# GARDENING FOR WILDLIFE

Dr. Kevin Floyd
Botanical Curator
Chihuahuan Desert Gardens, UTEP
2/27/2025

# The take home message

To support wildlife, provide

- Abundant food
- Places to nest and **overwinter**
- A safe environment

# Topics for today

- Why garden for wildlife?
- How to provide abundant food?
- How to provide places to nest and overwinter?
- How to provide a safe environment?
- Where to get plants?

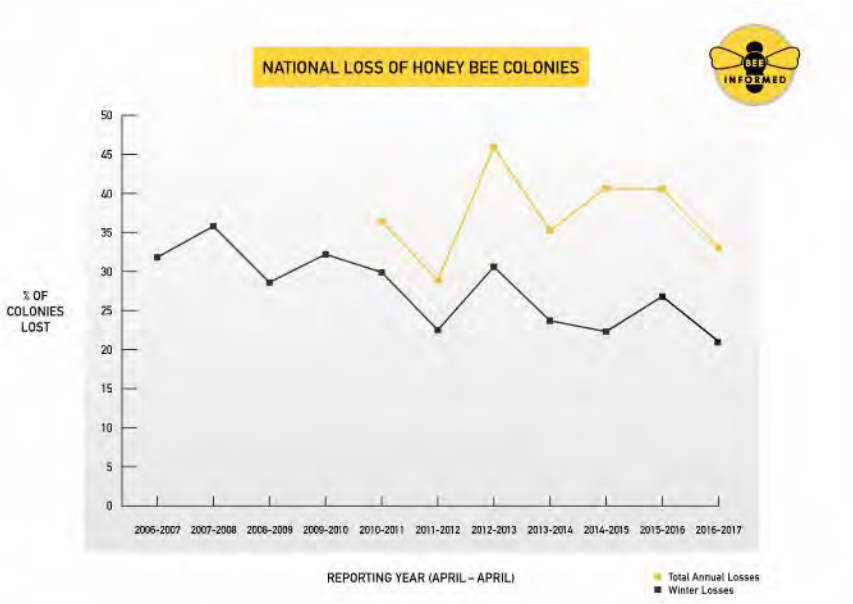
Guiding principles, not plant lists

# Why garden for wildlife?

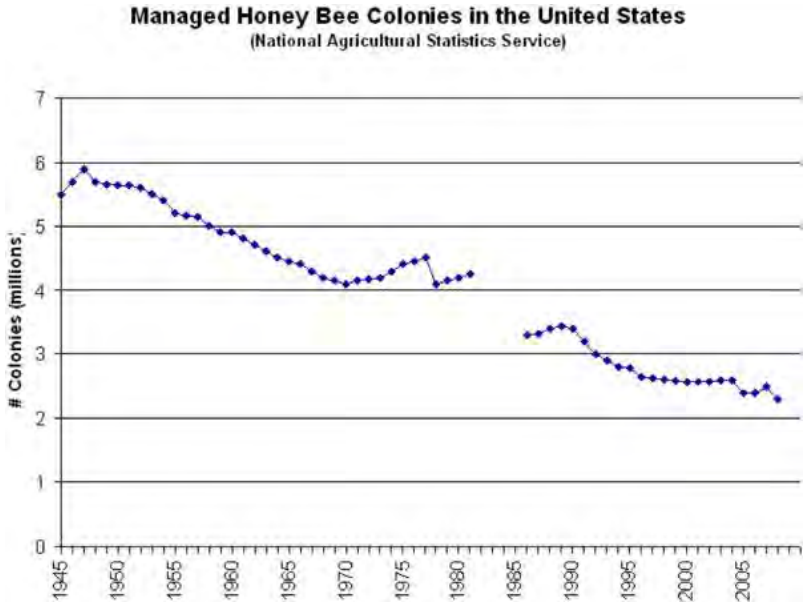
- Wildlife adds beauty and interest
- Gardening promotes the well-being of the gardener!
- Increasing natural habitat can help support biodiversity

# Status of pollinators

- Outside of honey bees and monarch butterflies, not well known
- Managed pollinators have been experiencing higher mortality rates (e.g., colony collapse disorder), but currently that is more of an economic issue than food security



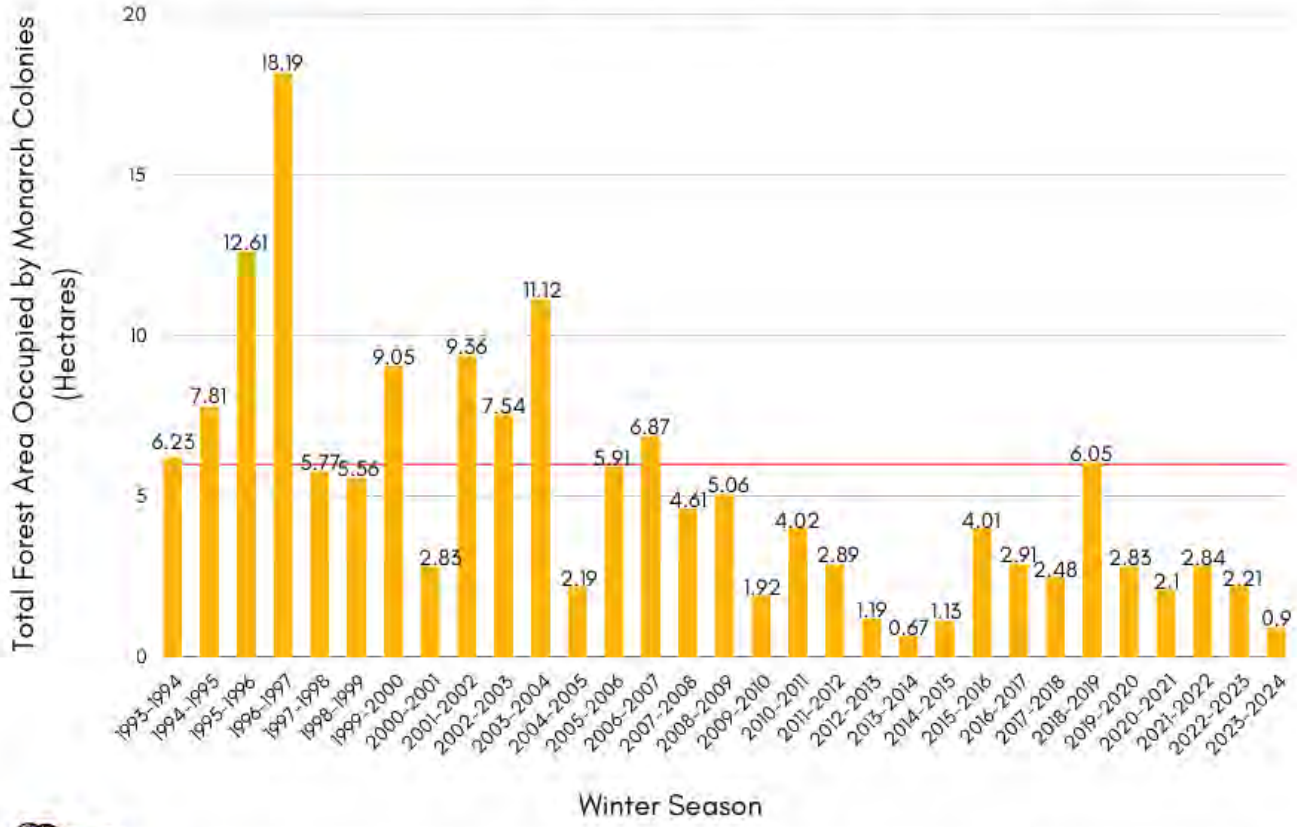

https://phys.org/news/2017-05-survey-honeybee-losses-horrible-bad.html




https://www.apidologie.org/articles/apido/full_html/2010/03/m09140/F1.html

## Total Area Occupied by Monarchs at Overwintering Sites in Mexico

**1993/1994 - 2023/2024**




MONARCH JOINT VENTURE

Scientists estimate that a minimum of 6 hectares of overwintering monarchs is needed to sustain the eastern populations (Semmens et al., 2016)

Data from 1994-2003 were collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Protected Natural Areas (CONANP) in Mexico. Data from 2004-2024 were collected by the WWF-Telcel Alliance, in coordination with the Directorate of the MBBR. 2000-2001 number as reported by Garcia-Serrano et al. in 2004

https://monarchjointventure.org/blog/eastern-monarch-butterfly-population-falls-to-less-than-one-hectare-in-the-2023-2024-overwintering-season

Sunflower leafcutting bee (*Megachile fortis*)

Photo by Sam Droege / USGS Bee Inventory and Monitoring Lab

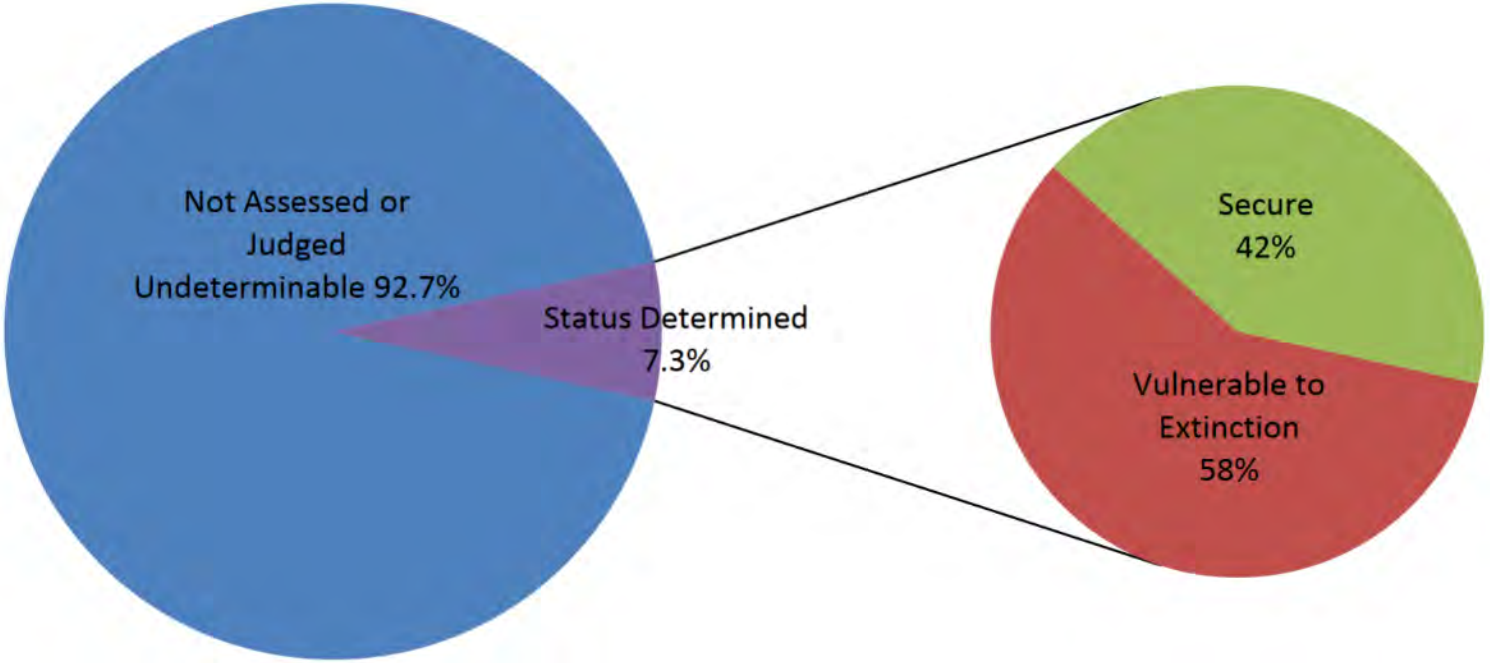
Gulf Coast solitary bee (*Hesperapis oraria*)

Photo by John Bente

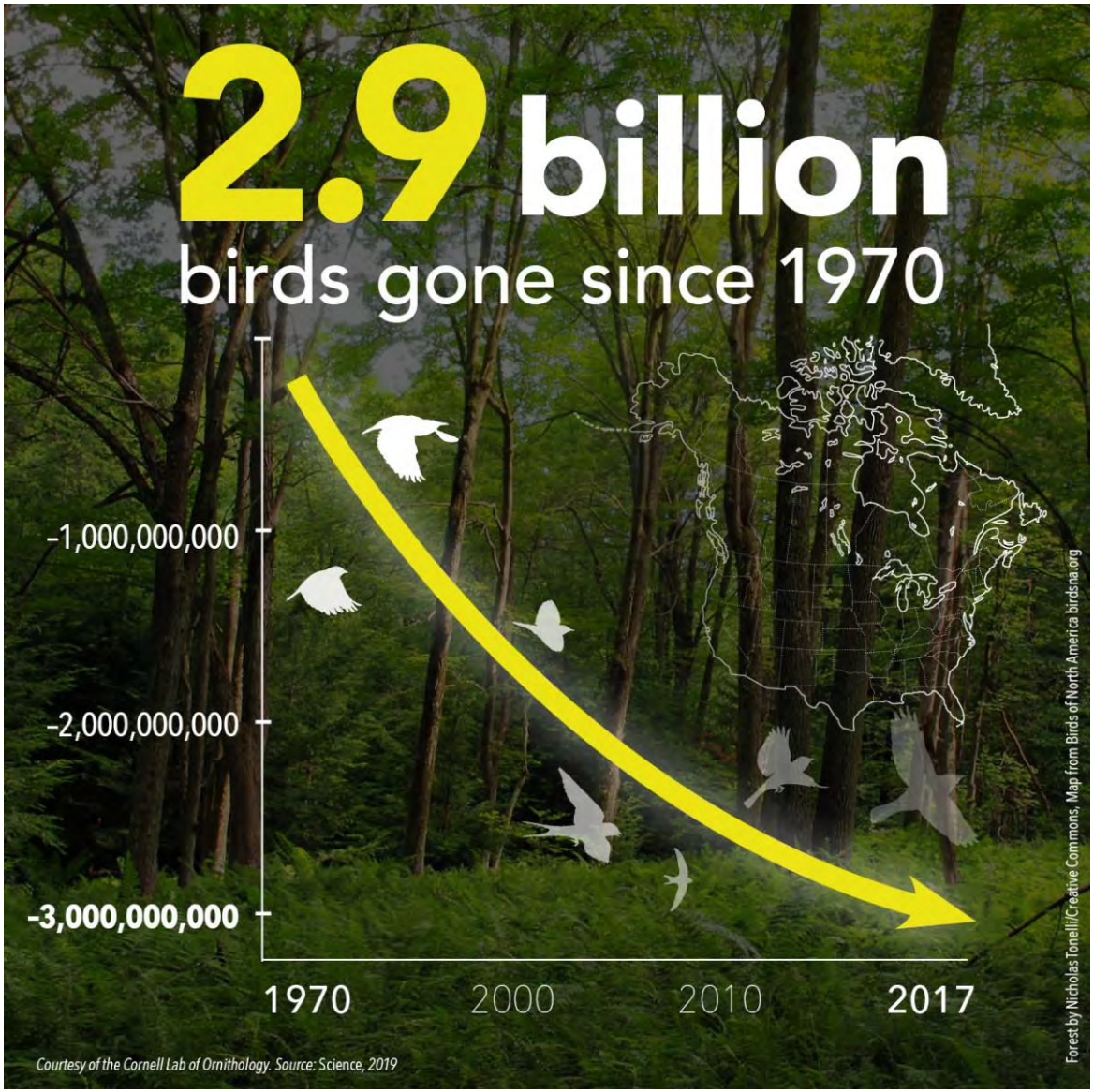
Wild sweet potato bee (*Cemolobus ipomoeae*)

Photo by Sam Droege / USGS Bee Inventory and Monitoring Lab

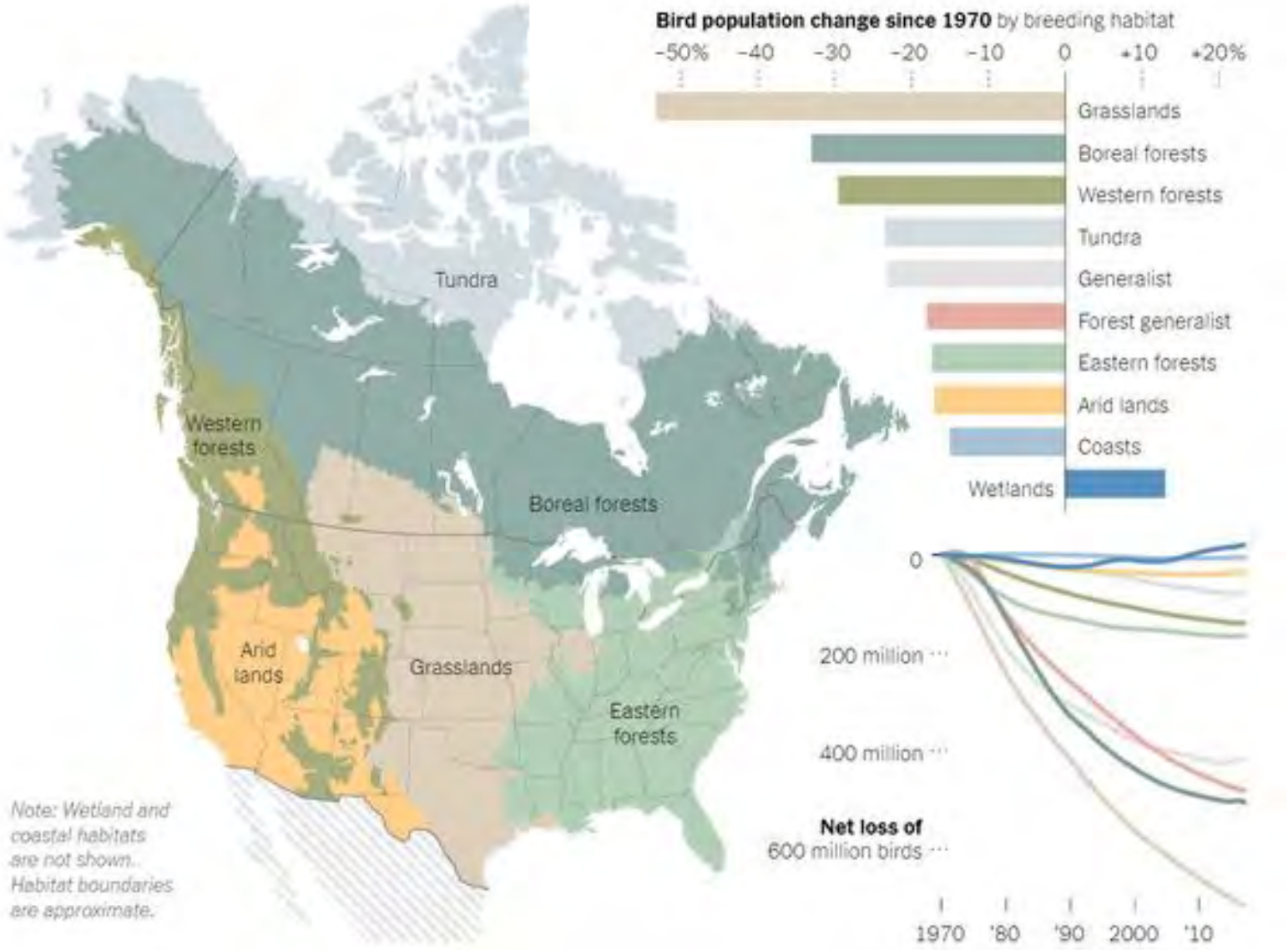
## Figure 1. Conservation Status of 4,337 North American and Hawaiian Native Bees as Reported by Prior Studies




https://www.biologicaldiversity.org/campaigns/native_pollinators/pdfs/Pollinators_in_Peril.pdf



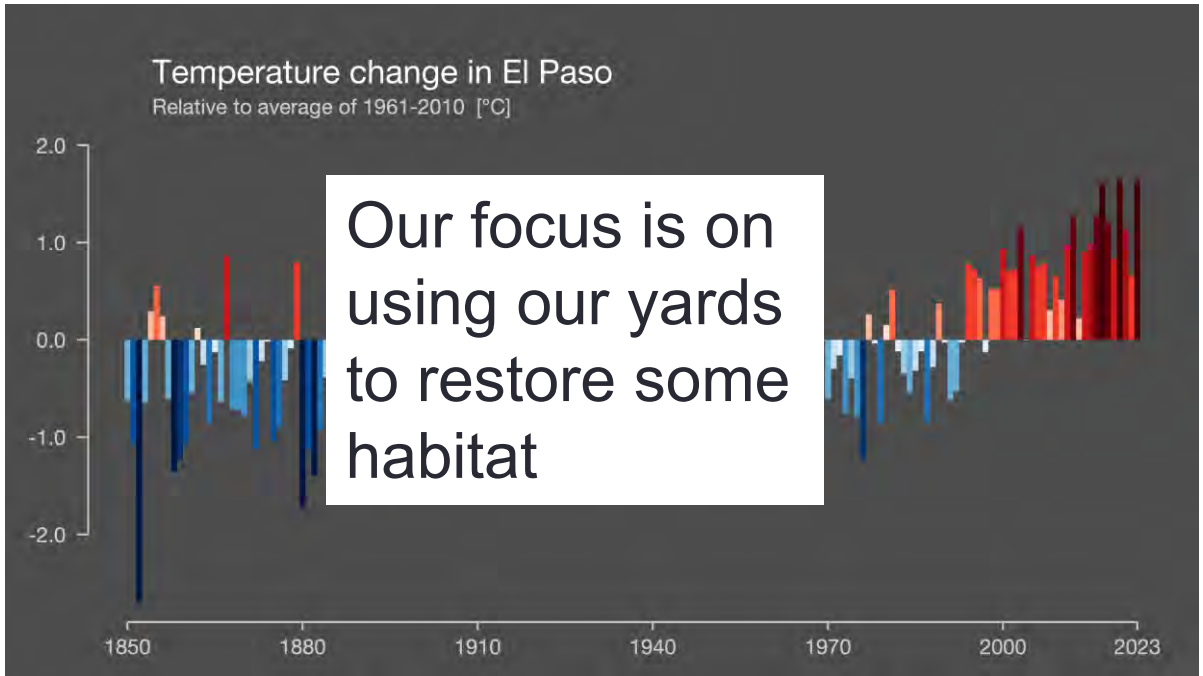

https://news.cornell.edu/stories/2019/09/nearly-30-birds-us-canada-have-vanished-1970




https://www.nytimes.com/2020/01/09/learning/whats-going-on-in-this-graph-north-american-bird-populations.html

# Causes of declines

- Habitat loss
- Climate change
- Pesticides
- Parasites and diseases



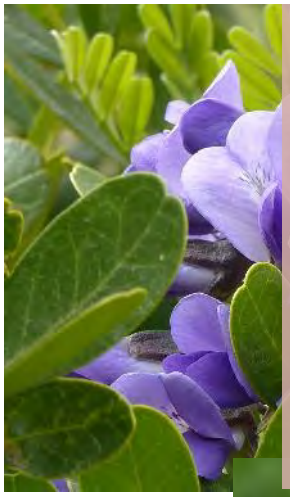

Our focus is on using our yards to restore some habitat

https://projects.propublica.org/killing-the-colorado/story/arizona-cotton-drought-crisis/

# WHAT DOES WILDLIFE NEED?

# Pollinators - Abundant food

- Flowers for nectar and pollen

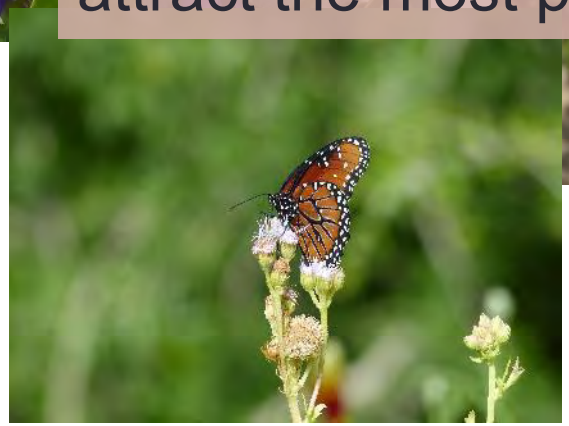


Plant for all seasons

Variety of colors and shapes

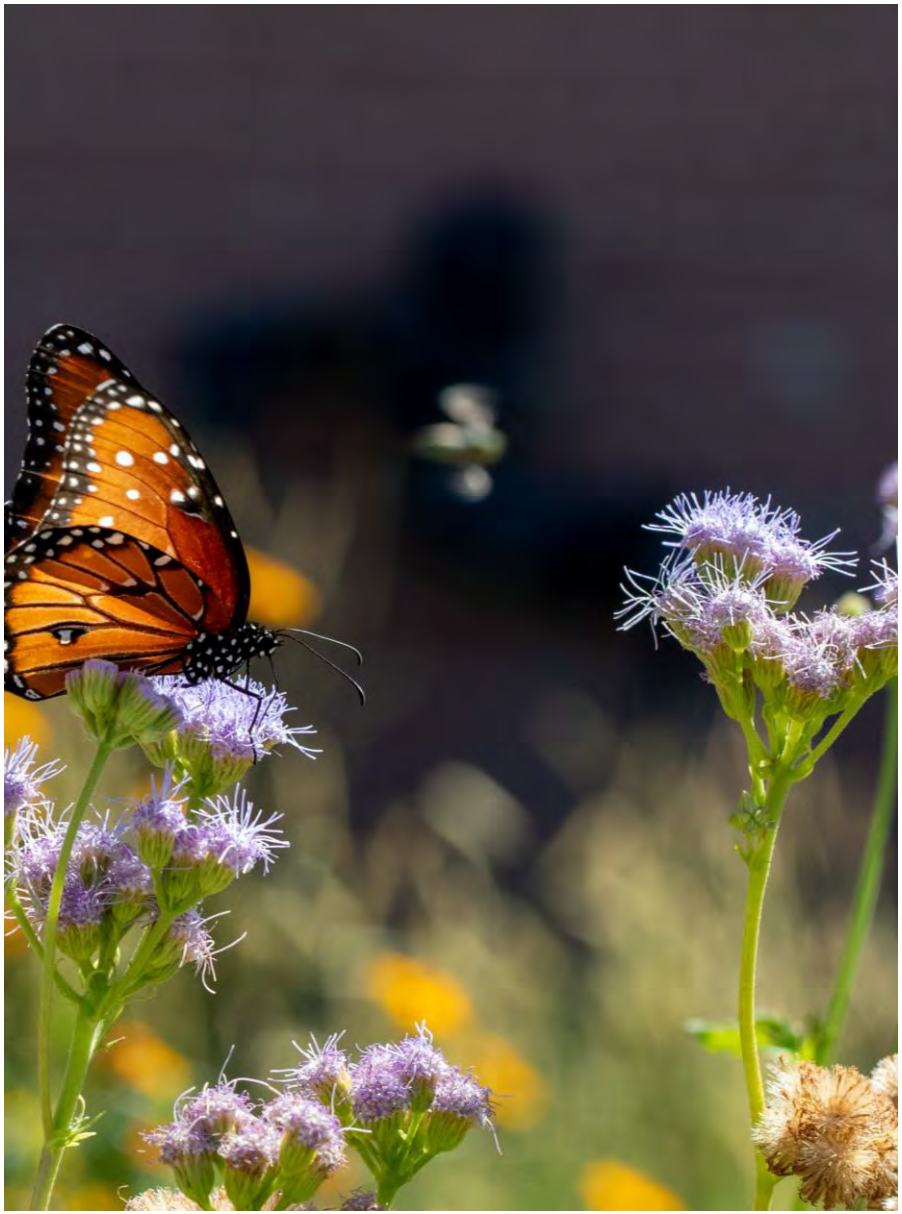
Observe existing gardens to see which flowers attract the most pollinators


http://www.oiseaux-birds.com/card-black-chinned-hummingbird.html



# Abundant food – Butterfly larval host plants

https://fireflyforest.net/firefly/2006/03/07/pipevine-swallowtail/



# Abundant food - Birds

- Seeds and nuts
- Berries and fruit
- Nectar, flowers, and sap
- Insects and spiders
- Other tasty invertebrates

# Seeds and nuts

- Rich in protein and fats
- Many stay on the plant through fall and winter
- **Leave seed heads instead of deadheading**

- Examples: Pines, oaks, mesquites, grasses, sunflowers, saltbush, many others

Birds: Sparrows, finches, buntings, doves, woodpeckers

Images from https://academy.allaboutbirds.org/topic/seeds-and-nuts/

# Bird feeders are typically for seeds

## Black oil sunflowers, Nyjer seed

# Berries and fruit

- High energy foods with fats and sugars
- Often produced in the fall when migrating birds have critical needs

Images from https://wildflower.org

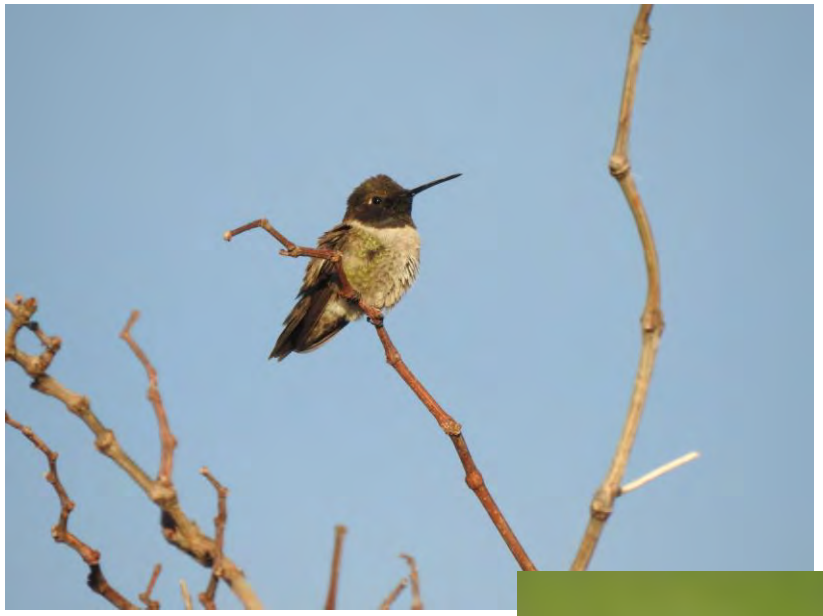
Examples: Hackberry, plums, cactus, Texas persimmon, Texas pistache, palms

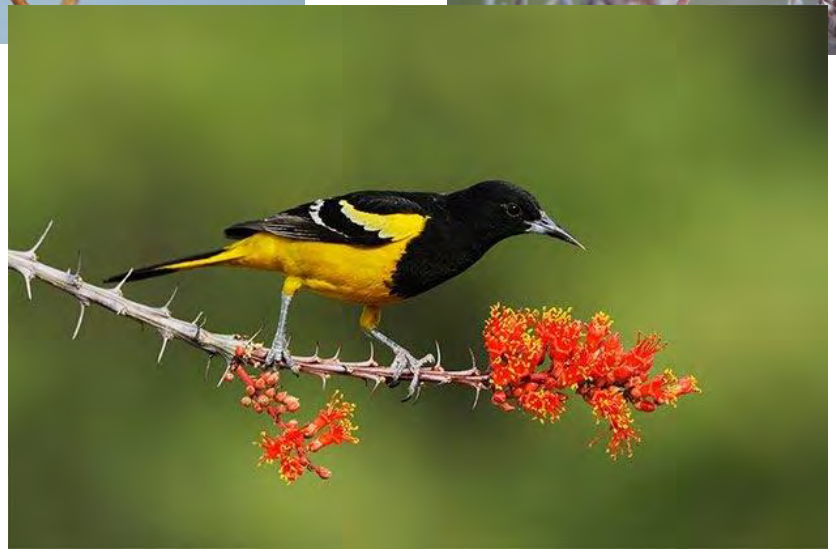
Birds: Tanagers, mockingbirds, robins, doves

# Nectar, flowers, and sap

- Nectar and sap provide lots of sugars
- Some birds eat flower buds

# Examples: Salvias, ocotillo, desert willow, penstemons, Anisacanthus, most plants with tubular flowers





Birds: Hummingbirds, orioles, woodpeckers

Oriole image from https://www.birdsandblooms.com/birding/bird-species/tanagers-and-blackbirds/species-orioles-know/

# Hummingbird feeders

- 1 part white table sugar to 4 parts water
- Heat to dissolve the sugar, cool before using
- Can save in the fridge for a week
- Clean feeders and replace sugar water every couple of days, more often in hot weather

# Insects and spiders

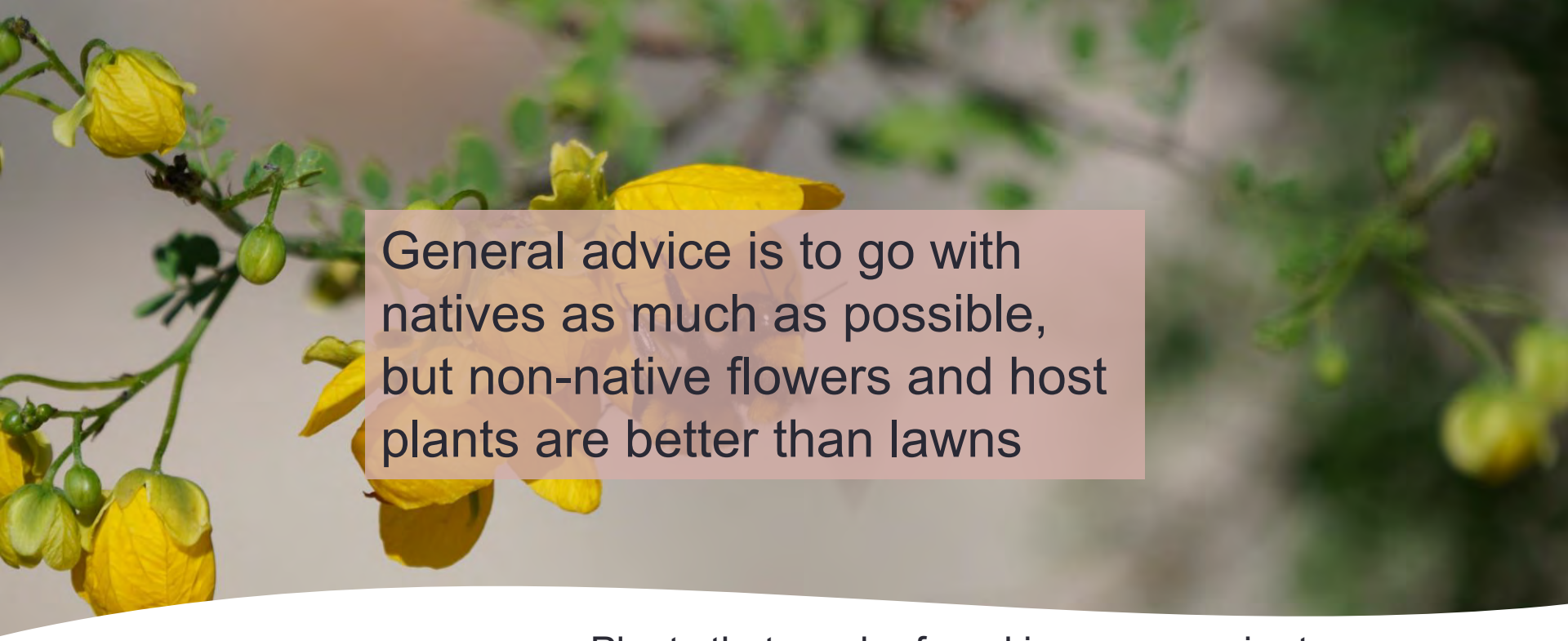
- Almost all songbirds eat insects for at least part of their life
- Especially important for feeding young
- Native plants feed insects, insects feed birds
- A variety of native plants feed a variety of insects, which feed a variety of birds

Examples: Just about any native plant that isn't treated with pesticides, mesquites, oaks, acacias

Birds: Warblers, vireos, flycatchers, hummingbirds, sparrows, lots of others

# Abundant food

- Native or non-native plants?

General advice is to go with natives as much as possible, but non-native flowers and host plants are better than lawns

# Native plants

- Plants that can be found in an area prior to European settlement are generally considered to be native
- They have been in a region long enough to co-evolve with other plants and animals in the area
- These relationships support the ecosystem, including food webs
- Many insects require specific plants for food = “Specialists”

# Places to nest

https://carolinahoneybees.com/build-a-honey-bee-hive/

≠


http://rubyleafdesign.com/2018/03/14/understanding-native-bees/

30% of US native bees nest in wood, 70% in the ground

Lots of native bees only travel 500 m from their nests, so allowing nesting in your yard is critical

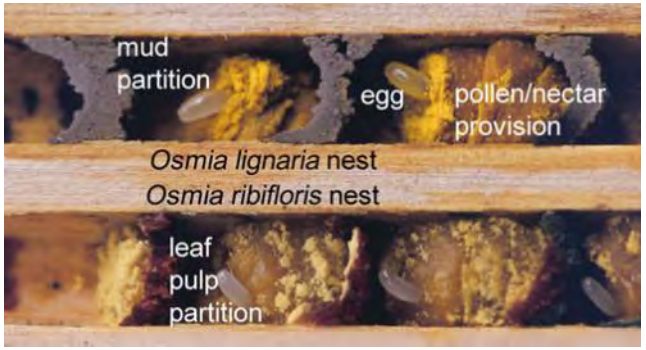
# Places to nest

- Allow places for nesting
  - Bare, undisturbed ground in sunny spots

https://entomology.cals.cornell.edu/extension/wild-pollinators/native-bees-your-backyard/

# Places to nest

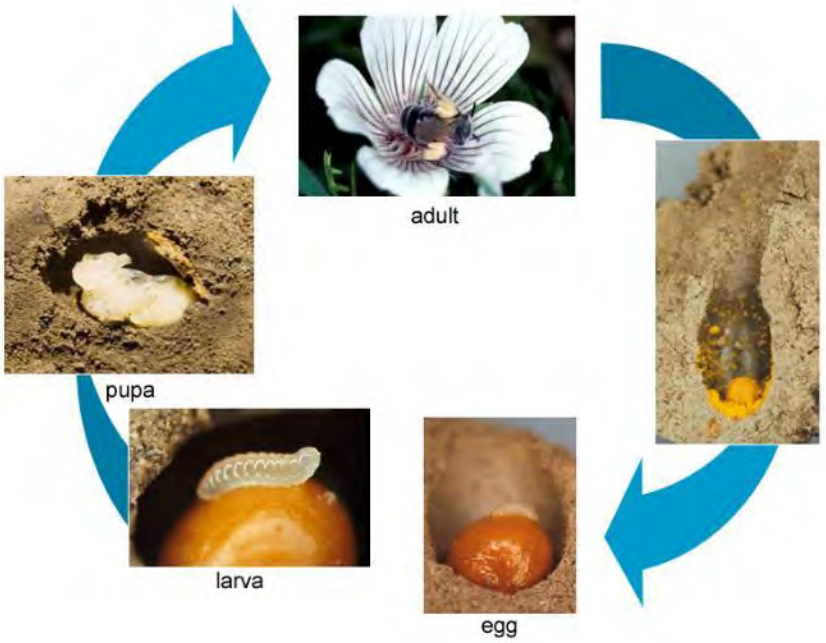
- Leave your garden messy
  - **Don’t cut back grasses, perennials, and leave dead wood**
  - Pile trimmings in the yard in case they contain larva


https://articles.extension.org/pages/22168/the-logan-beemail-shelter

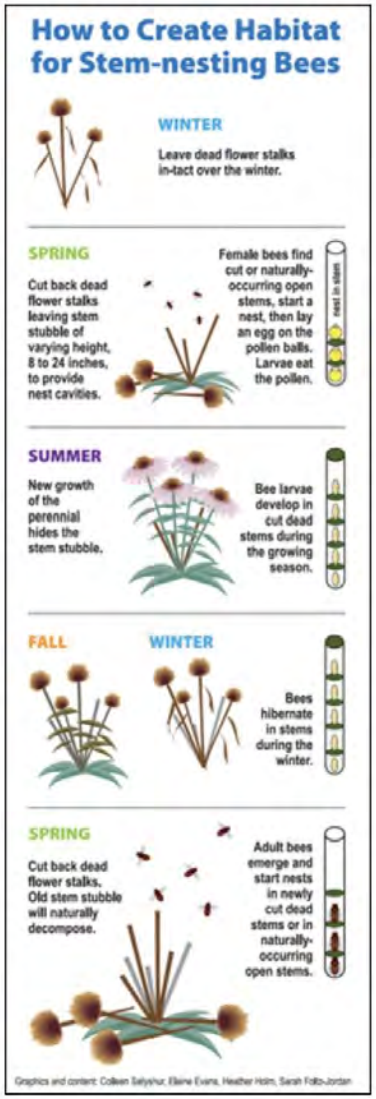
# Places for shelter

- Allow places for hibernation
  - Most native bees and butterflies enter diapause to wait out the winter
  - This could be as egg, larva, pupa, or adult, depending on the species




https://xerces.org/pollinator-conservation/native-bees/

# STEM-NESTING BEES




https://jerichovt.org/backyard-habitat/news_feed/how-to-create-habitat-for-stem-nesting-bees

# Place for shelter

- Bee hotels are only for cavity nesters, and must be cleaned or replaced every year

http://clareloves.co.uk/british-made-homeware/british-made-garden-outdoor-accessories/single-storey-bee-hotel.html

https://www.gardeners.com/how-to/about-mason-bees/8198.html

# Places for shelter

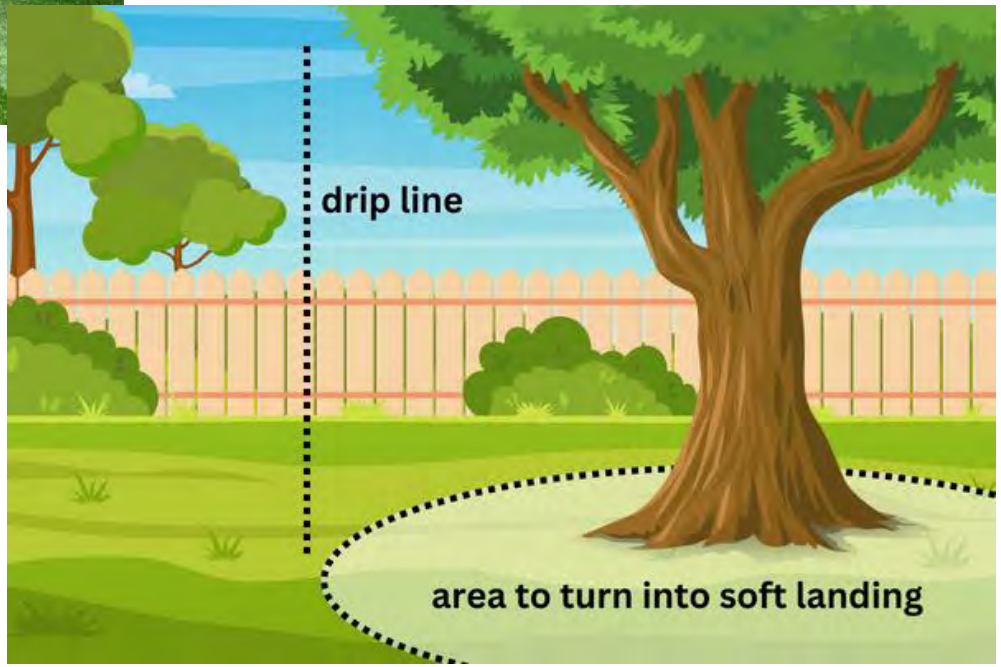
- Butterflies pick places out of the wind, maybe a rock crevice or tall clump of grass


https://www.pexels.com/photo/butterflies-butterfly-grass-mothernature-452540/

https://www.azplantlady.com/category/landscape-design

# Soft landings

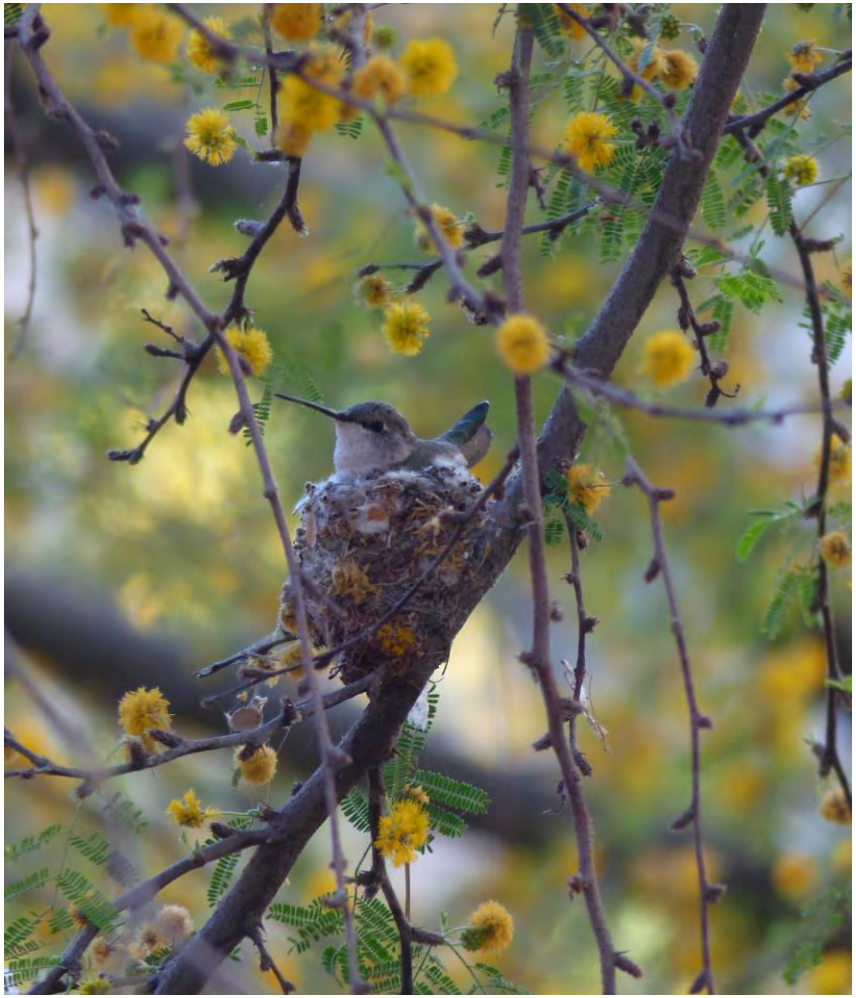

https://grasspad.com/how-to-keep-grass-growing-under-trees/




https://www.yourleaf.org/blog/justin-lewis/mar-06-2024/enhancing-biodiversity-soft-landings


https://xerces.org/blog/leave-the-leaves

# Birds - Shelter and nesting spots



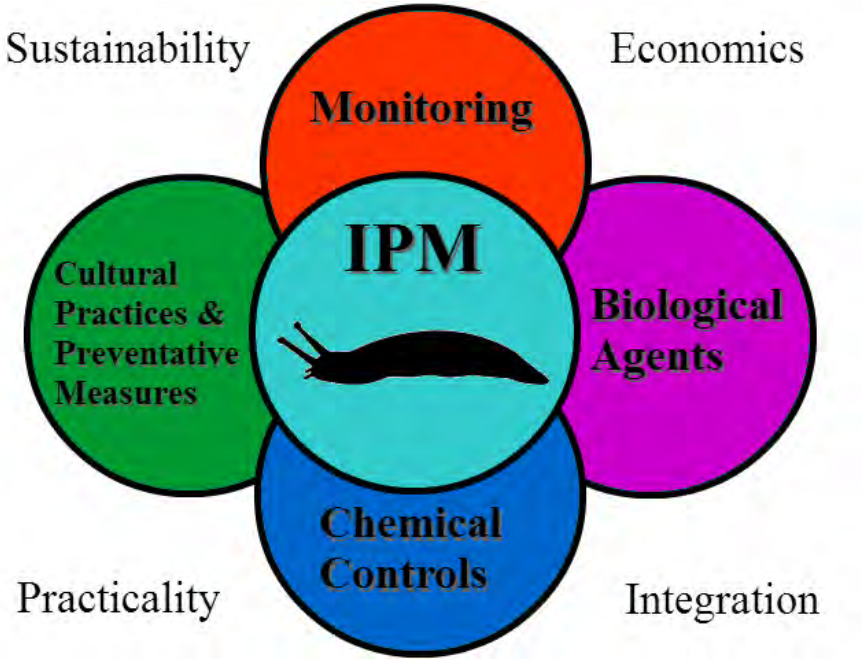
- Branches and foliage protect birds from predators, rain, and wind
- Nesting sites can be on the ground, in trees, in cavities, or under ledges
- In general, trees and shrubs provide the best cover

- Nesting materials include dried grass, twigs, moss, spider webs, and animal fur
- Don’t provide yarn or string, dryer lint, or pet fur from animals treated with anti-flea and tick chemicals
- Around here bird houses are probably not worth the effort
  - Must be carefully designed not to support invasive species and be cleaned annually

https://academy.allaboutbirds.org/topic/shelter-and-nesting-spots/

# A safe environment

- Insecticides kill insects, herbicides kill insect food
- Utilize integrated pest management (IPM) to minimize use of pesticides



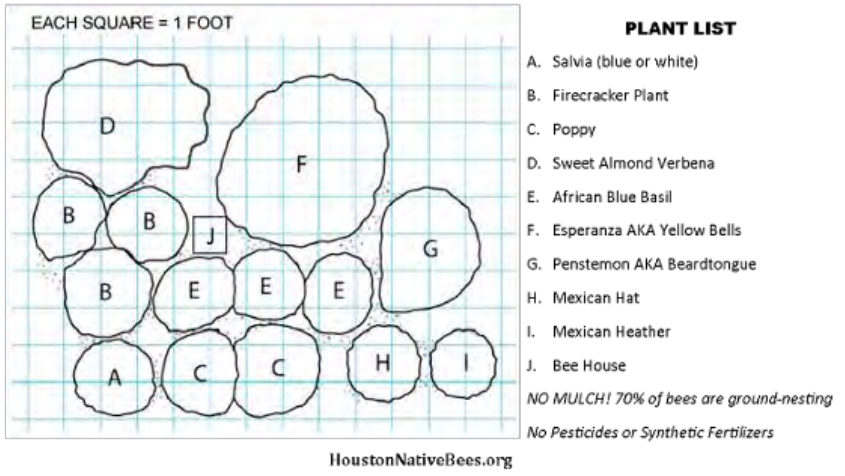

https://agsci.oregonstate.edu/slug-portal/integrated-pest-management-ipm-strategy

# A safe environment

- Monitor your yard to head off any problems
- Identify pests
- Biological control – beneficial insects, birds
- Cultural control – the right plant in the right location, healthy
- Physical control – floating row covers, hand removal
- Chemical control – minimize use, follow the label
- A functioning and diverse ecosystem tends to have fewer problems!

# Putting it all together

- Consider your entire yard as an ecosystem, and provide for pollinators at all stages
  - Flower beds flowing into each other, containing variety of plant forms
  - Embrace the messy, at least in a part of the yard
  - Leave some bare ground
  - Practice IPM


https://www.houstonnativebees.org/learn/bee-habitats/

# Putting it all together

Start a new HABITAT™
HOMEGROWN NATIONAL PARK™

"Our National Parks, no matter how grand in scale, are too small and separated from one another to preserve (native) species to the levels needed. Thus, the concept for Homegrown National Park, a bottom-up call-to-action to restore habitat where we live and work, and to a lesser extent where we farm and graze, extending national parks to our yards and communities." – *Doug Tallamy*

# Putting it all together

- Enjoy!  A garden full of animal activity is a joy to be in







# Where to get native plants?

# Good resources

- Xerces Society: www.xerces.org
- Monarch Watch: www.monarchwatch.org
- Ladybird Johnson Wildflower Center: www.wildflower.org
- Pollinator Partnership: www.pollinator.org

My email: kwfloyd@utep.edu