

and endangered species. The range of the kite is small, and the bird is specialized in both its prey and habitat preferences. The deep grasses on More Mesa support numerous meadow mice; grazing or other damage of the grass will drastically reduce the number of mice, thus affecting the kite population. If light recreation use is to be permitted, trails should be established to minimize disturbance to the grasses. Obviously, very light recreation should be the only use contemplated for the More Mesa Grasslands."

Similarly, the Coastal Plan (Santa Barbara County, 1980) identifies portions of More Mesa as environmentally sensitive habitat for the White-tailed Kite. The following comment is contained in this document.

"The More Mesa grassland provides a feeding and nesting habitat for the White-tailed Kite. This hawk, designated as a fully protected species by the California Department of Fish and Game, cannot be "taken or possessed at any time" (California Fish and Game Code, Section 3511). The kites use the oak trees, found in the northwest portion of More Mesa, for communal roosting at night and as nesting sites during the breeding season. The surrounding grasslands, ravines, and flood plains of Atascadero Creek serve as hunting grounds for the kites, which feed mainly on the meadow vole and harvest mouse. Estimates of the amount of grassland area needed for feeding by a pair of kites range from 30-125 acres depending upon prey populations. Impacts on the White-tailed Kite include conversion of grassland feeding areas, and disturbances of nesting and roosting sites."

Consistent with the above statements, the County adopted the following Coast Plan policies:

- 9-26:There shall be no development including agricultural development, i.e., structures, roads, within the area used for roosting and nesting.
- 9-27:Recreational use of the roosting and nesting area shall be minimal, i.e., walking, bird watching. Protective measures for this area should include fencing and posting so as to restrict, but not exclude, use by people.
- 9-28:Any development around the nesting and roosting area shall be set back sufficiently far as to minimize impacts on the habitat area.
- 9-29:In addition to preserving the ravine plant communities on More Mesa for nesting and roosting sites, the maximum feasible area shall be retained in grassland to provide feeding area for kites.

Much of the ravine habitat area in the East and West Drainage Systems has received an environmentally sensitive habitat overlay designa-

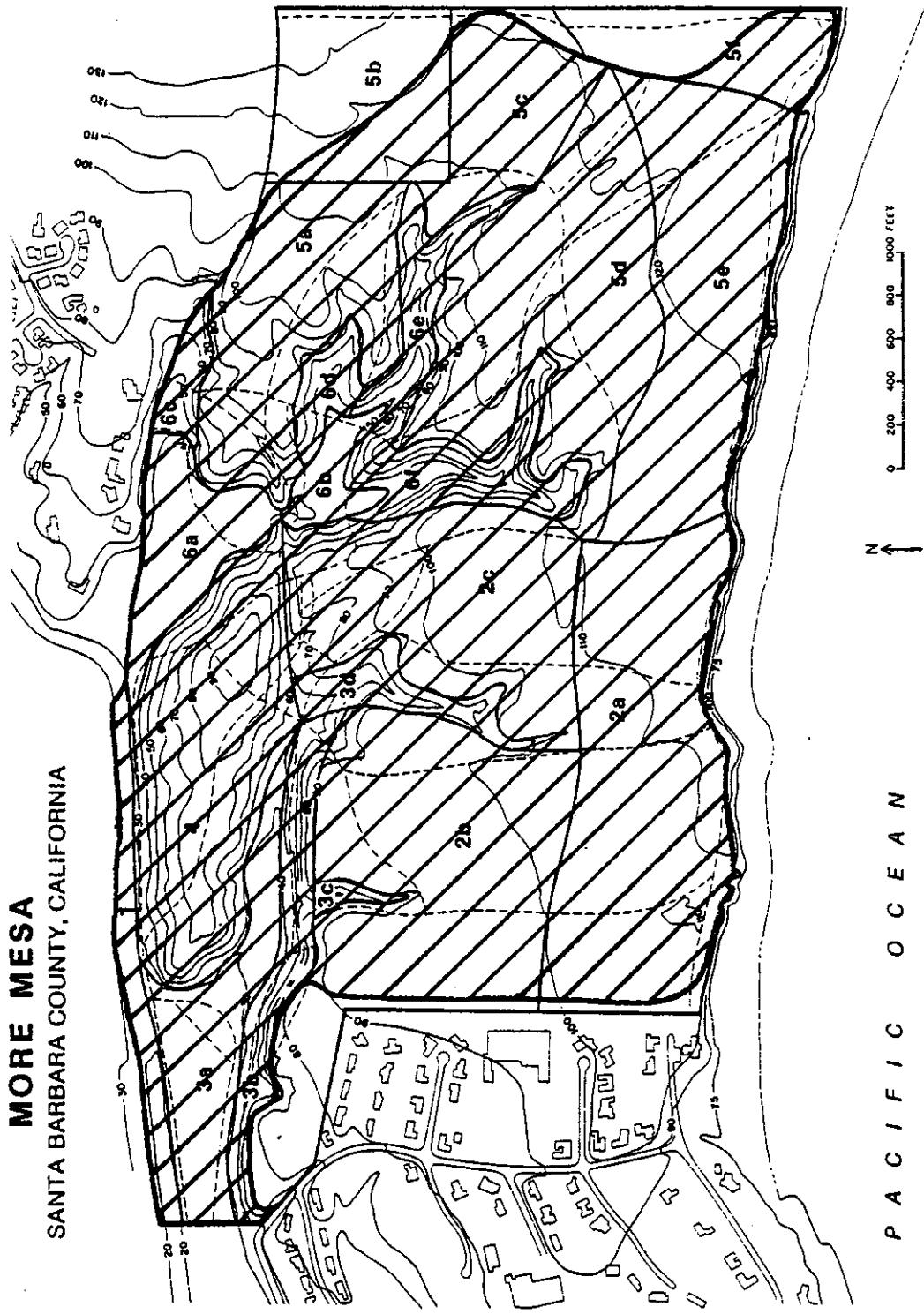
**Fig. 56. ENVIRONMENTALLY SENSITIVE AREAS OF MORE MESA.**

Based on information reported here in, the Environmental Research Team concludes that most of More Mesa is environmentally sensitive, as defined by the California Coastal Act. Non-sensitive areas occur along the eastern and western margins of the site, and are natural buffer zones to sensitive habitats.

-  environmentally sensitive area.
-  non-sensitive area (natural buffer zone).

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Fig. 56. ENVIRONMENTALLY SENSITIVE  
AREAS OF MORE MESA.



tion on the Local Coastal Plan Land Use Map. However, many wetlands and essentially all grassland areas did not receive this overlay designation. The County's recommendations for More Mesa have been based solely on the significance of this site for the White-tailed Kite. The conclusions on More Mesa's sensitivity by the UCSB Environmental Research Team are broad-based and not restricted to a single biological resource. The significant habitat value of More Mesa for a great number of biological resources indicates that the area is more sensitive than recognized by the County. Additional recommendations and policies for the use of More Mesa are essential to protect the unique habitats found at the site.

RECOMMENDATIONS - Based on the findings reported herein, the UCSB Environmental Research Team developed a series of recommendations designed to provide maximum protection to the environmentally sensitive habitats and species of special concern at More Mesa. These recommendations are listed below:

1. Those areas illustrated as environmentally sensitive (Fig. 56) should be designated as such on the Land Use Map of the Local Coastal Plan.
2. The non-sensitive areas on the East and West margins of the study site are natural buffers to existing development and, consistent with state guidelines for buffer zones to environmentally sensitive habitats, should be designated as such to protect the remaining sensitive portions of the site.
3. No development, including residential, commercial, or agricultural, should be permitted within the sensitive areas or buffer zones.

4. Only light recreation, such as hiking and bird watching, should be permitted on the study site and should be restricted mainly to existing trails. Off-road vehicle use of the site should be prevented due to its severe impact on habitats and species of special concern.
5. The study site, including the Columbia University and Austin properties, should be acquired either for public trust or for private foundation protection and management. All avenues for acquisition, including dedication of property to an appropriate agency and assistance from the Coastal Conservancy, Nature Conservancy, California Department of Fish and Game, and other agencies, foundations or institutions, should be pursued.
6. Following acquisition, a program to manage the site should be implemented and should include the following: methods designed to eliminate dumping of refuse in area 3a; elimination of off-road vehicle use; continued monitoring of all species of special concern; further assessment of the status of grassland areas to determine if controlled burning or other forms of management would enhance the status of the rare native grassland type; and an evaluation of flood control methods used in Atascadero Creek to determine if alternatives could be developed to restore the previous higher environmental quality of the habitat.
7. Because of the ocean bluff face, beach and marine wetlands of More Mesa region were excluded from this study, resource inventory and analysis of these areas is necessary if development of the study site should take place. These vulnerable habitats support species

of special concern, and potential impacts to the various biological resources have not been addressed.

Being fully aware of the realities of today's growth and development trends in the South Coast region of Santa Barbara County, the UCSB team has considered alternatives to their conclusions and recommendations should the County decide that development of portions of More Mesa is feasible. These alternative recommendations are listed below:

1. Development should be confined to portions of buffer areas identified by the team, particularly, the northeastern half of area 5b.
2. Development should be restricted to the low density residential type.
3. All dwellings should be concealed behind a 6' high brick or similar wall to restrict regular access and visibility to nesting, roosting and foraging sites of birds of special concern, particularly roosting and nesting White-tailed Kites.
4. Construction activities must take place during the non-roosting season (Mar - Sep), as such disturbances would likely cause abandonment; but must avoid the potential nest sites during the nesting season (Jan - Jul), particularly the two sites utilized this year.
5. Vieja Drive should not be extended into sensitive areas (e.g., nesting sites of White-tailed Kites) to provide access to any proposed development.
6. The old railroad bed should remain as a dirt access road with restricted use, particularly through oak woodland areas (3b).

7. The vernal pool in the southeastern corner must be restricted to vehicular and regular pedestrian use, but fencing is probably not a viable protective measure because of maintenance problems usually associated with unguarded areas. A broad buffer zone should be retained around the pool to permit runoff of adjacent areas to fill the pool.
8. Grassland areas of the West and East Mesas and Central Hill that are primary foraging areas of the White-tailed Kite, Marsh Hawk, and Short-eared Owl must not be developed because of their essential relationship to the existance of these birds of special concern at More Mesa. Additionally, while secondary foraging areas and natural buffer zones are perhaps less sensitive than the primary areas, they have an integral relationship to the current balance of resource utilization of More Mesa and should not be developed without additional consideration for the impact of their loss to the ecosystem.
9. Ravine and basin wetlands of the East and West Drainage Systems are sensitive habitats of high value and should not be effected by additional runoff resulting from development of adjacent portions of More Mesa.

Note: The conclusions and recommendations contained herein are those made by the UCSB Environmental Research Team and do not represent official County or State positions on the environmental sensitivity of More Mesa.



## RELATIVE SENSITIVITY OF THE PHYSIOGRAPHIC AREAS

Wayne R. Ferren Jr.

INTRODUCTION - Because of the numerous reasons habitats at More Mesa can be environmentally sensitive, and because of the variation in the number of reasons any particular area might be sensitive, we believe it is important to be able to illustrate, in a relatively objective manner, those areas sensitive for the greatest number of reasons, and that resource, of those inventoried, for which More Mesa is most important. By performing this analysis, however, we risk presenting the wrong impression that because one area is sensitive for a greater number of resources it has more value than an area sensitive for fewer reasons. Thus, ranking areas or habitats by some mathematical, objective approach is potentially inaccurate since a particular area of lower total sensitivity value may in fact be one of the most important areas because of one resource item of great value to the ecosystem. With this in mind, we present a relative sensitivity analysis of More Mesa but will not rank the areas based on absolute importance to the ecosystem.

This relative sensitivity analysis should not be confused with our determination of environmental sensitivity for the site. That determination was based on the Coastal Act and guidelines of the Coastal Commission that have legal standing. While based in part on the significance of some areas being legally sensitive for a particular resource, the analysis presented below combines various biological data to illustrate the relative biological sensitivity of the physiographic areas for each resource and for the combined resources. Such an analysis has been

designed to assist planners, managers and biologists with the ultimate use of the study site by suggesting which areas of More Mesa have the greatest individual or integrated sensitivity.

OBJECTIVE - To perform a reasonably objective environmental sensitivity analysis of the physiographic areas of More Mesa and their habitats and inventoried biota to illustrate: (1) the relative sensitivities of these areas based on the degree of sensitivity for particular biological resources; (2) the overall sensitivity of these areas based on the integrated information of the individual resource analyses; (3) the relative sensitivity of More Mesa for each resource; (4) the relative sensitivity of various factors used to perform the analysis.

METHODS - To perform the relative environmental sensitivity analysis a numerical evaluation technique was designed where answers were scored at various levels of sensitivity (0 = none, to 3 = high) for questions asked of each resource about each physiographic area of the study site, as delineated previously in this evaluation. Nine questions, or sensitivity factors, were asked of each of the 21 physiographic areas and responses, or scores, were determined for each resource by their respective specialists and entered onto data sheets (Appendix V) designed for the analysis. The relative sensitivity for each area was determined by adding the scores for the nine factors for each area. The relative factor importance, or indication as to which factor or question received the highest total score, was determined by adding the score received by the 21 areas for each question. The nine questions are as follows:

1. To what extent is area utilized by plants, animals or communities of special concern or proposed as such at state or national levels?
2. To what extent is area utilized by plants, animals or communities of special concern at local or regional levels?
3. To what extent is area utilized by plants, animals or communities which are rare elsewhere on More Mesa?
4. To what extent does area include environmentally sensitive habitats as defined by Coastal Act, 1976?
5. To what extent is area a necessary buffer zone for an adjacent environmentally sensitive habitat?
6. What is the proportion or density of native biota, or the infrequency of native plant communities, compared to other areas of More Mesa?
7. What is the proportion or density of native biota, or the infrequency of native vegetation, compared to similar areas of the Goleta Valley?
8. What is the diversity of the native biota or the environmental quality of the native vegetation compared to other areas of More Mesa?
9. What is the diversity of the native biota or the environmental quality of the native vegetation compared to similar areas in the Goleta Valley?

Having determined scores for the sensitivity analysis of the physiographic areas for each biological resource, an integrated relative sensitivity analysis was conducted by the team to provide some insight to the relative importance of the areas for all resources combined. Totals for the sums of factor scores for each area for each resource were entered on a data sheet designed for the analysis and integrated scores were determined by adding the individual resource totals (Appendix V, Table 13). Similarly, relative resource sensitivities were determined by adding the scores of all areas for each resource. Thus, the figures provide relative numerical sensitivity scores and relative numerical resource scores.

One additional summation exercise was performed. A data sheet was designed on which the total scores for each resource for all areas were

entered per sensitivity factor (Appendix V, Table 14). Numerical totals for each resource for all factors and numerical totals for each factor for all resources could be calculated. Thus, the figures provide relative integrated resource sensitivities and relative integrated factor scores.

The relative sensitivity scores were used to establish high, moderate and low groupings of the physiographic areas. This was accomplished by organizing the scores for each resource in descending order and placing breaks in the sequence based on any obvious gap in the numbers and, more importantly, based on the information gathered by the team and summarized in the previous section. Tables listing these groupings were developed and maps illustrating the occurrences of areas of high, moderate and low relative sensitivities for each resource and for the combined resources were produced.

Several techniques to enhance or interpret the data obtained in this sensitivity analysis methodology have been considered. For example, although responses to the various questions are rated depending on the relative sensitivity of a physiographic area, the questions or factors themselves are all rated the same. This may not be a realistic approach because the value of a response to questions, for example, concerning species of special concern or environmentally sensitive habitats, may have more importance than a response to questions, for example, concerning the diversity or abundance of species among areas within More Mesa. Thus, the weighting of questions might be necessary to provide a more realistic, or at least an alternative, approach to relative sensitivities. To provide this alternative, we also have conducted a weighted relative sensitivity analysis as follows: questions 1 and 2,

3-5, and 6-9 were multiplied by 5, 3, and 1 times their value in the unweighted analysis, respectively. Comparisons of the results of the weighted and unweighted analyses were made.

Techniques considered to provide alternative interpretations of the data include determinations of mean sensitivity and standard deviation and variance of the total resource sensitivities and the integrated sensitivities. These various interpretations of the data were rejected for the purposes of this report. Although very useful techniques, the team felt that the nature of the data provided by this sensitivity analysis was best expressed as simple sums of scores for the various factors. While it is true, for example, that different resources have great variation in the number of species contributing to the scores, and thus those resources with greater numbers of individuals may have a greater number of species of special concern, and while it is true that high values of total sensitivity could be the result of a few high scores or many low scores, these observations do not detract from the purpose of the analysis to show relative sensitivities of the physiographic areas. Furthermore, with all data sheets available in the report (Appendix V), components of the integrated sensitivities are available for inquiry and further analysis. It is important to repeat again that the purpose of the analysis is not to rank the areas from most sensitive to least sensitive, but to illustrate relative sensitivities among the areas based on numbers of sensitive resources rather than absolute sensitivities of portions of the ecosystem of More Mesa which itself has been illustrated to be one environmentally sensitive area.

RESULTS - Results of the sensitivity analyses for the biological resources and physiographic areas of More Mesa are located in Appendix V (Tables 8-21). Both unweighted and weighted approaches are included as well as the integrated analyses. Presentations of the results for each resource occur below, followed by a discussion of the integrated analyses, summarized in Tables 22-24.

VEGETATION - Resource sensitivity scores for both unweighted and weighted analyses occur in Appendix V (Tables 8 and 15, respectively). Unweighted and weighted relative sensitivities of the physiographic areas are located in Tables 22 and 23. A review of these figures demonstrates several features of the vegetation: 1) there is considerable variability in sensitivity among various geographic areas relative to the vegetation supported by them; 2) areas of high sensitivity are dominated largely by wetland and oak woodland communities in ravines and basins; 3) areas of moderate sensitivity are dominated largely by wetland, grassland and coastal scrub communities; 4) areas of low sensitivity are dominated largely by the grassland community; 5) unweighted and weighted approaches produced similar results, but the weighted scores resulted in a greater enhancement of the more sensitive areas over others and an alteration of the relative scoring positions of some areas. A relative sensitivity map (Fig. 57), based on the high, moderate, and low grouping applied to scores, illustrates the occurrence of these groups of areas.

FLORA - A review of Tables 9 and 16 (Appendix V) and 22 and 23 reveals several features of More Mesa with respect to the vascular flora: 1) consistent with the scores for vegetation, there is considerable variability in sensitivity among various geographic areas

supporting the flora; 2) areas of high sensitivity provide habitats for wetland, oak woodland and coastal scrub species; 3) areas of moderate sensitivity provide habitats for wetland, oak woodland, grassland, and coastal scrub species; 4) areas of low sensitivity provide habitats primarily for grassland species; 5) several grassland areas scored in the nonsensitive range; 6) unweighted and weighted approaches produced similar results; however, more grassland areas scored consistently low in the weighted scheme because this approach enhanced the value of the sensitive areas of wetland and oak woodland species. A relative sensitivity map (Fig. 58), based on the high, moderate, and low grouping applied to scores, illustrates the occurrence of these groups of areas.

BIRDS - A review of Tables 10 and 17 (Appendix V) and 22 and 23 reveals several features of More Mesa with respect to birds: 1) unlike scores for vegetation and flora, there is no great variability in numbers among the various physiographic areas; 2) areas of high sensitivity include a variety of habitats and plant communities, reflecting the sensitive nature of areas for greater bird density and utilization by species of special concern; 3) areas of moderate sensitivity include largely those of natural buffer areas on the margins of the site; 4) there are no areas of low sensitivity for birds; 5) unweighted and weighted approaches produced similar results; however, there was an alteration of the sequence of areas within groups such that a grassland area was shown to be most sensitive in the weighted version, apparently due to the use of it by numerous sensitive species and due to its proximity to roosting areas; 6) the vernal pool area that scored high for plants scored lowest for birds, apparently due to its small size and location in a natural buffer area. A relative sensitivity map (Fig.

Table 22 - Unweighted relative sensitivities for physiographic areas arranged by resources as summarized from data sheets in Appendix Va. Designations of high, moderate, and low sensitivity groups have been applied based on data acquired for each area.

VEGETATION		FLORA		BIRDS		MAMMALS		HERPETOFAUNA		INTEGRATED TOTALS	
score	area	score	area	score	area	score	area	score	area	score	area
23	3b	18	3a	21	3b	12	3a	20	3a	88	3a
23	5f	17	5f	21	4	12	3b	16	3b	84	3b
22	6e	15	6a	21	6e	9	6a	16	6a	78	6a
5	20	13	1	21	6f	9	6b	13	1	71	6e
high	20	12	3b	20	3a	9	6c	11	6d	68	1
high	20	10	6b	19	5d	7	3c	11	6e	66	6b
20	6a	10	6e	19	5d	7	3d	11	6f	63	6f
18	3a	10	6f	18	2b	7	4	9	6f	57	5f
18	4	9	6f	18	2c	7	5d	9	6c	56	4
15	6f	8	2a	18	6a	7	6d	8	3c	51	6c
14	5c	6	3c	18	6a	7	6e	8	3d	46	3c
13	3c	6	4	18	6b	7	6f	6	5f	38	2a
13	6c	6	6c	17	2a	7	moderate	6	2b	37	3d
moderate	13	7	2a	17	3d	6	moderate	5	2c	37	6d
moderate	13	3d	3	5c	17	5e	4	5	5a	35	5c
5	5	3d	2	2b	17	6d	4	2c	5	35	5e
4	5e	2	2c	14	6c	4	5a	5	5d	34	5d
3	2c	2	2c	13	5a	3	1	4	4	32	2c
3	5a	1	5a	13	5c	3	2a	3	2a	30	2b
3	5d	0	3d	13	5c	3	5b	3	5b	26	5a
3	6d	0	6d	12	5b	3	5c	2	5c	18	5b
low	1	2b	0	5d	8	5f	3	5f	10	1050	
low	1	5b	0							172	
248		143		354		133					

Table 23 - Weighted relative sensitivities for physiographic areas arranged by resources as summarized from data sheets in Appendix Vb. Designations of high, moderate, and low sensitivity groups have been applied based on data acquired for each area.

VEGETATION			FLORA			BIRDS			MAMMALS			HERPETOFAUNA			INTEGRATED TOTALS		
score	area	score	area	score	area	score	area	score	area	score	area	score	area	score	area	score	area
63	3b	41	5f	59	5d	24	3b	44	3a	194	3b	182	3a	175	6e	3a	3b
60	6e	36	3a	58	2b	18	3a	32	3b	182	3a	174	6a	174	6a	175	6e
59	5f	35	1	58	2c	13	6a	28	6a	175	6e	160	1	160	1	160	1
58	6a	33	6a	57	2a	13	6b	23	1	174	6a	158	6b	158	6b	158	6b
56	6b	28	6b	57	5e	13	6c	21	6e	155	6f	155	6f	155	6f	155	6f
52	1	26	3b	57	6e	11	3c	21	6f	155	6f	155	6f	155	6f	155	6f
48	4	26	6e	57	6f	11	3d	15	6b	134	4	134	4	134	4	134	4
43	6f	23	6f	51	4	11	6d	15	6c	133	5f	133	5f	133	5f	133	5f
42	3a	18	4	49	3b	11	6e	15	6c	109	6c	109	6c	109	6c	109	6c
39	6c	16	2a	46	6b	11	6f	12	3d	92	2a	92	2a	92	2a	92	2a
34	5c	12	3c	45	1	9	4	12	3d	92	3c	92	3c	92	3c	92	3c
31	3c	12	6c	45	6d	9	5d	8	5f	84	2c	84	2c	84	2c	84	2c
13	2a	9	5e	43	3d	6	2b	8	5f	84	2c	84	2c	84	2c	84	2c
11	3d	8	2b	42	3a	6	2c	5	2b	83	6d	83	6d	83	6d	83	6d
9	2c	6	2c	42	6a	6	5a	5	2c	82	5d	82	5d	82	5d	82	5d
9	5a	5	5c	39	5a	6	5e	5	5a	81	5e	81	5e	81	5e	81	5e
9	5d	3	5a	35	5c	5	1	5	5d	84	2b	84	2b	84	2b	84	2b
6	5e	0	3d	30	5b	3	2a	3	2a	79	5c	79	5c	79	5c	79	5c
6	6d	0	5b	30	6c	3	5b	3	5b	77	3d	77	3d	77	3d	77	3d
3	2b	0	5d	26	3c	3	5c	2	5b	62	5a	62	5a	62	5a	62	5a
3	5b	0	6d	22	5f	3	5f	2	5c	38	5b	38	5b	38	5b	38	5b
654		337		948		195		290		2424							

Fig. 57. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA  
FOR VEGETATION.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for vegetation. As determined by our sensitivity analysis, and illustrated in Table 22, portions of More Mesa can be grouped into one of three categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.
-  low environmental sensitivity.

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Fig. 57. RELATIVE SENSITIVITY OF PORTIONS  
OF MORE MESA FOR VEGETATION.

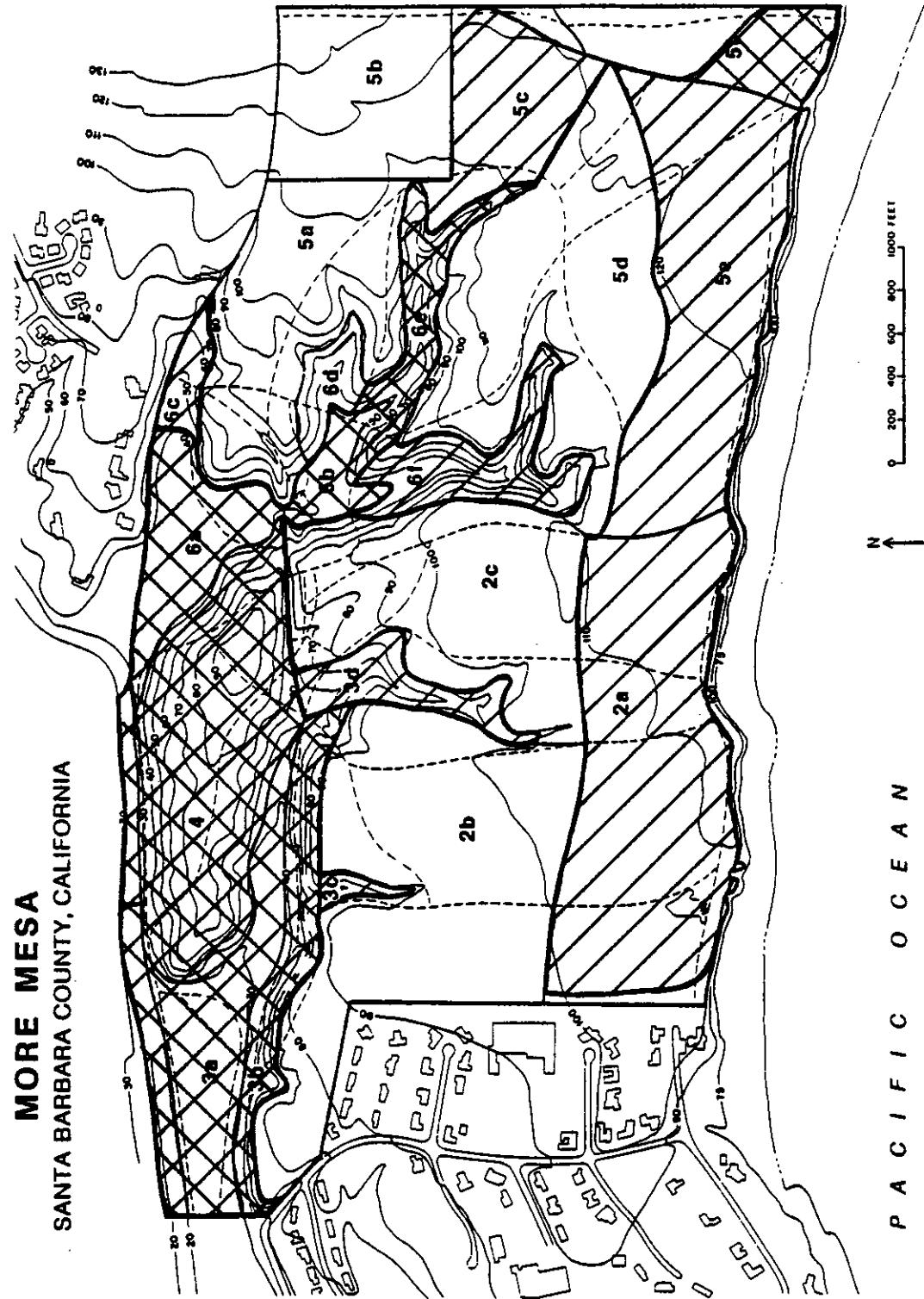


Fig. 58. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA FOR FLORA.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for the flora. As determined by our sensitivity analysis, and as illustrated in Table 22, portions of More Mesa can be grouped into one of three categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.
-  low environmental sensitivity.

Fig. 58. RELATIVE SENSITIVITY OF PORTIONS  
OF MORE MESA FOR FLORA

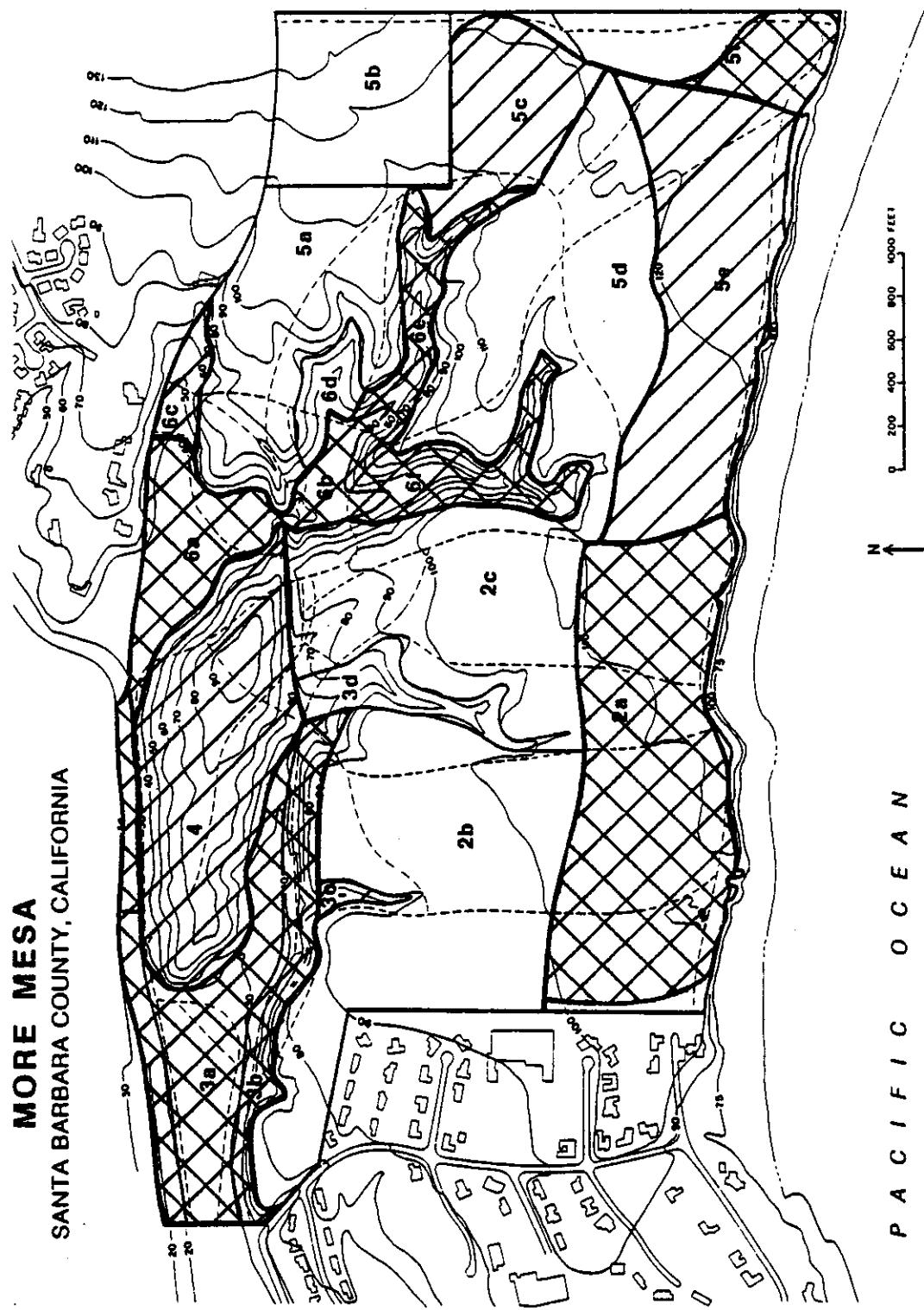


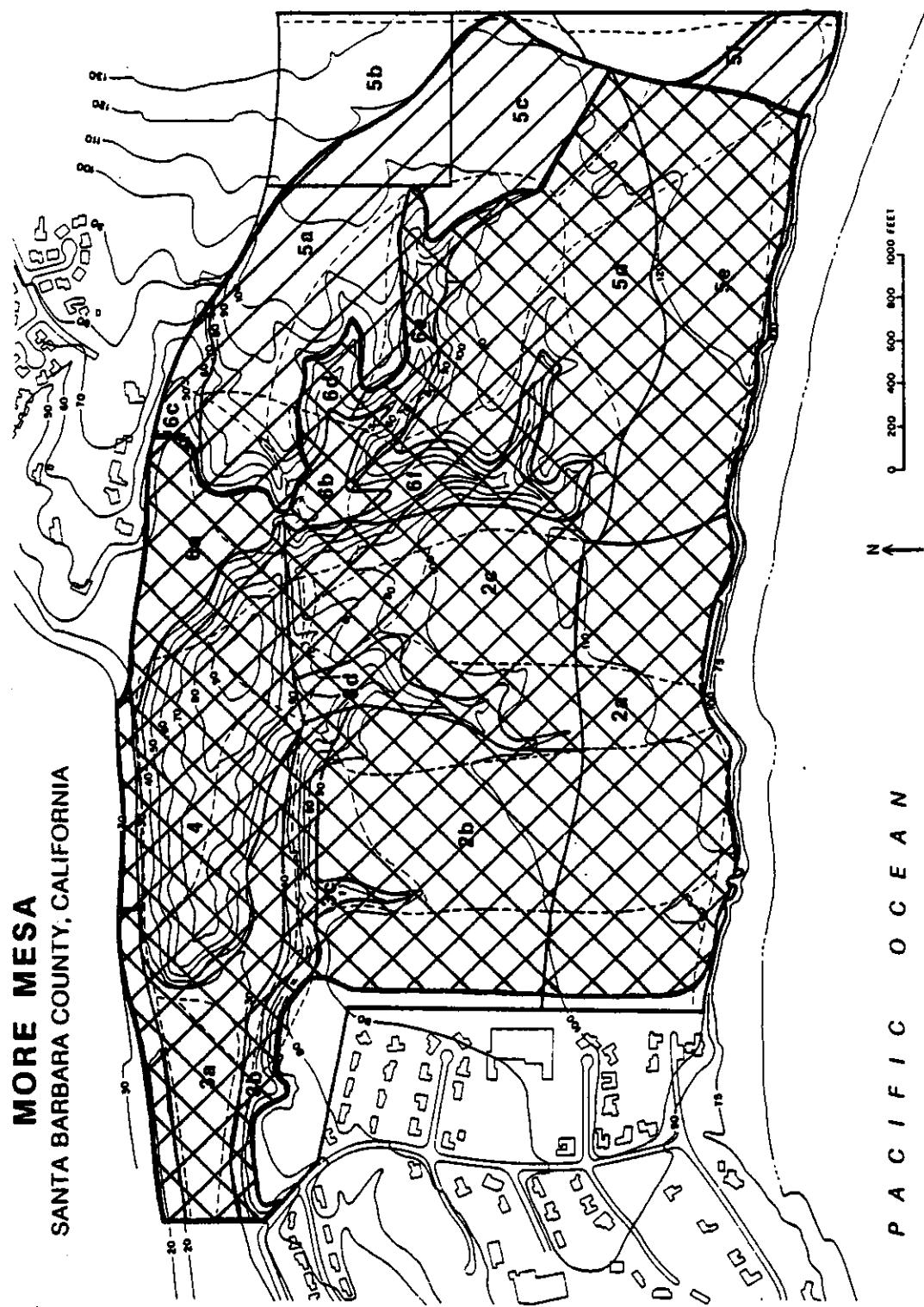
Fig. 59. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA FOR BIRDS.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for birds. As determined by our sensitivity analysis, and as illustrated in Table 22, portions of More Mesa can be grouped into one of two categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.

Fig. 59. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA FOR BIRDS.

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59), based on the high and moderate grouping applied to scores, illustrates the occurrence of these groups of areas.

MAMMALS - A review of Tables 11 and 18 (Appendix V) and 22 and 23 reveals several features of More Mesa with respect to mammals: 1) in contrast to the scores for birds, those for mammals are relatively low in value; 2) while it is difficult to divide the scores into groups (they may best be treated only as moderate or low), the higher scores of sensitivity are for wetland or oak woodland areas of basins, slopes, and ravines; 3) grassland areas received consistently lower scores due largely to the fact that scores were given based on the special nature of mammals rather than their role in the ecosystem. If the latter criterion was scored, the grasslands would have received higher values as they did for birds that forage on the mammals of these areas; 4) unweighted and weighted approaches produced similar results; 5) although Atascadero Creek received a low scoring, it has been historically important as a corridor for mammals moving to and from More Mesa and may still serve this function. A relative sensitivity map (Fig. 60), based on the grouping applied to scores, illustrates the occurrence of these groups of areas.

HERPETOFAUNA - A review of Tables 12 and 19 (Appendix V) and 22 and 23 reveals several features of More Mesa with respect to herpetofauna: 1) unlike birds and mammals which scored consistently high and low, respectively, the herpetofauna scored over a variable range of numbers, illustrating the differences in the habitat requirements among these animal groups. Many reptiles and amphibians are more restricted to particular habitats than are many birds and mammals. Thus, habitats for the restricted animals received higher sensitivity scores; 2) areas of

high sensitivity include basins, ravines, and slopes supporting wetland and oak woodland communities; 3) areas of moderate sensitivity provide similar habitats in addition to some grassland communities; and are difficult to separate from areas of low sensitivity in the unweighted approach; 4) in the weighted approach, a grouping of areas more consistent with the information gathered during this study is illustrated. Wetland and oak woodland communities of greater value to the herpetofauna are separated more clearly from the less significant grassland areas. A relative sensitivity map (Fig. 61), based on the grouping applied to the weighted scores, illustrates the occurrence of these groups of areas.

INTEGRATED RELATIVE SENSITIVITY ANALYSIS - A review of Tables 13 and 20 (Appendix V) and 22 and 23 reveals features of More Mesa with respect to the integrated value of the 5 resources investigated during this study: 1) there is considerable variability in sensitivity among the various geographic areas relative to the biological resources; 2) areas of high sensitivity include basins, slopes, and ravines and local depressions that provide habitats for (a) special concern plant communities (e.g., wetlands, oak woodlands), flora (e.g., vernal pool species), birds (e.g., White-tailed Kite) and herpetofauna (e.g., Pacific Pond Turtle), (b) a higher diversity of birds, mammals, and herpetofauna, and (c) refuges for larger mammals, smaller mammals during dry periods, and some of the more habitat-restricted herpetofauna; 3) areas of moderate sensitivity include mostly Mesa habitats dominated by grassland, or coastal scrub communities and utilized by (a) special concern plant communities (e.g., Stabilized Dune Scrub), flora (e.g., Dwarf Brodiaea), and birds (e.g., various raptors, including Short-eared Owl, Burrowing Owl,

Fig. 60. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA FOR MAMMALS.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for mammals. As determined by our sensitivity analysis, and as illustrated in Table 22, portions of More Mesa can be grouped into one of three categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.
-  low environmental sensitivity.

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Fig. 60. RELATIVE SENSITIVITY OF PORTIONS  
OF MORE MESA FOR MAMMALS.

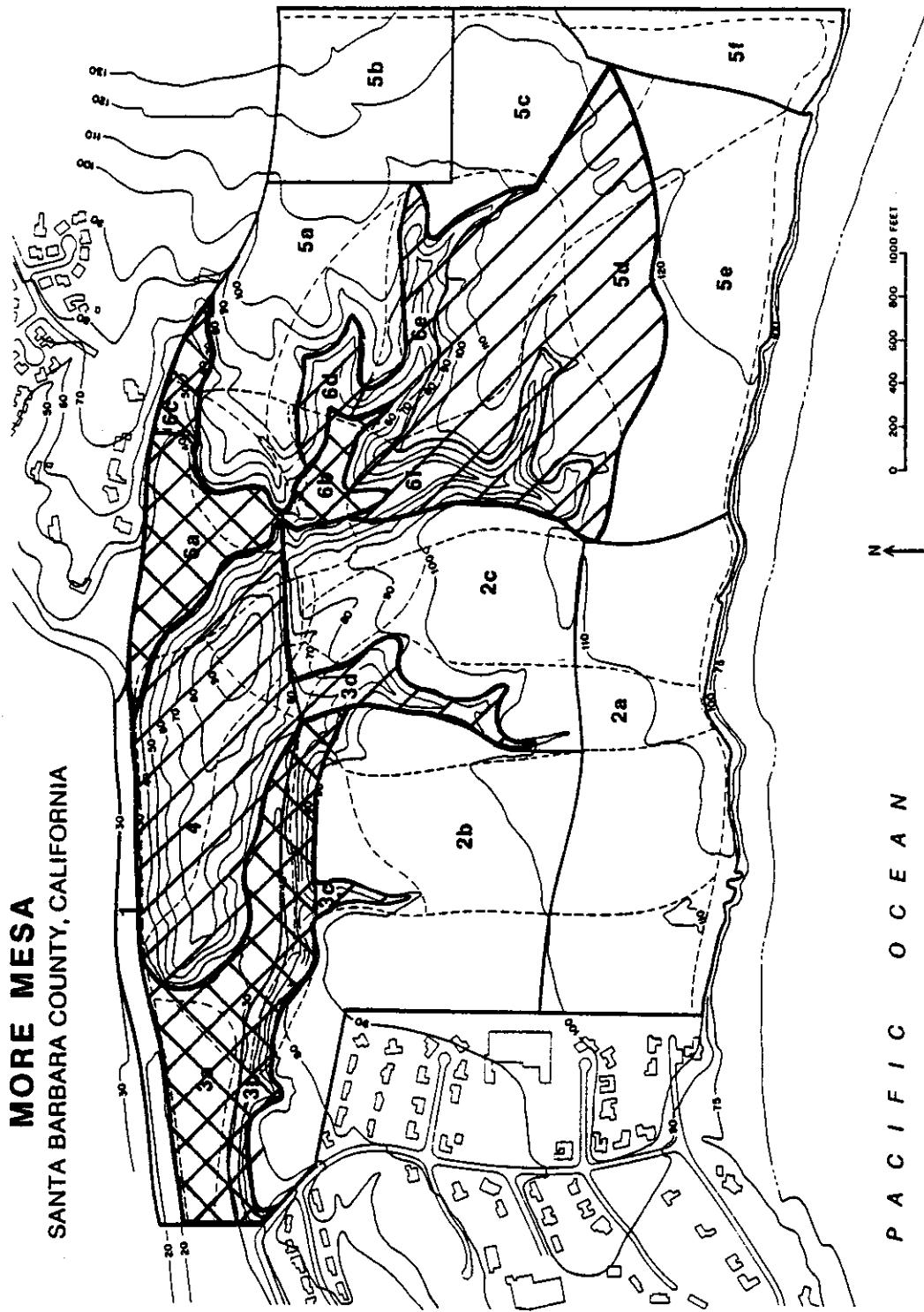


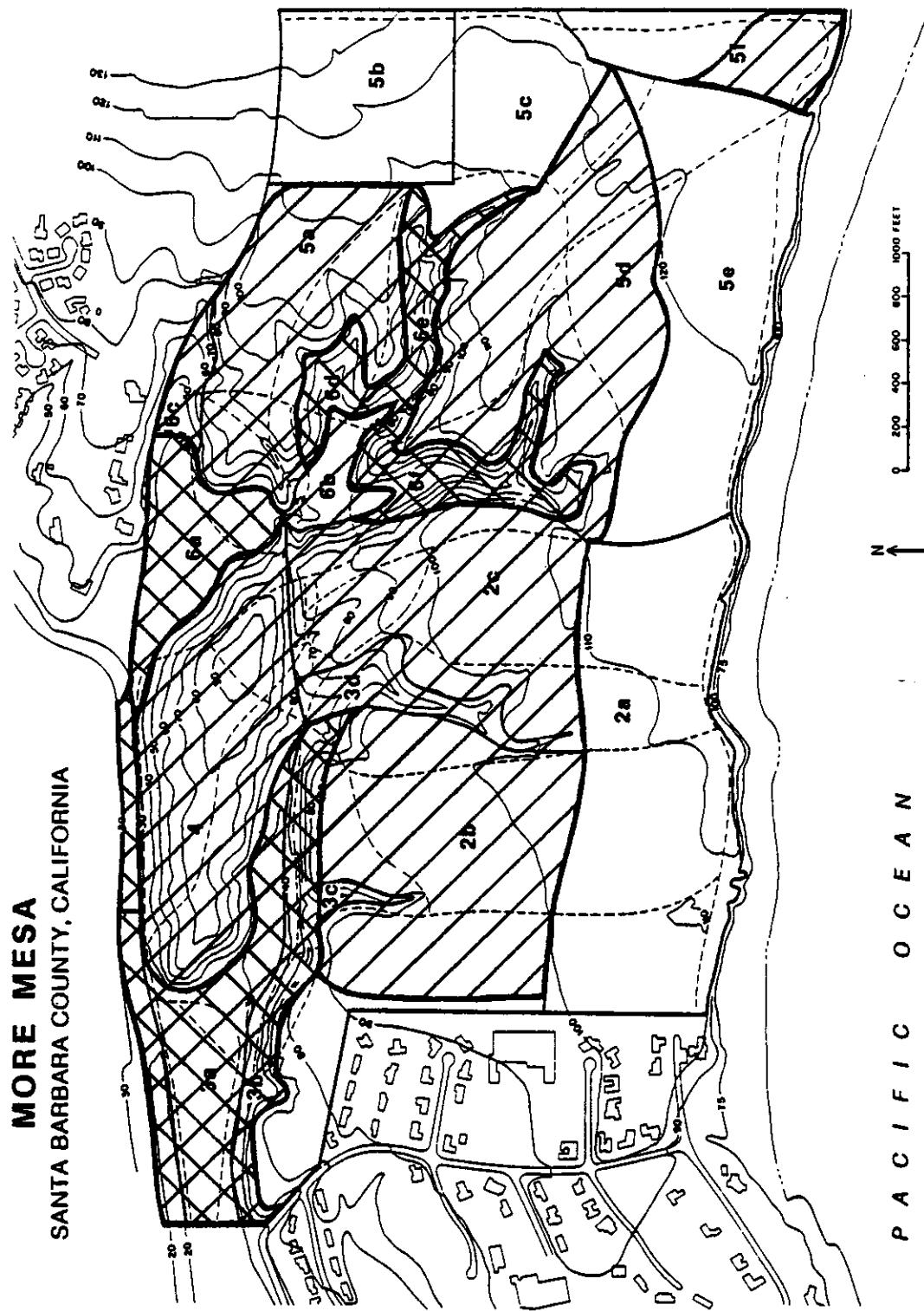
Fig. 61. RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA FOR  
HERPETOFAUNA.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for the herpetofauna. As determined by our sensitivity analysis, and as illustrated in Table 22, portions of More Mesa can be grouped into one of three categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.
-  low environmental sensitivity.

Fig. 61. RELATIVE SENSITIVITY OF PORTIONS  
OF MORE MESA FOR HERPETOFAUNA.

**MORE MESA**  
SANTA BARBARA COUNTY, CALIFORNIA



Marsh Hawk, Merlin, White-tailed Kite), and (b) reasonably high densities of small mammals (e.g., California Vole) and some reptiles (e.g., Western Fence Lizard); 4) areas of low sensitivity are few and confined to the northeast portions of the East Mesa, but like the extreme western margin of the West Mesa they are valuable natural buffers to the sensitive interior habitats; 5) unweighted and weighted versions of the analysis produced basically the same relative scoring positions for the various physiographic areas.

Another approach to interpreting the data provided by the integrated analysis is illustrated in Table 24. By organizing the physiographic areas according to the position of their highest score among all resources as compared to their position among scores in the integrated sensitivity analysis, an obvious clustering of most of the areas occurs in the first 10 scoring positions out of 21 positions. This approach shows clearly that different physiographic areas scored high values of sensitivity for different resources, an important feature of More Mesa that is disguised when only the integrated sensitivity scores or scoring position is considered. The higher individual sensitivities of areas is more obvious in the weighted approach which illustrates, for example, that four different areas had the highest sensitivity score for different resources, and 17 of the 21 areas had their highest scores in the top 7 positions at least once. Thus, a great majority of the areas are sensitive for various biological reasons, a conclusion that corroborates the position taken earlier by this team.

An integrated relative sensitivity map (Fig. 62) of More Mesa, based on the grouping applied to scores, illustrates the occurrence of the sensitive areas. A comparison of this map and the map illustrating

Table 24 - Physiographic areas and the position of their highest score among all resources compared to their position among scores in the integrated sensitivity analysis.

<u>Position</u>	<u>Unweighted</u>	<u>Total</u>	<u>Weighted</u>	<u>Total</u>
1	3a,3b	3a	3a,3b,5d,5f	3b
2	4,5f	3b	2b,6e	3a
3	6a,6e	6a	1,2c,6a	6e
4	1,6b,6f	6e	6b	6a
5	6c,6d	1	5e,6c,6d	1
6	3c	6b	3c	6b
7	3d,5d	6f	3d,4,6f	6f
8	2b	5f		4
9	2c	4		5f
10		6c		6c
11		3c	2a,5c	2a
12	2a	2a		3c
13	5e	3d		2c
14	5c	6d		6d
15	5a	5c	5a	5d
16		5e		5e
17		5d		2b
18		2c	5b	5c
19	5b	2b		3d
20		5a		5a
21		5b		5b

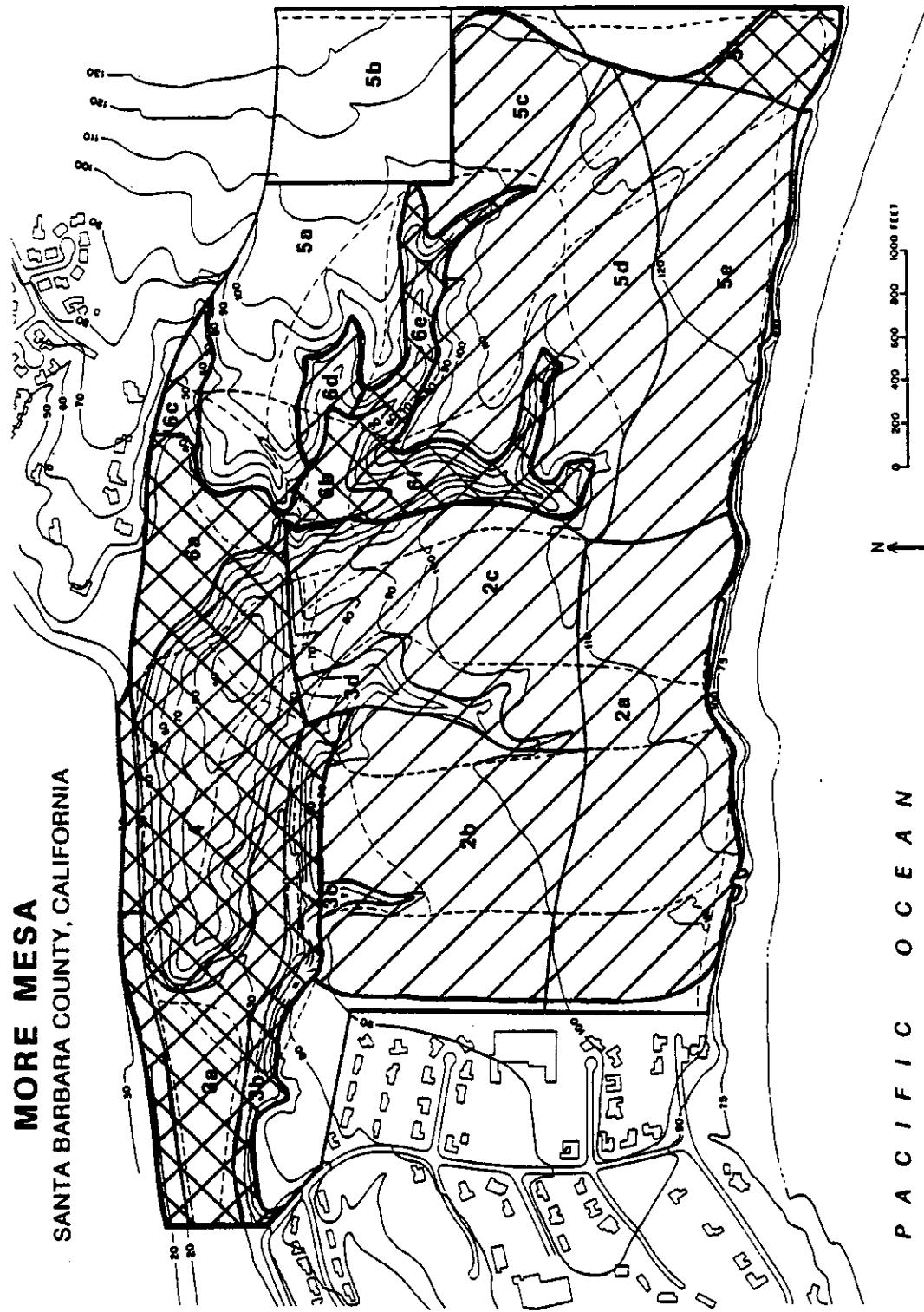
Fig. 62. INTEGRATED RELATIVE SENSITIVITY OF PORTIONS OF MORE MESA.

Within the environmentally sensitive area of More Mesa there are various degrees of habitat sensitivity for the combined biological resources investigated as part of this study (i.e. vegetation, birds, flora, mammals, herpetofauna). As determined by our integrated sensitivity analysis, and as illustrated in Table 22, portions of More Mesa can be grouped into one of three categories of sensitivity:

-  high environmental sensitivity.
-  moderate environmental sensitivity.
-  low environmental sensitivity.

Fig. 62. INTEGRATED RELATIVE SENSITIVITY  
OF PORTIONS OF MORE MESA.

**MORE MESA**  
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our environmentally sensitive habitat designation (Fig. 56) demonstrates the levels of sensitivity within the study site. It is important to note, however, that although the grassland areas may be sensitive for fewer reasons than plant communities located in habitats such as basins, ravines or north-facing slopes, they are an integral part of the More Mesa ecosystem. The high overall environmental sensitivity of this study site is linked intricately and necessarily to the mesa (grassland) habitat.

Of additional interest to the integrated sensitivity analysis are other summation approaches to some of the data (Tables 13-14 and 20-21). For example, a relative sensitivity value for each resource at More Mesa can be calculated by adding the sensitivity scores of a resource for all physiographic areas (Tables 13, 20). The results suggest that the overall habitat value is more sensitive for birds than for other resources investigated. Vegetation scored second most sensitive resource, with consistently high values given to areas supporting wetlands and oak woodlands. Herpetofauna and flora alternate as the third and fourth most sensitive resource depending on whether unweighted or weighted values are considered. Sensitivity values are lowest for mammals by both approaches.

Another value similar to the relative sensitivity value for each resource is the integrated factor importance (Table 14, 21), or that figure which represents the total score for each question of the sensitivity analysis for all resources combined. Results of these figures suggest that the sensitivity of More Mesa as investigated by this study is more significant at the level of environmentally sensitive habitat and buffers to those habitats than for other categories such as species

of special concern and species diversity or densities. Such a result is to be expected since species of special concern would not be at More Mesa if it were not for the occurrence of appropriate habitats. Of note, however, is the relationship between the questions on species of special concern and those of diversity and density. In the unweighted approach the importance or sensitivity of More Mesa for diversity and density scored higher, and in the weighted approach the sensitivity for species or communities of special concern scored higher. Because the weighting of questions favored the species of special concern and their habitats, such a result is not surprising.

REVIEW OF SENSITIVITY - As reported in the previous section of this document, the majority of More Mesa (i.e., the study site) is an environmentally sensitive habitat area as defined by the Coastal Act (State of California, 1976). Narrow buffer zones occur on the eastern and western margins, and separate the sensitive habitats from developed areas. This determination of sensitivity has been concluded by the UCSB Environmental Research Team after careful analysis of all data gathered during this study.

Within the region of environmental sensitivity there are various physiographic areas, supporting numerous habitats, that often have different sensitivities relative to the various biological resources we investigated. Although some areas (e.g., grasslands) have low sensitivity for many resources, they also exhibit moderate to high sensitivity values for a particular resource. In contrast, other areas (e.g., ravines) have high sensitivity values for almost all resources.

However, the most significant aspect of the environmental sensi-

tivity of More Mesa is apparently the ecosystem as a whole. While various portions (nesting and roosting areas, vernal pools, wetland basins) have high habitat value for individual resources (e.g., birds, plants, reptiles), More Mesa is most important for its sensitivity at the ecosystem level. This is illustrated particularly well by the occurrence of many raptors of special concern. Their presence is linked necessarily to the presence of roosting, nesting, and/or foraging areas provided by the vegetation; the latter not only reflecting differences in soil, moisture and topography at the site, but also supporting a sufficient small mammal population upon which the birds prey.

Thus, More Mesa is an excellent example of an area that, although having received repeated human disturbance (especially through cultivation and recreation), continues to exist in an urbanized region and provides habitats for a great variety of biological resources, including species of special concern. Furthermore, the importance of More Mesa as an environmentally sensitive area will probably increase in the future as other grasslands, oak woodlands, and wetlands of the south coast are developed or altered to the point of significant habitat loss.

## SUMMARY

Wayne R. Ferren Jr.

More Mesa is a dissected marine terrace comprising about 300 acres of undeveloped land situated in the urbanized South Coast of Santa Barbara County, California. This area is characterized by a Mediterranean climate, and is underlaid by shale, siltstone and sands from which have been derived the clay, sandy loam, and loamy sand soils. At least 3,000 years of human activity have been documented at More Mesa. For example, five archaeological sites have been located; grazing by cattle and cultivation with beans, grains and other crops have occurred; and recreational activities such as beach access, hiking and off-road vehicle use continue today. In spite of these various forms of disturbance, the area has been cited by many as supporting environmentally sensitive habitats as defined by the Coastal Act of 1976. Because of this possibility and because of potential residential development of the site, the County of Santa Barbara required a biological evaluation of More Mesa to be conducted before any development plans for the area are submitted.

An Environmental Research Team of the University of California, Santa Barbara conducted this evaluation between July, 1981 and June 1982. The goal of the study was to provide a biological sensitivity analysis. The team assessed various physiographic areas of More Mesa for their biological sensitivity to residential development. This was achieved by conducting inventories of the habitats, vegetation, flora, and vertebrate animals, including birds, mammals and herpetofauna; and by conducting a sensitivity analysis of the various physiographic areas

at the study site. Ultimately, environmentally sensitive habitats were delineated and the residential development potential of More Mesa evaluated.

In summary, the year-long study produced the following findings: More Mesa contains various habitats, including Atascadero Creek, basins, ravines, slopes, marine terraces, local depressions, sand deposits, and coastal bluffs; upland vegetation, including Southern Coastal Bluff Scrub, Stabilized Dune Scrub, Southern Coastal Oak Woodland, and Cismontane Introduced Grasses; wetland vegetation, including riverine wetlands and palustrine wetlands such as emergent (for example, marshes and vernal pools), scrub/shrub, and forested wetlands; 195 vascular plant species, including 8 species of special concern at the local or regional level; approximately 178 bird species, including 4 raptors (Marsh Hawk, Merlin, Burrowing Owl, and Short-eared Owl) that forage the grasslands and are proposed as species of special concern at the State level, and White-tailed Kites that nest, forage and have their major regional winter roost here; 21 mammal species, none of which are of special concern but at least one of which (California Vole) is a major prey of the White-tailed Kite, Marsh Hawk, and Short-eared Owl; and 11 species of herpetofauna, including one salamander, three frogs, three snakes, three lizards and one turtle, the latter of which (Pacific Pond Turtle) is becoming rare in southern California.

The entire study site occurs within the Coastal Zone, as defined by the Santa Barbara County Local Coastal Program, and thus environmental concerns for the area are governed by the California Coastal Act. The determination of the environmental sensitivity of portions or all of More Mesa depends on the biological evidence as interpreted according to

definitions and guidelines of the California Coastal Commission. Using these tools we concluded that the entire study site, excepting minor portions of the eastern and western mesas, is an environmentally sensitive habitat area. Each physiographic area, as delineated for this study, contains habitats sensitive for at least one and often for a variety of seasons. The remaining marginal, non-sensitive areas are critical buffers for those areas that are sensitive and provide essential open space between currently developed areas and the sensitive habitat areas. Relative sensitivity analyses of the various physiographic areas and their habitats indicated that the ravines and basins are sensitive for a greater number of biological resources than are the grasslands; and that More Mesa is apparently more sensitive for birds than for the other resources investigated during this study. However, the most significant aspect of the environmental sensitivity of More Mesa is the ecosystem as a whole. The UCSB Environmental Research Team recommends that no development, including residential, commercial, or agricultural, should be permitted within the sensitive areas or buffer zones; only light recreation should be permitted on the site; More Mesa should be acquired either for public trust or for private foundation protection and management; and a program to manage the site should be developed and implemented to provide protection for this unique area.

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APPENDIX I

THE FLORA OF MORE MESA

A - Catalogue of the Flora of More Mesa

B - Vascular Plant Species of More Mesa

Arranged by Geographic Area

Kelly P. Steele

## APPENDIX I-A LEGEND

1. Nomenclature follows Munz (1974) except as noted (see below A-C) or Bailey Hortorum (1976) as shown by (H.).
  - A. Eleocharis macrostachya in Munz (1974)
  - B. Eryngium aristulatum sensu Munz (1974)
  - C. Scirpus robustus sensu Munz (1974)
2. Status: N = native  
C = cultivated  
n = naturalized  
Habit: A = annual (or biennial)  
P = perennial herb  
S = shrub  
T = tree  
Pa = parasite
3. Observed Relative Abundance  
C = common; widely distributed and abundant when found  
O = occasional; widely distributed but not common when found  
L = locally common; scattered in distribution and common when found. -VP = vernal pools.  
u = uncommon; scattered in distribution and few in number when found  
s = scarce; only one to three individuals present  
\* = uncommon in south coast region
4. Observed or assumed months of flowering.
5. Voucher specimen collection number.

APPENDIX I-A  
Vascular Plants of More Mesa

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Mudflats	Grassland			
<i>Alopecurus howellii</i> (Pacific Foxtail)	N/A	-	L-VP*	-	-	Apr-Jul	MM82-125
<i>Amaranthus deflexus</i> (Amaranth)	n/A	-	-	u	-	May-Nov	MM81-7
<i>Ambrosia psilostachya</i> var. <i>californica</i> (Western Ragweed)	n/P	-	-	0	0	Jul-Nov	MM81-64
<i>Amsinckia intermedia</i> (Fiddleneck)	N/A	-	-	u	u	Mar-Jun	MM82-102
<i>Anagallis arvensis</i> (Scarlet Pimpernel)	n/A	-	0	c	u	Mar-Jul	MM82-155
<i>Apium graveolens</i> (Celerely)	n/P	-	u	-	-	May-Sep	MM81-30
<i>Artemisia biennis</i>	n/A	-	L	-	-	Aug-Oct	MM81-27 MM81-56
<i>A. californica</i> (Coastal Sagebrush)	N/S	-	-	u	L	Aug-Dec	MM82-156
<i>A. douglasiana</i> (Mugwort)	N/P	0	u	u	-	Jun-Oct	MM81-49

1. Scientific Name (Common Name)	2. Status / Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Metaland	Grassland			
<u>Aster exilis</u> (Aster)	N/A	-	L*	u*	-	Jul-Oct	MM81-31
<u>Atriplex patula</u> ssp. <u>hastata</u> (Spear-leaved saltbush)	N/A	-	C	-	-	Jun-Nov	MM81-6
<u>A. semibaccata</u> (Australian Saltbush)	n/p	-	u	c	u	Apr-Dec	MM82-165
<u>Avena barbata</u> (Stender Wild Oat)	n/a	-	-	L	0	Mar-Jun	MM82-181
<u>A. fatua</u> (Wild Oat)	n/a	u	-	c	c	Mar-Jun	
<u>Baccharis douglasii</u>	N/S	-	L	-	-	Jul-Oct	MM81-46 MM81-22
<u>B. glutinosa</u>	N/S	-	u	-	-	Feb-Nov	MM81-10 MM82-75
<u>B. pilularis</u> ssp. <u>consanguinea</u> (Coyote Brush)	N/S	c	0	0	0	Aug-Dec	MM81-65
<u>Beta vulgaris</u> (Garden Beet)	n/a	-	u	u	-	May-Oct	MM81-12 MM82-198
<u>Brassica geniculata</u> (Mustard)	n/a	u	u	c	0	May-Oct	MM82-154 MM81-20

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance					5. Voucher Number
		Oak Woodland	Wetland	Grassland	Scrub	4. Flowering	
<u>B. nigra</u> (Black Mustard)	n/A	u	u	c	0	Apr-Jul	
<u>B. rapa</u> ssp. <u>syvestris</u> (Field Mustard)	n/A	u	u	c	0	Jan-May	
<u>Brodiaea</u> <u>jolonensis</u> (Dwarf Brodiaea)	N/P	-	-	*	-	Apr-May	MM82-221
<u>Bromus</u> <u>carinatus</u> (California Brome)	N/A	u	-	L	u	Apr-Jul	MM82-162 MM82-116 MM82-163
<u>B. diandrus</u> (Ripgut Grass)	n/A	-	-	c	c	Apr-Jun	MM82-77
<u>B. mollis</u> (Soft Chess)	n/A	u	-	c	0	Apr-Jul	MM82-153
<u>B. willdenovii</u> (Resquegrass)	n/A	-	u	u	-	Apr-Nov	MM82-220
<u>Calandrinia</u> <u>ciliata</u> var. <u>menziesii</u> (Red Maids)	N/A	-	-	u	-	Feb-May	MM82-97
<u>Calystegia</u> <u>macrostegia</u> ssp. <u>cyclostegia</u> (Morning-Glory)	N/P	u	-	0	0	Mar-Aug	MM82-82
<u>Camissonia</u> <u>cheiranthefolia</u> ssp. <u>suffruticosa</u> (Beach Primrose)	N/P	-	-	-	0	Apr-Aug	MM82-177

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>C. micrantha</i> (Camissonia)	n/a	-	-	u	u	Mar-May	MM82-122
<i>Carpobrotus aequilaterus</i> (Sea-Fig)	n/p	-	-	-	l	Apr-Sep	
<i>C. edulis</i> (Hottentot-Fig)	n/p	-	-	u	u	Apr-Aug	MM82-180
<i>Centaurea repens</i> (Russian Knapweed)	n/p	-	l	-	-	May-Sep	MM82-200
<i>Chenopodium ambrosioides</i> (Mexican-Tea)	n/p	-	u	u	-	Jun-Oct	MM81-9
<i>C. multifidum</i> (Goosefoot)	n/a	-	-	u	-	Jun-Nov	MM81-41
<i>C. murale</i> (Goosefoot)	n/a	-	u	u	u	Jan-Dec	MM81-69 MM81-45 MM81-73
<i>Conium maculatum</i> (Poison Hemlock)	n/a	0	0	u	-	Apr-Sep	MM81-71 MM81-21
<i>Convolvulus arvensis</i> (Bindweed)	n/p	-	u	0	u	May-Oct	MM82-167
<i>Conyza bonariensis</i>	n/a	-	-	l	-	Jun-Sep	MM81-35
<i>C. canadensis</i> (Horseweed)	n/a	-	u	l	u	Jun-Sep	MM81-34
<i>Cortaderia atacamensis</i> (Pampasgrass)	n/p	-	-	u	u	Aug-Oct	

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance	Coastal Oak Woodland	Wetland	Grassland	Scrub	4. Flowering	5. Voucher Number
<u><i>Cotula coronopifolia</i></u> <u>(Brass Buttons)</u>	n/P	-	0	u	-	-	Mar-Dec	MM82-173
<u><i>Crassula aquatica</i></u>	n/A	-	u	-	-	-	Feb-Jul	MM82-85
<u><i>Cressa truxillensis</i></u> var. <u><i>vallicola</i></u> ( <i>Cressa</i> )	N/P	-	0	-	-	-	May-Oct	MM81-25
<u><i>Croton californicus</i></u> var. <u><i>californicus</i></u> ( <i>Croton</i> )	N/P	-	-	-	-	L	Mar-Oct	MM81-72
<u><i>Cuscuta campestris</i></u> <u>(Dodder)</u>	N/Pa	-	L	-	-	-	Jul-Nov	MM81-57 MM81-32
<u><i>Cynodon dactylon</i></u> <u>(Bermuda-grass)</u>	n/P	u	u	0	-	-	Apr-Sep	MM82-151
<u><i>Cyperus eragrostis</i></u> <u>(Umbrella-sedge)</u>	N/P	-	u	u	-	-	May-Nov	MM81-55 MM82-209
<u><i>Datura meteloides</i></u> <u>(Jimsonweed)</u>	N/P	-	-	-	u	u	Apr-Oct	
<u><i>Dryopteris arguta</i></u> <u>(Wood Fern)</u>	N/P	u	-	-	-	-		MM81-66
<u><i>Echinochloa crusgalli</i></u> var. <u><i>oryzicola</i></u> ( <i>Barnyard Grass</i> )	n/A	-	u	-	-	-	Jul-Oct	MM81-8
<u><i>Eleocharis acicularis</i></u> <u>(Spike Rush)</u>	N/P	-	L	-	-	-	Apr-Aug	MM82-130

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>E. palustris</i> (A.) (Spike Rush)	N/P	-	L	u	-	Apr-Nov	MM82-128 MM82-106 MM82-212
<i>Elymus condensatus</i> (Giant Ryegrass)	N/P	-	-	u	-	Jun-Sep	
<i>E. triticoides</i> (Alkali Ryegrass)	N/P	-	0	-	-	May-Aug	MM81-24 MM82-217
<i>Encelia californica</i> (California Bush-Sun- Flower)	N/S	-	-	-	L	Feb-Jan	MM82-79
<i>Epilobium adenocaulon</i> var. <u>adenocaulon</u> (Willow Herb)	N/P	-	-	u	-	Jul-Sep	MM81-44
<i>Eremocarpus setigerus</i> (Dove Weed)	N/A	-	-	u	-	May-Oct	
<i>Eriogonum parvifolium</i> (Seacliff Buckwheat)	N/S	-	-	-	L	May-Sept	MM82-184
<i>Erodium botrys</i> (Fitteree)	n/A	-	u	u	-	Mar-May	MM82-172
<i>E. cicutarium</i> (Fitteree)	n/A	-	-	0	-	Feb-May	MM82-188
<i>E. moschatum</i> (Fitteree)	n/A	-	-	C	-	Feb-May	MM82-103 MM82-141

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>Eryngium vaseyi</i> (B.) <sup>*</sup> <i>(Eryngium)</i>	N/P	-	-	L-VP*	-	May-Aug	MM81-2 MM82-138
<i>Eucalyptus camaldulensis</i> <i>(Gum Tree)</i>	n/T	u	-	u	-	unknown	MM81-5
<i>E. globulus</i> <i>(Blue Gum)</i>	n/T	-	-	-	u	Dec-May	
<i>Euphorbia lathyris</i> <i>(Caper Spurge)</i>	n/P	u	-	u	-	Jan-Dec	MM82-222
<i>Festuca megalura</i> <i>(Foxtail Fesque)</i>	n/A	-	-	c	0	Apr-Jun	MM82-121
<i>F. myuros</i> <i>(Rattail Fesque)</i>	n/A	-	-	c	0	Apr-Jun	MM82-101 MM82-104
<i>F. octoflora</i> <i>(Six-week Fesque)</i>	N/A	-	0	-	-	Apr-Jun	MM82-129
<i>Foeniculum vulgare</i> <i>(Sweet Fennel)</i>	n/P	u	0	c	u	May-Sep	MM81-54
<i>Frankenia grandifolia</i> <i>(Frankenia)</i>	N/P	-	l	-	-	May-Oct	MM81-15
<i>Galium aparine</i> <i>(Bedstraw)</i>	n/A	-	-	u	-	Mar-Jul	MM82-114
<i>Gaura odorata</i>	n/A	-	-	u	-	May-Sep	MM81-33

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance				4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland	Coastal Scrub		
<i>Geranium dissectum</i> (Cranesbill)	n/A	u	-	0	u	Mar-May	MM81-115
<i>Gnaphalium californicum</i> (Everlasting)	N/A	-	-	0	c	Mar-Sep	MM82-108
<i>G. luteo-album</i> (Everlasting)	n/A	-	-	u	u	Jan-Dec	MM82-174
<i>G. microcephalum</i> (Everlasting)	N/P	-	-	u	u	May-Oct	MM82-186 MM82-136
<i>G. purpureum</i> (Everlasting)	n/A	-	-	u	u	Apr-Jul	
<i>Gypsophila paniculata</i> (H.) (Baby's Breath)	n/p	-	-	l	-	variable	81-43
<i>Haplopappus squarrosus</i> ssp. <u>grindeliioides</u>	N/S	-	-	u	u	Jul-Nov	MM81-67
<i>H. venetus</i> ssp. <u>vernonioides</u> (Coast Goldenbush)	N/S	-	-	0	u	Apr-Nov	MM81-68
<i>Heliotropium curassavicum</i> var. <u>oculatum</u> (Heliotrope)	N/P	-	0	u	u	Mar-Oct	MM81-17
<i>Hemizonia fasciculata</i> (Tarweed)	N/A	-	-	0	u	May-Sep	MM81-36
<i>Heteromeles arbutifolia</i> (Toyon)	N/S	u	-	-	-	Jun-Nov	

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<u>Heterotheca grandiflora</u> (Telegraph Weed)	N/A	-	u	0	c	Jan-Dec	MM81-37
<u>Hordeum californicum</u> (California Barley)	N/P	-	-	u	-	Apr-Aug	MM82-137
<u>H. geniculatum</u> (Barley)	n/A	-	u	c	0	Apr-Jun	MM82-127
<u>H. leporinum</u> (Barley)	n/A	u	u	c	0	Apr-Jun	MM82-105 MM82-140
<u>Hypochoeris glabra</u> (Cat's Ear)	n/A	-	u	c	0	Mar-Jun	
<u>H. radicata</u> (Cat's Ear)	n/P	-	u	c	0	Apr-Nov	MM81-40
<u>Iris</u> sp.	n/P	-	-	u	-	variable	MM82-164
<u>Jaumea carnosa</u> (Jaumea)	N/P	-	u	-	-	May-Oct	
<u>Juncus bufonius</u> var. <u>bufonius</u> (Toad Rush)	N/A	-	0	u	-	Apr-Sep	MM82-171
<u>J. patens</u> (Rush)	N/P	-	u	-	-	Apr-Jul	MM82-201
<u>J. phaeoccephalus</u> var. <u>paniculatus</u> (Rush)	N/P	-	u	-	-	May-Aug	MM82-213

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<u>J. tenuis</u> var. <u>congestus</u> (Rush)	N/P	-	u	-	-	-	MM82-86
<u>Lactuca serriola</u> (Wild Lettuce)	n/A	-	0	u	-	May-Sep	
<u>Lavatera cretica</u> (Mallow)	n/A	-	u	0	-	May-Jul	MM81-58
<u>Lepidium lasiocarpum</u> (Peppergrass)	N/A	-	-	l	-	Feb-May	MM82-74
<u>Linaria canadensis</u> var. <u>texana</u>	N/A	-	-	u	u	Mar-May	MM82-123
<u>Lolium perenne</u> ssp. <u>multiflorum</u> (Italian Ryegrass)	n/A	u	0	c	0	Apr-Sep	MM82-168 MM82-145
<u>Lotus corniculatus</u> (Bird's Foot Trefoil)	n/p	-	-	u	-	Jun-Sep	8282-194
<u>L. grandiflorus</u> (Bird's Foot Trefoil)	N/P	-	-	u	-	Apr-Jul	
<u>L. scoparius</u> ssp. <u>scoparius</u> (Deerweed)	N/S	-	-	u	c	Mar-Aug	MM82-179
<u>L. strigosus</u> (Bird's Foot Trefoil)	N/A	-	-	u	u	Mar-Jun	MM82-187
<u>Lupinus bicolor</u> ssp. <u>umbellatus</u> (Lupine)	N/A	-	-	u	0	Mar-Jun	MM82-118

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak	Woodland	Wetland			
<u>L. <i>nanus</i> var. <i>nanus</i></u> (Lupine)	N/A	-	-	0	0	Apr-Jun	MM82-119 MM82-95
<u>Lythrum <i>hyssopifolia</i></u> (Lythrum)	N/A	-	0	-	-	Apr-Oct	MM82-169
<u>Madia <i>sativa</i></u> (Chile Tarweed)	n/A	-	-	u	-	Jun-Oct	MM81-39
<u>Malva <i>parviflora</i></u> (Cheese Weed)	n/A	-	-	0	-	Jan-Dec	MM82-143
<u>Marah <i>macrocarpus</i></u>	N/P	0	-	-	-	Jan-Apr	MM82-161
<u>Marrubium <i>vulgare</i></u> (Horehound)	n/P	u	-	u	-	Mar-Aug	
<u>Matricaria <i>matricarioides</i></u> (Pineapple Weed)	n/A	-	u	0	-	Apr-Aug	MM82-144
<u>Medicago <i>polymorpha</i></u> (Bur-clover)	n/A	-	-	0	-	Mar-Jun	MM82-152
<u>Melilotus <i>albus</i></u> (White Sweet-clover)	n/A	-	u	0	-	May-Sep	MM81-53
<u>M. <i>indicu</i>s</u> (Yellow Sweet-clover)	n/A	-	u	u	-	Apr-Oct	MM82-195
<u>Nicotiana <i>glaucia</i></u> (Tree-tobacco)	n/S	-	s	-	-	Mar-Aug	

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>Olea europaea</i> (H.) (Olive)	n/T	-	s	-	-	-	MM81-62
<i>Opuntia</i> sp. (Prickly Pear)	n/S	u	-	-	-	-	Apr-Jun
<i>Orthocarpus densiflorus</i> var. <i>densiflorus</i> (Owl's clover)	N/A	-	-	0	u	Mar-May	MM82-96
<i>Oryzopsis miliacea</i> (Ricegrass)	n/P	0	u	u	-	Apr-Sep	MM82-146
<i>Oxalis albicans</i> ssp. <i>pilosa</i> (Wood Sorrel)	N/P	u	-	u	-	Mar-May	MM82-98
<i>O. pes-caprae</i> (Bermuda-Buttercup)	n/P	0	-	-	-	Nov-Mar	MM82-83
<i>Pennisetum clandestinum</i> (Kikuyu Grass)	n/P	-	L	-	-	Jan-Dec	MM82-206
<i>Phacelia ramosissima</i> var. <i>austrolitoralis</i> (Phacelia)	N/P	-	-	-	L	May-Aug	MM82-182 82-176
<i>Phalaris aquatica</i> (Harding Grass)	n/P	u	c	c	0	Mar-Sep	MM81-59 MM82-109
<i>P. lemmonii</i> (Canary Grass)	N/A	-	L-VP*	-	-	Apr-Jun	MM82-124
<i>Pholistoma auritum</i> (Pholistoma)	N/A	L	-	-	-	Mar-May	MM82-99

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland		
<i>Picris echioides</i> (Ox Tongue)	n/A	-	0	u	-	Jun-Dec MM81-50
<i>Plagiobothrys undulatus</i> (Popcorn Flower)	N/A	-	*	-	-	Mar-Jun MM82-126
<i>Plantago lanceolata</i> (Ribgrass)	n/P	-	0	c	0	Apr-Sep
<i>P. major</i> (Common Plantain)	n/P	-	u	u	-	Apr-Oct MM82-76
<i>Platanus racemosa</i> (Sycamore)	N/T	-	u	-	-	Feb-Apr
<i>Plumbago capensis</i> (H.) (Leadwort)	n/P	-	-	u	-	variable MM82-197
<i>Poa annua</i> (Wintergrass)	n/A	u	u	0	u	Jan-Jul MM82-147
<i>P. pratensis</i> (Kentucky Bluegrass)	-	0	-	-	-	May-Aug MM82-210
<i>Polygonum aviculare</i> (Knotweed)	n/A	-	u	0	-	May-Nov MM82-185
<i>P. lapathifolium</i> (Smartweed)	N/A	-	u	-	-	Jun-Oct MM81-63
<i>P. punctatum</i> (Smartweed)	N/P	-	u	-	-	Jul-Oct

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>Polypogon monspeliensis</i> (Rabbit's Foot Grass)	n/A	-	0	-	-	-	MM82-135
<i>Populus fremontii</i> var. <i>fremontii</i> (Cottonwood)	N/T	-	s	-	-	-	MM82-203 MM81-61
<i>P. trichocarpa</i> var. <i>tri-</i> <i>chocarpa</i> (Black Cottonwood)	N/T	-	s	-	-	-	MM81-19
<i>Prunus lyonii</i> (Island Cherry)	n/T	u	-	-	-	-	Mar-May
<i>Pyracantha crenatoserrata</i> (H.)	n/S	-	s	-	-	-	MM82-211
<i>Quercus agrifolia</i> var. <i>agrifolia</i> (Coast Live-Oak)	N/T	c	u	-	-	-	Mar-May
<i>Raphanus sativus</i> (Wild Radish)	n/A	-	u	c	0	Feb-Jul	MM81-18
<i>Rhamnus californica</i> ssp. <i>californicus</i> (Coffeeberry)	N/S	0	-	-	-	-	MM81-51
<i>Ricinus communis</i> (Castor Bean)	n/S	u	-	-	-	-	Jan-Dec
<i>Rorippa nasturtium-aquaticum</i> (Water-Cress)	n/P	-	u	-	-	-	MM81-70
<i>Rubus ursinus</i> (California Blackberry)	N/S	c	-	-	-	-	Apr-Sep
							MM82-149

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland		
<i>Rumex angiocarpus</i> (Sorrel)	n/P	-	u	c	c	Mar-Sep MM81-4 MM82-117
<i>R. conglomeratus</i> (Whorled Dock)	n/P	-	u	-	-	Apr-Oct
<i>R. crispus</i> (Curly Dock)	n/P	-	c	0	u	Mar-Oct MM82-90
<i>R. salicifolius</i> (Willow Dock)	n/P	-	0	u	-	May-Sep MM82-192
<i>Salicornia virginica</i> (Pickleweed)	n/P	-	l	-	-	Aug-Sep MM81-26
<i>Salix exigua</i> (Narrowleaf Willow)	n/s	-	l	-	-	Mar-May MM82-214
<i>S. laevigata</i> var. <i>laevigata</i> (Red Willow)	n/t	-	u	-	-	Feb-May MM82-207
<i>S. lasiandra</i> var. <i>lasiandra</i> and var. <i>lancifolia</i> (Yellow Willow)	n/t	u	0	-	-	Feb-Apr MM82-202 MM82-204
<i>S. lasiolepis</i> var. <i>lasiolepis</i> N/S,T (Arroyo Willow)	0	c	-	-	-	Feb-May MM82-91 MM82-208
<i>Sambucus mexicana</i> (Elderberry)	n/t	0	-	-	-	Mar-Sep MM82-148
<i>Scirpus californicus</i> (Tule)	n/p	-	0	-	-	Jun-Sep MM81-23

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance				5. Voucher Number
		Oak Woodland	Wetland	Grassland	Scrub	
<i>S. maritimus</i> (C.) (Bulrush)	N/P	-	0	u	-	MM82-196
<i>Scrophularia californica</i>	N/P	u	-	-	-	MM82-158
<i>Senecio vulgaris</i> (Common Groundsel)	n/A	u	-	u	-	Mar-May
<i>Sida leprosa</i> var. <i>hederacea</i>	N/P	-	0	c	u	Jan-Dec
<i>Sida leprosa</i> var. <i>hederacea</i> (Alkalai Mallow)	n/A	-	-	0	Jun-Oct	MM81-1
<i>Silene gallica</i> (Pink)	n/A	u	u	u	u	Feb-Jun
<i>Silybum marianum</i> (Milk Thistle)	n/A	u	u	u	-	May-Jul
<i>Sisyrinchium bellum</i> (Blue-eyed Grass)	N/P	-	u	c	-	MM82-88
<i>Solanum douglasii</i> (Nightshade)	N/S	0	-	-	0	Mar-May
<i>Solidago occidentalis</i> (Western Goldenrod)	N/P	-	L*	-	-	Jan-Dec
<i>Sonchus asper</i> (Sow-Thistle)	n/A	u	u	c	u	MM81-14
<i>S. oleraceus</i>	n/A	u	u	0	-	Jul-Nov
<i>Sparganium eurycarpum</i> (Bur-reed)	N/P	-	L*	-	-	Jan-Dec
					-	Apr-Dec
					-	MM82-202

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance					4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland	Coastal Scrub			
<i>Spergula arvensis</i> (Spurrey)	n/A	-	u	0	0	0	Feb-Jul	MM82-170
<i>Spergularia bocconii</i> (Sand-spurrey)	n/A	-	u	u	0	0	Apr-Sep	MM82-112
<i>S. marina</i> (Sand-spurrey)	N/A	-	u	u	0	0	Mar-Sep	MM82-134 MM81-42
<i>S. rubra</i> (Sand-spurrey)	n/A	-	u	u	u	u	Mar-Jun	MM82-87 MM82-131
<i>S. villosa</i> (Sand-spurrey)	n/P	-	u	u	0	0	Apr-Jul	MM-82-113
<i>Stachys bullata</i> (Hedge-nettle)	N/P	u	-	-	-	-	Apr-Sep	MM82-150
<i>Stipa lepida</i> (Needlegrass)	N/P	u	-	u	-	-	Feb-Jul	MM82-159
<i>Tamarix parviflora</i> (Tamarisk)	n/T	-	u	u	-	-	Apr-Jul	MM82-215
<i>Toxicodendron diversilobum</i> (Poison Oak)	N/S	c	-	-	-	-	Apr-May	
<i>Tragopogon porrifolius</i> (Salsify)	n/P	-	-	u	-	-	Apr-Jun	
<i>Trifolium dubium</i> (Clover)	n/A	-	u	u	-	-	May-Jul	MM82-175

1. Scientific Name (Common Name)	2. Status/ Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak Woodland	Wetland	Grassland			
<i>T. gracilentum</i> (Clover)	N/A	-	-	-	u	Apr-Jun	MM82-183
<i>T. hirtum</i> (Clover)	n/A	-	u	c	0	Apr-Jun	MM82-107
<i>Tropaeolum majus</i> (Garden Nasturtium)	n/A	u	-	-	-	Mar-Nov	
<i>Typha latifolia</i> (Cat-tail)	N/P	-	L	-	-	Jun-Jul	MM81-13
<i>Urtica dioica</i> (Nettle)	N/P	c	-	-	-	Feb-Jun	MM81-47
<i>Verbena robusta</i> (Vervain)	N/P	c	u	0	-	May-Oct	MM81-16 MM81-52 MM82-160
<i>Veronica anagallis-aquatica</i> (Speedwell)	n/P	-	u	-	-	May-Sep	MM82-190
<i>Vicia benghalensis</i> (Vetch)	n/A	-	u	c	0	Apr-Jun	MM82-100 MM82-166
<i>V. dasycarpa</i> (Vetch)	n/A	-	u	0	0	Apr-Jun	MM82-111
<i>V. sativa</i> (Spring Vetch)	n/A	-	u	c	0	Apr-Jul	MM82-110

1. Scientific Name (Common Name)	2. Status / Habit	3. Abundance			Coastal Scrub	4. Flowering	5. Voucher Number
		Oak	Woodland	Wetland			
<u>Vinca major</u> (Periwinkle)	n/p	u	-	-	-	Feb-Jul	MM82-92
<u>Xanthium strumarium</u> var. <u>canadense</u> (Cocklebur)	n/a	-	0	u	-	Jul-Oct	MM81-11
<u>Zannichellia palustris</u> (Horned Pondweed)	N/A	-	L*	-	-	Mar-Nov	MM82-191

APPENDIX I-B  
Vascular Plant Species of More Mesa by Geographic Area  
(see Appendix I-A for additional information)

1. Atascadero Creek

<i>Atriplex patula</i>	<i>Eleocharis palustris</i>
<i>Chenopodium ambrosioides</i>	<i>Encelia californica</i>
<i>Cotula coronopifolia</i>	<i>Eriogonum parvifolium</i>
<i>Echinochloa crusgalli</i>	<i>Erodium cicutarium</i>
	<i>E. moschatum</i>
<i>Juncus bufonius</i>	<i>Festuca myuros</i>
<i>Lythrum hyssopifolia</i>	<i>Foeniculum vulgare</i>
<i>Melilotus albus</i>	<i>Galium aparine</i>
<i>Polygonum aviculare</i>	<i>Geranium dissectum</i>
<i>P. punctatum</i>	<i>Gnaphalium californicum</i>
<i>Polypogon monspeliensis</i>	
<i>Scirpus californicus</i>	<i>Haplopappus venetus</i>
<i>S. maritimus</i>	<i>Heterotheca grandiflora</i>
<i>Spergularia marina</i>	<i>Hordeum geniculatum</i>
<i>Veronica anagallis-aquatica</i>	<i>H. leporinum</i>
<i>Zannichellia palustris</i>	<i>Hypochoeris glabra</i>
	<i>H. radicata</i>
	<i>Lolium perenne</i>
	<i>Lotus scorpiarius</i>
	<i>L. strigosus</i>
	<i>Lupinus bicolor</i>
	<i>L. nanus</i>
	<i>Matricaria matricarioides</i>

2. West Mesa

A. Coastal Section

<i>Amsinckia intermedia</i>	<i>Orthocarpus densiflorus</i>
<i>Avena barbata</i>	<i>Phacelia ramosissima</i>
<i>A. fatua</i>	<i>Phalaris aquatica</i>
<i>Baccharis pilularis</i>	<i>Polygonum aviculare</i>
<i>Bromus diandrus</i>	
<i>B. mollis</i>	<i>Rumex angiocarpus</i>
	<i>R. crispus</i>
<i>Camissonia cheiranthifolia</i>	<i>Sida leprosa</i>
<i>C. micrantha</i>	<i>Silene gallica</i>
<i>Carpobrotus aequilaterus</i>	<i>Sonchus oleraceus</i>
<i>Chenopodium murale</i>	<i>Spergula arvensis</i>
<i>Cortaderia atacamensis</i>	<i>Spergularia bocconii</i>
<i>Croton californicus</i>	<i>S. villosa</i>

A. Coastal Section (cont.)	
<i>Trifolium hirtum</i>	<i>Medicago polymorpha</i>
<i>T. gracilentum</i>	<i>Orthocarpus densiflorus</i>
<i>Vicia benghalensis</i>	<i>Phalaris aquatica</i>
<i>V. dasycarpa</i>	<i>Plantago lanceolata</i>
<i>V. sativa</i>	<i>P. major</i>
B. West Section	
<i>Ambrosia psilostachya</i>	<i>Polygonum aviculare</i>
<i>Anagallis arvensis</i>	<i>Polypogon monspeliensis</i>
<i>Atriplex semibaccata</i>	
<i>Avena barbata</i>	<i>Raphanus sativus</i>
<i>A. fatua</i>	<i>Rumex crispus</i>
<i>Beta vulgaris</i>	<i>Sida leprosa</i>
<i>Brassica geniculata</i>	<i>Solidago occidentalis</i>
<i>Bromus diandrus</i>	<i>Sonchus asper</i>
<i>B. mollis</i>	<i>Spergula arvensis</i>
	<i>Spergularia spp.</i>
<i>Convolvulus arvensis</i>	<i>Trifolium dubium</i>
<i>Cotula coronopifolia</i>	<i>T. hirtum</i>
<i>Cynodon dactylon</i>	
<i>Cyperus eragrostis</i>	<i>Vicia benghalensis</i>
	<i>V. dasycarpa</i>
<i>Echinochloa crusgalli</i>	<i>V. sativa</i>
<i>Eleocharis palustris</i>	<i>Xanthium strumarium</i>
<i>Erodium botrys</i>	
Foeniculum vulgare	C. East Section
Gnaphalium californicum	<i>Ambrosia psilostachya</i>
G. luteo-album	<i>Artemisia douglasiana</i>
G. purpureum	<i>Atriplex semibaccata</i>
Haplopappus venetus	<i>Avena fatua</i>
Heliotropium curassavicum	
Hemizonia fasciculata	<i>Baccharis pilularis</i>
Hordeum geniculatum	<i>Brodiaea polystachys</i>
Hypochoeris radicata	<i>Bromus diandrus</i>
Iris sp.	
Juncus bufonius	<i>Conium maculatum</i>
Lolium perenne	<i>Convolvulus arvensis</i>
Lythrum hyssopifolia	<i>Conyza canadensis</i>

C. East Section (cont.)

Haplopappus squarrosus  
H. venetus  
Hemizonia fasciculata  
Hordeum californicum  
  
Lolium perenne  
  
Orthocarpus densiflorus  
  
Plantago lanceolata  
Polygonum aviculare  
P. lapathifolium  
  
Rumex angiocarpus  
R. salicifolius  
  
Sida leprosa  
Silene gallica  
Sisyrinchium bellum  
Sonchus asper  
  
Tragopogon porrifolius  
Trifolium hirtum  
  
Vicia benghalensis

Cortaderia atacamensis  
Cynodon dactylon  
Cyperus eragrostis  
  
Eleocharis palustris  
Elymus triticoides  
  
Foeniculum vulgare  
Frankenia grandifolia  
  
Geranium dissectum  
  
Heliotropium curassavicum  
Hordeum leporinum  
  
Juncus patens  
J. phaeocephalus  
  
Lactuca serriola  
Lavatera cretica  
Lolium perenne  
  
Melilotus indicus  
  
Paspalum dilatatum  
Pennisetum clandestinum  
Phalaris aquatica  
Picris echiooides  
Poa annua  
Populus fremontii  
P. trichocarpa  
Pyracantha crenatoserrata  
  
Quercus agrifolia  
  
Raphanus sativus  
Rhamnus californica  
Rumex conglomeratus  
R. crispus  
  
Sambucus mexicana  
Salix laevigata  
S. lasiandra  
S. lasiolepis  
Scirpus californicus  
S. maritimus  
Sida leprosa  
Silybum marianum  
Solidago occidentalis  
Sonchus oleracea  
Sparganium eurycarpum

3. West Drainage System

A. Central Basin

Anagallis arvensis  
Atriplex patula  
Avena fatua  
  
Baccharis douglassii  
B. pilularis  
Beta vulgaris  
Brassica geniculata  
B. nigra  
B. rapa  
Bromus diandrus  
B. mollis  
B. willdenovii  
  
Carduus pycnocephalus  
Centaurea repens  
Chenopodium ambrosioides  
Conium maculatum  
Convolvulus arvensis

B. Central Basin (cont.)	
Tamarix sp.	<i>Raphanus sativus</i>
<i>Tragopogon porrifolius</i>	<i>Rhamnus californica</i>
<i>Typha latifolia</i>	<i>Ricinus communis</i>
<i>Verbena robusta</i>	<i>Rubus ursinus</i>
<i>Vicia sativa</i>	
<i>Xanthium strumarium</i>	
B. Central Basin Slope	
<i>Artemisia californica</i>	<i>Salix lasiolepis</i>
<i>A. douglasiana</i>	<i>Sambucus mexicana</i>
<i>Baccharis pilularis</i>	<i>Scrophularia californica</i>
<i>Brassica geniculata</i>	<i>Silybum marianum</i>
<i>Bromus mollis</i>	<i>Sisyrinchium bellum</i>
<i>Calystegia macrostegia</i>	<i>Solanum douglasii</i>
<i>Conium maculatum</i>	<i>Sonchus asper</i>
<i>Cynodon dactylon</i>	<i>Stachys bullata</i>
<i>Foeniculum vulgare</i>	<i>Stipa lepida</i>
<i>Geranium dissectum</i>	
<i>Hordeum geniculatum</i>	
<i>H. leporinum</i>	<i>Toxicodendron diversilobum</i>
<i>Lavatera cretica</i>	
<i>Lolium perenne</i>	<i>Urtica holosericea</i>
<i>Marah macrocarpa</i>	
<i>Malva parviflora</i>	
<i>Marrubium vulgare</i>	
<i>Matricaria matricarioides</i>	<i>Verbena robusta</i>
<i>Opuntia</i> sp.	
<i>Oryzopsis miliacea</i>	
<i>Oxalis pes-caprae</i>	
<i>Phalaris aquatica</i>	<i>C. West Ravine</i>
<i>Picris echioides</i>	
<i>Prunus lyonii</i>	
<i>Quercus agrifolia</i>	<i>Baccharis pilularis</i>
	<i>Brassica rapa</i>
	<i>B. geniculata</i>
	<i>Carpobrotus edulis</i>
	<i>Conium maculatum</i>
	<i>Heteromeles arbutifolia</i>
	<i>Marah macrocarpa</i>
	<i>Marrubium vulgare</i>
	<i>Quercus agrifolia</i>
	<i>Rubus ursinus</i>
	<i>Sambucus mexicana</i>
	<i>Sonchus asper</i>
	<i>Toxicodendron diversilobum</i>
	<i>Urtica holosericea</i>
D. East Ravine	
	<i>Ambrosia psilostachya</i>
	<i>Anagallis arvensis</i>
	<i>Atriplex semibaccata</i>
	<i>Avena fatua</i>

D. East Ravine (cont.)	<i>Lactuca serriola</i>
<i>Baccharis pilularis</i>	<i>Lavatera cretica</i>
<i>Calystegia macrostegia</i>	<i>Lolium perenne</i>
<i>Dryopteris arguta</i>	<i>Oxalis albicans</i>
<i>Foeniculum vulgare</i>	<i>Phalaris aquatica</i>
<i>Lactuca serriola</i>	<i>Pholistoma auritum</i>
<i>Oxalis corniculatus</i>	<i>Quercus agrifolia</i>
<i>Phalaris aquatica</i>	<i>Raphanus sativus</i>
<i>Raphanus sativus</i>	<i>Rubus ursinus</i>
<i>Rhamnus californica</i>	<i>Rumex crispus</i>
<i>Salix lasiolepis</i>	<i>Salix lasiolepis</i>
<i>Toxicodendron diversilobum</i>	<i>Sambucus mexicana</i>
	<i>Sisyrinchium bellum</i>
	<i>Sonchus asper</i>
	<i>Spergula arvensis</i>
	<i>Spergularia spp.</i>
	<i>Trifolium hirtum</i>
<u>4. Central Hill</u>	<i>Vicia benghalensis</i>
<i>Ambrosia psilostachya</i>	<i>V. sativa</i>
<i>Anagallis arvensis</i>	<i>Vinca major</i>
<i>Artemisia douglasiana</i>	
<i>Avena fatua</i>	
<i>Baccharis pilularis</i>	<u>5. East Mesa</u>
<i>Beta vulgaris</i>	<u>A. Northwest Section</u>
<i>Brassica rapa</i>	<i>Ambrosia psilostachya</i>
<i>Bromus carinatus</i>	<i>Atriplex semibaccata</i>
<i>B. diandrus</i>	<i>Avena fatua</i>
<i>B. mollis</i>	
<i>Calystegia macrostegia</i>	<i>Baccharis pilularis</i>
<i>Conium maculatum</i>	<i>Brassica geniculata</i>
<i>Eucalyptus camaludensis</i>	<i>B. rapa</i>
<i>Foeniculum vulgare</i>	<i>Conium maculatum</i>
<i>Geranium dissectum</i>	<i>Eremocarpus setigerus</i>
<i>Haplopappus venetus</i>	<i>Festuca megalura</i>
<i>Hemizonia fasciculata</i>	<i>Foeniculum vulgare</i>
<i>Hordeum californicum</i>	
<i>H. geniculatum</i>	<i>Hypochoeris radicata</i>
<i>H. leporinum</i>	<i>Lactuca serriola</i>
	<i>Lavatera cretica</i>
	<i>Lepidium lasiocarpum</i>

A. Northwest Section (cont.)		
Lolium perenne		<i>Gnaphalium microcephalum</i>
<i>Lupinus bicolor</i>		<i>Gypsophila paniculata</i>
<i>Orthocarpus densiflorus</i>		<i>Hordeum geniculatum</i>
<i>Oryzopsis miliacea</i>		<i>H. leporinum</i>
<i>Phalaris aquatica</i>		<i>Hypochoeris radicata</i>
<i>Plantago lanceolata</i>		<i>Lactuca serriola</i>
<i>Raphanus sativus</i>		<i>Lavatera cretica</i>
<i>Rumex conglomeratus</i>		<i>Lotus grandiflorus</i>
<i>R. crispus</i>		<i>Malva parviflora</i>
<i>Sida leprosa</i>		<i>Medicago polymorpha</i>
<i>Sisyrinchium bellum</i>		<i>Phalaris aquatica</i>
<i>Sonchus oleracea</i>		<i>Picris echioides</i>
<i>Spergularia spp.</i>		<i>Plumbago capensis</i>
<i>Trifolium hirtum</i>		<i>Polypogon monspeliensis</i>
<i>Verbena robusta</i>		<i>Raphanus sativus</i>
<i>Vicia benghalensis</i>		<i>Rumex angiocarpus</i>
B. Northeast Section		<i>R. crispus</i>
<i>Anagallis arvensis</i>		<i>Sida leprosa</i>
<i>Aster exilis</i>		<i>Silene gallica</i>
<i>Atriplex semibaccata</i>		<i>Sonchus oleracea</i>
<i>Baccharis pilularis</i>		<i>Spergularia spp.</i>
<i>Brassica geniculata</i>		
<i>B. rapa</i>		
<i>Bromus carinatus</i>		
<i>B. diandrus</i>		
<i>Chenopodium murale</i>		
<i>Convolvulus arvensis</i>		
<i>Conyza bonariensis</i>		
<i>C. canadensis</i>		
<i>Cynodon dactylon</i>		
<i>Epilobium adenocaulon</i>		
<i>Erodium cicutarium</i>		
<i>E. moschatum</i>		
<i>Festuca megalura</i>		
<i>Foeniculum vulgare</i>		
C. East Central Section		
		<i>Ambrosia psilostachya</i>
		<i>Atriplex semibaccata</i>
		<i>Avena fatua</i>
		<i>Baccharis pilularis</i>
		<i>Brassica geniculata</i>
		<i>B. nigra</i>
		<i>Bromus carinatus</i>
		<i>Chenopodium multifidum</i>
		<i>Convolvulus arvensis</i>
		<i>Cotula coronopifolia</i>
		<i>Cyperus eragrostis</i>

C. East Central Section (cont.)

<i>Festuca megalura</i>	<i>Baccharis pilularis</i>
<i>Frankenia grandifolia</i>	<i>Bromus carinatus</i>
<i>Gnaphalium californicum</i>	<i>B. diandrus</i>
<i>Hemizonia fasciculata</i>	<i>B. mollis</i>
<i>Heterotheca grandiflora</i>	<i>Brassica nigra</i>
<i>Hordeum geniculatum</i>	
<i>H. leporinum</i>	<i>Foeniculum vulgare</i>
<i>Lactuca serriola</i>	
<i>Lavatera cretica</i>	<i>Gnaphalium californicum</i>
<i>Lolium perenne</i>	
<i>Lotus corniculatus</i>	<i>Hordeum leporinum</i>
<i>L. scorpiarius</i>	<i>Hypochoeris radicata</i>
<i>Madia sativa</i>	
<i>Matricaria matricarioides</i>	<i>Lupinus bicolor</i>
<i>Medicago polymorpha</i>	<i>L. nanus</i>
<i>Melilotus indicus</i>	
<i>Phalaris aquatica</i>	<i>Orthocarpus densiflorus</i>
<i>Picris echioides</i>	
<i>Plantago lanceolata</i>	<i>Phalaris aquatica</i>
<i>Polypogon monspeliensis</i>	
<i>Raphanus sativus</i>	<i>Raphanus sativus</i>
<i>Rumex angiocarpus</i>	<i>Rumex angiocarpus</i>
<i>R. crispus</i>	<i>Sisyrinchium bellum</i>
<i>R. salicifolius</i>	
<i>Salix lasiolepis</i>	<i>Trifolium hirtum</i>
<i>Scirpus californicus</i>	
<i>S. maritimus</i>	<i>Vicia sativa</i>
<i>Sida leprosa</i>	
<i>Spergularia marina</i>	
<i>Trifolium hirtum</i>	
<i>Typha latifolia</i>	
<i>Vicia benghalensis</i>	
<i>V. sativa</i>	

D. West Central Section

<i>Atriplex semibaccata</i>	<i>Datura meteloides</i>
<i>Avena fatua</i>	

E. Coastal Section

<i>Ambrosia psilostachya</i>
<i>Artemisia californica</i>
<i>Atriplex semibaccata</i>
<i>Avena fatua</i>

<i>Baccharis pilularis</i>
<i>Brassica geniculata</i>
<i>B. rapa</i>
<i>Bromus carinatus</i>
<i>B. diandrus</i>
<i>B. mollis</i>

<i>Calystegia macrostegia</i>
<i>Camissonia micrantha</i>

*Datura meteloides*

<i>Encelia californica</i>
<i>Eriogonum parvifolium</i>
<i>Erodium cicutarium</i>
<i>Eucalyptus globulus</i>

E. Coastal Section (cont.)	
<i>Festuca megalura</i>	<i>Eleocharis acicularis</i>
<i>Gnaphalium californicum</i>	<i>E. palustris</i>
<i>Heterotheca grandiflora</i>	<i>Erodium moschatum</i>
<i>Hordeum leporinum</i>	<i>Eryngium vaseyi</i>
<i>Hypochoeris glabra</i>	<i>Eucalyptus globulus</i>
<i>H. radicata</i>	
<i>Linaria canadensis</i>	<i>Festuca megalura</i>
<i>Lolium perenne</i>	<i>F. octoflora</i>
<i>Lotus scoparius</i>	
<i>Lupinus bicolor</i>	<i>Hemizonia fasciculata</i>
<i>L. nanus</i>	<i>Heterotheca grandiflora</i>
<i>Matricaria matricarioides</i>	<i>Hordeum geniculatum</i>
<i>Phalaris aquatica</i>	<i>H. leporinum</i>
<i>Plantago lanceolata</i>	<i>Hypochoeris glabra</i>
<i>Polygonum aviculare</i>	<i>H. radicans</i>
<i>Raphanus sativus</i>	<i>Juncus bufonius</i>
<i>Rumex crispus</i>	<i>J. tenuis</i>
<i>Solanum douglasii</i>	
<i>Spergula arvensis</i>	<i>Lavatera cretica</i>
<i>Spergularia rubra</i>	<i>Lolium perenne</i>
<i>Trifolium hirtum</i>	<i>Lotus scoparius</i>
<i>Vicia benghalensis</i>	<i>Lythrum hyssopifolia</i>
<i>V. sativa</i>	
F. Southeast Section	<i>Medicago polymorpha</i>
<i>Alopecurus howellii</i>	<i>Pennisetum clandestinum</i>
<i>Amsinckia intermedia</i>	<i>Phalaris aquatica</i>
<i>Anagallis arvensis</i>	<i>P. lemmonii</i>
<i>Atriplex semibaccata</i>	<i>Plagiobothrys undulata</i>
<i>Avena barbata</i>	<i>Plantago lanceolata</i>
<i>A. fatua</i>	<i>Poa annua</i>
<i>Baccharis pilularis</i>	<i>Polypogon monspeliensis</i>
<i>Bromus diandrus</i>	
<i>B. mollis</i>	<i>Raphanus sativus</i>
<i>Carduus pycnocephalus</i>	<i>Rumex angiocarpus</i>
<i>Cotula coronopifolia</i>	
<i>Crassula aquatica</i>	<i>Sida leprosa</i>
	<i>Sisyrinchium bellum</i>
	<i>Sonchus oleraceus</i>
	<i>Spergularia rubra</i>
	<i>S. villosa</i>
	<i>Trifolium hirtum</i>
	<i>Vicia benghalensis</i>
	<i>V. sativa</i>

## 6. East Drainage System

### A. North Basin

*Artemisia biennis*

*Aster exilis*

*Atriplex patula*

*Bromus diandrus*

*B. mollis*

*Conium maculatum*

*Cressa truxillensis*

*Cuscuta campestris*

*Frankenia grandifolia*

*Heliotropium curassavicum*

*Hordeum geniculatum*

*Lactuca serriola*

*Phalaris aquatica*

*Picris echioides*

*Rumex crispus*

*Salicornia virginica*

*Salix lasiolepis*

*Scirpus californicus*

*S. maritimus*

*Sida leprosa*

*Solidago occidentalis*

*Sonchus asper*

*Vicia sativa*

### B. South Basin

*Apium graveolens*

*Aster exilis*

*Artemisia douglasiana*

*Atriplex patula*

*Baccharis pilularis*

*Conium maculatum*

*Frankenia grandifolia*

*Jaumea carnosa*

*Phalaris aquatica*  
*Picris echioides*  
*Polypogon monspeliensis*

*Rumex crispus*

*Scirpus maritimus*  
*Sida leprosa*  
*Spergularia marina*

*Xanthium strumarium*

### C. North Ravine

*Artemisia biennis*  
*A. douglasiana*

*Baccharis pilularis*

*Conium maculatum*  
*Cyperus eragrostis*

*Lavatera cretica*

*Oryzopsis miliacea*

*Phalaris aquatica*  
*Platanus racemosa*  
*Populus fremontii*

*Quercus agrifolia*

*Raphanus sativus*  
*Rumex crispus*

*Salix lasiolepis*  
*Sonchus asper*

*Toxicodendron diversilobum*

*Verbena robusta*

### D. North Central Ravine

*Baccharis pilularis*  
*Brassica nigra*  
*Bromus mollis*

*Foeniculum vulgare*

D. North Central Ravine (cont.)

*Geranium dissectum*

*Phalaris aquatica*

*Salix lasiolepis*

E. South Central Ravine

*Baccharis pilularis*

*Dryopteris arguta*

*Eleocharis* sp.

*Elymus condensatus*

*Heteromeles arbutifolia*

*Quercus agrifolia*

*Rhamnus californica*

*Rorippa nasturtium-aquaticum*

*Rubus ursinus*

*Salix lasiolepis*

*Solanum douglasii*

*Toxicodendron diversilobum*

*Tropaeolum majus*

*Urtica holosericea*

F. South Ravine

*Baccharis pilularis*

*Conium maculatum*

*Foeniculum vulgare*

*Phalaris aquatica*

*Quercus agrifolia*

*Salix lasiolepis*

*Toxicodendron diversilobum*



**APPENDIX II**

**BIRDS OF MORE MESA**

**A - Census Data**

**B - Checklist of the Birds**

**Paul Lehman**

**APPENDIX II - A: BIRD CENSUS DATA**

The following table is a summary of the information obtained during the bird censuses conducted during the study ( July 1981 - May 1982 ).

There are two columns for each date a census took place; the left hand of the two is for the combined oak and riparian areas of the study site. The right-hand column of the two is for the grassland/fennel areas on the mesa proper. Species whose numbers are underlined were noted only flying well overhead and not utilizing the area per se. The censuses took place in the a.m. The oak/riparian census lasted approximately 45 minutes. The grassland/fennel census would generally last 1 hour 15 minutes.

	7/25	8/8	8/22	9/4	9/20	10/4	10/18	10/31	11/14	11/30	12/15	12/30	1/12	1/26	2/9	2/26	3/13	3/30	4/10	4/25	5/9	5/23	
Great Blue Heron	1	1		1																			
Green Heron				2																			
Great Egret					1																		
Snowy Egret					7	1																	
Mallard						5																	
Green-winged Teal							2																
Cinnamon Teal								7															
Turkey Vulture									1														
White-tailed Kite		1	1	1				1	2	1													
Sharp-shinned Hawk									4	1	1	2	1	2	10	1	11	4	3	3	2	2	
Cooper's Hawk									1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Red-tailed Hawk			1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Red-shouldered Hawk										1													
Marsh Hawk											1												
American Kestrel	5								2	2	1	1	2	1	1	1	1	2	1	1	1	1	1
California Quail																							
American Coot																							
Killdeer																							
Black-bellied Plover																							
Whimbrel																							
Greater Yellowlegs																							
Solitary Sandpiper																							
Spotted Sandpiper																							
Wandering Tattler																							

	7/25	8/8	8/22	9/4	9/20	10/4	10/18	10/31	11/14	11/30	12/15	12/30	1/12	1/26	2/9	2/26	3/13	3/30	4/10	4/25	5/9	5/23
Common Snipe																						
Long-billed Dowitcher																						
Least Sandpiper																						
Glaucous-winged Gull																						
Western Gull	5	15	6	6	1	25	16	1	3	2	3	5	2	3	5	2	3	6	5	3	8	20
California Gull																						3
Ring-billed Gull																						
Rock Dove	5	1	15	46	17	10	15	11	2	17	3	3	1	2	1	6	3	1	2	1	2	4
Mourning Dove	7	4	12	7	6	4	12	10	2	4	1	3	6	3	1	3	10	1	2	4	2	10
Short-eared Owl																						3
Vaux's Swift																						20
Black-chinned Hummingbird	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anna's Hummingbird	5	—	9	3	3	2	1	1	4	1	6	4	4	1	6	1	5	1	3	1	2	1
Rufous Hummingbird																						4
Allen's Hummingbird																						3
Selasphorus sp.	1	3	3	1																		
Belted Kingfisher																						1
Common Flicker																						1
Acorn Woodpecker	2																					
Hairy Woodpecker																						
Downy Woodpecker	1	1	1	1																		
Nuttall's Woodpecker																						
Western Kingbird																						1
Cassin's Kingbird																						1
Ash-throated Flycatcher																						1
Black Phoebe	2		3		1	1	2	1	1	2	1	2	1	2	1	2	1	1	1	1	1	1

	7/25	8/8	8/22	9/4	9/20	10/4	10/18	10/31	11/14	11/30	12/15	12/30	1/12	1/26	2/9	2/26	3/13	3/30	4/10	4/25	5/9	5/23
Say's Phoebe																						
Willow Flycatcher																						
Western Wood Pewee																						
Horned Lark	1	5																				
Rough-winged Swallow	1	1	2		2																	
Barn Swallow	4	2	3	2	2	1																
Cliff Swallow	5	2																				
Scrub Jay	4	3	2	4	3	1	4	2	4	2	4	4	2	3	1	3	2	1	2	3	1	5
Common Crow	110		1	3	5	4	2	3	5	1	3	2	2	1	1	1	2	3	1	1	1	2
Plain Titmouse																						
Bushtit	25	15	15	15	6	35	10	15	20	35	10	25	15	30	40	40	45	15	11	20	3	8
White-breasted Nuthatch																						
Wrentit	5	1	4	1	3	1	4	1	3	1	2	2	1	2	4	2	5	1	3	1	4	3
House Wren																						
Bewick's Wren	1																					
Long-billed Marsh Wren																						
Mockingbird	2	8	2	6	1	4	1	3	1	3	1	6	1	2	1	1	2	1	1	2	1	2
California Thrasher	1	2	1	1																		
American Robin																						
Varied Thrush																						
Hermit Thrush																						
Blue-gray Gnatcatcher	1																					
Ruby-crowned Kinglet																						
Water Pipit																						
Cedar Waxwing																						
Loggerhead Shrike	1	1	2	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Starling	4	9																				
* Western Flycatcher																						



	7/25	8/8	8/22	9/4	9/20	10/4	10/18	10/31	11/14	11/30	12/15	12/30	1/12	1/26	2/9	2/26	3/13	3/30	4/10	4/25	5/9	5/23	
Hutton's Vireo		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	
Warbling Vireo																					2	1	
Orange-crowned Warbler	3	10	2	5	2	4	2	4	3	1	2		3	2	4	4	4	4	4	8	2	5	
Nashville Warbler		1																			2	2	
Yellow Warbler	1		3	1	1	3	3	2												1	2		
Yellow-rumped Warbler							2	4	8	4	9	2	17	10	1	8	2	15	8	6	5	8	
Black-throated Gray Warbler							2					1											
Townsend's Warbler												1	1								1	1	
Northern Waterthrush							1																
MacGillivray's Warbler																							
Common Yellowthroat	10	8	5	6	5	10	5	5	6	7	5	9	4	10	3	4	3	2	9	1	5	1	
Wilson's Warbler		2					2	1															
House Sparrow																						25	
Bobolink							12																
Western Meadowlark							1	4		3	2	45	32	14	55	41	32	5	90	24	28	13	11
Red-winged Blackbird																							
Tricolored Blackbird	3									6	15	5	12	4	1	2							
Orchard Oriole																							
Hooded Oriole	3									2	1		1										
Northern Oriole		2								1													
Brewer's Blackbird		1																					
Brown-headed Cowbird																							
Western Tanager																							
Black-headed Grosbeak	8									5	1												
Blue Grosbeak																							
Luzuli Bunting																				1			
Bunting sp.												1	1									1	

	7/25	8/8	8/22	9/4	9/20	10/4	10/18	10/31	11/14	11/30	12/15	12/30	1/12	1/26	2/9	2/26	3/13	3/30	4/10	4/25	5/9	5/23	
Purple Finch																							
House Finch	20	4	55	8	20	6	10	13	45	4	18	11	12	6	8	5	8	5	25	5	10	2	
Pine Siskin																							
American Goldfinch	1	3	1	2	1	2					2	5		4	4	4	1	4	40	2	7	10	2
Lesser Goldfinch	7	8	4	2	7	8	2	1	3	8	5	6	4	6	7	2	3	12	3	16	2	18	1
Lawrence's Goldfinch																							
Rufous-sided Towhee	5		3		1	1	1	2		2	3					3	3	5	1	2	4	3	2
Brown Towhee	5		8	2	3	2	7	3	2	1	1	4	2	2	1	4	3	6	2	7	3	6	2
Savannah Sparrow						1	5	6	8	6	36	11	23	22	19	35	34	17	33	14	17	33	14
Dark-eyed Junco																							
Spizella sp.																							
White-crowned Sparrow						6	10	2	15	15	2	30	6	20	25	17	2	15	8	1	20	30	4
Golden-crowned Sparrow											2	6	2	3	4	7	6	8	3	20	4	25	13
Fox Sparrow																1		1					
Lincoln's Sparrow											1	3	1	3	1	4	2	4	6	1	1	3	2
Song Sparrow	10	11	6	6	5	7	15	10	4	7	7	4	9	8	8	4	7	9	7	5	9	5	11

**APPENDIX III-B**

**CHECKLIST OF BIRDS OF MORE MESA (1971-1982)**

**Key**

Spring - March 1-May 31  
Summer - June 1-July 31  
Fall - August 1-November 30  
Winter - December 1-February 28

C - common (5 or more individuals per day)  
U - uncommon (1-4 individuals per day)  
R - rare (1-5 sightings per season)  
cas. - casual (less than 5 sightings ever)

Breeding - x - definitely has nested in More Mesa study area during 1971-1982  
? - possibly has nested in More Mesa study area during 1971-1982

Habitats are given under the "comments" heading if the species' distribution in the More Mesa area is largely or totally restricted to this habitat.

CHECKLIST OF BIRDS OF MORE MESA (1971-1982)

C = common; U = uncommon; R = rare; cas. = casual.

Species	Comments				
	Spring	Summer	Fall	Winter	Breeding
Common Loon	R				overhead only
Double-crested Cormorant	R				overhead only
Great Blue Heron	R	R	R	R	mostly overhead
Green Heron	R	R	R	R	Atascadero Creek
Cattle Egret					"
Great Egret	R	R	R	R	"
Snowy Egret	R	R	R	R	"
Black-crowned Night Heron	R	R	R	R	"
American Bittern	R	R	R	R	"
White-fronted Goose					" & Mesa Proper
Mallard	U	U	U	U	Atascadero Creek
Green-winged Teal	R	R	R	R	"
Blue-winged Teal	R	R	R	R	"
Cinnamon Teal	U	R	R	R	"
Wood Duck					"
Turkey Vulture	R	R	C	C	see individual account
White-tailed Kite	U	U	R	R	
Sharp-shinned Hawk			R	R	
Cooper's Hawk	R	R	R	R	
Red-tailed Hawk	R	R	R	R	
Red-shouldered Hawk	U	U	U	U	x
Broad-winged Hawk					overhead
Ferruginous Hawk					"
Golden Eagle					"

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Marsh Hawk	U	U	cas.	R		see individual account overhead only
Osprey						
Prairie Falcon		U	U	U	X	
Merlin						
American Kestrel	U	U	R	R	X	in oak/riparian in creeks & ditches
California Quail	R	R	R	R	X	
Virginia Rail	R	R	R	R	"	"
Sora	R	R	R	R	"	"
American Coot	R	R	R	R	"	"
Killdeer	U	U	U	U	X	overhead only
Black-bellied Plover	R	R	R	R		
Whimbrel	U	U	U	U		Atascadero Creek
Greater Yellowlegs	R	R	R	R	"	"
Lesser Yellowlegs	R	R	R	R	"	"
Solitary Sandpiper	cas.	R	R	R	"	"
Spotted Sandpiper	R	R	cas.	U	"	overhead only
Wandering Tattler	R	R	R	R	"	Atascadero Creek
Common Snipe	R	R	R	R	"	"
Long-billed Dowitcher	R	R	R	R	"	"
Western Sandpiper	R	R	R	R	"	"
Least Sandpiper	R	R	R	R	"	"
Pectoral Sandpiper	R	R	R	R	"	"
Dunlin	cas.	R	R	R	"	overhead only
Glaucous-winged Gull	C	C	C	R	"	"
Western Gull	R	R	R	R	"	"
California Gull	R	R	R	R	"	"
Ring-billed Gull	R	R	R	R	"	"
Bonaparte's Gull	R	R	R	R	"	"
Band-tailed Pigeon	R	R	R	R		

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Rock Dove	U	U	U	U	?	?
Mourning Dove	U	U	C	C	X	
Barn Owl	R	R	R	R	?	
Screech Owl	R	R	R	R	X	in oaks
Great Horned Owl	R	R	R	R	?	
Burrowing Owl	R	R	R	R	see individual account	"
Short-eared Owl	R	U	U	U	see individual account	"
Poor-will						
Black Swift	cas.	cas.			overhead	
Chimney Swift	U	U	R	R	"	
Vaux's Swift					"	
White-throated Swift					"	
Black-chinned Hummingbird	R	R			?	
Anna's Hummingbird	C	C	C	C	X	
Rufous Hummingbird	U	U	U	U		
Allen's Hummingbird	C	C	R	R	X	riparian
Belted Kingfisher						Atascadero Creek
Common Flicker	U	U	U	U	X	
Acorn Woodpecker	R	R	R	R	X	
Lewis' Woodpecker						
Yellow-bellied Sapsucker					R	
Hairy Woodpecker	U	U	U	U	R	
Downy Woodpecker	R	R	R	R	X	?
Nuttall's Woodpecker						
Western Kingbird	C	cas.	U	U	X	one breeding record
Cassin's Kingbird	R	R	R	R		
Ash-throated Flycatcher	U	R	R	R	?	

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Eastern Phoebe						
Black Phoebe	U	U	U	U	x	
Say's Phoebe						near water
Willow Flycatcher						
Hammond's Flycatcher	R	R	R	R		
Western Flycatcher	U	R	R	R		
Western Wood Pewee	R	R	R	R		
Olive-sided Flycatcher	cas.	cas.	cas.	cas.		
Horned Lark	R	R	R	R	?	Mesa
Violet-green Swallow	U	U	R	R		
Tree Swallow	U	U	R	R		
Bank Swallow	cas.	cas.	cas.	cas.		
Rough-winged Swallow	U	R	R	R		
Barn Swallow	U	R	R	R		
Cliff Swallow	C	C	U	U		
Purple Martin	cas.	cas.	cas.	cas.		
Scrub Jay	U	U	U	U		oak/riparian
Common Crow	C	C	C	C	x	
Pinyon Jay			cas.	cas.	x	overhead
Plain Titmouse	U	U	U	U	x	oaks
Bushtit	C	C	C	C	x	
White-breasted Nuthatch						
Red-breasted Nuthatch						
Brown Creeper						
Wrentit	C	C	C	C	x	in thick tangles
House Wren	U	U	U	U	x	
Winter Wren	C	C	cas.	cas.	x	riparian
Bewick's Wren						
Long-billed Marsh Wren					x	Atascadero Creek

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Mockingbird	U	U	U	U	X	near houses in thick tangles
California Thrasher	U	U	U	R		riparian & oak riparian
American Robin			R	R		
Hermit Thrush	U	U	U			
Swainson's Thrush	R					
Blue-gray Gnatcatcher	R		U	C		riparian & fennel
Golden-crowned Kinglet			R	R		
Ruby-crowned Kinglet	U		C	C		principally riparian
Water Pipit			U	U		Mesa
Red-throated Pipit			cas.	U		
Cedar Waxwing	U		R			open country
Phainopepla			cas.			
Loggerhead Shrike	R	R	U	U		
European Starling	C	C	C	C		principally near houses
Hutton's Vireo	U	U	U	U	X	oak/riparian
Solitary Vireo	R	R	R		"	"
Warbling Vireo	R	R	R		"	"
Black and white Warbler			cas.	C	X	oak/riparian
Orange-crowned Warbler	C	U	C		"	"
Nashville Warbler	U		R		"	"
Virginia's Warbler	U		cas.		fennel	
Yellow Warbler	U		U	C	riparian	
Yellow-rumped Warbler	C		C	R	oak/riparian	
Black-throated Gray Warbler	R		R		"	"
Townsend's Warbler	R		U	U	"	"
Hermit Warbler	R		R		"	"
Palm Warbler	cas.		cas.			
Northern Waterthrush			cas.			
MacGillivray's Warbler			R			Atascadero Creek riparian

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Common Yellowthroat	C	C	C	C	x	principally in riparian
Wilson's Warbler	U	C	U	cas.	x	riparian
House Sparrow	R	R	R	R	x	near houses
Bobolink			cas.			Atascadero Creek
Western Meadowlark	C	U	C	C	x	numerous in grassland
Yellow-headed Blackbird	cas.					
Red-winged Blackbird	C	U	C	C	x	nests in areas 5D, 5B, 5C
Tricolored Blackbird	R	R	R	R	x	
Orchard Oriole			cas.			
Hooded Oriole	U	U	R	cas.	x	riparian, near houses
Northern Oriole	U	U	U	cas.	x	
Brewer's Blackbird	R	R	R	R	x	
Brown-headed Cowbird	U	U	R	R	x	
Western Tanager	U	U	U	U	x	oak/riparian
Black-headed Grosbeak	C	C	R	R	x	riparian
Blue Grosbeak					x	" , Atascadero Creek "
Lazuli Bunting	R		R	R	x	" "
Purple Finch	U	C	C	R	U	riparian
House Finch	C	C	C	C	C	x
Pine Siskin	U	C	R	U	C	riparian
American Goldfinch	C	U	C	C	C	x
Lesser Goldfinch	C	C	C	C	C	x
Lawrence's Goldfinch	U			R	R	riparian
Red Crossbill				cas.	C	thickets
Rufous-sided Towhee	C	C	C	C	C	x
Brown Towhee	C	C	C	C	C	x
Savannah Sparrow	C	C	C	C	C	very common in grassland
Grasshopper Sparrow	cas.				R	
Vesper Sparrow					cas.	
Lark Sparrow					R	

Species	Spring	Summer	Fall	Winter	Breeding	Comments
Dark-eyed Junco				R	R	
Chipping Sparrow	cas.			R	R	
Brewer's Sparrow		cas.		C	C	
White-crowned Sparrow	C	C	C	C	C	
Golden-crowned Sparrow	C			C	C	
White-throated Sparrow				cas.	R	
Fox Sparrow				C	C	
Lincoln's Sparrow	U			cas.	C	
Swamp Sparrow	C	C		cas.	C	
Song Sparrow					x	



### APPENDIX III

#### Mammals of More Mesa

Gary N. Fugle

## APPENDIX III

## The Mammals of More Mesa

Species known to be present (1) are separated from those judged to be possibly present (2).  
 Abundance: C = common, U = uncommon, R = rare. Habitat Types: G = grassland, 0 = oak woodland,  
 S = coastal shrub, W = wetland. Nomenclature follows Jones, Carter and Genoways (1979).

Common Name (Scientific Name)	Abundance	Habitat Type(s)	Comments
<b>1. SPECIES KNOWN TO BE PRESENT DURING STUDY</b>			
Order Marsupialia: Marsupials			
Virginia Opossum <i>(Didelphis virginiana)</i>	C	all	Tracks on roads in 3b and 5.
Order Insectivora: Insectivores			
Ornate Shrew <i>(Sorex ornatus)</i>	C	W,S	Caught in can traps in 3a, 3b, 5d and 6b (Lines I, II, IV and VI of herpetological work).
Broad-handed Mole <i>(Scapanus latimanus)</i>	C	W,S	Mounds in most wetland areas. Dead animal in 6b.
Order Chiroptera: Bats			
Hoary Bat <i>(Lasiurus cinereus)</i>	U-C	?	Several museum records along coast from Winchester Canyon to Monticeto.
Big Brown Bat <i>(Eptesicus fuscus)</i>	U-C	?	Observed in 1. Many museum records and known to occur in good numbers elsewhere in Goleta/Santa Barbara area.

Common Name (Scientific Name)	Abundance	Habitat Type(s)	Comments
Western Pipistrelle ( <i>Pipistrellus hesperus</i> )	U-C	?	Observed in 1.
Brazilian Free-tailed Bat ( <i>Tadarida brasiliensis</i> )	U-C	?	Heard at site. Many museum records and known to occur in good numbers elsewhere in Goleta/Santa Barbara area.
Order Lagomorpha: Rabbits			
Brush Rabbit ( <i>Sylvilagus bachmani</i> )	U-C	W,S	Commonly observed in 3b. Skull in area 5e is puzzling (carried by raptor?).
Order Rodentia: Rodents			
California Ground Squirrel ( <i>Spermophilus beecheyi</i> )	C	all	Animals and burrows seen throughout site, particularly southern portions of 2 and 5.
Botta Pocket Gopher ( <i>Thomomys bottae</i> )	C	all	Diggings present throughout site, but not in hard soil.
Western Harvest Mouse ( <i>Reithrodontomys megalotis</i> )	C	all	On all small rodent trapping areas.
Dusky-footed Woodrat ( <i>Neotoma fuscipes</i> )	U	S,O,W	Nests in 3d and 6e.
California Vole ( <i>Microtus californicus</i> )	C	all	Variation in numbers through year. Captures primarily in northern rodent trapping areas in spring. Captured in all but one can trap line (line VIII).

Common Name (Scientific Name)	Abundance	Habitat Type(s)	Comments
House Mouse <i>(Mus musculus)</i>	C	G,S,W	Common on most small rodent trapping areas.
Black Rat <i>(Rattus rattus)</i>	U	all	One animal each at East Drainage and Southwestern trapping grids.
Order Carnivora: Carnivores			
Gray Fox <i>(Urocyon cinereoargenteus)</i>	U	all	Three observations and three scats in areas 3 and 6.
Domestic Dog <i>(Canis domesticus)</i>	C	all	Usually with person. In all areas.
Raccoon <i>(Procyon lotor)</i>	C	all	Numerous tracks and one observation of family group in 3b. Reported for just West of site at Orchid nursery.
Long-tailed Weasel <i>(Mustela frenata)</i>	U-C	all	Animal observed in 4. Species is common in similar habitat in Goleta Valley.
Striped skunk <i>(Mephitis mephitis)</i>	U-C	all	One dead animal in 2c. Two burrows in 5e.
House Cat <i>(Felis cattus)</i>	C	all	Observed in all areas.

Common Name (Scientific Name)	Abundance	Habitat Type(s)	Comments
2. SPECIES POSSIBLY PRESENT DURING STUDY			
Order Insectivora: Insectivores			
Trowbridge Shrew <i>(Sorex trowbridgei)</i>	R	O,S,W	One museum record from Hope Ranch. One in White-tailed Kite pellet (Stendall, 1967).
Order Chiroptera: Bats			
California Myotis <i>(Myotis californicus)</i>			Observed on UCSB West Campus (Bennett 1972). One museum record.
Small-footed Myotis <i>(Myotis leibii)</i>		<input checked="" type="checkbox"/>	One museum record.
Yuma Myotis <i>(Myotis yumanensis)</i>			One museum record.
Order Rodentia: Rodents			
Deer Mouse <i>(Peromyscus maniculatus)</i>	R	W,S	Rare or absent in coastal areas. (Personal work, Collins pers. comm., Shroeder pers. comm., Holbrook pers. comm., Blaustein 1978, Stendall 1967, Waian 1973).
California Mouse <i>(Peromyscus californicus)</i>	R	W,S	Generally absent in coastal areas, although possibly present in association with woodrat nests (Collins pers. comm., Holbrook pers. comm.).

Common Name (Scientific Name)	Abundance	Habitat Type(s)	Comments
Order Carnivora: Carnivores			
Coyote <i>(Canis latrans)</i>	R	all	Old scat at 3d (Aug. 1981). Possibly a rare visitor to site.
Order Artiodactyla: Even-toed Hoofed Mammals			
Mule Deer <i>(Odocoileus hemionus)</i>	R	all	Last observed in late 1970s (local residents). Possibly a rare visitor to site.

\* Introduced species.

- One or more Myotis species may be present at the site, but distributions and abundances of these species in the local area are not well known. Species listed here are those represented by known observations or museum records for the coastal slope and/or lowlands of the Goleta/Santa Barbara area.