

# **Atlas of New Mexico**

## ***Astragalus and Oxytropis***



**Agricultural Experiment Station • Research Report 715**  
**College of Agriculture and Home Economics**

## ACKNOWLEDGMENTS

We are grateful to all who have assisted with this project. The preliminary stages of this atlas stemmed from the work of Bill Fox. We thank the curators of the herbaria (see Introduction) who allowed us access to their specimens and room to work. The various phases of data gathering and mapping proceeded rapidly and efficiently with the help of Norman Jensen and Shawn Jensen.

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# Atlas Of New Mexico *Astragalus* and *Oxytropis*

Eric H. Roalson and Kelly W. Allred<sup>1</sup>

This atlas provides distribution maps for all the species of *Astragalus* and *Oxytropis* found in New Mexico. This is an important group of plants, comprising some 80 species in the Fabaceae (pea) family, the third largest plant family in the state. Many of the species in these two genera are toxic to livestock and other grazing animals (see lists below).

The maps were compiled from collection information primarily provided by the major herbaria in the state: the Biology Herbarium at the University of New Mexico, Albuquerque; and the Biology Herbarium and Range Science Herbarium at New Mexico State University, Las Cruces. Additional records were obtained from the herbaria at Western New Mexico University (Silver City), Arizona State University (Tempe), University of Arizona (Tucson), and Rancho Santa Ana Botanic Gardens (Claremont, California). We also relied on whatever published sources were available, most notably Barneby's (1952, 1964) monumental taxonomic works on these two genera.

## Nomenclature

We have tried to use the correct scientific nomenclature for the names of these plants and have followed *A Working Index of New Mexico Vascular Plant Names* (Roalson and Allred 1995). In some cases, we had to decide between conflicting taxonomic interpretations (and their conflicting nomenclatures), but the references associated with such decisions will also be found in the vascular plant index.

## Poisonous Species of *Astragalus* and *Oxytropis*

Several species of *Astragalus* and *Oxytropis* contain compounds that are toxic to grazing animals: swainsonine (an alkaloid), nitro-compounds, and selenium (Fox et al., in press). The species that are known to contain these

compounds and to be at least potentially toxic are grouped by category below.

### New Mexico species known to contain swainsonine:

*Astragalus allochrous* A. Gray  
var. *allochrous*  
var. *playanus* (M.E. Jones) Isley  
*Astragalus amphioxys* Gray  
*Astragalus bisulcatus* (Hooker) Gray  
var. *bisulcatus*  
var. *haydenianus* (Gray) Barneby  
*Astragalus drummondii* Douglas ex Hooker  
*Astragalus emoryanus* (Rydberg) Cory  
*Astragalus flavus* Nuttall  
*Astragalus humistratus* Gray  
var. *humivagans* (Rydberg) Barneby  
*Astragalus lentiginosus* Douglas ex Hooker  
var. *diphysus* (Gray) Jones  
*Astragalus lonchocarpus* Torrey  
*Astragalus missouriensis* Nuttall  
var. *amphibolus* Barneby  
var. *missouriensis*  
*Astragalus mollissimus* Torrey  
var. *mollissimus*  
var. *earlei* (Rydberg) Tidestrom  
var. *matthewsii* (Watson) Barneby  
var. *thompsonae* (Watson) M.E. Jones  
*Astragalus oocalycis* M.E. Jones  
*Astragalus praelongus* Sheldon  
*Astragalus tephrodes* Gray  
*Astragalus thurberi* Gray  
*Oxytropis lambertii* Pursh  
*Oxytropis sericea* Nuttall ex Torrey & Gray

### New Mexico species known to contain nitro-compounds:

*Astragalus emoryanus* (Rydberg) Cory

<sup>1</sup>Graduate student and professor, respectively, Department of Animal and Range Sciences.

#### New Mexico species known to contain selenium:

*Astragalus bisulcatus* (Hooker) Gray  
var. *bisulcatus*  
var. *haydenianus* (Gray) Gray  
*Astragalus praelongus* Sheldon  
var. *praelongus*  
var. *ellisiae* (Rydberg) Barneby  
*Astragalus racemosus* Pursh  
var. *racemosus*  
var. *longisetus* M.E. Jones

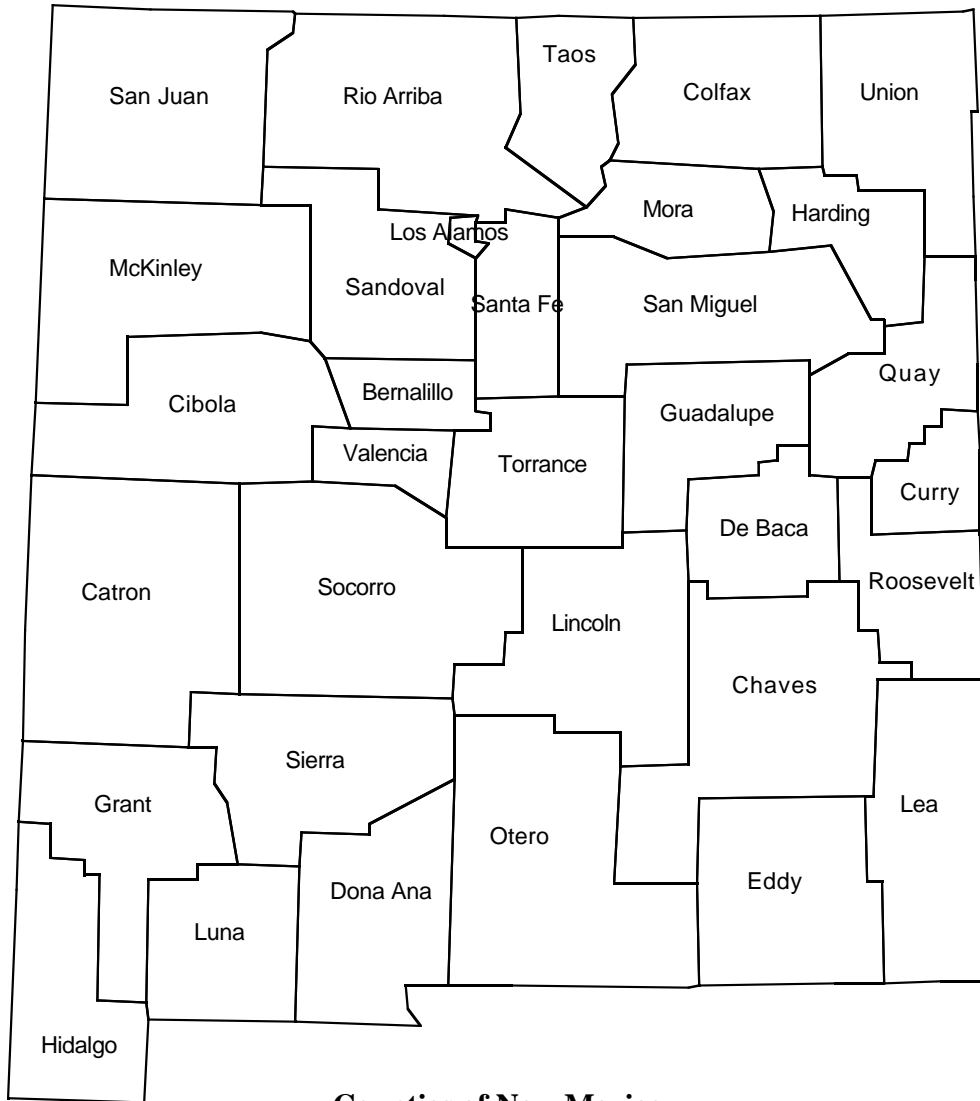
#### Uncommon and Rare Species of *Astragalus* and *Oxytropis*

Numerous species of *Astragalus* were listed in *A Handbook of Rare and Endemic Plants of New Mexico* (New Mexico Native Plant Protection Advisory Committee 1984) as being particularly interesting because of their restricted distributions in New Mexico. There also are several species that have since been described or recently found in New Mexico with limited distributions. We list these species here, so that extensions and additions to their geographic ranges may be added to the current knowledge of these uncommon species.

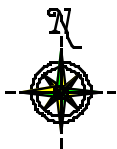
*Astragalus accumbens* Sheldon  
*Astragalus altus* Wooton & Standley  
*Astragalus castetteri* Barneby  
*Astragalus chuskanus* Barneby & Spellenberg  
*Astragalus crassicaulus* Nuttall var. *paysonii* (Kelso) Barneby  
*Astragalus cyaneus* Gray  
*Astragalus feensis* M.E. Jones  
*Astragalus gypsodes* Barneby  
*Astragalus humillimus* Gray ex Brandegee  
*Astragalus kentrophyta* Gray var. *neomexicanus* (Barneby) Barneby  
*Astragalus kerrii* Knight & Cully  
*Astragalus knightii* Barneby  
*Astragalus micromerius* Barneby  
*Astragalus mollissimus* Torrey var. *matthewsii* (Watson) Barneby  
*Astragalus monumentalis* Barneby var. *cottamii* (Welsh) Isely  
*Astragalus monumentalis* Barneby var. *monumentalis*  
*Astragalus naturitensis* Payson  
*Astragalus neomexicanus* Wooton & Standley  
*Astragalus oocalycis* M.E. Jones  
*Astragalus puniceus* Osterhout var. *gertrudis* (Greene) Barneby  
*Astragalus sericoluecus* Gray  
*Astragalus siliceus* Barneby  
*Astragalus wittmannii* Barneby  
*Oxytropis parryi* Gray

#### References

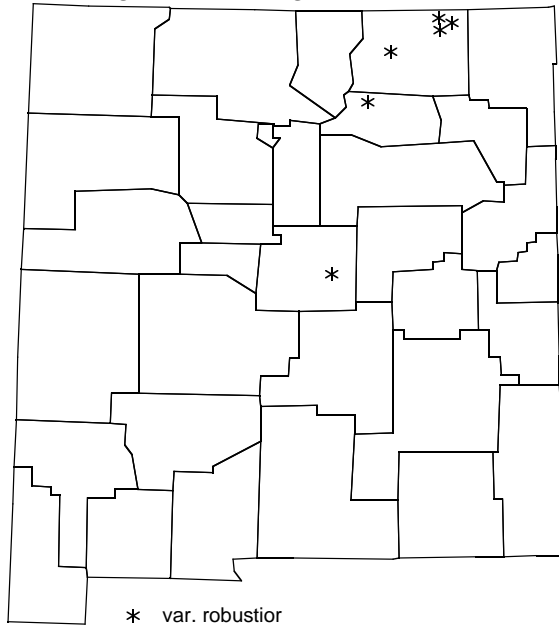
- Barneby, R.C. 1952. A Revision of the North American Species of *Oxytropis* DC. Proc. Calif. Acad. Sci. IV. 27:177–309.
- Barneby, R.C. 1964. Atlas of North American *Astragalus* Mem. New York Bot. Gard. 13:1–1188.
- Fox, W.E., K.W. Allred, and E.H. Roalson. In Press. A Guide to the Common Locoweeds and Milkvetches of New Mexico. New Mexico Agr. Exp. Sta. New Mexico Native Plant Protection Advisory Committee. 1984. A Handbook of Rare and Endemic Plants of New Mexico. University of New Mexico Press, Albuquerque.
- Roalson, E.H. and K.W. Allred. 1995. A Working Index of New Mexico Vascular Plant Names. New Mexico Agr. Exp. Sta. Research Report 702.



**Counties of New Mexico.**

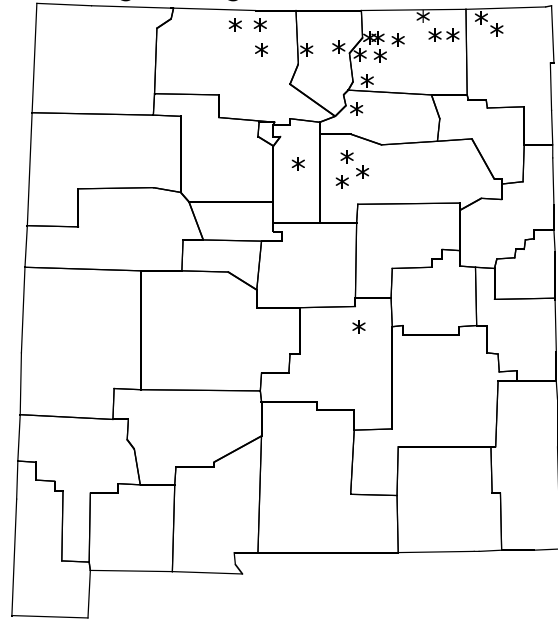


*Astragalus adsurgens*



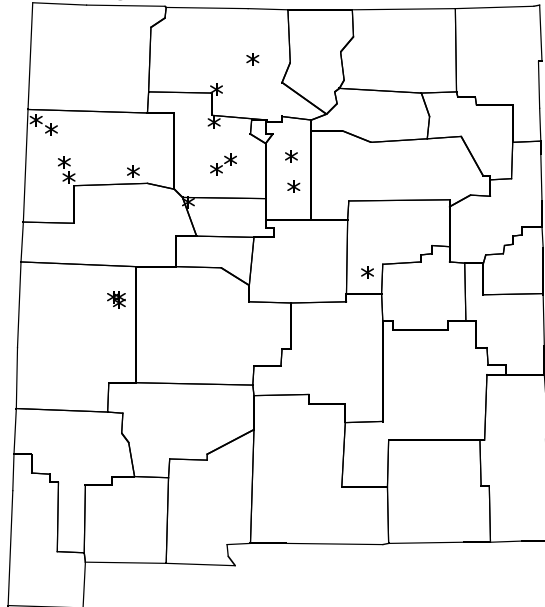
Widespread from Alaska to Manitoba, south to Washington, Iowa, and New Mexico.

*Astragalus agrestis*



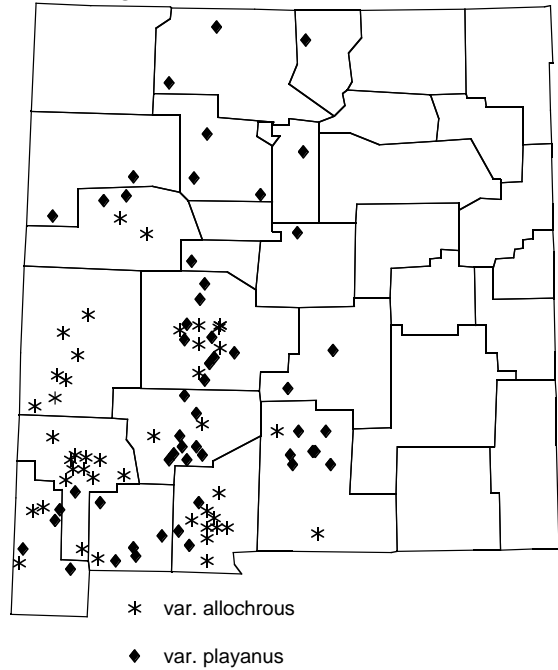
Widespread in North America, Yukon Territory to Manitoba, south to California, New Mexico, Nebraska, and Iowa.

*Astragalus albus*



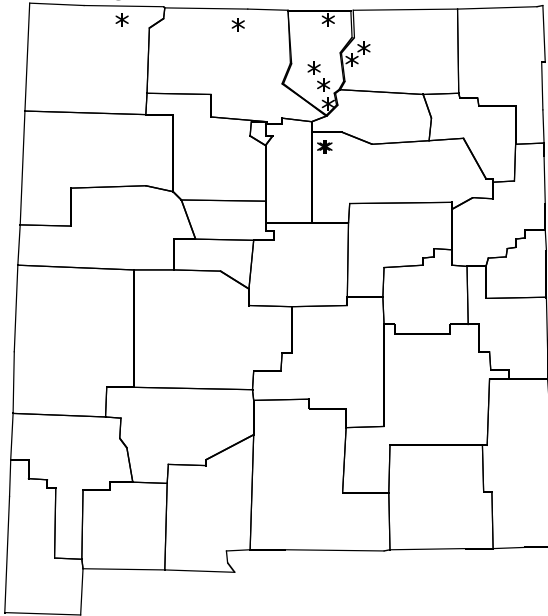
Badlands and clay slopes of northeastern Arizona and northwestern New Mexico.

*Astragalus allochrous*



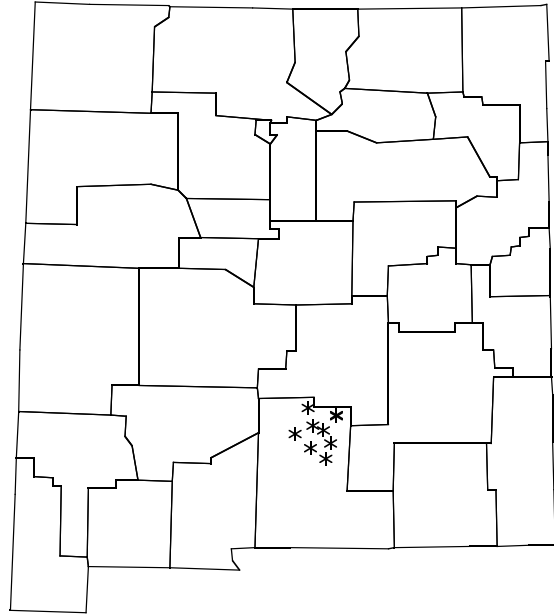
Southeastern California to trans-Pecos Texas, south to Sonora, Durango, and Chihuahua.

*Astragalus alpinus*



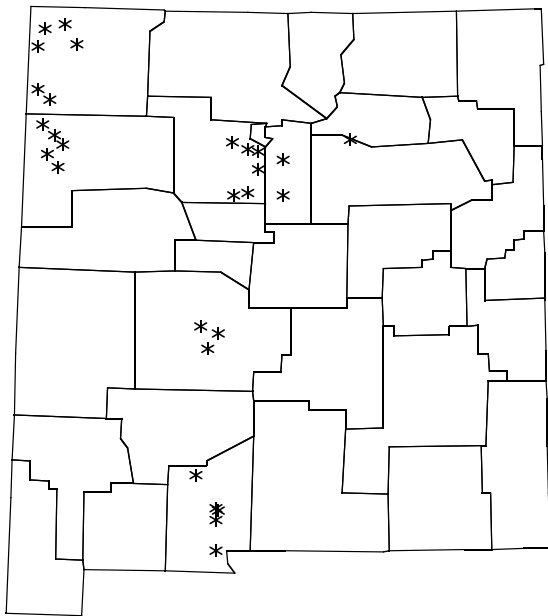
Widespread from Alaska to Nova Scotia, south to Oregon, Nevada, New Mexico, Wisconsin, and Vermont.

*Astragalus altus*



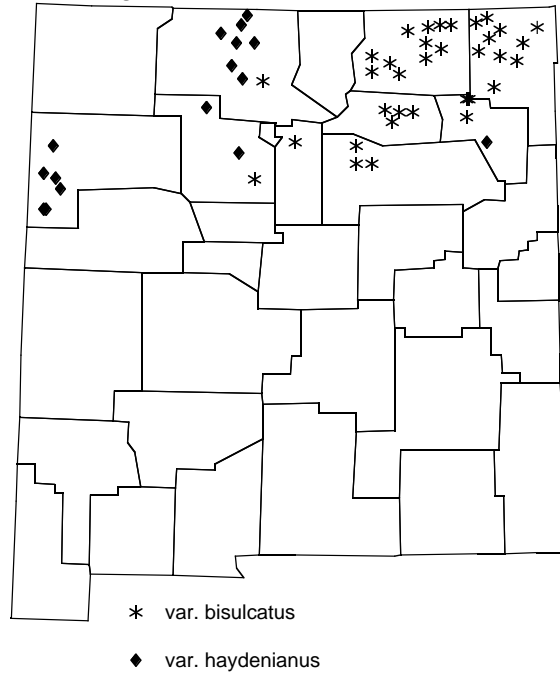
Known only from New Mexico.

*Astragalus amphioxys*



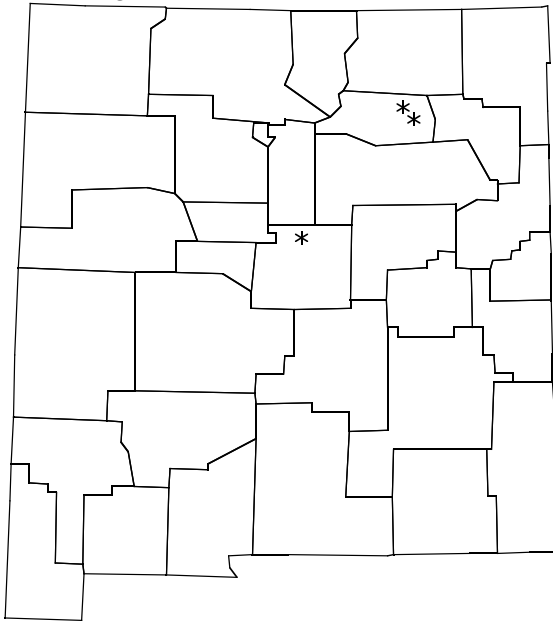
Plains and foothills of Utah, Colorado, Nevada, Arizona, and New Mexico.

*Astragalus bisulcatus*



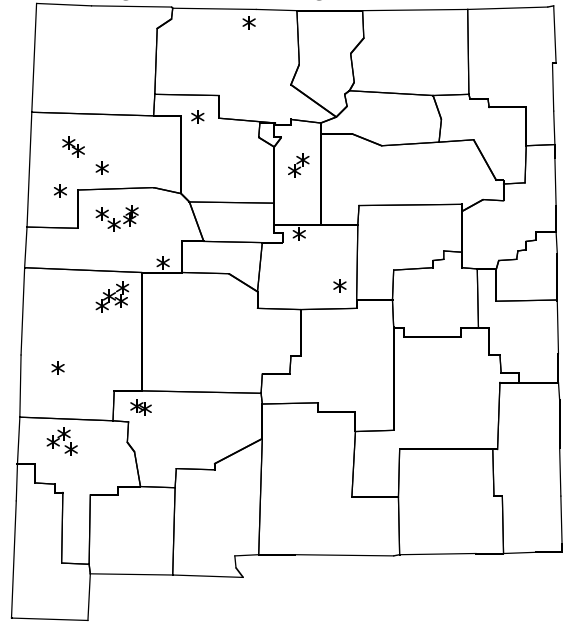
Var. *bisulcatus*: Alberta east to Manitoba, south to Idaho, New Mexico, and Kansas. Var. *haydenianus*: Wyoming, Colorado, New Mexico, and Arizona.

*Astragalus bodinii*



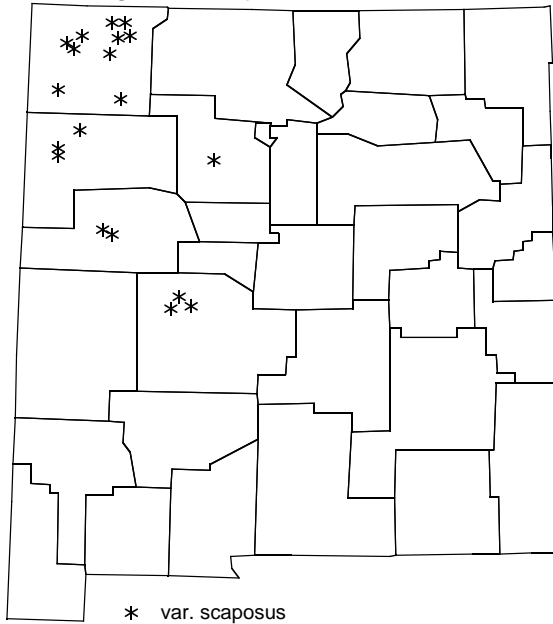
Somewhat disjunct in Alaska and northwestern Canada, and Utah, Wyoming, Nebraska, Colorado, and New Mexico.

*Astragalus brandegei*



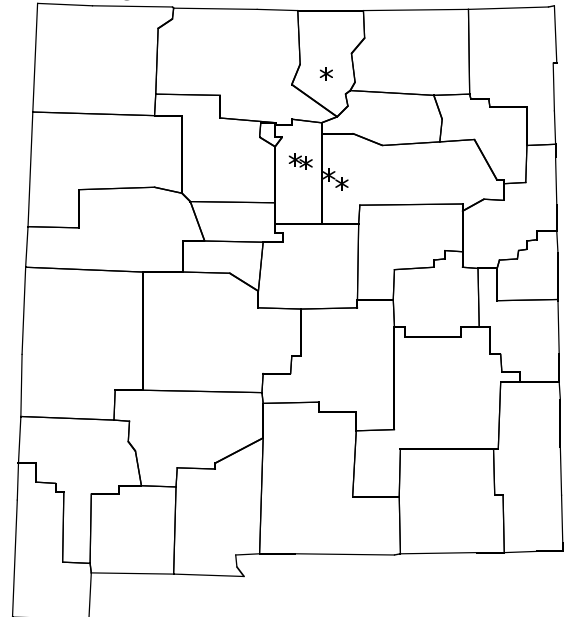
Utah, Colorado, Arizona, and New Mexico.

*Astragalus calycosus*



Nevada, Utah, Colorado, Arizona, and New Mexico.

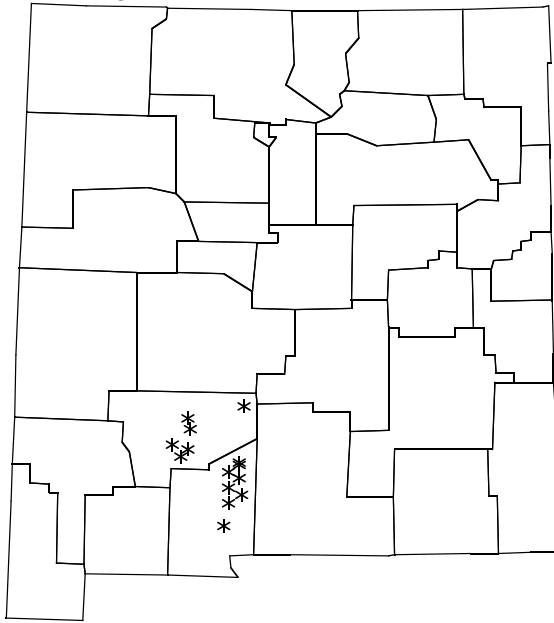
*Astragalus canadensis*



Widespread from British Columbia east to Ontario, south to Washington and South Carolina.

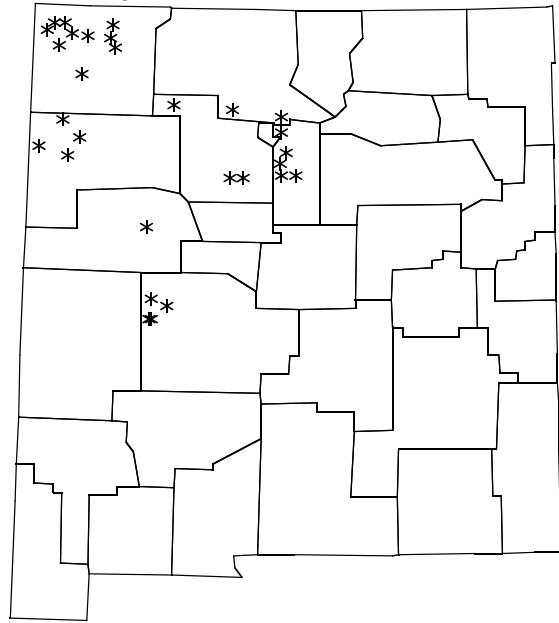


*Astragalus castetteri*



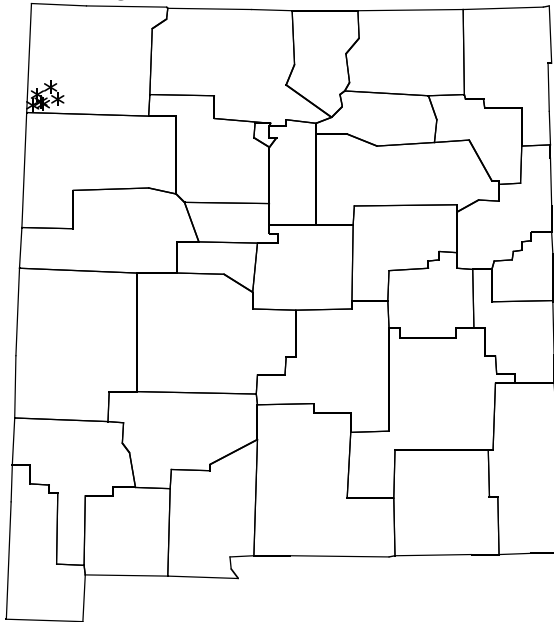
Known only from New Mexico.

*Astragalus ceramicus*



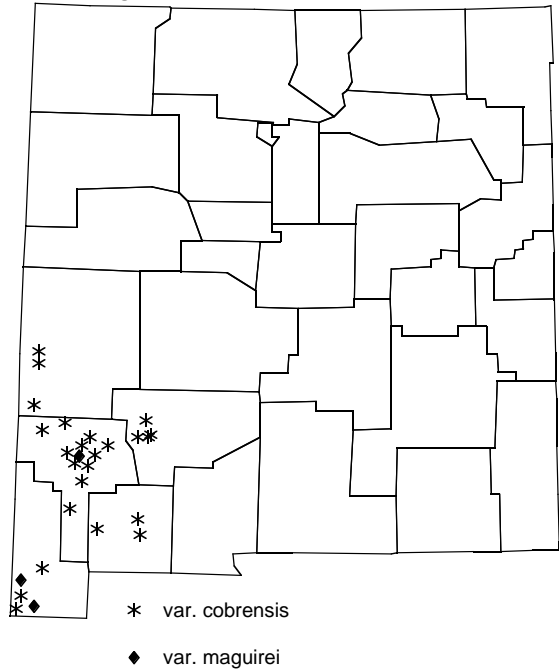
Arid western United States, from Idaho to North Dakota, south to Arizona, New Mexico, and Oklahoma.

*Astragalus chuskanus*



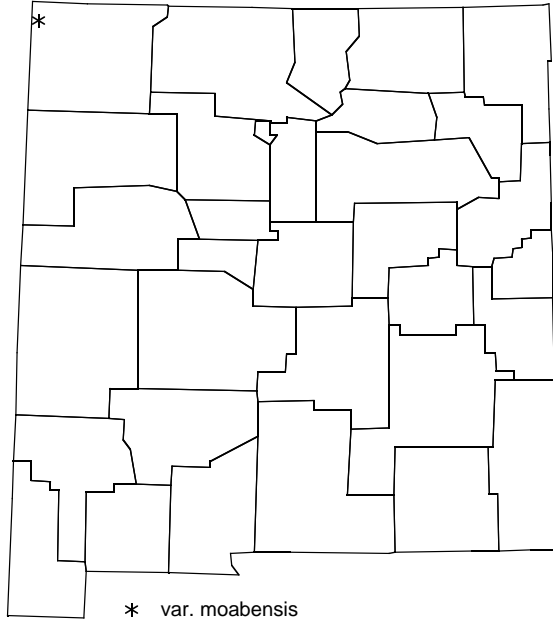
Known only from the Chuska Mountains of New Mexico.

*Astragalus cobrensis*



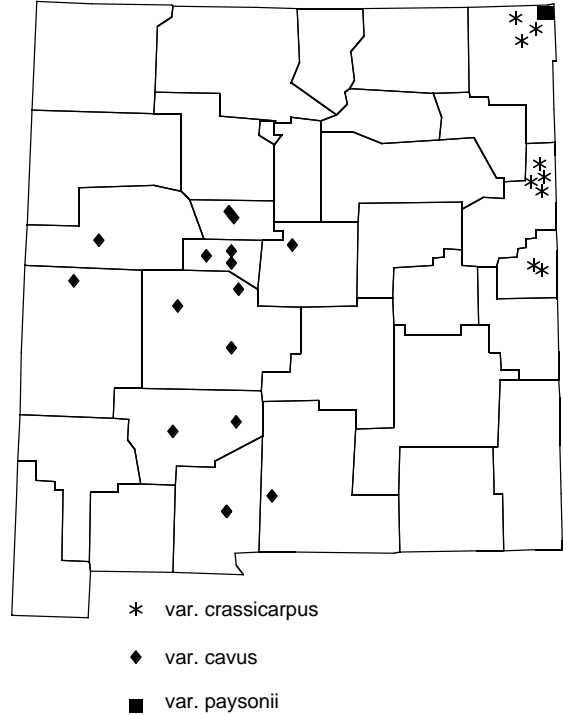
Arizona and New Mexico, and probably Chihuahua and Sonora.

*Astragalus coltonii*



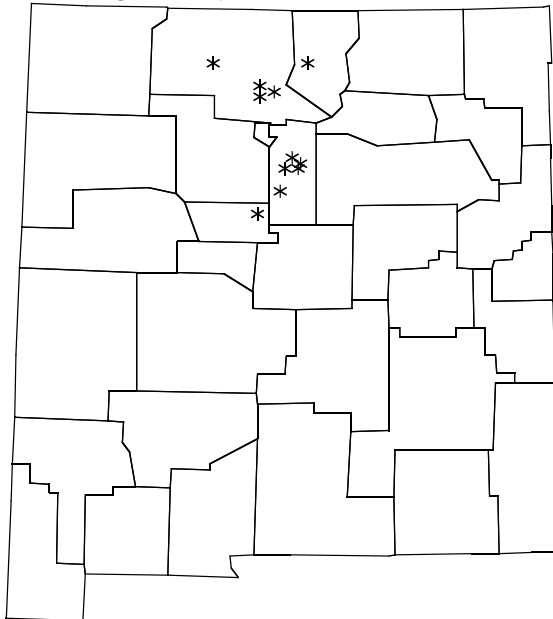
Southeastern Utah and adjacent Colorado, and the Four-Corners area of Arizona and New Mexico.

*Astragalus crassicarpus*



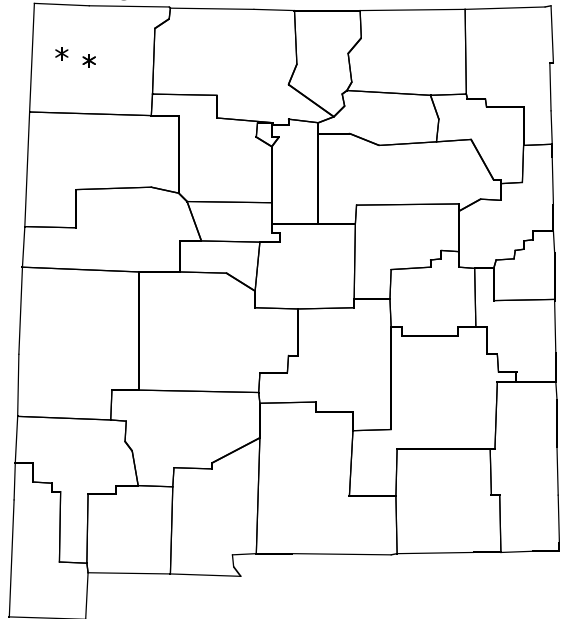
Alberta to Manitoba, south through the central United States to New Mexico, Texas, and Arkansas.

*Astragalus cyaneus*



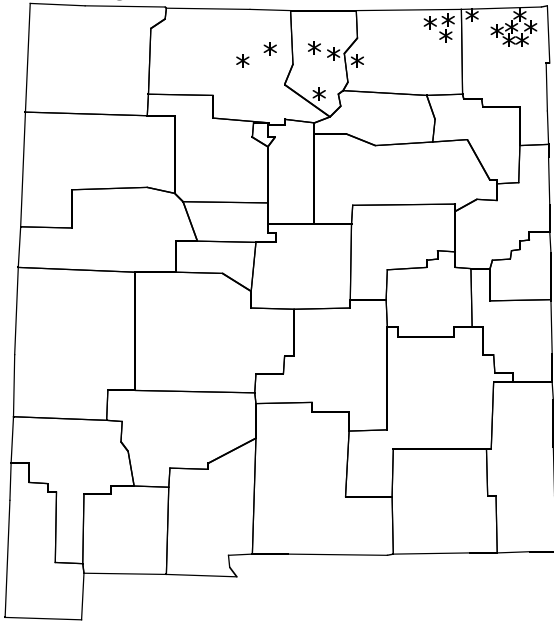
Known only from New Mexico.

*Astragalus desperatus*



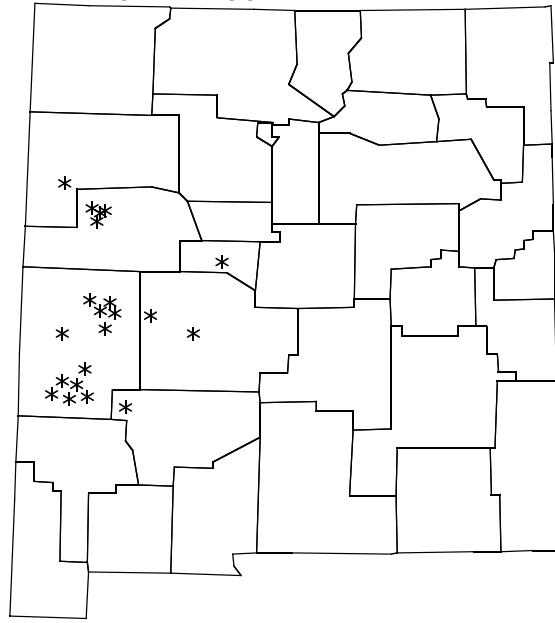
Colorado, Utah, Arizona, and New Mexico.

*Astragalus drummondii*



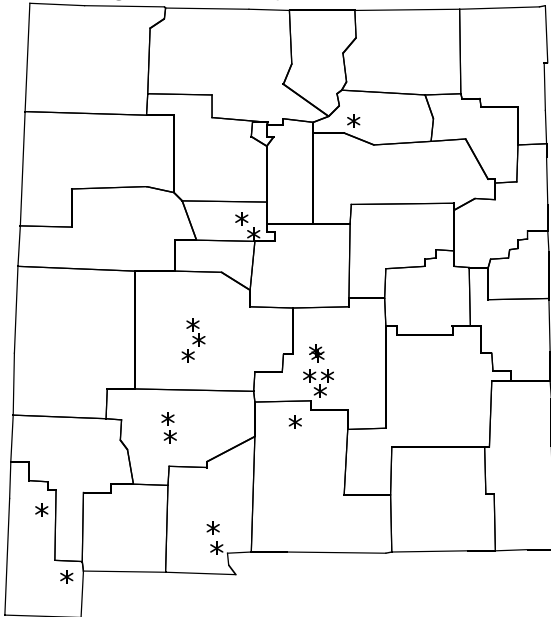
Alberta and Saskatchewan, south through the Rocky Mountains and western prairies to New Mexico.

*Astragalus egglestonii*



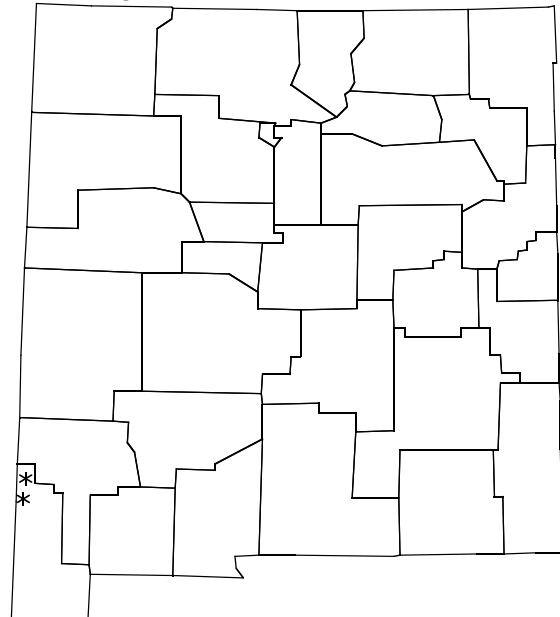
Western New Mexico and adjacent Arizona.

*Astragalus emoryanus*



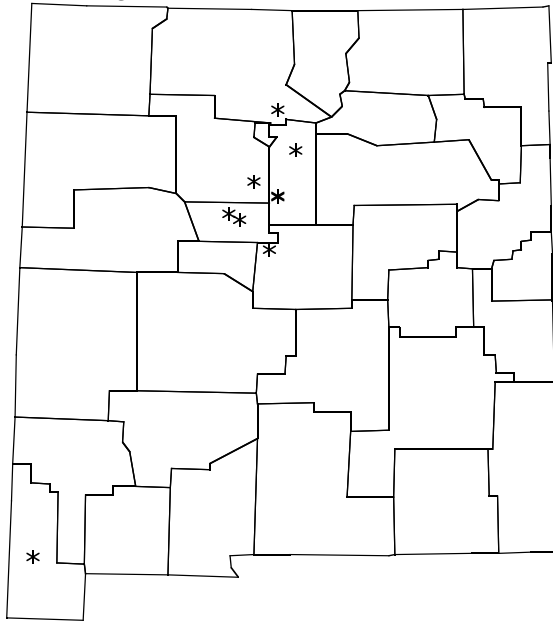
Utah, Arizona, New Mexico, Texas, and Mexico.

*Astragalus eremiticus*



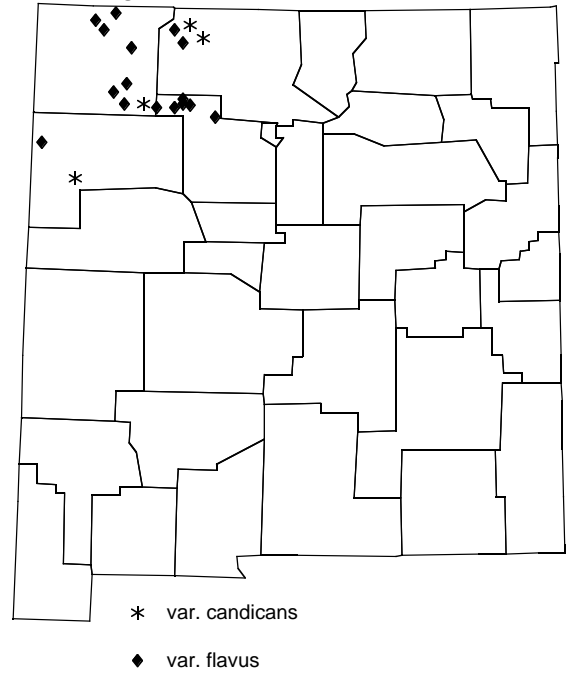
Idaho, Utah, Nevada, Arizona, and New Mexico.

*Astragalus feensis*



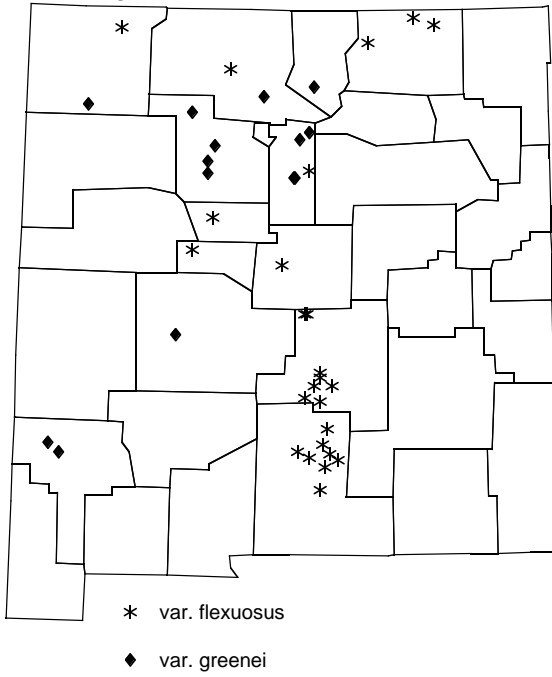
Known only from New Mexico.

*Astragalus flavus*



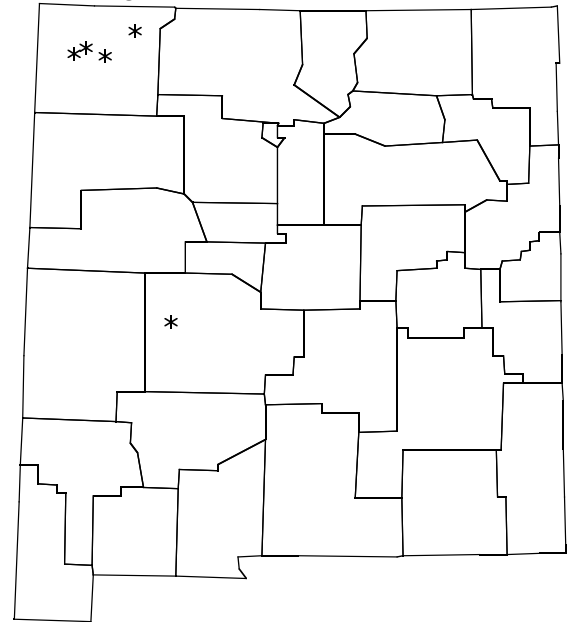
Wyoming, Utah, Nevada, Colorado, Arizona, and New Mexico.

*Astragalus flexuosus*



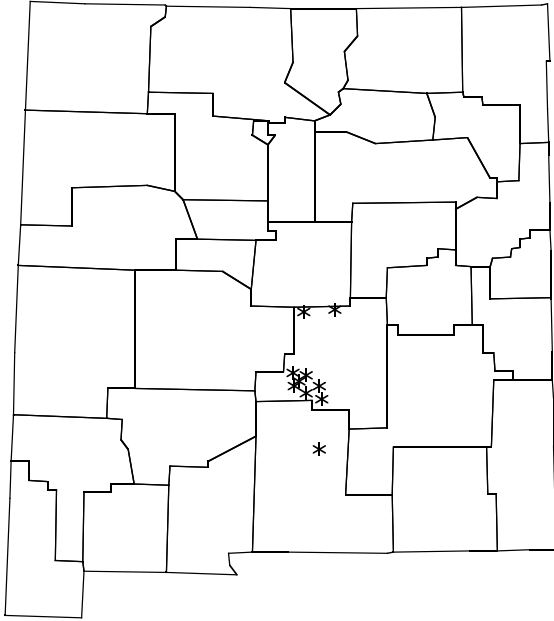
British Columbia east to Ontario, south to New Mexico, Nebraska, and Minnesota.

*Astragalus fucatus*



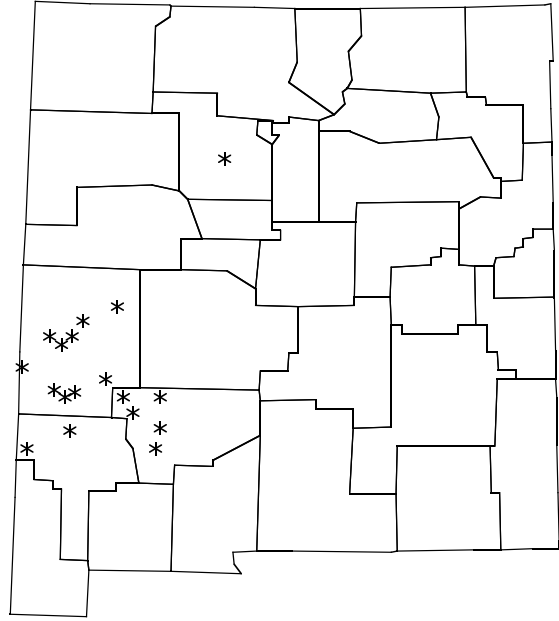
Utah, Colorado, Arizona, and New Mexico.

*Astragalus giganteus*



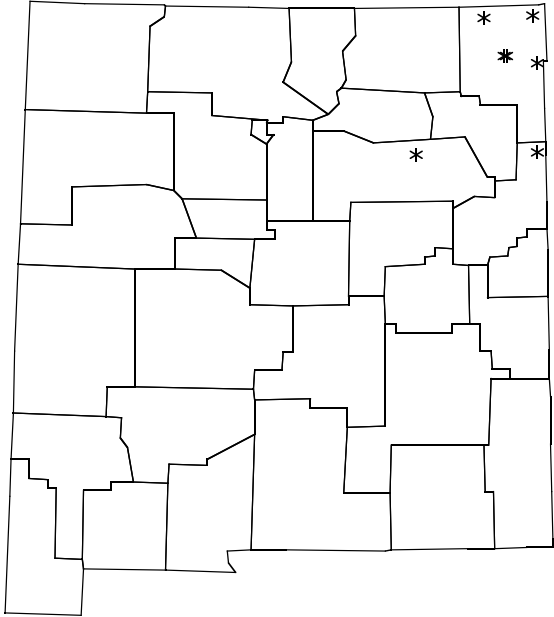
New Mexico, Texas, and Chihuahua.

*Astragalus gilensis*



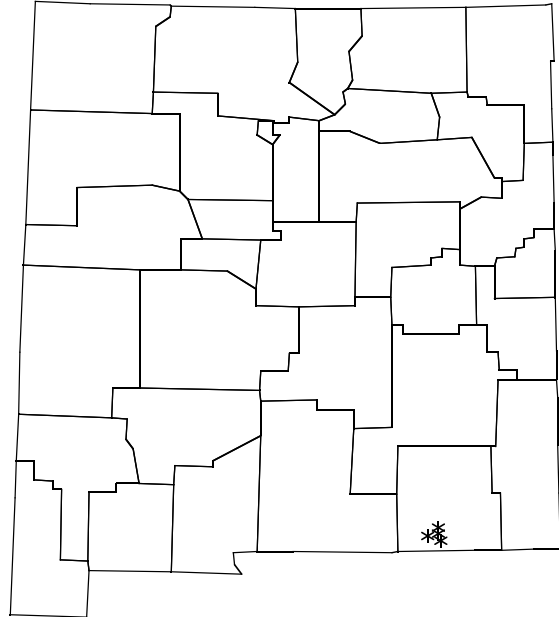
Arizona and New Mexico.

*Astragalus gracilis*



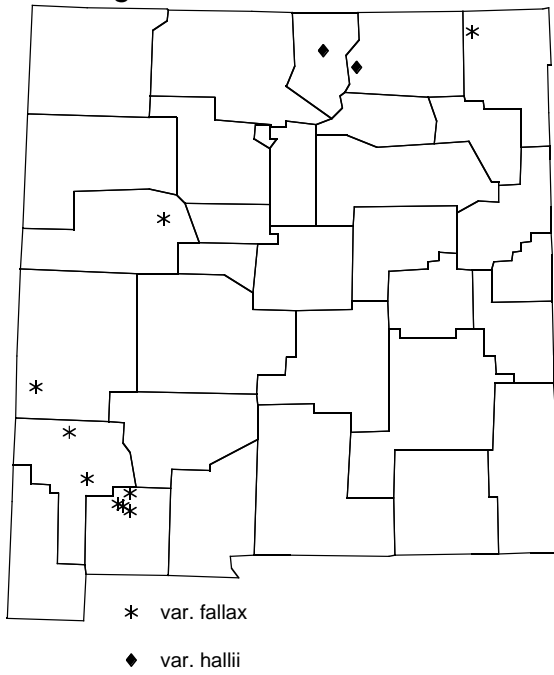
Saskatchewan south to New Mexico and Texas.

*Astragalus gypsodes*



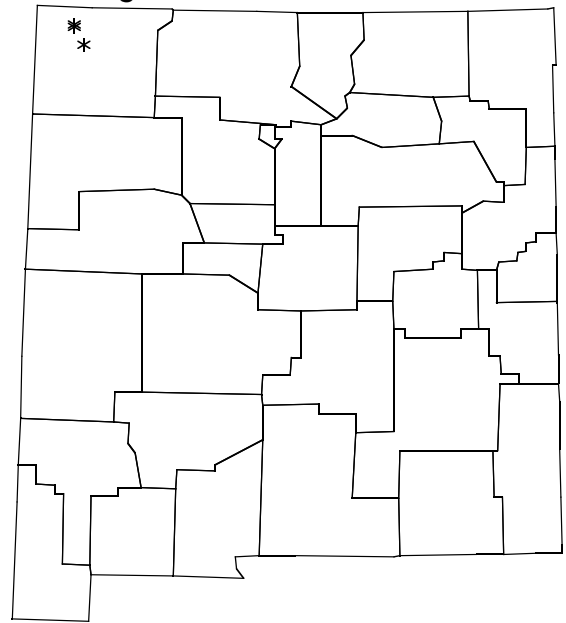
North Dakota to New Mexico and Texas.

*Astragalus hallii*



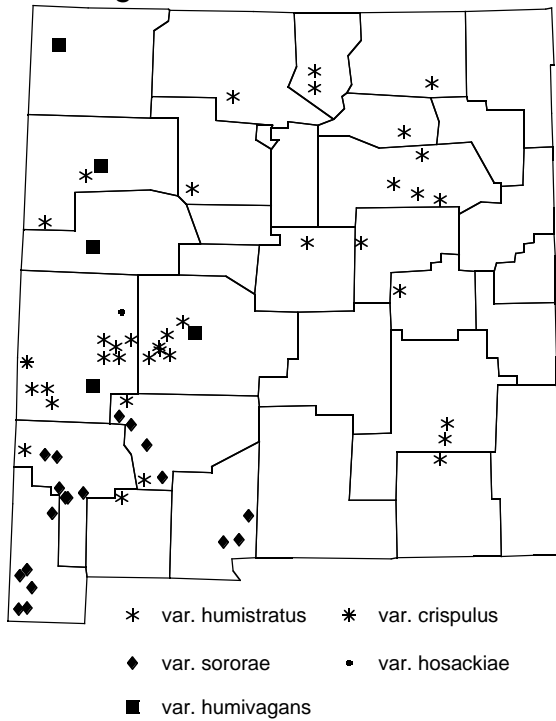
Colorado, New Mexico, and Arizona.

*Astragalus humillimus*



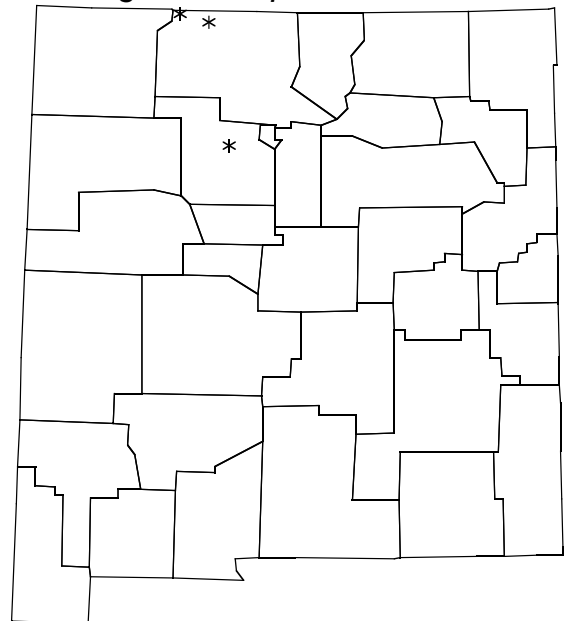
Colorado and New Mexico.

*Astragalus humistratus*



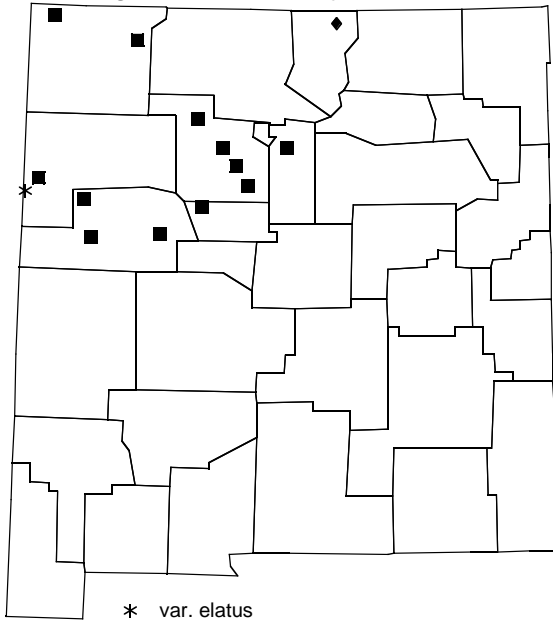
Colorado, Utah, Nevada, Arizona, and New Mexico.

*Astragalus iodopetalus*



Colorado and New Mexico.

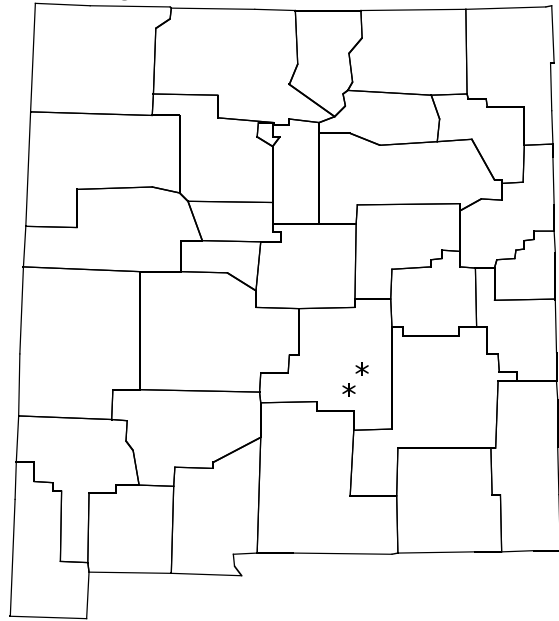
*Astragalus kentrophyta*



- \* var. elatus
- ◆ var. implexus
- var. neomexicanus

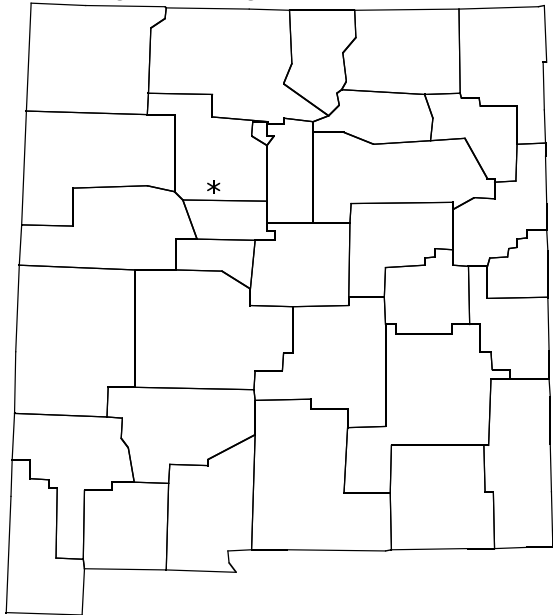
Alberta and Saskatchewan south to California, New Mexico, and Nebraska.

*Astragalus kerrii*



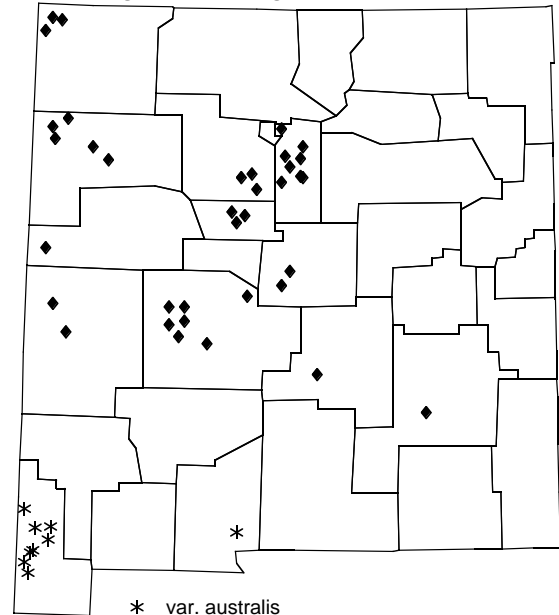
Known only from New Mexico.

*Astragalus knightii*



Known only from New Mexico.

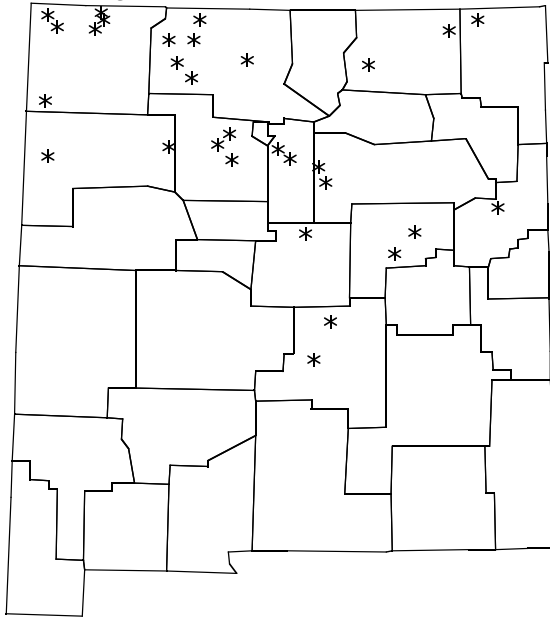
*Astragalus lentiginosus*



- \* var. australis
- ◆ var. diphyus

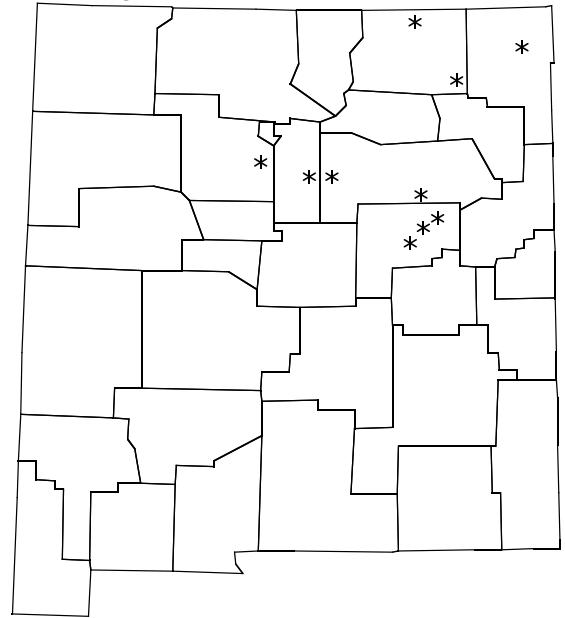
Widely dispersed from British Columbia to California and east through the Rocky Mountain states to west Texas.

*Astragalus lonchocarpus*



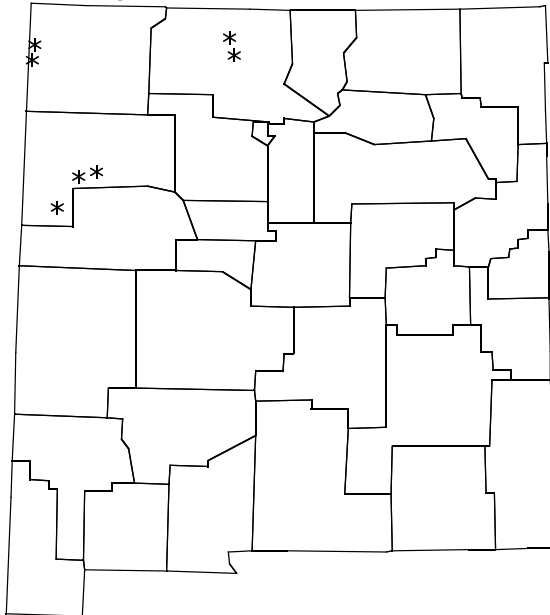
Nevada, Utah, Colorado, Arizona, and New Mexico.

*Astragalus lotiflorus*



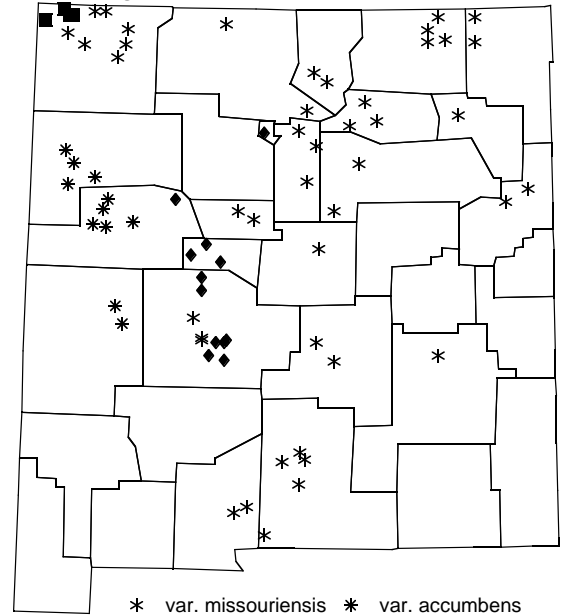
British Columbia to Manitoba, south through the Rocky Mountain and prairie states to New Mexico, Texas, and Coahuila.

*Astragalus micromeris*



Apparently known only from New Mexico.

*Astragalus missouriensis*

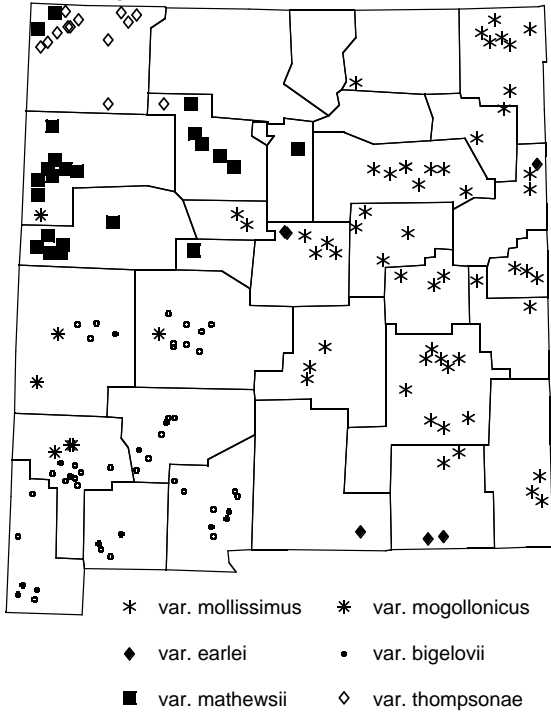


- \* var. missouriensis    \* var. accumbens
- ◆ var. mimetes
- var. amphibolus

Alberta to Manitoba, south through the Rocky Mountains and prairie states to New Mexico and Texas.

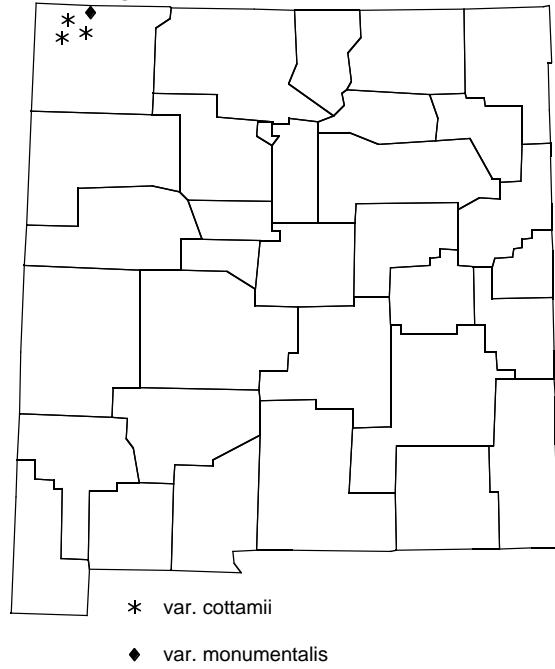


*Astragalus mollissimus*



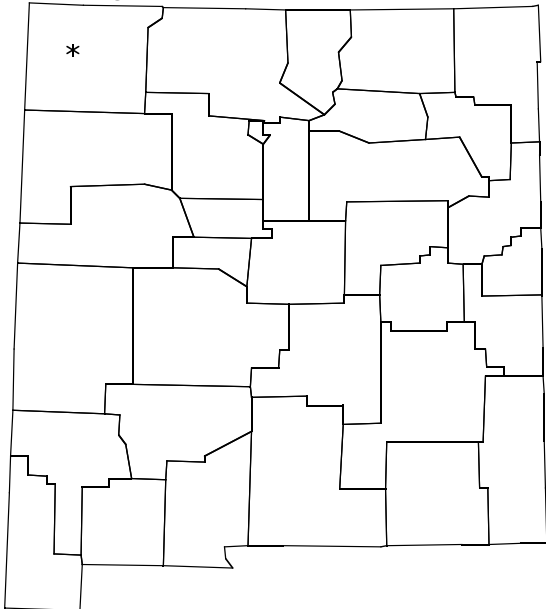
Utah and Wyoming, south to Chihuahua and Coahuila.

*Astragalus monumentalis*



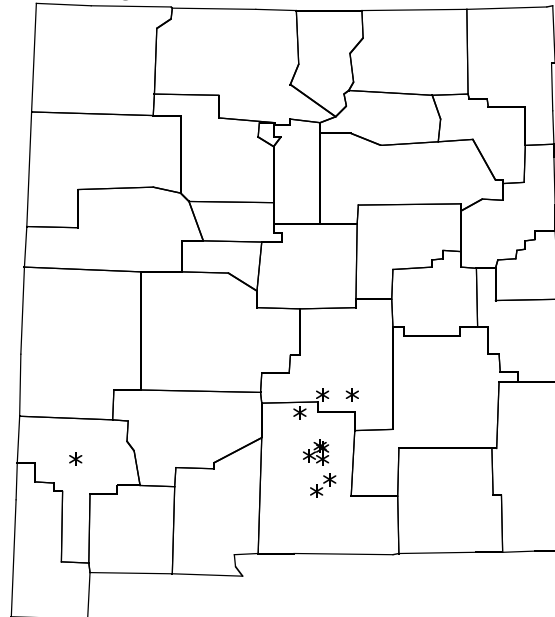
Utah, Arizona, and New Mexico.

*Astragalus naturitensis*



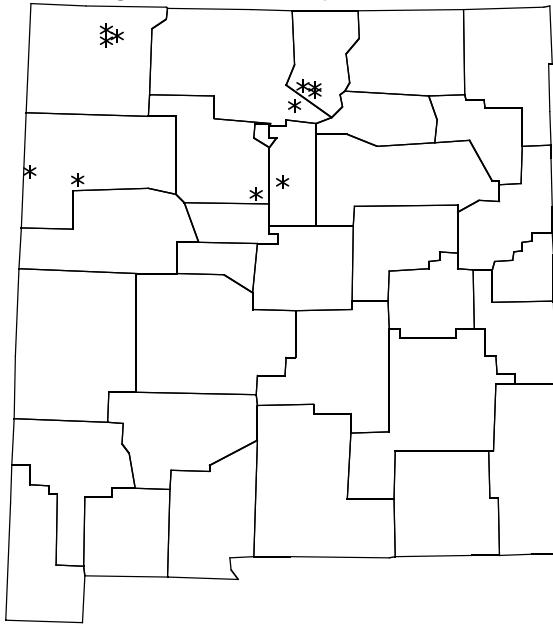
Utah, Colorado, and New Mexico.

*Astragalus neomexicanus*



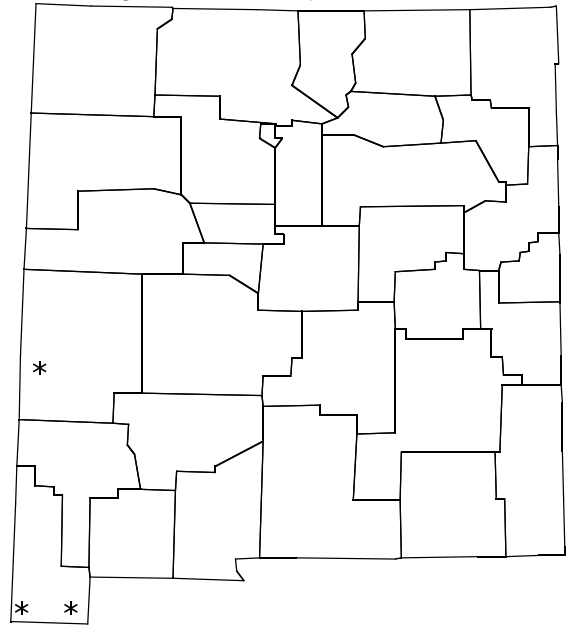
Known only from New Mexico.

*Astragalus newberryi*



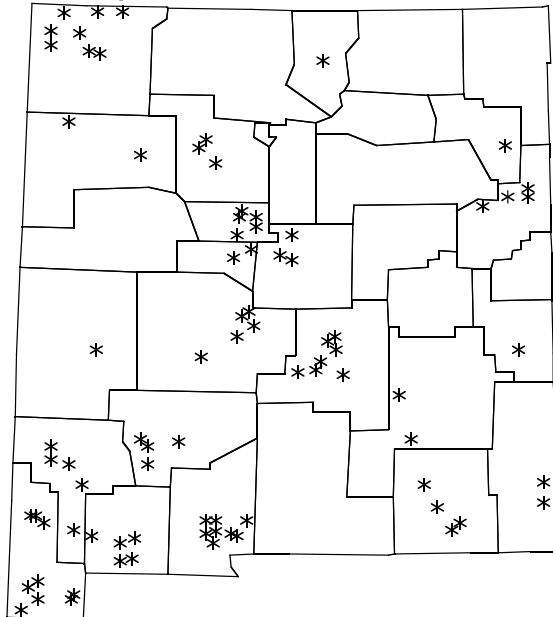
Oregon, California, Nevada, Utah, Arizona, and New Mexico.

*Astragalus nothoxys*



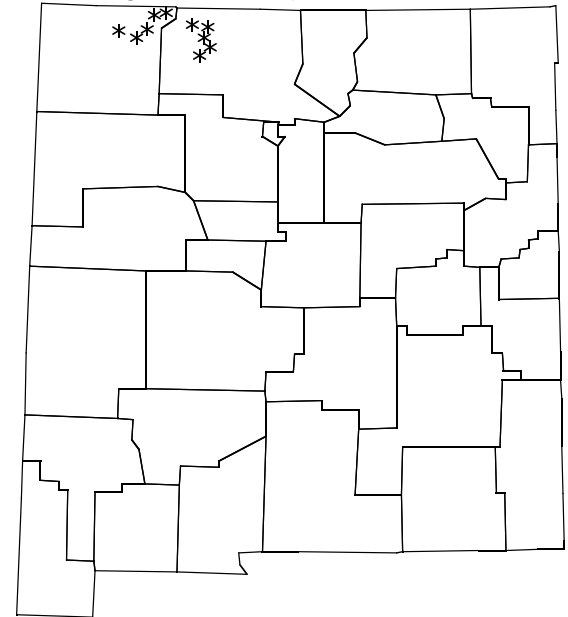
Arizona, New Mexico, and Chihuahua.

*Astragalus nuttallianus*



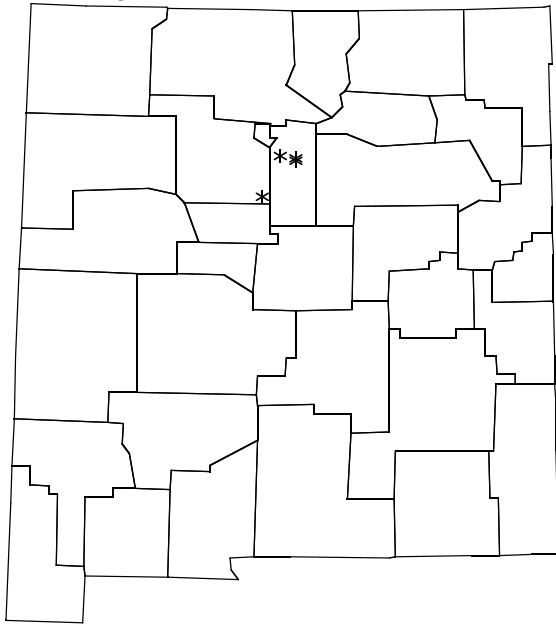
Southern California and Nevada, east to Colorado, Oklahoma, Texas, and northern Mexico.

*Astragalus oocalycis*



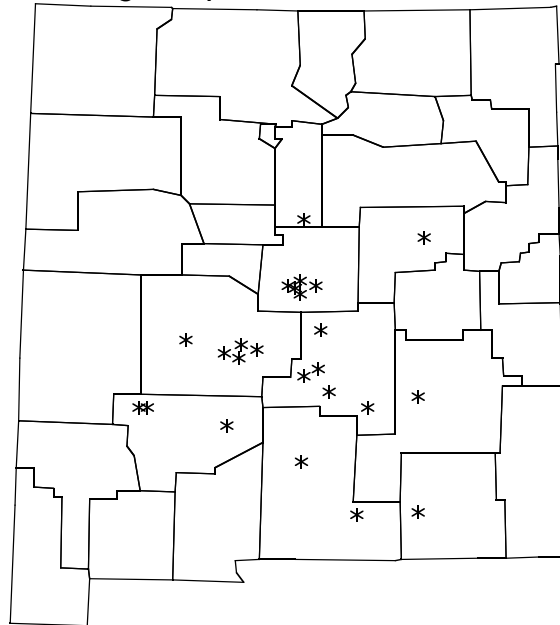
Colorado and New Mexico.

*Astragalus pattersonii*



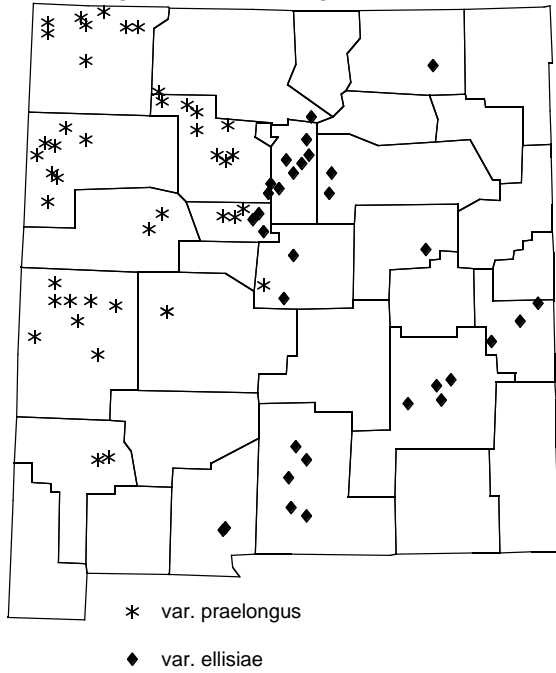
Utah, Colorado, Arizona, and New Mexico.

*Astragalus pictiformis*



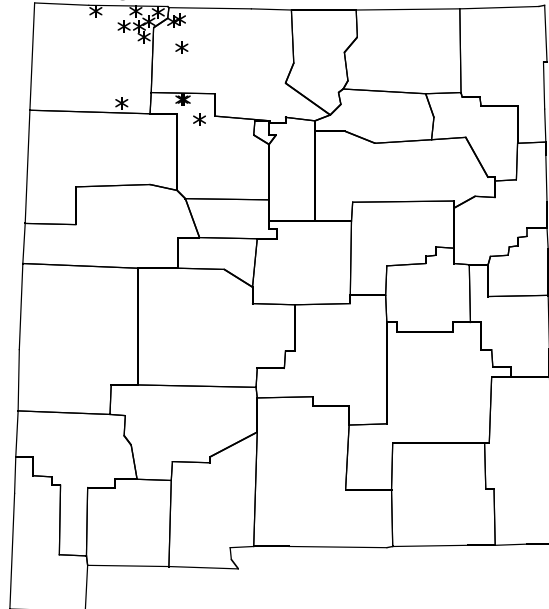
New Mexico and Texas.

*Astragalus praelongus*



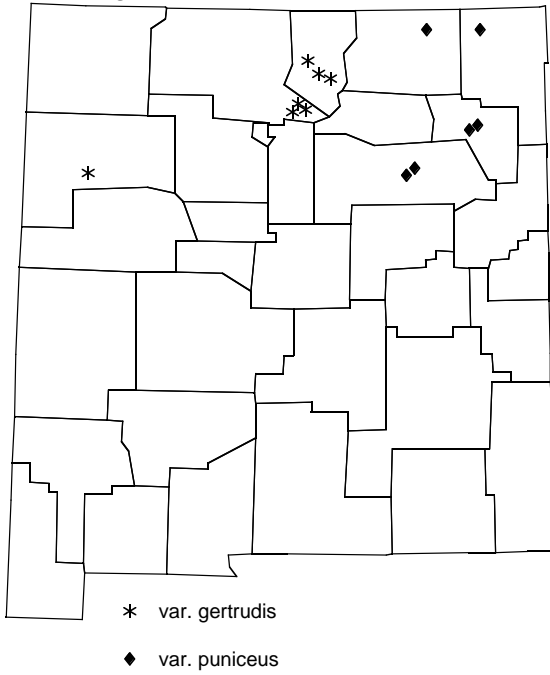
Nevada, Utah, Colorado, Arizona, New Mexico, and Texas.

*Astragalus proximus*



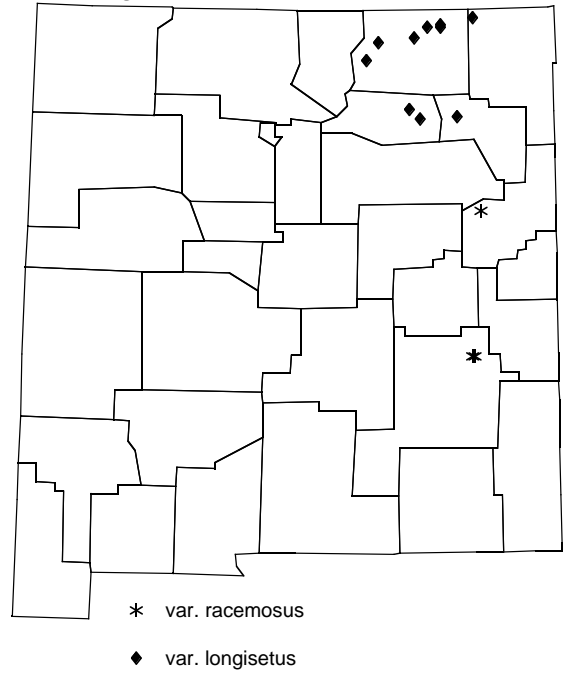
New Mexico and Colorado.

*Astragalus puniceus*



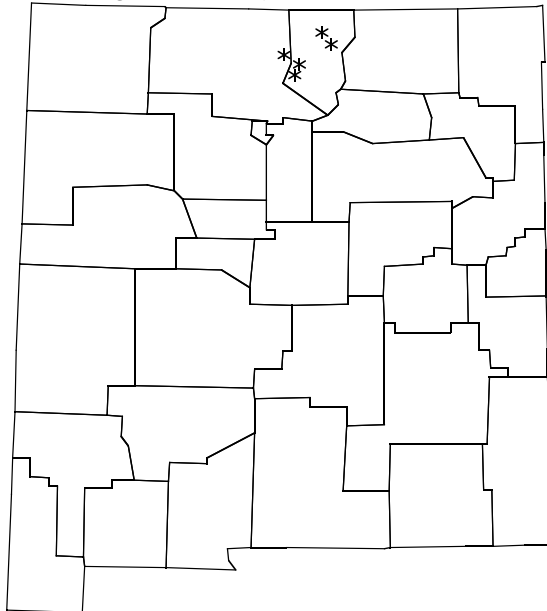
Colorado, New Mexico, and Oklahoma.

*Astragalus racemosus*



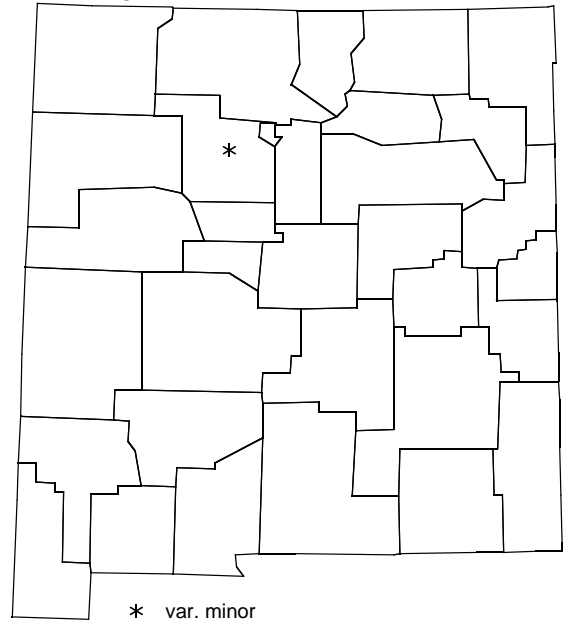
Saskatchewan south through the prairie states to New Mexico, Texas, and Oklahoma; also Utah and San Luis Potosi.

*Astragalus ripleyi*



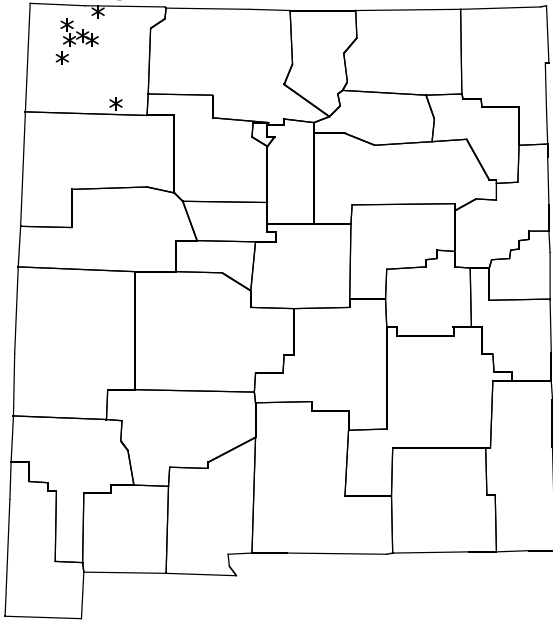
New Mexico and southern Colorado.

*Astragalus robbinsii*



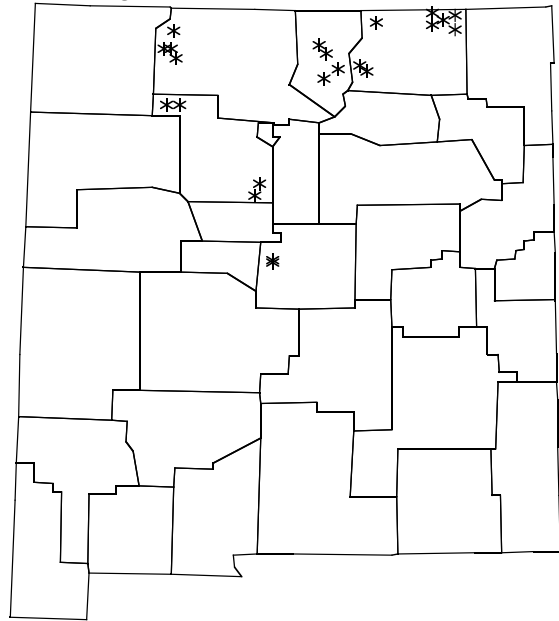
Alaska down the Rocky Mountains to northern New Mexico, and the New England states and eastern Canada.

*Astragalus sabulonum*



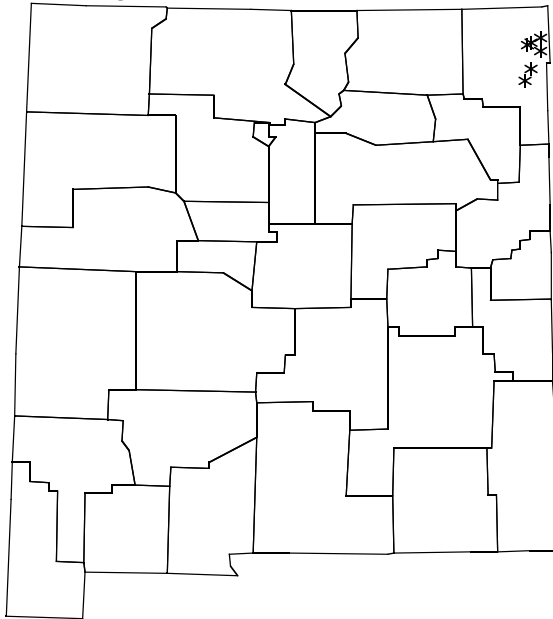
California, Nevada, Utah, Arizona, and New Mexico.

*Astragalus scopulorum*



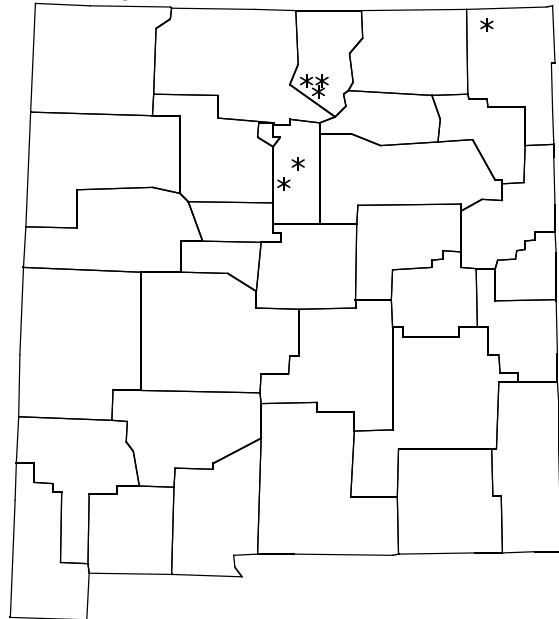
Utah, Colorado, Arizona, and New Mexico.

*Astragalus sericoluecus*



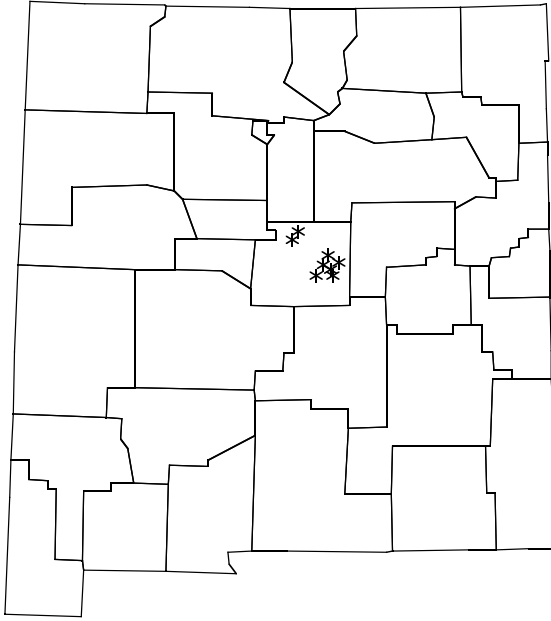
Wyoming, Nebraska, Colorado, and New Mexico.

*Astragalus shortianus*



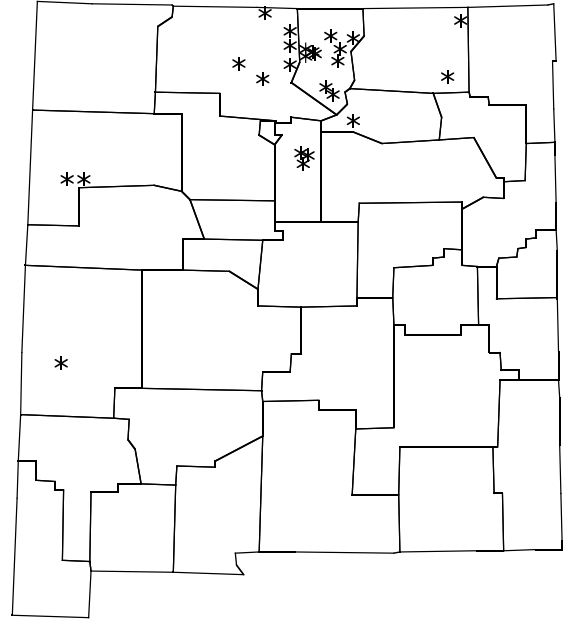
Wyoming, Colorado, and New Mexico.

*Astragalus siliceus*



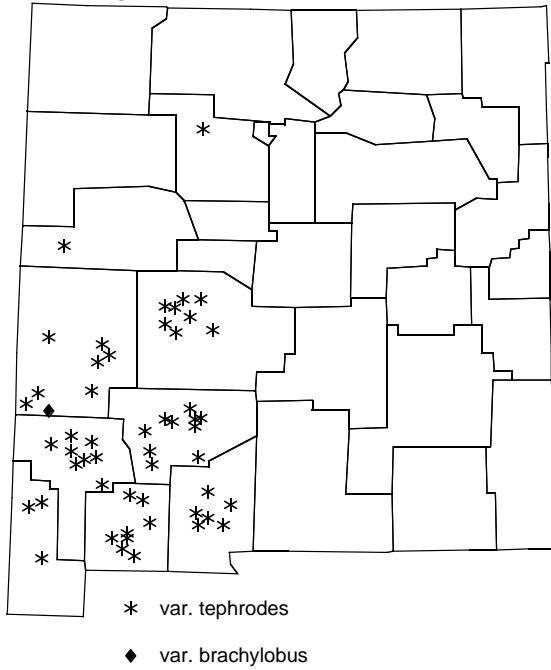
Known only from New Mexico.

*Astragalus tenellus*



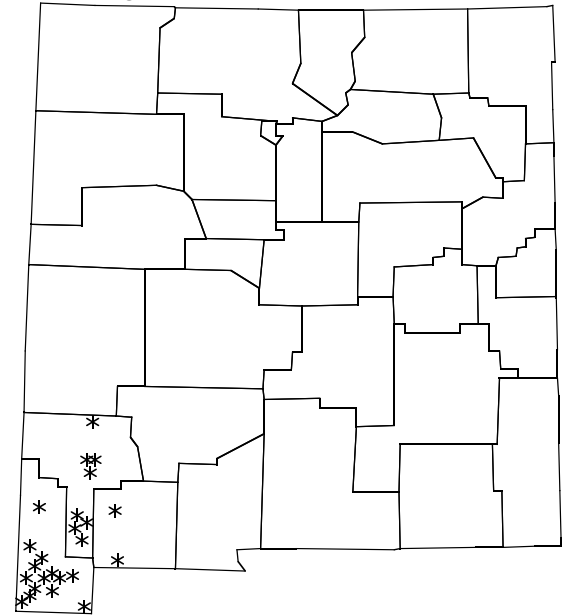
Yukon east to Manitoba, south to Nevada, New Mexico, Nebraska, and Minnesota.

*Astragalus tephrodes*



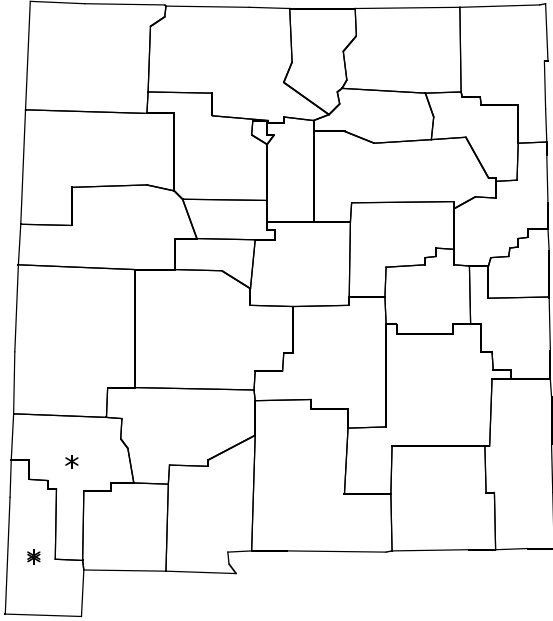
Nevada and southwestern Utah, Arizona, and New Mexico.

*Astragalus thurberi*



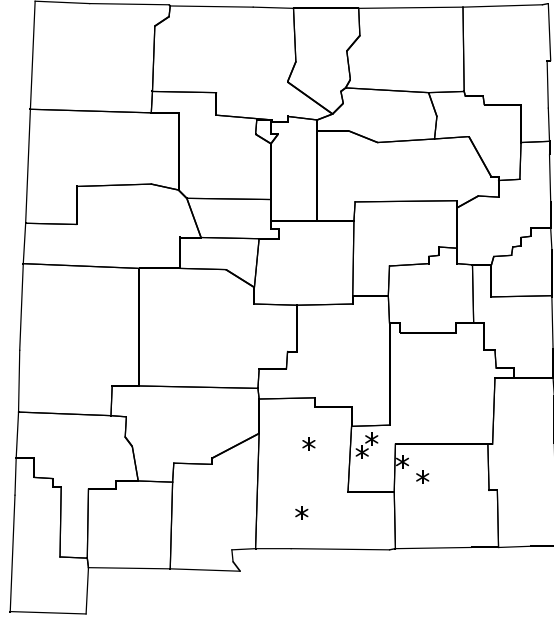
Arizona, New Mexico, and Sonora.

*Astragalus vaccarum*



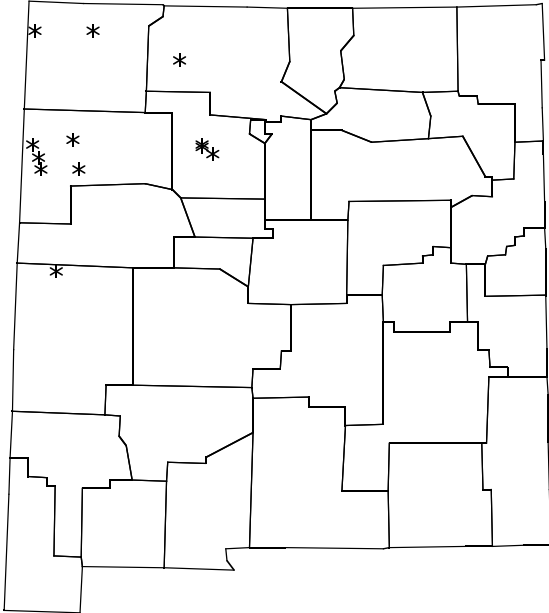
Arizona, New Mexico, and northern Mexico.

*Astragalus waterfallii*



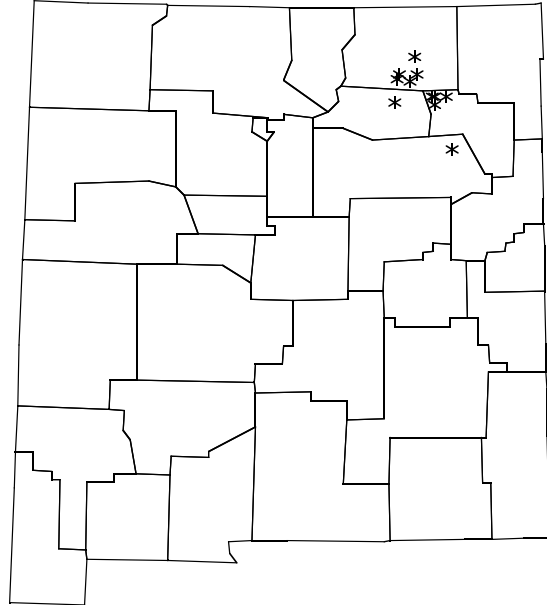
New Mexico, Texas, and Chihuahua.

*Astragalus wingatanus*



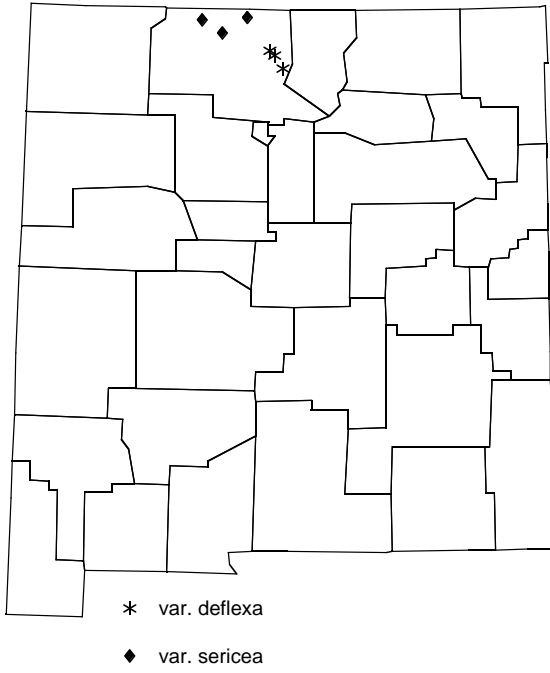
Utah, Colorado, Arizona, and New Mexico.

*Astragalus wittmannii*



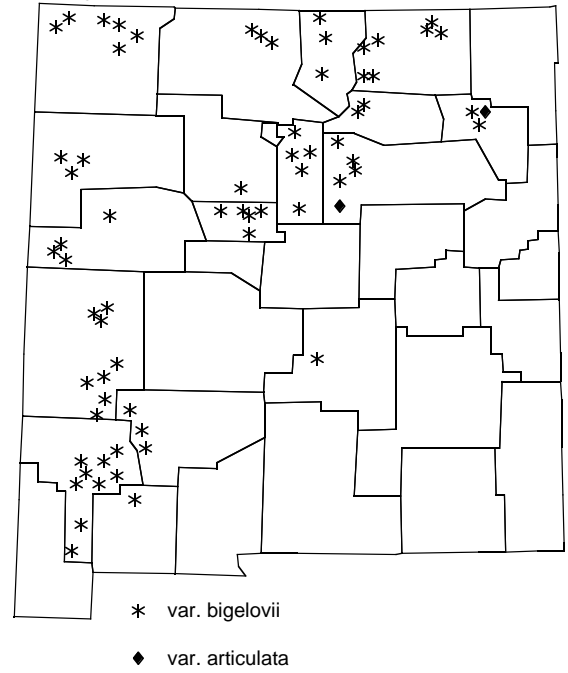
Known only from New Mexico.

*Oxytropis deflexa*



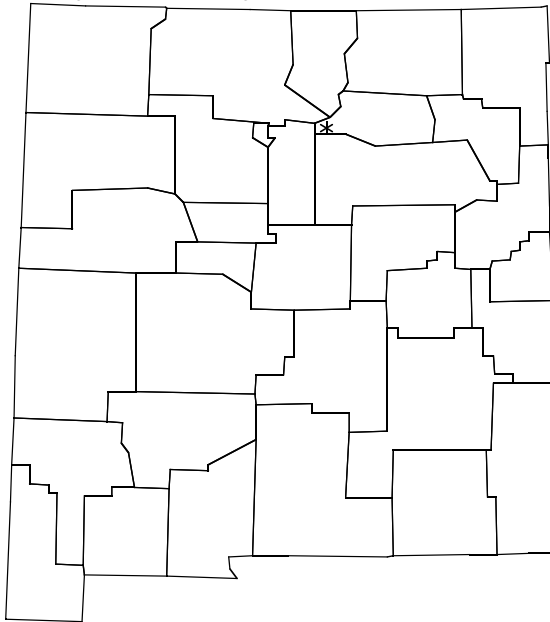
Widespread through the Rocky Mountains from New Mexico north to the Yukon.

*Oxytropis lambertii*



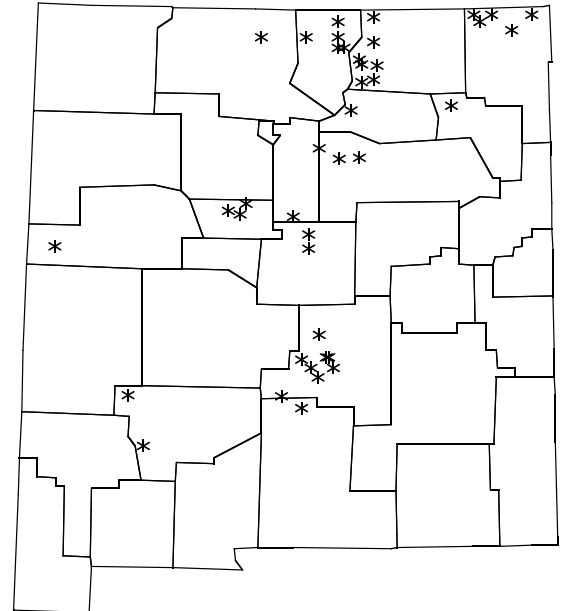
Saskatchewan and Manitoba south to Arizona and New Mexico.

*Oxytropis parryi*



California, Idaho, Wyoming, Utah, Colorado, and New Mexico.

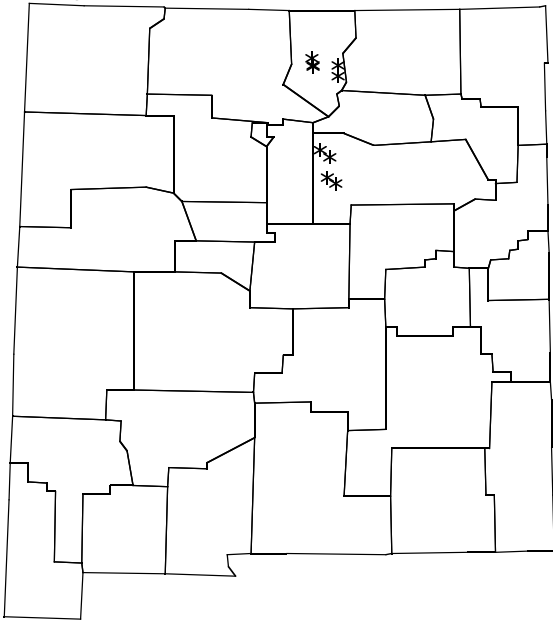
*Oxytropis sericea*



Yukon south to Nevada, New Mexico, and Oklahoma.



*Oxytropis splendens*



Alaska to Ontario, south through the northern plain states to Colorado and New Mexico.



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**April 1997**

**Las Cruces, NM**  
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