



# Basket Full Of Knowledge



Restore Nature and Biodiversity  
to Suburban Yards of Fort Bend County

November 2020

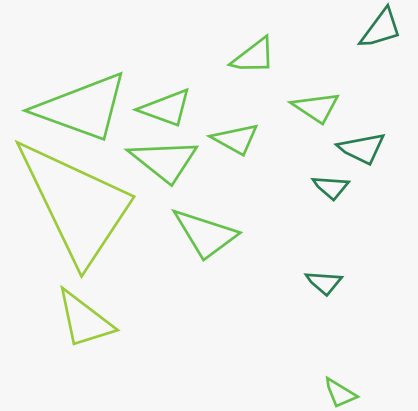


Art courtesy of [Cin-Ty Lee](#)

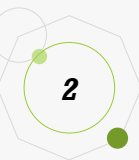


# Texas Master Naturalist™

MISSION: to develop a corps of well-informed volunteers to provide education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities for the State of Texas



Presentation and Photos  
by **Shannon Westveer**  
Texas Master Naturalist™  
[Coastal Prairie Chapter](#)



# Inherent Problems with Suburbanizing the Imperiled Coastal Prairie Ecosystem



## **A Changing Climate**

Heavier rainfalls and increased flooding paired with periodic droughts



## **Water Is Not Free**

Groundwater must be pumped to homes, treated with chemicals



## **Removal of Cooling Buffers**

Heat of summer now starts mid-spring with longer 3-digit stretches



## **Impermeable Surfaces**

Rooftops, driveways, sidewalks designed to speed up water flow



## **Loss of Biodiversity**

Nature's food web is forced out of balance, fragmented by 'economy'



# Solutions with the biggest impacts start with each of us ... *at our homes.*



## **Observe and Restore**

Return to reading the  
rhythm of the seasons,  
appreciating  
life associations



## **Nature Works *For Us***

Humans are woven into  
the terrestrial fabric;  
we too benefit from a  
diverse life system

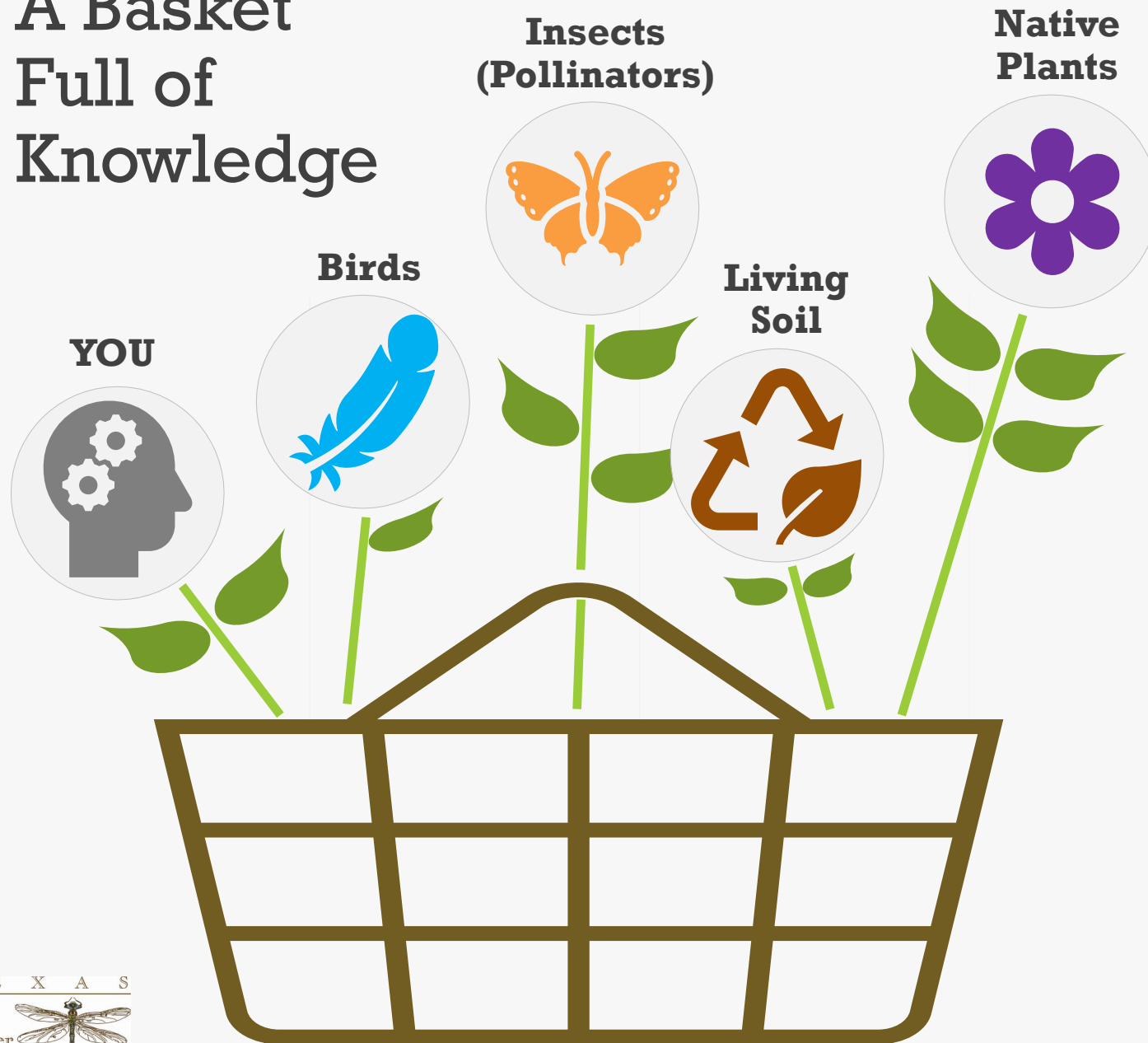


## **Build Community Resilience**

Life connected:  
soil, plants, animals, the  
human-animal, and fungi  
support one another



# A Basket Full of Knowledge



## Conflicting Human Constructs

**Timer Watering**



**Outdoor Cats**



**Exotic Plants**



**Fertilizers  
Pesticides  
Herbicides**



**Landscape Lighting**

T E X A S







# Best Item In Your Basket? *Knowledge.*

Our suburban yards now dominate what historically was coastal prairie.

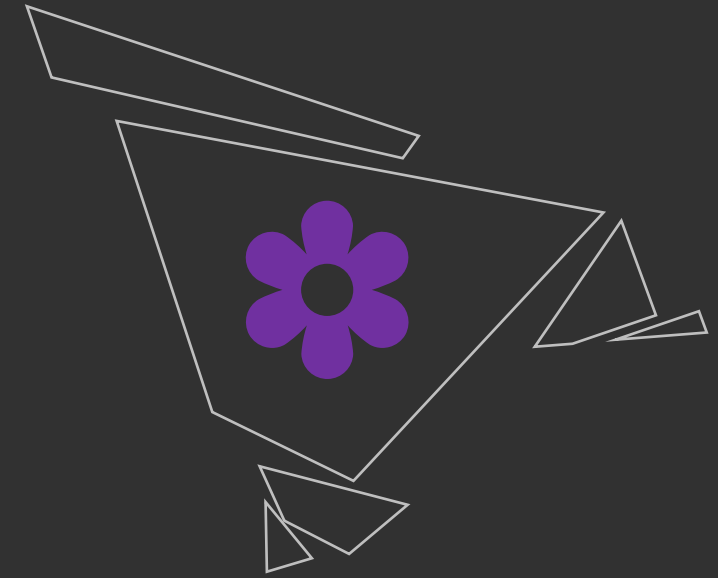
There we can:

- Recycle carbon which builds soil health
- Promote food webs, biodiversity, and seasonal migrations and growth cycles
- Adopt a new vocabulary – one of stewardship rather than human domination
- Improve the quality of our lives by restoring the systems required by wildlife
- Repair the fragmentation caused by suburban habitat by rethinking some destructive habits





Salvia and Goldenrod



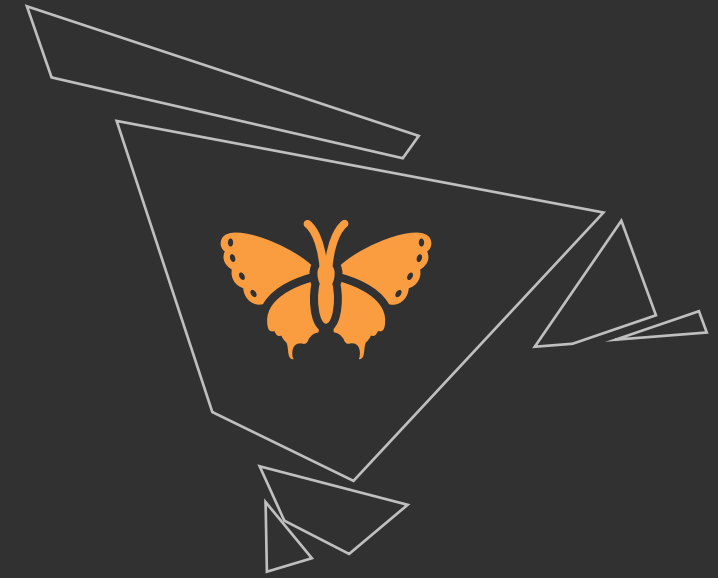
# The Edible Sun

Coastal prairie **native flowers and grasses** most efficiently transfer the sun's energy into food for the wildlife which also evolved here

Plants from different regions evolved with different wildlife; our local wildlife doesn't always recognize these plants as 'food'



White-tipped Black Moth



# Food on the Wing

**Flying insects**, particularly the caterpillars of moths and butterflies, feed wildlife adequately; establish native plants and they will come

Their recent decline affects others along the entire food web, in agriculture (growing of our food) and—unavoidably—ourselves



# Get to Know Your Neighbors

## Typical Yard Insects – Fort Bend County



**Gulf Fritillary  
(Butterfly)**

Year-round

Pollinator  
Food For Animals

Passionvine  
(Host plant)



**Forest Tent  
Moth (Cat)**

Spring/Summer

Food For Baby Birds

Oak trees  
(Host plant)



**Leaf-cutter  
Bee**

Summer/Autumn

Super-Pollinator  
Solitary

Asters  
Sunflowers  
Garden Veggies



**European  
Honeybee**

Year-round

Introduced  
Pollinator / Eusocial

Agricultural  
(outcompetes  
wild bees)



**American  
Bumblebee**

Year-round

Super-Pollinator  
Social

Salvias  
Nightshades  
Garden Veggies



**Blue Dasher  
(Dragonfly)**

Spring/Summer

Insectivore

Manages mosquito  
larva (as larva)  
Manages garden  
insects (as adult)

# Resources – Insects



## **Native Plant Society of TX**

Click for an article by Michael Warriner on the importance of native bees as pollinators



## **Pollinator.org**

Download *Selecting Plants for Pollinators*, a longer 25-page PDF informational on Texas bees – includes plant list

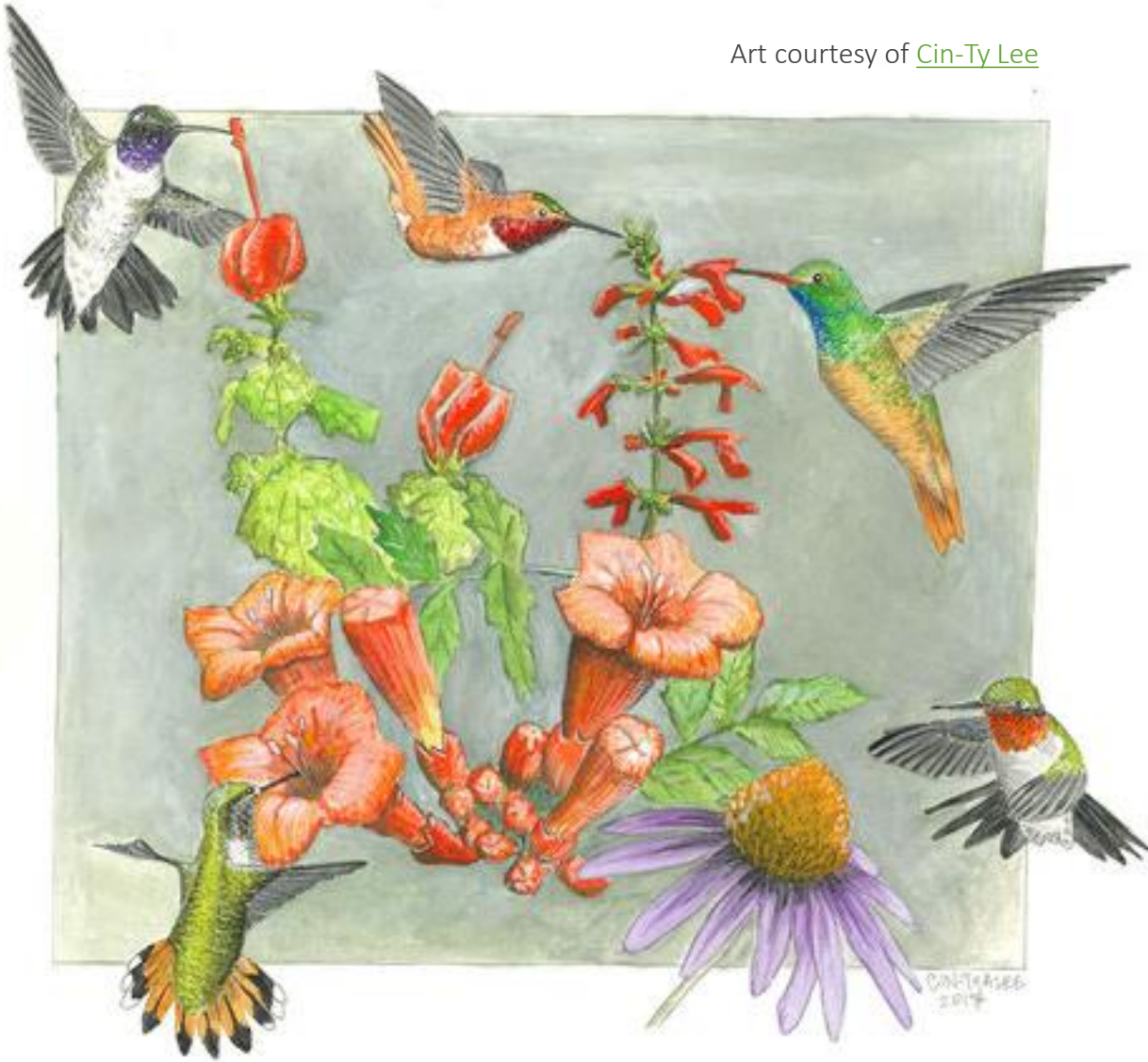


## **Xerces Society**

Download *Conserving Bumble Bees* a 40-page PDF publication of guidelines for managing habitat for America's declining super-pollinator



Art courtesy of [Cin-Ty Lee](#)



# Feathered Gems

**Birds** are typically the largest predators in today's urban and suburban habitats  
Some stay year-round, some are seasonal visitors, others are parasites;  
*all* are indicators of environmental health

# Get to Know Your Neighbors

## Typical Yard Birds – Fort Bend County



**Northern  
Cardinal**

Year-round

Mid-story

Seed (adult)  
Caterpillars (juvenile)

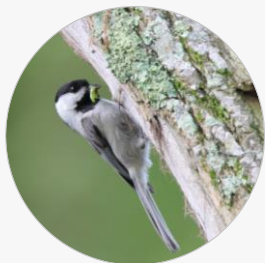


**Northern  
Mockingbird**

Year-round

Mid-story

Insects(adult)  
Caterpillars (juvenile)

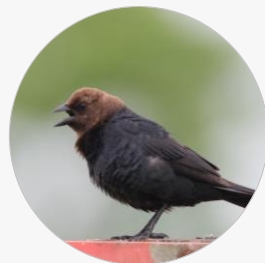


**Carolina  
Chickadee**

Year-round

Nesting cavity

Seed (adult)  
Caterpillars (juvenile)



**Brown-headed  
Cowbird**

Year-round

*DO NOT FEED!*

Brood parasite  
Does not raise young



**Cooper's  
Hawk**

Winter

Canopy

Primarily birds  
Small animals



**Ruby-throated  
Hummingbird**

Summer

Spring/Fall migrant

Nectar/insects (adult)  
Insects (juvenile)



Black-throated Blue Warbler  
(spring migrant)

# Resources – Birds



## **Audubon Society**

Click to create a **plant list** (by zip code) with the birds each plant supports



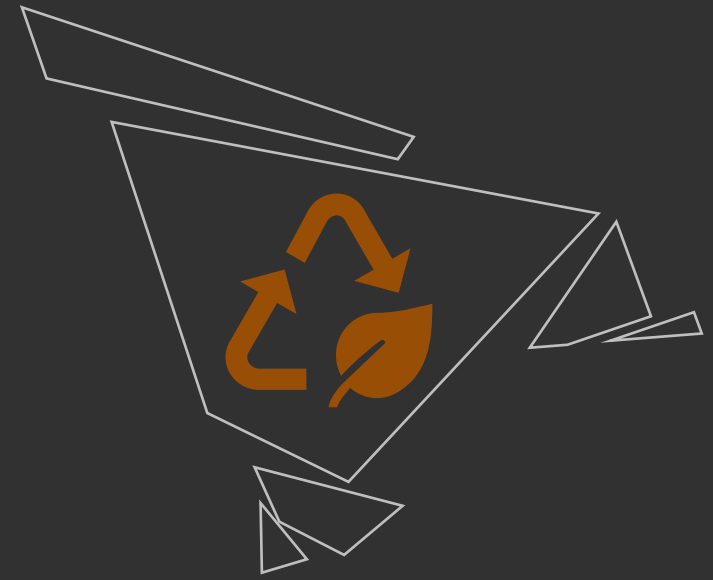
## **Texas Parks and Wildlife**

Learn how to eliminate the top suburban threats to birds: cats, window strikes, habitat loss



## **Connecticut College / Wild Ones Journal**

Download the 2-page PDF article by Doug Tallamy, renowned entomologist and author of *Bringing Nature Home*



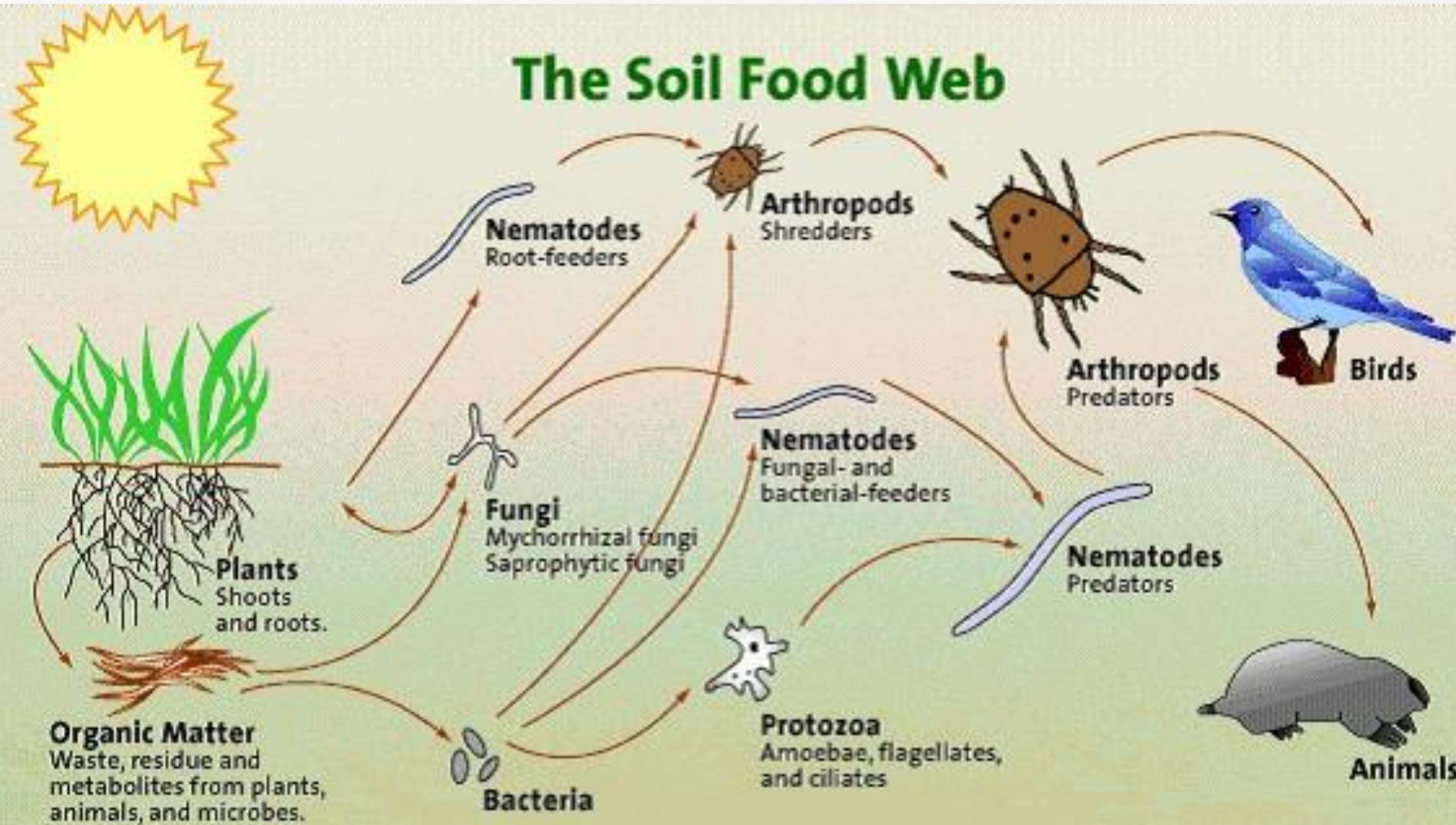
# Living Earth: Soil

The **soil ecosystem** is brimming with life, *trillions* in a handful: fungi, insects, bacteria (FBI), nematodes and earthworms

Soil health and **symbiotic relationships** are foundational for plants, detritus recycling – the web on which all other land forms of life rely



# The Soil Food Web



**First trophic level:**  
Photosynthesizers

**Second trophic level:**  
Decomposing Mutualists  
Pathogens, Parasites  
Root-feeders

**Third trophic level:**  
Shredders  
Predators  
Grazers

**Fourth trophic level:**  
Higher level predators

**Fifth & higher trophic level:**  
Higher level predators





# PSA: Leave (uh, Steal?) the Leaves!

Conserving on-site carbon is the easiest  
and cheapest way to  
preserve the soil ecosystem



- **Abundant and Free**  
Corrugated boxes, packaging, newsprint, untreated (not bleached) paper, twigs, shrub clippings, chipped trees, leaves
- **Critical Wildlife Habitat** – Create a convenient on-site brush pile of twigs and clippings, a 'slow' compost for spiders, toads, lizards; **rotting logs and branches** become seasonal homes for cavity nesting bees
- **Smothers Turfgrass** – Sheet-mulch St. Augustine by laying down wetted corrugated, tucked down into the bed's edge, cover with a 3-inch layer of mulch
- **Promotes Tree Health** – Trees drop leaf litter within their dripline for a reason; give your trees the space (and fungal partnerships) they require by removing the turf as far out to the dripline as you can stand
- **Not For the Landfill** – Do not send nature's carbon to the landfill



# Resources – Living Soil



## **National Resources Conservation Service**

Click for a concise quick course on *Soil Biology and the Landscape* by the USDA



## **Texas A&M AgriLife Ext.**

Click to *EarthKind*® your suburban landscape: rainwater harvesting, native habitat, composting



## **USDA Web Soil Survey**

Click to produce a soil report for your property produced by the National Cooperative Soil Survey (4 steps)

# A Basket Full of Knowledge



## Conflicting Human Constructs

**Timer  
Watering**



**Outdoor  
Cats**



**Exotic  
Plants**



**Fertilizers  
Pesticides  
Herbicides**



**Landscape  
Lighting**



# Imperiled Coastal Prairie Ecosystem Made Worse By Human-Only Constructs



## **Water Misuse**

Drinking water is converted to groundwater on a timer, for an exotic turfgrass



## **Poisoning the Environment**

Toxins from fertilizers, pesticides, and sanitizers destroy life in the air, soil, waterways, ocean



## **Our Pet the Killer**

Every year, billions of birds are killed by domestic cats who roam freely in our neighborhoods



## **24-Hour Daylight**

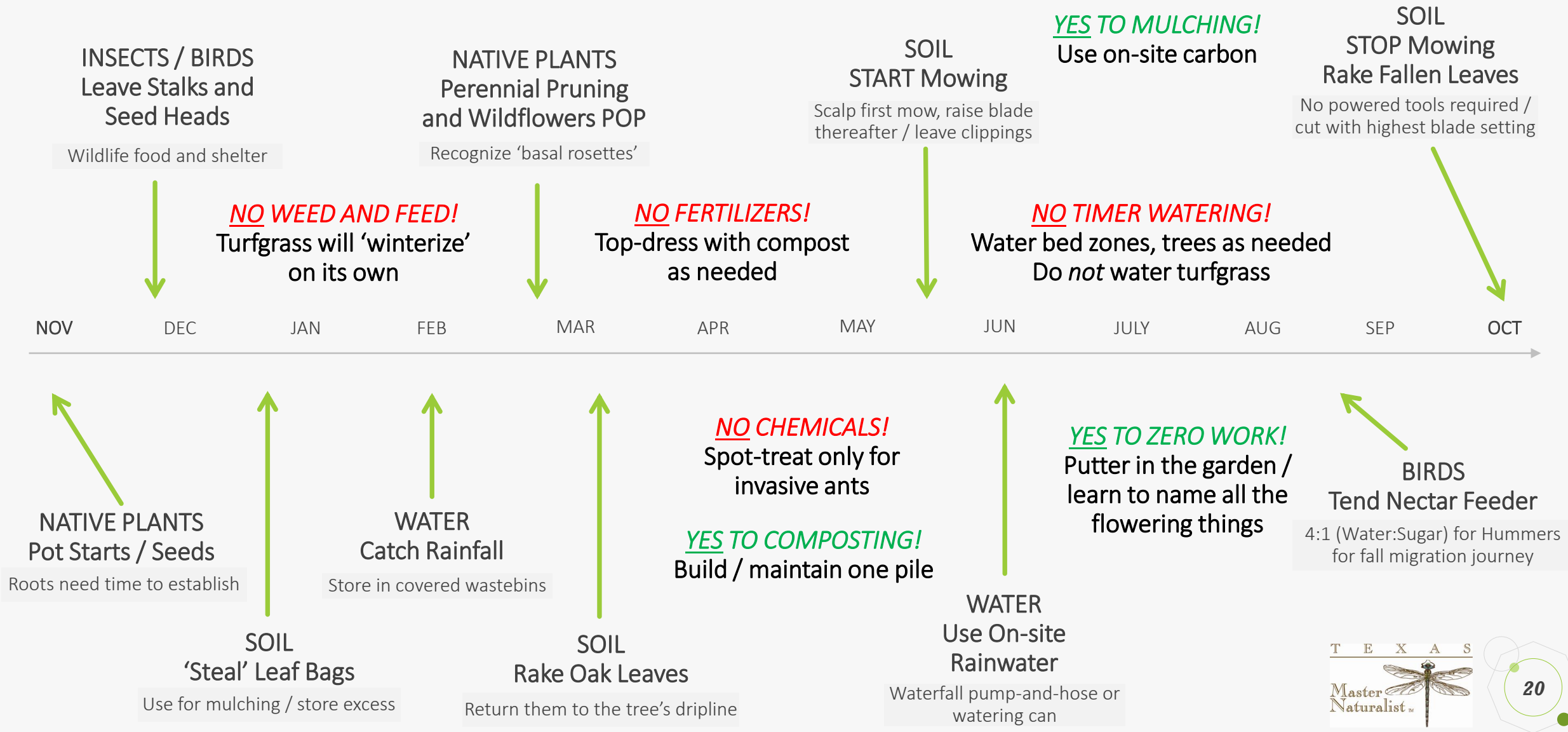
Unnecessary lighting disrupts the circadian and migration rhythms of nocturnal wildlife



## **Turning Prairie to Tropics**

Nature's food web is being systematically replaced by plants not evolved to local wildlife

# A Basket Full of Knowledge, Applied (One Year)






# Questions?



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