



Figure 1. View from the summit of the Sierra Juriquipa of steep slopes with oak woodland and a few pines. Photo by Ana L. Reina-G.

# Preliminary Flora of the Sierra Juriquipa, Sonora, Mexico

by Elizabeth Makings<sup>1</sup>, Thomas R. Van Devender<sup>2</sup>, Ana Lilia Reina-Guerrero<sup>2</sup>, and Stephen F. Hale<sup>3</sup>

## Abstract

The Sierra Juriquipa mountain range is a small but important part of the Madrean Sky Islands in northeastern Sonora, and an area previously unexplored botanically until the Madrean Discovery Expedition (MDE) in the summer of 2017. In this preliminary flora, we document 282 taxa in 72 families, and 198 genera. Eleven species (3.9%) are non-native.

## Introduction

The Madrean Archipelago is located between the Sierra Madre Occidental (SMO) and the Mogollon Rim in central Arizona. In this area there are 55 Sky Island isolated mountain ranges or complexes of several ranges connected by oak woodland corridors (Van Devender et al. 2013). Sky Islands are crowned

with oak woodland or pine-oak forest. The lowland “seas” are Sonoran and Chihuahuan desertscrub, desert grassland, foothills thornscrub, or tropical deciduous forest.

## Study Area and Methods

This preliminary flora is based on observations from a scouting trip on July 14–16, and intense collecting during the Madrean Discovery Expedition (MDE) Sierra Juriquipa on August 12–16, 2017 (Figure 1). This Sky Island is a little over an hour’s drive from Agua Prieta to the mining town of Nacozari de García, then about 19 kilometers (12 miles) southeast on winding dirt roads through the small mining village of Santo Domingo. The range is directly south of one of the largest copper mines in Mexico — *La Mina de la Caridad*. Our camp at Rancho Zulema in the northwestern section of Juriquipa occupied a narrow mesa with just enough room for the vehicles, gear, and tents of the 35 participants. To document the floristic diversity we inventoried Ranchos Orégano Viejo and San Felipe, and the slopes and ridgetops

<sup>1</sup>Arizona State University Herbarium, 734 West Alameda Drive, Tempe, AZ 85282. <sup>2</sup>GreaterGood.org, 6262 N. Swan Rd., Suite 150, Tucson, AZ 85718. <sup>3</sup>EcoPlan Associates Inc., 3610 N. Prince Village Place, Suite 140, Tucson, AZ 85719.

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# Sierra Juriquipa

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near Rancho Zulema, all on Ejido Santo Domingo, Municipality of Nacozari de García.

The Sierra Juriquipa is approximately 6,900 hectares of rugged mountain terrain and V-shaped valleys. The highest peaks reach a little over 2,000 m. (6,561 ft.) elevation with north slopes forested by mostly Chihuahua and Engelmann pine (*Pinus chihuahuana*, and *P. engelmannii*), and an occasional Arizona madrone (*Arbutus arizonica*) (Figure 2). Typical landscapes explored near Rancho Zulema were steep slopes with alligator juniper (*Juniperus deppeana*) and oaks.

The oak diversity was noteworthy, with seven species (*Quercus arizonica*, *Q. chihuahuensis*, *Q. emoryi*, *Q. hypoleucoides*, *Q. oblongifolia*, *Q. toumeyi*, and *Q. viminea*) distributed across the range, the dominants changing frequently according to habitat preference. An assortment of grasses, shrubs, and succulents occupy the understory including desert spoon/*sotol* (*Dasyllirion wheeleri*) from the desert grasslands, and oak woodland species such as firecracker bush (*Bouvardia ternifolia*) and velvetpod mimosa/*gatuño* (*Mimosa dysocarpa*). Lower elevations (~1000 m., 3,280 ft.) are foothills thornscrub landscapes with mostly boat-thorn acacia/*güinolo* (*Acacia cochliacantha*), *tepeguaje* (*Lysiloma watsonii*), and velvet mesquite (*Prosopis velutina*).



Figure 2. Pine-oak forest on the summit. Photo by Ana L. Reina-G.

**Flora.** We observed or vouchered a total of 282 taxa in 72 families and 198 genera. Our study includes all biases that go along with a short, single-season window of collecting events. Only 11 species (3.9%) are non-native. The most important families are Fabaceae (35 taxa), Poaceae (31 taxa), and Asteraceae (25 taxa), and align with other Sonoran floras. The regional story is told by the second-tier families that bring out the personality of the local flora. For the Sierra Juriquipa, the Euphorbiaceae (15 taxa), Solanaceae (15 taxa), Convolvulaceae (12 taxa), Apocynaceae (11 taxa), Cyperaceae (10 taxa), Cactaceae (7 taxa), Fagaceae (7 taxa), and

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Figure 3. A. The charismatic *Asclepias lemmonii*. Photo by Elizabeth Makings. B. *Mandevilla stans*. A single Arizona record in the Santa Rita Mountains. Photo by Ana L. Reina-G.



Figure 4. Plants with Sierra Madre Occidental affinities that reach Arizona. A. *Hybanthus attenuatus*. B. The Mexican star, *Milla biflora*. Photos by Elizabeth Makings.

## Sierra Juriquipa *continued*

Pteridaceae (6 taxa) are especially important. The genera with the most species were *Cyperus* (9), *Ipomoea* (7), *Euphorbia* (7), *Quercus* (7), *Asclepias* (6), and *Solanum* (6). *Asclepias* milkweeds were scattered but showy and hard to miss, especially the very large and charismatic *Asclepias lemmonii* (Figure 3A). However, in the Sierra Juriquipa, the oaks are the stars of the show in a classic Madrean oak woodland or *encinal*. One or two species tend to dominate locally, but it is not unusual to encounter four or more species on a single slope that are, for the most part, easy to distinguish by leaf shape, color, and texture, as well as habit.

**Floristic affinities.** Botanists have the tendency to take interest in things that are unfamiliar, out of place, or showy and irresistible. In addition, botanists love learning different species and are absorbed with the biogeographical component of floristics, pointing out interesting distributions: disjuncts, new records, endemics, range extensions, etc. The Sierra Juriquipa certainly provided examples of these categories. The plants are the collective narrative of the region and there are several recurring distributional themes for taxa of the Sierra Juriquipa flora. A few are northern species at their southern

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Figure 5. Plants restricted to the Sky Island Region. A. *Coyphantha recurvata*. Photo by Stephen F. Hale. B. *Mandevilla brachysiphon*. Photo by Elizabeth Makings.



Figure 6. SMO species that do not occur in Arizona. A. *Penstemon companulatus*. Photo by Liz Makings. B. *Begonia gracilis*. Photo by Stephen F. Hale.

## Sierra Juriquipa *continued*

limits (e.g., *Lathyrus lanszwertii* var. *arizonicus* and *Opuntia chlorotica*). Many more species have southern distributions that extend into Arizona from the SMO and the Sonoran Sky Islands, such as *Browallia eludens*, *Eysenhardtia orthocarpa*, *Fraxinus gooddingii*, *Hybanthus attenuatus* (Figure 4A), *Hypoxis mexicana*, *Mandevilla stans* (Figure 3B), *Milla biflora* (Figure 4B), *Quercus viminea*, *Roldana hartwegii*, and *Tripsacum lanceolatum*. Other species in this category with more tropical affinities are widespread in thornscrub, e.g., *Capsicum annuum*, *Desmanthus bicornutus*, and *Havardia mexicana*. *Bouteloua diversispicula* (formerly *Cathetecum brevifolium*) is ubiquitous in foothills thornscrub (FTS), and Plains of Sonora desertscrub. It is only known in Arizona from the vicinity of Ragged Top Mountain west of Tucson (Wiens 2000). This dwarf, tufted, stoloniferous perennial grass plays an important but underappreciated role in arid habitats where it forms turf that

prevents erosion as well as enriching the microfauna diversity, but it can easily disappear with plowing and other surface disturbances.

*Cnidocolus angustidens*, *Coryphantha recurvata* (Figure 5A), *Mandevilla brachysiphon* (Figure 5B), and *Quercus emoryi* mostly occur in the Madrean Archipelago. The Sky Island phytogeographic pattern is not fully appreciated and often called “Madrean,” even if the species does not occur in the

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Figure 7. Mexican species not in Arizona. A. *Cyclanthera minima*. Photo by Stephen F. Hale. B. *Tigridia pavonia*, a captivating species — flowers only briefly open. Photo by Elizabeth Makings.





Figure 8. Mexican species not in Arizona. A. *Manihot rubricaulis*. Photo by Susan D. Carnahan. B. *Solanum houstonii*. Photo by Stephen L. Minter.

## Sierra Juriquipa *continued*

SMO. Other SMO species that reach Arizona include *Quercus viminea*, *Roldana hartwegii*, and *Tripsacum lanceolatum*. *Bursera fagaroides* var. *elongata* is a widespread tropical species that reaches its northwestern distributional limit in thornscrub and Sonoran desertscrub in Sonora, except for a single 1929 collection by Robert H. Peebles in Fresnal Canyon in the southern Baboquivari Mountains. Since then, attempts to relocate this population were not successful. Other SMO plants that approach but do not occur in Arizona include *Begonia gracilis* (Figure 6B), *Buddleja parviflora*, *Cyclanthera minima* (Figure 7A), *Penstemon campanulatus* (Figure 6A), and *Tigridia pavonia* (Figure 7B). Thornscrub species that occur just south of Arizona are *Manihot rubricaulis* (Figure 8A), *Milleria quinqueflora*, and *Solanum houstonii* (Figure 8B). *Lantana camara* is a widespread tropical species reaching its northwestern distributional limit in thornscrub and Sonoran desertscrub in Sonora and Baja California. *Merremia palmeri* is a showy white-flowered vine typical of thornscrub and the adjacent Plains of Sonora desertscrub. *Populus monticola* is a tropical riparian tree that would have Sky Islands distribution, except that it also occurs in Baja California Sur. All in all, the Sierra Juriquipa has a diverse collection of biogeographical affinities.

While investigating previous botanical work in the Sierra Juriquipa, we were quite surprised to discover that previous botanical work was non-existent — not a single herbarium specimen had been vouchered prior to our 2017 expedition. To work in an area so rich and yet so unexplored was remarkable and gratifying. Clearly, there is still a lot to learn about the floras of the Sonoran Sky Island and many other areas in Sonora. Physical vouchers and many images are available in the Arizona State University and University of

Arizona SEINet databases (<http://swbiodiversity.org/seinet/collections/index.php>). Field observations are available in the Madrean Discovery Expedition (MDE) ([madreandiscovery.org](http://madreandiscovery.org)).

### Acknowledgements

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### Literature Cited

- Van Devender, T.R., S. Avila-V., M. Emerson, D. Turner, A.D. Flesch, and N.S. Deyo. 2013a. Biodiversity in the Madrean Archipelago of Sonora, Mexico. Pp. 10–16 in G.J. Gottfried, P.F. Ffolliott, B.S. Gebow, L.G. Eskew, and L.C. Collins (compilers). Merging science and management in a rapidly changing world: Biodiversity and management of the Madrean Archipelago III and 7th Conference on Research and Resource Management in the Southwestern Deserts. 2012 May 1–5, Tucson, AZ. Proceedings RMRS-P-67. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Wiens, J.F. 2000. Vegetation and flora of Ragged Top, Pima County, Arizona. *Desert Plants* 16:3–32.

# CHECKLIST: Sierra Juriquipa page 1 of 4

An asterisk (\*) denotes non-native status.

## Lycophytes

### SELAGINELLACEAE

*Selaginella rupincola* Underwood

## Pteridophytes

### ASPLENIACEAE

*Asplenium palmeri* Maxon

### PTERIDACEAE

*Bommeria hispida* (Mett. ex Kuhn) Underwood

*Myriopteris aurea* (Poir.) Grusz & Windham

*Myriopteris lindheimeri* (Hook.) J. Sm.

*Myriopteris wrightii* (Hook.) Grusz & Windham

*Pellaea wrightiana* Hook.

## Gymnosperms

### CUPRESSACEAE

*Juniperus deppeana* Steud.

### PINACEAE

*Pinus chihuahuana* Engelm.

*Pinus engelmannii* Carr.

## Eudicots

### ACANTHACEAE

*Elytraria imbricata* (Vahl) Pers.

*Ruellia nudiflora* (Engelm. & A. Gray) Urban

*Tetramerium nervosum* Nees

### ADOXACEAE

*Sambucus cerulea* Raf.

### AMARANTHACEAE

*Alternanthera caracasana* Kunth

*Amaranthus dubius* Mart. ex Thell. (new Sonoran voucher)

*Amaranthus palmeri* S. Watson

*Gomphrena caespitosa* Torr.

*Gomphrena nitida* Rothrock

*Gomphrena sonora* Torr.

*Guilleminea densa* (Humb. & Bonpl. ex Willd.) Moq.

### ANACARDIACEAE

*Rhus aromatica* Aiton

*Rhus virens* Lindheimer ex A. Gray

*Toxicodendron radicans* (L.) Kuntze

### APOCYNACEAE

*Asclepias asperula* (Dcne.) Woods.

*Asclepias elata* Benth.

*Asclepias lemmonii* A. Gray

*Asclepias linaria* Cav.

*Asclepias nummularia* Torr.

*Asclepias ovata* Steud.

*Cynanchum ligulatum* (Benth.) Woods.

*Mandevilla brachysiphon* (Torr.) Pichon

*Mandevilla stans* (A. Gray) J.K. Williams

*Matelea tristiflora* (Standl.) Woodson

*Metastelma mexicanum* (Brandege) M. Fishbein & R. Levin

### ARALIACEAE

*Aralia humilis* Cav.

### ASTERACEAE

*Acourtia thurberi* (A. Gray) Reveal & King

*Ambrosia ambrosioides* (Cav.) W.W. Payne

*Ambrosia confertiflora* Dc.

*Artemisia ludoviciana* Nutt.

*Baccharis salicifolia* (Ruiz & Pav.) Pers.

*Baccharis sarothroides* A. Gray

*Carphochaete bigelovii* A. Gray

*Conyza canadensis* (L.) Cronquist

*Erigeron flagellaris* A. Gray

*Hieracium fendleri* Schultz-Bip.

*Hieracium pringlei* A. Gray

*Laennecia eriophylla* (A. Gray) G.L. Nesom

*Lasianthaea podocephala* (A. Gray) K. Becker

*Melampodium appendiculatum* B.L. Robins.

*Melampodium cupulatum* A. Gray

*Melampodium longicorne* A. Gray

*Milleria quinqueflora* L.

*Porophyllum macrocephalum* DC.

*Psacalium decompositum* (A. Gray) H.E. Robins. & Brett.

*Roldana hartwegii* (Benth.) H. Rob. & Brettell

*Symphytotrichum expansum* (Poepp. ex Spreng.) G.L. Nesom

*Tagetes lemmonii* A. Gray

*Verbesina longifolia* (A. Gray) A. Gray

*Zinnia peruviana* (L.) L.

*Zinnia zinnioides* (Kunth) Olorode & A.M. Torres

### BEGONIACEAE

*Begonia gracilis* Vilmorin-Andrieux

### BIXACEAE

*Amoreuxia palmatifida* Moc. & Sessé ex DC.

### BORAGINACEAE

*Lithospermum cobrense* Greene

### BRASSICACEAE

*Hesperidanthus linearifolius* (A. Gray) Rydb.

*Pennellia micrantha* (A. Gray) Nieuwl.

### BURSERACEAE

*Bursera fagaroides* (Kunth) Engl. var. *elongata* McVaugh & Rzed.

### CACTACEAE

*Coryphantha recurvata* (Engelm.) Britt. & Rose

*Cylindropuntia versicolor* (Engelm. ex J. M. Coult.) Knuth

*Echinocereus rigidissimus* (Engelm.) Haage f.

*Mammillaria grahamii* Engelm.

## CHECKLIST: Sierra Juriquipa page 2 of 4

*Opuntia chlorotica* Engelm. & Bigelow

*Opuntia engelmannii* Salm-Dyck

*Opuntia cf. wilcoxii* Britton & Rose

### CANNABACEAE

*Celtis pallida* Torr.

*Celtis reticulata* Torr.

### CARYOPHYLLACEAE

*Drymaria effusa* A. Gray

*Drymaria leptophylla* (Cham. & Schlecht.)  
Fenzl ex Rohrb.

*Drymaria molluginea* (Lag.) Didr.

### CONVOLVULACEAE

*Cuscuta americana* Thunb. ex Engelm.

*Dichondra brachypoda* Wootton & Standl.

*Evolvulus alsinoides* (L.) L.

*Evolvulus arizonicus* A. Gray

*Ipomoea capillacea* (Kunth) G. Don

*Ipomoea costellata* Torr.

*Ipomoea cristulata* Hallier f.

*Ipomoea hederacea* Jacq.

*Ipomoea plummerae* A. Gray

*Ipomoea tenuiloba* Torr.

*Ipomoea thurberi* A. Gray

*Merremia palmeri* (S. Watson) Hallier f.

### CRASSULACEAE

*Sedum stelliforme* S. Watson

### CUCURBITACEAE

*Cucurbita digitata* A. Gray

*Cyclanthera minima* (S. Watson) Kearns &  
C.E. Jones

### ERICACEAE

*Arbutus arizonica* (A. Gray) Sarg.

*Arctostaphylos pungens* Kunth

### EUPHORBIACEAE

*Acalypha neomexicana* Muell. Arg.

*Acalypha ostryifolia* Riddell ex J. M. Coult.

*Acalypha papillosa* Rose

*Cnidoscolus angustidens* Torr.

*Euphorbia bilobata* Engelm.

*Euphorbia cuphosperma* (Engelm.)  
Boiss.

*Euphorbia heterophylla* L.

*Euphorbia hirta* L.

*Euphorbia hyssopifolia* L.

*Euphorbia indivisa* (Engelm.) Tidestrom

*Euphorbia macropus* (Klotzsch &  
Garcke) Boiss.

*Manihot angustiloba* (Torr.) Müll. Arg.

*Manihot rubricaulis* I.M. Johnst.

*Tragia laciniata* (Torr.) Müll. Arg.

*Tragia nepetifolia* Cav.

### FABACEAE

*Acacia angustissima* (Mill.) Kuntze

*Acacia cochliacantha* Humb. & Bonpl.  
ex Willd.

*Acacia farnesiana* (L.) Willd.

*Aeschynomene villosa* Poir.

*Calliandra humilis* Benth. var. *humilis*

*Calliandra humilis* Benth. var. *reticulata*  
(A. Gray) L.D. Benson

*Chamaecrista absus* (L.) Irwin & Barneby

*Chamaecrista nictitans* (L.) Moench

*Chamaecrista serpens* (L.) Greene

*Cologania angustifolia* Kunth

*Cologania obovata* Schlecht.

*Coursetia caribaea* (Jacq.) Lavin

*Crotalaria pumila* Blanco

*Crotalaria sagittalis* L.

*Dalea versicolor* Zucc.

*Desmanthus bicornutus* S. Watson

*Desmanthus covillei* (Britt. & Rose)  
Wiggins ex B.L. Turner

*Erythrina flabelliformis* Kearney

*Eysenhardtia polystachya* (Ortega) Sarg.

*Galactia wrightii* A. Gray

*Havardia mexicana* (Rose) Britton &  
Rose

*Indigofera sphaerocarpa* A. Gray

*Lathyrus lanszwertii* Kellogg var.  
*arizonicus* (Britton) S.L. Welsh

\* *Leucaena leucocephala* (Lam.) de Wit

*Mimosa distachya* Cav.

*Mimosa dysocarpa* Benth.

*Mimosa grahamii* A. Gray

*Nissolia schottii* (Torr.) A. Gray

*Parkinsonia aculeata* L.

*Phaseolus acutifolius* A. Gray

*Phaseolus ritensis* M.E. Jones

*Prosopis velutina* Wootton

*Senna hirsuta* (L.) Irwin & Barneby

*Zornia reticulata* Sm.

### FAGACEAE

*Quercus arizonica* Sarg.

*Quercus chihuahuensis* Trel.

*Quercus emoryi* Torr.

*Quercus hypoleucoides* A. Camus

*Quercus oblongifolia* Torr.

*Quercus toumeyii* Sarg.

*Quercus viminea* Trel.

### FOUQUIERIACEAE

*Fouquieria splendens* Engelm.

### GERANIACEAE

*Geranium richardsonii* Fisch. & Trautv.

*Geranium wislizeni* S. Watson

### JUGLANDACEAE

*Juglans major* (Torr.) Heller

### LAMIACEAE

*Agastache wrightii* (Greenm.) Wootton &  
Standl.

*Monarda citriodora* Cerb. var.  
*austromontana* (Epling) B.L. Turner

*Salvia subincisa* Benth.

### LINACEAE

*Linum neomexicanum* Greene

### LOASACEAE

*Mentzelia aspera* L.

### LYTHRACEAE

*Cuphea wrightii* A. Gray

## CHECKLIST: Sierra Juriquipa page 3 of 4

### MALPIGHIACEAE

*Aspicarpa hirtella* L.C. Rich.

### MALVACEAE

*Anoda cristata* (L.) Schlecht.

*Ayenia filiformis* S. Watson

*Corchorus hirtus* L.

*Gossypium thurberi* Todaro

*Sida rhombifolia* L.

### MARTYNIACEAE

*Proboscidea parviflora* (Wooton)  
Wooton & Standl.

### MELIACEAE

\* *Melia azedarach* L.

### MOLLUGINACEAE

*Mollugo verticillata* L.

### MORACEAE

*Morus microphylla* Buckl.

### NYCTAGINACEAE

*Allionia incarnata* L.

*Boerhavia coccinea* P. Mill.

*Boerhavia erecta* L.

### OLEACEAE

*Fraxinus gooddingii* Little

### ONAGRACEAE

*Oenothera kunthiana* (Spach) Munz

*Oenothera tetraptera* Cav.

### OROBANCHACEAE

*Castilleja tenuiflora* Benth.

### OXALIDACEAE

*Oxalis latifolia* Kunth

### PAPAVERACEAE

*Argemone pleiacantha* Greene

### PASSIFLORACEAE

*Passiflora bryonioides* Kunth

### PLANTAGINACEAE

*Mecardonia procumbens* (P. Mill.) Small

*Penstemon campanulatus* (Cav.) Willd.

*Schistophragma intermedium* (A. Gray)  
Pennell

### POLYGALACEAE

*Hebecarpa obscura* (Benth.) J. R. Abbott

### POLYGONACEAE

*Eriogonum abertianum* Torr.

### PORTULACACEAE

*Portulaca oleracea* L.

*Portulaca suffrutescens* Engelm.

*Portulaca umbraticola* Kunth

### PRIMULACEAE

*Samolus vagans* Greene

### RANUNCULACEAE

*Clematis ligusticifolia* Nutt.

*Thalictrum fendleri* Engelm. ex A. Gray

### RHAMNACEAE

*Ceanothus buxifolius* Willd. ex Schult.f.

*Condalia correllii* M.C. Johnston

*Sageretia wrightii* S. Watson

### ROSACEAE

*Prunus serotina* Ehrh.

### RUBIACEAE

*Bouvardia ternifolia* (Cav.) Schlecht.

*Crusea hispida* Robinson

*Galium proliferum* A. Gray

*Mitracarpus hirtus* (L.) DC.

*Randia sonorensis* Wiggins

### SALICACEAE

*Populus monticola* Mert. ex Loud.

*Salix gooddingii* Ball

### SANTALACEAE

*Phoradendron californicum* Nutt.

*Phoradendron macrophyllum* (Engelm.)  
Cockerell

*Phoradendron serotinum* (Raf.) M. C.  
Johnst. ssp. *tomentosum* (DC.) Kuijt

### SAPINDACEAE

*Dodonaea viscosa* Jacq.

### SCROPHULARIACEAE

*Buddleja parviflora* Kunth

### SOLANACEAE

*Browallia eludens* R.K. Van Devender &  
P.D. Jenkins

*Capsicum annuum* L.

*Datura discolor* Bernh.

*Jaltomata procumbens* (Cav.) J.L. Gentry

*Lycium berlandieri* Dunal

\* *Nicotiana glauca* Graham

*Physalis hederifolia* A. Gray

*Physalis philadelphica* Lam.

*Physalis pubescens* L.

*Solanum elaeagnifolium* Cav.

*Solanum houstonii* Martyn

*Solanum lumholtzianum* Bartlett

*Solanum nigrescens* M. Martens &  
Galeotti

*Solanum stoloniferum* Schlttdl. & Bouché

### TALINACEAE

*Talinum paniculatum* (Jacq.) Gaertn.

### VERBENACEAE

*Aloysia gratissima* (Gillies & Hook.) Tronc.

*Lantana camara* L.

### VIOLACEAE

*Hybanthus attenuatus* (Humb. & Bonpl.  
ex J.A. Schultes) G. K. Schulze

### VITACEAE

*Vitis arizonica* Engelm.

### ZYGOPHYLLACEAE

*Kallstroemia grandiflora* Torr. ex A. Gray

## Monocots

### ASPARAGACEAE

*Agave palmeri* Engelm.

*Dasylyrion wheeleri* S. Watson

*Echeandia flavescens* (J.A. & J.H. Schultes)  
Cruden

*Milla biflora* Cav.



## Thirty-Seven Years on a Mountain Trail *continued*

descriptions is lacking. Each description here is grounded with some subtle explanations that bring a plant community to life for the reader, making it feel more memorable and understandable. These distinctive comments are subtle but worth noting. Of Desert Scrub, Bertelsen says, "Many typical desert species in the Tucson area are uncommon to rare, or altogether absent, in the study area. This is probably due to a number of factors, including elevation and the absence of bajada, sandy washes, or silty soils." This last sentence describes an essential difference between Desert Scrub in Finger Rock Canyon and Desert Scrub in flatter topography. This nuanced descriptive writing is woven into the entire flora. *Thirty-Seven Years* brings with it a lot of finely parsed information.

There are almost eight thousand specimens from the Catalina Mountains in the University of Arizona

Herbarium alone. It is a mountain range that has enjoyed the attention of many collectors. Bertelsen has brought botanical science in this mountain range to the next rung on the ladder by providing context, context that can only come of a deep personal understanding of the data. In *Thirty-Seven Years*, we are treated to a slice of what must be a much bigger pie. The data Bertelsen have amassed extend well beyond what is on display in this flora. We may find ourselves a little anxious to see what comes of this seminal work in the future, and we may feel a kinship with the mountain that wasn't there before.

Two Supplements: (1) *Corrections and Editions* and (2) *Flora Nomenclature Index* may be obtained upon request from the author, David Bertelsen, [david.bertelsen8@gmail.com](mailto:david.bertelsen8@gmail.com).



## CHECKLIST: Sierra Juriquipa *page 4 of 4*

*Nolina microcarpa* S. Watson

*Yucca madrensis* Gentry

### COMMELINACEAE

*Commelina tuberosa* L.

*Commelina erecta* L.

*Tradescantia pinetorum* Greene

### CYPERACEAE

*Bulbostylis juncooides* (Vahl) Kükenth.

*Cyperus dipsaceus* Liebamann

*Cyperus esculentus* L.

*Cyperus hermaphroditus* (Jacq.) Standl.

*Cyperus hypopitys* G. Tucker

*Cyperus manimae* Kunth

*Cyperus odoratus* L.

*Cyperus pallidicolor* (Kükenth.) G. Tucker

*Cyperus seslerioides* Kunth

*Cyperus squarrosus* L.

### HYPOXIDACEAE

*Hypoxis mexicana* J.A. & J.H. Schultes

### IRIDACEAE

*Sisyrinchium cernuum* (Bickn.) Kearney

*Tigridia pavonia* (L. f.) DC.

### POACEAE

*Aristida adscensionis* L.

*Aristida ternipes* Cav. var. *ternipes*

*Bouteloua curtispindula* (Michx.) Torr.

*Bouteloua diversispicula* Columbus

*Bouteloua hirsuta* Lag.

*Bouteloua repens* (Kunth) Scribn. & Merr.

*Chloris virgata* Sw.

\* *Cynodon dactylon* (L.) Pers.

\* *Digitaria sanguinalis* (L.) Scop.

*Dinebra panicea* ssp. *brachiata* (Steud.)

P.M. Peterson & N. Snow

*Disakisperma dubium* (Kunth) P.M.

Peterson & N. Snow

\* *Echinochloa colona* (L.) Link

\* *Eragrostis cilianensis* (All.) Vignolo ex Janch.

*Eragrostis intermedia* A.S. Hitchc.

*Eragrostis pectinacea* (Michx.) Nees ex Steud.

*Eriochloa acuminata* (J. Presl) Kunth

*Eriochloa lemmonii* Vasey & Scribn.

*Heteropogon contortus* (L.) P. Beauv. ex Roemer & J.A. Schultes

\* *Hordeum vulgare* L.

\* *Melinis repens* (Willd.) Zizka

*Muhlenbergia alopecuroides* (Griseb.)

P.M. Peterson & Columbus

*Muhlenbergia emersleyi* Vasey

*Panicum alatum* var. *minus* (Andersson)

F. Zuloaga & O. Morrone

*Panicum hirticaule* J. Presl

*Paspalum setaceum* Michx.

*Setaria liebmannii* E. Fourn.

\* *Sorghum halepense* (L.) Pers.

*Tripsacum lanceolatum* Rupr. ex Fourn.

\* *Triticum aestivum* L.

*Zuloagaea bulbosa* (Kunth) Bess