	4718 4	-2318 4	-96.600
U206	LITTLE RESERVOIR	9400 0	7980 6	1419 4	15.100
U206	MAHUGANY COVE	3500 0	4660 2	-1160 2	-33.149
U206	PONDEROSA	6700 0	2038 8	4661 2	69.570
U206		24471 0	30757 2	-6286 2	-25.688
U207		61996 0	57910 0	4086 0	6.591
U208		6234 0	6928 0	-694 0	-11.132
U209	BLUE SPRUCE	900 0	3966 1	-3066 1	-340.678
U209		13902 0	11567 7	2334 3	16.791
U210	OAK CREEK	3600 0	5521 6	-1921 6	-53.378
U210	PLEASANT CREEK	5400 0	5320 1	79 9	1.480
U210	SINGLETREE	4000 0	5320 1	-1320 1	-33.003
U210		9102 0	3304 9	5797 1	63.690
U215	CANYONLANDS RESORT	23086 0	30589 3	-6703 3	-28.064
U215	WINDWHISTLE	1279 0	2564 1	-1285 1	-100.477
U220	VERMILLION CASTLE	4100 0	11490 8	-7390 8	-180.263
U220		12857 0	3620 3	9236 7	71.842
U221	RED CREEK RES	400 0	4257 2	-3857 2	-964.300
U221		90514 0	91692 6	-1178 6	-1.302
U222	W-RED CANYON N	1200 0	520 1	679 9	56.658
U222		98769 0	97090 2	1878 8	1.898
U223		16395 0	13811 3	2583 7	15.759
U224	POSY LAKE	4900 0	8470 6	-3570 6	-72.869
U224	W-PIPPS DEATH	2000 0	3154 9	-1154 9	-57.745
U224		8977 0	3077 1	5899 9	65.722
U225	CALF CREEK R A	6700 0	2549 8	4150 2	61.943
U225		2992 0	4019 2	-1027 2	-34.332
U229	W-DARK-WOODSHOE	7700 0	386 1	7313 9	94.986
U229	W-DARK CANYON	1545 0	1058 0	487 0	31.521
U229		8922 0	4157 7	4764 3	53.399
U230	RED BLUFFS	2500 0	1587 7	912 3	36.492
U230		22098 0	21700 9	397 1	1.797
U231	BUCKBOARD	7700 0	3150 1	4549 9	59.090
U231	DALTON SPRINGS	17900 0	10715 9	7184 1	40.135

SOURCE HDH SCIENCES

CT 1091

Table A-1.

COMPARISON OF 1980 RECREATION USE TO PREDICTED RECREATION USE IN NEVADA AND UTAH

UNIT	NAME OF AREA	OBSERVED VD	PREDICTED VD	RESIDUAL	PER CENT
U231		3775 0	4767 7	-992 7	-26 297
U232	ENTERPRISE RES	500 0	8384 4	-7884 4	-1576 880
U232	HONEYCOMB ROCKS	7600 0	8794 9	-1194 9	-15 722
U232	PINE PARK	1500 0	3755 3	-2255 3	-150 353
U232		25507 0	25798 3	-291 3	-1 142
U233		19722 0	26445 7	-6723 7	-34 092
U235	CEDAR CANYON	9200 0	7339 3	1860 7	20 225
U235	DEER HAVEN	7700 0	8225 1	-525 1	-6 819
U235	DUCK CREEK	43100 0	35431 2	7668 8	17 793
U235	NAVAJO LAKE	50200 0	80906 4	-30706 4	-61 168
U235	W-ASHDOWN GORGE	300 0	790 9	-490 9	-163 633
U235		77143 0	63586 3	13556 7	17 573
U236	PANGUITCH LAKE	41500 0	41400 7	99 3	0 239
U236	WHITE BRIDGE	15600 0	16742 2	-1142 2	-7 322
U236		80743 0	76868 7	3874 3	4 798
U237	KINGS CREEK	20400 0	24186 7	-3786 7	-18 562
U237	RED CANYON	48300 0	53237 3	-4937 3	-10 222
U237	W-RED CANYON S	300 0	498 1	-198 1	-66 033
U237		53879 0	48705 6	5173 4	9 602
U238	PINE LAKE	17300 0	11781 7	5518 3	31 898
U238		5860 0	4145 2	1714 8	29 263
U240	W-N ESCALANTE	22500 0	14177 1	8322 9	36 991
U240		9814 0	1552 6	8261 4	84 180
U245		11529 0	1661 4	9867 6	85 589
U246	DEVILS CANYON	18500 0	28079 8	-9579 8	-51 783
U247		14857 0	18807 1	-3950 1	-26 587
U248	JUNIPER PARK	20400 0	19095 0	1305 0	6 397
U248	OAK GROVE	7700 0	6539 4	1160 6	15 073
U248	PINES	13600 0	9416 7	4183 3	30 760
U248	W-PINE VALLEY MTN	15000 0	5558 5	9441 5	62 943
U248		39576 0	44059 0	-4483 0	-11 328
U249	W-710N	22400 0	17396 5	5003 5	22 337
U250		7714 0	10072 4	-2358 4	-30 573
U251		41143 0	47343 5	-6200 5	-15 071
U252		26748 0	22563 1	4184 9	15 646
U253	W-PARIA-HACKBERRY	3000 0	942 5	2057 5	68 583
U259	W-GRAND GULCH	14151 0	5860 1	8290 9	58 589
U259	W-SLICKHORN CANYON	987 0	1398 2	-411 2	-41 662
U260	W-FISH CREEK CYN	2469 0	93 4	2375 6	96 217
U263	RED CLIFFS REC AREA	12500 0	6424 1	6075 9	48 607
U265	ZION NATL PARK	381990 0	378063 4	3926 6	1 028
U266	PONDEROSA GROVE	800 0	666 7	133 3	16 662
U268	W-PARIA CYN	9500 0	3743 7	5756 3	60 593

SOURCE HDR SCIENCES

CT 1091

TABLE A-2 THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL
 PROPOSED ACTION
 OB COYOTE SPRING, NV
 OB MILFORD, UT

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	467669.7	520715.8	51046.1	10.9	475446.7	534320.3	58873.6	12.4
U236		1987	98546.7	136757.6	38210.9	38.8	100485.2	140627.8	40142.6	39.9
U222		1987	99573.5	137563.6	37990.1	38.2	101790.2	140802.0	39011.9	38.3
U235	NAVAJO LAKE	1987	82838.5	115808.5	32970.0	39.8	84296.0	119186.7	34890.7	41.4
U235		1987	81380.9	113770.8	32389.9	39.8	82812.8	117089.6	34276.8	41.4
U221		1985	88854.6	119461.9	30607.3	34.4	89953.6	124365.0	34411.4	38.3
N357		1986	270968.2	296694.7	25726.5	9.5	271771.8	297929.1	26157.3	9.6
U251		1986	58941.6	87361.2	23419.6	39.7	59998.6	85443.2	25484.7	42.5
U237		1986	48529.5	66630.7	18101.2	37.3	49779.6	69077.2	19297.5	38.8
U248		1986	43582.3	61634.3	18052.0	41.4	44566.6	65149.0	20582.4	46.2
U235	DUCK CREEK	1987	43346.6	63394.7	18048.1	39.8	46144.4	65243.9	19099.5	41.4
U236	PANQUITCH LAKE	1987	42460.9	58924.9	16464.0	38.8	43296.2	60392.5	17296.3	39.9
U232		1987	33966.2	45939.1	12972.9	39.4	33575.1	47987.3	14412.2	42.9
U192		1986	91994.7	103850.7	12296.0	13.4	94991.8	108366.8	13375.0	14.1
U164		1987	57039.6	69233.7	12194.1	21.4	57393.7	69372.2	12143.6	21.2
N227	BERLIN-ICHTH ST MON	1986	236500.9	248320.6	11819.7	5.0	240479.1	253761.7	13282.6	5.5
U237	KINGS CREEK	1986	30124.1	41360.2	11236.1	37.3	30900.1	42878.9	11978.7	38.8
U179		1986	18382.9	200592.2	11209.4	5.9	192948.1	204860.0	11911.9	6.2
U191		1986	78330.1	89005.0	10674.9	13.6	81270.8	92868.8	11598.0	14.3
U178		1986	131076.6	141694.1	10617.5	8.1	134256.8	146096.7	11839.9	8.8
U233		1987	27048.2	37168.5	10120.4	37.4	27373.6	38862.8	11489.2	42.0
N276	SAULSBURY WASH	1987	23950.0	34033.4	10083.4	42.1	24372.6	34421.7	10049.1	41.2
U248	JUNIPER PARK	1986	23610.5	33390.0	9779.5	41.4	24143.7	35294.1	11150.4	46.2
U264		1986	24870.8	34405.7	9534.9	38.3	25082.7	35093.2	10010.5	39.9
U249	W-ZION	1986	21411.1	30493.7	9082.7	42.4	21883.2	31903.7	10020.5	45.8

TABLE A-2. THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL
 ALTERNATIVE 1
 OB: COYOTE SPRING, NV
 OB: BERYL, UT

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1987	485734.9	542193.2	56458.2	11.6	490918.4	543442.7	52524.3	10.7
U236		1987	98546.7	139383.9	40837.3	41.4	100485.2	140303.2	39818.0	39.6
U222		1987	99573.5	138651.9	39078.4	39.2	101790.2	140265.0	38474.8	37.8
U221		1987	94330.3	130492.9	36162.6	38.3	95431.3	130758.4	35327.1	37.0
U235	NAVAJO LAKE	1987	82838.5	118602.4	35763.9	43.2	84296.0	118943.8	34647.8	41.1
U235		1987	81380.9	116515.5	35134.6	43.2	82812.8	116851.0	34038.2	41.1
N357		1986	270968.2	297048.1	26079.9	9.6	271771.8	297891.9	26120.1	9.6
U251		1986	58941.6	82903.4	23961.8	40.7	59958.6	84159.9	24201.3	40.4
U235	DUCK CREEK	1987	45346.6	64924.1	19577.5	43.2	46144.4	65111.0	18966.5	41.1
U248		1986	43582.3	62524.4	18942.1	43.5	44566.6	63734.9	19168.4	43.0
U237		1986	48529.5	66475.4	17945.9	37.0	49779.6	68014.6	18234.9	36.6
U236	PANGUITCH LAKE	1987	42460.9	60056.5	17595.6	41.4	43296.2	60452.6	17156.4	39.6
U232		1987	32966.2	47805.6	14839.4	45.0	33575.1	47995.4	14420.2	42.9
U164		1987	242378.6	255005.4	12626.9	5.2	246314.4	258466.6	12152.1	4.9
U192		1987	94298.4	106635.7	12337.3	13.1	97376.8	108913.6	11536.8	11.8
N227	BERLIN-ICHTH ST MON	1987	57039.6	69214.2	12174.5	21.3	57393.7	69548.8	12155.2	21.2
U233		1987	27048.2	39042.6	11994.4	44.3	27373.6	39049.6	11676.0	42.7
U237	KINGS CREEK	1986	30124.1	41263.8	11139.7	37.0	30900.1	42219.3	11319.1	36.6
U178		1987	134578.0	145632.7	11054.7	8.2	137537.1	147901.8	10364.7	7.5
U179		1987	194229.4	205008.2	10778.8	5.5	197489.0	207837.0	10347.9	5.2
U191		1987	80677.5	91276.8	10599.3	13.1	83311.2	93225.7	9914.4	11.9
U248	JUNIPER PARK	1986	23610.5	33872.2	10261.8	43.5	24143.7	34528.0	10384.3	43.0
N276	SAULSBURY WASH	1987	23950.0	34065.4	10115.4	42.2	24372.6	34450.5	10077.9	41.3
U264		1986	24870.8	34607.3	9736.5	39.1	25082.7	34869.5	9786.8	39.0
U249	W-ZION	1986	21411.1	30748.2	9337.1	43.6	21883.2	31328.9	9445.7	43.2

TABLE A-2. THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL.
 ALTERNATIVE 2
 OB: COYOTE SPRING, NV
 OB: DELTA, UT

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	459669.7	515531.2	45861.5	9.8	475446.7	521237.8	45791.1	9.6
U236		1985	92657.9	126488.7	33830.9	36.5	94596.0	128867.1	34271.1	36.2
U222		1985	93819.4	127203.3	33383.9	35.6	96039.8	129933.9	33894.1	35.3
U221		1985	88854.6	119516.4	30661.8	34.5	89953.6	120858.5	30904.9	34.4
U235	NAVAJO LAKE	1985	77681.1	107152.1	29471.0	37.9	79183.1	108992.4	29809.3	37.6
N357		1985	76314.2	105266.7	28952.5	37.9	77789.8	107074.6	29284.8	37.6
U251		1986	270968.2	296586.8	25618.6	9.5	271771.8	297377.4	25605.6	9.4
U117	LITTLE SAHARA	1986	58941.6	81207.5	22265.9	37.8	59958.6	82466.0	22507.4	37.5
U237		1987	32851.0	340194.7	17303.6	5.4	329373.0	346987.3	17214.3	5.2
U248		1986	43582.3	65604.0	17074.5	35.2	49779.6	67150.2	17370.5	34.9
U235	DUCK CREEK	1985	42523.4	58656.1	16132.7	39.1	44566.6	61826.3	17259.7	38.7
U236	PANGUITCH LAKE	1985	39923.6	54500.4	14576.7	37.9	43345.6	59663.5	16317.9	37.6
U164		1986	236500.9	249556.4	13055.5	36.5	40758.7	55525.1	14766.4	36.2
N227	BERLIN-ICHTH ST MON	1987	57039.6	69140.9	12101.2	5.5	240479.1	253493.8	13014.8	5.4
U232		1985	30922.3	42468.2	11545.8	21.2	57393.7	69487.5	12093.8	21.1
U135		1987	171888.2	182594.9	10706.7	37.3	31530.2	43212.9	11682.8	37.1
U179	KINGS CREEK	1986	30124.1	40722.9	10598.8	6.2	175628.0	186286.1	10658.1	6.1
U192		1986	189382.9	199821.7	10438.8	35.2	30900.1	41482.7	10782.6	34.9
U233		1986	91554.7	101839.3	10284.6	5.5	192948.1	203353.4	10405.3	5.4
N276	SAULSBURY WASH	1987	27048.2	37097.4	10049.2	11.2	94991.8	105241.0	10249.1	10.8
U178		1987	23950.0	33916.1	9966.1	37.2	27373.6	37497.3	10123.7	37.0
U264		1986	131076.6	140805.5	9728.9	41.6	24372.6	34329.6	9957.1	40.9
U248	JUNIPER PARK	1986	24870.8	34249.1	9378.3	7.4	134256.8	143952.4	9695.6	7.2
		1986	23610.5	32835.2	9224.7	37.7	25082.7	34509.8	9427.1	37.6
		1986				39.1	24143.7	33494.0	9350.3	38.7

TABLE A-2. THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL.

ALTERNATIVE 3
 OB: BERYL, UT
 OB: ELY, NV

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	469669.7	510661.1	40991.4	8.7	4754446.7	516328.3	40881.6	8.6
U236		1987	98546.7	138905.8	40359.1	41.0	100485.2	139760.6	39275.4	39.1
U222		1987	99573.5	138331.4	38757.9	38.9	101790.2	139873.9	38083.7	37.4
U235	NAVAJO LAKE	1987	82838.5	117408.5	34570.0	41.7	84296.0	117800.6	33504.6	39.7
U221		1987	94330.3	128630.0	34299.7	36.4	95431.3	128829.2	33398.0	35.0
U235		1987	81380.9	115342.6	33961.7	41.7	82812.8	115727.9	32915.1	39.7
U251		1986	58941.6	82241.8	23300.2	39.5	59958.6	83490.4	23531.8	39.2
U248		1986	43582.3	63774.1	20191.7	46.3	44566.6	64980.7	20414.1	45.8
U235	DUCK CREEK	1987	45346.6	64270.5	18923.9	41.7	46144.4	64485.2	18340.7	39.7
U237		1986	48529.5	67221.7	18692.2	38.5	49779.6	68755.1	18975.5	38.1
U232	PANGUITCH LAKE	1987	42460.9	59850.5	17389.6	41.0	43296.2	60218.8	16922.6	39.1
U192		1987	32966.2	49193.1	16226.9	49.2	33575.1	48834.9	15259.8	45.4
U233		1986	91554.7	104541.3	12986.5	14.2	94991.8	107913.8	12921.9	13.6
U237	KINGS CREEK	1987	27048.2	39460.3	12412.1	45.9	27373.6	39112.8	11739.2	42.9
U164		1986	236500.9	248446.9	11946.0	5.1	240479.1	252375.3	11896.2	4.9
U178		1986	30124.1	41727.1	11603.0	38.5	30900.1	42678.9	11778.8	38.1
U191		1986	131076.6	142494.5	11417.9	8.7	134256.8	145622.0	11365.2	8.5
N227	BERLIN-ICHTH ST MON	1987	78330.1	89656.4	11326.3	14.5	81270.8	92541.8	11271.0	13.9
U248	JUNIPER PARK	1986	57039.6	68245.5	11205.9	19.6	57393.7	68569.9	11176.2	19.5
N357		1986	23610.5	34549.2	10938.8	46.3	24143.7	35202.9	11059.2	45.8
U179		1986	270968.2	281603.0	10634.7	3.9	271771.8	282394.1	10622.3	3.9
N131		1987	189382.9	199989.7	10606.8	5.6	192948.1	203499.8	10551.7	5.5
U135		1987	35747.2	45502.0	9754.8	27.3	37438.6	47007.5	9568.9	25.6
N113		1986	167856.7	177313.8	9457.1	5.6	171645.5	181052.4	9406.9	5.5
		1987	37348.0	46757.9	9409.9	25.2	38620.9	47893.2	9272.3	24.0

TABLE A-2 THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL
ALTERNATIVE 4

OB: BERYL, UT
OB: COYOTE SPRING, NV

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	469669.7	519124.4	49454.7	10.5	475446.7	518215.3	42768.5	9.0
U236		1987	98546.7	138993.5	40446.8	41.0	100485.2	139852.2	39366.9	37.9
U221		1987	99573.5	138294.6	38723.2	38.9	101790.2	140416.1	38629.9	37.9
U235	NAVAJO LAKE	1985	94330.3	129823.6	35493.3	37.6	95431.3	128989.8	33558.6	35.2
U235		1985	77681.1	110949.3	33268.2	42.8	79183.1	109179.4	29996.3	37.9
U235		1985	76314.2	108997.1	32682.8	42.8	77789.8	107258.4	29468.5	37.9
U248		1986	58941.6	83736.3	24794.7	42.1	59958.6	83401.5	23442.9	39.1
U248		1986	43582.3	64470.3	20888.0	47.9	44566.6	63560.2	18993.6	42.6
N357		1987	281191.6	300308.5	19116.9	6.8	282036.5	300770.3	18733.8	6.6
U237		1986	48529.5	67310.6	18781.1	38.7	49779.6	68126.1	18346.5	36.9
U235	DUCK CREEK	1985	42523.4	60734.7	18211.3	42.8	43345.6	59765.9	16420.3	37.9
U236	PANGUITCH LAKE	1987	42460.9	59888.3	17427.4	41.0	43296.2	60258.3	16962.1	39.2
U232		1987	32966.2	48689.1	15718.9	47.7	33575.1	48126.8	14551.6	43.3
U192		1986	91554.7	104598.9	13044.2	14.2	94991.8	107233.8	12242.0	12.9
U164		1986	236500.9	248966.9	12466.0	5.3	240479.1	251565.5	11086.5	4.6
U233		1987	27048.2	39311.1	12263.0	45.3	27373.6	38426.2	11052.7	40.4
N227	BERLIN-ICHTH ST MON	1987	57039.6	69173.0	12133.4	21.3	57393.7	69216.0	11822.3	20.6
U237	KINGS CREEK	1986	30124.1	41782.3	11658.2	38.7	30900.1	42288.5	11388.4	36.9
U178		1986	131076.6	142585.9	11509.3	8.8	134256.8	144724.4	10467.7	7.8
U248	JUNIPER PARK	1986	23610.5	34926.4	11315.9	47.9	24143.7	34433.4	10289.7	42.6
U191		1986	78330.1	89645.1	11315.0	14.4	81270.8	91899.5	10628.7	13.1
U179		1986	189382.9	200659.3	11276.5	6.0	192948.1	203749.8	10801.7	5.6
N276	SAULSBURY WASH	1987	23950.0	33596.4	9646.3	40.3	24372.6	33853.0	9480.4	38.9
U249	W-ZION	1986	21411.1	31039.8	9628.7	45.0	21883.2	30895.9	9012.7	41.2
U252		1986	22438.9	31783.8	9344.9	41.6	22810.9	31644.8	8833.9	38.7

TABLE A-2. THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL.
 ALTERNATIVE 3
 OB: MILFORD, UT
 OB: ELY, NV

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	469669.7	513105.1	43435.4	9.2	475446.7	510766.8	35320.0	7.4
U222		1987	99573.5	137701.2	38127.7	38.3	101790.2	140365.1	38574.9	37.9
U236		1987	98546.7	135906.5	37359.8	37.9	100485.2	138212.4	37727.2	37.5
U235	NAVAJO LAKE	1985	77681.1	107426.6	29745.6	38.3	79183.1	109311.4	30128.3	38.0
U235		1985	76314.2	105536.4	29222.2	38.3	77789.8	107388.1	29598.2	38.0
U221		1985	88854.6	116753.3	27898.7	31.4	89953.6	118184.7	28231.1	31.4
U251		1986	58941.6	83135.1	24193.5	41.0	59998.6	82354.0	22395.4	37.4
U117	LITTLE SAHARA	1986	315694.4	337014.8	21320.4	6.8	322338.0	335631.2	17293.1	5.4
U237		1986	48529.5	69773.9	21244.4	43.8	49779.6	69070.8	19291.2	38.8
U192		1986	91554.7	111461.5	19906.8	21.7	94991.8	109822.8	14831.0	15.6
U249		1986	43582.3	63136.6	19554.2	44.9	44566.6	62538.5	17971.9	40.3
U191		1986	78330.1	95577.1	17247.0	22.0	81270.8	94175.1	12904.3	15.9
U179		1986	189382.9	205691.7	16308.9	8.6	192948.1	205385.4	12437.3	6.4
U235	DUCK CREEK	1985	42523.4	58806.4	16283.0	38.3	43345.6	59838.1	16492.5	38.0
U236	PANGUITCH LAKE	1987	42460.9	58558.2	16097.3	37.9	43296.2	59551.7	16255.6	37.5
U178		1986	131076.6	146902.2	15825.6	12.1	134256.8	146597.1	12340.3	9.2
U164		1986	236500.9	250069.4	13568.5	5.7	240479.1	252295.8	11816.8	4.9
U237	KINGS CREEK	1986	30124.1	43311.3	13187.2	43.8	30900.1	42874.9	11974.8	38.8
U135		1986	167856.7	180071.2	12214.5	7.3	171645.5	181837.5	10192.0	5.9
U237	BRYCE CANYON NAT PK	1986	81064.1	93241.1	12177.0	15.0	83192.4	92301.5	9149.1	11.0
U177		1986	79402.7	91241.3	11838.6	14.9	81916.6	90886.5	8970.0	11.0
N227	BERLIN-ICHTH ST MON	1987	57039.6	68866.1	11826.5	20.7	57393.7	68570.6	11176.9	19.5
U232		1985	30922.3	42689.6	11767.2	38.1	31530.2	43437.5	11907.3	37.8
U162		1986	75531.9	86691.9	11160.0	14.8	78139.6	86708.4	8552.7	10.9
U207		1986	72325.0	83341.6	11016.6	15.2	74379.0	85920.8	8541.8	11.5

TABLE A-2 THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL
 ALTERNATIVE 6
 OB: MILFORD, UT
 OB: COYOTE SPRING, NV

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	469659.7	513448.5	43778.8	9.3	475446.7	519118.7	43672.0	9.2
U222		1987	99573.5	138659.1	39085.6	39.3	101790.2	141381.9	39591.8	38.9
U236		1987	98546.7	137362.3	38815.6	39.4	100485.2	139743.0	39257.8	39.1
U221		1987	94330.3	125969.7	31639.4	33.5	95431.3	127328.9	31897.6	33.4
U235	NAVAJO LAKE	1985	77681.1	109049.7	31368.6	40.4	79183.1	111868.1	32685.0	41.3
U235		1985	76314.2	107130.9	30816.7	40.4	77789.8	109899.7	32109.9	41.3
U251		1986	58941.6	82556.9	23615.3	40.1	59958.6	83806.8	23848.2	39.8
U237		1986	48529.5	67576.0	19046.5	39.2	49779.6	69112.0	19332.4	38.8
N357		1987	281191.6	299609.9	18418.3	6.6	282036.5	300441.7	18405.2	6.5
U248		1986	43582.3	61990.2	18407.9	42.2	44566.6	63198.7	18632.1	41.8
U235	DUCK CREEK	1985	42523.4	59694.8	17171.5	40.4	43345.6	61237.7	17892.1	41.3
U236	PANQUITCH LAKE	1987	42460.9	59185.5	16724.5	39.4	43296.2	60211.3	16915.1	39.1
U117	LITTLE SAHARA	1987	322851.0	339068.4	16217.4	5.0	329373.0	345507.2	16134.2	4.9
U192		1986	91554.7	106358.2	14803.4	16.2	94991.8	109737.1	14745.3	15.5
U232		1987	32966.2	46083.7	13117.5	39.8	33575.1	46831.2	13256.1	39.5
U179		1986	189382.9	202448.3	13065.4	6.9	192948.1	205965.0	13017.0	6.7
U191		1986	78330.1	91150.3	12820.1	16.4	81270.8	94041.2	12770.4	15.7
U178		1986	131076.6	143433.8	12357.2	9.4	134256.8	146567.6	12310.8	9.2
U164		1986	236500.9	248793.5	12292.6	5.2	240479.1	252731.4	12252.3	5.1
N227	BERLIN-ICHTH ST MDN	1987	57039.6	68883.5	11843.9	20.8	57393.7	69230.2	11836.5	20.6
U237	KINGS CREEK	1986	30124.1	41947.0	11822.9	39.2	30900.1	42900.5	12000.3	38.8
U248	JUNIPER PARK	1986	23610.5	33582.8	9972.4	42.2	24143.7	34237.5	10093.8	41.8
U135		1986	167856.7	177562.2	9705.6	5.8	171645.5	181310.4	9664.9	5.6
U233		1987	27048.2	36606.6	9558.5	35.3	27373.6	37007.0	9633.4	35.2
N276	SAULSBURY WASH	1987	23930.0	33432.3	9482.2	39.6	24372.6	33845.8	9473.2	38.9

TABLE A-2. THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL.
ALTERNATIVE 7

OB: CLOVIS, NM
OB: DALHART, TX

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
M196	NED HOUK PARK	1986	2227.7	6950.1	4722.4	212.0				
M134	UTE LAKE ST PK	1986	1836.3	6478.4	4642.1	252.8				
M115	LOS ESTEROS ST PK	1987	1561.7	5839.8	4278.1	273.9				
M134		1986	1489.4	5254.6	3765.2	252.8				
M132	CONCHAS LAKE ST PK	1986	1509.9	5198.7	3688.7	244.3				
M133		1986	1550.3	5228.7	3678.4	237.3				
T186	BUFFALO SPRINGS LAKE	1986	1644.9	5207.3	3562.4	216.6				
T186	YELLOWHOUSE CYN LAKE	1986	1639.7	5191.1	3551.3	216.6				
M132		1986	1241.9	4275.9	3034.0	244.3				
T131	CAPROCK CANYON ST PK	1986	1322.1	4301.8	2979.6	225.4				
T035	RITA BLANCA LAKE PK	1987	831.3	3697.3	2866.0	344.8				
M192	LAKE SUMNER ST PK	1986	1269.1	4089.7	2820.5	222.2				
T055	SANFORD LAKE	1987	1064.6	3747.2	2682.6	252.0				
T078	LAKE MCCLELLAN	1987	1095.5	3763.2	2667.7	243.5				
M109	STORRIE LAKE ST PK	1986	1035.1	3473.4	2438.3	235.6				
T119	MACKENZIE RES	1986	1069.5	3479.8	2410.3	225.4				
M128	VILLANUEVA ST PK	1986	983.1	3337.9	2354.8	239.5				
M128		1986	901.6	3061.0	2159.5	239.5				
M192		1986	971.5	3130.5	2159.0	222.2				
M109	MCALLISTER LAKE	1986	901.4	3024.8	2123.4	235.6				
M038	CLAYTON LAKE ST PK	1987	708.4	2820.8	2112.4	298.2				
T043	FORTRESS COVE	1987	705.5	2787.8	2082.3	295.1				
M292	BOTTOMLESS LAKES	1986	925.5	3002.3	2076.8	224.4				
M292	LAKE VAN COMM PK	1986	918.3	2978.9	2060.6	224.4				
M109		1986	861.0	2889.0	2028.1	235.6				

TABLE A-2 THE TWENTY FIVE RECREATION SITES RECEIVING THE HEAVIEST USE FROM M-X PERSONNEL.
 ALTERNATIVE BA
 OB COYOTE SPRING, NV
 OB CLOVIS, NM

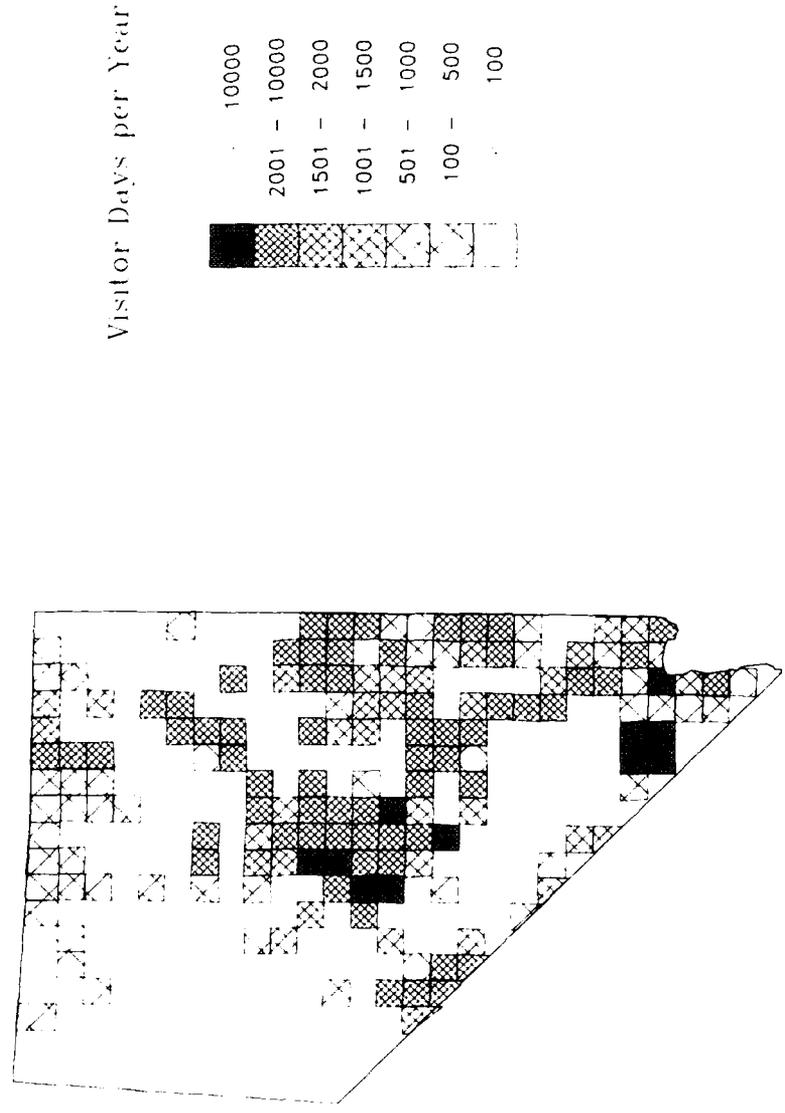
UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
U265	ZION NATL PARK	1986	462669.7	511505.5	41835.9	8.9	475446.7	517222.6	41775.8	8.8
U236		1985	92657.9	124886.1	32228.2	34.8	94596.0	127557.0	32961.1	34.8
U222		1985	93819.4	125475.6	31656.2	33.7	96039.8	128534.4	32494.6	33.8
U221		1985	88594.6	117844.8	28990.2	32.6	89953.6	119298.2	29304.6	32.6
U235	NAVAJO LAKE	1985	77681.1	105766.9	28085.8	36.2	79183.1	107861.9	28678.8	36.2
U235		1985	76314.2	103905.9	27591.7	36.2	77789.8	105964.0	28174.2	36.2
N357		1986	270568.2	292756.3	21788.1	8.0	271771.8	293548.0	21776.2	8.0
U251		1986	58941.6	80167.8	21226.2	36.0	59958.6	81428.9	21470.3	35.8
U248		1986	43582.3	59940.0	16357.7	37.5	44566.6	61158.3	16591.7	37.2
U237		1986	48529.5	64756.4	16227.0	33.4	49779.6	66304.5	16524.9	33.2
U235	DUCK CREEK	1985	42523.4	57897.8	15374.5	36.2	43345.6	59044.6	15699.0	36.2
U236	PANGUITCH LAKE	1985	39923.6	53809.8	13886.2	34.8	40758.7	54960.7	14202.0	34.8
U232		1985	30922.3	41991.7	11069.4	35.8	31530.2	42834.6	11304.4	35.9
U237	KINGS CREEK	1986	30124.1	40196.8	10072.7	33.4	30900.1	41157.8	10257.6	33.2
U264		1986	24870.8	33982.3	9111.5	36.6	25082.7	34243.7	9161.0	36.5
U233		1985	25310.9	34215.6	8904.7	35.2	25593.6	34574.8	8981.2	35.1
U248	JUNIPER PARK	1986	23610.5	32472.2	8861.7	37.5	24143.7	33132.1	8988.5	37.2
U249	W-ZION	1986	21411.1	29700.9	8289.9	38.7	21883.2	30285.2	8402.1	38.4
U192		1986	91594.7	99658.3	8103.6	8.9	94991.8	103063.0	8071.1	8.5
U252		1986	22438.9	30437.1	7998.2	35.6	22810.9	30898.4	8087.5	35.5
U246	DEVILS CANYON	1986	29878.6	37865.8	7987.2	26.7	30124.5	38170.8	8046.3	26.7
U230		1987	29208.5	36989.7	7781.2	26.6	29446.8	37285.3	7838.5	26.6
U178		1986	131076.6	138305.6	7229.0	5.5	134256.8	141457.9	7201.1	5.4
U191		1986	78330.1	85467.3	7137.2	9.1	81270.8	88380.2	7109.4	8.7
N356		1986	83033.5	92094.0	7060.5	8.3	85293.0	92349.6	7056.7	8.3

ALTERNATIVE BB
 OB COYOTE SPRING, NV
 OB CLOVIS, NM

UNIT	NAME	YEAR	LOW BASE	WITH MX	DIFF	O/O	HI BASE	WITH MX	DIFF	O/O
M196	NED HOUK PARK	1987	2229.8	6071.5	3841.6	172.3				
M134	UTE LAKE ST PK	1987	1841.1	5312.8	3471.7	188.6				
M115	LOS ESTEROS ST PK	1987	1561.7	4600.6	3038.9	194.6				
T186	BUFFALO SPRINGS LAKE	1987	1646.9	4496.5	2849.6	173.0				
T186	YELLOWHOUSE CYN LAKE	1987	1641.8	4482.5	2840.7	173.0				
M133		1987	1553.2	4387.5	2834.3	182.5				
M134		1987	1493.3	4309.2	2815.9	188.6				
M132	CONCHAS LAKE ST PK	1987	1513.2	4318.4	2805.2	185.4				
T131	CAPROCK CANYON ST PK	1987	1324.3	3646.2	2321.9	175.3				
M132		1987	1244.6	3551.9	2307.3	185.4				
M192	LAKE SUMNER ST PK	1987	1270.6	3488.1	2217.4	174.5				
T078	LAKE MCCLELLAN	1987	1095.5	3072.0	1976.4	180.4				
T055	SANFORD LAKE	1988	1067.6	3003.2	1935.6	181.3				
M109	STORRIE LAKE ST PK	1987	1037.2	2915.6	1878.4	181.1				
T119	MACKENZIE RES	1987	1071.3	2949.5	1878.2	175.3				
M128	VILLANUEVA ST PK	1987	985.2	2792.5	1807.3	183.4				
M292	BOTTOMLESS LAKES	1988	927.5	2651.3	1723.8	185.9				
M292	LAKE VAN COMM PK	1988	920.2	2630.6	1710.4	185.9				
M192		1987	972.6	2670.0	1697.4	174.5				
T035	RITA BLANCA LAKE PK	1988	836.6	2528.1	1691.5	202.2				
M128		1987	903.5	2560.9	1657.4	183.4				
M109	MCALLISTER LAKE	1987	903.2	2539.1	1635.8	181.1				
M088	MORPHY LAKE	1987	869.9	2440.1	1570.2	180.9				
M109		1987	862.7	2425.1	1562.4	181.1				
T055	PLUM CROOK	1988	790.5	2223.6	1433.2	181.3				

PEAK YEAR INCREASE IN RECREATION DEMAND
PROPOSED ACTION

OB· COYOTE SPRING VALLEY, NV OB· MILFORD, UT



CA-0483-B

Figure A-1.

PEAK YEAR INCREASE IN RECREATION DEMAND
 PROPOSED ACTION

OB· COYOTE SPRING VALLEY, NV OB· MILFORD, UT

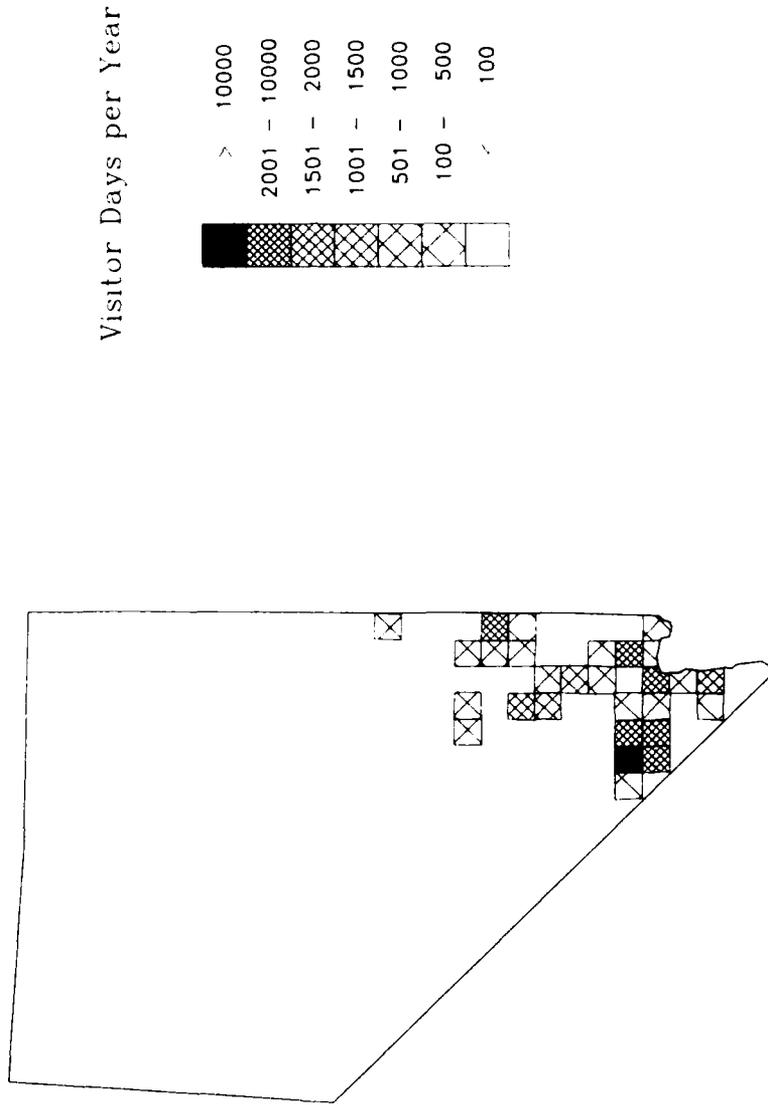


CA-0486-B

Figure A-2.

LONG TERM INCREASE IN RECREATION DEMAND
 PROPOSED ACTION, NEVADA

OB: COYOTE SPRING VALLEY, NV OB: MILFORD, UT

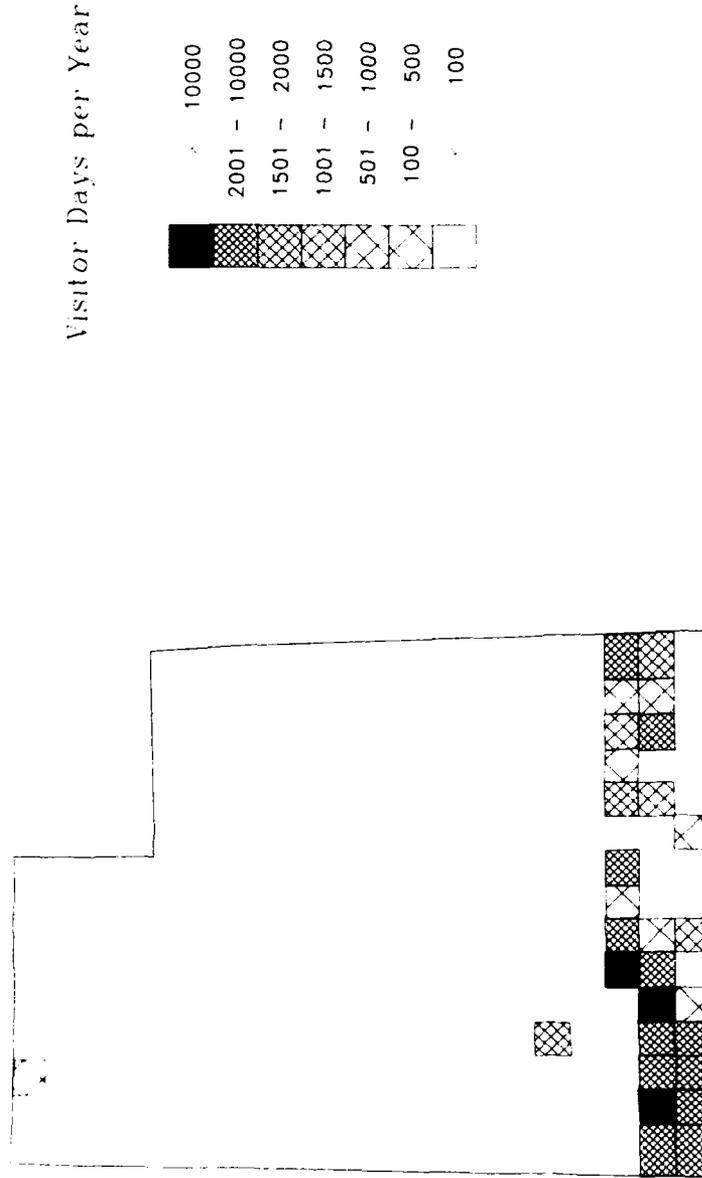


CA-0470-B

Figure A-3.

LONG TERM INCREASE IN RECREATION DEMAND PROPOSED ACTION

OB: COYOTE SPRING VALLEY, NV OB: MILFORD, UT

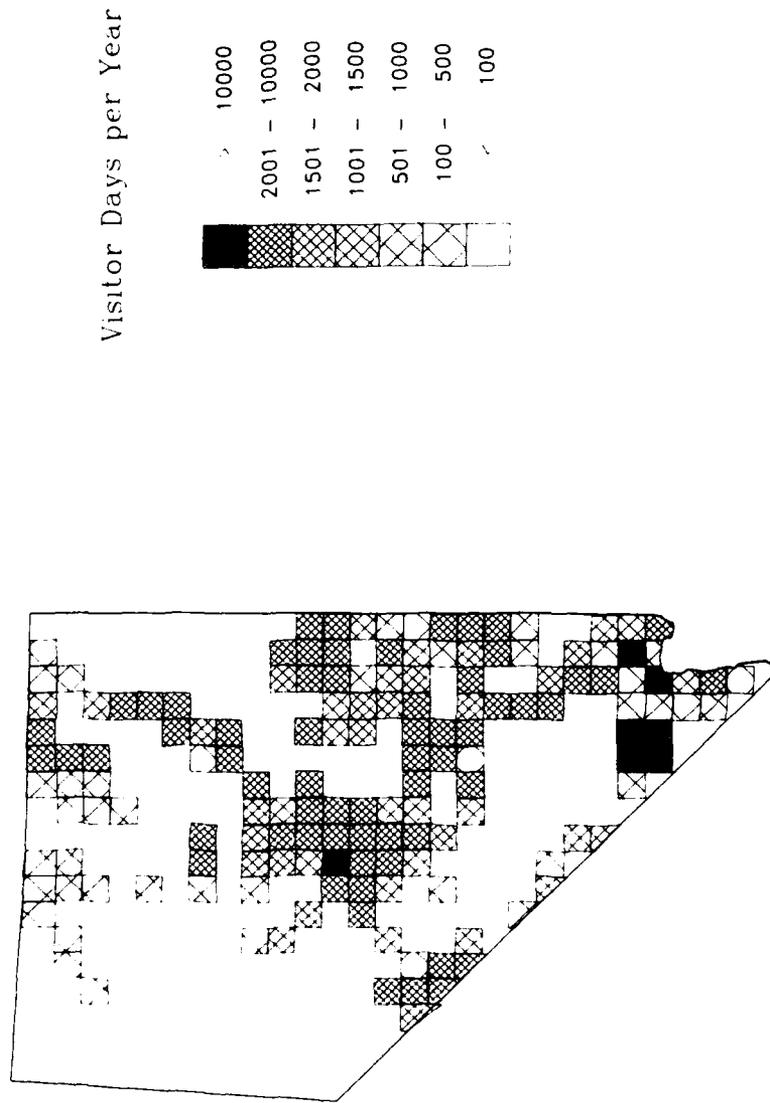


CA-0476-B

Figure A-4.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 1, NEVADA

OB: COYOTE SPRING VALLEY, NV OB: BERYL, UT

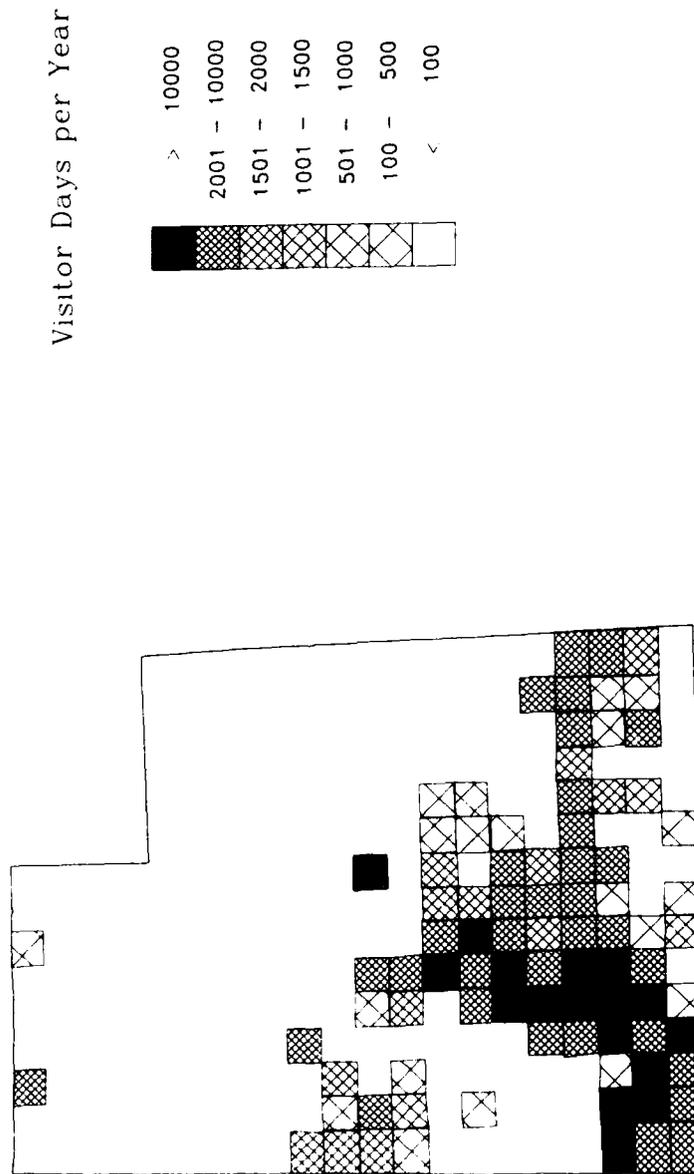


CA-0472-B

Figure A-5.

PEAK YEAR INCREASE IN RECREATION DEMAND ALTERNATIVE 1, UTAH

OB: COYOTE SPRING VALLEY, NV OB: BERYL, UT



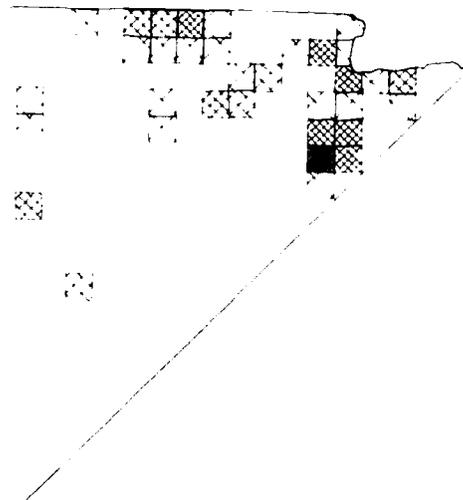
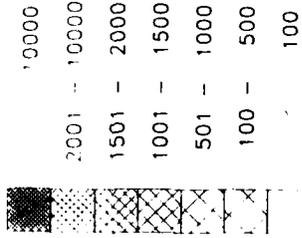
CA-0467-B

Figure A-6.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 1, NEVADA

OB COYOTE SPRING VALLEY W OB BERYL, UT

Visitor Days per Year



CA-0486-B

Figure A-7.

LONG TERM INCREASE IN RECREATION DEMAND ALTERNATIVE 1, UTAH

OB· COYOTE SPRING VALLEY, NV OB· BERYL, UT

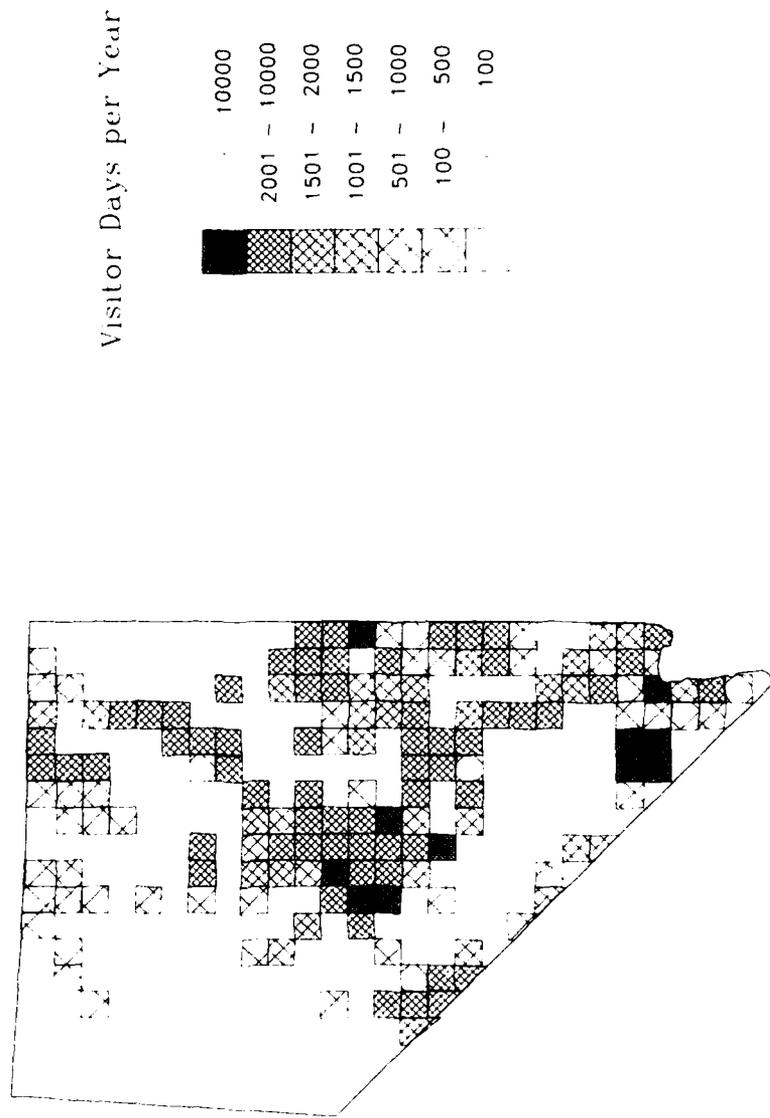


CA-0464-B

Figure A-8.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 2, NEVADA

OB· COYOTE SPRING VALLEY, NV OB· DELTA, UT

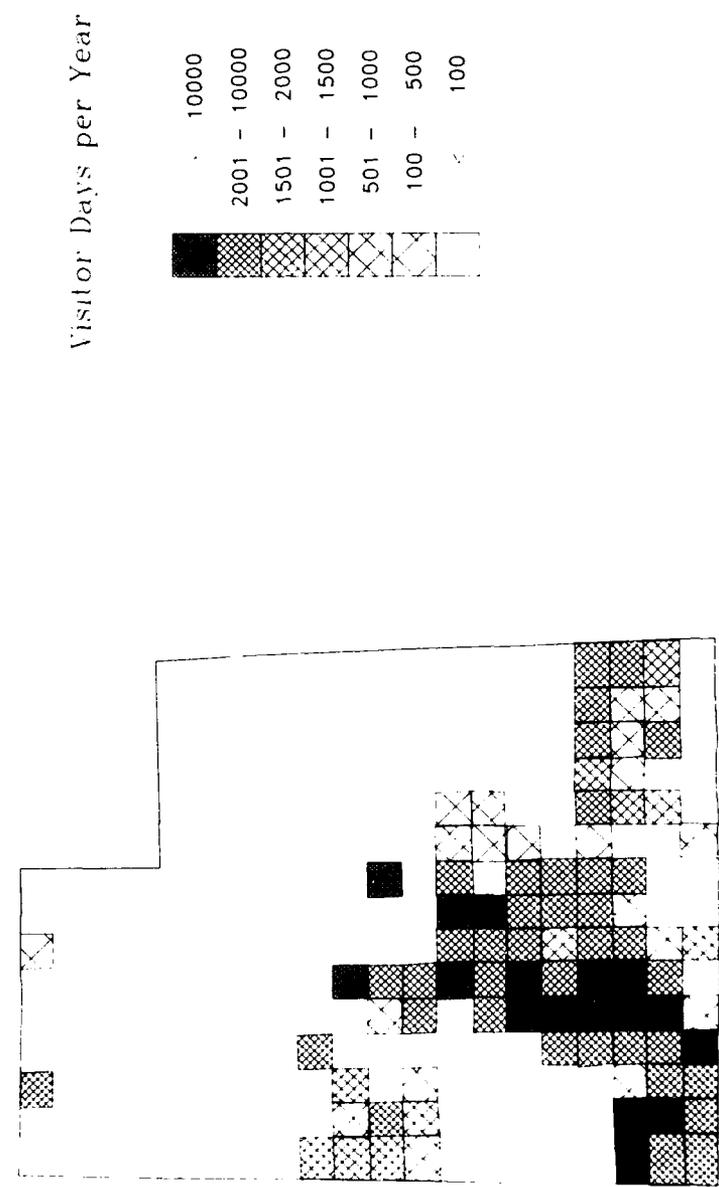


CA-0482-B

Figure A-9.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 2, UTAH

OB: COYOTE SPRING VALLEY, NV OB: DELTA, UT

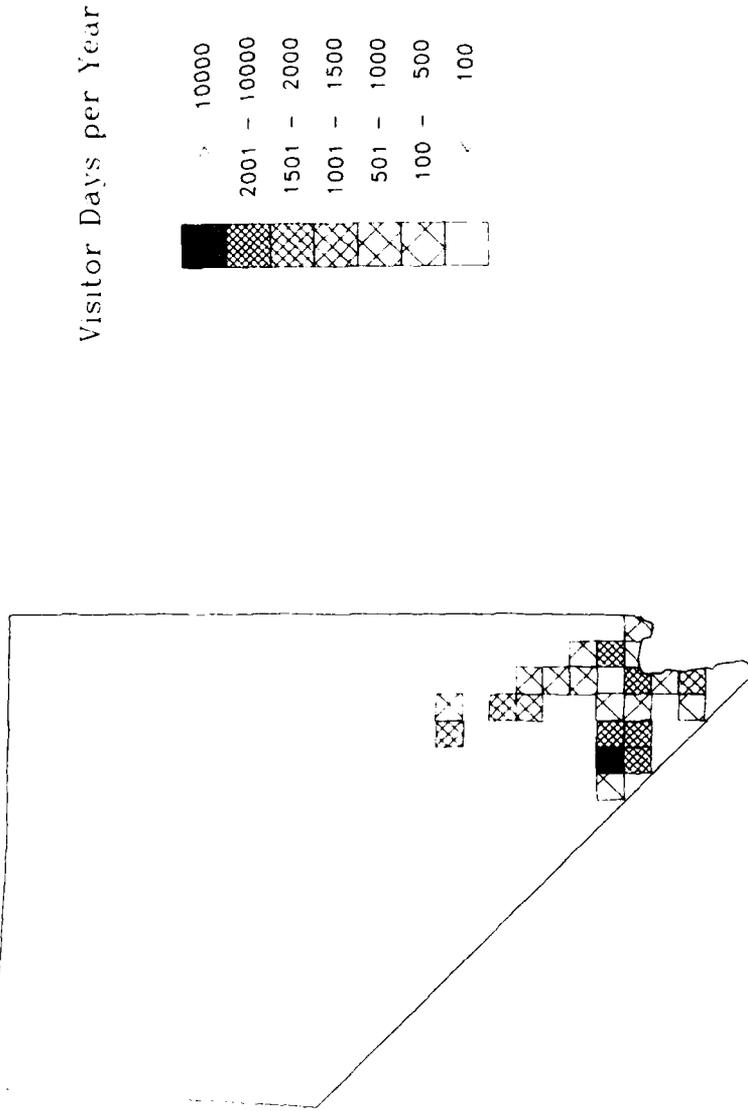


CA-0479-B

Figure A-10.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 2, NEVADA

OB: COYOTE SPRING VALLEY, NV OB: DELTA, UT

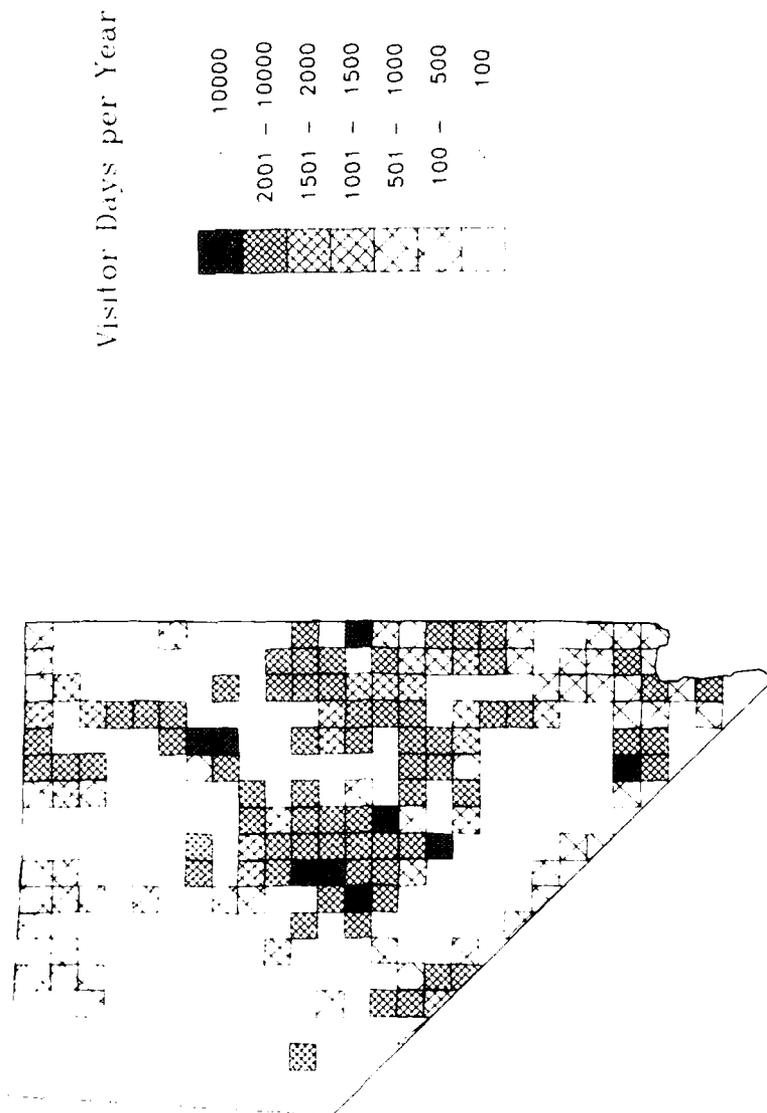


CA-0465-B

Figure A-11.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 3, NEVADA

OB: BERYL, UT OB: ELY, NV

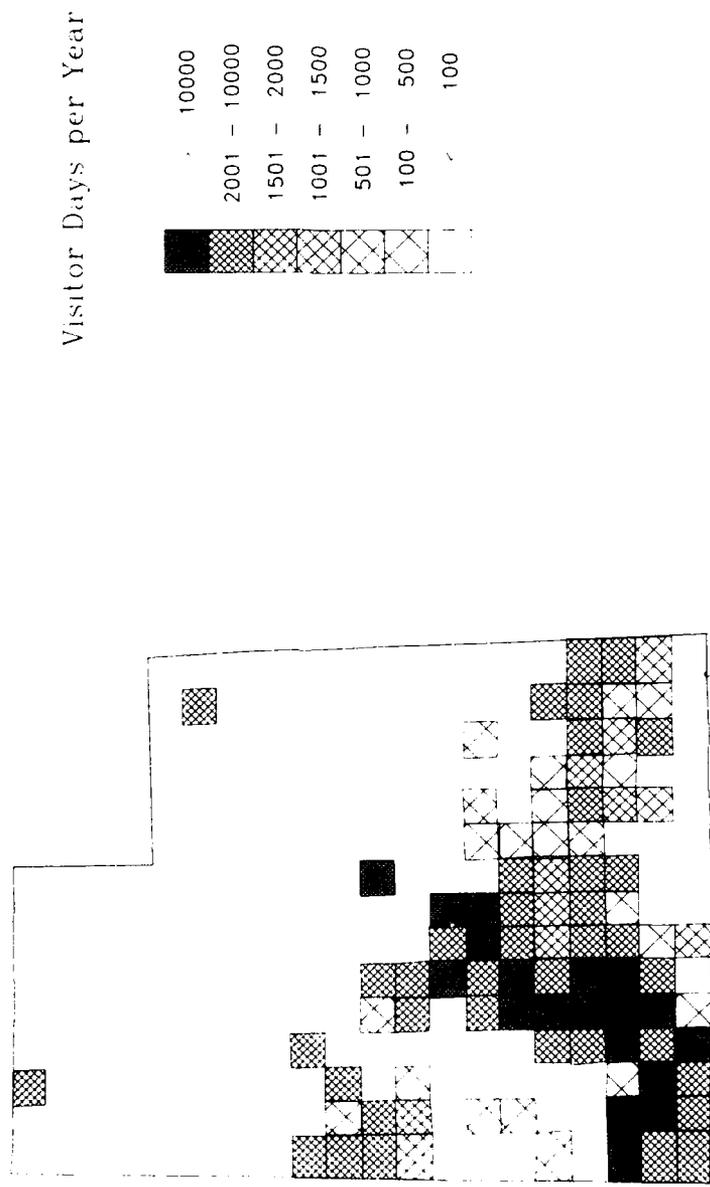


CA-0478-B

Figure A-13.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 3, UTAH

OB: BERYL, UT OB: ELY, NV

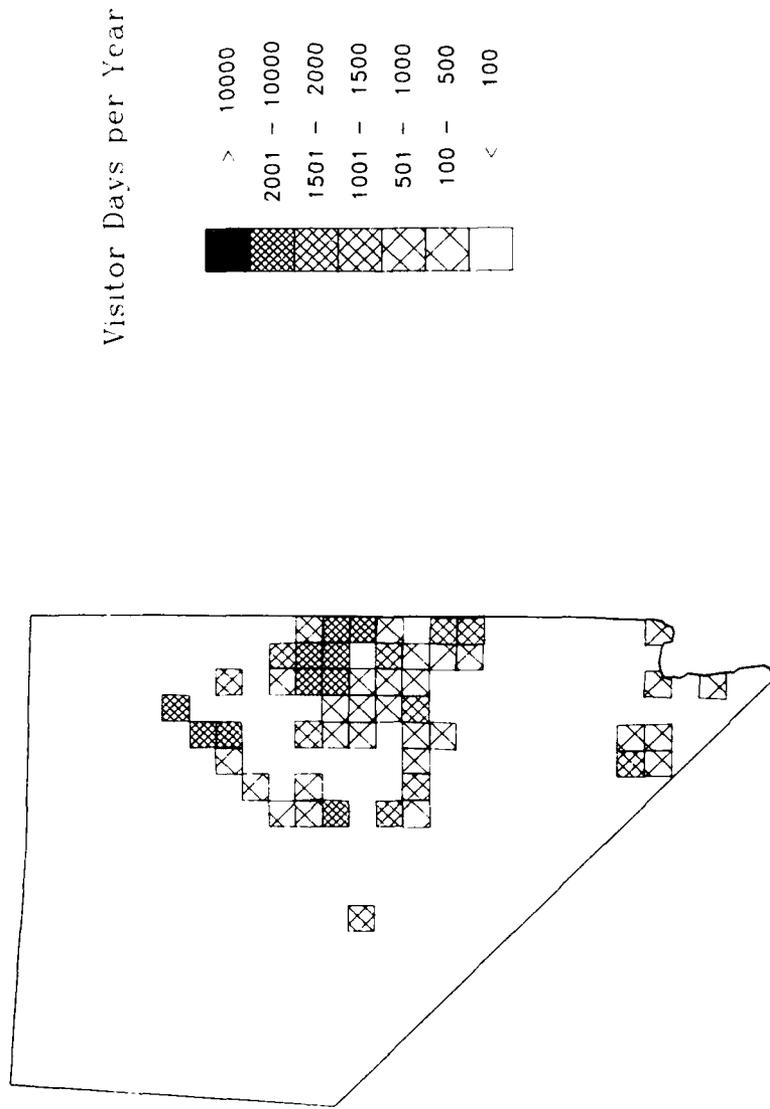


CA-0481-B

Figure A-14.

LONG TERM INCREASE IN RECREATION DEMAND
ALTERNATIVE 3, NEVADA

OB: BERYL, UT OB: ELY, NV

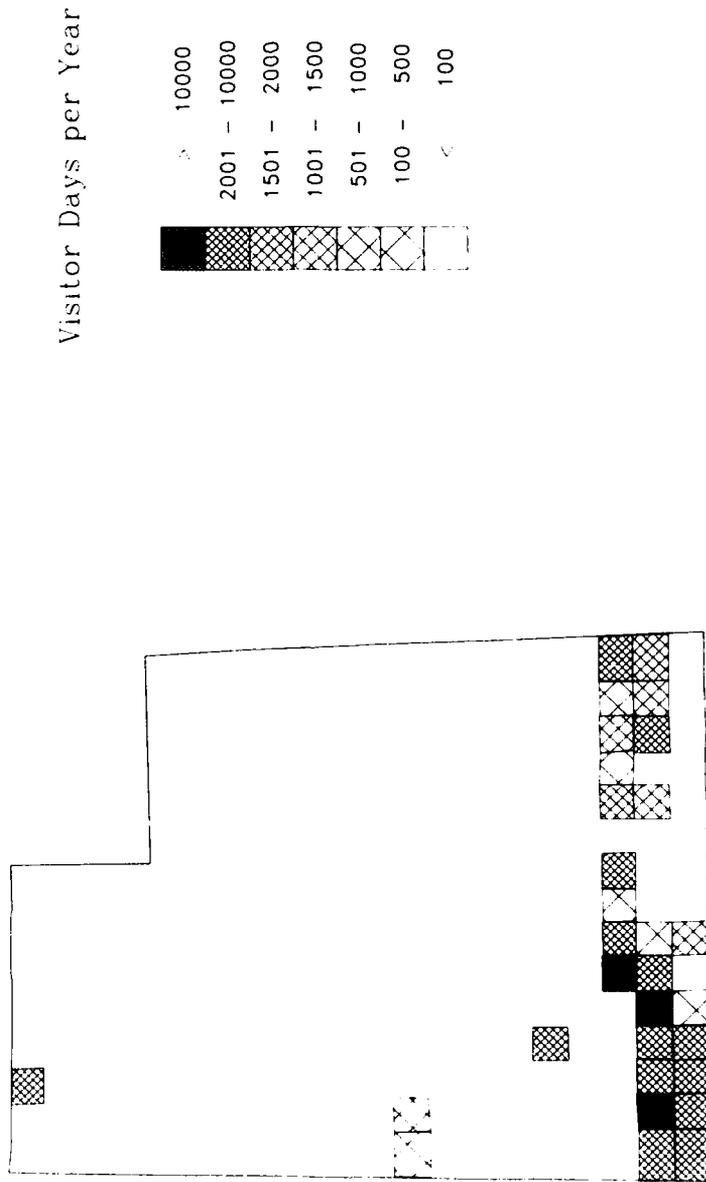


CA-0477-B

Figure A-15.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 3, UTAH

OB: BERYL, UT OB: ELY, NV

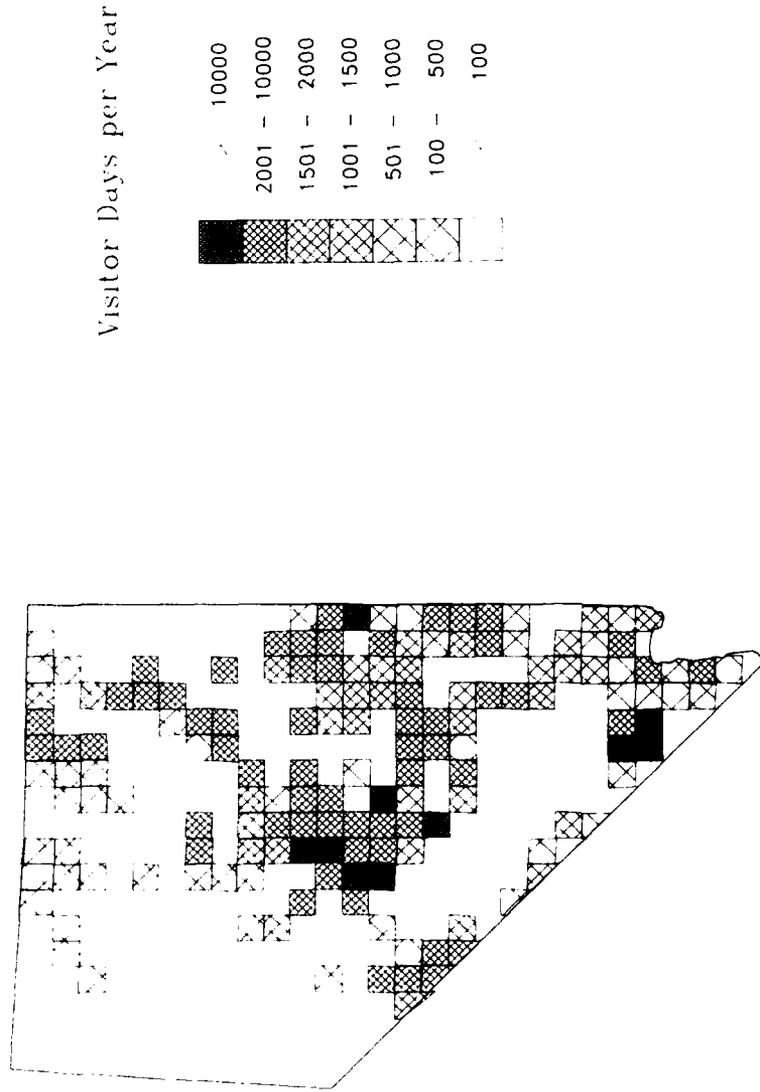


CA-0482-B

Figure A-16.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 4, NEVADA

OB: BERYL, UT OB: COYOTE SPRING VALLEY, NV

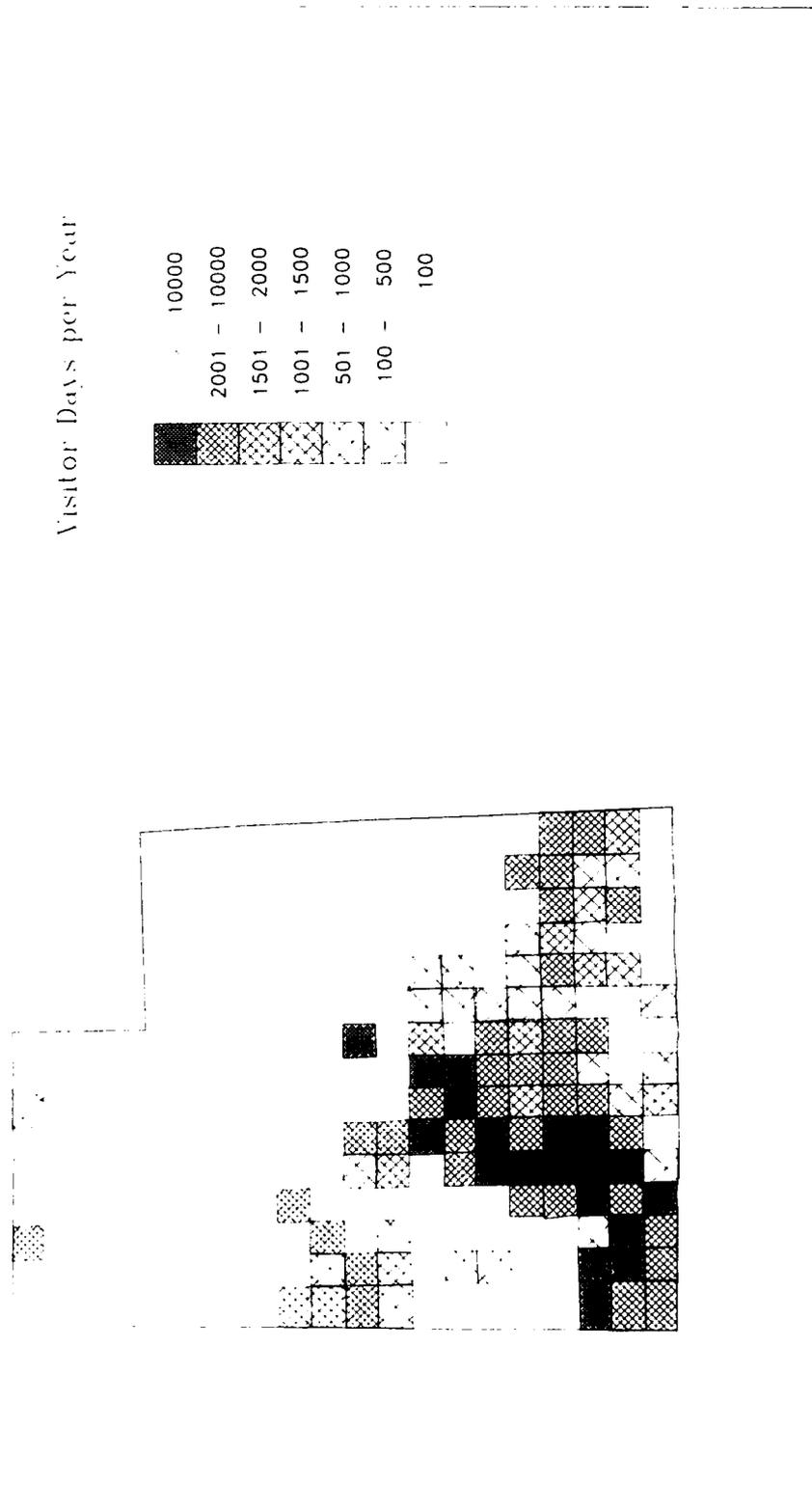


CA-0491-B

Figure A-17.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 4, UTAH

OB-BERYL, UT OB-COYOTE SPRING VALLEY, UT

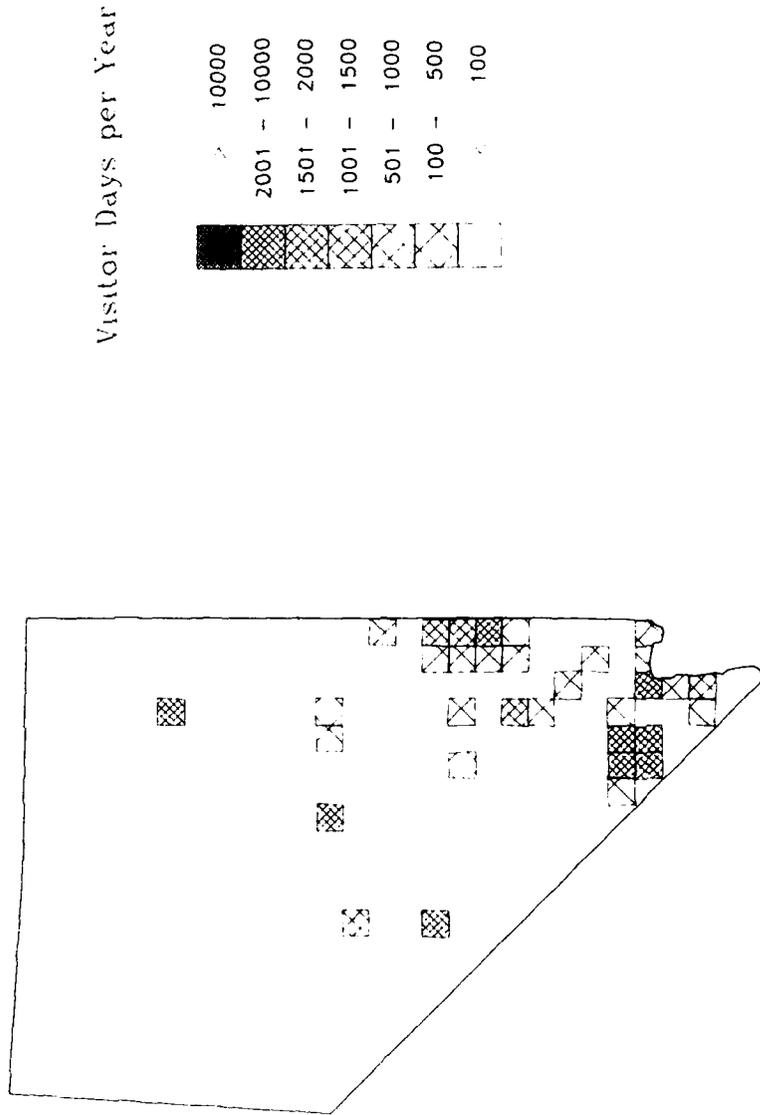


CA-0492-B

Figure A-18.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 4, NEVADA

OB: BERYL, UT OB: COYOTE SPRING VALLEY, NV

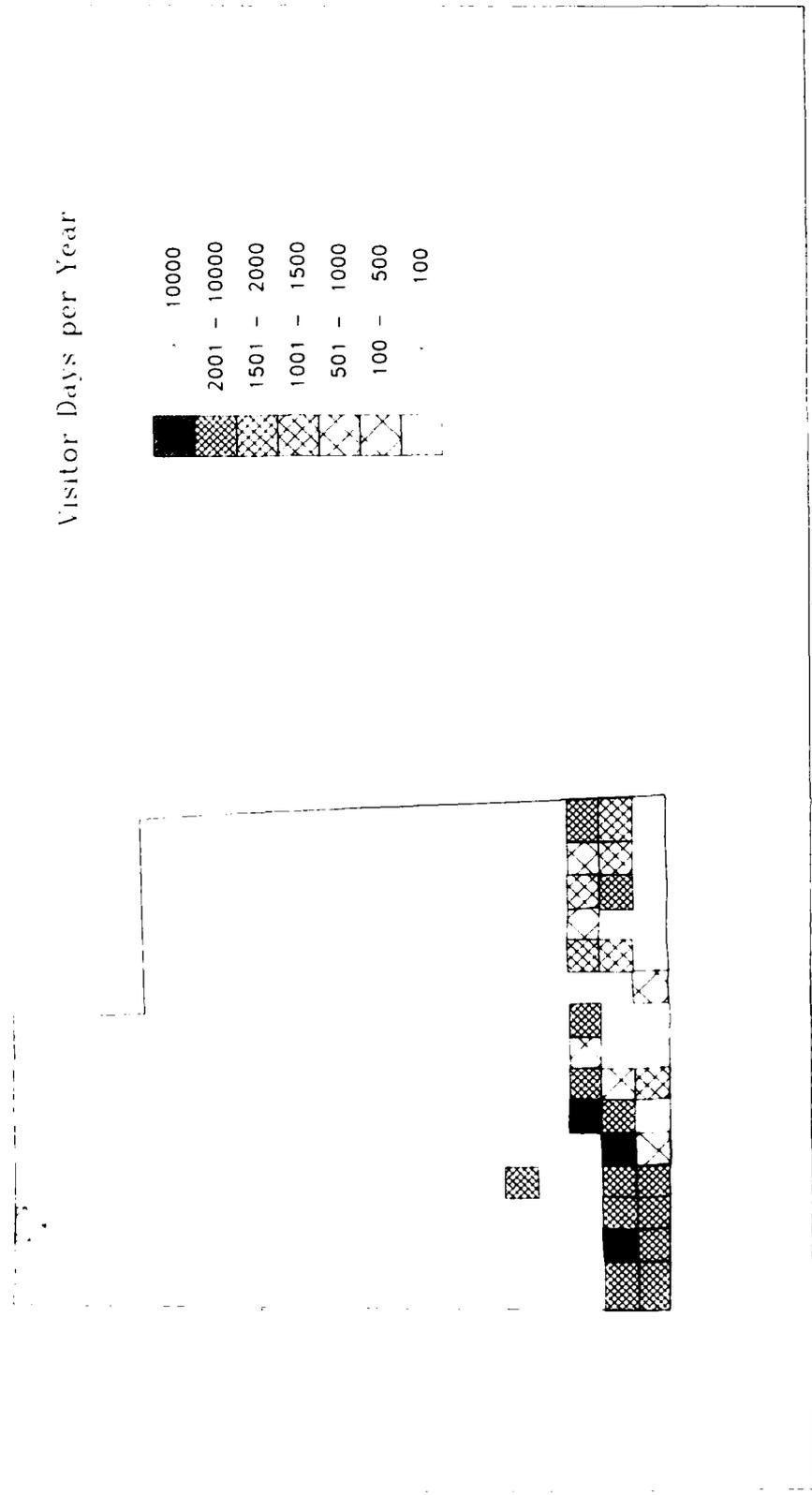


CA-497-B

Figure A-19.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 4, UTAH

OB · BERYLLUT OB · COYOTE SPRING VALLEY, NV

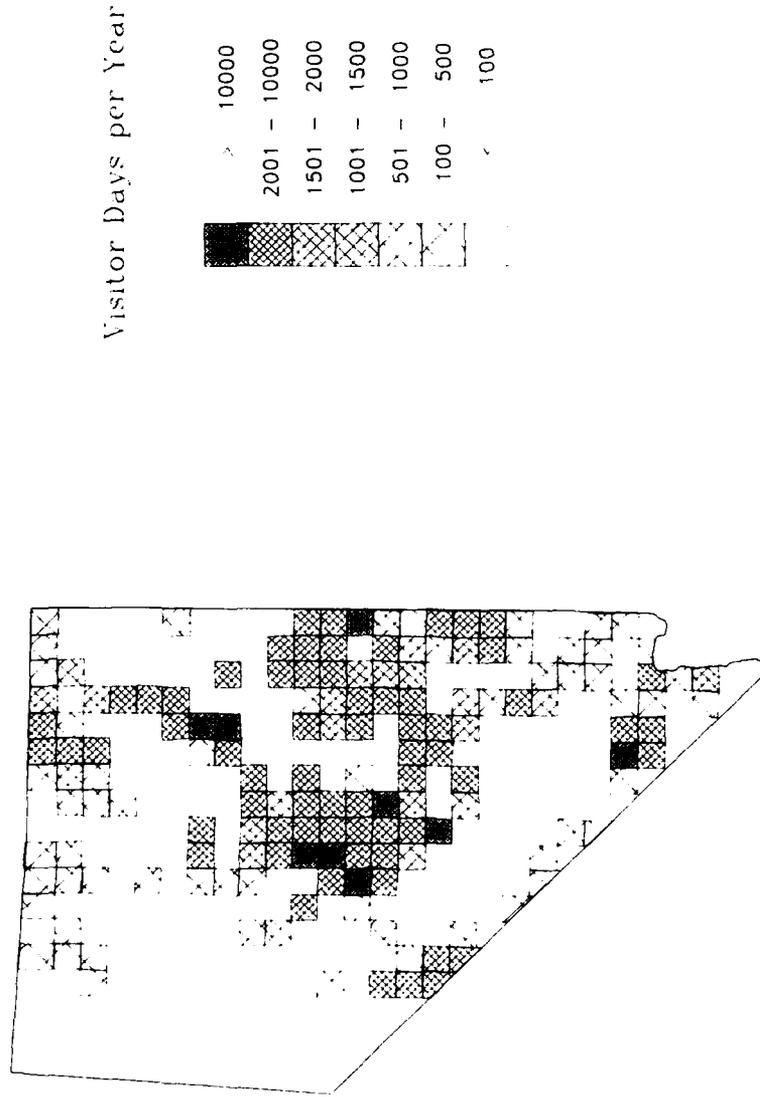


CA-498-B

Figure A-20.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 5, NEVADA

OB: MILFORD, UT OB: ELY, NV

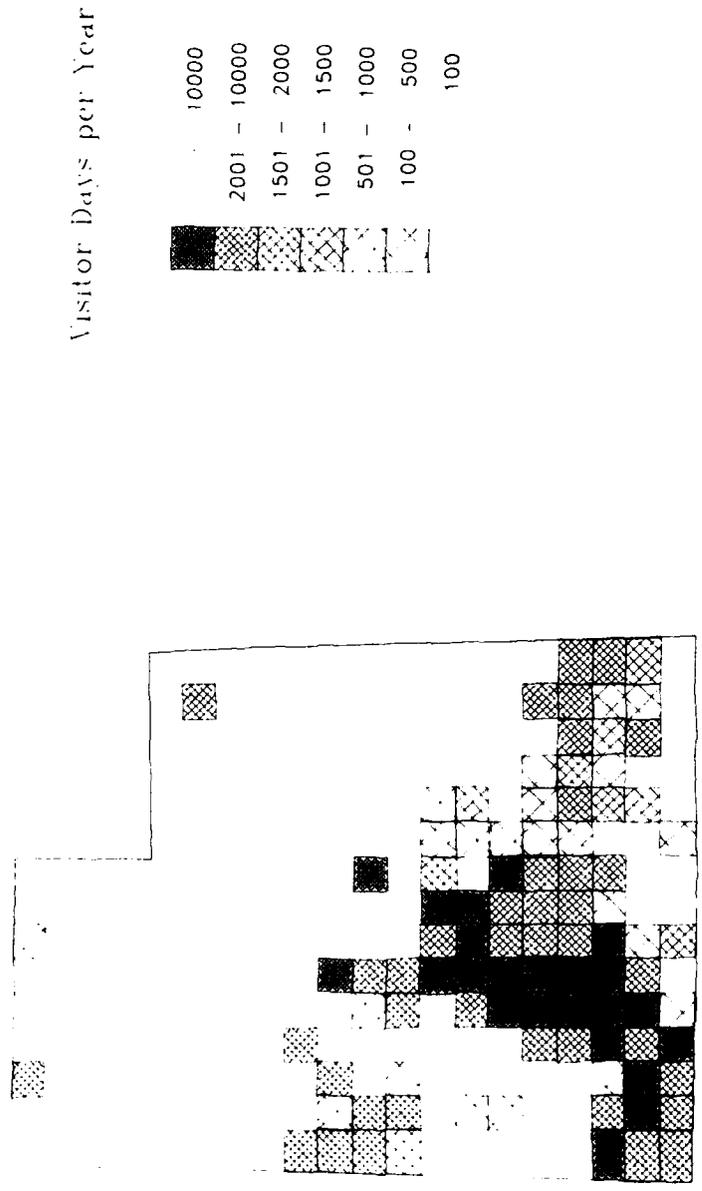


CA-0493-B

Figure A-21.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 5, UTAH

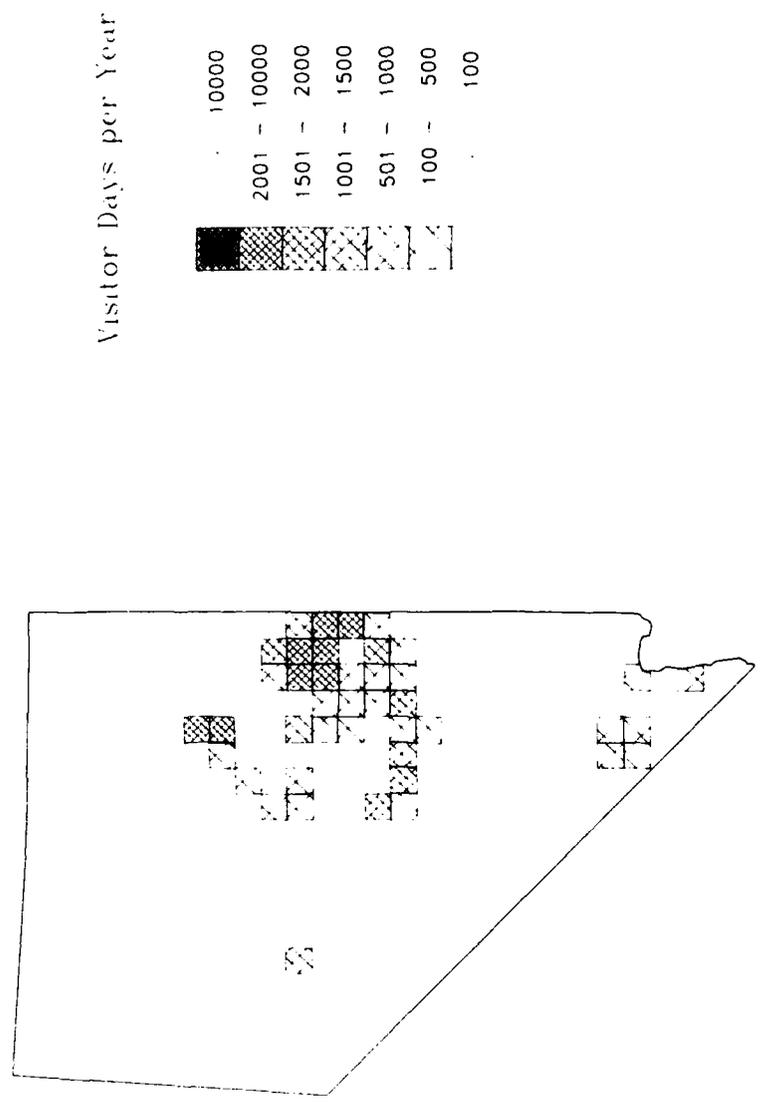
OB MILFORD, UT OB ELY, NV



CA-0494-B

Figure A-22.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 5, NEVADA
 OB· MILFORD, UT OB· ELY, NV



CA-489-B

Figure A-23.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 5, UTAH

OB MILFORD, UT OB ELY, NV

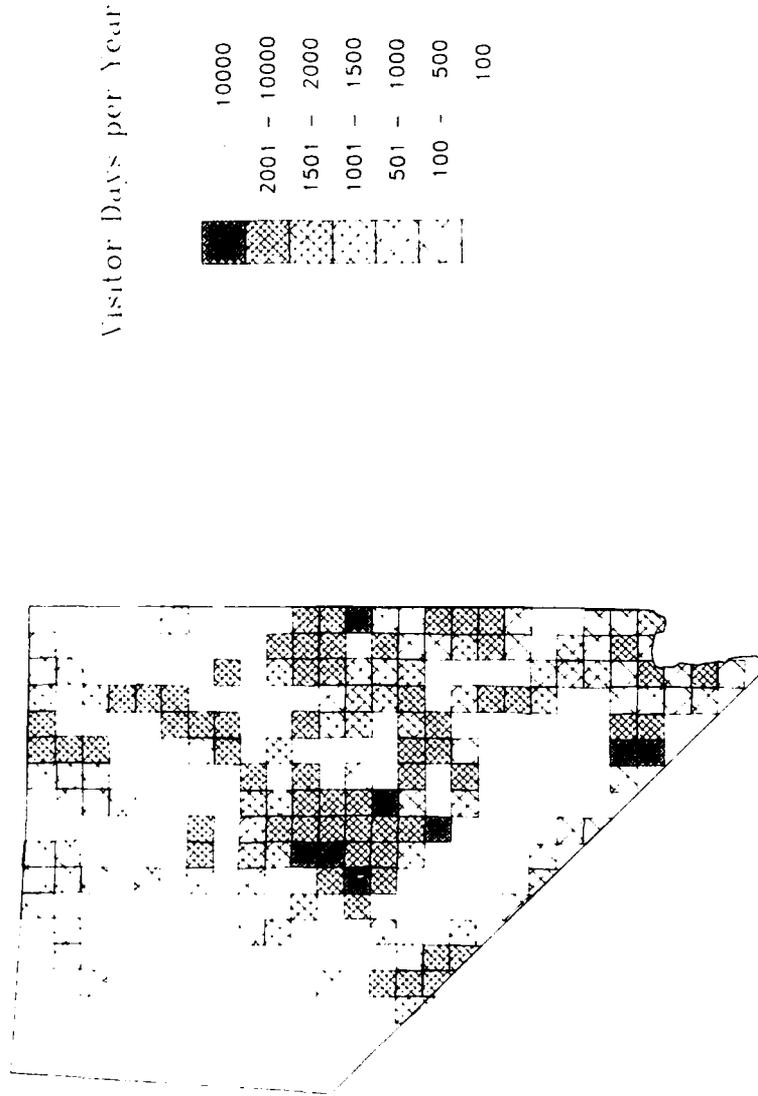


CA-500-B

Figure A-24.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 6, NEVADA

OB MILFORD, UT OB COYOTE SPRING VALLEY, NV

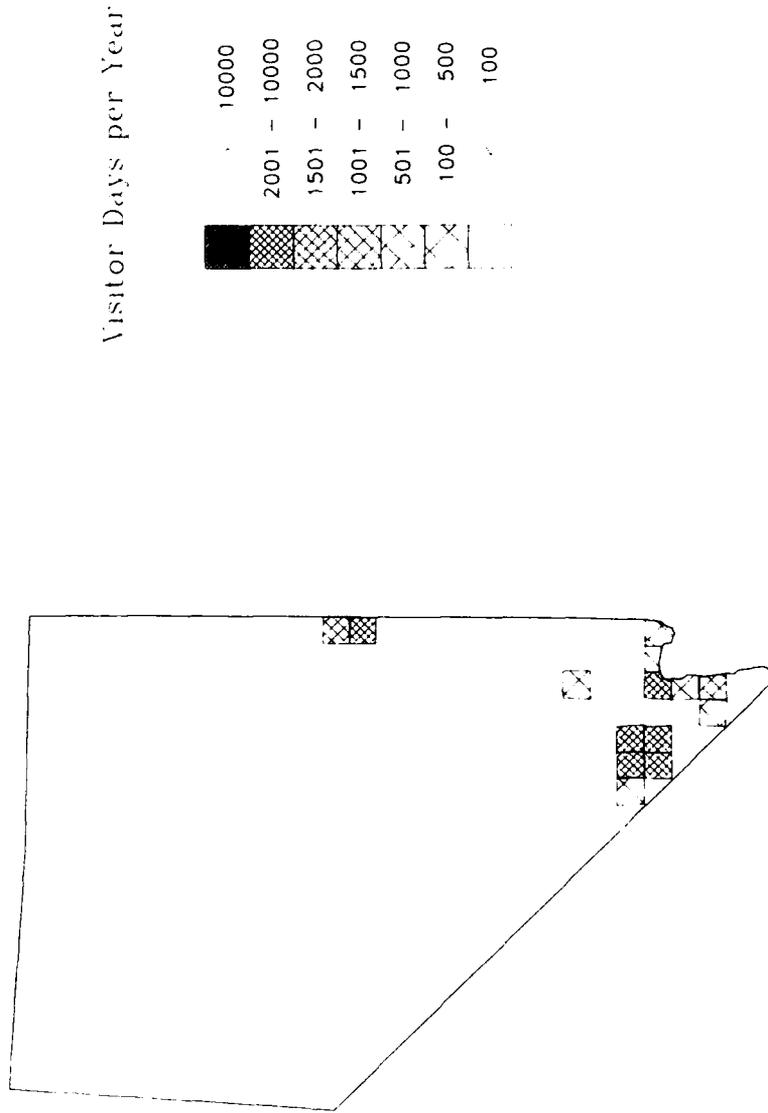


CA-0495-B

Figure A-25.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 6, NEVADA

OB MILFORD, UT OB COYOTE SPRING VALLEY, NV

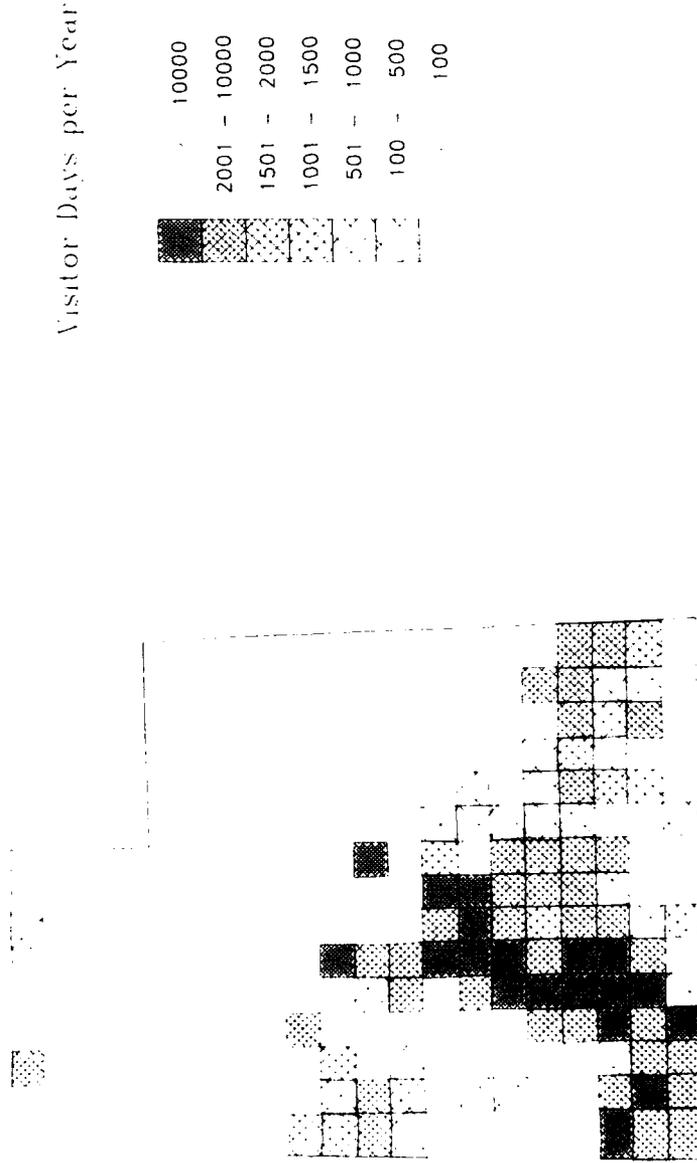


CA-501-B

Figure A-27.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 6, UTAH

OB: MILFORD, UT OB: COYOTE SPRING VALLEY, NV



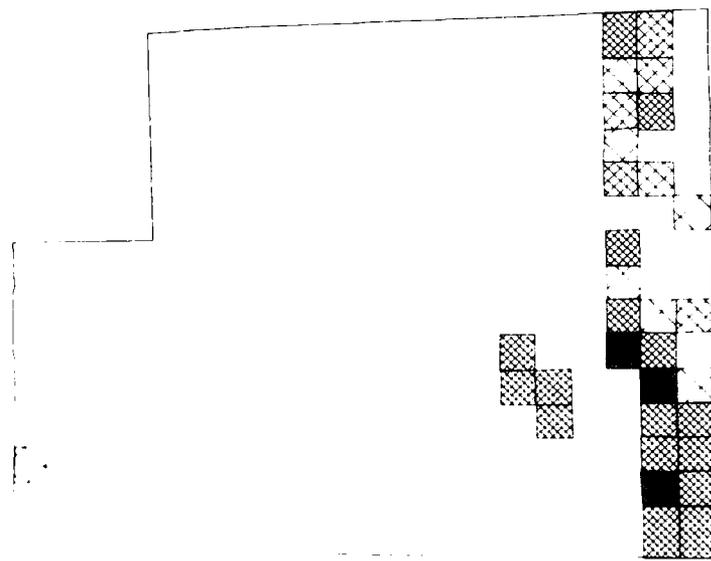
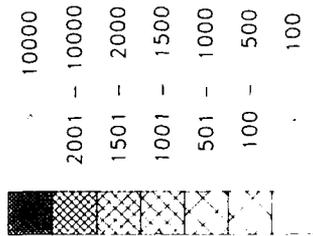
CA-0496-B

Figure A-26.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 6, UTAH

OB MILFORD, UT OB COYOTE SPRING VALLEY, NV

Visitor Days per Year

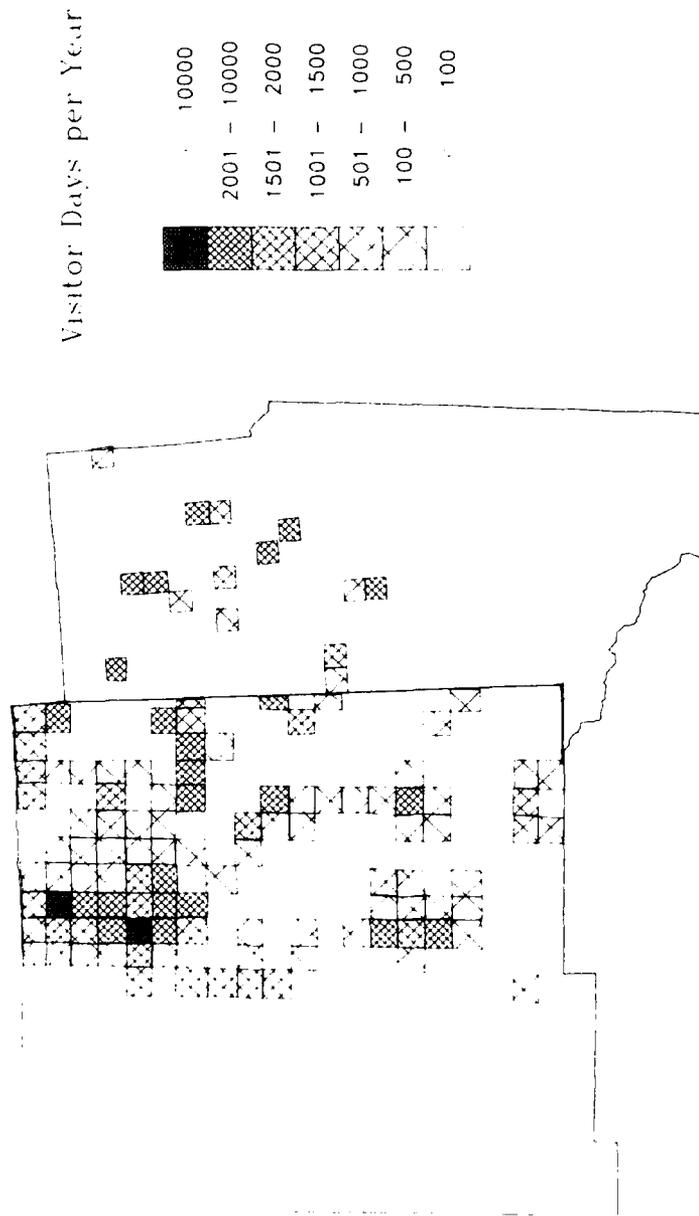


CA-502-B

Figure A-28.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 7, TEXAS/NEW MEXICO

OB - CLOVIS, NM OB - DALHART, TX

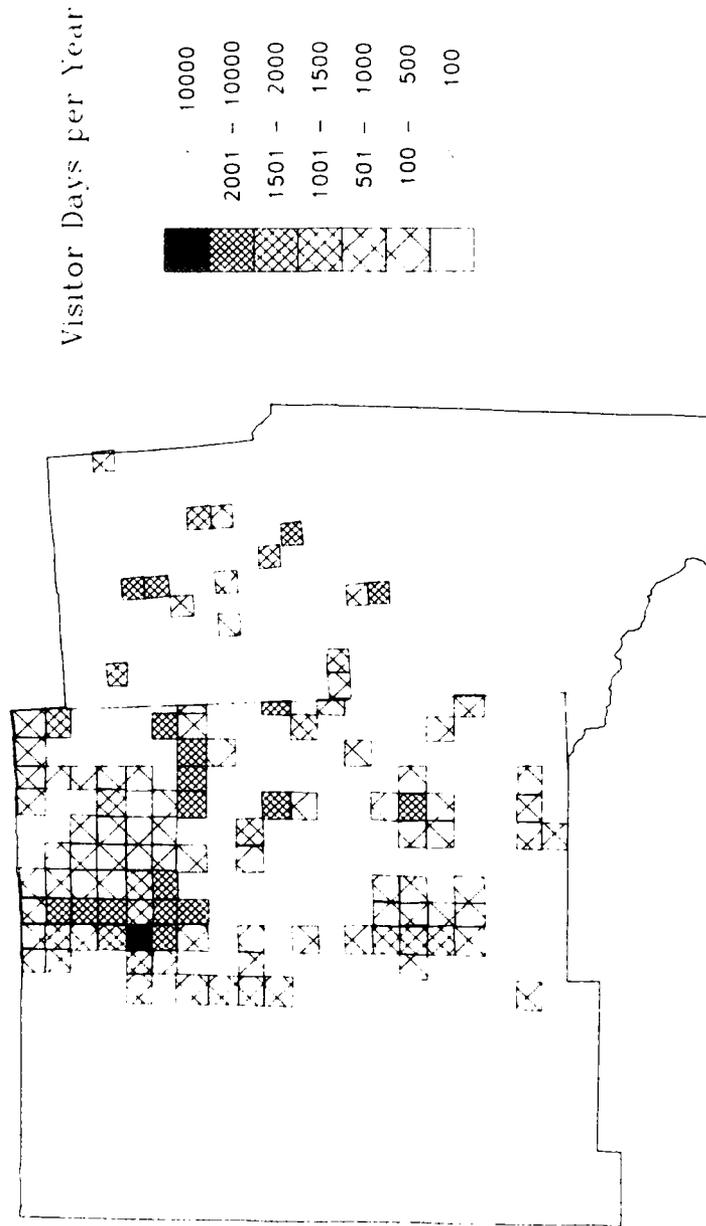


CA-0471-B

Figure A-29.

LONG TERM INCREASE IN RECREATION DEMAND ALTERNATIVE 7, TEXAS/NEW MEXICO

OB: CLOVIS, NM DALHART, TX

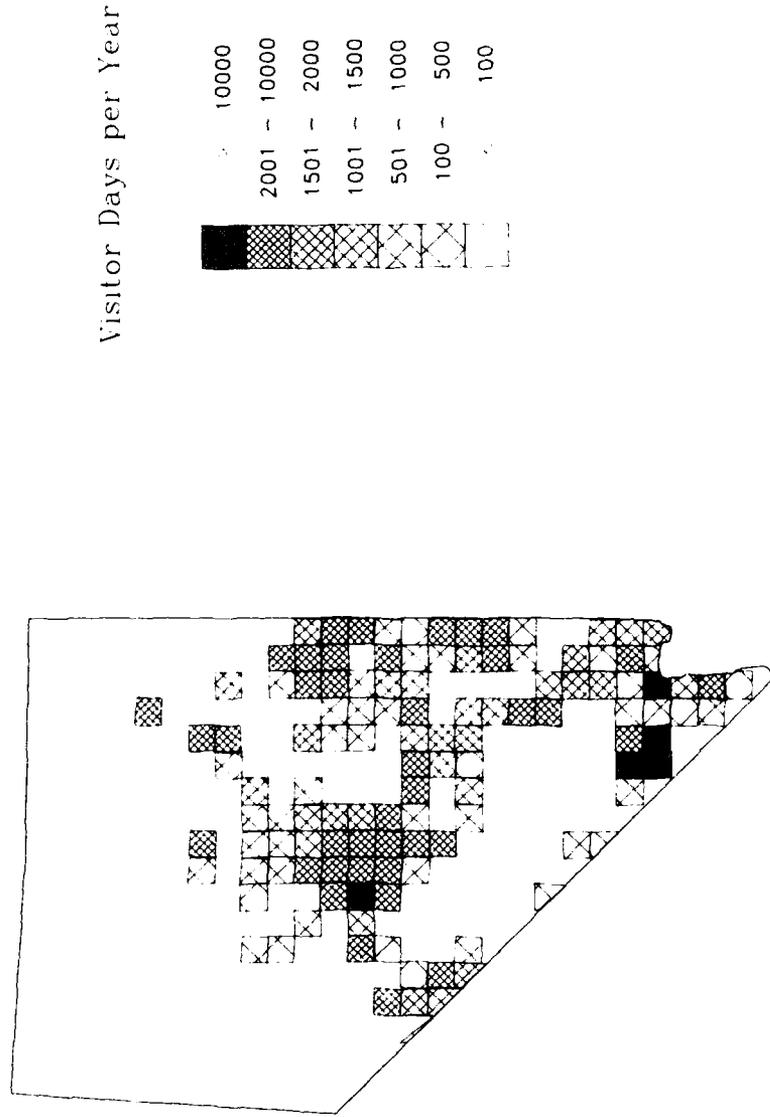


CA-0469-B

Figure A-30.

PEAK YEAR INCREASE IN RECREATION DEMAND
ALTERNATIVE 8A, NEVADA

OB· COYOTE SPRING VALLEY, NV OB· CLOVIS, NM

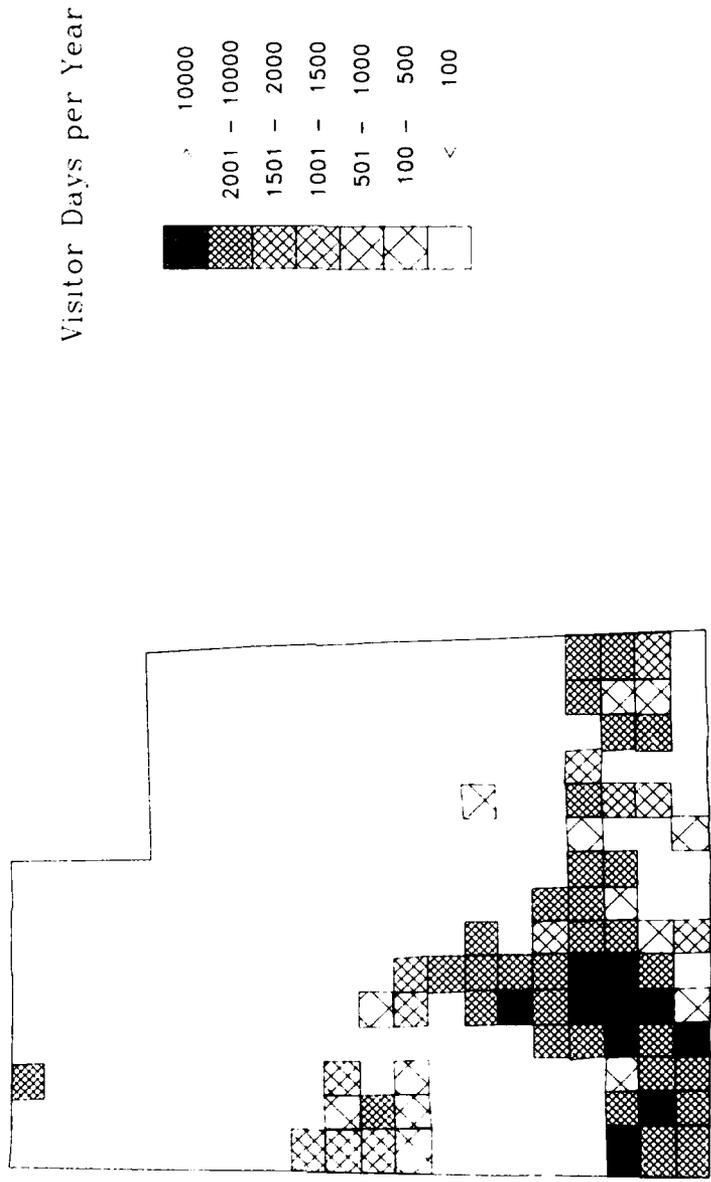


CA-0480-B

Figure A-31.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 8A, UTAH

OB· COYOTE SPRING VALLEY, NV OB· CLOVIS, NM

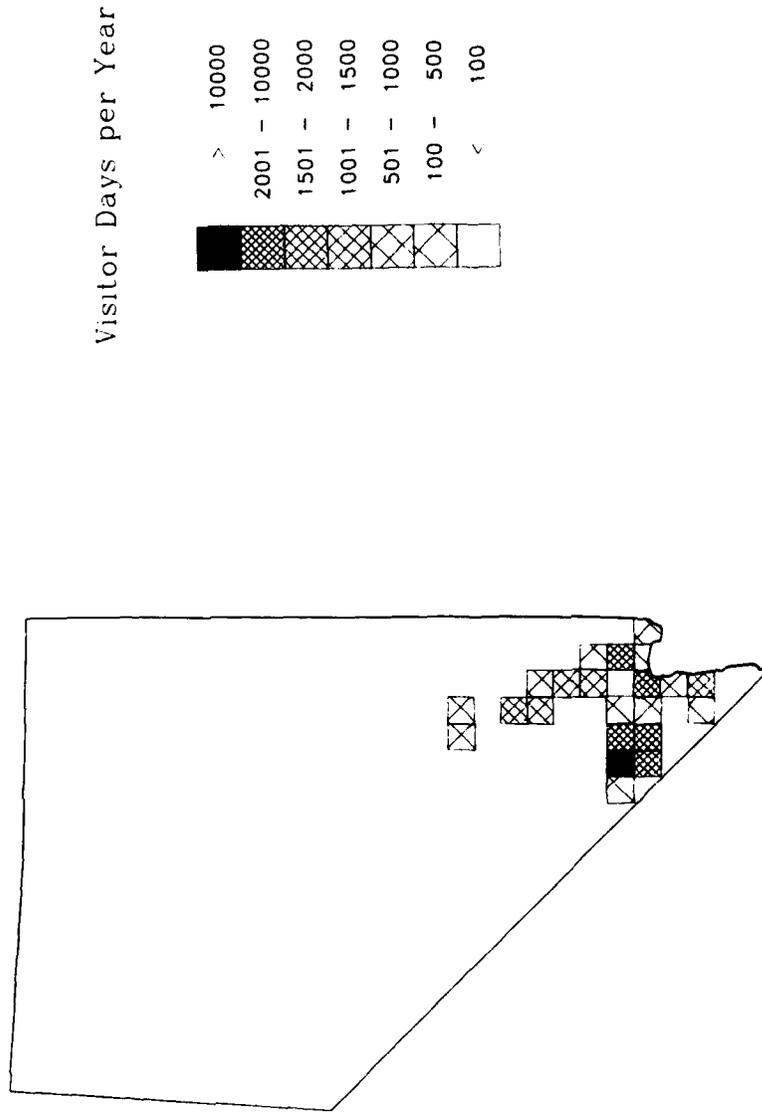


CA-0485 -B

Figure A-32.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 8A, NEVADA

OB: COYOTE SPRING VALLEY, NV OB: CLOVIS, NM



CA-0476-B

Figure A-33.

LONG TERM INCREASE IN RECREATION DEMAND
 ALTERNATIVE 8A, UTAH

OB: COYOTE SPRING VALLEY, NV OB: CLOVIS, NM

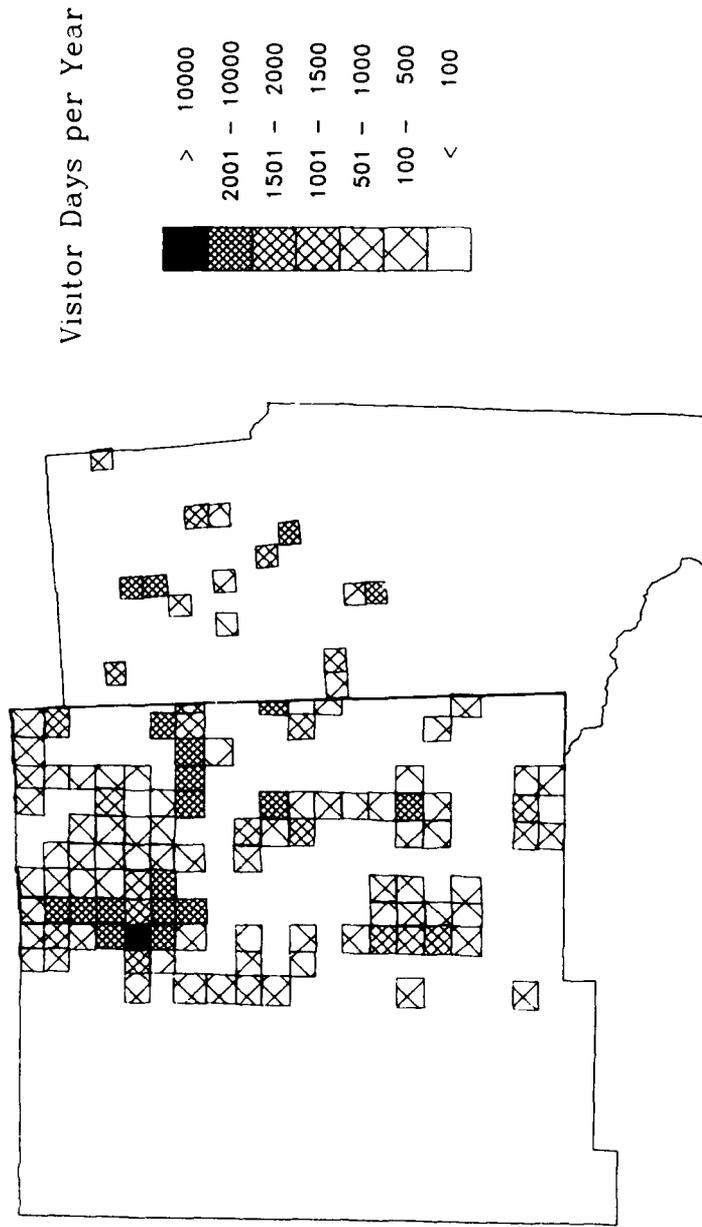


CA-0474-B

Figure A-34.

PEAK YEAR INCREASE IN RECREATION DEMAND
 ALTERNATIVE 8B, TEXAS/NEW MEXICO

OB: COYOTE SPRING VALLEY, NV OB: CLOVIS, NM

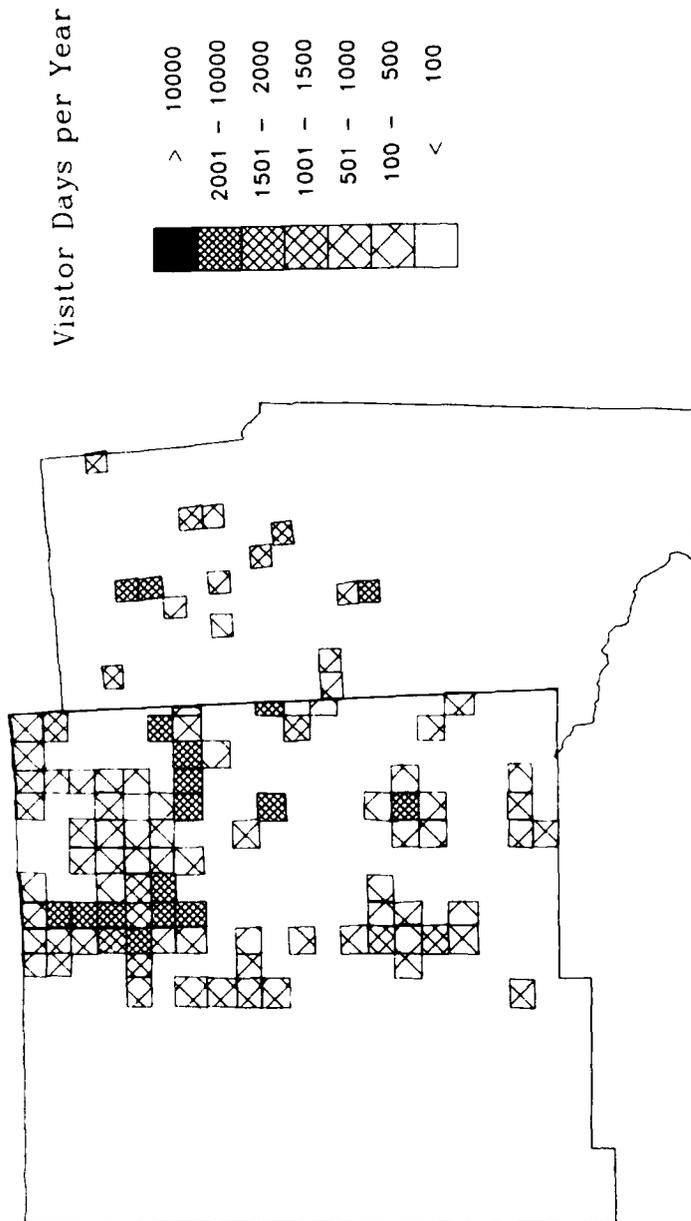


CA-0487-B-1

Figure A-35.

LONG TERM INCREASE IN RECREATION DEMAND
ALTERNATIVE 8B, TEXAS/NEW MEXICO

OB: COYOTE SPRING VALLEY, NV OB: CLOVIS, NM



CA-0488-B-1

Figure A-36.

END

FILMED

4-85

DTIC