UPDATES TO THE FLORA OF NEW MEXICO (U.S.A.): NOTABLE BOTANICAL FINDINGS FROM THE NEXT GENERATION OF SOUTHWESTERN BOTANISTS

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ABSTRACT

New Mexico is among the most botanically diverse states in the country. However, it is also among the most poorly collected. Recent interest in botanical collection by early career and interdisciplinary botanical groups with varied goals has yielded several noteworthy collections in the state of New Mexico. These include 15 state collection records as well as 134 other notable collection records, including range extensions, collections of poorly represented taxa, collections of rare taxa, county records, and atypical specimens. We report these findings and detail the variety of methods by which botanists can approach continued collection amidst uncertain times. Across floristic, taxonomic, habitat, agency, educational, and opportunistic collecting approaches, floristics produced the most noteworthy records. However, we argue that all collecting approaches remain vital to the tracking of statewide botanical biodiversity. Continued collecting will be imperative for documenting and conserving the extraordinary plant biodiversity of New Mexico.

RESUMEN

Nuevo México es uno de los estados con mayor diversidad botánica del país. Sin embargo, también es uno de los menos estudiados. El reciente interés por la recolección botánica por parte de grupos botánicos interdisciplinares y en los inicios de su carrera, con objetivos variados, ha dado lugar a varias recolecciones notables en el estado de Nuevo México. Entre ellas se incluyen 15 nuevos registros a nivel estatal, así como otros 134 registros de recolecciones notables, como ampliaciones de áreas de distribución, recolecciones de taxones poco representados, de taxones raros, nuevos registros de condados y especímenes atípicos. Informamos de estos hallazgos y detallamos la variedad de métodos con los que los botánicos pueden abordar la recolección continua en tiempos de incertidumbre. Entre los enfoques florísticos, taxonómicos, de hábitat, de agencia, educativos y de recolección oportunista, los florísticos produjeron los registros más notables. Sin embargo, sostenemos que todos los enfoques de recolección siguen siendo vitales para el seguimiento de la biodiversidad botánica en todo el estado. La recolección continua será imprescindible para documentar y conservar la extraordinaria biodiversidad vegetal de Nuevo México.

INTRODUCTION

Herbarium specimens tell unique stories of the botanical diversity of every state, often highlighting well-collected areas and future opportunities for growth. Natural ebbs and flows in collection activity are correlated with funding, access to resources, and interest (Daru et al. 2018; Lang et al. 2019; Lavoie 2013). Unfortunately, the modern era of collection tells a less riveting story, with declines in botanical education (Davis 2023), biodiversity research (Isbell et al. 2023), and general collecting (Prather et al. 2004; Tewksbury et al. 2014). New Mexico's own history of collection work was recently synthesized and found the state to be under-collected compared to all neighboring states (Lombardi et al. 2024).

The modern state of New Mexico hosts an exciting floristic landscape in the Southwest. Sivinski & Knight (1996) predicted that hundreds of New Mexico state collection records awaited detection. In the last three years, renewed interest in plant collections has risen at the academic, agency, and community levels, through new statewide botanical personnel and the reinvigorated understanding that the state harbors a diverse yet incompletely known flora, as it ranks fourth in the country in botanical diversity (Allred et al. 2020). Through floristics graduate projects, habitat-focused collecting, taxonomic group collecting, agency

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collecting, educational forays, and opportunistic collecting, part of Sivinski and Knight's 1996 prediction continues to come true.

Since the 1996 prediction, state records were tallied until February 2010, culminating in 417 records (Legler 2010). These were tallied by Legler using the statewide botany newsletter, the New Mexico Botanist (Allred 2025). Tracking of state records since March 2010 has resulted in 242 additional state collection records (see Appendix). These were tracked by reviewing the New Mexico Botanist newsletters, addenda to the Flora Neomexicana Series, recently published works, and recent collections, as well as through word of mouth. All specimen records included were verified through the use of publicly accessible collection data on Specify, SEINet, GBIF, and iNaturalist (Beach 2018; Symbiota 2024; GBIF.org 2025; iNaturalist.org 2025). An appendix including all state records since 2010 can be found on Dryad (Faust et al. 2026).

While there has been a decline in discovery of state records in the last fifteen years compared to the prior fifteen, there has still been steady interest and dedication towards uncovering the state flora. We detail both statewide collection records as well as significant records the authors and their colleagues took part in since 2018, as well as their corresponding projects, in the interest of tracking how these records came to be, especially amidst the larger downward trends of plant collection efforts (Table 1). Additionally, in an effort to more comprehensively track all state additions, we compiled all statewide additions made since 2010 (see Appendix). Despite the hurdles it takes to prioritize collection work, we hope to model a collaborative approach across botanical fields and disciplines that highlights the continued importance of plant collections in modern times. While we did not utilize every collection or discovery approach, each highlighted collection approach utilized is described in detail below, and some approaches are highlighted with photos in Figure 1.

Floristics.—Floristic projects result in a substantial amount of botanical data for their defined region (Palmer et al. 1995). The broad scope of a designated study site allows for a large array of plant communities, habitats, habits, elevation, micro-climates, etc. to be captured in a single study. This approach permits a thorough evaluation of botanical diversity, defining the baseline of plant diversity for the study site. Since 1903, New Mexico has produced over 70 works of floras, checklists, and plant inventories documenting botanical diversity. Conducted during the 2023–2024 field season, the flora of the Brokeoff Mountains is the first flora conducted in New Mexico since 2014 (Olmeda et al. in prep.). Of the 1920 specimens collected during this study, state records, county records, rare plants, and more were discovered, described below.

Habitat.—The greater density of sampling permitted by focusing on a single habitat can allow for better characterization of plant community composition, which is often useful in studies of plant ecology and evolution. Although the plant communities of several biomes are in need of further characterization in New Mexico (Lombardi et al. 2024), the most recent habitat-specific collection efforts by personnel from the University of New Mexico herbarium have focused on characterizing New Mexico's alpine plant communities. The alpine habitats of New Mexico are particularly interesting because they represent the southernmost extent of Rocky Mountain alpine habitats. However, despite their fascinating biology, much work remains to characterize and understand alpine floras both globally and within the state of New Mexico (Körner 2003, Fowler et al. 2014). Additionally, because alpine habitats are among those most imperiled by climate change (Hughes 2000; Laszlo Nagy & Grabherr 2009; Kotlarski et al. 2023), thorough and continued plant collection efforts in the alpine habitats of New Mexico will be necessary to document current and future alpine plant communities as our climate warms. Since 2022, over 1000 vouchered specimens have been collected from 13 alpine mountain summits in New Mexico as part of the western North American Alpine Floristics project, an initiative that aims to characterize alpine plant communities across New Mexico, Colorado, Wyoming, Idaho, Montana, Washington State, and British Columbia. From these, we report several exciting botanical discoveries described in the sections below.

Taxonomic.—In 1954, Edward F. Castetter, Howard J. Dittmer, and Ora M. Clark published a checklist of all the ferns and fern allies for the state of New Mexico with the University of New Mexico Press (Dittmer et al. 1954). This checklist was comprehensive at its time, detailing 70 taxa for the state along with 13 reports of probable taxa lacking collections. Luckily, general collecting, floristics projects, and agency reports have

Table 1. Summary of contributions to the flora of New Mexico. Number reflects the number of unique families, genera, and species/taxa collected for the Taxonomic categories, and the total number of collections for the Collection Approach and Record Type categories.

	Category	Number
Taxonomic	Families	44
	Genera	84
	Species/Taxa	111
Collection Approach	Agency	13
	Education	12
	Floristics	52
	Habitat	22
	Opportunistic	34
	Taxonomic	16
Record Type	State Records	15
	Distribution	6
	Representation	14
	Rare	44
	Atypical	5
	County Records	65

given way to a better understanding of this group's diversity statewide. Additionally, larger flora publications like Flora Neomexicana (Allred et al. 2020) and *Vascular Plants of New Mexico* (Heil & O'Kane 2025) have released treatments for this group, giving us a better and more current nomenclatural understanding of the group regionally. However, both treatments are missing recently discovered taxa, contain conflicting nomenclature, and are in dire need of updated distributions. Field work and collection overview towards an updated statewide fern flora began in 2023 by Harpo Faust, in efforts towards publishing a publicly accessible annotated checklist of the ferns and fern allies in New Mexico. This work has uncovered four state records (reported in *American Fern Journal*), and multiple noteworthy collections, including hybrids and distribution extensions, as well as allowing for opportunistic collections of other vascular taxa (Faust 2024, 2025, 2026).

Agency.—New Mexico supports several independent conservation agencies, biological survey companies, and government agencies with interests and projects related to plant collections. Natural Heritage New Mexico (NHNM) is an example of an independent conservation agency. Housed at the University of New Mexico, NHNM is a partner of the Museum of Southwestern Biology, where the University of New Mexico herbarium is located. With access to the herbarium's resources and space, NHNM has contributed thousands of specimens to the collection since 1990. Through contracts with multiple government agencies and various landholders, NHNM has had the opportunity to survey parts of the state that are usually inaccessible to the public or in very remote regions. Collection is not usually the primary goal of the work, but collection permits are always acquired so that interesting plants found while doing fieldwork can be collected. This has resulted in many noteworthy collections over the years, including two state records, eight county records, and two other notable collections by Yvonne Chauvin and Grace McCartha since 2018. Other agencies that are in similar funding positions should not underestimate their ability to contribute important collections to our state herbaria.

Education.—Amidst all the possible approaches for collecting, an overlooked medium for collecting is specimens produced from education and outreach events. While these events can often focus more on the experience of participants, ushering the public into the practice, offering social opportunities, and increasing accessibility, they can also produce meaningful collection records. In 2023 and 2024, the University of New Mexico Herbarium hosted two public collecting forays open to the public that targeted areas in need of further collection with the goal of bringing botanical community together and increasing education opportunities. A handful of county collection records arose from these events and are included here.

Opportunistic.—While we outline a few different focused collecting approaches that uncovered multiple important records, one of the most important approaches to collecting is often happenstance. We can synthesize collections and target taxonomic groups and geographic regions that are in need of greater collection coverage, and at the same time, we need to make ourselves available for the opportunistic style of collecting that happens unplanned. Keeping your eyes peeled for such unplanned collecting events can produce just as important collection data. Some of the records reported here were encountered opportunistically while making targeted collections for the other outlined projects.

Fig. 1. Field work from different collection approaches. A. Sarah Cherne, from the Natural Heritage of New Mexico, overlooking subalpine landscapes. B. Bryana Olmeda and Cristina Salvador collecting in Chihuahuan Desert grasslands. C. Joseph Kleinkopf collecting in alpine habitat. D. Attendees of the 2024 UNM Botanical Foray.

STATE RECORD REPORTS

The following 15 specimen reports represent plant taxa that were not previously recognized in the state of New Mexico. Selected taxa are pictured in Figure 2. The following records will outline basic previous knowledge, the significance of the collection, the voucher specimen, iNaturalist (iNaturalist.org 2025) observations if available, and ascribe one of the six collection approaches. Non-native taxa are noted with an asterisk* before the scientific name. The following state collection records are organized alphabetically by family, then by scientific name.

Fig. 2. Collection of state records. A. ***Oxytropis podocarpa*** **on a neighboring peak of Jicarita Peak. B.** ***Holosteum umbellatum*****, a nonnative New Mexico state record found in Albuquerque. C.** ***Graptopetalum rusbyi*****, a succulent forb newly collected in the state. D.** ***Ageratina paupercula*****, pictured in the Apache Box Wilderness Study Area, the first collection in New Mexico.**

Ageratina paupercula (A. Gray) R.M. King & H. Rob. (ASTERACEAE)—***Previous knowledge:*** *Ageratina paupercula* was previously known to occur in Arizona and northern Mexico (Nesom 2006; Turner 1997). The closest reports to New Mexico occur just across the border in the Mogollon and Peloncillo Mountain ranges, nearly skirting the political boundary, and are documented in all southeastern bordering counties in Arizona (Symbiota 2024). *Ageratina paupercula* is a perennial herb, ranging to a sub-shrub, with early spring flowering white flowers, found in rocky slopes and crevices (Nesom 2006). *Ageratina herbacea* and *Ageratina rothrockii* can also occur in the southwestern corner of New Mexico; however, both species' habits are more robust, and their leaves are triangular, whereas *Ageratina paupercula* leaves are nearly lanceolate (Nesom 2006).

Significance: First record for the state of New Mexico and definitive extension of its distribution into the state. Specimen was one of many notable records found during a trip to the Apache Box Wilderness Study Area, a difficult-to-access rhyolite canyon with historic mines, and is an area in need of more thorough surveys. Since this population was found, another population was identified in Cliff, NM, firmly establishing this taxon in the state [*Veach 2025-04-26-1* at WNMU].

Voucher specimen: **U.S.A. New Mexico. Grant Co.:** BLM Las Cruces District, Apache Box Wilderness Area, Apache Box, 500 ft sw from end of road into canyon, 32.933683°, –108.991777° ±5 m [WGS 84], elev. 1834 m, 28 Apr 2024, *Harpo Faust 4771* (UNM).
Habitat: high walled box canyon with talus boulder slope southwest facing with patchy *Quercus* with *Opuntia*, *Nolina* with *Artemisia*.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33309896&clid=0
iNaturalist: Observation 218996687 (https://www.inaturalist.org/observations/218996687)
Collection Approach: Opportunistic.

Holosteum umbellatum** L. (CARYOPHYLLACEAE)—Previous knowledge:*** This species is from the Mediterranean region and has been recorded in most of the states in the contiguous U.S.A. (Symbiota 2024; Rabeler & Hartman 2020). The closest record to New Mexico is near Silverton, Colorado, approximately 325 km from Albuquerque [*Lehr s.n.* at RMBL]. This species has a short life cycle, flowers early in the year, and grows in disturbed areas in the United States (Shinners 1965; Rabeler & Hartman 2020). ***Significance:*** These are the first records of this species in New Mexico. It may have been introduced through gravel or soil deposits, or grass seeding efforts for landscaping, but this is only an assumption based on the proximity of the specimens to sidewalks and landscaped environments. Two populations were found in Albuquerque in 2024. Each population was recorded on iNaturalist, and one herbarium collection was made. In 2025, several observations of this species were made in Silver City and were recorded on iNaturalist (observation 267994374; https://www.inaturalist.org/observations/267994374), and one subsequent collection was made [*Titus 2025-4-2-1* at SNM]. Additional populations could be found in "weedy" urban areas. This is now the most southern collection of the species in North America.

Voucher specimen: **U.S.A. New Mexico. Bernalillo Co.:** East of Hausammann Brewhaus off Buena Vista Dr SE, S of Central Ave SE. 35.080698°, –106.624116° ±5 m [WGS 84], elev. 1573 m, 6 Mar 2024, *Grace McCartha GLM-1075* (UNM).
Habitat: Population is in a small strip (about 2–3 ft wide) of dirt between a building (Hausammann Brewhaus) and sidewalk in the city of A buquerque with other weedy species *Hordeum*, *Medicago*, and *Sonchus*.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=32389684&clid=0
iNaturalist: Observation 200188117 (https://www.inaturalist.org/observations/200188117) and observation 203180296 (https://www.inaturalist.org/observations/203180296)
Collection Approach: Opportunistic.

Graptopetalum rusbyi (Greene) Rose (CRASSULACEAE)—***Previous knowledge:*** *Graptopetalum rusbyi* is a succulent forb known to grow on shaded cliffs in low elevation mountainous regions in Arizona and northern Mexico (Moran 2020). It is also a plant of interest in succulent commerce (Lady Bird Johnson Wildflower Center 2020). ***Significance:*** This is the first collection for this species in New Mexico and definitively extends its distribution well into New Mexico. It is reported to have been observed in the San Francisco Box in the state but not confirmed (New Mexico Rare Plant Technical Council 1999a). It was found nearly completely camouflaged by a population of *Myriopteris yavapensis* in the Gila Mountains, not far from the San Francisco box and the Arizona border, in the Turkey Creek Vicinity. The closest collection to New Mexico prior to this is 11 km away in northern Mexico [*Stephen Hale 5423* at ARIZ], but the closest collection to this new locality is 82 km away in Greenlee, Arizona [*Anstruther Davidson 1956* at CalBG:RSA]. It has likely been overlooked in southwest New Mexico and should be targeted in future spring work in the area, both in the Peloncillos and Mogollons. It is considered secure in neighboring Arizona and has been previously ranked in New Mexico as an S1 based on an unconfirmed record (NatureServe 2025a).

Voucher specimens: **U.S.A. New Mexico. Grant Co.:** Gila National Forest, Gila Wilderness, Turkey Creek, Turkey Creek Hot Springs, rock out crop on northern edge of lower pools, 33.114757°, –108.48394° [WGS 84], elev. 1572 m, 24 May 2025, *Harpo Faust 5484* (UNM).
Habitat: Wide open rocky outcrop above lowest hot spring with sparse vegetation, patchy grasses, *Echinocereus*, *Myriopteris*, *Bothriochloa*,

Eragrostis, and moss.
Specimen link: https://www.swbiodiversity.org/seinet/collections/individual/index.php?occid=33837565
Collection Approach: Opportunistic.

Carex perglobosa Mack. (CYPERACEAE)—***Previous knowledge:*** *Carex perglobosa* is an alpine tundra loving tufted sedge known from the southern Rocky Mountains in Utah and Colorado (Reznicek 2020). The closest population to the newfound population is in the San Juan Mountains [*Lundquist L95* at SJNM] (Symbiota 2025). ***Significance:*** First report and collection of this species in the state of New Mexico. This population extends the known distribution of the taxa by 150 km south.

Voucher specimen: **U.S.A. New Mexico. Taos Co.:** Carson National Forest, Pecos Wilderness, Santa Fe Mountains, Divide Trail, UN-12828 [Location ID: JK1] 36.050193°, –105.551585° ±4 m [WGS 84], elev. 3918 m, 22 Jul 2024, *Joseph Kleinkopf 1182 with Harpo Faust* (UNM).
Habitat: Summit of UN-12828, flat scree. Rocks appearing to be sandstone with layers, possibly mafic. Summit mostly flat with occasional small grassy mounds. Dominated by *Tonestus*, *Cherleria obtusiloba*, and graminoids.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33782766&clid=0
Collection approach: Habitat.

Carex retrorsa Schwein. (CYPERACEAE)—***Previous knowledge:*** *Carex retrorsa* is a common wetland sedge in the northern reaches of North America, occurring in wet meadows and riparian edges (Reznicek & Ford 2020). ***Significance:*** First record for the state of New Mexico and definitive extension of its distribution into the state. *Carex retrorsa* is known from nearby populations in southern Colorado, where it is well established in the San Juan Mountains, with the nearest specimen [*Ken Heil 12668* at SJMM] only 48 km NW of this population.

Voucher specimen: **U.S.A. New Mexico. Rio Arriba Co.:** Brazos Conservation Company LLC, 36.7315929°, –106.408871 ° ±5 m [WGS 84], elev. 2612 m, 12 Aug 2025, *Erika Rowe 3200 with Harpo Faust, Kelly Allred and Russ Kleinman* (UNM).
Habitat: Mucky pond margin that extends from the open water to upland edge, approx. 5–10 m wide of wetland vegetation, which has abundant sedges and wetland grasses present.
Associated Taxa: *Carex utriculata*, *Carex stipata*, *Glyceria striata*, *Poa palustris*, *Mentha arvensis*, *Carex* sp. (ovales), *Calamagrostis canadensis*, *Rudbeckia laciniata*.
Notes: Small open pond along forest road on private land. *Carex retrorsa* is abundant around the entire margin of the pond. An additional five clumps were documented ~845 m SW (upslope) along the margin of a small beaver pond (36.726296, –106.402205).
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=34116491&clid=0
Collection Approach: Opportunistic.

Oxytropis podocarpa A. Gray (FABACEAE)—***Previous knowledge:*** This species can be found growing in alpine areas of the Rocky Mountains and rocky shores in far northern Canada (Welsh 2025b; Symbiota 2024). Prior to this collection, the closest report of this species to New Mexico was a collection made in the San Juan Mountains of Colorado, NE of Gramps Peak, approximately 155 km NW of our collection S of Jicarita Peak in New Mexico *[Douglas 2070* at CS]. The closest report in the Sangre de Cristo Mountain range was north of Mount Lindsey in Colorado (observation 226893738; https://www.inaturalist.org/observations/226893738), approx. 175 km N of our collection. ***Significance:*** This is the first record for New Mexico and is isolated from other known populations. Since this collection, it has been observed about 500 m south by Ben Stout (observation 288097272; https://www.inaturalist.org/observations/288097272). The species should be looked for on other alpine peaks in the state. This is now the most southern collection of the species in North America.

Voucher specimens: **U.S.A. New Mexico. Taos Co.:** Jicarita Range, 36.02492411°, –105.5404903° ±20 m [WGS 84], elev. 3753 m, 23 Jul 2024, *Grace McCartha GLM-1113* (UNM).
Habitat: Rocky Mountain Alpine with Herbaceous Vegetation. Substrate: Mica Schist. Associated Taxa: *Trifolium brandegeei*; *Phlox pulvinata*; *Oreoxis bakeri*.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33821897&clid=0
iNaturalist: Observation 258578182 (https://www.inaturalist.org/observations/258578182)
Collection Approach: Agency.

Phacelia distans Benth. (HYDROPHYLLACEAE)—***Previous knowledge:*** *Phacelia distans* is a flowering annual forb previously known in southern California, southern Nevada, Arizona, and northern Mexico (Walden et al. 2023). ***Significance:*** First accurate report for this species in the state of New Mexico. Two other specimens have been identified as *Phacelia distans*, but are not accurately identified [*Rosson 1337A* at TTC & *Casados 81-88* at BLM:NM]. This taxon is likely also in the Peloncillos and Mogollon Mountains in New Mexico.

Voucher specimen: **U.S.A. New Mexico. Grant Co.:** BLM Las Cruces District, Apache Box Wilderness Area, Apache Box, 0.15 m SE from end of road on eastern slope above roadbed, 32.931812°, –108.990031° ±5 m [WGS 84], elev. 1740 m, 28 Apr 2024, *Harpo Faust 4779* (UNM).
Habitat: West facing rocky slope overlooking the end of a large box canyon. Slope with patches of grasses and ferns but otherwise mostly loose gravelly soil. *Opuntia*, *Eragrostis*, *Trixis*, *Myriopteris* and *Astrolepis* abundant.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33767157&clid=0
Collection Approach: Opportunistic.

Phacelia hastata var. **alpina** (Rydb.) Cronquist (HYDROPHYLLACEAE)—***Previous knowledge:*** *Phacelia hastata* var. *alpina* is a flowering perennial herb inhabiting dry, open, high elevation habitats across the Great Basin region in Colorado, Montana, central Idaho, and northeastern Oregon (Hitchcock & Cronquist 2018). ***Significance:*** This is the first, accurate report for this taxon in the state of New Mexico. It is also the first accurate report for this species in the state. It is also the southernmost collection of this taxon. While there is uncertainty regarding the taxonomic status of *Phacelia hastata* var. *alpina,* with some considering it to be a synonym of *P. hastata* var. *hastata,* this collection is significant for several other reasons. Of the four collections of *Phacelia hastata* var. *hastata* [*Nelson s.n.* at RM; *Standley 4140* at RM; *Clifford 00-706* at SJNM; *Weber 83* at COLO] made in the state of New Mexico, all remain unconfirmed (Bob Sivinski, pers. comm.). Despite these collections, it is not listed in either of the most recent floristic treatments for the state (Allred et al. 2020; Heil & O'Kane 2025). Furthermore, all four specimens were collected from non-alpine habitats, and three of the four specimens were collected over 50 years ago (Symbiota 2024).

Voucher specimen: **U.S.A. New Mexico. Santa Fe Co.:** Sangre de Cristo Mountains, Santa Fe National Forest, Pecos Wilderness, summit of Deception Peak, one of the high points of Ski Santa Fe, 35.794042°, –105.773436° ±5 m [WGS 84], elev. 3749 m, 26 Jul 2023. *Joseph Kleinkopf 976 with Brianna Addison and Harpo Faust* (UNM).
Habitat: South-east facing aspect of Deception Peak. Steep talus and loose scree anchored by *Heuchera* and *Dasiphora*. Soil loose and dry, with obvious mica. Rocks metamorphic, felsic to mafic. *Picea* individuals extending to above 12,000 ft elevation.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33816297&clid=0
Collection Approach: Habitat.

*__Stachys byzantina__ K. Koch (LAMIACEAE)—***Previous knowledge:*** *Stachys byzantina* is an ornamental and medicinal species native to Iran, Turkey, and the Caucasus region (Asnaashari et al. 2010; Vojík et al. 2022; Plants of the World Online 2025). It has the potential to become invasive (Vojík et al. 2022), but is not listed as a noxious weed anywhere in the United States (EDDMapS 2025). ***Significance:*** The collection of this species in 2019 near Cloudcroft, NM, is a state record. Since its collection in 2019, there have been several wild observations on iNaturalist (e.g., observation 227024960; https://www.inaturalist.org/observations/227024960) in mountainous regions of the state.

Voucher specimen: **U.S.A. New Mexico. Lincoln Co.:** Carrizo Creek, Ruidoso, 33.32151867°, –105.6670543° ±20 m [WGS 84], elev. 2019 m, 2 Aug 2019, *Yvonne Chauvin 19YC145-F13* (UNM).
Habitat: Montane Native Evergreen Riparian Forest. Substrate: Mixed Alluvium (full range of textures) Associated Taxa: *Pinus ponderosa; Juniperus scopulorum; Salix exigua; Festuca arundinacea; Poa pratensis*.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33821901&clid=0
Collection Approach: Agency.

Utricularia minor L. (LENTIBULRIACEAE)—***Previous knowledge:*** *Utricularia minor* is an aquatic perennial carnivorous herb found in shallow water, often at riparian edges throughout North America (NatureServe 2025b). ***Significance:*** First record for the state of New Mexico and definitive extension of its distribution into the state. Established in both neighboring states of Arizona and Colorado, the closest collection is in Colorado, 104 km northeast of this population [*Steve O'Kane 2462* at CS].

Voucher specimen: **U.S.A. New Mexico. Rio Arriba Co.:** Brazos Conservation Company LLC, Floating Mat Lake, 2.08 mi W of Hwy 64, edge of floating mat, lakeside [Location ID: HF-333] 36.71545°, –106.396543° ±5 m [WGS 84], elev. 2858 m, 11 Aug 2025, *Harpo Faust 5711 with Erika Rowe, Kelly Allred and Russ Kleinman* (UNM).
Habitat: Edge of floating mat of *Aliconium* moss within rich fen dominated by *Carex utriculata* and *Comarum palustre* on edge of *Picea* forest.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=34114454&clid=0
Collection Approach: Opportunistic.

Mentzelia saxicola H.J. Thomps. & Zavort. (LOASACEAE)—***Previous knowledge:*** Mentzelia saxicola is a biennial herb endemic to the Chihuahuan Desert in Texas and Mexico (Schenk et al. 2021). It can be found growing in sandy or gypsum soils within arroyos or cliffsides. ***Significance:*** This is the first collection of *Mentzelia saxicola* in New Mexico and the northernmost collection of its range, by 100 km (62 mi), *Spellenberg 3686* (NYBG).

Voucher specimen: **U.S.A. New Mexico. Otero Co.:** Las Cruces BLM District, Brokeoff Mountains, O Bar U Waterhole, 4.4 air mi SSE from County Road G013 junction with G018, 32.04627°, –104.920272° ±4 m [WGS 84], elev. 1671 m (5481 ft), 31 Jul 2024, *Bryana Olmeda 1466* (UNM).
Habitat: West facing slope on ridge top with loose gravel soil amongst desert scrubland and mixed grasses.
Associated Taxa: *Pinus edulis, Fouquieria splendens, Mortonia scabrella, Leucophyllum minus, Bouteloua* sp., *Aristida* sp., *Agave* sp., *Dasylirion leiophyllum, Nama xylopoda, Dalea formosa*. Uncommon, yellow flowers. Collected on Lipan Apache and Mescalero Apache lands.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33335316&clid=0
Collection Approach: Floristics.

Argemone chisosensis G.B. Ownbey (PAPAVERACEAE)—***Previous knowledge:*** *Argemone chisosensis* is a perennial, prickly herb commonly found in arid plains and mountains in western Texas and northern Mexico (Ownbey 1958). It was previously thought to have been documented in New Mexico by R. Worthington [*Worthington 35078* at ARIZ & *Worthington 35461* at UTEP] in 2008 and by R.C. Sivinski in 2004 [*Sivinski 5814* at NMC]. These three specimens were determined to be *Aregemone squarrosa* by R.C. Sivinski, based on leaf morphology (Sivinski, pers. comm.). ***Significance:*** This is the first verified collection of *Argemone chisosensis* in New Mexico and the northmost collection of its range. Since then, one additional population has been located in the Brokeoff Mountains [*Olmeda 1454* at UNM].

Voucher specimen: **U.S.A. New Mexico. Otero Co.:** Las Cruces BLM District, Brokeoff Mountains, 4.1 air mi S on County Road G013 from junction with G018, 32.049382°, –104.937169° ±4 m [WGS 84], elev. 1477 m, 30 Jul 2025, *Bryana Olmeda 695* (UNM).
Habitat: Bare dirt water hole with signs of cow disturbance surrounded by gentle desert scrubland hills. Associated Taxa: *Solanum elaeagnifolium, Larrea tridentata, Gutierrezia sp., Brickellia* sp., *Yucca sp., Verbascum thapsus, Muhlenbergia* sp.
Notes: Scattered, white flowers. Collected on Lipan Apache and Mescalero Apache lands.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33336161&clid=0
Collection Approach: Floristics.

Rhamnus cathartica** L. (RHAMNACEAE)—Previous knowledge:*** *Rhamnus cathartica* is a shrub to small tree native to much of Europe and western Asia (Knight et al. 2007). It was introduced to North America in the 1800s or earlier as an ornamental (Torrey 1824), and it has become particularly invasive in midwestern and northeastern regions of the United States (Swearingen & Bargeron 2016). It is allelopathic, fast-growing, and difficult to remove (Knight et al. 2007; Swearingen & Bargeron 2016; Warren et al. 2017). Seeds can be dispersed by vertebrates that eat the berries, while long-distance dispersal is primarily facilitated by birds (Knight et al. 2007). ***Significance:*** This is the first time the species has been recorded in New Mexico in a wild setting. This specimen was found at Embudo Spring in the Sandia Mountain Wilderness. There have been a couple of observations in the city of Santa Fe (observations 1676252 and 189234588; https://www.inaturalist.org/observations/167625246 and https://www.inaturalist.org/observations/189234588) and one observation south of La Cueva near some residences (observation 221774064; https://www.inaturalist.org/observations/221774064). The species has the potential to be highly invasive and should be removed where found.

Voucher specimen: **U.S.A. New Mexico. Bernalillo Co.:** Sandia Mountain Wilderness at Embudo Canyon Spring about one mile from the trailhead parking lot, 35.096791°, –106.463225° ±3 m [WGS 84], elev. 2012 m, 3 May 2025, *Grace McCartha GLM-1293* (UNM).
Habitat: Montane Riparian Forest and Woodlands. Substrate: Granite Associated Taxa: *Bromus tectorum; Juniperus monosperma; Sphaeralcea* sp.; aquatic dicot.
Notes: About three m tall and only one individual found growing in the area; introduced.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33821907&clid=0
iNaturalist: Observation 173334313 (https://www.inaturalist.org/observations/173334313)
Collection Approach: Opportunistic.

Comarum palustre L. (ROSACEAE)—***Previous knowledge:*** *Comarum palustre* is a wetland woody perennial herb common in sphagnum bogs, subalpine wetlands, and lake/pond margins, with a circumboreal distribution, common across northern North America as well as across the Rocky Mountains (Ertter & Reveal 2020). ***Significance:*** This is the first report for the state of New Mexico. This also represents the most southern population of the range, extending its distribution from the southernmost Colorado population by 35 kilometers. The closest collection was made in 1965 in Cumbres Pass, Conejo County, Colorado [*Weber 9363* at COLO]. While there are not many other sphagnum wetlands in the state that have not been reviewed, it is likely there could be one or two more populations near the CO/NM border in similar habitats.

Voucher specimen: **U.S.A. New Mexico. Rio Arriba Co.:** Brazos Conservation Company, Vicinity of Penasco Amarillo, 1.7 air mi NE of Penasco Amarillo, unnamed wetland, 36.714973°, –106.388772° ±5 m [WGS 84], elev. 2860 m, 28 Aug 2024, *Harpo Faust 5309 with Sarah Potter* (UNM).
Habitat: Edge of *Typha* and *Schoenoplectus* dominant sedge wetland with a series of open shallow waters transitioning into a mossy graminoid riparian corridor. Dominant species in wetland.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33309897&clid=0
Collection approach: Opportunistic.

Potentilla hookeriana Lehm. (ROSACEAE)—***Previous knowledge:*** *Potentilla hookeriana* is a perennial herb with a woody caudex that is found in alpine and arctic environments across the Rocky Mountains (Elven & Ertter 2020). Southern Rocky Mountain alpine *Potentilla* are notoriously difficult to identify, and the identification of *Potentilla hookeriana* is no different. Fortunately, this specimen was verified by Barbara Ertter, the author of the treatment of the group in Flora of North America. The southern extent of this species was previously known to be in Costilla County, Colorado, also in the Sangre De Cristo Mountains [*Hartman 62593* at COLO]. ***Significance:*** First report for this species in New Mexico and increases its southern distribution by 145 kilometers. All available southern Rocky Mountain *Potentill*a specimens have been reviewed at UNM. However, there are likely more populations of this species to be found on other alpine peaks in the state.

Voucher specimen: **U.S.A. New Mexico. Taos Co.:** Carson National Forest, Pecos Wilderness, Santa Fe Mountains, Divide Trail, Jicarita Peak, North east face. 36.057402°, –105.561845° ±5 m [WGS 84], elev. 3863 m, 24 Jul 2024, *Harpo Faust 5209 with Joseph Kleinkopf* (UNM).
Habitat: Northeast portion of east face of alpine peak composed of scree with patchy talus. Scree is dark and loose with cushion plants, with sandstone tallus and iron rich soil. Dominant plants: *Cirsium*, *Senecio*, *Festuca* with patches of bare scree. Scattered, East & North, Flowers & Fruits, Talus, Scree, Fellfield.
Specimen link: https://swbiodiversity.org/seinet/collections/individual/index.php?occid=33767112&clid=0
Collection approach: Habitat.

OTHER NOTEWORTHY REPORTS

The following specimen reports represent categories of significant collections. *Distribution records* describe a collection that marks the extension of our current understanding of a taxon's spatial distribution in the state of New Mexico. Records of poorly represented taxa include plant species that have not been found for a notable period, or were previously only represented by 1-2 reports, or are peripheral or lie on the edge of their distribution in the state of New Mexico. *Rare reports* represent recently encountered collections of state-classified rare plants (New Mexico Rare Plant Technical Council 1999b). *Atypical Records* represent a myriad of difficult to categorize aberrant collections that represent anywhere from unique morphology to oddball habitats. *County records* represent the first reports for a taxon for the respective county. The combined geographic distribution of these records is statewide, though most of the collections occurred in mountainous areas due to the nature of our recent projects in the Brokeoff Mountains, on alpine peaks in northern New Mexico, and with a taxonomic focus on ferns (Fig. 3). Under each category, records are organized alphabetically by family and then by scientific name and include the significance, if necessary, as well as a voucher specimen and collection approach. Non-native taxa are noted with an asterisk* before the scientific name.

DISTRIBUTION RECORDS

Stellaria sanjuanensis M.T. Sharples & E.A. Tripp (CARYOPHYLLACEAE)—***Significance:*** *Stellaria sanjuanensis* is a recently described species (Sharples & Tripp 2019) with a center of distribution in the San Juan Mountains of Colorado. Our collection represents the southernmost known population of this taxon, 29 km southwest of the previously southernmost known population [*Hartman 2529c* at COLO]. This species is described in Vascular Plants of New Mexico (Heil & O'Kane 2025) but not in *Flora Neomexicana* (Allred et al. 2020). All UNM Specimens were annotated. ***Voucher specimen:*** *Kleinkopf 375* (UNM). ***Collection approach:*** Habitat.

Gentiana prostrata Haenke (GENTIANACEAE)—***Significance:*** There are only four known collections of *Gentiana prostrata* in New Mexico. We report two new collections of this species from Lake Fork Peak and Jicarita Peak, which represent the southernmost known populations of this taxon at the time of collection. ***Voucher specimens:*** *Faust 5220* & *Kleinkopf 386* (UNM). ***Collection approach:*** Habitat.

Polypodium saximontanum Windham (OPHIOGLOSSACEAE)—***Significance:*** Prior to the 2024 collections, only two populations were known in the state, the Brazos Box population and the Vallecitos Wildlife Refuge population [*Standley 1195* & *Jercinovic 442* (UNM)]. Three additional populations help fill in the gaps of the known distribution: two more in Rio Arriba County and one represents a collection record for Sandoval County. ***Voucher specimens:*** *Faust 5320*, *5004*, *4922* (UNM). ***Collection Approach:*** Taxonomic.

RECORDS OF POORLY REPRESENTED TAXA

Lapsana communis** L. (ASTERACEAE)—Significance:*** This is the second collection of this species in New Mexico. The first collection [*R.D. Worthington 34183* at NMC & UNM] was made in 2006. Both collections were made near Ruidoso, but at different locations. It is native to Europe, western Asia, and northwestern Africa and is a "weedy" annual (Francis et al. 2011). It is listed as invasive in Oregon and West Virginia (EDDMapS 2025). ***Voucher specimen:*** *Chauvin 19YC145-F6* at UNM. ***Collection approach:*** Agency.

Lasthenia gracilis (DC.) Greene (ASTERACEAE)—***Significance:*** Second ever collection in New Mexico. Also, a county collection record for Grant County that confirms a legacy report (Allred et al. 2020). ***Voucher specimen:*** *Faust 4766* at UNM. ***Collection approach:*** Opportunistic.

Cherleria biflora (L.) A.J. Moore & Dillenb. (CARYOPHYLLACEAE)—***Significance:*** Prior to 2024, *Cherleria biflora* had been collected only twice in the state of New Mexico [*Larson 8098* & *Reif 7997* at RM]. Here we report two new collections of this taxon. This species is currently not reported for New Mexico in Flora Neomexicana (Allred et al. 2020) but is included in Vascular Plants of New Mexico (Heil & O'Kane 2025). ***Voucher specimens:*** *Faust 5128*, *5147* at UNM. ***Collection approach:*** Habitat.

Sabulina stricta (Sw.) Rchb. (CARYOPHYLLACEAE)—***Significance:*** *Sabulina stricta* has been collected in New Mexico only once previously [*Heil 29580* at SJNM], approximately five miles south of where we collected our specimen on Unnamed Peak 12828 near Jicarita Peak. This species is currently not reported for New Mexico in Flora Neomexicana (Allred et al. 2020), but is included in Vascular Plants of New Mexico (Heil & O'Kane 2025). ***Voucher specimen:*** *Kleinkopf 1207* at UNM. ***Collection approach:*** Habitat.

Abutilon parishii S. Watson (MALVACEAE)—***Significance:*** *Abutilon parishii* was previously known to be endemic to Arizona and Sonora, MX (McNair et. al 2022). *Abutilon parishii* was recently uncovered in the bootheel of the state at Granite Gap. Recent digitization efforts also revealed a nearby legacy collection from 1884 from Steins Pass just 15km north [*Jones sn* at RSA:CBG]. This species is currently not reported for New Mexico in Flora Neomexicana (Allred et al. 2020), or Vascular Plants of New Mexico (Heil & O'Kane 2025). This taxon is of conservation status in neighboring Arizona and now under review in New Mexico. ***Voucher specimen:*** *Faust 5763* at UNM. ***Collection approach:*** Opportunistic.

Botrychium campestre var. **lineare** W.H. Wagner (Farrar) (OPHIOGLOSSACEAE)—***Significance:*** Since the *Botrychium* boom era of Legler's collections, this collection, along with the *B. tunux* collection, represents the only other alpine moonwort collection for the state of New Mexico (Legler 2010). Alpine moonworts have low collection numbers and should be targeted for more collections. ***Voucher specimen:*** *Faust 5137* at UNM. ***Collection approach:*** Habitat.

Botrychium tunux Stensvold & Farrar (OPHIOGLOSSACEAE)—***Significance:*** Since the *Botrychium* boom era of Legler's collections, this collection, along with the *B. campestre* var. *lineare* collection, represents the only other alpine moonwort collection for the state of New Mexico (Legler 2010). ***Voucher specimen:*** *Faust 5136* at UNM. ***Collection approach:*** Habitat.

Cypripedium parviflorum var. **pubescens** (Wild.) O.W. Knight (ORCHIDACEAE)—***Significance:*** Only modern collection for

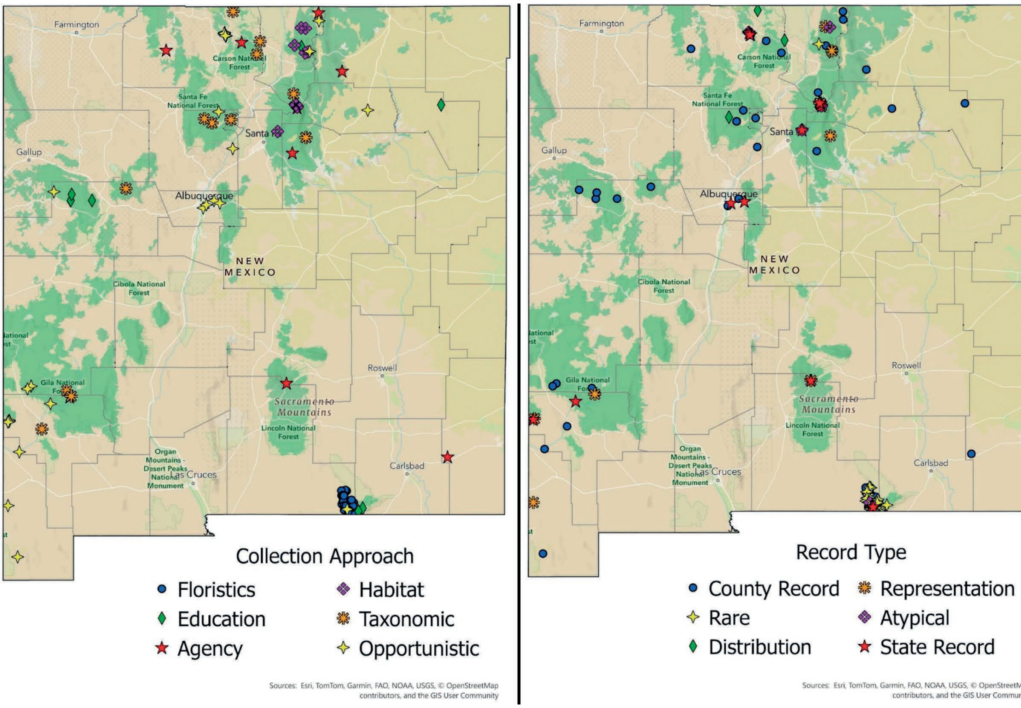

Fig. 3. Maps of noteworthy collections by collection approach (left) and record type (right).

Gila populations, with precise site data. The collection was made with a crew of Gila National Forest biologists. ***Voucher specimen:*** *Faust 4868* at UNM. ***Collection approach:*** Agency.

Aphyllon riparium (L.T. Collins) A.C. Schneid. (OROBANCHACEAE)—***Significance:*** Collected for the second time in Bernalillo County since 1884 [*Jones s.n.* at CalBG:RSA]. ***Notes:*** Common in the state, unsure why fewer than 13 specimens exist. ***Voucher specimen:*** *Faust 4684* at UNM. ***Collection approach:*** Opportunistic.

Papaver coloradense Fedde (PAPAVARACEAE)—***Significance:*** Collected for the second time in the state in over a century since 1904 by Vernon Bailey [*Bailey 853* at US]. ***Notes:*** Uncommon on peak. ***Voucher specimen:*** *Marx 2025-063* at BH. ***Collection approach:*** Habitat.

Helictotrichon mortonianum (Scribn.) Henr. (POACEAE)—***Significance:*** *Helictotrichon mortonianum* is represented by only four collections in the state of New Mexico [*Talbot 50* at RM; *Dittmer 9836* at UNM; *Bridges 1412* at NMCR; *Allred 7826, 7827* at NMCR] between 1923 and 2000. Our collections represent new populations on and near Jicarita Peak in New Mexico. ***Voucher specimens:*** *Faust 5056* & *Kleinkopf 1176* at UNM. ***Collection approach:*** Habitat.

Myriopteris tomentosa Fée (PTERIDACEAE)—***Significance:*** This species was collected in San Miguel County for the first time since 1895 [*Plank s.n.* at NYBG], as well as at the northern limits of its distribution. ***Voucher specimen:*** *Faust 5252* at UNM. ***Collection approach:*** Taxonomic.

Potentilla saximontana Rydb. (ROSACEAE)—***Significance:*** This taxon was collected in Taos County for the first time in 1979 [*Fletcher 4062* at UNM], and the 2022 collections are the first since. ***Voucher specimen:*** *Kleinkopf 189* at UNM. ***Collection approach:*** Habitat.

RARE RECORDS

Berlandiera macvaughii B.L. Turner (ASTERACEAE)—***Significance:*** This taxon has recently been relisted as a New Mexico rare plant after being removed due to a lack of collection and taxonomic data. This collection brings the total number of collections in the state up to 4, and the first collection made in Otero County. ***NatureServe ranking:*** G1 S1. ***Voucher specimen:*** *Olmeda 278* at UNM. ***Collection approach:*** Floristics.

Laphamia quinqueflora Steyerm. [*Perityle quinqueflora* (Steyerm.) Shinners] (ASTERACEAE)—***Significance:*** Over 11 new reports of this taxon in the state, locally abundant. ***NatureServe ranking:*** G4 S3. Voucher specimens: *Faust 4280, 5347* & *Olmeda 248, 441, 496, 951, 1085, 1174, 1937* at UNM. ***Collection approach:*** Floristics and Education.

Ericameria nauseosa var. **texensis** (L.C. Anderson) G.L. Nesom & G.I. Baird (ASTERACEAE)—***Significance:*** Over 14 new populations of this taxon have been documented in the Brokeoff Mountains. ***NatureServe ranking:*** G5T2T3 S2. ***Voucher specimens:*** *Olmeda 499, 1058, 1082, 1338, 1369, 1570, 1600, 1795, 1904, 1919, 1940, 1949, 1975, 2003* at UNM. ***Collection approach:*** Floristics.

Oreocarya worthingtonii Sivinski (BORAGINACEAE)—***Significance:*** Two additional populations of the Brokeoff Mountains endemic were documented through a floristics study. This data was used to officially list this species as a rare plant in New Mexico. ***NatureServe ranking:*** G1 S1. ***Voucher specimens:*** *Olmeda 137, 169* at UNM. ***Collection approach:*** Floristics.

Draba heilii Al-Shehbaz (BRASSICACEAE)—***Significance:*** *Draba heilii* is a low-growing perennial herb restricted to alpine tundra of Rio Arriba and Mora counties in New Mexico, known from less than 11 collections previously. ***NatureServe ranking:*** G2 S2. ***Voucher specimen:*** *Faust 5199* at UNM. ***Collection approach:*** Habitat.

Draba mogollonica Greene (BRASSICACEAE)—***Significance:*** *Draba mogollonica* is known only from the Mogollon mountains of New Mexico and Arizona. This collection fills in a hole in the New Mexico distribution. ***NatureServe ranking:*** G2 S2. ***Voucher specimen:*** *Faust 4752* at UNM. ***Collection approach:*** Opportunistic.

Dermatophyllum guadalupense (B.L. Turner & A.M. Powell) B.L. Turner (FABACEAE)—***Significance:*** Endemic to the Guadalupe and Brokeoff mountains. Three new populations of this taxon were documented in the Brokeoff Mountains, increasing the known prevalence of this taxon in the region. ***NatureServe ranking:*** G2 S1. ***Voucher specimens:*** *Olmeda 186a, 916, 1133, 1213, 1517* at UNM. ***Collection approach:*** Floristics.

Salvia summa A. Nels (LAMIACEAE)—***Significance:*** *Salvia summa* was documented in the Brokeoff Mountains for the first time, extending the range west of the Guadalupe Mountains. This collection represents an Otero County record. ***NatureServe ranking:*** G3 S3? ***Voucher specimen:*** *Olmeda 1185* at UNM. ***Collection approach:*** Floristics.

Anticlea mogolloensis (W.J.Hess & Sivinski) Zomlefer & Judd (MELANTHIACEAE)— ***Significance:*** Second collection ever in Grant County for species. ***NatureServe ranking:*** G1 S1 ***Voucher specimen:*** Faust 5818 at UNM. ***Collection approach:*** Opportunistic.

Bletia nitida (L.O. Williams) Sosa & M.W. Chase [*Hexalectris nitida* L.0. Williams] (ORCHIDACEAE)—***Significance:*** Two new reports of this taxon in the state, in over 45 years. The Olmeda collection is also a county record for Otero County, and the Faust collection occurred during the UNM Herbarium 2024 Foray. ***NatureServe ranking:*** G3 S1. State Endangered. ***Voucher specimens:*** *Faust 5402* & *Olmeda 529* at UNM. ***Collection approach:*** Floristics and Education.

Rhinotropis rimulicola var. **rimulicola** (Steyerm.) J.R. Abbott (POLYGALACEAE)—***Significance:*** Previously thought to be restricted to a small region in the Guadalupe Mountains, this is the first documentation of this species in the Brokeoff Mountains and Otero County. ***NatureServe ranking:*** G3T3 S2. ***Voucher specimen:*** *Olmeda 1551* at UNM. ***Collection approach:*** Floristics.

Aquilegia chaplinei (Standl. ex Payson) E.J. Lott (RANUNCULACEAE) —***Significance:*** A new population of this taxon endemic to the Guadalupe and Sacramento Mountains was found during the 2024 UNM Herbarium Collection Foray. ***NatureServe ranking:*** G2 S2. ***Voucher specimen:*** *Faust 5437* at UNM. ***Collection approach:*** Education.

Delphinium alpestre Rydb. (RANUNCULACEAE)—***Significance:*** The Alpine Larkspur is a rare perennial herb restricted to alpine tundra and subalpine forests of northern New Mexico and southern Colorado. ***NatureServe ranking:*** G3 S3. ***Voucher specimens:*** *Faust 5085, 5174* & *Kleinkopf 230* at UNM. ***Collection approach:*** Habitat.

Delphinium robustum Rydb. (RANUNCULACEAE)—***Significance:*** The Robust Larkspur is a rare perennial herb restricted to subalpine forests of northern New Mexico and Colorado. ***NatureServe ranking:*** G2G3 S2. ***Voucher specimen:*** *Faust 5026* at UNM. ***Collection approach:*** Habitat.

Viola calcicola R.A. McCauley & H.E. Ballard (VIOLACEAE)—***Significance:*** New report and population of this taxon in the Guadalupe Mountains, found during the 2024 UNM Herbarium Collection Foray. ***NatureServe ranking:*** G2G3 S1. ***Voucher specimen:*** *Faust 5436* at UNM. ***Collection approach:*** Education.

ATYPICAL RECORDS

Tetraneuris acaulis var. **caespitosa** A. Nelson (ASTERACEAE)—***Significance:*** *Tetraneuris acaulis* var. *caespitosa* is a short perennial herb found in alpine habitats of Wyoming, Colorado, and New Mexico. Collections of this taxon, including ours, from Lake Peak and Deception Peak above Ski Santa Fe are exceptionally pubescent compared with collections of this taxon made in other areas of its range. While this morphologically anomalous population may simply represent extreme variation in phenology, we note it here as a population of interest for future inquiry. ***Voucher specimens:*** *Kleinkopf 917, 957* at UNM. ***Collection approach:*** Habitat.

Pteryxia hendersonii (Rydb.) W.A. Weber (APIACEAE)—***Significance:*** This plant is typically only found in alpine tundra. This was one of two collections that represent atypical habitat for the taxon in the state, almost a thousand meters lower than the majority of the specimens and in a canyon crevice. Only one other collection is from this atypical habitat [*Heil 28650* at SJNM]. ***Voucher specimen:*** *Faust 5279* at UNM. ***Collection approach:*** Opportunistic.

Oxytropis parryi A. Gray (FABACEAE)—***Significance:*** *Oxytropis parryi* plants usually have 1–3(4) fruits per raceme (Welsh 2025a), but some populations in New Mexico vary by having up to six fruits per raceme. Our recent collection about 3.6 km southeast of Jicarita Peak commonly has six fruits per raceme, and a population on Elk Mountain 28 km south has 2–6 fruits per raceme [*K.D. Heil 29801* & *S.L. O Kane, Jr. 10055* at SJNM]. In contrast, another population just 1.2 km southeast of Jicarita Peak has a "normal" 2–3 fruits per raceme [*Kleinkopf 1203* at UNM]. Because populations of *Oxytropis parryi* are restricted to alpine peaks and are uncommon in New Mexico, there may be more variation occurring within the species in the state. ***Voucher specimens:*** *McCartha GLM-1114* at UNM. ***Collection approach:*** Agency.

Adiantum capillus-veneris L. (PTERIDACEAE)—***Significance:*** This taxon is usually found in riparian habitats with active water, but was found in a completely dry canyon with no signs of modern water. ***Voucher specimen:*** *Olmeda 1549* at UNM. ***Collection approach:*** Floristics.

Ranunculus macauleyi A. Gray (RANUNCULACEAE)—***Significance:*** *Ranunculus macauleyi* is a common alpine herb easily identified by the soft, dense, brown hairs on the abaxial surface of its sepals and distal toothing of leaves. Our collection most closely represents this species. However, flower size and shape are large for this taxon, and in many ways resemble *Ranunculus inamoenus*. We note it here as a population for future study. ***Voucher specimen:*** *Kleinkopf 298* at UNM. ***Collection approach:*** Habitat.

COUNTY RECORDS

BERNALILLO

Pectis cylindrica (Fern.) Rydb. (ASTERACEAE)—***Notes:*** Formerly, this taxon was only known from the southernmost counties in New Mexico (Allred et al. 2020; Symbiota 2024). Its presence as a weed in some Albuquerque neighborhoods represents a disjunct population, likely introduced through landscaping gravel or soil. ***Voucher specimen:*** *McCartha GLM-1076* at UNM. ***iNaturalist:*** Observation 171765689 (https://www.inaturalist.org/observations/171765689). ***Collection approach:*** Opportunistic.

CATRON

Equisetum × ferrissii Clute (EQUISETACEAE)—***Voucher specimen:*** *Faust 4623* at UNM. ***Collection approach:*** Taxonomic.

Rosa multiflora Thunb. (ROSACEAE)—***Notes:*** Non-native species, found up the creek from a legacy mining camp around a 7 mile hike from the closest road access. ***Voucher specimen:*** *Faust 5494* at UNM. ***Collection approach:*** Opportunistic.

Azolla filiculoides Lam. (SALVINIACEAE)—***Notes:*** Roadside. ***Voucher specimen:*** *Faust 4790* at UNM. ***Collection approach:*** Taxonomic.

CIBOLA

Athyrium filix-femina subsp. **californicum** Butters (ATHYRIACEAE)—***Voucher specimen:*** *Faust 4634* at UNM. ***Collection approach:*** Taxonomic.

Boechera porphyrea (Wooton & Standl.) Windham, Al-Shehbaz & P.J. Alexander (BRASSICACEAE)—***Voucher specimen:*** *Graves 7* at UNM. ***Collection approach:*** Education.

Triglochin palustris L. (JUNCAGINACEAE)—***Voucher specimen:*** *Rowe 1535* at UNM. ***Collection approach:*** Education.

Corallorhiza wisteriana Conrad (ORCHIDACEAE)—***Voucher specimen:*** *Graves 49* at UNM. ***Collection approach:*** Education.

Dichanthelium acuminatum (Sw.) Gould & C.A. Clark (POACEAE)—***Voucher specimen:*** *Faust 4485* at UNM. ***Collection approach:*** Opportunistic.

Purshia stansburyana (Torr.) Henrickson (ROSACEAE)—***Voucher specimen:*** *Marx 2023-11* at UNM. ***Collection approach:*** Education.

COLFAX

Holcus lanatus** L. (POACEAE)—Voucher specimen:*** *Chauvin 18YC201-G5* at UNM. ***Collection approach:*** Agency.

EDDY

Bidens tenuisecta A. Gray (ASTERACEAE)—***Notes:*** Collected with participants of the UNM Herbarium Collection Foray. ***Voucher specimen:*** *Faust 5407* at UNM. ***Collection approach:*** Education.

Woodsia plummerae Lemmon (WOODSIACEAE)—***Notes:*** Collected with participants of the UNM Herbarium Collection Foray. ***Voucher specimen:*** *Faust 5472* at UNM. ***Collection approach:*** Education.

GRANT

Claytonia perfoliata ssp. **mexicana** (Rydb.) J.M. Miller & K. Chambers (MONTIACEAE)—***Voucher specimen:*** *Faust 4772* at UNM. ***Collection approach:*** Opportunistic.

Epilobium hornemanii Reichenb. (ONAGRACEAE)—***Voucher specimen:*** *Faust 5809* at UNM. ***Collection approach:*** Opportunistic.

Castilleja exserta (Heller) Chuang & Heckard ssp. *exserta* (OROBANCHACEAE)—***Voucher specimen:*** *Faust 4783* at UNM. ***Collection approach:*** Opportunistic.

Eragrostis lutescens Scribn. (POACEAE)—***Voucher specimen:*** *Faust 5787* at UNM. ***Collection approach:*** Opportunistic.

Gilia clokeyi Mason (POLEMONIACEAE)—***Voucher specimen:*** *Faust 4744* at UNM. ***Collection approach:*** Opportunistic.

Woodsia cathcartiana B.L. Rob. (WOODSIACEAE)—***Voucher specimen:*** *Faust 5336* at UNM. ***Collection approach:*** Taxonomic.

HARDING

Packera plattensis (Nutt.) W.A. Weber & Á. Löve (ASTERACEAE)—***Notes:*** Collected with New Mexico Native Plant Society on the DeHaven Ranch. ***Voucher specimen:*** *Faust 4802* at UNM. ***Collection approach:*** Education.

HIDALGO

Cyperus michelianus (L.) Delile (CYPERACEAE)—***Voucher specimen:*** *Faust 4430* at UNM. ***Collection approach:*** Opportunistic.

Callitriche hermaphroditica L. (PLANTAGINACEAE)—***Voucher specimen:*** *Faust 4701* at UNM. ***Collection approach:*** Opportunistic.

LEA

Euphorbia serpens Kunth (EUPHORBIACEAE)—***Notes:*** This is a fairly common species in scattered localities in New Mexico (Allred et al. 2020), but had previously been undocumented in Lea County, likely due to under collection in that region of the state. ***Voucher specimen:*** *McCartha GLM-1291* at UNM. ***Collection approach:*** Agency.

Malvella leprosa (Ortega) Krapov. (MALVACEAE)—***Notes:*** This species is common in saline soils and playa-like habitats in New Mexico (Allred et al. 2020), but had previously been undocumented in Lea County, likely due to under collection in that region of the state. ***Voucher specimen:*** *McCartha GLM-1292* at UNM. ***Collection approach:*** Agency.

LOS ALAMOS

Asplenium septrionale (L.) Hoffm. (ASPLENIACEAE)—***Voucher specimen:*** *Faust 4670* at UNM. ***Collection approach:*** Taxonomic.

Myriopteris fendleri (L.) Fée. (PTERIDACEAE)—***Voucher specimen:*** *Faust 4704* at UNM. ***Collection approach:*** Taxonomic.

Woodsia neomexicana Windham. (WOODSIACEAE)—***Voucher specimen:*** *Faust 4680* at UNM. ***Collection approach:*** Taxonomic.

MORA

Boechera porphyrea (Wooton & Standl.) Windham, Al-Shehbaz & P.J. Alexander (BRASSICACEAE)—***Voucher specimen:*** *Faust 4852* at UNM. ***Collection approach:*** Opportunistic.

Clematis hirsutissima var. **scottii** (Porter) Erickson (RANUNCULACEAE)—***Voucher specimen:*** *Faust 4854* at UNM. ***Collection approach:*** Opportunistic.

OTERO

Amaranthus hybridus L. (AMARANTHACEAE)—***Voucher specimen:*** *Olmeda 1548* at UNM. ***Collection approach:*** Floristics.

Amaranthus torreyi (A. Gray) Benth. ex S. Wats. (AMARANTHACEAE)—***Voucher specimen:*** *Olmeda 1958* at UNM. ***Collection approach:*** Floristics.

Ditaxis serrata (Torr.) Heller (EUPHORBIACEAE)—***Voucher specimen:*** *Olmeda 1626* at UNM. ***Collection approach:*** Floristics.

Euphorbia hyssopifolia L. (EUPHORBIACEAE)—***Voucher specimen:*** *Olmeda 866* at UNM. ***Collection approach:*** Floristcs.

Dermatophyllum secundiflorum (Ortega) Gandhi & Reveal (FABACEAE)—***Voucher specimen:*** *Olmeda 1910* at UNM. ***Collection approach:*** Floristics.

Mentzelia oligosperma Nutt. ex Sims (LOASACEAE)—***Voucher specimen:*** *Olmeda 1012* at UNM. ***Collection approach:*** Floristics.

Oenothera tubicula subsp. **tubicula** A. Gray (ONAGRACEAE)—***Voucher specimen:*** *Olmeda 1613* at UNM. ***Collection approach:*** Floristics.

Aphyllon cooperi Gray (OROBANCHACEAE)—***Notes:*** Observed by Cecelia Alexander initially (Observation 8712587 (https://www.inaturalist.org/observations/8712587). ***Voucher specimen:*** *Olmeda 2000* at UNM. ***Collection approach:*** Floristics.

Aristida purpurea var. **perplexa** Allred & Valdés-Reyna (POACEAE)—***Voucher specimen:*** *Olmeda 1528* at UNM. ***Collection approach:*** Floristics.

Aristida ternipes var. **gentilis** (Henr.) Allred (POACEAE)—***Voucher specimen:*** *Olmeda 818* at UNM. ***Collection approach:*** Floristics.

Erioneuron nealleyi (Vasey) Tateoka (POACEAE)—***Voucher specimen:*** *Olmeda 1587* at UNM. ***Collection approach:*** Floristics.

Muhlenbergia polycaulis Scribn. (POACEAE)—***Voucher specimen:*** *Olmeda 386* at UNM. ***Collection approach:*** Floristics.

Selaginella underwoodii Hieron. (SELAGINELLACEAE)—***Voucher specimen:*** *Olmeda 1560* at UNM. ***Collection approach:*** Floristics.

Solanum setigeroides (Whalen) S.R. Stern (SOLANACEAE)—***Voucher specimen:*** *Olmeda 1601* at UNM. ***Collection approach:*** Floristics.

Glandularia pumila (Rydb.) Umber (VERBENACEAE)—***Voucher specimen:*** *Olmeda 185* at UNM. ***Collection approach:*** Floristics.

Pombalia verticillata (Ortega) Paula-Souza (VIOLACEAE)—***Voucher specimen:*** *Olmeda 1011* at UNM. ***Collection approach:*** Floristics.

RIO ARRIBA

Carex wootonii Mackenzie (CYPERACEAE)—***Notes:*** This species can be found growing in mountainous regions of New Mexico and has been collected in many other counties (Allred et al. 2020). ***Voucher specimen:*** *Chauvin YDC-103* at UNM. ***Collection approach:*** Agency.

Carex limosa L. (CYPERACEAE)—***Voucher specimen:*** *Faust 5312* at UNM. ***Collection approach:*** Opportunistic.

Triglochin maritima L. (JUNCAGINACEAE)—***Voucher specimen:*** *Faust 5655* at UNM. ***Collection approach:*** Opportunistic.

Triglochin palustris L. (JUNCAGINACEAE)—***Voucher specimen:*** *Faust 5311* at UNM. ***Collection approach:*** Opportunistic.

Clinpodium vulgare L. (LAMIACEAE)—***Voucher specimen:*** *Faust 5736* at UNM. ***Collection approach:*** Opportunistic.

Aliciella pinnatifida (Nutt. ex A. Gray) J.M. Porter (POLEMONIACEAE)—***Notes:*** This species can be found in the northern mountains of New Mexico and has been collected in several northern New Mexico counties, including all the counties surrounding Rio Arriba County (Allred et al. 2020). ***Voucher specimen:*** *McCartha GLM-1148* at UNM. ***Collection approach:*** Agency.

Woodsia plummerae Lemmon (WOODSIACEAE)—***Voucher specimen:*** *Faust 5331* at UNM. ***Collection approach:*** Taxonomic.

SANDOVAL

Spergularia rubra (L.) J. Presl & C. Presl (CARYOPHYLLACEAE)—Notes: Abundant at Valles Caldera, historically overlooked, weedy native. One of 6 collections in the state. To be looked for throughout the state. ***Voucher specimen:*** *Faust 5007* at UNM. ***Collection approach:*** Opportunistic.

Ammannia grayi S.A. Graham & Gandhi (LYTHRACEAE)—***Voucher specimen:*** *Faust 4265* at UNM. ***Collection approach:*** Opportunistic.

Botrychium echo W.H. Wagner (OPHIOGLOSSACEAE)—***Voucher specimen:*** *Stout 37* at UNM. ***Collection approach:*** Taxonomic.

Botrychium furculatum S.J. Popovich & Farrar (OPHIOGLOSSACEAE)—***Voucher specimen:*** *Stout 36* at UNM. ***Collection approach:*** Taxonomic.

SAN MIGUEL

Muhlenbergia depauperata Scribn. (POACEAE)—***Notes:*** This is a common annual muhly that had previously been undocumented in San Miguel County (Allred et al. 2020). ***Voucher specimen:*** *Chauvin YDC-121* at UNM. ***Collection approach:*** Agency.

Woodsia plummerae Lemmon (WOODSIACEAE)—***Voucher specimen:*** *Faust 5245* at UNM. ***Collection approach:*** Taxonomic.

TAOS

Phacelia denticulata Osterhout (HYDROPHYLLACEAE)—***Voucher specimen:*** *Faust 4994* at UNM. ***Collection approach:*** Opportunistic.

Carex buxbaumii Wahlenb. (CYPERACEAE)—***Notes:*** This distinct, wetland *Carex* had previously only been documented at one location in New Mexico in Rio Arriba County (Allred et al. 2020). ***Voucher specimen:*** *Chauvin 23HW006-G1* at UNM. ***Collection approach:*** Agency.

Menyanthes trifoliata L. (MENYANTHACEAE)—***Notes:*** In New Mexico, this aquatic herb had previously only been collected in wetlands in Rio Arriba County (Allred et al. 2020). ***Voucher specimen:*** *Chauvin 23HW006-F1* at UNM. ***Collection approach:*** Agency.

Botrychium furculatum S.J. Popovich & Farrar (OPHIOGLOSSACEAE)—***Notes:*** Collected while leading a field trip for the annual New Mexico Native Plant Society Conference. ***Voucher specimen:*** *Faust 5226* at UNM. ***Collection approach:*** Education.

Polypodium hesperium Maxon (POLYPODIACEAE)—***Voucher specimen:*** *Faust 4529* at UNM. ***Collection approach:*** Taxonomic.

DISCUSSION

While New Mexico is already known as the fourth most botanically diverse state in the United States (Allred et al. 2020; Stein 2002), ongoing opportunities to document statewide biodiversity persist, as no flora is ever complete (Rosenzweig et al. 2003). This paper establishes 15 additional taxa represented in the state of New Mexico, six collection records representing three species as distribution records, 14 collection records representing 12 species of poorly represented taxa, 44 collection records of 15 rare species, 65 county collection records representing 61 species, an additional five atypical collection records, as well as the approaches to collecting that uncovered these taxa. These collections were made for the most part just within the last few years by mostly millennial early career botanists, showing that small efforts by a few can lead to notable impacts. This paper also attempts to highlight how multiple approaches to collections create lasting knowledge that, while immediately applied towards smaller directed projects, also subsequently improves our understanding of the larger regional flora. These collections were made across land ownerships, and the collective geographic distribution of these records occurs across the state.

Reviewing the different collection approaches highlights the importance of each style of collecting. Education-focused collecting produced 12 noteworthy records, Agencies produced 13 noteworthy records, Taxonomic-focused collecting produced 16 noteworthy records (three reported elsewhere; Faust 2024, 2025), Habitat-focused collecting produced 22 noteworthy records, Opportunistic collecting produced 34 noteworthy records, and Floristics produced a whopping 52 collections. While these records represent a small sampling of collections, projects, and collectors from the last few years, they still highlight generalized modern collection trends in the state. Of the approaches discussed, floristic projects come out on top as one of the most vital approaches to collecting when it comes to the impact of collections across noteworthy collection types. This is a well-known reality within the botanical field, despite the spatial density of records for the designated study site (Hartman 2011). However, as noted, opportunistic collecting can yield significant additions to our understanding of the statewide flora that is also more spatially distributed (Fig. 3). The interdisciplinary efforts of these collections allow for a wide and varied distribution of collection efforts that, when utilized together, work more comprehensively toward capturing the true botanical biodiversity of New Mexico. These collections were made across professional botanical careers, across different goals, across different regions, and highlight that all collecting work is vital, as long as the collections are made publicly accessible.

Amidst the uncertainty of our ecological future and the uncertainty of the future funding of botany, it is imperative that the next generation also continue with the baseline documentation of floristic diversity while utilizing modern methods and approaches to the study and practice of botany. While a picture or observation can contribute to larger data, there is still no true replacement for a physical collection (Daru & Rodriguez 2023; Eckert et al. 2024). In fact, collection approaches that adapt and utilize additional modern collection aspects (i.e.) silica leaf tissue, iNaturalist observations, genomic data, etc., broaden the impact and utility of these collections. Classical collection work will and should always have a place in the study and monitoring of plants.

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