

# City of Roseville Open Space Interim Grazing Plan

14 April 2011

Prepared For:



Prepared By:

**CONTENTS**

**City of Roseville Open Space Preserve  
Interim Grazing Plan**

**INTRODUCTION** ..... 1

**GRAZING PLAN GOALS**..... 1

**IMPLEMENTATION** ..... 4

**VERNAL POOL GRASSLAND GRAZING/MANAGEMENT FOR SWAINSON’S HAWK  
FORAGING** ..... 4

    Baseline Data ..... 6

    Management Guidelines ..... 6

    Monitoring.....10

**THATCH AND INVASIVE PLANT MANAGEMENT IN OAK WOODLAND / SAVANNAH  
AND RIPARIAN/WETLAND AREAS** .....10

    Goat Stocking Rates.....10

**REFERENCES** .....12

**LIST OF FIGURES**

Figure 1. City of Roseville Open Space System ..... 2

Figure 2. Habitat Management Units ..... 3

Figure 3. Grazing Areas ..... 5

Figure 4. Grazing Components, Parcel W-81 ..... 8

Figure 5. Grazing Components, Parcel F-80..... 9

**LIST OF ATTACHMENTS**

Attachment A – Sample Field Data Sheets

## INTRODUCTION

Within the City of Roseville (City), there is an approximately 1992-acre, City-owned Open Space Preserve system (Figure 1. *City of Roseville Open Space System*) and an approximately 532-acre primarily City-owned General Open Space system, resulting in a total of approximately 2,524 acres of Open Space covered by the City of Roseville Open Space Management Plan (OSMP, ECORP 2009).

The Open Space Preserve system consists of land that was required to be set aside as part of a regulatory permitting action and is typically protected by either a Conservation Easement or Declaration of Covenants and Restrictions (Deed Restrictions). The Open Space Preserve areas are primarily vernal pool grassland or riparian corridors protected due to the presence of waters of the U.S. and/or U.S. Fish and Wildlife Service (Service) regulated endangered/threatened species (Endangered Species) habitat (Figure 2. *Habitat Management Units*). Mitigation for impacts associated with the individual development projects was often constructed within the associated Open Space Preserve.

The remainder of the Open Space in the City covered by the OSMP is General Open Space (see Figure 1). General Open Space areas owned by the City were set aside due to City policy or to meet Specific Plan or General Plan requirements and are not subject to any permit related restrictions.

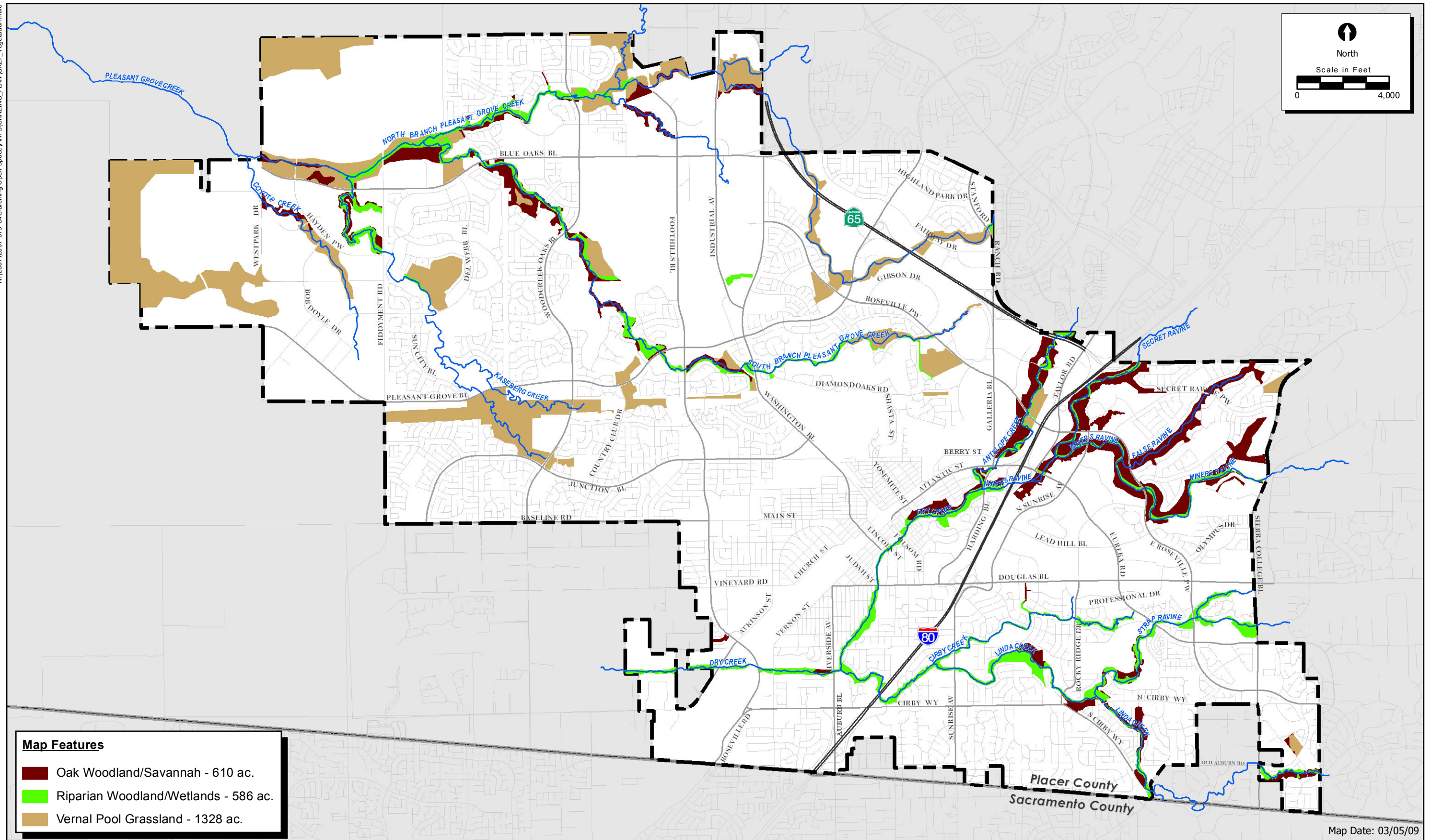
The majority of the City's Open Space has not been grazed since it was preserved. Due to the benefits of grazing for habitat management and fire prevention, the City has developed the following Interim Grazing Plan (Interim Plan) until funding can be identified for the final Grazing Plan. The Interim Plan is intended to be a living document and will be revised and updated as needed to ensure that the Goals of the grazing plan are met.

## GRAZING PLAN GOALS

The goals of this Interim Plan are to use grazing and animal impact (if appropriate) to:

1. create firebreaks within the Open Space where other methods allowed by the OSMP such as mowing are more expensive or impractical;
2. reduce overall fuel loads within the Open Space to levels that reduce the likelihood of a wildfire and are compatible with habitat management goals;
3. maintain the desired upland and wetland species composition within the vernal pool grasslands (see Figure 2) by reducing the accumulation of thatch within the wetland and upland areas;
4. manage thatch levels within oak woodland/savannah to promote oak recruitment;
5. manage the vernal pool grasslands as Swainson's hawk foraging habitat;
6. reduce or eliminate invasive plant species within all Habitat Management Units; and
7. gain income through grazing leases if feasible.





2007-075 City of Roseville Open Space Preserve Overarching Management Plan

Figure 2. Habitat Management Units

## **IMPLEMENTATION**

It is the City's desire to implement the Interim Plan and ultimately the Final Plan to meet the stated Goals. Most of the grazing described in this Interim Plan will require additional funding that the City does not currently have. While the City is open to pursuing additional funding to implement the entirety of the OSMP, including the Grazing Plan, there are only a few areas (Required Areas) within the City where grazing is required due an agreement with the U.S. Fish and Wildlife Service to graze cattle on these areas (Figure 3. *Grazing Areas*). A combination of cattle, goats, and sheep are currently proposed to graze the City's Open Space as shown in Figure 3. The type and class of grazing animal will be selected to best meet the specific needs of the area to be grazed.

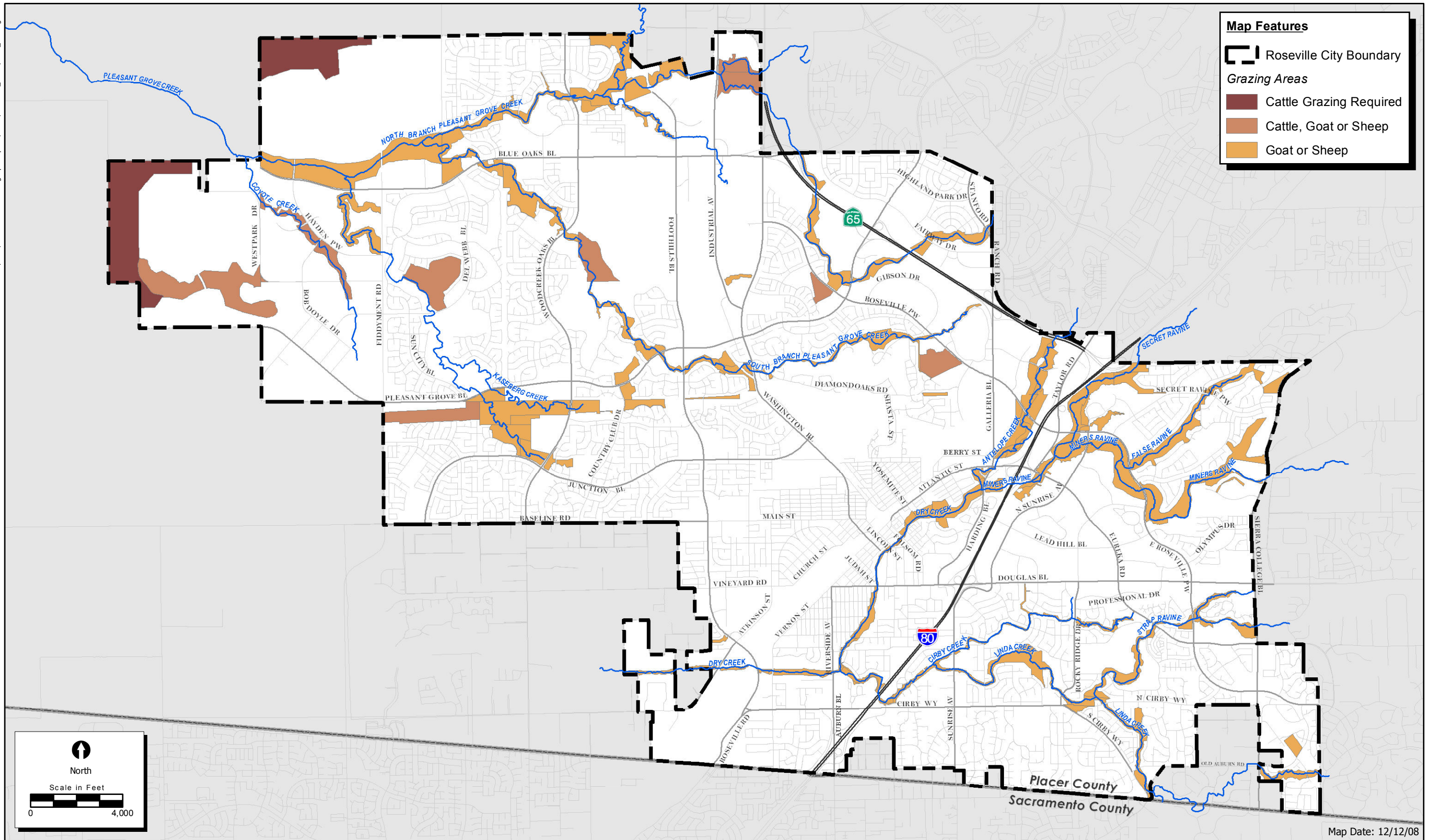
An essential component of the success of this Interim Plan is regular communication between the City's Open Space Manager, the Monitoring Biologist or Qualified Personnel, and the grazing tenant/contractor regarding decisions about adjusting the below-mentioned grazing variables. Coordination of grazing practices with the other long-term Open Space management methods will enhance the overall long-term viability the Open Space resources. The grazing tenant/contractor will be oriented from the start as to the sensitivity of the habitat present within the Open Space and of the goals of this Interim Plan. The City will choose a grazing tenant who understands, and is in agreement with, the goals of managing the Open Space.

The following discusses the primary grazing management practices to be implemented within the City's Open Space, assuming the City elects to graze the identified areas. It should be noted that these practices may be adjusted as new facts are learned about optimal grazing practices within each of the Habitat Management Units, and to ensure compatibility with adjacent land use.

### **VERNAL POOL GRASSLAND GRAZING/MANAGEMENT FOR SWAINSON'S HAWK FORAGING**

The Required Areas will be grazed by cattle for the purpose of managing the habitat for Swainson's hawk foraging. The recent management/agricultural practice for these areas has been grazing. These guidelines will also be used to manage other vernal pool grassland areas within the City. A recent study in Sacramento County (Marty 2005), has shown that the removal of livestock from vernal pool landscapes results in both the invasion of non-native invasive annual species and the reduction in species diversity within and around vernal pools. This is accomplished by three primary ways: consumption of vegetation, trampling, and nutrient input (Vollmar 2001).

Management for Swainson's hawk within a grassland situation means some reduction of annual grassland cover during the spring/summer nesting season. This reduction in cover allows prey items to be more visible to raptors (Babcock pers. comm.). No studies have been done on the ideal grazing regime for Swainson's hawk foraging habitat management, but keeping the grass between six inches to a foot in height is what Swainson's hawk experts feel would be appropriate (Estep pers. comm., Babcock pers. comm.). Monitoring and active management will have to be used to find the appropriate stocking rate to achieve the desired grass height.



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Figure 3. Grazing Areas

The regime will be timed so that the cattle are removed or reduced in number in the spring when the vernal pools are drying down. Cattle tend to focus on the vernal pools when the grassland begins to dry out because they hold the remaining water and have green growth. After the grassland is dry, the cattle can be brought back to their original numbers or left on at a reduced stocking rate with supplemental feed and water as needed to keep the grass at an appropriate height for Swainson's hawk foraging. Depending on the year's rainfall, summer grazing may not be required to keep the grass at the desired height. If it is decided that supplemental feed is necessary, the feed should be weed free. Non-native species have the potential to be imported with supplemental feed. Preferred methods for dealing with low grass/forbs production would be reduced stocking rates, start grazing later or ending sooner, or not grazing an entire season.

## **Baseline Data**

An initial analysis of existing conditions must first be undertaken to create baseline data. This involves determining the current level of grazing use and then measuring the resulting levels of residual dry matter at the end of the grazing season. If possible, the previous property owner will be contacted to determine what the current grazing regime is, when the cattle have been put on and taken off the land, and if supplemental food, salt, water, etc. have been given in the past.

Once the cattle have been removed, a single survey occurring between June 1 and September 15, using a combination of dry clipping and visual estimates, will be conducted by the Monitoring Biologist or Qualified Personnel using the protocol outlined in the Wildland Solutions Residual Dry Matter (RDM) monitoring guide in order to determine the baseline RDM level. Data will be taken from sample areas located throughout the grazed area. During this baseline study, photo guides will also be compiled to assist in the subsequent monitoring of RDM. Photo guides represent the thatch cover by utilizing a simple technique. Different sized balls (golf balls, tennis balls, softballs, etc.) are placed in the grass and a photo is taken. Which of the smallest balls is visible establishes the baseline for the photo guides.

A photo guide will be taken with each RDM sample. Sufficient RDM samples will be collected to establish the baseline (see Attachment A for sample field data sheet). Each will be random representative samples throughout the grazing areas. The baseline sample sites will be mapped to indicate where samples are taken.

Once the baseline data is collected, the results of this study will be used to determine target levels of residual dry matter. Previous research has indicated that in order to maintain low thatch density, vernal pool landscapes should be managed for approximately 600-800 pounds/acre but the final target level shall be determined for this specific site through analysis of the monitoring data. The goal is to ensure that the grassland is being managed appropriately for both the Swainson's hawk foraging and for the vernal pool habitats.

## **Management Guidelines**

The stocking rate for cattle will vary, based on the target RDM and climatic variables (rain years, fires, etc). The stocking rate will typically vary between a high of one yearling per three

acres, one cow per five acres, one cow/calf pair per seven acres or any appropriate combination, and a low of one animal per 15 acres. Stocking rates for each Open Space Preserve should be reviewed individually and annually to allow for adaptive management and response to climatic variables.

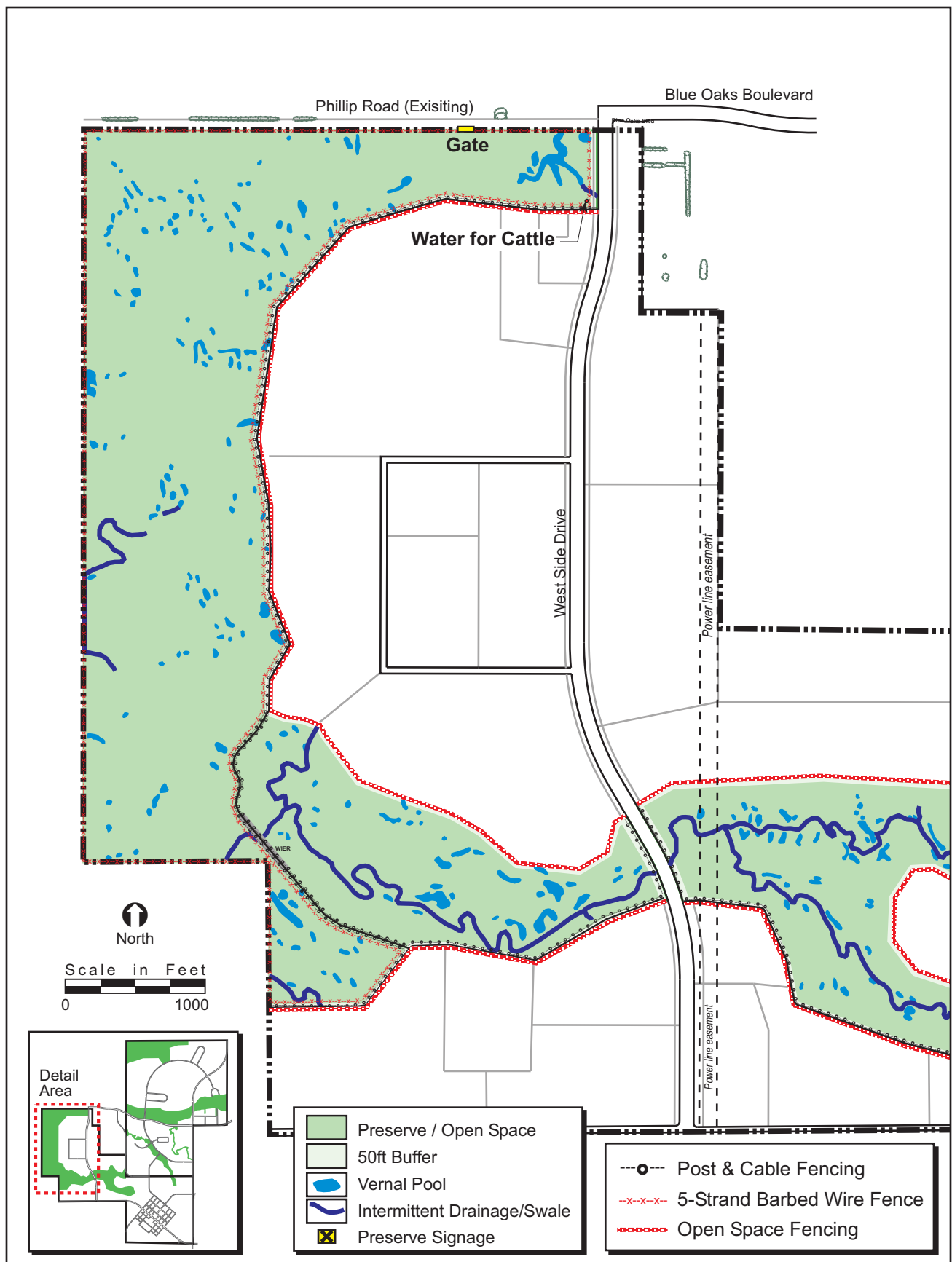
Both the number of cattle and the class of cattle (i.e., mature bulls, cow/calf pairs, yearlings etc.) can be adjusted in order to maintain the target RDM. It is also possible that other classes of grazers including horses, sheep and goats, could be utilized for Swainson's hawk foraging habitat management. If a different class of grazer were to be used, an evaluation of the effect of that particular species would be made to account for the difference in grazing behavior between species. Approval of the Service would also have to be obtained for the Required Parcels.

Grazing within the vernal pool grassland will begin after November 1 and will not extend beyond May 1 of the following year, until after the pools have completely dried and browned. This timing is based on best management practices recommended by the U.C. Cooperative Extension Farmers Advisory. The Open Space Manager and Monitoring Biologist/Qualified Personnel in conjunction with the grazing contractor may use discretion in determining when the appropriate time for removal of the herd is desirable. In general, removal timing should coincide with the upland grasses turning brown and the reduction in the water available to the herd, since this is when the animals are most likely to directly effect the vernal pools. The appropriate removal time will vary annually according to site specific rainfall and weather conditions. The animals can be returned to the pasture later in the summer to graze on the remaining dry matter (if needed to maintain the grass height for Swainson's hawk foraging), since they will not be likely to concentrate in the pools once they dry out. Summer grazing is not required.

The grazing contractor will be responsible for ensuring that the Required Parcels receive appropriate levels of grazing pressure. Gates will be provided in order to allow the grazing contractor to easily transfer the herd from one of the Required Parcels to the other (see Figures 4 and 5). Maintenance of the fencing and gates to control grazing may be the responsibility of the grazing contractor under the terms of the grazing contract. This responsibility will be written into the grazing contract. The Open Space Manager will inform the grazing contractor of any maintenance not being carried out.

The only water available to the herd without supplementing would be in the vernal pools and intermittent drainages. A water spigot will be available in each of the Required Parcels, see Figures 4 and 5 for the locations. It will also be the grazing contractor's decision as to whether or not additional food and/or water supplements are needed for that year. The location of those food and/or water supplements, if deemed necessary, will be away from the most dense vernal pool aggregations as the cattle tend to congregate around these feeding stations. To prevent damage due to intensive grazing, the stations will be moved periodically. The placement of these stations shall be away from high quality pools and conveniently located for the grazing contractor to access so as to minimize extensive driving through the Open Space.

At each gate, a gravel drive (in the shape of a "t") will be allowed for trucks and cattle trailers to turn around and exit the Required Parcels. This will protect the uplands from becoming



**FIGURE 4. Grazing Components, Parcel W-81**

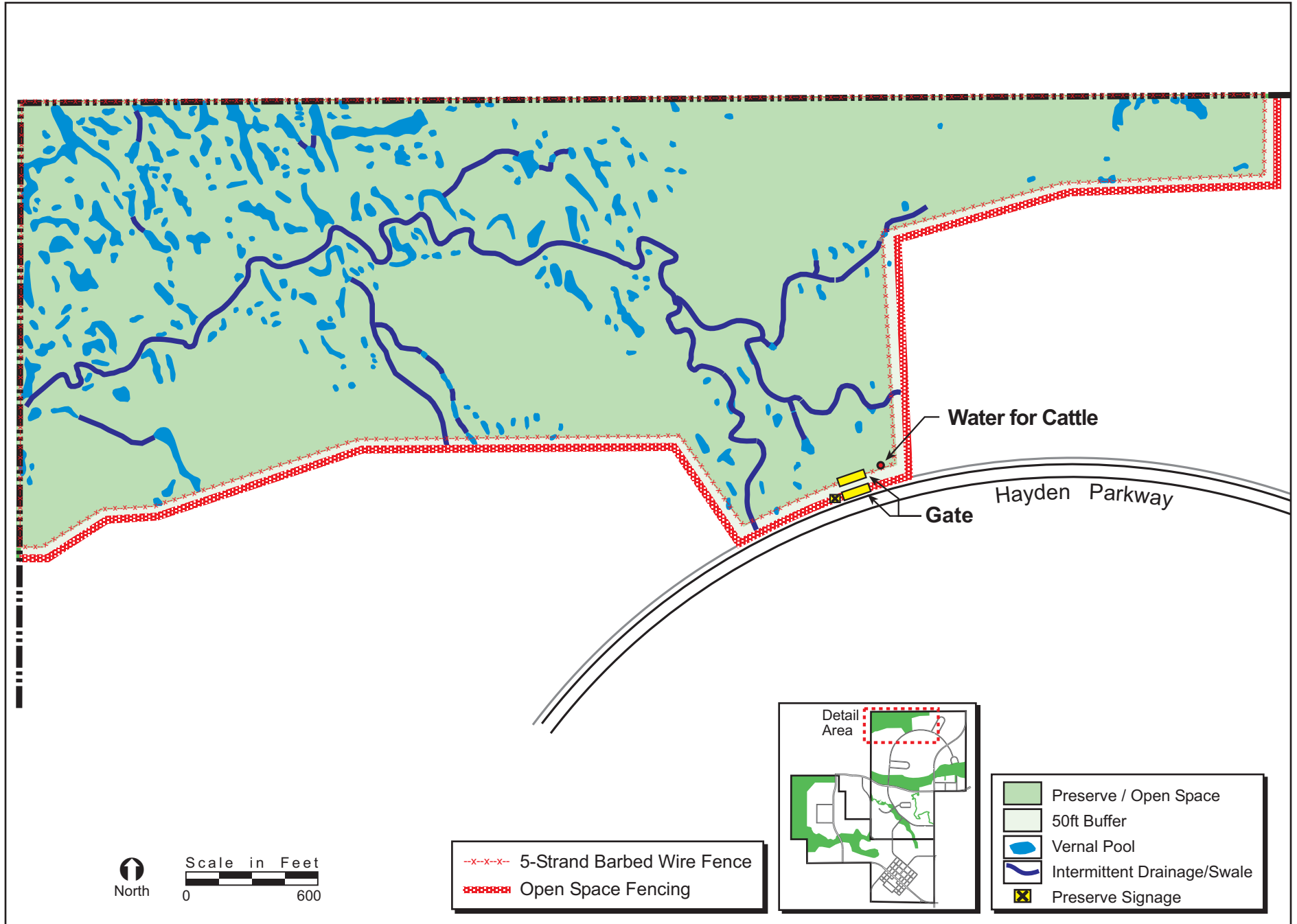


FIGURE 5. Grazing Components, Parcel F-80

ruttled during wet weather. Extra gravel, as needed to maintain the drive, can also be added. Also holding corrals are allowed so that cattle may be loaded and unloaded.

## **Monitoring**

In order to ensure that the management goals of grazing are being met, the areas to be grazed will be monitored annually, following each grazing season (usually in September). This monitoring will serve to evaluate the effectiveness of grazing to maintain the target RDM, as well as, to identify any areas that have been overused or damaged. Using the methods described in the Wildland Solutions Guide and the reference photos established for the site, the annual RDM will be estimated by the Monitoring Biologist or Qualified Personnel. This monitoring will take place for several years, until a stocking rate that achieves the goals of managing the grassland is established. Every few years after an appropriate stocking rate is established, the monitoring should be conducted to ensure that the grass height and RDM falls within the guidelines. Like the baseline RDM, data will be taken from sample areas located throughout the grazed area. For the Required Parcels, ten (10) RDM samples will be collected during each monitoring year. Four (4) will be collected at one of six (6) set locations in the Required Parcels and six (6) will be collected randomly at representative sites. At each of these sites the grass height will also be measured. The sample sites will be mapped to indicate where samples are taken each year in order to prevent specific areas being omitted.

The annual RDM and grass height number will be compared to the target RDM and grass height and, if appropriate, management recommendations will be included in the Annual Report and will be submitted to the grazing contractor. These recommendations may include making adjustments to one or more factors including the number or class of cattle grazed, the distribution of the herd, the timing of grazing, or the location of food/water supplements in order to optimize the RDM value and result in an appropriate grass height. In addition, if specific areas within the Open Space appear to be overused or subject to erosion, temporary fencing will be placed around those damaged areas. This fencing will remain in place long enough for that area to recover. Relocation of supplemental food/water stations may also serve to relieve damaged areas from intensive cattle impacts. Additionally, abundance of exotic pest plant species (e.g., star thistle and medusa head grass) will be used as indicators of grazing pressure (either too high or too low).

## **THATCH AND INVASIVE PLANT MANAGEMENT IN OAK WOODLAND/SAVANNAH AND RIPARIAN/WETLAND AREAS**

Grazing will be used within the Open Space to reduce thatch build-up in both wetland and upland areas, and when appropriate to control invasive plants. Cattle grazing requires a large continuous area that can realistically support a grazing herd. Many of the Open Space areas located in the City are not large enough to support cattle grazing for these areas goats and sheep will be used (See Figure 3). These smaller grazers are surrounded by an electric fence and moved periodically.

## **Goat Stocking Rates**

The stocking rate for goats varies based on the target RDM and/or the grazing objective (i.e., depends on if grazing is for habitat management or fire control). A typical stocking rate would be approximately 300-800 goats on parcels ranging in size from 20-100 acres, respectively. The actual number would be determined based on site conditions in consultation with a professional goat grazer who would remain on site during grazing operations, allowing for real time adjustments to paddocks as necessary to achieve the grazing objective.

## REFERENCES

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- Marty, Jaymee T. "Effects of Cattle Grazing on Diversity in Ephemeral Wetlands." Conservation Biology. Volume 19, No. 5. October 2005. Pages 1626-1632.
- Vollmar, J.E. (Ed.). 2002. Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands. Vollmar Consulting, Berkeley, CA.

## **ATTACHMENT A**

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Sample Field Data Sheets



## Residual Dry Matter (RDM) Vegetation Utilization Sampling Data Sheet

**Date:**

**Samplers:**

### Estimate of Total Vegetation Utilization

Temporary Plot #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
<b>Use Class*</b>																									

**Average Utilization:**

\* How Use Class is Defined:

<u>Rating</u>	<u>Degree of Use</u>	<u>Description</u>
1 - None	0 - 15%	Little or no use of surveyed vegetation.
2 - Light	16 - 35%	Less than one-third of the surveyed vegetation shows evidence of being grazed. Trampling damage is minimal.
3 - Moderate	36 - 65%	Grazing is spotty, but evident (over one-third if the surveyed vegetation shows evidence of being grazed). Trampling damage may be evident.
4 - Heavy	66 - 80%	Surveyed vegetation is closely cropped. Trampling damage should be evident.
5 - Severe	Over 80%	Surveyed vegetation grubbed. Trampling damage should be evident.

