Final
Training Manual to Evaluate Habitat Quality of Vernal Pool Ecosystem Sites in Santa Rosa Plain

Prepared for

United States Army Corps of Engineers, San Francisco District

Prepared by

CH2MHILL

December 1998

Table of Contents

1.0 Introduction 1-1
2.0 Overview of Habitat Quality Evaluation System 2-1
3.0 Methods for Office Work 3-1
Habitat Quality Evaluation Office Data Sheet
4.0 Methods for Field Work 4-1
Habitat Quality Evaluation Field Data Sheet
Definition of Suitable Habitat for Listed Plants
Supplementary Office Information for Field Work Data Sheet
Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
5.0 Scoring and Quality Determination 5-1
Summary Sheet: Habitat Quality Evaluation Total Scores and Determination of Site Quality
6.0 Materials Needed to Document the Habitat Quality Evaluation 6-1
7.0 Information Sources 7-1

FIGURE

Figure 1- Santa Rosa Plain Study Area 1-4

TABLES

Table 2-1- Habitat Quality Evaluation Criteria 2-2
Table 2-2- Comparison of Scoring Using a Non-Weighted Scoring System 2-4
Table 2-3- Comparison of Scoring Using a Weighted Scoring System (HQE) 2-4
Table 4-1- Characteristic Plant Species in Santa Rosa Plain Vernal Pools 4-14

APPENDICES

Appendix A: Materials to Take to the Field
Habitat Quality Evaluation Field Data Sheet
Supplementary Office Information for Field Work Data Sheet
Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
Expanded Explanations of Habitat Quality Evaluation Criteria to Be Used in the Field
Definition of Suitable Habitat for Listed Plants
Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Table 4-1)
Appendix B: United States Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain

1.0 Introduction

Purpose of the Habitat Quality Evaluation and This Training Manual

The purpose of the Habitat Quality Evaluation (HQE) process is to provide a uniform assessment for ranking the relative quality of vernal pool ecosystem sites within the Santa Rosa Plain Study Area (see Figure 1 on page 1-4 for the boundaries of the study area). This training manual was developed to expand and clarify the use of the HQE criteria adopted by the Sonoma County Vernal Pool Task Force (Task Force) for determining overall site quality. The determination of site quality, through a ranking process, may be used in the planning of vernal pool ecosystem preserves or vernal pool preservation banks (or other aspects of resource management), or it may be used in the permitting context. This ranking process, which consists of office and field work, is a means to objectively evaluate wetlands in terms of biological resources, land use, and acquisition feasibility information. The procedure for ranking a site is based on scoring the site using the HQE criteria and comparing the total and subtotal scores to certain thresholds. Only sites located within the Santa Rosa Plain Study Area can be considered for rankings according to this training manual.

Organization of This Training Manual

This training manual is divided into the following six sections and two appendices:

2.0 Overview of Habitat Quality Evaluation System provides a summary table of the HQE criteria (Table 2-1) and explains how the HQE ranking process works.

3.0 Methods for Office Work describes the work to be conducted in an office setting as part of the ranking process. An HQE Office Data Sheet is included.

4.0 Methods for Field Work describes the work to be conducted (primarily) in the field as part of the ranking process. An HQE Field Data Sheet is included.

5.0 Scoring and Quality Determination describes how to obtain a weighted score for the site, how to determine is a site qualifies as high quality using certain thresholds, and how to make a final determination of site quality. The thresholds serve as guidelines for the determination of site quality and there may be cases when the thresholds would not be definitive in the eventual designation of site quality.

6.0 Materials Needed to Document the Habitat Quality Evaluation provides a list of materials which should be included to document the HQE.

7.0 Information Sources provides a list of addresses and phone numbers that may need to be consulted in order to complete the scoring for a site, as well as other relevant references.

Appendix A: Materials to Take to the Field includes the pages that are needed while conducting the field work of the HQE.

Appendix B: United States Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain are the protocols to be followed if surveys for rare plants are conducted for the HQE (see Section 4.0 Methods for Field Work).

Definition of a Site

This evaluation process was developed for sites located within the Santa Rosa Plain Study Area (see Figure 1 on page 1-4). A site is defined as an entire parcel or parcels involved in a proposed project, plus any areas secondarily impacted by the project, such as vernal pool/swale complexes that cross parcel boundaries or downstream resources that could be affected. Several parcels may be ranked together if the parcels exhibit similar resources, as determined in a field visit. However, parcels that differ greatly in their level of development (e.g., multi-family housing versus non-irrigated rangeland) may be best evaluated independently, even if the parcels are being considered for development in a single project.

Who Can Apply the Criteria and When

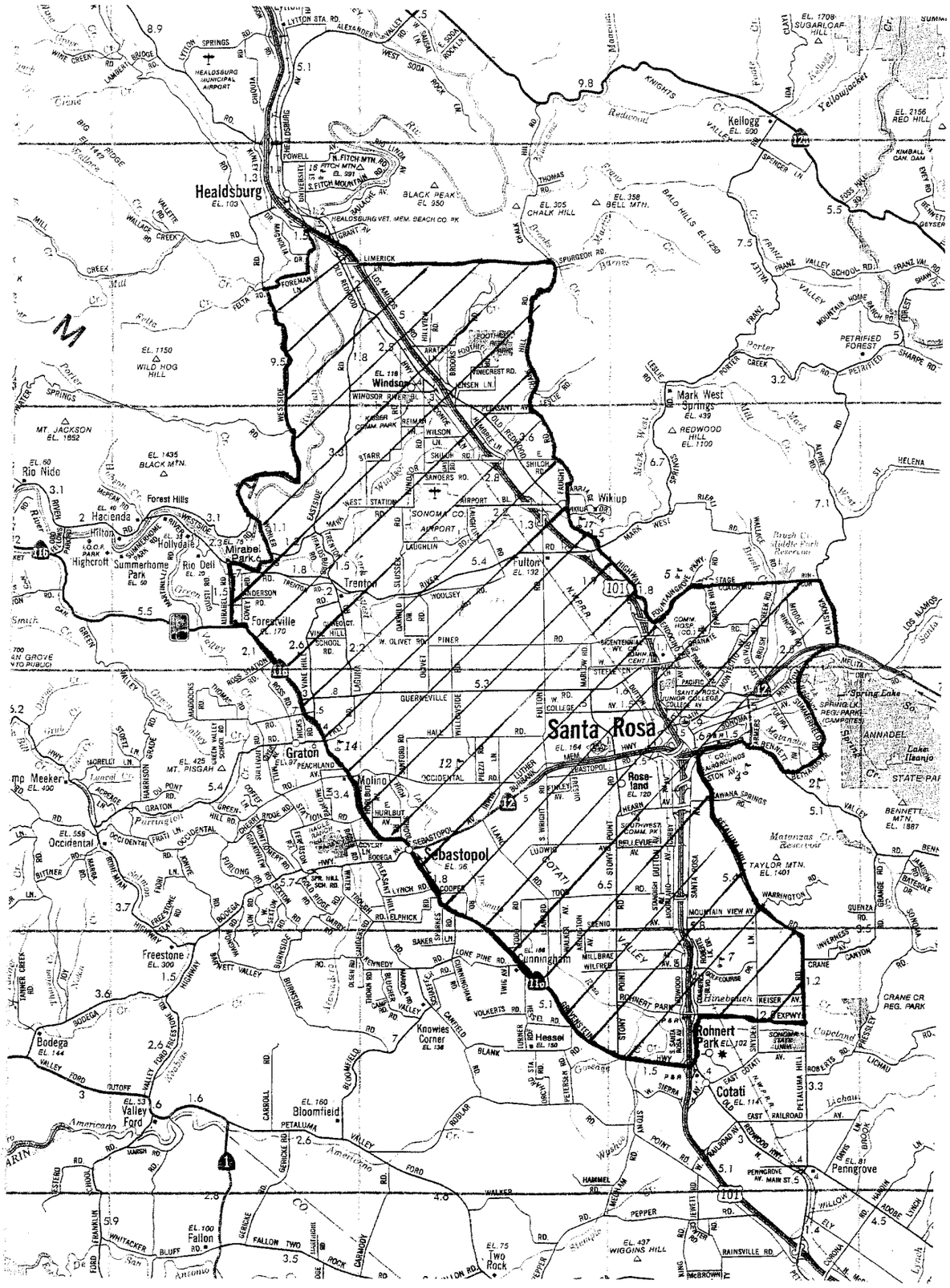
The rankings for the sites must be conducted by a professional biologist familiar with the biological resources of the Santa Rosa Plain. The field work (including the determination of suitable habitat and the presence of rare plants) is best conducted during the appropriate season in order to accurately identify the biological resources (i.e., plants and wetlands) of the region. (In addition, the use of USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain [Appendix B] is recommended, as explained further on page 4-10.) Although the specific months may vary from year the year, the general time period would include the spring and early summer months. If the site is evaluated in the off-season (or the USFWS guidelines are otherwise not followed), then the evaluator must assume the presence of suitable habitat for rare species for this evaluation. For the purposes of permitting in this case, higher mitigation ratios (which correspond to the presence of rare plants) would be required.

Development and Refinement of the Criteria

This training manual has been prepared in response to several years work of the Task Force. The Task Force, which began meeting in 1991, is composed of representatives from regulatory agencies, local government, land management organizations, environmental and community interest groups, the agricultural community, developers, landowners, and members of the public. The mission of the Task Force is to develop mechanisms to preserve and protect vernal pools and the vernal pool ecosystem in the context of potentially conflicting land uses such as urban development, agriculture, and irrigation with reclaimed wastewater in the Santa Rosa Plain. The two-part effort of the Task Force consists of (1) preserving valuable resources and (2) streamlining the regulatory process for obtaining authorization for projects that fill less valuable seasonal wetlands. HQE criteria were developed by the Task Force to rank potential preserve sites according to biological resources, land use, acquisition feasibility, and restoration categories. This method for ranking sites was presented in the Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan (Plan) (CH2M HILL, 1995). Sites that met defined threshold scores for the criteria were identified as High Quality Sites, and were designated as Potential Preserve Sites. Low Quality sites were those that fell below certain threshold scores.

The criteria have been field tested and subsequently modified for use in the broader application of evaluating sites. The thirteen HQE criteria that are to be used in ranking a site are summarized in Table 2-1 of this training manual. These criteria area divided into three categories, Biological Resources, Land Use, and Acquisition Feasibility. Some of the original criteria have been deleted and some have been more specifically defined. A definition of suitable endangered species habitat developed by the Task Force provides more specific guidance when using certain Biological Resources criteria (see Definition of Suitable Habitat for Listed Plants on page 4-12). Table 3-1 from the Plan, "Characteristic Plant Species in Santa Rosa Vernal Pools", which is used in the Definition of Suitable Habitat for Listed Plants, has been modified according to Task Force discussions. This modified list is referred to as Table 4-1 (see page 4-14). Because the criteria were revised since the development of the Plan, the threshold scores that defined a site as high or low quality have changed accordingly.

Figure 1. Santa Rosa Plain Study Area



2.0 Overview of Habitat Quality Evaluation System

Site Evaluation Process

This section describes the Habitat Quality Evaluation (HQE) system which can be used to determine the quality of sites in the Santa Rosa Plain Study Area (see Figure 1) with respect to vernal pool resources. The HQE system uses criteria and a numerical rating and scoring method. The system is based on the use of biological resources, land use, and acquisition feasibility criteria, which define important considerations in ranking the quality of a site (see Table 2-1, Habitat Quality Evaluation Criteria). The principal objective of the site evaluation process is to provide an objective evaluation of the quality of sites within the study area.

Scoring System for Site Evaluation

The scoring system for site evaluation uses two separate numerical indicators for each criterion: a site criterion rank and a criterion weight (see Table 2-1).

The site criterion rank is used to compare sites in relation to a single criterion on a scale from 1 to 5. The intent of each rank for each criterion is briefly summarized in Table 2-1. However, in order to accurately evaluate the site for some criteria, it is necessary to refer to the expanded explanations and instructions for each criterion in the following sections, Methods for Office Work and Methods for Field Work. A higher rank (e.g., 5) indicates that the site is of a higher quality for that criterion than a site which is ranked lower for that criterion (e.g., 1).

Each criterion was assigned a relative weight from 1 to 10 by the Task Force. This weight reflects the relative importance of the criteria rankings. A higher weight for a criterion (e.g., 10) indicates that the criterion is more important in this system than a criterion with a lower weight (e.g., 7). Table 2-2 illustrates how two sites would score for two criteria using a non-weighted system. Site X supports significant populations of two listed plant species (rank of 5 for the Listed Plant Species criterion), but is relatively isolated from other valuable resource sites (rank of 1 for the Habitat Size, Shape, and Degree of Connectivity, or Isolation from other Off-site Resources criterion) (see Table 2-1). Site Y has no suitable habitat for listed plant species (rank of 1 for the Listed Plant Species criterion), but is a large site, and is adjacent to an area with vernal pool resources (rank of 5 for the Habitat Size, Shape, and Degree of Connectivity, or Isolation from other Off-site Resources criterion).

Table 2-1
Habitat Quality Evaluation Criteria

ISSUE	low<< RANK				>> high	WEIGHT
	1	2	3	4	5	1-10
Biological Resources						
Listed Plant Species	No suitable habitat.	Suitable habitat present.	Known occurrence of one or more species; less than significant populations.	Significant population of one listed species.	Significant populations of more than one listed species.	10
Plant Species of Special Concern	No suitable habitat.	Suitable habitat present.	Known occurrence of one or more species; less than significant populations.	Significant population of one species of special concern.	Significant populations of more than one species of special concern.	6
Wildlife Species of Special Concern (Including Listed Species; Wetlands Only)	No suitable habitat.	Suitable habitat present.	Known occurrences of one or more species; less than significant populations.	Significant population of one species of special concern (or listed species).	Significant populations of more than one species of special concern (or listed species).	6
Habitat Quality of Vernal Pool Wetlands and Other Seasonal Wetlands	None present or severely degraded vernal pool/swale/seasonal wetland complex.	Marginal, disturbed vernal pools/swale/seasonal wetland complex.	Moderate quality vernal pool/swale/seasonal wetland complex.	High quality vernal pool/swale/seasonal wetland complex.	Pristine vernal pool/swale/seasonal wetland complex.	10
Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern	Habitats present of limited value.	Minor representation of other natural habitats.	Habitats present of moderate value.	Intermediate between 3 and 5.	Habitats of high value or multiple valuable habitats. Examples of high value for terrestrial species include nesting burrowing owls, nesting white-tailed kites, or badger dens.	5
Habitat Size, Shape, Degree of Connectivity, or Isolation from other Off-Site Resources	Low value.	Intermediate between 1 and 3.	Moderate value.	Intermediate between 3 and 5.	High value.	7
Land Use						
Land Use Policies	Site is within current city limits.	n/a	Site is within the urban boundary of a municipality.	n/a	Site lies within the county.	4
Zoning	Zoned industrial, commercial, intensive development.	Zoned for limited development (e.g., rural residential).	Intermediate between 2 and 4.	Zoned for agricultural use.	Zoned for open space.	2
Land Use Designation	Industrial, commercial, and dense residential.	Intermediate between 1 and 3.	Agricultural, rural residential.	Intermediate between 3 and 5.	Open space.	4
Existing Onsite Land Use	Intensely developed.	Scattered development	Intensive agriculture.	Irrigated extensive agriculture.	Non-irrigated extensive agriculture.	5
Adjacent Land Use	Intensely developed.	Scattered development.	Intensive agriculture.	Irrigated extensive agriculture.	Non-irrigated extensive agriculture.	4

Table 2-1
Habitat Quality Evaluation Criteria

ISSUE	low<< RANK				>> high	WEIGHT
	1	2	3	4	5	1-10
Acquisition Feasibility						
Conservation Easements	No known easement.	Proposed easement or Resource Management Area.	Conservation easement or preserve nearby.	Conservation easement or preserve adjacent.	Conservation easement or preserve onsite.	5
Relevancy with Other Preservation Plans	The site has not been identified by any agency as a potential preserve.	Interest for acquisition of fee or conservation easements by SCAPOSD[a].	The site is mapped as Category 3 by the SCAPOSD Acquisition Plan.	The site is mapped as Category 2 by the SCAPOSD Acquisition Plan.	The site is mapped as Category 1 by the SCAPOSD Acquisition Plan, is part of the Santa Rosa Area Conceptual Wetlands Habitat Management Plan, or is part of another preservation plan (including a Community Separator, a city wetland zoning ordinance, etc) [b].	4

(a) Sonoma County Agricultural Preservation and Open Space District.

(b) In the event a United States Fish and Wildlife Service Recovery plan is completed, and the site is located within the designated area, the site would rank a 5 for the Relevancy with Other Preservation Plans criterion.

Table 2-2. Comparison of Scoring Using a Non-weighted Scoring System		
Criteria	**Site X**	**Site Y**
Listed Plant Species	5	1
Habitat Size, Shape, and Degree of Connectivity, or Isolation from other Off-site Resources	1	5
Total (Non-weighted) Score for These Two Criteria	6	6

Using a non-weighted system, these two sites would score the same for these two criteria (see Table 2-2, above). In the context of evaluating the quality of these resources and assigning a high or low value to the site, however, the occurrence of several listed plant species represents a higher level of value than the size and proximity of the site to other offsite resources. To emphasize the importance of the Listed Plant Species criterion, a higher weight is assigned to the Listed Plant Species criterion (i.e., 10) compared to the Habitat Size, Shape, Degree of Connectivity, or Isolation from other Offsite Resources criterion (i.e., 7). To evaluate sites under the HQE system, both the site ranking and the criterion weight are used. For each criterion, the rank is multiplied by the weight (see Table 2-3, below). Under the weighted system, the site with two listed plant species, Site X, would score higher for these two criteria than Site Y.

Table 2-3. Comparison of Scoring Using a Weighted Scoring System (HQE)			
Criteria	**Weight**	**Site X**	**Site Y**
Listed Plant Species	10	50 (5 X 10)	10 (1X10)
Habitat Size, Shape, and Degree of Connectivity, or Isolations from Other Off-site Resources	7	7 (1X7)	35 (5 X7)
Total (Weighted) Score for These Two Criteria		57	45

For the determination of site quality in this training manual, weighted scores for all of the criteria (13 total), are added together to determine a total score. Weighted scores for the biological resources criteria (6 total) are added together to determine a biological resources subtotal score. These scores are then compared to threshold scores (see Section 5.0: Scoring and Quality Determination).

3.0 Methods for Office Work

The purpose of this part of the ranking process is to determine some characteristics of the land use and acquisition feasibility of a site. This part of the ranking process is to be completed in an office setting. The types of information needed to complete the office work described in this section include land use policies (e.g., whether the site is within an urban boundary of a City or the County), parcel zoning, parcel land use designation, in addition to information about conservation easements (onsite or near the site) and the Sonoma County Agricultural Preservation and Open Space District (SCAPOSD) classification. The information needed to complete the ranking for several of these criteria can be gathered at the same time (e.g., zoning and land use designation can be obtained through a single request to the County or City). Once that information is obtained, ranks for each of the criteria are assigned to a site, as summarized in Table 2-1 of Section 2.0. Expanded explanations for each of the ranks and detailed instructions on how to apply the ranks for the criteria covered under office work are provided below in this section.

Additional office work, as described in Section 4.0 Methods for Field Work, is necessary to supplement the field work in order to determine some characteristics of the biological resources and other land uses of a site. This additional office work described in Section 4.0 includes conducting a California Department of Fish and Game Natural Diversity Data Base (CNDDB search), searching existing literature, consulting agencies, and obtaining aerial photographs.

How to apply the criteria

The five criteria described in this section are:

Land Use

1) Land Use Policies;

2) Zoning;

3) Land Use Designation;

Acquisition Feasibility

4) Conservation Easements; and

5) Relevancy with Other Preservation Plans.

Two other land use criteria – existing on-site land use and adjacent land use – need onsite information to be gathered in the field and are addressed in Section 4.0 Methods for Field Work of this manual.

The steps to be taken to apply each of the criteria are explained in the following sections. Appropriate documentation must be provided to justify each of the rankings in order to complete the Habitat Quality Evaluation. After the expanded descriptions and instructions for each of the ranks for each criterion is a list of materials you will need to complete and justify the ranks for those criteria. When you have completed this section, you will have a completed Habitat Quality Evaluation Office Data Sheet. The blank spaces indicated on the data sheet for each criterion should be completed to justify the ranking assigned for each criterion and the appropriate rank should be circled.

Landowner(s) _____ Date _____

_____ Primary

Assessor's Parcel Number(s) _____ Investigator _____

Complete Mailing Address _____ Phone Number of Primary Investigator

_____ _____

Complete Street Address _____ Other

_____ Investigators _____

Complete Taxbill Address _____

(if different from above) _____

LAND USE

Criterion #1- Land Use Policies **RANK** Wt=4

Jurisdiction (e.g., Within City of Santa Rosa):

_____

Source (e.g., Figure 1 of Training Manual):

_____

_____

Site within current city limits	1
n/a	2
Site within urban boundary of municipality	3
n/a	4
Site lies within county	5

Criterion #2- Zoning **RANK** Wt=2

Zoning for Parcel(s) (e.g., Diverse Agriculture [DA] Combining District [B6] Scenic Resource [SR] 10 [acre density])

_____

Source (e.g., Phone conversation with John Smith, Assistant Planner, County of Sonoma Permit and Resource Management Department, Date):

_____

_____

Zoned industrial, commercial, intensive devt.	1
Zoned for limited devt. (e.g., rural residential)	2
Intermediate between 2 and 4	3
Zoned for agricultural use	4
Zoned for open space	5

Criterion #3- Land Use Designation **RANK** Wt=4

General Plan Land Use Designation for Parcel(s) (e.g., Rural Residential [RR] 20 [acre density]):

_____

Source (e.g., Phone conversation with John Smith, Assistant Planner, County of Sonoma Permit and Resource Management Department, Date):

_____

_____

Industrial, commercial, and dense residential	1
Intermediate between 1 and 3	2
Agricultural, rural residential	3
Intermediate between 3 and 5	4
Open space	5

ACQUISITION FEASIBILITY

Criterion #4- Conservation Easements Wt=5

RATIONALE (e.g., Located within 1000 ft. west of of Dept. Fish and Game Todd Road Preserve):

_____

Source(s) (e.g., Name of Map, Date):

_____

_____

No known easement	1
Proposed easement or Resource Management Area	2
Conservation easement or preserve nearby	3
Conservation easement or preserve adjacent	4
Conservation easement or preserve onsite	5

Criterion #5- Relevancy with Other Preservation Plans Wt=4

RATIONALE (e.g., Category 1):

_____

Source(s) (e.g., Name of Map, Date):

_____

_____

Not identified by any agency as potential preserve	1
Interest for acq. of fee or cons. ease. by SCAPOSD[1]	2
Cat. 3 by SCAPOSD Acquistion Plan	3
Cat. 2 by SCAPOSD Acquistion Plan	4
Cat. 1 or other preservation plans[2]	5

1 SCAPOSD: Sonoma County Agricultural Preservation and Open Space District

2 In the event a United States Fish and Wildlife Service Recovery plan is completed, and the site is located within the designated area, the site would rank a 5 for the Relevancy with Other Preservation Plans criterion.

Adequately Characterizing the Site

The ranks defined in Table 2-1 and explained on the following pages for each criterion, will not always adequately characterize a site. Intermediate ranks can be assigned in some cases when site-specific conditions indicate that a site cannot be adequately characterized using the ranks shown (e.g., 1, 3, 5 or 1, 2, 3, 4, 5). The individual scoring the site must use his/her best professional judgment and must explain the rationale for each scoring on the data sheets. The justification for assigning a site a specific score for a certain criterion must be provided.

If a site appears to fit the description for two ranking descriptions, for example, it may be necessary to score the site at the higher ranking or average the rank of the site. For example, for the Conservation Easements criterion under the Acquisition Feasibility category, if there is a proposed easement onsite (equivalent to a rank of 2; see Table 2-1) and there is a conservation easement adjacent to the site (equivalent to a rank of 4), then the site would score a 4 for this criterion. An example of an appropriate intermediate rank is a case where two parcels were ranked together because they exhibit physical uniformity as determined in a field visit, but the only criterion which differs is the zoning. If one parcel was zoned Diverse Agriculture (equivalent to a rank of 4; see Table 2-1) and the other parcel was zoned Rural Residential (equivalent to a rank of 2), the site (composed of the two parcels) would score an average of 3 for the zoning criterion.

ISSUE (for Criteria #1, #2, and #3): What are the land use policies (i.e., jurisdiction), zoning, and General Plan land use designations that apply to the site? What is the compatibility of the land use policies, zoning and land use designations onsite with the potential for preservation or enhancement of the site, or is the site best suited for development?

Criterion #1 Land Use Policies

RANK

1 **Site is within current city limits.** If a site lies within the city limits of one of the cities or towns as indicated in Figure 1 of this Training Manual (the Cities of Santa Rosa, Sebastopol, Rohnert Park, Cotati, or the Town of Windsor), the site falls within this ranking.

2 **n/a**

3 **Site is within the urban boundary of a municipality (i.e., within the sphere of influence of a municipality).** If a site lies within the urban boundary of one of the municipalities as indicated in Figure 1 (within the urban boundary or sphere of influence of Santa Rosa, Rohnert Park, or Cotati), the site falls within this ranking.

4 **n/a**

5 **Site lies within the county.** If a site does not lie within the city limits or the boundaries of the municipalities (as shown in Figure 1), then the site lies within the county and would fall within this ranking.

Criterion #2 Zoning

RANK

1 **Zoned industrial, commercial, intensive development.** For example, parcels zoned as Light Industrial (M2) would fall within this ranking.

2 **Zoned for limited development (e.g., rural residential).** For example, parcels zoned as Rural Residential (RR) would fall within this ranking.

3 **Intermediate between 2 and 4.** For example, parcels zoned as Agriculture and Residential (AR) would fall within this ranking.

4 **Zoned for agricultural use.** For example, parcels zoned as Diverse Agriculture (DA), Land Extensive Agriculture (LEA), or Land Intensive Agriculture (LIA) would fall within this ranking.

5 **Zoned for open space.** Parcels zoning as Open Space would fall within this ranking.

Criterion #3 Land Use Designation

RANK

1 **Industrial, commercial, and dense residential.** For example, parcels with a General Plan land use designation of Surrounding Residential (3-6 dwelling units [du]/acre [ac]) fall within this ranking.

2 **Intermediate between 1 and 3.**

3 **Agricultural, rural residential.** For example, parcels with the General Plan land use designation of Diverse Agriculture (DA), Land Extensive Agriculture (LEA), Land Intensive Agriculture (LIA), Rural Residential (RR), and Residential, very low density (0.5-5 du/ac) would all fall within this ranking.

4 **Intermediate between 3 and 5.**

5 **Open space.** Parcels with a General Plan land use designation of Open Space would fall within this ranking.

Materials Needed to Rank These Criteria

To rank these criteria, you will need the following materials:

- Zoning from the County or City (or Town) planning office. (See Section 7.0 - Information Sources for addresses and phone numbers of planning offices in the Santa Rosa Plain Study Area.)
- General Plan land use designation from the County or City (or Town) planning office.

How to Rank These Criteria

Step 1-Determine Jurisdiction of Parcel(s)

You must first determine if the site lies within the County, within the urban boundary of a municipality (i.e., within the sphere of influence of a municipality), or within a City or Town. The County or City (or Town) may need to be contacted, which can be done at the same time as Step 2, below (see Section 7.0 - Information Sources for addresses and phone numbers of planning offices in the Santa Rosa Plain Study Area).

Step 2-Obtain Zoning and Land Use Designation from Appropriate Planning Office

Having determined the appropriate jurisdiction (local agency) for the Land Use Policies criterion, obtain the relevant zoning and General Plan land use designation information from the County or City (or Town) within which that site lies. If a site lies within the urban boundary of a municipality (i.e., within the sphere of influence of a municipality), the relevant information can be obtained from the appropriate City (or Town) *or* from the County.

Zoning and land use designations can be obtained by supplying the appropriate office with the address or parcel number(s) by phone or in person. (Note: Some planning offices have limited counter hours for in-person visits or they require an appointment; contact the office before visiting it in person.)

Step 3-Complete Relevant Sections of HQE Office Data Sheet

In the relevant sections of the HQE Office Data Sheet, indicate the relevant jurisdiction, the complete zoning, and the complete General Plan land use designation, as well as the source(s) used to rank each of these criteria. For each criterion, circle the appropriate rank. Examples of how to complete the relevant section for each of these criteria, and the appropriate ranks, are summarized below.

- Criterion #1-Land Use Policies: Within the City of Santa Rosa. Source- Phone conversation with John Smith, Assistant Planner, County of Sonoma Permit and Resource Management Department, Date. (Rank of 1 would be circled.)
- Criterion #2- Zoning: Agriculture and Residential [AR] Combining District [B6] Scenic Resource [SR] 10 [acre density]. Source- Phone conversation with John Smith, Assistant Planner, County of Sonoma Permit and Resource Management Department, Date. (Rank of 3 would be circled.)
- Criterion #3- Land Use Designation: Rural Residential [RR] 20 [acre density]. Source- Phone conversation with John Smith, Assistant Planner, County of Sonoma Permit and Resource Management Department, Date. (Rank of 3 would be circled.)

Criterion #4 Conservation Easements

ISSUE: Is the site included in an existing preserve or is the site within an area covered under a conservation easement? Is the site already under some level of land conservation? Is the site near an area already under some level of land conservation?

RANK

1 **No known easement.** If no conservation easements/preserves are present onsite, the site is not proposed to become a conservation easement/preserve, and the site lies greater than 1,500 feet from a conservation easement/preserve, then the site would rank a 1.

2 **Proposed easement or Resource Management Area.** For example, if the site is under negotiation by SCAPOSD (i.e., as per the SCAPOSD List of Acquisitions and Negotiations), the site would fall within this ranking.

3 **Conservation easement or preserve nearby.** If a conservation easement or preserve is located within 1,500 feet of the site (but not directly adjacent), and there appears to be biological connectivity, the site would fall within this ranking.

4 **Conservation easement or preserve adjacent.** If a conservation easement or preserve is located directly adjacent to the site of interest, the site would fall within this ranking.

5 **Conservation easement or preserve onsite.** For example, if the site has been acquired by the SCAPOSD (i.e., as per the SCAPOSD List of Acquisitions and Negotiations), the site would fall within this ranking.

Materials Needed to Rank this Criterion

To rank this criterion, the following materials may need to be consulted:

- Information from the property owner regarding the existence of a conservation easement onsite.
- Certain maps and other sources from agencies as described in Step 2, below.

How to Rank this Criterion

Step 1- Consult With Property Owner

The property owner should know if a conservation easement exists on his/her property. If the property owner knows that a conservation easement exists onsite, the site would rank 5; go to Step 3- Complete Relevant Section of Data Sheet. If it is unknown if a conservation easement exists onsite, go the Step 2- Consult Maps at SCAPOSD.

Step 2- Consult Maps at SCAPOSD

Other sources may need to be consulted to determine the relevant rank for this criterion for a site. SCAPOSD keeps a variety of maps and other sources which show conservation easements and preserve areas (See Section 7.0 - Information Sources for the address and phone number of SCAPOSD.) It may not be necessary to consult all of the sources listed below. For instance, if a site is "Acquired", as listed in Item 1, the site would rank a 5 for this criterion, and the other sources do not need to be consulted.

1. List of SCAPOSD Acquisitions and Negotiations in the Santa Rosa Plains Vernal Pool Study Area
2. Updated map of Sonoma County Open Space Element with California Department of Fish and Game (CDFG) lands, Regional Parks, Federal Lands, Land Trust Properties, State Parks, Water Agency lands and recreational features.
3. Map of Selected Sonoma County Protected Lands with all SCAPOSD easements and purchases and several categories from the Open Space element.
4. Draft Open Space Plan Maps of Planning Area. Santa Rosa, Sebastopol, Rohnert Park/Cotati, and Healdsburg and their Environs each include portions of the study area. These maps depict open space in categories of Community Separator, critical habitat areas, scenic landscape units and public lands.

Since the maps at SCAPOSD are regularly updated, inquire at the SCAPOSD for any other new preserves or conservation easements that may not have been included in these sources. For example, the Alton Lane mitigation area (a California Department of Fish and Game [CDFG] preserve) was not included on the maps when they were consulted in January, 1998.

Once the conservation easements/preserves onsite or near the site are identified, it is possible to rank the site according to the descriptions on the preceding page.

Step 3- Complete Relevant Section of HQE Office Data Sheet

Under Rationale in the Conservation Easements section of the HQE Office Data Sheet, indicate if a conservation easement/preserve exists onsite, or what the distance is to the nearest conservation easement/preserve. Briefly describe the type of conservation easement/preserve and to whom it belongs (e.g., Located within 1000 feet west of vernal pool preserve with title to CDFG). Also indicate from what source this information was obtained (e.g., Name of Map and Date or List of SCAPOSD Acquisitions in the S.R. Plain Vernal Pool Study Area). If the site scores a 1, all of the sources consulted must be indicated. Circle the appropriate rank on the data sheet for this criterion.

For this criterion, if a site appears to fit the descriptions of two rankings, the higher ranking of the two should be used. For instance, if a site is under negotiation by SCAPOSD (a rank of 2) *and* a conservation easement is adjacent to the site (a rank of 4), then the site would rank 4. Similarly, if a conservation easement exists onsite (a rank of 5) and a conservation easement exists nearby (a rank of 3), then the site would rank 5.

Criterion #5 Relevancy with Other Preservation Plans

ISSUE: What is the status of the site in the Sonoma County Agricultural Preservation and Open Space District Acquisition Plan (SCAPOSD); Southwest Santa Rosa Area Conceptual Wetlands Habitat Management Plan (September, 1993); or other preservation plans[1]? What is the feasibility of acquisition or easement establishment? What is the potential for increasing the opportunities for the common use of funds for preserve establishment?

RANK

1 **The site has not been identified by any agency as a potential preserve.** For example, areas that are designated as "out" on the maps at SCAPOSD are not included in any of the categories (described below), and would fall within this ranking. Other parcels which have not been identified by any agency as a potential preserve would fall within this category.

2 **Interest for acquisition of fee or conservation easements by SCAPOSD.** For example, parcels which are currently under negotiation by SCAPOSD (i.e., as per the SCAPOSD List of Acquisitions and Negotiations) but do not fall in any category (i.e., Category 1, 2, or 3), would fall within this ranking.

3 **The site is mapped as Category 3 by the SCAPOSD Acquisition Plan.** A site designated as Category 3 would fall within this ranking.

4 **The site is mapped as Category 2 by the SCAPOSD Acquisition Plan.** A site designated as Category 2 would fall within this ranking.

5 **The site is mapped as Category 1 by the SCAPOSD Acquisition Plan; or is part of another preservation plan (including a Community Separator, a city wetland zoning ordinance, etc).[1]** For example, a site designated as Category 1 by SCAPOSD, a site within the Southwest Santa Rosa Area Conceptual Wetlands Habitat Management Plan, a site considered a "community separator", and a site within the City of Sebastopol wetland zoning ordinance, would fall within this ranking.

---

[1] In the event a United States Fish and Wildlife Service Recovery plan is completed, and the site is located within the designated area, the site would rank a 5 for the Relevancy with Other Preservation Plans criterion.

Materials Needed to Rank this Criterion

To rank this criterion, you will need the following materials:

- Certain maps and other sources as described in Step 1, below.

How to Rank this Criterion

Step 1-Determine the SCAPOSD Classification for the Site and If the Site Lies Within Another Preservation Plan Framework.

Some of the maps at SCAPOSD could provide the information needed to rank this criterion. These maps may include:

1. List of SCAPOSD Acquisitions and Negotiations in the Santa Rosa Plains Vernal Pool Study Area
2. Draft Open Space Plan Maps of Planning Area. Santa Rosa, Sebastopol, Rohnert Park/Cotati, and Healdsburg and their Environs each include portions of the study area. These maps depict open space in categories of Community Separator, critical habitat areas, scenic landscape units and public lands.
3. In house maps used to develop the Open Space Categories (1-3) in the SCAPOSD Acquisition Plan

Go to the SCAPOSD and locate the parcel of interest on the in-house maps used to develop the Open Space Categories (1-3) listed in the SCAPOSD Acquisition Plan. The categories are delineated by parcel on each of the planning areas. Planning areas are designated on the Draft Open Space Plan Maps of Planning Area. (For example, these show the designation of Community Separator.) The Category can also be determined if the parcel is included in the SCAPOSD List of Acquisitions and Negotiations.

The Southwest Santa Rosa Area Conceptual Wetlands Habitat Management Plan should be consulted. This plan can be found at the City of Santa Rosa Community Development Building Division.

In the event a United States Fish and Wildlife Service Recovery plan is completed, it should be determined if the site is located within the designated area. These plans should be available at the City, or Town, relevant to the site (or the County).

Step 2-Complete Relevant Section of HQE Office Data Sheet

Under "Rationale" on the relevant section of the HQE Office Data Sheet, indicate if the site falls within a preservation plan area (and which one), if it falls under Category 1, 2, or 3, if the site was designated as "Out" on the SCAPOSD maps, or if the site is under negotiation. Specify the source from which the information was obtained (e.g., Map and date or List of SCAPOSD Acquisitions in the S.R. Plain Vernal Pool Study Area). Circle the appropriate rank on the data sheet for this criterion. In addition, a copy of the map showing the site should be copied and included as part of the documentation for this criterion.

Work Products Completed at the End of Office Work Activities

When you are done with the office work associated with ranking the quality of sites in relation to land use and acquisition feasibility, you will have a completed HQE Office Data Sheet. It is important to ensure that the completed HQE Office Data Sheet includes the following information:

- All owners of the property(ies), including address(es), if different from the property (ies) being ranked
- Assessor's Parcel Number (APN) for each property being evaluated. The APN can be obtained by coordinating with the County or City (or Town) office.
- Complete mailing address(es), including zip code(s)
- Complete street address(es), including zip code(s)
- Complete taxbill address(es), including zip code(s), if different from addresses already provided
- Date the data sheet was completed
- Name and organization/agency of the primary investigator who completed the data sheet, including telephone number
- Other investigators (name and organization/agency)
- Rationale and ranks completed for the five criteria discussed in this section.

In addition, the following should be included as documentation for office work.

- Location map (e.g., Thomas Guide or 7.5. minute United States Geological Survey topographic quadrangle) with the site clearly marked.
- Copy of the map documenting the justification of the Relevancy with Other Preservation Plans criterion with the site clearly marked.

4.0 Methods for Field Work

The purpose of this section is to determine the biological resources and remaining land use characteristics of a site. This part of the ranking process is based primarily on field work. Some additional office work must be conducted in conjunction with the field work described in this section (e.g., to search for historical or known occurrences of special status species). The necessary office work should, if possible, be conducted prior to conducting the field visit.

Before conducting a site visit, this entire section, Methods for Field Work, should be reviewed so that the investigator is familiar with the methods and materials needed for documentation.

As part of the Habitat Quality Evaluation field work, a preliminary determination will be made as to if wetlands occur on the site (see Criterion #11- Habitat Quality of Vernal Pool Wetlands and Other Seasonal Wetlands). Ranking of this criterion does not represent a confirmed wetland delineation or disclaimer from the U.S. Army Corps of Engineers (Corps). Unless you are in possession of a disclaimer letter from the Corps which states otherwise, there may be wetlands on this property.

Definition of a Site

This evaluation process was developed for sites located within the Santa Rosa Plain Study Area (see Figure 1 on page 1-4). A site is defined as an entire parcel or parcels involved in a proposed project, plus any areas secondarily impacted by the project, such as vernal pool/swale complexes that cross parcel boundaries or downstream resources that could be affected. Several parcels may be ranked together if the parcels exhibit similar resources, as determined in a field visit. However, parcels which differ greatly in their level of development (e.g., multi-family housing versus non-irrigated rangeland), may be best evaluated independently, even if the parcels are being considered for development in a single project.

Who Can Apply the Criteria

The rankings for the sites *must be conducted by a professional biologist* familiar with the biological resources of the Santa Rosa Plain.

When to Conduct Field Work

The field work (including the determination of suitable habitat and the presence of rare plants) is best conducted during the appropriate season in order to accurately identify the biological resources (i.e., plants and wetlands) of the region. (In addition, the use of USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain [Appendix B] is recommended, as explained further on page 4-10.) Although the specific months may vary from year the year, the general time period would include the spring and early summer months. If the site is evaluated in the off-season (or the USFWS guidelines are otherwise not followed), then the evaluator must assume the presence of suitable habitat for rare species for this evaluation. For the purposes of permitting in this case, higher mitigation ratios (which correspond to the presence of rare plants) would be required.

How to Apply the Criteria

This section covers how to rank the six biological resources criteria and the two remaining land use criteria, from primarily one or more field visits. At the beginning of the instructions for each criterion is a list of the materials you will need to complete and justify the ranking of that criterion. The resources in this Section 4.0 and in Appendix A: Materials to Take to the Field will be necessary to complete this portion of the ranking process. These include:

- Habitat Quality Evaluation Field Data Sheet
- Supplementary Office Information for Field Work Data Sheet
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
- Expanded Explanations of the Habitat Quality Evaluation Criteria
- Definition of Suitable Habitat for Listed Plants
- Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Table 4-1)

It is recommended that the Supplementary Office Information for Field Work Data Sheet be completed before conducting the site visit. Other materials will be useful to conduct the site visit (e.g., aerial photographs). Proper documentation should be collected during the field visit (e.g., taking photographs) and all sections of the Supplementary Office Information for Field Work Data Sheet, Habitat Quality Evaluation Field Data Sheet (including the rationale for each criterion), and the Results of Surveys of Rare Plants and Suitable Habitat Data Sheet should be completed. (It may be necessary to attach additional sheets to the existing data sheets to allow for complete documentation.)

The eight criteria discussed in this section are:

Land Use

6) Existing Onsite Land Use;

7) Adjacent Land Use;

Biological Resources

8) Listed Plant Species;

9) Plant Species of Special Concern;

10) Wildlife Species of Special Concern (Including Listed Species; Wetlands Only);

11) Habitat Quality of Vernal Pools and Other Seasonal Wetlands;

12) Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern;

13) Habitat Size, Shape, Degree of Connectivity or Isolation from other Off-Site Resources.

A summary of the rankings for these eight criteria is provided in Table 2-1. Refer to the instructions which follow, or to the Expanded Explanations of the Habitat Quality Evaluation Criteria to be Used in the Field (included in Appendix A).

Adequately Characterizing the Site

The ranks defined in Table 2-1, explained in this section, and summarized in Appendix A for each criterion (see Expanded Explanations of the Habitat Quality Evaluation Criteria to be Used in the Field) will not always adequately characterize a site. Intermediate ranks can be assigned in some cases when site-specific conditions indicate that a site cannot be adequately characterized using the ranks shown (i.e., 1, 2, 3, 4, 5). The individual scoring the site must use his/her best professional judgment and must explain the rationale for each scoring on the data sheets. The justification for assigning a site a specific score for a certain criterion must be provided on the Habitat Quality Evaluation Field Data Sheet.

If a site appears to fit the description for two ranking descriptions, for example, it may be necessary to score the site at the higher ranking or average the rank of the site. For example, for Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern Present criterion under the Biological Resources category, if there are a few scattered oaks (i.e., a minor representation of other natural habitats, equivalent to a rank of 2) and California tiger salamander aestivating habitat exists onsite (equivalent to a rank of 3), the site would score a 3 for this criterion. An example of an appropriate intermediate rank is a case where for the Adjacent Land Use criterion under the Land Use category, there are different proportions of different land uses adjacent to the site. A site with 50% of Rank 4 and 50% of Rank 2 would average out to a Rank of 3 for this criterion.

Researching Historical or Known Special Status Species Occurrence

For several of the criteria in this section, some office work is necessary to accurately characterize any historical or known occurrences of special status species (i.e., listed plant species, plant species of special concern, and wildlife species of special concern). This office work consists of conducting a California Department of Fish and Game Natural Diversity Data Base (CNDDB) search, consulting existing literature, and contacting resource agencies. It is recommended that this office work be conducted prior to conducting the field visit(s) for a site.

CNDDB Search Conduct a Rarefind search in CNDDB for the vicinity of the site of interest to determine if there have been any historic occurrences of special status species onsite or near the site. Contact the CDFG Natural Heritage Division (NHD) listed in the Section 7.0 (Information Sources) to request that a search on the database be conducted or to purchase the Rarefind subscription.

The investigator should determine if any of the element occurrences in the Rarefind search results are located on the site. In addition, the investigator should determine if any occurrences of California tiger salamander breeding occur within 300 meters of the site (see Other Habitat Types [Other Wetlands] or Other Terrestrial Species of Concern criterion described on page 4-18).

Literature Search The investigator should consult existing reports about biological resources in the site vicinity. Many of these reports can be found at local planning offices. These reports include, but are not limited to:

- Seasonal Wetland Baseline Report for the Santa Rosa Plain, Sonoma County (Patterson, et. al., 1994)
- Local Environmental Impact Reports (EIRs)
- Specific plans

Agency Consultation In addition, the appropriate resource agency(ies) should be consulted. At the time of publication of this training manual, CDFG was the only agency that needed to be contacted regarding issues relevant to wildlife species of concern. The Environmental Services Supervisor of the CDFG office in Yountville should be consulted (see Section 7.0 Information Sources). If wildlife species of special concern other than those discussed in this section and included the Expanded Explanation of the Habitat Quality Evaluation Criteria to be Used in the Field (see Appendix A) become listed, proposed, candidates, or otherwise become considered Species of Concern by the United States Fish and Wildlife Service (USFWS), then it may be necessary to contact the Endangered Species Division of the USFWS.

Obtaining Aerial Photographs

Aerial photograph(s) of the site (1":500' or larger) are needed to rank the Onsite Land Use and Adjacent Land Use criteria. The photo must clearly show land adjacent to the site boundary within at least 1,500 feet. The photo can be black and white or color. The most recent aerial photograph that can readily be obtained should be used. Appropriate aerial photos can be obtained from County of Sonoma Permit and Resource Management Department (see Information Sources in Section 7.0 at the end of this training manual for the phone number and address). An appropriate aerial photograph could be the 1":500' 1990 blueline entitled "Sonoma County Planning Department Aerial Flight-June 1990", available at the County planning office. It may also be possible to obtain aerial photographs from the Public Works Department of the City of Santa Rosa.

Taking Photographs

Proper documentation of biological and land use conditions includes taking photographs during all site visits. Photographs should be taken of any special status species onsite. At least one representative photograph be representative of percent vegetation cover, as determined for the Definition of Suitable Habitat for Listed Plants (see page 4-12). It is also recommended that other photographs are taken, such as photographs of the overall site and photographs showing surveys methods (e.g., a quadrat or other equipment) used to determine percent cover for the Definition of Suitable Habitat for Listed Plants.

Landowner(s) _____ Date _____

Assessor's Parcel Number(s) _____ Investigators _____

Mailing Address _____ Primary Contact _____

Street Address _____ Acres _____

Description of Vernal Pool/Swale Complex:

WETLAND/V.P. DOMINANT PLANT SPECIES

_____

_____

WETLAND/V.P. SUBDOMINANT PLANT SPECIES

_____

_____

UPLAND DOMINANT PLANT SPECIES

_____

_____

UPLAND SUBDOMINANT PLANT SPECIES

_____

_____

SITE CHARACTERIZATION [site: entire parcel(s) involved in the proposed project area and areas secondarily affected (e.g., swales downstream)]

_____

_____

_____

_____

Attach additional sheets as necessary.

LAND USE

Criterion #6-Existing On-Site Land Use RATIONALE _____	**RANK** Wt=5	**Criterion #7- Adjacent Land Use** RATIONALE _____	**RANK** Wt=4
Intensely developed	1	Intensely developed	1
Scattered development	2	Scattered, widely spaced developed	2
Intensive agricultural (orchard etc.)	3	Intensive agricultural use	3
Irrigated extensive agriculture	4	Irrigated extensive agriculture	4
Non-irrigated extensive agriculture	5	Non-irrigated extensive agriculture	5

BIOLOGICAL RESOURCES

Criterion #8- Listed Plant Species (BLBA, LABU, LIVI, NALEP)[1] RATIONALE _____	Wt=10	**Criterion #9- Plant Species of Special Concern (DOPU, NALEB, PODOP, RALO, LELI)**[1] RATIONALE _____	Wt=6
No suitable habitat	1	No suitable habitat	1
Suitable habitat present	2	Suitable habitat present	2
One or more species; less than signif. population(s)	3	One or more species; less than signif. population(s)	3
Signif. population - one listed species	4	Signif. population - one species of concern	4
Ensemble (> one species); signif. populations	5	Ensemble (> one species); signif. populations	5

Criterion #10- Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) (CTS, CFS, CRLF, FS, WPT)[1] RATIONALE _____	Wt=6	**Criterion # 11- Habitat Quality of V.P./Other Seas. Wetlands**[2] RATIONALE _____	Wt=10
No suitable habitat	1	None present	1
Suitable habitat present	2	or present but severely degraded	1
One or more species; less than signif. population(s)	3	Marginal quality: topog./hydrol. disturbed	2
Signif. population - one species of concern	4	Moderate quality: some disturbance	3
Ensemble (> one species); signif. populations	5	High quality: little disturbance to topog./hydrol.	4
		Pristine quality: no disturbance to topog./hydrol.	5

1 See pages 4-8 and 4-9 of the Training Manual for descriptions of abbreviations of special status species.

2 This criterion does not represent a confirmed wetland delineation or disclaimer from the U.S. Army Corps of Engineers (Corps). Unless you are in possession of a disclaimer letter from the Corps which states otherwise, there may be wetlands on this property.

Landowner(s) _____ Assessor's Parcel Number _____

BIOLOGICAL RESOURCES cont.

Criterion #12- Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern Wt=5 **RATIONALE** _____		**Criterion #13- Habitat Size, Shape, Degree of Connectivity or Isolation from Other Off-Site Resources** Wt=7 **RATIONALE** _____	
Habitats present are of limited value	1	Low Value: small site, fragmented or isolated	1
Minor representation of other natural habitats	2	Intermediate between 1 and 3	2
Habitats are of moderate value	3	Moderate Value: sm. to mod. sized; adj. high value	3
Intermediate ranking between 3 and 5	4	Intermediate between 3 and 5	4
High value habitat(s) (e.g., nesting burrowing owls, nesting white-tailed kites, or badger dens)	5	High Value: lg. site of suitable shape; in proximity to high value habitat/connectivity to import. sites	5

PHOTO? (circle one) Y N

DO RARE PLANTS OR PLANTS OF SPECIAL CONCERN OCCUR HERE?[1] Y N

Species (circle) BLBA LABU LIVI NALEP DOPU NALEB LELI PODOP RALO

Population Location/Distribution _____

Population Size 1-10 plants 10-100 100-500 500-1,000 1,000-5,000 5,000-20,000 20,000-50,000 >50,000

Known Occurrence? Y N Unknown **Phenology** Veg Flr Fruit Past Fruit

Species (circle) BLBA LABU LIVI NALEP DOPU NALEB LELI PODOP RALO

Population Location/Distribution _____

Population Size 1-10 plants 10-100 100-500 500-1,000 1,000-5,000 5,000-20,000 20,000-50,000 >50,000

Known Occurrence? Y N Unknown **Phenology** Veg Flr Fruit Past Fruit

OTHER INFORMATION

Sketch the Vernal Pool/Swale/Seasonal Wetland Complex:

1 See page 4-8 of the Training Manual for descriptions of abbreviations of plant species.

Criterion #6 Existing On-Site Land Use and Criterion #7 Adjacent Land Use

ISSUE: Does the site have adequate lands available for preservation? What is the existing adjacent land use? Do the existing and adjacent land uses conflict with or adversely impact onsite preservation?

RANK

1 **Intensely developed.** Majority of site dedicated to structures and/or pavement (i.e., business parks, subdivisions with very little open space).

2 **Scattered development.** Some of site dedicated to structures and/or pavement (i.e., low density business and/or residential with structures separated by open space).

3 **Intensive agriculture.** Majority of site dedicated to vineyard, orchard, or row crops.

4 **Irrigated extensive agriculture.** Majority of site dedicated to irrigated agriculture (i.e., pasture and/or hayland).

5 **Non-irrigated extensive agriculture.** Majority of site dedicated to non-irrigated agriculture (i.e., dry pasture, hayfield) and/or fallow open space.

NOTE: To calculate a rank for a site with different land uses look at the relative proportion of land use around the site (i.e., a site with 50% of Rank 4 and 50% of Rank 2 would average out to a Rank of 3).

Materials Needed to Rank These Criteria

To rank these criteria, you will need the following materials:

- Aerial photograph(s) of the site (1":500' or larger). The photo must clearly show land adjacent to the site boundary within at least 1,500 feet. The photo can be black and white or color. The most recent aerial photograph that can be obtained should be used. Appropriate aerial photos can be obtained from County of Sonoma Permit and Resource Management Department (see Information Sources in Section 7.0 at the end of this training manual for phone number and address). An appropriate aerial photograph could be the 1":500' 1990 bluelines entitled "Sonoma County Planning Department Aerial Flight-June 1990", available at the County planning office.

How to Rank These Criteria

<u>Step 1-Review Aerial Photographs</u>

Appropriate aerial photographs are needed to complete the ranks for these criteria.

<u>Step 2 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet</u>

Conduct a field visit, make appropriate observations, and take photographs. To calculate a rank for a site with different land uses, the relative proportion of land uses on the site can be estimated (i.e., percentages) and an average can be determined. The average score should be rounded to the nearest half number. Complete the rationale sections and circle the appropriate ranks. Examples of rationale for these criteria include the following:

- fallow pasture
- landscaped backyard
- open fields are present on three sides of a square site (75% of 5) and residences are present on one side of site (25% of 2)

ISSUE (for Criteria #8 and #9): Does the project site have populations of listed plant species or plant species of special concern dependent on vernal pool/swale habitats or the potential to support those species? The determination of significant, as used in the ranking definitions below, will need to be made on a species-specific basis taking into account the population size, distribution of the species, and recovery objectives (for listed plants only) for the species. See the Definition of Suitable Habitat for Listed Plants on page 4-12.

(Note: See pages 4-10 to 4-15 for steps to rank and documentation needed for Criteria #8, #9, and #10.)

Criterion #8 Listed Plant Species

Species considered for this criterion include the following. If other plant species have been listed since the publication of this training manual, they should be considered under this criterion.

- *Blennosperma bakeri* **(BLBA)**-distributed primarily in the central and southern part of the Plain, west of Santa Rosa.
- *Lasthenia burkei* **(LABU)**-distributed mostly in the northwestern and central part of the Plain.
- *Limnanthes vinculans* **(LIVI)**-distributed in the central and southern part of the Plain.
- *Navarretia leucocephala* ssp. *plieantha* **(NALEP)**-distributed in only one location, south of Windsor, within the Shiloh Road Potential Preserve Site.

Criterion #9 Plant Species of Special Concern

Species considered for this criterion include the following. If other plant species are considered species of special concern since the publication of this training manual, they should be considered under this criterion.

- *Downingia pusilla* **(DOPU)**
- *Navarretia leucocephala* **ssp.** *bakeri* **(NALEB)**
- *Pogogyne douglasii* **var.** *parviflora* **(PODOP)**
- *Ranunculus lobbii* **(RALO)**
- *Legenere limosa* **(LELI)**

RANK (The following ranks apply to the Listed Plant Species and the Plant Species of Special Concern criteria.)

1 **No suitable habitat** (i.e., no vernal pool/swale complex present or extremely disturbed pool/swale habitat present that does not meet the attached definition of potential habitat). See Definition of Suitable Habitat for Listed Plants.

2 **Suitable habitat present** (i.e., vernal pools/swales present that potentially could support these listed species; no documented occurrences within the project site. See Definition of Suitable Habitat for Listed Plants.

3 **Known occurrence of one or more than one species (ensemble site) with populations less than significant.**

4 **Significant population of one listed species.**

5 **Site that supports significant populations of more than one listed species (ensemble site).**

Criterion # 10 Wildlife Species of Special Concern (Including Listed Species; Wetlands Only)

ISSUE: Does the site have populations of wildlife special status species that rely on wetlands or other aquatic ecosystems for some part of their life history? The determination of significant, as used in the ranking definition below, will need to be made based on a species-specific basis taking into account the population size, distribution of the species, and recovery objectives for the species.

The Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criterion refers to wildlife special status species that rely on wetlands or other aquatic ecosystems for some portion of their life history. Terrestrial species of special concern are to be considered in the Other Habitat Types (Other Wetlands) and Terrestrial Species of Concern criterion. Some species of special concern which should be considered when ranking a site according to this criterion are summarized below. If other wildlife species that rely on wetlands or other aquatic ecosystems for some portion of their life history have become listed species or species of special concern since the publication of this training manual, they should be considered under this criterion.

- **California Tiger Salamander *(Ambystoma tigrinum californiense)*(CTS)**
- **California Freshwater Shrimp *(Syncaris pacifica)* (CFS)**
- **California Red-Legged Frog *(Rana aurora draytonii)* (CRLF)**
- **Fairy Shrimp *(Linderiella occidentalis)* (FS)**
- **Western Pond Turtle *(Clemmys marmorata marmorata)* (WPT)**

Several of these require permanent sources of water (western pond turtle and California red-legged frog), while others require wetlands and/or other habitat variables (i.e., California tiger salamander [CTS]).

California freshwater shrimp occur in perennial lowland streams with low gradient flow where riparian cover is moderate to heavy. Potential CTS breeding habitat is defined as areas that would be expected to pond continuously for a minimum of 4 months in an average rainfall year. This does not include streams and areas of perennially running water since CTS larvae require ponded water, not flowing water to complete their larval stage. Fairy shrimp habitat is as defined for listed plant species. Aestivating habitat for CTS is considered under "Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern Present".

RANK

1 **No suitable habitat.**
2 **Suitable habitat present.**
3 **Known occurrence of one or more species (ensemble site) with populations less than significant.**
4 **Site that supports a significant population of one species of concern.**
5 **Site that supports significant populations of more than one species of concern (ensemble site).**

Materials Needed to Rank These Criteria (#8, #9, #10)

To rank these criteria, you will need the following materials:

- CNDDB search results
- Results from literature search
- Definition of Suitable Habitat for Listed Plants
- Table 4-1: Characteristic Plant Species in Santa Rosa Plain Vernal Pools
- Supplementary Office Information for Field Work Data Sheet (e.g., relating to CNDDB results)
- Agency correspondence (included as part of, or attached to, Supplementary Office Information for Field Work Data Sheet)
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet

How to Rank These Criteria

Step 1-Research Historical or Known Species Occurrence

It is recommended but not required that this step be conducted prior to conducting the site visit(s). A CNDDB search and a literature search as described above need to be conducted to adequately rank the site for the Listed Plant Species, Plant Species of Special Concern, and Wildlife Species of Special Concern criteria. In addition, CDFG should be contacted to provide information necessary to appropriately rank the site for the Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criterion. Complete the Supplementary Office Information for Field Work Data Sheet.

Step 2-Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

The field visit(s) may consist of the following activities to rank the site for these three criteria.

- **Determine if suitable habitat exists onsite.** The Definition of Suitable Habitat for Listed Plants refers to Table 4-1, Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Revised Table 3-1 from the Plan). A non-ocular, standard sampling method should be used which should be conducted systematically. A description of the methods should be included in the documentation for this criterion on the Results of Surveys for Rare Plants and Suitable Habitat Data Sheet.
- **Conduct rare plant surveys (not always required).** It is recommended that rare plant surveys be conducted as part of the HQE. However, rare plant surveys may not be necessary if information from previous, recent surveys is available and is included as an attachment along with the other materials needed to document the HQE. Depending on the purpose of the evaluation, the investigator must decide if (s)he will conduct rare plant surveys. If rare plant surveys are conducted, the results should be documented separately from the HQE evaluation and summarized on the Results of Surveys for Rare Plants and Suitable Habitat Data Sheet as part of the Habitat Quality Evaluation. USFWS protocols must be followed in order to determine the presence or absence of rare plants (see Appendix B: United States Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain). If rare plant surveys are not conducted during the HQE, it may be necessary to conduct rare plant surveys at a later time, depending on the final use of the site. In a case where rare plant

surveys are not conducted, higher mitigation ratios (which correspond to the presence of rare plants) would be required for the purposes of permitting.

- **Take photographs.** See Taking Photographs on page 4-4.
- **Complete relevant sections of HQE Field Data Sheet.** The rationale should be completed for these criteria and the appropriate ranks circled. Include documentation of rare plants, population location and distribution, population size, whether or not it is a known occurrence, and phenology.

Special Notes on Completing HQE Field Data Sheet for these Criteria:

1) The USFWS considers a "known occurrence" to include extant and historic (e.g., possibly extirpated) occurrences with site specific locality information. For example, there may be a case where no suitable habitat is present onsite during a site visit according to the Definition of Suitable Habitat for Listed Plants, but there has been an identified occurrence of a listed plant on the site with a specific description of the location according to a specific source. In this case, the site would rank a least a 3 in Listed Plant Species, "Known occurrence of one or more species (ensemble site) with populations less than significant".

2) Any suitable habitat for listed plants qualifies as suitable habitat for fairy shrimp (*Linderiella occidentalis*). Therefore, if a site ranks a 2 or higher for Listed Plants or Plant Species of Special Concern, the site would normally rank a 2 or higher for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only). (However, if a site historically supported a listed plant, and ranked a 3 for Listed Plant Species, but the site no longer meets the conditions as described in the Definition of Suitable Habitat because of hydrological and/or topographic changes, it is possible that the site could score a 1 for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only).)

Definition of Suitable Habitat for Listed Plants

Suitable habitat for the listed plant species and plant species of concern, for use with the Training Manual to Evaluate Habitat Quality of Vernal Pool Ecosystem Sites in Santa Rosa Plain, is defined below. The definition is the same for fairy shrimp (*Linderiella occidentalis*). It is based on a combination of vegetative, topographic, and hydrological characteristics. This definition should be used as a guide and is not intended to replace field experience by qualified persons.

Vegetation Conditions

Suitable habitat for the four listed plant species can be characterized as:

1. Areas supporting vernal pool indicator species: plant species listed in Table 4-1 contribute 10% or more of the relative cover, **or**

2. Areas not dominated by weedy grasses or perennials. Therefore, suitable habitat may exist in areas in which perennial plant species other than those listed in Table 4-1 and/or exotic grasses such as *Hordeum marinum* ssp. *gussoneanum, Lolium perenne, Bromus hordaceus,* etc. contribute less than 90% of the relative vegetation cover.

These criteria are not to be applied to the entire wetland area, since only a small portion may be suitable habitat. If any square meter area meets the above criteria (such as in the deepest portion of shallow ponds or on the sides of deep swales), this area would be considered suitable habitat.

Topographic and Hydrologic Conditions

A) One or more of the following topographic or hydrologic conditions must exist in conjunction with the vegetation criteria for the site to be considered suitable habitat:

1. The wetland area has not been entirely filled such that the wetland no longer floods or ponds (i.e. as a result of leveling) and the original topography no longer exists.

2. The wetland has an outlet barrier (is a pool) or occurs in depressional terrain (i.e. is a swale or drainage feature).

3. The wetland contains surface (standing or flowing) water during the rainy season in a normal rainfall year for 7 or more consecutive days.

B) The following conditions indicate that a site is not suitable habitat. The site does not meet the vegetation criteria and:

4. The wetland occurs on sloping ground (not the slopes of a swale or pond) and is not a swale or swale-related drainage feature, such that no ponding or flooding occurs.

5. The wetland is irrigated, and contains standing water of natural or artificial origin, and the soils are saturated, for more than 60 days between June 1 and October 1.

Clarifications for Definition for Suitable Habitat for Listed Plants

The following list provides clarifications to the Definition of Suitable Habitat for Listed Plants.

- If a site satisfies one of the vegetation conditions or one of the topographic or hydrologic conditions explained in the Definition of Suitable Habitat for Listed Plants, the site would rank a 2, "Suitable habitat present", or higher for the Listed Plant Species, Plant Species of Special Concern, and Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criteria.
- As described in the Definition of Suitable Habitat for Listed Plants, if any square meter meets the vegetation criteria and a topographic/hydrologic condition, then the area would be considered suitable habitat. For example, on a 90-acre site, if one square meter meets the vegetation criteria and a topographic/hydrographic condition, and the remaining 89 acres consist of uplands or wetlands which do not meet the Definition of Suitable Habitat for Listed Plants, the score for the Listed Plant Species, Plant Species of Special Concern, and Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criteria should not be averaged over the whole site. For the purposes of this training manual, this site would rank at least a 2 for these criteria.
- To determine if suitable habitat exists onsite by using the Definition of Suitable Habitat for Listed Plants, the investigator must determine if normal conditions exist at the site. To accurately rank the site, the vegetation must be an unmanaged state so that it can be clearly identified and quantified. If an atypical situation exists (i.e., there is evidence of sufficient natural or human-induced alteration to significantly alter the vegetation, soils, and/or hydrology or if offsite modifications have affected the hydrology on the site), the investigator must either: (1) assume that suitable habitat exists and rank the site at least a 2 for the Listed Plant Species, Plant Species of Special Concern, and Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criteria, (2) wait for the vegetation to redevelop and evaluate that site at that time, or (3) determine if there is enough historical data and other information prior to the alteration from which the site can be adequately ranked.
- Relative cover (not absolute cover) should be determined, when characterizing the vegetation conditions.
- Use the "Results of Surveys for Rare Plants and Suitable Habitat Data Sheet" as the cover sheet for supporting documentation of suitable habitat.

Table 4-1
Characteristic Plant Species
in Santa Rosa Plain Vernal Pools

Scientific Name	Common name
Alopecurus saccatus	foxtail
Blennosperma bakeri	Sonoma sunshine
Callitriche marginata	water-starwort
Cyperus eragrostis	umbrella sedge
Deschampsia danthonioides	hairgrass
Downingia concolor	fringed downingia
Downingia cuspidata	downingia
Downingia pusilla	dwarf downingia
Eleocharis acicularis	small spiked sedge
Eleocharis macrostachya	spiked sedge
Epilobium pygmaeum	fireweed, willow herb
Epilobium torreyi	fireweed, willow herb
Eryngium aristulatum	coyote thistle
Eryngium armatum	spiny coyote thistle
Glyceria occidentalis	mannagrass
Gratiola ebracteata	hedge-hyssop
Isoetes howellii	quillwort
Lasthenia burkei	Burke's goldfields
Lasthenia glaberrima	smooth goldfields
Lasthenia glabrata	goldfields
Lilaea scilloides	flowering quillwort
Limnanthes douglasii ssp. *douglasii*	Douglas' meadowfoam
Limnanthes douglasii ssp. *nivea*	meadowfoam
Limnanthes vinculans	Sebastopol meadowfoam
Mentha pulegium	common mint, pennyroyal
Mimulus tricolor	tricolor monkey flower
Montia fontana	water chickweed, blinks
Navarretia leucocephala ssp. *leucocephala*	white-flowered navarretia
Navarretia leucocephala ssp. *bakeri [N. bakeri]*	Baker's navarretia
Navarretia leucocephala ssp. *plieantha*	many-flowered navarretia
Pilularia americana	pilularia

Table 4-1 Characteristic Plant Species in Santa Rosa Plain Vernal Pools	
Plagiobothrys bracteatus	popcornflower
Plagiobothrys greenei	popcornflower
Plagiobothrys stipitatus var. *micranthus*	popcornflower
Plagiobothrys tener	popcornflower
Pleuropogon californicus	annual semaphore grass
Pogogyne douglasii ssp. *parviflora**	Douglas' pogogyne
Psilocarphus brevissimus	woolly-marbles
Ranunculus alismifolius	buttercup
Ranunculus lobbii	Lobb's aquatic buttercup
Ranunculus pusillus	buttercup
Veronica anagallis-aquatica	water speedwell

Taxonomy follows the Jepson Manual Higher Plants of California (Hickman, Ed., 1993).

* Taxonomy follows California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Skinner, Mark W. and Bruce M. Pavlik, Eds,. 1994).

Table 3-1 from the Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan has been modified as per Task Force discussions.

Criterion #11 Habitat Quality of Vernal Pool Wetlands and Other Seasonal Wetlands

ISSUE: What is the habitat quality of the vernal pools/swale/seasonal wetland complex on-site? Have the surrounding or on-site land uses or previous disturbances affected the quantity (hydrologic regime) and/or the quality of the water flowing into or through the site?

RANK

1 **No vernal pools or other seasonal wetlands present on-site; or present but severely degraded.** (If the site receives a score of 1, indicate clearly in the HQE Field Data Sheet which case applies to the site, either "none present" or "present but severely degraded".) Examples would include such conditions as:

- Completely leveled;
- None or little of the original topography remains;
- Hydrology has been substantially altered or is not present;
- No to few vernal pool plant individuals are present.

2 **Marginal vernal pools/swale/seasonal wetland complex present; disturbed.** Examples would include such conditions as:

- Some of the plants in these pools are plant species that are restricted typically to vernal pools, but many other plant species also occur (including seasonal wetland species or weed species);
- Some minor to significant alteration to the original topography has occurred;
- Some of the original hydrology remains;
- Earthwork on- or off-site has altered the topography and hydrology (i.e., by grading, discing, leveling), such that little of the desirable vernal pool/swale hydrology or ponding remains;
- Irrigation or heavy grazing has significantly affected the vegetation and/or hydrology to the point of removing most of the functions of these wetlands.

3 **Moderate quality vernal pool/swale/seasonal wetland complex**. Examples would include such conditions as:

- Many of the plant species in these pools only occur in vernal pools and only a few weed or other species are present;
- Some disturbance to the topography has occurred, but the vernal pool topography is easily recognizable in the landscape;
- The vernal pool hydrology is altered, but is for the most part intact and functioning.

4 **High quality vernal pool/swale/seasonal wetland complex.** Examples would include such conditions as:

- Most of the plant species in these pools only occur in vernal pools, almost no weed or other species are present;
- Very little disturbance to the topography has occurred;

- Vernal pool hydrology has not been disturbed or has had very little disturbance.

5 **Pristine vernal pool/swale/seasonal wetland complex.** Examples would include such conditions as:

- Plant species present in these pools are vernal pool endemics, only very occasionally are weedy or other plant species (such as those found in seasonal wetlands) present;
- No disturbance to topography or hydrology has occurred (this is a site that has never been farmed, irrigated, or cropped).

NOTE: WE MAY NOT HAVE ANY POOLS THAT RANK A "5" IN THE SANTA ROSA PLAIN.

How to Rank this Criterion

Step 1 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), make appropriate observations, and take photographs. Complete the rationale section of the relevant section on the data sheet and circle the appropriate rank.

Criterion #12 Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern

ISSUE: Are other habitat types contained within the site that can contribute to the functions and values of the wetlands onsite? These areas can be other wetlands, significant bunchgrass stands, diverse assemblages of native plants, riparian habitat, large valley oaks, California tiger salamander (CTS) aestivating habitat, etc. Off-site resources are taken into account in the habitat size, shape, isolation criteria. Does the site support populations of terrestrial species of concern (e.g., burrowing owls, badgers, nesting raptors)?

CTS aestivating habitat is defined as grasslands and pools within 300 meters from known CTS breeding habitat assuming no significant barriers to movement occur between the breeding habitat and the grassland site such as major highways, solid fences, or urban development.

RANK

1 **Habitats present are of limited value** (i.e., extensive agricultural practices or irrigated pasture or hayfield that significantly alter the native plant community or other biological resources). These areas are of little interest botanically or for native wildlife species or support other wetlands of minimal value (intermittent ditches which do not meet the criteria for suitable habitat for species of concern). Channelized creeks with limited marsh vegetation or limited wildlife habitat, and swales that are of little interest botanically and that are not likely to support significant use by native wildlife species.

2 **Minor representation of other natural habitats** or resources such as a few scattered mature oaks with little or no regeneration, or small, scattered assemblages of native plants.

3 **Habitats of moderate value:** more than a minor component of other habitats or wildlife functions of value: more than a few scattered oaks with some regeneration, more than a few scattered and/or small native bunchgrass stands, or an assemblage of native plants that form a definable plant community. Wildlife habitats of interests would include other wetland types such as areas of riparian habitat or ponds. CTS aestivating habitat as defined above would normally fall within this category.

4 **Intermediate ranking between 3 and 5**

5 **Habitats of high value or multiple valuable habitats.** This would include diverse habitats, larger areas of freshwater marshes or riparian habitats or rare and unusual upland habitats such as significant stands of mature oaks with regeneration, large stands of bunchgrasses, or meadows dominated by a large and floristically diverse stand of native plants. Examples of habitats of high value for terrestrial species would include nesting burrowing owls, nesting white-tailed kites, or badger dens.

Materials Needed to Rank this Criterion

To rank this criterion, you will need the following materials:

- Results from the CNDDB search (to determine aestivating habitat for California tiger salamander)
- Aerial photograph(s) of the site
- Supplementary Office Information for Field Work Data Sheet
- Agency consultation (included as part of, or attached to, Supplementary Office Information for Field Work Data Sheet)

How to Rank this Criterion

Step 1 Conduct CNDDB Search; Conduct Literature Search; Consult With Resource Agencies for Presence of Wildlife Species of Special Concern; Obtain Aerial Photographs

See Researching Historical or Known Special Status Species Occurrence and Obtaining Aerial Photographs on pages 4-3 and 4-4. Complete the relevant sections of the Supplementary Office Information for Field Work Data Sheet.

Step 2 Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), make appropriate observations, and take photographs.

Other habitat types, including wetlands other than seasonal wetlands (e.g., perennial wetlands) are to be considered under this criterion, as well. Although the presence of some nesting raptors (e.g., burrowing owls and white-tailed kites) onsite would qualify the site for a rank of 5, other nesting species of raptors onsite, may qualify the site as a 5, or not, depending on the species.

California Tiger Salamander

If CTS aestivating habitat is present onsite, the site would normally rank at least a 3 for Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern. See the previous page for the definition of CTS aestivating habitat. If a site ranks a 3 for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) because there is a known occurrence of CTS onsite, then the site would automatically rank a 3 or higher for Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern, because aestivating habitat would be present onsite.

If CTS are known to breed within 300 meters of the site, based on research of historical or known occurrences, the biologist should determine if potential aestivating habitat exists onsite by viewing aerial photos and conducting a site visit. If potential aestivating habitat appears to exist onsite, the biologist should determine if significant barriers (e.g., major highways, solid fences, or urban development) exist to the known occurrence of breeding CTS. (A simple road is not considered a significant barrier.) If no significant barriers exist between the known breeding area and the site, then aestivating habitat exists and the site would be ranked at least a 3 for this criterion.

Complete the rationale section of the relevant section and circle the appropriate rank on the Habitat Quality Evaluation Field Data Sheet.

Criterion #13 Habitat Size, Shape, Degree of Connectivity or Isolation from other Off-Site Resources

ISSUE: Assessment of this rank will include factors such as size, shape, degree of connectivity or isolation from other vernal pool resources or high quality areas (consideration of barriers to movement of resources such as pollinators, animals, wind-borne seed, and hydrologic barriers). The watershed integrity should be taken into consideration as well: is the site hydrologically connected to other sites of value, or has it been cut off due to on or off-site grading?

RANK

1 **Low Value: a small site and/or a site that is fragmented or isolated from other valuable resource sites.** Small area is surrounded by development and is cut off hydrologically from other swales or vernal pool areas. Significantly altered surface water hydrology, negatively affecting functions such as wildlife movement, seed dispersal, hydrological connectivity to other resources. Little native vernal pool habitat is present on or adjacent to the site, reducing the internal and external (on-site and off-site) connectivity value (via pollinators or wind-borne pollen or hydrologic flow). The site is not large enough to sustain populations in isolation from other sites.

2 **Intermediate between 1 and 3.**

3 **Moderate Value: a small or moderately-sized site or the site is adjacent to high quality sites or the site is large but is isolated or fragmented.** i.e. this can be a small area adjacent to some undeveloped areas that support vernal pools/swales or other habitats of value, or a moderate site where the hydrology or vegetation is not substantially fragmented and retains overall integrity; areas of native vernal pool vegetation are present on-site and adjacent to the site, so this site has internal and external connectivity.

4 **Intermediate between 3 and 5.**

5 **High Value: large site of a suitable shape (e.g., not a linear strip), in proximity to other habitats of value or provides some connectivity to important sites.** This site is buffered from development; the vernal pool resources on-site are not fragmented; large expanses of native vernal pool vegetation occur on and adjacent to the site, the site is connected to similar habitats off-site or in proximity to the site.

How to Rank this Criterion

Step 1 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), making appropriate observations, and take photographs. Complete the rationale section of the relevant section on the data sheet and circle the appropriate rank.

Work Products Completed at the End of Field Work Activities

When you have completed the field work associated with ranking the qualities of the sites in relation to biological resources and the remaining land use characteristics, you should have the following as documentation:

- Habitat Quality Evaluation Field Data Sheet
- Supplementary Office Information for Field Work Data Sheet
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
- Photographs taken during the site visit, including at least one photograph showing the representative vegetation. (See Taking Photographs on page 4-4.)
- Aerial photograph(s) of the site, showing the boundaries of the sites clearly marked. See Obtaining Aerial Photographs on page 4-4 for requirements of the aerial photograph.

It is important to ensure that the completed results sheets contain complete and accurate information, as described below.

The Habitat Quality Evaluation Field Data Sheet must include:

- All owners of the property(ies)
- Assessor's Parcel Number(s) (APN). The APN can be obtained by coordinating with the appropriate County or City (or Town) office.
- Complete mailing address(es), including zip code(s)
- Complete street address(es), including zip code(s)
- Completion date of the data sheet
- Investigators (who completed the data sheet and from what agency or business)
- Primary Contact (if more than one investigator) and phone number
- Acreage of the site
- Rationale and ranks completed for the eight criteria discussed in this section.

The remainder of the Habitat Quality Evaluation Field Data Sheet, should be filled out primarily by field work in addition to conducting some office work. Dominant and subdominant plant species in wetlands and uplands should be listed (in the specified sections on the top of the first page of the data sheet), the site characterization should be completed (under "Site Characterization" on the first page), the vernal pool/swale/seasonal wetland complex should be sketched, the rare plant section should be completed (if any are found), and any other relevant information should be included. Attach additional sheets as necessary.

The Supplementary Office Information for Field Work Data Sheet must include:

- Landowner(s) Name(s)
- Date (that the form was completed)
- Assessor's Parcel Number(s)
- Primary Investigator Name and Telephone Number
- California Natural Diversity Data Base Search Information including quadrangle searched, date of search, date of expiration of Rarefind data base search, and information on listed

plant species, plant species of special concern, and wildlife species of special concern (including listed species).
- Correspondence with agencies regarding presence of wildlife species of special concern (including listed species)

Results of Surveys for Rare Plants and Suitable Habitat Data Sheet must include:

- Landowner(s) Name(s)
- Assessor Parcel Number(s)
- Date (results form was completed)
- Investigator(s)
- Dates of rare plant surveys
- Results of rare plant surveys
- If surveys are conducted for the HQE, attach complete documentation of rare plant surveys according to USFWS protocols [Appendix B].
- If previous, recent rare plant surveys are referenced, attach complete documentation.
- Dates of survey for suitable habitat
- Methods used to survey for suitable habitat
- Results of survey for suitable habitat

Supplementary Office Information for Field Work Data Sheet

Landowner(s) _____ Date _____

Assessor's Parcel Number(s) _____ Primary Investigator/Affiliation/Phone

_____

CALIFORNIA NATURAL DIVERSITY DATA BASE SEARCH

Quadrangle(s) searched: _____

Date Searched: _____

Date of Expiration of

Rarefind Data Base Searched: _____

Listed Plant Species[1]:

Do the CNDDB search results show that any listed plants species occur onsite? (circle one) Yes No

If yes, which listed plant species? (Circle the plant species.) Attach print-out of element occurrence(s).

BLBA LABU LIVI NALEP

Plants Species of Special Concern[1]:

Do the CNDDB search results show that any plant species of special concern occur onsite? (circle one) Yes No

If yes, which plant species of special concern? (Circle the plant species.) Attach print-out of element occurrence(s).

DOPU NALEB LELI PODO RALO

Wildlife Species of Special Concern (Including Listed Species; Wetlands Only)[2]:

Do the CNDDB search results show that any wildlife species of special concern (including listed species) occur onsite? (circle one) Yes No

If yes, which wildlife species of special concern (including listed species)? (Circle the wildlife species.) Attach print-out of element occurrence(s).

CTS CFS CRLF FS WPT

CORRESPONDENCE WITH AGENCIES REGARDING PRESENCE OF WILDLIFE SPECIES OF SPECIAL CONCERN (INCLUDING LISTED SPECIES)

Environmental Services Supervisor (CDFG) contacted: _____

Phone number: _____

Date contacted _____

Results of communications (Attach copy of correspondence [e.g., if conducted by mail]):

_____

_____

_____

_____

_____

Other agency representatives or experts contacted: _____

Phone number: _____

Date contacted _____

Results of communications (Attach copy of correspondence [e.g., if conducted by mail]):

_____

_____

_____

_____

_____

[1] See page 4-8 of the Training Manual for descriptions of abbreviations of plant species.

[2] See page 4-9 of the Training Manual for descriptions of abbreviations of wildlife species.

Results of Surveys for Rare Plants and Suitable Habitat Data Sheet

Landowner(s) _____
Assessor's Parcel Number(s) _____
Date _____
Primary Investigator/
Affiliation/Phone Number _____

Attach additional sheets as necessary.
Dates on which rare plant surveys (according to USFWS protocols) were conducted:

_____
Results of rare plant surveys:
Attach complete documentation of rare plant surveys according to USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain (see Appendix B in Training Manual).

Dates on which site was surveyed for suitable habitat:

_____
Methods used to survey for suitable habitat:

Results of surveys for suitable habitat:

Attach photographs of site visit, including photographs of any rare plants found and at least one photograph showing percent vegetation cover when determining the presence of suitable habitat.

5.0 Scoring and Quality Determination

Scoring: Weights and Calculations

Once the rankings are determined for a site according to all of the criteria, a subtotal score for the Biological Resources criteria and a total score need to be calculated to determine if the scores of the site meet the thresholds which qualify the site as high quality. To determine the total score for the site, each raw ranking for each criterion should be multiplied by the corresponding weight, to obtain the weighted score for each criteria. This scoring should be indicated on the Summary Sheet-Habitat Quality Evaluation Total Scores and Determination of Site Quality (Summary Sheet). (See Section 2.0: Overview of Habitat Quality Evaluation System for an expanded explanation of the weighted scoring system.) This summary sheet serves as a supplement to the HQE Office Data Sheet, the HQE Field Data Sheet, and other materials listed in the section Materials Needed to Document the Habitat Quality Evaluation (see Section 6.0); the summary sheet does not replace the documentation necessary to justify the rankings for each of the criterion for the site.

The subtotal score according to the Biological Resources criteria can be determined by adding the weighted scores for the six Biological Resources criteria. The criteria considered for determination of this subtotal are:

Biological Resources

- Listed Plant Species;
- Plant Species of Special Concern;
- Wildlife Species of Special Concern (Including Listed Species; Wetlands Only);
- Habitat Quality of Vernal Pools and Other Seasonal Wetlands;
- Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern;
- Habitat Size, Shape, Degree of Connectivity or Isolation from other Offsite Resources.

The total score can be determined by adding the weighted scores for all thirteen criteria. The criteria considered for determination of this total are:

Biological Resources

- Listed Plant Species;
- Plant Species of Special Concern;
- Wildlife Species of Special Concern (Including Listed Species; Wetlands Only);
- Habitat Quality of Vernal Pools and Other Seasonal Wetlands;
- Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern;
- Habitat Size, Shape, Degree of Connectivity or Isolation from other Off-Site Resources.

Land Use

- Land Use Policies;
- Existing Onsite Land Use;
- Zoning;
- Land Use Designation;
- Adjacent Land Use;

Acquisition Feasibility

- Conservation Easements; and
- Relevancy with Other Preservation Plans.

The subtotal weighted score for Biological Resources criteria and the total weighted score should be completed in the appropriate sections on the Summary Sheet.

The subtotal score for the Biological Resources criteria ranges from the lowest possible score of 44 to the highest possible score of 220. The total possible score for a site ranges from the lowest possible score of 72 to the highest possible score of 360.

Thresholds and Quality Determination

Once the subtotal weighted score for the Biological Resources criteria and the total weighted score for all criteria are calculated for a site, the determination of high or low quality can be made according to the thresholds.

The threshold for the Biological Resources subtotal score is 107 and the threshold for the total score is 175.

If a site meets both the Biological Resources subtotal threshold and the total threshold, then the site is normally considered high quality. If a site meets only one of the thresholds or neither of the thresholds, the site is normally considered low quality. For example, if a site scores a 106 for the Biological Resources criteria, then the site would be considered low quality. However, site-specific circumstances can be used to modify the determination, as discussed below.

The thresholds as described in this section serve as guidelines for the determination of site quality and there may be cases when is would be more appropriate to override the thresholds in the final determination of site quality. Site specific considerations (including the purpose of the evaluation) may warrant overriding the thresholds to more accurately evaluate the site.

There may be a site where the thresholds are not met and would be considered low quality, but the site would be more accurately considered high quality. For example, if there were a site with one of the last known occurrences of a rare plant, it might be most accurate to consider the site as high quality in the context of preserve planning in order to facilitate inclusion in a preserve.

It is also possible that the final scoring for a site may have met the thresholds and would normally be considered high quality, but under closer examination of the details, the site should be considered low quality. For example, if a site (e.g., one parcel) is non-uniform, consisting of two watersheds, and purpose of the evaluation is for permitting, its determination of high quality may not fit within this classification scheme. If the majority of the biological values were isolated to one of the watersheds and the proposed project were to occur on the side which appears to be lacking in most biological values, then it could be argued that the site should be considered low quality, for the purpose of that action only.

The following information should be included on the Summary Sheet: landowner(s)' names, APN(s), date, primary contact and affiliation, phone number of primary contact, the raw scores for each criterion, the weighted scores for each criterion, the subtotal scores, the total score, and the determination of site quality (high or low). If the investigator believes that the thresholds should be overridden in determining the site quality, the rationale should be provided on the Summary Data Sheet (attach additional sheets as necessary).

Summary Sheet- Habitat Quality Evaluation Total Scores and Determination of Site Quality

Note: This summary sheet serves as a supplement to the HQE Office Data Sheet, HQE Field Data Sheet, and other materials needed to document site quality.
It does not replace the required documention to justify the site rankings as explained in other sections of the Training Manual.

Landowner(s) _____
Assessor's Parcel Number(s) _____
Date _____
Primary Contact/Affiliation _____
Phone Number of Primary Contact _____

CRITERIA	*Weight*	Raw	*Weighted*
Land Use Policies	*4*		
Zoning	*2*		
Land Use Designation	*4*		
Existing Onsite Land Use	*5*		
Adjacent Land Use	*4*		
Subtotal Land Use	***19***		
Conservation Easements	*5*		
Relevancy with Other Preservation Plans	*4*		
Subtotal Acquisition Feasibility	***9***		
Listed Plant Species	*10*		
Plant Sp. of Special Concern	*6*		
Wildlife Sp. of Special Concern (Inc. Listed Sp.; Wetlands Only)	*6*		
Habitat Quality of Vernal Pool Wetlands/Other Seasonal Wetlands	*10*		
Other Habitat Types (Other Wetlands) or Terr. Sp. of Concern	*5*		
Hab. Size, Shape, Deg. of Connect. or Isolation from other Off-Site Resources	*7*		
Subtotal Biological Resources	***44***		
Threshold for Subtotal Biological Resources Score			**107**
Total (Sum of Subtotal Land Use, Subtototal Acquisition Feasibility, and Subtotal Biological Resources)	*72*		
Threshold for Total Score			**175**

Site Quality Based on Thresholds (circle one): **HIGH** **LOW**
(If total score is 175 or higher **and** Biological Resources score is 107 or higher, then the site would normally be considered high quality.)

If the investigator(s) believe(s) the thresholds should be overridden, the following section should be completed.
Site Quality Based on Other Rationale (circle one): **HIGH** **LOW**

Other Rationale to Justify Final Determination of Site Quality (use additional sheets as necessary):

_____
_____
_____
_____
_____

6.0 Materials Needed to Document the Habitat Quality Evaluation

The following is a summary of the materials needed to document completion of the Habitat Quality Evaluation (HQE) procedure as described in this training manual. If the results of the HQE will be submitted to a government agency, the documentation included in this list must be included to justify the conclusions of the HQE. These materials are described in more detail in the sections, Methods for Office Work and Methods for Field Work.

- Completed Habitat Quality Evaluation Office Data Sheet
- Completed Habitat Quality Evaluation Field Data Sheet
- Completed Supplementary Office Information for Field Work Data Sheet
- Completed Results of Surveys for Rare Plants and Suitable Habitat Data Sheet (If rare plant surveys are conducted for the HQE, attach complete documentation of rare plant surveys according to USFWS protocols [Appendix B].)
- If previous, recent rare plant surveys are referenced in the HQE, attach complete documentation.
- Location map (e.g., Thomas Guide or 7.5. minute United States Geological Survey topographic quadrangle) with the site clearly marked.
- Copy of the map documenting the justification of the Relevancy with Other Preservation Plans criterion with the site clearly marked.
- An aerial photo with the boundaries of the parcel(s) of interest clearly marked. The scale of the photo must be at 1":500' or larger. The photo must clearly show land adjacent to the site boundary within at least 1,500 feet. The photo can be black and white or color. The most recent aerial photograph that can readily be obtained should be used. Appropriate aerial photos can be obtained from County of Sonoma Permit and Resource Management Department (see Section 7.0: Information Sources). An example of an appropriate aerial photograph could be a copy of the 1":500' 1990 bluelines entitled "Sonoma County Planning Department Aerial Flight-June 1990", available at the County. It may also be possible to obtain aerial photographs from the Public Works Department of the City of Santa Rosa.
- Photograph(s) taken during the field visit. Photographs should be included of any special status species onsite. At least one photograph should be representative of percent vegetation cover, as determined for the Definition of Suitable Habitat for Listed Plants. It is also recommended that other photographs are included, such as a photograph of the overall site and a photograph showing survey methods (e.g, a quadrat or other equipment) used to determine percent cover for the Definition of Suitable Habitat for Listed Plants.
- Completed Summary Data Sheet: Habitat Quality Evaluation Total Scores and Determination of Site Quality indicating the determination of high or low quality for the site.

7.0 Information Sources

Contacts

United States Army Corps of Engineers
Regulatory Branch
333 Market Street, 8th Floor
San Francisco, CA 94105-2197
Phone: (415) 977-846 I

United States Fish and Wildlife Service
Endangered Species Division
3310 El Camino Avenue, Suite 130
Sacramento, CA 95821
Phone: (916) 979-2725

California Department of Fish and Game
P.O. Box 47
Yountville, CA 94599
Phone (707) 944-5500

California Department of Fish and Game
Natural Heritage Division (For requests for Natural Diversity Data Base Search or to obtain the Rarefind computer program)
1416 Ninth Street, 12th Floor
Sacramento, CA 95814
Phone: (916) 324-3812
Fax: (916) 324-0475

County of Sonoma
Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403
Phone: (707) 527-1900 (For requests for zoning and General Plan land use designations)
Phone: (707) 527-1937 (For requests for aerial photographs)

City of Santa Rosa
Community Development Building Division
100 Santa Rosa Avenue, Room 3
Santa Rosa, CA 95402
Phone: (707) 543-3223

City of Santa Rosa
Public Works Department
69 Stony Circle
Santa Rosa, CA 95401
(707) 543-3800

City of Cotati
Planning Department
201 West Sierra Avenue
Cotati, CA 94931
Phone: (707) 792-4633

City of Rohnert Park
Planning Department
6750 Commerce Boulevard
Rohnert Park, CA 94928
Phone: (707) 793-7236

City of Sebastopol
Planning Department
714 Johnson Street
Sebastopol, CA 95492
Phone: (707) 823-6167

Town of Windsor
Planning Department
9291 Old Redwood Highway, Building 400
Windsor, CA 95492
Phone: (707) 838-1021

Sonoma County Agricultural Preservation and Open Space District
747 Mendocino Avenue, Suite 100
Santa Rosa, CA 95401
Phone: (707) 524-7360

References

California Department of Fish and Game Natural Diversity Data Base. (See California Department of Fish and Game Natural Heritage Division above.)

CH2M HILL. 1995. Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan-Phase 1 Final Report. Prepared for the Santa Rosa Plain Vernal Pool Task Force. June 30.

Hickman, James C., Ed. 1993. The Jepson Manual Higher Plants of California.

Patterson, Charles A., in collaboration with Betty Guggolz and Marco Waaland. 1994. Seasonal Wetland Baseline Report for the Santa Rosa Plain, Sonoma County. Prepared for Ann Howald, California Department of Fish and Game. June 30.

Skinner, Mark W. and Bruce M. Pavlik, Eds,. 1994. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. February.

Sonoma County Agricultural Preservation and Open Space District Acquisition Plan. Adopted December 15, 1992. Revised November 15, 1994. (Will be revised in 1998.)

Southwest Santa Rosa Area Conceptual Wetlands Habitat Management Plan. 1993. September.

Appendix A: Materials to Take to the Field

- Habitat Quality Evaluation Field Data Sheet
- Supplementary Office Information for Field Work Data Sheet
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
- Expanded Explanations of the Habitat Quality Evaluation Criteria to Be Used in the Field
- Definition of Suitable Habitat for Listed Plants
- Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Table 4-1)

Appendix A: Materials to Take to the Field

- Habitat Quality Evaluation Field Data Sheet
- Supplementary Office Information for Field Work Data Sheet
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet
- Expanded Explanations of the Habitat Quality Evaluation Criteria to Be Used in the Field
- Definition of Suitable Habitat for Listed Plants
- Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Table 4-1)

Landowner(s) _____ Date _____

Assessor's Parcel Number(s) _____ Investigators _____

Mailing Address _____ Primary Contact _____

Street Address _____ Acres _____

Description of Vernal Pool/Swale Complex:

WETLAND/V.P. DOMINANT PLANT SPECIES

_____

_____

WETLAND/V.P. SUBDOMINANT PLANT SPECIES

_____

_____

UPLAND DOMINANT PLANT SPECIES

_____

_____

UPLAND SUBDOMINANT PLANT SPECIES

_____

_____

SITE CHARACTERIZATION [site: entire parcel(s) involved in the proposed project area and areas secondarily affected (e.g., swales downstream)]

_____

_____

_____

_____

Attach additional sheets as necessary.

LAND USE

Criterion #6-Existing On-Site Land Use RATIONALE _____	RANK Wt=5	**Criterion #7- Adjacent Land Use** RATIONALE _____	RANK Wt=4
Intensely developed	1	Intensely developed	1
Scattered development	2	Scattered, widely spaced developed	2
Intensive agricultural (orchard etc.)	3	Intensive agricultural use	3
Irrigated extensive agriculture	4	Irrigated extensive agriculture	4
Non-irrigated extensive agriculture	5	Non-irrigated extensive agriculture	5

BIOLOGICAL RESOURCES

Criterion #8- Listed Plant Species (BLBA, LABU, LIVI, NALEP)[1] RATIONALE _____	Wt=10	**Criterion #9- Plant Species of Special Concern (DOPU, NALEB, PODOP, RALO, LELI)[1]** RATIONALE _____	Wt=6
No suitable habitat	1	No suitable habitat	1
Suitable habitat present	2	Suitable habitat present	2
One or more species; less than signif. population(s)	3	One or more species; less than signif. population(s)	3
Signif. population - one listed species	4	Signif. population - one species of concern	4
Ensemble (> one species); signif. populations	5	Ensemble (> one species); signif. populations	5

Criterion #10- Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) (CTS, CFS, CRLF, FS, WPT)[1] RATIONALE _____	Wt=6	**Criterion # 11- Habitat Quality of V.P./Other Seas. Wetlands[2]** RATIONALE _____	Wt=10
No suitable habitat	1	None present or present but severely degraded	1
Suitable habitat present	2	Marginal quality: topog./hydrol. disturbed	2
One or more species; less than signif. population(s)	3	Moderate quality: some disturbance	3
Signif. population - one species of concern	4	High quality: little disturbance to topog./hydrol.	4
Ensemble (> one species); signif. populations	5	Pristine quality: no disturbance to topog./hydrol.	5

1 See pages 4-8 and 4-9 of the Training Manual for descriptions of abbreviations of special status species.

2 This criterion does not represent a confirmed wetland delineation or disclaimer from the U.S. Army Corps of Engineers (Corps). Unless you are in possession of a disclaimer letter from the Corps which states otherwise, there may be wetlands on this property.

Landowner(s) _____ Assessor's Parcel Number _____

BIOLOGICAL RESOURCES cont.

Criterion #12- Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern Wt=5

RATIONALE _____

Habitats present are of limited value	1
Minor representation of other natural habitats	2
Habitats are of moderate value	3
Intermediate ranking between 3 and 5	4
High value habitat(s) (e.g., nesting burrowing owls, nesting white-tailed kites, or badger dens)	5

Criterion #13- Habitat Size, Shape, Degree of Connectivity or Isolation from Other Off-Site Resources Wt=7

RATIONALE _____

Low Value: small site, fragmented or isolated	1
Intermediate between 1 and 3	2
Moderate Value: sm. to mod. sized; adj. high value	3
Intermediate between 3 and 5	4
High Value: lg. site of suitable shape; in proximity to high value habitat/connectivity to import. sites	5

PHOTO? (circle one) Y N

DO RARE PLANTS OR PLANTS OF SPECIAL CONCERN OCCUR HERE?[1] Y N

Species (circle) BLBA LABU LIVI NALEP DOPU NALEB LELI PODOP RALO

Population Location/Distribution _____

Population Size 1-10 plants 10-100 100-500 500-1,000 1,000-5,000 5,000-20,000 20,000-50,000 >50,000

Known Occurrence? Y N Unknown **Phenology** Veg Flr Fruit Past Fruit

Species (circle) BLBA LABU LIVI NALEP DOPU NALEB LELI PODOP RALO

Population Location/Distribution _____

Population Size 1-10 plants 10-100 100-500 500-1,000 1,000-5,000 5,000-20,000 20,000-50,000 >50,000

Known Occurrence? Y N Unknown **Phenology** Veg Flr Fruit Past Fruit

OTHER INFORMATION

Sketch the Vernal Pool/Swale/Seasonal Wetland Complex:

1 See page 4-8 of the Training Manual for descriptions of abbreviations of plant species.

Supplementary Office Information for Field Work Data Sheet

Landowner(s) _____ Date _____

Assessor's Parcel Number(s) _____ Primary Investigator/Affiliation/Phone

_____

CALIFORNIA NATURAL DIVERSITY DATA BASE SEARCH

Quadrangle(s) searched: _____

Date Searched: _____

Date of Expiration of

Rarefind Data Base Searched: _____

Listed Plant Species[1]:

Do the CNDDB search results show that any listed plants species occur onsite? (circle one) Yes No

If yes, which listed plant species? (Circle the plant species.) Attach print-out of element occurrence(s).

BLBA LABU LIVI NALEP

Plants Species of Special Concern[1]:

Do the CNDDB search results show that any plant species of special concern occur onsite? (circle one) Yes No

If yes, which plant species of special concern? (Circle the plant species.) Attach print-out of element occurrence(s).

DOPU NALEB LELI PODO RALO

Wildlife Species of Special Concern (Including Listed Species; Wetlands Only)[2]:

Do the CNDDB search results show that any wildlife species of special concern (including listed species) occur onsite? (circle one) Yes No

If yes, which wildlife species of special concern (including listed species)? (Circle the wildlife species.) Attach print-out of element occurrence(s).

CTS CFS CRLF FS WPT

CORRESPONDENCE WITH AGENCIES REGARDING PRESENCE OF WILDLIFE SPECIES OF SPECIAL CONCERN (INCLUDING LISTED SPECIES)

Environmental Services Supervisor (CDFG) contacted: _____

Phone number: _____

Date contacted _____

Results of communications (Attach copy of correspondence [e.g., if conducted by mail]):

_____

_____

_____

_____

_____

Other agency representatives or experts contacted: _____

Phone number: _____

Date contacted _____

Results of communications (Attach copy of correspondence [e.g., if conducted by mail]):

_____

_____

_____

_____

_____

[1] See page 4-8 of the Training Manual for descriptions of abbreviations of plant species.

[2] See page 4-9 of the Training Manual for descriptions of abbreviations of wildlife species.

Results of Surveys for Rare Plants and Suitable Habitat Data Sheet

Landowner(s) _____
Assessor's Parcel Number(s) _____
Date _____
Primary Investigator/
Affiliation/Phone Number _____

Attach additional sheets as necessary.
Dates on which rare plant surveys (according to USFWS protocols) were conducted:

_____
Results of rare plant surveys:
Attach complete documentation of rare plant surveys according to USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain (see Appendix B in Training Manual).

Dates on which site was surveyed for suitable habitat:

_____
Methods used to survey for suitable habitat:

Results of surveys for suitable habitat:

Attach photographs of site visit, including photographs of any rare plants found and at least one photograph showing percent vegetation cover when determining the presence of suitable habitat.

EXPANDED EXPLANATIONS

Criterion #6 Existing On-Site Land Use and Criterion #7 Adjacent Land Use

ISSUE: Does the site have adequate lands available for preservation? What is the existing adjacent land use? Do the existing and adjacent land uses conflict with or adversely impact onsite preservation?

RANK

1 **Intensely developed.** Majority of site dedicated to structures and/or pavement (i.e., business parks, subdivisions with very little open space).

2 **Scattered development.** Some of site dedicated to structures and/or pavement (i.e., low density business and/or residential with structures separated by open space).

3 **Intensive agriculture.** Majority of site dedicated to vineyard, orchard, or row crops.

4 **Irrigated extensive agriculture.** Majority of site dedicated to irrigated agriculture (i.e., pasture and/or hayland).

5 **Non-irrigated extensive agriculture.** Majority of site dedicated to non-irrigated agriculture (i.e., dry pasture, hayfield) and/or fallow open space.

NOTE: To calculate a rank for a site with different land uses look at the relative proportion of land use around the site (i.e., a site with 50% of Rank 4 and 50% of Rank 2 would average out to a Rank of 3).

Materials Needed to Rank These Criteria

To rank these criteria, you will need the following materials:

- Aerial photograph(s) of the site (1":500' or larger). The photo must clearly show land adjacent to the site boundary within at least 1,500 feet. The photo can be black and white or color. The most recent aerial photograph that can be obtained should be used. Appropriate aerial photos can be obtained from County of Sonoma Permit and Resource Management Department (see Information Sources in Section 7.0 at the end of this training manual for phone number and address). An appropriate aerial photograph could be the 1":500' 1990 bluelines entitled "Sonoma County Planning Department Aerial Flight-June 1990", available at the County planning office.

How to Rank These Criteria

Step 1-Review Aerial Photographs

Appropriate aerial photographs are needed to complete the ranks for these criteria.

Step 2 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct a field visit, make appropriate observations, and take photographs. To calculate a rank for a site with different land uses, the relative proportion of land uses on the site can be estimated (i.e., percentages) and an average can be determined. The average score should be rounded to the nearest half number. Complete the rationale sections and circle the appropriate ranks. Examples of rationale for these criteria include the following:

- fallow pasture
- landscaped backyard
- open fields are present on three sides of a square site (75% of 5) and residences are present on one side of site (25% of 2)

ISSUE (for Criteria #8 and #9): Does the project site have populations of listed plant species or plant species of special concern dependent on vernal pool/swale habitats or the potential to support those species? The determination of significant, as used in the ranking definitions below, will need to be made on a species-specific basis taking into account the population size, distribution of the species, and recovery objectives (for listed plants only) for the species. See the Definition of Suitable Habitat for Listed Plants on page 4-12.

(Note: See pages 4-10 to 4-15 for steps to rank and documentation needed for Criteria #8, #9, and #10.)

Criterion #8 Listed Plant Species

Species considered for this criterion include the following. If other plant species have been listed since the publication of this training manual, they should be considered under this criterion.

- *Blennosperma bakeri* **(BLBA)**-distributed primarily in the central and southern part of the Plain, west of Santa Rosa.
- *Lasthenia burkei* **(LABU)**-distributed mostly in the northwestern and central part of the Plain.
- *Limnanthes vinculans* **(LIVI)**-distributed in the central and southern part of the Plain.
- *Navarretia leucocephala* ssp. *plieantha* **(NALEP)**-distributed in only one location, south of Windsor, within the Shiloh Road Potential Preserve Site.

Criterion #9 Plant Species of Special Concern

Species considered for this criterion include the following. If other plant species are considered species of special concern since the publication of this training manual, they should be considered under this criterion.

- *Downingia pusilla* **(DOPU)**
- *Navarretia leucocephala* **ssp.** *bakeri* **(NALEB)**
- *Pogogyne douglasii* **var.** *parviflora* **(PODOP)**
- *Ranunculus lobbii* **(RALO)**
- *Legenere limosa* **(LELI)**

RANK (The following ranks apply to the Listed Plant Species and the Plant Species of Special Concern criteria.)

1 **No suitable habitat** (i.e., no vernal pool/swale complex present or extremely disturbed pool/swale habitat present that does not meet the attached definition of potential habitat). See Definition of Suitable Habitat for Listed Plants.

2 **Suitable habitat present** (i.e., vernal pools/swales present that potentially could support these listed species; no documented occurrences within the project site. See Definition of Suitable Habitat for Listed Plants.

3 **Known occurrence of one or more than one species (ensemble site) with populations less than significant.**

4 **Significant population of one listed species.**

5 **Site that supports significant populations of more than one listed species (ensemble site).**

Criterion # 10 Wildlife Species of Special Concern (Including Listed Species; Wetlands Only)

ISSUE: Does the site have populations of wildlife special status species that rely on wetlands or other aquatic ecosystems for some part of their life history? The determination of significant, as used in the ranking definition below, will need to be made based on a species-specific basis taking into account the population size, distribution of the species, and recovery objectives for the species.

The Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criterion refers to wildlife special status species that rely on wetlands or other aquatic ecosystems for some portion of their life history. Terrestrial species of special concern are to be considered in the Other Habitat Types (Other Wetlands) and Terrestrial Species of Concern criterion. Some species of special concern which should be considered when ranking a site according to this criterion are summarized below. If other wildlife species that rely on wetlands or other aquatic ecosystems for some portion of their life history have become listed species or species of special concern since the publication of this training manual, they should be considered under this criterion.

- **California Tiger Salamander** ***(Ambystoma tigrinum californiense)*****(CTS)**
- **California Freshwater Shrimp** ***(Syncaris pacifica)*** **(CFS)**
- **California Red-Legged Frog** ***(Rana aurora draytonii)*** **(CRLF)**
- **Fairy Shrimp** ***(Linderiella occidentalis)*** **(FS)**
- **Western Pond Turtle** ***(Clemmys marmorata marmorata)*** **(WPT)**

Several of these require permanent sources of water (western pond turtle and California red-legged frog), while others require wetlands and/or other habitat variables (i.e., California tiger salamander [CTS]).

California freshwater shrimp occur in perennial lowland streams with low gradient flow where riparian cover is moderate to heavy. Potential CTS breeding habitat is defined as areas that would be expected to pond continuously for a minimum of 4 months in an average rainfall year. This does not include streams and areas of perennially running water since CTS larvae require ponded water, not flowing water to complete their larval stage. Fairy shrimp habitat is as defined for listed plant species. Aestivating habitat for CTS is considered under "Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern Present".

RANK

1 **No suitable habitat.**
2 **Suitable habitat present.**
3 **Known occurrence of one or more species (ensemble site) with populations less than significant.**
4 **Site that supports a significant population of one species of concern.**
5 **Site that supports significant populations of more than one species of concern (ensemble site).**

Materials Needed to Rank These Criteria (#8, #9, #10)

To rank these criteria, you will need the following materials:

- CNDDB search results
- Results from literature search
- Definition of Suitable Habitat for Listed Plants
- Table 4-1: Characteristic Plant Species in Santa Rosa Plain Vernal Pools
- Supplementary Office Information for Field Work Data Sheet (e.g., relating to CNDDB results)
- Agency correspondence (included as part of, or attached to, Supplementary Office Information for Field Work Data Sheet)
- Results of Surveys for Rare Plants and Suitable Habitat Data Sheet

How to Rank These Criteria

Step 1-Research Historical or Known Species Occurrence

It is recommended but not required that this step be conducted prior to conducting the site visit(s). A CNDDB search and a literature search as described above need to be conducted to adequately rank the site for the Listed Plant Species, Plant Species of Special Concern, and Wildlife Species of Special Concern criteria. In addition, CDFG should be contacted to provide information necessary to appropriately rank the site for the Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) criterion. Complete the Supplementary Office Information for Field Work Data Sheet.

Step 2-Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

The field visit(s) may consist of the following activities to rank the site for these three criteria.

- **Determine if suitable habitat exists onsite.** The Definition of Suitable Habitat for Listed Plants refers to Table 4-1, Characteristic Plant Species in Santa Rosa Plain Vernal Pools (Revised Table 3-1 from the Plan). A non-ocular, standard sampling method should be used which should be conducted systematically. A description of the methods should be included in the documentation for this criterion on the Results of Surveys for Rare Plants and Suitable Habitat Data Sheet.
- **Conduct rare plant surveys (not always required).** It is recommended that rare plant surveys be conducted as part of the HQE. However, rare plant surveys may not be necessary if information from previous, recent surveys is available and is included as an attachment along with the other materials needed to document the HQE. Depending on the purpose of the evaluation, the investigator must decide if (s)he will conduct rare plant surveys. If rare plant surveys are conducted, the results should be documented separately from the HQE evaluation and summarized on the Results of Surveys for Rare Plants and Suitable Habitat Data Sheet as part of the Habitat Quality Evaluation. USFWS protocols must be followed in order to determine the presence or absence of rare plants (see Appendix B: United States Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain). If rare plant surveys are not conducted during the HQE, it may be necessary to conduct rare plant surveys at a later time, depending on the final use of the site. In a case where rare plant

surveys are not conducted, higher mitigation ratios (which correspond to the presence of rare plants) would be required for the purposes of permitting.

- **Take photographs.** See Taking Photographs on page 4-4.
- **Complete relevant sections of HQE Field Data Sheet.** The rationale should be completed for these criteria and the appropriate ranks circled. Include documentation of rare plants, population location and distribution, population size, whether or not it is a known occurrence, and phenology.

Special Notes on Completing HQE Field Data Sheet for these Criteria:

1) The USFWS considers a "known occurrence" to include extant and historic (e.g., possibly extirpated) occurrences with site specific locality information. For example, there may be a case where no suitable habitat is present onsite during a site visit according to the Definition of Suitable Habitat for Listed Plants, but there has been an identified occurrence of a listed plant on the site with a specific description of the location according to a specific source. In this case, the site would rank a least a 3 in Listed Plant Species, "Known occurrence of one or more species (ensemble site) with populations less than significant".

2) Any suitable habitat for listed plants qualifies as suitable habitat for fairy shrimp (*Linderiella occidentalis*). Therefore, if a site ranks a 2 or higher for Listed Plants or Plant Species of Special Concern, the site would normally rank a 2 or higher for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only). (However, if a site historically supported a listed plant, and ranked a 3 for Listed Plant Species, but the site no longer meets the conditions as described in the Definition of Suitable Habitat because of hydrological and/or topographic changes, it is possible that the site could score a 1 for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only).)

Criterion #11 Habitat Quality of Vernal Pool Wetlands and Other Seasonal Wetlands

ISSUE: What is the habitat quality of the vernal pools/swale/seasonal wetland complex on-site? Have the surrounding or on-site land uses or previous disturbances affected the quantity (hydrologic regime) and/or the quality of the water flowing into or through the site?

RANK

1 **No vernal pools or other seasonal wetlands present on-site; or present but severely degraded.** (If the site receives a score of 1, indicate clearly in the HQE Field Data Sheet which case applies to the site, either "none present" or "present but severely degraded".) Examples would include such conditions as:

- Completely leveled;
- None or little of the original topography remains;
- Hydrology has been substantially altered or is not present;
- No to few vernal pool plant individuals are present.

2 **Marginal vernal pools/swale/seasonal wetland complex present; disturbed.** Examples would include such conditions as:

- Some of the plants in these pools are plant species that are restricted typically to vernal pools, but many other plant species also occur (including seasonal wetland species or weed species);
- Some minor to significant alteration to the original topography has occurred;
- Some of the original hydrology remains;
- Earthwork on- or off-site has altered the topography and hydrology (i.e., by grading, discing, leveling), such that little of the desirable vernal pool/swale hydrology or ponding remains;
- Irrigation or heavy grazing has significantly affected the vegetation and/or hydrology to the point of removing most of the functions of these wetlands.

3 **Moderate quality vernal pool/swale/seasonal wetland complex.** Examples would include such conditions as:

- Many of the plant species in these pools only occur in vernal pools and only a few weed or other species are present;
- Some disturbance to the topography has occurred, but the vernal pool topography is easily recognizable in the landscape;
- The vernal pool hydrology is altered, but is for the most part intact and functioning.

4 **High quality vernal pool/swale/seasonal wetland complex.** Examples would include such conditions as:

- Most of the plant species in these pools only occur in vernal pools, almost no weed or other species are present;
- Very little disturbance to the topography has occurred;

- Vernal pool hydrology has not been disturbed or has had very little disturbance.

5 **Pristine vernal pool/swale/seasonal wetland complex.** Examples would include such conditions as:

- Plant species present in these pools are vernal pool endemics, only very occasionally are weedy or other plant species (such as those found in seasonal wetlands) present;
- No disturbance to topography or hydrology has occurred (this is a site that has never been farmed, irrigated, or cropped).

NOTE: WE MAY NOT HAVE ANY POOLS THAT RANK A "5" IN THE SANTA ROSA PLAIN.

How to Rank this Criterion

Step 1 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), make appropriate observations, and take photographs. Complete the rationale section of the relevant section on the data sheet and circle the appropriate rank.

Criterion #12 Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern

ISSUE: Are other habitat types contained within the site that can contribute to the functions and values of the wetlands onsite? These areas can be other wetlands, significant bunchgrass stands, diverse assemblages of native plants, riparian habitat, large valley oaks, California tiger salamander (CTS) aestivating habitat, etc. Off-site resources are taken into account in the habitat size, shape, isolation criteria. Does the site support populations of terrestrial species of concern (e.g., burrowing owls, badgers, nesting raptors)?

CTS aestivating habitat is defined as grasslands and pools within 300 meters from known CTS breeding habitat assuming no significant barriers to movement occur between the breeding habitat and the grassland site such as major highways, solid fences, or urban development.

RANK

1 **Habitats present are of limited value** (i.e., extensive agricultural practices or irrigated pasture or hayfield that significantly alter the native plant community or other biological resources). These areas are of little interest botanically or for native wildlife species or support other wetlands of minimal value (intermittent ditches which do not meet the criteria for suitable habitat for species of concern). Channelized creeks with limited marsh vegetation or limited wildlife habitat, and swales that are of little interest botanically and that are not likely to support significant use by native wildlife species.

2 **Minor representation of other natural habitats** or resources such as a few scattered mature oaks with little or no regeneration, or small, scattered assemblages of native plants.

3 **Habitats of moderate value:** more than a minor component of other habitats or wildlife functions of value: more than a few scattered oaks with some regeneration, more than a few scattered and/or small native bunchgrass stands, or an assemblage of native plants that form a definable plant community. Wildlife habitats of interests would include other wetland types such as areas of riparian habitat or ponds. CTS aestivating habitat as defined above would normally fall within this category.

4 **Intermediate ranking between 3 and 5**

5 **Habitats of high value or multiple valuable habitats.** This would include diverse habitats, larger areas of freshwater marshes or riparian habitats or rare and unusual upland habitats such as significant stands of mature oaks with regeneration, large stands of bunchgrasses, or meadows dominated by a large and floristically diverse stand of native plants. Examples of habitats of high value for terrestrial species would include nesting burrowing owls, nesting white-tailed kites, or badger dens.

Materials Needed to Rank this Criterion

To rank this criterion, you will need the following materials:

- Results from the CNDDB search (to determine aestivating habitat for California tiger salamander)
- Aerial photograph(s) of the site
- Supplementary Office Information for Field Work Data Sheet
- Agency consultation (included as part of, or attached to, Supplementary Office Information for Field Work Data Sheet)

How to Rank this Criterion

Step 1 Conduct CNDDB Search; Conduct Literature Search; Consult With Resource Agencies for Presence of Wildlife Species of Special Concern; Obtain Aerial Photographs

See Researching Historical or Known Special Status Species Occurrence and Obtaining Aerial Photographs on pages 4-3 and 4-4. Complete the relevant sections of the Supplementary Office Information for Field Work Data Sheet.

Step 2 Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), make appropriate observations, and take photographs.

Other habitat types, including wetlands other than seasonal wetlands (e.g., perennial wetlands) are to be considered under this criterion, as well. Although the presence of some nesting raptors (e.g., burrowing owls and white-tailed kites) onsite would qualify the site for a rank of 5, other nesting species of raptors onsite, may qualify the site as a 5, or not, depending on the species.

California Tiger Salamander

If CTS aestivating habitat is present onsite, the site would normally rank at least a 3 for Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern. See the previous page for the definition of CTS aestivating habitat. If a site ranks a 3 for Wildlife Species of Special Concern (Including Listed Species; Wetlands Only) because there is a known occurrence of CTS onsite, then the site would automatically rank a 3 or higher for Other Habitat Types (Other Wetlands) or Terrestrial Species of Concern, because aestivating habitat would be present onsite.

If CTS are known to breed within 300 meters of the site, based on research of historical or known occurrences, the biologist should determine if potential aestivating habitat exists onsite by viewing aerial photos and conducting a site visit. If potential aestivating habitat appears to exist onsite, the biologist should determine if significant barriers (e.g., major highways, solid fences, or urban development) exist to the known occurrence of breeding CTS. (A simple road is not considered a significant barrier.) If no significant barriers exist between the known breeding area and the site, then aestivating habitat exists and the site would be ranked at least a 3 for this criterion.

Complete the rationale section of the relevant section and circle the appropriate rank on the Habitat Quality Evaluation Field Data Sheet.

Criterion #13 Habitat Size, Shape, Degree of Connectivity or Isolation from other Off-Site Resources

ISSUE: Assessment of this rank will include factors such as size, shape, degree of connectivity or isolation from other vernal pool resources or high quality areas (consideration of barriers to movement of resources such as pollinators, animals, wind-borne seed, and hydrologic barriers). The watershed integrity should be taken into consideration as well: is the site hydrologically connected to other sites of value, or has it been cut off due to on or off-site grading?

RANK

1 **Low Value: a small site and/or a site that is fragmented or isolated from other valuable resource sites.** Small area is surrounded by development and is cut off hydrologically from other swales or vernal pool areas. Significantly altered surface water hydrology, negatively affecting functions such as wildlife movement, seed dispersal, hydrological connectivity to other resources. Little native vernal pool habitat is present on or adjacent to the site, reducing the internal and external (on-site and off-site) connectivity value (via pollinators or wind-borne pollen or hydrologic flow). The site is not large enough to sustain populations in isolation from other sites.

2 **Intermediate between 1 and 3.**

3 **Moderate Value: a small or moderately-sized site or the site is adjacent to high quality sites or the site is large but is isolated or fragmented.** i.e. this can be a small area adjacent to some undeveloped areas that support vernal pools/swales or other habitats of value, or a moderate site where the hydrology or vegetation is not substantially fragmented and retains overall integrity; areas of native vernal pool vegetation are present on-site and adjacent to the site, so this site has internal and external connectivity.

4 **Intermediate between 3 and 5.**

5 **High Value: large site of a suitable shape (e.g., not a linear strip), in proximity to other habitats of value or provides some connectivity to important sites.** This site is buffered from development; the vernal pool resources on-site are not fragmented; large expanses of native vernal pool vegetation occur on and adjacent to the site, the site is connected to similar habitats off-site or in proximity to the site.

How to Rank this Criterion

Step 1 Conduct Field Visit(s) and Complete Relevant Sections of HQE Field Data Sheet

Conduct the site visit(s), making appropriate observations, and take photographs. Complete the rationale section of the relevant section on the data sheet and circle the appropriate rank.

Definition of Suitable Habitat for Listed Plants

Suitable habitat for the listed plant species and plant species of concern, for use with the Training Manual to Evaluate Habitat Quality of Vernal Pool Ecosystem Sites in Santa Rosa Plain, is defined below. The definition is the same for fairy shrimp (*Linderiella occidentalis*). It is based on a combination of vegetative, topographic, and hydrological characteristics. This definition should be used as a guide and is not intended to replace field experience by qualified persons.

Vegetation Conditions

Suitable habitat for the four listed plant species can be characterized as:

1. Areas supporting vernal pool indicator species: plant species listed in Table 4-1 contribute 10% or more of the relative cover, **or**

2. Areas not dominated by weedy grasses or perennials. Therefore, suitable habitat may exist in areas in which perennial plant species other than those listed in Table 4-1 and/or exotic grasses such as *Hordeum marinum* ssp. *gussoneanum, Lolium perenne, Bromus hordaceus,* etc. contribute less than 90% of the relative vegetation cover.

These criteria are not to be applied to the entire wetland area, since only a small portion may be suitable habitat. If any square meter area meets the above criteria (such as in the deepest portion of shallow ponds or on the sides of deep swales), this area would be considered suitable habitat.

Topographic and Hydrologic Conditions

A) One or more of the following topographic or hydrologic conditions must exist in conjunction with the vegetation criteria for the site to be considered suitable habitat:

1. The wetland area has not been entirely filled such that the wetland no longer floods or ponds (i.e. as a result of leveling) and the original topography no longer exists.

2. The wetland has an outlet barrier (is a pool) or occurs in depressional terrain (i.e. is a swale or drainage feature).

3. The wetland contains surface (standing or flowing) water during the rainy season in a normal rainfall year for 7 or more consecutive days.

B) The following conditions indicate that a site is not suitable habitat. The site does not meet the vegetation criteria and:

4. The wetland occurs on sloping ground (not the slopes of a swale or pond) and is not a swale or swale-related drainage feature, such that no ponding or flooding occurs.

5. The wetland is irrigated, and contains standing water of natural or artificial origin, and the soils are saturated, for more than 60 days between June 1 and October 1.

Table 4-1
Characteristic Plant Species
in Santa Rosa Plain Vernal Pools

Scientific Name	Common name
Alopecurus saccatus	foxtail
Blennosperma bakeri	Sonoma sunshine
Callitriche marginata	water-starwort
Cyperus eragrostis	umbrella sedge
Deschampsia danthonioides	hairgrass
Downingia concolor	fringed downingia
Downingia cuspidata	downingia
Downingia pusilla	dwarf downingia
Eleocharis acicularis	small spiked sedge
Eleocharis macrostachya	spiked sedge
Epilobium pygmaeum	fireweed, willow herb
Epilobium torreyi	fireweed, willow herb
Eryngium aristulatum	coyote thistle
Eryngium armatum	spiny coyote thistle
Glyceria occidentalis	mannagrass
Gratiola ebracteata	hedge-hyssop
Isoetes howellii	quillwort
Lasthenia burkei	Burke's goldfields
Lasthenia glaberrima	smooth goldfields
Lasthenia glabrata	goldfields
Lilaea scilloides	flowering quillwort
Limnanthes douglasii ssp. *douglasii*	Douglas' meadowfoam
Limnanthes douglasii ssp. *nivea*	meadowfoam
Limnanthes vinculans	Sebastopol meadowfoam
Mentha pulegium	common mint, pennyroyal
Mimulus tricolor	tricolor monkey flower
Montia fontana	water chickweed, blinks
Navarretia leucocephala ssp. *leucocephala*	white-flowered navarretia
Navarretia leucocephala ssp. *bakeri [N. bakeri]*	Baker's navarretia
Navarretia leucocephala ssp. *plieantha*	many-flowered navarretia
Pilularia americana	pilularia

Table 4-1
Characteristic Plant Species
in Santa Rosa Plain Vernal Pools

Plagiobothrys bracteatus	popcornflower
Plagiobothrys greenei	popcornflower
Plagiobothrys stipitatus var. *micranthus*	popcornflower
Plagiobothrys tener	popcornflower
Pleuropogon californicus	annual semaphore grass
Pogogyne douglasii ssp. *parviflora**	Douglas' pogogyne
Psilocarphus brevissimus	woolly-marbles
Ranunculus alismifolius	buttercup
Ranunculus lobbii	Lobb's aquatic buttercup
Ranunculus pusillus	buttercup
Veronica anagallis-aquatica	water speedwell

Taxonomy follows the Jepson Manual Higher Plants of California (Hickman, Ed., 1993).

* Taxonomy follows California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (Skinner, Mark W. and Bruce M. Pavlik, Eds,. 1994).

Table 3-1 from the Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan has been modified as per Task Force discussions.

Appendix B: United States Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain

APPENDIX B

Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain

(modified from the September 23, 1996 Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants)

These guidelines describe protocols for conducting botanical surveys for federally listed plant species on the Santa Rosa Plain. They also describe minimum standards for reporting results of the surveys. The federally listed plant species occurring on the Santa Rosa Plain are Sonoma sunshine (*Blennosperma bakeri*), Burke's goldfields (*Lasthenia burkei*), Sebastopol meadowfoam (*Limnanthes vinculans*), and many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*). The Service will use, in part, the information outlined below in determining whether the project under consideration may affect these plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted by a qualified botanist in a manner that will locate listed species that may be present. With the exception of developed agricultural lands, the entire project area should be surveyed. Acceptable survey protocols are as follows:

1. A minimum of three visits must be made to the project site during the growing season. Site visits must correspond to times when at least one of the four Santa Rosa Plain listed plant species is accurately identifiable on a local reference site. Reference sites used must be acceptable to the Service. Site visits must span a period during which all four of the listed plants have been observed (not necessarily at the same time) and are identifiable on reference sites during a specific growing season. More visits to the site or the adjacent area may be needed to determine when each species is blooming in a given year. Inventories will include all potential habitats at the project site.

2. A minimum of two years of negative survey data performed according to the specifications in #1 is necessary to substantiate a negative finding for future permitting actions. For cases in which negative survey data do not conform to the standards outlined in these guidelines, the Service will make the assumption that all four listed plant species are present on the project site.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Survey documentation must include:

   a. identification of reference sites visited, which listed species were observed, phenological stage of the listed species observed, and similarity of physiographic control between reference sites and surveyed sites (general water depth, extent of pooling, etc.)

   b. a description of the biological setting at the project site, including plant community, topography, soils, potential habitat of target species, and environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

   c. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

   d. survey dates and survey methodology(ies)

   e. a comprehensive list of all vascular plants occurring on the project site for each habitat type, to characterize and document site quality

   f. a description of current and historical land uses of the habitat(s) and degree of project site alteration

   g. a description of the presence of listed species off-site on adjacent parcels, if known

   h. an assessment of the biological significance or ecological quality of the project site in a local and regional context

5. If listed species is (are) found on the project site, report results that additionally include:

   a. a map showing the distribution of the listed species distribution relative to the proposed project

   b. a description of the direction and integrity of flow of surface hydrology. If listed species is (are) affected by adjacent off-site hydrological influences, describe these factors.

   c. the listed species phenology and microhabitat, an estimate of the number of individuals of each listed species per unit area; identify areas of high, medium and low density of listed species over the project site, and provide acres of occupied habitat of listed species. Investigators should provide color slides, photos or color copies of photos of listed species or representative habitats to support information or descriptions contained in reports.

d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of listed species.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of listed plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.

8. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984. Please contact the CDFG Regional Office for questions regarding the CDFG guidelines and for assistance in determining any applicable State regulatory requirements.