



# SUSTAINABLE LANDSCAPES THAT BENEFIT WILDLIFE AND PEOPLE

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**Mary Phillips**

National Wildlife Federation  
Garden for Wildlife™ and Certified Wildlife  
HabitatCEUS - AIA | LEED | BPI

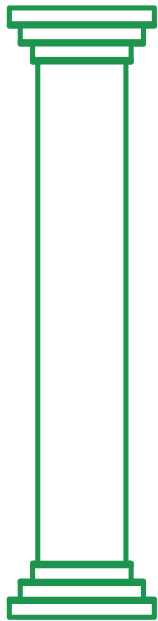


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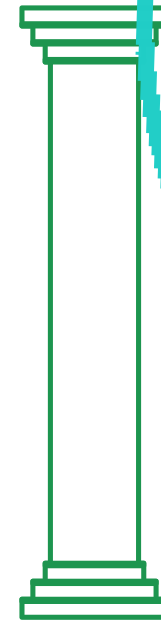
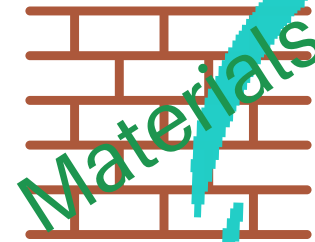
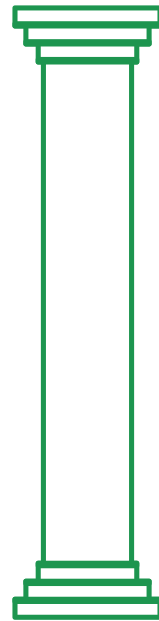
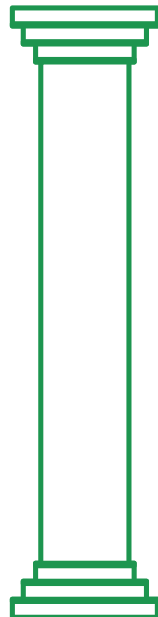


# 5 pillars of Green Building

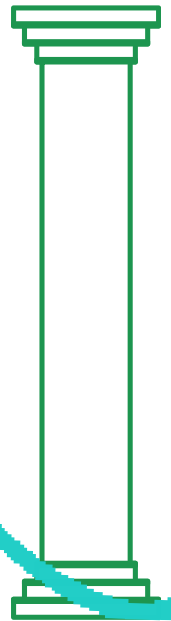
Water



Health



Place







LEED BD+C: Homes • v4 - LEED v4

## Innovation: certified wildlife habitat

Innovation catalog

Possible 1 Points

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### **Intent**

To provide habitat and promote biodiversity.

### **Requirements**

For at least 50% of the project's landscape area, create wildlife habitat that achieves certification under [National Wildlife Federation's Certified Wildlife Habitat](#).

#### **Documentation:**

1. Site Plan
2. Certified Wildlife Habitat certificate

[https://www.usgbc.org/credits/homes-mid-rise/v4/homes-id-credit?  
view=language&return=/credits/Homes/v4](https://www.usgbc.org/credits/homes-mid-rise/v4/homes-id-credit?view=language&return=/credits/Homes/v4)



LEED BD+C: Homes

v4 - LEED v4

## GETTING STARTED

Type to search



## CREDIT CATEGORY

- ☐ Integrative Process
- ☐ Location and Transportation
- ☒ Sustainable Sites
- ☐ Water Efficiency
- ☐ Energy and Atmosphere
- ☐ Materials and Resources
- ☐ Indoor Environmental Quality
- ☐ Innovation
- ☐ Regional Priority

Category: Sustainable sites X

5 credits

**Construction activity pollution prevention**

Prerequisite | Required

Sustainable sites

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**No invasive plants**

Prerequisite | Required

Sustainable sites

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**Heat island reduction**

Sustainable sites

Up to 2 points

LEED BD+C: Homes • V4 - LEED V4

**Rainwater management**

Sustainable sites

Up to 3 points

LEED BD+C: Homes • V4 - LEED V4

**Nontoxic pest control**

Sustainable sites

Up to 2 points

LEED BD+C: Homes • V4 - LEED V4







# Outdoor water use

Water Efficiency

Possible 4 Points

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## Intent

To reduce outdoor water consumption through efficient landscaping practices.

## Requirements

Reduce the landscape area planted to turf grass by landscaping with plants that are native or adapted to the region. Points are awarded according to Table 1.

**Table 1. Points for reducing turf grass and increasing native plantings, as percentage of total landscape area**

Turf grass area		Native or adapted plant area	Points
< 60%	and	> 25%	1
< 40%	and	> 50%	2
< 20%	and	> 75%	3
< 5%	and	> 75%	4





# Total water use

Water Efficiency

Possible 12 Points

- Language
- Guide
- Addenda
- Resources and tips
- Courses
- Forum

## Intent

To reduce demand for water through high-efficiency fixtures and efficient landscaping



Table 2. Points for reducing indoor and outdoor water use

Percentage reduction	Points
10%	1
15%	2
20%	3
25%	4
30%	5
35%	6
40%	7
45%	8
50%	9
55%	10
60%	11
65%	12





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AIA Number: 50111106



# GARDEN FOR WILDLIFE

## Certified Wildlife Habitat® PROGRAM

Mary Phillips



NWF a leader in the Native Plant  
Biodiversity Movement since 1973!



**National  
Wildlife  
Federation**

Allen's Hummingbird, *Selasphorus sasin*, California

Credit: Faith Barton National Wildlife Federation



*Uniting all Americans to  
ensure that **wildlife** and  
**people** thrive in a rapidly  
changing world.*



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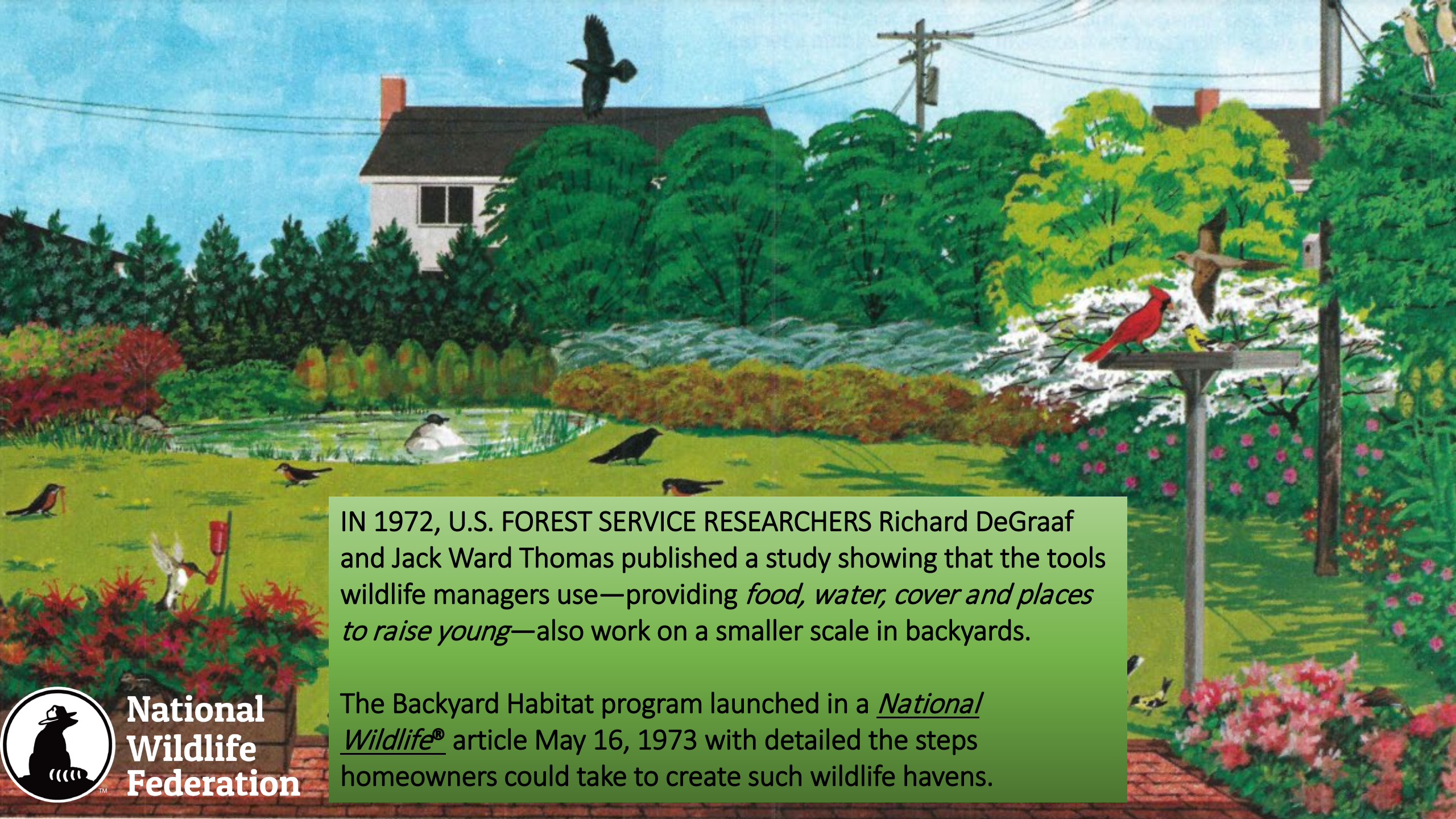
Garden for Wildlife™ is America's largest, longest-running native plant/habitat movement dedicated to **helping wildlife thrive where people live, work, play, learn and worship.**



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IN 1972, U.S. FOREST SERVICE RESEARCHERS Richard DeGraaf and Jack Ward Thomas published a study showing that the tools wildlife managers use—providing *food, water, cover and places to raise young*—also work on a smaller scale in backyards.

The Backyard Habitat program launched in a *National Wildlife*<sup>®</sup> article May 16, 1973 with detailed the steps homeowners could take to create such wildlife havens.



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## Biodiversity

*A 2021 paper published in Ecological Applications, 15 scientists examined residential yard management, including NWF certified habitats, in six U.S. cities- concludes:*

*“yards, especially those managed for wildlife, support diverse, heterogeneous bird communities with high public interest and potential to support species of conservation concern.”*

*In Full Bloom, National Wildlife Magazine, Spring 2023.*



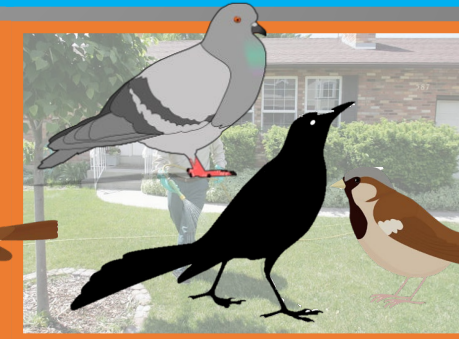
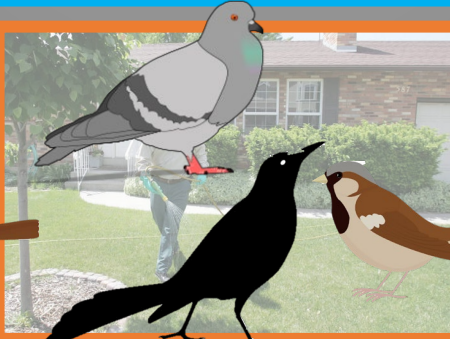
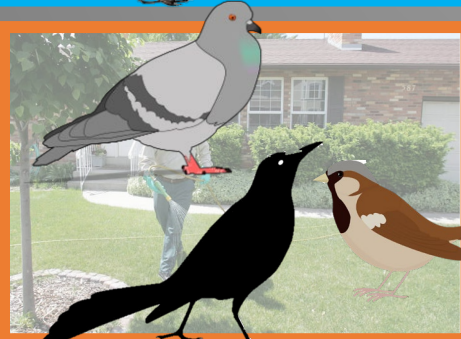


# Wildlife Yards: For the Birds



*Documented more bird species in CWHs, including wood thrushes, gray catbirds and pileated woodpeckers.*

*Conversely, noncertified yards with large lawns tended to attract mostly nonnatives such as house sparrows and European starlings*







***298,000 Certified Wildlife Habitats®***

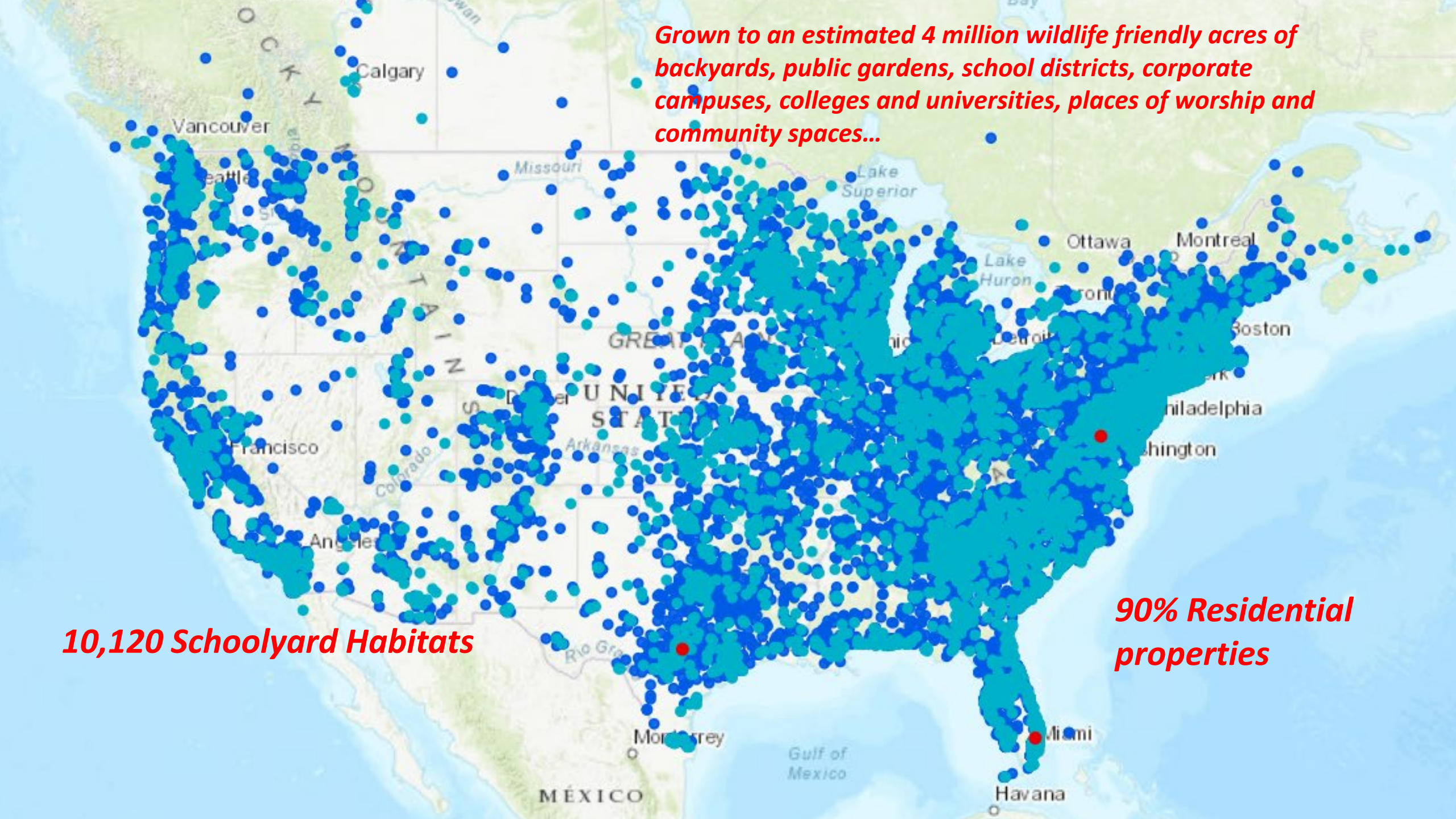
***across North America and at 39 embassies across the world.***



*Grown to an estimated 4 million wildlife friendly acres of  
backyards, public gardens, school districts, corporate  
campuses, colleges and universities, places of worship and  
community spaces...*

*10,120 Schoolyard Habitats*

*90% Residential  
properties*







- Home
- Workplace
- Farm
- School
- University
- Apartment Rooftop
- Park
- Place of Worship



# Certified Wildlife Habitat<sup>®</sup>

Food

Cover

Places to  
Raise Young

Water

## Breaking Down the Wildlife Benefits of Each Layer



Wildlife gardens provide habitat above and below the soil line. Consider form and function of plants to support diverse wildlife across a layered habitat environment. This approach ensures wildlife have essential habitat elements: food, water, cover and places to raise their young!



**STRUCTURAL PLANTS** provide shelter and food sources for birds and insects as well as winter structure, framing, shade and screening.



**COLORFUL FLOWERING PLANTS** provide the colorful floral events we love. These plants also provide pollen and nectar for a variety of insects and other pollinating fauna.



**GROUNDCOVER PLANTS** provide additional pollen sources, weed suppression and erosion control.



**FILLER PLANTS** provide nectar and pollen sources, suppress weeds and create a native seed bank for the future of your wildlife garden.



# Additional Benefits of Native Habitat

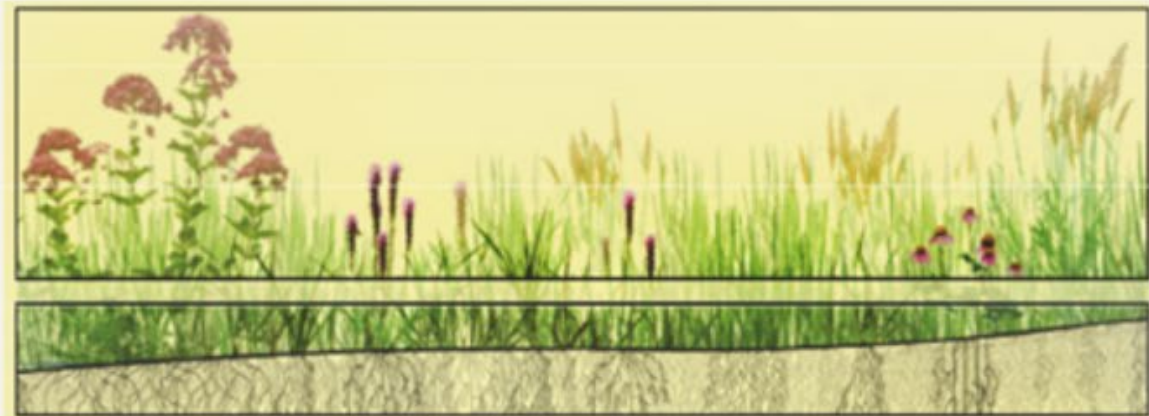
## Layered Planting and Stormwater Management

Dense and layered plantings play a critical role in managing stormwater runoff.

**FIRST**, plants can reduce stormwater runoff by uptaking water into their roots.

**SECOND**, each year a certain percentage of each plant's root system dies back and regrows, creating channels in the soil. These channels allow better infiltration for groundwater recharge.

**If you are designing a rain garden, bioswale or other stormwater system plant it densely and watch it perform!**



Design Layer

Functional Layer

In this **layered planting** there is density above and below ground. The underground root layer can play an important role in managing stormwater runoff.



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# Reduce Impermeable Pavement and Heat Island Effects

**Rain gardens, designed in a natural depression in the landscape, help reduce the heat island effect.**

**They collect rainwater and allow it to absorb into the ground where it has more time to evaporate and cool the air**



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## Rainwater management

Sustainable Sites

Possible 3 Points

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### Intent

To reduce rainwater runoff volume from the site.

### Requirements

Projects that must comply with local requirements of the National Pollutant Discharge Elimination System (NPDES) must follow Case 2.

#### Case 1. Low impact development

Use low-impact development (LID) techniques to minimize the amount of stormwater that leaves the site. Examples of acceptable techniques include the following:

- planting areas with native or adapted plant material (e.g. trees shrubs);
- installing a vegetated roof;
- using permeable paving, consisting of porous above-ground materials (e.g., open pavers, engineered products), a base layer designed to drain water away from the home, and (often) a 6-inch-deep (150 millimeters) subbase; and
- installing permanent infiltration or collection features (e.g., vegetated swale, rain garden, rainwater cistern) that can handle 100% of the runoff from a two-year, 24-hour storm.

Single-family home projects may use Table 1 or Table 2 to determine points; multifamily projects must use Table 1. To determine compliance for single-family and multifamily homes, calculate the percentage of the lot area, including the area under roof, that is permeable or can direct water to an on-site catchment or infiltration feature.

**Table 1. Points for permeable area, as percentage of total lot area**

Percentage	Points
50–64%	1
65–76%	2
≥80%	3



## Heat island reduction

Sustainable Sites

Possible 2 Points

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### Intent

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

### Requirements

Ensure that at least 50% of hardscapes and roofs, but not including common roads that serve multiple buildings, on the project site meet one or more of the following requirements. Points are awarded according to Table 1.

**Table 1. Points for percentage area with shading or nonabsorptive material**

Percentage of hardscape area	Points
50–75%	1
> 75%	2

#### Option 1. Shading (1–2 points)

Locate trees or other plantings to provide shading of hardscapes. Shading should be calculated when the sun is directly overhead (noon on the summer solstice), based on ten years' growth after installation.

AND/OR

#### Option 2. Nonabsorptive materials (1–2 points)

Install light-colored, high-albedo materials or vegetation-covered hardscapes. Acceptable strategies include the following:

- using ENERGY STAR qualified roof products in appropriately sloped applications applications (or performance equivalent for projects outside the U.S.);
- installing vegetated roofing;
- using open pavers (counting only the vegetation, not the pavers) or engineered grass pavers; and
- Use paving materials with a three-year aged solar reflectance (SR) of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.





Plants are the foundation of  
the food web in any ecosystem



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# Insects are the next critical level of the food web

90% of the insects that rely on plants can only survive on plants with which they evolved



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## Native Plants

- Adapted to local soils
- Adapted to regional precipitation
- Resilient and hardy once established
- Support wildlife



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A close-up photograph of an oak branch with several leaves. The leaves are in various stages of autumn color, ranging from bright yellow to deep red. The background is a blurred green, suggesting a forest setting. A semi-transparent white box with rounded corners is overlaid on the right side of the image, containing text.

# Oak

557 species of caterpillars



A close-up photograph of several Ginkgo leaves, which are fan-shaped and bright green. The leaves are clustered together, with some showing slight discoloration or damage. The background is dark and out of focus.

# Ginkgo








0 species of caterpillars



# A Balanced CWH Supports the Following

Ideally 50-70% Native Plants & multi season bloom

Chemical Free- no neonicotinoids

<b>Cover</b>	<b>Plant provides place for wildlife to rest or nest, often evergreen leaves or needles</b>		<b>Nectar used by adult butterflies and/or moths</b>
<b>Host</b>	<b>Host plant to butterfly and/or moth species supporting their caterpillars</b>		<b>Pollen used by bees</b>
<b>Nectar/ Pollen</b>	<b>Plant provides nectar and/or pollen as a food source</b>		<b>Nectar used by hummingbirds</b>
	<b>Keystone species supporting butterflies, moths, and/or pollinator specialist bees critical to maintaining a healthy ecosystem</b>		<b>Seeds or fruits used by birds and/or plant provides nesting or cover to birds</b>
	<b>Foliage eaten by butterfly and/or moth caterpillars as food source necessary for survival</b>		<b>Seeds or fruits used by small mammals</b>



# Certified Wildlife Habitat<sup>®</sup> Design

Plant groupings  
include plant  
diversity to reflect  
elements from  
natural  
landscapes

## Grasslands



### EXAMPLES

Prairies, wet meadows, tidal marshes

### KEY CHARACTERISTICS

Low growing layers of dense grasses and forbs, horizontal plant patterns



### KEYS TO GRASSLAND INSPIRED DESIGN

- » Keep planting low
- » Mingle both grasses and forbs
- » Avoid clashing color and texture

## Shrublands or Woodlands



### EXAMPLES

Early successional forests, chaparral

### KEY CHARACTERISTICS

An herbaceous groundcover layer and a scattered shrub and tree layer



### KEYS TO SHRUB/WOODLAND INSPIRED DESIGN

- » Create clearly defined masses of trees and shrubs that contrast the herbaceous layer
- » Use trees and shrubs for specific purposes, i.e. to create rooms or frame views

## Forests



### EXAMPLES

Temperate deciduous forests

### KEY CHARACTERISTICS

Tree canopy, understory and herbaceous layers, shelter from sun and wind



### KEYS TO FOREST INSPIRED DESIGN

- » Include all three forest layers
- » Use species from the same forest type
- » Maintain open views





**Goal: 50-70% Native Plants**

**50% More Wildlife**

**Sustainable Gardening**  
Mimic nature to benefit wildlife

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## Gardens that Benefit Wildlife and People

Native plants, eco-friendly gardening practices provide natural sources of the four elements of habitat:



food



water



cover



raising young

Oaks support over 500 species of butterflies and moths and feed and shelter other wildlife.

National Wildlife Federation's Certified Wildlife Habitats® include these elements and can support 2X the amount of wildlife.

Songbird babies rely on thousands of caterpillars and other insects supplied by native plants.

Roughly 30% of native bee species are pollen specialists that restrict their diets to specific native plants.

Native plants sequester carbon, use less water and their roots help with storm-water runoff to maintain healthy watersheds.

## Conventional Landscapes

1 million acres of wildlife habitat are lost to suburban development annually.

The monarch butterfly, which relies on native milkweed, has declined by 90%.


Lawns use 9 billion gallons of water nationwide per day.

Non-native trees and turf lawns don't support wildlife.



Common garden weedkillers and pesticides harm beneficial insects and soil microorganisms essential to naturally healthy ecosystems.



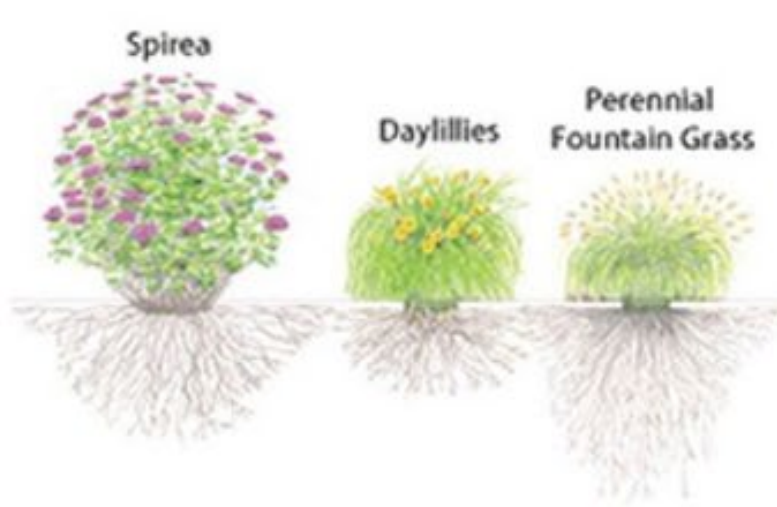


In 2021, 48.3 million Americans converted a portion of their lawn to natural or wildlife flower landscape.

- **Reduces greenhouse gas emissions** of lawn mowing
- **Eliminates cost of lawn mowing**, from the price of a mower and its repair to the cost of its fuel (gas or electric) and parts (spark plugs, oil, blades)
- **Drought tolerant**, since their survival depended on their ability to consume less water

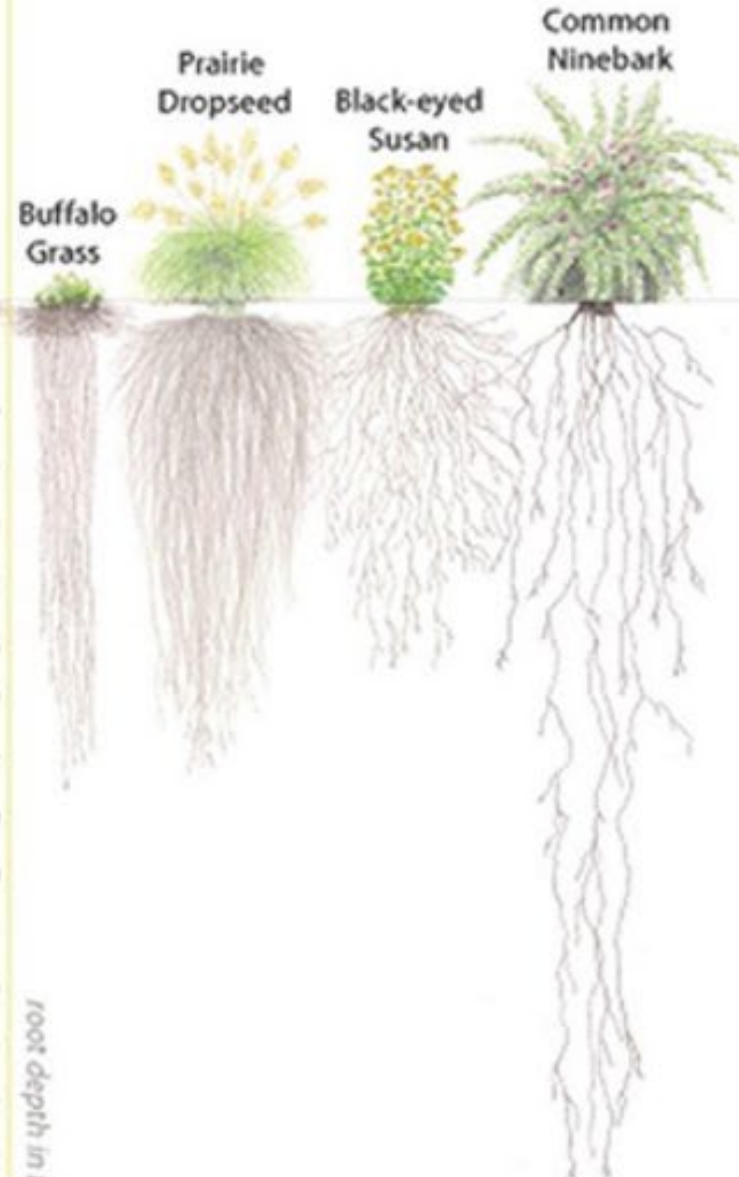


## Non-Natives



Almost [90 percent](#) of non-native lawn grasses have roots no more than a few inches deep.

## Natives



### Deeper root system:

- distributes carbon deeper** into the ground.

One acre can store [1 ton](#) of carbon dioxide per year, according to the University of Minnesota.

- Reduce soil erosion** by having deeper, anchoring root systems

- Improve water quality** by filtering chemicals and impurities from water before it enters local watershed.





LEED BD+C: Homes · v4 - LEED v4

# No invasive plants

Sustainable Sites

Required

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## **Intent**

To prevent the introduction of invasive species through landscaping.

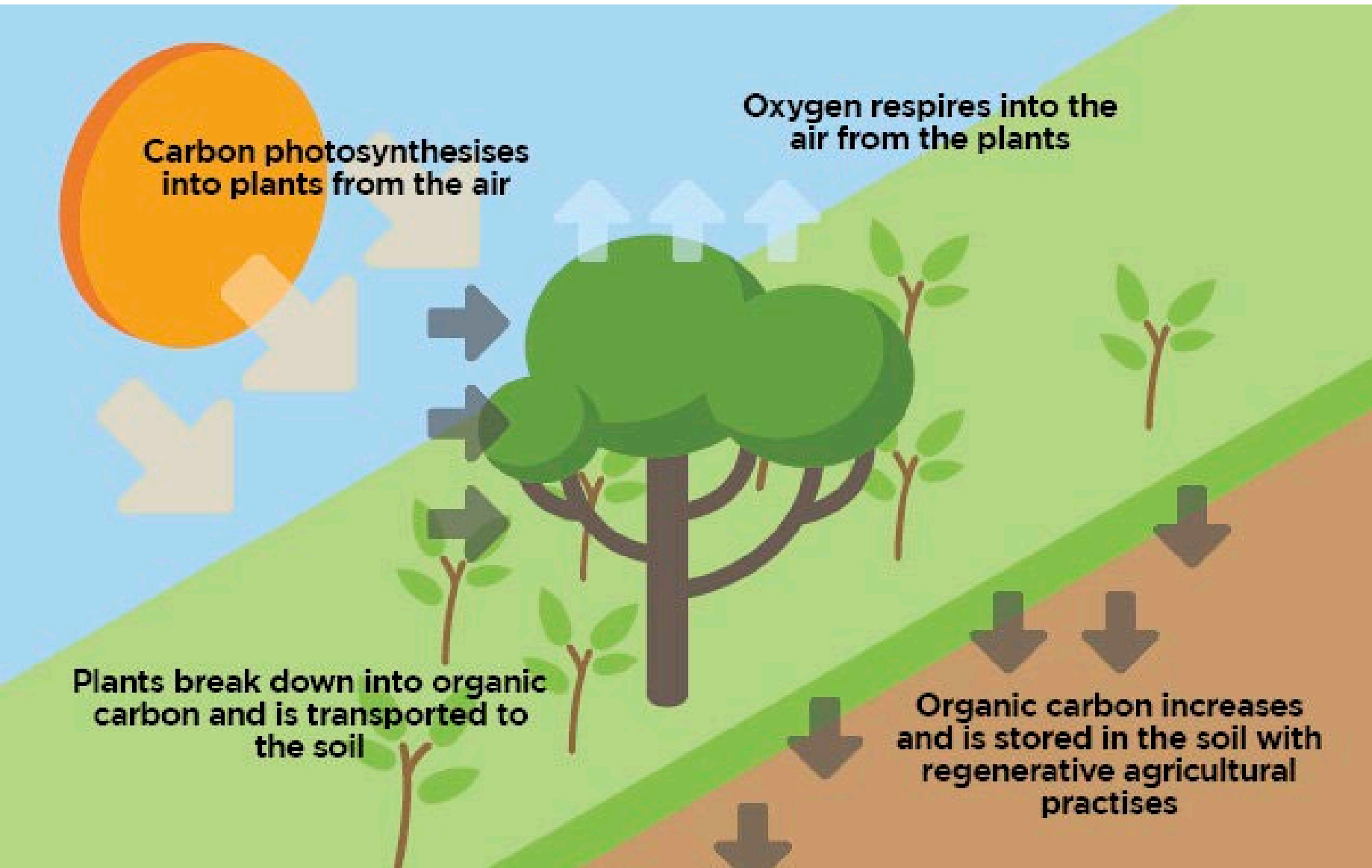
## **Requirements**

Introduce no invasive plant species into the landscape. Invasive plant species vary by region. Consult the U.S. Department of Agriculture's GRIN Taxonomy for Plants database, the National Association of Exotic Pest Plant Councils, or local cooperative extension service or state or national exotic pest lists for plants in natural areas and wildlands. Not all nonnative species are considered invasive.

<https://www.usgbc.org/credits/homes-high-rise/v4-draft/ssp2?return=/credits/Homes/v4/Sustainable%20sites>



# Sustainable Habitat Gardening, Supports Carbon Sequestration



- diversity of plants increases the potential carbon sequestration of the landscape by increasing its productivity and resilience.
- supports the soil microbial ecosystem, which is key to longterm soil carbon storage.

**Native plant gardens support more microbial soil diversity and higher relative abundance of potentially beneficial taxa compared to adjacent turf grass lawns**



# Food for Wildlife





96% of backyard birds rely on insects to feed their young







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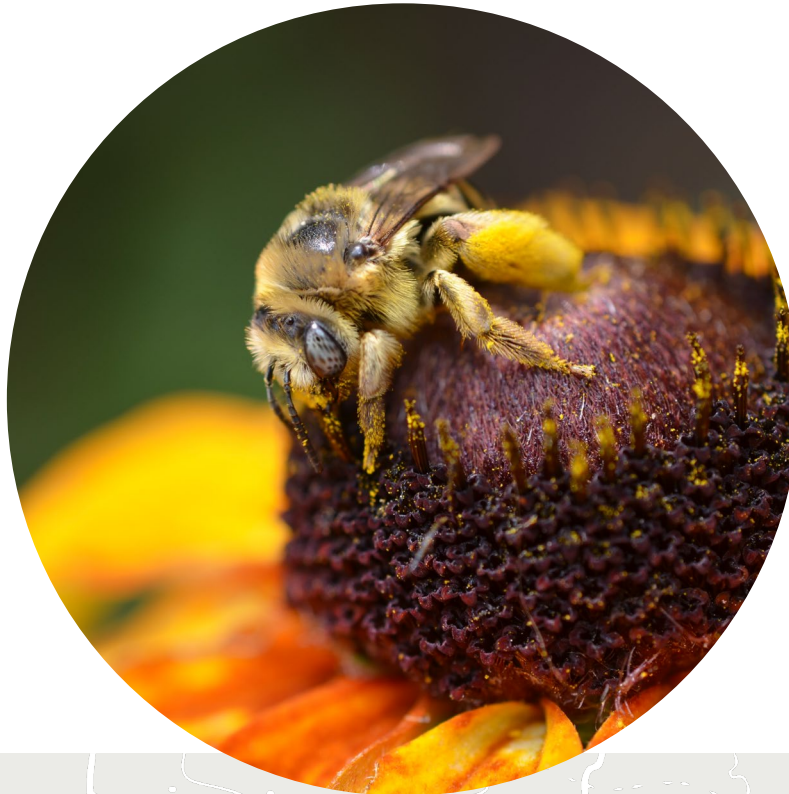


# Food for Wildlife





# Food for Wildlife







# Water for Wildlife

  
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# All animals need water to drink or bathe







# Water for Wildlife

  
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# Water for Wildlife





# Water for Wildlife







# Cover for Wildlife

Plants provide cover for wildlife

  
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# Prey and Predator Need Cover







# Cover for Wildlife

Plants provide cover for wildlife

  
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# Cover for Wildlife

Plant densely to provide cover  
in the garden

  
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# Cover for Wildlife

Plants provide cover for wildlife

  
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# Cover for Wildlife





# Plants Provide Places to Raise Young





# Plants Provide Places to Raise Young





# Places to Raise Young

Some species have special habitat requirements for their young that are totally different than their adult phase







# Monarch

  
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# **Plant native milkweed and nectar plants!**









## Conserve Water

Reduce Lawn

Plant Natives

Use Rain Barrels

Create Rain Gardens

## Sustainable Gardening





## Outdoor water use

Water Efficiency

Possible 4 Points

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Turf grass area		Native or adapted plant area	Points
< 60%	and	> 25%	1
< 40%	and	> 50%	2
< 20%	and	> 75%	3
< 5%	and	> 75%	4

Lists of native plants are maintained by the Lady Bird Johnson Wildflower Center, the North American Native Plant Society, state agencies, and local cooperative extension service offices and others. Project with pools and other outdoor water features must use WE Credit Total Water Reduction.



## Total water use

Water Efficiency

Possible 12 Points

Enter information about your landscape here:

STEP 1A - ENTER THE LANDSCAPED AREA (A)

191,692

Area of the designed landscape (square feet)

Is an irrigation system installed on this site?

No

Need help?

See the WaterSense website for help on [what to plant](#)

Step 2B/Table 1.

Zone	Hydrozone/ Landscape Feature Area (sq. ft.)	Plant Type or Landscape Feature	Water Use	N/A
1	63,830	Trees	Low	No Irrigation
2	250	Shrubs	Medium	No Irrigation
3	114,172	Groundcover	Low	No Irrigation
4	13,440	Turfgrass	Low	No Irrigation
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
Total Area =	191,692 of 191692 square feet		Landsc	





## Keep Cats Indoors

Free-ranging domesticated cats kill **billions** of birds and other wildlife each year.

## Sustainable Gardening

  
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**PESTICIDE  
TREATED AREA**



**NATURAL GREEN LAWN CARE**  
**732-560-9801 / LIC.#93575A**  
**CUSTOMER: PLEASE REMOVE AFTER 72 HRS.**

## Don't Use Pesticides

Pesticides **kill** plants and insects that birds rely on for food. Go organic!

## Sustainable Gardening

  
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## Natural Pest Control

Support natural pest predators and parasites. Use organic gardening techniques.

## Sustainable Gardening





## 1 Billion Birds are Killed by Window Strikes Annually

Feeder placement

Reduce window reflections

Turn off lights during migration

## Sustainable Gardening



## Light Pollution

Turn off Lights at Night

Reduce Landscape Lighting

Down-facing Lights

Use Yellow Bulbs



## Sustainable Gardening

  
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## Use Sustainable Products

Recycled Materials

Made in the USA

Focus on Reduce and Reuse

## Sustainable Gardening

  
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# Certified Wildlife Habitat® Checklist

Use this walk-through checklist to confirm you have all the elements necessary to be certified:

**\*Note:** this checklist is only a tool to prepare your garden, please certify online at [www.nwf.org/certifiedwildlifehabitat](http://www.nwf.org/certifiedwildlifehabitat)

**FOOD:** Your habitat should provide a minimum of three of the following types of food. Supplemental feeders are optional.

- |  |                                 |   |  |
|--|---------------------------------|---|--|
| <input type="checkbox"/> Native Plants | <input type="checkbox"/> Fruits | <input type="checkbox"/> Bird Feeder              |  |
| <input type="checkbox"/> Berries/Seeds | <input type="checkbox"/> Sap    | <input type="checkbox"/> Squirrel Feeder          | <input type="checkbox"/> Butterfly Host plants to feed caterpillars- |
| <input type="checkbox"/> Nectar        | <input type="checkbox"/> Pollen | <input type="checkbox"/> Hummingbird Feeder       |  |
| <input type="checkbox"/> Foliage/Twigs | <input type="checkbox"/> Suet   | <input type="checkbox"/> <b>Fallen Leaf Layer</b> |  |

**National Wildlife Federation recommends a habitat garden space strive for a minimum of 50-70% native plants.**

**WATER:** Your habitat needs one of the following sources to provide clean water for wildlife to drink and bathe:

- |                                   |  |  |  |
|-----------------------------------|--|--|--|
| <input type="checkbox"/> Birdbath | <input type="checkbox"/> Seasonal Pool | <input type="checkbox"/> River                   | <input type="checkbox"/> Rain Garden       |
| <input type="checkbox"/> Lake     | <input type="checkbox"/> Ocean         | <input type="checkbox"/> Butterfly Puddling Area | <input type="checkbox"/> Water Garden/Pond |
| <input type="checkbox"/> Stream   | <input type="checkbox"/> Spring        |  |  |

**COVER:** Wildlife needs at least two places to find shelter from the weather and predators:

- |  |  |   |   |
|--|--|---|---|
| <input type="checkbox"/> Wooded Area   | <input type="checkbox"/> Roosting Box      | <input type="checkbox"/> Meadow or Prairie    | <input type="checkbox"/> <b>Leave dead perennial stems 12-18 inches for overwintering insects</b> |
| <input type="checkbox"/> Bramble Patch | <input type="checkbox"/> Evergreens        | <input type="checkbox"/> Dense Shrubs/Thicket |   |
| <input type="checkbox"/> Ground Cover  | <input type="checkbox"/> Brush or Log Pile | <input type="checkbox"/> Water Garden or Pond |   |



## Certified Wildlife Habitat® Checklist

**PLACES TO RAISE YOUNG:** You need at least two places for wildlife to engage in courtship behavior, mate and then bear and raise their young:

- |  |                                  |  |   |
|--|----------------------------------|--|---|
| <input type="checkbox"/> Mature Trees      | <input type="checkbox"/> Wetland | <input type="checkbox"/> Dead Trees or Snags       | <input type="checkbox"/> Water Garden/Pond            |
| <input type="checkbox"/> Meadow or Prairie | <input type="checkbox"/> Cave    | <input type="checkbox"/> Dense Shrubs/Thicket      | <input type="checkbox"/> Host Plants for Caterpillars |
| <input type="checkbox"/> Nesting Box       | <input type="checkbox"/> Burrow  | <input type="checkbox"/> <b>Fallen Leaf Debris</b> |   |

**SUSTAINABLE PRACTICES:** You need to employ practices from at least two of the three categories below to help manage your habitat in a sustainable way- *to better help wildlife, we advocate employing one or more practices from each category:*

- ☐ **Soil and Water Conservation:**
  - *Riparian Buffer*
  - *Capture Rain Water from Roof*
  - *Xeriscape (water-wise landscaping)*
  - *Drip or Soaker Hose for Irrigation*
  - *Limit Water Use*
  - *Reduce Erosion*
  - *Use Mulch*
  - *Rain Garden*
  - ***Leave the leaves in garden beds and around the base of trees and shrubs.***
- ☐ **Controlling Exotic Species:**
  - *Practice Integrated Pest Management*
  - *Remove Non-Native Plants and Animals*
  - *Use Native Plants*
  - *Reduce Lawn Areas*
- ☐ **Organic Practices:**
  - *Eliminate Chemical Pesticides*
  - *Eliminate Chemical Fertilizers*
  - *Compost*



A close-up photograph of a bumblebee on a purple flower. The bee is positioned on the right side of the frame, facing left towards the flower. The flower has several purple petals and a prominent, textured, light-colored base. The background is a solid, muted olive green. A semi-transparent white rectangular box with rounded corners is centered over the image, containing the word "Resources" in a dark green, sans-serif font.

# Resources

[NWF.ORG/GARDEN](https://www.nwf.org/Garden)



# Plant With A Purpose

Sustainably provide wildlife with food, water, cover, and places to raise young.



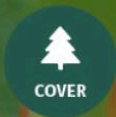
FOOD



WATER



YOUNG



COVER



  
**Garden for Wildlife™**  
by National Wildlife Federation

[nwf.org/garden](https://nwf.org/garden)

**BUTTERFLY  
HEROES™**

Help Save Butterflies

**NATIVE  
PLANTS**

Find the Best Plants for Wildlife

**CERTIFIED  
HABITATS**

Celebrate Your Wildlife Habitat

FOOD • WATER • COVER • PLACES TO RAISE YOUNG



This property is recognized for its commitment  
to sustainably provide the essential elements of  
wildlife habitat. [nwf.org/garden](https://nwf.org/garden)

[NWF.ORG/GARDEN](https://NWF.ORG/GARDEN)



# Online Resources for Identifying Native Plant Options

(This [link](#) takes you to page featured here)

## Keystone Plants by Ecoregion

Discover the keystone plants that are critical to your ecoregion.

[LEARN MORE](#)



Bibek Sharma

## Host Plants by Ecoregion

Discover the host plants that are native to your ecoregion.

[LEARN MORE](#)



Tom Potterfield / Flickr

## Nectar Plants for Monarchs

Regional monarch-specific nectar plant guides for the continental U.S.

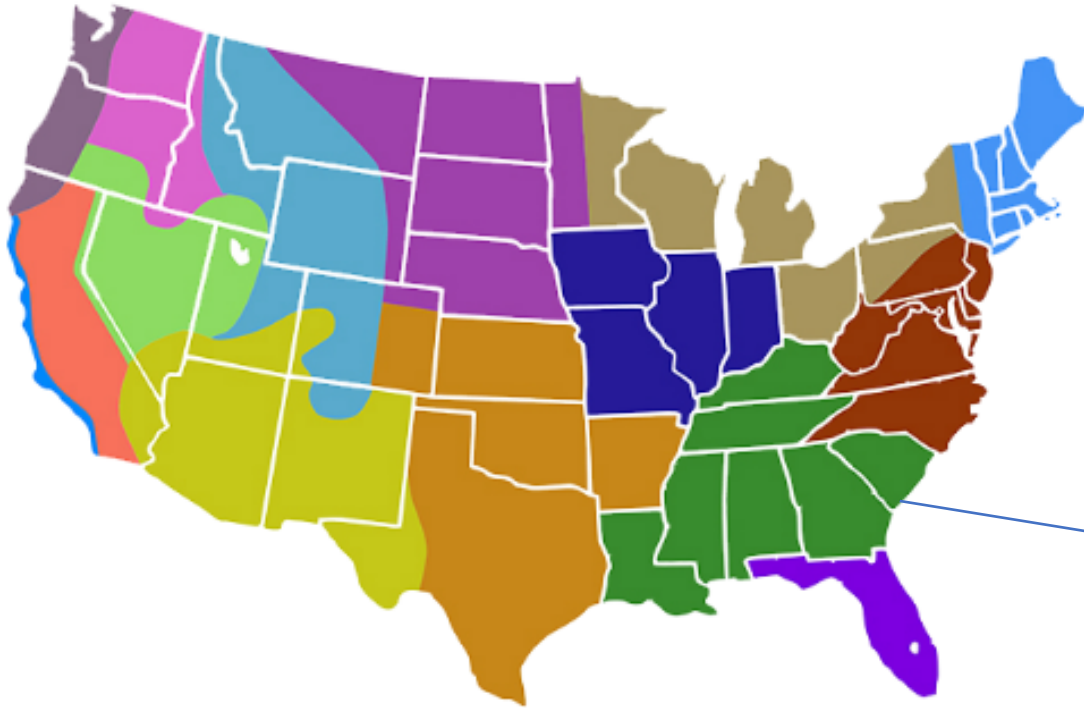
[LEARN MORE](#)



David Mizejewski



# Each list has a map to guide you to color coded clickable link for your Region



Use the map to identify the correct Monarch Nectar Plant List for your area, then click the corresponding image below to enlarge your regional guide:

- [Maritime Northwest](#)
- [Inland Northwest](#)
- [California Coast](#)
- [California Inland](#)
- [Great Basin](#)
- [Rocky Mountains](#)
- [Southwest](#)
- [Northern Plains](#)
- [Southern Plains](#)
- [Midwest](#)
- [Great Lakes](#)
- [Southeast](#)
- [Florida](#)
- [Northeast](#)
- [Mid-Atlantic](#)





## Keystone Native Plants

### Eastern Temperate Forests – Ecoregion 8

Native plants have tight relationships with wildlife, formed over many thousands of years, providing natural sources of food, cover and places to raise young. Without healthy native plant communities, wildlife cannot survive. Every ecoregion has different native plant communities.

*Keystone plants are native plants critical to the food web and necessary for many wildlife species to complete their life cycle. Without keystone plants in the landscape, butterflies, native bees, and birds will not thrive. 96% of our terrestrial birds rely on insects supported by keystone plants.*

#### There are two types of keystone plants:

-  Host plants that feed the young caterpillars of approximately 90% of butterflies and moths (Lepidoptera).
-  Plants that feed specialist bees who only eat pollen from specific plants. Keystone plants for native bees feed both specialist and generalist bees.

Entomologist Dr. Doug Tallamy, and his University of Delaware research team have identified the keystone plants that support butterfly and moth species. Native host plants of pollen specialist bees were researched by pollinator conservationist Jarrod Fowler.

#### Top Keystone Plant Genera in Eastern Temperate Forests – Ecoregion 8

A genus is a taxonomic category of plants that contains one or more species of plants with similar characteristics. Species within each genus have adapted to local conditions and are the appropriate native species or varieties suited to a specific ecoregion.

Plant Type	Plant Genus	Sample of Common Species (not all encompassing)	# Caterpillar Species that Use this as a Host Plant	# of Pollen Specialist Bee species that Rely on this Plant
Trees	Quercus	White oak ( <i>Quercus alba</i> ), Black oak ( <i>Quercus velutina</i> )	436 	
	Prunus	American plum ( <i>Prunus americana</i> ), Black cherry ( <i>Prunus serotina</i> ), Chokecherry ( <i>Prunus virginiana</i> )	390 	
	Betula	River birch ( <i>Betula nigra</i> ), Sweet birch ( <i>Betula lenta</i> )	289 	
	Populus	Eastern cottonwood ( <i>Populus deltoides</i> )	249 	
	Acer	Box elder ( <i>Acer negundo</i> ), Silver maple ( <i>Acer saccharinum</i> ), Sugar maple ( <i>Acer saccharum</i> )	238 	
	Malus	Southern crabapple ( <i>Malus angustifolia</i> ), Sweet crabapple ( <i>Malus coronaria</i> )	237 	
	Carya	Bitternut hickory ( <i>Carya cordiformis</i> ), Pignut hickory ( <i>Carya glabra</i> ), Mockernut hickory ( <i>Carya tomentosa</i> )	213 	
Shrubs	Pinus	Pitch pine ( <i>Pinus rigida</i> ), Eastern white pine ( <i>Pinus strobus</i> ), Virginia pine ( <i>Pinus virginiana</i> )	200 	
	Vaccinium	Northern highbush blueberry ( <i>Vaccinium corymbosum</i> ), Black highbush blueberry ( <i>Vaccinium fuscum</i> ), Hillside blueberry ( <i>Vaccinium pallidum</i> )	217 	19 
	Salix	Prairie willow ( <i>Salix humilis</i> ), Black willow ( <i>Salix nigra</i> )	289 	19 
Flowering Perennials	Solidago	Stiff leaf goldenrod ( <i>Solidago rigida</i> ), Atlantic goldenrod ( <i>Solidago arguta</i> )	109 	92 
	Symphyotrichum	Blue wood aster ( <i>Symphyotrichum cordifolium</i> ), Smooth aster ( <i>Symphyotrichum laeve</i> )	100 	33 
	Helianthus	Woodland sunflower ( <i>Helianthus divaricatus</i> ), Small woodland sunflower ( <i>Helianthus microcephalus</i> )	66 	50 

# Keystone Plant Lists

*“Keystone plants are native plants critical to the food web and necessary for many wildlife species to complete their life cycle. Without keystone plants in the landscape, butterflies, native bees, and birds will not thrive. 96% of our terrestrial birds rely on insects supported by keystone plants.”*

## GFW Keystone Plants by Ecoregion

<https://www.nwf.org/Garden-for-Wildlife/About/Native-Plants/keystone-plants-by-ecoregion>

Choose the applicable Level I ecoregion, consulting the map if needed, to obtain the correct Keystone plant list for the area you are working on.




Example:  
CA Inland






# Native Plant Finder

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 **Native Plant Finder**  
[ BETA ][FIND NATIVE PLANTS](#)[FIND BUTTERFLIES](#)[MY LIST](#)

Justin Meissen


## Native Plants (By Zip Code)

 Discover native plants, ranked by the number of butterfly and moth species that use them as host plants for their caterpillars.


### FLOWERS AND GRASSES




[SAVE](#)

110 


**goldenrod**  
Solidago  
Asterales




[SAVE](#)

69 


**sunflower**  
Helianthus  
Asterales




[SAVE](#)

63 


**strawberry**  
Fragaria  
Rosales




[SAVE](#)

32 


**joe-pye weed, thoroughwort, do ...**  
Eupatorium  
Asterales




[SAVE](#)

27 


**violet**  
Viola  
Violales




[SAVE](#)

24 


**geranium**  
Geranium  
Geraniales




[SAVE](#)

24 

**water parsnip**  
Sium  
Apiales



[SAVE](#)

22 

**hibiscus, rosemallow**  
Hibiscus  
Malvales

[VIEW ALL](#)

### TREES AND SHRUBS



# Beautiful Plants That Make A Difference.

Easy-care, colorful plants that return every year and help wildlife and the planet. There's no better way to garden.

[Shop Native Plants](#)



[gardenforwildlife.com](https://gardenforwildlife.com)

[NWF.ORG/GARDEN](https://NWF.ORG/GARDEN)



# Do Not Plant Lists for select states

TX, WA,OR, NV, FL, CO, CA,GA,NC

Texas [Sample](#)

## NWF Texas Do-not-Buy/ Do-not-Plant List

Texas Non-Native Plant to Avoid		Notes	Plant Instead	
Common Name	Latin Name		Common Name	Latin Name
Grasses				
Chinese Silver Grass	<i>Miscanthus sinensis</i>	escapes from ornamental plantings, displaces native plants in areas of disturbance such as fields, edge of woodlands, and roadsides, also highly flammable increasing fire risk where it invades	Switchgrass Indian Grass	<i>Panicum virgatum</i> <i>Sorghastrum nutans</i>
Weeping Lovegrass	<i>Eragrostis curvula</i>	originally planted for erosion control and ornamental use, it spreads along roadsides and other disturbed areas, escaped plants reported in dozens of Texas counties	Sideoats Grama Little Bluestem	<i>Bouteloua curtipendula</i> <i>Schizachyrium scoparium</i>
Golden Bamboo	<i>Phyllostachys aurea</i> <i>Bambusa sp.</i>	available for sale online and in garden centers, quickly spreads by underground rhizomes and escapes cultivation	Switchgrass Eastern Gamagrass	<i>Panicum virgatum</i> <i>Tripsacum dactyloides</i>
Herbaceous Perennials				
Tropical Milkweed	<i>Asclepias curassavica</i>	When planted in areas where it does not die back in the winter, this plant helps to sustain high levels of parasites called OE that are highly detrimental to the health and migration success of Monarch butterflies.	Butterfly Milkweed Whorled Milkweed Spider/Green Milkweed	<i>Asclepias tuberosa</i> <i>Asclepias verticillata</i> <i>Asclepias viridis</i>
Vines				
Chinese Wisteria	<i>Wisteria sinensis</i>	available at garden centers, highly aggressive habit of this vine girdles and shades out native vegetation, forms dense thickets, stems can become like tree trunks	Coral Honeysuckle American Wisteria	<i>Lonicera sempervirens</i> <i>Wisteria frutescens</i>
English Ivy	<i>Hedera helix</i>	This vine can kill trees that it climbs and smother vegetation along the ground. It also hosts Bacterial Leaf Scorch, a disease problematic to some native trees and shrubs.	Carolina Jessamine	<i>Gelsemium sempervirens</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>	quickly outcompetes native trees and shrubs by pulling them down, makes it easier for other invasives to invade	Coral Honeysuckle Carolina Jessamine	<i>Lonicera sempervirens</i> <i>G. sempervirens</i>



# Additional Resources

[This link goes the page featured here](#)



**Design a Better Wildlife Garden**



**Pollinator Gardening**



**Jardín para Polinizadores**



**Create a Bird-Friendly Habitat**



**Attract Butterflies**



**Atrayendo Mariposas**



**How to Provide Water in Butterfly Gardens**



**Bird Feeders**



**Neighbor-Friendly Wildlife Gardening**



**Lawn Reduction**



**Nesting Boxes**



**Backyard Ponds**





Wild About Nature?  
Get Your Yard  
**CERTIFIED**



# Certified Wildlife Habitat Resources at NWF State Affiliate Partners

- **Arizona Wildlife Federation**
- **Arkansas Wildlife Federation**
- **Association of Northwest Steelheaders** (Oregon)
- **Colorado Wildlife Federation**
- **Conservation Coalition of Oklahoma**
- **Conservation Federation of Missouri**
- **Delaware Nature Society**
- **Florida Wildlife Federation**
- **Indiana Wildlife Federation**
- **Iowa Wildlife Federation**
- **Kansas Wildlife Federation**
- **Kentucky Waterways Alliance**
- **Louisiana Wildlife Federation**
- **Mississippi Wildlife Federation**
- **Montana Wildlife Federation**
- **National Aquarium** (Maryland)
- **Nebraska Wildlife Federation**
- **New Jersey Audubon Society**
- **New Mexico Wildlife Federation**
- **North Carolina Wildlife Federation**
- **Prairie Rivers Network** (Illinois)
- **South Carolina Wildlife Federation**
- **Tennessee Wildlife Federation**
- **Texas Conservation Alliance**
- **Vermont Natural Resources Council**
- **Wyoming Wildlife Federation**

<https://www.nwf.org/Garden-for-Wildlife/Create/In-Your-State>





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Federation

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Thank you!  
Questions?

**Mary Phillips**

National Wildlife Federation  
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[www.nwf.org/CERTIFY](http://www.nwf.org/CERTIFY)

