

Grazing Management Policy

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Santa Clara County Open Space Authority

Introduction

The Santa Clara County Open Space Authority (OSA) is a special district established in 1993 to preserve the natural environment and to balance continuing urban growth. To achieve a broad suite of land protection goals (inset box), the OSA acquires land and conservation easements, and contributes funds to joint conservation efforts. The OSA also manages land for natural resources, including plants and animals, water and soil resources, cultural and recreational assets, and fire safety, to achieve a range of resource management goals (inset box).

Presently, OSA manages more than 14,000 acres throughout its jurisdiction. Located primarily in the foothills of the Santa Cruz and Diablo range mountains, these lands include several **native plant communities**¹ that have been identified as important targets for regional **biodiversity** conservation, including grasslands and oak savannas (TNC 2006, Bay Area Open Space Council 2010). These communities are rare, either due to widespread conversion for agriculture and urbanization, as in the case of native perennial grasslands and valley oak woodland, or because they are naturally restricted to unique environmental conditions, as in the case of serpentine grasslands. Grasslands and **oak savannas** support many native plants and animals that are threatened, endangered, or otherwise of conservation concern, including many species that occur only within this region.

Though protected from development, habitat within OSA preserves is threatened by factors that can degrade its condition in the absence of management. In grasslands and oak savannas, two prominent threats are fire exclusion and the invasion and spread of non-native plants.

In the absence of natural, recurring fires, most of which are suppressed to protect lives and property, shrubs and trees can become established within many grasslands; there they outcompete native herbs and over time, convert grasslands to shrubland or woodland (McBride and Heady 1968, McBride 1974, Heady et al. 1988). This eliminates habitat required by rare plants, approximately 90% of which inhabit California's grassland ecosystems (Barry et al. 2006), and numerous animals, including northern harrier, white-tailed kite, grasshopper sparrow, and American badger (CPIF 2000, Shuford and Gardali 2008).

Native grassland and oak savanna species are also threatened by **exotic plants**, particularly European **annual grasses**. These exotic plants compete with native herbs for scarce soil resources and light, thus reducing their abundance and diversity (Corbin and D'Antonio 2004). In the more productive grasslands,

Open Space Authority Goals

Land Protection

- *Preserve habitat for native wildlife and plants*
- *Safeguard water sources*
- *Create greenbelts and urban buffers*
- *Maintain the region's defining landscapes and vistas*
- *Offer outdoor recreation that respects the natural environment*
- *Encourage agriculture*
- *Provide regional trail connections*

Resource Management

- *Improve biodiversity*
- *Protect rare, threatened and endangered species*
- *Maintain a place in the landscape for people through compatible recreation and agricultural activity*
- *Understand and preserve the artifacts and stories of humans from earlier times*
- *Follow fire-safe practices*
- *Collaborate with others to enable coordinated, regional solutions to resource challenges*

¹ terms or phrases in bold font are defined in the glossary.

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annual grasses contribute to the accumulation of dense litter (thatch) on the soil surface. Such litter inhibits establishment of many native grassland herbs thus reducing diversity (Young and Evans 1989, Facelli and Pickett 1991). Thatch and other dry exotic plants also create **fine fuels** which can promote fire.

Scientists and land managers working to develop techniques to maintain and enhance California's grasslands and oak savannas increasingly recognize the advantages of **livestock** grazing, for landscape-scale management (inset box; Huntsinger et al. 2007). As of 2012, livestock grazing is being used as a management tool by 25 public agencies in the San Francisco Bay area (S. Barry, pers. comm. 2012). These include the United States Fish and Wildlife Service and California Department of Fish and Wildlife, which manage lands primarily for native species, as well as other open space districts including the Midpeninsula Regional Open Space District and East Bay Regional Parks District.

Cattle in particular have been shown to reduce the growth, abundance, and competitive effects of the abundant exotic annual grasses, and in doing so, tip the balance toward native herbs (Corbin et al. 2004, Marty 2005). By preventing a buildup of litter, cattle can create open soil conditions required for the establishment of many native forbs, particularly annual wildflowers, thus promoting grassland plant diversity (Hayes and Holl 2003). These beneficial effects of grazing are regarded as essential to maintaining habitat for **serpentine endemic** species including Bay checkerspot butterfly. The **host plants** of this species are suppressed by dense annual grasses, which are being fertilized by the nitrogen contained in air pollution. By eating the grasses, cattle promote Bay checkerspot butterfly populations (Weiss 1999, Weiss et al. 2007).

Cattle and other types of livestock animals including goats and sheep have also been used successfully in natural lands management to:

- control **invasive plants**, by reducing their growth and reproduction (Bossard et al. 2000, Tu et al. 2001, Holloran et al. 2004);
- limit encroachment of shrubs and trees thus slowing or preventing conversion of grasslands to shrublands or woodland in the absence of natural, recurring fire (Heady et al. 1988); and
- reduce fine fuels and shrubs that can promote wildfires that can be destructive when near human habitation.

In addition, ponds that provide water for livestock (i.e. stock ponds) play a vital role in maintaining populations of many pond-breeding species, including several special-status species such as California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and Pacific pond turtle (*Actinemys marmorata*). When appropriately managed, livestock can help maintain aquatic

Livestock Grazing as a Management Tool

Opportunities

- *Maintain grassland habitat, which has been dramatically reduced throughout California*
- *Promote native plants by reducing competition by exotic plants*
- *Create short-statured grasslands required by some native animals*
- *Maintain ponds and adjacent upland habitat conditions for pond-breeding animals.*
- *Reduce fine fuels and wildfire risk.*

Challenges

- *Protect grazing sensitive systems, including some rare plants and animals, wetlands, riparian areas, and streams.*
- *Safeguard water quality*
- *Avoid conflicts between grazing management and recreation.*

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habitat, including **hydroperiod** and vegetation cover, as well as upland habitat for these and other species (USFWS 2004, Pyke and Marty 2005, USFWS 2006 and USFWS 2010).

Because of these and other benefits, **grazing management** has been used to promote native biodiversity and reduce fire risk in parks, open space preserves, and ecological reserves throughout California (Huntsinger et al. 2007). Despite research documenting the benefits of grazing management for a broad range of conservation goals, some members of the conservation community are concerned about livestock grazing on public lands. These concerns reflect the checkered history of private grazing on public lands throughout the western United States where, in most cases, the primary goal was cattle production, rather than managing habitat to promote native species. The well-documented negative effects of such grazing have included reducing populations of native plants, competing with native animals for scarce water and food, facilitating the invasion and spread of exotic plant species, and degrading riverine and riparian habitats (Belsky et al. 1993, Fleichner 1994, Painter 1995).

Like other preserve management tools, livestock grazing is most effective when implemented following a plan developed based on the unique conditions and goals for the preserve, and on scientific research evaluating grazing effects (inset box). Such plans can identify ways to limit the negative impacts of livestock to **grazing-sensitive resources**, including streams and adjacent **riparian communities**, wetlands, and native plant species that are highly susceptible to herbivory. Grazing management plans can also identify steps to protect cultural resources and promote compatibility with recreation and other activities within the preserves. When implemented in an **adaptive management** framework, grazing management can be adjusted based on monitoring results, changes in site conditions, and new scientific research, to promote its long-term effectiveness (Walters and Holling 1990, Lee 1999). This policy will serve as the foundation for development of site-specific grazing management plans, designed to ensure effective management of natural and cultural resources.

Grazing Plan Elements

- *A thorough evaluation of the site conditions that will influence grazing effects and effectiveness*
- *Goals and objectives identifying the desired effects of grazing*
- *Prescription designed to attain the goals, which identify the intensity and seasonality of grazing*
- *Monitoring protocols to track successful implementation and evaluate effectiveness of grazing*
- *Adaptive management framework, to promote long-term effectiveness*

As a cost-effective tool for landscape-scale management of OSA lands, livestock grazing can also facilitate regional conservation by contributing to the viability of ranching on private lands. Santa Clara County has a long history of ranching, which remains a vital part of the local agricultural economy, accounting for more than \$6M in sales in 2010 (Santa Clara County Dept. of Agriculture 2012). Over the past 50 years, however, the number of privately-owned ranches has decreased, due in part to land purchases by public agencies for parks and open space, some of which are no longer grazed. Ongoing declines in the area grazed could threaten viability of other businesses, such as large animal veterinarians and feed suppliers, which can in turn, reduce the viability of remaining private ranches (Santa Clara County Planning Office 2000). Therefore, appropriately managed grazing on OSA lands can help support private ranches that provide a diverse array of essential **ecosystem services**, including provision of clean water, carbon sequestration, and climate change resiliency. It can also help retain ranching as a business and way of life, and foster appreciation for the county's rural agricultural heritage.

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Prepared in consultation with biologists, range ecologists, and other land managers in the region, and with critical input from the community, this policy was developed to guide effective grazing management by the Open Space Authority on its lands. It may also serve as a model for other agencies and organizations seeking to develop policies to guide the use of grazing to achieve similar goals.

The primary goal of grazing management on OSA lands is to use livestock grazing as a management tool to conserve biodiversity, while protecting watersheds and water quality, cultural resources, scenic and aesthetic values, and recreational opportunities. Secondary goals of grazing management are to reduce the threat of wildfire, and promote agricultural viability in the region.

The seven interrelated elements of this grazing management policy are designed to achieve these goals, by guiding the various stages of implementation (inset box). The intent of this policy is to promote effective use of grazing to maintain or enhance grasslands on OSA properties. This policy supersedes *Livestock Grazing Guidelines and Management Practices* prepared for the OSA in 2001 by Wildlands Solutions, although that document will remain in use by staff as a general reference. This policy will be implemented through site-specific management plans or prescriptions consistent with this policy, subject to appropriate environmental review.

Grazing Policy Elements

1. *Evaluate grazing management and alternatives for each preserve*
2. *Prescribe management based on site conditions, goals, and objectives*
3. *Implement management with operators to promote long-term success and agricultural viability*
4. *Monitor grazing effects and effectiveness*
5. *Adapt management to enhance effectiveness over time*
6. *Coordinate management to promote goals for the preserve and region*
7. *Interpret grazing management to enhance public understanding of its role in preserve management*

Element 1- EVALUATE: The OSA will evaluate the appropriateness of grazing as a management tool for a given site, based on its anticipated effects on the preserve, its effectiveness and feasibility relative to other alternative management tools, and the implications for achieving other goals for the preserve.

- A. Examine the physical and biological conditions of a preserve, including hydrology and vegetation, natural and cultural resources, and recreation opportunities, to determine whether grazing management is an appropriate tool. This evaluation will consider the anticipated short-term and long-term, and positive and negative effects of grazing on the preserve, and the effects a grazing management program might have upon adjacent lands.
- B. As properties are acquired, evaluate existing agricultural operations and work with responsible, qualified operators to understand land management issues, opportunities, and constraints associated with livestock grazing.
- C. Evaluate the cost effectiveness and feasibility of grazing management relative to other tools that can be used to manage vegetation and invasive plant species, which include prescribed fire, mechanical techniques (e.g. mowing), chemical methods (i.e. herbicides), and other biological methods, such as **biocontrol**.
 1. Examine the costs of effective grazing management, including personnel resources to design and implement the program, as well as direct costs to install and maintain infrastructure such as water sources, fences, corrals, and access routes.

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2. Determine resources available to support the grazing management, including fees and in-kind services provided by grazing operators and grant funds, among other sources of revenue.
- D. Assess the impacts of grazing management on other aspects of preserve management, including public use, and evaluate whether techniques to promote compatibility can be successful.

Element 2- PRESCRIBE: For each site to be managed using livestock, develop a grazing management plan that is consistent with OSA's overall resource management goals and plans, which will reflect the site's current and desired future conditions, and provides the overall approach and detailed techniques for grazing management.

- A. Goals and objectives will address:
 1. The conditions that grazing is designed to enhance for species, communities, and fuels;
 2. The conditions of grazing-sensitive resources, such as streams, cultural resources, and trails, which will be protected during grazing management.
- B. The grazing plan will feature the following components:
 1. Descriptions of the physical and biological conditions of the site and its land use history including prior livestock grazing (if any), as well as other factors that could influence the effects and effectiveness of grazing management (Element 1);
 2. Steps that will be taken prior and during implementation to limit impacts to grazing-sensitive resources, such as fencing-out livestock from sensitive areas and **quarantining** animals to avoid introducing invasive species;
 3. A grazing prescription, that specifies the following:
 - a. animal class: the kind of animals, in terms of species, breed, and age (e.g. goat, sheep, cow/calf herd, yearling cattle, etc.);
 - b. spatial distribution: which portion(s) of the site will be grazed;
 - c. temporal distribution: when animals will be grazing in each location, in terms of calendar dates or plant **phenology** (e.g. flowering, acorn production, etc.); and
 - d. intensity of grazing: in terms of the number of grazing animals within each area (i.e. **animal units**), and/or criteria for removing animals (e.g. based on grass height or **residual dry matter**), which consider the forage/animal balance as well as specific habitat management goals.
 4. Monitoring protocols that specify how grazing will be monitored (Element 4).
 5. Adaptive management steps, that outline how adjustments will be made based upon monitoring results, changed conditions, and new information (Element 5).
- C. To maximize effectiveness, grazing management plans will be:
 1. Developed by personnel who collectively have the expertise necessary to address the multidisciplinary nature of grazing management, including biologists, rangeland ecologists or managers, and other experts who can address the unique aspects of the site needed to inform management using the best available science

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2. Reviewed by grazing practitioners, including prior and prospective operators, to obtain feedback designed to increase their effectiveness and feasibility, based on considerations of animal husbandry and other factors.
- D. Grazing management plans for OSA lands will be developed and implemented in conjunction with other lands in the region, where doing so can help achieve goals for the broader landscape or enhance cost-effectiveness.

Element 3-IMPLEMENT: Promote long-term effective implementation of grazing management by partnering with qualified livestock operators.

- A. Cultivate mutually-beneficial and enduring relationships with effective livestock operators to advance the long-term goals of grazing management within the sites, while promoting viability of the ranching community.
1. Conduct outreach to the ranching community and engage livestock operators in the region to partner with the OSA on grazing management.
 2. Coordinate grazing management to ensure that the objectives of OSA and the operator are being met, and to promote long-term collaboration.
 3. Use long-term grazing licenses with operators to promote collaborative work toward longer-term management goals and objectives, where feasible.
- B. Develop licenses to facilitate effective, coordinated implementation of grazing management by the OSA and a responsible, qualified grazing operator. Grazing licenses will:
1. Be developed based upon the grazing prescription and other elements of a grazing management plan, as available;
 2. Outline the roles and responsibilities for the OSA and the operator;
 3. Identify necessary qualifications and experience for grazing operators on OSA lands, and will identify performance requirements and conditions that would warrant renegotiation or termination of grazing leases;
 4. Specify the financial arrangement between OSA and the operator to address:
 - a. The current fair-market value of the forage utilized, which can be assessed based on the number of animal units (e.g. animal unit months, or AUMs) on the preserve; and
 - b. The value of any in-kind services the operator provides including maintenance or improvements to infrastructure (e.g. fences or roads) or targeted habitat improvements (e.g. targeted invasive plant removal or pond enhancements).
- C. Install and maintain infrastructure to promote effective grazing management while limiting impacts to other resources.
1. Protect natural water sources including streams and springs while providing livestock adequate water by using troughs that include wildlife-escape devices and water-saving float valves.

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2. Manage existing ponds, and seek opportunities to create new ponds, to maintain or enhance habitat for pond-breeding amphibians and reptiles.
 3. Locate water sources, corrals, supplement feeders, and other infrastructure that intensifies livestock use in areas that limit impacts to sensitive species, erosive soils, and public use.
 4. Safely contain livestock within areas of desired grazing management using wildlife-friendly fences that minimize barriers to native animal movement.
 5. Install self-closing gates and similar infrastructure to facilitate visitor movement through fences while safely containing livestock.
- D. During implementation of grazing management plans, maintain flexibility as needed to achieve the management goals in the face of changing conditions or circumstances such as fire, drought, or invasive species.

Element 4-MONITOR: Monitor grazing management and evaluate its effectiveness in attaining the goals and objectives, and to detect negative impacts to other resources (inset box). The monitoring schedule will be determined by the exact grazing prescription, but implementation monitoring typically occurs quarterly or more frequently, while biological effectiveness monitoring occurs at least once annually.

- A. Develop and implement monitoring protocols to track successful implementation of grazing management including provision of in-kind services by the operator and other requirements to ensure compliance with the grazing lease.
- B. Develop and implement biological effectiveness monitoring protocols to evaluate whether grazing is having the intended effects or negative consequences on important management targets.

Element 5- ADAPT: Implement grazing through an adaptive management framework designed to increase effectiveness over time, address changed conditions, and incorporate new information and techniques.

- A. Review monitoring results and grazing management effectiveness annually in coordination with the grazing operator, to identify changes to the grazing prescription to enhance effectiveness.
- B. Update grazing management prescriptions to reflect changes in the preserve conditions that can influence grazing effects, such as fire, unusual weather (e.g. drought or wet period), changes in plant species composition (e.g. exotic plant invasion), or water availability.
- C. Update the grazing management prescription to integrate new research findings, techniques, or approaches to improve effectiveness and/or limit its negative effects.

Grazing Monitoring Approaches

Implementation Monitoring

- *grazing logs: record the animal units in each area to ensure grazing is implemented following the prescription and calculate fees;*

- *field observations to evaluate whether the desired conditions have been achieved based on vegetation height or residual dry matter (Guenther 1998).*

Biological Effectiveness Monitoring

Measure plant cover and diversity, oak recruitment, fine fuel height, rare animal species, or other measures related to grazing targets. Use of small enclosures is a common technique to evaluate the effectiveness of grazing by comparing species diversity and abundance between grazed and non-grazed areas.

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- D. Periodically re-evaluate the relative cost-effectiveness of grazing management based upon regional economic conditions that affect grazing license terms, including the value of forage and in-kind services, and costs of alternative management techniques (e.g. mowing or herbicide application).
- E. Reassess grazing management to ensure consistency with OSA's broader goals for the site, and in consideration of regional resource management and conservation issues.

Element 6- COORDINATE: Coordinate grazing management of OSA sites with the ranching community, neighbors, and partner agencies and organizations, to promote integrated land management and stewardship.

- A. Participate in regional meetings regarding livestock grazing, such as those organized by the Central Coast Rangeland Coalition, to:
 - 1. Develop strategies to achieve regional conservation goals by coordinating grazing management, such as maintaining landscape connectivity, creating a range of habitat conditions, or establishing areas that can serve as **grass banks**;
 - 2. Share lessons learned from grazing management on OSA lands, including results of effectiveness monitoring (Policy 4B); and
 - 3. Stay abreast of new developments concerning grazing management, including scientific studies, techniques, and economic conditions.
- B. Collaborate with the ranching community, to learn from their experience, and find ways to contribute to the viability of this important component of the agricultural community (Element 3A).
- C. Partner with grazing operators and organizations that provide technical expertise and funding to enhance effective grazing management, including the Natural Resources Conservation Service, local Resource Conservation Districts, and University of California Cooperative Extension.
- D. Partner with interested universities, agencies, institutions, or organizations to conduct research examining the effects and effectiveness of grazing management in order inform future grazing management plans.

Element 7-Interpret: Increase community awareness about the role of grazing in managing OSA preserves, and promote public safety within OSA preserves managed using livestock.

- A. Develop and post on-site and on the web materials that explain why and how the OSA uses livestock grazing to manage its preserves, and outline measures visitors should take around livestock, including closing gates and avoiding approaching animals.
- B. Include information about grazing management in public presentations and programs, including school and interpretive programs.

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Glossary

The following are definitions of technical terms or phrases used in this policy. While most are widely-utilized definitions, those listed in italics were specifically defined for purposes of clarifying this policy.

adaptive management: a systematic process for continually improving management policies and practices by learning from the outcomes of previously employed policies and practices.

animal unit months (AUMs): the number animal units multiplied by the number of months of grazing, which provides a useful indicator of the amount of forage consumed

animal unit: a standardized measure of animals used to calculate forage use or requirements. Normally defined as one mature cow weighing about 1,000 pounds and her suckling calf.

biocontrol: using natural enemies, including predators, parasites, and pathogens, to control pests including exotic or invasive plants.

biodiversity: biological diversity is the variety of life and its processes in a given area; it includes the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur

ecosystem services: processes of natural ecosystems that benefit humankind, such as filtering water, pollinating crops, and decomposing wastes.

exotic plant: A plant species that is not native to the region in which it is found.

fine fuels: fast-drying plant biomass such as grass, leaves, and twigs, which ignite readily and are rapidly consumed when dry.

grass bank: areas that can be grazed by livestock when forage is temporarily unavailable as can result during drought.

grazing management: use of livestock to manage the conditions of vegetation to achieve goals related to biodiversity conservation, fuel management, or other vegetation modifications.

grazing-sensitive resources: natural resources that are sensitive to grazing and its impacts. Examples include ponds, streams, and native plant species that are highly-susceptible to the impacts of herbivory.

herb: a plant that does not produce woody, persistent tissue and generally dies back at the end of the growing season.

host plant: a plant species that an organism depends upon, usually as a food source.

Hydroperiod: the length of time and portion of year that a seasonal water body such as a pond or wetland has water.

invasive plant: an exotic plant that spreads rapidly and causes economic or environmental harm or harm to human health.

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litter (also thatch): a layer of decaying plant matter on the soil surface.

livestock grazing: feeding animals kept or raised for use or profit, such as cattle, sheep, goats, and horses, on growing plants in pastures or natural lands featuring suitable forage plants (i.e. rangelands).

native plant: A plant species that naturally occurred in the area in which it is found (i.e. was not introduced).

oak savanna: vegetation dominated by herbs but featuring scattered oaks (*Quercus* spp.).

phenology: the timing of seasonal or other periodic biological phenomena, including flowering, breeding, and migration.

plant community: a group or assemblage of plants that occur that interact with each other and with their environment (commonly referred to as 'habitats' or 'natural communities').

quarantine: to isolating in order to avoid spreading something dangerous including in the case of livestock, the seeds (or other propagules) of non-native plants, as well as disease.

residual dry matter: dried plant matter on the soil at the end of the grazing season in early fall.

riparian community: Plant communities situated along the banks of watercourses including streams, which are dependent on the water.

serpentine endemic: species that occur only in areas featuring soils derived from serpentinite rock.

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RESOLUTION 13-31

A RESOLUTION OF THE GOVERNING BOARD OF THE SANTA CLARA COUNTY OPEN SPACE AUTHORITY ADOPTING A NEGATIVE DECLARATION AND APPROVING A GRAZING MANAGEMENT POLICY

WHEREAS, the Santa Clara County Open Space Authority (Authority) manages and provides opportunities for recreation on its open space preserves; and

WHEREAS, the Authority proposes a Grazing Management Policy (Project) to manage grassland resources using a state-of-the-art approach based on the best available science, and to provide transparency to conservation partners and interested parties about the agency's use of grazing as a land management tool; and

WHEREAS, an Initial Study (IS) and Negative Declaration were prepared for the Project by the Authority pursuant to the requirements of the California Environmental Quality Act (CEQA--Public Resources Code sections 21000, et seq.), the CEQA Guidelines, and any other applicable requirements; and

WHEREAS, the IS and a notice of intent to adopt the Negative Declaration were routed to the State Clearinghouse and was duly circulated for a 30-day public review period from September 16, 2013 through October 17, 2013; and

WHEREAS, all Interested Parties desiring to comment on the Negative Declaration were given the opportunity to submit written comments on the Negative Declaration; and

WHEREAS, the Board considered the IS, the Negative Declaration (including all comments received thereon); and

WHEREAS, pursuant to CEQA and CEQA Guidelines, the Board finds on the basis of, and after review of, the whole record before it (including, but not limited to, the Initial Study, the Negative Declaration and any comments received), that there is no substantial evidence that the Project will have a significant impact on the environment; and

WHEREAS, the Board has considered and reviewed the Grazing Management Policy.

NOW THEREFORE, BE IT RESOLVED that the Board adopts the Negative Declaration for the Project.

BE IT FURTHER RESOLVED that the Board approves the Grazing Management Policy.

Santa Clara County Open Space Authority

The Board further directs that the General Manager is hereby authorized and directed, on behalf of the Authority and its name, to execute and deliver such documents and to do such acts as may be deemed necessary or appropriate to accomplish the intentions of this resolution.

PASSED, APPROVED AND ADOPTED this 24th day of October, 2013 by the following vote:

AYES: Virginia Holtz, Alex Kennett, Jim Foran, Sequoia Hall, Dorsey Moore, Mike Potter, Calvin Gill
NOES: None
ABSTAIN: None
ABSENT: None

Virginia Holtz

Virginia Holtz, Chairperson
Santa Clara County Open Space Authority



APPROVED AS TO FORM:

William P. Parkin

William P. Parkin, Legal Counsel

ATTEST:

Lauren Monack

Lauren Monack, Clerk of the Board