California Department of Parks and Recreation

Wilder Ranch State Park Inventory, Monitoring, and Assessment Project

Project Agreement

Natural Resources Division
and
Santa Cruz District

October 2001

California Department of Parks and Recreation

Wilder Ranch State Park
Inventory, Monitoring, and Assessment Project

Natural Resources Division

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Santa Cruz District

Members consist of selected staff from the District:

David Vincent, District Superintendent
George Gray, Senior State Park Resource Ecologist

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I

INTRODUCTION

This Project Agreement (Agreement) is developed jointly between the Natural Resources Division (Division) and the Santa Cruz District (District) of the California Department of Parks and Recreation. It represents the Department's strategy for implementing the Wilder Ranch State Park Inventory, Monitoring, and Assessment Program plan. The Agreement lays out the framework of the project process and the timeframe, describing the expectations and responsibilities of all parties, and listing the specific inventory and monitoring projects to be conducted.

The objectives of this Agreement are:

- To hold staff and management accountable for timely development of the Wilder Ranch SP inventory, monitoring, and assessment program.
- To establish clear expectations for the scope of the initial effort (FY00/01 through FY01/02).
- To develop a plan for continued monitoring and assessment of established IMAP projects at Wilder Ranch SP.
- To provide a measurable framework for changes as they occur in the development of the inventory, monitoring, and assessment project.
- To maintain communications throughout the inventory, monitoring, and assessment process.

Either the District or the Division may submit amendments to this Agreement for mutual approval.

II RESPONSIBILITIES

To insure that the objectives of this Project Agreement are met, Natural Resource Division and the Santa Cruz District will assume the following project responsibilities:

Natural Resources Division

- To make commitments of staff, via the NRD IMAP team, and funding based on the Project Agreement (see Staffing and Schedule of Work);
- To have a monthly briefing with the District, at least via an email update, about the status of the project;
- At the end of this project, NRD IMAP will turn over copies of all reports, data, maps, and digital photographs to the District;
- To review and authorize amendments to the Project Agreement.

Santa Cruz District

- To make commitments of staff time to assist in the establishment of the monitoring projects agreed upon in this Project Agreement (see Staffing Summary);
- To make a commitment of staff time and funding to continue to implement, to the extent feasible with available funding, core monitoring projects developed for Wilder Ranch State Park, once the NRD IMAP team has met its commitments and has turned the projects over to the District. The core projects for Wilder Ranch State Park include the following items described in the Scope of Work section of this Agreement:
  Items number 2, 3, 4, 5, 6, 7, 14, 16, and 17.
- To provide the IMAP manager a monthly accounting of staff time and other expenses charged to the NRD IMAP account.

III SCOPE OF WORK

The following is a summary of inventory and monitoring projects to be implemented at Wilder Ranch State Park within the framework of this Project Agreement. They are categorized by ecological component and were derived from the Natural Resources Inventorying and Monitoring Program Plan for Wilder Ranch State Park, August 1998.

In order to design an efficient monitoring program, it is first necessary to inventory the target component and conduct a pilot study using the proposed methodologies and protocols, and then analyze the results for their adequacy in terms of accuracy, precision, cost-effectiveness, and ability to detect change. Since standardized protocols for many ecological components are either unavailable or untested in the ecoregion, many of the projects below are designed to collect baseline information while testing proposed protocols for use in future monitoring efforts. Other projects below are designed to analyze existing baseline information and the protocols used in order to develop a specific monitoring plan.

It is the intent of the NRD IMAP team to work with the District to formulate a comprehensive monitoring program, which monitors and assesses key ecological components of ecosystem health pertinent to the natural resources of Wilder Ranch State Park. In doing so, an Environmental Condition Assessment matrix will be developed and long-term monitoring projects will be detailed. Some of these monitoring projects will be initiated during the term of this Project Agreement by the NRD IMAP team, while some will need to be initiated by the District outside the terms of this agreement due to limitations of time or expertise of the NRD IMAP team. Regardless, a clear direction for initiating all key monitoring projects will be included in the final written product of this agreement.

VEGETATION

1. Plant Communities Mapping

A digital vegetation map will be developed for the park using aerial photos. The NRD IMAP team will check the map in the field to detect and correct any misclassifications. In addition, the NRD IMAP team will conduct sampling in most community types, in order to determine vegetation components and range of variability in the distribution and cover of component species throughout the unit. Acreage of plant community polygons will be calculated using GIS tools and entered into a database for comparison to the acreage observed and documented at a later date (anticipated interval of 10 years).

The NRD IMAP team will produce a ground-truthed GIS vegetation map and associated database, and a report that outlines the methodology, location of long-term sampling plots, results of all analyses, and a recommendation for the time interval for repeated monitoring by each methodology. Final field checking of vegetation classifications will not occur until spring 2002.

2. Sandhills Chaparral Community Composition

The sandhills chaparral plant community occurs only on a few sandy soil areas in the vicinity of Wilder Ranch SP. Data will be collected for species composition, and a sampling methodology and design developed; however, at this time no quantitative data on the sandhills chaparral community will be collected. Future implementation of the sampling methodology in this type will depend upon availability of District staff and funds.

The NRD IMAP team will produce a map of the areas surveyed and subjective condition of the sandhills chaparral. A plant, small mammal, and bird species list will be developed. The NRD IMAP team will also produce a report that outlines the methodology used and recommendations for inventorying and monitoring these sensitive taxa.

3. Ben Lomond Spineflower (*Chorizanthe pungens* var. *hartewegiana*)

As a component of the sandhills plant community type, Ben Lomond spineflower (*Chorizanthe pungens* var. *hartewegiana*) occurs in openings

where there is no overstory canopy cover. Monitoring is recommended in order to detect significant changes in the occurrences and to take appropriate action early on.

The NRD IMAP team will set-up the initial monitoring project and will collect data consisting of transects through the habitat where the species occurs, estimate of individuals present, prepare a GIS-based map showing transects of the species' habitat and an estimate of habitat size and condition. A report will be prepared outlining the methodology and a recommendation on monitoring level.

4. Exotic Plants

Several species of invasive exotic plant taxa have become established in Wilder Ranch SP in the coastal zone near the active agricultural lease areas. The NRD IMAP team will incorporate existing maps of these stands into a unit wide GIS map of exotic plant taxa locations, map additional locations and aerial extent, count or estimate numbers of individuals or percent cover at each location, and develop a long-term monitoring strategy for presence/absence.

The District will provide existing maps of exotic plant locations and status to the NRD IMAP team.

The NRD IMAP team will produce a map and associated database for alien taxa listed above and a report that outlines the methodology used and recommendations for monitoring these alien taxa. Field sampling of the exotics may not occur until spring 2002 based on weather and the crew's ability to identify species in the field.

5. Santa Cruz Cypress (*Cupressus abramisana*)

The Santa Cruz cypress plant community is unique to the Santa Cruz area, with a significant portion of the community occurring inside Wilder Ranch SP. The U.S. Fish & Wildlife Service have proposed an inventory program for Santa Cruz County to determine the location of this plant community and its composition. Once a contractor is chosen by USF&WS to perform the work the NRD IMAP team will coordinate to ensure a monitoring program can be developed from this initial inventory data.

The NRD IMAP team, if provided the USF&WS data, will produce a map and associated database of the areas surveyed and locations and condition of the Santa Cruz cypress.

6. Prairie Composition

Grassland areas on several topographic terraces are being inventoried and monitored by the Santa Cruz District ecology staff. The second year of data collection will occur in spring 2001 and NRD IMAP team members will assist the District staff as requested. The NRD IMAP team will also assist the District effort by assisting with data analysis and preparation of GIS-based maps of sampling transects if requested.

7. Forest and Woodland Composition

Forest and woodland plant community types at Wilder Ranch SP will be identified during the vegetation mapping program. A detailed sampling program, including permanently established point-quarter and point-intercept transect methods, will be used to inventory the species composition and size of trees, shrubs, and understory plant species in representative stands.

The NRD IMAP team will produce a map and associated database for the sampled areas and a report that outlines the methodology used and recommendations for monitoring.

WILDLIFE

8. Small Mammals

Very little information exists on the small mammal (potentially mouse, kangaroo rat, vole, and others) assemblages at Wilder Ranch SP. This project will consist of identifying presence, distribution, and status of small mammals to provide a basic account of species in the park, and to develop a long-term monitoring strategy. Small mammal live-trapping, track-plates, and hidden automatic cameras will be conducted in common vegetation types. Animals will be identified to species, gender determined, weighed and measured, and then released.

The NRD IMAP team will conduct the inventory. The NRD IMAP team will produce a report with maps that outlines the methodology used and recommendations for inventorying and monitoring these taxa.

9. Medium and Large Mammal

The NRD IMAP team will use track plates, spotlighting, hidden automatic cameras, and incidental sightings to inventory medium and large mammals. Marine mammals will be assessed by point counts from shore in December. No captures of any medium or large mammals will be attempted. The NRD IMAP team will produce a report and maps that outlines the methodology used and recommendations for inventorying and monitoring these taxa.

10. Birds: Shorebirds, Passerines, & Raptors

Point-count searches will be performed to detect common bird species in the most common vegetation types. Upland birds will be assessed during the breeding season (May & June), and shorebirds will be assessed during winter migration and stopovers at the shoreline (December). Locations of the points will be mapped, and along with the associated data, incorporated into a geo-referenced database. No nighttime survey for owls will be conducted.

The NRD IMAP team will conduct the point searches and mapping work. The NRD IMAP team will also assemble data from local birding groups who have been conducting counts at Wilder Ranch SP, such as Santa Cruz Bird Club and UC Santa Cruz. A report and maps will be prepared that details methodology,

results, and recommendations for continued monitoring as well as management objectives for any sensitive species.

11. Feral Pigs

Damage to selected vegetation types by feral pigs will be inventoried. The extent and types of damage will be documented, and maps prepared showing the locations of pig activity. No systematic attempt will be made to count or census the pigs; however, models or indicators that others have developed relating pig damage to vegetation to numbers of pigs may be used during analysis of the damage data.

The NRD IMAP team will incorporate data about pig-caused vegetation damage into the project database and GIS-based maps will be prepared. A report detailing methods used and potential monitoring program will be provided to the District. The District should provide all previous data about number of pigs in the parks or number of pigs removed from the park to the NRD IMAP team.

12. Amphibian and Reptile

Contractors will perform amphibian and reptile inventory and monitoring. NRD IMAP will administer potentially two contractors collecting data in aquatic and upland areas. The NRD IMAP team will not carry out actual terrestrial amphibians and reptiles projects as part of this agreement.

The NRD IMAP team will incorporate data from the contractors into the geo-referenced database for the park, and prepare a report detailing methods used and a potential future monitoring program. The amphibian and reptile sampling may not occur until spring 2002 because of weather and ideal sampling period.

AQUATIC ENVIRONMENT

13. Salmonid Inventory and Monitoring

A contractor will be utilized to inventory and monitor salmonid and other fish species in Wilder Creek and Baldwin Creek. Water quality parameters and aquatic life habitat assessment will also be part of this contract.

The NRD IMAP team will provide funding for the contract and will coordinate other water quality sampling efforts with the contractor. A report will be prepared that includes detailed methodology, results, and recommendations for continued monitoring.

14. Water Quality Monitoring

Water quality and quantity will be assessed in Wilder Creek, Baldwin Creek, and Majors Creek. Methods will include field measurements of chemicals and physical properties including flow, collection of surface water samples for chemical analysis in a contracted laboratory, and collection and analysis of macroinvertebrates samples. A contractor will perform taxonomic evaluations of macroinvertebrates.

The NRD IMAP team will conduct field sample collections, and oversee and fund the laboratory contracts. A report will be prepared that includes detailed methodology, results, and recommendations for continued monitoring.

15. Rocky Intertidal

The NRD IMAP team is investigating establishment of an inventory and monitoring program for the rocky intertidal areas in cooperation with CDFG and/or the Monterey Bay National Marine Sanctuary. There is also a potential to include the park in an on-going coastal monitoring program utilizing local high school students for field data collection. NRD IMAP will work to coordinate the efforts of these groups, but does not plan to install any other intertidal inventory or monitoring under this agreement.

PHYSICAL ENVIRONMENT

16. Caves

There are at least four limestone caves in Wilder Ranch SP that contain populations of at least four special status species of invertebrates, and significant geologic features. The NRD IMAP team will administer a contract to monitor the cave invertebrates. The NRD IMAP will also assess the condition of cave geologic features. Presence/absence of bats will be assessed for each cave.

The NRD IMAP team will conduct or oversee field sample collections, and oversee all contractors. A report will be prepared that includes detailed methodology, results, and recommendations for continued monitoring.

17. Groundwater

Groundwater levels at Wilder Ranch SP may be affected by pumping for agricultural, landfill, or quarry use. The NRD IMAP team will inventory the existing condition of groundwater levels at Wilder Ranch SP by gathering information on locations and uses of groundwater wells, and past and current records for water levels and water quality in local wells. All information collected will depend upon cooperation by the well users, typically agricultural tenants.

The NRD IMAP team will conduct or oversee field data collections and historical data. A report will be prepared that includes detailed methodology, results, and recommendations for continued monitoring. The District will provide any existing data or information about wells in the area, and help arrange access to current well users so that pumping data may be obtained.

IV STAFFING & SCHEDULE OF WORK

2001 Field Schedule

Project	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1) plant map					X				
2) sandhills			X						
3) spineflower			X						
4) exotics									X
5) cypress									
6) prairie	X	X							
7) forest		X	X	X					
8) sm mam						X	X		
9) big mam					X	X			
10) bird		X	X						X
11) pigs			X	X	X				
12) amp & rep									X
13) salmonid		X					X		
14) water		X	X	X	X	X	X	X	
15) intertidal									
16) caves				X	X			X	
17) grnd water				X	X	X			

Products and Work Performance

Project	Report	Map	Permanent Plots/Points	Photo Points	Potential Resample Frequency (yrs)	Project is by an outside agency?	Contractor used?
1) plant map	**X**	**X**					
2) sandhills	**X**	**X**		**X**	**5-10 yrs**		
3) spineflower	**X**	**X**			**Annually**		
4) exotics	**X**	**X**		**X**	**Annually**		
5) cypress	**X**	**X**			**5-10 yrs**	**X**	
6) prairie	District	**X**	District	District	**Annually**		
7) forest	**X**	**X**	**X**	**X**	**5-10 yrs**		
8) sm mam	**X**	**X**	**X**	**X**	**3-5 yrs**		**X**
9) big mam	**X**	**X**			**3-5 yrs**		
10) bird	**X**	**X**	**X**	**X**	**Annually**		
11) pigs	**X**	**X**	**X**	**X**	**Annually**		
12) amp & rep	**X**	**X**	**X**	**X**	**3-5 yrs**		**X**
13) salmon	**X**	**X**	**X**		**Annually**		**X**
14) water	**X**	**X**	**X**		**Annually**		**X**
15) intertidal	**X**	**?**	**X**		**Annually**	**X**	
16) caves	**X**	**X**	**X**	**X**	**3-5 yrs**		**X**
17) grnd water	**X**	**X**			**3-5 yrs**		

Contract Services

Contract	Amount (±)	Source
Stream Macroinvertebrates	$8,000.00	NRD-IMAP
Cave Invertebrates	$5,000.00	NRD-IMAP
Water Chemical Analysis	$5,000.00	NRD-IMAP
Salmonids	$10,000.00	NRD-IMAP
Terrestrial Reptiles & Amphibians	$20,000.00	NRD-IMAP

V Signatures

APPROVED
California Department of Parks and Recreation
Natural Resources Division

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Dave Schaub, Supervising Resource Ecologist

Date: _____

APPROVED
California Department of Parks and Recreation
Natural Resources Division

_____

Roy Woodward, Program Coordinator
Inventory, Monitoring, and Assessment Program

Date: _____

APPROVED
California Department of Parks and Recreation
Santa Cruz District

_____

David Vincent, District Superintendent

Date: _____

APPROVED
California Department of Parks and Recreation
Santa Cruz District

_____

George Gray, District Senior Resource Ecologist

Date: _____