

# *The future of Weed Management*



*Tools of the Trade*

# The Future of Weed Management

Morgan Ball  
Executive Director



## Tools of the Trade





*I know how to put her to sleep. But where is she!!!*



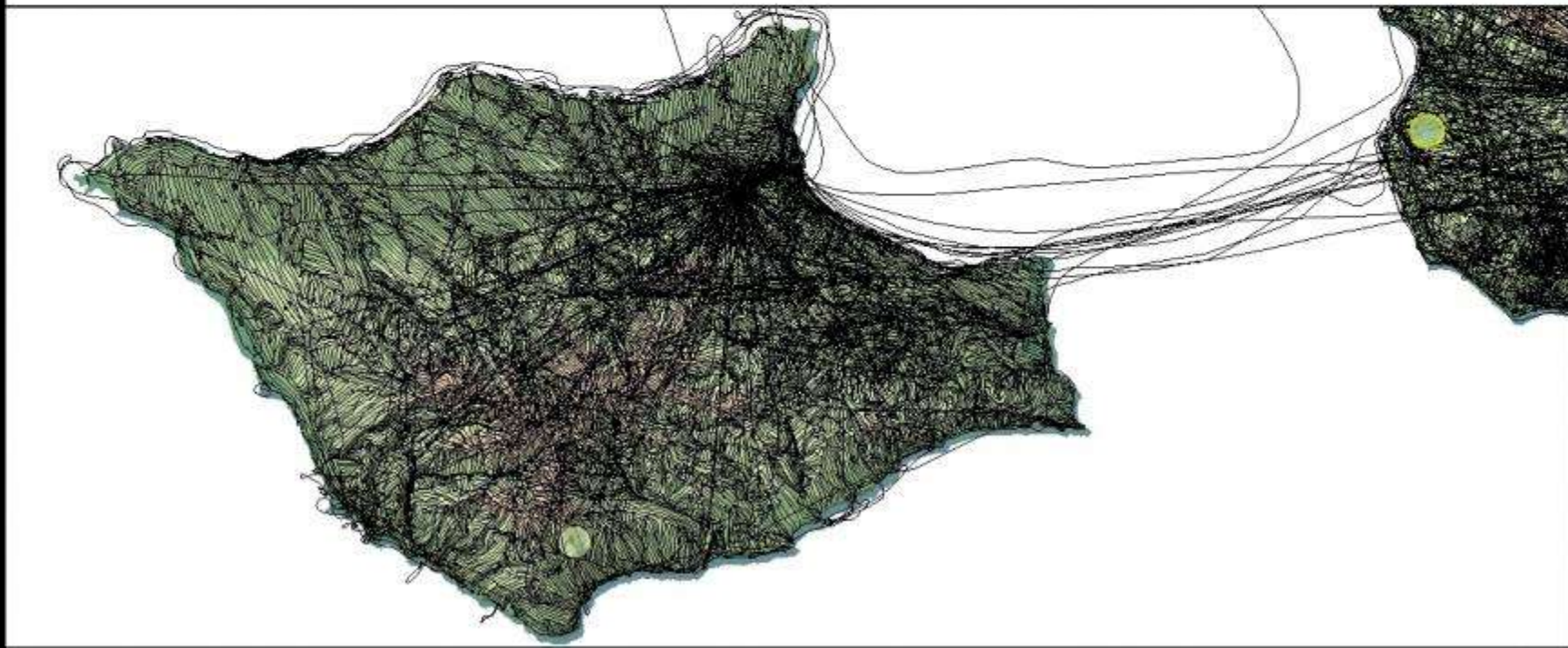
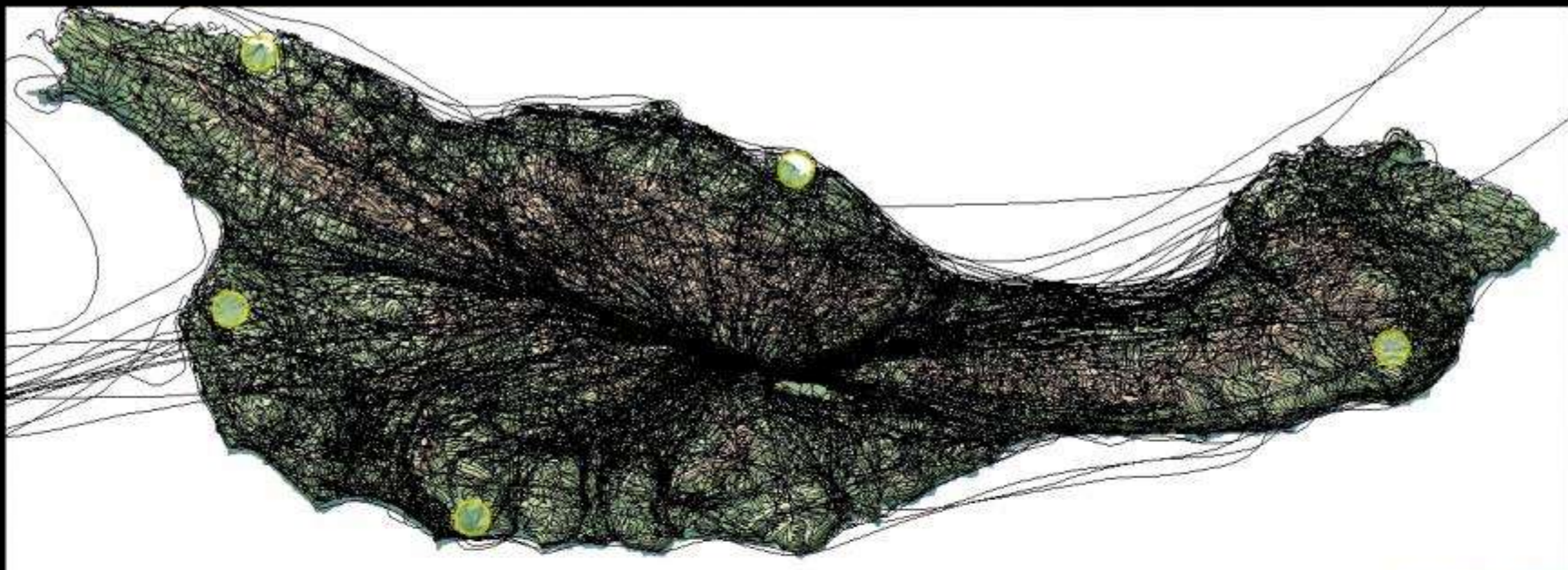
# BACK TO THE FUTURE

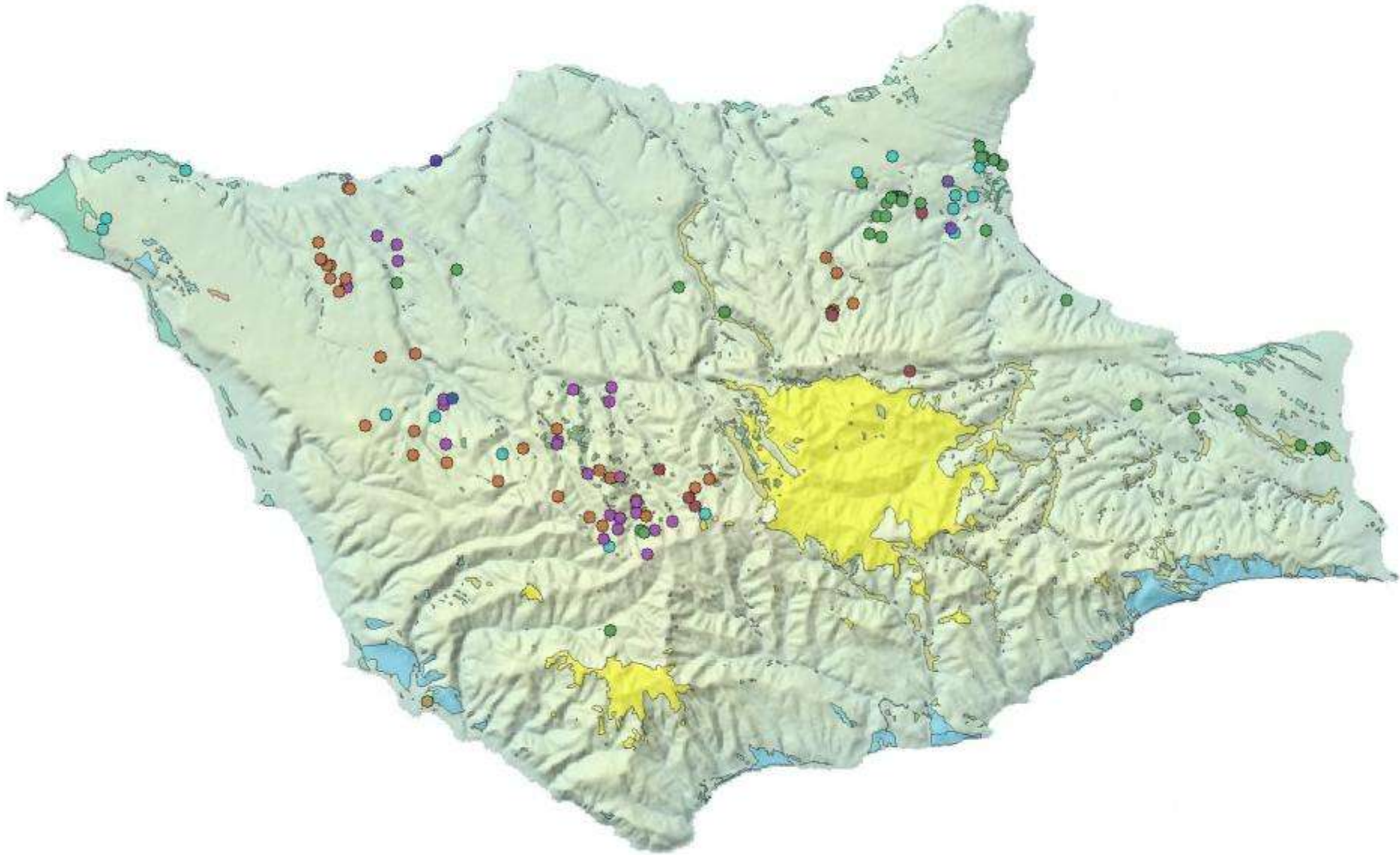












Adobe Lightroom  
Get started with Lightroom mobile

Library | Develop | Map | Book | Slideshow | Print | Web

Navigator



Catalog

- All Photographs 100%
- Quick Collection 100%
- Previous Import 100%

Folders

Macintosh HD	143,076
100%_583_Delta	50,918
2015	35,794
2015-04-16	40
2015-04-21	322
2015-04-22	379
2015-04-23	866
2015-04-24	210
2015-04-25	91
2015-04-28	1024
2015-04-29	947
2015-04-30	816
2015-05-01	91
2015-05-02	484
2015-05-03	156
2015-05-04	1968
2015-05-05	1085
2015-05-06	197
2015-05-07	323
2015-05-08	1021
2015-05-09	311
2015-05-10	3708
2015-05-11	39
2015-05-12	2062
2015-05-14	1799
2015-05-15	1322

Library Filter



Import... Export...

Grid Web Compare Web Compare Sync Capture Time

Thumbnail

▼ Navigator



▼ Saved Locations

My Locations

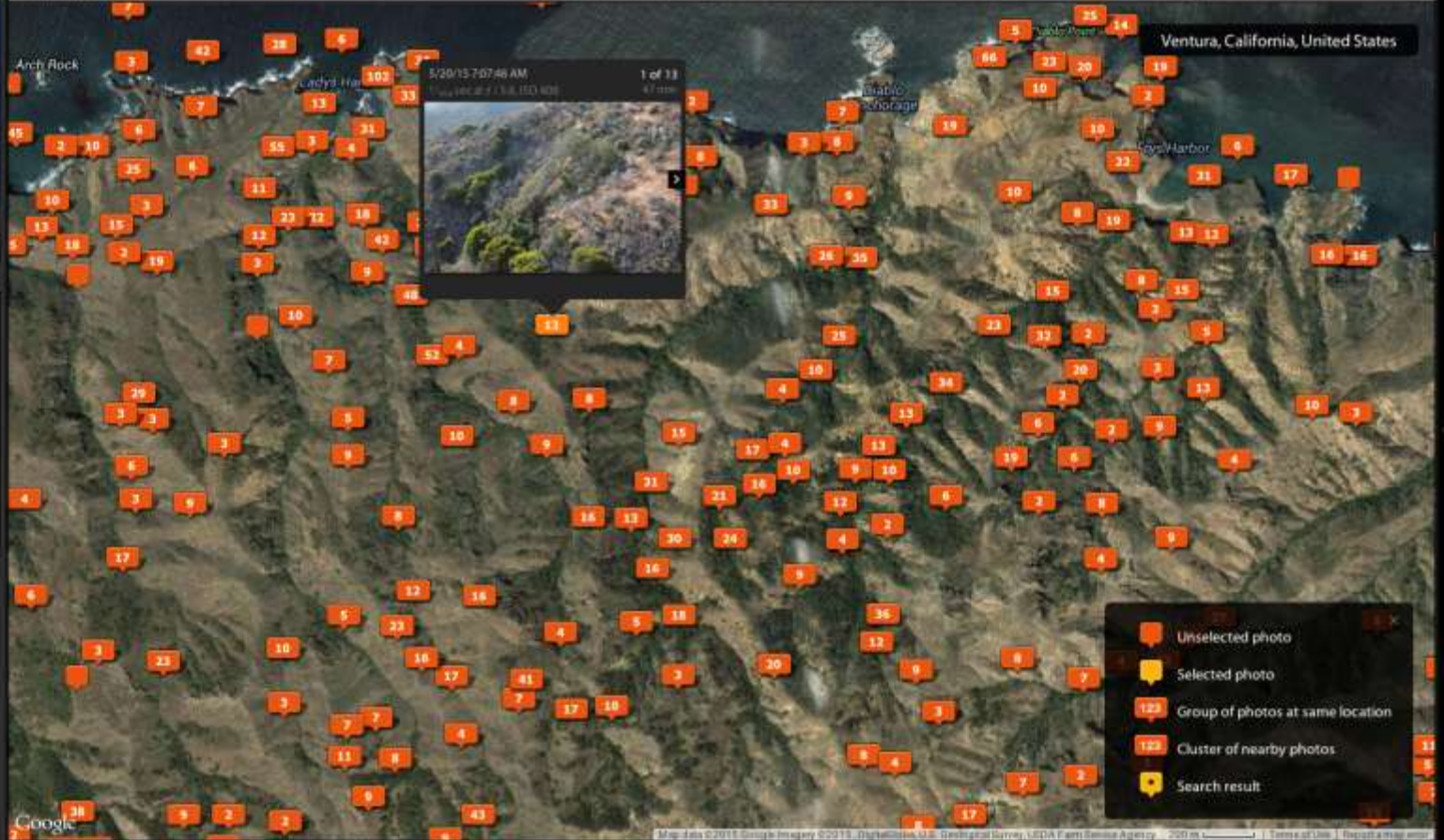
▼ Collections

- Smart Collections
- Colored Red 3352
- Five Stars 227
- Past Month 12188
- Recently Mo... 549
- Video Files 119
- Without Key... 85798
- Collection 5
- commonant 1301
- arch + 763
- Gekum 1442
- gallum best 76

Location Filter

Visible On Map | Tagged | Unmapped | None

Search Map



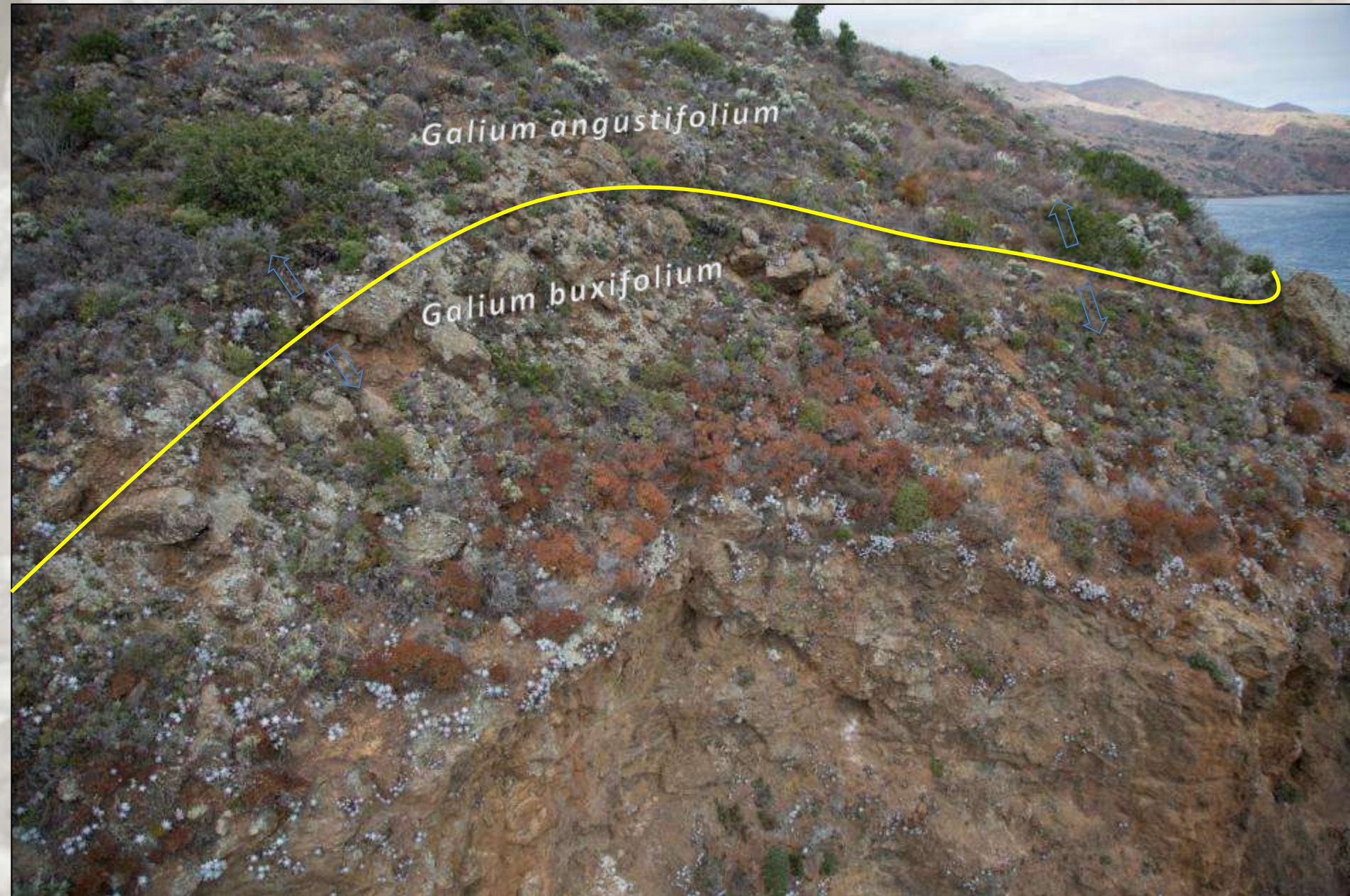
Ventura, California, United States

- Unselected photo
- Selected photo
- Group of photos at same location
- Cluster of nearby photos
- Search result

Google

Map Style: Hybrid

# The aerial prospective give opportunity of

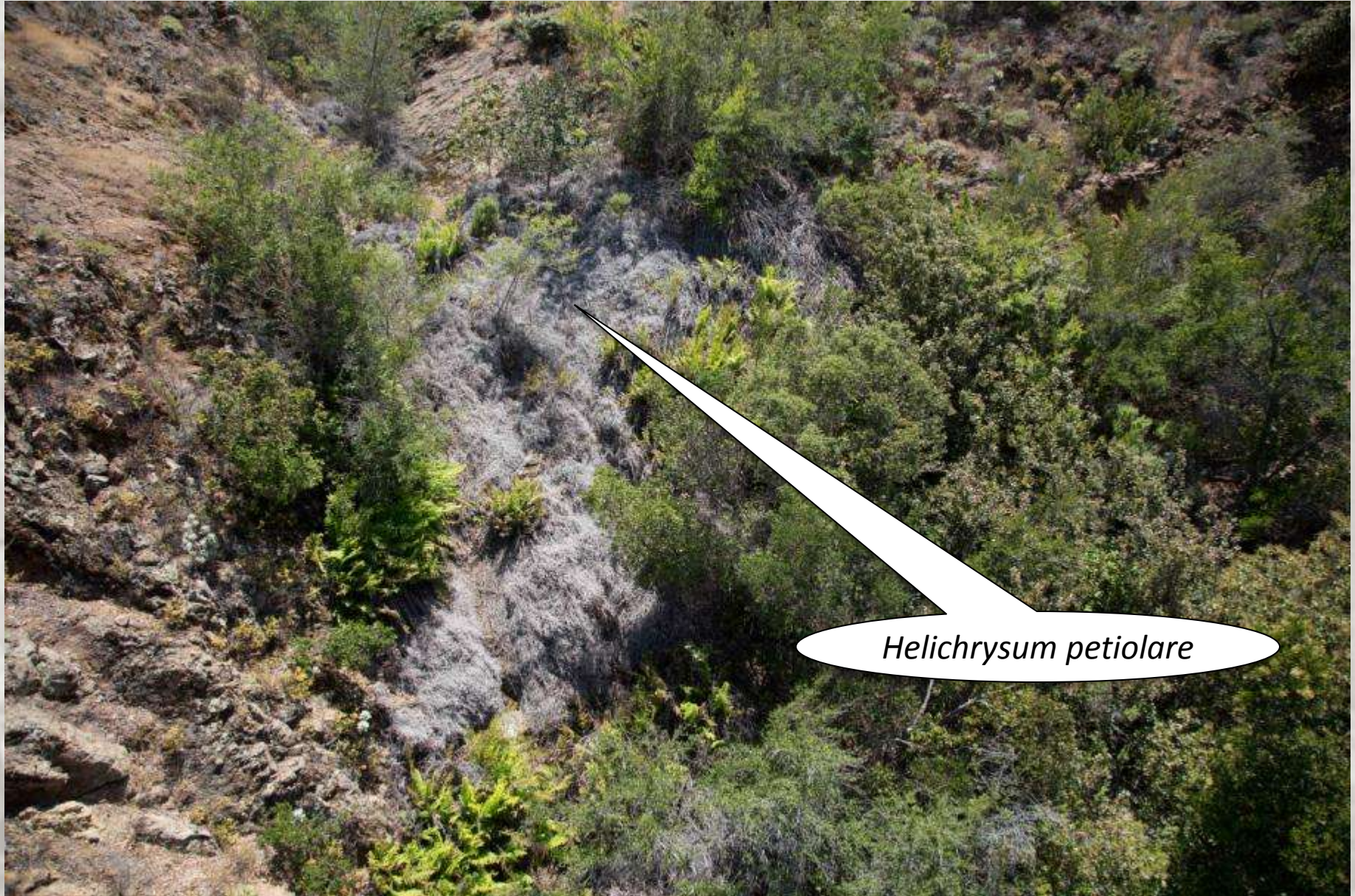




# ***Post-treatment Checks***



# ***Post-treatment Checks***



*Helichrysum petiolare*



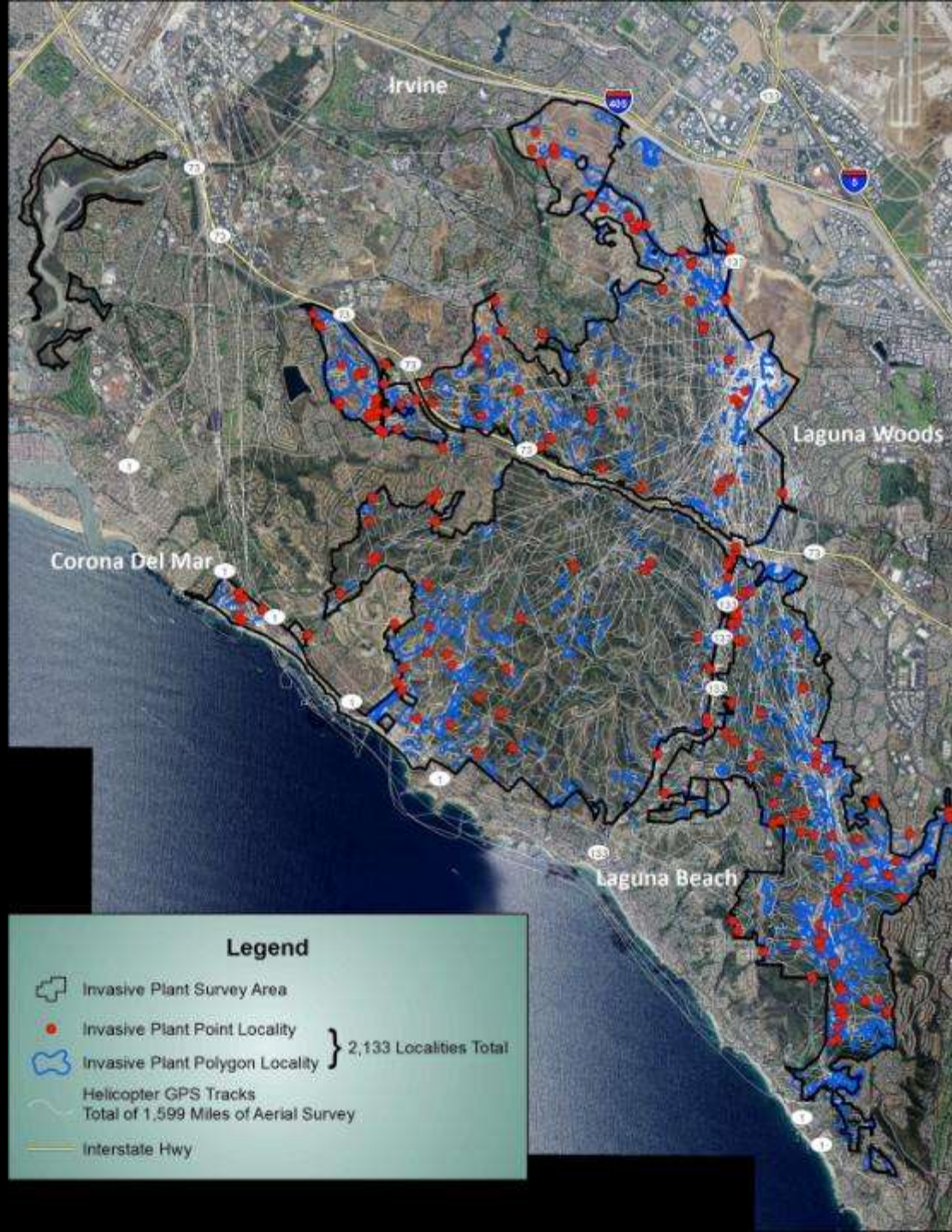
*All done?*



*Almost...*

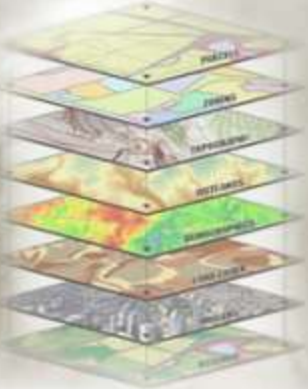


**One Live Plant Remaining**

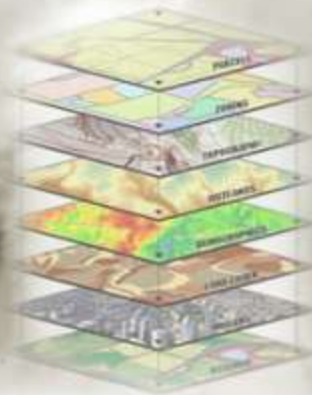




So many layers....



***But which ones matter?***







*It depends on the particular characteristics of the land you manage.*



MARE GLACIOSUM

DANI

ANGLI

GOTHI

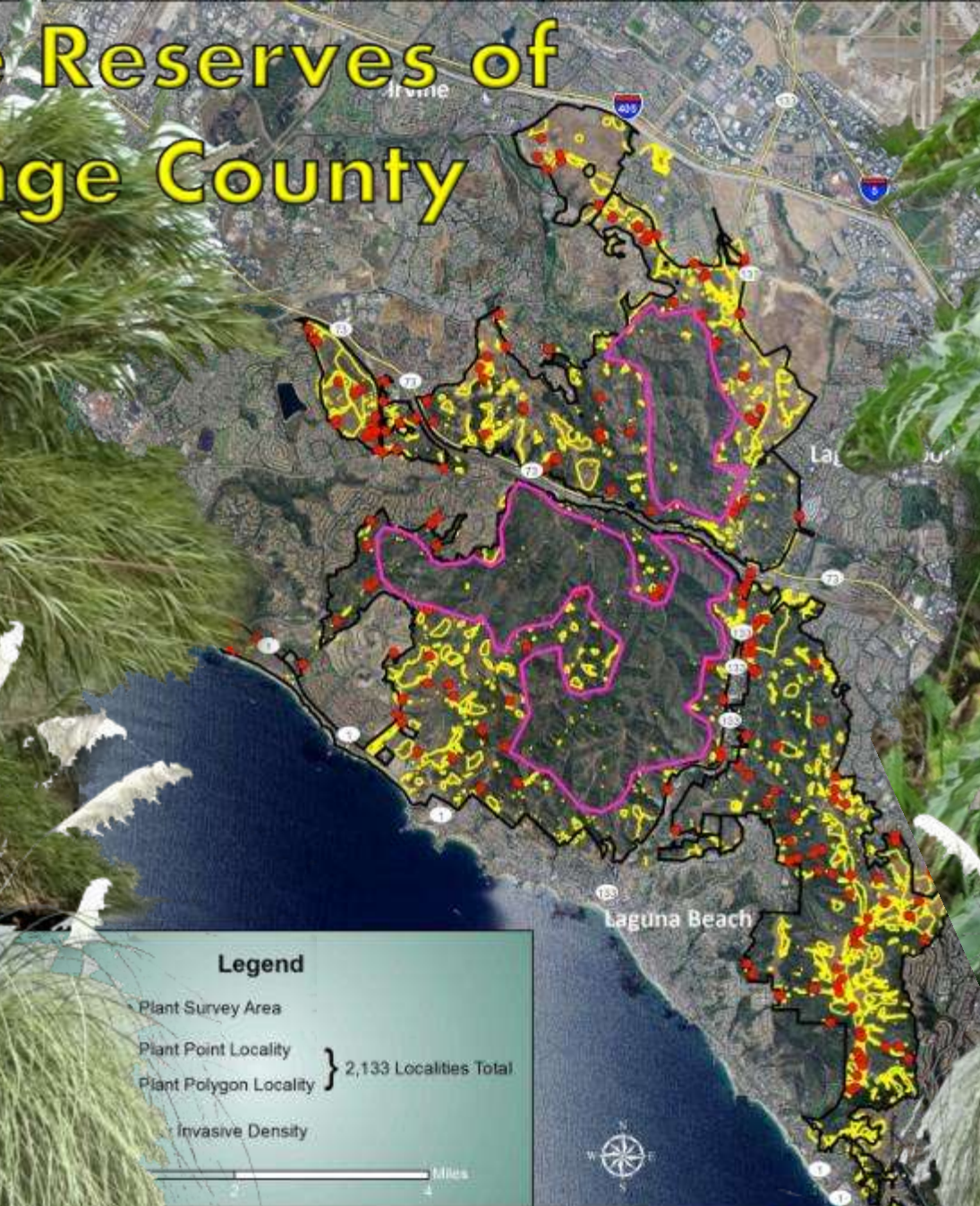
HECEST HORRENDA  
CARIBDIS

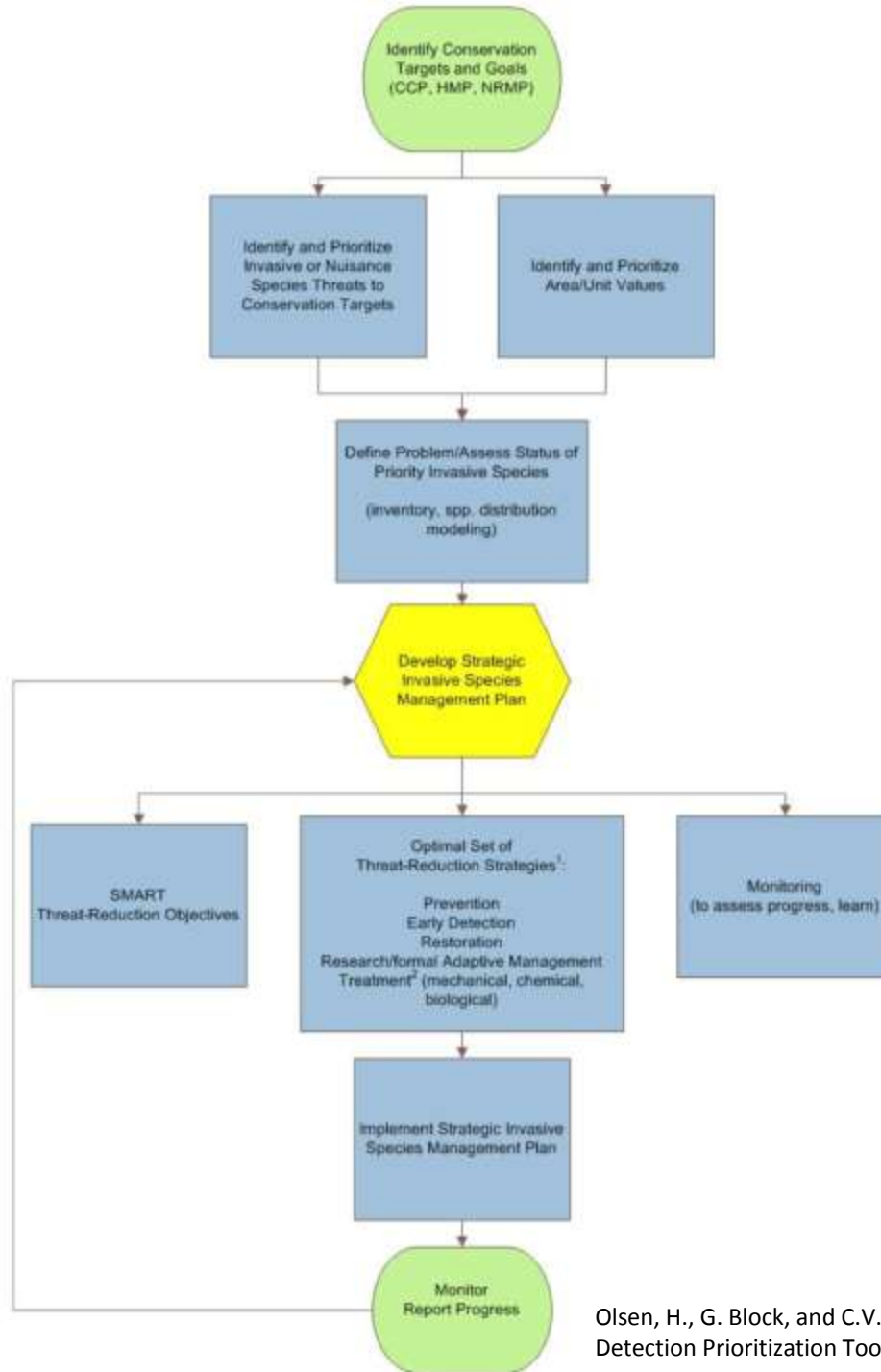
ROOPELVM

Santa Rosa Island



# Nature Reserves of Orange County





Prioritization tools  
like WHIPPET will  
GROW.

**WHIPPET algorithm.**  
 $S$  = Score. Numbers are weights from the table above.  
Overall priority score for a population =  
 $S_{\text{Impact}}(0.378) + S_{\text{Invasiveness}}(0.229) + S_{\text{Feasibility}}(0.378) + S_{\text{Scarcity}}(0.105)$   
Impact =  $S_{\text{Invasiveness}}(0.483) + S_{\text{Scarcity}}(0.393)$ , where  
 $S_{\text{Invasiveness}} = S_{\text{Invasiveness}}(0.378) + S_{\text{Feasibility}}(0.517)$   
Feasibility =  $S_{\text{Invasiveness}}(0.253) + S_{\text{Scarcity}}(0.190) + S_{\text{Feasibility}}(0.177) + S_{\text{Scarcity}}(0.333) +$   
 $S_{\text{Invasiveness}}(0.150) + S_{\text{Scarcity}}(0.243)$



*Future weed  
prioritizations will  
take into  
consideration  
sensitive wildlife  
habitat*

**Sensitive Species Protection**



## Protection of California Red-legged Frog from Pesticides

[Back to Endangered Species Project](#)

### Stipulated Injunction and Order

#### Background

On October 20, 2006, the U.S. District Court for the Northern District of California imposed no-use buffer zones around California red-legged frog upland and aquatic habitats for certain pesticides. This injunction and order are part of a settlement reached between U.S. EPA, CropLife America, American Forest and Paper Association, Western Plant Health Association, Oregonians for Food and Shelter, and Syngenta Corporation as co-defendants, and the Center for Biological Diversity as the plaintiff.

The suit by the Center for Biological Diversity alleged that U.S. EPA failed to solicit U.S. Fish & Wildlife Service (FWS) formal consultation on the risks of 66 pesticides to California red-legged frog (CRLF).

This injunction and order will remain in effect for each pesticide listed below until EPA goes through formal 7(A)(2) consultation with FWS on each of the 66 active ingredients, and FWS issues a Biological Opinion including a "not likely to adversely affect" statement for the pesticides. Each pesticide in turn will be removed from the list, as this occurs.

#### Pesticide Use Restrictions Now Required

Under the injunction and order, no-use buffer zones of 60 feet for ground applications and 200 feet for aerial applications apply from the edge of the following California red-legged frog habitats as defined by the U.S. Fish & Wildlife Service and the Center for Biological Diversity: Aquatic Feature, Aquatic Breeding Habitat, Non-Breeding Aquatic Habitat, and Upland Habitat (details on these habitats are given in a Powerpoint Presentation following the list of prohibited active ingredients). These CRLF habitats are found in 33 counties of California [link to map, PDF \(455 kb\)](#).

The active ingredients for which the no-use buffer zones apply are the following:

2,4-D	Endosulfan	Myclobutanil	Thiobencarb
Acephate	EPTC	Naled	Tribufos (DEF)
Alachlor	Esfenvalerate	Norfurazon	Triclopyr
Akticarb	Fenamiphos	Oryzalin	Trifluralin
Atrazine	Glyphosate	Oxamyl	Vinclozolin
Azinphos-methyl	Hexazinone	Oxydemeton-methyl	Ziram
Bensulfide	Imazapyr	Oxyfluorfen	
Bromacil	Iprodione	Paraquat dichloride	
Captan	Linuron	Pendimethalin	
Carbaryl	Malathion	Permethrin	
Chloropicrin	Mancozeb	Phorate	
Chlorothalonil	Maneb	Phosmet	
Chlorpyrifos	Metam sodium	Prometryn	
Chlorthaldimethyl (DCPA)	Methamidophos	Propanil	
Diazinon	Methidathion	Propargite	
Dicofol	Methomyl	Propyzamide (Pronamide)	
Diflubenzuron	Methoprene	Rotenone	
Dimethoate	Methyl parathion	Simazine	
Disulfoton	Metolachlor	Strychnine	
Diuron	Molinate	Telone (1,3-dichloropropene)	

# Regulatory Constraints



## Regional Cooperation



**Climate Change**















Variable Access



**French Broom**



**Sahara Mustard**

**Seed Bank Longevity**



**Mode of Weed Dispersal**

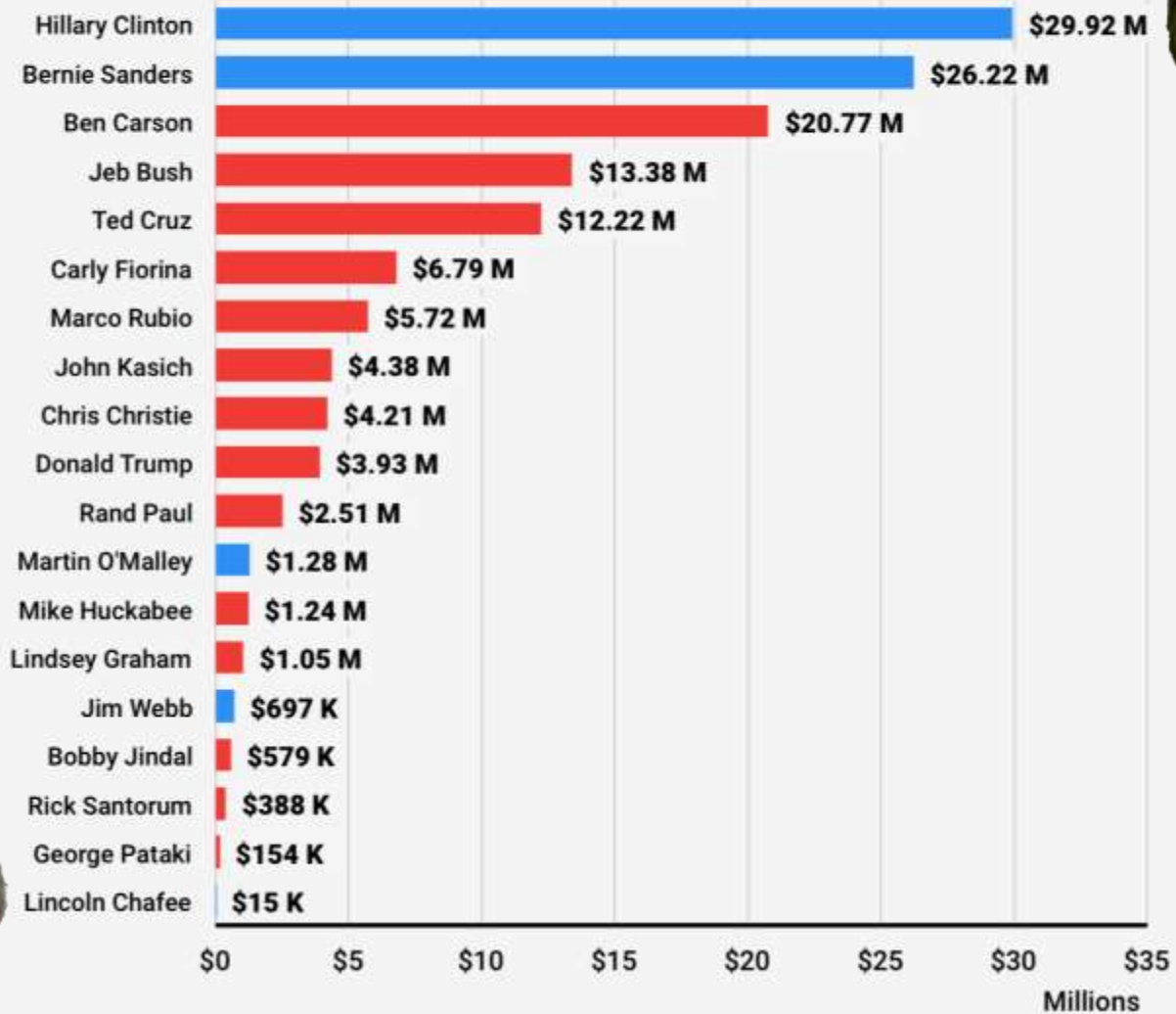


**Weed Phenology**



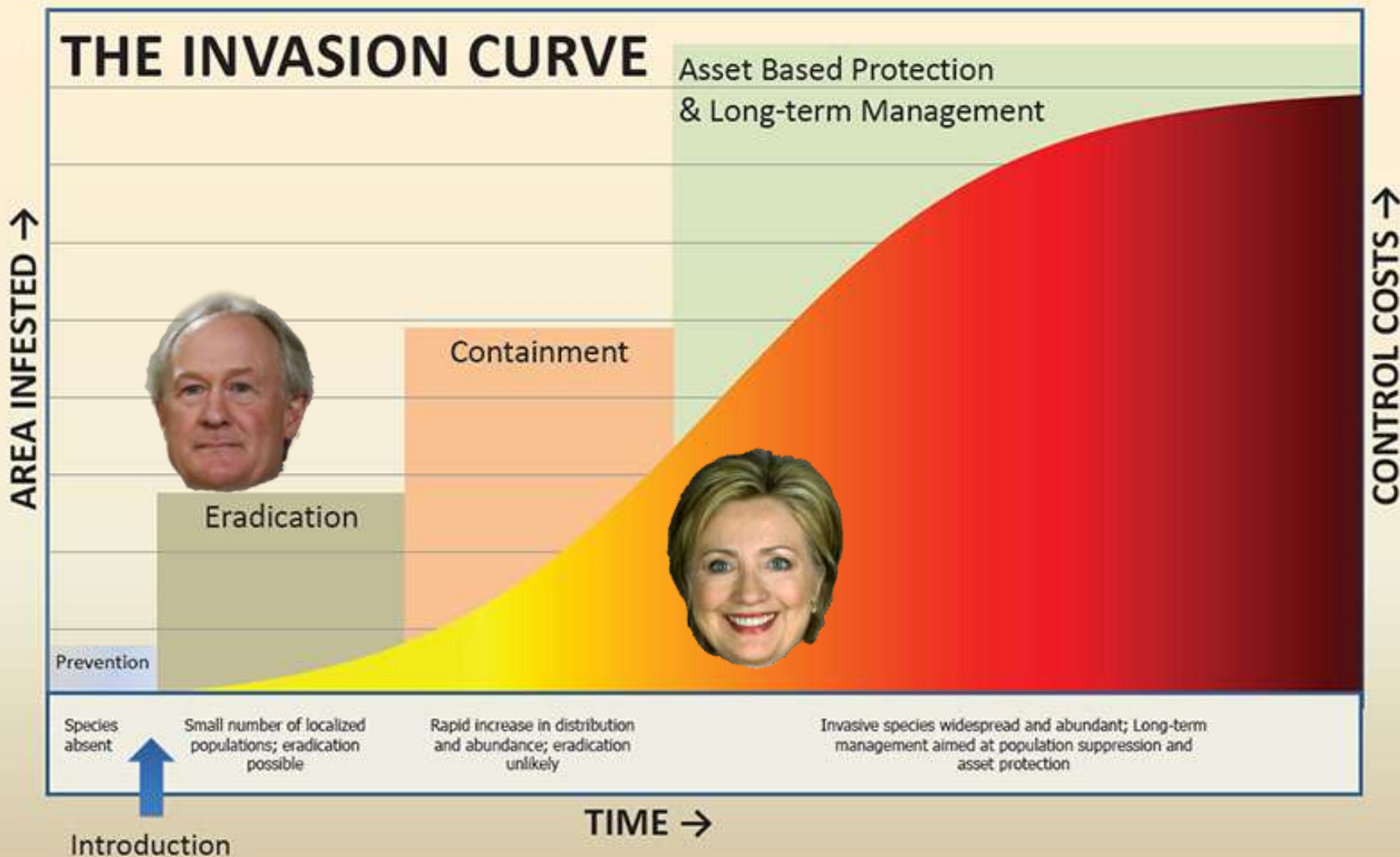
# Q3 FUNDRAISING TOTAL

■ Republican ■ Democrat



## Treatment Budget

# THE INVASION CURVE



**Treatment Budget**



*We got  
this...*

Redwoods in California  
1890. Photo Registered

**Treatment Success**



## **Standard Project Approach**



**Sunk Cost Reviews**





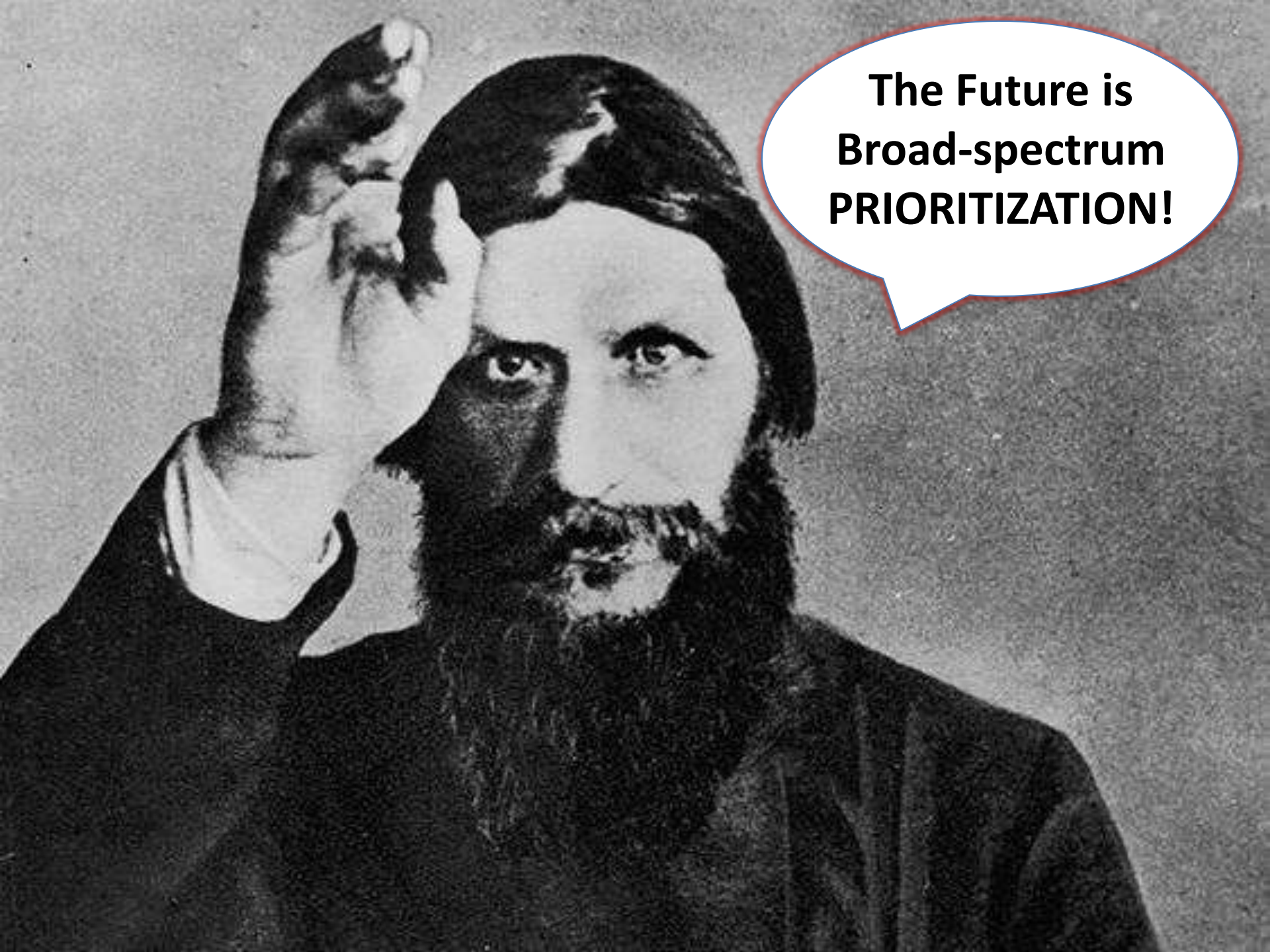
We have toiled in the wilds for many years. Now what sort of shrubbery shall we target?







**я люблю милые  
маленькие щенки!**



**The Future is  
Broad-spectrum  
PRIORITIZATION!**

**And effectiveness reviews to ensure your plan is the fairest of them all.**



**Questions?**

