


A flora revisited: survey of vascular species in the upper Rock Creek watershed

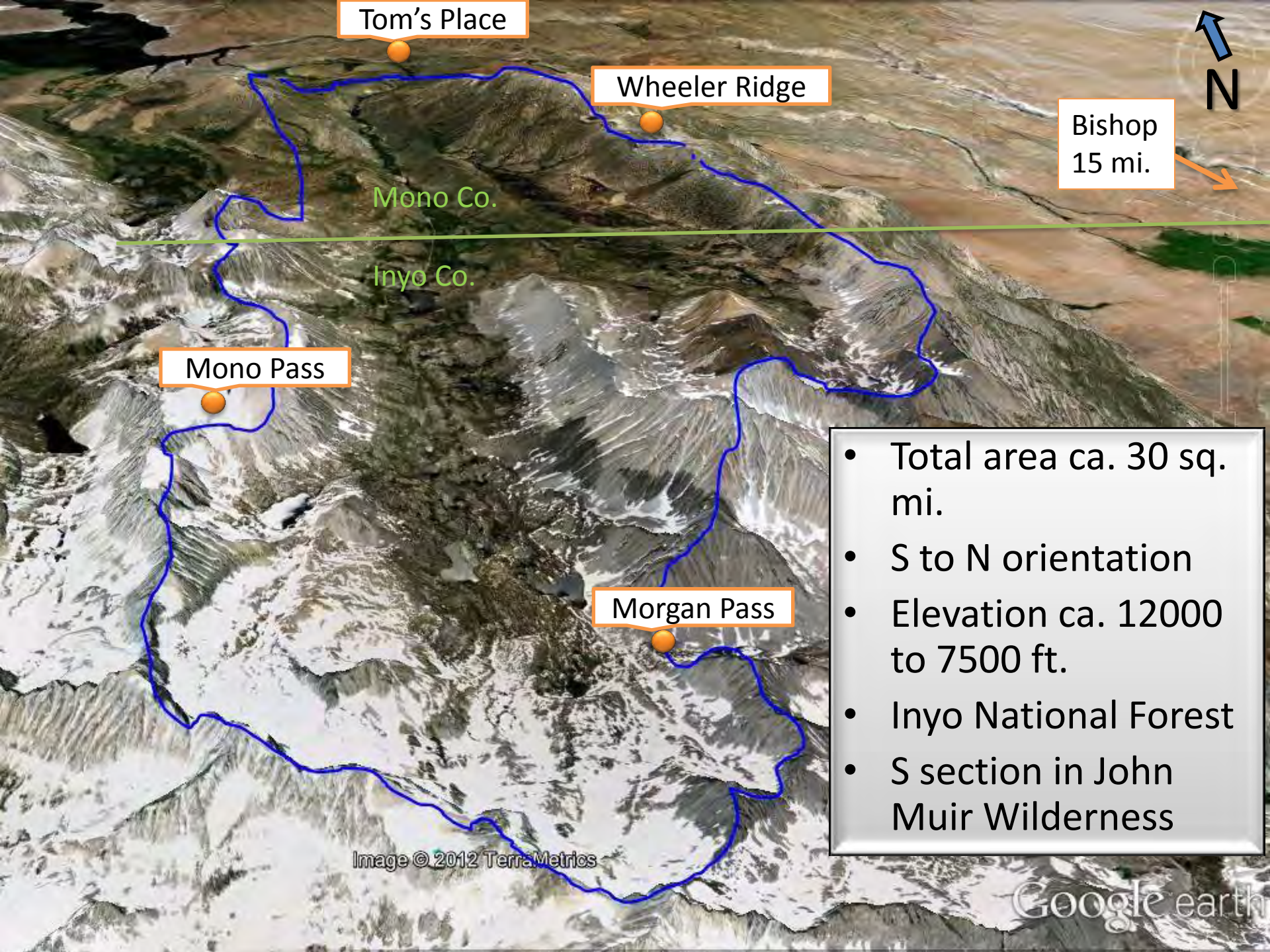


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28 November 2012

Acknowledgments

- Bristlecone chapter of the California Native Plant Society
- Field assistants: Melinda Burns, Travis Columbus, Amanda Fisher, Forrest Freund, Stephen Ingram, Jennifer Pilapil, Cathy Rose
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- Dean W. Taylor
- Michelle Slaton
- Gary Wallace, USFWS
- Sierra Nevada Aquatic Research Laboratory (SNARL)
- Rancho Santa Ana Botanic Garden: Faculty, Staff, Postdocs and Students

- 
- I. Overview of study area
 - II. Research objectives & methods
 - III. Historical collections
 - IV. Fieldwork, summer 2012
 - V. Project goals for 2013



Tom's Place

Wheeler Ridge

Bishop
15 mi.

Mono Co.

Inyo Co.

Mono Pass

Morgan Pass

- Total area ca. 30 sq. mi.
- S to N orientation
- Elevation ca. 12000 to 7500 ft.
- Inyo National Forest
- S section in John Muir Wilderness

Image © 2012 TerraMetrics

Google earth

Vegetation and Habitats



Lakes: lots
of them!





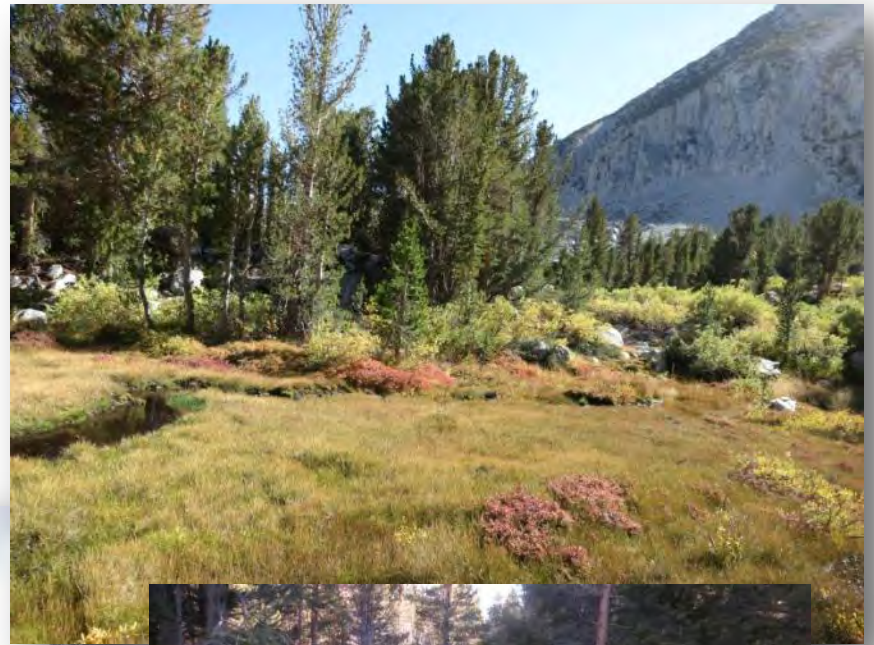
woodlands
and forests



bottom right photo taken by: Jennifer Pilapil

dry,
rocky
slopes





meadows

Photo by:
Travis
Columbus



streamlets
and seeps





moist slopes



scrub



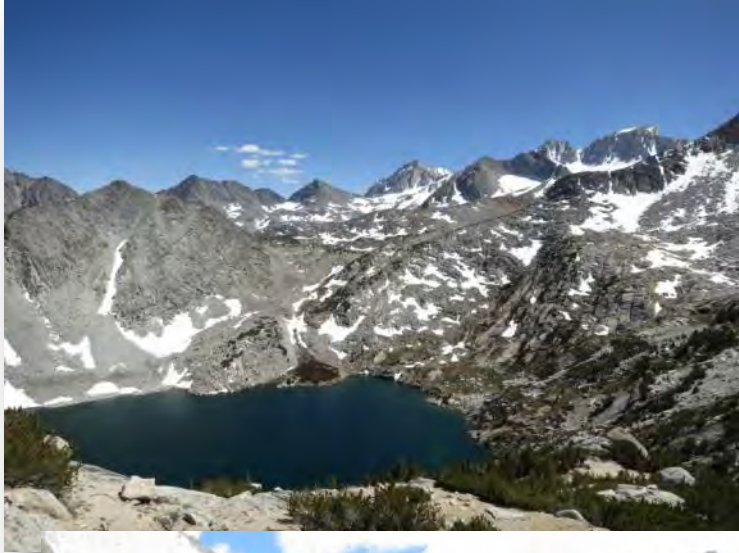
riparian





ponds

alpine



bottom right photo taken by Travis Columbus

Research objectives

- 1. Inventory the vascular plant taxa in the upper Rock Creek watershed and publish a voucher-based checklist**
- 2. Document observed changes in species composition within the study area over the past century, comparing new data against earlier data from historical collections.**
- 3. Quantify the floristic dissimilarity of the upper Rock Creek watershed to nearby local floras, in terms of species in common.**

Methods

1. Collect samples (vouchers)
 2. Identify the vouchers
- ✓ Determinations of my own collections
 - ✓ Annotations of other collections



Herbarium Specimens

- Concrete evidence of this species' existence in place and time
- Representative example of this species
- Scientific and cultural value



SAN DIEGO STATE UNIVERSITY HERBARIUM (SDSU)
Specimen used in molecular and/or morphological study
C.M. Guilliams and M.G. Simpson - 1 October 2007

FRANK W. PEIRSON HERBARIUM
Presented in 1951

Calyptidium pygmaeum Parish ex Rydb.

Rock Creek Lake Basin,
Inyo Co., California

Aug. 3, 1937

Specimen data entered into
RSA-POM Database


Collector F. W. Peirson

Herb No. 13457

Digital records of specimens

← → ↻ ucjeps.berkeley.edu/cgi-bin/get_consort.pl?county=INYO&county=MONO&source=All&taxon_name=&collector=DeDecker&aid=&year=&mont

rsabg mail Esri Training lo... The Claremont ... Claremont Coll... Sakai CCH Pandora



Consortium of California Herbaria

CAS-DS · CDA · CHSC · CSUSB · DAV · HSC · IRVC · OBI · PGM · RSA-POM · SBBG · SD · SDSU · SJSU · UC-JEPS · UCR · UCSB · UCSC

Participants News Search About

The Consortium of California Herbaria is a gateway to information from California vascular plant specimens that are housed in herbaria throughout the state.
Please cite data retrieved from this page: Data provided by the participants of the Consortium of California Herbaria (ucjeps.berkeley.edu/consortium/; Tue Nov 27 20:19:10 2012).

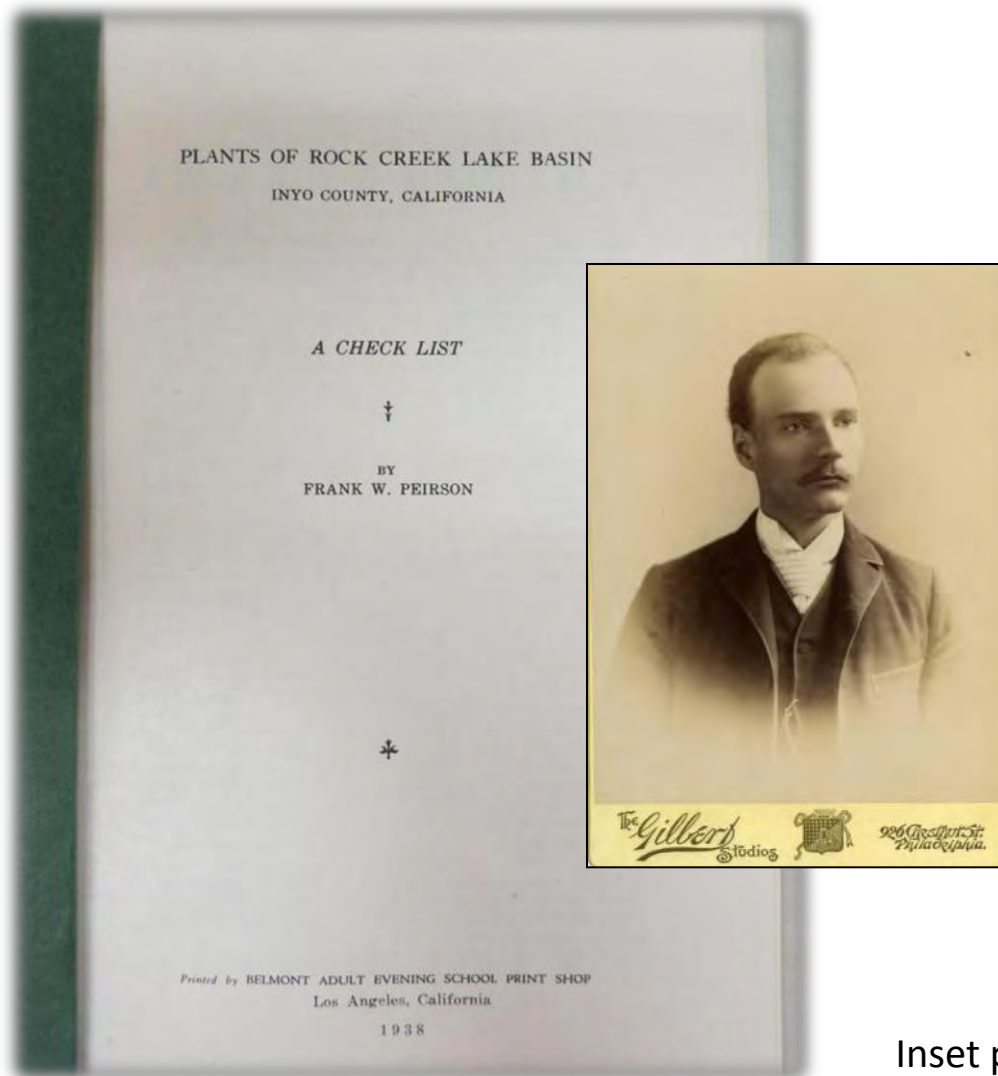
Accession Results — 8 records retrieved.
Results for search: County=INYO, MONO; Source=All; Collector=DeDecker; Locality="rock creek";
No results can be mapped from coordinates. CM

Select all records · Select records with coordinates · [Retrieve selected records as tab-separated list](#)

Click on accession number to display detailed record; click on column header to sort data (* sorts by family); click in leftmost checkbox to select record. [Help](#)

Specimen ID	Determination *	Collector	Collection Date	Collection Number	County	Locality
<input type="checkbox"/> RSA619985	<i>Lupinus andersonii</i>	Mary DeDecker	Jul 26 1980	5093	Inyo	Sierra Nevada Sierra Nevada: Owens River drainage; Rock Creek, Mosquito Flat.
<input type="checkbox"/> RSA625384	<i>Penstemon papillatus</i>	Mary DeDecker	Jul 1 1984	5600	Mono	Sierra Nevada; Southern Sierra Nevada region Sierra Nevada: Owens River drainage; Rock Creek.
<input type="checkbox"/> UCR110100	<i>Penstemon papillatus</i>	Mary DeDecker	Jul 1 1984	5600	Mono	Sierra Nevada Mtns Owens River drainage; Rock Creek
<input type="checkbox"/> UCR119500	<i>Arabis holboellii</i> var. <i>retrofracta</i>	Mary DeDecker	Jul 18 1992	6362	Mono	Sierra Nevada Mtns. Owens River drainage; Rock Creek
<input type="checkbox"/> RSA627315	<i>Lupinus pratensis</i>	Mary DeDecker	Oct 4 1995	6467	Inyo	Sierra Nevada Sierra Nevada: Rock Creek Lake border; Lodgepole Pine Forest.
<input type="checkbox"/> UCR119611	<i>Lupinus pratensis</i> var. <i>pratensis</i>	Mary DeDecker	Oct 4 1995	6467	Inyo	Sierra Nevada Mtns. Rock Creek Lake border
<input type="checkbox"/> CDA2831	<i>Polygonum arenastrum</i>	Mary DeDecker	Oct 4 1996	6566	Inyo	Sierra Nevada: Owens Valley drainage; east side; Rock Creek Lake.

Frank Warrington Peirson (1865–1951)



- Amateur botanist in CA, early 20th century
- Rock Creek collections in 1930s-early 1940s
- 1938 self-published *Plants of Rock Creek Lake Basin, Inyo County, California: A Check List*
- 1942 addenda list
- Reported 344 taxa for Rock Creek Lake Basin
- Peirson herbarium collection housed at Rancho Santa Ana Botanic Garden (RSA)

Inset photo: Haverford College, PA, ca. 1889

John Thomas Howell

(1903–1994)

- Cal Academy of Sciences
- 1946 Base Camp (Sierra Club)
7-day expedition to Mono
Pass area
- Published checklist for that
trip in 1946
- 52 taxa not appearing on
Peirson's list for Rock Creek
- 82 taxa reported for his
"Florula of Mono Mesa,"
1947



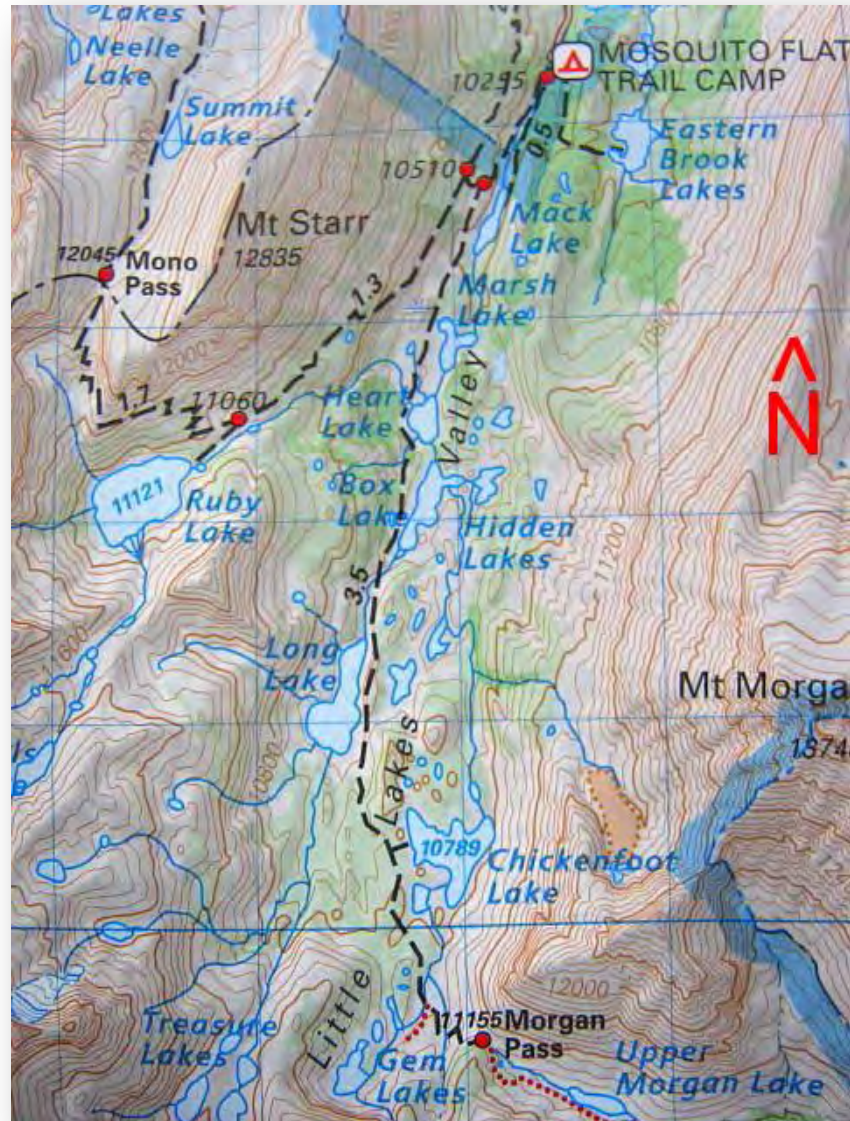
Photo courtesy of:
www.huntbot.andrew.cmu.edu



Calochortus howellii

©2006 David McClurg
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“Rock Creek Lake Basin” a.k.a. Little Lakes Valley



The collections from Mosquito Flat...are especially noteworthy. The name Mosquito Flat is applied to an elongate area of meadow and canyonside that extends along Rock Creek for about a half mile below the start of the Mono Pass Trail. In the area explored, less perhaps than one-eighth square mile, 202 species and varieties were found. When it is recalled that in Smiley's "Boreal Flora of the Sierra Nevada of California" 633 species are treated, the richness of the Mosquito Flat flora can be appreciated. I know of no place comparable to it in the Sierra Nevada.

-J.T. Howell, 12 September 1946



looking north along Rock
Creek, Mosquito Flat area



Draba sierrae

Why a Flora of Rock Creek?

- Personal value
- Need for a contemporary Flora of the area
- Opportunity for historical comparison
- Rich plant diversity
- Alpine habitat and climate change
- Recreational value



18–24 May 2012





Purshia tridentata



Prunus emarginata



Phacelia sp.



Allium obtusum



Allium campanulatum



Heuchera sp.



Pinus jeffreyi



Astragalus purshii



Astragalus purshii



Gilia sp.



Mentzelia ?veatchiana



Camissonia sp.



Smilacina stellata



Wyethia mollis



Calyptroidium umbellatum



Chamaesaracha nana

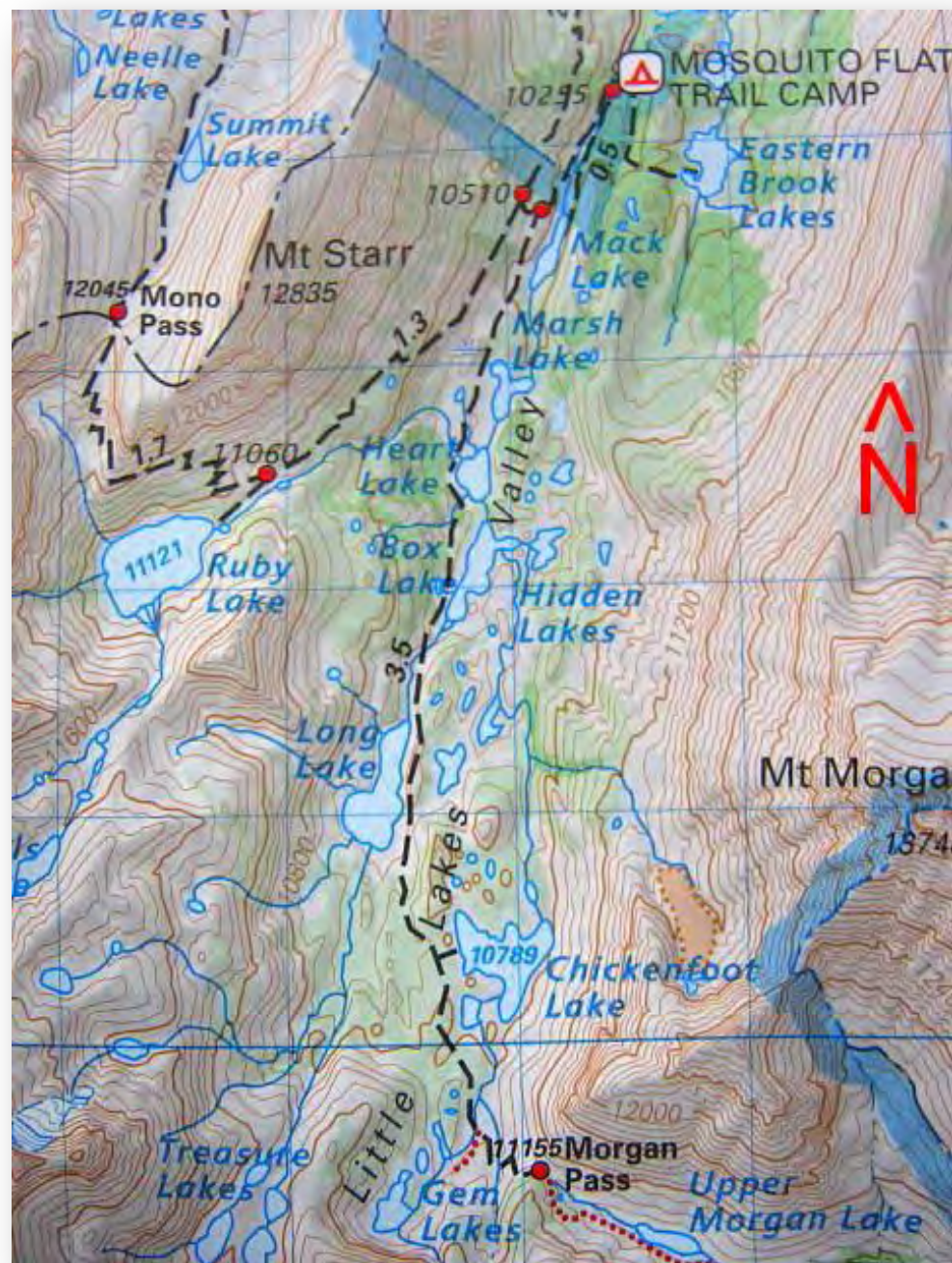




Salix sp.

11–18 June 2012







Linanthus pungens



Castilleja applegatei



Caryophyllaceae



Amelanchier utahensis



Mimulus primuloides



Phyllodoce breweri



Leptosiphon nuttallii



Salix arctica



Ivesia?





Draba sierrae





Fritillaria pinetorum







Castilleja linariifolia



Geranium richardsonii



Juniperus occidentalis



Astragalus monoensis



2–9 July 2012





Castilleja sp. OR spp.?



Epilobium obcordatum



Aquilegia pubescens



Pedicularis attollens



Penstemon davidsonii



Penstemon newberryi



Penstemon sp.



Sedum roseum



Pinus flexilis



Chamaebatia foliolosa



Lilium kelleyanum



Apocynum androsaemifolium



Aquilegia formosa

22–28 July 2012





with Forrest Freund and Amanda Fisher

The Quest for Quillworts (*Isoetes*)







Isoetes bolanderi



Gentiana newberryi



Gentianopsis holopetala



Eriogonum cf. ovalifolium



Photo courtesy of Amanda Fisher







Forrest collecting *Isoetes*
occidentalis at Hidden Lakes



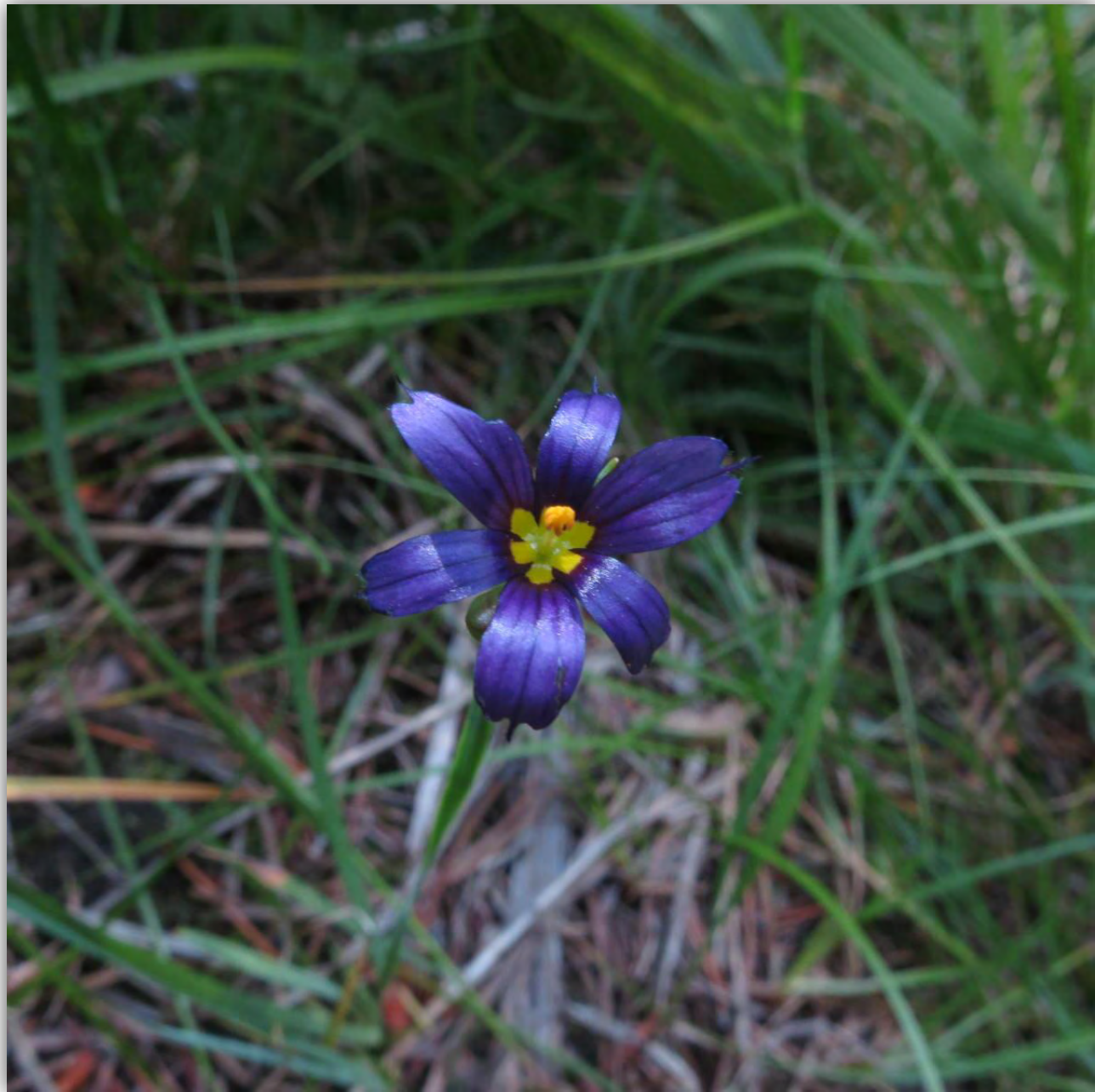
Castilleja nana



Dodecatheon sp.



Pinus ?monticola



Sisyrinchium



Calochortus c.f. venustus

13–27 August 2012





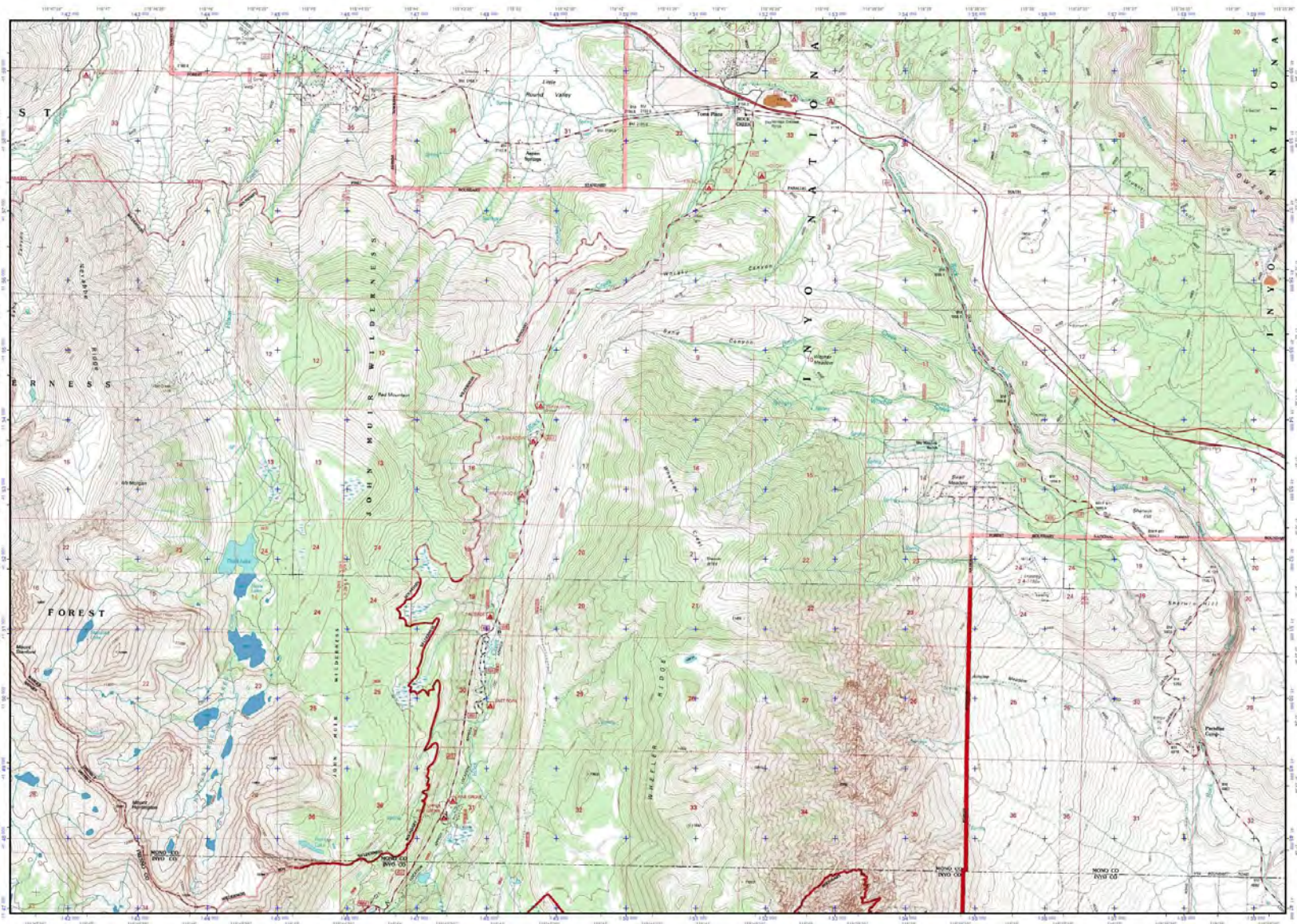
with Cathy Rose



Carex c.f. buxbaumii



with Travis Columbus, along Sand Canyon Road



mytopo
A TRIMBLE COMPANY
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Vicinity Map



Index Map



Leaf Grid Data: 10/20/2010
 1000' Contour: 1000'
 1000' Contour: 1000'
 1000' Contour: 1000'
 1000' Contour: 1000'



Scale: 1 inch = 1 mile
 0 1 2 3 4 5 6 7 8 9 10

Copyright: Topographic Map of the Inyo National Forest
 Data: 10/20/2010
 Data: 10/20/2010
 Data: 10/20/2010
 Data: 10/20/2010



Photo by: Travis Columbus



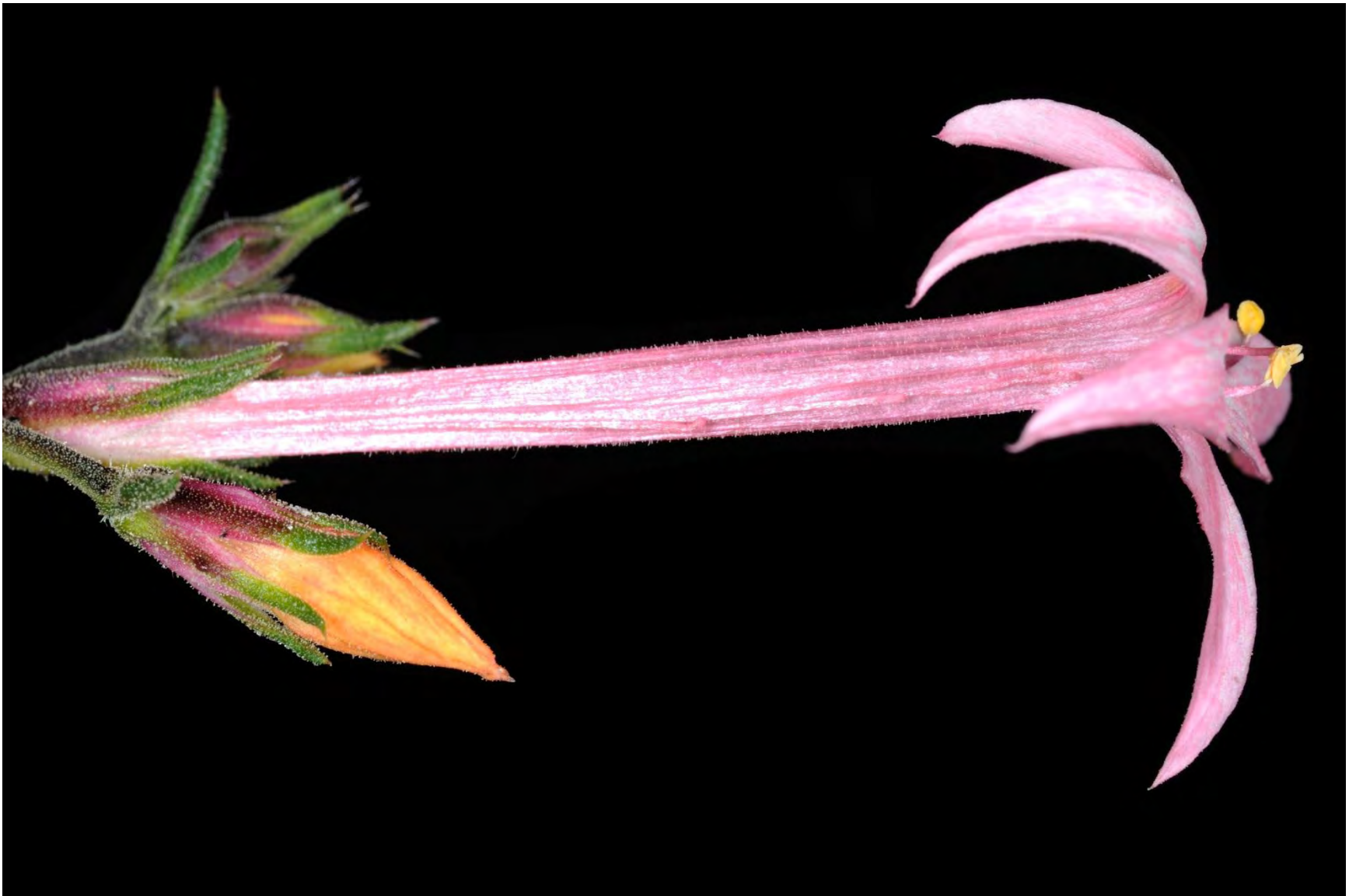
Photo: Travis Columbus

Ipomopsis tenuituba



Photo: Travis Columbus

Ipomopsis aggregata



Hybrid?

Photo: Travis Columbus



Mills Lake: 11650 ft.

Photo: Travis Columbus



Francis Lake





Erigeron?



Asteraceae



Eriogonum c.f. lobbii

16–22 September 2012





Pie in the sky
Rock Creek Lakes Resort



Frasera speciosa



Tsuga mertensiana



with Jennifer Pilapil at *Tsuga mertensiana* collection site

2013 fieldwork: looking ahead





Penstemon papillatus
photographed 4 July 2011



Saxifragaceae, E. Fork
Campground area



Arctostaphylos sp.

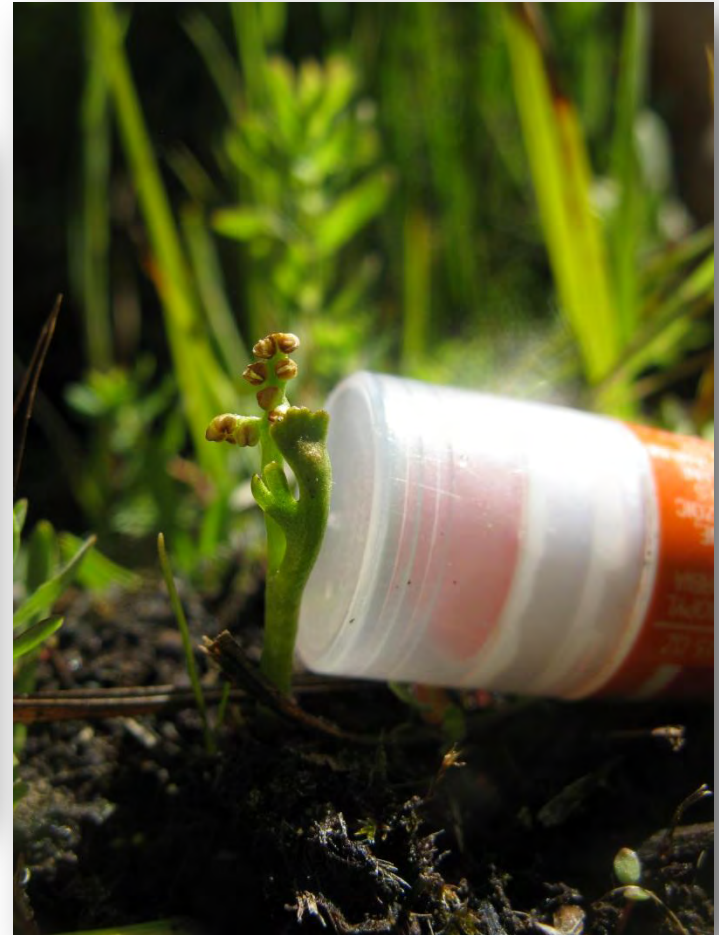
on trail above Rock Crk.
Lodge, below juncture w/
Hilton Lakes Trail



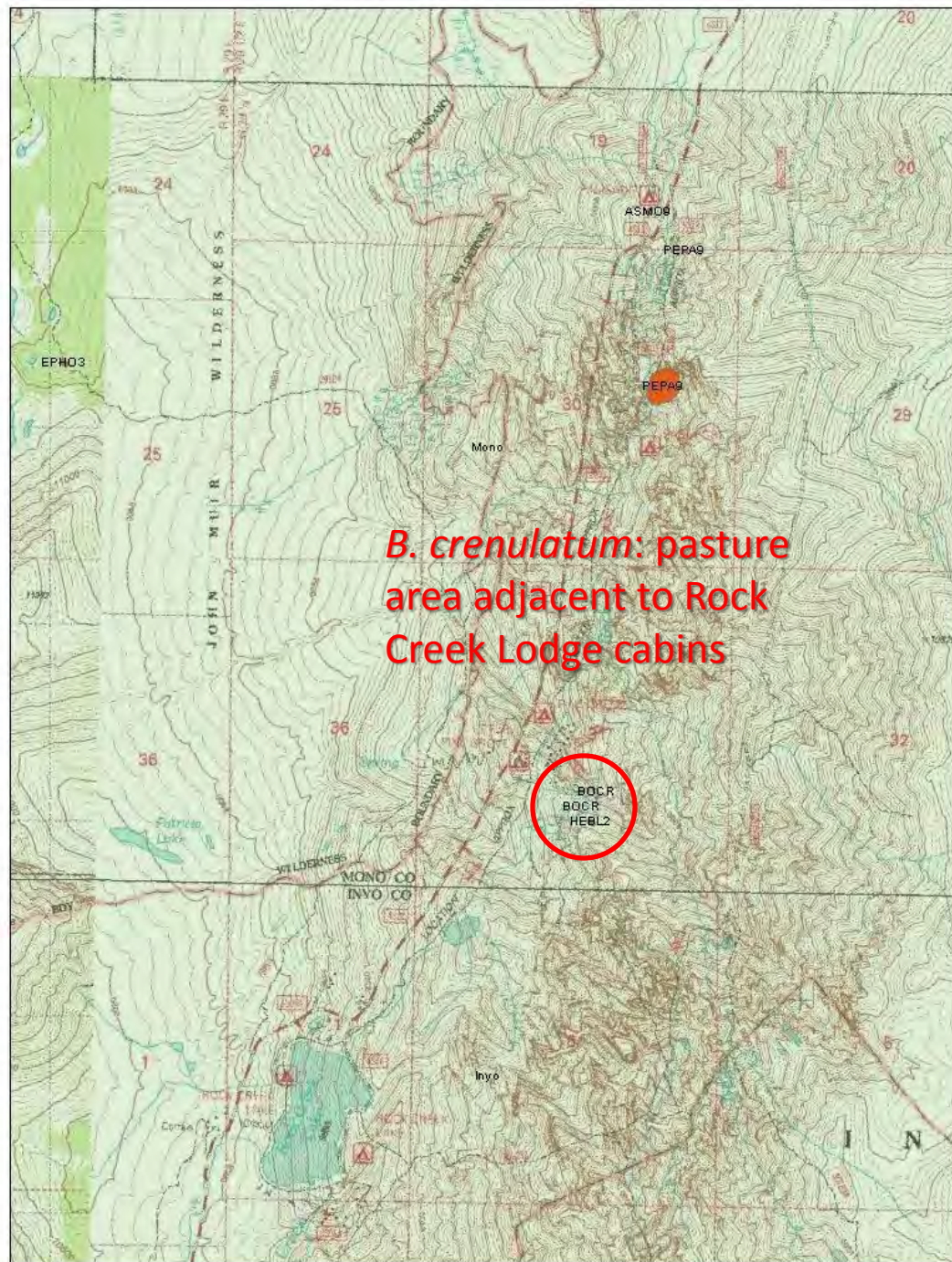
In drainage
below and E
of Half Moon
Pass

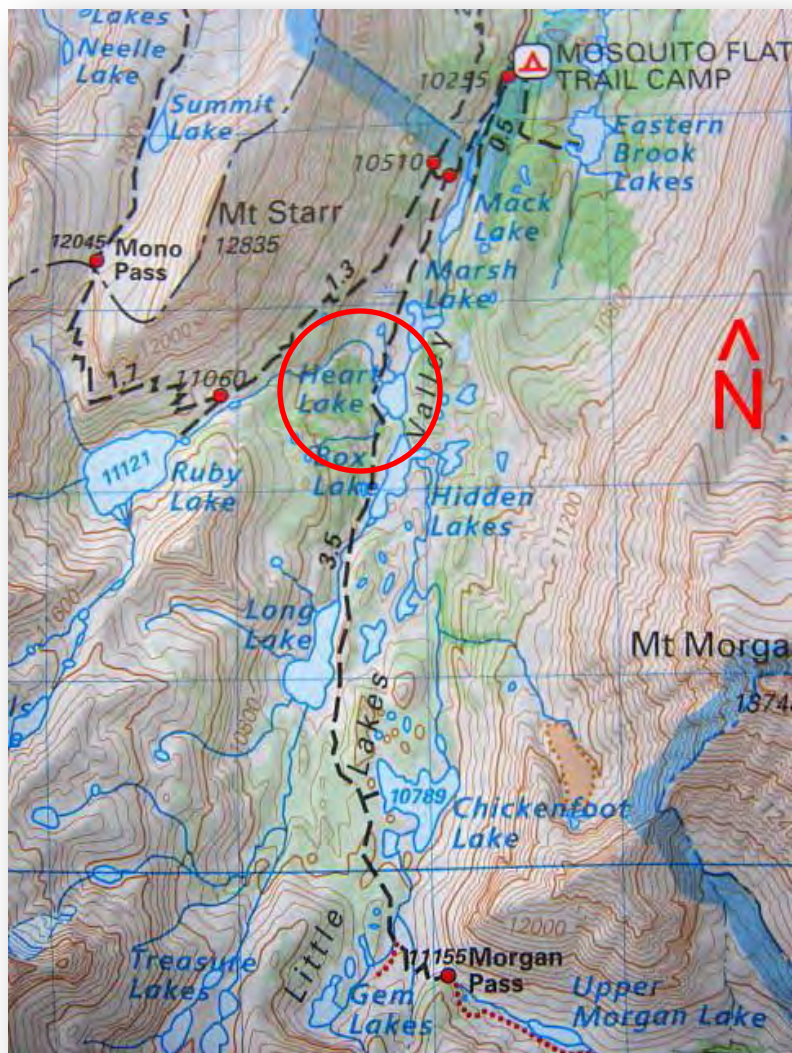


Botrychium crenulatum
a.k.a. “eyestrain Moonwort!”

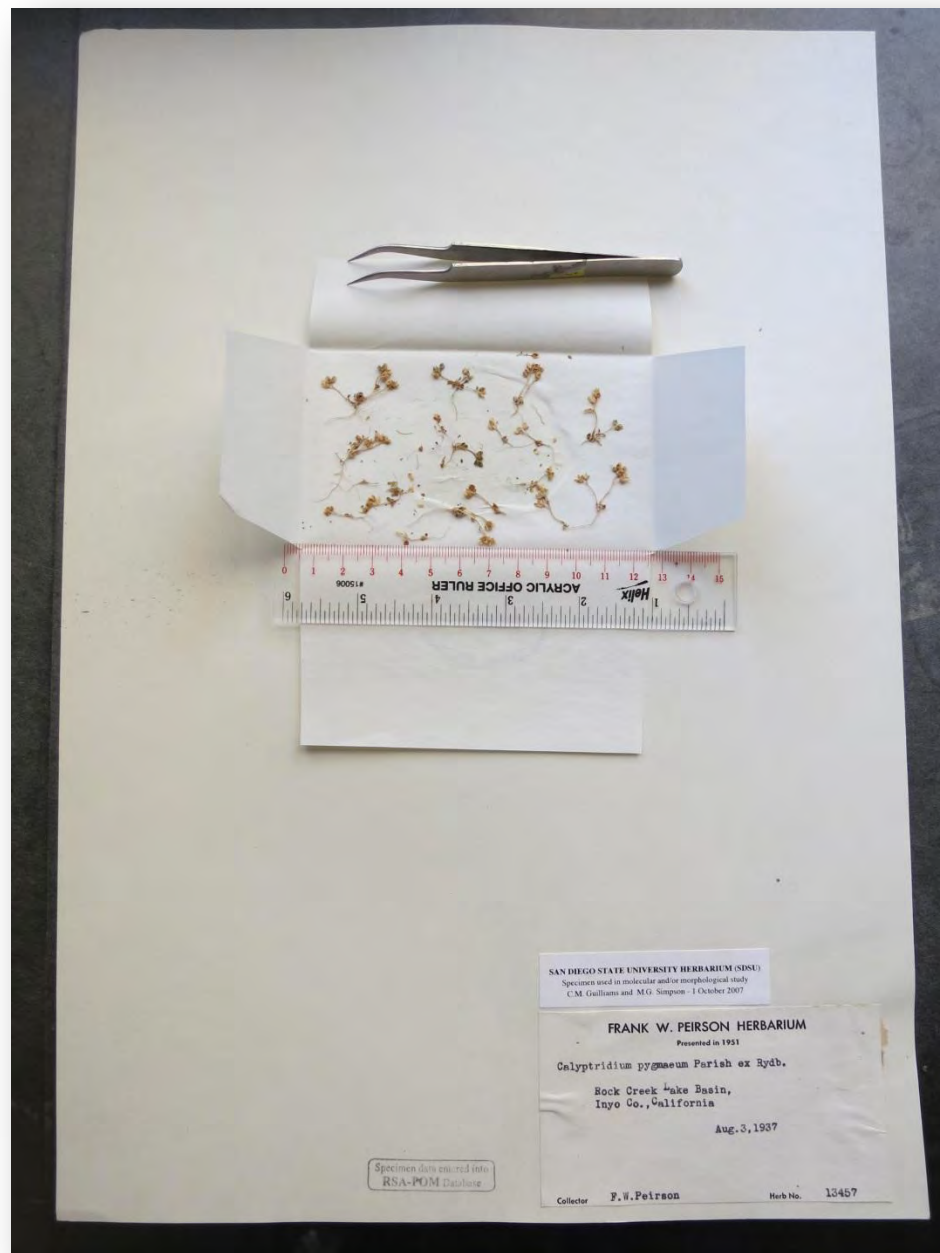


photos by Tommy Stoughton





F.W. Peirson voucher from
Heart Lake, Aug 3, 1937



Calyptridium pygmaeum

Photo: Travis Columbus

Challenging groups



Carex

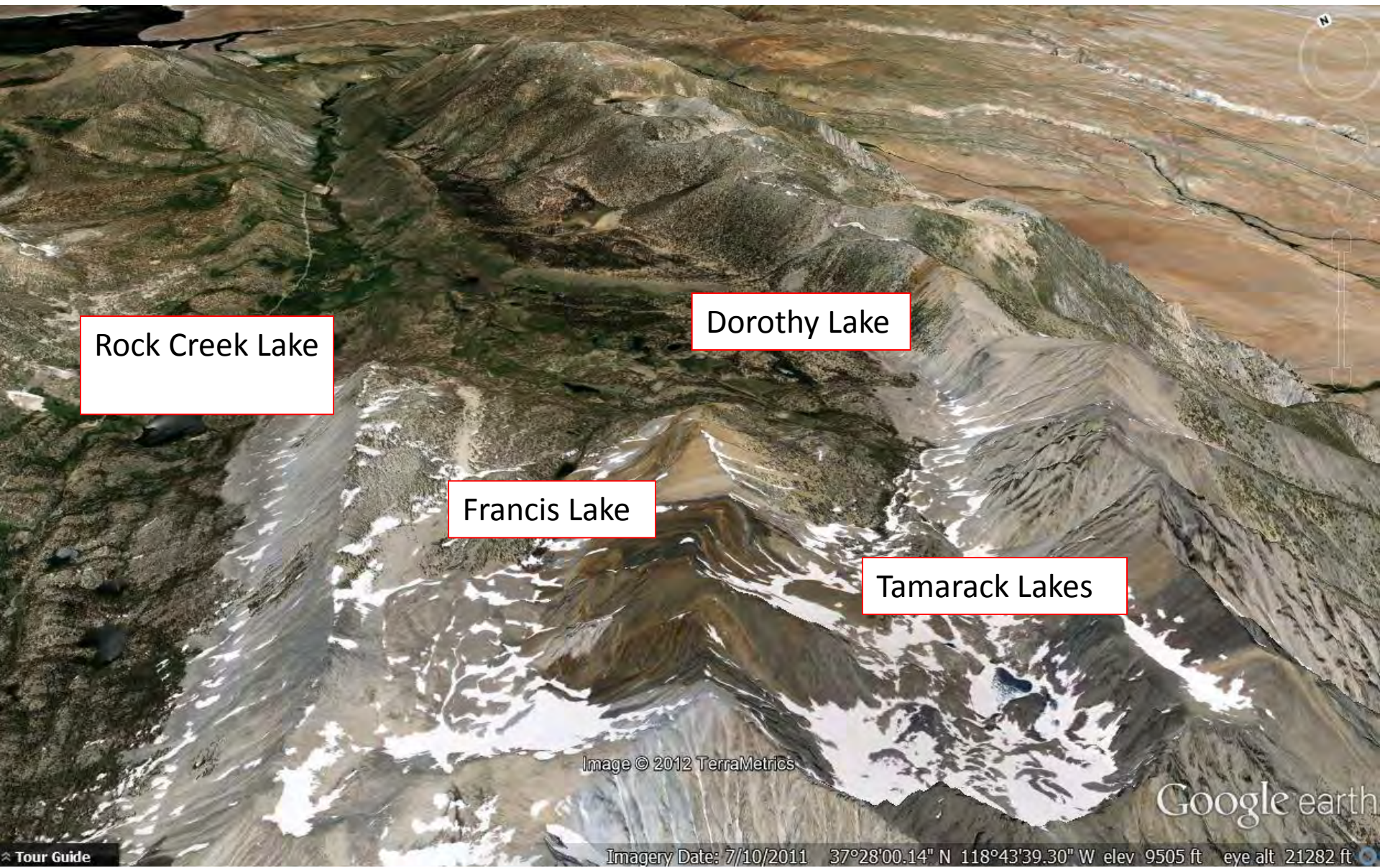


Compositae



Poaceae

Tamarack Bench area



Rock Creek Lake

Dorothy Lake

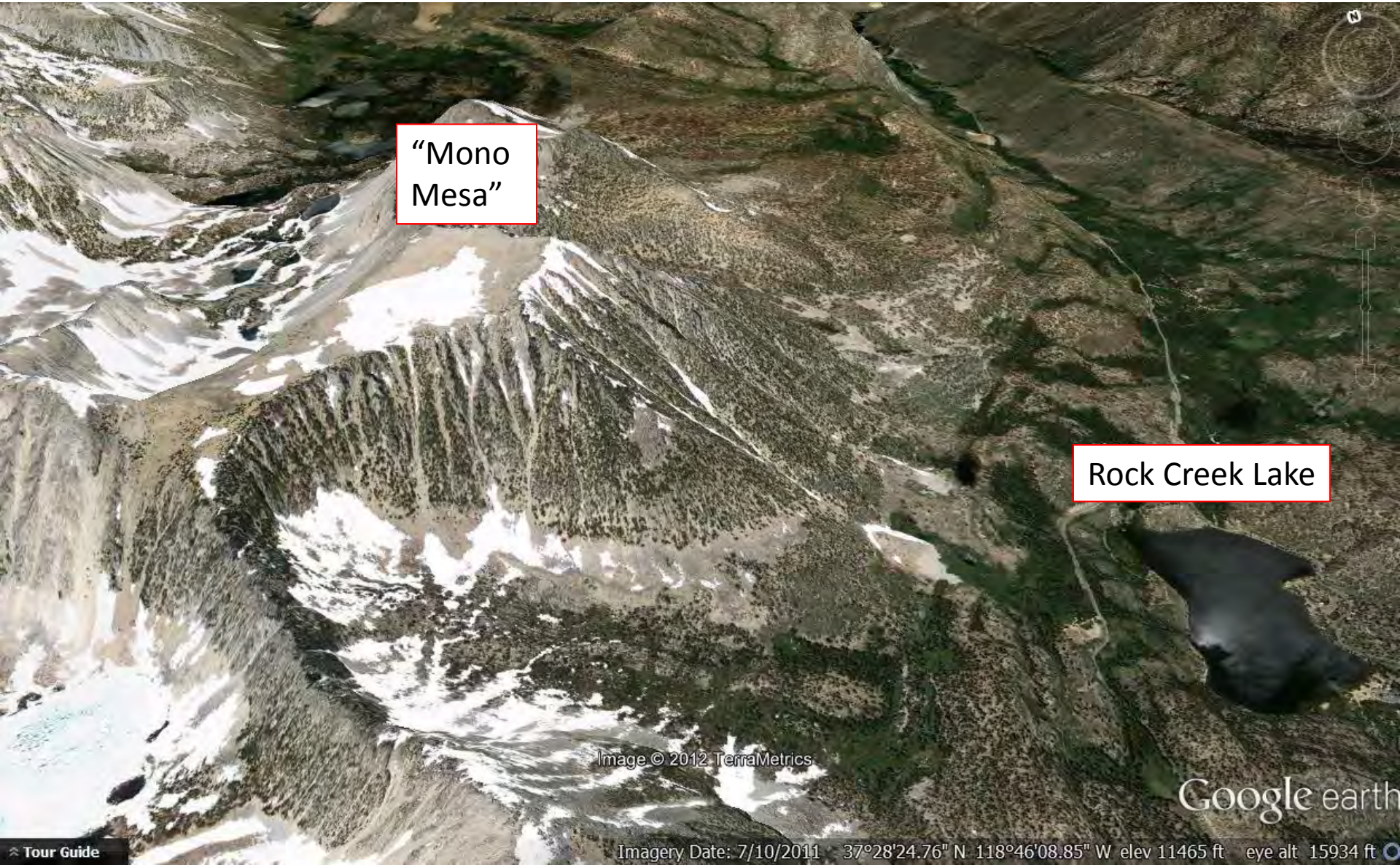
Francis Lake

Tamarack Lakes

Image © 2012 TerraMetrics

Google earth

“Mono Mesa” (Pointless Peak)



“Mono
Mesa”

Rock Creek Lake

Image © 2012 TerraMetrics

Google earth

Imagery Date: 7/10/2011 37°28'24.76" N 118°46'08.85" W elev 11465 ft eye alt 15934 ft

Definitely need more samples!





THANK
YOU!