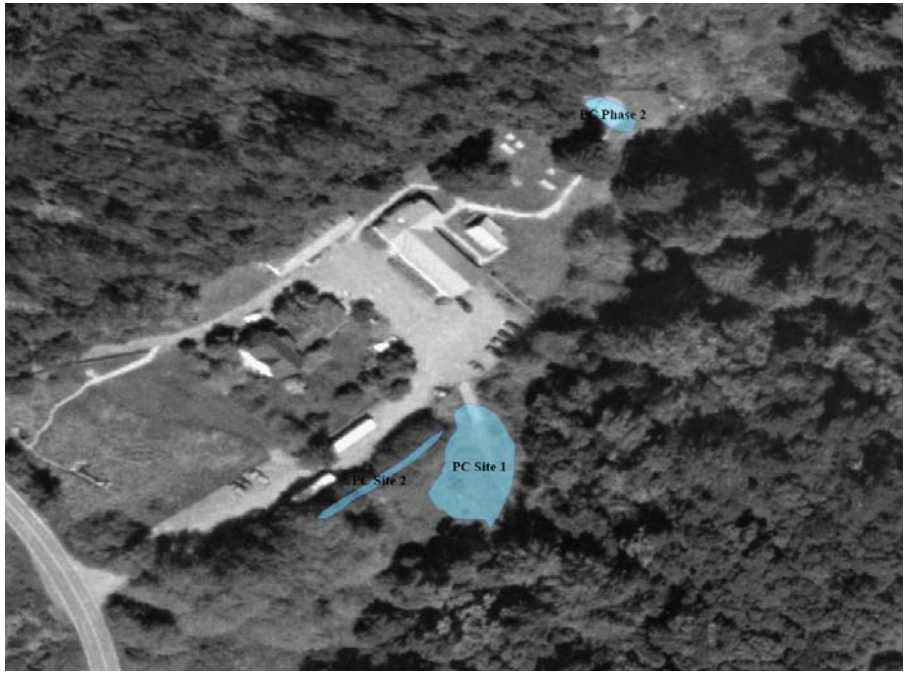
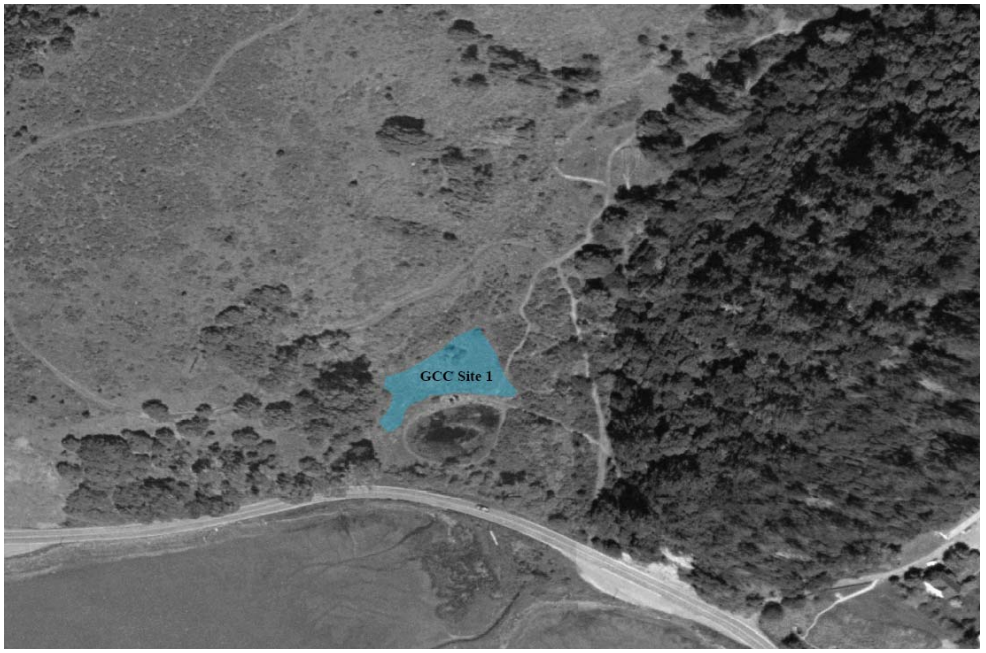
Audubon Canyon Ranch

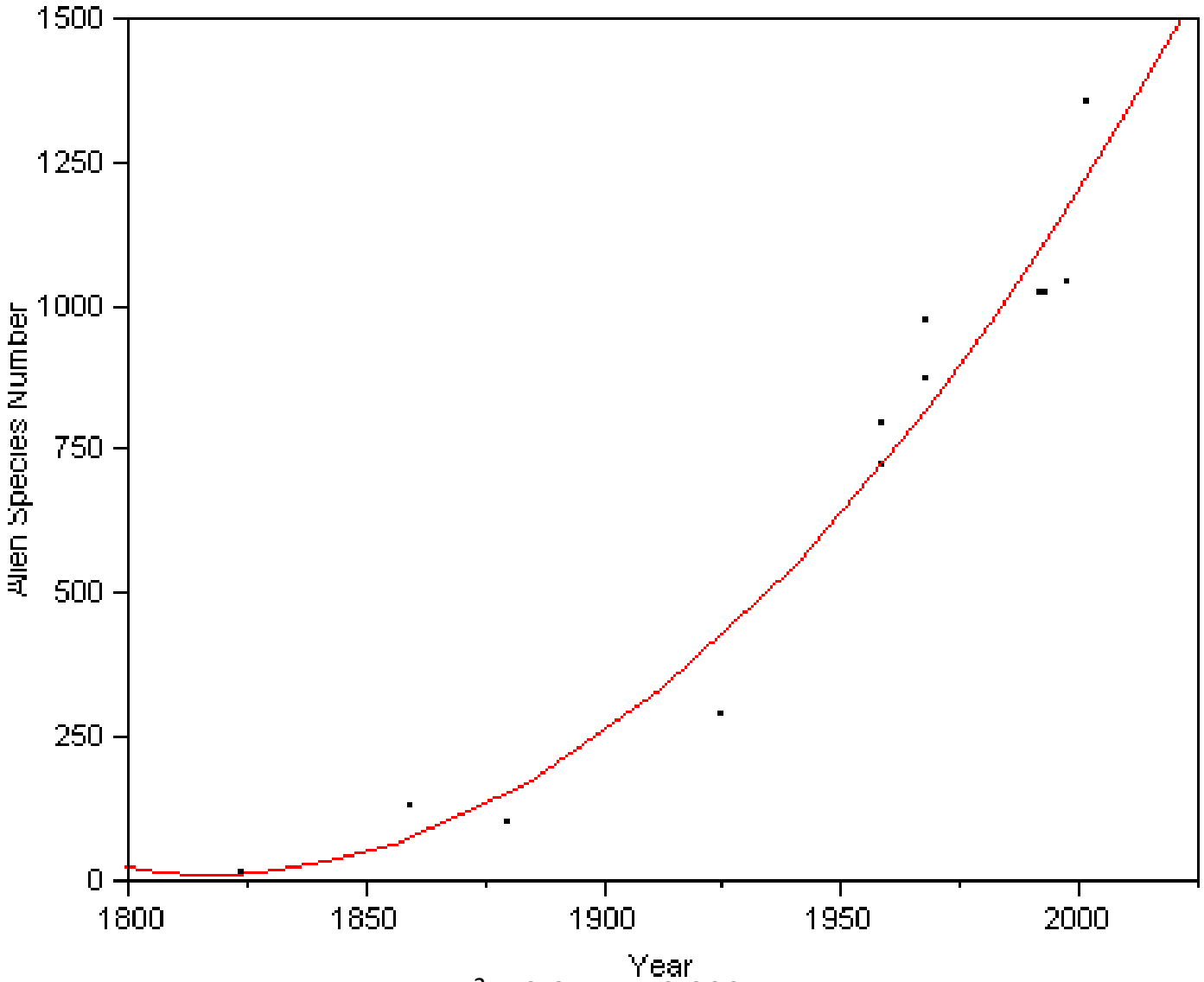

PC Phase 2
PC Site 1
PC Site 2


GCC Site 1


VC Site 3
VC Site 2
VC Site 1


PCG Site 2
PCG Site 1

Invasion Rate is Increasing.



$R^2 = 0.95$, $p < 0.0001$

Early Detection & Rapid Response

1. Determine what species will be bad tomorrow.
2. Find where they are today.
3. Prioritize and eradicate the most harmful.
4. Show results, ask for more money.
5. Repeat until done.

Bay Area Early Detection Network

BAEDN

Bay Area Early Detection Network

B.A.E.D.N.

Alameda - Contra Costa – Marin – Napa – San Francisco
San Mateo – Santa Clara - Solano - Sonoma

Outreach to Partners

Bay Area Early Detection Network gets rolling

Daniel Gluesenkamp, Audubon Canyon Ranch

Whether we are protecting humans from swine flu or protecting rivers from *Arundo donax*, early detection and rapid response (EDRR) is the most cost-effective approach for coping with biological invasions. Indeed, the official California Invasive Weed Action Plan identifies EDRR as "the single most important element" for coping with invasions. EDRR is a "stitch-in-time" approach which proactively deals with infestations before they can grow into large and costly environmental threats. By acting early we efficiently prevent the environmental and economic damage caused by harmful invaders, we can use less intrusive control techniques, and we dramatically reduce the planning and resources required to manage populations compared to when they have grown larger and become well established.

The Bay Area Early Detection Network (BAEDN) is an exciting new initiative that builds an EDRR system to serve the entire nine county San Francisco Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties. The group unites and coordinates the EDRR efforts of dozens of agencies, hundreds of professional land managers, and potentially thousands of volunteers. BAEDN partners work together to develop a scientifically rigorous list of the most harmful invasive plants, train each other in detection techniques, make detections and report them to the online website, and then prioritize individual patches so that the most dangerous outbreaks can be removed before they spread. It's simple, it's

...continued next page

Invasive Weeds Beware -- BAEDN Is Here!

"EARLY DETECTION" PROGRAM LAUNCHED TO MARK CALIFORNIA INVASIVE WEEDS AWARENESS WEEK
SF BAY AREA, CA JULY 20, 2009

...s have announced the launch of the Bay Area Early ...alifornia Invasive Weed Awareness Week of July 20-25th. ...ponse (EDRR) system designed as the first line of defense ...twork includes the entire nine-county San Francisco Bay ... have been harmed. It's simple, it's sensible,

Initiated in 2006 by Audubon Canyon Ranc... Gluesenkamp, National Park Service's San F... Andrea Williams, U.S. Fish & Wildlife San P... numerous colleagues throughout the Bay A... the network. Calflora has built BAEDN's use... Google map interface and pick-lists to make...

In addition, BAEDN has hired Jennifer Ster... California Department of Food and Agricult... Wildlife funding. ACR's Partners in Conserv... Foundation have also supported BAEDN. B... Watchers program, which trains volunteers ... Gate National Recreation Area, and builds c...

BAEDN -- A New Strategy for Invasives

By Don Mayall, Chair, Rare Plants, Santa Clara County

In 1984, a member of our Chapter discovered an unknown tarweed-like plant along the railroad tracks near Alviso in Santa Clara County. It was not even in the Jepson Manual. It was identified as stinkwort, (*Dittrichia graveolens*), an invasive nonnative from Europe. Little attention was paid to it by land managers, although it had been a pest plant in Australia for the past 150 years. It subsequently spread rapidly in the county forming a dense monoculture in wetlands, vacant fields, and along trails. It is now a serious problem to the Santa Clara Valley Water District and the County Parks and Recreation Department.

In 2004 a grass was noted growing under the redwoods at Thornewood Open Space Preserve in San Mateo County. A perennial bunchgrass, it seemed a lot like native grasses, but was checked out and discovered to be slender false brome (*Brachypodium sylvaticum*), a nonnative from Europe that had already spread through 10,000 acres in Oregon. Because of quick work by the Open Space District and the County Department of Agriculture, this infestation is being brought under control before it spreads widely.

The moral of these stories is that if an invasive plant is detected, its potential to become invasive is recognized, and responsible authorities are notified early enough, widespread environmental damage and costly control programs can be avoided. The California Invasive Weed Action Plan identifies early detection and rapid response as the single most important element for coping with pest plant invasion.

A new effort, the **Bay Area Early Detection Network (BAEDN)**, has just been launched in the nine-county area around San Francisco Bay. This project has received funding from several sources, including the National Fish and Wildlife Foundation, the US Fish and Wildlife Service and the California Department of Food and Agriculture. BAEDN provides a system for easily reporting sightings of invasive plants and getting them into the Calflora Database.

...roject

The local community chapters are committing labor force and other in-kind service with the Agency purchasing the needed chain saws, herbicide and licensed applicators.

Long range plans by Ft. Defiance Agency are to re-establish the historic vegetations along the Little Pueblo Colorado Wash that includes transplanting native species as Cottonwood and Navajo Willow along the stream bed. Long-term benefits are the protection and preservation of native vegetation which will enhance the beauty and conservation of the wash by controlling the aggressive woody species.

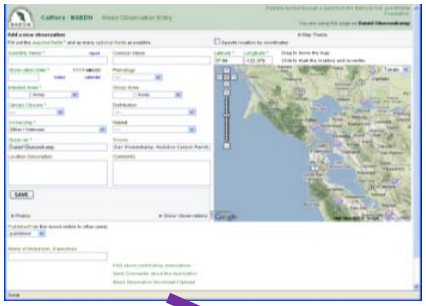
SF Bay Area Early Detection Network Each of us has born witness to an ugly invasion, each of us carry the memory of a wild piece of California which has been lost to weedy invaders. We all have noticed a small outbreak of some harmful weed, and thought "someone should do something about that before it expands." Fortunately, there are tools which can save some of our remaining wild places. Whether we are protecting humans from swine flu or protecting rivers from *Arundo donax*, early detection and rapid response (EDRR) is the most cost-effective approach for coping with biological invasions. EDRR is a "stitch-in-time" approach which proactively deals with infestations before they can grow into large and costly environmental threats. By acting early we efficiently prevent the environmental and economic damage caused by harmful invaders, and we can use less intrusive techniques, and we dramatically reduce the planning and resources required to control large, established invasive plant populations.

We have all recognized the importance of early detection and rapid response (EDRR), and EDRR is consistently identified as "the single most important element" in coping with biological invasions (2005 California State Noxious Weed Action Plan). Of course, we also know about the benefits of regular exercise; it can be difficult to do what we know is right. An effective EDRR program is a rare thing; it requires large-scale coordination of multiple actors, it requires systems for prioritizing targets and managing multi-year treatment, it means that some large and compelling invasions go without treatment so that we can address small but important outbreaks.

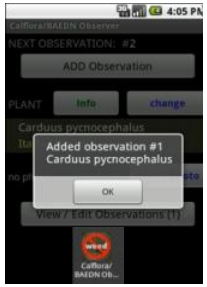
The Bay Area Early Detection Network (BAEDN) is an exciting new initiative that builds an EDRR system to serve the entire nine county San Francisco Bay Area. The group unites and coordinates the EDRR efforts of dozens of agencies, hundreds of professional

Occurrence Reporting

Web Entry App

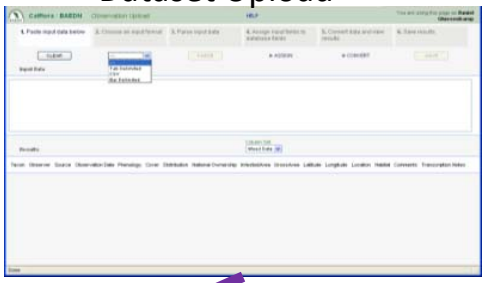


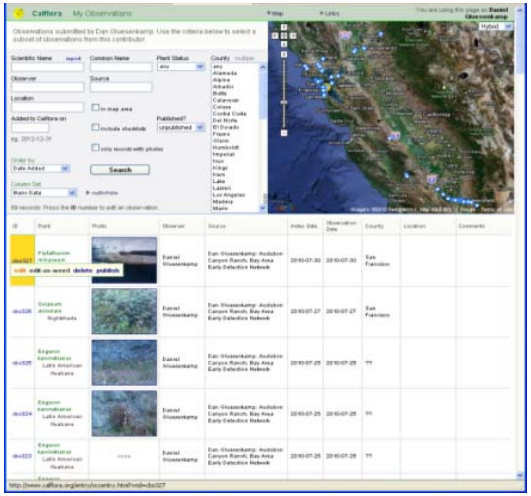
Phone

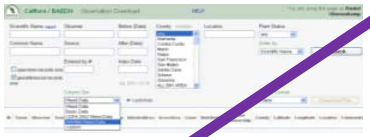


Geotagged Photo

Dataset Upload

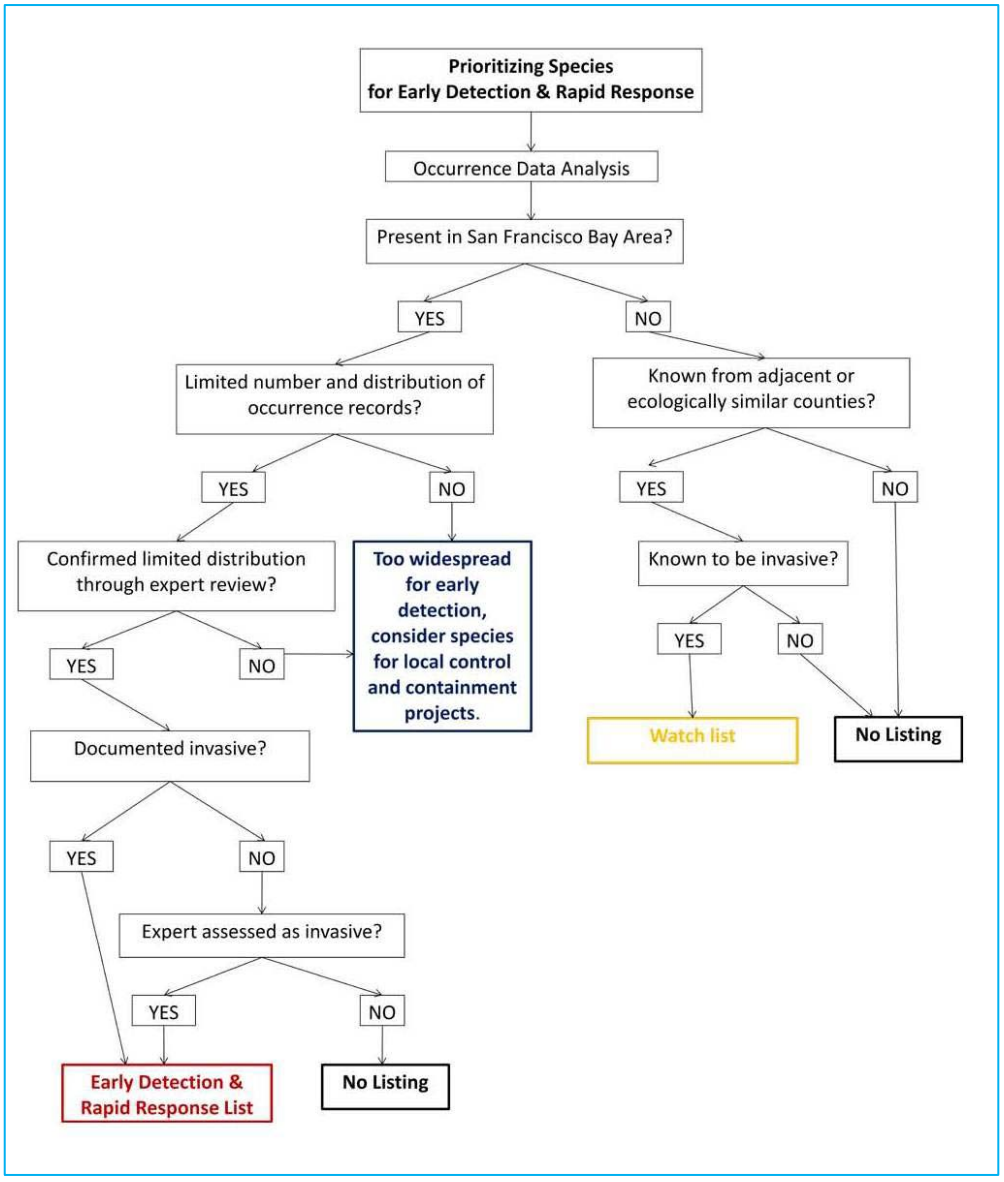






MyWeedManager

Prioritize Target Species



Bay Area Early Detection Network's Early Detection & Rapid Response Target Species

Species Name	Common Name	Family	U.S. Department of Agriculture Code	California Department of Food and Agriculture (CDFA) or Federal Noxious Weed Rating
Acacia paradoxa	kangaroo thorn	Fabaceae	ACPA8	CDFA B
Acaena novae-zelandiae	biddy-biddy	Rosaceae	ACNO7	CDFA A
Achnatherum brachychaetum	punagrass	Poaceae	ACBR5	CDFA A
Aegilops triuncialis	barbed goatgrass	Poaceae	AETR	CDFA B
Ambrosia trifida	giant or great ragweed	Asteraceae	AMTR	CDFA B
Araujia sericifera	bladderflower	Asclepiadaceae	ARSE8	CDFA B
Arctotheca calendula	Capeweed (fertile only)	Asteraceae	ARCA45	CDFA A
Arrhenatherum elatius	tall oatgrass	Poaceae	AREL3	not rated
Asparagus asparagoides	African asparagus fern	Liliaceae	ASAS4	not rated
Asphodelus fistulosus	onionweed	Liliaceae	ASFI2	federal noxious
Brachypodium sylvaticum	slender false brome	Poaceae	BRSY	CDFA A
Buddleja davidii	orange eye butterflybush	Buddlejaceae	BUDA2	not rated
Cardaria pubescens	globe-podded hoary cress	Brassicaceae	CAPU6	CDFA B
Carduus acanthoides	spiny plumeless thistle	Asteraceae	CAAC	CDFA A
Carex pendula	hanging sedge	Cyperaceae	CAPE45	not rated
Carthamus leucocaulos	whitestem distaff thistle	Asteraceae	CALE52	CDFA A
Centaurea diffusa	diffuse knapweed	Asteraceae	CEDI3	CDFA A
Centaurea iberica	Iberian knapweed	Asteraceae	CEIB	CDFA A
Centaurea maculosa	spotted knapweed	Asteraceae	CESTM	CDFA A
Centaurea repens	Russian knapweed	Asteraceae	ACRE3	CDFA B
Centaurea sulphurea	sulphur knapweed; Sicilian starthistle	Asteraceae	CESU	CDFA B
Cestrum parqui	Chilean jessamine	Solanaceae	CEPA9	not rated
Chondrilla juncea	rush skeletonweed	Asteraceae	CHJU	CDFA A
Cirsium undulatum	wavyleaf thistle	Asteraceae	CIUN	CDFA A
Coprosma repens	creeping mirrorplant	Rubiaceae	CORE4	not rated
Crupina vulgaris	common crupina	Asteraceae	CRVU2	CDFA A
Cuscuta japonica	Japanese dodder	Cuscutaceae	CUJA	CDFA A
Cytisus striatus	striated broom	Fabaceae	CYST7	not rated
Danthonia pilosa	hairy wallaby grass	Poaceae	RYPI	not rated
Echium plantagineum	salvation jane	Boraginaceae	ECPL	not rated
Euphorbia esula	leafy spurge	Euphorbiaceae	EUES	CDFA A
Euphorbia terracina	Geraldton carnation weed	Euphorbiaceae	EUTE10	CDFA Q
Festuca pratensis	meadow fescue	Poaceae	SCPR4	not rated
Gaura drummondii	Drummond's beeblossom	Onagraceae	GADR	CDFA B
Gaura sinuata	wavyleaf beeblossom	Onagraceae	GASI	CDFA B
Gazania linearis	treasureflower	Asteraceae	GALI4	not rated
Gunnera tinctoria	Chilean gunnera	Gunneraceae	GUTI	not rated
Halimodendron halodendron	common salttree	Fabaceae	HAHA8	CDFA A
Helichrysum petiolare	licorice-plant	Asteraceae	HEPE8	not rated
Hypericum canariense	Canary Island St. Johnswort	Hypericaceae	HYCA11	CDFA B

List Updated: 9/23/2010

Occurrence Prioritization

Prioritizing Weed Populations for Eradication at a Regional Level:
The California Department of Food and Agriculture's A-rated Weeds

By

GINA SKURKA DARIN
B.S. (Eckerd College, St Petersburg, FL) 2004

THESIS

Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

Horticulture and Agronomy

in the

OFFICE OF GRADUATE STUDIES

of the

UNIVERSITY OF CALIFORNIA

DAVIS

Approved:

Joseph DiTomaso, chair

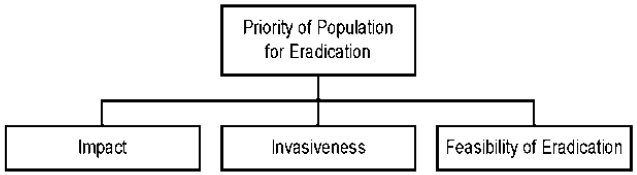
Richard Plant

John Randall

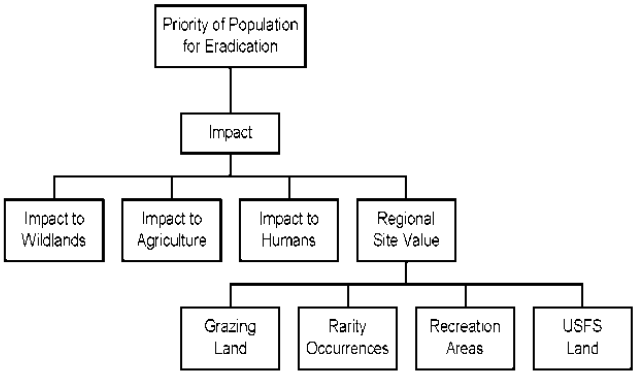
Committee in Charge

December 1, 2008

APPENDIX A– Hierarchy Used for Prioritization Analysis



The overall priority of the population for eradication is divided into three major criteria, AKA Tier 1: Impact, Invasiveness, and Feasibility of Eradication.



The Impact major criterion is further broken down into sub-criteria, AKA Tier 2: Impacts to wildlands, agriculture, humans, and regional site value. The regional site value sub-criterion is further broken down into sub-sub-criteria, AKA Tier 3.

Rapid Response

Weed Management Areas

Local stakeholder groups using State funds and grants to pursue:
(1) on-the-ground control,
(2) education and awareness,
(3) mapping and inventory of weeds in their area.

SONOMA WMA MARIN

cdfa
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

CALIFORNIA DEPARTMENT OF FISH & GAME

Gold Ridge RCD

REGIONAL OPEN SPACE

SONOMA ECOLOGY CENTER

SONOMA COUNTY AGRICULTURAL PRESERVATION AND OPEN SPACE DISTRICT

U.S. FISH & WILDLIFE SERVICE

SAN FRANCISCO ESTUARY INVASIVE SPARTINA PROJECT
Preserving native wetlands

MARIN MUNICIPAL WATER DISTRICT

Coastal Conservancy

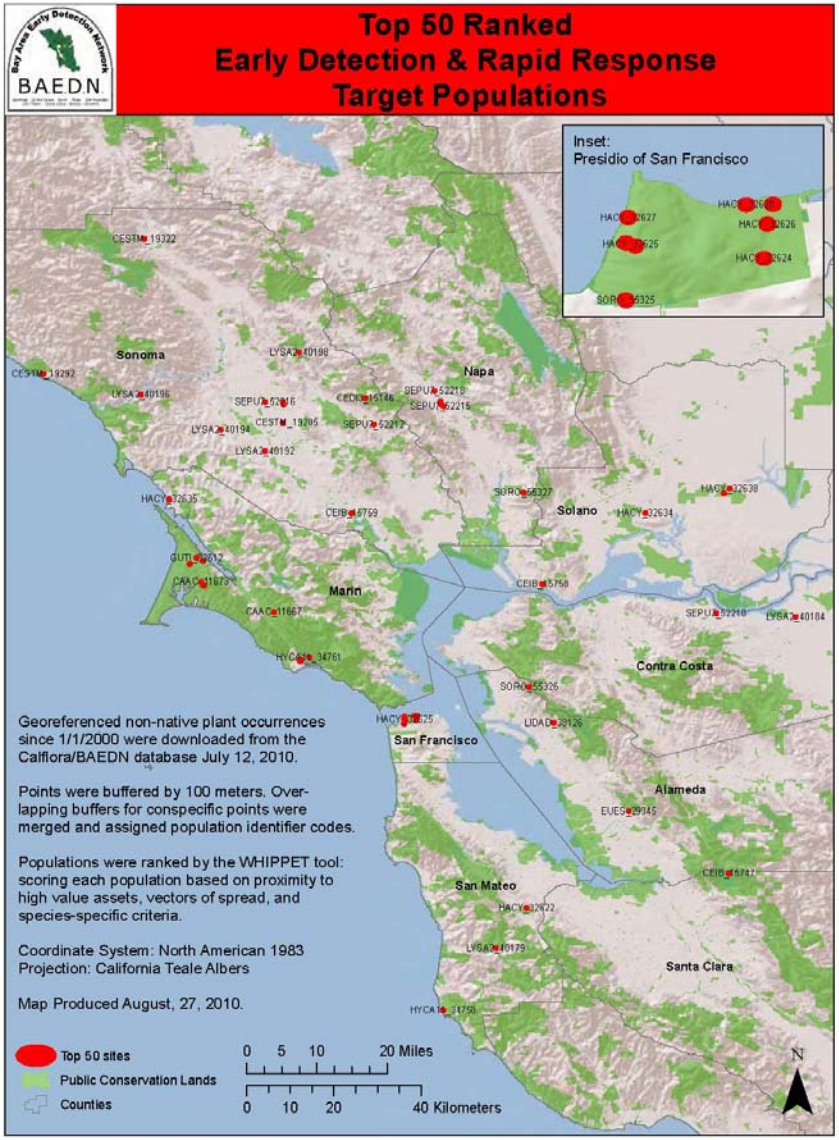
RESOURCE CONSERVATION DISTRICTS

SONOMA STATE UNIVERSITY
FIELD STATIONS & NATURE PRESERVES

OEI
Olofson Environmental, Inc.

Laguna de Santa Rosa Foundation

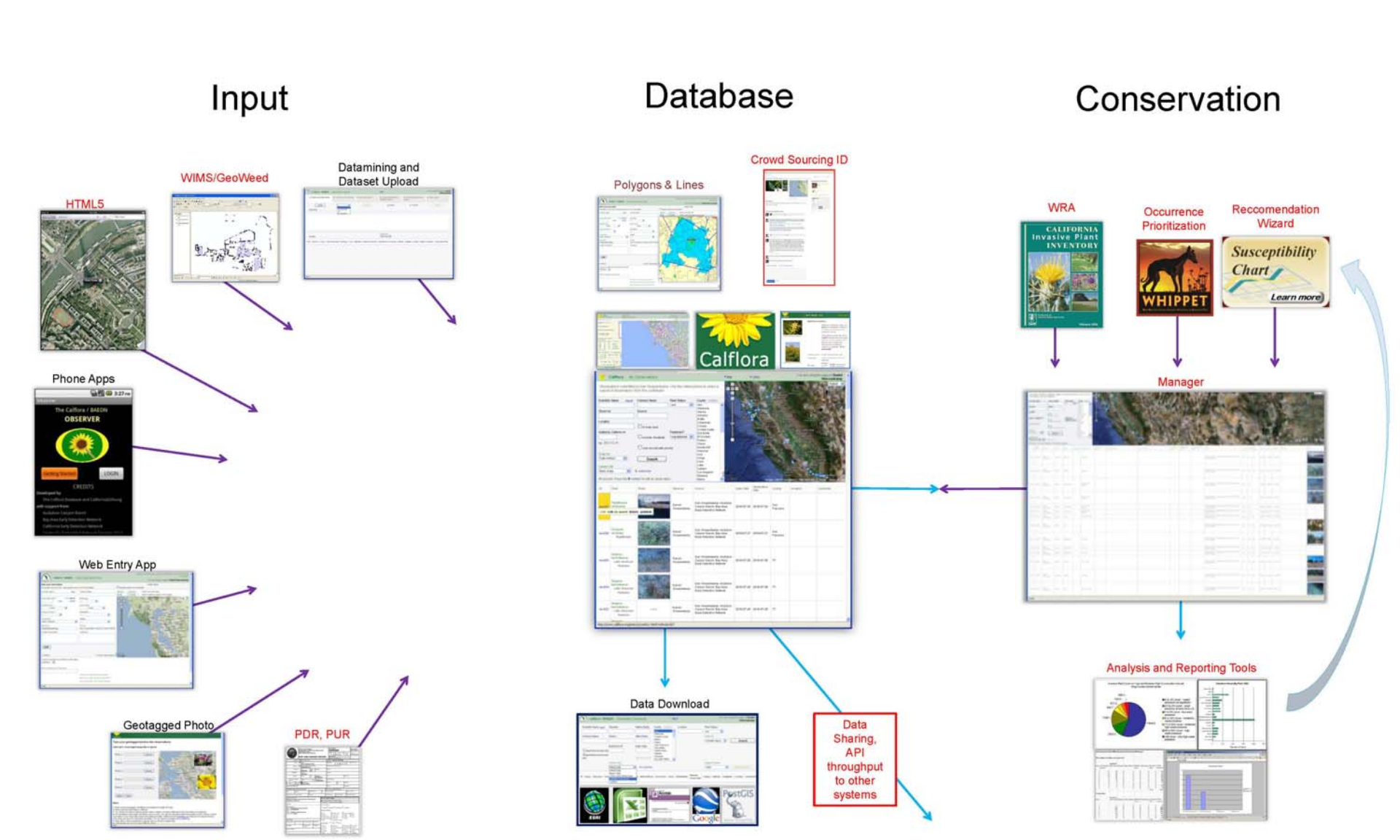
Tracking Action, Outcome, Need



E.D.N.

EARLY DETECTION NETWORKS

- Promote formation of multi-county Early Detection Networks (EDNs)
  - Encourage new collaborations
  - Provide start-up funding
  - Assist with fiscal sponsorship and organizational structure
- Provide essential infrastructure and services to support EDNs,
  - Database and technical infrastructure
  - Templates (organizational, operational, strategic)
  - Environmental compliance and regulatory permitting
- Facilitate sharing of tools, systems, and wisdom among EDNs,
  - Technological advances
  - Methodological advances
  - Protocols and trainings
  - Outreach materials and communication approaches
- Advocate for frameworks and support to make EDNs successful.
  - Legislative advocacy for funding
  - Legislative advocacy for regulatory frameworks
  - Grow public outreach, publicity, and grassroots involvement


Input
Database
Conservation
HTML5
WIMS/GeoWeed
Datamining and Dataset Upload
Phone Apps
Web Entry App
Geotagged Photo
PDR, PUR
Polygons & Lines
Crowd Sourcing ID
Calflora
Data Download
Data Sharing, API throughput to other systems
WRA
Occurrence Prioritization
Reccomendation Wizard
Manager
Analysis and Reporting Tools
Integrated Mapping & Management Planning Platform
Black = completed modules, Red = in development

Calflora / BAEDN Weed Observation - Mozilla Firefox

http://www.calflora.org/entry/wentry.html?vrid=cbo227#vrid=cbo227

Calflora - My Observations | Calflora / BAEDN Weed Observation | Calflora: Zantedeschia aethiopica

Partially funded through a grant from the National Fish and Wildlife Foundation.

Calflora / BAEDN Weed Observation Entry

San Francisco Coastal 2202.1

Viewing observation # cbo227

Entered by Daniel Gluesenkamp on 2010-06-29

Specify location by coordinates

Scientific Name * report: Senecio elegans

Common Name: purple ragwort

Latitude * 37.779123 Longitude * -122.512842

Drag to move the map.

Click to mark the location and re-center.

Observation Date * YYYY-MM-DD: 2010-06-29 today calendar

Phenology: Fruiting

Infested Area *: 5 Square Meters

Gross Area: 20 Square Meters

Canopy Closure *: Moderate (5.1 - 25%)

Distribution: Dense Monoculture

Ownership *: Public Land

Habitat: ----

Observer *: Daniel Gluesenkamp

Source: Dan Gluesenkamp: Audubon Canyon Ranch; Bay

Location Description: At Loui's

Comments

SAVE • **Edit** this observation • **Delete** this observation

• New observation • New observation, **same plant** • New observation, **same location**

▶ Photos ▶ Show Observations

Published? (is this record visible to other users)

unpublished

Name of Herbarium, if specimen

Print Herbarium Labels

FAQ about contributing observations

Send Comments about this Application

Weed Observation **Download** / **Upload**

Record **detail**

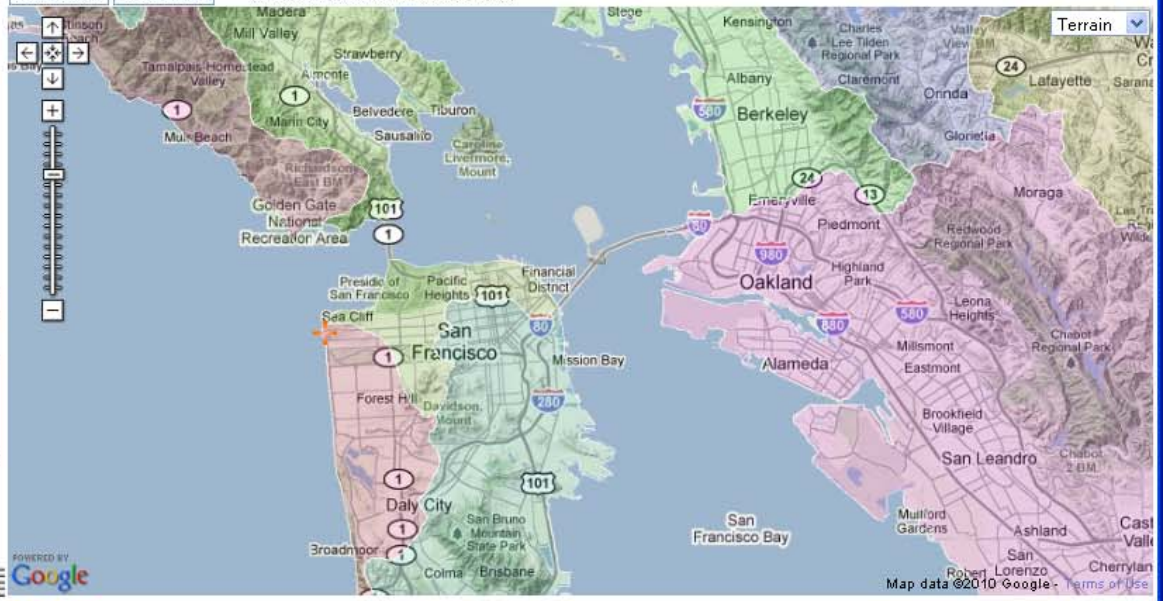
THEME WATERSHEDS (Calwater 2.2)

Show county lines & streams

Show area names

Resolution

- Hydrologic Unit
- Hydrologic Area
- Super Planning Watershed
- Planning Watershed



Done

Geotagged Photo File Upload - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.calflora.org/cgi-bin/geophoto_upload.cgi

Most Visited | Latest Headlines | Calflora - My Observa... | Geotagged Photo File ... | Futurefarmers | MEKA to SLIKS conver...

Geotagged Photo File Upload

You are using Calflora as Daniel Gluesenkamp. Thank you for your recent donation (pending). My Calflora

Calflora | Geotagged Photo File Upload | About Calflora

Turn your geotagged photos into observations

Select up to 5 geotagged image files to upload.

Photo 1: Browse...

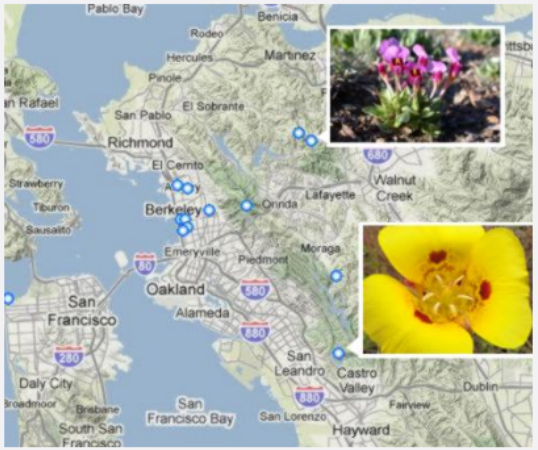
Photo 2: Browse...

Photo 3: Browse...

Photo 4: Browse...

Photo 5: Browse...

Upload Reset



Notes:

- Photos must be geotagged with latitude and longitude in the EXIF GPS tags.
- Photos must have been taken in California
- You will have a chance to edit the species names, locations, and other details before the observations are published.
- We will attempt to add location information such as county, city, zipcode, and approximate street address to the *Original Location Description* of your observation based on the lat/long provided. Calflora uses the GeoNames.org *Extended Find Nearby Reverse Geocoding* web service to extract this information. You can edit this information before publishing.
- Observations will be unpublished by default, until you choose to publish them.
- Combined file size can not exceed 18MB per upload.
- Calflora will automatically resize larger photo down to XGA resolution (1024x768 pixels).
- If you wish to store full resolution files on a website, Calflora reccomends a service such as Picasa or Flickr.
- This application does not currently read IPTC location tags in image files.

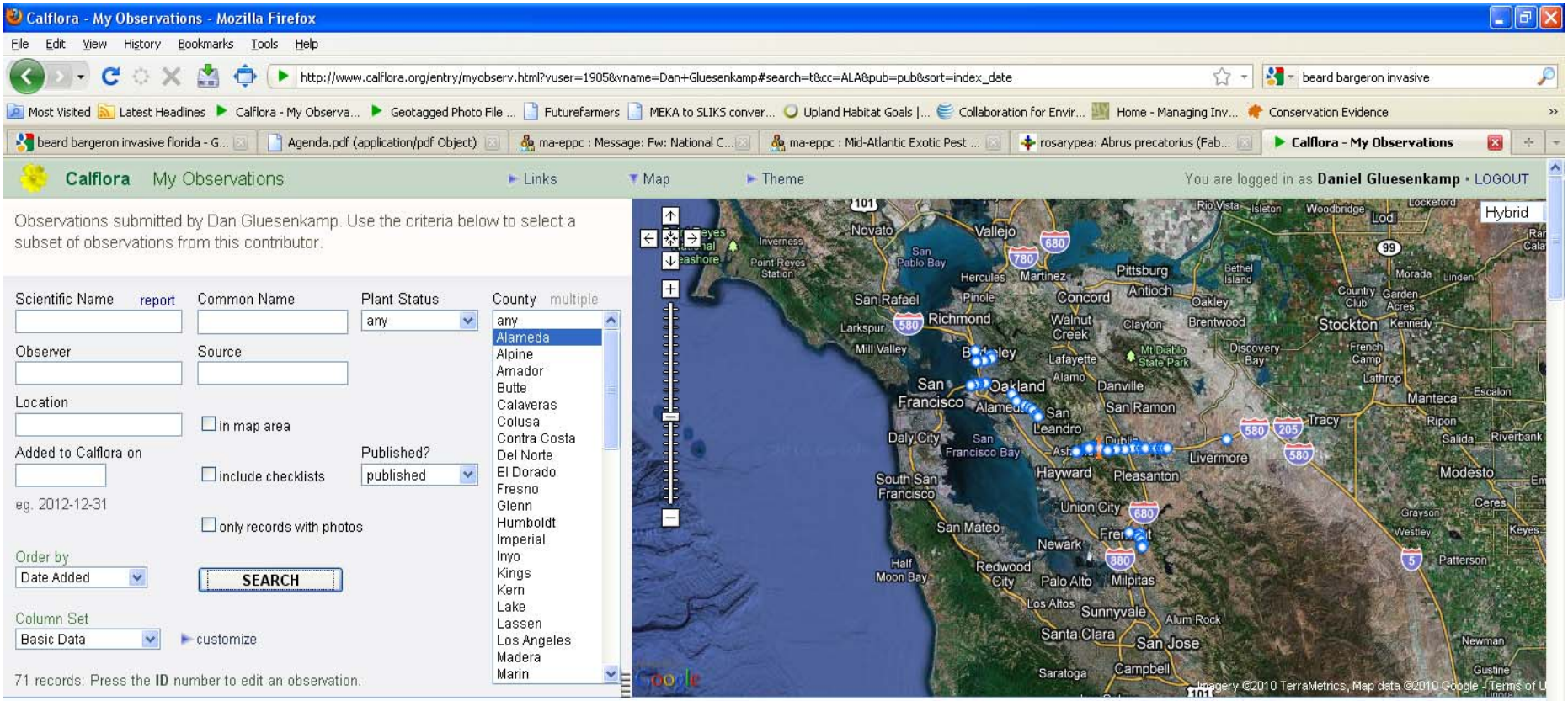
Frequently Asked Questions:

- How do I take or create geo-tagged photos?
- How are geotagged photos processed?

Acknowledgement: Development of this application was partially funded through a grant from the Marin Community Foundation's Carol and Dennis Rockey Family Fund to support Audubon Canyon Ranch early detection and rapid response efforts.


verizon
10:34 AM
Calflora Observer
pick a plant
take a photo
NEXT RECORD: #1
Press a button below to make an observation.
Phalaris aquatica
Harding grass
Centaurea solstitialis
yellow start thistle
Foeniculum vulgare
Biscuit root
menu
htc

Manager Module



ID	Plant	Photo	Observer	Source	Index Date	Observation Date	County	Location	Comments
cbo1572	Piptatherum miliaceum smilo grass	none	Daniel Gluesenkamp	Dan Gluesenkamp: Audubon Canyon Ranch; Bay Area Early Detection Network	2010-09-22	2010-09-22	Alameda		
cbo1571	Echium candicans pride of Madeira	none	Daniel Gluesenkamp	Dan Gluesenkamp: Audubon Canyon Ranch; Bay Area Early Detection Network	2010-09-22	2010-09-22	Alameda		
cbo1569	Cortaderia jubata Andean Pampas Grass	none	Daniel Gluesenkamp	Dan Gluesenkamp: Audubon Canyon Ranch; Bay Area Early Detection Network	2010-09-22	2010-09-22	Alameda		
cbo1570	Echium candicans pride of Madeira	none	Daniel Gluesenkamp	Dan Gluesenkamp: Audubon Canyon Ranch; Bay Area Early Detection Network	2010-09-22	2010-09-22	Alameda		

Planning


Defining Your Project
Project people
Project scope & focal targets
Developing Strategies & Measures
Target viability
Critical threats
Situation analysis
Objectives & actions
Measures
Implementing Strategies & Measures
Develop workplans
Implement actions
Implement measures
Using Results to Adapt & Improve
Analyze actions & data
Learn from results
Adapt project
Share findings
Conservation Action Planning

Thank You Supporters

National Fish and Wildlife Foundation

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

cdfa
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

U.S. FISH & WILDLIFE SERVICE

Calflora

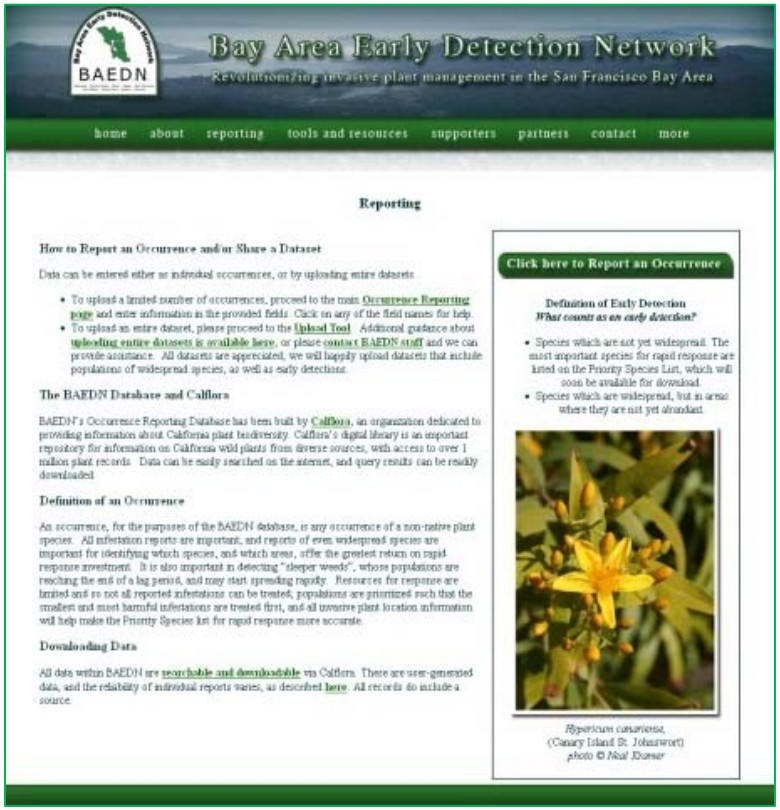
The Rockey Fund

NATIONAL PARK SERVICE

RECOVERY.GOV

For more info please go to:

BAEDN.org



CaliforniaEDN.org

conservation@gluesenkamp.com