



WELCOME!
**New Mexico Rare Plant
Technical Council Meeting
February 4, 2025**

Rare Plant Technical Council (RPTC):

Roles, Responsibilities, and Membership – WHO ARE WE??

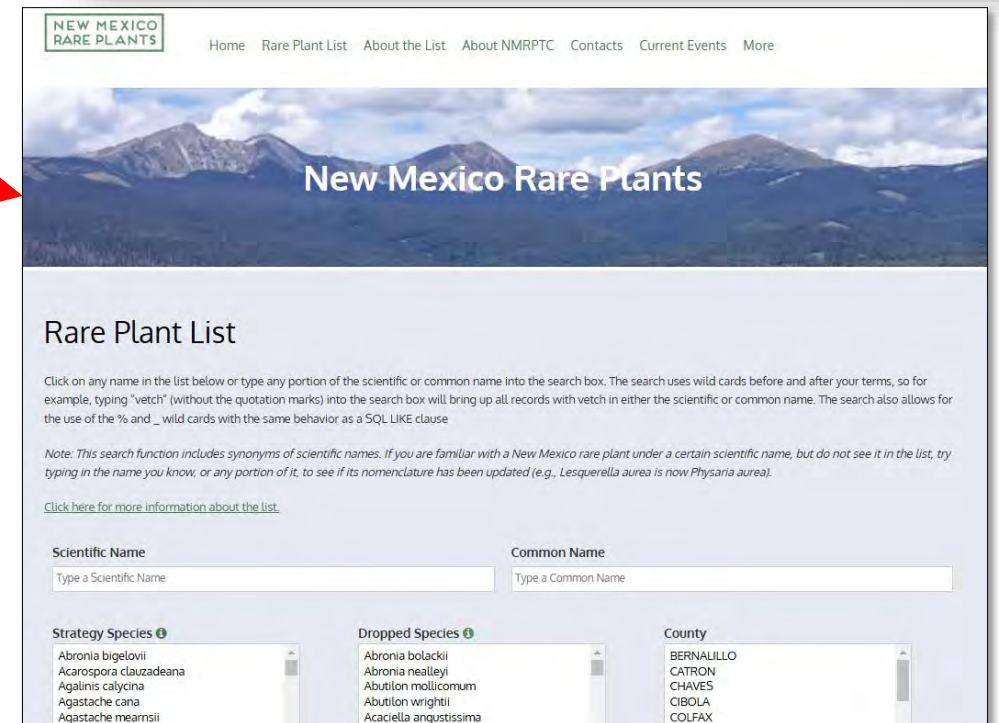
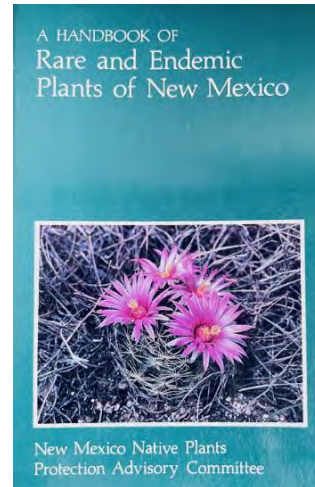
- Defining Purpose and Scope
- Decision-Making Procedures
- Structural Recommendations



Argemone pinnatisecta (Sacramento Prickly-Poppy)

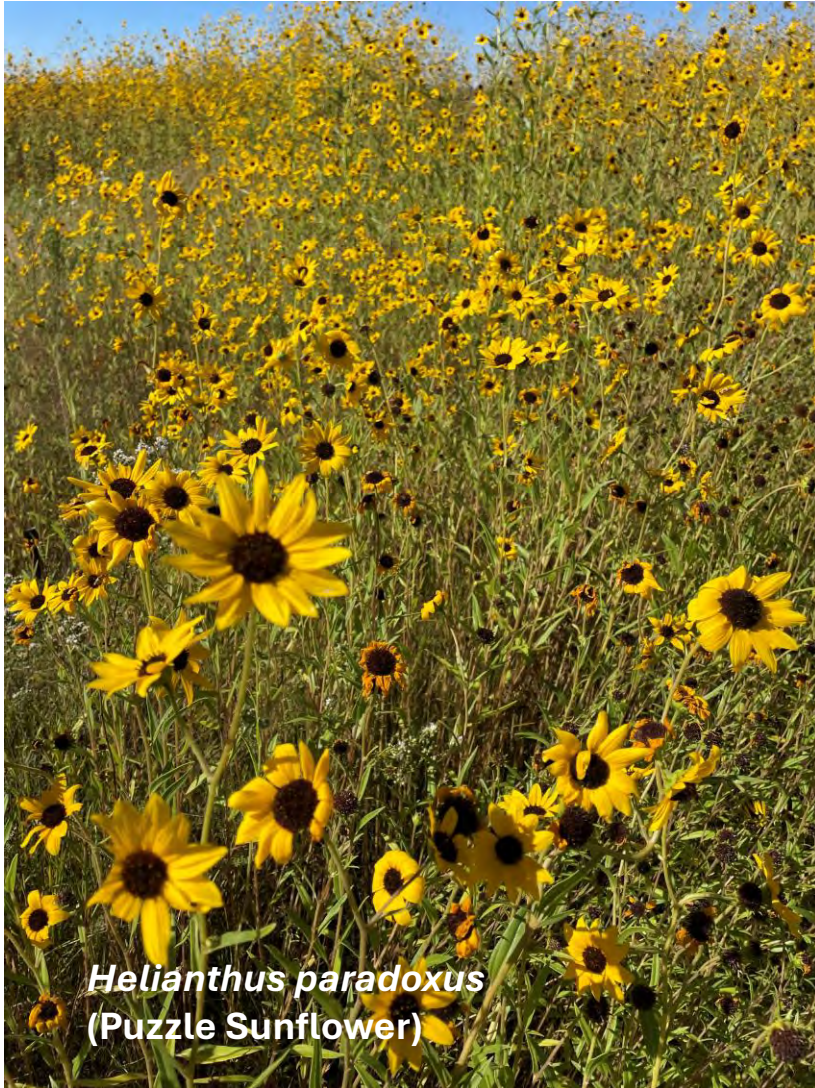
RPTC, A BRIEF HISTORY:

- Originated as “**New Mexico Native Plant Protection Advisory Committee**” in the early 1970's in response to needs generated by the Endangered Species Act
- In 1998, evolved to **Rare Plant Technical Council (RPTC)** to meet needs to inform land managers, agencies, and the general public about rare plants
- According to the website, in 2019, with the publication of **New Mexico Rare Plant Conservation Strategy** the RPTC became a Working Group of the New Mexico Rare Plant Conservation Partnership.



<https://nmrareplants.unm.edu/about-nmrptc>

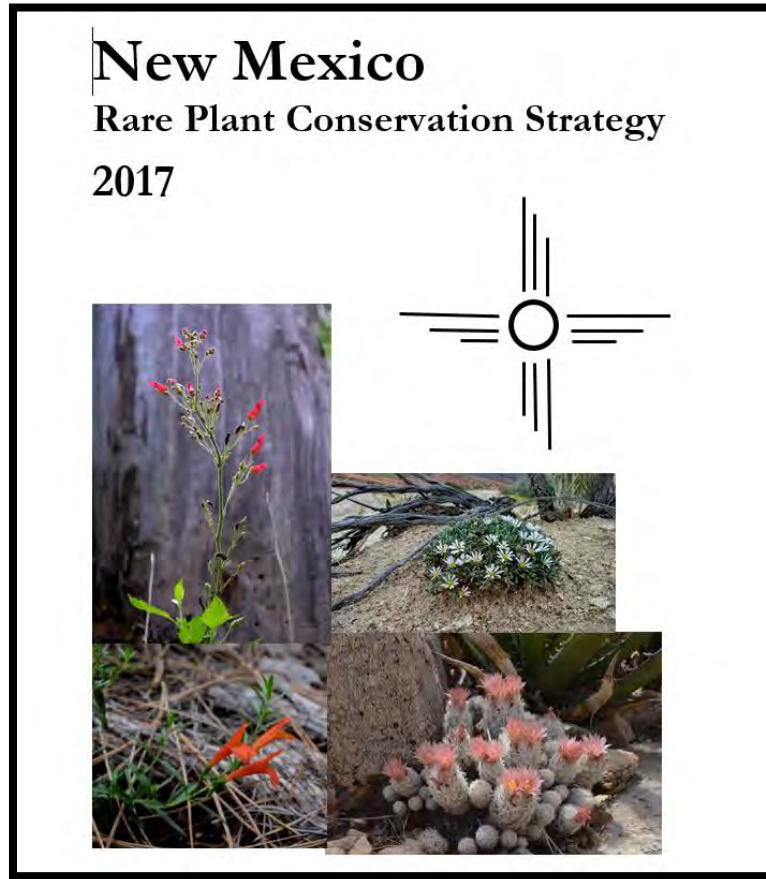
Rare Plant Technical Council : Defining Purpose and Scope



Current Description:

- **What (past and current):** The primary goal of the Council is to determine what species are rare in New Mexico and ... provide information on the basic biology, distribution, and conservation status of New Mexico's rare plants through the Rare Plant website. The Council meets annually to review species additions, deletions, and edits and makes decisions based on group discussions and consensus;
- **Who:** The RPTC is comprised of volunteer botanists who donate their time and expertise to research the status of rare plants. “Council members” work with various private, state and Federal agencies to gather and share information on rare plants.
- **2019 update (per Daniela Roth):** a coalition of conservation partners committed to the goals and objectives of the New Mexico Rare Plant Strategy, aiming to improve rare plant conservation practices in the state of New Mexico.

Rare Plant Technical Council : Defining Purpose and Scope



Strategic Guidance and Prioritization:
Should the RPTC align itself with the Conservation Strategy's Goals & Objectives?

RPTC defined as a **Working Group** of the New Mexico Rare Plant Conservation Partnership

- **Key Questions:**
 - **Should the RPTC continue to evolve** or should a formalized “partnership” take the lead in driving conservation strategy actions separately?
 - **Do we need a “Partnership” at all?**

Rare Plant Technical Council : Defining Purpose and Scope

Question:

Should RPTC consider identifying/listing rare, threatened habitats?



Supporting Agencies and NGOs:

Should RPTC serve as a scientific resource for making recommendations, developing or reviewing plant status assessments, habitat management, listing status, and recovery planning?

Aiming to improve rare plant conservation practices in the state of New Mexico.

Technical Expertise, at a minimum should continue to ...

1. provide information on the basic biology, distribution, and conservation status of New Mexico's rare plants through website.
2. determine what taxa are rare in New Mexico and maintain list.

Rare Plant Technical Council : Defining Purpose and Scope

Structural Recommendations

- Guidelines (bylaws) needed to define roles, mission (e.g., supporting conservation?) and decision-making procedures?

Need clearly defined roles and support systems:

Advisory Committee?

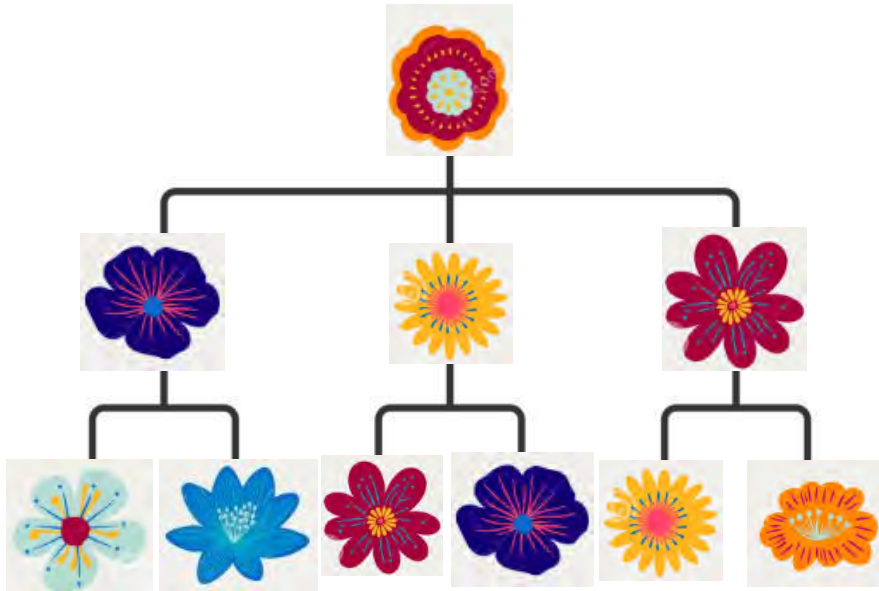
- help distribute leadership and support responsibilities

Rotating Chairperson, Co-Chairs?

- Define responsibilities for meeting planning, facilitation, and follow-up actions.

Reestablish a Secretary role?

- need designated person to document and manage meeting records and content.



Rare Plant Technical Council : Defining Purpose and Scope



QUESTIONS...

1. How can we establish a system of accountability to accomplish goals and assigned tasks?
2. Are Bylaws needed to define RPTC mission, roles and responsibilities?

Statute 75-6-1 Endangered plant species; definition; conservation; penalty protection; permits.

- A) As used in this section, "endangered plant species" means any plant species whose prospects of survival within the state are in jeopardy or are likely, within the foreseeable future, to become jeopardized.

- B) The natural resources department shall conduct investigations of all species of plants in the state in order to develop information relating to population, distribution, habitat needs, limiting factors and other biological and ecological data, and to determine conservation measures and requirements necessary for their survival. On the basis of these investigations, the department shall establish a list of endangered plant species.

- C) The department shall establish a program necessary for the conservation of listed endangered species. That program shall include research, census, law enforcement, habitat maintenance, propagation and transplantation. ...

Rare Plant Technical Council:

Decision-Making Authority?

What voting or decision-making processes are needed for rare plant listing and other matters?

- **quorum?**
- **simple majority?**



In Summary, Final Key Questions:



1. Does there *need* to be a formalized Conservation Strategy Partnership, committed to the goals of Strategy, separate from the RPTC?
2. Should the RPTC simply align its activities with the Strategy's priority Goals & Objections, while continuing to focus on rare plant listing?


Phacelia cloudcroftensis -
(Cloudcroft Scorpionweed)



Evolving & Rotating Annual Meetings

- **Biennial Coordination-Focused Day?** Having a biennial coordination day could provide a forum for agencies, NGOs, and other partners to review progress on shared goals, conservation strategies, surveys and adjust priorities as needed.
- **Annual or Biennial Rare Plant “conference” for Review and Listing:** Day(s) to evaluate and propose changes to the rare plant list would keep species status assessments up to date and allow for final determination on S ranks and inclusion on the list.
- **Frequent Working Group Meetings:** Establish thematic working groups (e.g., inventory and monitoring, ex situ conservation) that meet more frequently allowing for deeper engagement on specialized topics.


NM RPTC Listserv Discussion Group – Post questions for voting?



New Mexico Rare Plants

Home» Discussion Group

Discussion Group



New Mexico Rare Plant Discussion Group

An internet discussion list NMRAREPLANTS-L is administered at UNM (listserv@mailist.unm.edu) to facilitate discussions about New Mexico's rare plants. If you would like to be included, we welcome you to be among the subscribers.

How to subscribe to the list

To subscribe, send an e-mail message to:
listserv@mailist.unm.edu
Leave the Subject field blank.
In the body of the message type:
subscribe NMRAREPLANTS-L firstname lastname
Once the subscribe request is approved, a notification will be e-mailed to you.

Communicating with the list

Once members are subscribed, to communicate with one another simply address messages to:
NMRAREPLANTS-L@unm.edu
NOTE: listserv requests such as subscribe and unsubscribe should only be sent to: listserv@mailist.unm.edu

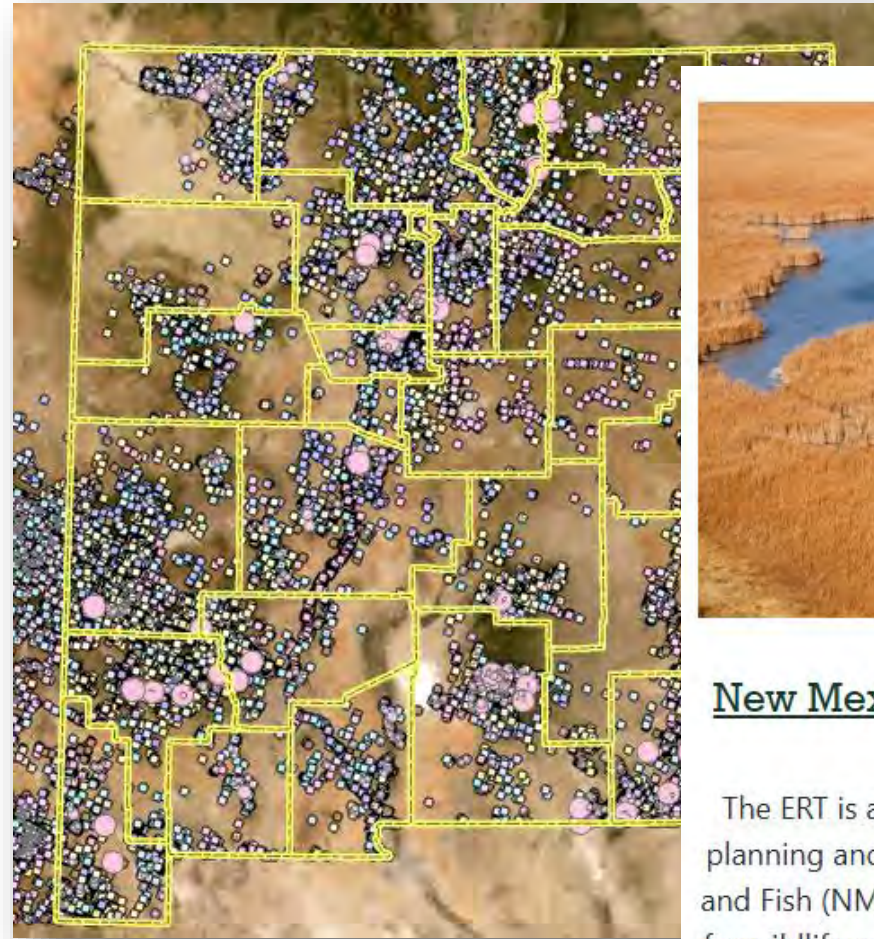
How to unsubscribe from the list

Subscribers can remove themselves from the list by sending a message to:
listserv@mailist.unm.edu

Importance of Submitting Rare Plant Data to Natural Heritage



- Critical we all contribute/submit rare plant data (location, habitat, #s) to Natural Heritage for tracking!
- Data gaps hinder informed decision-making on conservation efforts and understanding rarity.



New Mexico Environmental Review Tool

The ERT is an interactive tool for conservation planning and New Mexico Department of Game and Fish (NMDGF) review of important resources for wildlife and habitats. Photo: Canada Geese in a hidden wetland (aerial) by Mark Watson

species
found,
I
identify
the
systems

<https://nhnm.unm.edu/>

Other ways we track rare plant data:



Explore Your Observations Community Identify More

New Mexico State Endangered Plants

About Leave 62

Help the New Mexico State Rare and Endangered Plants Program monitor, map, and discover rare plant occurrences across the state by joining this project and trusting NM Forestry Division botanists and project admins with your hidden coordinates. These coordinates are only visible to our botany staff

Read More > Your Membership

Edit Project Project Journal

Overview 1,472 OBSERVATIONS 39 SPECIES 159 IDENTIFIERS 260 OBSERVERS Stats

Recent Observations

View All

- RG Escobaria organensis Organ Mountains Foxtail Cactus 2 4d
- RG Escobaria organensis Organ Mountains Foxtail Cactus 3 2d
- RG Escobaria organensis Organ Mountains Foxtail Cactus 2 4d
- RG Escobaria organensis Organ Mountains Foxtail Cactus 2 4d

Natural Heritage New Mexico Observations

About Leave 87

NHNM uses observation data to track, rank, and manage species of concern in New Mexico. We currently track over 700 species in the state. However, we have not limited this project to specific species because we may add or remove species from the list over time. By

Read More > Your Membership

Project Journal

Overview 1,043,225 OBSERVATIONS 13,969 SPECIES 14,923 IDENTIFIERS 30,298 OBSERVERS Stats

Recent Observations

View All

- Selaginella rupincola Rockloving Spikemoss 2 2h
- Class Insecta Insects 1 4d
- Aeronautes saxatalis White-throated Swift 2 4d
- RG Escobaria organensis Organ Mountains Foxtail Cactus 2 4d

New Mexico Rare Plants



Astragalus humillimus (Mancos Milkvetch)



Photograph by Robert Sivinski (2004)

Family: FABACEAE

Scientific Name with Author:

Astragalus humillimus A. Gray ex Brandegee

Synonyms:

TRAGACANTHA HUMILLIMA (A. GRAY) O. KUNTZE; *PHACA HUMILLIMA* (A. GRAY) RYDBERG

Common Name: Mancos Milkvetch

Agency Status

USFWS	State of NM	USFS	BLM	Navajo Nation	State Rank	Global Rank	R-E-D Code	NMRPTC Status	Strategy Status
LE	E			GP 2	S1	GI?	3-2-2	R	SS

Rare Plant Conservation Scorecard Summary

Overall Conservation Status	Documented Threats	Actions Needed
<u>UNDER CONSERVED</u>	Oil & gas development	Status surveys on abundance, distribution and threats. Seed banking, possible reintroductions. Trend monitoring.

[To download the Scorecard click here.](#)



Description:

Diminutive, tufted, strigulose perennial forming clumps up to 3 dm across; stems up to 1 cm long; leaves crowded, up to 4 cm long, odd-pinnate, leaflets 7-11, oblong-elliptic, 0.7-2.0 mm long, petiole and rachis forming persistent spines after fall of the leaflets; inflorescence a short raceme, 1-3 flowers; calyx about 3 mm long; corolla papilionaceous, lavender to purplish, a conspicuous lighter-colored spot in the throat of the corolla tube; fruit a legume, ovate, about 4.5 mm long, 2 mm wide, 4-9 seeds. Flowers late April and early May.

Similar Species:

Updates Are Coming!

<https://nmrareplants.unm.edu/>

A systematic process will be developed for submitting and tracking:

Taxonomic updates Status updates Consistent language
New photo needs Map updates



Your input is valuable in ensuring accuracy and completeness—we appreciate your help in identifying any errors!



OVERVIEW

SPECIES

ECOREGIONS

HABITATS

ALPINE AND MONTANE
VEGETATION

AQUATIC

ARROYO RIPARIAN

CLIFF SCREE ROCK
VEGETATIONDESERT GRASSLAND AND
SCRUBINTRODUCED SEMI
NATURAL VEGETATIONPLAINS MESA
GRASSLANDS

OVERVIEW

SPECIES

ECOREGIONS

HABITATS

ALPINE AND MONTANE
VEGETATIONROCKY MOUNTAIN
SUBALPINE-HIGH
MONTANE CONIFER
FOREST

AQUATIC

ARROYO RIPARIAN

CLIFF SCREE ROCK
VEGETATIONDESERT GRASSLAND AND
SCRUBINTRODUCED SEMI
NATURAL VEGETATION

Rocky Mountain Subalpine-High Montane Conifer Forest

[← BACK TO HABITATS LIST](#)


SWAP Habitat

Rocky Mountain Subalpine-High Montane Conifer Forest

NVC Name

Rocky Mountain Subalpine-High Montane Conifer Forest (M020)

SWAP General Vegetation Type

ALPINE and MONTANE VEGETATION

Rocky Mountain Subalpine-High Montane Conifer Forest [M020] (also known as Spruce-Fir Forest) occurs at the highest elevations (3,250-3,670 m (10,660-12,040 ft)) of any forest in the Southern Rocky Mountains and Arizona/New Mexico Mountains ecoregions, as well as isolated locations of the Madrean Archipelago ecoregion. It is mostly comprised of evergreen conifers with some broad-leaved, cold-deciduous trees. Canopies range from nearly closed-canopy forests to very open or patchy short-statured woodlands found in clumps or ribbons with intervening grasslands or shrublands. Characteristic trees include subalpine fir, Engelmann spruce, and quaking aspen. The shrub layer, when present, may be represented by tall or short cold-deciduous or evergreen shrubs such as fivepetal cliffbush (*Jamesia americana*), kinnikinnik (*Arctostaphylos uva ursi*), and whortleberry (*Vaccinium myrtillus*). Herbaceous cover can range from nearly absent under closed-canopy conditions to luxuriant and diverse on more open and moist sites. Representative species include dryspike sedge (*Carex siccata*), sprucefir fleabane (*Erigeron eximius*), stary false lily of the valley (*Maianthemum stellatum*), sickletop lousewort (*Pedicularis racemosa*), and Fendler's meadow-rue (*Thalictrum fendleri*). Locations of this habitat may be driven by interactions among several factors including snow deposition, desiccating winds, soil and substrate characteristics, precipitation, temperature, latitude, elevation, and aspect. This habitat can be found on gentle to very steep

<https://nmswap.org/habitats>

Proposed New Framework : New Mexico Rare Plant Ranks, Nomination Process and Status Review

"Differ as we may as to what constitutes a species, the object of us all is to know plants and to help others to know them"

-- Aven Nelson (1887-1952) Botanist, President of the Univ. of Wyoming

Natalia Shaw counting
thousands of Pecos sunflowers
at Blue Hole Cienega



A New Framework :

Historical Context on Previous Nomination Methods

30 March 2007



*Back Row (L-R): Bob Sivinski, Tim Lowrey, Mike Howard, Ken Heil, David Jamieson, Jim Nellessen, Les Lundquist, Jim McGrath, David Bleakly, Jon Stewart, Yvonne Chauvin, Jane Mygatt
Front Row (L-R): Patrick Alexander, John Anderson, Ron Hartman, Gene Jercinovic, Dave Ferguson, Rich Spellenberg, Steve Shoup, Nancy Kastning, Phil Tonne, Charlie McDonald*

- Consistent, core group of botanists who participated in RPTC nominate species for listing or delisting prior to annual meeting
- Annual meeting (historically 1-2 days) discuss nominations and vote
- Members sign up to write factsheets for the website



Key Issues

- **Inconsistent Documentation** – Missing or inconsistent records (or no records) make it difficult to track past decisions.
- **Confusion Between Lists** – The distinction between the NMRPTC List and the Strategy Species List unclear, leading to uncertainty about their purposes and how they relate.
- **Perceived Barriers to Adding New Taxa** – Unclear criteria (what defines “rare”) give perception of biases, limits the inclusion of new taxa or discouraging new contributors
- **Lack of Transparency** – Without well-defined criteria and methodology, stakeholders/partners may struggle to understand, engage, or may even challenge decisions.



Erigeron rhizomatus (Zuni Fleabane)

New Mexico Rare Plants

Heuchera glomerulata (Arizona Alum-Root)

Family: SAXIFRAGACEAE

Common Name: Arizona Alum-Root

Agency Status

USFWS	State of NM	USFS	BLM	Navajo Nation	State Rank	Global Rank	R-E-D Code	NMRPTC Status	Strategy Status
		<u>SEN</u>			<u>S1</u>	<u>G3</u>		<u>D</u>	<u>SS</u>

Rare Plant Conservation Scorecard Summary

Documented Threats	Actions Needed
No Information	document threat impacts

[To download the Scorecard click here.](#)

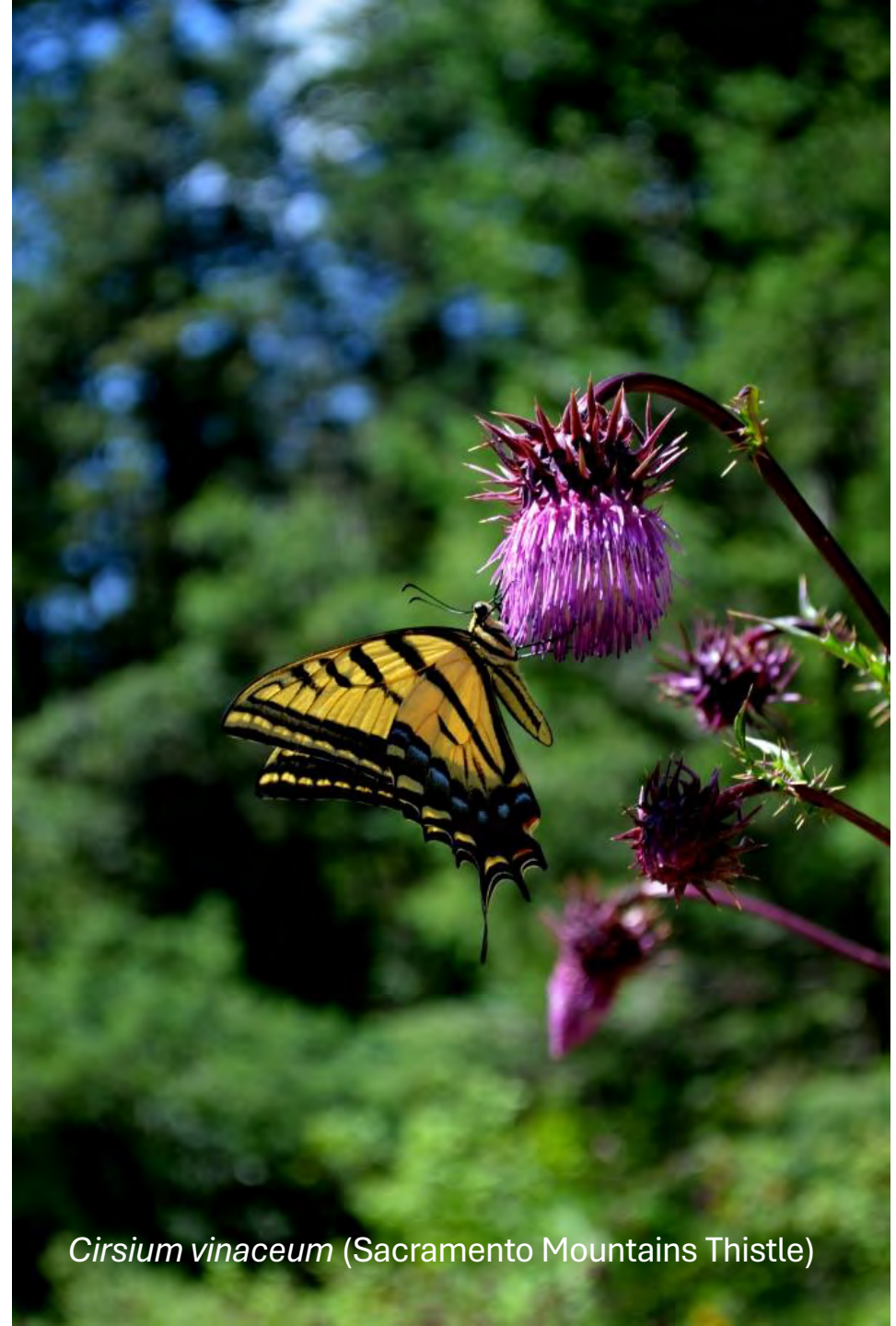
Remarks: Populations of this species are widespread in southwestern New Mexico and eastern Arizona.

[For distribution maps and more information, visit Natural Heritage New Mexico](#)

A New Framework : Why Change?

These refinements build on what works while strengthening collaboration, improving documentation, and decision-making. The goal is not to overhaul but to improve.

- **Clarify Ranking & Listing** –Develop explicit criteria for inclusion, a transparent review process, and clear submission guidelines to encourage participation.
- **Standardized Updates** – Create a clear, consistent process for updating the NM Rare Plant List and State Endangered List with help from new **Rare Plant Working Group**
- **Enhance Documentation** – Through standardized templates, we can track justifications, review dates, and decisions more systematically, with more task completion.
- **Improve Collaboration** - Publish decision-making criteria, engage stakeholders, and establish clear methodology for how decisions are made on listing, otherwise decisions can be challenged.



Cirsium vinaceum (Sacramento Mountains Thistle)

Recognizing the Importance of SELECT Peripheral and Disjunct Populations by broadening our definition of “rare”



- **Conservation Values:**
 - Peripheral populations, while often smaller and isolated, are often genetically or ecologically unique.
 - Important component to New Mexico’s biodiversity.
- **Challenges in the past defining rarity:**
 - Political boundary populations may not appear biologically meaningful.
 - Important to distinguish meaningful ecological contributions along arbitrary political boundaries.
- **Benefits :**
 - Bring attention to under-surveyed taxa, particularly in critical habitat, and range-edge populations

Conservation Value of Peripheral Populations: the Supporting Science

Five common arguments against extending special protection to peripheral populations:

1. Conservation resources are limited
2. Management of peripheral populations may be inappropriate for species that are more common or elsewhere
3. Extension of special protection to peripheral populations dilutes the effectiveness of the legislation enacted to protect declining species (Peterson 2001).
4. Peripheral populations are often inviable.
5. Peripheral populations have low conservation value because of their low genetic diversity.



Conservation Value of Peripheral Populations: the Supporting Science

The first three arguments are administration, financial, and implementation issues.

Five common arguments against extending special protection to peripheral populations:

1. Conservation resources are limited,
2. Management for peripheral populations may be inappropriate for species that are more common or elsewhere,
3. Extension of special protection to peripheral populations dilutes the effectiveness of the legislation enacted to protect declining species (Peterson 2001).
4. Peripheral populations are often inviable.
5. Peripheral populations have low conservation value because of their low genetic diversity.



Conservation Value of Peripheral Populations: the Supporting Science

The last two arguments are scientific issues that have now had closer scrutiny with research, and largely disproven.

However, there are no legal implications here for putting them on the list, besides staff time.

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1. Conservation resources are limited.
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4. Peripheral populations are often inviable.
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Conservation Biology

Free Access

When Are Peripheral Populations Valuable for Conservation? ¿Cuándo resultan las poblaciones periféricas valiosas para la conservación?

Peter Lesica, Fred W. Allendorf

First published: August 1995 | <https://doi.org/10.1007/s10531-010-9929-3>

Global Ecology and Biogeography

Research Paper

Do geographic, climatic or historic performance of central versus peripheral populations matter?

Samuel Pironon, Jesús Vilellas, William F. Morris, Daniel B. Stohlgren

First published: 22 December 2014 | <https://doi.org/10.1007/s11511-014-0100-0>

Editor: Arndt Hampe

[Read the full text >](#)

Abstract

Aim

The 'centre–periphery hypothesis' (CPH) predicts that the effects of geographic, climatic, and demographic factors on the physiology, morphology, demography) will decline with distance from the periphery of the geographic range. This hypothesis has been debated since the 1980s, essentially because of inconsistent patterns. Moreover, it has been proposed that the effects of these factors are stronger at the geographic range centre but rather at the periphery, presenting greater environmental stability in the latter. We tested the CPH by disentangling the effects of geographic, climatic, and demographic factors on the demography of three widely distributed species of *Pinus* in Europe and North America.

Location

Europe and North America.

Methods

Based on a species distribution modelling approach, we estimated the effects of parameters (vital rates, stochastic population growth rate) on the demography of contrasting life-forms, and the genetic diversity of geographic range centres, climatic optima or periphery.

conservation concern, followed by blue-listed Yellow-listed species (Harcombe 2000). Before the British Columbia Wildlife Branch placed species were considered peripheral on the Blue List. Central species that were candidates for threatened status were down-listed from Red to Blue. This policy was changed for several reasons: 1. Many endangered species collapse to the periphery of their range. Lomolino and Channell (1995) examined 24 endangered mammal species, 23 of which had collapsed to the periphery of their range. Lomolino and Perault (1998) examined 24 mammal species, 23 of which had collapsed to the periphery of their range. The

Conservation and Policy

Climate Change and Conservation of Leading-Edge Peripheral Populations

SACHIKO Y. GIBSON, RYAN C. VAN DER MAREL, AND BRIAN M. STARZON
School for Resource and Environmental Studies, Dalhousie University, 6100 University Avenue, Halifax, NS B3H 3J5, Canada

Introduction

As with a number of high-latitude countries, Canada is a home to many species that are locally at risk but common farther south. The round-leaved Greenbrier (*Smitelax rotundifolia*) is a typical example (Fig. 1) (Committee on the Status of Endangered Wildlife in Canada [COSEWIC 2007]). The large jurisdictional boundary between Canada and the United States slices through several eozones (Fig. 2) and politically divides many species' ranges. As a result COSEWIC monitors many populations that may be rare or in decline within Canada, but have more stable populations in the United States. Of Canada's approximately 280 terrestrial species at risk, we estimate that over 75% (224) are at their northern range periphery in Canada (the full list is available from B.M.S.).

The allocation of conservation effort to these "peripheral" species has sparked some debate in Canada over whether, or under what circumstances, peripheral populations should be included in national species conservation. Conservation attention to species that are locally rare, but globally common, may fail to consider local biota in a wider context and may result in skewed allocation of funds to protect species in wealthy nations while endemic species in poor nations disappear (Hunter & Hutchinson 1994). Listed species, however, may be locally important sociopolitically and ecologically (Hunter & Hutchinson 1994; Fraser 2000). They may exhibit distinctive characteristics and reserves of biodiversity below the species level that make them valuable for conservation (e.g., Hunter & Hutchinson 1994; Lesica & Allendorf 1995; Fraser 2000). Even without explicit consideration of climate change, one could argue for a continued investment in conserving peripheral populations in Canada.

Under climate change, rare populations at the northern edge of a species' geographic range are of particular importance. Here, we add a new dimension to the conservation of peripheral populations by examining species' responses to global climate change. We use a poleward biome controversy in the boreal forest (Halpin 1997; Williams & Nichols 2005) to illustrate the conservation importance of peripheral populations in general and of species at risk in particular. As climate changes, there are several possible responses: range migration (Holt 2003), adaptation, or extirpation (Holt & Nichols 2005). On the basis of the distinguishing features of peripheral populations, we argue that preventing the extirpation of peripheral populations may help to maintain genetic diversity along the northern range periphery and facilitate a range shift.

Persistence on the Poleward Edge

Populations on the edge of a species' geographic range are assumed to be less dense, less stable, and, therefore, more prone to extinction (Peterson et al. 1996). This may not be true in all cases. In fact, several studies of range expansion in North America show peripheral populations may persist in species' historical range to the north of the exception (Lomolino & Channell 2000). Peripheral populations may be more likely when extirpation is prevented that move through the range.

The Conservation Value of Peripheral Populations: the Supporting Science

ROB CHANNELL

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Peripheral populations at the periphery of the geographic range of a species have

been shown to contribute to the genetic diversity of a species from the periphery of the geographic range. Peripheral populations are vulnerable to extinction and have also been shown to contribute to the genetic diversity of a species' geographic range. Conserving peripheral populations may be important for conserving genetic diversity and may be important for the survival and recovery of a species. Peripheral populations have caused controversy because of their potential to contribute to the genetic diversity of a species.



Genetic diversity of central and peripheral populations of *Toona ciliata* var. *pubescens*, an endangered tree species endemic to China

J. Liu, J.M. Jiang and Y.T. Chen

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Received June 5, 2013
Accepted October 29, 2013
Published June 17, 2014
DOI <http://dx.doi.org/10.4236/gmr.2014.130204>

ABSTRACT. Our objective was to examine the genetic diversity of central and peripheral populations of *Toona ciliata* var. *pubescens*, to elucidate whether the central-peripheral hypothesis applies to these populations. We analyzed 392 individuals from nine natural populations using eight pairs of polymorphic SSR primers. The results showed that the mean numbers of observed and expected alleles in peripheral populations were higher than in central populations. Common widespread and rare local (RL) alleles were observed in all populations. However, common local alleles were found in five populations and rare widespread alleles were only found in three. The total numbers of the four types of alleles were higher in peripheral than in central populations, and the quantity of the RL allele was obviously higher in the peripheral populations than in the central populations. Both the observed and expected heterozygosities were higher in peripheral populations compared with the central populations. The coefficient of gene differentiation of the peripheral populations was 0.3045, which was significantly higher than that of the central populations.



Recommendations for Change:

- Implementing a tiered framework for ranking and listing- on one list.
- Develop methodology with criteria, justifications, data tracking and timelines.
- Regular updates to criteria based on scientific developments and stakeholder feedback.
- Develop a **Rare Plant Working Group** that meets regularly.

