

# CalPhotos: A Community-driven Natural History Image Repository

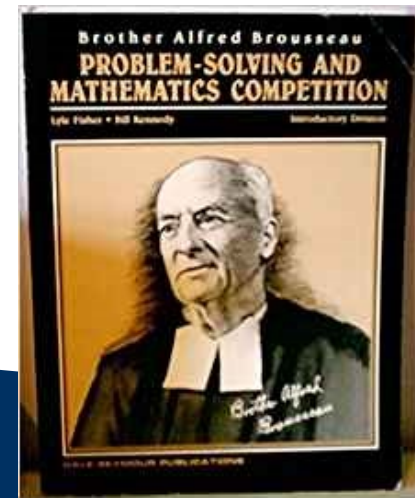
Michelle Koo, Patricia Holroyd, Joyce Gross

iDigBio Integration Workshop

January 2020

# History

- Originated from need to have an image retrieval system for early machine learning image analysis software
  - Work by EECS graduate student Ginger Ogle in “computer vision”
  - Included aerial images that were later removed after 9/11
- Refocus on natural history images with donation of 12,000 plant photos from Brothers Brousseau and Vogel, St Mary’s College
  - High quality images which were all identified to species
- Digital Library Project expanded to other taxa filling the need to high quality, taxon-specific images for databases and websites
  - CalPhotos site launched in **1995**



# What is CalPhotos

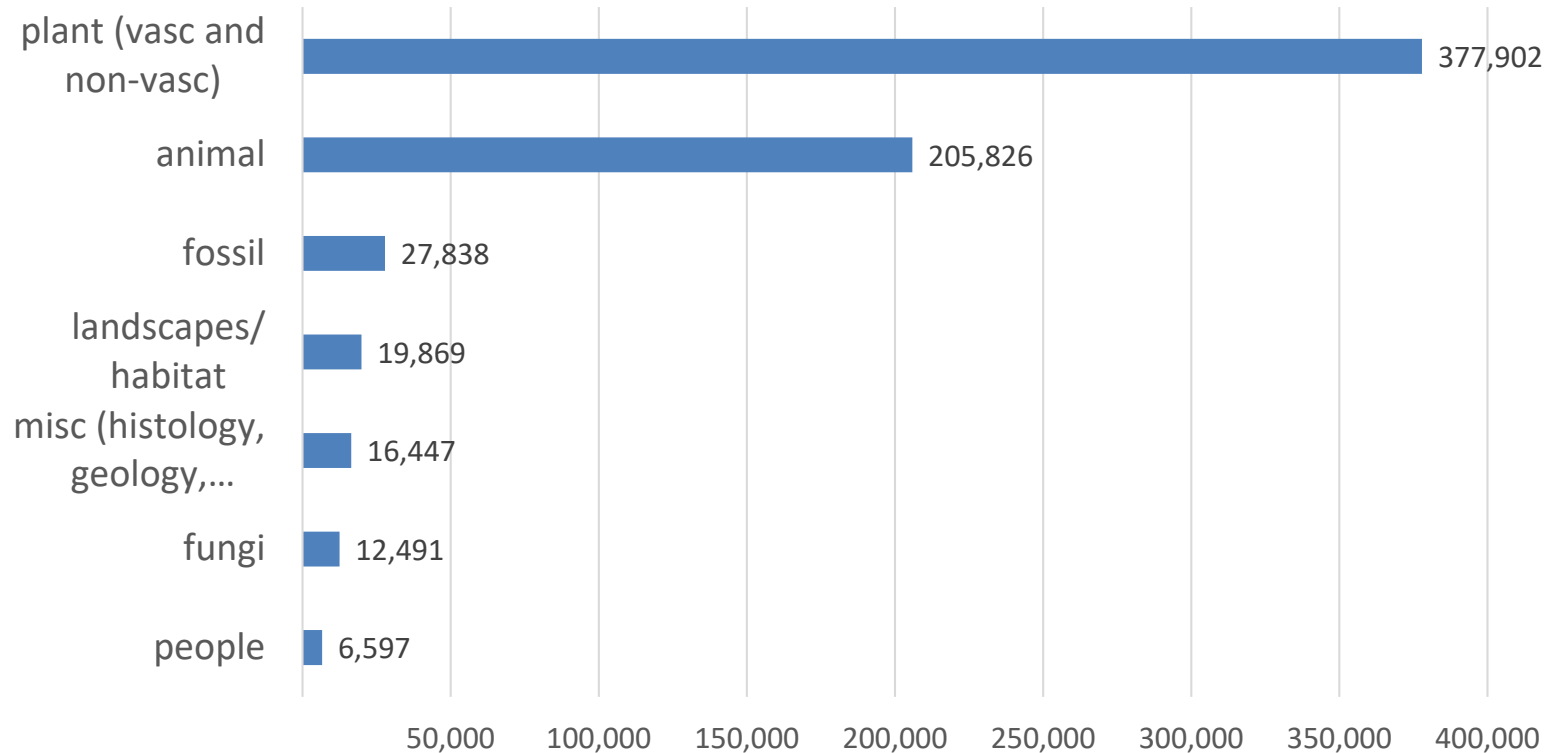
- Image repository for **identified** photos of plants, fungi, animals, fossils, people, and landscapes worldwide



# Holdings

**+667k Natural History Images of any kind**

Current subject areas



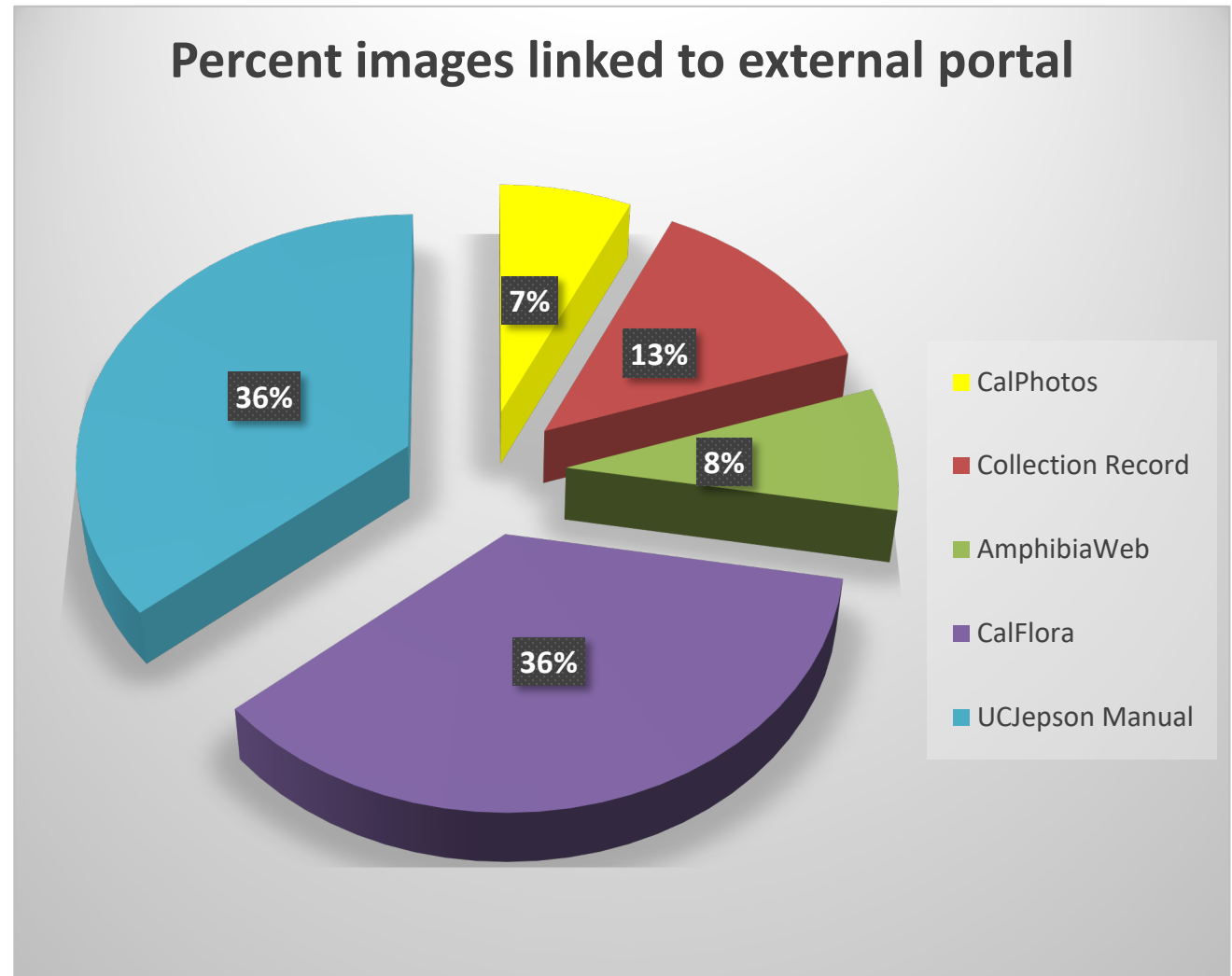
# Holdings

## Images from top four Museums (103,754)

Museum	CAS (All)	UCMP (Paleo)	MVZ (Vert)	Essig (Ento)
Total Images	48,382	38,691	15,430	1,251
Specimens	5,513	36,049	3,700	1,251
Archives (photos and labels)	42,869	2,642	12,000	0

# Who Uses CalPhotos

**~82% of all images are linked to EOL (CC and public domain images)**



# Who Uses CalPhotos?

**In addition to the previous portals**

- Book publishers
- Academic— courses, talks posters, etc
- Government
- Naturalists for id's
- Journalists
- **4.1 Million Page Views last year**
- **+1 million images a day to website visitors**



Photo by Ann Cook

# Taxonomy

## A Challenge and Unique Feature

No images may be uploaded without a species identification with the exception of fossil, landscape and cultural photos.

**Consulted  
Authorities:**

- AmphibiaWeb
- Reptile Database
- Jepson eFlora  
(California Plants)
- ITIS



# Taxonomy

## Expert Reviewer Annotation and Updates

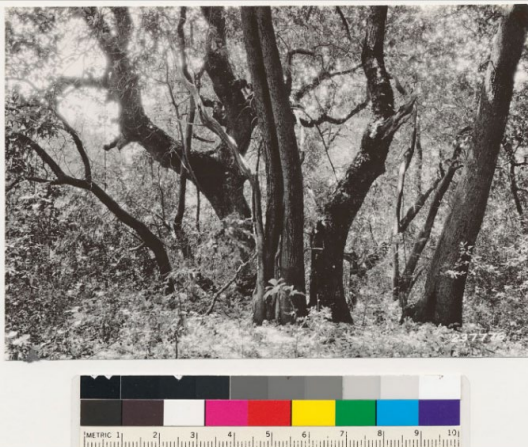
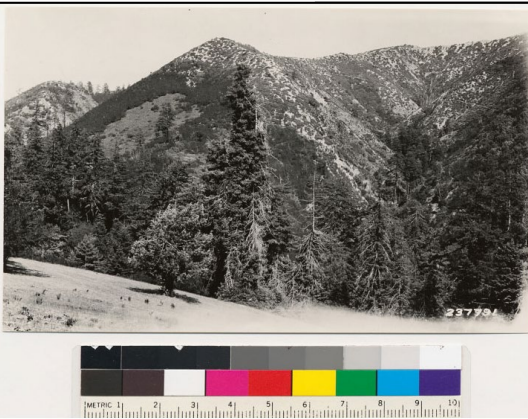
- 635 Expert Reviewers registered
- Both bulk updates and reviewer initiated
- Changes are regularly applied
- UCMP has nightly automated updates



Carpet python and meal © Eric Vanderduys

# CalPhotos and Archival Collections

~58,000 images are “archival”

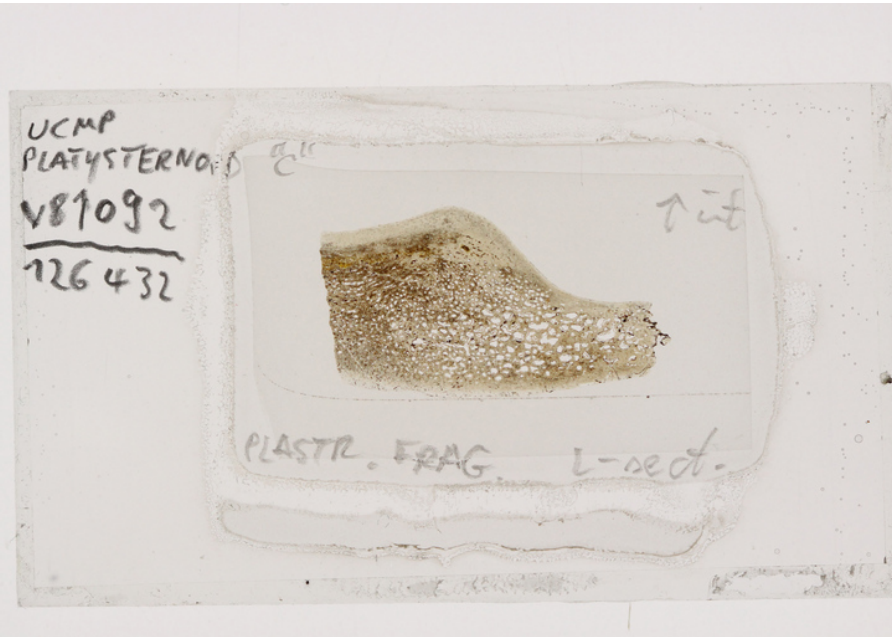


# CalPhotos and Special Preps

## Histology, High Resolution

~1,200 histology slides

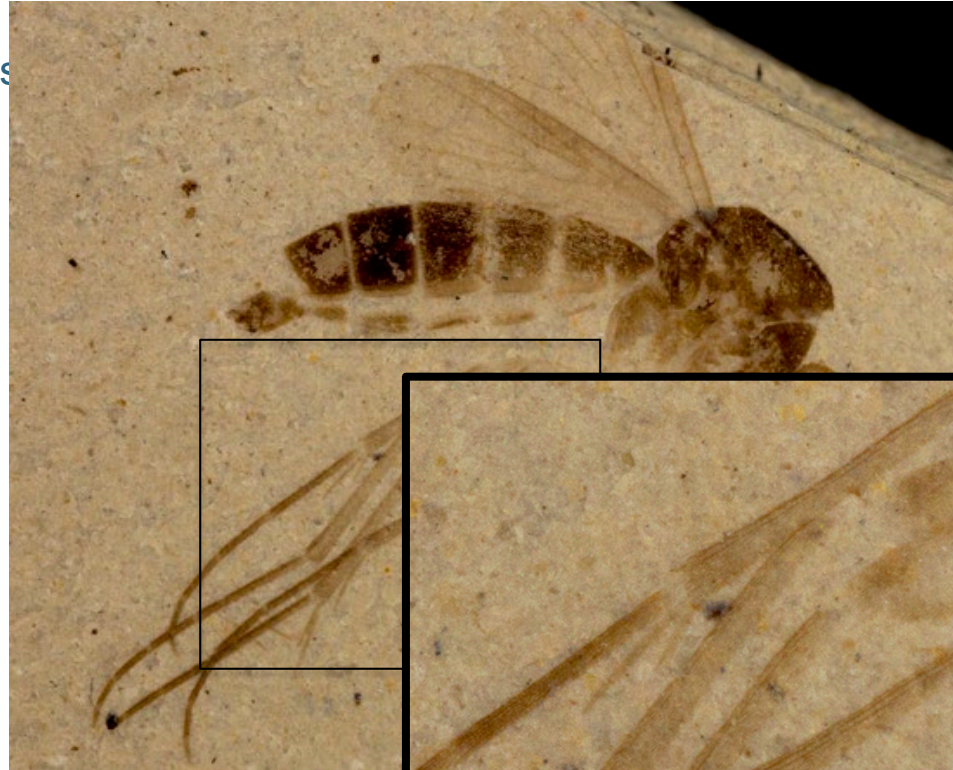
~ 600 cleared images



# CalPhotos and Special Image Types

## High Resolution Images are Zoomable

~37,500 high resolution images  
that are 'zoomified'



Class Insecta, UCMP 400543.01



# IP and Copyright

## Copyright is main way Intellectual Property is handled

Photographers and collections select their copyright from these:

To ask for or notify of use, we ask users to contact photographers directly; contact info is available for each image.

- **Public Domain**
- **Creative Commons Attribution 3.0**
- **Creative Commons Attribution-ShareAlike 3.0**
- **Creative Commons Attribution-NonCommercial 3.0**
- **Creative Commons Attribution-NonCommercial-ShareAlike 3.0**
- **Creative Commons Attribution-NoDerivs 3.0**
- **Creative Commons Attribution-NonCommercial-NoDerivs 3.0**
- **CalPhotos Use ONLY**
- **Custom License**

# IP and Copyright

## Museums and Archives also choose their copyright

Explicit and individual according to each collection.

Each image linked to the collection's Terms of Use policy and copyright terms.



# CalPhotos Community

**Currently +2,500 photographers registered**

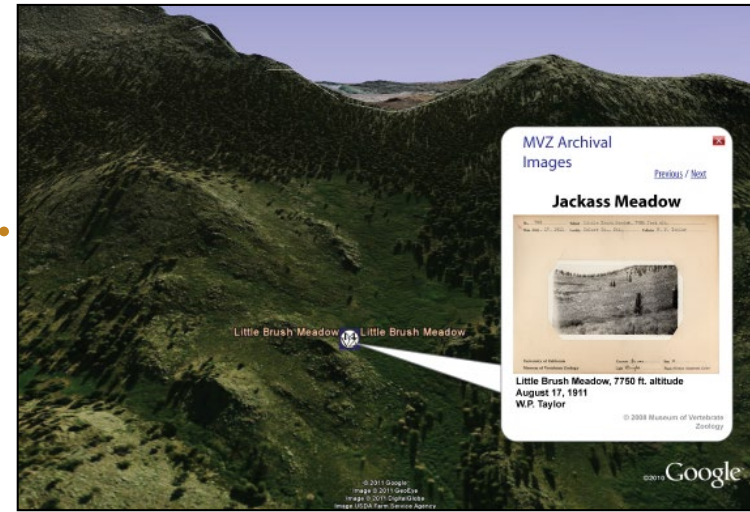
- ~50 new photographers sign up per year
- Private, professional, and from organizations
- Photographers choose their license
- Average 3,000 images uploaded monthly



Larry Blakely, CC0

# Favorite Feature

## Georeferenced Landscapes...



## ...Allows for Retakes:



VTM Photo 286720, Kernville, CA October 1931

by Albert Wieslander



VTM Photo 286720 Retake, Kernville, CA 2013

by Joyce Gross



# Favorite Feature

## Keywords

- Predation
- Feeding
- Amplexus
- Egg
- Nest
- Parasite
- Leucistic
- etc

In species-species interactions, second id is shown

### CalPhotos

Contributors • Log Out

Number of matches: 91

Query: SELECT \* FROM img WHERE ready=1 and match(keywords) against('predation' IN BOOLEAN MODE) ORDER BY taxon

Click on the thumbnail to see an enlargement



*Alopex lagopus*  
Arctic Fox  
ID: 0000 0000 0810 1974 [\[detail\]](#)  
© 2010 Aaron E. Sims



*Ambystoma opacum*  
Marbled Salamander  
(shown with *Rana sylvatica*)  
ID: 0000 0000 1017 2068 [\[detail\]](#)  
© 2017 Alexander Murray



*Ammophila juncea*  
Digger Wasp  
(shown with *Catantops minimus*)  
ID: 0000 0000 0814 1489 [\[detail\]](#)  
© 2014 Ron Wolf



*Ammophila juncea*  
Digger Wasp  
(shown with *Catantops minimus*)  
ID: 0000 0000 0814 1500 [\[detail\]](#)  
© 2014 Ron Wolf



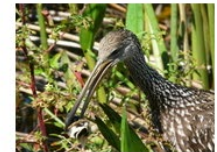
*Ammophila juncea*  
Digger Wasp  
(shown with *Catantops minimus*)  
ID: 0000 0000 0814 1501 [\[detail\]](#)  
© 2014 Ron Wolf



*Anolis lemurinus*  
Ghost Anole  
ID: 0000 0000 0107 1742 [\[detail\]](#)  
© 2007 Michael Benard



*Aphelocoma californica*  
Western Scrub Jay  
ID: 0000 0000 1111 0298 [\[detail\]](#)  
© 2011 John W. Wall



*Aramus guarauna*  
Limpkin  
ID: 0000 0000 1213 0297 [\[detail\]](#)  
© 2013 Simon J. Tonge



*Archips argyrospila*  
Fruit Tree Leafroller  
(shown with *Aquila sp.*)  
ID: 0000 0000 1004 0700 [\[detail\]](#)  
© 2004 Ted Swiecki



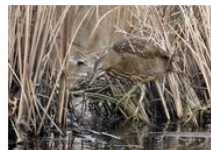
*Ardea herodias*  
Great Blue Heron  
ID: 6666 6666 0414 0316 [\[detail\]](#)  
Gerald and Buff Corsi  
© 2014 California Academy of Sciences



*Ardea herodias*  
Great Blue Heron  
(shown with *Siren lacertina*)  
ID: 0000 0000 0514 1639 [\[detail\]](#)  
© 2014 Steve Zamek



*Argia vivida*  
Vivid Dancer  
ID: 1111 1111 2222 0630 [\[detail\]](#)  
© 2005 Joyce Gross



*Botaurus lentiginosus*  
American Bittern  
ID: 0000 0000 0310 1334 [\[detail\]](#)



*Bothrops jararaca*  
(shown with *Adenomera marmorata*)  
ID: 0000 0000 1208 3190 [\[detail\]](#)



*Buteo jamaicensis*  
Red-tailed Hawk  
ID: 0000 0000 1009 1984 [\[detail\]](#)



*Buteo jamaicensis*  
Red-tailed Hawk  
ID: 0000 0000 0712 0888 [\[detail\]](#)

# Favorite Feature

## Relating Photos to each other

- Another View
- Retake
- Habitat

### *Silene scouleri* ssp. *scouleri*

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click photo for [larger file](#)  
high resolution; [ZOOM browser](#)  
view [full size](#)



*Silene scouleri* ssp. *scouleri*

Photographer: [Aaron Schusteff](#)

ID: 0000 0000 0118 1659 (2018-01-20)

Copyright © 2018 Aaron Schusteff

Related images:



#### INFORMATION PROVIDED WITH THE PHOTO

- **date of photo** Jul 10, 2005
- **location** Northwest ridge of San Pedro Mountain (San Mateo County, California, US)
- **family** [Caryophyllaceae](#)
- **notes** Photographed within an opening in coastal scrub dominated by *Bacharris pilularis* at about 800' elevation above Devil's Slide.

Note the petal are pink with [limbs](#) bilobed, having sinus depth 1/3-1/2 the length of each limb; and with each lobe having a conspicuous lateral tooth. The calyces are densely glandular-puberulent. The inflorescence is mildly congested distally...the internodes between paired, sessile flowers becoming quite reduced distally. There are about 4 pairs of opposite, cauline, narrowly ovate-oblongeolate leaves...the uppermost reduced. There stem is solitary and erect, fairly robust, and densely puberulent and glandular distally, less so proximally.

This keys to *S. scouleri* ssp. *scouleri* in the Jepson eFlora and FNA treatments. In the 1947 revision of *Silene* by Hitchcock & Maguire as well as in Abrams it keys to *S. scouleri*, with the subtaxa less clear.

Links to each of these references appear below (in reverse chronological order):

Jepson eFlora: [Silene key](#); [S. scouleri ssp. scouleri treatment](#);  
Flora of North America (2005): [Silene key](#); [S. scouleri ssp. scouleri treatment](#);  
Hitchcock & Maguire *Silene* Revision (1947): [Silene key](#); [S. scouleri treatment](#) + [Figure 27](#);  
Abrams Flora (1944): [Silene key](#); [S. scouleri treatment](#) + [Fig. 1743](#)

- photo category: Plant - annual/perennial

#### MORE INFORMATION ABOUT THIS PLANT

- [Look for Jepson Manual treatments, maps](#) (University & Jepson Herbaria)
- [View Calflora record](#) for *Silene scouleri* ssp. *scouleri*
- [Check the Plants Database](#) (USDA website)
- [View Encyclopedia of Life record](#) for *Silene scouleri* ssp. *scouleri*
- [View all photos in CalPhotos](#) of *Silene scouleri* ssp. *scouleri*
- [Check Google Images](#) for *Silene scouleri* ssp. *scouleri*

The photographer's identification *Silene scouleri* ssp. *scouleri* has not been reviewed. [Click here](#) to review or comment on the identification.

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# Sustainability

## Supported by the Berkeley Natural History Museums

Past support:

- Digital Library Project
- Private donations
- Occasional Grants– Keck Foundation, EOL, Turner Foundation for new development

Simple structure allows for simple maintenance



*Brachychampsa montana*, UCMP 133940, D Strauss

# Technical Infrastructure

## Gory Details:

- **LAMP (mostly PERL not PHP)**
- Local server with both onsite and cloud backups
- Option for images to be hosted externally (only MVZ does this currently)
- Simple API
- IPT archive



Eagle Owl, © Simon Tonge

CalPhotos  
thanks all its  
users and  
contributors!

