

# Gardening for Pollinators across the four seasons

By: Dr. A. B. Bennett, NMSU Extension



## What do pollinators need?

- Food: Pollen and Nectar
- Nesting and Overwintering habitat



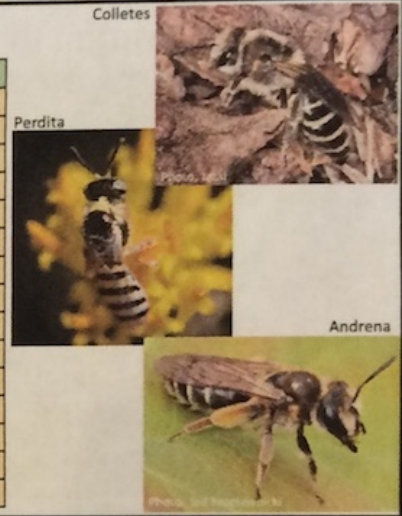
Photo: A. Bennett



Photo: A. Bennett

## SPRING BEES

		February	March	April	May
Colletidae	Colletes				
Colletidae	Hylaeus				
Andrenidae	Andrena				
Andrenidae	Perdita				
Melittidae	Melitta				
Halictidae	Halictus				
Halictidae	Lasioglossum				
Halictidae	Augochlorella				
Megachilidae	Osmia				
Megachilidae	Megachile				
Apidae	Anthophora				
Apidae	Bombus				
Apidae	Certina				
Apidae	Melissodes				
Apidae	Xylocopa				



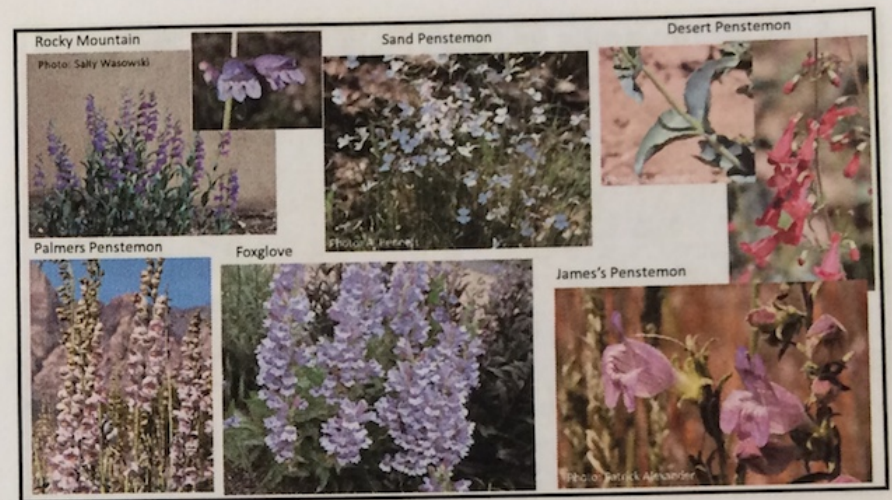
## SPRING BLOOMING TREES & SHRUBS

Trees and Shurbs	Common name	Height	Flower time	Flowers
<i>Acer grandidentatum</i> *	Bigtooth Maple	40 x 25	Spring	Yellow / NS
<i>Amorpha fruticosa</i> *	False Indigo	12 x 6	Late Spring	Purple
<i>Catalpa speciosa</i> *	Catalpa	40 x 20'	Spring	White / S
<i>Cercis Canadensis</i> *	Eastern Redbud	25 x 25'	Spring	Orchid / S
<i>C. Canadensis var. Texensis</i>	Texas Redbud	25x25	Spring	Orchis / S
<i>Chilopsis linearis</i> *	Desert Willow	30 x 30	Spring	Whites / S
<i>Dalea Formosa</i> *	Feather Dalea	2 x 2	Spring	Purple
<i>Sophora secundiflora</i> *	Texas Mountain Laurel	15 x 15	Early Spring	Purple / S
<i>Malus</i> spp.	Crabapple, Apple	----	Spring	White/Pink / S
<i>Prunus</i> spp.	Plum, Cherry, Peach	----	Spring	White / S
<i>Salix</i> spp.	Willow	----	Spring	Catkin / NS

NS = Not Showy  
S = Showy Flowers  
\* = Native to NM

## SPRING BLOOMING PERENNIALS

Perennials	Common name	Height'	Flower Color	Pollinators
Penstemon ambiguus	Sand	~2	Pink	Bees
Penstemon strictus	Rocky Mt	~3	Blue	Bees
Penstemon palmeri	Palmers	~3	Pink	Bees
Penstemon pseudospectabilis	Desert	~3	Bright Pink	Bees/Hummers
Penstemon jamesii	James	~1	Pink	Bees
Penstemon angustifolius	Narrow leaf	~2	Blue / Purple	Bees
Penstemon cobaea	Foxglove	2	Pink	Bees
Penstemon barbatus	Bugler	~2	Red	Hummers
Penstemon pinifolius	Pineleaf	~2	Red	Hummers
Penstemon eatonii	Firecracker	1.5	Red	Hummers
Penstemon parryi	Parry's	2-3	Pink	Bees



## SPRING BLOOMING PERENNIALS

Perennials	Common name	Height'	Flower Color
Melampodium leucanthum	Blackfoot Daisy	<1	White
Hymenoxys argentea	Perky sue	<1	Yellow
Stanleya pinnata	Golden Princes Plume	3-4	Yellow
Eurotia lanata	Winterfat	2	White



## Gardening tips for Pollinators: Do This NOT That!

### Plant Resources:



	Do This	Not That
1. Continuous Bloom		1. Flowering in 1 season
2. Plant Diversity - within and across seasons		2. Few flower species
3. Use native plants – Specialists		3. Only annuals
4. Variety of colors		4. Yard mostly rock / bare soil
5. Increase flower area		5. Isolated patches of flowers
6. Variety of flower shapes		
7. Plant spring blooming trees		
8. Consider scent; Flower am / pm		

# SUMMER BEES

		June	July	Aug.
Colletidae	Colletes			
Colletidae	Hylaeus			
Andrenidae	Andrena			
Andrenidae	Perdita			
Melittidae	Melitta			
Halictidae	Halictus			
Halictidae	Lasioglossum			
Halictidae	Augochlorella			
Megachilidae	Osmia			
Megachilidae	Megachile			
Apidae	Anthophora			
Apidae	Bombus			
Apidae	Certina			
Apidae	Melissodes			
Apidae	Xylocopa			

Osmia



Photo: Colin Hutton

Certina



Photo: Discover Life

Anthophora



Photo: Minckley Lab

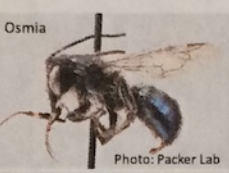
Megachile



Photo: John Ascher

## Bees visiting fruits and vegetables

	Bombus	Peponapis	Andrena	Osmia	Lasiglossum	Halictus
Apple	Y		Y	Y		
Pear	Y		Y	Y		
Cherry	Y		Y	Y		
Plum	Y		Y	Y		
Raspberry	Y		Y		Y	Y
Blueberry	Y		Y	Y	Y	Y
Strawberry			Y	Y	Y	Y
Gooseberry	Y		Y	Y		
Currant	Y		Y	Y		
Tomato	Y					
Eggplant	Y					
Pepper	Y					
Melon	Y	Y				Y
Pumpkin	Y	Y				Y
Squash	Y	Y				Y



## Summer Blooming TREES & SHRUBS

Trees / Shrubs	Common name	Height*	Flower time
Amelanchier utahensis*	Utah Serviceberry	6 x 6	Early Summer / S
Amorpha canescens*	Leadplant	3 x 3	Early Summer / S
Chamaebatiaria millefolium	Fernbush	4 x 4	Summer
Koeleruteria paniculata	Goldenrain Tree	25 x 30	Summer / S
Lagerstromia indica	Crape Myrtle	Varies	Summer / S
Sapindus saponaria*	Western Soapberry	30 x 20	Summer / S
Vitex agnus-castus	Chastetree	25 x 20	Summer / S



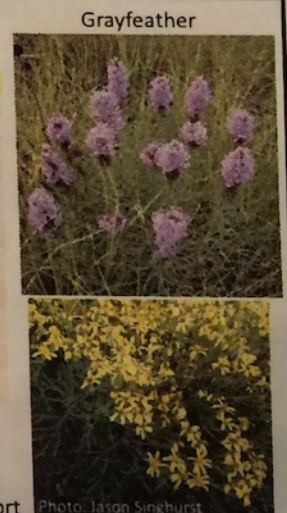
## Summer Blooming PERENNIALS

Perennials	Common name	Height*	Flower Color
Agastache pallidiflora	Giant Hyssop	3	Purple
Asclepias subverticillata	Horsetail Milkweed	2-3	White
Asclepias asperula	Antelope Horns	2	Green/Pink
Asclepias speciosa	Showy Milkweed	3-4	Pink
Asclepias tuberosa	Butterfly Milkweed	2-3	Orange
Asclepias latifolia	Broadleaf Milkweed	3	White
Coreopsis lanceolata	Lance-leaf Coreopsis	2-3	Yellow
Delea purpurea	Purple Prairie Clover	2-3	Purple
Monarda fistulosa	Monarda / Bee Balm	3-4	Pink
Eriogonum jamesii	Sulphur Buckwheat	2	Yellow
Eriogonum umbellatum	Antelope Sage	<1	White
Ratibida columnifera	Mexican Hat	3	Yellow/red
Rudbeckia laciniata	Cutleaf Coneflower	3-4	Yellow
Oxytropis lambertii	Purple Locoweed	2	Purple



## Summer Blooming PERENNIALS

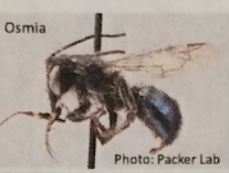
Perennials	Common name	Height*	Flower Color
Scabrethia scabra	Desert Miles Ear	2	Yellow
Sphaeralcea angustifolia	Copper Globemallow	3-4	Orange
Sphaeralcea coccinea	Scarlet Globemallow	1	Orange
Chysactinia mexicana	Damianita Daisy	1	Yellow
Gaillardia pinnatifida	Red Dome Blanket	1-2	Yellow / Red
Gaillardia pulchella	Indian Blanket		Yellow / Red
Liatris punctata	Dotted Grayfeather	2-3	Purple
Zinnia grandiflor	Desert Zinnia	1	Yellow
Senecio riddellii	Riddell's Ragwort	3-4	Yellow
Englemannia peristenia	Engelmann's Daisy	2	Yellow



Riddell's Ragwort Photo: Jason Singhurst

## Bees visiting fruits and vegetables

	Bombus	Peponapis	Andrena	Osmia	Lasiglossum	Halictus
Apple	Y		Y	Y		
Pear	Y		Y	Y		
Cherry	Y		Y	Y		
Plum	Y		Y	Y		
Raspberry	Y		Y		Y	Y
Blueberry	Y		Y	Y	Y	Y
Strawberry			Y	Y	Y	Y
Gooseberry	Y		Y	Y		
Currant	Y		Y	Y		
Tomato	Y					
Eggplant	Y					
Pepper	Y					
Melon	Y	Y				Y
Pumpkin	Y	Y				Y
Squash	Y	Y				Y



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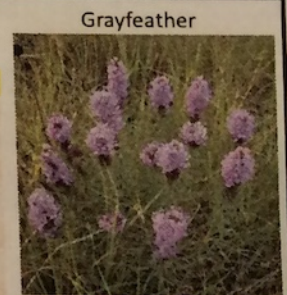
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Asclepias latifolia	Broadleaf Milkweed	3	White
Coreopsis lanceolata	Lance-leaf Coreopsis	2-3	Yellow
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Sphaeralcea coccinea	Scarlet Globemallow	1	Orange
Chysactinia mexicana	Damianita Daisy	1	Yellow
Gaillardia pinnatifida	Red Dome Blanket	1-2	Yellow / Red
Gaillardia pulchella	Indian Blanket		Yellow / Red
Liatris punctata	Dotted Grayfeather	2-3	Purple
Zinnia grandiflor	Desert Zinnia	1	Yellow
Senecio riddellii	Riddell's Ragwort	3-4	Yellow
Englemannia peristenia	Engelmann's Daisy	2	Yellow



Riddell's Ragwort

### Nesting Habitat

➤ Where do bees nest?

- The soil and cavities
  - Stems of plants
  - Existing holes: rodent
- ~30% of bees nest in cavities
  - Stems of plants
  - Existing holes: rodent
- ~70% of bees nest in the soil
  - Need bare soil or patchy vegetation
  - Most prefer sandy soil



Photos: A. Bennett



### Nesting Habitat



Photo: Bennett



Photo: A. Bennett

### Nesting Habitat



Photo: A. Bennett

Nesting Habitat  
for wasps too!

### Artificial Nesting



Photo: A. B. Bennett



### Stem and Cavity nesting bees



Photo: A. B. Bennett

## FALL BEES

		Sept	Oct
Colletidae	Colletes		
Colletidae	Hylaeus		
Andrenidae	Andrena		
Andrenidae	Perdita		
Melittidae	Melitta		
Halictidae	Halictus		
Halictidae	Lasioglossum		
Halictidae	Augochlorella		
Megachilidae	Osmia		
Megachilidae	Megachile		
Apidae	Anthophora		
Apidae	Bombus		
Apidae	Certina		
Apidae	Melissodes		
Apidae	Xylocopa		

Bombus

Photo: A. Bennett



Bombus

Photo: A. Bennett



Melissodes



Photo: Colin Helton

Melissodes



Photo: Alex Surlica

## Peak Bee Activity ★ = Peak Activity

		Feb	March	April	May	June	July	Aug	Sept	Oct
Colletidae	Colletes				★	★	★			
Colletidae	Hylaeus					★	★			
Andrenidae	Andrena			★	★	★				
Andrenidae	Perdita				★	★	★			
Melittidae	Melitta			★						
Halictidae	Halictus					★	★			
Halictidae	Lasioglossum				★	★	★			
Halictidae	Augochlorella					★	★			
Megachilidae	Osmia			★	★	★				
Megachilidae	Megachile				★	★				
Apidae	Anthophora					★	★			
Apidae	Bombus				★	★	★			
Apidae	Certina				★	★	★			
Apidae	Melissodes							★	★	
Apidae	Xylocopa				★	★	★			



Photo: A. Bennett



Photo: A. Bennett

## Fall Blooming TREES & SHRUBS

Trees / Shrubs	Common name	Height'	Flower time
Cordia boissieri	Mexican Olive	25 x 15	Spring / Fall
Chrysothamnus viscidiflorus*	Yellow Rabbitbrush	4 x 3	Fall
Eucalyptus microtheca	Ghost Gum	25 x 30	Fall
Rhus ovata - Evergreen	Sugar Sumac	6 x 15	Fall

Mexican Olive



Photo: Mathews Ray

Yellow Rabbitbrush



Photo: Max Licher

Sugar Sumac - Flower



Photo: Max Licher

Sugar Sumac - Fruit



Photo: Max Licher

## Fall Blooming Perennials

Perennials	Common name	Height'	Flower Color
Symphotrichum laeve	Smooth Blue Aster	2-3	Blue
Machaeranthera bigelovii	Bigelow's False Tansy	3	Blue *annual
Helianthus maximiliani	Max Sunflower	3-5	Yellow
Solidago rigidum	Stiff Goldenrod	2-4	Yellow

Smooth Blue Aster



Photo: Illinois Wildflowers

Stiff Goldenrod



Photo: Illinois Wildflowers

Max Sunflower



Photo: Sarah Smith

Bigelow's False Tansy Aster



Photo: Max Licher

## Gardening tips for Pollinators: Do This NOT That!

### Nesting Habitat:

Do This	Not That
1. Limit soil disturbance	1. Tilling
2. Prevent soil compaction	2. Heavy vehicles
3. Create or leave some bare soil	3. Cutting down dead trees
4. Leave dead trees / logs	4. Expanding turf
5. Add grasses	5. Plastic / mulches / Rock covering nesting habitats
6. Leave leaf litter	6. Not replacing old stems in artificial nests
7. Leave perennial flower stalks	
8. Add / leave rocks for cavities	
9. Prairie – rotate burns	7. Destroying rodent holes



### What pollinators need?



- Overwintering habitat
  - Leaf litter, brush piles, dead logs
  - Perennial borders
    - Trees, shrubs, plant stems
  - Undisturbed soil
  - Rock crevices



Photo: A.B. Bennett



Photo: Donald W. Wall

## Gardening tips for Pollinators: Do This NOT That!

### Garden Management:

Do This	Not That
1. Provide water	1. Buying plants treated with insecticides
2. Use IPM Please	2. Spraying during bloom
3. Remove invasive species	3. Using Herbicides
4. Buy local genotypes	4. Spraying when windy
5. Restore native habitat	5. Buying cultivars
6. Create corridors	6. Buying plant not adapted to your environment
7. Replace turf with grassland	
8. Plant cactus	
9. Limit water use	7. Mowing floral resources

