

**PRESERVE AND OPEN SPACE CONSERVATION
VALUE ASSESSMENT**

**SOLANO HABITAT CONSERVATION PLAN/NATURAL COMMUNITY
CONSERVATION PLAN**

SOLANO COUNTY, CALIFORNIA

April 13, 2004

LSA

**PRESERVE AND OPEN SPACE CONSERVATION
VALUE ASSESSMENT**

**SOLANO HCP/NCCP
SOLANO COUNTY CALIFORNIA**

Submitted to:

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INTRODUCTION

A panel of Science Advisors was convened in August 2002 to provide objective input and analysis for the preparation of the species conservation program for the Solano HCP/NCCP. The purpose of the Science Advisors Panel was to ensure that the best available science would be used to develop the HCP/NCCP. The Science Advisors' report was issued in November 2002 and recommended that efforts be made to address gaps in data associated with knowledge of the quality of existing open space lands and reserves within Solano County. The report also recommended that these gaps be addressed during further developments of the HCP/NCCP:

The HCP/NCCP needs to provide an analysis and mapping (GIS) of habitat type and quality within existing open space reserves. Results of this study will allow determination of the appropriateness of management policies for conservation of sensitive habitats and species of concern in the reserves. This information will be useful in landscape-level reserve design, and identification of conservation benefits that could be achieved with different management strategies and the potential restoration/relocation of covered species.

While not all of the public and conservation organization lands within the County are likely to be included within Solano HCP/NCCP preserve system, these lands can help form a template for future preserve locations as well as providing important corridors between existing and future reserves.

This report provides information and assessment of the open space lands within the County with respect to their long term conservation values.

EXISTING PRESERVES AND OPEN SPACE

Solano County has a long history of active and ongoing land preservation and open space protection and has a large, existing system of public and private open space lands, many of which have been established for the protection of rare species and their habitats. For the purposes of this evaluation, open space lands are considered to include only lands protected by conservation organization and public agency through fee title ownership and/or conservation easements. Approximately 76,000 acres (approximately 13 percent of the County) of such open space lands are present in Solano County (Figure 1). These open space lands range in size from a few acres to large areas such as the California Department of Fish and Game's (CDFG) Grizzly Island Wildlife Management Area at over 8,500 acres.

The existing open space lands within the County have a variety of ownership's, levels of protection, and purposes. Some existing reserves/open spaces may have high values for some covered species but not others. In order to better assess and rank the overall conservation value of these lands, additional

information was compiled and evaluated. The following sections describe the methods and results of this assessment.

METHODS

Existing open space/preserve lands within Solano County were identified from a number of sources:

- Solano HCP/NCCP Participating Agencies, primarily the cities of Fairfield, Vacaville, Suisun and Vallejo
- Solano Land Trust
- Greeninfo.net

In addition to the existing preserve lands, several additional large blocks of land are under consideration for establishment of habitat preserves (mitigation banks) and were included in the evaluation.

In order to assess the conservation value of the open space lands, background information on the open space reserves were collected from the following sources:

- Agencies and organizations that manage protected lands were contacted for background information and identification of the management objectives for the land. In most cases, agencies and organizations were unable to provide significant information about the resources present on the lands or the specific management of protected lands as they had not established management plans for the areas nor conducted detailed resource inventories. Notable exceptions are the Jepson Prairie Preserve, which has a long history of natural resource management, and CDFG's Grizzly Island and associated units.
- The California Natural Diversity Database (CNDDDB 2003) reports of special-status species for Solano County were reviewed and locations of extant and historical records were mapped and compared in relation to identified open space areas.
- Existing vegetation cover data developed for the Solano HCP/NCCP and aerial photographs were reviewed to identify the primary communities and habitats present on each site.
- Accessible open space lands were visited where to qualitatively assess the general environmental conditions and value of the lands for various covered species or groups. Inaccessible sites were evaluated by use of aerial photography to assess conditions and identify habitats present on the sites.

Information from the above sources was then used as input for a ranking system to assess the conservation value of the site. This ranking system is based on a variety of criteria including current land use conditions, relative degree of apparent past disturbance, size, known or potential presence of

significant resources, applicability of management objectives and plans (if any) directed toward protecting covered species, and the presence of other land uses.

These ranking criteria were grouped into four main categories: biological, geographical, hydrologic, and land management characteristics. These categories are defined as follows:

Biological Elements. The biological elements contain characteristics that define the biological diversity of an area. These elements also control regulatory policy and management activity.

Special-status species: Special-status species includes Federal and State listed, California's "Species of Concern," Federal "Species of Concern," and the California Native Plant Society's listed species. In general, the presence of any special-status species increases the value of an area.

Species Unique to the Open Space, Among All Open Spaces. The presence of special-status species whose only occurrence in Solano County is at a particular reserve is another criteria highlighting the biological value of that reserve.

Adjacent Biologically Valuable Habitat, as Indicated by Special-status Species. Adjacent lands supporting special-status species provide biological value to a reserve area because these lands may serve as buffers by limiting the effect of perturbations that occur outside of the boundaries of the reserves.

Habitat Diversity in a Reserve. High diversity of habitats may include unique habitats and support the greatest diversity of rarest species or group of species.

Geographical and Physical Elements. Geographical and physical features, within the matrix of all environmental factors, may provide the greatest influence on reserve maintenance, and long-term character and value of a reserve.

Distance from Major Highway Corridor. The application of some management activity, (e.g. prescribed burning, pesticide use) will be limited when used close to major highways and associated residential/commercial areas. Other management impacts include; increased visitation by people, and increases in the affect of non-native plants and animals (highways and roads often serve as corridor for species invasions). The potential for these impacts and their affect on reserve maintenance is reduced as the distance from a Highway increases. For the purposes of this assessment Interstate Highways 80, 680, 780 and 505 and State Highway 12 were considered to be major highway corridors.

Size of Open Space. As the size of an open space increases there is an increase of the buffering capacity of the site. The buffer limits the effects of impacts that occur outside the boundaries of reserves.

Size of Open Space, Including Adjacent Open Space. Single, large, open space areas are easier to manage. Development and administration of a comprehensive management plan by one land manager will provide greater consistency and flexibility in maintenance of a reserve.

Percent of Edge Shared with Other Established Open Space. The fact that sites are connected does not reflect the ecological significance of that connection. Some sites have a large area and/or perimeter but are connected to other sites by a very small portion of its perimeter. The movement of species and other resources between areas may be restricted. Therefore, the value of an individual area or group of areas may be reduced.

Adjacent Land Use. Land use on areas adjacent to a reserve will impact the reserve. A reserve adjacent to reserves or open space that has the same biological and physical characteristics would have the lowest negative impact, (i.e. highest value) on the adjacent reserve. Typically, grazing has a lower impact than farming because farming often includes soil disturbance and conversion of the dominant vegetation type. Therefore, reserves surrounded by grazing land are rated higher than those surrounded by farmland.

Past, Dominating Adverse Impacts. Past land use affects the existing biological values of a site. The impact of previous land use may be discerned from commercial uses such as grazing, and farming. Grazing changes the composition of desired and undesired species, and increases the potential for soil erosion. Farming, (i.e. tillage, and planting of crops) makes long-term changes in species composition, soil structure, and hydrology. These changes reduce the restoration potential more than grazing. In contrast with undeveloped open space lands, residential, and commercial development produces the most complete long-term conversion and loss of open space values. Past industrial impacts include the harvest of trees and manufacture or harvest of other products, (e.g. fish, shipyard).

Hydrology. Management activities that change the hydrology of protected land, (e.g. create streams, alter natural stream channels, alter the movement of tidal waters, redirect the movement of surface water, etc) will reduce its biological value. Lands that retain their natural hydrologic system will provide the best quantity, (including volume and timing of water movement) of water to support native species. Soils and species habitat is degraded by drainage systems for a distance away from drainage. The affected distance depends upon soil characteristics and the landform. Degraded hydrologic systems are often discernable on aerial photos by the presence of linear channels.

Management Elements. Sites may not retain their biological values if long-term management policies and programs are not established. Good, long-term, management of an area may also be suggested from factors not directly associated with the presence of management plans and activities. These factors may include an organization's history of commitment to funding and management of similar areas.

Ranking scores (value of 1-10, see Table 1 for ranking criteria) were assigned for each of the above factors for each open space area. The cumulative sum of these criteria scores for each open space area and used to develop a ranking the value of the open space area, among all open space areas. Open space areas were also assigned to corresponding map polygons (e.g., location in a similar regional area) in a GIS (ArcGis) system and assigned a color code to assist in further evaluation and comparison of characteristics.

RESULTS AND DISCUSSION

Figure 2 provides a summary of the characteristics of 256 sites initially evaluated for this assessment. Data includes the size of the site, its cumulative ranking score, species known to be present and number of records, whether the site has a management plan and or funding for management, and the types of plant communities present on the site. In Figure 2, the open space areas are segregated into color-coded groups based on proximity/location and similarity in plant communities and species presence. The appendix also provides the GIS shape files for the location of the open space lands along with the tie to the data base information (Figure 2) for each site.

Of the 256 sites, 170 were identified as having potential conservation value. The remaining 86 sites tended to be developed sites (parks, residential areas, cemeteries, etc.) and did not have any significant value in association with open space reserves ranking criteria (e.g., received the lowest possible total score of 12).

For the 170 sites of conservation value, the cumulative ranking score of each open space were tallied, then segregated into five groups, each with an equal range of possible values (86 to 101, 70-85, 55 to 69, etc.)(Table 2). The ranking scores for each open space area were reviewed to determine if there were similar characteristics that defined typically defined the group (Table 3). Based on this analysis, several criteria typically exerted the primary influence on a groups character or cumulative score. These criteria are high special-status species occurrence, isolation from highways and development, size and association with adjacent sites, disturbance influence, and management activity. Using these criteria as guides, the five ranking group's qualities were defined as follows:

Group 1 – Species/Isolation/Size/Disturbance/Management (ranking score 86-101, 1 site). The Jepson Prairie Preserve is the only open space area in this range of scores. For the purposes of this assessment, this preserve exemplifies an “ideal” open space. Scores for all criteria are high.

Group 2 – Species/Isolation/Size (score 70-85, 5 sites). These areas have a high presence of special-status species, are isolated from development, and form a large block of open space with other sites.

Group 3 – Size/Disturbance (ranking score 55-69, 21 sites). The size of individual open space areas is large. Surrounding land use has no to minimal effect on the open spaces and past disturbance of a site is low, but species records are limited.

Group 4 – Disturbance (ranking score 39-54, 87 sites). The occurrence of special-status species for this group is very low. The natural condition of this group of sites, as indicated by disturbance elements, (very low disruption of hydrology, low impacts on surrounding land, low disturbance to the open space) is still relatively good.

Group 5 – Undiscriminated (ranking score 22-38, 56 sites). This group of open space sites has low scores for most of the ranking criteria and does not have discriminating characteristics. Typically, sites in this category tend to be smaller and occur in proximity to urban areas and/or lack significant known resources.

The group values provide important insights into the value of individual site and the potential contribution of these sites to the preserve system for the County; however, individual site ranking need to be considered with respect to several factors and availability of existing information. In many cases, the values of the sites are influenced by the intensity of past sampling for special-status species on the presence of resources on the site. For example, the Jepson Prairie Preserve ranks higher than any other open space area within County. This results, in part, from the preserve having an established and ongoing management plan and the large number of documented special status species records on the preserve resulting from years of research on the site. Several of the adjacent areas occur in the next lower grouping (e.g., Wilcox Ranch, Calhoon Cut, and the Muzzy and Gridley Ranch proposed mitigation banks) support similar high quality vernal pool grassland habitats, but rank lower in part because fewer species have been documented on these sites. The values of two other potential preserves (the North Suisun Mitigation Bank and the Burke Ranch) also exhibit lower ranking scores than are probably warranted. While the same suite of special status are likely present on these two sites as well, the lack of reported occurrences results in a lower value.

The rankings for each reserve also need to be considered with respect to the target species for preservation. In the Science Advisors Report (2002) for example, concerns were expressed about CDFG's Grizzly Island not having being of high conservation value for many of the native, endangered tidal marsh species such as Suisun thistle and salt marsh bird's beak because the limited tidal influence and the water management for waterfowl. While this site is not a valuable preserve for these species which likely historically occurred there, the altered and managed conditions still support some of the native marsh species (e.g. salt marsh harvest mouse) and high densities/numbers of other special status species such as northern harrier and short-eared owl which are adapted to habitat conditions that result from the current management activities on the island. For these latter two species in particular, the Grizzly Island Wildlife Management Area is a core area for the species' survival.

Similarly, the Solano Land Trust and associated open spaces in the Tri-City/County area in the western portion of the County (Lynch Canyon, King Ranch, Western Swett Ranch, etc.) also fall in the middle ranking categories. This results in part from the proximity to major urban areas and highways as well as limited species occurrence records. However, these areas lie within identified core recovery areas for the California red-legged frog. While these areas may not be reserves for a large suite of species as is typically encountered in vernal pool grassland or coastal marsh habitats in Solano County, these reserves are critical to and have been established, in part, to preserve habitat for the frog.

The Group Ranking also provide insight into actions that are desirable to implement to increase long term conservation values. In Group 1 and 2 sites, long term values can be improved through implementation of applicable management actions that promote continuation and enhancement of existing habitat/community values and increasing the size and connectivity of preserved lands. In Group 3 and 4 sites, current values are strongly influenced by size and disturbance-related type impacts. Management actions that minimize disturbance-related effects, increase size and connectivity, and restore more natural communities would also be useful actions to help achieve conservation objectives for species in these areas.

These grouping can also be viewed as a site's relationship or similarity to a "natural" ecosystem. Preserve sites with a higher ranking score would, in most cases, tend have a greater number of special status species present which would a measure of the habitat suitability or support function for native species. Figure 3 provides a graphical depiction of the grouping rankings for the open space lands in the County.

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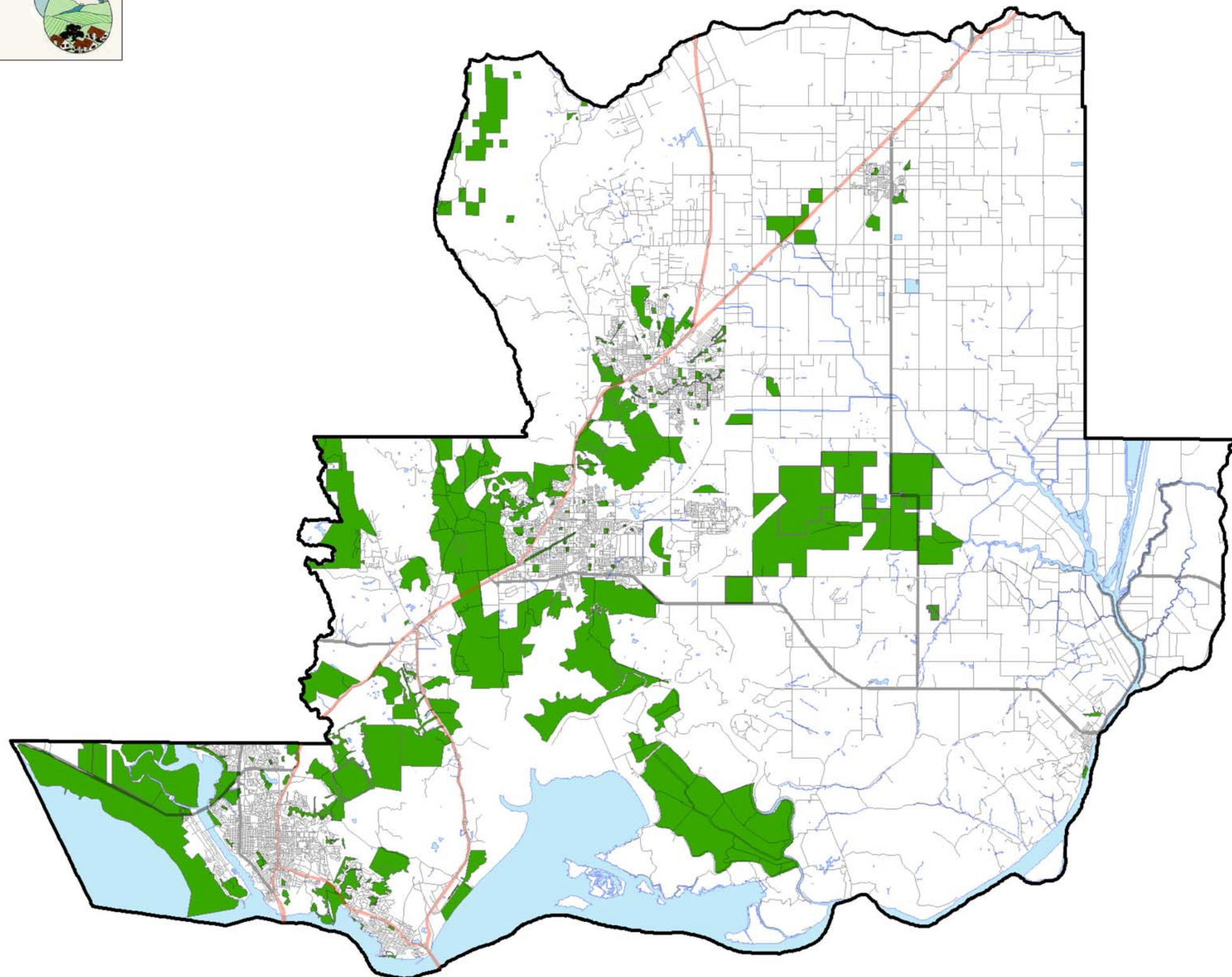
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Solano County Water Agency. 2003. *Draft Sections of the Habitat Conservation Plan --Vernal Pool Conservation Strategies*. (<http://www.scwa2.com/HCP/plan.htm>)



Figure 1
Solano County
Open Space Lands




0 1 2 4 6 8 Miles

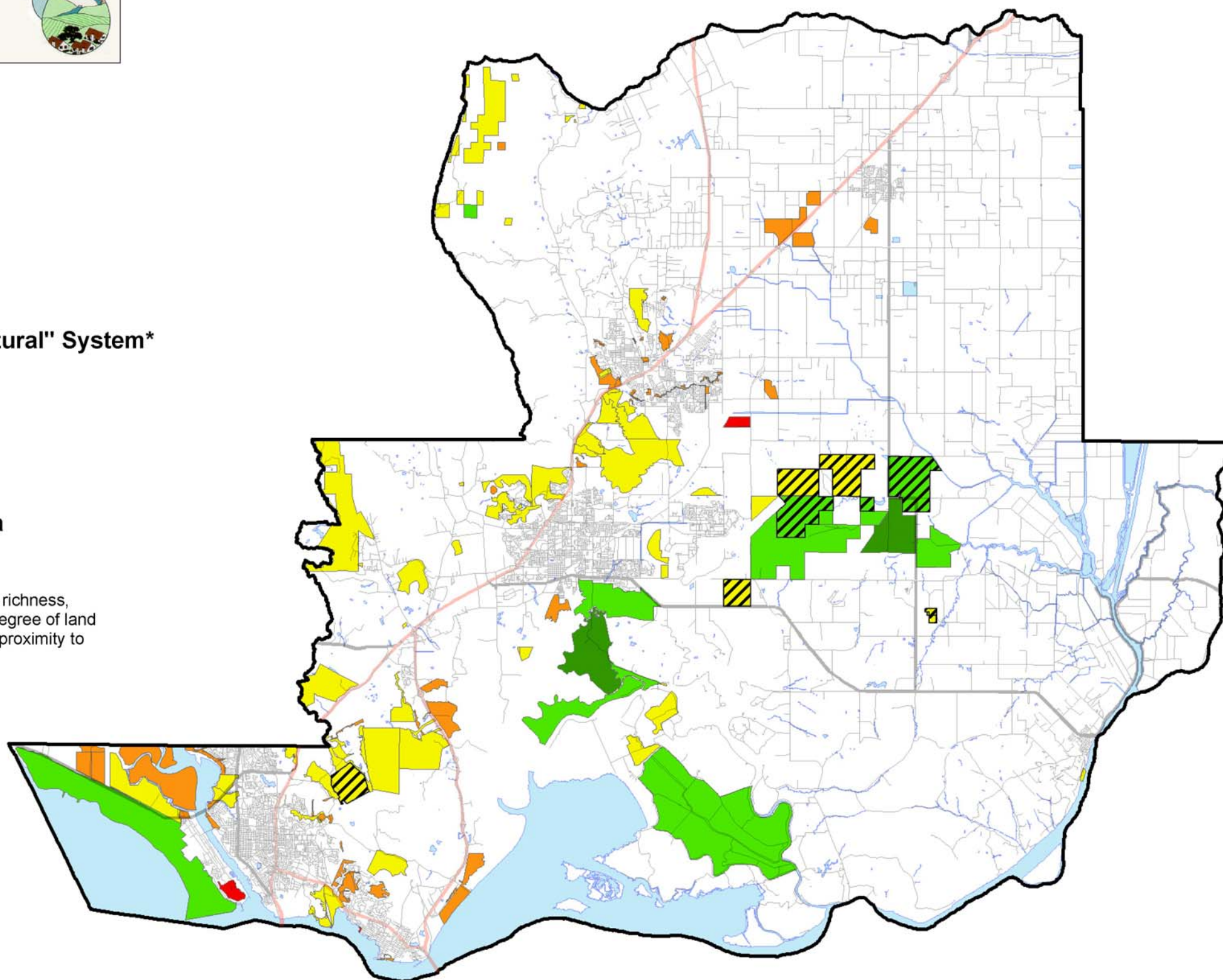


Figure 3
Quality Ranking of
Solano County
Protected Lands

Degree of Similarity to "Natural" System*

-  High
-  Medium
-  Moderate
-  Low
-  Very Low
-  Potential Preserve Area

* Weighted index based on rare species richness, similarity to expected "natural" system (degree of land and hydrological disturbance/alteration); proximity to urban uses, and other factors.



0 1 2 4 6 8 Miles

Table 1. Open Space Area Ranking Form

Element:		Value:	10	7	5	3	2	1	Score:
Biological Elements	Species of concern or greater level of listing by federal or state.	>10 species	5-10 species	3-4 species	2 species	1 species	Unknown/none		
	Similarity of adjacent habitat as indicated by SOC.	Five or more of the same listed species on adjacent Open Spaces	Four of the same listed species on adjacent Open Spaces	Three the same listed species on adjacent Open Spaces	Two of the same listed species on adjacent Open Spaces	One of the same listed species on adjacent Open Spaces	Unknown/none		
	SOC unique to the open space, among all open spaces	>5 species	4 species	3 species	2 species	1 species	Unknown/none		
	Number of general habitats: terrestrial, stream, bay, marsh, wetland, vernal pools, etc	>=5 habitat types	4 habitat types	3 habitat types	2 habitat types	1 habitat type	Unknown/none		
Geographical Elements	Distance from major highway corridors (80, etc)	>7 miles	5-7 miles	3-5 miles	1-3 miles	<1 miles	Unknown/none		
	Size of open space	>5000 acres	1001-5000 acres	101-1000 acres	50-100 acres	<50 acres	Unknown/none		
	Size – including all adjacent open space	>10000 acres	5001-10000 acres	1001-5000 acres	501-1000 acres	<500	Unknown/none		
	% Edge shared with other established open space	75-100%	25-75%	10-25%	5-10%	<5%	Unknown/none		
	Open space primarily surrounded by:	Designated Open Space	Undesignated lands/water	grazing land	farm land	city	Unknown/none		
Management Elements	Past dominating adverse impacts	none	Grazing	Farming	Residential	Industrial	Unknown/none		
	Disrupted hydrology - management effects	>5%	5-25%	25-50%	50-75%	75-100%	Unknown/none		
	Management activities, financial support \$.	Management plans established. Management activity funded.	Management plan established.	Research funded	Past funding for research, or management.	Funding had been proposed in the past	Unknown/none		

TOTAL:

Table 2. Scores for Ranking Elements of Open Spaces

	Acres	Total Number of Species of concern	Number of Adjacent Species of Concern	Unique occurrence of Species of Concern	Number of Habitats	Distance from Highway Corridors	Size of Open Space	Size of Open Space with Adjacent Open Space	% shared Edges	Surroundings	Past disturbance	% Disrupted Hydrology	Management Activities	Score	Group	
Totals:	77960.46	377.9	254.2	316.3	800.4	798.6	652.3	751.4	703.4	840.2	1049.7	1664.5	260.4	8209		
Jepson Prairie Preserve -SCLT	1543.57	10	10	10	7	10	5	10	7	5	7	10	10	10	91	1
Average for scores below:		6.2	1.6	6.4	7.8	8.6	4.6	9.4	5.0	5.4	7.0	9.4	4.2	71.4		
Calhoun Cut Ecological Reserve -CDFG	1015.35	7	1	7	10	10	5	10	3	5	7	10	1	75	2	
Campbell Ranch Mitigation Bank	158.27	5	1	5	7	10	3	10	7	5	7	10	1	70	2	
Gridley Potential Mitigation Bank	1813.79	7	3	5	7	10	5	10	3	5	7	7	5	69	3	
Muzzy Easement -CDFG	158.27	5	1	5	5	10	3	10	7	5	7	10	7	68	3	
Rush Ranch Open Space -SCLT	2168.50	7	2	10	10	3	7	7	5	7	7	10	7	75	2	
Average for scores below:		4.0	1.5	2.7	6.3	5.8	5.7	6.8	4.9	5.6	7.4	8.4	1.2	59.0		
Andrews Potential Mitigation Bank	900.00	5	7	1	5	5	5	10	7	5	7	10	1	67	3	
Barker Slough Ecological Reserve -CDFG	267.23	3	3	1	3	10	3	10	5	5	7	10	1	60	3	
Burke Ranch Potential Mitigation Bank	1290.19	5	1	1	5	10	7	5	1	5	7	10	1	57	3	
Grizzly Island Wildlife Area -CDFG	8538.54	7	2	3	10	10	10	7	2	5	7	2	3	65	3	
Hill Slough Wildlife Area -CDFG	1789.76	5	1	7	7	3	7	7	5	5	7	5	3	59	3	
Joice Island Wildlife Area1 -CDFG	261.66	5	1	3	7	7	5	7	7	7	7	10	1	66	3	
Joice Island Wildlife Area2 -CDFG	1554.00	5	1	5	10	7	5	7	3	7	7	2	1	59	3	
Lagoon Valley Hills Open Space5 -Vacaville	793.55	1	1	1	7	2	5	5	7	10	7	10	1	56	3	
North Suisun Mitigation Bank	612.49	3	1	1	3	10	3	10	5	5	7	10	1	58	3	
San Pablo Bay National Wildlife Refuge -FWS	6970.19	7	1	2	10	3	10	7	5	2	2	5	1	54	4	
Solano County Holdings1 -BLM	1516.90	1	1	1	5	10	5	5	1	7	10	10	1	56	3	
Solano County Holdings12 -BLM	155.86	1	1	1	7	10	5	2	1	7	10	10	1	55	3	
Solano County Holdings13 -BLM	152.05	2	1	1	10	10	5	2	1	7	10	10	1	59	3	
Solano Irrigation District -SID	11096.60	7	1	3	10	2	10	10	2	5	5	10	1	65	3	
Travis Reserve1	1639.92	3	1	3	5	3	5	10	10	7	7	10	1	64	3	
Travis Reserve2	4224.41	3	1	3	3	3	7	10	7	5	7	10	1	59	3	
Vallejo Lakes2 -Vallejo	8.99	1	1	1	5	7	5	5	10	5	7	10	1	57	3	
Western Swett Ranch	826.06	2	2	1	5	3	5	7	7	5	7	10	1	54	4	
White Slough1 -CDFG	90.94	7	1	3	5	2	2	3	7	7	10	10	1	57	3	
White Slough2 -Vallejo	359.80	7	1	10	5	2	3	3	7	2	10	2	1	52	4	
Wilcox Ranch2	3148.79	5	2	5	5	3	7	10	2	5	7	10	1	61	3	
Average for scores below:		1.3	1.0	1.1	4.5	4.7	3.3	4.1	4.4	5.2	6.3	9.6	1.0	45.4		
Benicia State Recreation Area -CDPR	277.66	3	1	1	3	3	5	3	5	2	10	10	3	46	4	
Bennedsen Easement -SCLT	9.96	1	1	1	1	5	2	5	10	3	5	10	1	44	4	
City of Fairfield	55.17	5	1	1	3	10	2	2	7	5	7	10	1	53	4	
Cordelia Slough Area -CDFG	535.74	2	1	1	7	3	5	3	1	5	7	3	1	38	5	
Crescent Unit -CDFG	393.04	3	1	3	7	10	5	7	5	5	5	2	1	53	4	
Dan Foley Park2 -Vallejo	107.92	1	1	1	5	2	5	2	5	2	7	10	1	41	4	
Eastern Swett Ranch	1722.76	1	1	1	3	2	7	7	7	5	7	10	1	51	4	
Fairfield / Vacaville Greenbelt1	2123.81	1	1	1	3	2	7	7	7	5	7	10	1	51	4	
Fairfield / Vacaville Greenbelt2	3.09	1	1	1	2	2	2	5	7	5	7	10	1	43	4	
Foxboro Mitigation Site	16.61	1	1	1	3	10	2	2	7	5	7	10	1	49	4	
Glen Cove Waterfront -Vallejo	31.41	1	1	1	3	3	2	3	5	2	10	10	1	41	4	
Goodyear Slough Unit -CDFG	651.16	5	1	2	2	2	5	3	1	7	7	3	1	38	5	
Green Valley1	3.91	1	1	1	5	7	2	5	2	7	10	10	1	51	4	
Green Valley2	7.89	1	1	1	3	7	2	5	2	5	7	10	1	44	4	
Green Valley3	0.46	1	1	1	2	5	2	5	7	5	7	10	1	46	4	
Green Valley4	0.63	1	1	1	1	5	2	2	1	7	7	10	1	38	5	
Green Valley6	3.99	1	1	1	3	7	2	5	5	5	7	10	1	47	4	
Green Valley7	2.14	1	1	1	3	7	2	5	7	5	7	10	1	49	4	
Green Valley8	0.02	1	1	1	2	7	2	2	5	7	1	10	1	39	4	
Green Valley9	4.71	1	1	1	5	7	2	2	1	5	7	10	1	42	4	
Grey Goose Unit 1	9.29	1	1	1	5	3	2	5	10	5	7	10	1	50	4	
Grey Goose Unit2 -CDFG	106.80	2	1	2	5	3	3	5	5	5	7	10	1	48	4	
Hunter Ranch -Vallejo	122.50	1	1	1	7	2	5	2	2	5	7	10	1	43	4	
Island Slough Unit -CDFG	522.99	1	1	1	10	10	5	3	1	7	10	2	1	51	4	

1(none/unknown), 2(low quality), 3(fair quality), 5(good quality), 7(very good quality), 10(high quality)

Table 2. Scores for Ranking Elements of Open Spaces

Jack and Bernice Newell Open Space2	0.17	1	1	1	2	3	2	5	10	5	7	10	1	47	4
Jack and Bernice Newell Open Space5	0.02	1	1	1	2	3	2	5	10	5	7	10	1	47	4
Jack and Bernice Newell Open Space6	1.10	1	1	1	3	3	2	5	7	5	7	10	1	45	4
Jack and Bernice Newell Open Space7	0.00	1	1	1	2	2	2	5	10	5	7	10	1	46	4
Jack and Bernice Newell Open Space8	0.27	1	1	1	2	2	2	5	10	5	7	10	1	46	4
King Ranch	1288.75	3	3	1	3	2	7	7	5	5	7	10	1	53	4
Lagoon Valley Hills Open Space1 -Vacaville	0.0025	1	1	1	2	3	2	5	7	5	7	10	1	44	4
Lagoon Valley Hills Open Space2 -Vacaville	101.95	1	1	1	3	2	5	5	7	5	7	10	1	47	4
Lagoon Valley Hills Open Space3 -Vacaville	288.79	3	2	1	7	2	5	5	7	7	2	10	1	51	4
Lagoon Valley Hills Open Space4 -Vacaville	32.42	1	1	1	3	2	2	7	7	5	7	10	1	46	4
Lake Herman/OS Area -Benicia	540.06	2	1	1	10	3	5	3	1	5	7	10	1	48	4
Lake Solano County Park -Solano	75.29	1	1	1	5	10	2	2	1	5	7	10	1	45	4
Lynch Canyon -SCLT	1093.81	1	1	1	3	2	7	5	2	5	7	10	1	44	4
McCuen-Lagoon Valley OS1 -Vacaville	137.86	1	1	1	5	2	5	5	7	5	7	10	1	49	4
McCuen-Lagoon Valley OS2 -Vacaville	339.60	1	1	1	5	2	5	5	7	5	7	10	1	49	4
Montezuma Slough Unit -CDFG	9.75	1	1	1	7	7	2	7	2	5	7	2	1	42	4
Northgate	381.86	2	1	2	7	2	5	5	7	1	7	10	1	49	4
Open Space10 -Fairfield	9.66	1	1	1	7	3	2	2	1	5	7	10	1	40	4
Open Space11 -Vacaville	418.77	1	1	1	5	2	5	2	1	5	7	10	1	40	4
Open Space8 -Fairfield	58.45	1	1	1	3	2	2	7	7	5	7	10	1	46	4
Open Space9 -Fairfield	125.42	1	1	1	5	2	5	7	7	5	7	10	1	51	4
Peabody Road Mitigation Site	2.81	1	1	1	3	10	2	2	7	5	7	10	1	49	4
Rancho Solano Open Space -Fairfield	370.70	1	1	1	3	2	5	5	3	2	7	10	1	40	4
Rockville Hills Park -Fairfield	570.40	1	1	1	10	2	5	3	1	3	7	10	1	44	4
Rose Easement -SCLT	8.60	1	1	1	2	5	2	5	3	5	7	10	1	42	4
Sandpiper1 -Vallejo	3.74	1	1	1	5	3	2	3	7	10	1	10	1	44	4
Sandy Beach Park -Solano	36.26	1	1	1	3	10	2	2	1	7	2	10	1	40	4
Seeno - North Village Mitigation	322.45	5	1	1	3	7	5	2	7	3	7	10	1	51	4
Serpas Ranch3 -Fairfield	744.87	1	1	1	5	2	5	5	5	5	7	10	1	47	4
Sky Valley Open Space11 -Vallejo	42.78	1	1	1	5	3	2	7	2	5	5	10	1	42	4
Sky Valley Open Space2 -Vallejo	156.27	1	1	1	3	3	5	7	7	5	7	10	1	50	4
Sky Valley Open Space3 -Vallejo	107.21	1	1	1	5	3	5	7	2	5	7	10	1	47	4
Sky Valley Open Space4 -Vallejo	154.34	1	1	1	3	2	5	7	2	5	7	10	1	44	4
Sky Valley Open Space5 -Vallejo	20.92	1	1	1	5	3	2	7	2	2	7	10	1	41	4
Sky Valley Open Space7 -Vallejo	14.29	1	1	1	2	2	2	7	2	5	7	10	1	40	4
Sky Valley Open Space8 -Vallejo	38.69	1	1	1	5	2	2	7	5	5	7	10	1	46	4
Solano Cnty Mental Health Dept Mitigation Site	6.14	1	1	1	3	10	2	2	7	5	7	10	1	49	4
Solano County Holdings10 -BLM	79.93	1	1	1	10	10	3	2	1	7	2	10	1	48	4
Solano County Holdings11 -BLM	68.05	1	1	1	10	10	3	2	1	7	2	10	1	48	4
Solano County Holdings14 -BLM	39.84	1	1	1	7	10	2	2	1	7	2	10	1	44	4
Solano County Holdings3 -BLM	55.40	1	1	1	7	10	3	2	1	7	1	10	1	44	4
Solano County Holdings4 -BLM	40.19	1	1	1	7	10	2	2	1	7	1	10	1	43	4
Solano County Holdings5 -BLM	22.18	1	1	1	5	10	2	2	1	7	2	10	1	42	4
Solano County Holdings6 -BLM	27.77	1	1	1	7	10	2	2	1	5	7	10	1	47	4
Solano County Holdings7 -BLM	4.31	1	1	1	3	10	2	2	1	5	7	10	1	43	4
Solano County Holdings8 -BLM	99.59	1	1	1	7	10	3	2	1	7	2	10	1	45	4
Solano County Holdings9 -BLM	47.52	1	1	1	3	10	2	2	1	7	1	10	1	39	4
Sports Complex -Suisun	76.13	1	1	1	3	5	3	2	1	7	7	10	1	41	4
Suisun Ranch -SCLT	84.79	1	1	1	3	3	3	5	10	3	5	10	1	45	4
Tate Open Space -Vacaville	30.76	1	1	1	3	2	2	2	5	5	7	10	1	39	4
Unnamed10	299.35	1	1	1	5	2	5	2	5	5	7	10	1	44	4
Unnamed2	23.94	1	1	1	3	2	2	2	7	10	7	10	1	46	4
Unnamed3	28.73	1	1	1	3	2	2	2	10	10	7	10	1	49	4
Unnamed5	211.30	1	1	1	5	3	3	3	3	2	10	10	1	42	4
UNnamed6	113.04	1	1	1	7	5	5	2	1	5	7	10	1	45	4
Unnamed8	541.91	1	1	1	3	2	5	5	3	2	7	10	1	40	4
Unnamed9	272.34	1	1	1	7	5	5	2	1	2	7	10	1	42	4
Vallejo Lakes1 -Vallejo	2926.47	2	1	1	7	3	7	5	2	7	7	10	1	52	4
Vallejo Lakes3 -Vallejo	2.28	1	1	1	3	5	2	5	7	5	7	10	1	47	4
Vallejo Lakes4 -Vallejo	13.28	1	1	1	5	5	2	5	7	7	7	10	1	51	4
Vallejo Lakes5 -Vallejo	0.68	1	1	1	2	5	2	5	10	5	7	10	1	49	4
Vintage Park -Fairfield	11.15	1	1	1	10	2	2	2	1	5	7	10	1	42	4
Wilcox Ranch1	271.18	3	1	2	5	3	3	10	1	5	7	10	1	50	4
Average for scores below:		1.3	1.0	1.1	2.9	2.5	2.7	2.2	2.1	3.0	4.0	9.1	1.0	31.9	
9th Street Park -Benicia	7.46	2	1	1	1	1	1	1	1	1	1	1	1	12	9
Andrews/Ulatis Park -Vacaville	21.56	1	1	1	3	2	2	2	1	2	1	10	1	26	5
Braitto Open Space1 -Benicia	157.36	1	1	1	5	2	5	2	7	2	1	10	1	37	5
Braitto Open Space2 -Benicia	51.51	1	1	1	3	2	3	2	1	2	3	10	1	29	5
Centennial Park1 -Vacaville	0.69	1	1	1	2	2	5	1	1	5	7	10	1	36	5
Centennial Park2 -Vacaville	138.01	1	1	1	2	2	5	2	1	2	5	10	1	32	5
Corcoran Ct -Benicia	105.64	1	1	1	3	2	5	2	2	2	1	10	1	30	5

1(none/unknown), 2(low quality), 3(fair quality), 5(good quality), 7(very good quality), 10(high quality)

Ranking Scores by Group -Table 2.xls

Table 2. Scores for Ranking Elements of Open Spaces

Dixon Pond II -Dixon	137.26	2	1	1	2	2	2	2	1	3	5	10	1	31	5	
Former Naval Res -Vallejo	63.35	5	1	1	5	2	3	2	1	2	2	10	1	34	5	
Gold Hills Unit -CDFG	155.01	1	1	1	7	3	5	2	1	5	7	3	1	36	5	
Green Valley5	1.20	1	1	1	2	7	2	2	1	5	1	10	1	33	5	
Guadalcanal Village -Vallejo	53.83	2	1	2	5	3	2	7	7	2	2	2	1	35	5	
Hidden Valley -Vacaville	11.84	1	1	1	2	3	2	2	3	2	5	10	1	32	5	
Jack and Bernice Newell Open Space1	0.04	1	1	1	2	3	2	2	2	1	5	7	10	1	35	5
Jack and Bernice Newell Open Space3	1.81	1	1	1	2	2	2	2	2	1	5	7	10	1	34	5
Mare Island Golf Course -MINB	246.20	3	1	3	1	1	1	1	1	1	1	2	1	16	5	
Marina Park2 -Benicia	21.47	1	1	1	3	2	2	2	1	2	2	10	1	27	5	
Marsh1 -Benicia	3.19	1	1	1	2	2	2	3	1	7	2	10	1	32	5	
Marsh2 -Benicia	19.21	2	1	2	2	2	2	3	1	7	10	2	1	34	5	
Open Space1 -Vallejo	35.17	2	1	1	5	2	2	3	5	2	2	10	1	35	5	
Open Space12 -Vacaville	8.66	1	1	1	2	3	2	2	1	2	3	10	1	28	5	
Open Space15 -Vacaville	4.94	1	1	1	3	2	2	2	1	3	7	10	1	33	5	
Open Space16 -Vacaville	4.78	1	1	1	3	2	2	2	1	5	7	10	1	35	5	
Open Space18 -Vacaville	6.32	1	1	1	2	3	2	2	5	2	5	10	1	34	5	
Open Space2 -Vallejo	50.64	1	1	1	5	3	2	3	3	2	1	10	1	32	5	
Open Space21 -Vacaville	34.17	1	1	1	1	3	2	2	1	2	3	10	1	27	5	
Open Space24 -Vacaville	8.40	1	1	1	3	3	2	2	2	2	1	10	1	28	5	
Open Space25 -Vacaville	32.16	1	1	1	2	2	2	2	2	2	1	10	1	26	5	
Open Space26 -Vacaville	28.62	1	1	1	3	2	2	2	1	2	3	10	1	28	5	
Open Space27 -Vacaville	16.77	1	1	1	3	2	2	2	1	2	3	10	1	28	5	
Open Space28 -Vacaville	28.18	1	1	1	2	2	2	2	2	5	10	1	1	30	5	
Open Space30 -Vacaville	6.18	1	1	1	2	2	2	2	1	5	7	10	1	34	5	
Open Space4 -Vallejo	9.67	1	1	1	2	3	2	5	3	2	7	10	1	37	5	
Open Space5 -Vallejo	29.34	1	1	1	2	3	2	2	7	2	3	10	1	34	5	
Open Space6 -Vallejo	15.20	1	1	1	2	3	2	2	2	2	3	10	1	29	5	
Paradise Valley Open Space -SCLT	39.33	1	1	1	2	2	2	2	1	2	7	10	1	31	5	
Park2 -Fairfield	27.06	1	1	1	2	5	2	2	1	5	7	10	1	37	5	
Park3 -Fairfield	7.78	1	1	1	3	3	2	2	1	5	7	10	1	36	5	
Peytonia Slough Ecological Reserve -CDFG	270.08	5	2	1	3	2	5	2	1	2	1	10	1	34	5	
Sandpiper2 -Vallejo	120.03	1	1	2	5	3	3	3	5	2	2	10	1	37	5	
Sky Valley Open Space1 -Vallejo	23.12	1	1	1	3	2	2	2	3	5	7	10	1	37	5	
Sky Valley Open Space10 -Vallejo	4.75	1	1	1	3	2	2	2	2	5	7	10	1	36	5	
Sky Valley Open Space9 -Vallejo	21.39	1	1	1	3	2	2	2	2	7	10	1	1	33	5	
Solano County Holdings2 -BLM	6.05	1	1	1	1	10	2	2	1	7	1	10	1	37	5	
Sommerset Open Space1 -Vallejo	21.75	1	1	1	7	3	2	2	2	3	3	10	1	35	5	
Sommerset Open Space3 -Vallejo	11.78	1	1	1	2	3	2	2	1	2	7	10	1	32	5	
Summit Reservoir -Vallejo	3.62	1	1	1	1	2	2	2	7	5	1	10	1	33	5	
Tourtelot Open Space -Benicia	154.32	1	1	1	5	2	5	2	1	2	3	10	1	33	5	
Travis Golf Course -AFB	204.19	2	1	1	1	1	1	1	1	1	1	1	1	12	9	
Unnamed4	230.14	1	1	1	5	2	5	2	3	2	5	10	1	37	5	
Unnamed7	32.56	1	1	1	3	3	2	2	1	2	7	10	1	33	5	
Vacaville Sewer Treatment Plant -Vacaville	142.88	2	1	1	3	2	5	2	1	3	5	10	1	35	5	
Vacaville-Dixon Greenbelt1 -Vacaville/Dixon	155.56	1	1	1	3	2	5	2	1	3	5	10	1	34	5	
Vacaville-Dixon Greenbelt2 -Vacaville/Dixon	546.56	1	1	1	3	2	5	3	1	3	5	10	1	35	5	
Vacaville-Dixon Greenbelt3 -Vacaville/Dixon	239.94	1	1	1	3	2	5	2	1	5	5	10	1	36	5	
XX holding1 -Benicia	51.78	1	1	1	3	2	5	2	7	2	1	10	1	35	5	
Alamo Creek Park -Vacaville	9.70	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Alan Witt Park -Fairfield	33.79	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
American Canyon Creek Park -Fairfield	3.90	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Barker Slough Pumping Plant -CDFG	17.21	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Benicia Cemetary -Benicia	16.62	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Benicia Community Park -Benicia	115.43	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Beverly Hills Park -Vallejo	14.60	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Boulder Valley Park & Open Space1 -Vacaville	9.13	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Boulder Valley Park & Open Space2 -Vacaville	11.79	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Carl E. Hall Park -Suisun	10.88	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Castle Rock Open Space -Fairfield	7.59	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Crest Ranch Park -Vallejo	9.13	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Dan Foley Park1 -Vallejo	61.32	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Dixon May Fairgrounds -CDFA	29.30	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Dixon Pond I -Dixon	26.58	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Dover Park -Fairfield	9.77	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Fairfield Linear Park -Fairfield	100.51	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Golf Course1 -Vacaville	39.56	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Golf Course2 -Vacaville	9.71	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Golf Course3 -Vacaville	3.69	1	1	1	1	1	1	1	1	1	1	1	1	11	9	
Gregory Hill Open Space -Fairfield	59.15	1	1	1	1	1	1	1	1	1	1	1	1	11	9	

1(none/unknown), 2(low quality), 3(fair quality), 5(good quality), 7(very good quality), 10(high quality)

Ranking Scores by Group -Table 2.xls

Table 3. Average Scores for Ranking Elements of Each Group

Element Group:	Species				Distance	Size			Disturbance			Management	
Ranking Classification:	Total Number of Species of concern	Number of Adjacent Species of Concern	Unique occurrence of Species of Concern	Number of Habitats	Distance from Highway Corridors	Size of Open Space	Size of Open Space with Adjacent Open Space	% Shared Edges	Surrounding Land use	Past disturbance	% Disrupted Hydrology	Management Activities	Score Averages
Group 1 (86-101)	10	10	10	7	10	5	10	7	5	7	10	10	100
Group 2 (70-85)	6.3	1.7	6.4	7.8	8.6	4.6	9.4	5.0	5.4	7.0	9.4	4.2	75.6
Group 3 (55-69)	4.0	1.5	2.7	6.3	5.8	5.7	6.8	4.9	5.6	7.4	8.4	1.2	60.2
Group 4 (39-54)	1.3	1.0	1.1	4.5	4.7	3.3	4.1	4.4	5.2	6.3	9.6	1.0	46.5
Group 5 (22-38)	1.3	1.0	1.1	2.9	2.5	2.7	2.2	2.1	3.0	4.0	9.1	1.0	32.9
<p>Score definitions: 1 (none/unknown) 2 (low quality) 3 (fair quality) 5 (good quality) 7 (very good quality) 10 (high quality)</p> <p>Group ranking values: Group 1 - Species/Isolation/Size/Disturbance/Management Group 2 - Species/Isolation/Size Group 3 - Size/Disturbance Group 4 - Disturbance Group 5 - Undiscriminated</p>													