California Native Plant Society
East Bay Chapter P O Box 5597. Elmwood Station. Berkeley. CA 94705

To: Darin Ranelletti, Planner III
Community and Economic Development Agency
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

From: East Bay Chapter of the California Native Plant Society

Date: March 14, 2011

Re: Proposed Amendment to the Master Plan for the Oakland Zoo (Major Conditional Use Permit No. CM09085) and Draft Subsequent Mitigated Negative Declaration/ Addendum

Dear Mr. Ranelletti and Oakland Planning Commissioners:

The East Bay Chapter of the California Native Plant Society (EBCNPS) appreciates the opportunity to comment on the matter before you concerning the Proposed Amendment to the Master Plan for the Oakland Zoo (Major Conditional Use Permit No. CM09085) and the Draft Subsequent Mitigated Negative Declaration/Addendum.

The California Native Plant Society is a statewide non-profit conservation organization. CNPS works hard to protect California's native plant heritage and preserve it for future generations. Our members include both professional and lay botanists and the interested public. We promote native plant appreciation, research, education, and conservation through our 5 statewide programs and 33 regional chapters in California. The East Bay Chapter (EBCNPS) covers Alameda and Contra Costa Counties and its membership totals some 1200 members, many of whom live in Oakland.

GENERAL CONSIDERATIONS

Our Purpose in Commenting

EBCNPS has long cherished Knowland Park, a favorite destination for our members who enjoy hiking and botanizing its marvelous open spaces. Since public access to Knowland Park is currently both free of cost and available (though not well known), our chapter has led field trips there to see its rare native grasslands and locally rare plant species. Knowland Park is not listed among other city parks on the Oakland Parks and Recreation website, a fact that tends to obscure its true importance to the community. Points of access from the surrounding neighborhood are largely unsigned. While developed parks such as the Oakland zoo *are* listed on the city website, the commanding views and

relatively unspoiled plant communities of Knowland Park remain one of the best kept secrets on the west side of the East Bay hills. Many Oakland residents do not know how to access the park, and this relative invisibility unfortunately tends to make Knowland Park both under-appreciated by the public at large and completely unprotected by the City. **As a result, Knowland Park has been treated by the City and by the zoo as surplus land rather than a distinct resource with its own integrity and purpose.**

What is *not* at issue here is whether the zoo is an important and valued institution for Oakland or the region, or whether it has brought money, jobs, and educational opportunities to the city, or whether it should or will expand. EBCNPS would agree to all of the above. We have been in discussion with the zoo for many years over how best for its mission to be continued in Knowland Park, with full knowledge that the zoo intended to expand.

EBCNPS has commented for well over a decade both formally and informally with the Oakland zoo about its plans to expand, and in the course of these discussions we have emphasized the importance of stewardship and protection of Knowland Park. Representatives from EBCNPS have also attended each of the public meetings in the past few years regarding the new plans for expansion where we repeatedly emphasized our desire to see an authentic resource management plan for Knowland Park. In these discussions, we expressed our dismay at the lack of stewardship of Knowland Park on the part of the zoo most notably in the lack of control of invasive weeds emanating from the zoo. We have repeatedly requested to see the specific plans for expansion so that we could determine how these would fit into a sound resource management plan. Last year some of these plans were finally made available, and we once again offered comment. **Although the mission of CNPS and the mission of the Oakland zoo are each directed toward conservation, we have explained repeatedly that we cannot and will not endorse the expansion without credible evidence that the zoo is fully prepared to act upon our reasonable requests. Nothing could be more cruelly ironic than to destroy the native plants of Knowland Park in the course of creating exhibits designed to educate the public about the tragic loss of California native wildlife species.**

What is at issue here is whether proper environmental review has been done to assure the public and decision-makers who aren't intimately familiar with the day to day planning for expansion on the part of the zoo for and with the City—whether this review has been correctly applied so that the public can be assured that the project has been thoroughly described, important natural resources (and other resources) within the project and its vicinity identified, potential impacts to these resources called out, and whether most importantly, based on this analysis appropriate mitigations have been determined and will be required of the project applicant. This is the entire purpose of the California Environmental Quality Act.

Application of CEQA

While the Planning Commission's decision is whether to recommend approval of the proposed amendment and of the Draft Subsequent Mitigated Negative Declaration/Addendum DSMND/A to the City Council, the commissioners' adequate consideration is based very much on whether they've been fully informed of the ramifications of their decision. Thus it hinges on whether the CEQA document is the proper instrument for this task.

Legally, the level of CEQA review applied must fit the requirements of the CEQA guidelines. There is a "fair argument" under CEQA guidelines of "substantial evidence" that the zoo expansion may have significant adverse environmental impacts. Pursuant to Section 21080 of the CEQA guidelines, "substantial evidence" includes, "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." If the impacts cannot be reduced to a less than significant level by mitigation, then an MND is the wrong tool for the task of analysis, and a full Environmental Impact Report (EIR) must be prepared. There are major differences between an MND and an EIR in the standards of review and the information required. One of the most important differences is that the project applicant must develop alternatives to the proposed project in a full EIR while the MND avoids that requirement. The amount of time given to the public and other agencies is also longer for a full EIR.

We ask the City Planning Department whether the requirement for environmental review has been consistently applied by the City to major conditional use permits and other actions likely to bring environmental impacts. For instance, the City requires a full EIR on subdivisions of four or more house. These could be located in large undeveloped lots in fully urban neighborhoods. Surely, the zoo expansion onto 56 acres of valuable and sensitive open space lands would cause more potential impacts than a four-home subdivision.

It's important to remember that the City owns the land and as lead agency for CEQA, it has a potential conflict of interest. It's extremely difficult for a government agency to maintain the distance and objectivity required to make impartial judgments and application of stringent laws, especially with respect to a large project in a popular city institution.

Based on our reading and evaluation of the documents, EBCNPS concludes that the Draft SMND/A is inadequate in major areas, including project description, description of sensitive resources, consideration of impacts, and appropriate mitigations. Therefore, we urge the Planning Commission not to recommend to the City Council approval of the Proposed Amendment to the Zoo Master Plan and the Draft SMND/A.

We have reviewed the documents prepared for environmental review of this major project and have found them inadequate in a number of specific significant regards. We detail these below.

SPECIFIC CONSIDERATIONS OF BOTANICAL RESOURCES

The Botanical Value of Knowland Park

Knowland Park is a known botanical hotspot in the East Bay Hills and one of the few places where large stands of rare native grassland, oak woodland, coastal scrub, and chaparral occur in relatively intact condition. It is also known for its large number of locally rare species (see Attachments A and B). For these reasons it is included in our recently published *Guidebook to the Botanical Priority Protection Areas of the East Bay* (Bartosh, Naumovich, and Baker, 2010) as part of the Foothills of Southern Oakland botanical priority protection area (BPPA). We have included relevant pages from this document (see Attachment C).

We informed the City and the Zoo last year of the botanical importance of Knowland Park and of the existence of the BPPA. We also gave a copy of the appropriate file on the BPPA to the City Planning Department, but we could find no reference in the documents to the information that we submitted. Attachment D is a copy of correspondence between EBCNPS and the zoo and the City.

Furthermore, there are procedural problems that have kept this information off the public record of this project. The first omission came when we submitted a letter to the zoo last year referencing the BPPA. The zoo did not include that letter (3/24/10) in its packet to the Planning Commission containing the public correspondence it had gathered regarding the proposed expansion. Last week, in preparing for the Parks and Recreation Advisory Commission meeting on March 9th, we checked for on-line materials for the agenda. The aforementioned public correspondence was supposed to be carried forward in the public record in an Attachment C to the agenda, but none of the attachments were not available. Therefore we and other members of the public as well as the PRAC commissioners were unable to review these. Finally, we note that none of the considerable written public comment on this important and controversial project is included in the CEQA and master plan documents. Failure to maintain the public record is a serious procedural problem.

Valley Needlegrass Grassland

The proposed project will destroy many acres of rare Valley Needlegrass Grassland, a high priority native plant community ranked S3 for state rarity (see Sawyer, Keeler-Wolf, and Evens, *A Manual of California Vegetation*, 2nd edition, 2008). All native California

grassland is to greater or lesser extent invaded by weeds and exotic annual grasses. Membership in the Purple needle grass grassland alliance is usually determined by at least 10% cover of purple needlegrass (*Nassella pulchra)*. However, other criteria that are used to assess the relative health of this plant community include the presence of other native grass species and forbs. Attachment D is a list of the native grass species found in the project area (there are additional native grass species found throughout Knowland Park). This list indicates high species richness. Since there are also native forb species found in association with the grass species, the project site boasts an excellent example of this high priority community.

However, the Biological Resources section and the Habitat Enhancement Plan of the Draft SMND/A do not include any evidence that grasslands were actually mapped and classified *according to accepted protocols*. These data-based protocols establish plant community descriptions and classifications from on-the-ground measurements. While the document acknowledges that Valley Needlegrass Grassland occurs on the project site, the resource itself is inadequately described. Consequently, the public and decision-makers cannot determine what quality of grassland will be destroyed. **Appropriate mitigation measures call for replacement of lands of equal or higher quality. Without knowledge of what was destroyed, adequate mitigation cannot be determined.**

Furthermore, the document calls for mitigation ratios. The basis for mitigation ratios rests on the principle that when protected resources are destroyed, the mitigation results in a *net gain in acreage*. However, as stewards of Knowland Park, the zoo has been responsible for maintaining the grasslands in the park. The fact that they have degraded through weed invasion has been the zoo's responsibility. Restoring the degraded grasslands is a good goal, but it does not mean that it meets the test of a mitigation since **there will be a net loss of native grassland when the expansion is built on top of them.**

There will also be cumulative impacts as a direct result of placing structures further up on the mesa of Knowland Park. The Oakland Fire Department contracts annually for goat grazing in large sections of Knowland Park (see Attachment E). They do so with funds generated by an assessment of property owners in the Wildfire Assessment District which was established in 2002 by city voters. Funds from this assessment were also to be used to create an Environmental Impact Report and associated Vegetation Managment Plan that would guide careful decisions in how to manage city owned-property requiring fuels management. However, in the 9 years since the creation of the W.A.D., no such document has been produced, and the goat grazing, which is a non-selective form of vegetation management, has caused additional degradation to the grasslands. The proposed zoo expansion will require a larger perimeter of fuels management in order to protect the buildings and human and animal life. The dirt fire road will also be widened, taking even more of the grasslands and spreading weed seed on vehicle tires and underbodies. This in turn will destroy even more of the grasslands.

Habitat Enhancement Plan

The HEP is basically a plan to make a plan to control weeds in Knowland Park. CEQA does not allow deferred mitigation. Since the approval of the first plan for expansion when the subject of controlling weeds was identified in the MND, the zoo has had 12 years in which to demonstrate its commitment to controlling weeds both on its existing site and in Knowland Park in general. Its track record is poor and must be regarded as indicative of the fact that there were no specific objectives that had been required to demonstrate actual progress toward the goal of weed reduction. In fact, weeds have exploded across Knowland Park in the years since that approval.

At a minimum, the HEP must include:

1. Monitoring and measuring plan. The MMP lays out a detailed description of the resource, what factors are to be measured, etc. (see *Measuring and Monitoring Plant Populations*, Elzina, Salzer, and Willoughby, Bureau of Land Management).
2. Performance standards. These are specific criteria that explain how success in implementing a plan is to be achieved and measured. They also lay the groundwork for adaptive management so that baseline data routinely collected under strict control of variables can inform wise decisions about what is working and what is not working.
3. An endowment in perpetuity to cover the costs of the mitigation.

Some of the more important steps that would be included in the HEP would be a clear description of Best Management Practices for weed control and prevention of spread, not just weed removal. These would include weed sanitation equipment and measures. The zoo should purchase and install power washing equipment for all vehicles and tools and incorporate weed control in handling manure disposal, landscaping, etc.

Bristly Leptosiphon *(Leptosiphon acicularis)*

The locally rare native wildflower and CEQA-protected plant, *Leptosiphon acicularis*, that was discovered in the area slated for the wolf enclosure is at risk for significant adverse impacts that cannot be fully mitigated by the recommended measures. These measures include fencing it off during construction, removing the fence once the wolves occupy the enclosure, and then monitoring it to see whether there is damage. These are completely inadequate mitigations for an annual flower that is part of a native grassland community. Here is where we believe that the "reasonable assumption" or common sense that CEQA guidelines refer to clearly applies.

The substantial evidence resides in a number of reasonable assumptions or common sense. The first assumption is that wolves as denning animals are likely to dig and scratch at the earth. The size of the enclosure that the wolves will occupy 24 hours a day

ensures that they will pass over this area frequently over the course of their lives, and the trampling that would take place likely would extirpate them. The most available form of evidence for what happens to vegetation in animal enclosures is to visit any zoo, including the Oakland Zoo, and look at the soil in the animal exhibits. We have yet to see one that supports native plant communities. The weed-choked bison exhibit is an example of what's more likely to happen.

The second assumption is that the nature of this plant species itself is incompatible with artificial habitat. Annuals are plants that are wholly dependent on setting seed to ensure that another generation will succeed. In the botanical world they are known to be particularly vulnerable since if one generation is wiped out, there is no guarantee that there will be seed left in the soil to produce the next generation. Unlike perennial plants, each individual plant lives just one season. Very little is known about this plant species and its requirements, although its rarity suggests that it needs to be part of intact native grasslands (themselves rare)—not an artificial habitat of a wolf enclosure. The notion that seed could be collected and planted somewhere else is simply a notion since there is no horticultural data to support that (nor did any appear in the document). Translocation of species, especially annuals, is frequently doomed to total failure.

So, applying the CEQA test for whether there are sufficient mitigations to the potential significant impacts to this CEQA-protected plant species that would allow for an MND would fail.

The botanist who performed the surveys for the zoo is Dianne Lake—she discovered this population of the leptosiphon. She is the acknowledged expert on locally rare plants in Alameda and Contra Costa counties and has maintained a database for several decades. We include here her list of locally rare plants for Knowland Park (attachments A and B). We also include some selected pages from her book, *Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties*, 8th edition (2010). These pages explain the importance of locally rare plants, their protection under CEQA, and the methodology that she uses (Atttachment F). Please note in particular on page In-8 her statement regarding habitats: "Many plants qualify for this report at least partially because they occur only in habitats that are limited and/or threatened in Alameda and Contra Costa Counties: …perennial grasslands…" These refer to native grasslands such as those described above.

Oak Woodlands

The proposed project calls for the removal of dozens of mature coast live oaks. A city destroying its namesake is yet another case of sad irony. The loss of dozens of mature coast live oak to make room for the project cannot be adequately mitigated by the planting of new saplings. First, mature oaks create a rich assemblage of hundreds of organisms dependent upon them. These assemblages take many years to establish. Second, the CEQA document does not say where these oaks will be planted. If they are

knowlandplanted in grassland areas, they will actually cause harm to the grasslands themselves. Oak saplings need to be watered until they are established. Irrigation will be needed which can be damaging to native communities evolved for only seasonal rains. Furthermore, in order to prevent herbivory by deer, the saplings will need to be enclosed in wire mesh, which is unsightly in a natural area.

The location of the camp among the oak woodlands is entirely inappropriate. The presence of up to 100 people will trample roots and will require the removal of the oak understory. The addition of this camp is a new project not currently covered by the old master plan. We believe that a better alternative to serve the community of campers is to utilize the excellent camping facilities and program of the East Bay Regional Park District. Group campsites are available in Anthony Chabot Regional Park near Knowland Park.

Conclusion

EBCNPS believes that the public and the decision-makers have been put into several untenable binds. Not enough time to read an enormous complex document (more than the size of most full EIRs) yet with the less stringent standards of analysis and review as required by CEQA. The choice between the old plan and the amended plan is a false one, and being required to choose between the lesser of two evils with inadequate information is no real choice at all.

We strongly recommend to the Planning Commission the following:

1. **that it request further time and information in order to make its determination. The Planning Commission is being asked to make its decision before the written and more detailed comments from the public can be read and understood. We suggest that this is simply a bad way to go about making such a critical decision and that there are far better choices permissible and desirable;**
2. **that it reject the Draft SMND/A as inadequate and call for a full Environmental Impact Report on the proposed expansion.**

Please feel free to call me if you have any further questions (510-849-1409).

Sincerely,

Laura Baker

Laura Baker
Conservation Committee Chair
East Bay Chapter of the California Native Plant Society

Attachment A
from Dianne Lake

Rare and Unusual Plants of Knowland Park (Current and Historical)

As Of January 2011

(Statewide Rare Plants Are In Upper Case)

East Bay Rarity Rank	Species	Common Name	Habitat
A2	Brodiaea terrestris ssp. terrestris	dwarf brodiaea	Grassland; Woodland; Misc. Wetlands
*A2	CALOCHORTUS UMBELLATUS	Oakland star-tulip	Chaparral; Scrub; Woodland
A1	Carex dudleyi	Dudley's sedge	Misc. Wetlands
A2	Carex multicostata	many-ribbed sedge	Misc. habitats
A2	Castilleja subinclusa ssp. franciscana	Franciscan Indian paintbrush	Chaparral; Scrub
A2	Corallorhiza maculata var. maculata (forma immaculata is more common in East Bay)	spotted coralroot	Forest; Woodland
A2	Cryptantha torreyana	Torrey's cryptantha	Dry Open Slopes; Forest
A2	Deinandra corymbosa ssp. corymbosa (formerly Hemizonia corymbosa)	coast tarweed	Coastal Bluff; Grassland
A2	Juncus phaeocephalus var. unknown	brown-headed rush	Misc. Wetlands
*A1	LEPTOSIPHON ACICULARIS (formerly LINANTHUS A.)	bristly linanthus	Chaparral; Grassland; Woodland
*A2	MONARDELLA VILLOSA SSP. GLOBOSA (ssp. villosa is more common)	robust monardella	Chaparral; Woodland
A2	Sanicula laciniata	coast sanicle	Chaparral; Scrub; Woodland
*A2	STREPTANTHUS ALBIDUS SSP. PERAMOENUS	most beautiful jewel-flower	Chaparral; Dry Open Slopes; Grassland; Serpentine

Explanation of Ranks

***A1 or *A2**: Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x: Species previously known from Alameda or Contra Costa Counties, but now presumed extirpated here.

A1: Species currently known from 2 or less regions in Alameda and Contra Costa Counties.

A2: Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

A1?: Species with taxonomic or distribution problems that make it unclear if they actually occur here.

B: High-Priority Watch List: Plants occurring in 6 to 9 regions here or otherwise limited or threatened.

C: Second-Priority Watch List: Plants occurring in 10 to 15 regions here, but have potential threats.

Attachment B
from Dianne Lake

B-Ranked Unusual Plants of Knowland Park (Current and Historical)
As Of January 2011

East Bay Rarity Rank	Species	Common Name	Habitat
B	Antirrhinum vexillocalyculatum ssp. vexillocalyculatum	wiry snapdragon	Rock, Tallus or Scree; Sand or Sandstone areas; Serpentine
B	Calamagrostis rubescens	pine grass	Woodlands
B	Festuca rubra	red fescue	Coastal Bluff; Grassland; Sand or Sandstone
B	Garrya elliptica	silk tassel bush	Coastal Bluff; Chaparral; Sand or Sandstone; Woodland
B	Helianthemum scoparium	peak rush-rose	Chaparral; Dry Open Slopes; Rock, Tallus or Scree; Sand or Sandstone
B	Hordeum jubatum	foxtail barley	Misc. habitats
B	Mentha arvensis	marsh mint	Riparian areas; Misc. Wetlands
B	Ribes divaricatum var. pubiflorum	straggly gooseberry	Coastal Bluff; Riparian; Scrub
B	Rumex salicifolius var. unknown	willow dock	Riparian areas; Misc. Wetlands
B	Sequoia sempervirens	coast redwood	Redwood Forest
B	Sidalcea malviflora ssp. malviflora (ssp. laciniata is more common)	checkerbloom	Grassland
B	Silene laciniata ssp. californica (formerly Silene c.)	California Indian pink	Chaparral; Forest; Woodland
B	Vaccinium ovatum	California huckleberry	Forest; Redwood Forest
B	Vulpia octoflora var. unknown	slender fescue	Chaparral; Dry Open Slopes; Dry Washes; Sand or Sandstone

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A1?: Species with taxonomic or distribution problems that make it unclear if they actually occur here.

B: High-Priority Watch List: Plants occurring in 6 to 9 regions here or otherwise limited or threatened.

C: Second-Priority Watch List: Plants occurring in 10 to 15 regions here, but have potential threats.

Attachment B
from Dianne Lake

C-Ranked Unusual Plants of Knowland Park (Current and Historical)

As Of January 2011

East Bay Rarity Rank	Species	Common Name	Habitat
C	Acaena pinnatifida var. californica	California acaena	Coastal Bluff; Rock, Scree or Tallus; Scrub; Sand or Sandstone
C	Arctostaphylos tomentosa ssp. crustacea	brittleleaf manzanita	Chaparral; Sand or Sandstone
C	Calochortus luteus	yellow mariposa lily	Forest; Grassland; Woodland
C	Camissonia ovata	sun cup	Coastal Bluff; Grassland
C	Clematis ligusticifolia	virgin's bower	Riparian
C	Danthonia californica var. californica	California oatgrass	Grassland
C	Hemizonia congesta ssp. lutescens (formerly included in ssp. congesta in Jepson Manual)	hayfield tarweed	Grassland; Serpentine
C	Lilaea scilloides	flowering quillwort	Misc. Wetlands
C	Navarretia mellita	honey-scented navarretia	Chaparral; Gravel; Sand or Sandstone
C	Prosartes hookeri (formerly Disporum h.)	fairy bells	Woodland
C	Rhamnus crocea	spiny redberry	Chaparral; Scrub; Woodland
C	Scutellaria tuberosa	Dannie's skullcap	Burns; Chaparral; Woodland
C	Tauschia hartwegii	Hartweg's tauschia	Chaparral; Woodland
C	Viola pedunculata	Johnny-jump-up	Chaparral; Grassland; Woodland
C	Vulpia microstachys var. ciliata (var. pauciflora is more common)	Eastwood's fescue	Forest; Sand or Sandstone
C	Wyethia glabra (W. helenioides is more common)	mule ears	Scrub; Woodland
C	Yabea microcarpa	California hedge parsley	Misc. habitats

Explanation of Ranks

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B: High-Priority Watch List: Plants occurring in 6 to 9 regions here or otherwise limited or threatened.

C: Second-Priority Watch List: Plants occurring in 10 to 15 regions here, but have potential threats.

Attachment C
from Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties. 5th Edition Dann Lake 2016

INTRODUCTION

The botanical wealth of the East Bay is rarely realized or appreciated. More plant communities come together in Alameda and Contra Costa counties than almost anywhere else in the state. Great Valley vegetation meets Coastal, and moist northern communities meet dry southern ones. Islands of Sierran and desert vegetation occur here as well as serpentine outcrops, vernal pools, dune fields, and alkaline communities. Salt marshes fringe San Francisco Bay, freshwater marshes border the Delta, and brackish marshes lie in between. Fifty-five plant species reach their northern range limit here and 19 reach their southern limit.

Of the estimated 1500 plant taxa occurring in the two counties, 135 are currently listed as rare or endangered statewide by the U.S. Fish and Wildlife Service, the California Department of Fish and Game, or the state level of the California Native Plant Society (CNPS), and are thus protected by the California Environmental Quality Act (CEQA).

But many more plant species also lead a precarious existence here. In the course of its field studies, the East Bay Chapter of the California Native Plant Society has found 608 additional species that would meet the standards for rare and endangered status if only their populations in these two counties were considered. Many of these plants occur in very limited or threatened habitats and their numbers are in decline. Of these 608 species, 313 have only one or two currently known locations in Alameda and Contra Costa Counties (ranked as A1 in the East Bay); 231 occur in less than five places in the two counties or are otherwise endangered (A2), and 64 are only known from the area historically and are presumed to have been extirpated here in the last 100 years (A1x).

These 608 locally rare, or unusual, plant species (ranked A1, A2 or A1x in this report) are protected by CEQA in sections 15380 and 15125(a) which address species of local concern and place special emphasis on environmental resources that are rare or unique to a region. Thus they must be considered in local land planning and management issues along with the 135 statewide rare plants referred to above. Unfortunately, they are often overlooked or ignored.

An additional 191 plants are on a High-Priority Watch List and are ranked B, generally occurring in only six to nine regions of the two counties. While they are not currently rare or threatened locally and are not protected by CEQA, they should be closely watched since they could become rare, threatened or endangered if their habitats continue to disappear or decline or other detrimental environmental conditions continue.

A Second-Priority Watch List of 137 C-ranked plants is provided in Appendix C but they are not included in the body of the report. Although still relatively common and widespread in the two-county area (occurring in 10 to 15 regions), they should be monitored since they could also become less common if certain conditions persist.

Because the flora of this area is unique, we must recognize the importance of protecting and preserving these native plant populations and remember that the loss of any species alters and damages the surrounding ecosystem. At the same time, we must seek a better understanding of these plants and how they depend upon and contribute to the environment. This report of *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* is presented in the hope that it will serve as a valuable tool in achieving these goals.

METHODOLOGY

In compiling this list, many Bay Area botanists were contacted for their views, and plant lists were reviewed for many East Bay locations. Extensive field studies as well as literature and herbaria searche were conducted. An initial list of 865 candidate species was compiled in 1991 and reviewed by 35 botanists familiar with East Bay flora. Their comments, additions, and changes were reviewed and incorporated. Further field research, interviews, and literature and herbaria searches were then conducted. The resulting list consisted of 611 species, and the report was first issued on March 1, 1992

Research has continued over the years and the current list consists of 958 species, including 135 statewide rare plants, 632 A-ranked locally rare plants, and 191 B-ranked plants. In addition, a Watch list of 137 C-ranked species is included as Appendix C.

A ranking system was devised based on the number of current locations in Alameda and Contra Costa counties, with A1 indicating plants with only two or less locations here; A2 indicating three to five locations here; and B indicating plants with six to nine locations here. A Watch list with a rank of C was also devised for plants not currently rare, threatened or endangered in the two counties, but with potential to become so if certain trends and practices continue, such as over-development, water diversion, excessive grazing practices, weed and insect invasion, etc.

Other criteria besides number of occurrences were also looked at and a few plants that had more than five locations here but met other criteria were included in the A2 rank, and some plants with more than nine locations here were included in the B rank. Conversely some plants that occur in only three to five places but had large or multiple populations there were moved to a B rank, and some found in only six to nine areas but with large or multiple populations were moved to the C rank. The criteria that qualify these plants for the higher or lower ranks are indicated in the "Comments" column in the body of the report.

Research has continued over the years with more field surveys, herbarium and literature searches, and interviews with area botanists. Herbarium vouchers have been checked at several Bay Area herbaria for all A-ranked (*A1, *A1x, A1, A1x, A1?, *A2, and A2) species and most B-ranked species.

Many people have provided new information and comments, and reader response to both the project and the report itself has been excellent. As a result, new locations have been found for some plant species, while others have been found to be more unusual or threatened than originally thought.

AIM OF REPORT

It is hoped that this report of *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* will prove helpful to botanists, planners, land managers, consultants, students and others working with the vegetation of Alameda and Contra Costa counties, and that it will serve to clarify and identify the valuable resources found in this area.

This report also aims to help the reader become aware of the sensitivity and significance of the plants listed in this report, so that when they are encountered in the field they will be treated accordingly.

The high number of plant species appearing in this report and the range of threats facing them in the two counties indicates some of the problems posed by modern society for the natural resources of this area. It is important to recognize the value of these plant populations and how they affect their surrounding environment - their importance to not only the plants that occur there, but also to the wildlife and humans who depend on that environment. A complex inter-dependence exists between man and nature, and the loss or lessening of any of these rare or unusual plant species affects the health of the human, wildlife, and plant environments in which they occur.

The importance of the survival of these plant species must be recognized, and a way must be found for people to co-exist with the natural resources of the area without one severely endangering the other. Steps must be taken to protect these plant populations, and studies must be conducted to better understand the needs of these plants, and what must be done to assure their continued health and proliferation.

To achieve this delicate balance between man and environment, it is essential to learn more about the complex requirements of the various plants in that environment. It is hoped that this report will inspire and help provide areas of study and research for students and researchers, as well as provide important plant distribution information for planners, developers, and land managers.

The list should by no means be considered as a final product and will continue to change as more data become available. The continued accuracy and usefulness of this report depends on the input and cooperation of as many people and sources as possible. All comments, additional information, and suggestions are welcome. The East Bay Chapter of the California Native Plant Society is dedicated to keeping this list as up-to-date and accurate as possible, and information should be addressed to Dianne Lake, 1050 Bayview Farm Rd., #121, Pinole, CA 94564 (Phone: 510-741-8066; Email: diannelake@yahoo.com).

I would like to thank all those who have already commented on and provided information for the report.

PLANTS INCLUDED

"Rare, Unusual and Significant Plants" refers to plant species that are rare, threatened, or endangered Alameda and Contra Costa Counties, as well as those that meet that criteria statewide. (See discussion of "Rare Plants" and "Unusual Plants" below.)

Only terrestrial, vascular plants are included. An arbitrary decision was made to not include aquatic or non-vascular plants in the interest of keeping the size of the report manageable.

This should in no way be interpreted as an indication that aquatic and non-vascular plants are less important. If anything, it should indicate the need for further study of these plants, and of the importance of compiling similar data for them. Aquatic and non-vascular plants have a very important place in the environment and it is imperative that we increase our knowledge of them - their requirements for survival, their interaction with the local and global environment, and their distribution in our area as well as worldwide. This situation has been realized over the last several years and many efforts are now underway to compile and distribute this important data and to make the general public aware of their importance and need for protection.

Rare Plants

Statewide listed rare plants are indicated by an asterisk preceding their rank, and appear in upper case type.

"Statewide listed rare plants" refers to those species listed as rare, threatened or endangered, or as candidates for such listing, by the U.S. Fish and Wildlife Service, California Dept. of Fish and Game, or the state level of the California Native Plant Society. As of January, 2010, 135 statewide rare plant species are listed as occurring in Alameda and Contra Costa counties either currently or historically.

More detailed information can be found in the sixth edition of the CNPS *Inventory of Rare and Endangered Plants of California,* or the on-line seventh edition at CNPS.org/inventory.

Complete information on rare plants can be obtained from the California Natural Diversity Data Base of the California Dept. of Fish and Game, Sacramento.

Unusual Plants

Unusual plants are indicated by A1, A1x, A1?, A2, or B in the Rank column, with no asterisk preceding the rank.

"Unusual plants" refers to plants that are rare, threatened or endangered in Alameda and Contra Costa counties but not necessarily in the rest of the state, or plants that are on a High-Priority Watch List (B List). This status has been determined through extensive research carried out by the East Bay Chapter of the California Native Plant Society. These ranks and the criteria used to determine them are discussed under "Ranks" below.

NOMENCLATURE

Most species names used in this report are in agreement with those in *the Jepson Manual: Higher Plants of California* by James Hickman (1993) or the *Online Interchange For California Floristics* (ucjeps.berkeley.edu/interchange) which contains updated taxonomy and treatments being compiled for the second edition of the Jepson Manual.

In a few cases, however, the plant names differ, as follows:

Three species of clovers that are included within *Trifolium barbigerum* var. *andrewsii* or *T. fucatum* in the Jepson Manual are listed in this report as separate species: *T. flavulum*, *T. gambelii*, and *T. lilacinum*.

In addition, recent studies have determined that plants in the East Bay previously identified as *Angelica tomentosa* are actually *A. californica*.

RANKS

Ranks are based on the number of botanical regions a species currently occurs in, rather than the number of specific sites. This gives a much more accurate indication of the geographical distribution of a plant species. There may be several specific sites for a species, but if they are all within a few miles of each other, the species is actually much rarer and more endangered than one with the same number of specific sites but spread over a wider range. (See discussion of "Regions" in "Locations" sections on page In-7)

The ranks are as follows:

*A (114 spp.): Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state CNPS. Protected by CEQA
(Includes 59 *A1, 18 *A1x, and 37 *A2 species)

A1 (370 spp.): Species known from 2 or less botanical regions in Alameda and Contra Costa Counties, either currently or historically. Protected by CEQA
(Includes 59 *A1 and 311 A1 species)

A1x (89 spp.): Species previously known from Alameda or Contra Costa Counties, but now believed to have been extirpated, and no longer occurring here.
Protected by CEQA
(Includes 18 *A1x and 71 A1x species)

A1? (24 spp.): Species possibly occurring in Alameda or Contra Costa counties but there are questions about their identification or location

A2 (243 spp.): Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.
Protected by CEQA
(Includes 37 *A2 and 206 A2 species)

B (164 spp.): A High-Priority Watch List: Species currently known from 6 to 9 regions in the two counties, or, if more, meeting other important criteria as described above for A2. (Not protected by CEQA)

C (137 spp.): A Second-Priority Watch List: Species currently known from 10 to 15 regions in the two counties, but potentially threatened if certain conditions persist such as over-development, water diversions, excessive grazing, weed or insect invasions ietc. (Listed only in Appendix C and not included in main body of report).

Several criteria have been used to determine which plants qualify for the Rare, Unusual and Significant Plants list. Statewide listing and two or fewer occurrences in Alameda and Contra Costa counties were the first criteria used. But it was discovered that many plants not falling into these two categories were still threatened or endangered here. Several other criteria were therefore looked at as follows:

Disjunct Populations
Declining Populations
Fire-following Plants
Limited or Threatened Habitats
Narrow Range in Alameda and Contra Costa Counties
Range Limits
Small Populations
Small Geographical Range
Stress from weed invasions, disease, insects, drought, etc.

The rank of a species is based only on current populations (1975 or later). Historical, planted, and unconfirmed sites (indicated by parentheses) are not considered since it is not known if the species is currently there, or the population does not occur there naturally.

In a few instances a plant species has more occurrences than its rank indicates, but poor field conditions such as very small or declining populations, small geographical range, limited or
threatened habitats, etc. give it the higher rank. In a few other instances a species occurs in fewer places than its rank indicates but large or multiple populations qualify it for a lower rank. The reason for the different rank is explained in the "Comments" column in the report.

LOCATIONS

The current location system, developed for the fifth edition in 1999, consists of 40 botanical regions, and specific sites within those regions. The locations are listed alphabetically by region, with specific sites following. Ranks are determined by the number of regions a species is currently known to occur in, rather than the number of specific sites.

Historical, introduced, and unconfirmed populations are also included in parentheses, but have not been considered in the determination of ranks since it is not known whether or not the populations still exist, or the populations do not occur at the site naturally.

A list of the 40 regions and the specific sites in each can be found starting on page L-1. An alphabetical list of the specific sites occurs at the end of the report.

A map of the regions appears on p. M-1, and a map of many of the specific sites and the regions in which they occur appears on page M-2.

Regions

The regional location system was developed to provide a more accurate picture of the actual distribution of species in the two counties than had been available in the early editions of the report.

Because some areas have been more broadly explored botanically than others, the listing of only specific locations in early editions of this report did not always give an accurate indication of a species' real distribution. For example, the Berkeley Hills have been studied extensively over the years because of their proximity to the University of California at Berkeley, while more outlying areas such as Brentwood and Byron, for example, have not been visited as often. Thus, when ranks were based only on specific sites, as in the early editions of this report, plant species in well-explored areas appeared to be more common than they actually were.

To demonstrate, *Asarum caudatum* would be ranked at the C level using the specific locations system because it currently occurs at 13 specific sites. However, all of these sites are within a few miles of each other and are in similar habitats. Thus, this species is not as common or widespread in the two counties as a C rank would indicate. It actually only occurs in a very small geographical area of the two counties and only in a particular kind of habitat. Using the region system, these 13 specific sites are contained in only four regions, thus giving this plant an A2 rank which is much more indicative of its actual field condition and distribution in the East Bay.

The regions system is based on the eight major regions or sub-divisions of the East Bay determined by Dr. Barbara Ertter in her *Annotated Checklist of the East Bay Flora* (1997). These eight regions were examined, comparing botanical, geological, and geographical characters such as vegetation types, plant communities, habitats, individual plant species occurrences, soil types, bedrock strata, and topography. These studies and comparisons resulted in the development of the 40 botanical regions.

Specific Sites

The number of specific sites has increased over the years as more areas have been explored. Some codes have been divided or expanded, thus giving a more accurate picture of distribution and the actual field conditions of each species.

The list of 40 botanical regions and the specific sites within those regions can be found starting on page L-1. An alphabetical list of specific sites is provided at the end of the report in the Locations Index.

Historical Sites

Populations have been divided into current and historical occurrences with 1975 as the dividing line. This also gives a more accurate picture of the current field conditions of a species and allows for comparisons to past conditions, and the determination of which species may be declining.

Historical populations are included in parentheses with the date of the last known sighting, and are not considered when determining rank because ranks are based only on current populations.

Many plants have not been seen since 1975 or before and are presumed to have been extirpated. These species now have a rank of A1x. A list of these species is provided in Appendix A along with their habitats and where they occurred. The rediscovery of any of these species would be very significant, and the reader is requested to contact the author at (510) 741-8066 or diannelake@yahoo.com if they find any of these extirpated species.

The dividing year between current and historical was 1950 for previous editions, but has now been moved up to 1975. While 1950 was an appropriate division in 1992 when the report first came out, m of those records are now over 60 years old and can hardly be considered "current". Thus 1975 is now more accurate indication of currency.

Unconfirmed Identifications and Sites

"ID?": The identification of some populations are questionable and have not been confirmed. These sites are included in parentheses and indicated by "ID?". They are not considered in the determinatio ranks because rank is based only on current populations.

Over the years many of these populations have been visited and identified. Thus the number of locatic with this designation has declined substantially with each new edition.

"Loc?": The locations for some populations are questionable. These species have been reported in an area but have not yet been confirmed there. These sites are also included in parentheses and are followed by "Loc?". They are not considered when determining the rank of a plant species.

Many of these sites have also been visited over the years and several have been found, thus reducing t number of such designations.

Planted Sites

Some populations have been introduced as landscaping or restorations projects. These populations are included in parentheses. Since these are not natural sites, they have not been considered in the determination of ranks.

HABITATS

Habitats are listed to help clarify and identify where plants may occur and where they should be looked for. With the increased interest and concern in protecting plant communities and areas, habitat information is an essential tool in determining which areas need protection. A list of habitats and their codes is provided on page In-11.

Habitat requirements were determined by studying habitat and community information in *The Jepson Manual: Vascular Plants of California* by James Hickman (ed.) (1993*), A California Flora and Supplement* by Munz and Keck (1973), *A Manual of California Vegetation* by John O. Sawyer and Todd Keeler-Wolf, 1995*, A Preliminary Guide to the Terrestrial Plant Communities of California* by Robert F. Holland (1986), and the sixth edition of the CNPS *Inventory of Rare and Endangered Vascular Plants of California* by David Tibor (2001), as well as discussions with several bay area botanists.

Many plants qualify for this report at least partially because they occur only in habitats that are limited and/or threatened in Alameda and Contra Costa Counties: alkali areas, perennial grassland, redwood forest, rocky or talus areas, sand or sandstone soils (including coastal bluff and coastal strand), serpentine or serpentine-derived soils, and wetlands (including brackish, freshwater, and salt marshes, riparian areas, vernal pools and miscellaneous wetlands).

Attachment D

Subj:	**Fwd: Comments from the California Native Plant Society on Proposed Amendments to Approved 1998 Master Plan**
Date:	Thursday, March 3, 2011 2:22:49 PM
From:	rwest@monocot.com
To:	lbake66@aol.com, janetgawthrop47@gmail.com, mwgraf@aol.com, david@hjuliendesigns.com
cc:	rwest@monocot.com

FYI,

This was our last written communication to the city and the zoo about the zoo's plans, from April of last year.

__Roy

Begin forwarded message:

> From: Roy West <rwest@monocot.com>
> Date: April 21, 2010 6:18:38 PM PDT
> To: dranelletti@oaklandnet.com
> Cc: Roy West <rwest@monocot.com>, Lbake66@aol.com
> Subject: Comments from the California Native Plant Society on Proposed Amendments to Approved 1998 Master Plan
>
> Dear Mr. Ranelletti,
>
> The California Native Plant Society has been meeting with the Zoo for many years to discuss the Zoo's plans to expand its exhibits into the upper portion of Knowland Park.
>
> We submitted the following comments to the Zoo in March of this year, with the understanding that these would be shared with the Planning Commission and its staff. I learned this evening that the Zoo decided not to include our letter with the materials they presented to you in the past month.
>
> I am submitting a copy of our letter to you now.
>
> I would welcome the opportunity to discuss our Society's concerns with this project at your convenience.
>
> Sincerely,
>
> __Roy West
> Conservation Committee, California Native Plant Society, East Bay Chapter
>
> cc: Laura Baker, Chair, Conservation Committee, EBCNPS
>
>
> Begin forwarded message:
>
>> From: Roy West <rwest@monocot.com>
>> Date: March 25, 2010 8:36:11 AM PDT
>> To: Nik Haas-Dehejia <Nik@oaklandzoo.org>
>> Cc: Lbake66@aol.com, "Dr. Parrott" <drparrott@oaklandzoo.org>, Roy West <rwest@monocot.com>
>> Subject: Comments from CNPS on Proposed Amendments to Approved 1998 Master Plan

>>
>>
>> March 24, 2010
>>
>> Nik Haas-Dehejia,
>> Director of Strategic Initiatives
>> Oakland Zoo
>> 9777 Golf Links Road
>> Oakland, CA 94605
>>
>>
>> Dear Nik,
>>
>> I and members of the Conservation Committee of our East Bay Chapter of the California Native Plant Society have reviewed the letter requesting comments and the three exhibits pertaining to the Oakland Zoo's "Proposed Amendments to Approved 1998 Master Plan."
>>
>> The South Oakland Hills are one of our chapter's 15 Botanical Priority Protections Areas, identified in our chapter's forthcoming publication, "Guide to the Botanical Priority Protection Areas of Alameda and Contra Costa Counties." Knowland Park is part of that BPPA because of its known native plant diversity and the presence of some relatively intact native plant communities that are rare in the Oakland Hills, due to development and other causes.
>>
>> CNPS' concerns are with the health and protection of those plant communities in the park and the rare, unusual, and even common plants that comprise them. This is not just about special-status taxa; it is about preserving and protecting the precious, intact natural communities in the park.
>>
>> We are reminded that the Zoo's stated mission is "to inspire respect for and stewardship of the natural world, while providing a quality visitor experience." The whole of Knowland Park is the Zoo's responsibility. In evaluating the Zoo's current and future plans for Knowland Park, we have consistently explained in our many meetings with you and Dr. Parrott that to meet your responsibility, we expect the Zoo to develop a management plan for the native plant communities and their components in the park. Such a plan would include details of:
>>
>> * What communities exist
>> * What are their features and conditions
>> * What are the threats to those communities' health (disease, invasives, human or animal damage, construction, planting of CA native plants from outside the park that could affect the genetics of the local natives, etc.)
>> * What areas are the highest priorities for protection and enhancement, based on value and threat
>> * What specific practices will be used to protect and enhance those areas, or at least the top priority areas
>> * What protocols will be used to monitor the communities and the effectiveness of the practices in years to come
>>
>> We understand that there are long-term impacts to the plant communities in the park and there is no magic bullet that will achieve the goals we all share for a healthy park ecosystem. But CNPS can not support an expansion into new areas of the park without clear, written explanation of how the expansion will affect the goals and priorities of a formal management plan for the park.
>>
>>
>> Sincerely,
>>
>> Roy West
>> Conservation Committee, California Native Plant Society, East Bay Chapter

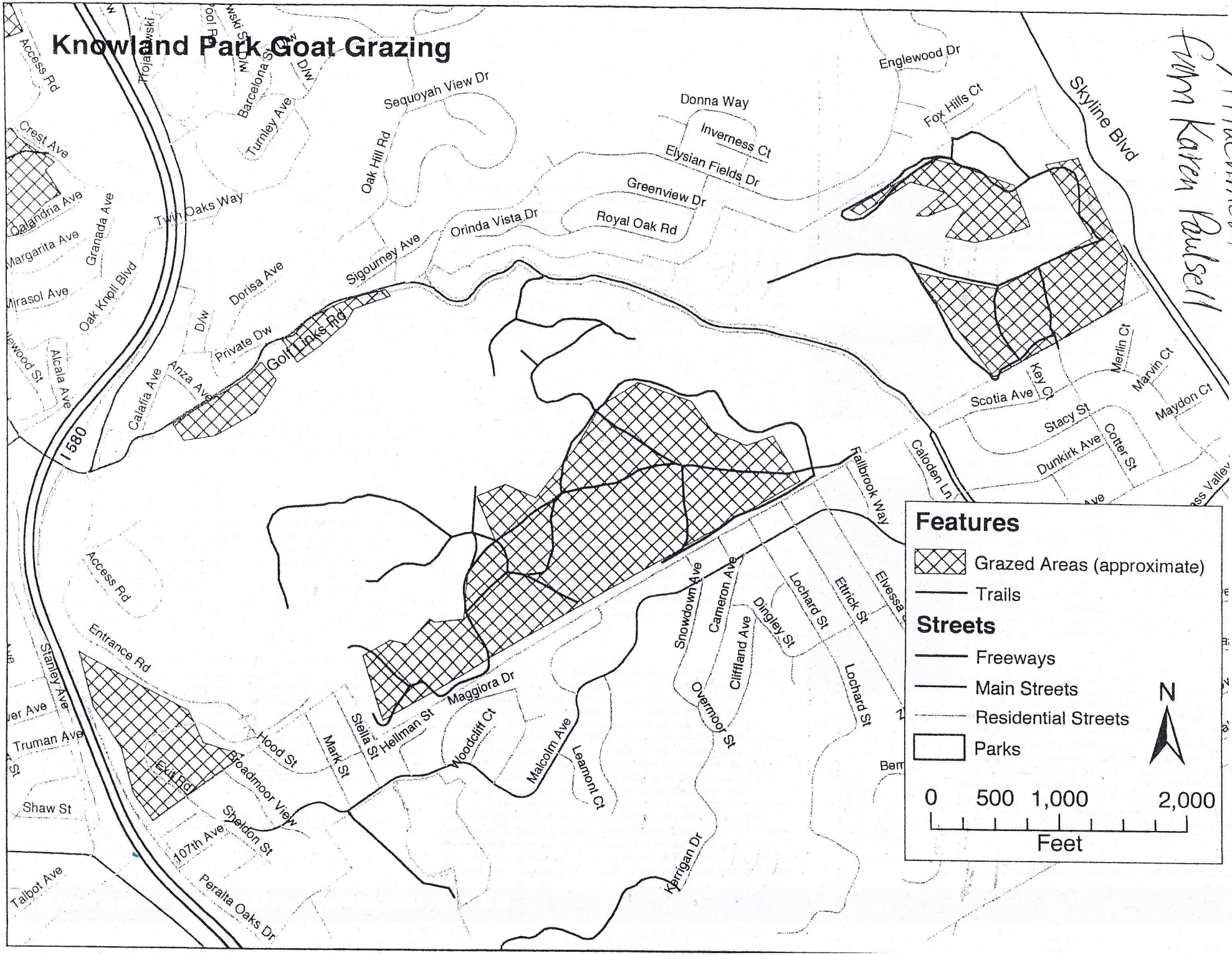
>>
>> cc: Laura Baker, Chair, Conservation Committee, EBCNPS
>> Dr. Joel Parrott, Executive Director, Oakland Zoo
>

Attachment D1
from Dianne Lake

Native Grasses in Oakland Zoo 1820 Project Area

Agrostis pallens	leafy bentgrass
Bromus carinatus var. carinatus	California brome
Bromus laevipes	woodland brome
Danthonia californica var. californica	California oatgrass
Elymus glaucus ssp. glaucus	blue wildrye
Elymus multisetus	big squirreltail
Hordeum brachyantherum	meadow barley
Melica california	California melic grass
Melica imperfecta	small-flowered melic grass
Melica torreyana	Torrey's melic
Nassella lepida	foothill needlegrass
Nassella pulchra	purple needlegrass
Vulpia microstachys var. ciliata	Eastwood's vulpia
Vulpia microstachys var. pauciflora	Pacific vulpia

Knowland Park Goat Grazing



Attachment C

Introduction

The lands that comprise the East Bay Chapter are located at the convergence of the San Francisco Bay, the North and South Coast Ranges, the Sacramento-San Joaquin Delta, and the San Joaquin Valley. The East Bay Chapter area supports a unique congregation of ecological conditions and native plants. Based on historic botanical collections, the pressures from growth-based Bay Area economies have buried many of the botanical treasures of the East Bay. The collision of floristic protection and economic growth conceived the Botanical Priority Protection Areas Project (BPPA), and fortified intra-chapter collaboration between the Plant Science and Conservation arms of the East Bay Chapter of the California Native Plant Society (CNPS).

In January of 2006, the Bay Area Open Space Council (BAOSC) requested that our chapter provide them a list of important botanical areas. Our botanical priorities were to be incorporated into BAOSC's Upland Habitat Goals Project which aims to increase the acreage of protected lands and develop an increased awareness of key habitats among land management agencies and local jurisdictions. We had only one day to accomplish the difficult task of choosing between many botanically rich areas of Alameda and Contra Costa counties. At the end of the day, after a flurry of emails, fifteen areas endowed with native plant diversity that are threatened by current and potential land-use decisions were hastily identified.

This inquiry and resulting cache of botanical areas begged another question: how can we look at these areas through a more objective lens utilizing existing information? To answer this initial question, the project began as a simple Geographic Information System (GIS) exercise. Heath Bartosh, the chapter's Rare Plant Committee Chairman, began by mapping primarily watershed-based boundaries of each protection area.

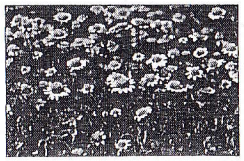
Overall, the 15 BPPAs comprise 238,225 acres (372 square miles) in Alameda (96,932 acres) and Contra Costa (141,293 acres) counties. The BPPAs occupying the western portion of the chapter are smaller in acreage due the urbanization that has already occurred along the bayside flatlands leaving diminutive botanical refugia still in need of protection. In the east, vast expanses of undeveloped land containing a broader diversity of habitats and native plant species are still intact as characterized by the larger BPPAs found flanking the Diablo Range.

BPPA boundaries were drawn with the intention of excluding lands previously preserved, such as Mount Diablo State Park or lands owned and managed by the East Bay Regional Park District. However, certain BPPAs include public parcels or properties with other conservation status. These are cases where land has been conserved since the creation of these boundaries or where potential management decisions have the potential to negatively affect an area's botanical resources. Additionally, each acre within these BPPAs represents a *potential* area of high priority. Both urban and natural settings are included within these boundaries, therefore, they are intended to be considered as areas warranting further scrutiny due to the abundance of nearby sensitive botanical resources supported by high quality habitat within each BPPA. Although a parcel, available for preservation through fee title purchase or conservation easement, may be located within the boundaries of a BPPA, this does not by default indicate that it contains sensitive botanical resources. Parcels within each BPPA should be floristically evaluated on a case-by-case basis to determine their botanical resource value before any conservation activity, land-use change, or development is undertaken.

From within these boundaries an analysis was executed of readily and freely available spatial datasets such as botanical resource occurrences, substrates (soils and geology), wetlands, urbanized areas, existing protected areas, and possible threats. From these analyses each of the 15 maps includes a summary table that provides information such as the size of the area, watershed information, relevant substrate information, and botanical resource attributes.

The graphic portion of each map showcases protection areas on a 2009 aerial photograph provided by the National Agriculture Inventory Program. Certain BPPAs include areas of edaphic substrates which strongly influence plant species composition and structure. The East Bay is bestowed with significant substrates such as alkaline soils, sandy soils, and serpentinitic habitats. Within a specific BPPA, edaphic substrates were spatially analyzed using Farmland Mapping and Monitoring Program (FMMP) data. The most useful component of the FMMP data locates areas of urbanization and irrigated agriculture. These aspects of the human environment including development and alteration of vegetative cover, soil structure and hydrology have eroded the natural habitat that native plants need to persist. Spatially analyzing edaphic substrate data against select FMMP data shows the amount of these substrates that have been lost due to post-industrial. For example, 17,280 acres of the alkaline soils have been mapped within all East Bay BPPAs. Of those acres, 21 percent containing alkaline soils within our BPPAs have been lost. Although sandy soils within our chapter area are restricted to Contra Costa County, at one time they represented 24,726 acres. To date, at least 33 percent of sandy soils no longer support healthy native communities of plants. Serpentine substrates manifest themselves in three of the 15 BPPAs: Cedar Mountain, Marsh Creek, and North of Mount Diablo. However, none of these habitats has been as significantly impacted as the large serpentine bodies of the Berkeley and Oakland Hills have been from residential development.

EAST BAY CNPS



Following this initial mapping effort, the East Bay Chapter's Conservation Committee began to utilize the concept in draft form in key local planning efforts. Lech Naumovich, the chapter's Conservation Analyst staff person, showcased the map set in forums such as the BAOSC's Upland Habitat Goals Project and the Green Vision Group (in association with Greenbelt Alliance); East Bay Regional Park District's Master Plan Process; and local municipalities. In the near future we anticipate these BPPAs will be incorporated into the Eastern Alameda County Conservation Strategy, a regional planning effort currently being developed.

As a result of this collaboration our chapter also secured grant funding from the Tides and Rose Foundations to prepare this guidebook of these BPPAs. This guidebook includes maps of the 15 BPPAs, which appear opposite pictorial and narrative treatments. These treatments include a written contribution from a guest author, lists and photographs of sensitive botanical resources, a portrayal of the subject areas' botanical hot spots and noteworthy collection history, and a discussion of threats, opportunities, and constraints unique to each area. With the exception of the guest authors' contributions, the remaining text appearing in the green boxes was written by lead authors Mr. Bartosh, Mr. Naumovich, and Conservation Committee Chairperson, Laura Baker.

As an enticement to professionals and laypeople alike, our guest authors contributed their personal impressions of these areas and why they are important as native plant refugia. Their contributions appear at the top of the page to provide the reader "A Sense of Place" relative to each BPPA. The guest authors include a broad spectrum of individuals ranging from dedicated amateur botanists, established academics, and government regulators. They were provided a list of interview questions to elicit a connection to the BPPA that would appeal to both native plant neophytes and seasoned enthusiasts. These questions were formed into a short paragraph that portrays their impressions and importance of the BPPA. Due to layout restrictions, many of the guest authors' pieces appearing in this guidebook are abridged versions. Each of the guest author's entire narratives will be published separately in coming issues of the East Bay Chapter's newsletter, the *Bay Leaf*.

Botanical Priority Protection Areas

Alameda and Contra Costa Counties

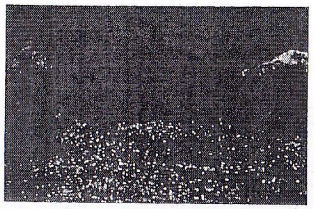
Each BPPA includes a list of sensitive botanical resources that have been given listing status and comprise: one sensitive natural community; four plant species that are either statewide or locally rare and considered extant; and one historic occurrence that has not been seen for a minimum of 40 years. A section on the botanical hot spots within the BPPA is included that addresses the general locations of this list of botanical resources and colorful collection anecdotes. This list is also accompanied by photos of selected species within each BPPA.

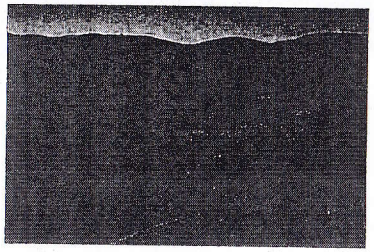
An understanding of listing status in California and its regulatory significance is important to understanding the text below that deals with various rankings. Listing status is given for specific vegetation types and native plant species that meet a certain set of criteria. Within our chapter area we recognize three types of listing status: Sensitive Natural Communities; Special-Status Plant Species; and Locally Rare Plant Species. These designations support our labeling of the 15 botanical areas as priorities for protection.

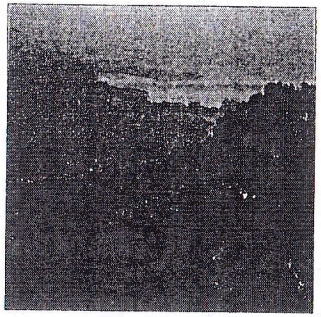
Typically, vegetation types that are given an elevated listing status are referred to as Sensitive Natural Communities. Sensitive Natural Communities are characterized as plant assemblages that are unique in constituent components, restricted in distribution, supported by distinctive edaphic conditions, considered locally rare, potentially support special-status plant or wildlife species and/or receive regulatory protection from municipal, county, state and/or federal entities. The California Natural Diversity Database treats a number of natural communities as rare, which are given the highest inventory priority. Current vegetation types treated as Sensitive Natural Communities appear in the California Department of Fish and Game (CDFG) Vegetation Mapping and Classification Program's *List of California Vegetation Alliances*.

Special-status plant species are those considered listed as Endangered, Threatened, or Rare by the U.S. Fish and Wildlife Service and/or by the CDFG. Regulatory statues that have designated certain plant species as having special-status include: Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), California Fish and Game Code, and the Native Plant Protection Act (NPPA) of 1977.

In addition, CNPS has developed and maintains a list of rare, Threatened and Endangered plants of California. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. The CNPS list is endorsed by the CDFG and effectively serves as its list of "candidate" plant species. The following identifies the definitions of the CNPS listings:







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List 1A: Plants presumed to be extinct in California;

List 1B: Plants that are rare, Threatened, or Endangered in California and elsewhere;

List 2: Plants that are rare, Threatened, or Endangered in California, but are more numerous elsewhere;

List 3: Plants about which more information is needed (a review list); and

List 4: Plants of limited distribution (a watch list).

CNPS List 1B and List 2 species are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code. As part of the CEQA process, such species should be fully considered, as they meet the definition of Threatened or Endangered under the NPPA and Sections 2062 and 2067 of the California Fish and Game Code. CNPS List 3 and List 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and CNPS and CDFG recommend that these species be evaluated for consideration during the preparation of California Environmental Quality Act (CEQA) documents, as some of these species may meet NPPA and CESA criteria as Threatened or Endangered.

Locally rare plant species are those considered to be: 1) at the outer limits of their known distribution; 2) a range extension; 3) a rediscovery; or 4) rare or uncommon in a local context. All of these are tracked in Alameda and Contra Costa counties by the East Bay chapter of CNPS and published in *Rare, Unusual, and Significant Plants of Alameda and Contra Costa Counties*. Through this program, the East Bay Chapter has been divided into 40 botanical regions based on vegetation, geology, habitats, soil types, climate, and other factors.

Although not regarded as special-status species by the USFWS or CDFG, locally rare plants can receive regulatory protection, through CEQA's Article 9 and Guidelines §15125(a) and §15380 which state that "special emphasis should be placed on environmental resources that are rare or unique to that region." CNPS also has the stated goal of "preserving plant biodiversity on a regional and local scale." Relying on these statements the East Bay Chapter of CNPS maintains a program, started in 1991, that tracks rare, unusual, and significant plants that occur within our chapter.

Anthropogenic and environmental threats are a common thread to each BPPA. The inclusion of a discussion of threats, opportunities, and constraints highlights current conservation issues and conveys why these areas need protection. We hope to highlight some of the current, relevant environmental impacts facing the BPPAs, as well as introduce some of the cooperative efforts that are helping bring attention and protection to the unique botanical values of the sites.

Our chapter is keenly aware of the challenge facing us as we try to cope with the push to accommodate a growing tide of population drawn to the beauty of our unique East Bay landscape. California's most enduring but ironically tragic character flaw is that it draws many people to a place of delicate and finite natural resources. With our guidebook, we hope to provide local governments and land managers enough information to make botanically conscious land-use decisions so that our beloved botanical treasure box will bend, not break, under the weight of its growing human population.

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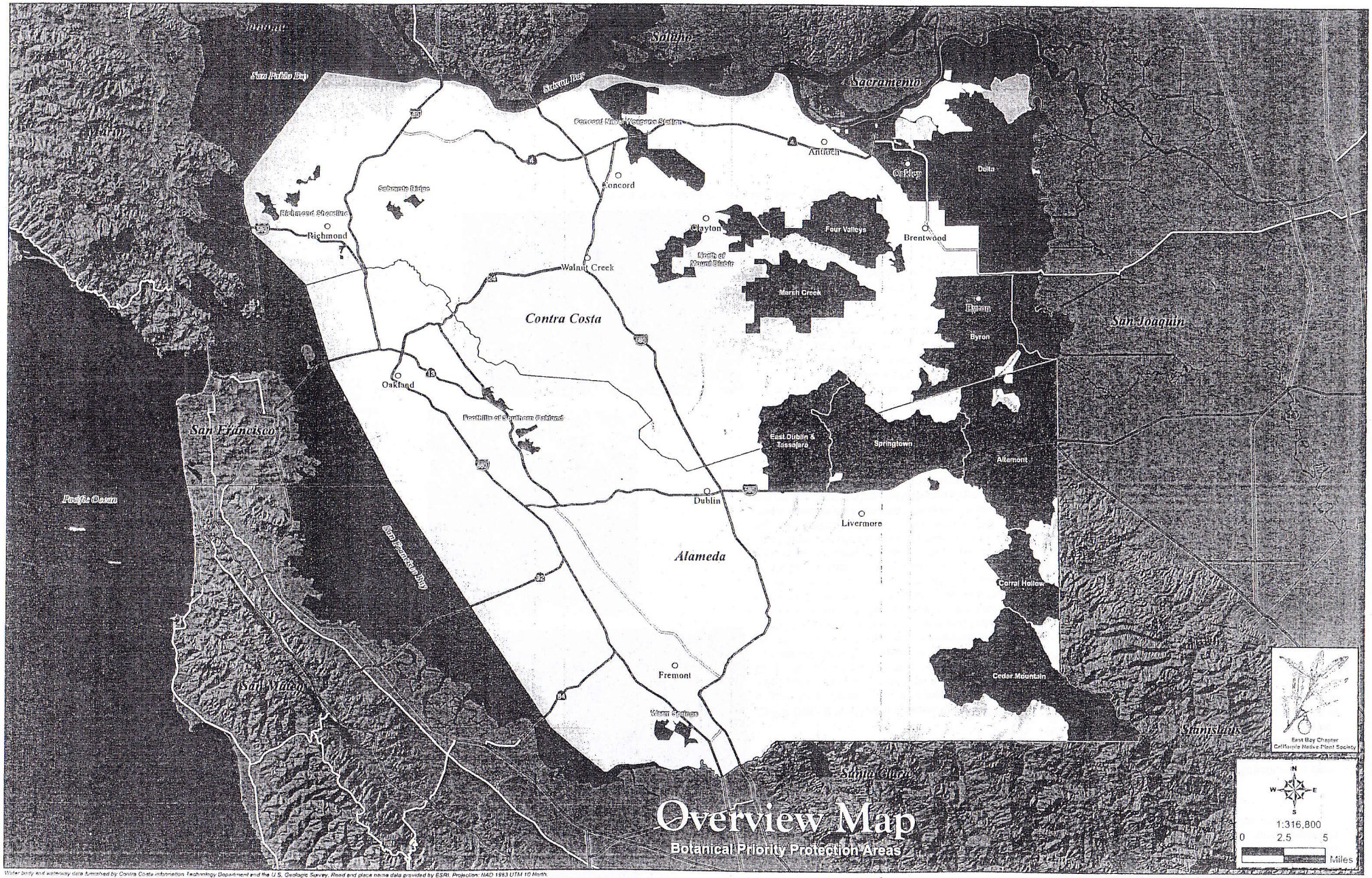
For information on this project please contact Heath Bartosh, East Bay Chapter Rare Plant Botanist. hbartosh@nomadecology.com or Lech Naumovich, East Bay Chapter Conservation Analyst conservation@ebcnps.org.



Water body and waterway data furnished by Contra Costa Information Technology Department and the U.S. Geologic Survey. Road and place name data provided by ESRI. Projection: NAD 1983 UTM 10 North.

Alameda and Contra Costa Counties, California 3