

Botany/Vegetation Ecology Overview



Botany/Vegetation Ecology Overview

Core Functions:

- Rare Plant/Plant Association Database
- Rare Plant/Plant Association Surveys
- County Surveys
- Vegetation/Rare Plant Monitoring & Mapping
- Habitat Modeling
- Climate Change Vulnerability Assessments
- Weed Research and Mapping
- Outreach



Recent Project Partners


Bureau of Land Management
City of Aurora
City and County of Boulder
City of Fort Collins
City of Longmont
Colorado Forest Restoration Institute
Colorado Native Plant Society
Colorado Natural Areas Program/
Colorado Parks and Wildlife
Department of the Interior
Jefferson County
Ken-Caryl Ranch
Larimer County
National Park Service
Private individuals
The Nature Conservancy
U.S. Environmental Protection
Agency
U.S. Fish and Wildlife Service
U.S. Forest Service



Rare Plant Database

CNHP BIOTICS Database


- 521 fully tracked plant species
- 79 watchlisted plant species
- 126 non vascular plant species
- 5,500 element occurrences
- 18,200+ mapped locations




The screenshot shows the website for the Colorado Rare Plant Guide. At the top, there is a banner with the title "Colorado Rare Plant Guide" and a logo on the right. Below the banner is a navigation menu with four items: "Rare Plant Lists »", "About The Rare Plant Guide »", "Information »", and "Colorado Natural Heritage Program". The main content area features a small flower icon next to the text "*Aliciella sedifolia* (Stonecrop gilia)". Below this, it lists the family "Polemoniaceae (phlox family)" and provides links for "Printable Format" and "Current Research Activities". To the right of the text is a photograph of the plant, which is a small, low-growing plant with blue flowers and green leaves, growing on a rocky, rocky slope. Below the photograph is a caption: "Close up of *Aliciella sedifolia* by Bob Beehler. Click image to enlarge." At the bottom of the page, there is a section titled "Taxonomic Comments" with the text "=*Gilia sedifolia*". Below that is a section titled "Ranks and Status" which lists: "Global rank: G1", "State rank: S1", "Federal protection status: USFS Sensitive, BLM Sensitive", and "State protection status: None".


Colorado Rare Plant Guide


Rare Plant Lists » About The Rare Plant Guide » Information » Colorado Natural Heritage Program

 *Aliciella sedifolia*
(Stonecrop gilia)

Polemoniaceae (phlox family)

 [Printable Format](#)

 [Current Research Activities](#)



Close up of *Aliciella sedifolia* by Bob Beehler.
Click image to enlarge.

Taxonomic Comments
=*Gilia sedifolia*

Ranks and Status
Global rank: G1
State rank: S1
Federal protection status: USFS Sensitive, BLM Sensitive
State protection status: None



Vegetation Ecology Database



CNHP BIOTICS Database

- 56 ecological systems
- 570 fully tracked USNVC plant associations (communities)
- 235 partially tracked plant associations
- 3,585 element occurrences
- 5100 mapped locations



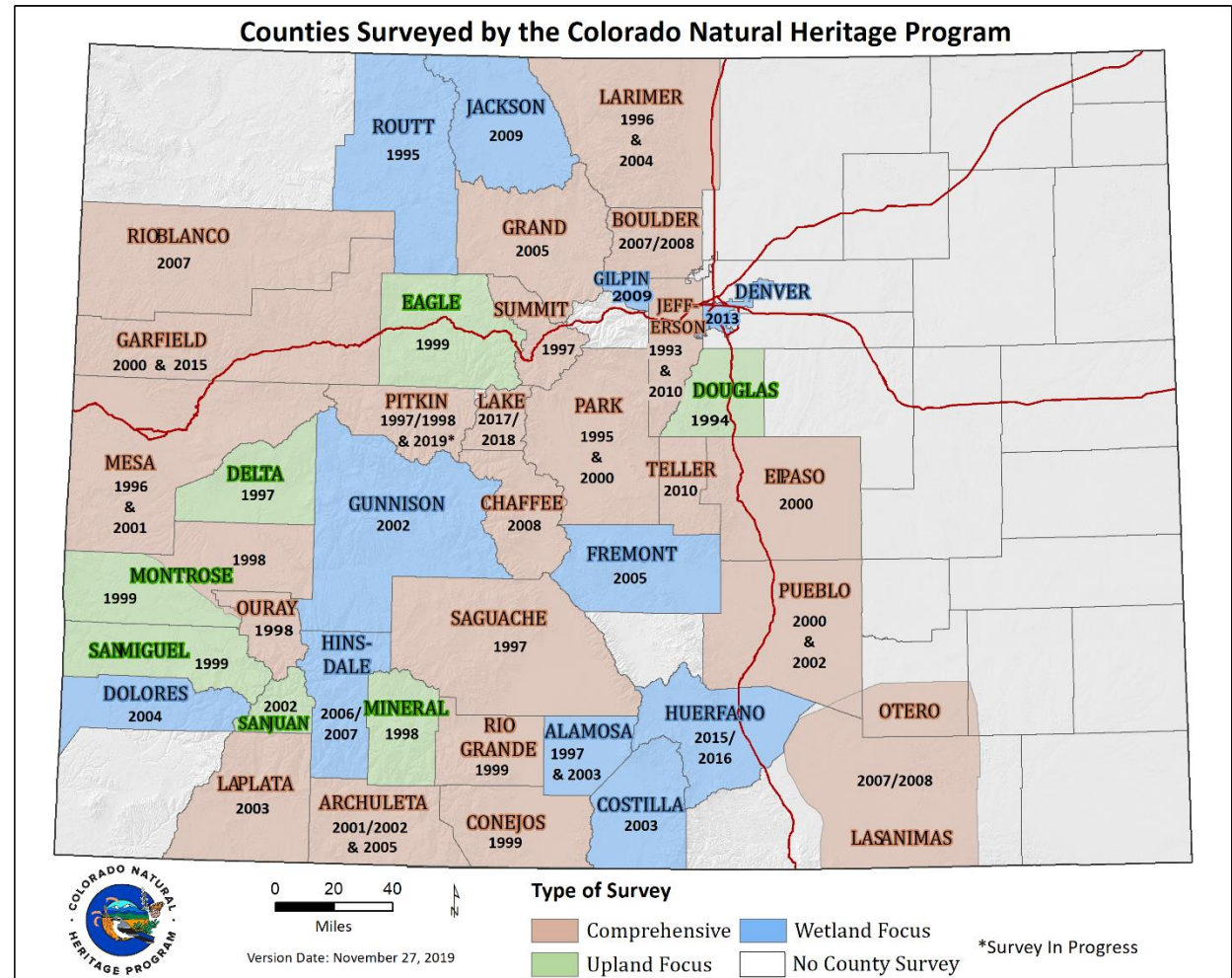
Rare Plant Surveys

- Focus on SWAP Tier 1 & 2 PGCN, Federally listed and Sensitive species
- Search for new locations; assess current size, condition, threats
- Utilize emerging technology
- Results support listing decisions, ACEC, RNA and Natural Area designations



County Surveys of Critical Biological Resources

- Focus on private lands; all CNHP tracked species, & wetlands
- Over 40 counties surveyed
- Results support open space, natural areas and National Park designations



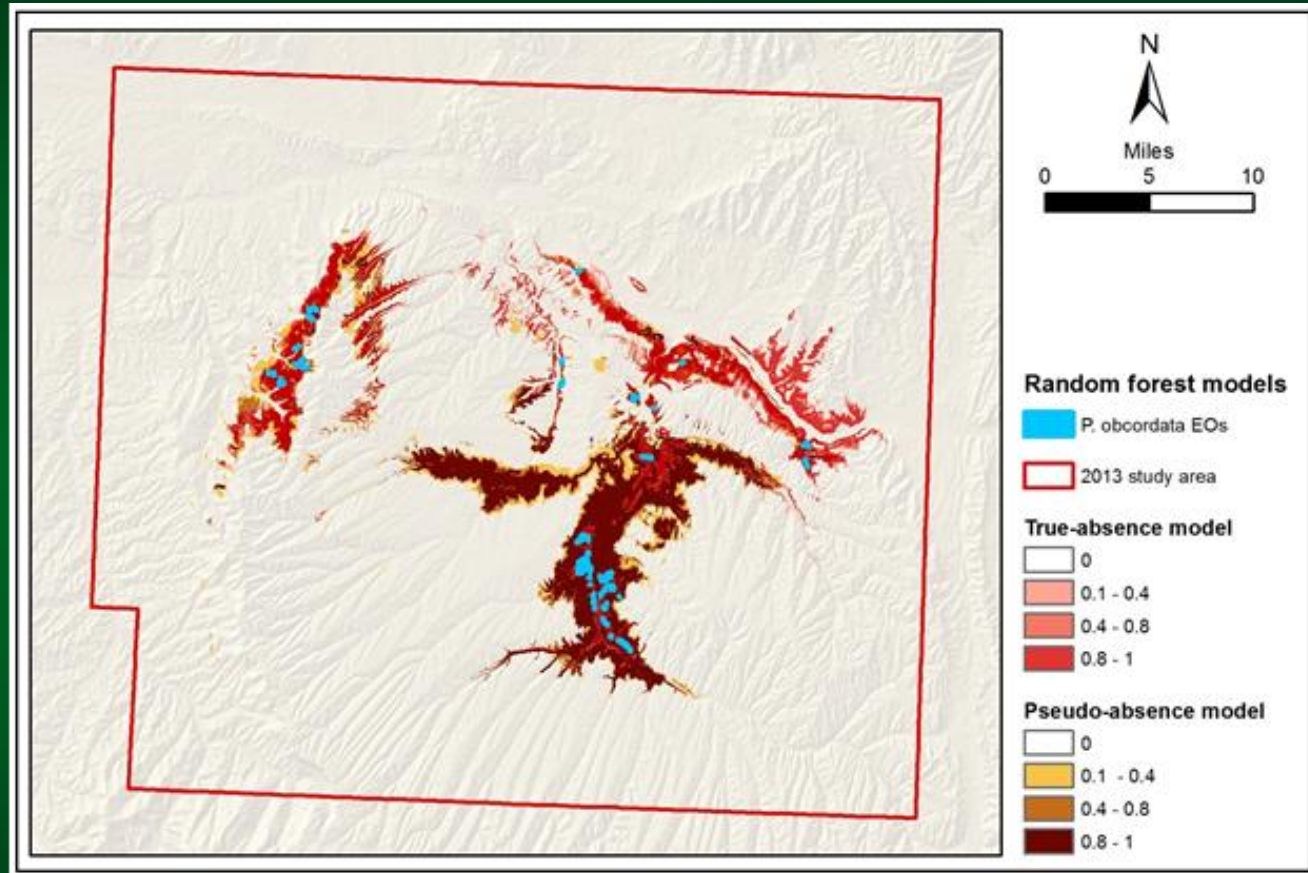
Vegetation/Rare Plant Monitoring

- Assess habitat condition and demographic trends of PGCN
- Monitor vegetation changes over time in response to management activities and environmental changes
- Results guide land management decisions and species conservation



Habitat Modeling

- Developed with Maxent & Random Forest methodology
- Focus on T&E/PGCN
- Spatial data available to land managers/CODEX
- Results guide rare plant habitat conservation in areas of intensive development



Climate Change Vulnerability Assessments

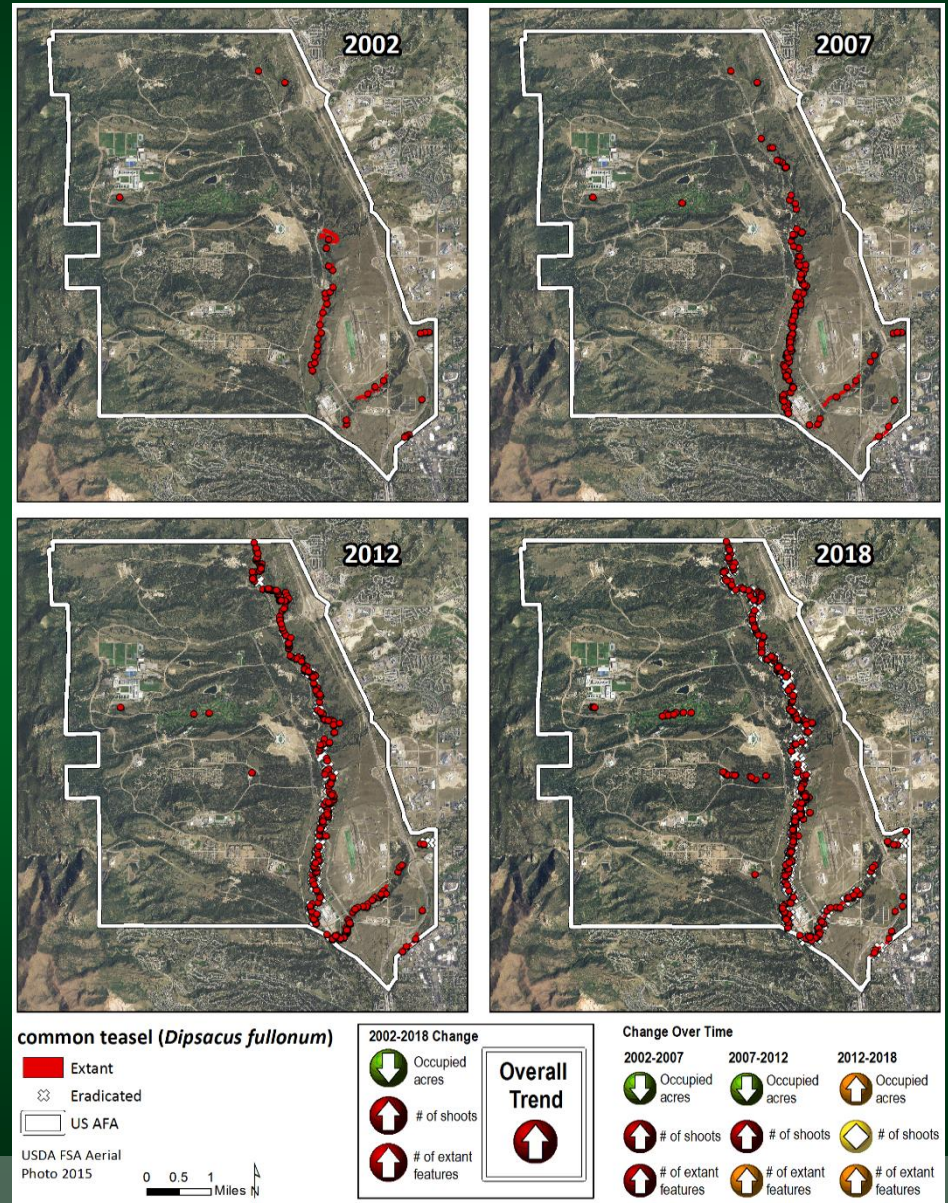
- Over 150 plant species assessed to date
- Use NatureServe CCVI tool
- Results inform species adaptation strategies

Species	Common Name	Ecosystem	Index Score	Confidence
PLANTS				
<i>Aliciella sedifolia</i>	Stonecrop gilia	Alpine	Extremely Vulnerable	L
<i>Astragalus anisus</i>	Gunnison milkvetch	Low elevation sagebrush	Presumed Stable	M
<i>Astragalus iodopetalus</i> *	Violet milkvetch	Montane sagebrush	Extremely Vulnerable	M
<i>Astragalus microcymbus</i>	Skiff milkvetch	Low elevation sagebrush	Extremely Vulnerable	H
<i>Astragalus molybdenus</i>	Leadville Milkvetch	Alpine	Extremely Vulnerable	M
<i>Boehera crandallii</i>	Crandall's rock cress	Low elevation sagebrush	Highly Vulnerable	L
<i>Botrychium echo</i>	Reflected moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium furcatum</i> *	Forkleaved moonwort	Spruce-fir	Moderately Vulnerable	L
<i>Botrychium minganense</i>	Mingan's moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium pallidum</i>	Pale moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Botrychium paradoxum</i> *	Peculiar moonwort	Spruce-fir; Alpine	Extremely Vulnerable	H
<i>Botrychium pinnatum</i>	Northern moonwort	Spruce-fir; Alpine	Moderately Vulnerable	M
<i>Braya glabella</i> subsp. <i>glabella</i>	Arctic braya	Alpine	Extremely Vulnerable	M



Weed Research and Mapping

- Weed surveys and mapping to sub-meter accuracy
- Monitoring to inform weed treatment plans
- Identify invasion trends



Outreach

- Plant identification workshops
- Guest lectures at CSU & professional organizations
- Native Plant Master classes
- Adopt-a-Rare-Plant
- BioBlitz participation



CNHP Botany Vegetation Ecology Team



Tom Baldvins, Ecologist

- Vegetation Mapping
- USNVC plant association descriptions
- Collector for ArcGIS
- Understory veg. analysis
- Botanical field surveys

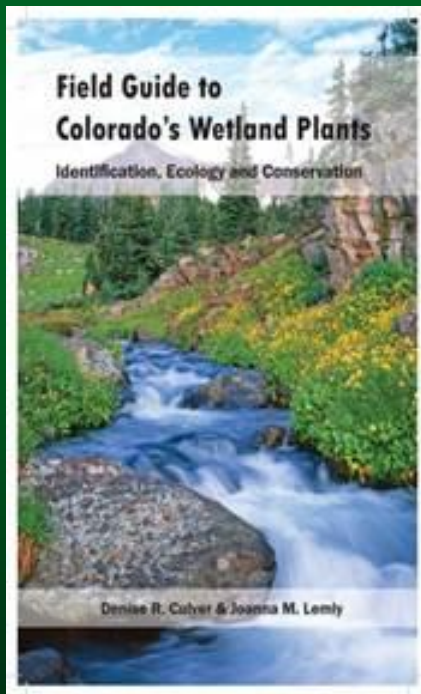


CNHP Botany Vegetation Ecology Team

Denise Culver

Senior Ecologist/Botanist

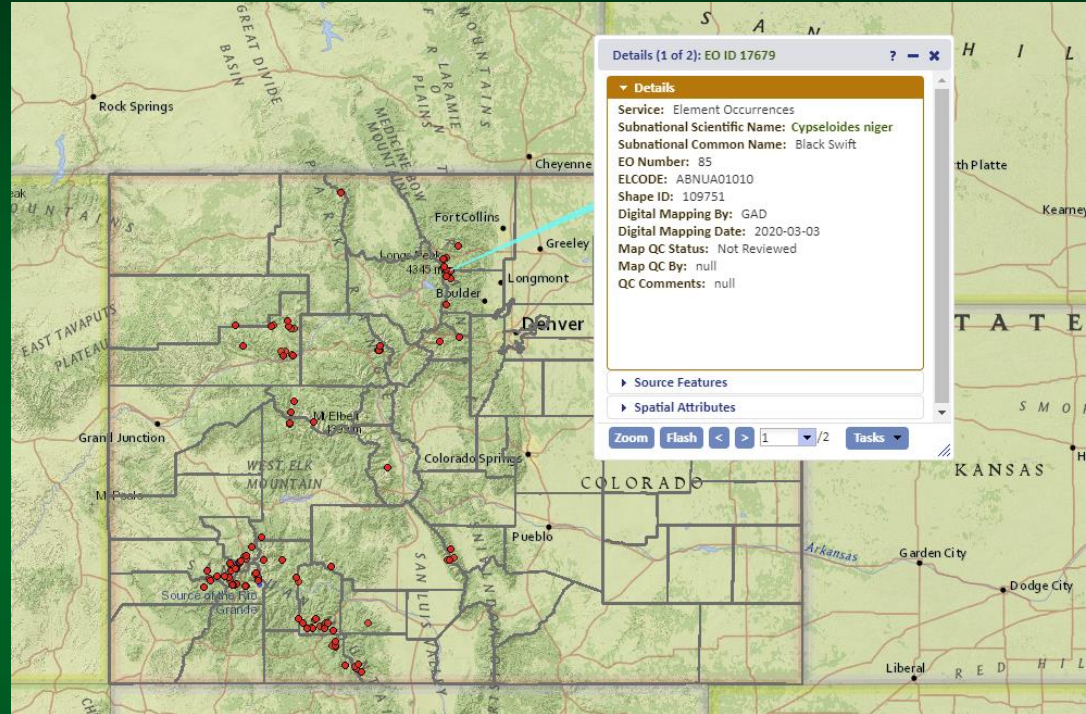
- County-wide surveys
- Wetland Plant Field Guide
- Wetland Pocket Guides
- Colorado Wetland Mobile App
- Plant identification Workshops



CNHP Botany Vegetation Ecology Team

Georgia Doyle
Botanist/Ecologist

- CNHP BIOTICS database
- Amphibian and botanical surveys
- City of Aurora urban wetland surveys



CNHP Botany Vegetation Ecology Team

Jill Handwerk, Botany-
Vegetation Ecology Team Lead

- T&E/PGCN surveys and monitoring
- T&E/PGCN data development
- Climate change vulnerability assessments



CNHP Botany Vegetation Ecology Team

Dee Malone

West Slope Botanist-Ecologist

- T&E/PGCN surveys and monitoring
- Rare birds & mammal surveys



CNHP Botany Vegetation Ecology Team

Susan Spackman Panjabi
Botanist

- Rare Plant Research/
Botanical Surveys
- Best Management
Practices
- Colorado Rare Plant Guide
- Colorado Plant Database
- Rare Plant Pollinators



CNHP Botany Vegetation Ecology Team

Jessica Smith, Botanist

- **Rare Plant Monitoring and Surveys**
- **Natural Areas Assessment**
- **Projects for Colorado Natural Areas Program**



Photo by Savanna Smith



CNHP Botany Vegetation Ecology Team



Pamela Smith, Botanist

- Surveys for rare plants / plant communities
- Rare plant monitoring
- Noxious weed monitoring and management
- Workshops / presentations on botany, resource management

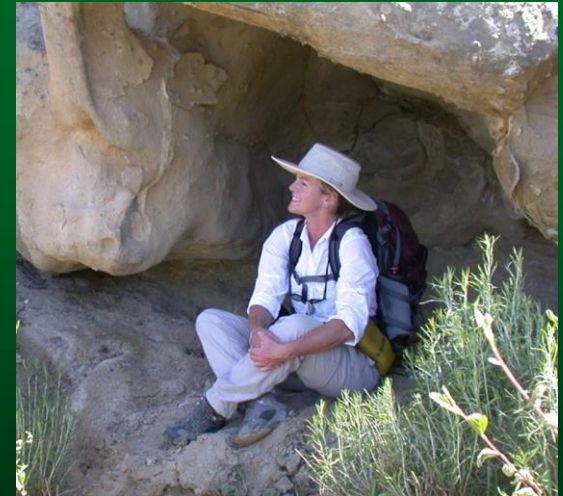


CNHP Botany Vegetation Ecology Team

Lisa Tasker, Botanist/Ecologist



- Botanical Surveys
- Riparian and Wetland Restoration
- Weed Monitoring and Management
- Community Outreach



CNHP Botany Vegetation Ecology Team

To contribute data contact:

Colorado Natural Heritage
Program

www.cnhp.colostate.edu

Jill.handwerk@colostate.edu

