



GARDENING FOR WILDLIFE

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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

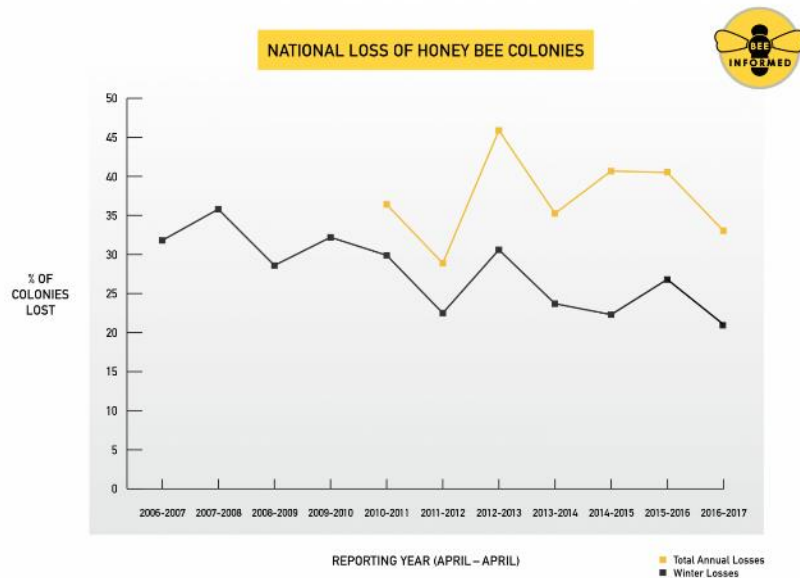
Why garden for wildlife?



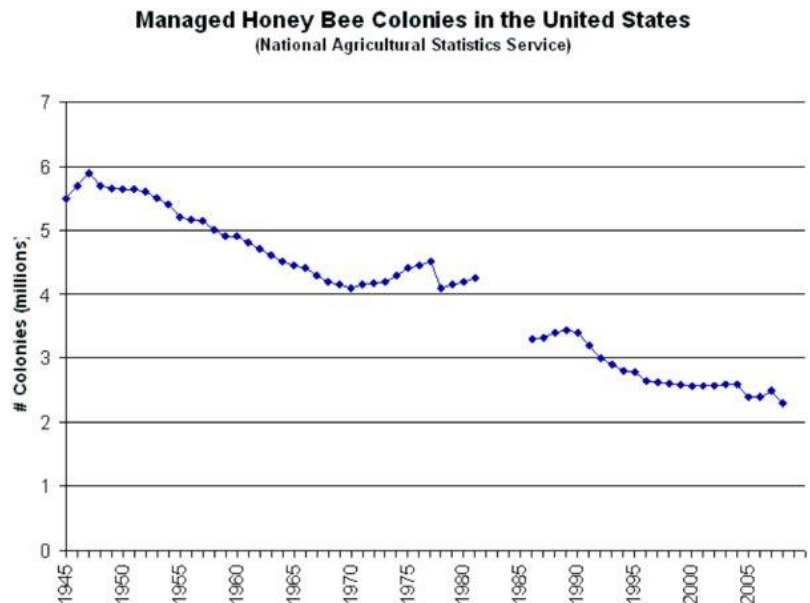
- Wildlife adds beauty and interest
- Gardening promotes the well-being of the gardener!
- Increasing natural habitat can help support biodiversity

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



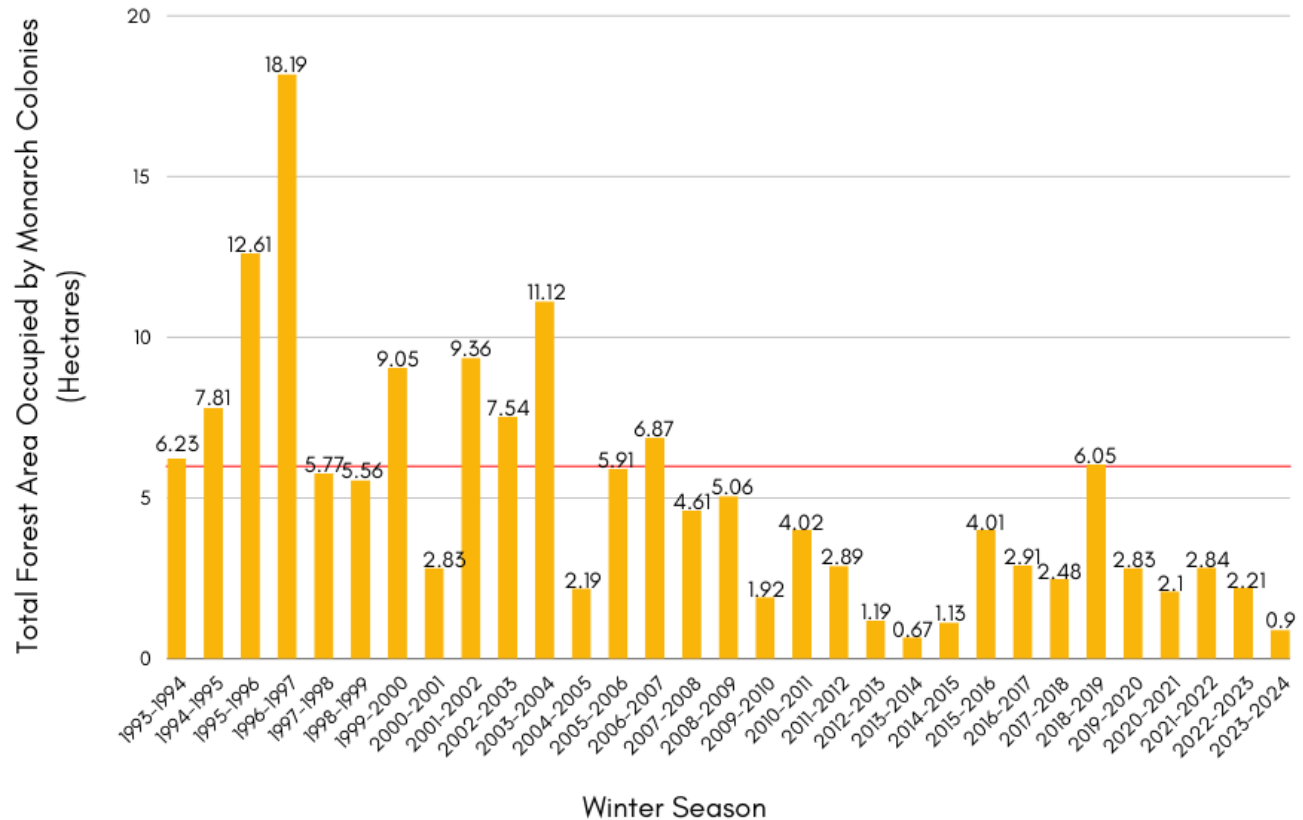
<https://phys.org/news/2017-05-survey-honeybee-losses-horrible-bad.html>



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



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

Sunflower leafcutting bee (*Megachile fortis*)



Photo by Sam Droege / USGS Bee Inventory and Monitoring Lab

Gulf Coast solitary bee (*Hesperapis oraria*)



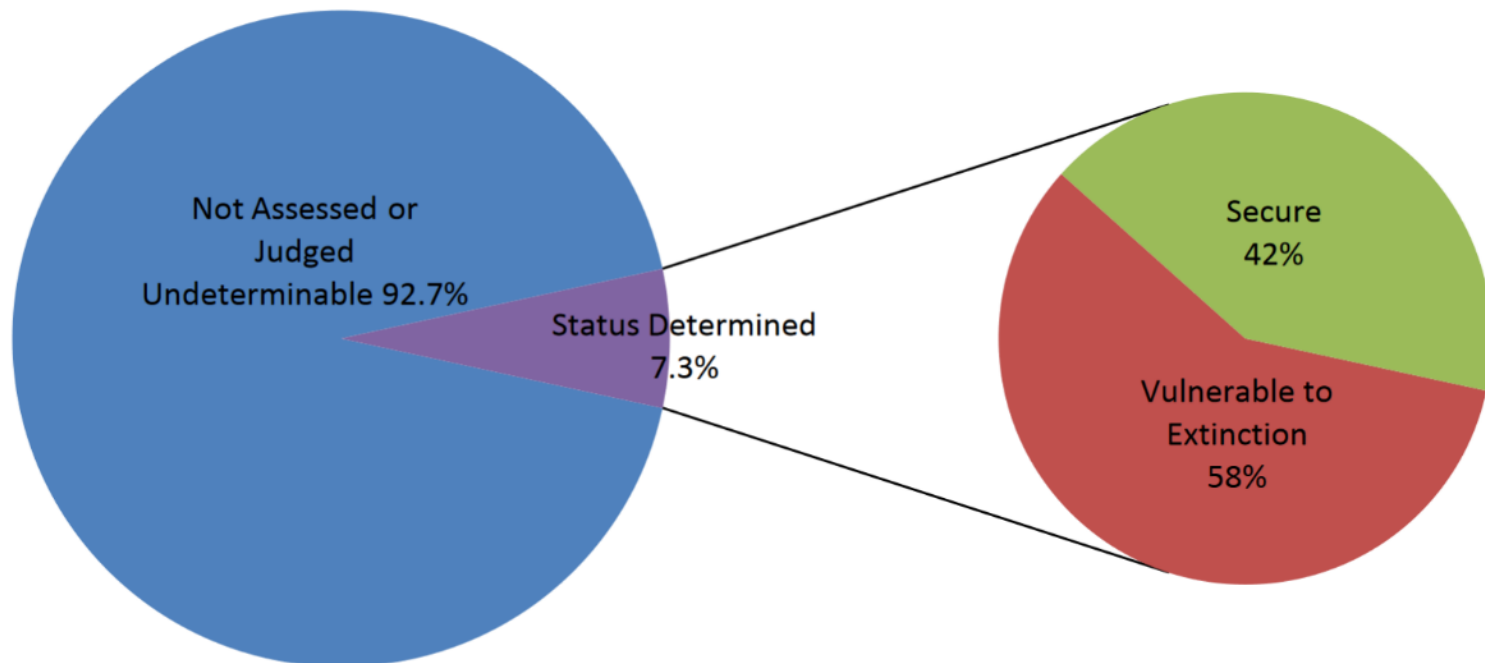
Photo by John Bente

Wild sweet potato bee (*Cemolobus ipomoeae*)

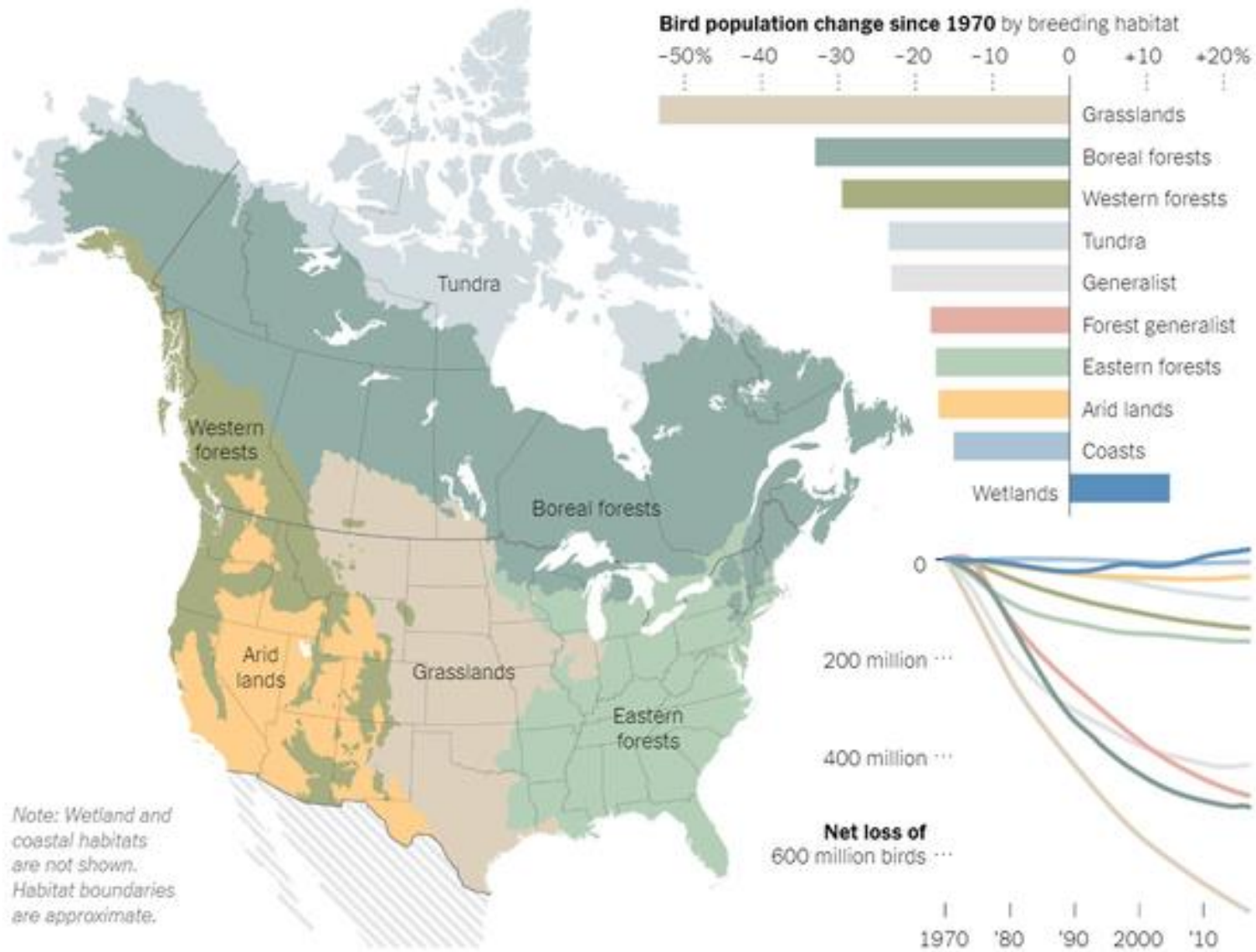


Photo by Sam Droege / USGS Bee Inventory and Monitoring Lab

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

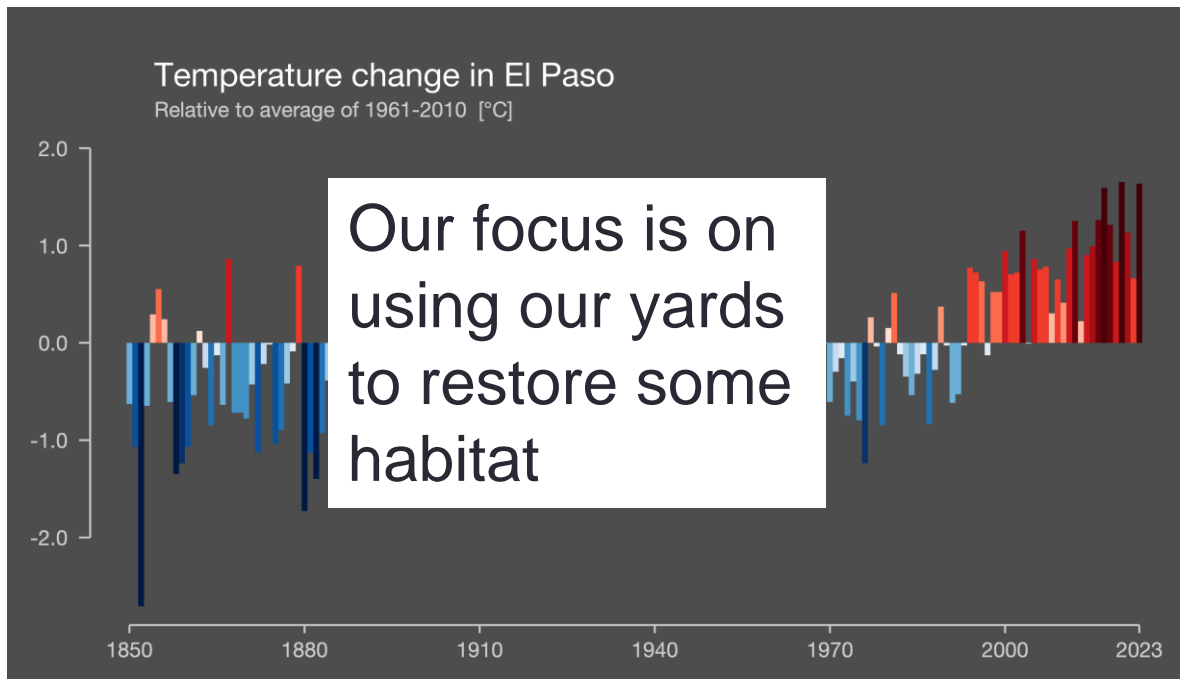






Causes of declines

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



<https://project.s.propublica.org/killing-the-colorado/story/arizona-cotton-drought-crisis/>

WHAT DOES WILDLIFE
NEED?

Pollinators - Abundant food

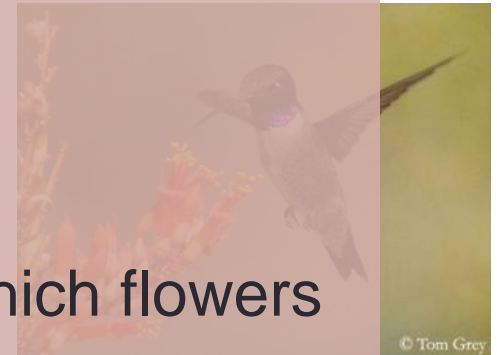
- Flowers for nectar and pollen



Plant for all seasons

Variety of colors and shapes

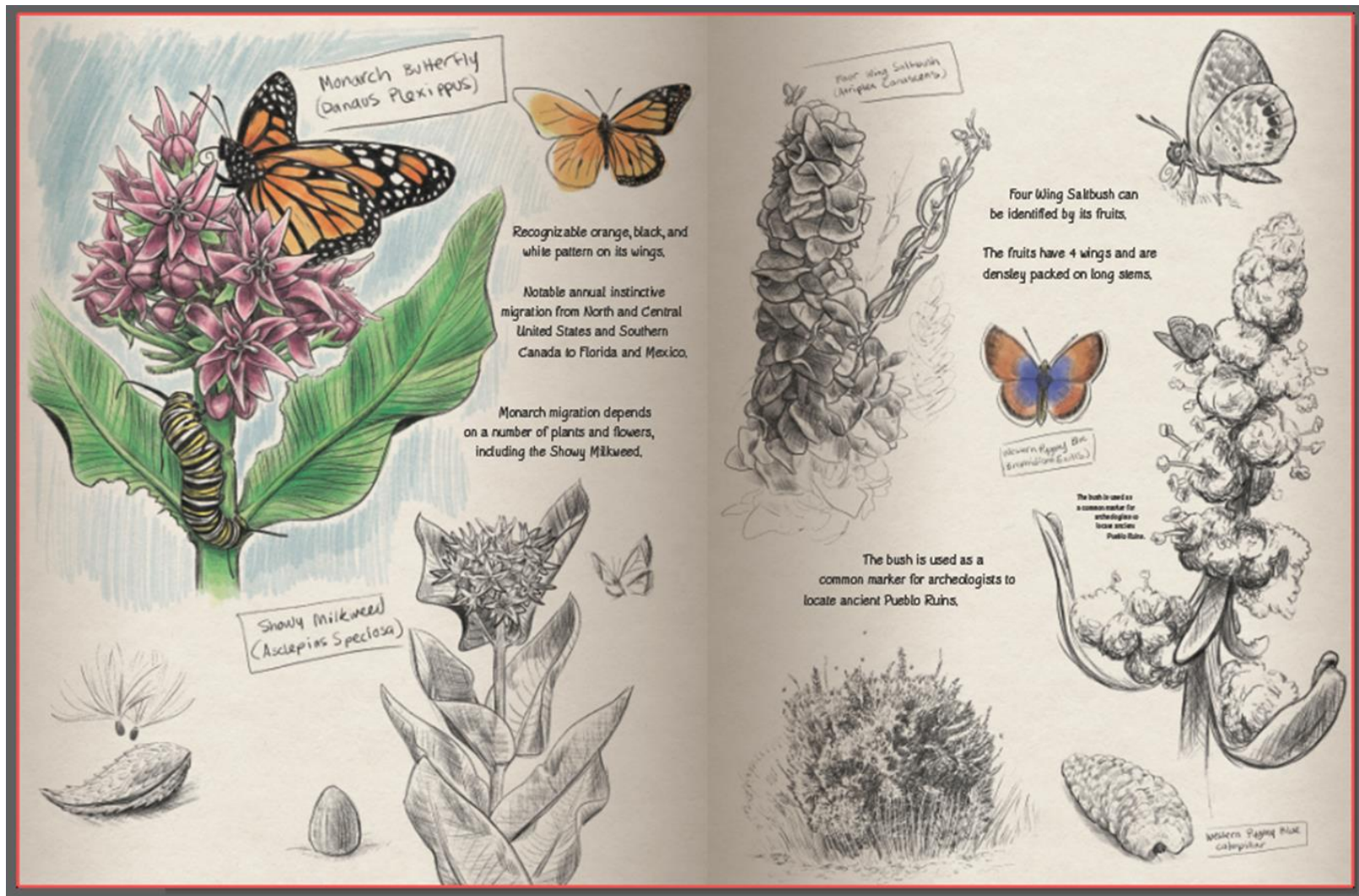
Observe existing gardens to see which flowers attract the most pollinators



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

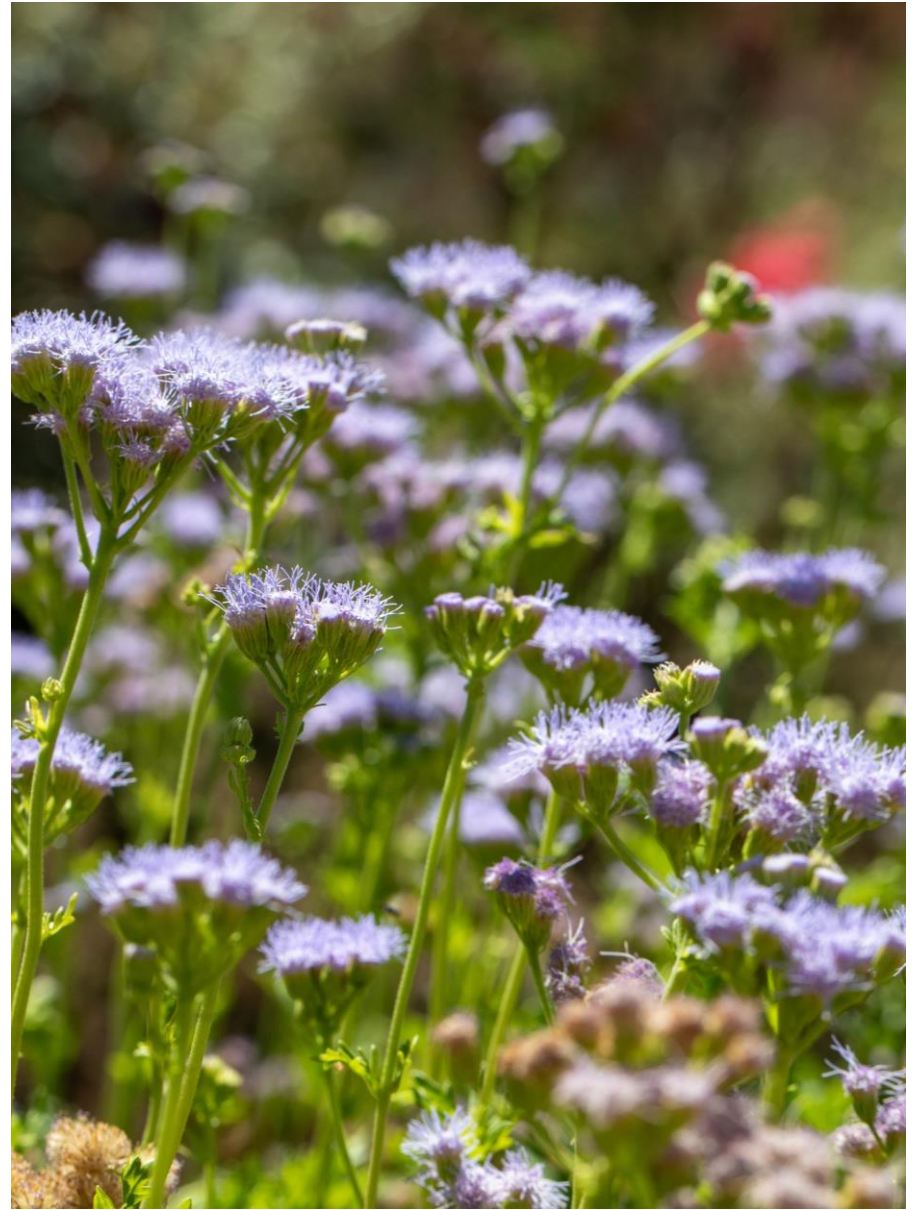
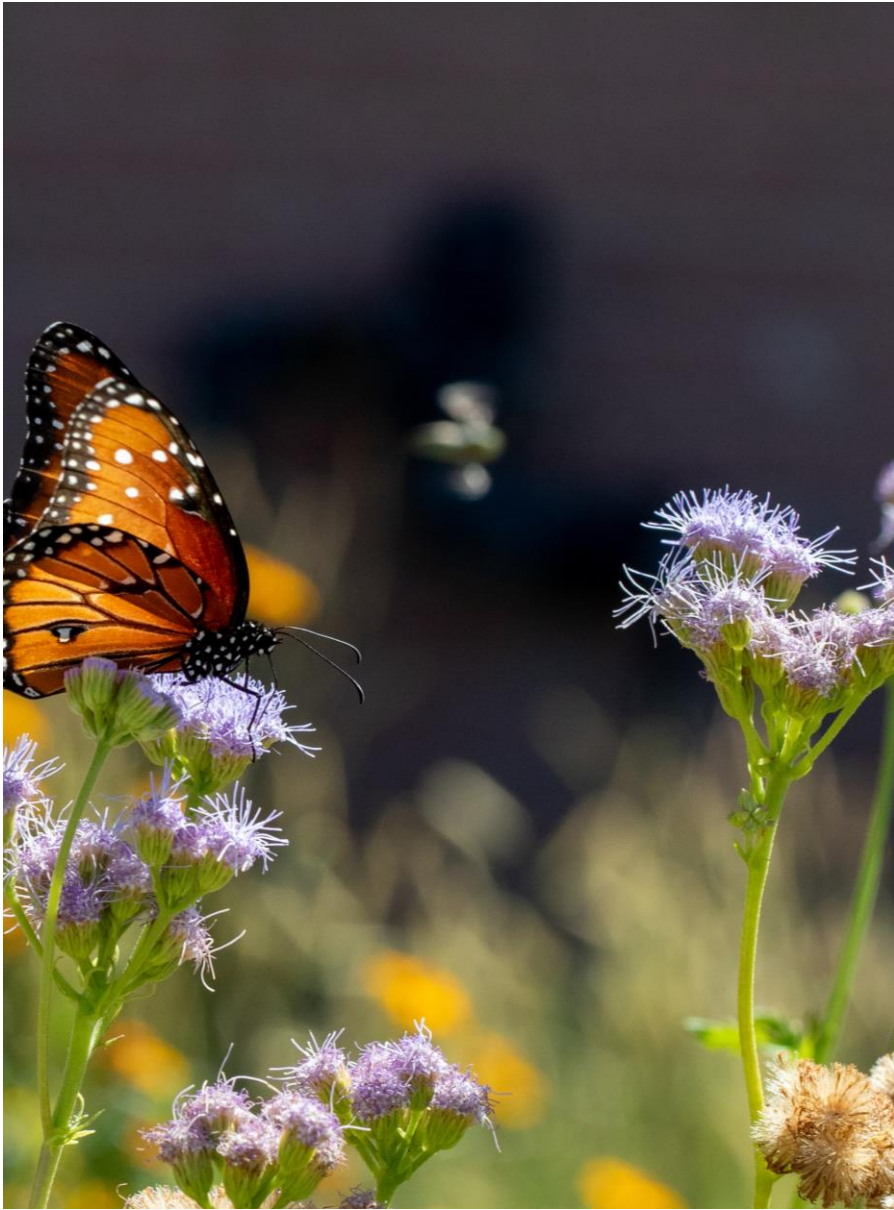


Abundant food – Butterfly larval host plants





<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



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

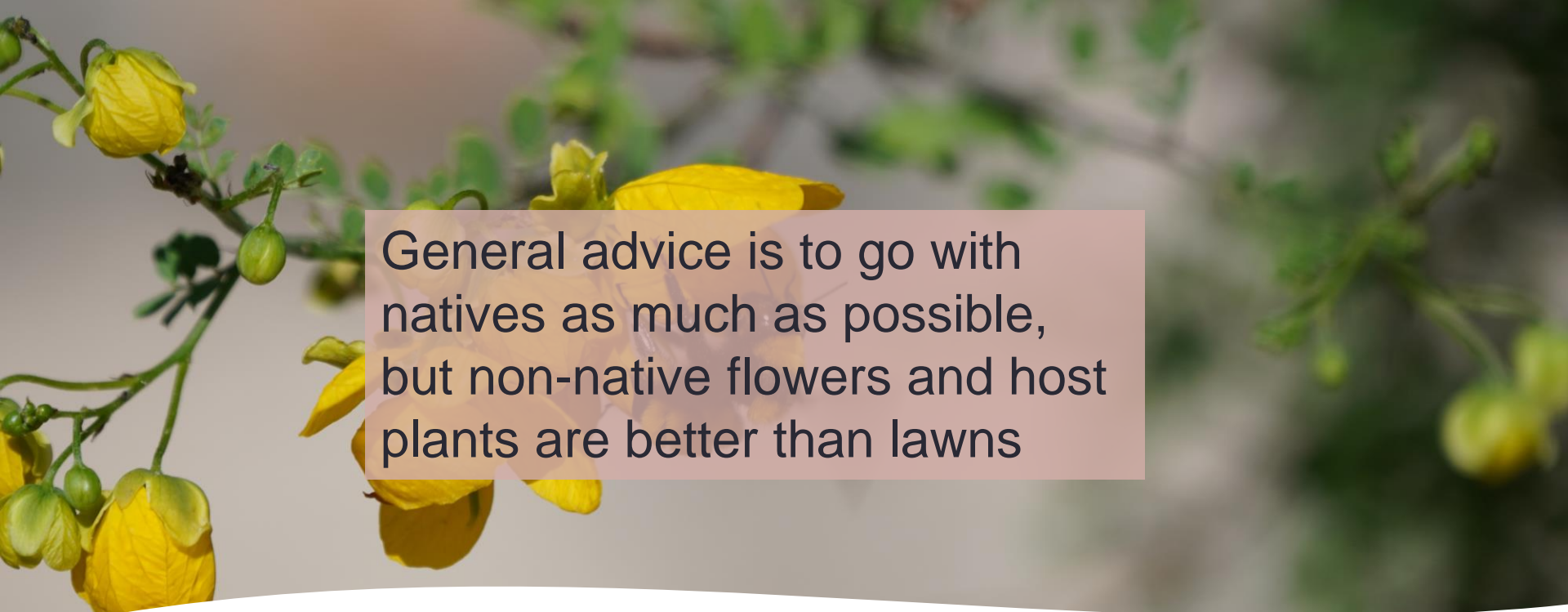
Abundant food

- Native or non-native plants?



www.shutterstock.com · 599797430



A close-up photograph of a plant with bright yellow, papilionaceous flowers and green, trifoliate leaves. The background is softly blurred, showing more of the same plant and some green foliage.

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

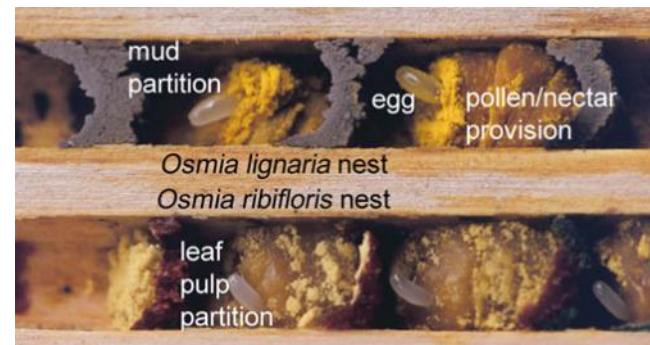
Places to nest

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



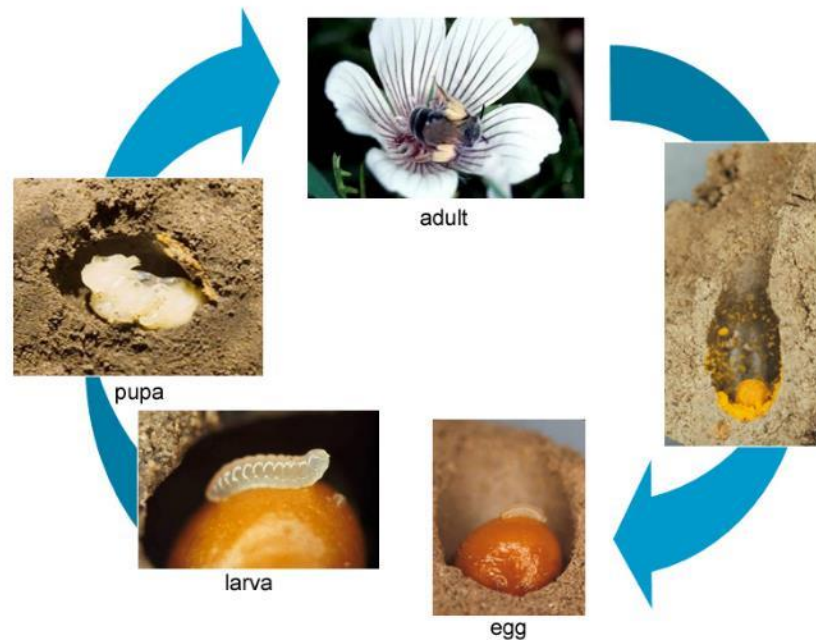
Places to nest

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



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



STEM-NESTING BEES

How to Create Habitat for Stem-nesting Bees



WINTER

Leave dead flower stalks in-tact over the winter.

SPRING

Cut back dead flower stalks leaving stem stubble of varying height, 8 to 24 inches, to provide nest cavities.



Female bees find cut or naturally-occurring open stems, start a nest, then lay an egg on the pollen balls. Larvae eat the pollen.



SUMMER

New growth of the perennial hides the stem stubble.



Bee larvae develop in cut dead stems during the growing season.



FALL



WINTER

Bees hibernate in stems during the winter.



SPRING

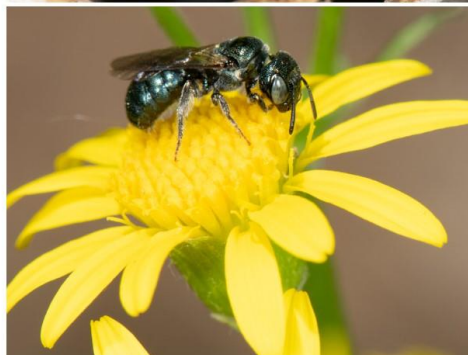
Cut back dead flower stalks. Old stem stubble will naturally decompose.



Adult bees emerge and start nests in newly cut dead stems or in naturally-occurring open stems.



Graphics and content: Colleen Salyshur, Elaine Evans, Heather Holm, Sarah Folz-Jordan



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

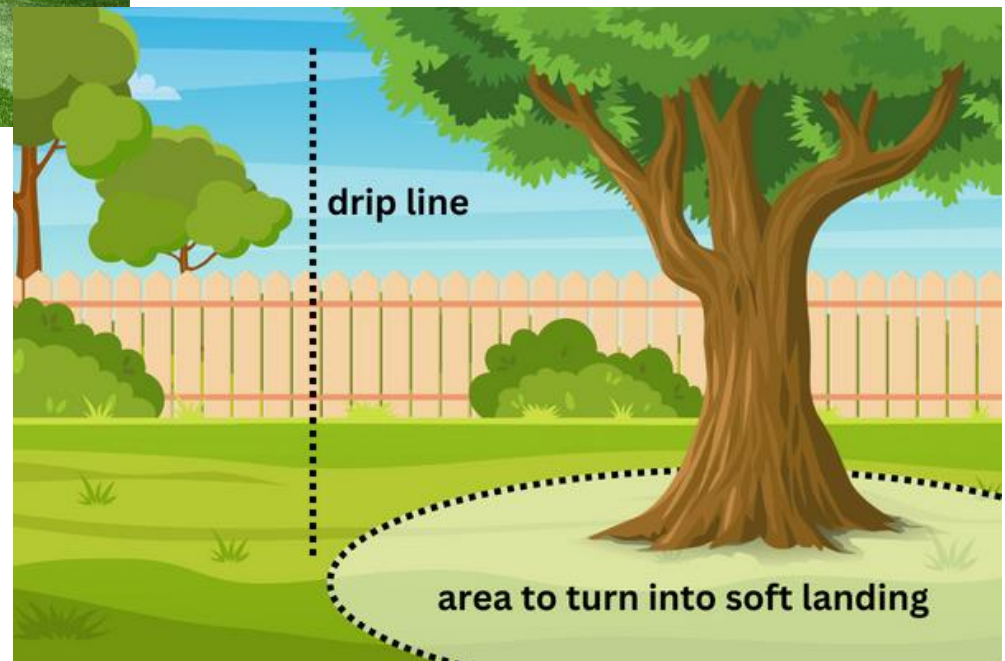


Soft landings



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

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



LEAVES ARE NOT LITTER

THEY 'RE FOOD AND SHELTER FOR
BUTTERFLIES, BEETLES, BEES, MOTHS, AND MORE.
TELL FRIENDS AND NEIGHBORS TO JUST

#LEAVETHELEAVES



xerces.org

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

Birds - Shelter and nesting spots



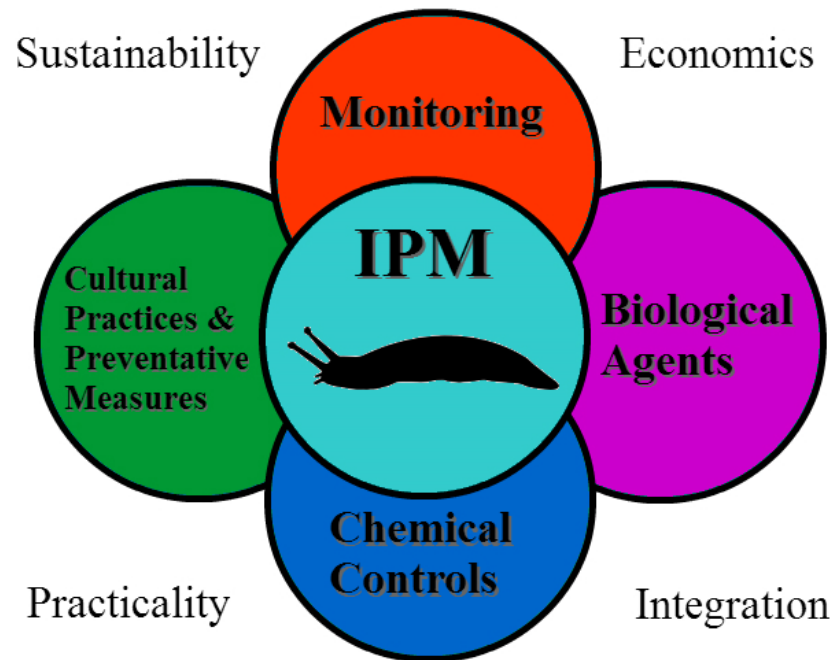
- Branches and foliage protect birds from predators, rain, and wind
- Nesting sites can be on the ground, in trees, in cavities, or under ledges
- In general, trees and shrubs provide the best cover

- 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



A safe environment

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

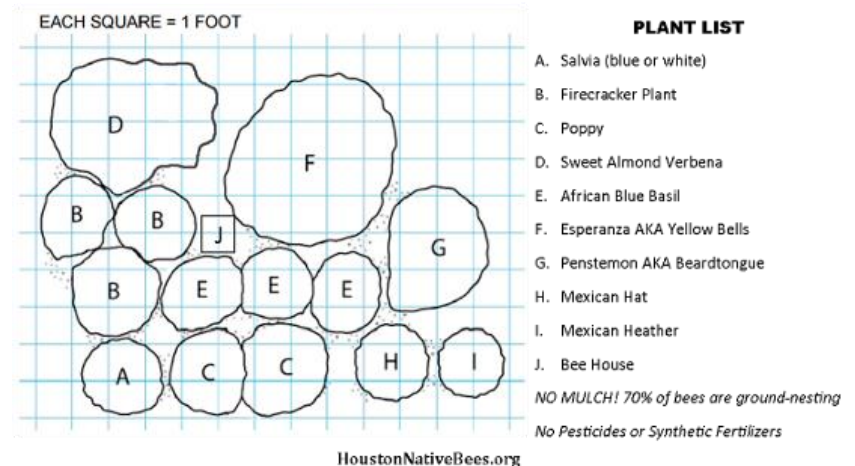


A safe environment

- 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!

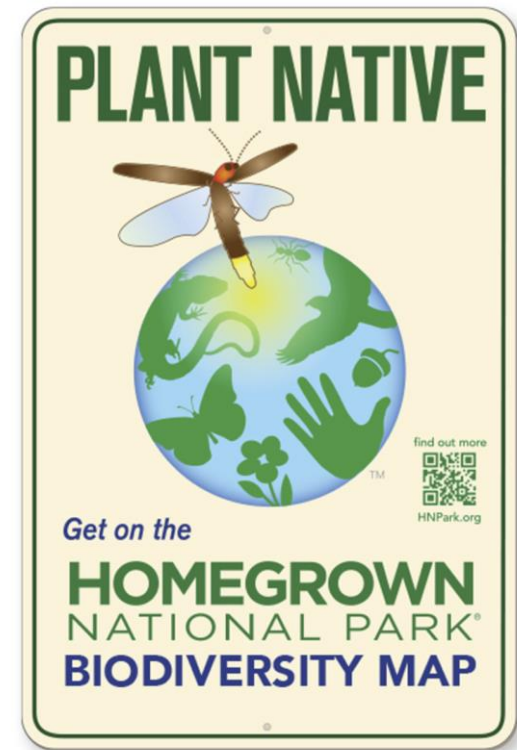
Putting it all together

- 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



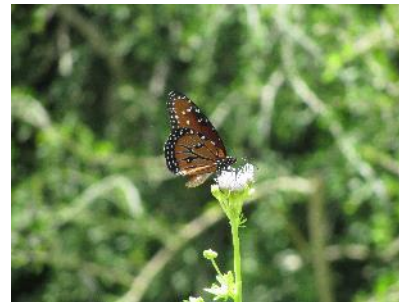
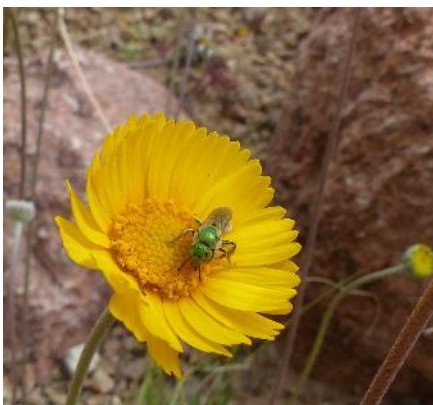
Putting it all together

“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



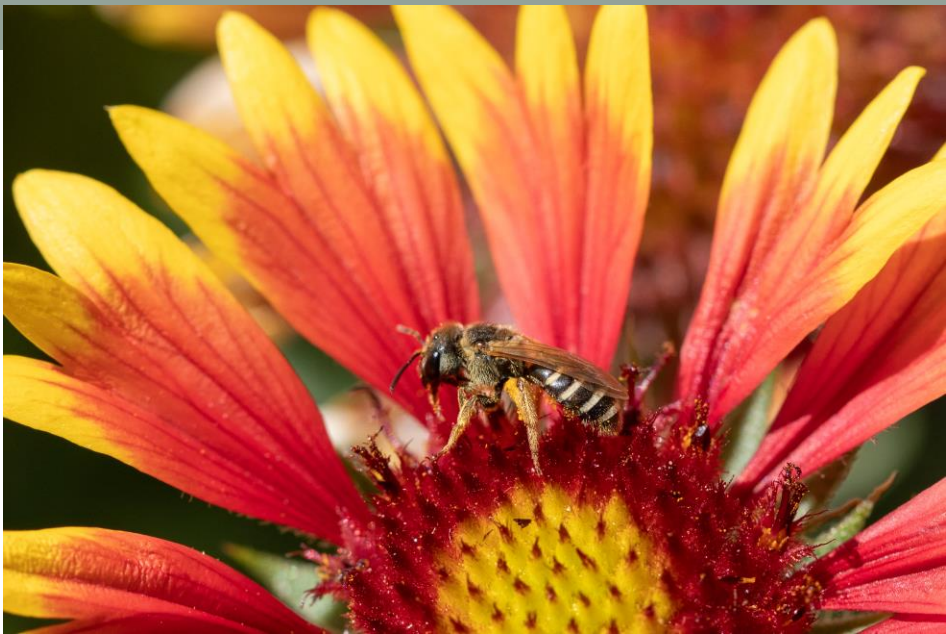
Where to get native plants?



Good resources

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





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