



# Supporting Wildlife with Wise Landscaping Practices

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# Today

- Ecosystem and Habitat Overview
- Integrated Pest Management
- Landscaping by Nature's Design



# Keeping Austin Wild

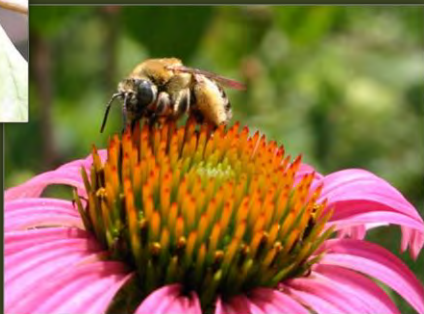
- **Wildlife Austin**, a collaboration between city and community, encourages a well-balanced and healthy urban environment for people and wildlife
- **Most wildlife-friendly city**, according to NWF in 2015
- Through city council resolutions:
  - ❖ **Community Wildlife Habitat** status achieved 2009
  - ❖ **Handling issues of city code** that conflicts with wildlife-supportive habitats
  - ❖ **Monarch butterfly habitat initiatives**





# Wildlife in the Urban Environment

- What wildlife do you think of? What wildlife do your clients desire or fear?





# Disappearing Habitat + Dangers



Monarch Butterfly

Photo: NABA



Black-capped Vireo

Photo: Wikipedia Commons



Loggerhead Shrike,  
Prickly Pear

# “Dead Space”



*Question: What other environmental issues do these areas contribute to?*





# Modern Threats and Problems



- Habitat fragmentation
- Invasive Plants
- Cars
- Windows
- City lights
- Pesticides and other chemicals (including plants with neonicotinoids)
- Cats

Source: [www.uh.edu/](http://www.uh.edu/)





# Ecosystem Gardening: Natives!





# The Foundation



**Native plants are the  
foundation of biodiversity  
and ecosystem health.**

Photo:  
SCVNews

Photo: TPWD

Photo: Univ.  
Wisconsin at  
Milwaukee

# Chile Pequin (Chile Petin)



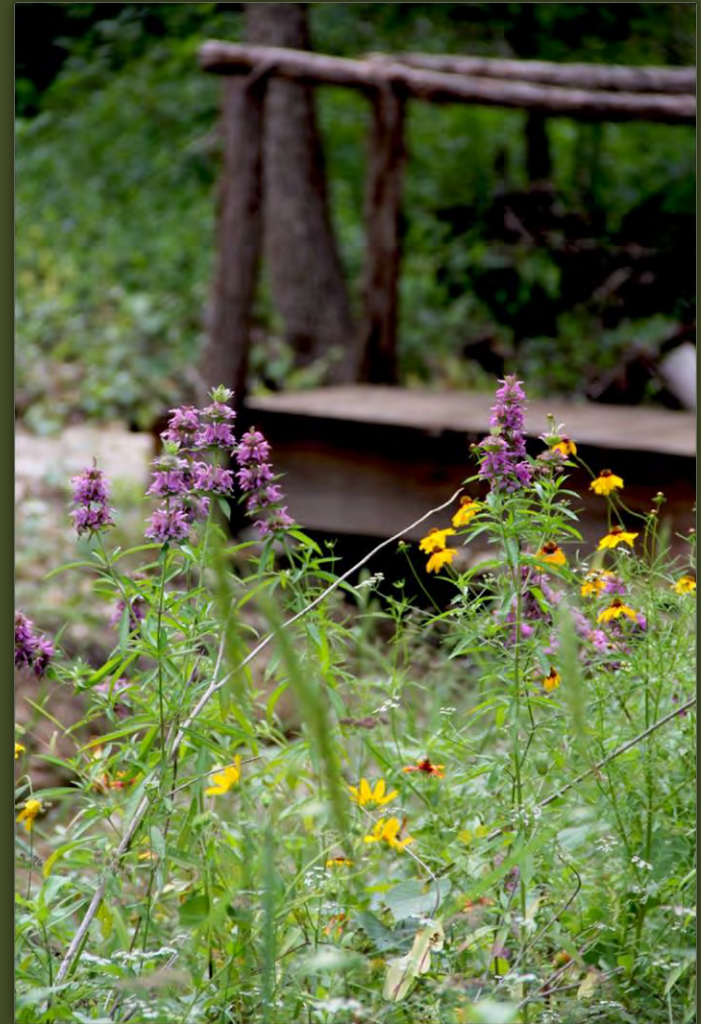
Photo: [Mothphotographersgroup.msstate.edu](http://Mothphotographersgroup.msstate.edu)





# Why Else Are Native Wildscapes Important?

- They are specially **adapted** to handle Texas soil and weather
- They **conserve water** and typically require **less maintenance and pest control**
- They **protect our watersheds** by filtering, improving infiltration, and reducing chemical use (which **protects our health**, too)
- They keep Texas **beautiful!**



# Root Systems of Native Plants

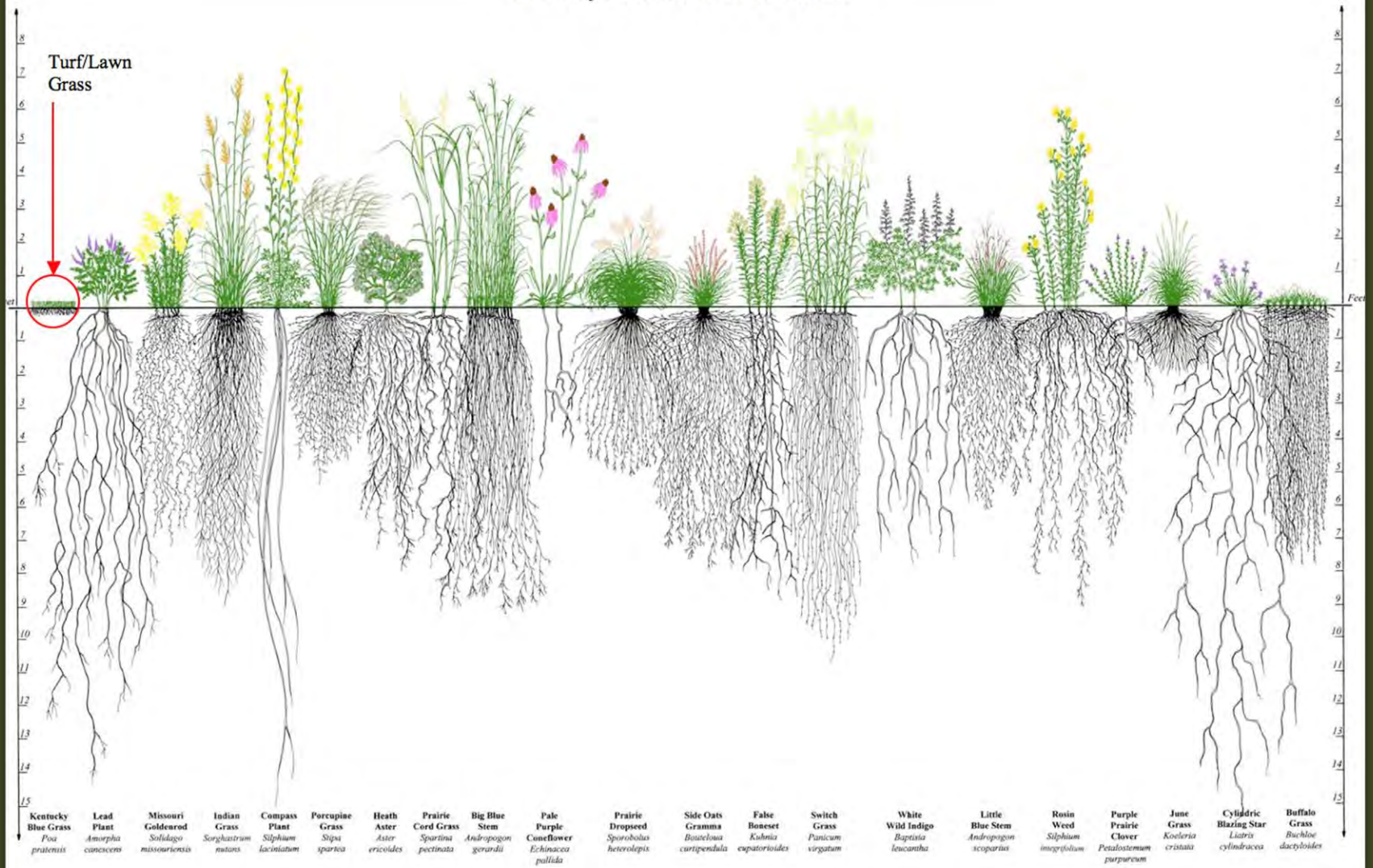


Diagram referenced from the "Conservation Research Institute"



# Economic Benefits

- Save **time**
- Save **energy**
- Save **water**
- Save **money**
- Support **pollinators'** economic services
- Well-planned landscape increases property value





# Habitat Corridors

Connecting wildlife-friendly spaces help give animals a way to travel and search for mates, water, food, and shelter.



# Natives to Fit Every Need

- Colors: All colors
- Light: Shade, Partial Shade/Sun, Sun, Death Star
- Moisture: Xeric/Drought-Hardy to Pond
- Soil: Clay, Sand, Decomposed Granite, Poor, High in Organic Matter
- Height: Tall (100ft+) to Short (1-2in)
- Garden Type: Formal, informal, or naturalistic. Texture variations.
- Wildlife: Different flora to attract different fauna





# Choose Plants for Your Eco-Region

- **Travis County** = primarily Edwards Plateau + Blackland Prairies (the Balcones Fault is the division line)
- Central Texas also includes Cross Timbers and Prairies as well as Post Oak Savannah




## ***Why do regional plants matter?***

- *A plant native to another area of Texas might not grow well in your area.*
- *Wildlife native to your area depend most heavily on regional vegetation.*



# Interdependence Among Natives

## Examples:

- Plants that depend on specific pollinators for fertilization
- Bees or other animals that only seek nectar or pollen from specific plant types
- Specialist caterpillars, adapted to specific leaf chemistry → 
- Plants and animals that provide protection for each other



Bee on *Passiflora lutea*

Photo: Brenda Kasten



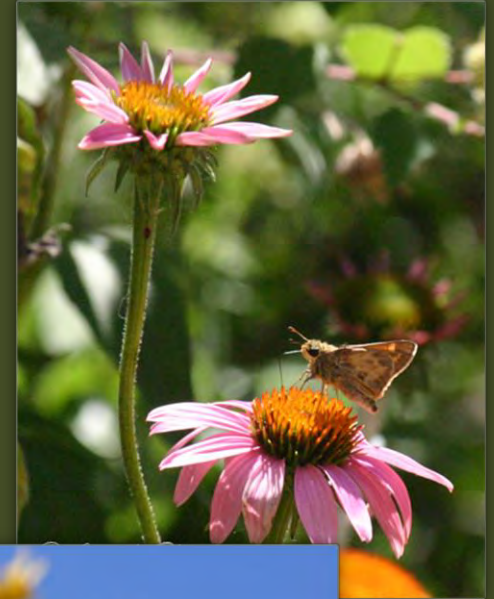
Nashville Warbler and Sleepy  
Oranges on Lindheimer's Senna



# The Numbers Say It All

- Native plants are 4 times more attractive to native bees and other pollinators than are exotic plants
- Native plants have 35 times more butterflies and moths feeding on them than exotic plants have
- Some native plant species support dozens to hundreds of wildlife species

Native bees, like this sweat bee, are considered **super pollinators**.



Skipper on  
Purple  
Coneflower



Sweat  
Bee on  
Tall  
Goldenrod



# Birds Need Insects in Great Numbers



Photo: Wikipedia Commons

- Most songbirds (96%) feed high-protein caterpillars and spiders to their young – *hundreds per day*
- The seasonal presence of insects is a trigger for the migration of many bird species

→ *They are dependent on native plants for the insects they need.*



Carolina Chickadee, Barn Swallow, Bewick's Wren



# Biodiversity = Protection

**Biodiversity**, especially of native plants, helps protect the landscape by:

- Supporting pollinators, which are **keystone species**
- Encouraging natural pest control through a functioning ecosystem
- Preventing disease or destructive insects from wiping out a habitat

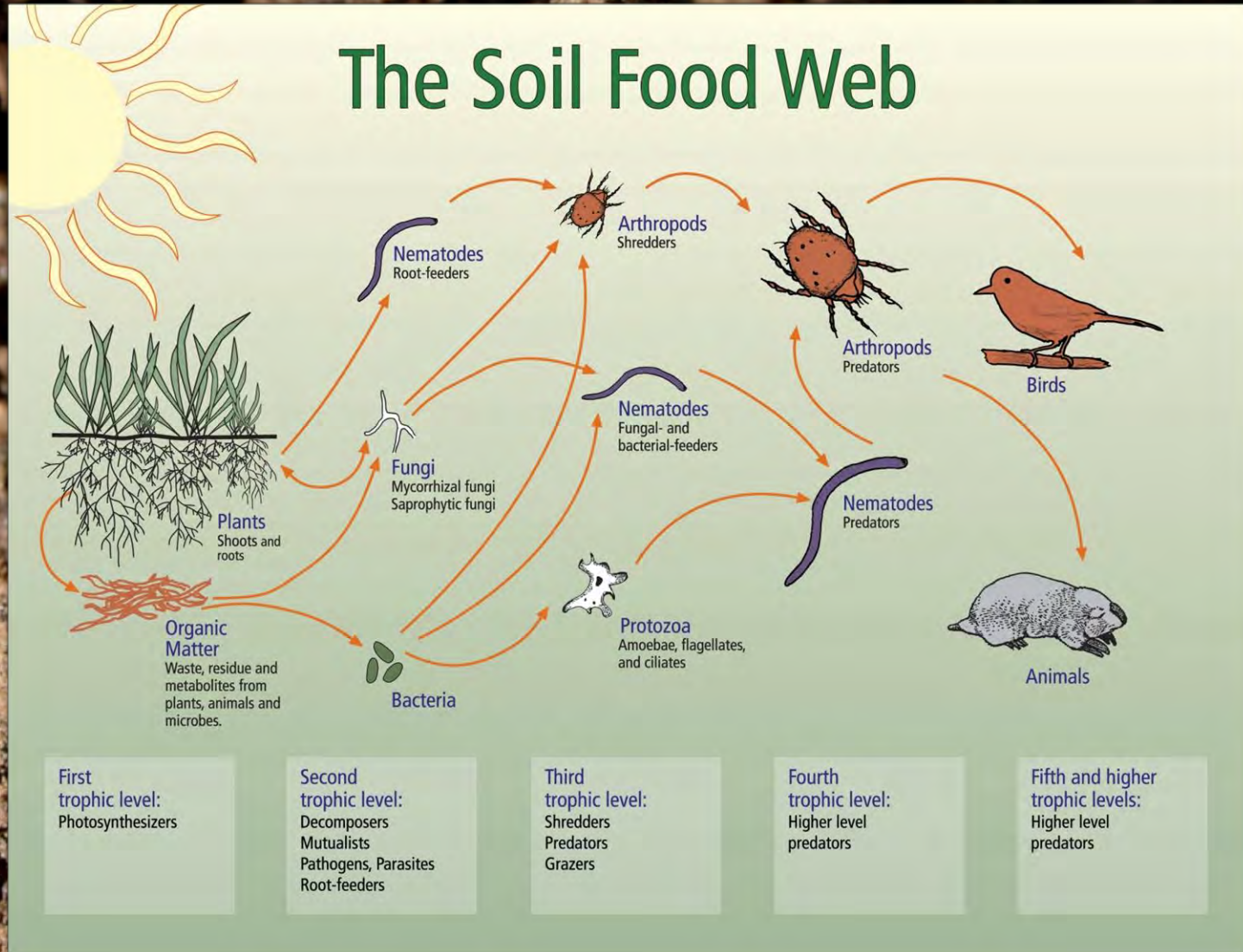


Robber fly eating a beetle

Photo: Purdue Extension



# The Underground Ecosystem



# Wildscaping: Provide Elements of Habitat

- Water Sources
- Food Sources
- Places for Cover
- Places to Raise Young

*and*

- Safe Environment
- Space (territory, food range, migration zones, safety, comfort through quiet or open or dense space)



European honeybee on Gregg's  
Mistflower





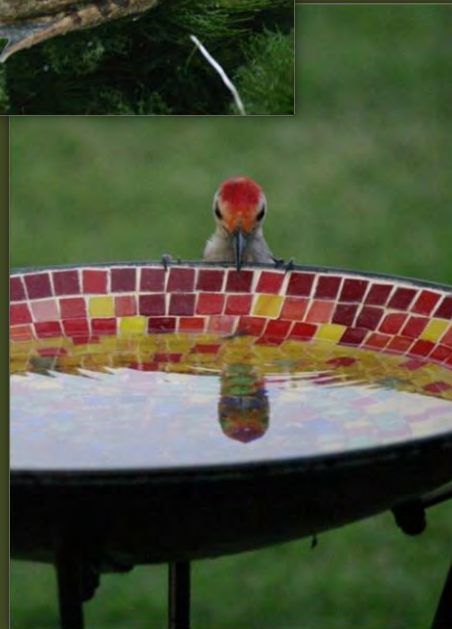
# Provide Water



Whether a pond, birdbath, or creek, animals need sources of clean water.

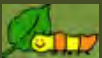


Texas Persimmon

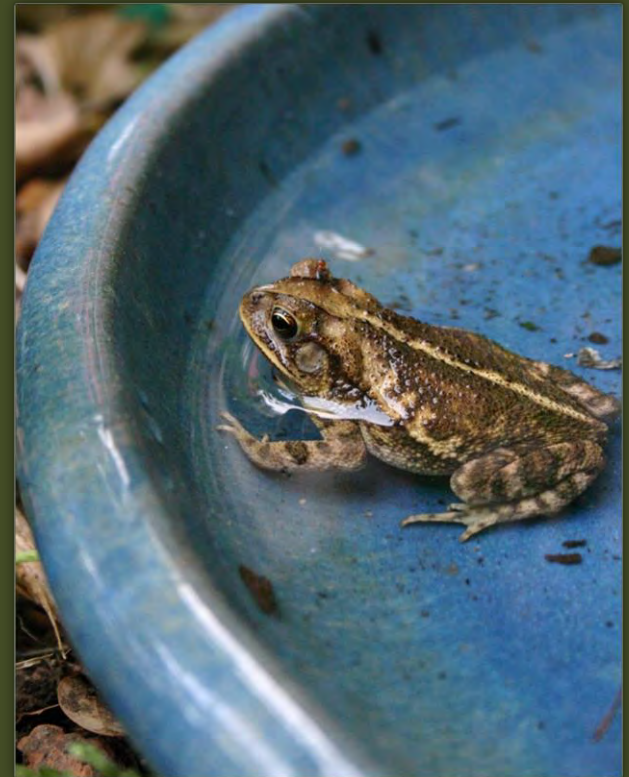
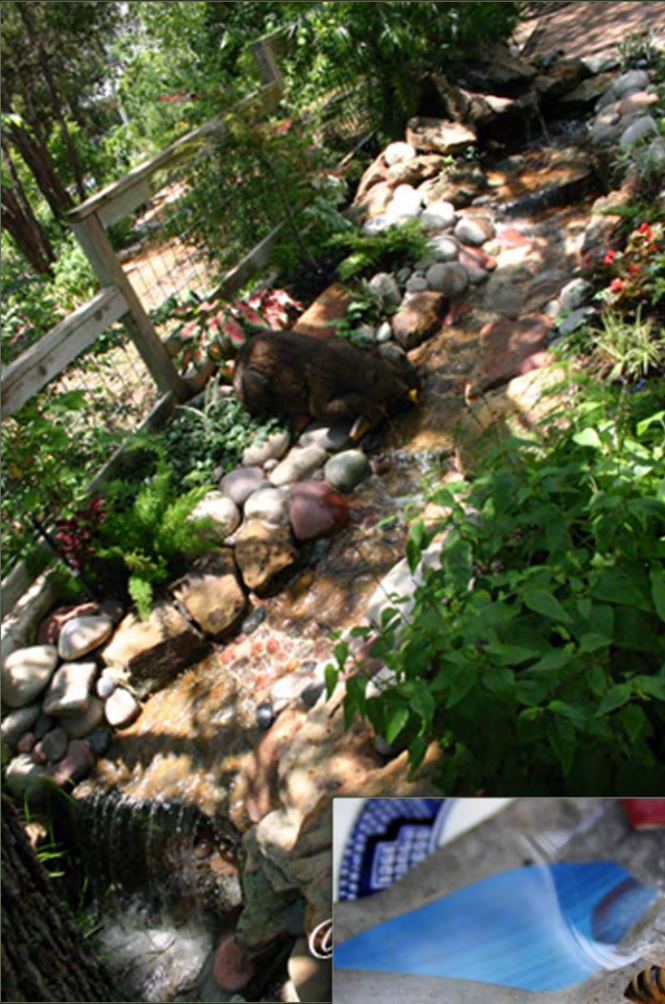


- |                   |               |
|-------------------|---------------|
| Birdbath          | Lake          |
| Saucer            | River         |
| Water garden/pond | Puddling area |
| Stream/creek      | Rain garden   |
| Seasonal pool     | Spring        |

**Note:** Native plants can also be water sources: fruits, foliage, nectar.

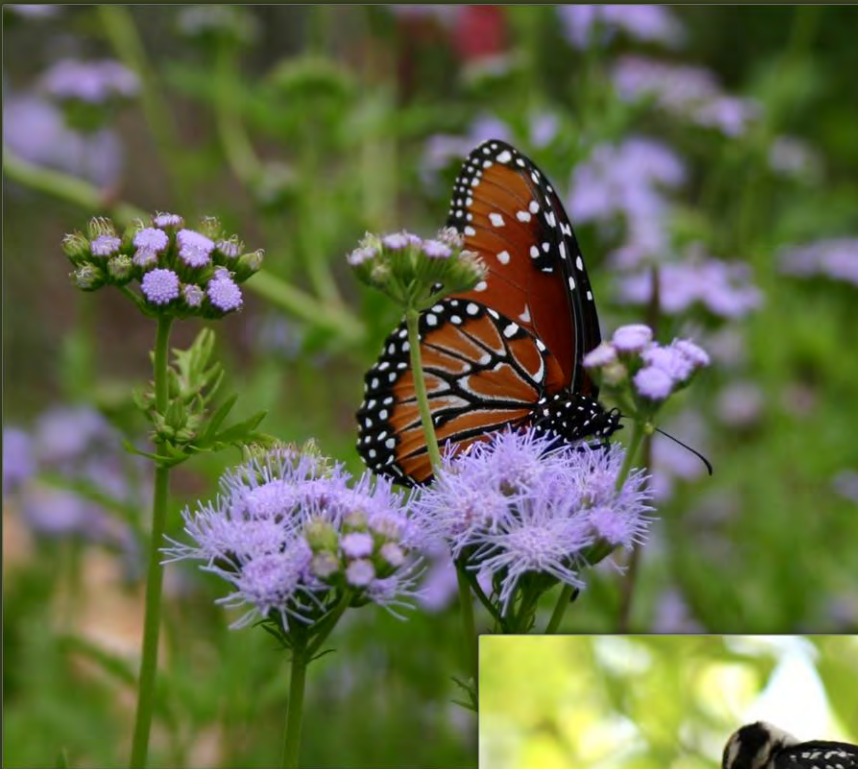


The sound of water is especially attractive to wildlife, but they'll find even the smallest water source.





# Provide Food



Queen Butterfly on  
Gregg's Mistflower



Downy Woodpecker  
on Cedar Elm



Native plants are  
the best sources of  
food for wildlife.  
Aim for year-round  
supplies of food.

Seeds

Berries

Nectar

Foliage

Nuts

Twigs

Fruits

Sap

Pollen

Other Plant Parts

Feeders

Suet/Fruit

→ Insects!

# Nectar and Pollen

**Nectar and pollen** are important sources of nutrients for numerous insects, birds, bats, and other animals.



Juniper  
Hairstreak on  
Blackfoot Daisy

Hummingbird at  
Standing Cypress




*Osmia* bee  
on Texas  
Mountain  
Laurel





# Foliage -- especially for caterpillars!

- Some mammals and other animals will consume leaves
- Many insects are **specialists**, laying their eggs on specific **host plants** 

Black Swallowtail  
(nectaring at Texas  
Lantana)










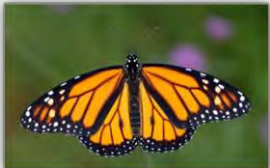


Host Plants: Parsley  
and Dill family 




Giant Swallowtail  
(nectaring at Purple  
Coneflower)

Host Plants: Wafer Ash  
and other citrus trees



Butterfly	Lays Its Eggs on	Caterpillar
<p data-bbox="432 229 639 262">Gulf Fritillary</p> 	 <p data-bbox="859 332 1070 365">Passionvine</p>	
<p data-bbox="425 522 647 555">Crimson Patch</p> 	 <p data-bbox="879 622 1051 708">Flame Acanthus</p>	
<p data-bbox="423 815 649 848">Sleepy Orange</p> 	 <p data-bbox="859 915 1089 1001">Lindheimer's Senna</p>	
<p data-bbox="465 1108 606 1140">Monarch</p> 	 <p data-bbox="879 1208 1051 1240">Milkweed</p>	



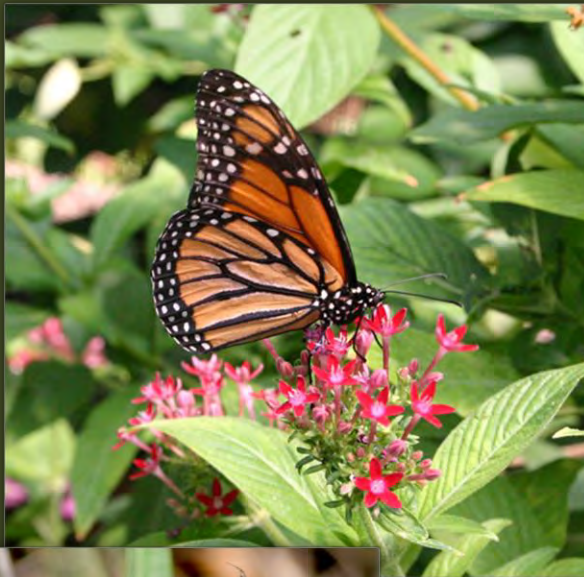
Antelope Horn Milkweed   
for Monarch and Queen  
caterpillars



# Monarchs and Queens

Queens and Monarchs lay their eggs only on Milkweed species.

Monarch



Nectar sources



Queen

Milkweed = host





# Berries and Other Fruits

Berries and other fruits provide food for many birds and other animals. They are especially important in fall and winter.



American Beautyberry



Possumhaw



Chile Pequin

*Remember, not all berries are created equal! Native plants matter.*

# Seeds and Nuts



Seeds and  
nuts – not  
just for  
squirrels!

Acorns from Oak  
(*Quercus*) sp.



Blue Jay





Inland Sea Oats



Indiangrass



Photo: Terri Siegenthaler, WFC



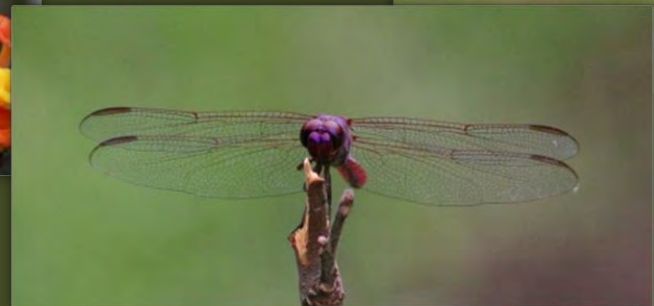
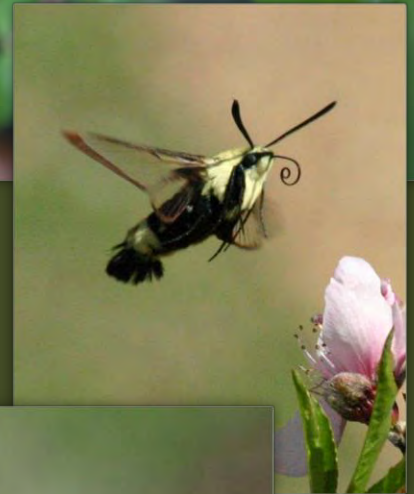
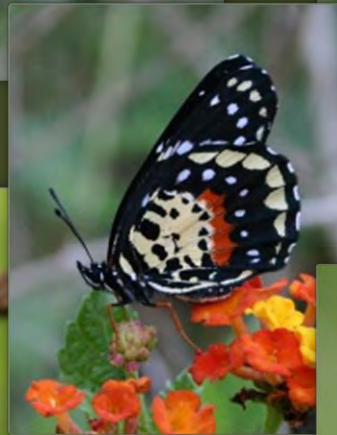
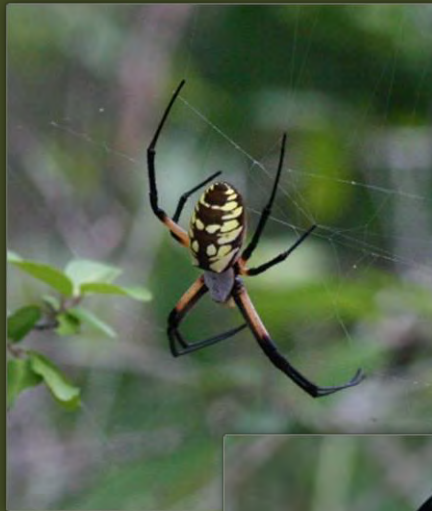
Plateau Goldeneye



Purple Coneflower



# Insects and Spiders: Key Foods





# Provide Sources of Cover

Protect wildlife from predators and bad weather with safe havens. A variety of plant types and heights can provide shelter for many different wildlife species.

Trees	Meadows
Dense shrubs	Water gardens/Ponds
Evergreens	Leaf litter
Tall grasses	Ground cover
Thorny plants	Burrows
Snags	Brush or log piles
Rock piles or walls	Birdhouses, toad abodes



Goatweed Leafwing

Photo Source: OKJDiscoveries



Rough Green Snake

Photo: Patrick Coin, Wikipedia

# Nature's Layers: Vertical Niches





# Other Cover



# Places to Raise Young



Carolina Wren  
babies

Many places that provide cover are also good places for raising young.

Mature trees

Dense shrubs

Snags

Hollow logs

Bunch grasses

Nesting boxes

Host plants

Groundcover

Meadows

Water gardens/ponds

Brush piles

Leaf litter



# Other Places to Raise Young



Photo: Loudoun WC

American Snout caterpillar on Hackberry



- Dense shrubs and small trees for nests
- Ponds for amphibians, aquatic insects
- Host plants
- Birdhouses and bee boxes
- Natural cavities




Purple Martins

# Water, Food, Cover, Places to Raise Young – *Native plants can do it all!*



Agarita



 Yupon



 Mexican Plum



 Coral Honeysuckle

## WILDLIFE VALUE

 Purple  
Coneflower



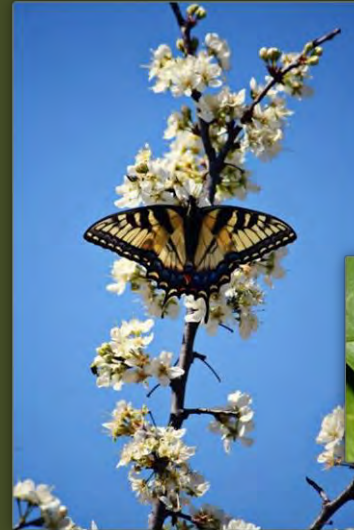


# High Wildlife Value: Mexican Plum

*Prunus mexicana*



Photo: Olivia Johnston



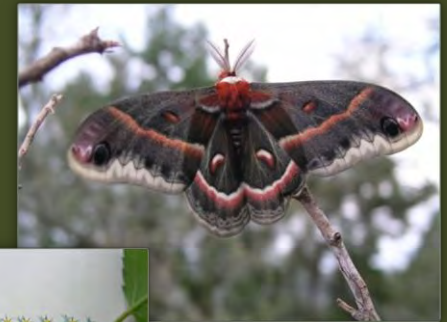
Eastern Tiger Swallowtail



Photo: Tom Murray



Lower photo: Frisco Green Living



Cecropia Moth



Photos: Dan Hardy

# What About Non-Natives?

- Choose only non-invasives
- Be water-wise and wildlife-supportive
- Always research habits, pros and cons



Pipevine Swallowtail  
Caterpillar and  
Eggs, on White-Veined  
Dutchman's Pipevine  
(South American species,  
*Aristolochia fimbriata*)



Population sink:  
Giant  
Dutchman's  
Pipevine  
(*Aristolochia*  
*gigantea*)



Photo: triadplantco.com



# Example: Lantana

- Aggressive/invasive:  
*Lantana camara*



Photo: Wiki Commons

- Native:  
*Lantana urticoides*



Photo: WFC, Wasowski

- Sterile:  
*Lantana x hybrida* 'New Gold'



Photo: Hill Country MG

# Keeping It Healthy, Safe, and “Green”

Habitats should be **sustainable** and eco-wise.

*Think native and organic!*

- |                  |   |
|------------------|---|
| Native plants    | Water conservation  |
| Rain collection  | Mulch (and leaves)  |
| Invasive removal | Turf reduction/replacement                                |
| Drip irrigation  | Integrated Pest Management<br>(inc. chemical elimination) |
| Compost          | Cats kept indoors   |
| Local materials  | Prevent window strikes                                    |
| Rain garden      |   |





# Common Sense Integrated Pest Management

- Plant a diversity of natives (less vulnerable, more stability, natural balance)
- Monitor and identify pests (flora and fauna)
- Learn about a pest's habits, life cycle, needs, and dislikes
- Be tolerant whenever possible



# Biological Controls

- Encourage the use of natural enemies (beneficial insects, reptiles, birds, and other predators) that eat or parasitize pests
- Consider nematodes, fungi, and other beneficial microorganisms
- Encourage natural competition



Photo: [nurturenaturenow.com](http://nurturenaturenow.com)





# Beneficial Predators

One spider can eat 2,000 insects in a year!



Beneficial predators help balance the ecosystem. They consume enough insects to indirectly benefit plants and increase their growth.



# Cultural controls

- Make the environment less suitable for pests
- Select right plants for the location (light, soil, water, and space)
- Maintain healthy vegetation (proper watering habits, clean tools, remove diseased plants)
- Maintain healthy soil
- Strictly avoid invasive plants





# NOT Attracting Deer

Plants with strong scents, tastes, or textures are **least** palatable to deer.

**Examples include:** Sages/Salvias, Basket Grass, Big Muhly, Chocolate Daisy, Chile Pequin, Texas Betony, Damianita, Milkweed, Shrubby Skullcap, Texas Lantana, Flame Acanthus, and more



# Mechanical and Physical Controls

- Use mulch for weed management
- Use screens and other barriers (avoid netting)
- Hand-pick (for aphids, can spray with water)
- Responsible pest-trapping





# Responsible Chemical Use

- Avoid or at the very least limit chemical use
- Even organic or all-natural pesticides will kill unintended species
- Always choose least toxic methods first
- Read labels thoroughly
- Spot usage is safer than covering an entire area



# Follow Nature's Design: Diversity

- Sizes/heights, shapes, colors
- Caterpillar host plants
- Berries, seeds, pollen, nectar
- Deciduous/evergreen
- Scents
- Daytime and nighttime blooms





# Provide Year-Round Food Sources

## WINTER-EARLY SPRING



## SPRING



## SUMMER



## FALL



Mexican Plum  
Crossvine  
Black-eyed Susan  
Frostweed



Photo: Wasowski, WFC

Photo: DCLS

# Mix Colors, Textures, and Foliage Contrast



Photo: Carol Feldman, NPSOT



# Create Layers

- Plant short, mid-level, and taller shrubs and trees

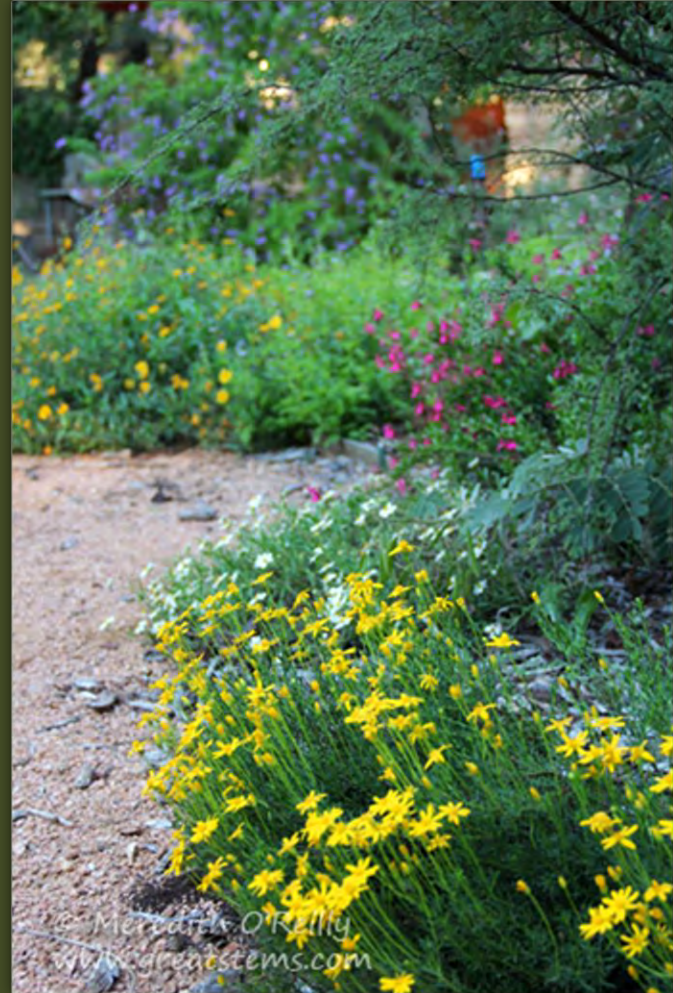


# Soften Edges





# Mass and Repeat Colors



# Plant Densely

- Provides cover
- Naturally protects roots and soil





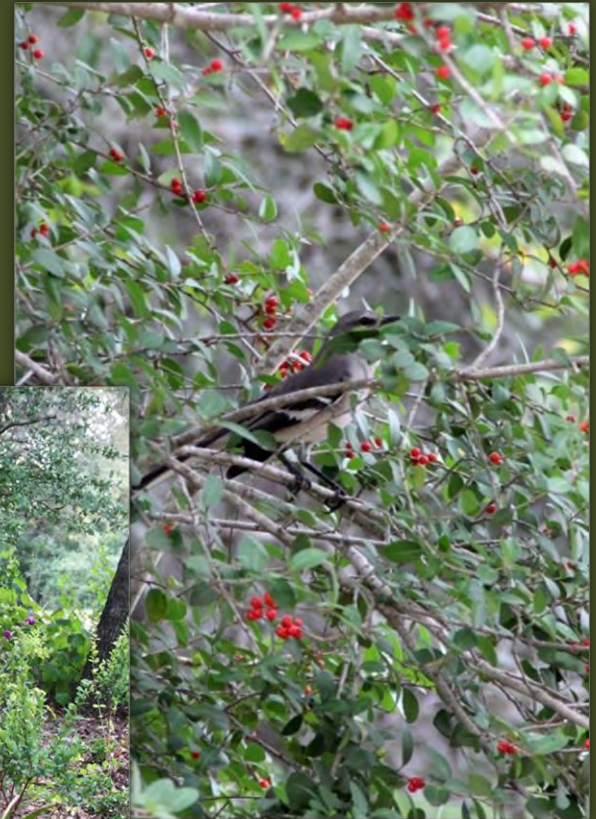
# But Leave Some Bare Patches 😊

- Allows mining bees and digger bees to nest



# Create Plant Communities

- Establish thickets for birds
- Understory!
- Group by species commonly found together in nature
- Group by light, soil, and water needs





# Healthy Soil Through Nutrient Cycling



# Replace Turf



Texas Sedge

Photo: Joseph A. Marcus, WFC



Cedar Sedge



Frogfruit



# Nature-Inspired Design



Meandering paths mimic natural wildlife trails and creeks.



# Use Local, Natural Materials



Rock  
Wood  
Water





# Structure and Other Considerations

- Keep human activity areas together and small
- Maximize undisturbed areas
- Protect tree roots
- Provide viewing opportunities
- Use dense shrubs as screens and to cover bare fences
- Be aware of potential impacts nearby



# Maintain, Don't Manicure

- Keep plants trimmed for attractiveness
- Keep some seeds for birds
- Mulch to keep weeds at bay (and, of course, weed!)
- Keep pathways clear

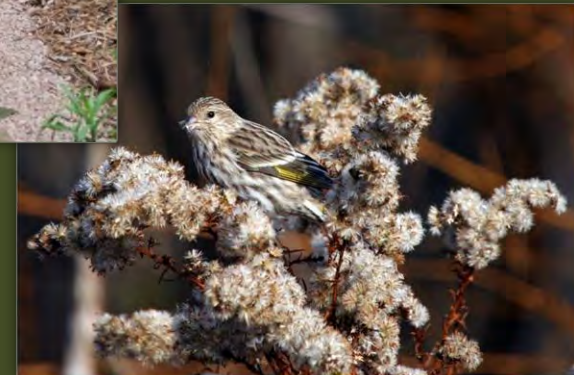


Photo: Mike Horn, IBC



# Let plants take their natural shape

Dense geometric shapes can be less hospitable to birds as an open form might be.



# Education





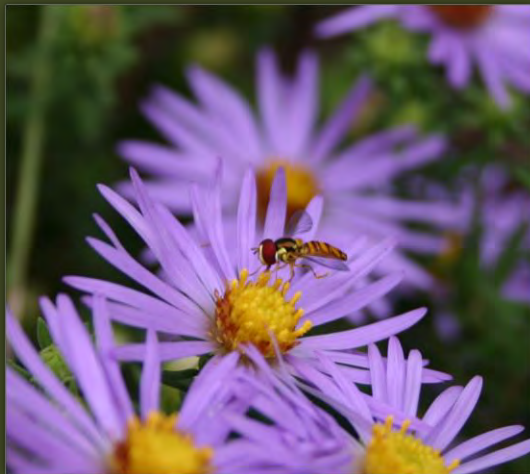
# Resources

- General Native Texas Plant info (Wildflower Center):  
<http://www.wildflower.org/explore/>
- Caterpillar Host Plants:  
<http://texasento.net/CenTexPlnts.pdf> (Austin Butterfly Forum)  
<http://wwwtest.utexas.edu/tmm/tnhc/entomology/butterfly/tnhc-tx-butterfly-gardening.pdf> (Univ. of Texas)
- Bird Habitat Plants (Travis Audubon)  
[travisaudubon.org](http://travisaudubon.org) → Conservation → Urban Habitat Committee
- Austin's Native and Adapted Landscape Plants/Grow Green Guide  
(available for free at local nurseries; also online database)
- Native Tree Growing Guide for Austin:  
<http://treefolks.org/wp-content/uploads/2011/05/Native-Guide-LowRes.pdf>





*Diversity in Native Plants =  
Diversity in Wildlife*





# Questions?

