



# **ENGAGING CITIZEN SCIENTISTS**

**THROUGH DIGITIZED COLLECTIONS**

# SAGEHEN TEACHING COLLECTIONS

DEVELOPED 1951-C.1970



# OUR FIRST VICTIM...

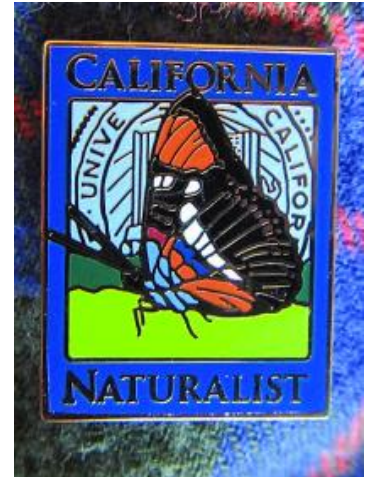
**ERICA KRIMMEL**





# CALIFORNIA NATURALIST

## CERTIFICATION TRAINING





# CURATION, DIGITIZATION, SHARING...

WITH THE AID OF VOLUNTEERS, FREE TOOLS, NEW PARTNERS



# ...AND EXPANDED!



- 60+ new voucher specimen firsts for Sagehen herbarium (10+ species new to the basin list)
- 200+ new vouchers for the North Fork of the American River (17+ species new to that basin list)



# RELATIONSHIPS STRENGTHENED


WITH ASSOCIATED RESEARCH PROPERTIES, CAMPUS

- Historical family collection scanned;
- Biota list expanded;
- Herbarium collection begun;
- Research requests triggered.



# iNATURALIST CITIZEN SCIENCE

**PUBLIC ENGAGEMENT, NEW RESEARCH DATA, VALIDATION OF BIOTA LISTS, DISCOVERY OF NEW SPECIES**

naturalist.org Observations ▾ Species ▾ Projects ▾ Places Guides People 0 0  faerth

North America (Continent) > United States (Country) > California (State) > Nevada (County) >

Find a place  

Sagehen Creek Basin, CA, US Land Feature



Species Guide Observations Projects People About Sagehen Creek Basin [Add an observation](#) | [Embed place widget](#) | [Edit](#)

399 of 1007 confirmed Search for species  Search Colors Establishment  Threatened

- All life
- Animals
    - Arthropods
      - Chelicerates
      - Arachnids
      - Hexapods
      - Insects
    - Chordates
      - Vertebrates
        - Ray-finned fishes
        - Amphibians
        - Birds
        - Mammals
        - Reptiles



**Sierra juniper**  
(*Juniperus grandis*)



**ranger's buttons**  
(*Sphenosciadium capitellatum*)



**common yarrow**  
(*Achillea millefolium*)



**Sierra Tiger Lily**  
(*Lilium parvum*)



**Lodgepole Pine**  
(*Pinus contorta*)



**Columbian Monkshood**



**Oregon Checker-mallow**



**Oregon saxifrage**



**scentbottle**



**slender cinauefoil**



# DOCUMENTING BASIN BIOTA



Since 2012...

3700+ OBSERVATIONS

575+ SPECIES

95+ CONTRIBUTORS

We're getting species verification, plus distribution and movement data for the first time ever.

# NEW SPECIES DISCOVERED!

**EVEN AFTER 65-YEARS OF COLLECTING IN THE SAGEHEN BASIN**

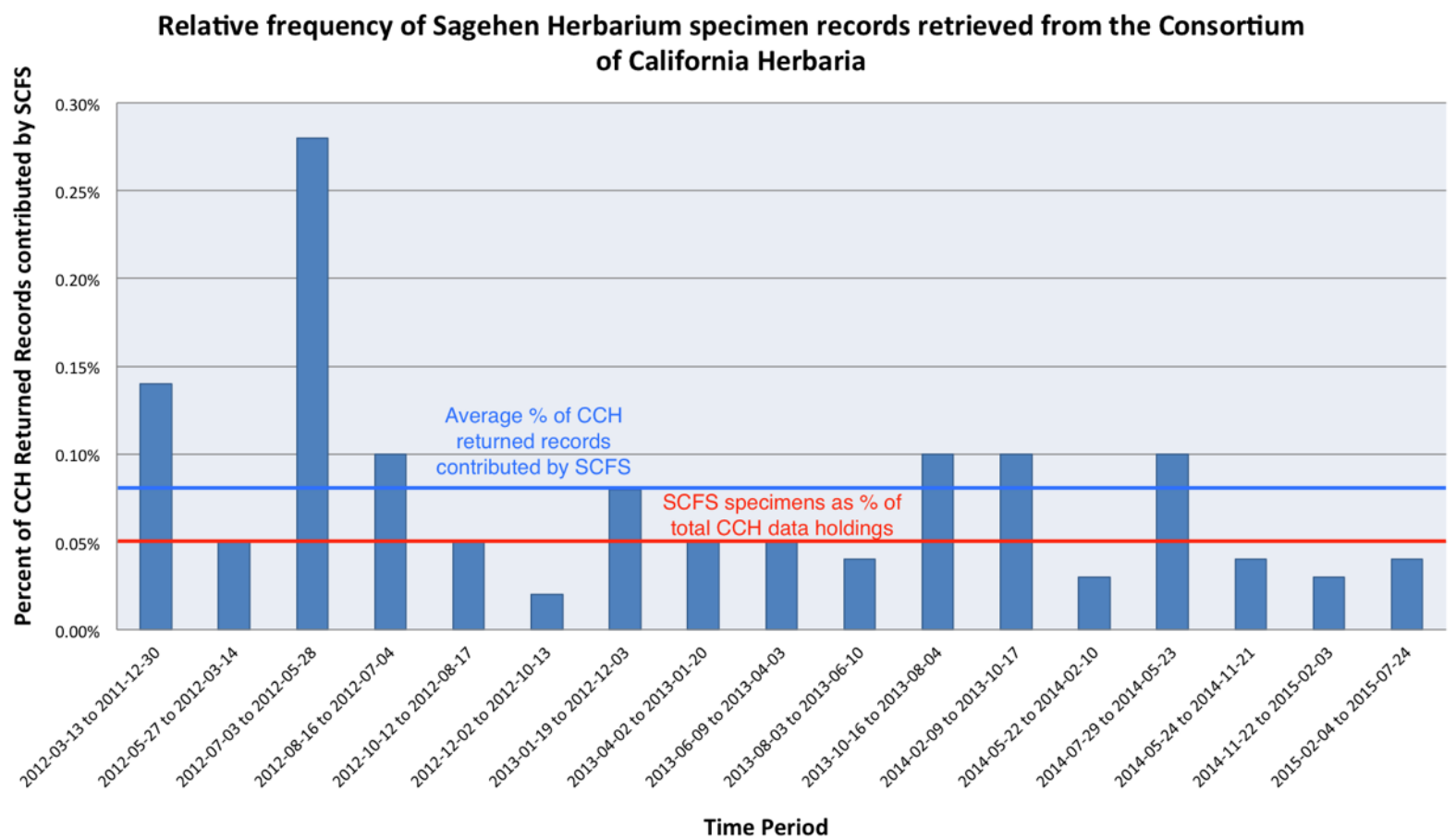
*Arceuthobium abietinum*, *Epilobium howellii*, *Antennaria geyeri*, *Cordylanthus tenuis*, *Artemisia tridentata* subsp. *wyomingensis*, *Elodea canadensis*, *Ptychostomum pseudotriquetum*, *Ranunculus aquatilis*, *Securigera varia*, *Grindelia camporum*, *Warnstorfia exannulatum*, *Actaea Rubra*, *Maianthemum racemosum*, *Solchus oleraceus*, *Crepis occidentalis*, *Asclepius speciosa*, etc. (and, **most are neither tiny, nor weeds!**)





# OUR DATA IS BEING USED

VIA PARTICIPATION IN REGIONAL, NATIONAL AND INTERNATIONAL BIODIVERSITY DATABASES



# RESEARCH REQUESTS TRIGGERED

- New *Ceanothus* hybrid
- *Mimulus* niche adaptation
- Population modeling of *Speyeria* (fritillaries)
- Sierra red fox genetics
- Collections provide a source of isotopes and DNA (sometimes)





# WE'RE GETTING NEW PUBLICATIONS

- Data publication in regional, national and international biodiversity databases, including GBIF, Calflora, BISON, California Consortium of Herbaria (CCH), Symbiota, Berkeley Initiative in Global Change Biology (BIGCB), etc.
- Master's thesis (Krimmel, 2014).
- Collections Activity Report, 2014 (Krimmel, 2014).
- Peck, Cook, 2013. **Systematics and distributions of the genera *Cyrtusa* Erichson, *Ecarinosphaerula* Hatch, *Isoplastus* Horn, *Liocyrtusa* Daffner, *Lionothus* Brown, and *Zeadolopus* Broun of the United States and Canada (Coleoptera: Leiodidae: Leiodinae: Leiodini)**. *Insecta Mundi*, Articles 0310-0313.
- Trager 2013b. **Global revision of the dulotic ant genus *Polyergus* (Hymenoptera: Formicidae: Formicinae: Formicini)**. *Zootaxa* 3722: 501–548.
- Graening, Shcherbanyuk, Arghandiwal, 2014. **Annotated Checklist of the Diplura (Hexapoda: Entognatha) of California**. *Zootaxa* 3780 (2): 297-322.
- Kanturski, Weiczorek, 2015. **A new species of the nearctic gall-forming genus *Tamalia* Baker (Hemiptera: Aphididae: Tamaliinae)**. *Zootaxa* 3926(2):268-278.
- Rosa, Vårdal, 2015. **An annotated catalogue of the types of Chrysididae (Hymenoptera) at the Swedish Museum of Natural History, Stockholm, with brief historical notes**. *Zookeys* (495): 79–132
- **More!**

# PASSION

## CREATED OR DISCOVERED?

- **Purpose** – a calling in life, the reason you get up every morning
- **Flow** – getting into a rhythm with your activity, losing time, performing
- **Pleasure** – savoring and mindfulness of where you are at right now

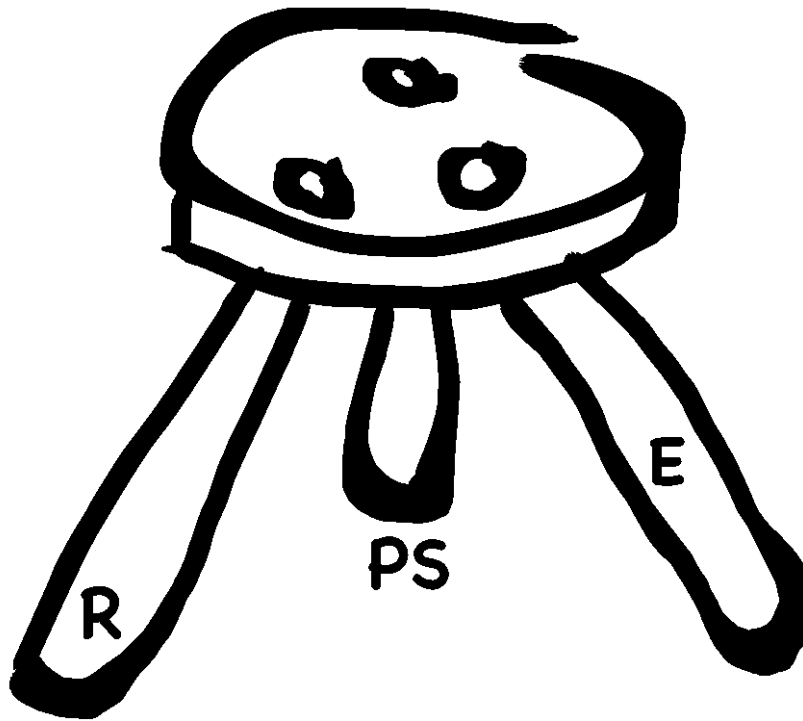
*People crave passion, and in an increasingly  
challenging budget world...*

*Field stations and museums desperately need  
passionate supporters!*



# SMALL COLLECTIONS ARE IMPORTANT!

**VOLUNTEERS NEED TO KNOW THAT THEIR CONTRIBUTION IS MEANINGFUL**



## ***UNIVERSITY MISSION:***

- RESEARCH
- EDUCATION
- PUBLIC SERVICE

# CONTACT US!

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