

Decision Tree for Using Grazing for Vegetation Management

Final Report from the Weed Subcommittee to the Contra Costa County IPM Committee.

Prepared by Tanya Drlik, IPM Coordinator, September 2015

Members

Doug Freier
Chad Godoy/Larry Yost
Michael Kent
Cheng Liao
Cece Sellgren, Chair

The Weed subcommittee met five times in 2015: February 17, March 10, April 21, June 9, and August 6. The subcommittee had scheduled a meeting on April 14, but due to unforeseen circumstances, several members were absent. Since the subcommittee did not have a quorum, the meeting was cancelled and rescheduled for April 21.

The Board of Supervisors had requested that the IPM Advisory Committee produce more policy recommendations for their consideration. As a consequence, the subcommittee chose as one focus to develop recommendations on funding problems in the Grounds Division and on sustainable landscaping in the County. The second focus of the subcommittee was developing another decision-making document. The subcommittee chose grazing as the topic.

Gathering Information from the Grounds Division Program

The subcommittee heard several staff reports on the state of grounds maintenance around County buildings and discussed the issue with Kevin Lachapelle, Grounds Manager. Some of the problems the Grounds Division faces are as follows:

- Funding for grounds maintenance is dynamic and beyond the control of Grounds Division staff. The amount of funding is tied to the Departments that have offices in the building. Some Departments have more money than others and/or are willing to spend more on landscape maintenance. As tenants move in and out of buildings, budgets for maintenance change while the cost of maintaining the landscape around that particular building does not. Since the recession, this has largely resulted in a lack of funds to properly maintain most County landscaping.
- Because of the way grounds maintenance is funded, it is very difficult to make long term investments in the landscaping to reduce pesticide use, water use, and maintenance costs.

Turf Conversion in the County

The subcommittee heard reports from staff on removal of turf from around County buildings.

This is the fourth and most severe year of drought in California. The continuing drought presents the perfect opportunity to convince departments to convert their lawns to drought-tolerant landscaping where plants are widely spaced and surrounded by wood chip mulch. Turf conversion

- saves water;
- allows the County to be an example for its citizens;
- saves on maintenance costs since turf requires very high maintenance;

- allows maintenance staff to spend the time saved on other crucial maintenance tasks including managing weeds by physical means, such as hand pulling, as opposed to herbicide applications;
- reduces herbicide use in the landscape since reduced irrigation and mulch will greatly suppress weed growth;
- reduces other pesticide use since turf is susceptible to many pests and diseases;
- reduces the possibility of citizen exposure to pesticides since the risk of exposure is greater in landscaping than for example, along roadsides;
- reduces greenhouse gas emissions from turf maintenance equipment and from pumping water to irrigate the turf; and
- moves County landscapes in the direction of greater sustainability.

The Grounds Division chose the Pittsburg Health Center at 2311 Loveridge in Pittsburg as the pilot project. About 70% of the turf was removed and replaced with drought-tolerant landscaping and mulch. The conversion is projected to save one million gallons of water per year.

Recommendations to the Board of Supervisors

The subcommittee developed recommendations to address some of the Grounds Division issues. (See attached)

Decision-Making Document for Grazing on Flood Control Channels.

The subcommittee reviewed the document (see attached) with the Public Works Vegetation Manager and made requests for a number of changes, clarifications, and improvements. Some of the improvements that were added are as follows:

- More specifics about management goals
- A note about grazing being considered the least problematic weed control technique by the Department of Fish and Wildlife
- A note clarifying that grazing animals may not always be able to meet the objectives of the site because they cannot eat the vegetation low enough or because timing issues may present insurmountable problems

MEMO

TO: Transportation, Water and Infrastructure Committee
Supervisor Andersen, Chair
Supervisor Piepho, Vice Chair

FROM: Tanya Drlik, IPM Coordinator

SUBJECT: Recommendations on Sustainable Landscaping from the IPM Advisory Committee

DATE: August 18, 2015

BACKGROUND

This is the fourth and most severe year of drought in California. The County has an opportunity to lead the way in water conservation and provide practical examples for its citizens. Turf around County buildings is used largely for aesthetic purposes and consumes far more water than drought tolerant landscaping. Drought-tolerant landscaping can be very attractive, and demonstration projects in the County will help citizens adjust to the new aesthetic.

This summer one such project was completed in the County. Approximately 70% of the turf at the Pittsburg Health Center (2311 Loveridge, Pittsburg) was removed and replaced with drought-tolerant plants that are widely spaced and mulched with wood chips. The change at the site is projected to save one million gallons of water per year. The current funding structure for maintenance of County landscaping is not conducive to projects such as this that may require an upfront investment that will provide returns only over the long-term.

Much of the landscaping around County buildings is aging and will require renovation in the near future. This presents the opportunity to alter County landscapes so they use less water and require less time and less pesticide to maintain them adequately.

RECOMMENDATIONS FROM THE IPM ADVISORY COMMITTEE

1. Develop a Countywide policy to convert existing turf to drought tolerant, low maintenance, and low pesticide use landscaping. The exceptions to this policy would be play areas for Head Start sites and turf in parks that is used for recreation (turf areas in parks that are not used for recreation should be converted to drought tolerant landscaping). The design for any turf conversion should use the least amount of pesticide practical in the preparation of the site.
2. Provide funding for conversion to sustainable landscaping
 - a. Develop ideas for a funding structure for new landscape installation, turf conversion, and landscape maintenance and renovation that is not coupled to the particular building or the departments housed in the building in order to provide secure, long-term funding for landscape maintenance and for projects that require up-front investment.
 - b. Pursue outside funding for turf conversion but do not allow the lack of outside funding to stymie the removal of existing turf. Perhaps the position of Sustainability Coordinator, if and when it is filled, could pursue grant funding for sustainable landscaping projects.
3. Develop a County policy to take decisions about the type of landscaping around buildings out of the hands of the tenants of that building in order that long range plans and long term investments in the landscaping can be made.
4. Make the following additions to the existing County Landscape Standards under "D. Design Guidelines, 3.01. General":
 - a. Lifecycle costing will be used when landscapes are renovated or created.

[Note: This is to ensure that projects can be undertaken that require a substantial up-front investment to save money, labor, water, and pesticide in the future.]

- b. Designs for all landscaping should take into account the level of maintenance and pest management that will be required to sustain the landscape. Designs should be aesthetically pleasing, low maintenance, water conserving, and maintained using an IPM approach for pest management.
5. Make the following changes in wording to the existing County Landscape Standards under “D. Design Guidelines, 3.06. Water Conservation, part C”
 - C. Emphasis shall be placed on plants well suited to the microclimate and soil conditions at the given site and that require minimal water once established, are relatively free from pests and diseases, ~~and~~ are generally easy to maintain, are pollinator-friendly, and are native to California. Reference shall be made to currently recognized sources such as EBMUD’s *Water Conserving Plants and Landscapes for the Bay Area* or Bob Perry’s *Trees and Shrubs for Dry California Landscapes* for recommended water conserving plants.
6. Make the following addition to the existing County Landscape Standards under “D. Design Guidelines, 3.09. Turf”:

Turf shall not be proposed except in Head Start and other child care play areas and in parks where it will be used for recreation. Turf shall not be proposed for purely aesthetic purposes.
7. Develop a County policy to require that landscape designs be reviewed and approved by the Public Works Grounds Division, in addition to the other required reviews and approvals. The Grounds Division should review plans for the long-term sustainability of the landscape with regard to maintenance costs and potential pest and disease problems. Landscaping can be in place for 10 to 20 years, and poor designs and inappropriate plant choices waste County resources. The Grounds Division has considerable expertise in determining maintenance costs and recognizing future maintenance and pest problems.
8. Develop a County policy to require that the plant lists for landscape designs be reviewed by the County Department of Agriculture whose staff are the County experts on invasive plants. Many of the invasive plants that are plaguing California wildlands today were unwittingly introduced by the nursery trade into urban landscapes where they escaped to become major pests that cost Californians at least 82 million dollars every year.

RECOMMENDATIONS/NEXT STEPS

APPROVE recommendations and DIRECT County staff as appropriate.

**Contra Costa County
DECISION DOCUMENTATION for WEED MANAGEMENT:
Using Grazing Animals for Weed Abatement**

Date: 5/29/15, revised 8/18/15

Department: Public Works Vegetation Management

Location: Countywide

Situation: Weeds along flood control channels and in flood control detention basins

<p>What are the management goals for the sites?</p>	<p>The primary management goals are to maintain weeds at a suitable height for fire prevention, to prevent siltation, and to facilitate water flow in the event of a flood. The specific goals vary from site to site, and each flood control facility has its own operations and maintenance manual, which may list facility-specific vegetation management goals. The following are general vegetation management goals:</p> <ol style="list-style-type: none"> 1. Create firebreaks. These are mandated by the 9 fire districts and 19 cities that have jurisdiction in areas with County-maintained property. Specific stipulations, e.g., for the width of the firebreak or need for cross breaks, differ for different properties, according to the fire district with jurisdiction. <ul style="list-style-type: none"> • Small properties usually need to have all the vegetation grazed to the height of 3" to 6", depending on the regulations. • Large parcels may only require a perimeter firebreak, with or without firebreaks cut through the middle or in various patterns. 2. Reduce fire fuel. This is not necessarily mandated by fire regulations, but it helps the Department in their vegetation management. <ul style="list-style-type: none"> • Public Works generally goes above and beyond the mandates from the fire districts to reduce fuel. • Grazing allows the Department to reduce fuel by much more than would be possible by hand or machine. 3. Reduce or modify habitat. <ul style="list-style-type: none"> • The Department works to expose and discourage ground squirrel colonies. • The Department works to reduce habitat for nesting birds so that crews can perform required maintenance activities without harming any birds. • The Department may also modify vegetation and/or the shape and depth of the low-flow channel to meet Contra Costa Mosquito & Vector Control District requirements. • The Department tries to reduce cover for homeless encampments. 4. Reduce vegetation to improve visual inspection of flood control channels. <ul style="list-style-type: none"> • The Department is looking for slumping and erosion on the slopes, for malfunctioning hardware, and for other problems.
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	<ul style="list-style-type: none"> • Grazing exposes these problems and makes inspections with the Army Corps of Engineers much easier. <p>5. Remove or reduce water flow impediments, i.e., vegetation growing in the channel.</p> <ul style="list-style-type: none"> • Vegetation growing in the channel can snag debris that is carried in the water during a flood event and could potentially cause water to overflow the banks. • Engineered channels are designed to maintain a certain flow rate. When the water slows, sediment drops out of the flowing water and falls to the bottom of the channel. This increases the maintenance needed in the channel because it reduces the carrying capacity of the channel. • The Army Corps of Engineers wants Public Works to remove sediment to keep the water flowing and to maintain the capacity of the channel, but the Department has found it very difficult to get permits from the Regional Water Quality Control Board to take out sediment. Thus it is important that the Department prevent sedimentation as much as possible. <p>Note that if Contra Costa's flood control channels are not properly maintained, they could be decertified by the Army Corps of Engineers, which would result in the property owners in many communities having to purchase very expensive flood insurance.</p>	
For this facility's goals, is herbicide a viable option?	Note that for most of the flood control facilities and their management goals, herbicides alone are not an option.	
How often are the sites monitored?	<p>This varies from site to site.</p> <p>In the course of their other work, Vegetation Management and Flood Control Maintenance staff continually monitor weed conditions and alert the Vegetation Manager of any incipient problems. The Vegetation Manager routinely inspects all channels.</p> <p>Note that goats greatly reduce the vegetation growing in the channel which allows the Department to more easily monitor for invasive weeds and structural problems.</p>	
Weeds have been identified as the following:	Any broadleaf weeds or grasses. Trees can also be considered weeds if they are growing on the slope or in the channel of an engineered flood control channel. Note that goats will eat tree seedlings and debark larger trees. Larger trees may not be killed and must be cut and killed by painting the cut portion of the stump with herbicide. This technique is used primarily in engineered channels and not in natural stream channels.	
Are populations high enough to require control? Explain	This is determined by the Vegetation Manager using requirements from the corresponding fire district, the Army Corps of Engineers, and his knowledge and experience in order to meet the maintenance goals of the particular flood control facility.	
Is this a sensitive site?	Are any of the sites under management considered highly sensitive sites?	Yes
	Are any sites under management part of any of the court-ordered injunction?	Yes

	<p>Are any of the sites known or potential habitat for any endangered or threatened species?</p> <p>Note that in the past the California Department of Fish and Wildlife has not had an issue with goats grazing in areas with red-legged frogs.</p>	Yes
	Are any of the sites on or near an area where people walk or children play?	Yes
	Are any of the sites near a drinking water reservoir?	No
	Are any of the sites near a creek or flood control channel?	Yes
	Are any of the sites near crops?	Yes
	Are any of the sites near desirable trees or landscaping?	Yes
	Are any of the sites on soil that is highly permeable, sandy, or gravelly?	Not applicable
	At any of the sites, is the ground water near the surface?	Not applicable
	Are there any well heads near the sites?	Not applicable
What factors are taken into account when considering a site for grazing?	See the attached decision tree for grazing.	
What factors contribute the cost of grazing?	<ol style="list-style-type: none"> 1. The size and shape of the parcel <ol style="list-style-type: none"> a. For a large parcel, the cost of moving the animals in and out is spread over a number of acres. b. A long narrow parcel could cost more because the animals might have to be moved many times. 2. The ease of access to a site for the unloading and loading of the animals 3. The amount of fencing necessary 4. The number of times the animals have to be moved within the site and the ease with which that can be done 5. The availability of water at the site for the animals (having to truck in water can increase the cost) 6. The time of year in which the parcel is grazed (grazing in fall and winter is far less expensive than when demand is high in the spring and summer) 	
Are special permits required to graze flood control channels? Flood control basins?	<p>No special permits are required. This activity is subject to the procedures of the Routine Maintenance Agreement (RMA) that the Department has with California Fish and Wildlife and includes a habitat assessment before work begins and follows species-specific guidelines for maintenance in the channels. Fish and Wildlife considers grazing to be the least problematic weed control technique.</p> <p>The Public Works Department reports areas being grazed in their quarterly</p>	

	report to the state Fish and Wildlife Department.
What qualities does a good goat grazing company have?	<p>Some possible qualities:</p> <ul style="list-style-type: none"> • Availability of adequately sized herds for the jobs • Responsiveness—available within a couple of weeks of the request rather than a couple of months • Within a reasonable distance from the job sites • Ability to meet contract requirements <p>A bonus for the Department is a “no-kill” company that does not cull its herds for slaughter at the end of the season. This is a selling point for citizens who call the Department worried about the welfare of the animals.</p>
What are important requirements to have in the grazing contract?	<ol style="list-style-type: none"> 1. One shepherd trained in management of livestock in urban and suburban areas must live on site with each livestock herd. 2. The shepherd must be provided with a cellular phone or equivalent and must be in possession of the phone at all times. 3. The livestock must be contained in designated areas with a fully intact chain link or hog-wire fence connected to an electrical supply, and the fence must be maintained at all times. 4. The contractor must supply herding dogs trained to contain goats/sheep and protect goats/sheep from wild and domestic predators. 5. The contractor must supply portable sleeping, cooking, and sanitary facilities for the shepherds to be located on the Flood Control District property; the contractor may make alternate arrangements with other property owners. 6. The final determination of vegetation management services shall be at the discretion of the County, and the contractor shall meet with designated County staff to determine completion. 7. The contractor must remove livestock from the site when grazing objectives are met, or within 48 hours of completion of service, or within 24 hours, upon notification by the County.
Comments	<p>Grazing can be used in conjunction with herbicide treatments:</p> <p>First grazing is used to reduce biomass in the channels and make it easier to see invasive weeds that need to be treated. After the animals have left, crews can easily spot treat the invasive and other serious weeds with herbicide to kill them.</p>

Decision Tree for Using Grazing for Vegetation Management

