

Bulletin

of the

Native Plant Society of Oregon

Dedicated to the enjoyment, conservation and study of Oregon's native plants and habitats

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JULY 2016

Whites in the Minority

Story and photos by Peter Lesica, Clark Fork Chapter

This article originally appeared in the Fall 2015 issue of *Kelsey*, the newsletter of the Montana Native Plant Society. Color photos are available in the online Bulletin at npsoregon.org/publications.html

Seems like almost every year someone I know will excitedly tell me that they saw a white shooting star or a white lupine. Of course I'm too jaded to get as excited as they are, but the occurrence of albino flowers does raise some interesting questions. Why is it that albino morphs usually occur in blue- or pink- or red-flowered species, but rarely occur in yellow-flowered

plants? And why is it that for some species the white-flowered forms are always rare, but in other cases they can become quite common or even dominant? The answer to the first question is pretty straightforward but not so for the second one.

The blue, red, pink or purple color of flowers is the result of pigments called anthocyanins, which are manufactured by plants from flavonoids. When one of the genes that contributes to the production of these anthocyanins becomes mutated, the flowers are white instead of colored. Sometimes the occurrence of white-flowered forms relates to pollination. In this case, white- or blue/red-colored flowers

dominate in different populations. For example, Rocky Mountain columbine (*Aquilegia coerulea*) is commonly blue in the central Rocky Mountains, where it is most often visited by bumblebees. However, white-flowered forms, like those found in Montana, are thought to be pollinated more by hawk moths, which are attracted to the lighter-colored flowers. Mathew Streisfeld and collaborators studied the red and whitish forms of orange monkeyflower (*Mimulus aurantiacus* [now *Diplacus aurantiacus*]) in California. They found that a single gene was responsible for the difference in flower color, and that the two forms had different pollinators. They suggest that the two forms are on their way to becoming two different species because interbreeding is unlikely when different insects are attracted to the different forms.

Pollinator preference is not always the explanation when different flower colors are both common.

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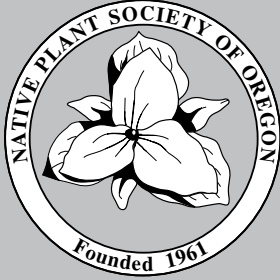


PETER LESICA

Many populations of shooting star (*Dodecatheon conjugens*) include albino plants.

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Native Plant Society of Oregon

World Wide Web

<http://www.NPSOregon.org>

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To join, send a message to majordomo@tardigrade.net, with the following in the body of the message: `subscribe npsos`

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Opinions expressed in this publication are those of the authors of the articles. They do not represent the opinions of the Native Plant Society of Oregon, unless so stated.

Candidate for NPSO State Secretary

Steven Yeager (Emerald) is originally from Philadelphia. Steven moved to the Pacific Northwest in 1994 and has been rooted in Eugene ever since. He began exploring Oregon's wild places and studying the Pacific Northwest's native flora in 1995. Steven is co-owner of the Columbines School of Botanical Studies in Eugene. Columbines offers a unique educational program focusing on community herbalism, including a heavy emphasis on botany that covers plant terminology and using taxonomic keys, ecology, and ethnobotany. He also is the QA/QC director at Mountain Rose Herbs and is responsible for the proper identity of their botanical products. Steven currently serves as NPSO Emerald Chapter President and is on the Boards of United Plant Savers and American Herbal Products Association Foundation for Education and Research on Botanicals.

Voting for this position will take place at the Annual Meeting banquet.



New Corvallis Chapter President

Please welcome Judi Sanders as the president of the Corvallis Chapter. Judi has been an active NPSO member for several years, from serving as state president to coordinating Native Plant Appreciation Week to working on *Arundo donax* legislation, and more. Thank you to Jordan Brown for serving as chapter president the past couple of years.



NPSO Petitions for Rare Plants

by *Olivia Duren*

Any concerned Oregon resident can petition to list (or delist) native plant species on the state's threatened and endangered plant list. NPSO members from the Portland, Corvallis, High Desert, and Siskiyou Chapters recently took advantage of this opportunity and submitted petitions to increase protection for four of our rare plant species.

The threatened and endangered plant list, maintained by the Native Plant Conservation Program of the Oregon Department of Agriculture (ODA), is an important tool for protection and management of listed plants on Oregon's non-federal public lands. Citizens are welcome to submit scientific evidence of increasing or decreasing threats to native species that justify amendments to this list. Species that are most appropriate for listing are native to Oregon and rare throughout their range, face threats to natural reproduction potential or habitat, and are inadequately protected by existing state or federal programs or regulations. While a plant must meet certain criteria to be considered for listing (as described in Oregon

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NPSO CALENDAR

State Notes

NPSO Annual Meeting 2016

July 15-17, Friday-Sunday

Emerald Chapter will host the 2016 NPSO Annual Meeting on a private forested 46 acre property near the majestic McKenzie River, a fifty-minute drive from Eugene. McKenzie River Conference Center, Rainbow, Oregon. A state board meeting will be held on Sunday. Visit the Annual Meeting website, emerald.npsoregon.org/2016mtg, for the latest information.

Blue Mountain

For information on Blue Mountain Chapter call Jerry Baker, 541-566-2244. To get on our email list, contact flora.id@wtechlink.us.

Cheahmill

For questions, or to be added to the Cheahmill Chapter's email list for reminders of upcoming programs and events, please contact the Cheahmill Chapter President at ch_president@NPSOregon.org.

Meeting and work party location:

Carnegie Room, McMinnville Public Library, 225 NW Adams St. (corner of Highway 99W and SW Second St.), McMinnville, Ore. 97128. Parking lot entrances on Adams and Second streets. Meetings start at 7 pm. Doors open at 6:45 pm. for socializing.

July 23 and August 27, Saturdays, 10 am-noon

Work Party: Native Plant Garden.

Join NPSO volunteers tending the native plant garden at McMinnville Public Library. Dress for the weather and bring gloves and gardening tools if possible. No experience is necessary; the garden is a great place to get more familiar with local native species. Location: McMinnville Public Library, see above for details. For more information, contact Susan Williams at helgesusan@comcast.net or 503-538-1865.

Corvallis

For questions, information on upcoming events, or to be on the Corvallis chapter e-mail list, contact co_president@NPSOoregon.org.

July 7, Thursday, 1-5 pm

Open House: National Germplasm Repository. The U.S. Department of Agriculture, Agricultural Research

Service will host an open house. Come see 350 different types of blueberries. You can taste more than 100 different blueberry varieties and see the field collection of northern and southern highbush blueberry, lowbush blueberry, half-highs, and the rabbiteye cultivars, among other species from around the world. Location: 33447 Peoria Road, Corvallis.

July 9, Saturday, 8 am

Field Trip: Iron Mountain and Cone Peak. Hike the Iron Mountain Cone Peak loop, identifying wildflowers in this botanical hotspot. We will return in the late afternoon. Bring a lunch and water, dress for the weather, and wear sturdy shoes. Location: meet at the OSU Wilkinson Hall parking lot southwest of the Beanery at 26th and Monroe. For more information and to RSVP, contact Dan: 541-752-8860 or luomad@fsl.orst.edu.

July 10, Sunday, 10 am-noon

Work Party: Avery House. Come and help with summer clean-up at the Avery House native plant garden. Bring gloves, clippers, trowel, and a bucket. Contact Esther for more information at 541-754-0893 or estherco@peak.org.

July 16, Saturday, 9 am-noon

Field Trip: Backcountry of Bald Hill Farm. Matt Blakeley-Smith will take us to parts of Bald Hill Farm that are not open to the public. We will explore the hidden corners of the property for milkweed patches and monarch butterflies. This is a rugged off trail hike of about 3 miles that may involve some bush whacking and jumping over creeks. Location: meet at the coffee stand at the Benton County Fairgrounds, 53rd and Reservoir Ave. For more information, contact Matt Blakeley-Smith, mattbs296@gmail.com or 541-231-9861.

Emerald

Visit the Emerald Chapter Web site at <http://emerald.npsoregon.org> to learn more about the latest chapter events, plant lists & botanical information about Lane

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips take place rain or shine, so proper dress and footwear are essential. **BRING WATER AND LUNCH.** Trips may be strenuous and/or hazardous. Participation is at your own risk. Be prepared to sign a release form indicating this. A sample waiver form is available at http://npsoregon.org/documents/NPSO_waiver.pdf. Please contact the trip leader or chapter representative about difficulty, distance, and terrain to be expected on field trips. Dogs are not allowed. All NPSO field trips are open to the public at no charge (other than contribution to carpool driver) and newcomers and visitors are always welcome. You must pre-register for all events. National Forests require a Northwest Forest Pass for some field trip locations. Permits can be acquired at forest headquarters and ranger districts.

NOTICE TO FIELD TRIP CHAIRS AND LEADERS

The Forest Service and other agencies have set policies limiting group size in many wilderness areas to 12. The reason is to limit human impacts on these fragile areas. Groups using wilderness areas should be no larger than 12. A trip leader checklist and sample waiver form are available at: <http://npsoregon.org/calendar.html>

County plants & the people who love them.

Meeting Location: Conference Room at Lane County Mental Health, 2411 Martin Luther King Blvd. Turn off MLK Blvd. onto Scout Access Rd. across from Autzen and take the first left into the parking lot. The meeting room is on the right side as you face the building.

July 9, Saturday, 9 am-4 pm

Field Trip: Upper Elk Meadows. Alan Curtis leads this hike, located 30 miles from Cottage Grove. Elevation is 4,000 ft. Over 200 species of vascular plants have been identified here. We expect to see *Fraseria umpquaensis* and several orchid species. Surrounding the meadow is an old-growth forest of *Abies amabilis*, *Abies grandis*, and *Pseudotsuga menziesii*. We will walk 1.5 miles through moist meadow. Wear boots and bring lunch and water. Location: meet at South Eugene High School at 19th and Patterson. For more information call 541-345-5531.

July 23, Saturday, 8:30 am

Field Trip: South Jetty Dunes. Ed Alverson will lead an exploration of coastal dune habitats just south of Florence. In the morning we will visit South Beach Park, a 300 acre undeveloped Lane County Park with extensive dune and deflation plain communities, to develop a plant list. An optional afternoon hike will visit a nearby site on U.S. Forest Service land to look for an adder's-tongue, *Ophioglossum pusillum*, population that was last observed in the 1990s. Each hike will be about 2 miles round trip. Location: meet at South Eugene High School at 19th and Patterson to carpool. For more information, call Ed Alverson at 541-461-1958.

Filipendula

This is a newly formed chapter for the northern Oregon coast area. For more information, visit our Facebook page: NPSO-Filipendula Chapter, or contact Field Trip Chair Carla Cole, colecarla@yahoo.com.

July 9, Saturday, 9 am

Hike: Saddle Mountain. Join us for an exploration of the diverse habitats found on the tallest mountain in

Clatsop County. Coniferous forests with *Abies amabilis*, *A. grandis*, *A. procera*, and *Taxus brevifolia*; riparian zones, seeps, meadows, talus slopes, and a summit rock garden. Saddle Mountain supports high species diversity, endemics (e.g., *Micranthes hitchcockiana*), and species at their northern (e.g., *Cardamine californica*), southern (e.g., *Geum triflorum* var. *ciliatum*) and western (e.g., *Anemone multifida*) range limits. The trail climbs 1600 ft. in 2.5 miles for a strenuous 5 mile round trip, but at a botanist's pace we won't cover the whole trail. Location: meet at the Saddle Mountain trailhead off Highway 26 at 9 am. Contact Carla Cole at colecarla@yahoo.com to register and if interested in carpooling. The hike will be limited to 12 participants.

High Desert

For information, visit the High Desert Chapter website: www.highdesertnpsoregon.org and Facebook page: Native Plant Society of Oregon: High Desert Chapter, or email highdesertnps@gmail.com.

August 10, Wednesday

Field Trip: Fen Exploration with Rick Dewey. We will explore a fen on the Soda Creek drainage with Rick Dewey, the Forest Service's bryophyte (moss) expert and wetland enthusiast for the entire Pacific Northwest. Fens are rich in biodiversity and Rick is loaded with information. Come appreciate the minutia and learn about this unique habitat. A hand lens and rubber boots are recommended. Check our website (www.highdesertnpsoregon.org) for details.

August 20-21, Saturday-Sunday, 9 am-4:30 pm

Class: Botanical Illustration. Learn botanical illustration with local artist Rebecca Brown-Thompson in her studio. You can take one or both classes. Saturday: field sketching class. Learn drawing techniques with an emphasis on plant illustration. \$25 material fee. Sunday: color class. Watercolor painting and colored pencil techniques and color mixing. \$35 material fee. Some drawing experience (i.e. the field sketching class) is required for the color class. Check our website (www.highdesertnpsoregon.org).

org) for details and registration.

Klamath Basin

For information on the Klamath Basin Chapter, visit <http://klamathbasinnps.com> or contact the chapter president, Kim Elliott, kb_president@NPSOregon.org. 252.

Mid-Columbia

For information on the Mid-Columbia Chapter, contact Sara Wu at mc_president@NPSOregon.org.

The Mid-Columbia Chapter will be in the field for the summer, so no meetings will be held until our September program. Happy botanizing until then.

Portland

If you would like to receive the chapter's semi-official email newsletter, The Calochortus, email Don Jacobson at donjphoto@gmail.com.

Facebook: Take a look at our Facebook page. Native Plant Society of Oregon-Portland-Chapter. It will have the most up-to-date information on hike and other events as well as great plant pictures.

Meeting Location: The Portland Chapter meets the second Thursday of most months. Since January 2016 we have been meeting at TaborSpace in Mt. Tabor Presbyterian Church, 5441 SE Belmont St., Portland, 97215. Enter the church through the main door off Belmont and turn right to enter Copeland Commons. Parking is available in the church lot on the NW corner of SE 54th and Belmont. Meetings and programs begin at 7:00 pm.

August 6, Saturday, 8 am

Field Trip: Silver Star Mountain. The rocky soil and open meadows of Silver Star Mountain offer subalpine and alpine wildflowers not usually seen at this low (4,390 ft.) elevation. Climbing higher takes us back in time to earlier spring flowers, including *Xerophyllum tenax*, *Calochortus subalpinus*, *Erythronium montanum*, *Lewisia columbiana*, *Ligusticum grayi*, and five penstemon species. The summit view offers five-volcanoes, the Columbia River, and

Vancouver and Portland. This moderate hike is 5.6 miles round trip with a 1240 ft. gain along a high ridge. Hiking boots and poles recommended, bring lunch, water, binoculars, etc. For more information and to sign up, contact Ginny at Maffitt6540@comcast.net and include a cell phone number for the hike day.

September 8, Thursday, 7 pm

Program: Conservation and Johnson Creek. Noah Jenkins, riparian program manager of the Johnson Creek Watershed Council, will discuss native wetland plants, removal of invasive vegetation, and the conservation efforts at Johnson Creek Watershed. Location: Copeland Commons at TaborSpace, Mt. Tabor Presbyterian Church, 5441 SE Belmont in Portland. Contact: Mary at alphiesmith@comcast.net or 503-288-4340.

Siskiyou

To join the Siskiyou Chapter email list: Send an email, from the address at which you want to receive announcements, to announce-join@siskiyou.npsoregon.org. No subject or message is required. You will get a confirmation email. If you would like to volunteer to lead a hike in 2016, make a suggestion, or provide feedback regarding the field trip program, please contact Julie Spelletich at: jspelletich@gmail.com. Join us on Facebook at: [facebook.com/SiskiyouChapterNativePlantSocietyOfOregon](https://www.facebook.com/SiskiyouChapterNativePlantSocietyOfOregon).

July 10, Sunday, 8:30 am

Field Trip: Cook and Green Pass Botanical Area. We will visit Elk Meadow Basin in the California portion of the Applegate watershed. Focus of the trip is the flora and a unique wetland. Brewer's spruce, Baker's cypress, azaleas, Wiggins' lily, California ladyslipper orchids, Newberry's gentian, Klamath Mtn. serpentine endemics, etc. Cross-country hiking with lots of elevation gain and loss but not too brushy. Plan on a long day. Location: rendezvous and carpool in the large public parking lot at the west end of West D St. in Jacksonville, Oregon. Call trip leader Wayne Rolle, 541-482-0093, for more information. Folks coming from other locations may call the trip leader to arrange additional rendezvous points.

July 30, Saturday, 10 am

Field Trip: Crater Lake National Park. We will visit Poison Meadows on the western boundary of the Park. Join Jennifer Beck, Crater Lake National Park botanist, for a moderate off trail hike on rolling terrain through forest stands and meadows. We will see a variety of plants, including Mt. Mazama (*Collomia mazama*), leather grape-fern (*Sceptridium multifidum*), and mountain owl clover (*Orthocarpus imbricatus*). Bring lunch, hat, and sunscreen. Location: meet at the junction of Deer Creek Road (NF 6260) and Highway 62 (just east of the junction of Highways 62 & 230). Dirt road drive to hiking spot is 30-45 minutes. For more info, contact jspelletich@gmail.com.

South Coast

This is a newly formed chapter. For more information, contact the chapter president, Alexis Brickner, sc_president@NPSOregon.org.

Umpqua Valley

Visit umpquavallemnativeplants.com for more information on chapter activities or to be added to our email list. Check out our Facebook page, www.facebook.com/UmpquaValleyNPSO. Not online - call Donna Rawson 541-459-2821.

August 11, Thursday, 7 pm

Presentation: Restoring the Monarch Butterfly with Native Plants. The monarch butterfly, which migrates thousands of miles and has traditionally flourished throughout much of North America, including here in Oregon, is in decline. Tom Landis, retired U.S. Forest Service nursery specialist, will share the current situation of this butterfly and discuss its primary host plant, the milkweed, and the other important nectar plants (ones you can grow in your yard) that help support the butterfly. Find out what we can do to help reverse downward population trends for this impressive species. Our chapter has *Asclepias speciosa* seed to give away. Refreshments will be served. Location: Mercy Community Education Center, 2459 Stewart Parkway, Roseburg.

Willamette Valley

For program information, contact John Savage at 503-399-8615 or Alexandra Ninneman at 503-391-4145.

July 3, Sunday, 7 am-5 pm

Field Trip: Iron Mountain. Enjoy one of the best wildflower hikes in Oregon. Iron Mountain (near Sweet Home) has over 300 different species amid stands of trees and meadows. John Savage of the Willamette Valley Chapter will lead the all-day hike over a seven-mile loop with elevation gain. Bring food and water. Free and open to the public. For more information and to register, call John Savage at 503-399-8615 after 7 pm.

William Cusick

Visit our Web site at <http://williamcusick.npsoregon.org> or contact Susan Geer at 541-963-0477 or Emelie Montgomery-Jones at 541-963-3339 for updates and general information. Chapter notices and communications are done primarily through a Google group. Members are reminded to contact Susan or Emelie if they want to be added to the Google group, or if they do not have internet access and want to be contacted by phone for events.



Rare Plants, *cont'd*

Administrative Rule 603-073), the petition process is meant to be accessible to any knowledgeable plant enthusiast.

NPSO volunteers each chose their favorite rare plant from a list whittled down to the most deserving candidates by botanists at the Oregon Biodiversity Information Center (ORBIC). After gathering the required information and making our best case, we traded petitions for peer review and finally submitted petitions for Acker Rock wild buckwheat (*Eriogonum villosissimum*), a recently described narrow endemic found on rock outcrops near Crater Lake; fragrant kalmiopsis (*Kalmiopsis fragrans*), a shrub associated with steep rocky slopes in the southern Cascades; Ochoco lomatium (*Lomatium ochocense*), a newly described endemic to lava tablelands in the Ochoco Mountains; and sessile mousetail (*Myosurus sessilis*), a tiny annual obligate of vernal pools mostly known from Oregon's Columbia Basin as well as from California.

ODA staff has 90 days from submittal to assess petitions and decide whether or not there is enough scientific evidence to proceed. Petitions without enough evidence are dismissed, while those that are substantiated go on to a detailed two-year review to determine listing of the plant as threatened, endangered, or unlisted. We are happy to report that all four of our petitions were successful in clearing the first hurdle, and are now undergoing in-depth review!

Staff at ODA's Native Plant Conservation Program, together with many collaborators, recently began a major review of Oregon's threatened and endangered plant list that includes consideration of new species to be added, as well as species to be dropped. While new petitions for amending the list are welcome any time, those submitted before the end of 2016 will be particularly helpful to this effort. If you are interested in developing a petition, please contact Olivia Duren at olivia-duren@gmail.com for ideas of the best candidate species, as well as a petition template and information resources.

New NPSO Members

Please welcome these new members who joined NPSO between January 11, 2016 and June 12, 2016

Cheahmill

Alexander Petit

Corvallis

Gail Arbenbright
Kimberly Conley
Ann Geyer
Michael Gough
Richard Little
Gary Radice
Cindy Sagers
Isaac Sandlin
Zak Weinstein

Emerald

Heron Brae Botanical Studies
Anna Bradley
Keiko Bryan
Joshua Caraco
Emily Dinan
Patty Driscoll
Barbara Dumesnil
Chuck Gibson
Robert Ivey
Theodora Jaster
Richard Lemon
Brianna McTeague
Johanna Schmitt
Bud Taylor

Filipendula

Vanessa Garner
Claudia Rosenthal
Brooke Stanley
James Thompson
Catherine Varing

High Desert

The Garden Specialist
Ruth Bucklin
Sarah Canham
Judith Foster
Lisa Foster
Irv Givot
Patricia Green
Virginia Harmon
Suzanne & Greg Johannsen
Emilie Marlinghaus
Lori L. Neal
Jake Ringold
Tina Smith
William & Frances Tweed
Gerhard Weber
Krista Winchell
Cindy Zalunardo

Klamath Basin

Jan Goodyear

Members At Large

Judy Bevington
Alexa DiNicola
Forrest Pierce

Mid-Columbia

Izzy Baptista
Louise Sargent

Portland

Robin Albrecht
Amber Ayers
Deborah Baker
Reid Bramble

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Share Your Annual Meeting Photos and Stories

Are you ready for this year's Annual Meeting in the McKenzie River area? Perhaps you will see all eight of the area's *Castilleja* species on field trips, catch up with old friends, or volunteer to help the event run smoothly. After the Annual Meeting, you are invited to gather your memories into text, photos, or illustrations and share them in the *Bulletin*. The October issue will feature an Annual Meeting recap from the Emerald Chapter and members like you. Please submit your articles and/or high resolution images (minimum of 120 dpi) to bulletin@NPSOregon.org by September 10.

New Members, *cont'd*

Elizabeth Brewster
 Dennis Brown
 Kim Brown
 Heather Buley
 Carolyn Caldwell
 Wing S. Chan
 Darlene Chirman
 Thomas James Dee
 Marci Degman
 Sheila DeLaquil
 Weina Dinata
 Matt Erickson
 Verleen Fletcher
 Zeph Friedman-Sowder
 Jerilyn Gauthier
 Sara Geonczy
 Toni Gonzalez
 Christina Gullion
 Andrea & Ted Heid
 Melissa Jackson
 Lillian & Jericho Knight
 Wendy & Robert Lee
 Jan Lopez
 Daniel Mathews
 Angie Neff
 Antonya Pickard
 Kevin & Emily Schoenfelder
 Karen Schwartz
 Mike & Laurie Skinner
 Elizabeth Stiles
 Margie Willis
 Beryl Woodward

Siskiyou

Tony Alexander
 Kim Chignell
 Wendy J. Gere
 Bonnie Johnson
 Peggy Martin
 Goly Ostovar
 Joan Rowe

Umpqua Valley

Michael & Madalyn Dixon
 Laurel Fisher

Willamette Valley

Mahonia Nursery
 Zena Learning Center LLC
 Richard Jorgensen
 Sharon & John Krimmel
 Matthew Palmquist

Whites, *cont'd*

Sandblossoms (*Linanthus parryae*) is an annual of the Mojave Desert with blue and white color forms. Some locations have a preponderance of white-flowered plants, but just a little ways away the blue-flowered form predominates. Doug Schemske and Paulette Bierzychudek examined one such site and found strong evidence that different plant communities with different soils supported different color forms in spite of the fact that they were in close spatial proximity. They were unable to pinpoint the exact mechanism, but it must have been some trait(s) that was connected to flower color rather than the flower color itself.

Missoula phlox (*Phlox kelseyi* var. *missoulensis*) occurs on the hills immediately north of Missoula. Plants with deep blue or white or intermediate flowers occur together. It was assumed that flower color affected pollination, but Lisa Campbell, a graduate student at the University of Montana, spent many hours observing all the different color forms and found that the same insects in equal numbers visited all the forms, and there was no difference in seed set. In this case it appears that flower color has little bearing on survival or reproductive success, just like

eye color in humans.

White and colored flowers may both be common in some species, but more often than not albino forms are rare throughout a plant's range. So what's with that? People often assume that albinos are rare because they lose their pollinators. For example, a common species of larkspur (*Delphinium nelsonii*) is ordinarily blue, but rare white-flowered plants occur near Rocky Mountain Biological Lab in Colorado. Experiments conducted by Nick Waser and Mary Price showed that white-flowered plants produced very few seeds because the primary pollinators, hummingbirds and bumblebees, discriminated against them.

However, pollination is often not involved in albino rarity because anthocyanins do more than just color the flowers. They occur throughout plant tissue and have been shown to protect the leaves and stems from damage by too much solar radiation. Anthocyanins and especially their flavonoid precursors also help protect plants against diseases and insect pests. So anthocyanins and the genetic machinery that make them have a number of functions besides just coloring the flowers and helping attract pollinators, although this is probably what is most noticeable

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Rare albino Lewis monkeyflower.

PETER LESICA

Whites, *cont'd*

to us. This situation, when a single gene or gene complex influences more than one trait, is called pleiotropy, and it is the overarching reason that albino plants are rare in most populations, although the details vary among species.

Drummond's phlox (*Phlox drummondii*) is a pink- or red-flowered species endemic to Texas with rare white-flowered forms occurring sporadically. Donald Levin and his collaborators found that albino plants were visited as often by their insect pollinators as were their pink-or red-flowered neighbors. However, white-flowered plants produced fewer flowers and had much lower survivorship, and the researchers found that the loss of the gene that produced pink or red flowers also made the plants less able to cope with dry conditions that can be common in Texas.

Northern wallflower (*Parrya nudicaulis*) is a mustard that is common in Alaska. The flowers are usually purple. White-flowered plants do occur, but they are more common in the southern part of the state and virtually non-existent in the north. Researchers found that the same biochemical pathway that produces the purple pigment also enhances cold tolerance. For this reason white-flowered plants can persist in the warmer parts of the state (if any parts can be said to be warm), but do not occur where it is colder.

John Warren and Sally Mackenzie studied five species of British plants that have both bluish and whitish color forms. They found that blue-flowered plants performed better under drought-induced stressful conditions. They surmised that the flavonoids and anthocyanins, which are anti-oxidants and were lower in white-flowered plants, helped the blue-flowered plants overcome stress.

It's a complex world out there. That little albino flower you found could be suffering from lack of pollination or cold or drought or some disease. Perhaps you should take your little white buddy to the natural food store nearest you and get her some

antioxidants. She'll thank you for it.

Further reading

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- flower color in the desert annual *Linanthus parryae*: was Wright right? *Evolution* 61: 2528-2543.
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PETER LESICA

A completely albino population of lupine (Lupinus argenteus) near Hot Springs, MT

NATIVE PLANT SOCIETY OF OREGON MEMBERSHIP FORM

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Check to receive electronic *Bulletin*, sent by email in lieu of paper.

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NATIVE PLANT SOCIETY OF OREGON

Send completed form and full remittance to:

Native Plant Society of Oregon

P.O. Box 80714

Portland, OR 97280

DUES include monthly *Bulletin* and *Kalmiopsis* when published.

Membership is for the calendar year. New memberships enrolled after July 1 include the following year.

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Student – \$12 Regular – \$25 Family – \$35

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Membership in the Native Plant Society of Oregon is open to all.

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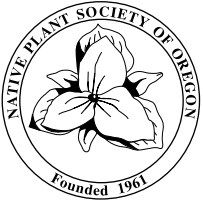
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Friends of the Oregon Flora Project

Version 1.6 of the Oregon Vascular Plant Checklist has been recently published on our website.

Some highlights from this important milestone for plant nomenclature:

- There are 4,620 species, subspecies and varieties of vascular plants in Oregon
- 231 changes were reflected in the Checklist
- 77 plants are now referred to by a different name
- The manuscripts from a completed portion of Volume 2 of the *Flora of Oregon* (plant families Cabombaceae through Euphorbiaceae) are reflected in the Checklist

This information is now reflected in the online Atlas and Photo Gallery. Details can be found in the table "Summary of Recent Checklist Updates" on the checklist page at: <http://oregonflora.org/checklist.php>

Work on Volume 2 is progressing—as of mid-May we have 62% of the manuscripts for the ~1670 taxa in hand!

If you find the OFP website helpful in your enjoyment and study of plants, please contribute to insure we can continue to provide this valuable tool! Contributions can be made online (www.oregonflora.org/supportOFP.php) or mailed directly to: Agricultural Research Foundation, 1600 SW Western Blvd. Ste. 320, Corvallis, OR 97333. Please make checks payable to the Agricultural Research Foundation and include "OFP" on the memo line.