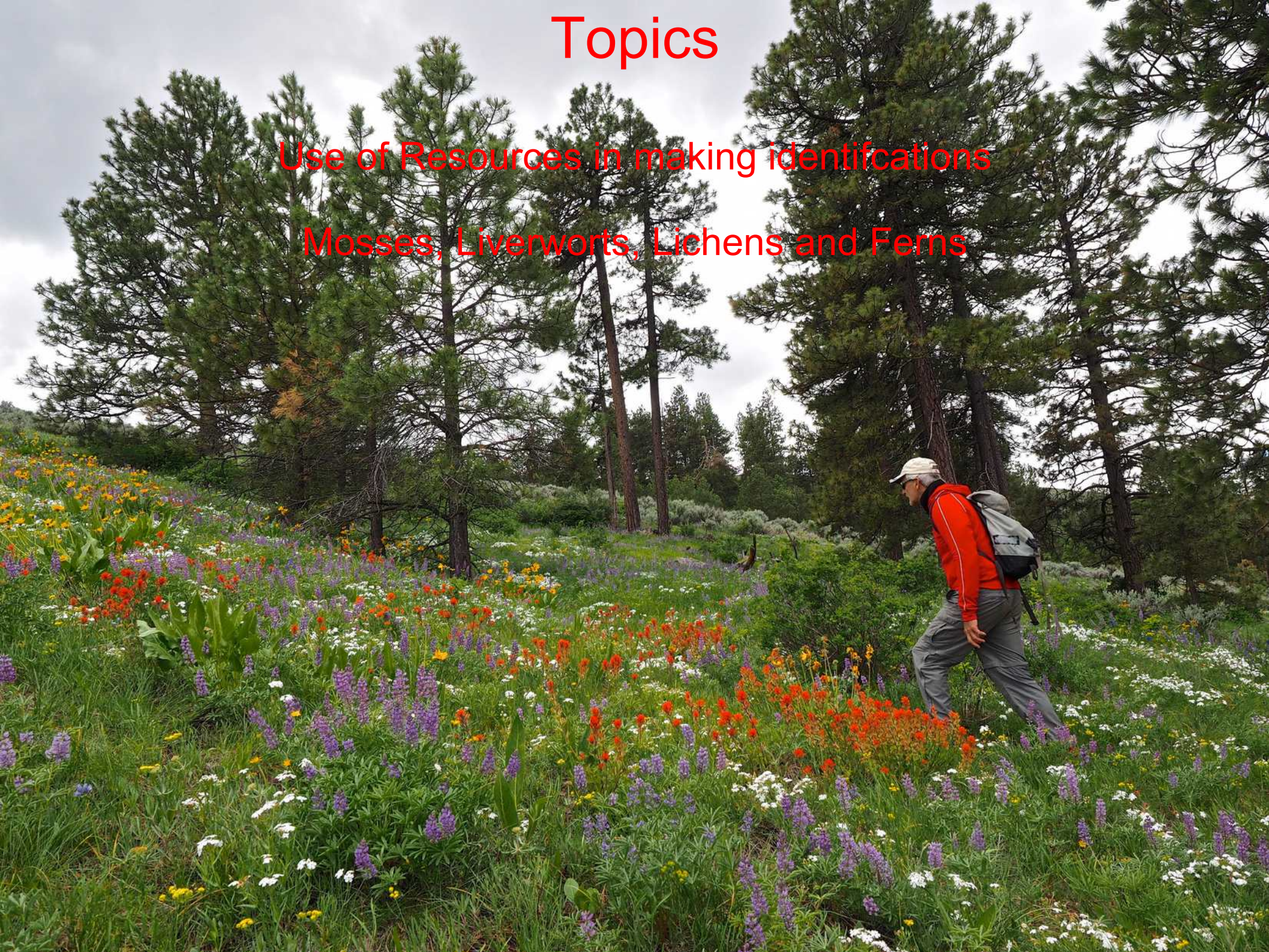
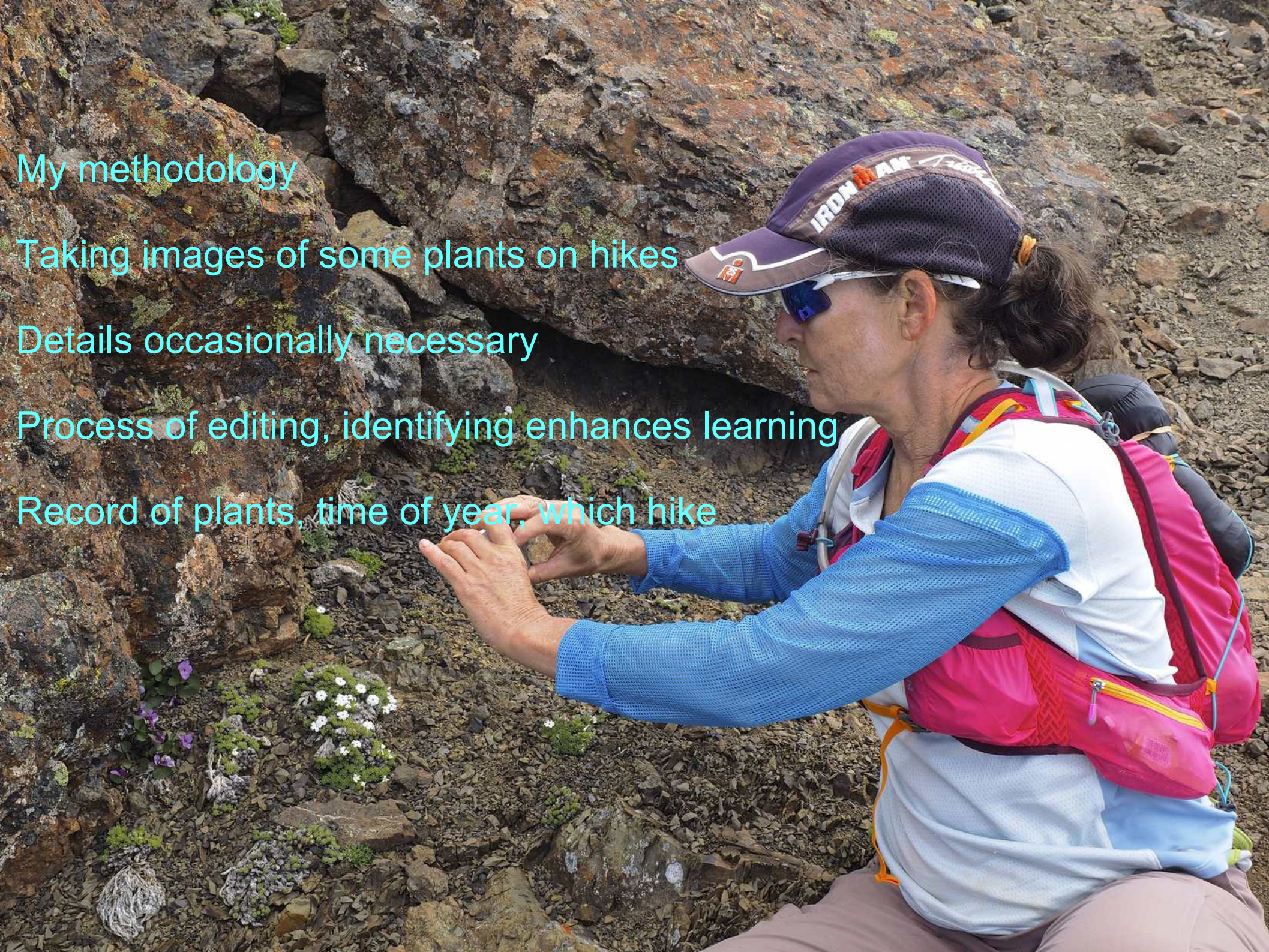
Topics

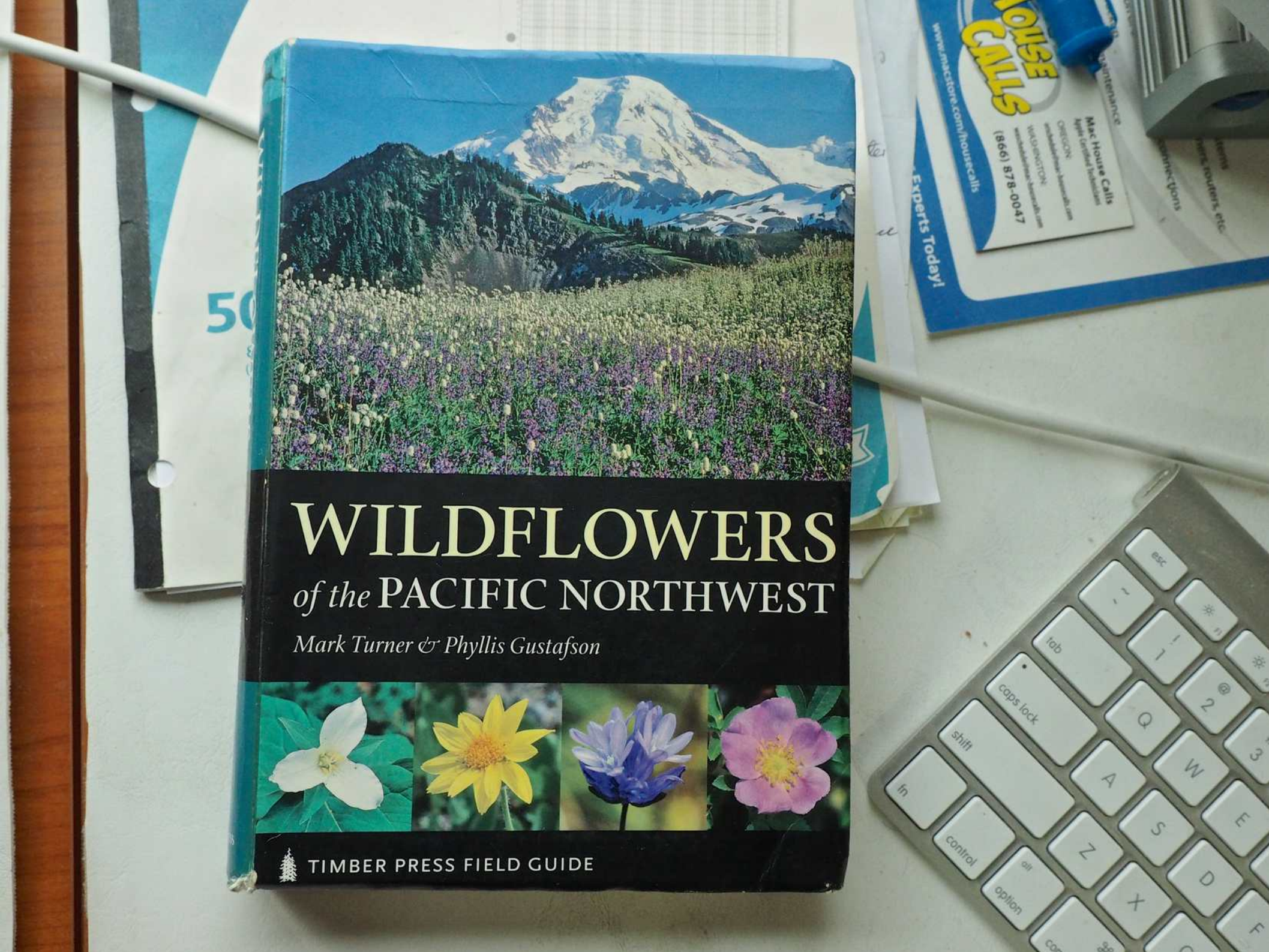
Use of Resources in making identifcations

Mosses, Liverworts, Lichens and Ferns




My methodology
Taking images of some plants on hikes
Details occasionally necessary
Process of editing, identifying enhances learning
Record of plants, time of year, which hike


Key points in red/cyan
A “pussytoe”
Its small
In the Alpine


WILDFLOWERS
of the PACIFIC NORTHWEST
Mark Turner & Phyllis Gustafson
TIMBER PRESS FIELD GUIDE
Mac House Calls
(866) 878-0047
Experts Today!

heads of 8–30 flowers. Male and female flowers occur separately in cups of straw-colored to white, sharply pointed bracts. Grows in dry open slopes, prairies, at mid elevations. Native

NOCA

Turner identifies as “Alpine pussytoes”

Antennaria media (*Antennaria alpina* var. *media*)

ASTERACEAE (everlasting tribe)

Alpine pussytoes

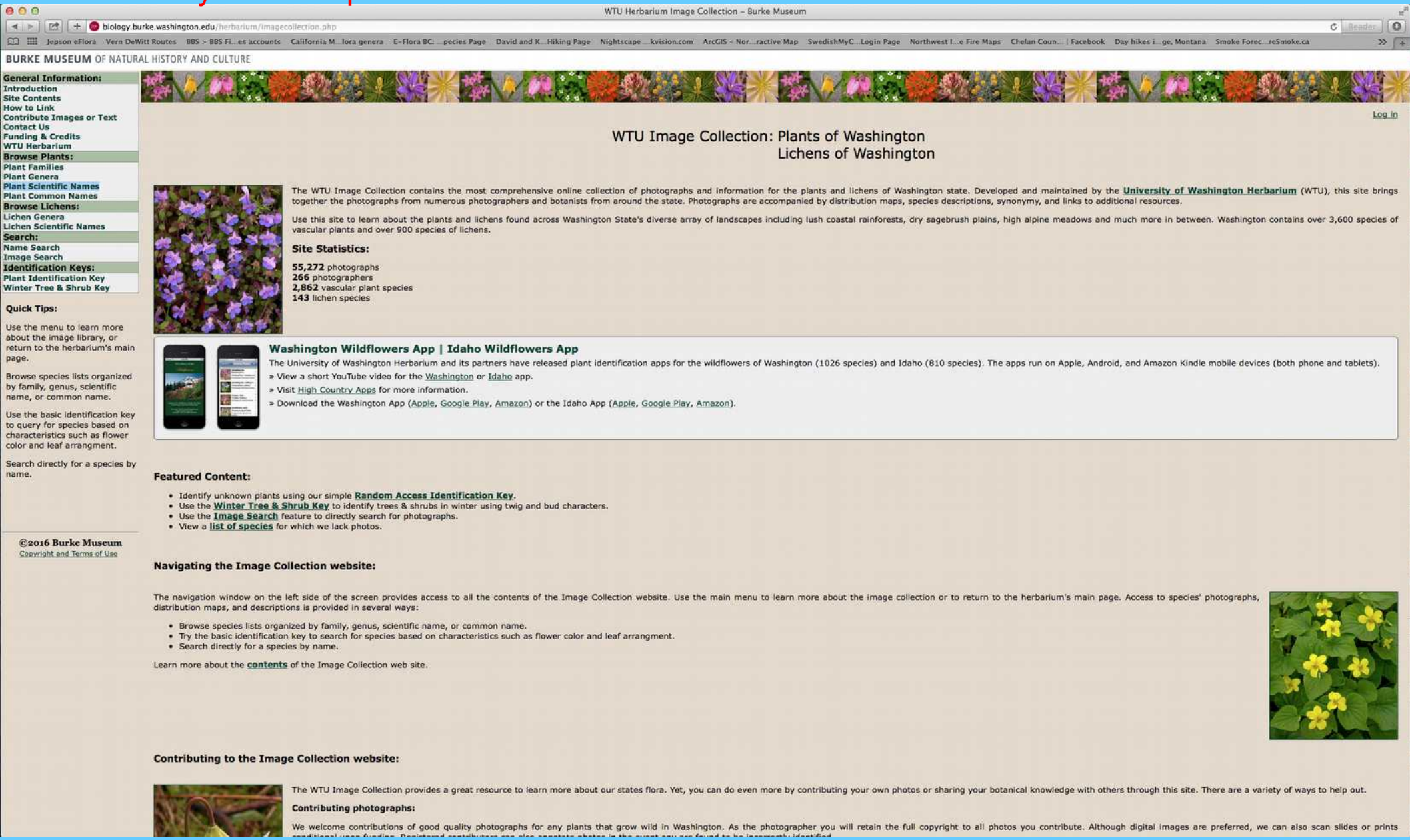
Locally common, all summer, perennial, 2–5 in. Alpine, subalpine

Stems erect. Dense mats, with stoloniferous roots forming many rosettes. Basal leaves white to gray, densely woolly, less than ½ in. long, linear to spoon-shaped; stem leaves sparse, narrow, often brown-tipped. Flowers in 2–7 heads tightly grouped at stem top. Cup formed by very dark blackish green or brown bracts, woolly at bottom. Grows on exposed ridges, high meadows, snow basins, at high elevations. Native

OLYM, MORA, NOCA, CRLA

Books are space limited for:

photos and descriptions, and don't include all species. Websites, apps, and your photo library are not space limited



Burke Museum WTU Image Collection

Advantage of using scientific name is for cross referencing

WTU Herbarium Image Collection – Burke Museum

biology.burke.washington.edu/herbarium/imagecollection.php

BURKE MUSEUM OF NATURAL HISTORY AND CULTURE

- ✓ A. arvensis
Anaphalis
- ✓ A. margaritacea
Anchusa
- ✓ A. arvensis
- ✓ A. azurea
- ✓ A. officinalis
Andromeda
- ✓ A. polifolia
Androsace
- A. filiformis
- ✓ A. septentrionalis
Anemone
- ✓ A. deltoidea
- ✓ A. drummondii
- ✓ A. lyallii
- ✓ A. multifida
- ✓ A. occidentalis
- ✓ A. oregana
- ✓ A. parviflora
- ✓ A. patens
- ✓ A. piperi
Angelica
- ✓ A. arguta
- ✓ A. genuflexa
- ✓ A. hendersonii
- ✓ A. lucida
Anisocarpus
- ✓ A. madioides
Antennaria
- ✓ A. alpina
- ✓ A. anaphaloides
- ✓ A. dimorpha
- ✓ A. flagellaris
- ✓ A. howellii
- ✓ A. lanata
- ✓ A. luzuloides
- ✓ A. media
- ✓ A. microphylla
- ✓ A. parvifolia
- ✓ A. racemosa
- ✓ A. rosea
- ✓ A. stenophylla
- ✓ A. umbrinella
Anthemis
- ✓ A. arvensis
- ✓ A. cotula
Anthoxanthum
- ✓ A. aristatum
- ✓ A. hirtum
- A. nitens
- ✓ A. odoratum
Anthriscus
- ✓ A. caucalis
- ✓ A. sylvestris
Anticlea
- ✓ A. elegans
- ✓ A. occidentalis
Antirrhinum
- ✓ A. majus
- ✓ A. orontium
Apera
- ✓ A. interrupta
Aphanes
- ✓ A. arvensis
- ✓ A. australis
Apium
- ✓ A. graveolens
Apocynum
- ✓ A. androsaemifolium
- ✓ A. ×floribundum
- ✓ A. cannabinum
- ✓ A. sibiricum
Aquilegia
- ✓ A. flavescens

Here

Vascular Plants - Asteraceae - Antennaria: Log in

Antennaria alpina
alpine pussytoes

Page Authors: Don Knoke, David Giblin

Image © Jim Riley

Image © Bud Kovalchik

Blooms: July-August
Habit: herb
Duration: perennial
Origin: Native
Distribution: Chiefly in the Cascades and Olympic Mountains of Washington; Circumboreal, extending south in the high mountains to California and Colorado.
Habitat: Alpine meadows.

Species Description:

General: Mat-forming, stoloniferous perennials seldom over 1 dm. tall
Leaves: Basal leaves oblanceolate, up to 2.5 cm. long and 7 mm. wide, densely white-woolly on both sides; cauline leaves small and linear.
Flowers: Heads several in a sub-capitate inflorescence; pistillate involucres 4-7 mm. high, woolly below, the scarious tips of the bracts dirty blackish-green, at least the inner slender and pointed; scarious portion of the bracts in staminate flowers often with white tips.
Fruits: Achene

Distinguishing Characteristics: The small leaves and narrow, pointed involucre bracts blackish-green or brown in color should separate this species from others that might be found at high elevations.

Accepted Name:
Antennaria alpina (L.) Gaertner
Synonyms:
Antennaria alpina (L.) Gaertner var. *canescens* (Lange) Chmielewski
Gnaphalium alpinum L.

Treated in Flora of the PNW as:

Additional Resources:

PNW Herbaria Specimens: View list of *Antennaria alpina* specimens in the Consortium of Pacific Northwest Herbaria database.

WTU Herbarium Specimens: View list of *Antennaria alpina* specimens in the WTU Herbarium database.

Washington Flora Checklist: *Antennaria alpina* treatment.

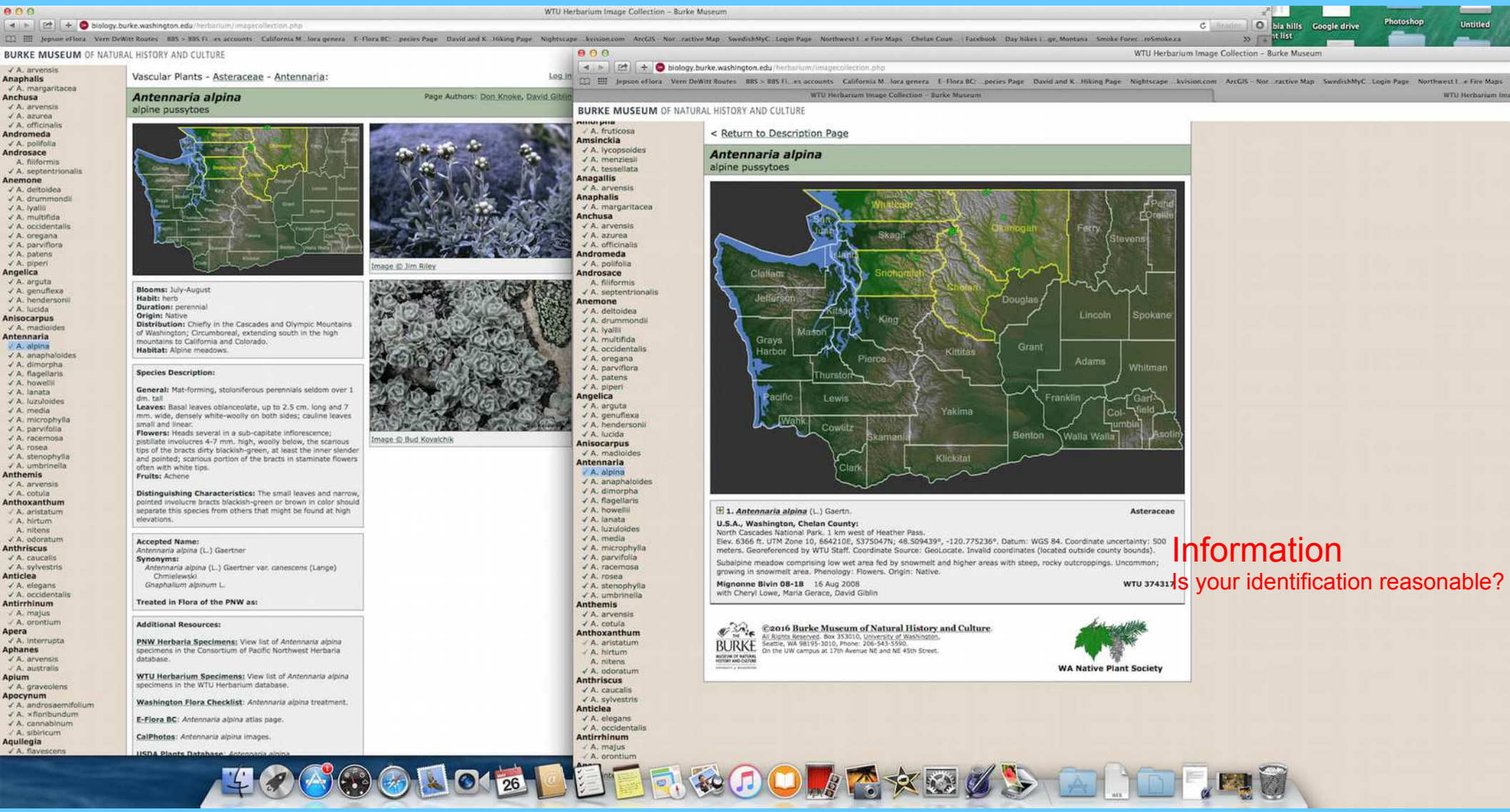
E-Flora BC: *Antennaria alpina* atlas page.

CalPhotos: *Antennaria alpina* images.

USDA Plants Database: *Antennaria alpina*

Antennaria alpina page

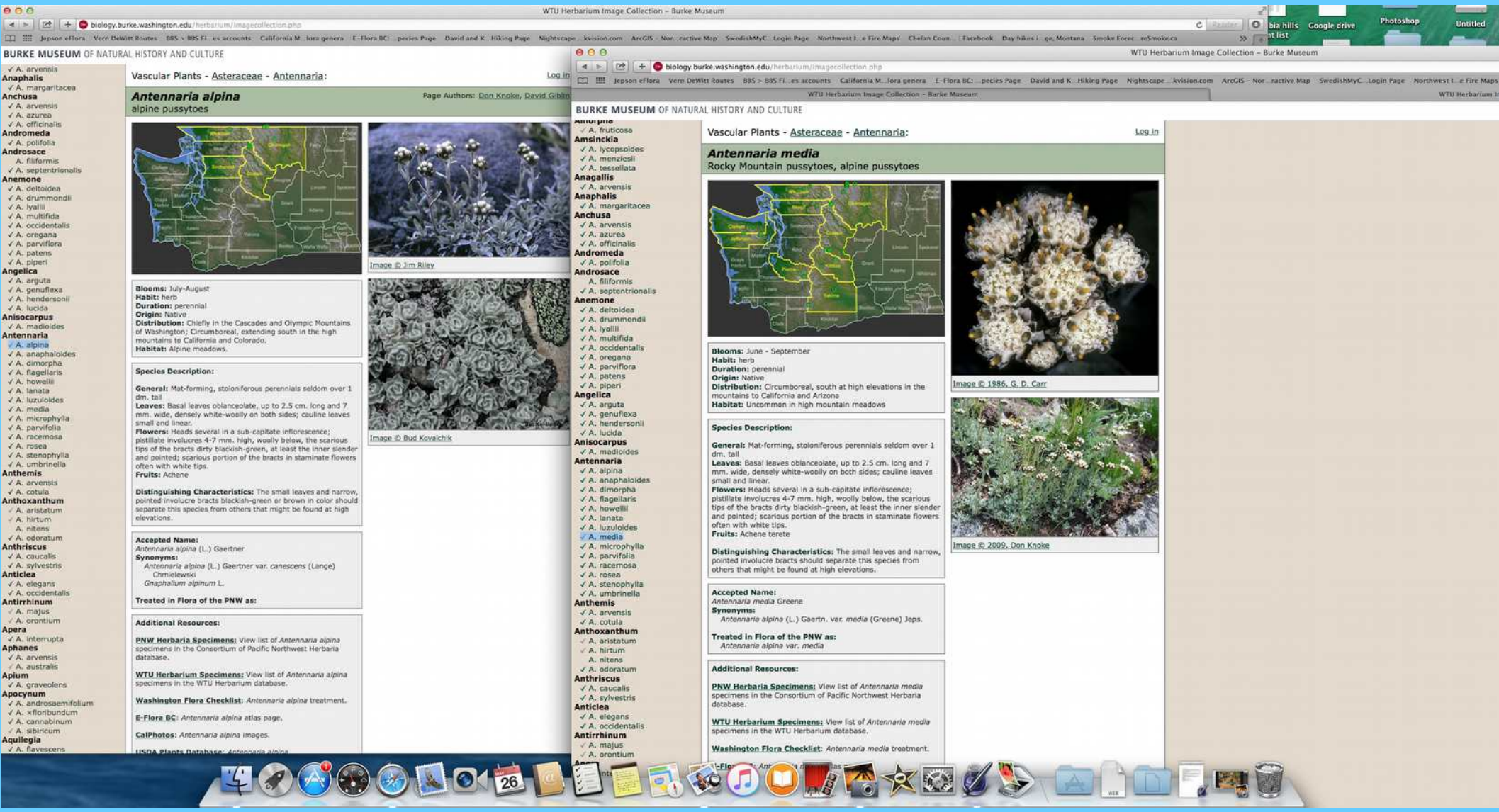
If you click on a dot on the map a larger map appears, click for information



Information

Is your identification reasonable?

Burke has A. alpina and A. media and the descriptions are identical; I'm confused



Let's try a different resource: EfloraBC. Type Antennaria alpina

Select Antennaria alpina Atlas Page

E-Flora BC
Electronic Atlas of the Flora of British Columbia

Home Page | Search for an Atlas Page | View our Photo Gallery | Donate to E-Flora BC

2 records--presented below--match your search criteria: Antennaria alpina

To learn about the species lists used on E-Flora BC, click here. To sort columns, click on the column heading.

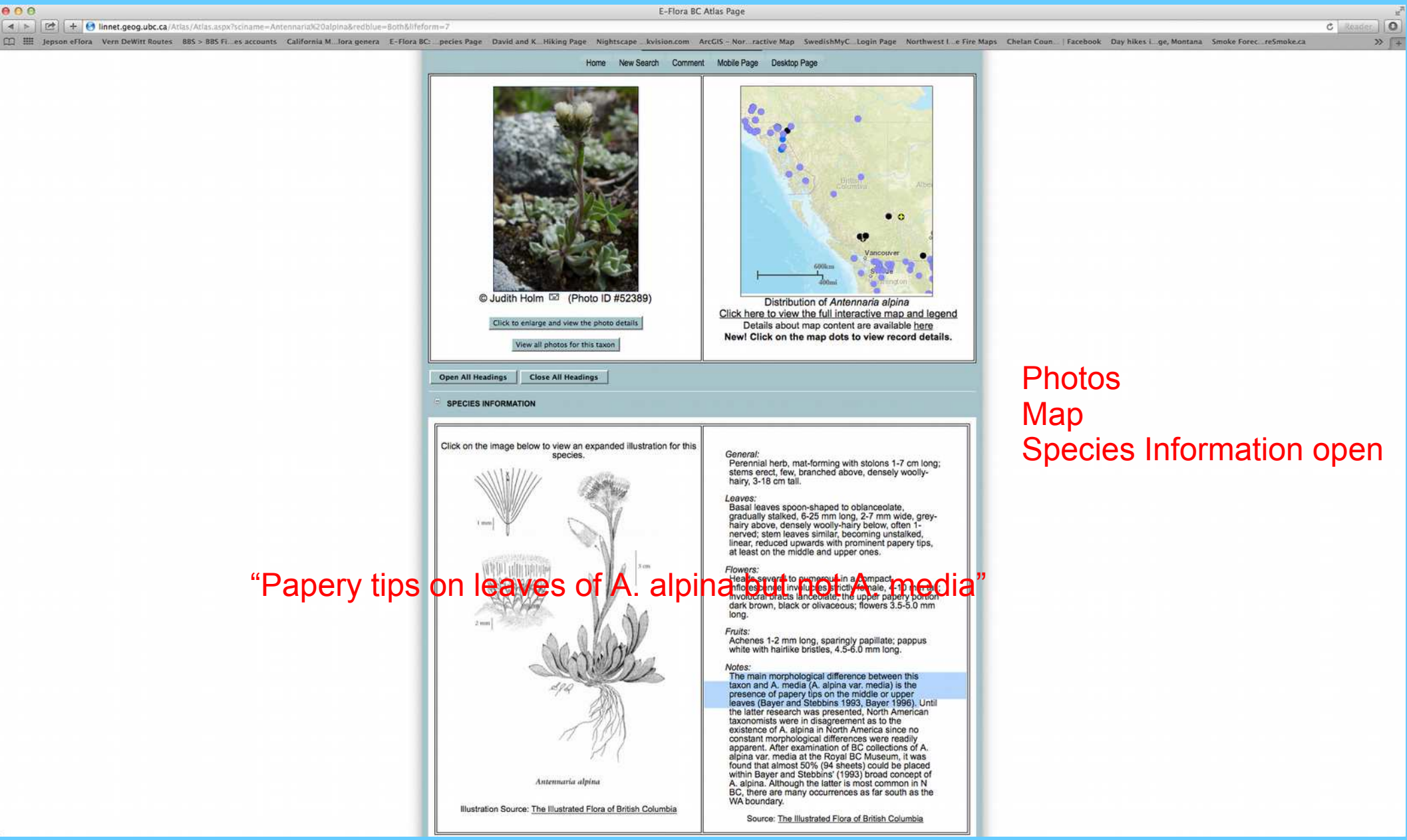
Do Not Show ThumbNails

Click on Thumbnails to Enlarge	Scientific Name	Family	English Common Name	Atlas Page
	*Antennaria alpina*	Asteraceae	alpine pussytoes	View Atlas Page
	*Antennaria media*	Asteraceae	dark pussytoes	View Atlas Page

Metadata: Detailed information on the data used to construct the E-Flora atlas pages is available here.

Send a Comment to E-Flora BC

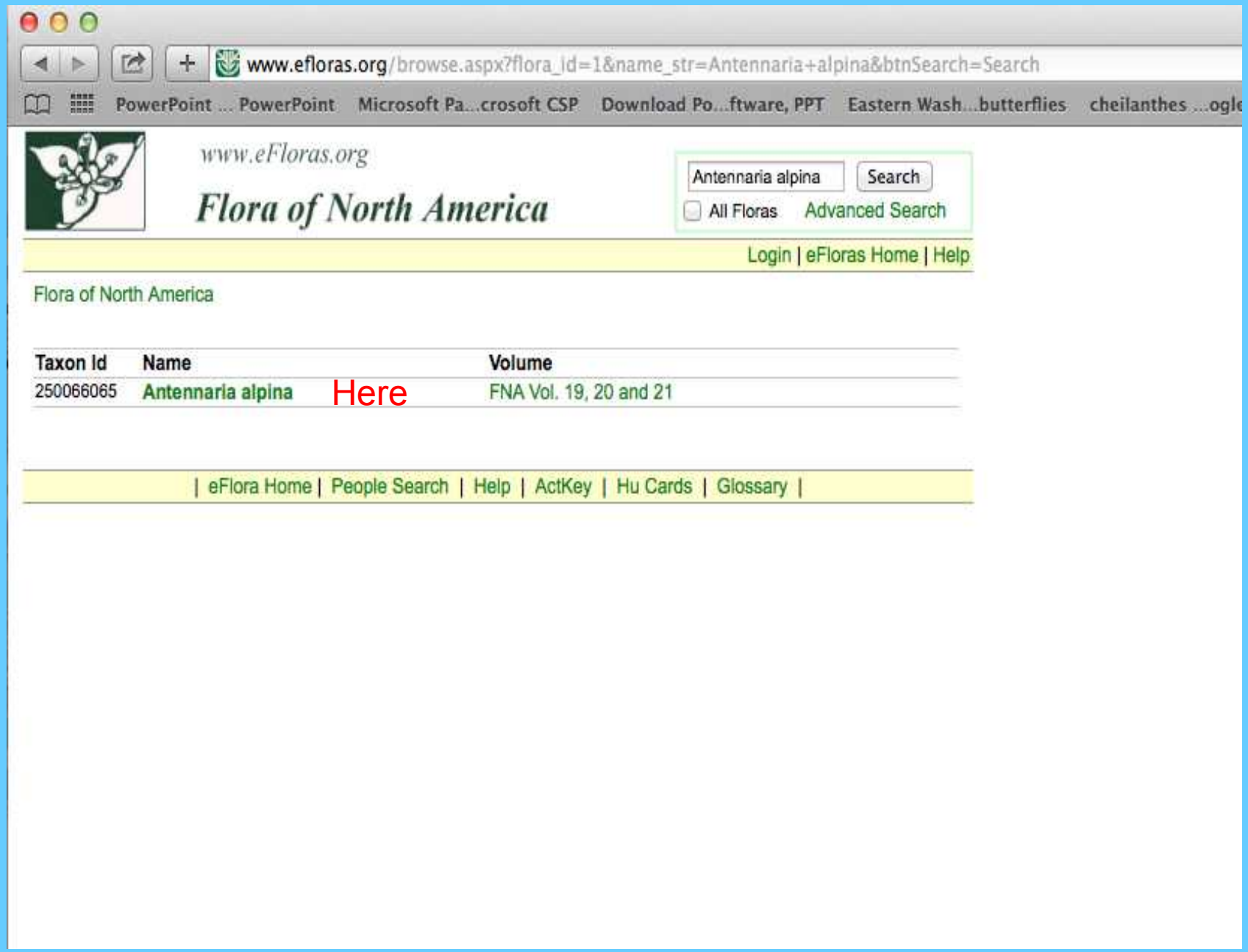
Antennaria alpina Atlas Page



Photos
Map
Species Information open

“Papery tips on leaves of A. alpina but not A. media”

Another resource for descriptions: eFloras.org



Antennaria alpina in Flora of North America @ efloras.org

www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250066065

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Flora of North America

antennaria alpina | Search

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FNA Vol. 19, 20 and 21 Page 390, 395, 408, 411, 412, 413, **414**, 415

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FNA | Family List | FNA Vol. 19, 20 and 21 | Asteraceae | Antennaria

34. **Antennaria alpina** (Linnaeus) Gaertner, Fruct. Sem. Pl. 2: 410. 1791.

Alpine pussytoes

Gnaphalium alpinum Linnaeus, Sp. Pl. 2: 856. 1753; *Antennaria alpina* subsp. *canescens* (Lange) Chmielewski; *A. alpina* subsp. *porsildii* (E. Ekman) Chmielewski; *A. alpina* var. *cana* Fernald & Wiegand; *A. alpina* var. *canescens* Lange; *A. alpina* var. *compacta* (Malte) S. L. Welsh; *A. alpina* var. *glabrata* J. Vahl; *A. alpina* var. *intermedia* Rosenvinge; *A. alpina* var. *porsildii* (E. Ekman) T. J. Sørensen; *A. alpina* var. *stolonifera* (A. E. Porsild) S. L. Welsh; *A. alpina* var. *ungavensis* Fernald; *A. arenicola* Malte; *A. atriceps* Fernald ex Raup; *A. bayardi* Fernald; *A. boecheriana* A. E. Porsild; *A. brevistyla* Fernald; *A. brunnescens* Fernald; *A. cana* Fernald & Wiegand (Fernald); *A. canescens* (Lange) Malte; *A. canescens* subsp. *porsildii* (E. Ekman) Á. Löve & D. Löve; *A. canescens* var. *pseudoporsildii* Böcher; *A. columnaris* Fernald; *A. compacta* Malte; *A. confusa* Fernald; *A. crymophila* A. E. Porsild; *A. foggii* Fernald; *A. friesiana* (Trautvetter) E. Ekman subsp. *compacta* (Malte) Hultén; *A. glabrata* (J. Vahl) Greene; *A. intermedia* (Rosenvinge) Porsild; *A. labradorica* Nuttall; *A. longii* Fernald; *A. media* Greene subsp. *compacta* (Malte) Chmielewski; *A. pallida* E. E. Nelson; *A. pedunculata* A. E. Porsild; *A. porsildii* E. Ekman; *A. somborgeri* Fernald; *A. stolonifera* A. E. Porsild; *A. subcanescens* Ostenfeld ex Malte; *A. ungavensis* (Fernald) Malte; *A. vexillifera* Fernald; *A. wiegandii* Fernald

Gynoecious (staminate plants uncommon). **Plants** 3–18 cm. **Stolons** 1–7 cm. **Basal leaves:** 1-nerved, spatulate to oblanceolate, 6–25 × 2–7 mm, tips mucronate, abaxial faces tomentose, adaxial green-glabrescent to gray-pubescent. **Cauline leaves** linear, 5–20 mm, at least mid and distal flagged. **Heads** 2–5 in corymbiform arrays. **Involucres:** staminate 5–6.5 mm; pistillate 4–7(–10) mm. **Phyllaries** distally dark brown, black, or olivaceous. **Corollas:** staminate 3–3.5 mm; pistillate 3.5–5 mm. **Cypselae** 1–1.8 mm, sparingly papillate; **pappi:** staminate 3.5–4 mm; pistillate 4.5–6 mm. **2*n*** = 56, 84, 98, 112.

Flowering mid–late summer. Dry to moist alpine tundra; 100–2400 m; Greenland; Alta., B.C., Nfld. and Labr., N.W.T., Nunavut, Ont., Que., Yukon; Alaska, Mont., Wyo.; Eurasia.

Excluded names:

Some *Antennaria* names are based on early-generation interspecific hybrids, including:

Antennaria ×erigeroides Greene = *A. corymbosa* × *A. racemosa*

A. ×foliacea Greene = *A. microphylla* × *A. racemosa*

A. ×macounii Greene = *A. media* × *A. umbrinella*

A. ×oblancifolia E. E. Nelson = *A. racemosa* × *A. umbrinella*

A. ×rousseauii A. E. Porsild = ? *A. alpina* × *A. rosea*

Antennaria alpina is one of the more morphologically variable agamic complexes in the genus. Some taxonomists have argued that true *Antennaria alpina* does not occur in North America, because none of the North American material exactly matches the type of *A. alpina*, which is from Lapland (M. O. Malte 1934; A. E. Porsild 1965). If one uses a strict typological species concept, then this is true; I recognize that this species complex is composed of innumerable apomictic clones and am circumscribing a broad species concept for *A. alpina*. The potential morphologic overlap between the *A. media* and *A. alpina* complexes is a major taxonomic problem. The chief difference between members of the two complexes is the presence of prominent flags on cauline leaves in *A. alpina* and their absence in *A. media*. *Antennaria alpina* of North America is gynoecious and characterized by its dark green to black phyllaries and conspicuous flags on the distal cauline leaves. The basal leaves vary from glabrous, as in the type material, to pubescent. The primary progenitors of the *A. alpina* complex include *A. aromatica*, *A. densifolia*, *A. friesiana* subsp. *alaskana*, *A. friesiana* subsp. *neoalaskana*, *A. monocephala* subsp. *monocephala*, and *A. pulchella*.

Related Objects

- Distribution Map — Map

Related Links (opens in a new window)

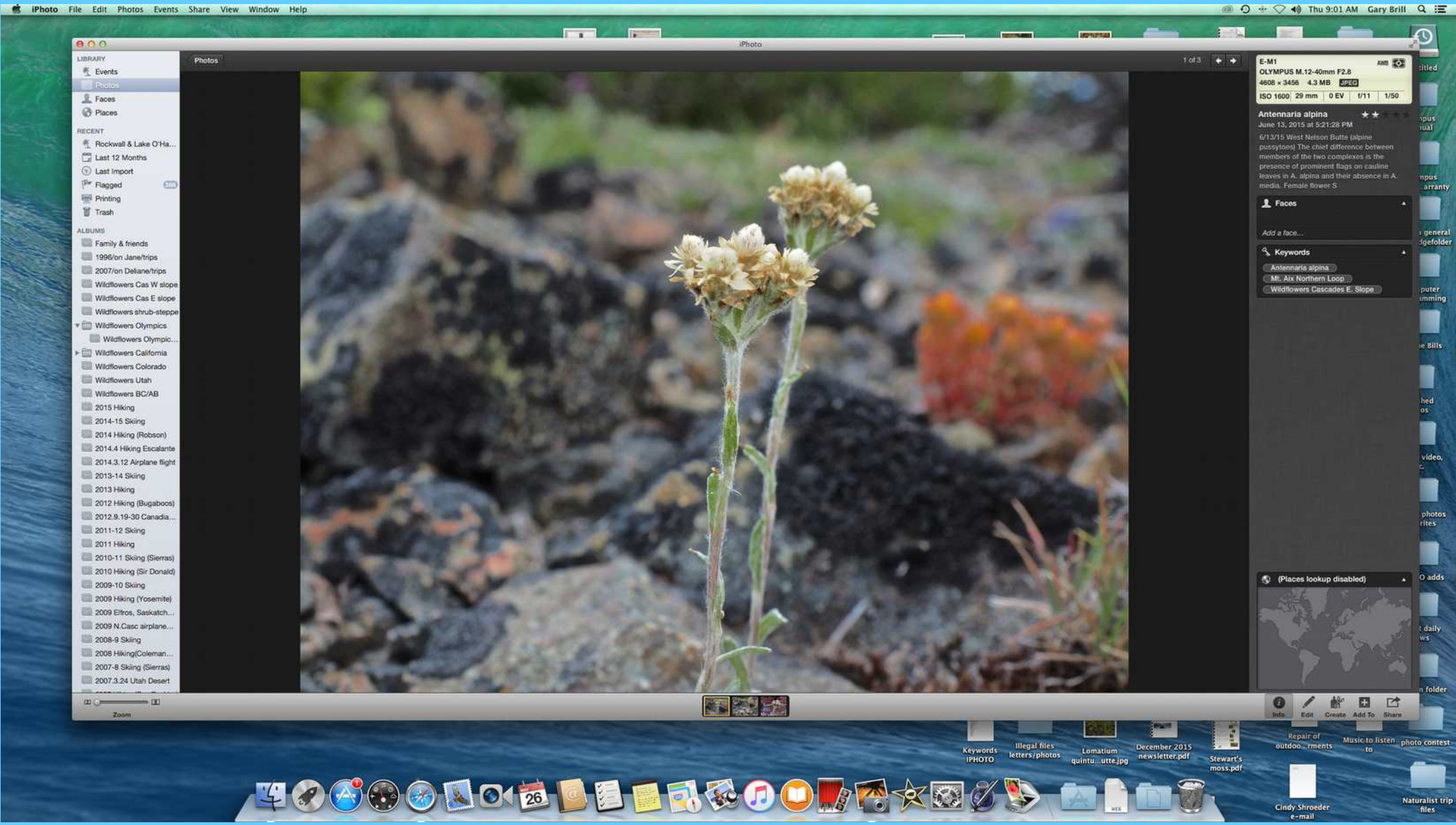
Other Databases

- W³TROPICOS
- IPNI

| eFlora Home | People Search | Help | ActKey | Hu Cards | Glossary |

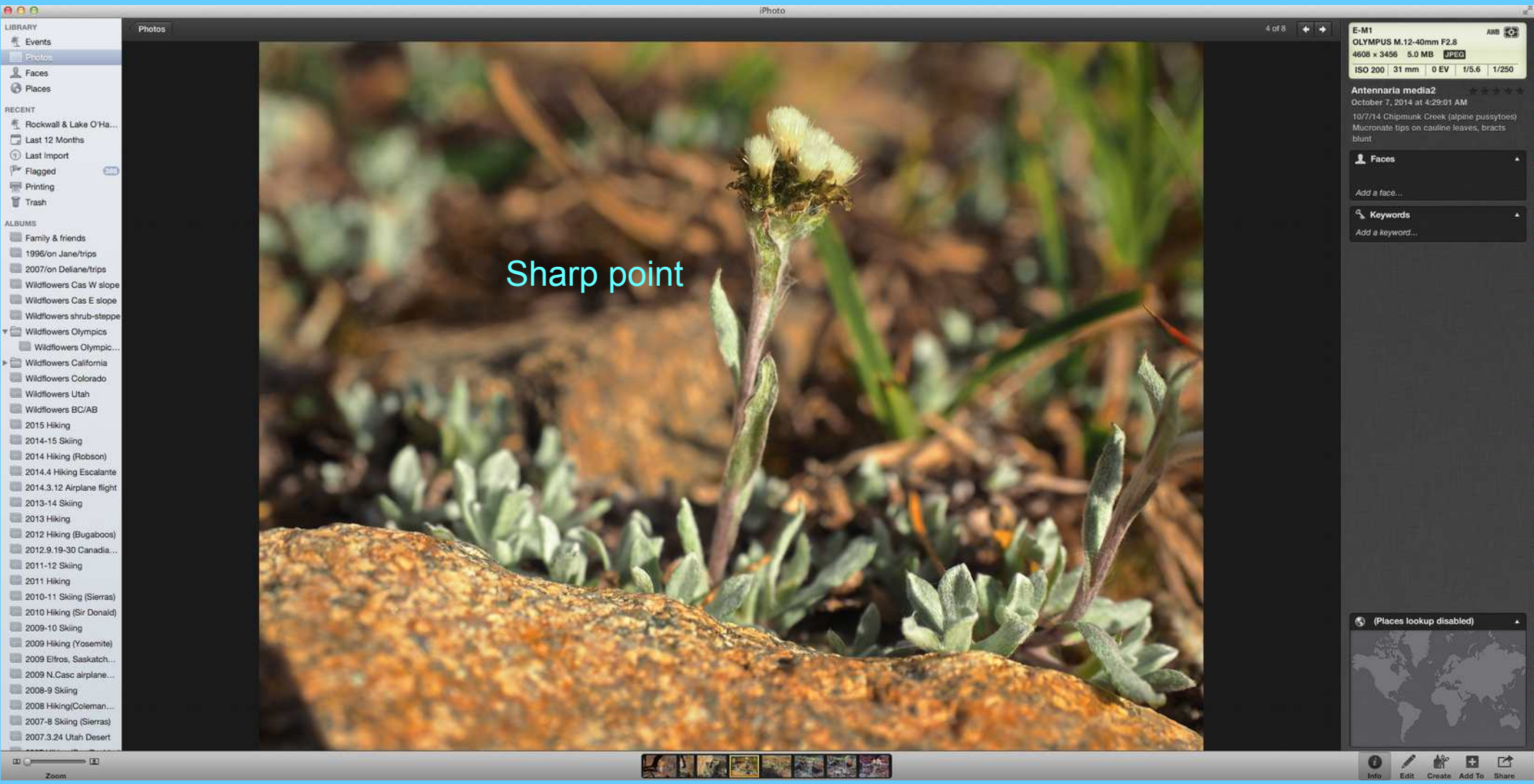
Descriptions are more technical
Same reference to papery tips

Back to my image file



Close-up image showing “Papery tips”
Note that in my images I type in key tips (upper right)

There were two species A. alpina and A. media
Note: No papery tips on this original image




A rockcress with 4 petals

I really can't differentiate this plant on the basis of the photos/descriptions

Arabis sparsiflora BRASSICACEAE

Sicklepod rockcress

Locally common, midspring, biennial or perennial, 6–24 in. Dry rocky sites

Clump with mostly basal leaves, 1 to few stems. Stems straight or branched near top. Leaves 1–4 in., lance-shaped, with sharply pointed tip, entire or toothed, hairy; many stem leaves similar with lobed base, clasping stem. Flower petals spoon-shaped, pink or purple. Seedpods 2–5 in., recurved, held outward from stem, hairless. Grows in rocky places at all elevations. Native NOCA

Cakile edentula BRASSICACEAE

American searocket, oval searocket

Common, all summer–autumn, annual or biennial or perennial, 6–18 in. Coastal

Erect to prostrate, branched. Leaves fleshy, egg- to spoon-shaped, with petioles wide or sessile, edges wavy to toothed or entire. Flowers in elongating cluster at stem tops; petals pale pur-

Burke: Doesn't have Arabis sparsiflora but does have Boechera sparsiflora

WTU Herbarium Image Collection – Burke Museum

biology.burke.washington.edu/herbarium/imagecollection.php

Jepson eFlora | Vern DeWitt Routes | BBS > BBS Fi...es accounts | California M...lora genera | E-Flora BC:...pecies Page | David and K...Hiking Page | Nightscape ...kvision.com | ArcGIS ~ Nor...ractive Map | SwedishMyC...Login Page | Northwest I...e Fire Maps | Chelan Coun... | Facebook | Day hikes i...ge, Montana | Smoke Forec...reSmoke.ca

BURKE MUSEUM OF NATURAL HISTORY AND CULTURE

- B. ×utahensis
- ✓ B. glandulosa
- ✓ B. occidentalis
- ✓ B. papyrifera
- ✓ B. pendula
- B. pumila

Bidens
- ✓ B. amplissima
- B. beckii
- ✓ B. cernua
- ✓ B. frondosa
- ✓ B. tripartita
- ✓ B. vulgata

Bistorta
- ✓ B. bistortoides
- ✓ B. vivipara

Blechnum
- ✓ B. spicant

Blepharipappus
- ✓ B. scaber

Boechera
- ✓ B. atrorubens
- ✓ B. cusickii
- ✓ B. divaricarpa
- ✓ B. lemmonii
- ✓ B. lyallii
- ✓ B. microphylla
- ✓ B. paddoensis
- ✓ B. pauciflora
- ✓ B. pendulocarpa
- ✓ B. retrofracta
- B. sparsiflora
- ✓ B. stricta
- B. suffrutescens

Here

Bolandra
- ✓ B. oregana

Bolboschoenus
- B. fluviatilis
- ✓ B. maritimus

Borago
- ✓ B. officinalis

Botrychium
- B. ascendens
- ✓ B. crenulatum
- B. hesperium
- ✓ B. lanceolatum
- B. lineare
- B. lunaria
- ✓ B. michiganense
- ✓ B. minganense
- B. montanum
- B. paradoxum
- B. pedunculosum
- ✓ B. pinnatum
- B. simplex
- ✓ B. virginianum

Boykinia
- ✓ B. intermedia
- ✓ B. occidentalis

Brachypodium
- ✓ B. sylvaticum

Brasenia
- ✓ B. schreberi

Brassica
- ✓ B. juncea
- ✓ B. napus
- ✓ B. nigra
- ✓ B. oleracea
- ✓ B. rapa

Brickellia
- ✓ B. grandiflora
- ✓ B. oblongifolia

Briza
- B. maxima
- ✓ B. minor

Log in

WTU Image Collection: Plants of Washington
Lichens of Washington

The WTU Image Collection contains the most comprehensive online collection of photographs and information for the plants and lichens of Washington state. Developed and maintained by the **University of Washington Herbarium** (WTU), this site brings together the photographs from numerous photographers and botanists from around the state. Photographs are accompanied by distribution maps, species descriptions, synonymy, and links to additional resources.

Use this site to learn about the plants and lichens found across Washington State's diverse array of landscapes including lush coastal rainforests, dry sagebrush plains, high alpine meadows and much more in between. Washington contains over 3,600 species of vascular plants and over 900 species of lichens.

Site Statistics:

55,272 photographs
266 photographers
2,862 vascular plant species
143 lichen species

Washington Wildflowers App | Idaho Wildflowers App

The University of Washington Herbarium and its partners have released plant identification apps for the wildflowers of Washington (1026 species) and Idaho (810 species). The apps run on Apple, Android, and Amazon Kindle mobile devices (both phone and tablets).

» View a short YouTube video for the Washington or Idaho app.
» Visit High Country Apps for more information.
» Download the Washington App (Apple, Google Play, Amazon) or the Idaho App (Apple, Google Play, Amazon).

Featured Content:

- Identify unknown plants using our simple **Random Access Identification Key**.
- Use the **Winter Tree & Shrub Key** to identify trees & shrubs in winter using twig and bud characters.
- Use the **Image Search** feature to directly search for photographs.
- View a **list of species** for which we lack photos.

Navigating the Image Collection website:

The navigation window on the left side of the screen provides access to all the contents of the Image Collection website. Use the main menu to learn more about the image collection or to return to the herbarium's main page. Access to species' photographs, distribution maps, and descriptions is provided in several ways:

- Browse species lists organized by family, genus, scientific name, or common name.
- Try the basic identification key to search for species based on characteristics such as flower color and leaf arrangment.
- Search directly for a species by name.

Learn more about the **contents** of the Image Collection web site.

Contributing to the Image Collection website:

The WTU Image Collection provides a great resource to learn more about our states flora. Yet, you can do even more by contributing your own photos or sharing your botanical knowledge with others through this site. There are a variety of ways to help out.

Contributing photographs:

We welcome contributions of good quality photographs for any plants that grow wild in Washington. As the photographer you will retain the full copyright to all photos you contribute. Although digital images are preferred, we can also scan slides or prints

Name change shown below (note: that there is no common name shown on this page)

WTU Herbarium Image Collection – Burke Museum

biology.burke.washington.edu/herbarium/imagecollection.php

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- ✓ B. repens
- ✓ B. thunbergii
- ✓ B. vulgaris

Bergia
- ✓ B. texana

Berteroa
- ✓ B. incana

Berula
- ✓ B. erecta

Besseya
- ✓ B. rubra

Betula
- B. ×utahensis
- ✓ B. glandulosa
- ✓ B. occidentalis
- ✓ B. papyrifera
- ✓ B. pendula
- B. pumila

Bidens
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- ✓ B. pauciflora
- ✓ B. pendulocarpa
- ✓ B. retrofracta
- ✓ B. sparsiflora
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- B. paradoxum
- B. pedunculosum
- ✓ B. pinnatum
- B. simplex
- ✓ B. virginianum

Boykinia
- ✓ B. intermedia
- ✓ B. occidentalis

Brachypodium
- ✓ B. sylvaticum

Brasenia
- ✓ B. schreberi

Vascular Plants - Brassicaceae - Boechera: Log in

Boechera sparsiflora

Page Author: David Giblin

Image © 2010, Ron Bockelman

Image © 2010, Ron Bockelman

Blooms: May-July
Habit: herb
Duration: perennial
Origin: Native
Conservation Status: Abundant; of no concern.

Distribution: Occurring east of the Cascades crest in Washington; British Columbia south to California, east to Idaho, Nevada, and Utah.
Habitat: From sagebrush plains to forest openings and meadows at moderate elevations.

Accepted Name:
Boechera sparsiflora (Nutt.) Dorn
Synonyms:
Arabis arcoidea A. Nelson
Arabis peramoena Greene
Arabis polytricha Greene
Arabis sparsiflora Nutt. var. *peramoena* (Greene) Rollins

Treated in Flora of the PNW as:

Additional Resources:

PNW Herbaria Specimens: View list of *Boechera sparsiflora* specimens in the Consortium of Pacific Northwest Herbaria database.

WTU Herbarium Specimens: View list of *Boechera sparsiflora* specimens in the WTU Herbarium database.

Washington Flora Checklist: *Boechera sparsiflora* treatment.

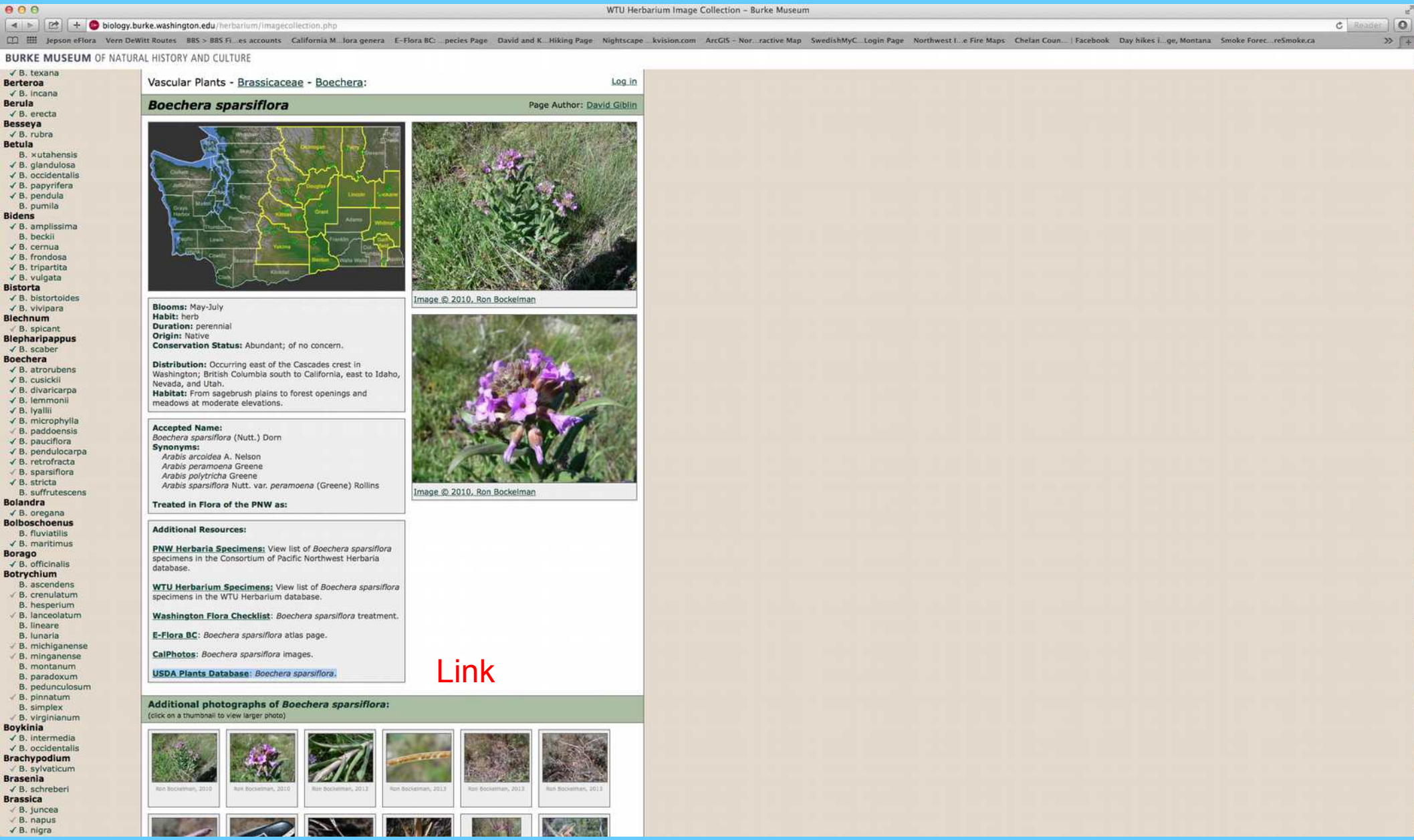
E-Flora BC: *Boechera sparsiflora* atlas page.

CalPhotos: *Boechera sparsiflora* images.

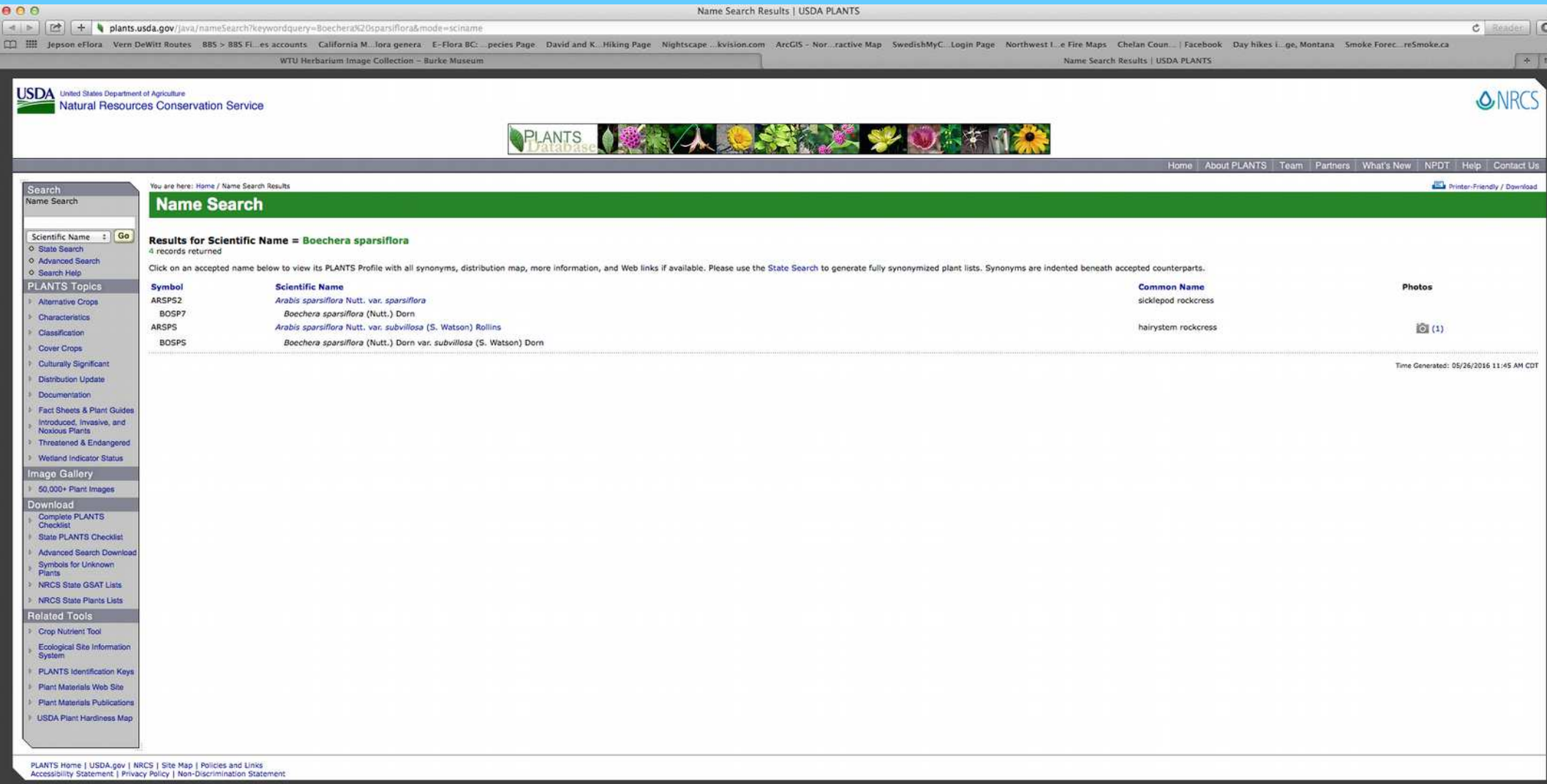
USDA Plants Database: *Boechera sparsiflora*.

Additional photographs of *Boechera sparsiflora*:
(click on a thumbnail to view larger photo)

Note: The link that is highlighted



USDA website shows history of name changes (also distribution map, some photos)



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Betula
- B. xutahensis
- ✓ B. glandulosa
- ✓ B. occidentalis
- ✓ B. papyrifera
- ✓ B. pendula
- B. pumila

Bidens
- ✓ B. amplissima
- B. beckii
- ✓ B. cernua
- ✓ B. frondosa
- ✓ B. tripartita
- ✓ B. vulgata

Bistorta
- ✓ B. bistortoides
- ✓ B. vivipara

Blechnum
- ✓ B. spicant

Blepharipappus
- ✓ B. scaber

Boechera
- ✓ B. atrorubens
- ✓ B. cusickii
- ✓ B. divaricarpa
- ✓ B. lemmonii
- ✓ B. lyallii
- ✓ B. microphylla
- ✓ B. paddoensis
- ✓ B. pauciflora
- ✓ B. pendulocarpa
- ✓ B. retrofracta
- ✓ B. sparsiflora
- ✓ B. stricta
- B. suffrutescens

Bolandra
- ✓ B. oregana

Bolboschoenus
- B. fluviatilis
- ✓ B. maritimus

Borago
- ✓ B. officinalis

Botrychium
- B. ascendens
- ✓ B. crenulatum
- B. hesperium
- ✓ B. lanceolatum
- B. lineare
- B. lunaria
- ✓ B. michiganense
- ✓ B. minganense
- B. montanum
- B. paradoxum
- B. pedunculosum
- ✓ B. pinnatum
- B. simplex
- ✓ B. virginianum

Boykinia
- ✓ B. intermedia
- ✓ B. occidentalis

Brachypodium
- ✓ B. sylvaticum

Brasenia
- ✓ B. schreberi

Brassica
- ✓ B. juncea
- ✓ B. napus
- ✓ B. nigra
- ✓ B. oleracea
- ✓ B. rapa

Brickellia
- ✓ B. grandiflora
- ✓ B. oblongifolia

Briza
- B. maxima

Vascular Plants - Brassicaceae - Boechera: Log in

Boechera sparsiflora

Page Author: David Giblin

Image © 2010, Ron Bockelman

Image © 2010, Ron Bockelman

Blooms: May-July
Habit: herb
Duration: perennial
Origin: Native
Conservation Status: Abundant; of no concern.

Distribution: Occurring east of the Cascades crest in Washington; British Columbia south to California, east to Idaho, Nevada, and Utah.
Habitat: From sagebrush plains to forest openings and meadows at moderate elevations.

Accepted Name:
Boechera sparsiflora (Nutt.) Dorn
Synonyms:
Arabis arcoidea A. Nelson
Arabis peramoena Greene
Arabis polytricha Greene
Arabis sparsiflora Nutt. var. *peramoena* (Greene) Rollins

Treated in Flora of the PNW as:

Additional Resources:

PNW Herbaria Specimens: View list of *Boechera sparsiflora* specimens in the Consortium of Pacific Northwest Herbaria database.

WTU Herbarium Specimens: View list of *Boechera sparsiflora* specimens in the WTU Herbarium database.

Washington Flora Checklist: *Boechera sparsiflora* treatment.

E-Flora BC: *Boechera sparsiflora* atlas page.

CalPhotos: *Boechera sparsiflora* images.

USDA Plants Database: *Boechera sparsiflora*.

Additional photographs of *Boechera sparsiflora*:
(click on a thumbnail to view larger photo)

Paul Schlicter: Flora and Fauna Northwest

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Wildflowers of the Cascade Mts.
Mt. Adams Wildflowers
Wildflowers East of the Cascade Mts.
Wildflowers of Denali National Park
Wildflowers of the Desert Southwest

White Mule's Ears (*Wyethia helianthoides*) and Cusick's Camas (*Camassia cusickii*) as seen along the western rim of Hells Canyon in eastern Oregon.....June 28, 2008.

[Books about Columbia and Great Basin Plants]

[Current Wildflower Bloom in Central & Eastern Oregon]

[Current Wildflower Bloom in Central & Eastern Washington]

Updated: January 1, *2014*

Wildflowers east of the Cascade crest

- Fungi
- Lichens
- Lesser Clubmosses and Spikemosses (The Genus *Selaginella*)
- Clubmosses
- Mosses
- Liverworts
- Ferns.
- Horsetails.
- Grasses.
- Sedges.
- Rushes.
- Plants with tiny flowers.
- Mistletoe
- Aquatic Plants
- Larger flowers having petals in multiples of three (3, 6, 9).
- Larger flowers having 4 petals.
- Larger flowers having 5 petals.
- Larger flowers having numerous petals. An example is cacti. No small flowers are found in a central disk as in the sunflower family below.
- Flowers like sunflowers, daisies, or dandylions.
- Shrubs and Trees Found East of the Cascade Mts.
- Animals Found East of the Cascade Mts.

Paul Slichter E-Mail

Schlicter organizes by family. Stewart's method helps here

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Wildflowers of the Cascade Mts.
Mt. Adams Wildflowers
Wildflowers East of the Cascade Mts.
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Wildflowers of the Desert Southwest

[Wildflowers East of the Cascade Mts: Simple Flower ID Key]

Identification of Wildflowers Having 4 Petals

East of the Cascade Mts.

Bedstraw or Madder Family: Herbaceous plants with square stems, often with tiny clingy hairs. Leaves whorled (The many leaves arise from the same spot on the stem, but on all sides of the stem.) The white flowers are usually very small, with the 4 petals shaped as a cross.

Bleeding Heart Family: Herbaceous plants. The 4 petals are irregularly shaped and sized, either to look like hearts or spurred sacs. The leaves are parsley-like, but with rounded edges and a blue-green tinge.

Caper Family: Herbaceous plants. Flowers mustard-like. Four yellow petals. Ovary is banana-shaped. Leaves mostly compound palmate.

Dogwood Family: Small to large woody shrubs. 4 large white showy bracts which may be mistaken as petals. These white bracts surround a tiny yellow cluster of flowers. Leaves opposite. Dogwoods may be trees or small ground covers.

Evening-primrose Family: Herbaceous plants. There are 4 of each of the petals, sepals, and stamens. The style (long projection from the central ovary has a 4-part cross (X) at its end, or is bulb-like.

Gentian Family: Annual or perennial herbs with glabrous herbage and simple, opposite or whorled leaves. Flowers showy and tubular or funnel-shaped with 4-5 lobes.

Hydrangea Family: Trees, shrubs or vines with simple opposite leaves without stipules. Flowers perfect and regular with 4, 6 or 10 petals. The ovary is inferior.

Loosestrife Family:

Mustard Family: Herbaceous plants. Urn-like flowers with 4 petals shaped as an cross or an X when viewed from above. The flowers have 6 stamens (4 above, 2 below).

Mustard: Small flower with 4 petals

Oleaster Family: Deciduous shrubs or trees with opposite to alternate leaves and small, inconspicuous flowers either solitary or clustered at the nodes. The flowers may either be perfect or unisexual. If the latter, the sexes are on separate plants.

Plantain Family: Herbaceous plants. Small brown or green flowers on erect leafless stalk. The leaves are basal and appear to have parallel leaf veins.

Poppy Family: Herbaceous plants. Four large, colorful, showy petals. Poppies have many stamens surrounding a swollen central ovary. The sepals fall off the flower as it opens.

Staff Tree Family: Woody shrubs with opposite leaves and minute deciduous stipules. Flowers perfect, small and inconspicuous.

Teasel Family: Herbaceous, weedy biennials or perennials. flowers in compact flower heads. Corollas irregular with 4 lobes. 4 stamens.

Paul Slichter E-mail

Recognize “Rockcresses” alphabetized under Genus “*Arabis*”

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Wildflowers of the Desert Southwest

[Wildflowers with Four Petals East of the Cascade Mts. of Oregon and Washington]

The Mustard Family East of the Cascade Mountains of Oregon and Washington

Brassicaceae

Draba cusickii

Mustard Family Members Found East of the Cascade Mountains of Oregon and Washington:

The Alyssum: The Genus *Alyssum* -

Rockcresses: The Genus *Arabis* -

Here

Athysanus: *Athysanus pusillus*

The Wintercress: The Genus *Barbarea* -

The Mustards: The Genus *Brassica* -

Falseflax: The Genus *Camelina* -

Shepherd's Purse: *Capsella bursa-pastoris* -

The Bitter Cress: The Genus *Cardamine* -

The Hoarycress: The Genus *Cardaria* -

Wild Cabbage or Caulanthus: The Genus *Caulanthus* -

Spearhead: *Chlorocrambe hastata* -

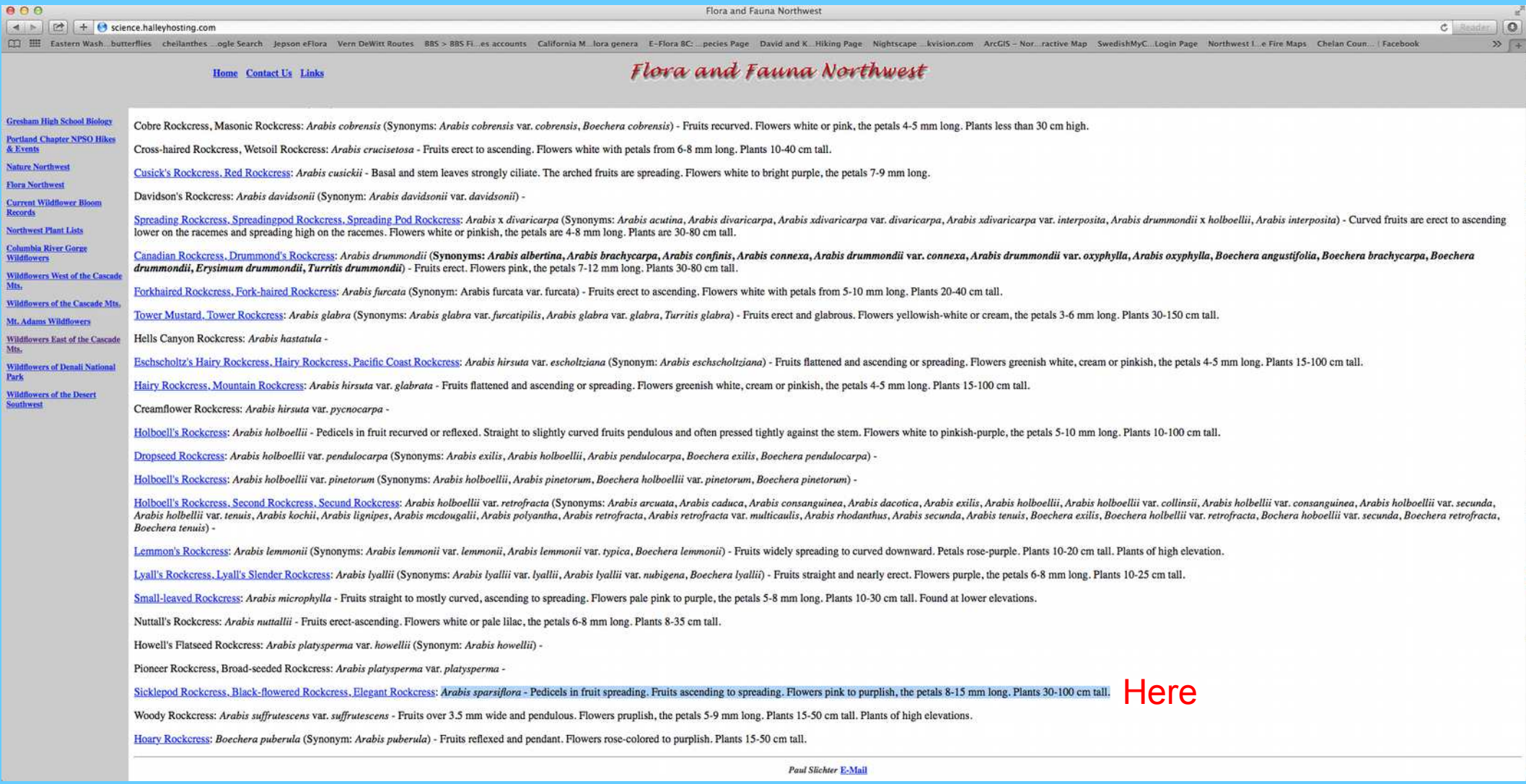
Blue Mustard *Chorispora tenella* -

Hare's Ear: *Conringia orientalis* -

The Tansy Mustards: The Genus *Descurainia* -

The Draba or Whitlow-grass: The Genus *Draba* -

Scroll to Arabis sparsiflora and click link



Usually very good and demonstrative photos

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[The Genus *Arabis* East of the Cascade Mts. of Oregon and Washington]

Sicklepod Rockcress

Arabis sparsiflora

Photo above of *Arabis sparsiflora* var. *atrorubens* from the Little Spokane River Natural Area.....May 6, 2012.

"The sepals are often purplish with branched, radiate hairs"

Characteristics:

Sicklepod rockcress is a biennial or short-lived perennial with one to several upright, simple to branched stems arising 40-80 cm from a mass of basal leaves. Plants are densely hairy below with simple to branched, star-shaped hairs. The numerous basal leaves are oblanceolate in shape, 2 to 9 cm in length and 2 to 8 mm wide. The margins are entire to several-toothed and the blades are finely to coarsely haired. The basal leaves narrow to a slender petiole. There are also numerous stem leaves, reduced in size up the stem. The lower leaves are petiolate, but the upper ones become somewhat clasping or auriculate and somewhat glabrous in texture. The stem leaves are linear-lanceolate to oblanceolate in shape, with mostly entire margins.

The inflorescence is a long, loose raceme of many flowers. The 4 petals may be white to deep purple and measure 6-14 mm in length. The pedicels are glabrous to sparsely covered with branched, radiate hairs. The sepals are often purplish, covered with branched, radiate hairs, and measure 4-6 mm long. The seed capsules are siliques, long and thin, somewhat flattened, usually arched in outline, and either ascending to spreading-drooping. The capsules are glabrous and measure from 6-10 cm long and 1.75-2.5 mm wide.

Pacific Northwest Varieties:

var. ***atrorubens***: Petals a deep purple color. Siliques ascend. Basal leaves toothed. Pedicels of the flowers and siliques typically not haired. Found east of the Washington Cascades from Chelan County to Klickitat County in the south.

var. ***sparsiflora***: Petals white, pink, or light purplish, but lighter than variety *atrorubens*. Basal leaves entire margined. Pedicels of the flowers and siliques usually ascending, smooth, and hairless. Found in the eastern part of the species' range from Idaho to Utah, west to southeast Oregon, and south to northeastern California.

var. ***subvillosa***: Petals white, pink, or light purplish, but lighter than variety *atrorubens*. Siliques usually spreading to descending. Basal leaves toothed. Pedicels of the flowers and siliques usually noticebly lightly haired and spreading. Found from central Washington south to California along the east base of the Cascade Range, and east to Montana and Wyoming.

Habitat:

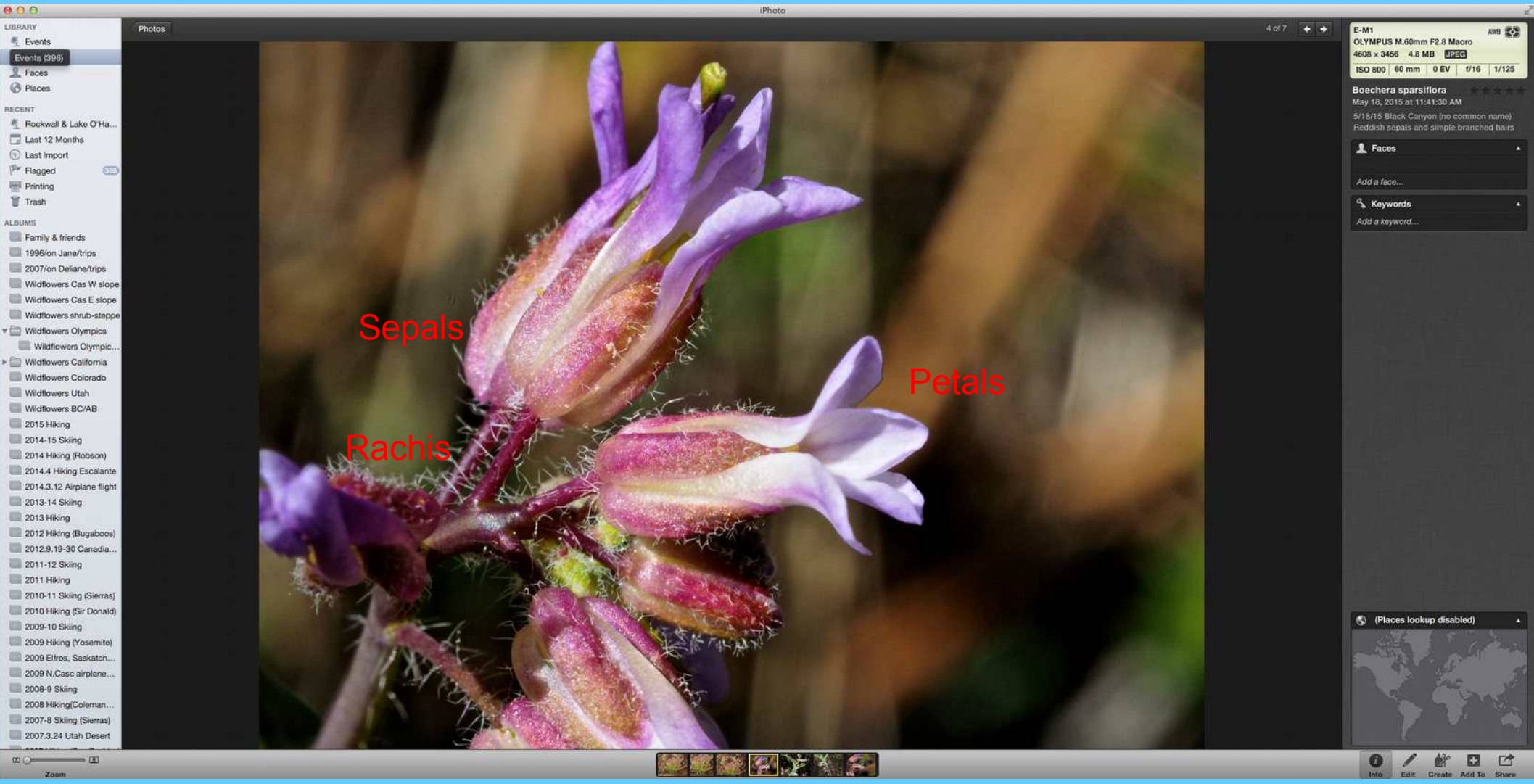
Sicklepod rockcress is found in arid, sagebrush and ponderosa pine habitats.

Range:

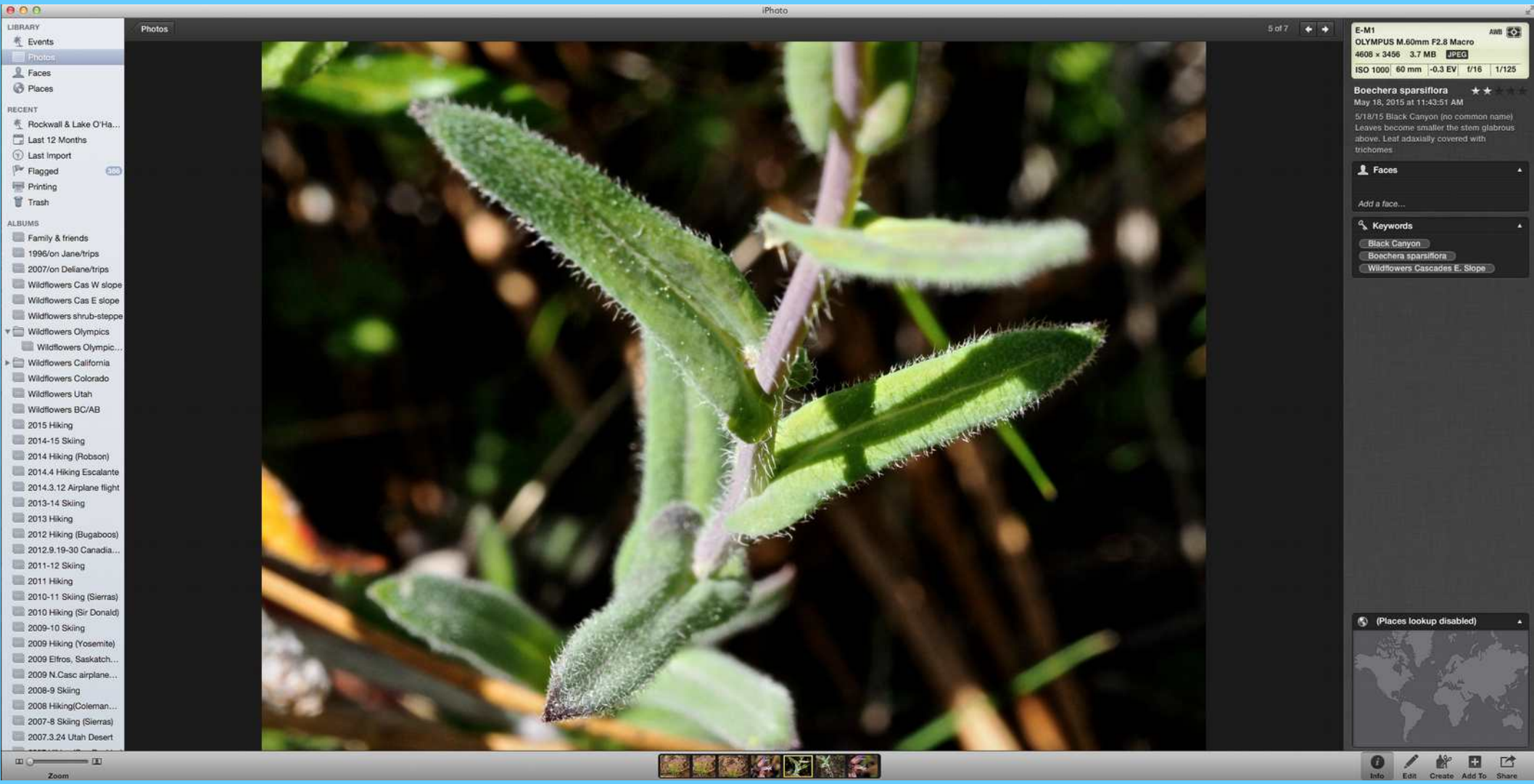
Sicklepod rockcress is found from British Columbia south along the eastern edge of the Cascade Range to California, and eastward to Alberta, and south through Montana, Wyoming and into Utah.

Paul Slichter

And so they are. Macro images of small things can be helpful.
It would take a loupe to get this detail....and you would have no record.



Leaves are also important, both basal and stem on some genera



The most sophisticated website is the Jepson Herbarium (U. of California)

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ucjeps.berkeley.edu/eflora/

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Phylogenetic index to families

The *Jepson eFlora* is the foremost authority on the native and naturalized vascular plants of California. For plants occurring in wildlands or otherwise outside of cultivation, the *Jepson eFlora* contains taxonomic treatments, distribution maps, illustrations, photographs, and identification keys.
Citation: Jepson Flora Project (eds.) 2016. *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/ [accessed on May 27, 2016].

Search the eFlora for a name:

Scientific Name: Boechera — Submit Name | Reset

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Type Boechera

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Use filtered keys

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Geographic subdivisions of California
Table of families and genera
Key to families
Keys to genera in families

Recent Updates

Feb. 26, 2016: Regional eFlora keys now available in KeyBase.

Dec. 18, 2015: Revision 3 is posted online. Summary of Revision 3.

Dec. 8, 2015: New eFlora taxon pages are now available, featuring illustrations, more photographs, and neater display and navigation.

Sept. 21, 2015: Geographic Subdivisions Map updated to reflect Klamath Ranges geology.

About the *Jepson eFlora*

Treatments and keys in the *Jepson eFlora* were initially derived from *The Jepson Manual: Vascular Plants of California, Second Edition* (TJM2), available from University of California Press.

The eFlora expands on the content of TJM2, including descriptions of taxa not included in the print book (e.g. waifs, agricultural weeds), substantive revisions of scientific content for some taxa, and many errata and other small changes made relative to the print book.

- Summary of Revision 1 (2013), Revision 2 (2014) and Revision 3 (2015), including downloadable supplements for TJM2
- List of all errata and other small changes

eFlora Philosophy

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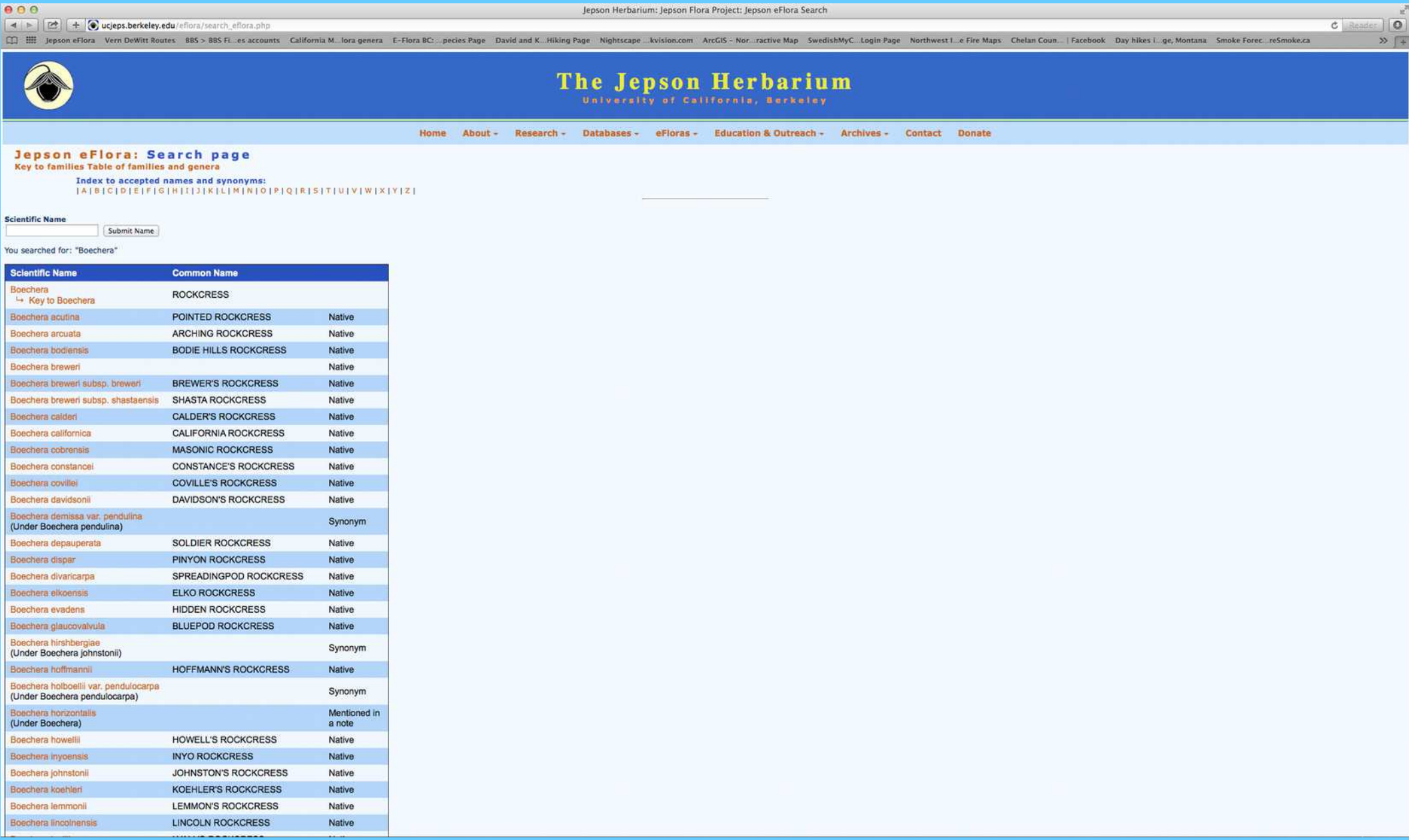
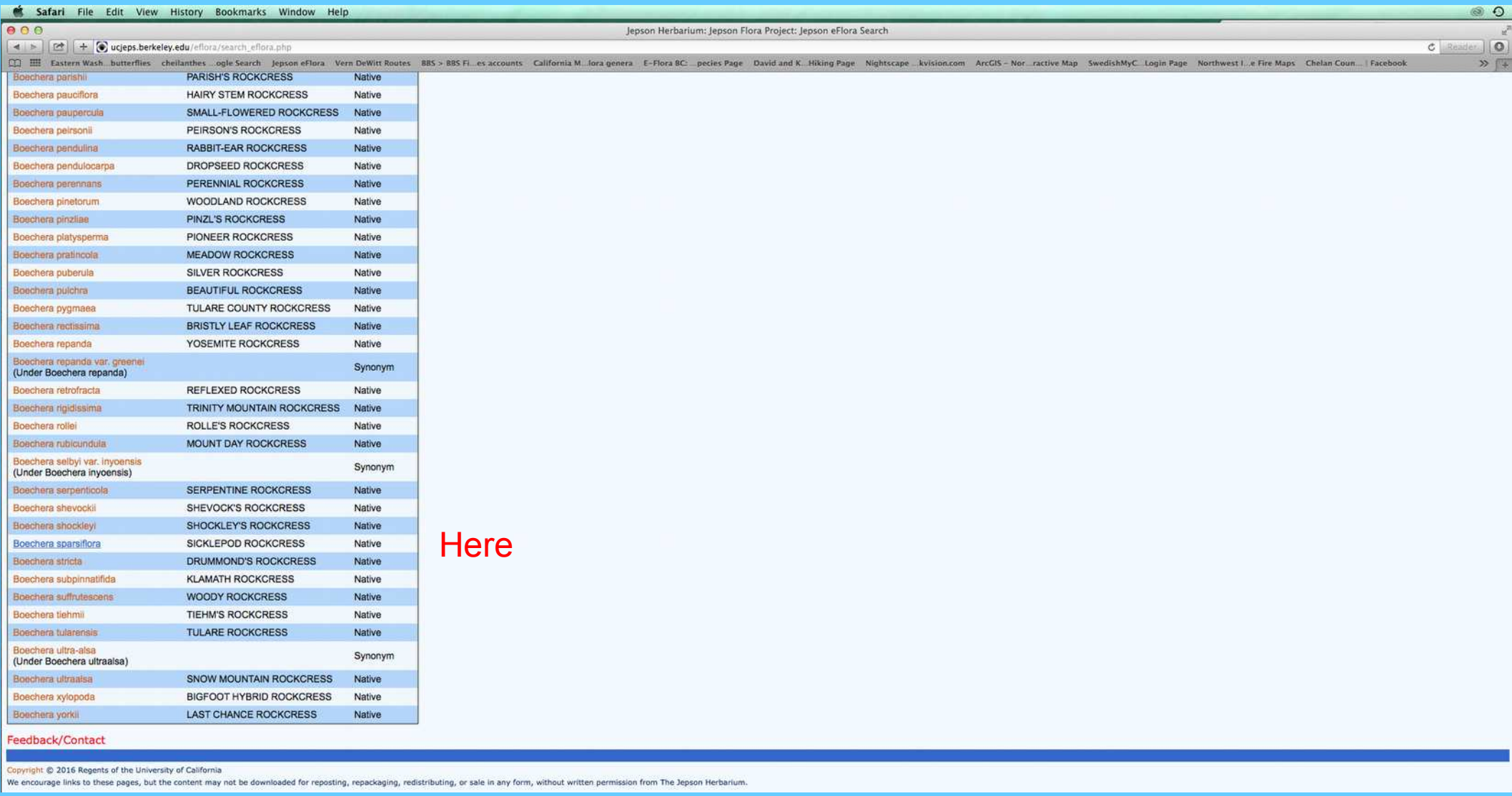
All of the California area species of Boechera appear



Scientific Name	Common Name	
Boechera ↳ Key to Boechera	ROCKCRESS	
Boechera acutina	POINTED ROCKCRESS	Native
Boechera arcuata	ARCHING ROCKCRESS	Native
Boechera bodiensis	BODIE HILLS ROCKCRESS	Native
Boechera breweri		Native
Boechera breweri subsp. breweri	BREWER'S ROCKCRESS	Native
Boechera breweri subsp. shastaensis	SHASTA ROCKCRESS	Native
Boechera calderi	CALDER'S ROCKCRESS	Native
Boechera californica	CALIFORNIA ROCKCRESS	Native
Boechera cobrensis	MASONIC ROCKCRESS	Native
Boechera constancei	CONSTANCE'S ROCKCRESS	Native
Boechera covillei	COVILLE'S ROCKCRESS	Native
Boechera davidsonii	DAVIDSON'S ROCKCRESS	Native
Boechera demissa var. pendulina (Under Boechera pendulina)		Synonym
Boechera depauperata	SOLDIER ROCKCRESS	Native
Boechera dispar	PINYON ROCKCRESS	Native
Boechera divaricarpa	SPREADINGPOD ROCKCRESS	Native
Boechera elkoensis	ELKO ROCKCRESS	Native
Boechera evadens	HIDDEN ROCKCRESS	Native
Boechera glaucovalvula	BLUEPOD ROCKCRESS	Native
Boechera hirshbergiae (Under Boechera johnstonii)		Synonym
Boechera hoffmannii	HOFFMANN'S ROCKCRESS	Native
Boechera holboellii var. pendulocarpa (Under Boechera pendulocarpa)		Synonym
Boechera horizontalis (Under Boechera)		Mentioned in a note
Boechera howellii	HOWELL'S ROCKCRESS	Native
Boechera inyoensis	INYO ROCKCRESS	Native
Boechera johnstonii	JOHNSTON'S ROCKCRESS	Native
Boechera koehleri	KOEHLER'S ROCKCRESS	Native
Boechera lemmonii	LEMMON'S ROCKCRESS	Native
Boechera lincolnensis	LINCOLN ROCKCRESS	Native

Scroll to Boechera sparsiflora



Boechera parishii	PARISH'S ROCKCRESS	Native
Boechera pauciflora	HAIRY STEM ROCKCRESS	Native
Boechera paupercula	SMALL-FLOWERED ROCKCRESS	Native
Boechera peirsonii	PEIRSON'S ROCKCRESS	Native
Boechera pendulina	RABBIT-EAR ROCKCRESS	Native
Boechera pendulocarpa	DROPSEED ROCKCRESS	Native
Boechera perennans	PERENNIAL ROCKCRESS	Native
Boechera pinetorum	WOODLAND ROCKCRESS	Native
Boechera pinzliae	PINZL'S ROCKCRESS	Native
Boechera platysperma	PIONEER ROCKCRESS	Native
Boechera pratincola	MEADOW ROCKCRESS	Native
Boechera puberula	SILVER ROCKCRESS	Native
Boechera pulchra	BEAUTIFUL ROCKCRESS	Native
Boechera pygmaea	TULARE COUNTY ROCKCRESS	Native
Boechera rectissima	BRISTLY LEAF ROCKCRESS	Native
Boechera repanda	YOSEMITE ROCKCRESS	Native
Boechera repanda var. greenei (Under Boechera repanda)		Synonym
Boechera retrofracta	REFLEXED ROCKCRESS	Native
Boechera rigidissima	TRINITY MOUNTAIN ROCKCRESS	Native
Boechera rollei	ROLLE'S ROCKCRESS	Native
Boechera rubicundula	MOUNT DAY ROCKCRESS	Native
Boechera selbyi var. inyoensis (Under Boechera inyoensis)		Synonym
Boechera serpenticola	SERPENTINE ROCKCRESS	Native
Boechera shevockii	SHEVOCK'S ROCKCRESS	Native
Boechera shockleyi	SHOCKLEY'S ROCKCRESS	Native
Boechera sparsiflora	SICKLEPOD ROCKCRESS	Native
Boechera stricta	DRUMMOND'S ROCKCRESS	Native
Boechera subpinnatifida	KLAMATH ROCKCRESS	Native
Boechera suffrutescens	WOODY ROCKCRESS	Native
Boechera tiehmii	TIEHM'S ROCKCRESS	Native
Boechera tularensis	TULARE ROCKCRESS	Native
Boechera ultra-alsa (Under Boechera ultraalsa)		Synonym
Boechera ultraalsa	SNOW MOUNTAIN ROCKCRESS	Native
Boechera xylopoda	BIGFOOT HYBRID ROCKCRESS	Native
Boechera yorkii	LAST CHANCE ROCKCRESS	Native

Here

Detailed description. The line drawing below is very good

Jepson Herbarium: Jepson Flora Project: Jepson eFlora: Boechera sparsiflora

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Index to accepted names and synonyms:
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |

Boechera sparsiflora
SICKLEPOD ROCKCRESS

Higher Taxonomy

Family: Brassicaceae (Cruciferae)	View Description	Dichotomous Key
Genus: Boechera	View Description	Dichotomous Key

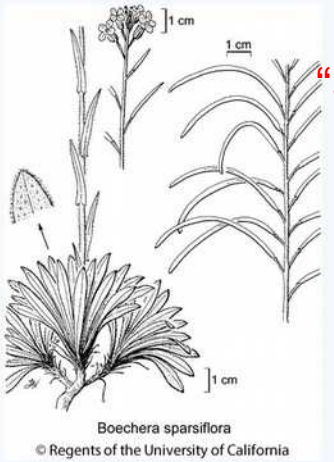
Click on “Dichotomous Key”

***Boechera sparsiflora* (Nutt.) Dorn**
NATIVE
Habit: Short-lived perennial herb to biennial; caudex generally not woody. **Stem:** generally 1 per caudex branch, from center of basal rosette at +- ground surface; 3--8 dm, proximally with simple and short-stalked, 2-rayed hairs 0.4--1.5 mm. **Leaf:** basal 3--12 mm wide, entire (dentate); hairs short-stalked, 2--5-rayed, 0.3--0.8 mm; cauline generally 15--35, distal glabrous (ciliate), basal lobes 3--10 mm. **Inflorescence:** 12--50-flowered, not 1-sided in fruit; fruit pedicel ascending, straight or +- recurved, 3--18 mm, +- hairs spreading, generally simple, or glabrous. **Flower:** sepals hairy; petals 7--13 mm, 2--5 mm wide, lavender to purple; pollen ellipsoid. **Fruit:** spreading-ascending (horizontal), not appressed, 5--13 cm, 1.7--2 mm wide, glabrous; style 0.05--0.3 mm; ovules 90--170. **Seed:** in 1 row, 1.5--2 mm; wing 0.1--0.2 mm wide.
Chromosomes: 2n=14.
Ecology: Rocky slopes, sandy soil, in sagebrush steppe, open conifer communities; **Elevation:** 200--2800 m. **Bioregional Distribution:** KR, NCoRH, CaR, n SNF, GB; **Distribution Outside California:** to British Columbia, Idaho, Utah. **Flowering Time:** Apr--Jun
Synonyms: Arabis sparsiflora Nutt.; Arabis sparsiflora var. sparsiflora
eFlora Treatment Author: Michael D. Windham & Ihsan A. Al-Shehbaz
Jepson Online Interchange

List of species

Previous taxon: Boechera shockleyi
Next taxon: Boechera stricta

Name Search | Submit Name



Boechera sparsiflora
© Regents of the University of California

“Sicklepod”

Contact/Feedback

Citation for this treatment: Michael D. Windham & Ihsan A. Al-Shehbaz 2016. *Boechera sparsiflora*, in Jepson Flora Project (eds.) *Jepson eFlora*, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=81758, accessed on May 27, 2016.

Citation for the whole project: Jepson Flora Project (eds.) 2016. *Jepson eFlora*, http://ucjeps.berkeley.edu/IJM.html, accessed on May 27, 2016.


Boechera sparsiflora © 2009 Thomas Stoughton

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Key used by botanists. For mosses can be helpful

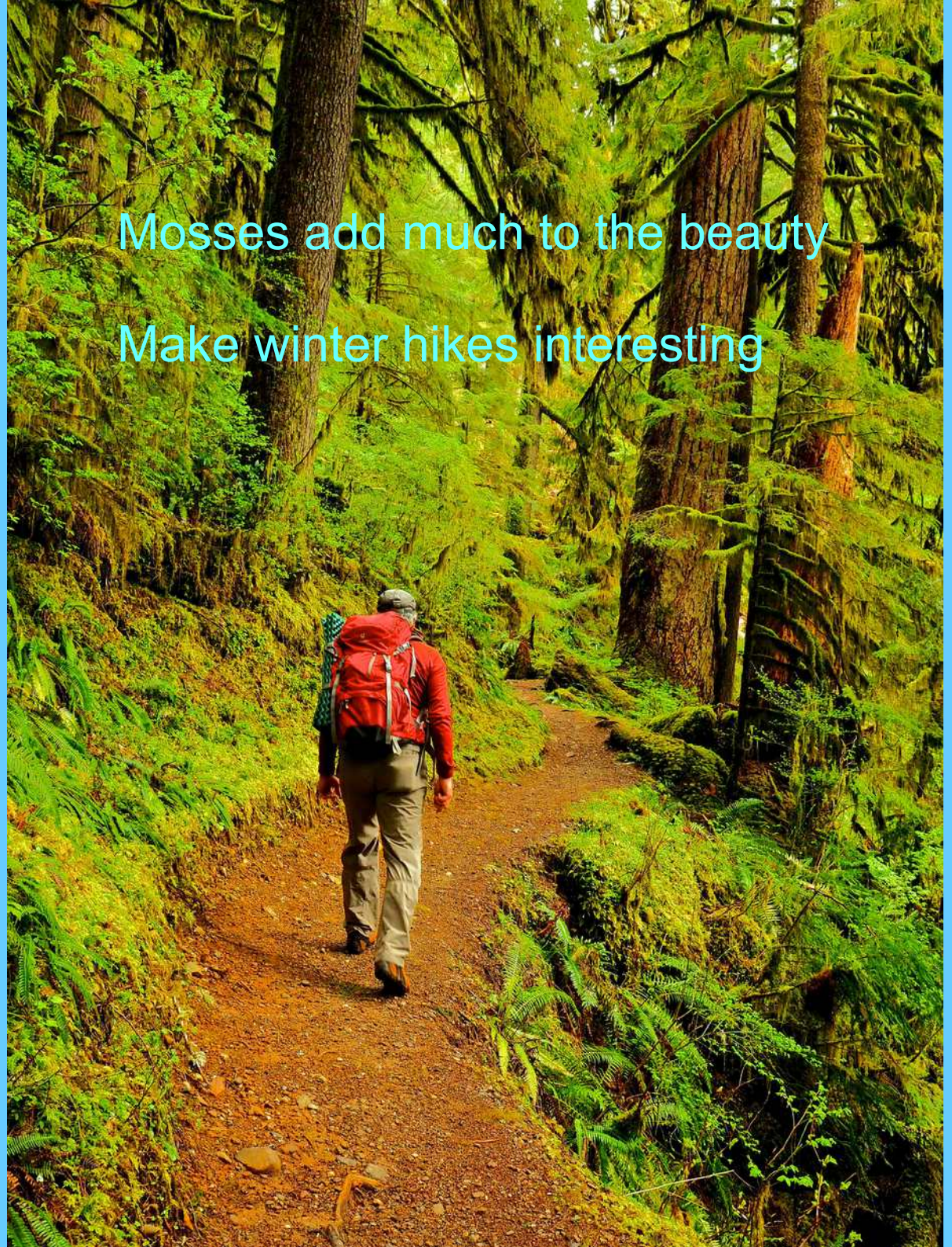
Decisionmaking tree

PLANT IDENTIFICATION TERMINOLOGY

An Illustrated Glossary

James G. Harris
Melinda Woolf Harris

Second Edition


Mosses add much to the beauty
Make winter hikes interesting


More beautiful up close. Details are very minute

Bryophytes: Mosses, Liverworts, and Hornworts

Íslenska
Italiano
עברית
Basa Jawa
ქართული
Қазақша
Latviešu
Lëtzebuergesch
Lietuvių
Magyar
മലയാളം
日本語
Nordfriisk
Norsk bokmål
Norsk nynorsk
ਪੰਜਾਬੀ
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ไทย
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Edit links

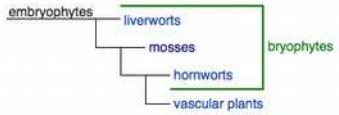
Classification and phylogeny [edit]

Traditionally, all living land plants without vascular tissues were classified in a single taxonomic group, often a division (or phylum). More recently, phylogenetic research has questioned whether the bryophytes form a monophyletic group and thus whether they should form a single taxon. Although a 2005 study supported the traditional view that the bryophytes form a monophyletic group,[7] by 2010 a broad consensus had emerged among systematists that bryophytes as a whole are not a natural group (i.e., are paraphyletic), although each of the three extant (living) groups is monophyletic.[8][9][10]

The three lineages are Marchantiophyta (liverworts), Bryophyta (mosses) and Anthocerotophyta (hornworts).[11] The vascular plants or tracheophytes are the fourth lineage of living land plants. In this analysis, hornworts are sister to vascular plants and liverworts are sister to all other land plants.[10][12] Phylogenetic studies continue to produce different results, in particular those based on gene sequences suggest the bryophytes are paraphyletic, whereas those based on the amino acid translations of the same genes suggest they are monophyletic. A 2014 study concluded that composition biases were responsible for the conflicting results and that the bryophytes are monophyletic.[13] The issue remains unresolved.

Hornworts include those bryophytes that are believed to be the closest living relatives of the vascular plants.

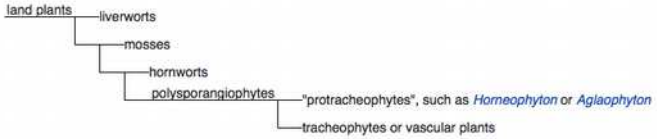
Paraphyletic view [edit]



Bryophytes

Mosses are one group of bryophytes.

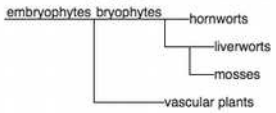
When extinct plants are taken into account, the picture is slightly altered. Some extinct land plants, such as the horneophytes, are not bryophytes, but also are not vascular plants because, like bryophytes, they do not have true vascular tissue. A different distinction is needed. In bryophytes, the sporophyte is a simple unbranched structure with a single spore-forming organ (sporangium). In all other land plants, the polysporangiophytes, the sporophyte is branched and carries many sporangia.[14][15] It has been argued that this contrast between bryophytes and other land plants is less misleading than the traditional one of non-vascular versus vascular plant, since many mosses have well-developed water-conducting vessels.[16] The contrast is shown in a slightly different cladogram:[17]



The term "bryophyte" thus refers to a grade of lineages defined primarily by what they lack: compared to other living land plants, they lack vascular tissue containing lignin; compared to all other land plants, they lack branched sporophytes bearing multiple sporangia. The prominence of the gametophyte in the life cycle is also a shared feature of the three bryophyte lineages (extant vascular plants are all sporophyte dominant).

Other views [edit]

An alternative phylogeny, based on amino acids rather than genes, shows bryophytes as a monophyletic group:[18]



If this phylogeny proves correct, then the complex sporophyte of living vascular plants might have evolved independently of the simpler unbranched sporophyte present in bryophytes.[13] Other studies suggest a monophyletic group comprising liverworts and mosses, with hornworts being sister to vascular plants.[19]

Evolution [edit]

Bryophytes are the oldest of all lineages of land plants and are believed to be a vital link in the migration of plants from aquatic environments onto land. A number of physical features link bryophytes to both land plants and aquatic plants. Two distinct adaptations have helped to make the move from water to land possible and forged the way for plants to colonize the Earth's terrestrial environments. A waxy cuticle covering the soft tissue of the plant provides protection and prevents desiccation of the plant's tissues. The development of gametangia provided further protection specifically for gametes.[20]

They also have embryonic development which is a significant adaptation seen in land plants and not green algae. Connections to their aquatic ancestry are also evident through their dependence on water for reproduction and survival. A thin layer of water is required on the surface of the plant to enable the movement of sperm between gametophytes and the fertilization of an egg.[21]

Comparison [edit]

Summary of the differential characteristics of the gametophytes of the three groups of bryophytes:

	Liverworts	Mosses	Hornworts
Structure	Thalloid or Foliose	Foliose	Thalloid
Symmetry	Dorsiventral or radial	Radial	Dorsiventral
Rhizoids	Unicellular	Pluricellular	Unicellular
Chloroplasts/cell	Many	Many	One

Unlike flowers/trees, etc., Bryophytes have no vascular system

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bryophytes – Google Search

https bryophytes

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Bryophyte - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/**Bryophyte** Wikipedia
Bryophyte is a traditional name used to refer to all embryophytes (land plants) that do not have true vascular tissue and are therefore called "non-vascular plants". Some **bryophytes** do have specialized tissues for the transport of water.
Moss - Vascular tissue - Embryophyte - Category:Bryophytes

What are Bryophytes - Southern Illinois University
bryophytes.plant.siu.edu/bryojustified.html
Plant scientists recognize two kinds of land plants, namely, **bryophytes**, or nonvascular land plants and tracheophytes,or vascular land plants. **Bryophytes** are ...

Bryophytes
bryophytes.plant.siu.edu/
"**Bryophytes**" is a resource devoted to Bryology, the branch of plant science concerned with the study of mosses, liverworts and hornworts.

Bryophytes (Mosses and liverworts) — The Plant List
www.theplantlist.org/browse/B/
Bryophytes are small, non-vascular plants, such as mosses, liverworts and hornworts. They play a vital role in regulating ecosystems because they provide an ...

bryophyte | plant | Britannica.com
www.britannica.com/plant/**bryophyte** Encyclopædia Britannica
Bryophyta any green, seedless plant that is one of the mosses, hornworts, or liverworts. **Bryophytes** are among the simplest of the terrestrial plants.

General Bryophyte Information
sciweb.nybg.org/science2/hcol/bryo/bryogen.html New York Botanical Garden
What is a **bryophyte** anyway? By Shawn Krosnick and Kevin E. Indoe. The word **bryophyte** refers to a group of plants comprising the mosses, liverworts, and ...

Consortium of North American Bryophyte Herbaria Home
bryophyteportal.org/
The Consortium of North American **Bryophyte** Herbaria (CNABH) was created to serve as a gateway to distributed data resources of interest to the taxonomic ...

SparkNotes: Plant Classification: Bryophytes
www.sparknotes.com › ... › Biology Study Guides › Plant Classification SparkNotes
A summary of **Bryophytes** in 's Plant Classification. Learn exactly what happened in this chapter, scene, or section of Plant Classification and what it means.

Bryophytes - Boundless
www.boundless.com › ... › Boundless Biology › Seedless Plants › Bryophytes
Bryophytes (liverworts, mosses, and hornworts) are non-vascular plants that appeared on earth over 450 million years ago.

Bryophyte | Define Bryophyte at Dictionary.com
www.dictionary.com/browse/**bryophyte**
Bryophyte definition, any of the Bryophyta, a phylum of nonvascular plants comprising the true mosses and liverworts. See more.

Searches related to bryophytes

seedless vascular plants bryophytes **reproduction**

Moss

Plant

Mosses are small flowerless plants that typically grow in dense green clumps or mats, often in damp or shady locations. Wikipedia

Scientific name: Bryophyta
Higher classification: Embryophyte
Rank: Phylum

Lower classifications View 1+ more

Feedback

See results about

Bryophyte (Plant)
Representative species: Horn calcareous moss, Java moss


Rain and atmospheric moisture
Can spring to life in minutes

Gametophytes>Male and Female plants>Sporophytes>Gametophytes

moss alternation of generations detail - Google Search

moss alternation of generations detail

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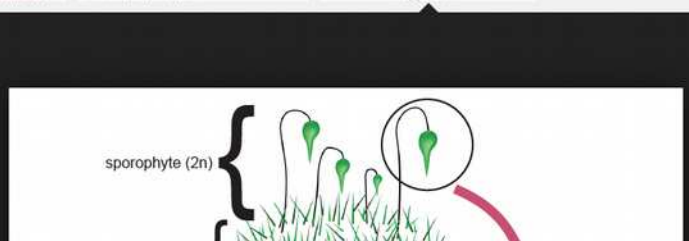

Alternation of Generations - Shmoop Biology

www.shmoop.com - 705 × 565 - Search by image

... gametophytes and gametes take on vary depending on the type of plant. In bryophytes (mosses and their ilk), the gametophytes are the bigger generation ...

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Sporophyte
“Leafy moss”


Habitat, Boulder, Rain Forest


Habit (morphology or form)
Polytrichum juniperum (Juniper haircap moss)
Red hairpoints
Different habit

Acrocarps are upright/Pleurocarps spread out

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46 Polytrichum juniperinum.jpg

Mountaineers lecture on small things

Acrocarps & Pleurocarps

www.andrewspink.nl/mosses/acropleuro.htm

Note on the difference between acrocarps and pleurocarps

1. General habit and mode of branching.

Acrocarpous mosses are usually unbranched or almost so, and have an erect habit, like small trees. They are never regularly pinnately (fern-like) branched but have a central stem and leaves coming off that stem. Almost all pleurocarpous mosses are freely branched, often either pinnate or chaotic. They frequently form dense intricate mats of elaborately branched sterns.

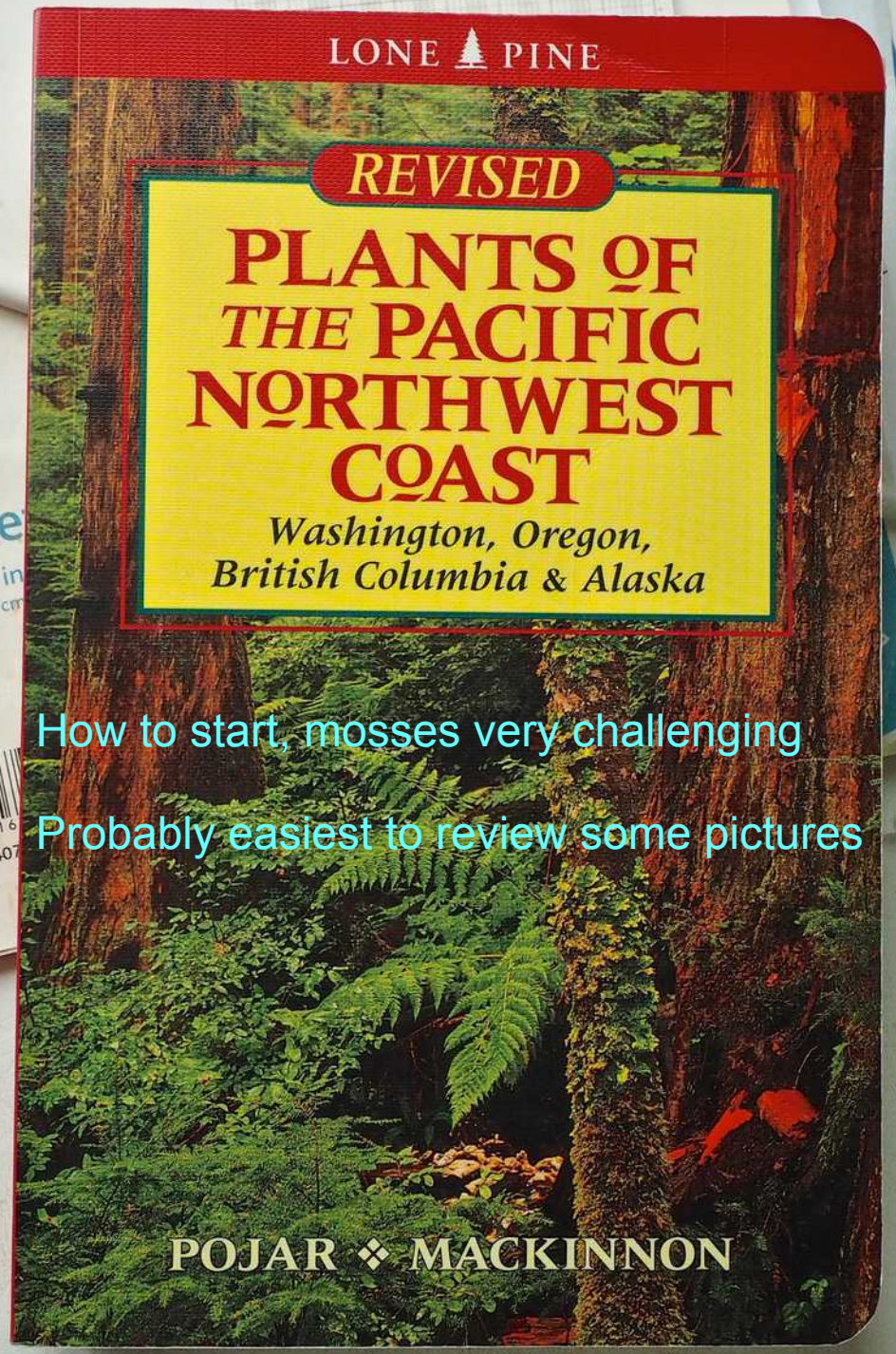
Typical acrocarp, *Polytrichum*

Typical pleurocarp, *Eurynchium*

2. Cell structure and nerves.

If in doubt, look at a leaf with a compound microscope. Very few acrocarpous mosses have long narrow cells throughout the leaf, unlike pleurocarps. Few pleurocarpous mosses have short (isodiametric - as long as broad) cells in the upper part of the leaf and elongated rectangular cells in the leaf base; but in many acrocarpous families this is the usual type of cell structure. A further useful point: nerveless leaves are very rare among acrocarps; leaves with excurrent (sticking-out) nerves are almost equally rare in the pleurocarpous mosses.

3. Position of archegonia and capsules.



How to start, mosses very challenging

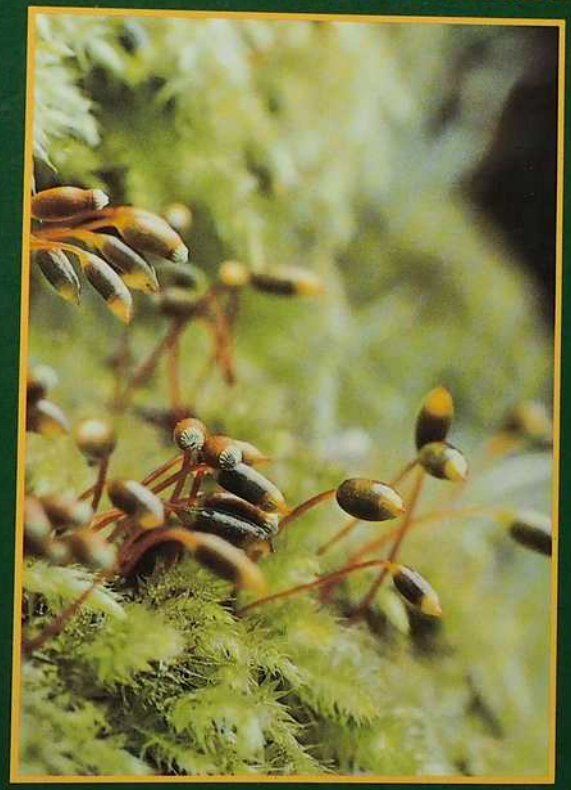
Probably easiest to review some pictures

ROYAL BRITISH COLUMBIA MUSEUM
HANDBOOK

SOME COMMON

MOSSES

OF BRITISH COLUMBIA



W.B. SCHOFIELD

EfloraBC mosses. Good photos are hard to come by.
Alphabetized by scientific name. Common names listed, 700 mosses.

E-Flora BC: Species Search Page

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WTU Herbarium Image Collection – Burke Museum | E-Flora BC: Species Search Page

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727 records--presented below--match your search criteria: Mosses

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No Image Available	*Aloina brevirostris*	Pottiaceae	short-beaked aloe-moss	View Atlas Page
	*Aloina rigida*	Pottiaceae	rigid aloe-moss	View Atlas Page
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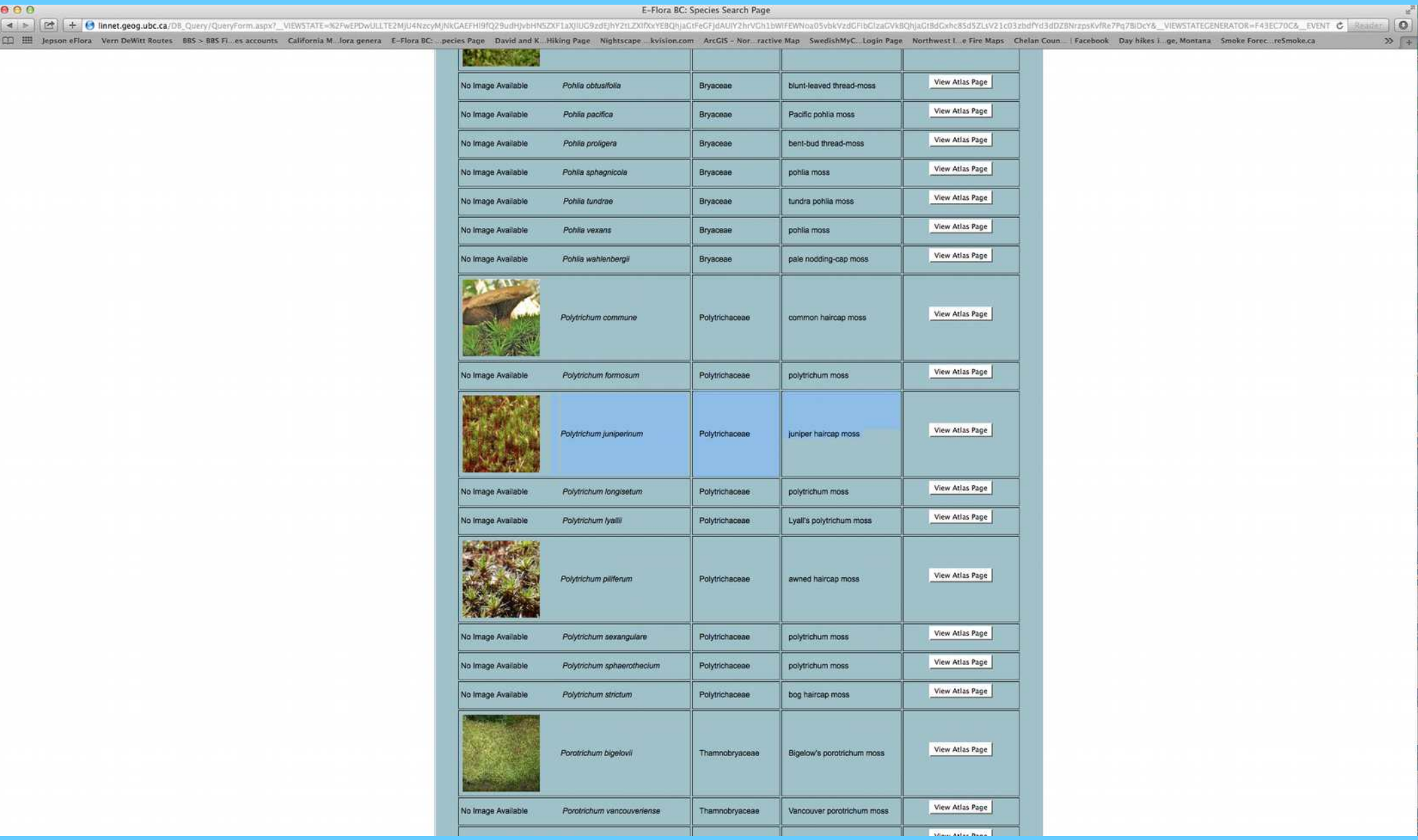
	*Amphidium lapponicum*	Orthotrichaceae	bottle-brush moss	View Atlas Page
No Image Available	*Amphidium mougeotii*	Orthotrichaceae	Mougeot's yoke-moss	View Atlas Page

Scroll to Polytrichum juniperum and select “Atlas Page”



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No Image Available	*Pohlia tundrae*	Bryaceae	tundra pohlia moss	View Atlas Page
No Image Available	*Pohlia vexans*	Bryaceae	pohlia moss	View Atlas Page
No Image Available	*Pohlia wahlenbergii*	Bryaceae	pale nodding-cap moss	View Atlas Page
	Polytrichum commune	Polytrichaceae	common haircap moss	View Atlas Page
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	Polytrichum juniperinum	Polytrichaceae	juniper haircap moss	View Atlas Page
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	Polytrichum piliferum	Polytrichaceae	awned haircap moss	View Atlas Page
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Atlas page. Open “Species Information”

E-Flora BC Atlas Page

juniper haircap moss (juniper polytrichum moss)
Polytrichaceae

Species Account Author: Wilf Schofield
Extracted from *Some Common Mosses of British Columbia*

Introduction to the Bryophytes of BC

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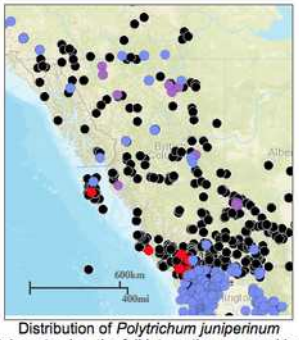

Distribution of *Polytrichum juniperinum*
Click here to view the full interactive map and legend
Details about map content are available here
New! Click on the map dots to view record details.

Open All Headings | Close All Headings

Here

- SPECIES INFORMATION
- HABITAT / RANGE
- STATUS INFORMATION
- SYNONYMS AND ALTERNATE NAMES
- TAXONOMIC AND NOMENCLATURAL LINKS
- ADDITIONAL RANGE AND STATUS INFORMATION LINKS
- ADDITIONAL PHOTO SOURCES
- RELATED DATABASES
- GENERAL REFERENCES

Recommended citation: Author, Date. Page title. In Klinkenberg, Brian. (Editor) 2015. *E-Flora BC: Electronic Atlas of the Plants of British Columbia* [eflora.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. [Accessed: 26/05/2016 5:16:14 PM]

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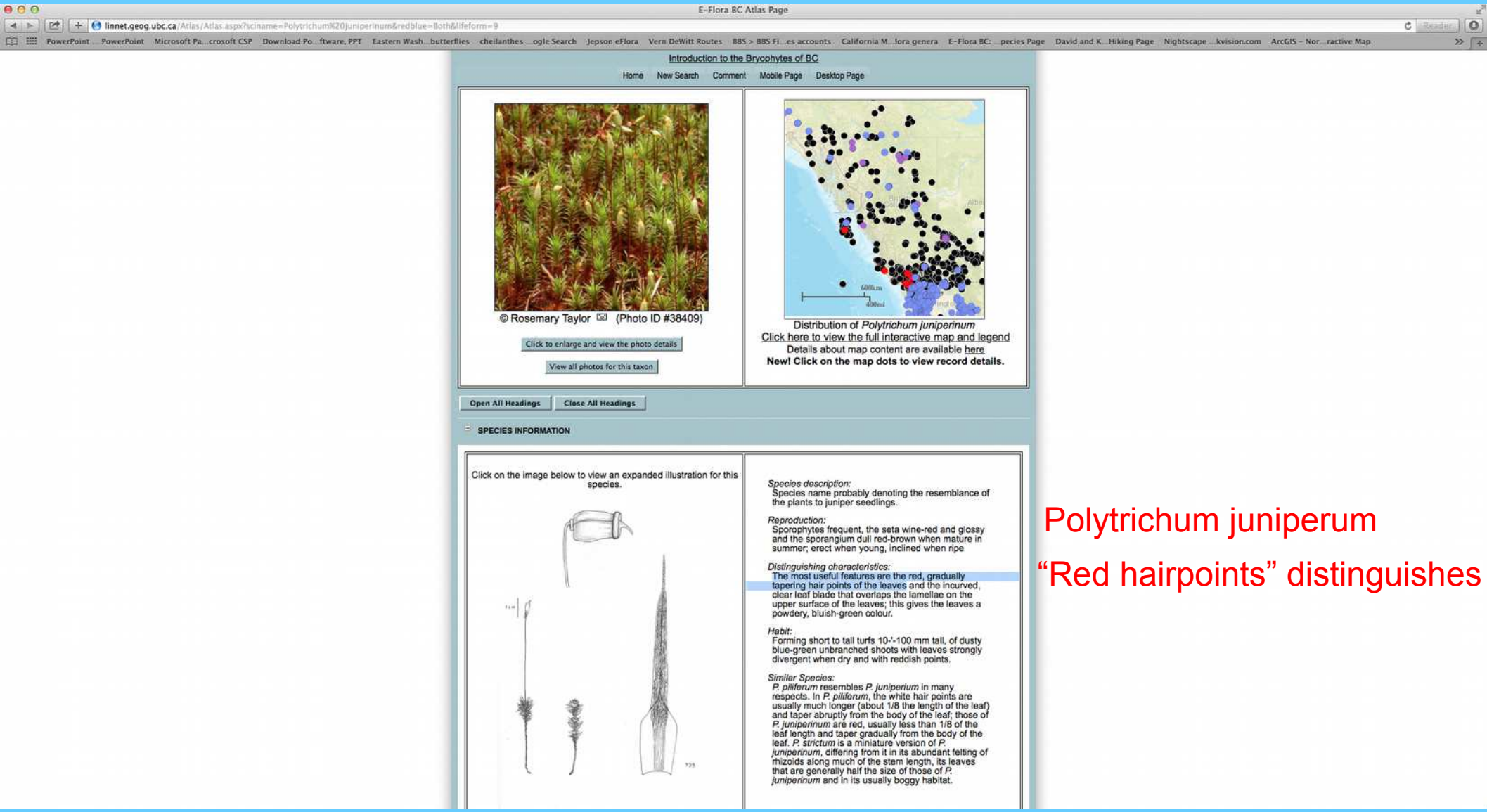


Polytrichum juniperum

“Red hairpoints” distinguishes

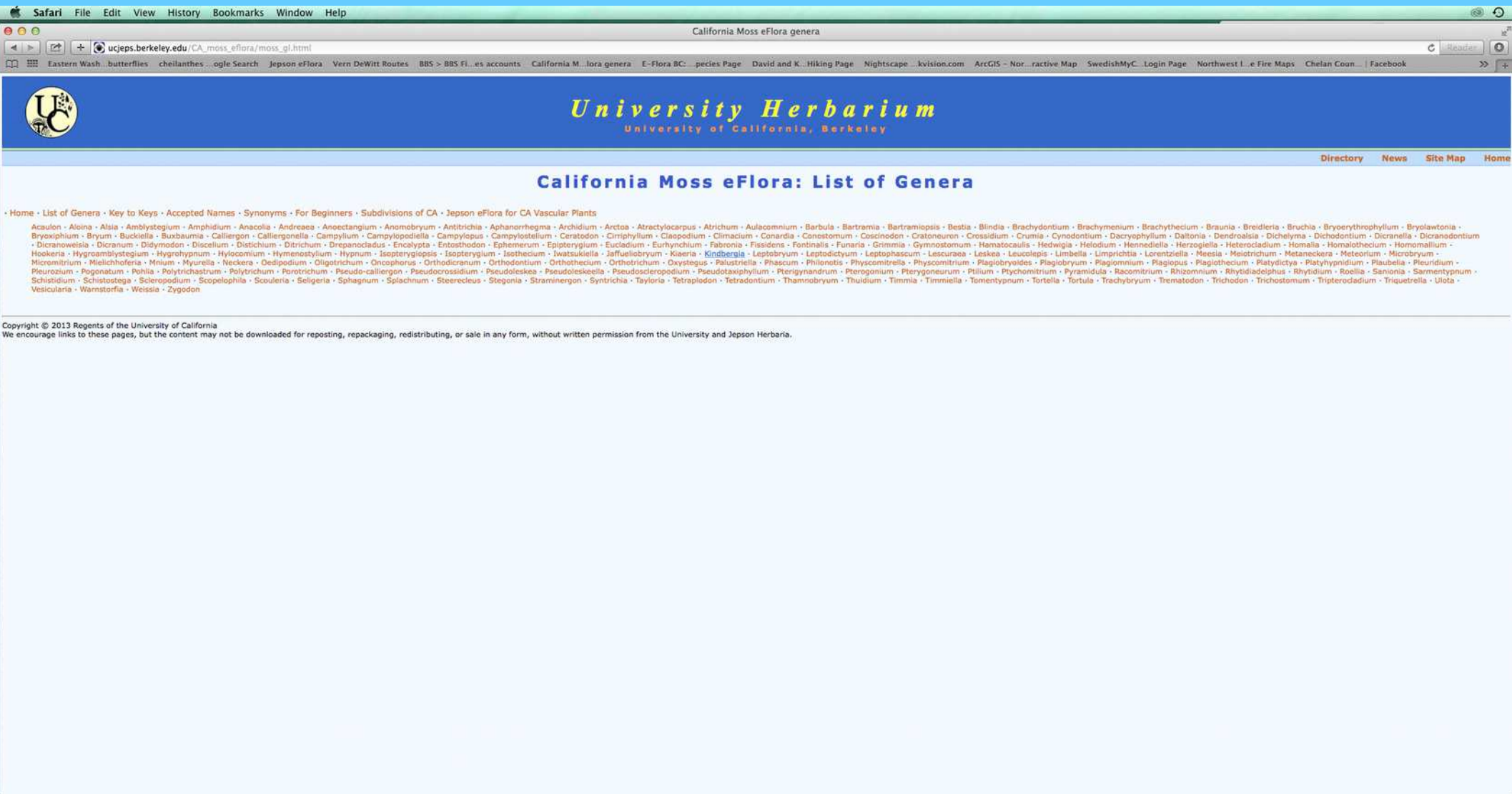
Leaves which can only be seen by a loupe or macro photography are key

"The family Hypnaceae is easily recognized in the field by the combination of strongly *curved* leaves"

Many mosses can't be identified in the field.....microscope required


Kindbergia oregana
Oregon-beaked moss
Forest floor
Sporophyte

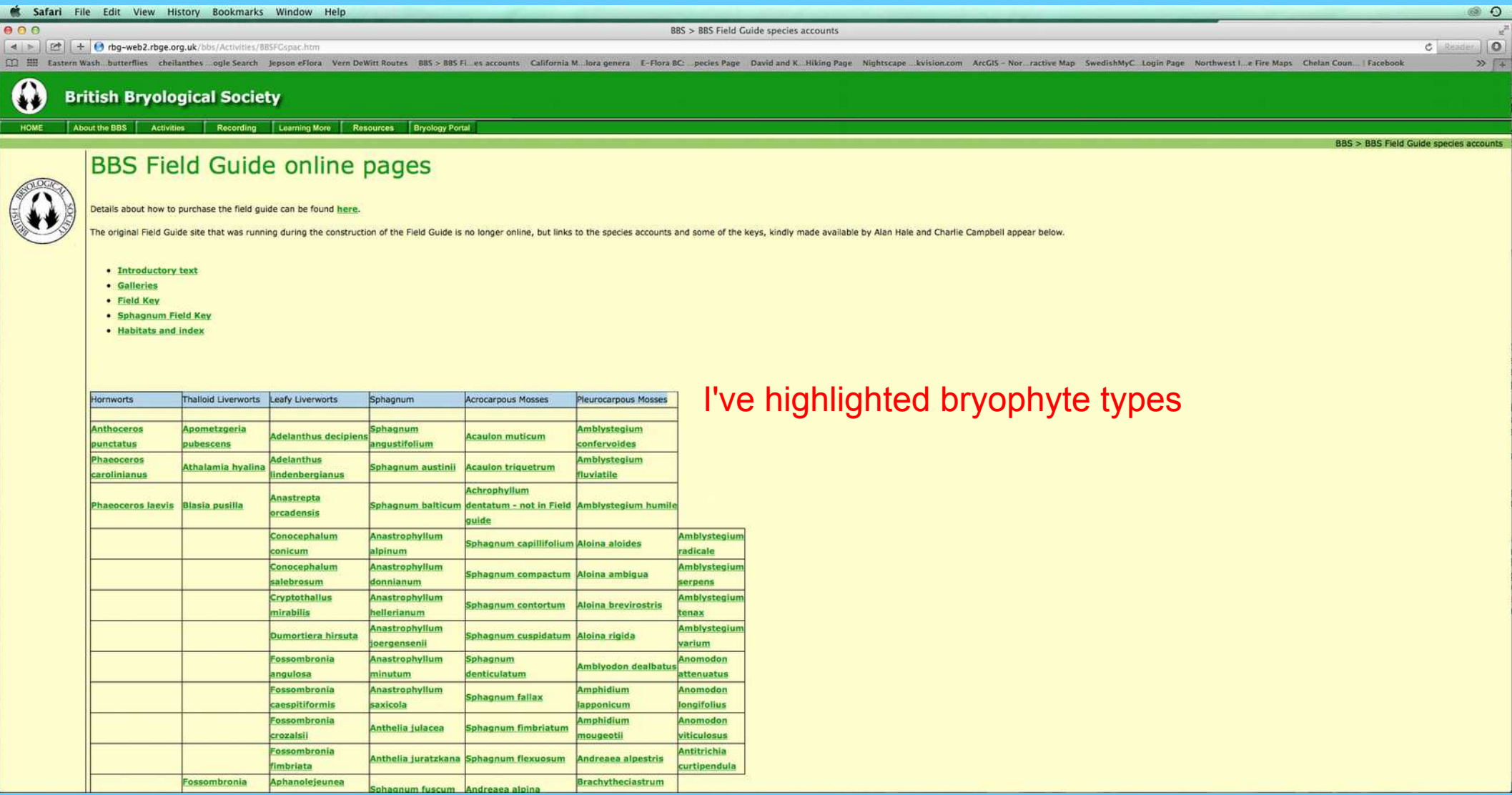
Jepson moss genera, Kindbergia selected




Large moss
Pleurocarp
Rain forest floor
Hylocomium splendens (step moss)


Sphagnum moss
Hylocomium splendens (step moss)

Great bryophyte resource: BBS website



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BBS > BBS Field Guide species accounts

rbg-web2.rbge.org.uk/bbs/Activities/BBSFGspac.htm

British Bryological Society

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BBS > BBS Field Guide species accounts

BBS Field Guide online pages

Details about how to purchase the field guide can be found here.

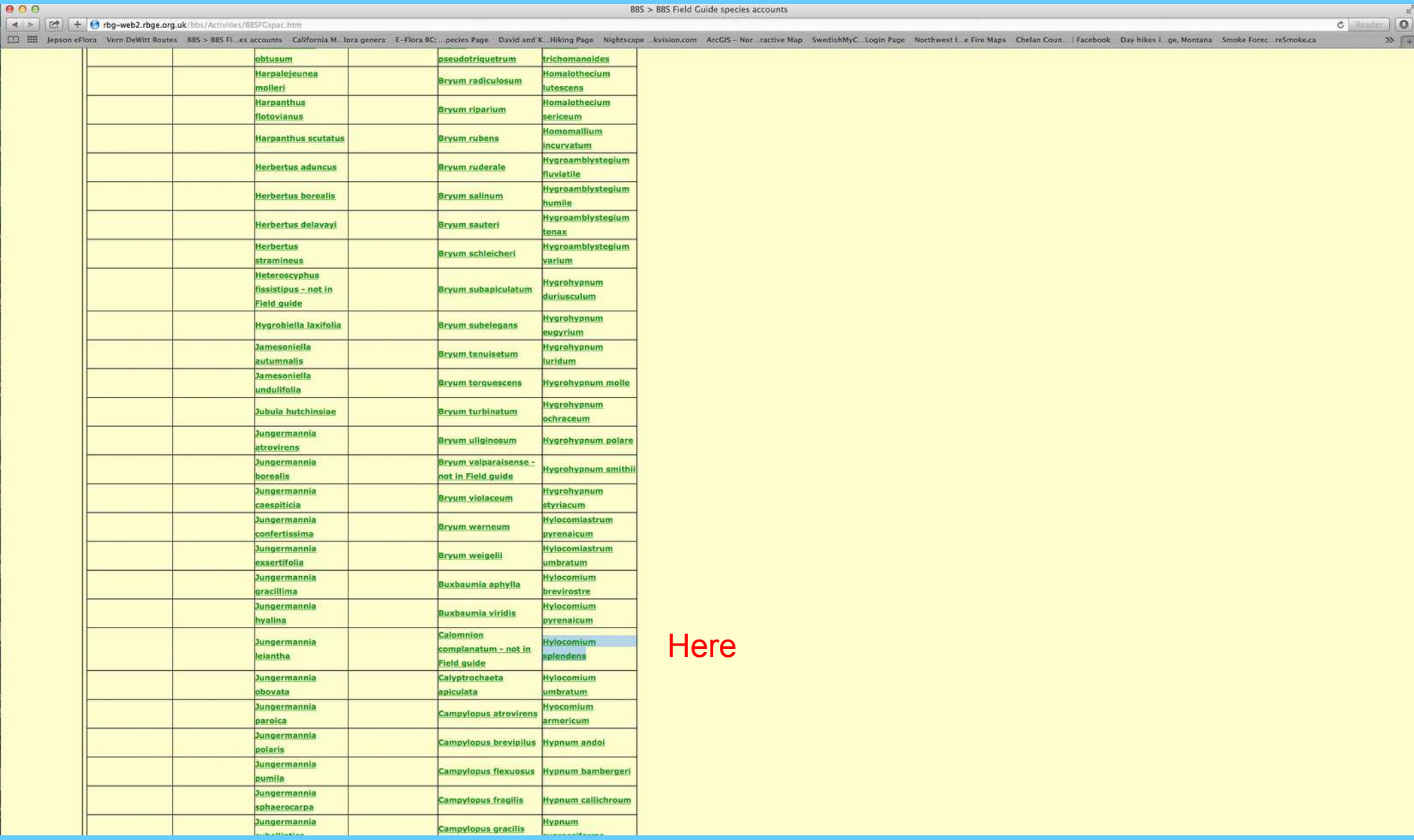
The original Field Guide site that was running during the construction of the Field Guide is no longer online, but links to the species accounts and some of the keys, kindly made available by Alan Hale and Charlie Campbell appear below.

- Introductory text
- Galleries
- Field Key
- Sphagnum Field Key
- Habitats and index

Hornworts	Thalloid Liverworts	Leafy Liverworts	Sphagnum	Acrocarpous Mosses	Pleurocarpous Mosses	
Anthoceros punctatus	Apometzgeria pubescens	Adelanthus decipiens	Sphagnum angustifolium	Acaulon muticum	Amblystegium confervoides	
Phaeoceros carolinianus	Athalamia hyalina	Adelanthus lindenbergianus	Sphagnum austinii	Acaulon triquetrum	Amblystegium fluviatile	
Phaeoceros laevis	Blasia pusilla	Anastrepta orcadensis	Sphagnum balticum	Achrophyllum dentatum - not in Field guide	Amblystegium humile	
		Conocephalum conicum	Anastrophyllum alpinum	Sphagnum capillifolium	Aloina aloides	Amblystegium radicale
		Conocephalum salebrosum	Anastrophyllum donnianum	Sphagnum compactum	Aloina ambigua	Amblystegium serpens
		Cryptothallus mirabilis	Anastrophyllum hellerianum	Sphagnum contortum	Aloina brevirostris	Amblystegium tenax
		Dumortiera hirsuta	Anastrophyllum joergensenii	Sphagnum cuspidatum	Aloina rigida	Amblystegium varium
		Fossombronia angulosa	Anastrophyllum minutum	Sphagnum denticulatum	Amblyodon dealbatus	Anomodon attenuatus
		Fossombronia caespitiformis	Anastrophyllum saxicola	Sphagnum fallax	Amphidium lapponicum	Anomodon longifolius
		Fossombronia crozalsii	Anthelia julacea	Sphagnum fimbriatum	Amphidium mougeotii	Anomodon viticulosus
		Fossombronia fimbriata	Anthelia juratzkana	Sphagnum flexuosum	Andreaea alpestris	Antitrichia curtipendula
	Fossombronia	Aphanolejeunea	Sphagnum fuscum	Andreaea alpina	Brachytheciastrum	

I've highlighted bryophyte types

Scroll to Hylocomium splendens under “Pleurocarps”



		obtusum		pseudotriquetrum	trichomanoides
		Harpalejeunea molleri		Bryum radiculosum	Homalothecium lutescens
		Harpanthus flotovianus		Bryum riparium	Homalothecium sericeum
		Harpanthus scutatus		Bryum rubens	Homomallium incurvatum
		Herbertus aduncus		Bryum ruderale	Hygroamblystegium fluviatile
		Herbertus borealis		Bryum salinum	Hygroamblystegium humile
		Herbertus delavayi		Bryum sauteri	Hygroamblystegium tenax
		Herbertus stramineus		Bryum schleicheri	Hygroamblystegium varium
		Heteroscyphus fissistipus - not in Field guide		Bryum subapiculatum	Hygrohypnum duriusculum
		Hygrobiella laxifolia		Bryum subelegans	Hygrohypnum eugyrium
		Jamesoniella autumnalis		Bryum tenuisetum	Hygrohypnum luridum
		Jamesoniella undulifolia		Bryum torquescens	Hygrohypnum molle
		Jubula hutchinsiae		Bryum turbinatum	Hygrohypnum ochraceum
		Jungermannia atrovirens		Bryum uliginosum	Hygrohypnum polare
		Jungermannia borealis		Bryum valparaisense - not in Field guide	Hygrohypnum smithii
		Jungermannia caespiticia		Bryum violaceum	Hygrohypnum styriacum
		Jungermannia confertissima		Bryum warneum	Hylocomiastrum pyrenaicum
		Jungermannia exsertifolia		Bryum weigelii	Hylocomiastrum umbratum
		Jungermannia gracillima		Buxbaumia aphylla	Hylocomium brevirostre
		Jungermannia hyalina		Buxbaumia viridis	Hylocomium pyrenaicum
		Jungermannia leiantha		Calomnion complanatum - not in Field guide	Hylocomium splendens
		Jungermannia obovata		Calyptrochaeta apiculata	Hylocomium umbratum
		Jungermannia paroica		Campylopus atrovirens	Hyocomium armoricum
		Jungermannia polaris		Campylopus brevipilus	Hypnum andoi
		Jungermannia pumila		Campylopus flexuosus	Hypnum bambergeri
		Jungermannia sphaerocarpa		Campylopus fragilis	Hypnum callichroum
		Jungermannia		Campylopus gracilis	Hypnum

Generally excellent images

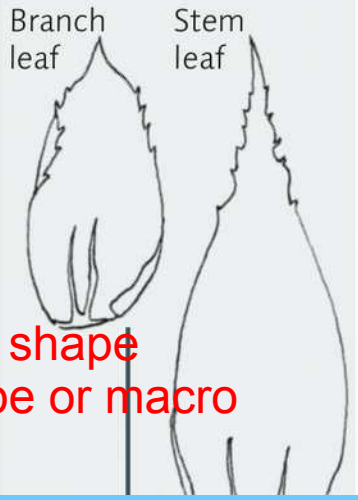
www.bbsfieldguide.org.uk/sites/default/files/pdfs/mosses/Hylocomium_splendens.pdf

Hylocomium splendens

Glittering Wood-moss

Note: Common name is different

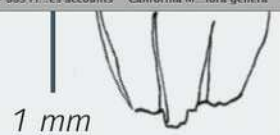
Key 336



Leaf shape
Loupe or macro

Organized like Schofield/EfloraBC

www.bbsfieldguide.org.uk/sites/default/files/pdfs/mosses/Hylocomium_splendens.pdf



Identification

This glossy, bright green, robust moss has regularly arranged, branched branches (bipinnate) and a red stem. Shoots are several to 10 or even 20 cm long. A 'flight of steps' appearance to the shoots is a consequence of varying rates of growth during successive seasons from a bud behind the shoot tip. Stem leaves are quite large, 2.5–3 mm long, and oval with a long, tapering tip. Branch leaves are smaller (1 mm long), more concave and have a shorter tip. Both types of leaf have a short, double nerve (or may lack a nerve) and sharply toothed margins in the upper half. Under a hand lens, the stems and branches appear furry owing to the presence of branched filaments. Capsules are generally uncommon, but occasional in parts of south Wales and may be overlooked.

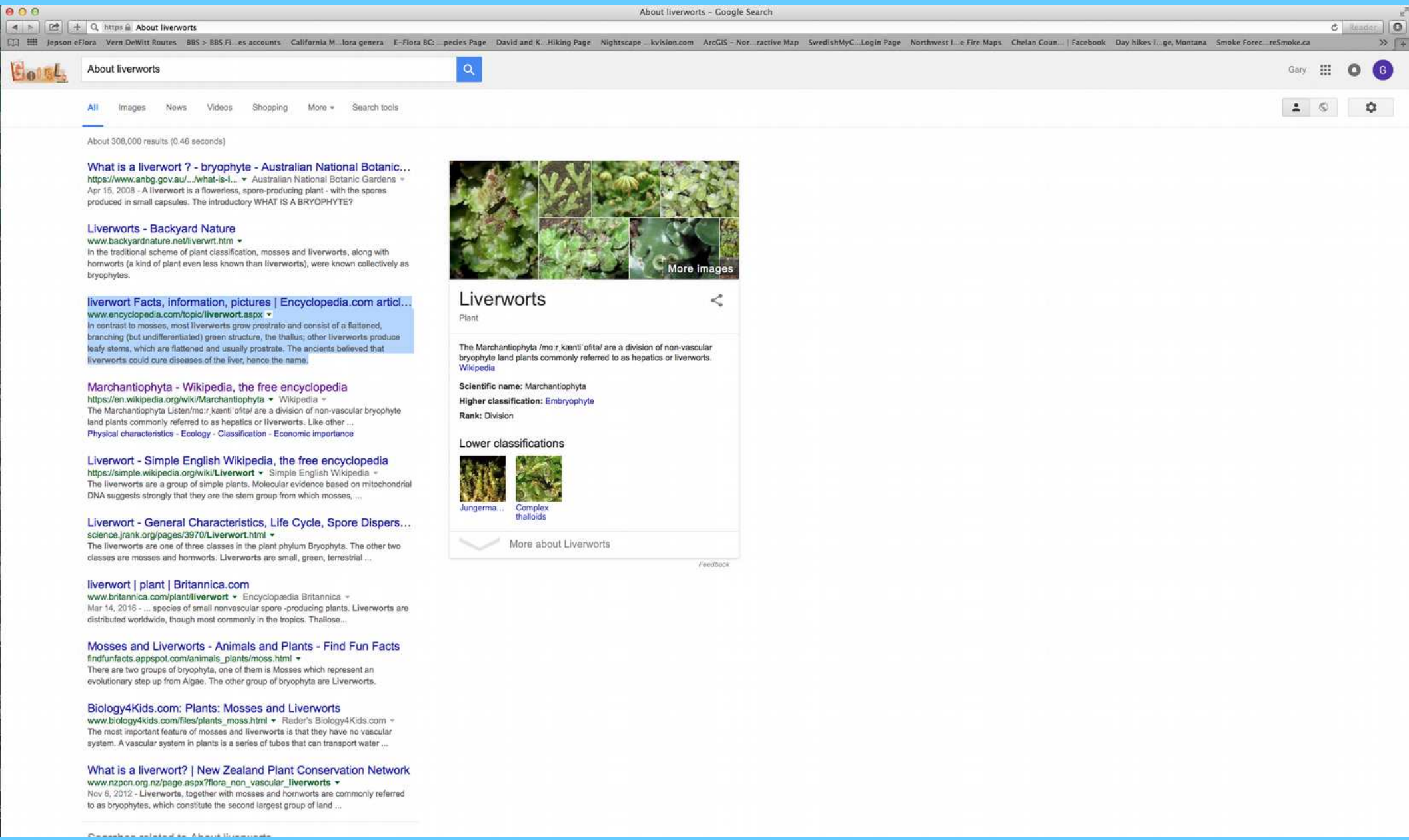
Similar species

Thuidium tamariscinum (p. 696) is also bipinnate and may grow in similar habitats, but has a green (rather than red) stem, which becomes black on older stems. Also, stem leaves of *T. tamariscinum* are a different shape, having a shorter point, and they have a prominent single nerve. *Pleurozium schreberi* (p. 815) also has a red stem, and is loosely pinnate, but its leaves are bluntly pointed.

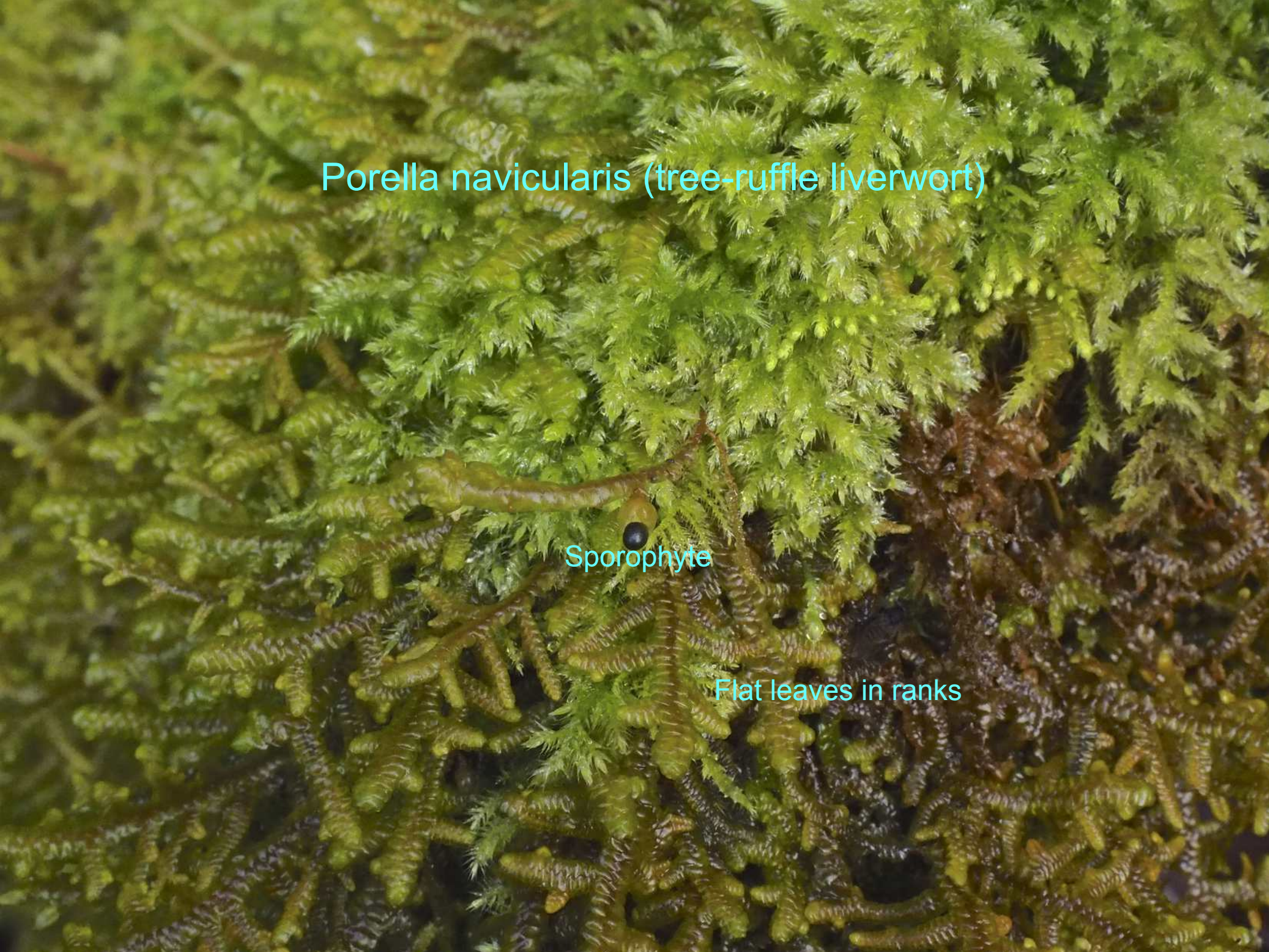
Habitat

H. splendens is common and may be abundant amongst grass and heather on heaths and moorlands and in acidic woodlands. Whilst usually occurring in acidic habitats, it may sometimes be found in well-leached chalk grassland.

Liverworts can be thallic (planar) or leafy, with leaves in “ranks” on a flat stem




Mosses
Female
Thallus
“Marchantia”
Male reproductive organ
Hornworts


Porella navicularis (tree-ruffle liverwort)
Sporophyte
Flat leaves in ranks

Lichens can be found on the Burke website

WTU Herbarium Image Collection – Burke Museum

biology.burke.washington.edu/herbarium/imagecollection.php

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WTU Image Collection: Plants of Washington
Lichens of Washington

The WTU Image Collection contains the most comprehensive online collection of photographs and information for the plants and lichens of Washington state. Developed and maintained by the **University of Washington Herbarium** (WTU), this site brings together the photographs from numerous photographers and botanists from around the state. Photographs are accompanied by distribution maps, species descriptions, synonymy, and links to additional resources.

Use this site to learn about the plants and lichens found across Washington State's diverse array of landscapes including lush coastal rainforests, dry sagebrush plains, high alpine meadows and much more in between. Washington contains over 3,600 species of vascular plants and over 900 species of lichens.

Site Statistics:

55,283 photographs
266 photographers
2,862 vascular plant species
143 lichen species

Washington Wildflowers App | Idaho Wildflowers App

The University of Washington Herbarium and its partners have released plant identification apps for the wildflowers of Washington (1026 species) and Idaho (810 species). The apps run on Apple, Android, and Amazon Kindle mobile devices (both phone and tablets).

» View a short YouTube video for the Washington or Idaho app.
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» Download the Washington App (Apple, Google Play, Amazon) or the Idaho App (Apple, Google Play, Amazon).

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- Identify unknown plants using our simple **Random Access Identification Key**.
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Learn more about the **contents** of the Image Collection web site.

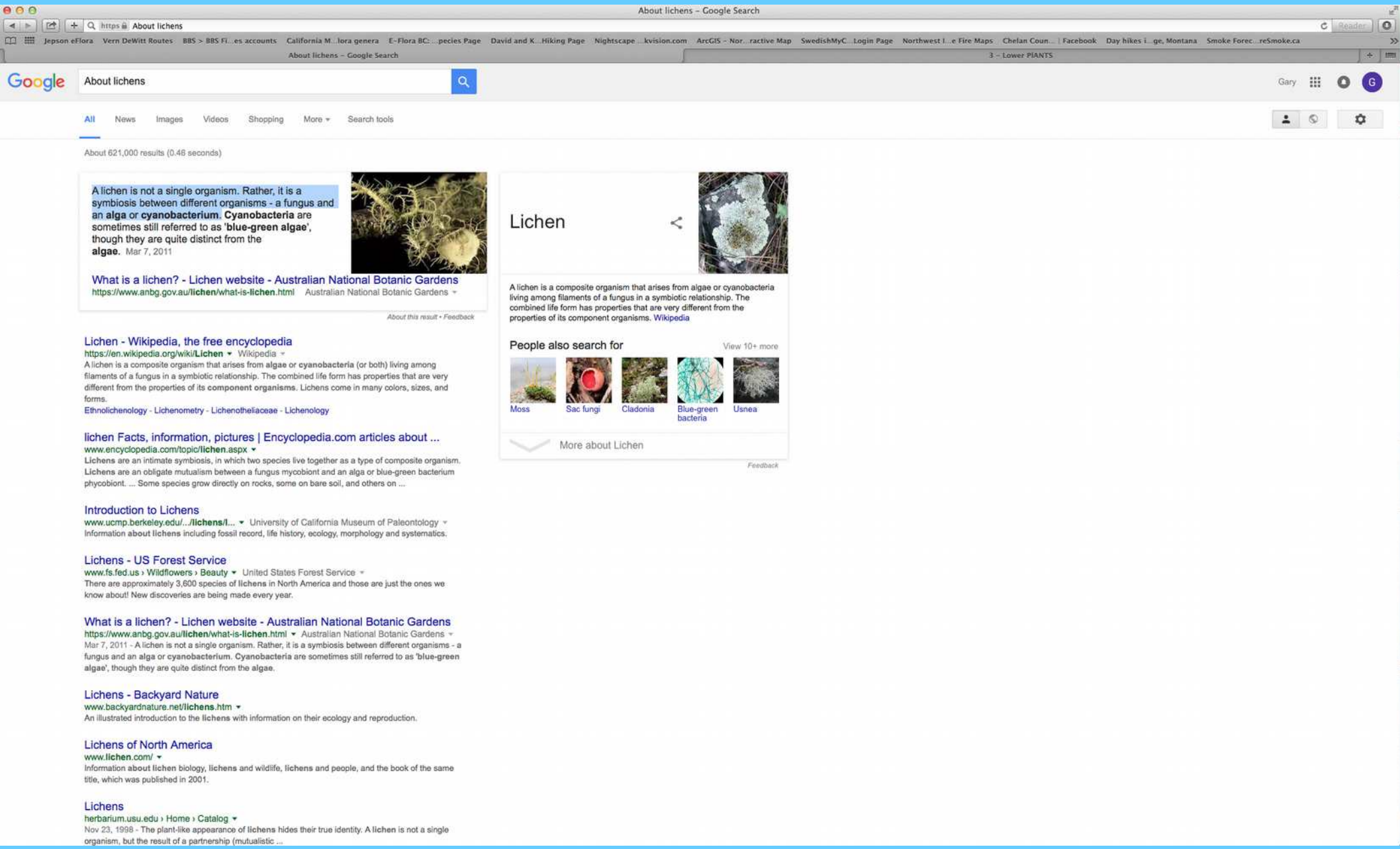
Contributing to the Image Collection website:

The WTU Image Collection provides a great resource to learn more about our states flora. Yet, you can do even more by contributing your own photos or sharing your botanical knowledge with others through this site. There are a variety of ways to help out.

Contributing photographs:

We welcome contributions of good quality photographs for any plants that grow wild in Washington. As the photographer you will retain the full copyright to all photos you contribute. Although digital images are preferred, we can also scan slides or prints

Lichens are a symbiosis of fungus and an algae



Types of lichens

Lichens: Types of Lichens

https staff.concord.org/~btinker/gaiamatters/investigations/lichens/typeslichens.html

Jepson eFlora | Vern DeWitt Routes | BBS > BBS Fi...es accounts | California M...lora genera | E-Flora BC: ...pecies Page | David and K...Hiking Page | Nightscape ...kvision.com | ArcGIS – Nor...ractive Map | SwedishMyC...Login Page | Northwest I...e Fire Maps | Chelan Coun... | Facebook | Day hikes i...ge, Montana | Smoke Forec...reSmoke.ca

Types of Lichens

Lichens Index

Lichen Growth Forms

Crustose

Crustose (crusty)

- edges flat, unlobed and closely attached to substrate
- hard to remove without damaging substrate or lichen
- algae usually dispersed
- edges unlobed (leprose and squamulose included here)

Foliose

Foliose (leafy)

- A sandwich of fungal layer with algal mat in middle
- circular growth, lobes
- small rootlets called rhizines attach it to substrate
- top and bottom layers different

Fructicose

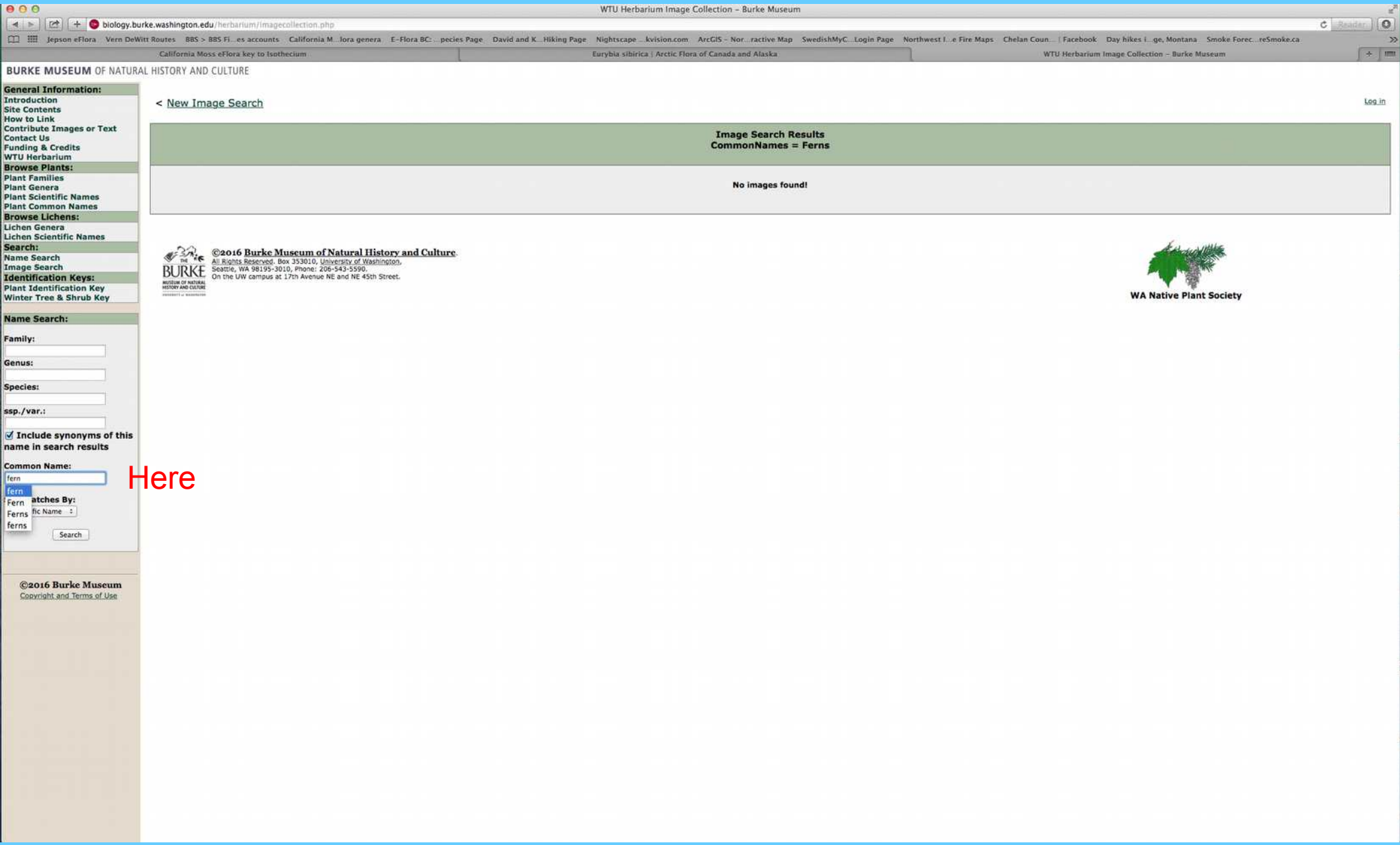
Fructicose (shrubby)

- round branches with its fungal layer outside, its algal layer within
- no rhizines
- vertical growth pattern
- odd-shaped structures such as globets; threads


Liverwort
Crustose
Fructicose
Foliose
Moss


Ferns

To find ferns on the Burke type “fern” in “Name search”



Here

Burke fern pages

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Plant Identification Key
Winter Tree & Shrub Key

Name Search:

Family:

Genus:

Species:

ssp./var.:

☑ Include synonyms of this name in search results

Common Name: fern

Sort Matches By: Scientific Name

Search

Log in

CommonNames = fern,

Displaying matches 1 - 42 of 42.

Aspidotis densa **(Indian's dream, Oregon cliff brake, podfern)** ✓
(= ***Aspidotis densa*** in Flora of the Pacific Northwest)
Distribution: British Columbia to California, east to Idaho and Montana
Habitat: Cliff crevices and moist, rocky slopes, foothills to near timberline, often on serpentine
Origin: Native

Athyrium alpestre **(American alpine lady fern)** ✓
Distribution: Alaska south to California, east to Newfoundland and Colorado.
Habitat: Open, rocky slopes and along streams at mid- to high elevations in the mountains.
Origin: Native

Athyrium filix-femina **(common ladyfern, northwestern lady fern)** ✓
(= ***Athyrium filix-femina*** in Flora of the Pacific Northwest)
Distribution: Circumboreal; throughout the Pacific Northwest
Habitat: Common in moist woods and meadows, low to mid-elevations
Origin: Native

Azolla filiculoides **(Pacific mosquito-fern, duckweed fern, large mosquito-fern)** ✓
(= ***Azolla filiculoides*** in Flora of the Pacific Northwest)
Distribution: Occurring on both sides of the Cascades in Washington; British Columbia south to California, east to Arizona.
Habitat: Ponds, backwaters, slow-moving streams
Origin: Native

Azolla mexicana **(Mexican mosquito-fern, Mexican water-fern)** ✓
(= ***Azolla mexicana*** in Flora of the Pacific Northwest)
Distribution: Occurring on both sides of the Cascades crest in Washington; British Columbia south to California, east to New Mexico and Colorado; disjunct populations in central U.S.
Habitat: Ponds and backwaters, mostly at low elevations.
Origin: Native

Blechnum spicant **(deer fern)** ✓
(= ***Blechnum spicant*** in Flora of the Pacific Northwest)
Distribution: British Columbia to California, chiefly west of the Cascades, occasionally to northern Idaho
Habitat: Wet areas in shade, sea level to mid-elevations
Origin: Native

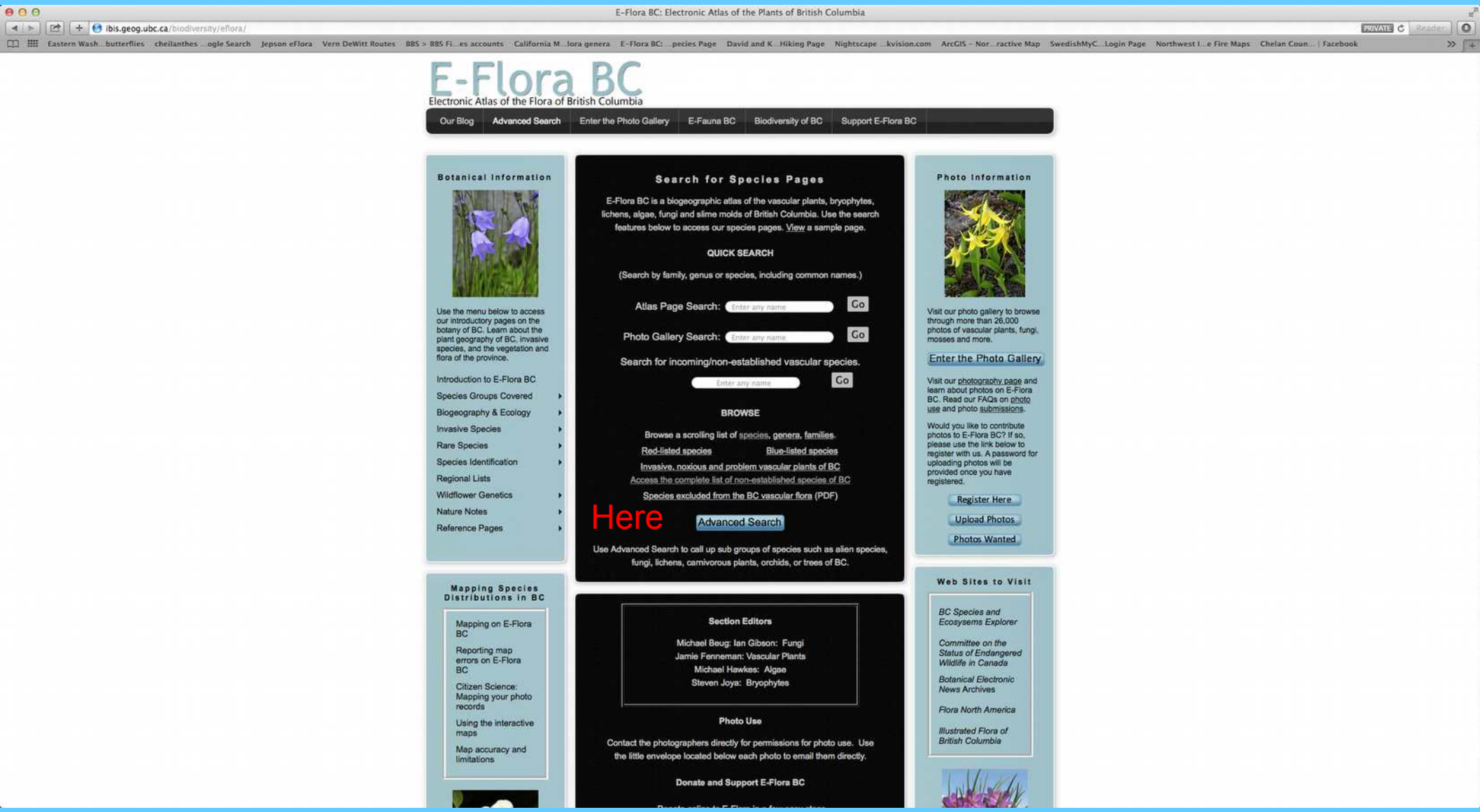
Botrychium lanceolatum **(lanceleaf moonwort, lanceleaf grapefern)** ✓
(= ***Botrychium lanceolatum*** in Flora of the Pacific Northwest)
Distribution: Circumboreal, extending south to southern Washington and Pennsylvania
Habitat: Moist or wet places in the mountains, occasionally to high elevations
Origin: Native

Botrychium lineare **(slender moonwort, narrowleaf grapefern)**
(taxon is not treated in Flora of the Pacific Northwest)
Origin: Native

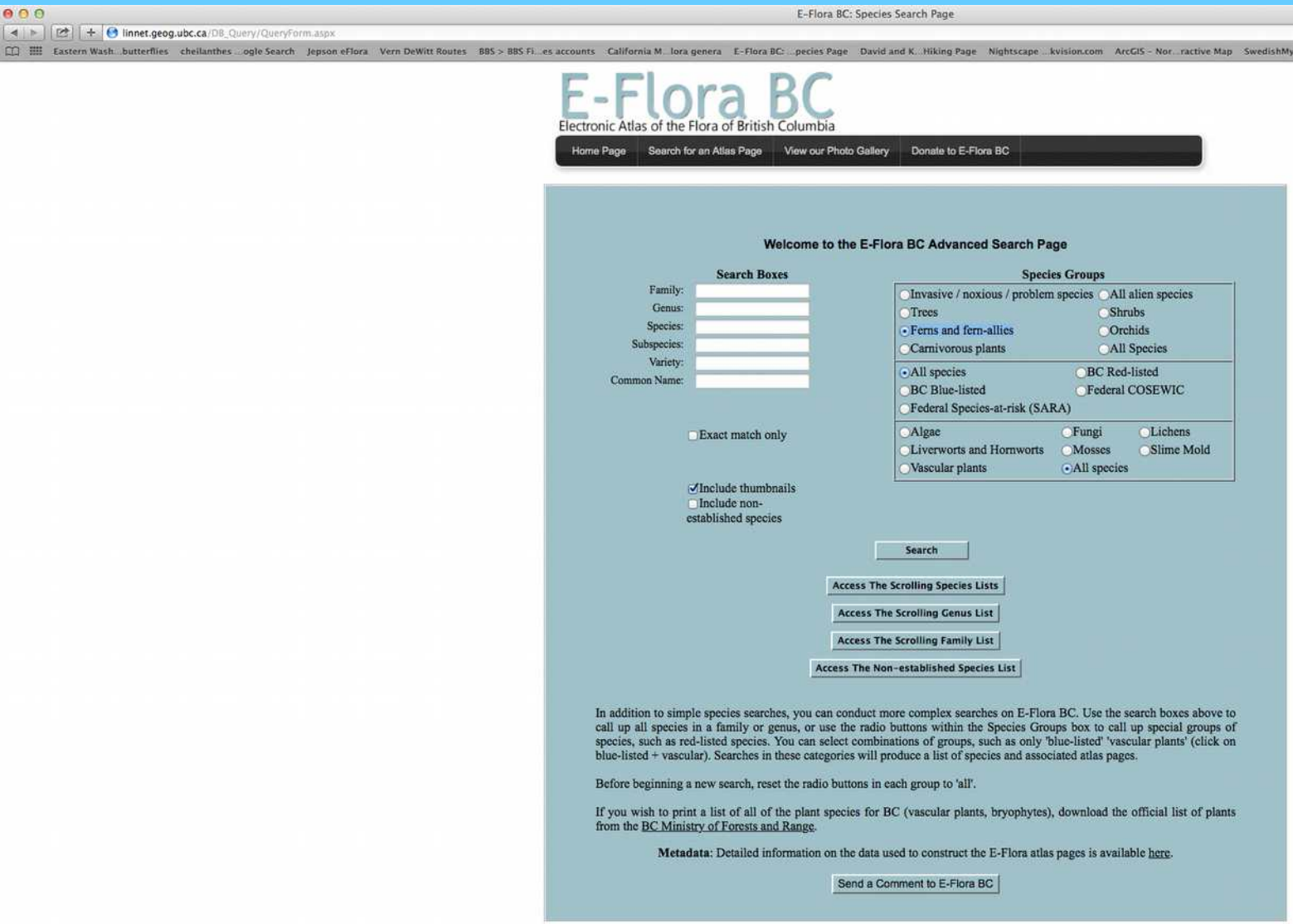
Botrychium virginianum **(rattlesnake grapefern, common or virginia grapefern)** ✓
(= ***Botrychium virginianum*** in Flora of the Pacific Northwest)
Distribution: Throughout the United States and Canada; chiefly in southern British Columbia and northern Idaho in the Pacific Northwest
Habitat: Moist woods and thickets, seldom in meadows, valleys to mid-elevations in the mountains
Origin: Native

Cheilanthes feei **(slender lipfern, Fee's lip fern)**
(= ***Cheilanthes feei*** in Flora of the Pacific Northwest)
Origin: Native

EfloraBC “Advanced Search”



Advanced search page, select ferns....or



Ferns and “Fern allies”

E-Flora BC: Species Search Page

linnet.geog.ubc.ca/D8_Query/QueryForm.aspx?__VIEWSTATE=%2FwEPDwULLTE2MjU4NzcyMjNkGAEFHI9fQ29udHJvbHN5ZXF1aXJlUC9zdEJhY2tLZXlfXxYEBQhjaGtFeGFjdAUIY2hrVGh1bWiFEWNoa05vbkVzdGFlbGIzaGVkBQhjaGt8dGxhc8Sd5ZLsV21c03zbdfYd3dDZBNrzpsKvfRe7Pq78iDcY&__VIEWSTATEGENERATOR=F43EC70C&__EV

Eastern Wash...butterflies | cheilanthes ...ogle Search | Jepson eFlora | Vern DeWitt Routes | BBS > BBS Fi...es accounts | California M...lora genera | E-Flora BC: ...pecies Page | David and K...Hiking Page | Nightscape ...kvision.com | ArcGIS – Nor...ractive Map | SwedishMyC...Login Page | Northwest I...e Fire Maps | Chelan Coun... | Facebook

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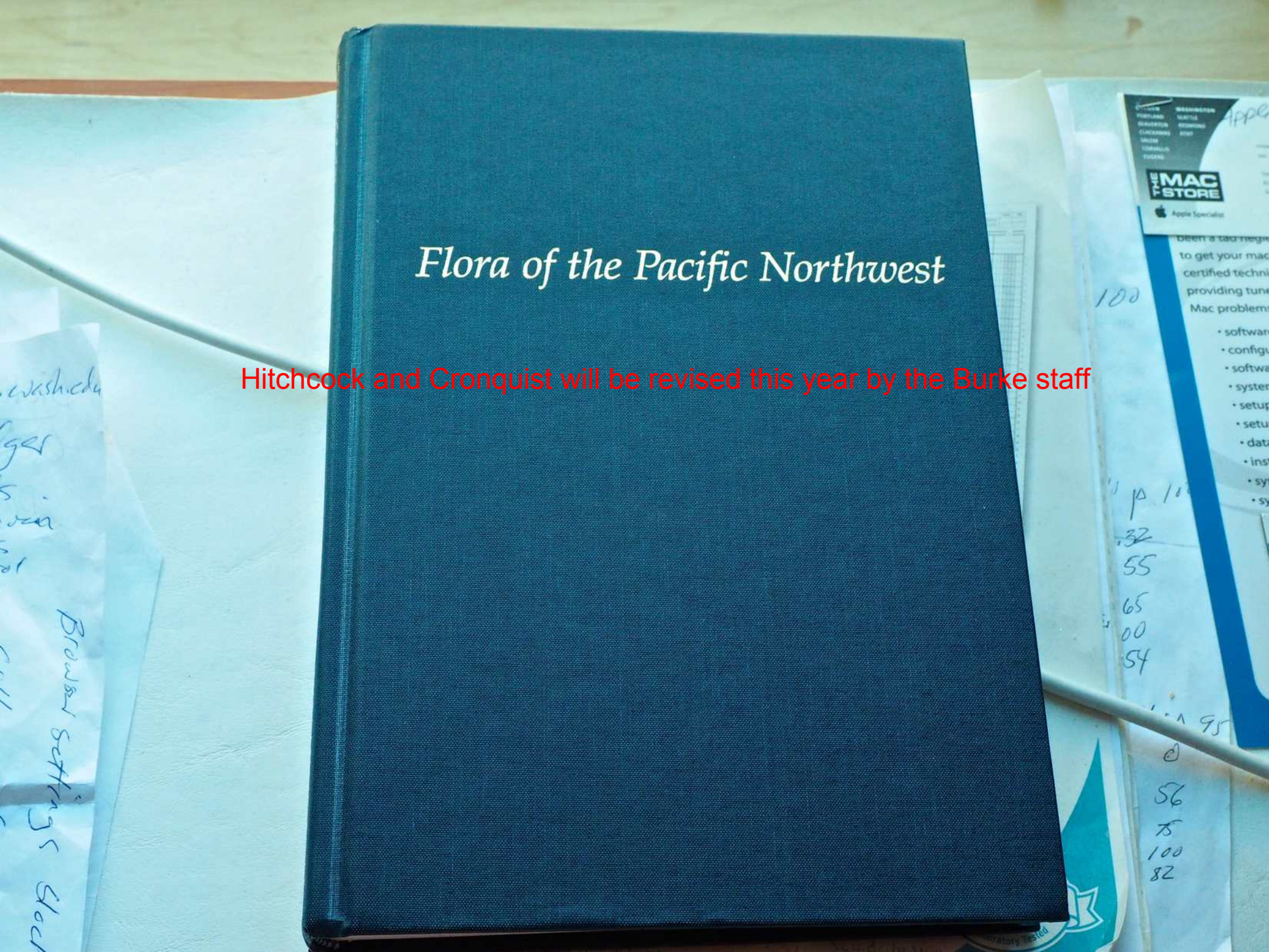
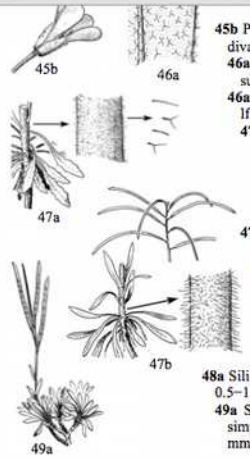
118 records--presented below--match your search criteria: Ferns and fern-allies.

To learn about the species lists used on E-Flora BC, click here. To sort columns, click on the column heading.

Do Not Show ThumbNails

Click on Thumbnails to Enlarge	Scientific Name	Family	English Common Name	Atlas Page
	*Adiantum aleuticum*	Pteridaceae	northern maiden-hair	View Atlas Page
	*Adiantum capillus-veneris*	Pteridaceae	southern maiden-hair	View Atlas Page
	*Aspidotis densa*	Pteridaceae	Indian's-dream	View Atlas Page
	*Asplenium adulterinum*	Aspleniaceae	corrupt spleenwort	View Atlas Page
	*Asplenium trichomanes*	Aspleniaceae	maidenhair spleenwort	View Atlas Page
	*Asplenium viride*	Aspleniaceae	green spleenwort	View Atlas Page


Flora of the Pacific Northwest
Hitchcock and Cronquist will be revised this year by the Burke staff



20 **B. pauciflora** (Nutt.) Windham & Al-Shehbaz

45b Peds glab or pubescent with simple and occ 2-rayed hairs; siliques ascending to divaricate-ascending, occ horizontal

46a Basal lvs with short-stalked hairs (stalk much < rays), rays ± parallel to lf surface (see lead 43a) 28 **B. divaricarpa** (A. Nelson) Á. Löve & D. Löve

46a Basal lvs with long-stalked hairs (stalk nearly = rays), rays spreading out from lf surface

47a St bases sparsely and finely pubescent with simple and 2-rayed hairs 0.1–0.2 mm; basal lvs dentate (entire), surfaces with hairs 0.1–0.2 mm, petioles gen not ciliate; petals deep reddish-purple (drying indigo), 7–9 × 1.5–2 mm; siliques strongly ascending; sagebr slopes to rocky summits; rare, endemic to e base Cas, Kittitas to Klickitat cos, WA, and Wasco Co, OR (*A. sparsiflora* var. *a.*) 30 **B. atrorubens** (Greene) Windham & Al-Shehbaz

47b St bases densely hirsute with simple and 2-rayed hairs 0.4–1.5 mm; basal lvs entire (dentate), surfaces with hairs 0.3–0.8 mm, petioles ciliate with gen simple hairs to 1 mm; petals lavender to reddish-purple (white); 7–13 × 2–5 mm; siliques ascending to spreading; grassl and sagebr slopes to open conif for, lowl to mont; c BC s, e Cas in WA and OR, to CA, e to ID, w MT, and UT; elegant r., sicklepod r. (*A. s.* var. *s.*) 31 **B. sparsiflora** (Nutt.) Dorn

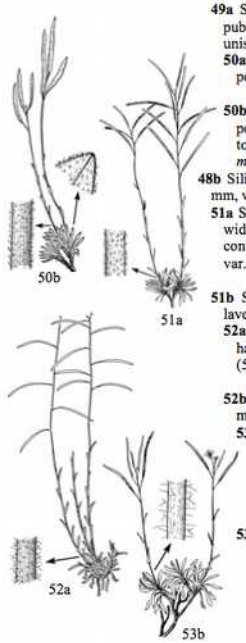
Group 3c

48a Siliques erect, gen appressed to rachis; seeds 1.5–2 mm, wing 0.3–1 mm wide; sts 0.5–1.5 (2) dm

49a St bases glab; basal lvs with the hairs confined to lf margins (where mostly simple or 2-rayed) or surfaces of young lvs on sterile shoots; petals 6–9 × 1.5–3 mm; siliques 1.5–2.5 mm wide; seeds biseriate to sub-biseriate (see lead 32a)

22 **B. lyallii** (S. Watson) Dorn

Hitchcock: dichotomous keys to all NW genera



49a St bases pubescent with simple and 2–4-rayed hairs; basal lvs all uniformly pubescent; petals 4–6 (7) × 1–2 mm; siliques 1.2–1.7 (2) mm wide; seeds uniseriate (sub-biseriate)

50a Seeds 1.1–1.3 mm, with wing ≤ 0.1 mm wide; ovules 58–80 per ovary; fr peds ascending, the siliques gen not appressed to rachis (see lead 53a)

34 **B. cascadensis** Windham & Al-Shehbaz

50b Seeds 1.5–2 (2.5) mm, with wing 0.3–1 mm wide; ovules 24–40 per ovary; fr peds erect, the siliques gen appresssed to rachis; rocky slopes and talus, subalp to alp; rare in our area, WA to CA, e to ID and WY (*A. lyallii* var. *nubigena*, *A. microphylla* var. *n.*) 32 **B. paupercula** (S. Watson) Windham & Al-Shehbaz

48b Siliques ascending to divaricate-ascending, not appressed to rachis; seeds 1–1.5 mm, wing 0.05–0.15 mm wide; sts 0.5–3 (3.5) dm

51a St bases pubescent with short-stalked 2–6-rayed hairs only; petals 0.5–0.8 mm wide, lavender; caudex simple or few-br; rocky areas among sagebr and open conif for, mont to alp; c ID e to Beartooth Mts, MT, and n WY (*A. microphylla* var. *s.*); apomictic hybrid, parents unknown

33 **B. saximontana** (Rollins) Windham & Al-Shehbaz

51b St bases pubescent with simple and 2–3-rayed hairs, or nearly glab; petals lavender to purple

52a Petals 0.5–0.8 mm wide; sepals pubescent; peds pubescent (glab) with br hairs; siliques 0.8–1.2 mm wide, ascending to descending; sts 2–3.5 dm, with (5) 9–16 st lvs; RM from se BC to nw WY (see lead 28a)

19 **B. macounii** (S. Watson) Windham & Al-Shehbaz

52b Petals 1–2 (3) mm wide; sepals glab or pubescent; peds glab; siliques 1–1.5 mm wide; sts 0.5–3 (3.5) dm, with 2–6 st lvs

53a St bases with 2–3-rayed and few simple hairs 0.1–0.2 mm; basal lvs 0.7–2 mm wide, surfaces with 2–6-rayed hairs to 0.2 (0.3) mm; seeds with continuous wing; basalt cliffs and slopes, subalp; rare, known only from type locality in Kittitas Co, WA, and from Baker Co, ne OR (*A. microphylla* var. *thompsonii*); apomictic hybrid apparently derived from *B. microphylla* and *B. paupercula* 34 **B. cascadensis** Windham & Al-Shehbaz

53b St bases with simple and a few 2-rayed hairs 0.3–0.6 mm, or occ subglab; basal lvs 1–4 (6) mm wide, surfaces with 4–8-rayed hairs to 0.1 mm; seeds with terminal wing; cliffs and rocky slopes, low mont to subalp; BC to nc and e OR, e to MT, WY, and UT; littlelf r. (*A. m.*)

35 **B. microphylla** (Nutt.) Dorn

Brassica L. Mustard; Cabbage

Racemes corymbose, ebracteate; petals pale to bright yellow (ours), occ white; siliques linear, subterete or ±

***Boechera sparsiflora* (sicklepod rockcress):** From sagebrush plains to forest openings and meadows at moderate elevations.

Photo: Snow Mountain Ranch Rocky Top TH

General and stem: (Schlicter): Sicklepod rockcress has one to several upright, simple to branched stems arising **30-100 cm** from a rosette of basal leaves. **Densely pubescent below with simple to branched, star-shaped hairs. Glabrous or sparsely pubescent distally.**

Basal leaves: The numerous basal leaves are oblanceolate in shape, 2 to 9 cm in length and 2 to 8 mm wide. The margins are usually entire to several-toothed (Basal leaves entire Schlicter) and the blades are finely to coarsely haired and ciliate on the pedicels. The basal leaves narrow to a slender petiole.

Moss Flora of the Pacific NW by Elva Lawton

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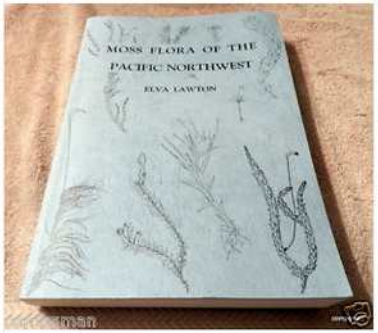

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