

Appendix S4. List of species, which supported the areas of endemism.

Table S1. Species supported each area of endemism in the analyses with different cell sizes. Each species is assigned to the area of endemism

(AE) in which it obtained the highest endemcity score. For each grid size ‘x’ indicates whether the species supported the AE. Abbreviations:

BLB – Bering Land Bridge; Temp. – Temperate; Am.-American; Col. – Colorado; Plt. - Plateau; Des. – Desert; CFP – California Floristic

Province; Gr Bas – Great Basin; Moj – Mojave; Son – Sonoran; Chih – Chihuahuan; Tam – Tamaulipan; Coah – Coahuila; SME – Sierra Madre

Oriental.

Species	Cell size (degrees, latitude-longitude)				Area of Endemism	Genus Range/Migration Route
	3.3 x 2.5	4 x 4	3 x 4	2.5 x 4		
<i>Androsace filiformis</i>			X		Mid Rocky Mountains	N Temperate
<i>Cercocarpus ledifolius</i>			X		Mid Rocky Mountains	mostly SW USA-E Mexico
<i>Balsamorhiza macrophylla</i>				X	Mid Rocky Mountains	W N American (temp USA & Canada)
<i>Astragalus utahensis</i>				X	Mid Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Astragalus cibarius</i>				X	Mid Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Astragalus convallarius</i>				X	Mid Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Cryptantha gracilis</i>				X	Mid Rocky Mountains	W/SW N Am & W S Am (Amphitropical)
<i>Artemisia arbuscula</i>				X	Mid Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Astragalus argophyllus</i>				X	E Great Basin-Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Astragalus kentrophyta</i>				X	E Great Basin-Rocky Mountains	N Temp/Tethyan. From Asia, via BLB
<i>Angelica pinnata</i>				X	E Great Basin-Rocky Mountains	N Temp/Subarctic
<i>Baileya multiradiata</i>		X			S Rocky-Col Plt-E Madrean	SW N American
<i>Juniperus monosperma</i>		X			S Rocky-Col Plt-E Madrean	N Temp (Madro/Tethyan)

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<i>Allionia incarnata</i>	X			S Rocky-Col Plt-E Madrean	SW USA, Mexico, W S America
<i>Asclepias asperula</i>				S Rocky-Col Plt-E Madrean	N American
<i>Quercus grisea</i>				S Rocky-Col Plt-E Madrean	N Temperate
<i>Fallugia paradoxa</i>				S Rocky-Col Plt-E Madrean	W /SW N American
<i>Cercocarpus montanus</i>				S Rocky-Col Plt-E Madrean	W /SW N American
<i>Dalea formosa</i>				S Rocky-Col Plt-E Madrean	Mexico/S USA to S America
<i>Hoffmannseggia drepanocarpa</i>				S Rocky-Col Plt-E Madrean	Amphitropical (S to N)
<i>Hymenoxys cooperi</i>		X		Great Basin-Colorado Plateau	W N American/Amphitropical
<i>Hymenoxys lemmonii</i>		X		Great Basin-Colorado Plateau	W N American/Amphitropical
<i>Cryptantha recurvata</i>	X	X		Great Basin-Colorado Plateau	W/SW N Am & W S Am (Amphitropical)
<i>Ephedra nevadensis</i>	X			Great Basin-Colorado Plateau	Madro-Tethyan + Andes
<i>Eucnide urens</i>				Great Basin-Colorado Plateau	SW/SC USA, Mexico, Guatemala
<i>Thamnosma montana</i>				S CFP-SE Gr Bas-Moj-N Son	American-African
<i>Chorizanthe corrugata</i>				S CFP-SE Gr Bas-Moj-N Son	SW N American/Amphitropical
<i>Nolina bigelovii</i>				S CFP-SE Gr Bas-Moj-N Son	SW N American
<i>Encelia actoni</i>	X			S CFP-SE Gr Bas-Moj-N Son	Amphitropical
<i>Phacelia curvipes</i>	X			S CFP-SE Gr Bas-Moj-N Son	mostly SW/W N American
<i>Phacelia lemmonii</i>		X		S CFP-SE Gr Bas-Moj-N Son	mostly SW/W N American
<i>Brickellia desertorum</i>		X	X	S CFP-SE Gr Bas-Moj-N Son	mostly SW N American
<i>Ephedra californica</i>	X			S CFP-SE Gr Bas-Moj-N Son	Madro-Tethyan + Andes
<i>Amsonia tomentosa</i>			X	Mojave-N Sonoran	N American (mostly SW & SE)
<i>Stephanomeria parryi</i>			X	Mojave-N Sonoran	W N American
<i>Hesperocallis undulata</i>	X		X	Mojave-N Sonoran	monotypic genus
<i>Gaillardia arizonica</i>	X			Mojave-N Sonoran	N America: 26 sp.; Temp S America: 2sp.
<i>Grusonia kunzei</i>	X			Mojave-N Sonoran	SW N American (Sonoran-Chihuahuan)
<i>Tiquilia plicata</i>	X			Mojave-N Sonoran	Amphitropical
<i>Brickellia atractyloides</i>			X	Mojave-N Sonoran	mostly SW N American
<i>Cylindropuntia bigelovii</i>				S Sierra Nevada-Mojave	SW N American (Sonoran-Chihuahuan)
<i>Phacelia austromontana</i>		X	X	S Sierra Nevada-Mojave	mostly SW/W N American
<i>Cryptantha mohavensis</i>		X	X	S Sierra Nevada-Mojave	W/SW N Am & W S Am (Amphitropical)
<i>Phacelia mohavensis</i>	X	X	X	S Gr Basin-Mojave-N Sonoran	mostly SW/W N American
<i>Cryptantha utahensis</i>		X	X	S Gr Basin-Mojave-N Sonoran	W/SW N Am & W S Am (Amphitropical)
<i>Argemone corymbosa</i>				S Gr Basin-Mojave-N Sonoran	Amphitropical
<i>Phacelia rotundifolia</i>	X			S Gr Basin-Mojave-N Sonoran	mostly SW/W N American
<i>Baileya pauciradiata</i>		X		S Gr Basin-Mojave-N Sonoran	SW N American

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<i>Cryptantha dumetorum</i>			X	S Gr Basin-Mojave-N Sonoran	W/SW N Am & W S Am (Amphitropical)
<i>Grusonia parishii</i>			X	S Gr Basin-Mojave-N Sonoran	SW N American (Sonoran-Chihuahuan)
<i>Tiquilia palmeri</i>			X	S Great Basin	Amphitropical
<i>Grusonia pulchella</i>				Mojave-Sonoran	SW N American (Sonoran-Chihuahuan)
<i>Carnegiea gigantea</i>			X	X Sonoran	Sonoran
<i>Fagonia laevis</i>	X			Sonoran	Subtropical/Warm Temperate
<i>Lycium fremontii</i>	X			Sonoran	Subtropical/Warm Temperate
<i>Porophyllum gracile</i>	X			Sonoran	American Tropical/Subtropical
<i>Simmondsia chinensis</i>	X			Sonoran	Sonoran
<i>Olneya tesota</i>	X			Sonoran	Sonoran
<i>Psilostrophe cooperi</i>	X			SW N American	SW N American
<i>Centrostegia thurberi</i>				SW N American	SW N American, monotypic
<i>Phacelia cryptantha</i>	X	X		SW N American	W/SW N American
<i>Phacelia fremontii</i>	X			SW N American	W/SW N American
<i>Chorizanthe rigida</i>				SW N American	SW N American/Amphitropical
<i>Eschscholzia minutiflora</i>		X		SW N American	W/SW N American
<i>Cylindropuntia echinocarpa</i>		X		SW N American	SW N American (Sonoran-Chihuahuan)
<i>Cylindrop. acanthocarpa</i>		X		SW N American	SW N American (Sonoran-Chihuahuan)
<i>Cylindropuntia ramosissima</i>		X		Mogollon	SW N American (Sonoran-Chihuahuan)
<i>Tiquilia latior</i>				Mogollon	Amphitropical
<i>Encelia resinifera</i>		X		Colorado Plt-Mojave-Col Des.	Amphitropical
<i>Brickellia incana</i>	X	X	X	Colorado Plt-Mojave-Col Des.	mostly SW N American
<i>Brickellia longifolia</i>		X	X	Colorado Plt-Mojave-Col Des.	mostly SW N American
<i>Phacelia neglecta</i>	X	X	X	Colorado Plt-Mojave-Col Des.	mostly SW/W N American
<i>Phacelia parishii</i>		X	X	Madrean Region Montane	mostly SW/W N American
<i>Kallstroemia grandiflora</i>		X	X	Madrean Region Montane	American-African
<i>Gutierrezia microcephala</i>			X	Madrean Region Montane	SW/SC N American
<i>Rhus virens</i>			X	Madrean Region Montane	Tropical/Warm Temperate
<i>Cologania angustifolia</i>			X	Madrean Region Montane/Chih.	Tropical/Subtropical American
<i>Juniperus deppeana</i>				Apache-N Chihuahuan	N Temperate (Madro/Tethyan)
<i>Dalea frutescens</i>			X	Apache-N Chihuahuan	Mexico/S USA to S America
<i>Phacelia caerulea</i>				Apache-N Chihuahuan	mostly SW/W N American
<i>Thamnosma texana</i>				Apache-N Chihuahuan	American-African
<i>Dalea nana</i>				Apache-N Chihuahuan	Mexico/S USA to S America
<i>Phacelia rupestris</i>			X	Apache-N Chihuahuan	mostly SW/W N American

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<i>Acleisanthes chenopodioides</i>	X		Apache-N Chihuahuan	American-African
<i>Leuciva dealbata</i>	X		Apache-N Chihuahuan	monotypic genus
<i>Phacelia integrifolia</i>	X		Apache-N Chihuahuan	mostly SW/W N American
<i>Pinaropappus parvus</i>	X		Apache-N Chihuahuan	Mexico/S USA to S America
<i>Porophyllum scoparium</i>	X		Apache-N Chihuahuan	Tropical/Subtropical American
<i>Ephedra antisyphilitica</i>	X		Apache-N Chihuahuan	Madro-Tethyan + Andes
<i>Chamaesaracha coronopus</i>	X	X	Apache-N Chihuahuan	mostly SW USA- N Mexico
<i>Hedeoma hyssopifolia</i>		X	Apache-N Chihuahuan	mostly SW USA-Mexico (Amphitropical)
<i>Brickellia brachyphylla</i>		X	Apache-N Chihuahuan	mostly SW N American
<i>Kallstroemia hirsutismia</i>			Apache-N Chihuahuan	American-African
<i>Matelea producta</i>			Apache-N Chihuahuan	Tropical/Subtropical American
<i>Garrya wrightii</i>		X	Apache-N Chihuahuan	W USA, Mesoamerica
<i>Nolina microcarpa</i>		X	Apache-N Chihuahuan	SW N American (mega Mexico)
<i>Tiquilia hispida</i>		X	Apache-N Chihuahuan	Amphitropical
<i>Brickellia betonicifolia</i>		X	Apache-N Chihuahuan	mostly SW N American
<i>Brickellia venosa</i>		X	Apache-N Chihuahuan	mostly SW N American
<i>Thymophylla acerosa</i>			Apache-N Chihuahuan	mostly SWC USA & E Mexico
<i>Mortonia scabrella</i>	X		Sonoran-Chihuahuan	Sonoran province wide
<i>Cevallia sinuata</i>	X	X	Sonoran-Chihuahuan	monotypic genus
<i>Kallstroemia californica</i>		X	Sonoran-Chihuahuan	American-African
<i>Cylindropuntia leptocaulis</i>		X	Sonoran-Chihuahuan	SW N American (Sonoran-Chihuahuan)
<i>Lycium berlandieri</i>		X	Sonoran-Chihuahuan	Temperate/Subtropical N & S Hemisphere
<i>Koeberlinia spinosa</i>		X	Sonoran-Chihuahuan	Amphitropical
<i>Parthenium incanum</i>		X	Sonoran-Chihuahuan	American, especially Mexico
<i>Cylindropuntia spinosior</i>		X	Sonoran-Chihuahuan	SW N American (Sonoran-Chihuahuan)
<i>Funastrum crispum</i>			Sonoran-Chihuahuan	Tropical/Subtropical American
<i>Aloysia wrightii</i>	X		Sonoran-Chihuahuan	Temperate/Subtropical American
<i>Cottisia gracilis</i>	X		Sonoran-Chihuahuan	Sonoran-Chihuahuan
<i>Boerhavia intermedia</i>	X		Sonoran-Chihuahuan	Tropical/Subtropical American
<i>Boerhavia spicata</i>	X		Sonoran-Chihuahuan	Tropical/Subtropical American
<i>Larrea tridentata</i>	X		Sonoran-Chihuahuan	Amphitropical
<i>Laennecia coulteri</i>	X		Sonoran-Chihuahuan	Tropical/Subtropical American (to Warm)
<i>Nama hispida</i>	X		Sonoran-Chihuahuan	W/SW N American
<i>Krameria erecta</i>	X		Sonoran-Chihuahuan	Amphitropical
<i>Ephedra aspera</i>	X		Sonoran-Chihuahuan	Madro-Tethyan + Andes

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<i>Thymophylla pentachaeta</i>		X	Sonoran-Chihuahuan	mostly SWC USA & E Mexico
<i>Acleisanthes longiflora</i>	X		Sonoran-Chihuahuan	American-African
<i>Acourtia wrightii</i>	X		Sonoran-Chihuahuan	Mexico-Mesoamerica-S USA (to S Amer.)
<i>Berberis haematocarpa</i>	X		Sonoran-Chihuahuan	Temperate/Subtropical
<i>Dalea pogonathera</i>	X		Sonoran-Chihuahuan	Mexico/S USA to S America
<i>Boerhavia gracillima</i>			Sonoran-Chihuahuan	Tropical/Subtropical American
<i>Grusonia aggeria</i>			Sonoran-Chihuahuan	SW N American (Sonoran-Chihuahuan)
<i>Mortonia greggii</i>			Chihuahuan	Sonoran province wide
<i>Mortonia sempervirens</i>			Chihuahuan	Sonoran province wide
<i>Peganum mexicanum</i>		X	Chihuahuan	Madro-Tethyan
<i>Nyctaginia capitata</i>		X	Chihuahuan	Chihuahuan
<i>Brickellia laciniata</i>		X	Chihuahuan	mostly SW N American
<i>Calliandra eriophylla</i>	X		Chihuahuan	Tropical/Subtropical American
<i>Jefea brevifolia</i>	X		Chihuahuan	SC N American/Chih-Tam-SME-Centr Am.
<i>Tiquilia greggii</i>	X		Chihuahuan	Amphitropical
<i>Asclepias brachystephana</i>		X	Chihuahuan	American-African
<i>Mimosa emoryana</i>		X	Chihuahuan	American-African
<i>Talinopsis frutescens</i>		X	Chihuahuan	monotypic genus
<i>Carlowrightia texana</i>		X	Chihuahuan	S USA-Mexico-Mesoamerica
<i>Condalia ericoides</i>		X	Chihuahuan	Tropical/Subtropical American
<i>Choisya dumosa</i>		X	Chihuahuan-S Prairie	Mexico-S USA
<i>Lygodesmia texana</i>	X		Chihuahuan-S Prairie	N American
<i>Mahonia trifoliolata</i>			Chihuahuan-S Prairie	N Temperate
<i>Mimosa borealis</i>			Chihuahuan-S Prairie	American-African
<i>Eryngium diffusum</i>			Chihuahuan-S Prairie	Tropical/Subtropical
<i>Phyllanthus polygonoides</i>			Chihuahuan-S Prairie	Tropical/Subtropical
<i>Lindheimera texana</i>	X		N Chihuahuan-S TX	SE/SEC N American
<i>Cynanchum pringlei</i>			X N Chihuahuan-S TX	Tropical/Warm Temperate
<i>Acleisanthes crassifolia</i>		X	X N Chihuahuan-S TX	American-African
<i>Tiquilia gossypina</i>	X	X	X N Chihuahuan-S TX	Amphitropical
<i>Linum vernale</i>		X	N Chihuahuan-S TX	N Temperate
<i>Telosiphonia macrosiphon</i>	X	X	N Chihuahuan-S TX	Madrean
<i>Guaiacum angustifolium</i>	X		Central TX	Tropical/Subtropical Am (Mesoam-Carribb)
<i>Brickellia dentata</i>	X		Central TX	mostly SW N American
<i>Dalea lasiathera</i>	X	X	Central TX	Mex/S USA to S America

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<i>Desmanthus velutinus</i>		X			Central TX	American-African
<i>Lupinus texensis</i>	X				Central TX	mostly N & S America, also Mediterranean
<i>Amblyolepis setigera</i>	X				STX-Coahuila/Chih-Tam-SME	Endem: TX, Tam., Nuevo León, Coahuila
<i>Chamaesar. edwardiana</i>					S TX-Coahuila/Chih-Tam-SME	mostly Chihuahuan-Apachian
<i>Amsonia longiflora</i>					S TX-Coahuila	N American (mostly SW & SE)
<i>Asclepias texana</i>			X	X	STX-Coahuila	American-African
<i>Funastrum torreyi</i>	X	X	X		S TX-Coahuila	Tropical/Subtropical American
<i>Acleisanthes acutifolia</i>		X			S TX-Coahuila	American-African
<i>Brickellia cylindracea</i>		X			S TX-Coahuila (S TX Plains)	mostly SW N American
<i>Phacelia austrotexana</i>		X		X	S TX-Coahuila (S TX Plains)	mostly SW/W N American
<i>Cynanchum maccartii</i>	X		X	X	S TX-Coahuila	Tropical/Warm Temperate
<i>Thymophylla micropoides</i>		X		X	S TX-Coahuila	mostly SWC USA & E Mexico
<i>Ruellia corzoi</i>		X	X		S TX-Coahuila	Tropical/Warm Temperate
<i>Tiquilia mexicana</i>			X		S TX-Coahuila (S TX Plains)	Amphitropical
<i>Zephyranthes drummondii</i>	X		X		Tamaulipas- Chihuahuan	Tropical/Subtropical
<i>Vachellia rigidula</i>				X	Tamaulipas- Chihuahuan	Tropical/Subtropical American
<i>Condalia hookeri</i>				X	Tamaulipas- Chihuahuan	S USA-Mexico-Mesoamerica
<i>Eysenhardtia texana</i>					Tamaulipas- Chihuahuan	Tropical/Subtropical American
<i>Boerhavia linearifolia</i>					Tamaulipas- Chihuahuan	Amphitropical
<i>Krameria ramosissima</i>					Tamaulipas- Chihuahuan	S USA-Mexico-Mesoamerica
<i>Carlowrightia torreyana</i>			X		Chihuahuan-Tamaulipas	SC N American (mostly)/Amphitropical
<i>Thelesperma longipes</i>			X		Chihuahuan-Tamaulipas	W/SW N America & W S Am (Amphitrop.)
<i>Jonstonella mexicana</i>			X		Chihuahuan-Tamaulipas	SWC N American
<i>Psilostrophe gnaphalodes</i>			X		Chihuahuan-Tamaulipas-SME	Tropical/Warm Temperate
<i>Cynanchum barbigerum</i>			X		Chihuahuan-Tamaulipas-SME	Tropical/Subtropical
<i>Cordia podocephala</i>			X		Chihuahuan-Tamaulipas-SME	N America-Mesoamerica-W Indies
<i>Forestiera angustifolia</i>			X		Chihuahuan-Tamaulipas-SME	S USA-Mexico-Mesoamerica
<i>Carlowrightia parviflora</i>			X		Chihuahuan-Tamaulipas-SME	American-African
<i>Mimosa malacophylla</i>			X		Chihuahuan -Tamaulipas-SME	W USA-Mexico-Central America-Gr Antill.
<i>Garrya glaberrima</i>			X		Chihuahuan-Tamaulipas-SME	American, esp. Central & S America
<i>Gochnatia hypoleuca</i>			X		Chihuahuan-Tamaulipas-SME	Trop/Subtropical American
<i>Chaptalia texana</i>			X		Chihuahuan-Tamaulipas-SME	American-African
<i>Mimosa texana</i>			X		Chihuahuan-Tamaulipas-SME	Tropical/Warm Temperate
<i>Heliotropium confertiflorum</i>	X		X		Chihuahuan-Tamaulipas-SME	N American (CA, Mex. Highlands, N Chih)
<i>Garrya ovata</i>	X				Tamaulipas-SME	W USA-Mesoamerica

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<i>Helietta parvifolia</i>				Tamaulipas-SME	Tropical/Subtropical American
<i>Acleisanthes obtusa</i>		X		Tamaulipas-SME	American-African
<i>Matelea reticulata</i>		X	X	Tamaulipas -SME	Tropical/Subtropical American
<i>Justicia pilosella</i>				SC N American	Tropical/Subtropical
<i>Rhus microphylla</i>				SC N American	Tropical/Warm Temperate
<i>Yucca constricta</i>		X		SC N American	Mexico-Mesoamerica-S USA
<i>Triodanis coloradoensis</i>		X		SC N American	N American
<i>Viguiera stenoloba</i>	X	X		SC N American	Mexico to S America-S USA
<i>Dermatophyllum secundiflorum</i>				SC N American	Sonoran province wide
<i>Tiquilia canescens</i>		X		SC N American	Amphitropical
<i>Serjania brachycarpa</i>			X	SC N American	Tropical/Subtropical American
<i>Ephedra pedunculata</i>		X		SC N American	Madro-Tethyan
<i>Diospyros texana</i>				SC N American	Tropical/Subtropical
<i>Baccharis neglecta</i>				SC N American/SE Prairie	American, especially Central & S American
<i>Ungnadia speciosa</i>				SC N American/SE Prairie	monotypic genus
<i>Menodora heterophylla</i>				SC N American/SE Prairie	American-African
<i>Cooperia pedunculata</i>		X	X	S Prairie	American, especially Central & S American
<i>Dalea aurea</i>			X	S Prairie	Mexico/S USA to S America
<i>Senecio riddellii</i>			X	S Prairie	Temperate/Subtropical N & S Hemisphere
<i>Tetraneuris scaposa</i>			X	SE Prairie	N American
<i>Gonolobus granulatus</i>				Comanchian	Tropical/Subtropical American
<i>Matelea decipiens</i>			X	Comanchian	Tropical/Subtropical American
<i>Krigia occidentalis</i>				Comanchian	E N American (+ NM & N AZ)
<i>Triodanis texana</i>	X			SC N American	N American
<i>Mimosa hystricina</i>	X			Comanchian	American-African
<i>Thelesperma flavodiscum</i>	X			Comanchian	SC N American (mostly)/Amphitropical
<i>Matelea cynanchoides</i>			X	Comanchian	Tropical/Subtropical American
<i>Baptisia sphaerocarpa</i>			X	Comanchian	E N American (to central America)
<i>Baptisia nuttalliana</i>			X	Comanchian	E N American (to central America)
<i>Vernonia texana</i>			X	Comanchian	Tropical/Subtropical
<i>Senecio ampullaceus</i>			X	Comanchian	Temperate/Subtropical N & S Hemisphere
<i>Phacelia strictiflora</i>			X	Comanchian	mostly SW/W N American
<i>Tradescantia humilis</i>	X		X	Comanchian	American, mostly Central & S American
<i>Liatris elegans</i>				Comanchian	E N American
<i>Silphium radula</i>		X		Comanchian	E N American (to central America)

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<i>Matelea biflora</i>		X	Comanchian	Tropical/Subtropical American
<i>Yucca arkansana</i>		X	Comanchian	Mexico-Mesoamerica-S USA
<i>Krigia wrightii</i>	X	X	Comanchian	E N American (+ NM & N AZ)
<i>Marshallia caespitosa</i>		X	Comanchian	SE N American
<i>Phacelia glabra</i>		X	Comanchian	mostly SW/W N American
<i>Vernonia lindheimeri</i>		X	Comanchian-Edwards Plateau	Tropical/Subtropical
<i>Tradescantia edwardsiana</i>		X	X Comanchian-Edwards Plateau	American, mostly Central & S American
<i>Mimosa roemeriana</i>			X Comanchian/SE Texas	American-African
<i>Mimosa latidens</i>			X Atlantic Region	American-African
<i>Cynanchum laeve</i>			Atlantic Region	Tropical/Warm Temperate
<i>Cotinus obovatus</i>		X	Atlantic Region	Madro-Tethyan
<i>Camassia scilloides</i>		X	Atlantic Region	N American
<i>Corydalis flavula</i>		X	Gulf Coast-Atlantic	N Temperate
<i>Chaptalia tomentosa</i>		X	Atlantic Region	Tropical/Subtropical American
<i>Asclepias perennis</i>		X	Gulf Coast-Atlantic	American-African
<i>Zigadenus glaberrimus</i>			Gulf Coast-Atlantic	monotypic genus
<i>Mimosa strigillosa</i>			Gulf Coast-Atlantic	American-African
<i>Sabatia brevifolia</i>			X	S UA-Mexico-Mesoamerica-W Indies

Table S2. Inferred source areas/relationships of the plant clades with endemic species in the established areas of endemism.

AE	Genus/Clade whose species support AE	Comments/Phylogenetic Relationships	References
AE 1. Mid Rocky Mt	<i>Cercocarpus</i> Kunth, Rosaceae	Holarctic arcto-alpine genus <i>Dryas</i> L., and then <i>Purshia</i> Raf., are successive sisters to the western North American genera <i>Chamaebatia</i> Benth. + <i>Cercocarpus</i> , Supporting AE 1 and 2 species grow mostly in sagebrush shrublands, grasslands, open conifer woodlands, and meadows.	Sun et al., 2016

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	<i>Astragalus</i> L., Papilionoideae Fabaceae	Eurasian origin and migration via the BLB with a consecutive single colonization event to Andean South America.	Scherson et al., 2008
	<i>Artemisia</i> L., Anthemideae, Asteraceae	<p><i>Artemisia</i> is the largest genus (ca. 350-500+ spp.) in the tribe Anthemideae found primarily throughout the Northern Hemisphere. Two major centers of diversity for the genus are located in Eurasia and western North America, but phylogeographic links connecting these two regions are observed all across the North Pacific Rim. North American <i>Artemisia</i> species have multiple origins, and western North America has served as a source for some colonizing elements in eastern Asia and South America.</p> <p>The centre of diversity for <i>Artemisia</i> is Central Asia.</p> <p>North American endemic <i>Artemisia</i> group with 58 species in western N America. It diverged from Asian ancestors by the Late Miocene. Arrived via the BLB. Analyses suggest the divergence of the North American endemic group from Asian ancestors (10.8 ± 1.5 Ma) in the Late Miocene.</p>	<p>Riggins and Seigler, 2012</p> <p>Hussain et al., 2019</p> <p>Sanz et al., 2011</p>
AE 2	<i>Astragalus</i>		
E Gr.Bs. - Rocky Mt	<i>Artemisia</i>		
AE 3 S Rock - Col. Plt. - E Madr.	Asclepiadoideae, Apocynaceae	<p><i>Asclepias asperula</i> endemic in AE 3 and its sister species <i>A. viridis</i>, which supports AE 24 South Prairie, are in the Temperate North American clade of <i>Asclepias</i> L. Several other species of this clade grow on the Colorado Plateau. The Sonoran Desert (9 sp.) and Incarnatae clades are successive sisters to the remaining American <i>Asclepias</i> species.</p> <p>The Sonoran Desert clade shows the original step in diversification of eastern (Chihuahuan: <i>A. coulteri</i>, <i>A. sperryi</i>, <i>A. macrotis</i>) and western clades (Sonoran, leafless shrubs: <i>A. leptopus</i>, <i>A. subulata</i>, and <i>A. cutleri</i> on Colorado Plateau).</p>	<p>Fishbein et al., 2011</p> <p>Fishbein et al., 2018</p> <p>Gentry & Fishbein, 2019 (unpublished manuscript)</p>
	<i>Matelea</i> Aubl. Apocynaceae	Another endemic in AE 3, <i>Matelea producta</i> , is a member of the arid-adapted clade found in SW USA and northern Mexico.	McDonnell et al., 2018

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	<i>Cercocarpus</i> Kunth, Dryadoideae, Rosaceae	This monotypic Apachian genus of montane shrublands has a western North American ancestry and the two five-species genera <i>Petrophytum</i> (Nutt.) Rydb. and <i>Cercocarpus</i> are present in western North America (<i>C. ledifolius</i> supports AE 1, Table S1). Within Dryadoideae, a Holarctic arcto-alpine genus <i>Dryas</i> L., and then <i>Purshia</i> Raf., are successive sisters to the western North American genera <i>Chamaebatia</i> Benth. + <i>Cercocarpus</i>	Kalkman, 2004 Sun et al., 2016
	<i>Quercus</i> L., Fagaceae	<i>Quercus grisea</i> (Table S1) is a member of a small ‘Arizona/North Mexico’ clade in white <i>Quercus grisea</i> oaks, which returned north to the USA from Mexico. Mexico has 154 species of <i>Quercus</i> that diversified since 14–20 Ma from an eastern North American ancestor.	Hipp et al., 2018
	<i>Garrya</i> Douglas ex Lindl., Garryaceae	Endemic to AE 3 <i>Garrya wrightii</i> , together with two species supporting AE 21, <i>G. ovata</i> and <i>G. glaberrima</i> , are a part of a complex in the Mexican highlands/N Chihuahua. All three species are in the subgenus Fadyenia (Endl.) Dahling, which is sister to the CFP subgenus Garrya. The genus <i>Garrya</i> is sister to the East Asian genus <i>Aucuba</i> Thunb. in the family Garryaceae, which are sister to an arcto tertiary family Eucommiaceae. Today, Eucommiaceae consists of a single species from China, but has a wide fossil distribution in the Northern Hemisphere.	Nesom, 2012 Burge, 2011 Mai, 1995 Manchester et al., 2009 Soltis et al., 2018
AE 4 Gr. Bs. – Col.Pl.	<i>Hymenoxys</i> Cass., Helenieae, Asteraceae	Amphitropical genus. North America, Mexico, Central America, South America. <i>Hymenoxys bigelovii</i> is the sole member of subg. <i>Macdougalia</i> (A. Heller) Bierner. Most of the major clades of helenioid Heliantheae are placed ancestrally in the southwestern North America/northern Mexico. Supporting AE 4 species are found in sagebrush or creosote bush scrub, Joshua-tree woodlands, or pine forests.	Bierner, 2001, 2004 Baldwin et al., 2002
	<i>Eucnide</i> Loasaceae	In Loasaceae, <i>Eucnide</i> and <i>Schismocarpus</i> S. F. Blake, a genus restricted to southern Mexico, are the earliest diverging lineages, and the cliff-dwelling habits of these two genera may be plesiomorphic for the family.	Hufford, 2016

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AE 5 S CFP – SE Gr. Bs. – Moh. – N Son.	<i>Phacelia</i> Juss., Hydrophyllaceae	<i>Phacelia</i> , the largest (207 sp.) and most diverse member of the family Hydrophyllaceae. The family is distributed mainly in western North and South America. Hydrophyllaceae and Namaceae both appear to have originated in North America and are successively sister families to the remainder of the Boraginales II (Bor II) clade.	Vasile et al., 2020 Luebert et al. 2016
	<i>Nolina</i> Michx., Asparagaceae	<i>Nolina bigelovii</i> (Table S 1) represents the genus with 32 species, half of which are endemic to Mexico. Geographical distribution of <i>Nolina</i> is split into the western and eastern ranges. The western range extends south from Utah in the north, through Baja California and the Sierra Madre Occidental. <i>N. bigelovii</i> , as well as <i>N. microcarpa</i> , which is endemic in AE 3 (Table S1), have western ranges. The eastern range of the genus extends from Florida in the north, through the Sierra Madre Oriental south to Oaxaca in Mexico. AE 5 species grow on open sandy to rocky slopes, chaparral, and oak/pine woodlands,	Ruiz-Sanchez et al., 2019
AE 6 Mohave – N Son	<i>Cylindropuntia</i> [Engelm.] F.M.Knuth), Cylindropuntieae, Cactaceae	Cylindropuntieae originated in the Chihuahuan Desert during the mid-Miocene and then migrated into other North American deserts. They show a consistent split between the Sonoran and Chihuahuan deserts exemplified by several Sonoran-Chihuahuan desert species pairs.	Majure et al., 2019
	<i>Tiquilia</i> Pers., Boraginaceae	<i>Tiquilia plicata</i> is another species supporting AE 6 (Table S1). It is a member of an amphitropical desert genus of the Bor II tribe Ehretieae, which is sister to the two tropical sister genera in America/Africa. Several dwarf species of <i>Tiquilia</i> are split between the Sonoran (subgenus <i>Tiquilia</i>) and Chihuahuan (subgenus <i>Eddyia</i>) deserts. In the subgenus <i>Tiquilia</i> , <i>T. plicata</i> clade is sister to <i>T. palmeri</i> clade with <i>T. palmeri</i> supporting AE 7 of this study.	Gottschling et al., 2014 Moore et al., 2006
	<i>Stephanomeria</i> <i>parryi</i> , Cichorieae, Asteraceae	All the principal American genera of Cichorieae radiated from a single common ancestor <i>Phalacroseris</i> A.Gray, a monotypic local endemic genus in the wet meadows and upper montane forests of the Sierra Nevada Mountains. <i>Phalacroseris</i> is nested within the intercontinentally	Lee et al., 2003 Kilian et al. 2009

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		disjunctive Cichoriinae where it branches basally to a clade with a genus from the Horn of Africa and a mostly Mediterranean-Frontal Asian genus <i>Cichorium</i> L.	
AE 7 S Gr Basin- Mohave – N Sonora		Supporting species are found on sandy plains and hillsides (e.g. Mojave prickly poppy), rocky slopes, creosote-bush scrub, Joshua-tree and pinyon/juniper woodlands.	
AE 8 S Sierra Nevada - Mohave	<i>Phacelia</i> Juss., Hydrophyllaceae	The majority of <i>Phacelia</i> species (176 spp.) is distributed in western North America. The center of diversity for the genus is the CFP, where a third of described taxa occur (ca. 70 spp. 40 spp. endemic). Raven and Axelrod (1978) suggest that the annual phacelias originated with the CFP during the Pliocene as early as 5.3 mya, and their ranges spread as more land became arid.	Walden et al., 2014
	<i>Phacelia</i> , <i>Hydrophyllloideae</i> , <i>Cryptantha</i> Lehm. ex G. Don, Boraginoideae, Boraginaceae	Several species of these two genera are endemic in the areas partially overlapping in the super area AE 10, from AE 4 to AE 9. An endemic to AE 7 species <i>Cryptantha utahensis</i> and two other species of series Pterocaryae form a clade with the endemic to AE 8 <i>C. mohavensis</i> and <i>C. gracilis</i> Osterh. Supporting AE 8 species are found on open, sandy, and gravelly to rocky areas, in pinyon/juniper woodland.	Mabry et Simpson, 2018

AE 9 Sonoran	<i>Porophyllum gracile</i> , Tageteae, Asteraceae	<i>Porophyllum amplexicaule</i> (Nuevo Leon) and <i>P. scoparium</i> (Chihuahua), sister to the rest of <i>Pectis</i> + <i>Porophyllum</i> , are Chihuahuan desert species. The basal species within <i>Pectis</i> are distributed mostly in north and central Mexico from sea level to 800 m; Geography in <i>Porophyllum</i> correlates better with relationships, with Sonoran and Chihuahuan species at the base of the tree and southern Mexico-Central American and South American species forming the derived clades.	Hansen et al., 2016
	<i>Fagonia</i> L., Zygophyllaceae	All species of <i>Fagonia</i> in the Old World, except <i>F. cretica</i> , form a weakly supported clade, and all <i>Fagonia</i> species of the New World, except <i>F. scoparia</i> , are well supported as sister to the Old World clade. <i>Fagonia scoparia</i> , from Mexico (Coahuila), and <i>F. cretica</i> , from Northern Africa, are well supported as sisters to all other <i>Fagonia</i> species. Vicariance–dispersal analysis, using DIVA, indicated that the occurrences of <i>Fagonia</i> in South America and southern Africa are due to dispersals, and also, that the ancestor of <i>Fagonia</i> had a distribution compatible with the boreotropics hypothesis.	Beier et al., 2003
	<i>Simmondsia chinensis</i> , Simmondsiaceae	The core Caryophyllales was inferred to be nested within a grade of species-poor families. In the MQSST tree, this grade consisted of Simmondsiaceae, Physenaceae (E Madagascar), Microteaceae (tropical America), and a clade of Stegnospermataceae (Sonoran Desert, Gulf Coast of TX & Mexico, Greater Antilles) + Macarthuriaceae (coastal Australia, mostly W) diverging in that respective order.	Walker et al., 2018
	<i>Carnegiea gigantea</i> , Pachycereae, Cactoideae,	<i>Carnegiea</i> Britton & Rose was recovered as the sister taxon to <i>Pachycereus</i> (A. Berger) Britton & Rose. The estimated age of the clade Pacycereae is 5 Mya. <i>Pachycereus</i> comprises five species, all of which are endemic to Mexico. It is distributed along the Pacific side of Mexico from the state of Sonora and Baja California in the north to Chiapas in the south. 10 genera and 60 species of North American columnars show some of the fastest diversification rates observed in the plant kingdom (0.8–1 sp. per million years).	Arias S. & Terrazas T., 2009.
	Cacteae, Cactoideae: The N American Clade	Mexico is the center of origin of a hyperdiverse clade corresponding to the tribe Cacteae, including around 27 genera. After an LDD from South America, Cacteae started their diversification in the Sierra Madre Oriental around 15 Mya, with a subsequent dispersal to the Mexican Plateau, where it reached its maximum diversity. The diversification of the most speciose lineages occurred during the late Miocene.	Hernández-Hernández et al., 2014

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AE 10 SW N American	<i>Centrostegia</i> <i>A.Gray</i> , <i>Erigonoideae</i> , <i>Polygonaceae</i>	A monotypic genus <i>Centrostegia</i> . Within Polygonaceae, <i>Eriogonum</i> has more than 200 described species and is most diverse in the arid southwest of North America.	Reveal, 2005
AE 11 Col. Plt.	<i>Tiquilia latior</i> <i>T. hispidissima</i>	<i>Tiquilia latior</i> is sister to the endemic in AE 3 (Table S1) <i>T. hispidissima</i> . These species are in the subgenus Eddyia, whereas endemic to AEs 6 and 7 species are in the western subgenus Tiquilia. The Ehretioid ancestors of <i>Tiquilia</i> inhabited dry tropic scrub in SW North America during the Paleocene. All current major lineages of <i>Tiquilia</i> likely arose in the early to mid-Miocene, perhaps evolving allopatrically in locally arid or semi-arid pockets. Supporting species are found in semi-deserts, sandy, clayish or rocky places.	Moore et al., 2006
AE 14 Apache - N Chih	<i>Acleisanthes</i> <i>A.Gray</i>	<i>Acleisanthes</i> is a member of the North American xerophytic clade of mostly tropical/subtropical family Nyctaginaceae. It has a number of species living on gypsum-rich soils characteristic of the Chihuahuan Desert.	Douglas & Manos, 2007 Escudero et al., 2015
	<i>Thamnosma</i> Torr. & Frém	For the ancestor of <i>Thamnosma</i> a migration via the BLB from South Asia to western North America was proposed. Early diverging clades of <i>Thamnosma</i> were in SW North America and may have been present in the succulent biome of arid Neogene Madro-Tertiary geoflora about 34–2 Ma . A single Somalian <i>Thamnosma</i> species that resulted from long-distance dispersal (LDD) is nested within the American clade of 15 species. In the American clade, <i>T. texana</i> is sister to <i>T. montana</i> that is endemic in AE 5.	Appelhans et al., 2016 Thiv et al., 2011
	<i>Mortonia</i> A.Gray	Several species of <i>Mortonia</i> are endemic in different AEs (Table S1). Within Celastraceae, <i>Mortonia</i> is sister to the rest of Celastraceae, with strong support, and the remaining families are clustered into six major clades. <i>Mortonia</i> : 5 sp. SW USA, Mexico.	Sun et al., 2016 Simmons et al. (2012)

		<i>M. scabrella</i> (AE 14) and <i>M. greggii</i> (AE 15) form a clade, which is sister to a clade with two Mexican species in southern Sierra Madre Oriental-Sierra Madre Del Sur provinces of Morrone et al. (2017). Supporting AE 15 species grow on dry sandy, gravelly, rocky, and gypseous clay areas in low to mid elevations.	
AE 15 Sonoran – Chih.	<i>Cevallia</i> Lag., Loasaceae	A monotypic genus <i>Cevallia</i> is sister to a clade of two small genera in Mexico-Mesoamerica. This family has two main centers of diversity: the Andes and SW North America, with the SW North American genus <i>Eucnide</i> Zucc. (<i>E. urens</i> supports AE 4) branching basally to the rest.	Hufford, 2016
	<i>Ephedra</i> L., Ephedraceae	<i>Ephedra</i> has long been a symbol of the Tethyan flora or “flora Ephedra”. It is characterized by a Madro-Tethyan disjunction pattern and is found in all North American deserts, including in AEs 4, 5, 14, 15, and 23. The deepest divergences in <i>Ephedra</i> indicated a basal grade of species distributed in the Mediterranean area.	Popov, 1963 Rydin & Corrall, 2009
	<i>Boerhavia spicata</i> , Nyctaginaceae	<i>Boerhavia spicata</i> is a member of the North American xerophytic clade of the genus, which diversified in the deserts of SW North America.	Douglas & Manos, 2007
AE 16 Chih. to S Prairie	<i>Mahonia trifoliata</i> , Berberidaceae	An important element of the Madro-Tertiary chaparral vegetation, the Chihuahuan Desert species <i>Mahonia trifoliata</i> (Table S1) had a dynamic distribution range related to the Pliocene/Pleistocene climatic fluctuations. It currently occupies the largest area in its history, with its northern limits reaching NE Texas.	Angulo et al., 2017
	<i>Asclepias brachystefana</i> , Asclepiadeae, Apocynaceae	<i>Asclepias brachystefana</i> of AE 16 (Table 1) is in the Mexican Highlands clade of the genus while the species of <i>Asclepias</i> supporting AE 3 and AE 24 are in the temperate North American clade of the genus.	Fishbein et al., 2018
AE 17 N Chih.- S Texas	<i>Cynanchum pringlei</i> , Asclepiadeae, Apocynaceae	<i>Cynanchum pringlei</i> is in the New World clade of this tropical to warm temperate genus. It is sister to a clade across the Atlantic with a center of distribution in NE Africa and Arabia. All Asclepiadeae, including <i>Asclepias</i> , <i>Matelea</i> Aubl., and <i>Cynanchum</i> L. have an “out-of-Africa” distribution pattern.	Khanum et al., 2016
	<i>Tiquilia gossypina</i> , Boraginaceae	<i>Tiquilia gossypina</i> together with the species from AE 11 are in the Chihuahuan desert subgenus Eddyia.	Moore et al., 2006

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		Supporting AE 17 species grow on rocky, calcareous soils in cenizo shrublands and grasslands in Coahuila, Mexico, and Texas.	(FNA, v.4).
AE 18 SEC TX	<i>Dalea</i> L. Amorpheae, Fabaceae	<i>Dalea</i> is the largest and extensively radiated in the Sonoran and Chihuahuan Deserts genus in the predominantly North American temperate clade Amorpheae of the legumes. Several species of <i>Dalea</i> support different AEs (14 - 16, 18, 23, and 24) of this study (Tables 1, S1). Supporting AE 18 species grow on the South Texas Sand Sheet, on limestone hills and flat open ground (<i>Dalea lasiathera</i>), and on gravel of limestone streambeds (<i>Brickellia dentata</i>).	Cardoso et al., 2013 Carr, 2007
AE 19 S TX - Coahuila		Among supporting AE 19 species are edaphic endemics on sandy soils and calcareous or gypsum rich soils.	
AE 20 North Chih.	<i>Jonstonella</i> Brand, Amsinckiinae, Cynoglossoideae, Boraginaceae,	<i>Jonstonella mexicana</i> represents one more tribe with the west/east split in the area of study. It is one of the four <i>Cryptantha</i> species of an eastern Mexico/Texas series Albidae, recently transferred to the new genus <i>Johnstonella</i> . Cynoglossoideae (crown node: 46 myr) and Cynoglossinae (23.59 myr) have ancestral area in C-NE Palearctic (which should be Central Asian subregion of Irano-Turanian region; my comment). Amsinckieae (24.57 myr) is mostly western N American. The only LDD event detected from C-NE Palearctic to North America to account for the origin of Amsinckiinae. Supporting AE 20 species grow in arid grasslands or shrublands and on calcareous soils.	Simpson et al., 2019 Otero et al., 2019
AE 21 Chih. – Tam. - SME	<i>Peganum</i> L., Nitrariaceae	<i>Peganum</i> is a member of a small, mostly Tethyan family Nitrariaceae of Sapindales, which includes 13 species, and which diversified during the Cretaceous. The authors found that East Mediterranean-Irano-Turanian family Biebersteiniaceae (five species) and the family Nitrariaceae form a grade and have the longest stem lineages observed in Sapindales, possibly indicating that extinction may have had a greater role in shaping their extant diversity than elsewhere within the order.	Muellner-Riehl et al., 2016

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		Nitrariaceae consists of four genera, which comprise about 20 species, and are native to arid and semi-arid regions of Mexico, North Africa, Europe, Australia, and Asia. Nitrariaceae was at the basal position of Sapindales followed by Biebersteiniaceae with strong support (BS = 97 and PP = 100).	Chi et al., 2020
	<i>Talinopsis</i> A.Gray, Anacampserotac-ae	<i>Thalinopsis</i> is one of the four genera of a small family, which is sister to Cactaceae, with widely disjunctive distribution in Southern Hemisphere and in the Chihuahuan Desert.	Christenhusz et al., 2017
AE 23 SC USA - SME	<i>Dermatophyllum</i> Scheele, Fabaceae	<i>Dermatophyllum secundiflorum</i> is the only widely distributed species of a small legume genus (5 species) found mostly in the Chihuahuan and Sonoran sub provinces. It is a segregate of a larger paraphyletic genus <i>Sophora</i> .	Gandhi et al, 2011
	<i>Diospyros</i> L., Ebenaceae	<i>Diospyros texana</i> (Table S1), is a member of a Mesoamerican-Caribbean clade of four species and is branching basally to the other species in the clade, whereas two species from its sister clade are distributed in SE Asia. <i>Diospyros</i> L. is one of the boreotropical/paleotropical genera of the Northern Hemisphere with intercontinental distribution in the Paleogene.	Duangjai et al., 2006 Wolfe, 1975 Mai, 1995
	<i>Ehretia</i> L., Ehretiaceae, Boraginales II	The pantropical genus <i>Ehretia</i> has an East Madrean-Mesoamerican range in the New World. The only in the USA species of the genus <i>E. anacua</i> supports AE 22. Currently pantropical, Ehretieae species have diversified from an American ancestor in the Early Paleogene.	Luebert et al., 2016
	<i>Menodora</i> Bonpl., Oleaceae	The genus <i>Menodora</i> is the New World counterpart of <i>Jasminum</i> L. It is a member of the mostly Old World tropical to warm temperate tribe Jasmineae, which has a disjunction between South Africa and xeric warm temperate/subtropical North and South America	Wallander & Albert, 2000
	<i>Linum</i> L.	<i>Linum vernale</i> belongs to the North American clade of yellow-flowered flax species derived by LDD from a western Eurasian ancestor at least 20 Mya.	McDill et al., 2009
AE 25 Comanch.	<i>Baptisia Vent.</i> , Genisteae,	An eastern North American genistoid genus <i>Baptisia</i> is allied with the mostly western North American genus <i>Thermopsis</i> R.Br. in the	Wang et al., 2006

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Fabaceae	Thermopsidae clade of the legumes; it had some exchange with Asia around the Bering Strait.	
<i>Matelea</i> Aubl. Apocynaceae	<i>Matelea</i> is a mega-Mexico-Mesoamerican genus. With 200 species, <i>Matelea</i> is one of the largest genera within the Apocynaceae. The sister species <i>M. biflora</i> and <i>M. cynanchoides</i> , which support AE 25, are in the subgenus with 30 milkweeds of arid habitats centered in North Mexico.	McDonnell, 2015
<i>Triodanis</i> Raf., Campanulaceae	The genus <i>Triodanis</i> with two endemic species in AE 23 and AE 24, has a North American-Mediterranean disjunction due to an LDD event. Clade I of the Campanuloideae contains the paraphyletic Mediterranean genus <i>Legousia</i> Durande and one North American clade. The Mediterranean-Frontal Asian <i>L. falcata</i> (Ten.) Fritsch is sister to the North American clade containing <i>Triodanis</i> species and a Texas endemic species <i>Campanula reverchonii</i> A.Gray.	Crowl et al., 2014
AE 27 Gulf Coastal Plain	In the woody flora of the southern Appalachians are found mostly low-diversity clades connected to the Old World and a minority of New World clades.	Manos & Meireles, 2015

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