Riparian and Wetland Areas

The *San Jose Mercury*, in its report *Giveaway of the West* (Nov. 7, 1999), reported:

**Destruction of Streams** – “Since the 1860s, livestock have overgrazed, trampled and fouled streams, helping drive some fish, birds and other animals to the brink of extinction.”

**Landscape** – “Severely overgrazed streams have trampled banks and little vegetation. Murky warm water is choked with sediment, algae and manure. Healthy streams have stable banks and lush vegetation. Channels are narrow and deep with cool, clear water.”

The Coalition for Sonoran Desert Protection prepared the “Livestock Grazing and the Sonoran Desert Conservation Plan, A Conservation Perspective” (May 2001). In this document it was noted that:

“...Thomas Fleischner, a conservation biologist at Prescott College, studied the effects of livestock grazing in the arid West. He found that cattle often have “significant” negative impacts on riparian and upland areas in the arid West (1994). According to Fleischner, the riparian, or stream-side, areas “are incredibly critical habitat for thousands of species – one of the richest biological resources in the region.” More than 75 percent of the vertebrate species in the arid West are dependent on riparian areas.”

The plan also noted that:

“Livestock, particularly cattle, have a dramatic impact on fragile arid lands riparian areas, trampling down stream banks, snapping tree seedlings and denuding the vegetation by devouring grasses, seedling trees and other leafy green plants. Riparian vegetation provides the bulk of forage for livestock, which only reluctantly move far from water (Holechek et al.1998). A 1994 U.S. Bureau of Land Management report estimated that livestock had “damaged” 80 percent of the West’s riparian areas. Livestock remove protective vegetation, trample streambanks, and defecate near streams, degrading water quality. Streambank erosion increases, stream channels widen or deepen and streams lose their ability to absorb retain and steadily release water (U.S. Bureau of Land Management 1994).”

Park wetlands, such as streams, ponds and seeps are always thoroughly trashed by livestock. If they are not protected they will be ruined. The District’s solution is to fence off such sensitive areas in the parks. This is very impractical, given the number of places in the parks that can be considered wetlands during the winter season.
First of all, fencing distracts from the natural beauty of the parks. Secondly, fencing interferes with wildlife migration. Here are some examples of sensitive area views with and without fencing. Rather than fencing all of the individual ponds, the District should either isolate cattle from large sections of the parks that have riparian areas so there is one fence boundary or eliminate them from the park altogether.
Ponds

Ponds that are protected from cattle exhibit beautiful vegetation, clean water, and generally a much healthier habitat. Here is an example of a protected lagoon at the Briones Regional Park in Lafayette. Note the prevalence of healthy, lush vegetation without evidence of trampling.

The following placard is placed at the entrance to the Briones lagoon.

This placard says “The purpose of the fence is to prevent access to the fringes of the lagoon by livestock, thus allowing the development of a healthier shoreline and improved nesting habitat for many bird and other wildlife species, as well as
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a livestock-free recreational resource.” The District acknowledges that cattle are harmful but continues to allow cattle into parks whose riparian areas are not protected. This policy drains the limited financial resources of an agency that does not have enough funds to adequately maintain its parks. During the GRTF Review, an article was published by the Contra Costa Times newspaper (May 7, 2001) about the District’s restoration efforts on the Arroyo del Cerro creek in the Mt. Diablo foothills. The article was titled Reclaiming The Creek – Arroyo del Cerro makes comeback and it made some very relevant points relating to the need to protect park wildland resources. The following are quotes from the article, which include quotes by District staff:

“Flowers, grasses and trees are returning to a creek at the foot of Mount Diablo that was damaged by cattle grazing and now is being restored.”

“They have built fences to keep cattle out of the creek and will create pools to attract amphibians, including the threatened red-legged frog.”

“Decades of intensive grazing had taken a toll on the creek and the creatures that depend on it, said Brad Olson, who manages the East Bay Regional Park District’s Resource Enhancement Program.”

“Grazing the land made it difficult for seedlings to grow. Flowers, grasses and trees are not as abundant as a result.”

“Vegetation in and along the creek helps prevent erosion and shades the water, keeping the temperatures cool enough for amphibians to thrive, Olson said.”

“The District will let the land recover and look at ways to open it to the public, which could take three to five years, Olson said.”

Where was Mr. Olson during the GRTF Review? Where was his input into the final report and task force recommendations? This is another example of the hypocrisy of District policies. On one hand the stewardship department is out destroying the wildlands while the Resource Enhancement Program is out repairing the damage done. This is certainly a very effective way to keep both departments fully employed. This is another good reason why the existing board and management should be replaced.

Many of the key reasons why cattle should not be allowed to graze in the District parks are listed in the above quotes. So why does the District continue to do so? Less than one month after this article was published, Beverly Lane, a member of the board, stated that the alleged damage claimed by park users was basically not there and that the GRTF determined that any such damage was simply cosmetic. Such a statement should be grounds for immediate dismissal from the board of directors for the obvious display of a complete lack of understanding of key environmental concepts relating to preservation for which Director Lane is ultimately responsible. This mentality permeates through the entire board and
upper level management. This pervasive attitude and display of ignorance is very bewildering.

**Sycamore Valley Open Space - North**

SVOS-N has only one riparian area located on the north side of the park. The riparian area is fed by a tributary of the Sycamore Creek. This riparian area is the habitat for many types of birds, amphibians and water fowl. It went unprotected for the first grazing season even though the District General Manager and the Board of Directors were notified on numerous occasions by the author and the CBD that cattle were trampling the habitat of the California red-legged frog, which is federally listed as a threatened species. Not one of those individuals ever acknowledged with a letter or telephone call as to their intentions. Instead they stuck their head in the sand and did nothing. Finally, as a result of a threat to sue for take of a threatened species by the CBD, the District constructed a fence to protect the area. Here are some photos of this riparian area during the first grazing season.
This particular view is only made possible by cattle grazing. Prior to exposure to cattle, it was nearly impossible to see through the dense vegetation that surrounded this pond.

Here is a young red-legged frog in its trampled habitat just a few yards from the previous photographed area.
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Other areas around the pond had similar dense vegetation which was completely trampled as shown in the photographs above. Cow feces can be found in and around the pond.
Sycamore Valley Open Space - South

The SVOS-S parcel has only one pond and it is in extremely poor condition.

Morgan Territory – Finley Rd. (Danville side)

There are several ponds at this location and they are all in extremely poor condition. The problems start by not providing adequate fencing. The fencing on the left does not fully protect the pond, even if it was not in disrepair. Note that cattle hoof prints are present well into both ponds.
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The pond on the left has extremely poor water quality as can be seen in the close-up on the right.

Sunol Regional Wilderness

The Sunol Regional Wilderness land is leased by the EBRPD from the San Francisco Water District. Given that the land is owned by a water district, you would expect that the water quality would be higher, however it is the worst the author has seen as illustrated by these photographs.
The water quality was nothing less than disgusting as is readily seen from the following photographs. The algae blooms in the photographs below are the result of cattle contaminating the ponds with urine and feces.
Streams and Creeks

Cattle are constantly found in streams within the parks.

Streams are eventually turned into flowing sludge or standing mud ponds filled with hoof imprints approaching a cow leg length. Here are some examples from SVOS-N. The author has video of a legless cow that was found in the location of the next two photos. All four legs of the cow were completely submerged. This stream used to be narrower with beautiful vegetation but has been severely impacted by the presence of cattle. Comparisons of this area over several grazing seasons can be found in the section Degradation Trends.
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Below is another form of erosion from trampling. The trampling action in this streambed has created mounds that are left standing as a result of the surrounding top soil being stripped away by hooves and then the stream washes it away leaving these mounded islands of turf. The photograph on the right is a close-up of the mounds shown in the photograph on the left, some are 12-18 inches high.

Adjacent to this area in SVOS-N there is the EMJAYCO Ranch property into which the stream above flows as shown below.

**Springs and Seeps**

Springs and seeps sustain similar damage to streams and ponds.
Damage to RTE Species Habitat

The Master Plan 1997 specifies that Rare, Threatened and Endangered (RTE) species will be protected. This simply is not the case in EBRPD parks. The data in this report substantiates this fact.

Recommended Revisions to Wildland Management Guidelines -- This task force document presented the following anecdotal finding relating to wildlife diversity in its Executive Summary:

The habitat conditions maintained by cattle grazing support many notable wildlife species including Golden eagle, San Joaquin kit fox, California red-legged frog, California tiger salamander, and Burrowing owl.

Grazing by cattle does nothing to “maintain” the habitat conditions of wildlife other than maintaining its constant destruction. At SVOS-N the resident wildlife populations that live on the ground are virtually zero. The author has chosen to avoid SVOS-N during the grazing season and hikes in the Hemme Hills adjacent to the park. The Hemme Hills hike is mostly elevated and allows for a bird’s-eye view of a large portion of the SVOS-N park. Given that the grasses, even during the grazing season when it is growing, are rarely above 2 inches high, if wildlife were present they would be easily seen. It is a very very rare occurrence to see any wildlife in the park or people for that matter.

There is this presumption by the District that just because some wildlife species are able to survive the onslaught of cattle, that somehow they are benefited by cattle grazing. Such a conclusion is simply environmental bovish.

The District is irresponsible in the manner in which it introduces cattle grazing into its parks. The District is not pro-active in protecting the environment. At SVOS-N there were at least two locations where RTE habitat was allowed to be trampled and nearly destroyed by District cattle. Finally, under threat of a lawsuit, the District protected these areas. The problem with this approach is that RTE habitat can be destroyed and the species extirpated before the public ever knows about it. It is common practice to introduce grazing into newly acquired lands while placing the land in “land bank” status. When land is placed in this status, only the rancher gets access, and the public is prohibited. This is exactly the case with SVOS-S. This land has been in land bank status for about 10 years and continues to be retained in this status. Residents of Danville used to hike on this land before the District took over management and then put up a sign that prohibited access.

California red-legged frog habitat trampled

Photographs of the California red-legged frog habit that was being trampled can be found in the section above on Riparian and Wetland Areas – Sycamore Valley Open Space North.
Proliferation of Exotic Weeds

The handbook titled *Weed Control Methods Handbook*, (The Nature Conservancy, Tu et al., version April 2001) states the following about the use of grazing animals:

“...grazing or other actions of grazing animals (wallowing, pawing up soil) can cause significant damage to a system, and promote the spread and survival of invasive weeds. Overgrazing can reduce native plant cover, disturb soils, weaken native communities, and allow exotic weeds to invade. In addition, animals that are moved from pasture to pasture can spread invasive plant seeds.”

The Coalition for Sonoran Desert Protection’s document “Livestock Grazing and the Sonoran Desert Conservation Plan, A Conservation Perspective” (May 2001) states that:

“Natural cryptobiotic soil crusts inhibit exotic-plant germination, but grazing livestock break up these crusts (Kaltenecker and Wicklow-Howard 1999, Eckert et al. 1986, Mack 1989, Rosentreter 1994). P. M. Schiffman found in 1997 that grazing left bare ground, facilitating weed invasions. Schiffman also found that livestock feed containing seeds of exotic weeds and other plants led to their introduction to grazed areas. Numerous studies have found higher concentrations of exotic plants in grazed areas than on comparable un-grazed lands throughout the West (Daubenmire 1975, Stromberg and Griffen 1996, Robertson and Kennedy 1954, Goodwin et al. 1999, Rickard 1995). In addition, studies have found that livestock tend to avoid eating some of the exotic weeds, giving them another advantage over more palatable native plants (Lacey 1987, Olson et al. 1997). Areas around stock tanks are a particular problem with regard to exotic-plant invasions. Since livestock congregate around water sources, nitrogen from livestock waste is concentrated around stock tanks, and around them soil is compacted and cryptobiotic crusts are broken up. This leaves considerable amounts of defoliated, bare soil (Andrew 1988). As a result, these areas are especially prone to proliferation of exotics (Rickard 1995, Nash et al. 1999).”

The invasion of non-indigenous plants (i.e. alien, exotic or introduced weeds) is a problem that many agencies are attempting to curtail. The EBRPD is no exception. The *Master Plan 1997* states the following:

*The District will manage agricultural sites and cultivated areas in accordance with appropriate agricultural and landscaping practices and Integrated Pest Management (IPM) methods; control noxious weed infestations, broom, and other invasive, non-native shrubs; and eventually replace these invasive plants with desirable native species.*
The District needs to add:

“The District will not create noxious weed infestations or perpetuate conditions that will lead to noxious weed infestations if grazing is curtailed or stopped altogether.”

The notion that livestock grazing is a practice that stabilizes and controls weed populations is analogous to saying that a person who is trying to control their weight should eat more. The observations made at SVOS-N show that the weed populations are growing at a tremendous rate.

The remainder of this section addresses the presence of non-indigenous plants in the SVOS-N park.

**Weed Invasion Clearly Correlated to Grazing**

Yellow starthistle is, by far, the most prevalent exotic weed at SVOS-N. The second highest population was found to be sowthistle. Other exotic weeds with significant populations in the park were bull thistle and artichoke thistle. The increase of non-indigenous plant (weeds) invasions in the EBRPD lands is because cattle grazing is the dominant land use.

The thistle plants described below are all part of the Sunflower family and are the most common weeds found at SVOS-N. The following plant descriptions were obtained from the California Department of Food & Agriculture (CDFA) web site for weed information (http://pi.cdfa.ca.gov/weedinfo). The photographs without a date in the lower right hand corner (author’s photographs are dated) were adapted from the book Weeds of the West compiled by the Western Society of Weed Science and published by the University of Wyoming (ISBN 0-941570-13-4, 9th Edition 2000).

**Yellow Starthistle** (*Centaurea solstitialis* L.)

The author monitored and continues to monitor the presence of yellow starthistle proliferation at the SVOS-N park.

**GENERAL DESCRIPTION:**

Annual, sometimes biennial, to 2 m tall. Plants are highly competitive and typically develop dense, impenetrable stands that displace desirable vegetation in natural areas, rangelands, and other places. Yellow starthistle is considered one of the most serious rangeland weeds in the northwestern U.S. It has spread rapidly since its introduction into California around 1850. In 1995, it was estimated to infest 10-12 million acres in the state, with the heaviest infestations primarily in the northern and central-western regions.
Seeds often contaminate grains, lowering the value and quality of harvests. Taproots grow vigorously early in the season to soil depths of 1 m or more, giving plants access to deep soil moisture during the dry summer and early fall months. Light is required for seed germination. Seed can survive for up to 10 years in the field, depending on environmental conditions, but it appears that few seeds survive beyond 2-3 years in the Central Valley. Shaded conditions reduce flower production and root growth.

For purposes of comparison, in the author’s study the open space areas adjacent to and surrounding the SVOS-N parcel were used so as to ensure common geological conditions and micro-climate. The following ungrazed adjacent open space areas are shown on the map on the following page.

- Magee Ranch Homeowners Association (MHOA) – directly north
- Alta Vista Homeowners Association (AVHA) – directly south
- Singer Estates Homeowners Association (SEHA) – directly east at southern end
- Hemme Hills (HH) – EBMUD Water District owned land directly to the east at the northern end
- Hill Meadows Homeowners Association (HMHOA) – directly west at northern end

**Important Note:** it was the author’s intent to compare open space areas that are not grazed versus those that were grazed. Therefore the following areas are not included in the comparison of open space areas that surround SVOS-N:

- Graded trails (inside or outside the park)
- Graded or disturbed hillsides where construction has recently taken place
- Disked areas
- Mechanically mowed areas

It was quite clear that these four conditions all promote the proliferation of starthistle due to excessive soil disturbance or exposure. One observation that was made by the author is that disked fire breaks in the Hemme Hills area exhibited significantly less starthistle than the other surrounding areas which are directly adjacent to SVOS-N. The Hemme Hills area is separated by a creek and asphalt walking path on the eastern border of the SVOS-N park.

During the period of September 6, 2001 through September 15, 2001, the presence of starthistle was mapped out using a Global Positioning System (GPS) receiver. The results of this mapping are shown in the map on the next page with a red diagonal line pattern. Note that no starthistle was found in any of the surrounding open space areas that met the prescribed criteria.
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The following observations were made while studying the weed populations at SVOS-N:

- *Starthistle* grows vigorously in areas that have exposed soil (both undisturbed and disturbed soils) and full sun. The plant is rarely found in shaded areas.

- All open space areas surrounding the SVOS-N park are void of any starthistle populations that meet the originally specified criteria. No significant populations of *starthistle* could be found. This is due to the fact that the grasses and plants on these lands completely cover the soil. A significant population was one that covered at least 0.25 acres or approximately a 100 ft. by 100 ft. area.

- Grazed areas with full sun exposure contain high concentrations of *starthistle*.

When one compares the non-grazed areas to the grazed areas within the park, one can only come to the conclusion that grazing is the major contributing factor to *starthistle* proliferation since all surrounding open space areas experience the same climactic conditions.

There is one predominant area in the park that is virtually void of starthistle. This area is located on the southern end of the park. There is another much smaller area located near the center of the park. Two other very small areas are located in the west and northeast corners of the park.

Area analysis of the SVOS-N’s 375 acres provides the following statistics:

- 123.4 acres (34.6%) are covered with *starthistle*
- 110.3 acres (34.9%) are predominantly covered with oak savanna and do not provide sufficient sunlight for fostering *starthistle* growth.
- 123.3 acres (30.7%) are free of *starthistle* and oak savanna. This area is predominantly non-native grasses and other exotic weed species.

The data is very clear: cattle grazing is causing the proliferation of exotic weed species at SVOS-N.
Sowthistle (Sonchus arvensis)

Sowthistle is the second-most prevalent weed found in the SVOS-N. While this weed was not mapped using the GPS, the author estimates that the sowthistle population is approximately 50% of the starthistle population. The conditions for growth were observed to be the same for the sowthistle plant, they were not found in shady areas.

GENERAL DESCRIPTION:

Vigorous herbaceous perennial, with milky sap and creeping roots that produce new shoots, to 1.8 m tall. Plant is noxious. Plants are highly competitive, persistent, and can rapidly colonize new sites by vegetative reproduction. Plant was introduced from Europe.

Flower heads are 3-5 cm wide; consist of numerous bright yellow to orange-yellow 5-lobed ray (ligulate) flowers at the stem tips. Pappus bristles fine, soft, white, numerous, ~ 8-12 mm long. Flower head stalks and phyllaries typically covered with stiff glandular hairs. Insect pollinated. Heads open about 2-3 hours after sunrise and close around noon. Most seed germinates in spring after soil has warmed to ~ 20º C. Light is not required.

Bull Thistle (Cirsium vulgare)

Bull thistle populations were found in open areas but their prevalence was not at all comparable to the starthistle or sowthistle. These are found in open sunny areas only.

GENERAL DESCRIPTION:

Erect prickly plants with purple flower heads that consist only of disk flowers. Plant is a coarse biennial, annual, or a short-lived perennial to ~ 2 m tall, with stiff-hairy foliage and conspicuous prickly-winged stems. Bullthistle is common throughout temperate and Mediterranean climate regions of the world. Regional biotypes vary primarily in life cycle patterns and seed.
dormancy and survival. Flower heads consist of several overlapping rows of spine-tipped phyllaries and numerous disk flowers interspersed with bristles on the receptacle. Plant flowers June-October and is insect and self-pollinated. Plants in grazed pastures often produce more seed than plants in adjacent ungrazed areas. Plant was introduced from Eurasia.

Milkthistle (Silybum marianum)

Milkthistle populations are found in both open sunny areas and also in shady understory areas of oak savannas. Plants found in the understory were mostly noted on the southern exposure of the oak trees where they get sun during the early part of the day. The presence of this plant in sunny areas is primarily found on hillsides that have been eroded by cattle trampling. The prevalence was not at all comparable to the starthistle or sowthistle.

Description adapted from Weeds of the West:

GENERAL DESCRIPTION:

Milkthistle is a biennial or winter annual with stout, ridged, and generally branching stems up to 6 feet tall. Leaves sometimes reach 1+ feet in length and are broad, lobed and clasping the stem with ear-like lobes at the base. Leaves have spiny margins with white marbling along the veins. The head is thistle-like, with leathery spine-tipped bracts. The flowers are reddish-purple. This spectacular native of Europe is distributed widely in the West.

Artichoke Thistle

Artichoke thistle populations were found in open areas but its prevalence was not at all comparable to the starthistle or sowthistle. These are found in open sunny areas only.

GENERAL DESCRIPTION:

Large spiny perennial to 2.5 m tall. Artichoke thistle primarily invades disturbed grasslands, especially those in coastal regions. Dense colonies displace desirable vegetation and wildlife and can exclude livestock. It is a progenitor of the commercially cultivated, spineless globe artichoke [Cynara
scolymus L.). Some taxonomists consider globe artichoke and artichoke thistle to be the same species, C. cardunculus L. The two species readily hybridize, and a few spiny wild types often develop among globe artichoke seedlings. Artichoke thistle was introduced from the Mediterranean region as a vegetable and ornamental. The artichoke fly (Terellia fuscicornis) was accidentally introduced into California, but is not a CDFA approved biocontrol agent. Preliminary studies suggest that some native thistles (Cirsium spp.) may be vulnerable to attack. At publication time, the fly’s impact on artichoke thistle populations is unknown. Larvae feed only on mature flower heads, thus commercial artichokes are not significantly affected.