

ESTABLISHING A LOCALLY RARE PLANTS PROGRAM FOR YOUR CHAPTER

By Dianne Lake, CNPS Locally Rare Working Group

INTRODUCTION

Although locally rare and significant plant species can often be much rarer in an area than some statewide rare plants occurring there, very little is being done to protect these important populations. Only two CNPS Chapters currently have locally rare programs: the San Francisco East Bay Chapter which addresses Alameda and Contra Costa Counties, and the Channel Islands Chapter which addresses Ventura County. Although the Santa Cruz and Sacramento Chapters both started informal locally rare programs several years ago, they have since been discontinued, although the Santa Cruz program has expanded into a larger project of developing a county flora. In addition, the Santa Barbara Botanic Garden has developed a database tracking locally rare plants in the Central Coast Region and is examining methods of conserving and protecting these populations.

Each of the current programs addressing locally rare species has taken a slightly different approach in establishing their programs and in determining what their locally rare and endangered plants are, and some of these approaches and programs are described herein to assist Chapters in setting up their own Locally Rare programs.

IMPORTANCE OF LOCALLY RARE SPECIES

The preservation of these locally rare populations is important for a multitude of reasons. These isolated populations have often been found to possess plants with greater genetic variation and better survival rates than those in populations occurring where the species is more common (Vucetich and Waite 2003; Lesica and Allendorf 1995; Lawton 1993; Betancourt et al 1991; Scudder 1989; Tigerstedt 1973). In rapid and catastrophic extinctions of large populations, the plants on the periphery of a range or in isolated disjunct populations have often survived (Araujo, 2002; Nielsen et al 2001; Channel & Lamolino 2000). While a common species with large populations can disappear rapidly in the face of climate change, catastrophic events, or a pathogen moving from plant to plant, isolated populations can often escape this fate simply as a result of their distance from the main populations. Isolated populations and those at the range edges of a species often encounter more difficult environmental conditions and therefore tend to develop stronger survival mechanisms (Smith et al 2005; Smith et al 2001; Crandall et al 2000; Lesica and Allendorf 1995; Endler 1977). These isolated and peripheral populations can sometimes be the only hope for survival that a species has in the event of an environmental disaster.

It is also important to note that locally rare lists are not **just** about preserving **individual** species, but are also instrumental in determining local areas of native plant diversity,

defining places with threatened or unique habitats or suites of endangered plants, defining patterns and trends that cause local rarity, identifying areas in need of study or conservation, identifying areas with special environmental factors, etc.

These lists of locally rare species are important tools for local land planners and managers and help them make informed and careful land planning decisions. These lists also provide important assistance to CNPS and other organizations for reviewing EIRs and other local land planning documents. When several locally rare species occur on a property, even if there are no statewide rare plants there, the significance of impact should be considered since it is an environmental resource that is rare or unique to a region and thus required for consideration as described in the guidelines of the California Environmental Quality Act (CEQA) in Section 15125©.

STEP ONE - ESTABLISHING A PLANT CHECKLIST FOR YOUR AREA

The first step, of course, is to know what plants occur within your Chapter boundaries. If a flora or plant checklist exists for your area, you're at least half way there. If not, the first step is to develop a checklist for the Chapter's area.

Before compiling the list, however, two issues should be discussed and resolved by the Chapter so that records can be evaluated as to whether or not they should be included in your list or how they should be included. First, the difference between current and historical records must be established; and second, a method of evaluating and indicating source reliability must be developed.

1) Current vs. Historical Records

When compiling a list of plants for a Chapter's area, a distinction needs to be made between populations that are considered to be current and those that are historical and either presumed extirpated or at least questionable as to their current existence. A dividing year (e.g. 1975) should be determined and any species that has not been reported since that year or before should not automatically be assumed to still be extant in the area without field checking it first. Its current existence there should at least be indicated on the list as questionable until field surveys for it can be conducted.

The dividing year used may vary from Chapter to Chapter depending on how quickly things change in different areas. Chapters where there is a high rate of development or disturbance may want to use a more recent year than Chapters where there is less activity and change takes place more slowly.

Locations should be considered when determining the likelihood of a population still existing, and whether those locations are still in a natural state or if they have been developed or highly disturbed. If habitat still

remains, the plant may still be present but simply overlooked and surveys for plants in these areas should probably be of higher priority than those in more developed or disturbed areas.

The California Department of Fish and Game uses 20 years as the default in their California National Diversity Database (CNDDDB) but also considers ecological factors where known. If habitat remains, occurrences are considered “presumed extant.”

In the San Francisco East Bay Chapter the year 1950 was originally chosen as a dividing line between current and historical records when the program first began in the late 1980’s. In 2004, however, the dividing year was moved up to 1975.

Dieter Wilken of the Santa Barbara Botanic Garden has suggested that the dividing year should be moved up each year rather than periodically (Wilken 2004). This would probably provide a more accurate assessment of current populations.

Once a year has been established, populations reported after that year can be assumed to still be current unless there is evidence to the contrary, such as the area having since been developed or highly disturbed.

2) Source Reliability

There is controversy about whether or not species should be included if there are no vouchers for them at that site. Many feel that plant lists and records should not be considered valid if there are no vouchers to back them up.

While voucher specimens certainly provide the most reliable and verifiable data, there is a wealth of plant data available that do not include vouchers and these data should not be ignored or dismissed. They should, however, be looked at with a critical eye.

Vouchers are not always available or in the best interest of a plant species. Small or threatened populations should obviously not be vouchered if it would result in greatly reduced viability or the destruction of a population. Occasionally, a single leaf or flower can be collected without harming the plant, but that leaf or flower must possess the diagnostic features necessary for the identification of that particular species. For more information on proper vouchering procedures, contact your local herbarium or visit their website.

In some cases, a photograph can be used to verify a population, but photographs often cannot record the tiny details that distinguish between

taxa. The photograph must include the identifying characteristics that verify the identification of the plant.

When vouchers or identifying photographs are not available, several options may be considered:

1) Non-vouchered records may be included in the checklist but marked as “unverified” or “questionable identification,” especially when identification is difficult and/or a closely related taxon could be present.

2) Records or lists can be reviewed by a person who is familiar with the local flora and would recognize if a plant species seemed unlikely for an area or one that could easily be confused with another more common species. That person could then indicate which species needed further research or verification and those plants could be included on the list as “questionable” until they are verified.

3) The source of the plant data can be considered, such as the botanical skill of the person reporting the data and their familiarity with the local flora. The identification of *Lilium pardalinum*, for example, by a person who is an expert on the Lily genus would be more reliable than an amateur less familiar with that genus.

4) The identification of questionable records could be discussed with the person supplying the data to determine how the identification was determined and if and how that determination was verified.

5) Questionable records could be field-checked and vouchered or photographed.

Plant lists, observations by other people, etc. must be examined carefully and questionable identities should always be noted and field-checked whenever possible.

Dr. Barbara Ertter, Curator of Western North American Flora at the University and Jepson Herbaria at UC Berkeley, has developed a very helpful numeric system to describe source reliability in her publication *Annotated Checklist of the East Bay Flora* (Ertter, 1997). In this system, “1” indicates vouchered; “2” indicates observed by the author; “3” indicates a highly reliable secondary source; and “4” indicates any other source.

Sources of Data

Several sources can provide information on what plant species occur in a Chapter's area either currently or historically.

CalFlora

CalFlora (CalFlora.org) is a good starting point. Records on this website can be searched according to county and a list can be produced of the plant species known from your area.

However, it should be pointed out that CalFlora includes both verified and unverified information, and unverified records should be indicated as such if they are used on your list. For example, some records are listed as from "Botanical Literature Summary of Ranges; probably present" and these should be verified by further research or field surveys before they are added to your list, or else listed as questionable or unverified.

The fee for personal users of the CalFlora site has been waived for 2006. The normal fee is \$10/year and if the fee is reinstated and your Chapter does not have a paid subscription to CalFlora, contact Kristi Lazar at the Rare Plant Program (klazar@cnps.org; 916-324-3816) to run a query for you.

CNPS On-line Inventory

If your Chapter would like to include statewide rare plants on its locally rare list, the 'Index by County' link of the On-line Inventory is a useful source. The On-line Inventory is updated quarterly and can be accessed at: www.cnps.org/inventory.

It is advisable to include statewide rare species on the list and distinguish them from locally rare species. Otherwise, a list of just locally rare species could be confusing or misleading and users could infer that these are the only species of concern for the area, no matter how many caveats or explanations are presented in the title, introductory materials, etc. The East Bay Chapter discovered the hard way that many people don't read introductions or even titles, or that they interpret them in their own ways.

Each Chapter may find its own way to distinguish the statewide rare species from the locally rare, but in the East Bay, the statewide species are presented in upper case type and their rarity rank is preceded by an asterisk (e.g., *A1).

California Natural Diversity Database (CNDDDB) of the California Department of Fish and Game

Locality data on statewide rare plants can be accessed via the CNDDDB's RareFind application. The Rare Plant Program coordinates the distribution of RareFind CD updates to Chapter Presidents (or

Conservation/Rare Plant Chair if requested). RareFind mapping and report data will soon be distributed solely via a password-protected web application. Unprocessed data that have not yet been entered into RareFind can be viewed on-line using the CNDDDB's Quad Viewer (http://maps.dfg.ca.gov/CNDDDB_Quads/). Keep in mind that these data have not been quality controlled (e.g. a quad could contain a record for a plant species, but this does not always mean that the plant is present since this could be a form reporting a negative sighting or misidentification). Contact the CNDDDB (rbittman@dfg.ca.gov) or CNPS Rare Plant Program to get more information on questionable records in the unprocessed data.

Local Plant Lists

Plant lists are a great source of information but must also be examined with a careful and critical eye since they can have mistakes. Volunteers can request and collect plant lists, but they should be reviewed by someone familiar with the local flora who would recognize if a plant species seemed suspect or out of range for an area or if a species could be easily confused with another more common species and thus in need of further research and verification. The identification of suspect plants should be questioned and either field checked or discussed with the compiler of the plant list if possible. Until the suspect plants are verified they should be placed on the list as "questionable" or "unverified".

Some sources for local plant lists are:

Rare plant surveys and local field trip records from CNPS and other local environmental organizations;

Plant lists and other data collected by staff at local parks, universities and other institutions;

Field notes and plant lists kept by local botanists (both amateur and professional);

Plant lists and botanical resources discussions in environmental documents such as EIR's, EA's, etc. (<http://elib.cs.berkeley.edu/docs/query.shtml>). It should be noted, however, that these documents are not always completely accurate and should be reviewed by persons familiar with the local flora who could recognize questionable identifications, as suggested above;

Museums and libraries are good sources for historical information and may have field notebooks and other records kept by early botanists, pioneers and explorers.

Local Botanists

Local botanists, both professional and amateur, often have a great deal of information in the form of field notes, plant lists, or sometimes just in their heads. They should be contacted and interviewed for their local knowledge. Field notes of historical botanists and others should be consulted when possible. These can often be found in local public libraries, university libraries, herbaria archives, or museums.

Herbarium Records

Herbarium vouchers should be examined where available. Vouchered specimens are the most reliable records especially of historical populations. It is also important to remember, however, that some herbaria have a backlog of current specimens that have not yet been mounted or filed. Access to these specimens can be requested and, if granted, they should be handled with the greatest of care. Also, it is important to remember that some specimens may be mis-identified or mis-filed.

Below are some links to herbaria with on-line data:

The Consortium of California Herbaria –

<http://ucjeps.berkeley.edu/consortium/>

The Consortium was developed to serve as a gateway to information from California vascular plant specimens that are housed in herbaria throughout the state. As of January 2006, the database includes information from more than 700,000 specimens, all searchable through a single interface. Originally developed around botanical collections from University of California herbaria, the consortium continues to grow as more collections are added. Currently, ten collections are accessible through this interface.

Humboldt State University Herbarium -

<http://sorrel.humboldt.edu/%7Eherb/Herbarium%20Specimen%20Inventory.Sixth%20edition.doc>

San Diego Natural History Museum -

<http://www.sdnhm.org/research/botany/sdplants/list-alpha.html>

New York Botanical Garden - can search by county and for type specimens - <http://www.nybg.org/bsci/hcol/intf/>

Literature

Books and journals often mention plants studied in a specific area and university libraries, especially, can be helpful with this type of research.

Recording Data

While compiling this checklist, locations or occurrences should be noted to help determine commonness or rarity later.

A database should be set up and data recorded into it including specific location information, especially UTM or latitude and longitude coordinates if available (including datum source: NAD1927, NAD1983, or WGS84). Information on USGS quad section quarters is also helpful. Also include fields for name of observer; type of observation (voucher, plant list, photo, etc.); source of data (herbarium voucher, plant list, personal communication, etc.); elevation; voucher number; etc.

If statewide rare species are included in your database, a field for the CNDDDB element occurrence number (EO) should also be included. This information can be found in the CNDDDB's RareFind application which is periodically distributed to CNPS Chapter presidents.

Several different programs and methods are available for setting up a database. The East Bay Chapter uses Filemaker and has several relational databases, with the two main ones being a Species database and an Observation Records database. Microsoft Access is also a popular database program used by the state level of CNPS, the Santa Barbara Botanic Garden and others.

While the list should include plant species found both currently and historically in your area, a method of designating species that are presumed to be extirpated from the area or not reported for a long time should be developed as discussed under "Current vs. Historical Records" on page 2. Fields indicating "historical", "current" or "questionable" can also be added to the database.

First Peer Review

When a list of all known species in your area has been compiled, it should be distributed to local botanists for comments, additions, and deletions. The Rare Plant Program at the state level of CNPS maintains an email list of over 500 botanists statewide and can help with providing regional contacts, if needed.

STEP TWO - DEVELOPING CRITERIA FOR LOCAL RARITY AND ENDANGERMENT

Once a checklist of the local flora is available for a Chapter's area, a set of criteria should be established to determine local rarity or endangerment. Number of occurrences is an obvious place to start, but many factors can be looked at and analyzed.

A three-scale analysis has been recommended by Hartley and Kunin (Hartley & Kunin, 2003) to assess the endangerment of a plant species in an area: rarity, rate of decline, and population fragmentation. These three points address different types of threats and thus provide a more accurate depiction of a species' status in an area than just number of

occurrences. These points can be further broken down into number of occurrences, geographic range, range limits, habitat, threats, size of populations, and also type locality.

Occurrences

Number of occurrences is the one criterion that is common to all of the current locally rare programs, although the East Bay Chapter in the San Francisco Bay area has put a slightly different spin on it and uses locations rather than individual occurrences, as discussed below in “Locations and Regions vs. Occurrences”.

An occurrence, as described by the CNDDDB, is a single population or a series of small populations within one-quarter mile of each other (Bittman, 2001). The CNPS Rare Plant Program also uses this separation distance. For consistency, it is advisable for Chapters to use this definition, but there may be other factors or conditions in some Chapter areas where other definitions or at least different separation distances may be more accurate or appropriate for their particular area.

The specific **number** of occurrences used to designate local rarity may also be different for each Chapter and may depend on several factors such as habitat, rate of local development or disturbance, threats, and other factors. Each current locally rare program has used a different number and a different rationale in choosing their number. In Ventura County it is less than six occurrences; in the Central Coast Region it is eight occurrences or less. The former program in Santa Cruz County used six or less.

For Ventura County the designation of less than six occurrences to define locally rare species was chosen because it is a number that is easily defensible, both scientifically and legally, and is based on the criteria used by the Natural Heritage Program system developed by the Nature Conservancy and used by the CNDDDB (Magney 2004, Ward 2005).

For the Central Coast Region the Santa Barbara Botanic Garden chose eight occurrences or less because a higher number would have doubled the number of species on the list and there was concern that too large of a list would distract attention from those species in the greatest need of special attention. However, many species with more than eight occurrences are still included in the database and their status is tracked (Wilken 2004).

Locations and Regions vs. Occurrences

In the San Francisco Bay area, the East Bay Chapter (covering Alameda and Contra Costa Counties) uses a system of locations and regions, rather than individual occurrences. It defines a location as a specific place, such as a park, town, historical area, etc., regardless of how many populations may occur there. One of the reasons for this approach, is that so many sources, especially historical vouchers for the area, do not provide specific location information and merely state “Berkeley Hills”, “Mt. Diablo”, “Tilden Park” or such with no description of an exact site. Therefore, if there are 10 records that simply say “Tilden Park”, it is

impossible to know if they all refer to a single population there or to 10 separate populations scattered throughout the park. One of the goals since the project first started in 1989, in fact, has been to track down more specific location data for many of these records.

After a few years of using the location system, however, the East Bay Chapter noticed that designating individual locations did not always indicate the true status of a plant's rarity or endangerment in the two-county area. For example, if a plant is found at several locations but they are all within a small geographic area, its endangerment is generally higher than if the several locations are scattered across the two counties.

Thus, a region system was developed in which the two-county area was divided into 40 botanical regions based on the system used in Dr. Barbara Ertter's annotated checklist for the East Bay (Ertter, 1997). The eight major regions and 21 subregions in her book 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. The result was that 40 distinct botanical regions were identified in the two-county area. The list of locations was then examined and each location was placed into the appropriate region. Rarity is now based on how many regions a plant is found in, and the number of occurrences in each region is a secondary criterion.

Geographic Range

How rare or common is the species in other parts of the state? Does it occur throughout the state or in only a few other nearby counties? How rare or common is it in those other counties? Are the populations in the Chapter's area within the plants normal range or are they disjunct populations?

Range Limits

Does the species reach its range limit in the Chapter's area? If so, not all populations there are necessarily considered to be rare or endangered but only those that are near the range limit. For example, in the East Bay, *Eriogonum angulosum* occurs at several locations in the southern part of Alameda County (covering three regions), but a recently discovered population of it at Black Diamond Regional Preserve in northern Contra Costa County is of greater interest because it is at the northern limit of its range there and the species had not been reported in the area since 1955.

Habitat

Does the species occur only in rare or threatened habitats? Is it common or rare in those habitats? Is the habitat limited because of natural reasons (e.g., geology) or is it declining because of man's interference such as exotic weed invasions, development, agriculture, altered water patterns, etc.?

Threats

Is the species declining in the Chapter's area? Is it stressed by weed or insect invasions, drought or changed water tables or flow patterns, etc.? Is the plant or its habitat threatened by over-development, poor grazing or agricultural practices, etc.?

Sizes of Populations

Are the populations large or small? If a population consists of only a few plants it is usually considered more endangered than those with many plants. But it should also be remembered that large populations can also be vulnerable in the face of a number of factors such as insect invasions, changed water tables or drainage patterns, geological shifts (e.g. earthquakes, sea level changes), climate changes, etc. Thus, number of populations is important even if some of the populations are quite large.

Type Locality

Is the Type Locality for a species, even a common one, in the Chapter's area? If so, it is important to preserve that population and its habitat for future research and study to help better understand the plant and its requirements. Type specimens are those from which a species was originally described (although they are not always "typical" of the species). When these specimens were first collected, however, thorough habitat data was not always collected, so it is important to preserve these areas so that they can be re-sampled and more data can be collected to help better define and understand a species.

Type specimen locales can be found on www.IPNI.org.

Chapters may find additional factors to look at as well, and there may be factors that are specific to certain areas and conditions.

STEP THREE – ANALYZE DATA AND COMPILE LIST OF LOCALLY RARE SPECIES

Once a set of criteria has been established, it should be applied to each species on the Chapter's checklist.

If a database has been set up and the number of occurrences and their locations have been recorded, a review of the database will quickly reveal that certain species are quite common. The full set of criteria, however, should be applied even to these more common species since some may occur in threatened habitats or reach their range limits in the area and thus some of the more isolated or outlying populations of these relatively common species may be significant and in need of protection.

As the criteria are applied to the species on the Chapter's checklist, and certain species are determined to be rare, endangered, or threatened in the area, it will become apparent

that even among the rare species, some are rarer than others. Thus, a Chapter may want to develop a rarity ranking system.

Rarity Rank

The number of occurrences or locations of a species may be the major criterion for determining rank, but the other criteria should be considered as well. Again, different systems may work better for different Chapters depending on local conditions.

The East Bay Chapter has developed a ranking system using A1, A2, B, and C. As noted earlier, this Chapter uses a locations and region system rather than occurrence system, in which locations are grouped into regions. The number of regions a species occurs in determines its rank. "A1" indicates species currently occurring in 2 or fewer regions in the two-county area; "A2" indicates species currently found in 3 to 5 regions there; "B" in 6 to 9 regions, and "C" in 10 or more regions (a Watch List). In addition, "A1x" indicates species that occurred there historically but have not been reported since 1975 or before and are now presumed to have been extirpated from the area; "*A1" indicates statewide rare species (listed in the CNPS Inventory) that occur in 2 or fewer regions in the two-county area; and "*A2" indicates statewide rare species that occur in 3 or more regions there (no matter how many). In 2005, another rank "A1?" was added to indicate species that have been reported in the area but for which there are taxonomic or distribution questions, making it unclear if they actually occur there or not.

All A-ranked plant species in the East Bay Chapter's program are required for consideration under CEQA as they meet the guidelines for locally rare resources described in Sections 15380 and 15125(c) of CEQA.

Second Peer Review

Once a list has been made of the locally rare and significant species in your area using the criteria that the Chapter has established, the list should be circulated to local botanists, both amateur and professional, and anyone else with knowledge of the local flora, even if they are only familiar with one particular genus or family. They should be asked to review and assess the list using the criteria that the Chapter has developed to determine if any species should be added to or deleted from the list.

As stated earlier under "First Peer Review" on page 8, the Rare Plant program of the state level of CNPS has email and contact information for 500 botanists statewide and can assist Chapters if needed.

STEP FOUR - MONITORING AND ONGOING RESEARCH

Once a list has been established, the plant populations on the list should be monitored regularly to determine if they are stable, declining, or increasing, and to track any threats such as weed encroachment, grazing, insect damage, etc.

Surveys should be conducted for plants on the list that are of questionable identification or location, and also for populations that are historical to determine if they may still be present or if there is still habitat remaining at those locations.

Local planning and land use management agencies should be notified that these locally rare plants are protected under CEQA in sections 15380 and 15125(c), which address species of local concern and place special emphasis on environmental resources that are rare or unique to a region.

It should be emphasized that the list is constantly a list in progress as research continues and plant populations move and respond to fluctuating environmental and human conditions.

Distribution maps should be produced for each species. Maps should also be produced of all of the rare species (both locally and statewide rare) in the area to determine botanical hotspots and areas in need of protection.

Locally rare populations should be studied and analyzed to determine why they occur where they do and why there are so few populations in the area when they are more common elsewhere. Microclimates, soil variations, water flow patterns, and pollinators are a few of the factors that can be examined. Genetic analysis should be performed if possible to determine if locally rare populations are different from populations where the plant is more common. Local colleges and universities can be notified of these research opportunities for their students.

SOME SUCCESS STORIES TO GIVE YOU HOPE

In Ventura County, the county planning commission now requires consideration of all locally rare plant species as well as statewide rare plants in all planning and development projects in the area. The General Plan for the County states as one of its goals to “preserve and protect significant biological resources in Ventura County from incompatible land uses and development. Significant biological resources include endangered, threatened or rare species and their habitats, wetland habitats, wildlife migration corridors, and **locally important species**/communities” (Ventura County 2004).

In the East Bay, the *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* report is regularly used by many consultants and land planning agencies to determine significant plants on their properties. Many EIRs for local development

projects now at least discuss the concept and presence of locally rare plants found on project sites, as well as the statewide rare plants found there.

The East Bay Regional Park District and the East Bay Municipal Utilities District have both mapped all of the populations of locally rare plants on their lands, and the populations of A-ranked species, especially, are given the same consideration as statewide rare plants in most of their planning and management activities.

SUMMARY

1. Compile a checklist and database of all plants known from the Chapter's area unless a flora already exists for that area.
 - a) Develop a method to distinguish between current and historical records.
 - b) Establish a policy for evaluating and indicating source reliability.
 - c) Identify and consult data sources.
 - d) Circulate checklist to local botanists and others for additions, deletions and comments.
2. Develop criteria to determine local rarity or endangerment, such as number of occurrences or locations, geographical range, range limits, habitats, threats, sizes of populations, and type locality.
3. Analyze the species on the Chapter area's checklist using the criteria developed in step 2 to determine the commonness or rarity of each species.
4. Compile a list of locally rare and endangered species in the Chapter area.
5. Develop a rarity ranking system if desired.
6. Circulate list for peer review.
7. Finalize list.
8. Notify local agencies and land planners about the status of these species and the necessity of protecting them.
9. Monitor locally rare species on a continuing basis.
10. Continue field surveys and other types of research.
11. Update the list regularly or when necessary.

KNOWLEDGEABLE CONTACTS

CNPS Locally Rare Working Group – lrgroup@cnps.org

East Bay Chapter – Dianne Lake – diannelake@yahoo.com

Channel Island Chapter – David Magney – david@magney.org

Santa Barbara County – Dieter Wilken – dwilken@sbbg.org

North Coast Chapter – Gordon Leppig – gleppig@dfg.ca.gov