



Native Landscapes for Birds

Slide objective: Title slide.

This program was designed by the Native Plant Society of Texas and Audubon Texas to teach people about landscaping their yard using native plants in order to support native birds.

Please use Intro presentation for class specific introduction slide show, including: sponsors, program and class overview, objectives, and logistics. The NOTES section of this presentation are provided as reference information for the slide topics. Due to time constraints, instructors will not cover all of this information in their presentations.

Native Landscapes for Birds v1.0

Class materials were developed under the supervision of the NLCP Steering Committee, revision subcommittee:

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Birds Class Content 19.0530 AUS.pptx

Class Outline

- The state of birds in Texas
- The relationship between native plants and birds
- Bird-friendly landscapes with native plants
- Resources



American Robin

Slide Objective: Provide an outline of the “Native Landscapes for Birds” presentation.

This presentation will discuss the state of birds in Texas, the relationship between native plants and birds, and how to create bird-friendly landscapes with native plants. The presentation ends with resources for students.

Why Birds Matter

- Provide valuable ecosystem services
 - Seed dispersal
 - Biological control
 - Decomposers
 - Pollinators
- Bird population fluctuations reflect health of the environment
- Fun to watch!



Nashville Warbler eating scale insect eggs

Slide Objective: Explain why it is important to protect and conserve birds.

- One third of bird species, especially habitat specialists, are in decline. While we can see what plants do for birds, we need to ask, what do birds do for plants?
- In addition to serving as indicators of ecosystem health, birds provide us with a variety of ecosystem services, or the benefits provided by natural systems that we rely on in our daily lives. Birds serve as pollinators. Many native plant species rely on birds to disperse their seeds: a single blue jay can cache 3000-5000 nuts, and they usually will only use 30% of their stored nuts. Birds control insect populations, and as scavengers, prevent carrion from accumulating in ecosystems. Also, as decomposers, woodpeckers help break down trees. In one study, woodpeckers in Oregon carried wood inhabiting fungi to pine snags, which suggests that woodpeckers may contribute to the mechanical degradation of wood.
<http://www.bioone.org/doi/abs/10.1650/7484>
- People enjoy birds for all sorts of reasons – their beauty, the wonder of flight, their songs, their behaviors, plus they are just fun to watch.
- Nashville Warbler is eating scale insects. The cotton stuff is produced by females to cover their egg sacs, which would probably be tasty little protein packs. Squirrels and birds seem to relish them. Source: Valerie Bugh, Austin entomologist

490 Bird Species Regularly Occur in Texas

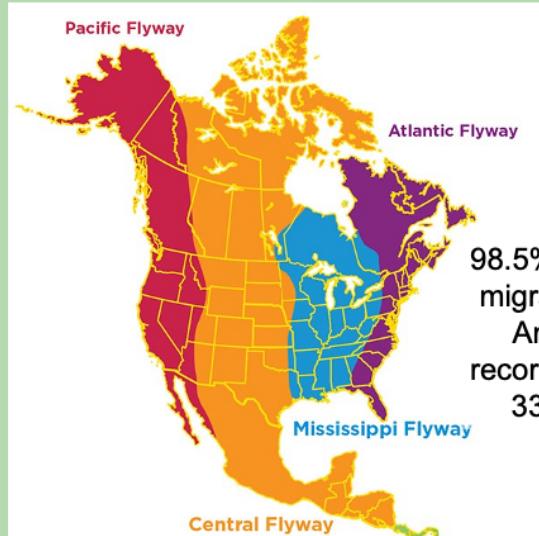


Slide Objective: A large number of birds can be regularly found in Texas.

- Texas is a great place to enjoy birds.
- As of Feb. 26, 2018:
 - 648 different species have been seen and confirmed.
 - 158 of these are review species (which means they seldom occur here), leaving 490 regularly occurring birds in Texas.

Texas Bird Records Committee of the Texas Ornithological Society:
<http://www.texasbirdrecordscommittee.org/home/texas-state-list>.

Texas is on the Central Flyway



98.5% of all long distance migrant species in North America have been recorded in Texas. That is 333 species of 338!

Slide Objective: Discuss the importance of Texas in the geography of bird migration.

Texans are fortunate to live on the Central Flyway, a major migration route for both waterfowl and land birds.

- **Medium distance migrants** move from one to several states – like ducks from prairie regions to winter in Texas lakes and on the Gulf Coast. The endangered Whooping Crane is an example. It migrates 2500 miles one way.
- Texas provides vital over-wintering habitat for many birds, especially those associated with North America's grasslands. Of 42 sparrow species in North America, 34 (or over 80%) are found in Texas during the winter. Ducks, many of which breed in the prairie pothole region of the northern Great Plains, spend the winter in Texas. Of 36 duck species in North America, 23 are found in Texas during the winter, or over 60% of duck species.
- **Long distance migrants** typically move from summer grounds in Canada and northern states into Mexico, Central and South America. Long distance migrants are otherwise known as "Neotropical migrants". These migrant species basically breed in temperate latitudes (Nearctic or U.S. and Canada), but leave for the winter for tropical latitudes farther south (Neotropical or Mexico, and Central and South America). Their migratory habits are part of their lives and heritage. Texas Parks and Wildlife: <https://tpwd.texas.gov/huntwild/wild/birding/migration/>
- **Texas is critical to migrating birds** - of the 338 species that are listed as Neotropical (long distance) migrants in North America (north of Mexico), 333 of them (or 98.5%) have been recorded in Texas. (TPWD 2011)

Migration and the Migratory Birds of Texas 4th edition TPWD 2011 booklet:
https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_0511.pdf

Bird Status Definitions

- Permanent residents
- Winter residents
- Summer residents
- Passage migrants



Eastern Bluebird

Slide Objective: To illustrate how bird species change through the seasons.

It is useful to have an understanding of the birds that might be attracted to your yard in the various seasons.

Determine seasonal bird status for your area by going to eBird at <https://ebird.org/explore>. Type in your “name of county, state” to get your local list. Then click on “Bar Charts” to see the seasonal fluctuations of birds in your area.

Permanent Residents

Northern Mockingbird



Northern Cardinal



Red-bellied Woodpecker



Carolina Wren



Slide Objective: To illustrate how bird species change through the seasons.

- Definition of Permanent Residents: Occur regularly within the defined range throughout the year; implies a stable breeding population.
- Permanent residents may also be called 'year-round birds'. It is useful to learn the expected year-round birds for your area as you will be most successful in attracting them to your habitat.

Source: The Texas Ornithological Society Handbook of Texas Birds, Second Edition, revised, by Mark Lockwood and Brush Freeman

(Host chapters use local photos if desired.)

Winter Residents



Slide Objective: To illustrate how bird species change through the seasons.

Definition of Winter Residents: Winter residents occur regularly within the described range generally between December and February.

Source: The Texas Ornithological Society Handbook of Texas Birds, Second Edition, revised, by Mark Lockwood and Brush Freeman

(Host chapters use local photos if desired.)

Summer Residents



Slide Objective: To illustrate how bird species change through the seasons.

Definition of Summer Migrants: 'Summer resident' implies a breeding population, although in some cases the population may be small.

Source: The Texas Ornithological Society Handbook of Texas Birds, Second Edition, revised, by Mark Lockwood and Brush Freeman

(Host chapters use local photos if desired.)

Passage Migrants



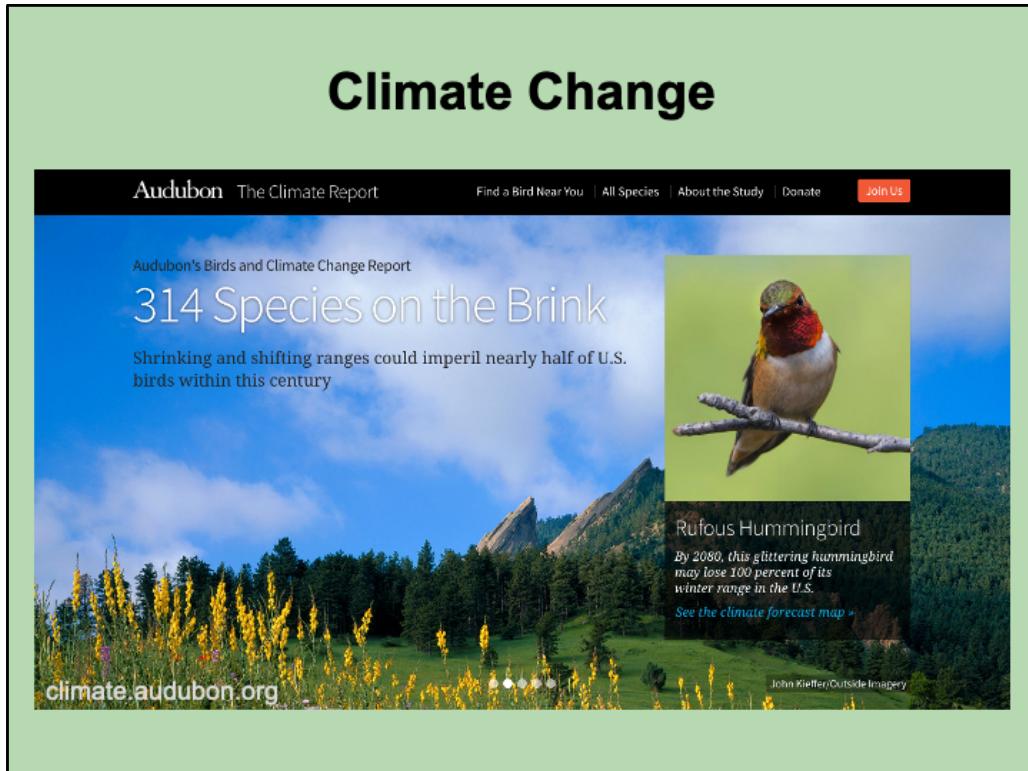
Slide Objective: To illustrate how bird species change through the seasons.

- Definition of Migrants: Migrants occur as transients passing through the state in spring/fall. Certain species may be migrants in some regions and residents in others.
- Spring migration may begin early for some species such as the Purple Martins (in late January), but migration generally occurs mid-March through mid-May in Texas, depending on species. Since Texas is closer to the wintering grounds for many species, the birds arrive here earlier than they do for states further north.

Source: The Texas Ornithological Society Handbook of Texas Birds, Second Edition, revised, by Mark Lockwood and Brush Freeman

(Host chapters use local photos if desired.)

Challenges Birds Face



Slide Objective: Discuss threats to birds that are caused by human activity – climate change.

- One global threat to bird populations that we are starting to learn more about is climate change. Audubon's models indicate that nearly half of US birds could be at risk from changing climatic conditions in the coming decades.
- For example, new weather patterns may impact birds by changing when insects hatch - earlier insect hatches may not correspond with times that migrants arrive and need them.
- Climate change and habitat loss especially impact migratory bird species.

Find out more at audubon.org/climate, including ways we can all act to protect birds.

Migration Challenge

The Gulf of Mexico crossing is the largest open-water migration of land-birds in the world

- Over 1 billion birds
- 20-30 hours non-stop



Orchard Oriole on TX coast after battling a north wind migrating over Gulf of Mexico

Aransas National Wildlife Refuge

Larry Moore Wikimedia Commons

Slide Objective: Discuss the importance of Texas in the geography of bird migration.

When these migratory birds reach the shores of the Texas Gulf Coast, their immediate need is to find a safe place to land where they can rest and “refuel” in order to build up the fat reserves they will require to complete their migration. Migrating birds are not that different from people taking a road trip; when you stop, you want to stop at a safe place that will allow you to rest and refuel so you can continue your journey. Human communities can help birds on their journey by improving natural area stopover habitats for them to be safer and provide more of the resources they require. Not all migrants are trans-gulf (bird species that cross the Gulf of Mexico – for example, from the Yucatan Peninsula to the U.S. Gulf Coast). Some, such as Golden-cheeked Warbler, are circum-gulf (bird species that hug the coastline from Mexico through Texas in spring and the reverse in fall) migrants.

Inland Migration Challenge

High quality stopover habitat is critical to the survival of migratory birds



Commons Ford Prairie Austin

Jane Tillman

Slide Objective: Discuss the importance of Texas in the geography of bird migration.

Not all birds will stop on the Gulf Coast. If winds are favorable, they will continue inland before stopping to feed and rest. Communities can help birds on their journey by improving natural area stopover habitats for them to be safer and by providing more of the resources they require.

Habitat Loss



Loss and fragmentation of habitat:

- Limits food resources for birds to replenish fat reserves and energy during migration
- Increases risk of predation and nest parasitism
- Decreases places with the resources birds need to breed, migrate, and overwinter

Slide Objective: Discuss threats to birds that are caused by human activity – habitat loss.

- One of the most pervasive threats to bird populations in North America is loss of habitat. Loss and fragmentation of habitat can limit the resources birds need to replenish their fat reserves and energy during migration. It can lead to increased risk of predation and nest parasitism.
 - Nest predators include animals that favor edge habitat at the junction of two habitats such as forest and meadow. Examples include Blue and Woodhouse's Scrub Jays, raccoons, and rat snakes.
 - Nest parasitism is caused by Brown-headed Cowbirds which lay their eggs in the nests of other birds. The cowbird chicks grow faster than the host parents' chicks which often die of starvation or are pushed out of the nest. Most songbirds have not learned to recognize the Brown-headed Cowbird eggs.
- Initially, land conversion started with agriculture; 41% of all U.S. land is farmland (2012 USDA Census of Agriculture). Over the last 100 years over 150 million acres of farmland and native habitats across the country have been converted into buildings, hardscape, and 40 million acres of manicured lawns (Milesi et al. 2005). In Texas, birds suffer a double-whammy: habitat loss is affecting not only our breeding species, but also the many sparrows and other songbirds that overwinter here, and is also reducing suitable migration stopover sites as well.
- Climate change and habitat loss especially impact migratory bird species.

Domestic Cats

- # 1 human-related cause of death to birds in US
- Free roaming and feral cats kill 1.3 to 4 billion birds annually - keep cats indoors



Slide Objective: Discuss threats to birds that are caused by human activity – domestic cats.

- A landscape with perfect plant shelter can be rendered pointless if cats are allowed to roam the space. In fact, creating a bird habitat which draws birds into a deadly situation is counterproductive to the aims of bird conservation. Both veterinary and conservation professionals agree that the best solution to the issue of cat predation on birds and wildlife is to keep cats indoors. This not only protects birds and other wildlife, it is safer and healthier for cats, which face disease, predators, and - most deadly for cats – human-caused death from vehicle collision.
- A recent analysis of many research projects related to bird mortality concluded that, after habitat loss, feral and free-roaming cats are the number one human-related cause of death to birds in the US. **Free-roaming and feral cats kill between 1.3 and 4 billion birds annually.** <https://abcbirds.org/article/outdoor-cats-single-greatest-source-of-human-caused-mortality-for-birds-and-mammals-says-new-study/>
- “Kitty-cam” research from Georgia found 30% of pet cats and 59% of colony cats were confirmed hunters with known kills; 44% pet cats and 83% colony cats exhibited hunting behavior, sometimes harassing a prey item for hours on end. Most cat owners may not be aware of how many prey their cats are actually killing as pet cats consume or abandon most kills (77%), rather than bringing them back home (23%). Birds mid-migration may be at heightened risk if they are especially exhausted. Research by Loss et al. 2014 and Loyd et al. 2013
- There are many safe ways to allow your cat to engage with a backyard habitat, such as building an enclosed “catio” space.

Collisions with Glass

- Kill between 365 and 988 million birds annually
- Up to 44% are collisions with residential buildings



Angus Kirk Flickr Creative Commons

Slide Objective: Discuss threats to birds that are caused by human activity – collisions with glass.

Collisions with building glass rank as the #2 human-related cause of death to birds annually in the United States (Loss et al. 2014), killing between 365 and 988 million birds annually.

<http://www.bioone.org/doi/abs/10.1650/CONDOR-13-090.1>

<https://www.sciencenews.org/article/windows-may-kill-988-million-birds-year-united-states>

Unlike humans, birds cannot perceive glass as a barrier or tell the difference between reflected and real vegetation. For every 10% increase in glass, we see a 20-32% increase in fatal collisions. Many of these collisions occur on buildings under 3 stories in height. The light pollution emanating from our urban areas contributes to collisions as the light interferes with nocturnal migrants' ability to navigate. Unlike many threats that weed out compromised birds, glass is an indiscriminate killer that takes out even healthy individuals.

https://abcbirds.salsalabs.org/ptnewslettertemplatev10_copy2_copy1_copy2_copy1_copy1_copy1/index.html?wvpld=5c7c252e-b4f6-4d51-9c34-441fd23ac237

Modify Glass if Collisions Occur

Make glass and building design safer for birds:

- Reduce reflectivity
- Increase visibility of glass



Slide Objective: Mitigate collisions with windows and glass

Be aware of windows that reflect vegetation, or places (windows on opposite sides of a room) that may look to a bird as if they can fly straight through. Placing landscaping and shrubbery within 3 feet of windows can lessen reflection and risk of strike (birds' flight momentum usually not high enough for serious collision). ***These feeders are in the danger zone of 3 to 30 feet away from the glass, thus requiring modifications that need to be made to the glass.***

If windows are highly reflective or bird collisions are occurring, modify the glass to reduce the reflectivity of the glass and/or increase its visibility to birds. There are a number of films and decals available on the market. Any of these products should be applied according to the 2" x 4" rule - the distance between horizontal design elements (like horizontal stripes) should be no greater than 2 inches and the distance between vertical design elements (like vertical stripes) should be no greater than 4 inches. American Bird Conservancy, safer windows for birds:

<https://abcbirds.org/from-california-to-florida-a-push-to-make-windows-safer-for-birds/?eType=EmailBlastContent&eId=62ef0d2b-02bf-41f3-994e-06a8efdcda5f>

Pesticides

- Kill more than 72 million birds annually
- Eliminate invertebrates that birds depend upon



Slide Objective: Discuss threats to birds that are caused by human activity – use of pesticides.

- The US Fish and Wildlife Service estimates that more than 72 million birds are killed annually by pesticide poisoning. As pesticides bio-accumulate in birds' bodies they can develop acute poisoning. Pesticides harm birds by taking away the critical insect food sources they rely on. USFWS factsheet: "Migratory Bird Mortality: Many Human-caused Threats Afflict our Bird Populations" Finally, birds may mistakenly ingest pesticide pellets that look like seeds or tiny food scraps.
- Homeowners use up to 10 times more chemical pesticides per acre on their lawns than farmers use on crops according to the US Fish and Wildlife Service:
- https://www.fws.gov/dpps/visualmedia/printingandpublishing/publications/2003_HomeownersGuidetoProtectingFrogs.pdf
- Non-toxic, "natural" pesticides will negatively impact wildlife as their goal is to remove a key component out of the ecosystem, insects.
- Rodenticides may kill rodents, but if you want to attract owls or other birds of prey, you may create a harmful situation. Use other methods of rodent control.

What Makes a Good Bird Habitat?



Tufted Titmouse

- Food
- Water
- Shelter
- Places to raise young
- Space

Slide Objective: List requirements for birds to succeed.

- One third of American bird species are in decline according to National Audubon. They need our help.
- What does it take to attract birds to a yard? Some yards boast bigger yard lists than others because they supply more elements of habitat. Here are the elements needed to provide for birds.

Native Plants - Best Bird Habitat

Co-evolved with birds and other wildlife providing foundation for healthy, biodiverse ecosystem



Slide Objective: Introduce idea of native plants as the foundation for good bird habitats.

- Native plants have co-evolved complex relationships with native birds, insects, and other forms of wildlife which means that the overall health of an ecosystem is dependent upon its plant foundation.
- Our urban landscapes are filled with non-native plants that cannot support healthy, functioning ecosystems. The non-native plants in these landscapes often make their way into our green spaces, so many of these preserved “natural” areas lack the native plant composition to support these systems. Removing native plants, or replacing them with non-natives, disrupts ecological connections between the plants and the wildlife that rely on them for food. Without this solid food web base, other native organisms (insects, amphibians, reptiles, birds, and mammals) all face population declines and our ecosystems lose overall biodiversity.
- Benefits of native plants:
 - Natives do not require fertilizers.
 - Natives save water because they are adjusted to local rainfall patterns.
 - Natives do not require pesticides. Pesticide use is counter-productive – they kill the invertebrates that birds rely on.

Source: Douglas W. Tallamy, Bringing Nature Home 2009 edition

Native Plants Host Invertebrates That Birds Eat

90% of the insects that eat plants can only eat the native plants with which they co-evolved



Monica Krancevic iNaturalist



pisum iNaturalist
Gulf Fritillary Caterpillar



Carol Clark

Slide Objective: Introduce the concept of host-insect specialization

Plants and insects, one of their primary predators, have been locked in an evolutionary arms race for eons. Plants have developed chemical defenses to try and deter insects, while insects have co-evolved specialized responses to cope with these plant defenses. Of the native insect species that eat native plants, 90% can only eat the plants with which they coevolved. The non-native plants that dominate the landscaping industry, are for the most, part unpalatable to our native insects.

Source: Douglas W. Tallamy, [Bringing Nature Home](#) 2009 edition

Native Plants Ensure Biodiversity for a Variety of Food Sources

Similarly landscaped yards with native ornamental plants support 29 times as much biodiversity as those using non-natives



Slide Objective: Introduce the importance of native plants in ecosystems.

- Using native plants in our landscaping can have a substantial impact on the ability of our urban spaces to harbor biodiversity. Doug Tallamy's research on this topic investigated the difference between similarly designed yards planted with exotic, non-native plants versus those planted with native plants. He found that yards landscaped with native plants support 29 times as much biodiversity as those using non-native ornamental plants. <http://www.bringingnaturehome.net/gardening-for-life.html>
- In a study in Pennsylvania, researchers in the Tallamy lab compared 6 conventionally landscaped homes with 6 comparable homes landscaped using native plants. They found significantly more native caterpillars and bird species of conservation concern in the yards with native landscaping (Burghardt et al. 2009). <https://www.wildones.org/wp-content/uploads/2016/01/BurghardtTallamyImpact.pdf>
- In addition to the insects they host, native plants provide a variety of other food benefits to birds from the seeds, nuts, and berries they produce. Source: Douglas W. Tallamy, Bringing Nature Home 2009 edition

Native Plants Synchronize Food Sources for Birds

- Native plants ensure food sources at the right times:
 - A healthy insect population during breeding; warm months
 - Buds, berries, seeds, and fruit when insects are not so numerous



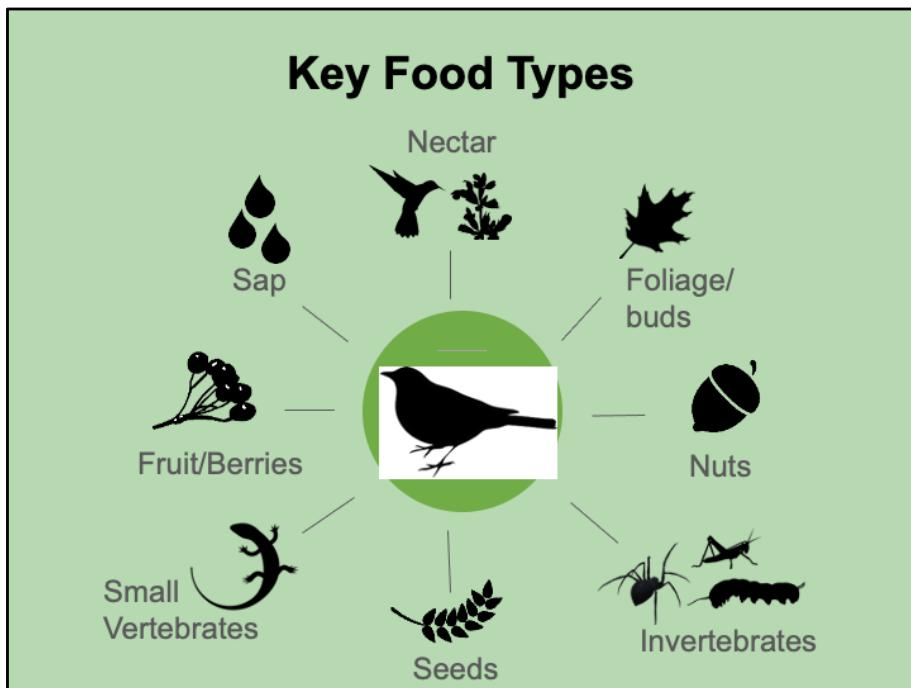
Cathy Nordstrom

Slide Objective: Introduce the importance of native plants in ecosystems.

- Because native plants have evolved with wildlife, they provide correct sources of food at the time that the birds need them.
- In this slide, Cedar Waxwings converge on a possumhaw holly's berries on a cold winter day.



Food
What do Birds Eat?



Slide Objective: Highlight the types of foods that various birds eat.

- It is not just seeds, nuts, fruits, nectar, sap, foliage, and invertebrates. While the focus of this class is songbirds, our yards and greenbelts and retention ponds also support birds like herons and owls and hawks that have a wide variety of animals in their diets such as mammals, reptiles, amphibians and birds. Great Blue Herons do eat rodents for example, in addition to the more typical diet of fish.
- Landscaping with plants that provide these food groups will support both birds and pollinators in your landscape (and, as noted above, more wildlife). Many plants will fall under multiple categories, that is, oaks provide both larval hosts and nuts. Plants discussed in the PowerPoint presentation will represent a selection of species covering this range of food types.
- Some species visit sap such as wintering sapsuckers.
- Goldfinches visit sunflower family plants and eat the foliage.
- Birds also eat buds of various trees, such as cottonwoods.
- Birds may eat or forage on insects (Insectivorous birds).

Slide originally created by Audubon Texas and edited by the Native Plant Society of Texas.

Importance of Invertebrates to Bird Diet



Blue-headed Vireo

- Aphids, katydids, spiders, crickets, beetles, bugs, walking sticks, scale insects, millipedes, wasps, bees, ants

Slide Objective: Invertebrates are an important food source for birds.

- Birds eat a large variety of invertebrates that can be found in and around native plants.
- Birds' diets may change through the seasons due to invertebrate abundance in various tree species.

Source: Dr. Doug Tallamy,

<https://www.birdwatchersdigest.com/bwdsite/bestofbw2016/birds-eat-dont-really-know.php>

Invertebrates: Larval (Lepidoptera) Host



- 96% of terrestrial North American birds rely on caterpillars during breeding season
- Oak trees, willows, elms, black cherry benefit pollinators and birds

Carolina Wren



Rion Nakaya flickr.com/kidsshouldseethis.com

Carolina Chickadee



Dave Bonta Flickr Creative Commons

Slide Objective: Invertebrates are an important food source for birds.

Many plants serve as larval (Lepidoptera – order of insects including butterflies, moths, and skippers) hosts for insects that birds feed on. In addition to helping birds, providing larval host plants in a landscape directly benefits pollinators. Nearly 96% of terrestrial North American birds raise their young on caterpillars which are rich in fat and protein.

The Carolina Chickadee, needs 6000-9000 caterpillars to raise one brood. That's a lot of caterpillars! Source: Douglas W. Tallamy, [Bringing Nature Home](#) 2009 edition

<https://www.wildones.org/wp-content/uploads/2016/01/BurghardtTallamyImpact.pdf>
Dickinson, M. B. 1999. Field guide to the birds of North America. 3rd edition. National Geographic Society, Washington, D.C

Invertebrates: Larval (Lepidoptera) Host



Tree/Shrub Species:

Oak	534
Willow	456
Cherry	456
Cottonwood	368
Pine	203

Non-native Species:

Nandina	0
Ligustrum	24

Slide Objective: Continue the discussion of host-insect specialization and identify types of trees that are known to be good larval hosts.

- Research by Dr. Douglas Tallamy has documented some of the diversity of insects hosted by different tree genera. This list shows the best native genera of trees ranked by the numbers of caterpillar species each group hosts. Choose the “best for birds” plants when you landscape your outdoor space.
- A chickadee pair takes 390 – 570 caterpillars to the nest per day (Brewer 1961). Chickadees feed their young for 16 days before they fledge. 570 for 16 days is over 9,000 caterpillars. If one nest of chickadees requires 9,000 caterpillars to fledge, how many insects must a neighborhood host in order to support multiple pairs? The best way to ensure adequate numbers of insects are present to support native birds is to build a solid foundation for this food chain with the native plants critical to sustaining a diverse array of insects.

Berries



- Orioles, thrushes, grosbeaks, mockingbirds
- Summer, fall and winter berries
- Fuel for migration
- Agarita, elbowbush, sumacs, dogwoods, hollies, hackberries

Northern Cardinal:
Ashe Juniper and Flameleaf Sumac

Slide Objective: Native plant food type: berry-producing

Berry-producing plants provide food during seasons, such as hardship seasons fall and winter, when other food sources may be scarce. Berries provide fuel for birds fattening up for migration and energy to survive during cold winter nights as they are rich in antioxidants and fats. Some examples include native sumacs, hollies, dogwoods, and American beautyberry.

As an adult this Northern Cardinals eats more berries and seeds than insects for maintenance and energy of its physiological state.

Nectar



USFWS Flickr Creative Commons

- 53 native species of birds consume nectar; hummers, orioles
- Insect-eating birds forage on nectar-feeding invertebrates
- Shape and bloom color –cardinal flower, crossvine, *Salvia* spp.

Ruby-throated Hummingbird
Cardinal Flower

Slide Objective: Native plant food type: nectar-producing

Nectar producing plants are critical to hummingbirds. Hummingbirds are only found in the western hemisphere and the familiar Ruby-throated Hummingbird must store enough energy (up to 40% of its body weight) to complete a 500 mile migration flight across the Gulf of Mexico. Nectar plants are vital to fueling not only migration flights but day-to-day foraging (which includes spiders and small insects) and nesting. Hummingbirds prefer tube-shaped flowers that are red, orange, or purple, and these same blooms can contribute to a vibrant space supporting insect pollinators as well. Some well-known nectar sources include cardinal flower, crossvine, trumpet vine, Salvias, lantanas, and Turk's cap.

http://www.audubon.org/sites/default/files/documents/attracting_hummingbirds_and_orioles.pdf

Seeds



Jane Tillman

House Finch

- Sparrows, finches, doves
- Seed eaters need grit from crushed rock/gravel
- Wide variety of seeds: grasses, flowers
- Black-eyed Susan, coneflowers, native grasses, legumes

Slide Objective: Native plant food type: seed-producing.

There are a wide variety of plants that produce seeds for granivorous birds, including native grasses, sedges, and flowering plants. Birds are often key seed dispersers for many of these plants. Some examples include native grasses like Indian grass, switchgrass, and muhlys; flowering plants like black-eyed susan, coneflowers, native thistles, and legumes such as redbuds.

Nuts



Tom Erkler Creative Commons

- Blue jays cache (store) nuts in the ground
- Woodpeckers and game birds, like turkey and ducks, eat nuts
- Pecans, oaks, walnuts

Blue Jay

Slide Objective: Native plant food type: nut-producing.

Nut producing plants, such as pecans, oaks, and walnuts, provide an important source of food for many birds during the winter months. Birds like Blue Jays serve an important role in dispersing nuts across the landscape through caching, or food stashing, behavior – a single bird may cache hundreds of nuts and those that are not recovered may sprout into new trees.

Blue Jays may store 2-3 acorns in the pouch, another one in their mouth, and one more in the tip of the bill. In this way they can carry off 5 acorns at a time to store for later feeding. Six birds with radio transmitters each cached 3,000-5,000 acorns one autumn. Their fondness for acorns and their accuracy in selecting and burying acorns that have not been infested with weevils are credited with spreading oak trees after the last glacial period. Source: Cornell's All About Birds - <https://www.allaboutbirds.org/>

Tree Sap



- Hummingbirds, warblers, kinglets, wrens
- Sap attracts birds and invertebrates
- Gum bumelia, oaks, cedar elm, hackberries, other hardwoods



Yellow-bellied Sapsucker

Slide Objective: Native plant food type: tree sap.

- Some tree species produce sap that seeps out in response to various factors (disturbance of the bark, temperature, disease).
- Sap is an important resource for birds. They either feed on the invertebrates that feed on the sap or lick the sap itself.
- Sapsucker is a keystone species attracted to trees that release sap. They drill cavities. Sap and cavities attract insects which feed other wildlife. Sapsuckers tend to choose sick or wounded trees for drilling their wells.

https://www.allaboutbirds.org/guide/Yellow-bellied_Sapsucker/lifehistory

“Keystone species” are species that have a particularly high impact on other species within an ecosystem.

- Hummingbirds time migration with sapsuckers.
- Wintering warblers, kinglets and wrens feed on sap.
- Migrating warblers, flycatchers and hummingbirds attracted to insects.

Source Cornell Lab: All About Birds - <https://www.allaboutbirds.org/>

Foliage



Lesser Goldfinches on Plateau Goldeneye

Slide Objective: Native plant food type: foliage.

- Sometimes people think their plants are being eaten by caterpillars, but in fact birds do eat foliage and buds.
- In this photo Lesser Goldfinches are eating the leaves of Plateau Goldeneye. They also eat the leaves of White Mistflower or Thoroughwort. (Goldfinches also eat Swiss chard leaves.)
- Birds also eat cottonwood buds.

Small Vertebrates



- Predatory birds and some songbirds eat small vertebrates
- Amphibians, reptiles, fish, mammals, birds
- Inhabit canopy trees to groundcover; dead and downed wood



Gil Eckrich

Eastern Screech Owl mobbed by Blue-gray Gnatcatcher. Screech Owls eat small birds.

Slide Objective: Native plant food type: small vertebrates.

- Many bird species, particularly birds of prey, are adapted to eating vertebrates and will opportunistically take prey of various sizes. Backyard owls such as Eastern Screech and Great Horned and backyard hawks eat birds, mice, rats, and snakes. Herons eat a lot of aquatic foods like snakes, frogs, and fish, including prized Koi in backyard ponds.
- In the photo, the Eastern Screech Owl, a predator of smaller birds, is being mobbed by a Blue-gray Gnatcatcher to drive it away or to alert other birds to its presence.

Source: Cornell Lab [All About Birds](https://www.allaboutbirds.org/) - <https://www.allaboutbirds.org/>

Food Sources Year-round



Benny Mazur Flickr Creative Commons



USFWSmidwest Flickr Creative Commons

- Select an array of plants that provide food sources throughout the year

- Some plants provide different types of food at different times of year

Oak (*Quercus* sp.)
Larval host and later as acorn producer

Slide Objective: Discuss the importance of providing food sources year-round.

- As important as the diversity of food types is the cross-seasonal availability of these food types. Most gardens have blooms during spring, and maybe in to summer. This is beneficial to pollinators and nectar-eating birds during spring migration, but leaves a large gap in their food supplies during fall migration. Many native flowers i.e. Black-eyed Susan bloom and provide food for wildlife throughout the majority of the year. There are even some species, such as goldenrod, that bloom only in the fall.
- When considering landscaping to support birds, select array of plants that provide food sources throughout the year. Some will provide different types of food at different times of year; in spring oaks are excellent larval hosts, but also serve as nut-producers in the late fall and through the winter. Likewise, a Texas thistle may provide nectar for hummingbirds in spring and summer but the spent seed head can provide seeds for goldfinches and Pine Siskins in winter.
- Birds' diets change through the seasons due to arthropod abundance in various tree species. For example, four tree species are especially important to Golden-cheeked Warblers (GCWA) because of the arthropods they support during the season that the GCWA resides in central Texas: Texas Red Oak – March, Live Oak – April, Ashe Juniper – May & June, Cedar Elm – July Source: Mike Quinn, Entomologist: The Golden-Cheeked Warbler: A Bioecological Study, published by Texas Parks and Wildlife, 1976

<https://www.amazon.com/Golden-Cheeked-Warbler-Bioecological-Study/dp/B0006WF9LW>

Feeders – Use Prudently



Jane Tillman
Female Red-bellied Woodpecker

- **Not necessary** – but fun for bird viewing
- Best results:
 - affix to window, or
 - place within 3 ft of windows, or 30 ft away
- Place 10 ft away from shrubs

Slide Objective: Discuss landscape elements for a bird-friendly space – bird feeders.

- People often decide to feed the birds in order to see them more easily.
- Use feeders prudently; a hummingbird feeder can be a good supplement to nectar plants between bloom cycles, or can ease competition between individuals.
- Always keep feeders and birdbaths clean and in a safe location away from glass and predators; otherwise they can become more of a liability than an asset.

Source: Cornell Lab of Ornithology, a leader in bird conservation.

<http://www.birds.cornell.edu/Page.aspx?pid=1478>

15 Minute Break

Water

Water is another important component to a bird-friendly landscape.

Bird Baths

- Shallow water
- Sloping, not steep, sides
- Non-slippery surface
- Perch nearby
- Keep clean
- Moving water attracts birds



EH Pien Flickr Creative Commons

Gray Catbird

Slide Objective: Recognize characteristics of a good bird bath.

- Wildlife drips can be a good way to provide a reliable water supply for birds and pollinators without standing water.
- Birdbaths can be extremely attractive to birds but do require regular maintenance to keep them full, clean, and free of debris and mosquito larvae.
- Always keep birdbaths clean and in a safe location away from glass and predators; otherwise they can become more of a liability than an asset.
- Be sure and place your water feature in a place safe from cats as birds are very vulnerable when their feathers are wet. Provide a close-by perch where they can preen. Keep in mind that plants close to your bird bath will benefit from a little extra moisture since you will be refreshing the water frequently- a good spot for a thirstier plant.

Retention Ponds

Water for wildlife and clean water for people



© Guido Flickr Creative Commons

Slide Objective: Discuss the importance of water for birds – retention ponds.

- Controlling storm water runoff is a critical component of many urban landscape and development plans and can present an opportunity to provide water for birds and other beneficial wildlife. Incorporation of native plants into bioswale areas (water collection and removal features) not only enhances their ability to absorb and filter runoff, but can also create additional habitat for birds.
- Using native plants can conserve water which allows more to flow into our bays and estuaries which is essential to their health. Native plants purify and clarify water so it is clean for waterbirds (like herons, egrets) and other wildlife.
- Some birds utilizing this habitat:
 - Marsh Wren
 - Common Yellowthroat
 - Least Grebe
 - Song Sparrows
 - Red-winged Blackbird
 - Ducks

Rain Gardens

Slow it down, spread it out, soak it in (USEPA)



Sue Anderson

Slide Objective: A low spot in the yard where water gathers may be turned into a rain garden and provide water for birds as well.

- A rain garden temporarily provides water at ground level which is attractive to birds and amphibians and to native plants that don't mind being periodically inundated (having their feet wet). It can be designed so that it does not retain water long enough to hatch mosquitoes.
- According to the Centers for Disease Control, The Aedes mosquitoes have 4 life stages: egg, larva, pupa and adult. Mosquitoes can live and reproduce inside and outside the home. The entire life cycle, from an egg to an adult, takes approximately 8-10 days. Pupae develop into adult flying mosquitoes in 2-3 days.

Shelter and Places to Raise Young

Unfriendly Landscape: No Shelter



Shane Adams Flickr Creative Commons

Slide Objective: Introduce the idea of certain types of landscapes that do not provide good shelter for birds.

- Creating shelter for birds using native plants is another key part of creating a bird friendly landscape. Consider a typical lawn, like the one pictured. If a bird lands in a lawn like this, is it likely to feel secure? What if a cat or dog or other predator enters the yard – where could the bird find safety?
- Lawns also encourage environmentally negligent practices such as excessive watering, pesticide applications, and the use of gas for lawn equipment. If you're unable to remove or reduce your lawn allow it to grow out in some areas instead of regularly mowing, this provides more realistic foraging habitat for birds like robins. The grass would eventually go to seed which would potentially provide an additional food source for granivorous (grain eating) birds.

Shelter

- Nesting, roosting, safety from predators
- Resist limbing up or thinning out woody plants



Barbara Keir

Northern Mockingbird
Nest in Yaupon Holly



Jane Tillman

Broad-winged Hawk
in Live Oak



CenUSA Bioenergy Flickr/Creative Commons

Eastern Meadowlark
Grass Nest

Slide Objective: Native plants as shelter for birds.

In addition to food, native plants provide optimal shelter for native birds. Many grassland birds, such as the Eastern Meadowlark, nest in native bunchgrasses; this structure provides the best camouflage for their nests.

Winter Shelter



Stephen Little Flickr Creative Commons

Slide Objective: Discuss the idea of plants as shelter for birds.

- Even a single shrub in a landscape can provide some measure of shelter for birds. It is a feature that can provide a retreat from the elements or a barrier to predators. Using foliage shelter elements in a landscape can make it more inviting to birds. Shelter plants need not be evergreen; even multi-trunked deciduous shrubs (as pictured above) can be an inviting space. The branches on this shrub slow down the wind and provide some protection.
- Even bare branches and leaves from late season perennials can provide shelter for birds. Don't cut down everything. Leave leaf litter, too.

Brush Pile Shelter

- Can be neat and/or an architectural element
- Provides:
 - Hiding place from bird-eating hawks
 - Site for pupating and nesting insects



Jane Tillman

Slide Objective: Discuss the idea of plants as shelter for birds.

Brush piles are a simple way to provide a permanent cover structure in your landscape. Collect and set aside fallen branches, logs, and other garden debris to create a pile somewhere in your landscape. Brush piles provide an area for birds to seek shelter from the summer heat and other types of severe weather, to hide from predators, to build nests, and forage for invertebrates. Brush piles are extremely beneficial to a variety of invertebrates, especially our solitary native bees that will often use old pieces of wood in shaded areas to nest in.

Dead and Downed Wood Shelter

Shelter, cavity nests,
foraging substrate



Screech Owl



Jane Tillman

Slide Objective: Discuss the idea of plants as shelter for birds.

Dead standing trees, also known as snags, provide habitat to many types of wildlife, especially invertebrates and birds. If you're able to leave a dead tree standing in your yard without it becoming a safety risk it will be a great benefit to the wildlife in your backyard. More than 100 species of birds across the country require snags for nesting. Woodpeckers particularly rely on snags for feeding and nesting as they create their own nesting cavities. Snags also provide foraging perches for birds. A useful resource: <http://cavityconservation.com/>

Nest Building Materials



Slide Objective: Increase understanding of bird needs for nest building materials.

- Ensure sticks and grasses are available for nest making. Green Herons do nest in people's yards as do Yellow-crowned Night Herons, particularly in yards close to creekside (riparian) habitats.
- The Golden-cheeked Warbler, a bird that nests only in 33 counties in central Texas, requires the peeling bark of a mature Ashe Juniper (*Juniperus ashei*) in order to build its nests. Only mature trees produce the long shreds of bark that the female uses for her nest.

Nest Boxes

- Design:
 - No perch on box
 - Open to clean
 - Drainage holes
 - Ventilation holes
 - Walls $\frac{3}{4}$ " untreated wood
 - Baffle
- Accessible to:
 - Monitor
 - Clean
- Orient and place depending on species



Slide Objective: Recognize the characteristics of a well designed nest box that helps cavity nesters such as titmice, chickadees and wrens.

A well designed, quality nest box will have the characteristics listed.

- Perches are discouraged because they help predators such as raccoons hold onto the box while they reach their long arms inside. A baffle (green in the photo) prevents predators from climbing up the pole. Plans for baffles can be found online, or they can be purchased. A “Noel predator guard” prevents predators from entering nest boxes; plans may be found online (<https://nestwatch.org/wp-content/uploads/2013/06/guardnoe.pdf>), or they may be purchased. Also see: <https://nestwatch.org/learn/all-about-birdhouses/dealing-with-predators/>
- Nest boxes should be cleaned out at least once per year.
- Nest box placement (in full sun to dappled shade) depends on the species. Morning sun and afternoon shade or dappled shade are appropriate for many species. See Nestwatch.org, run by the Cornell Lab of Ornithology, to learn more.

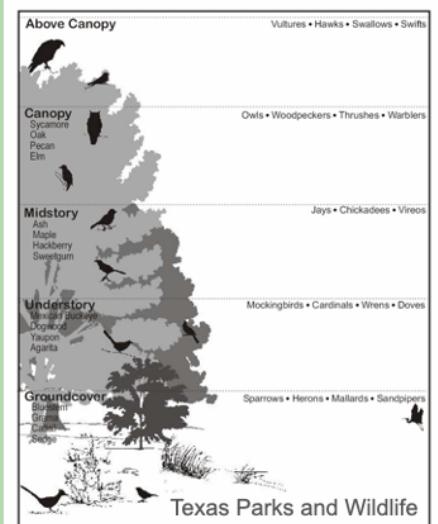
Texas Bluebird Society has excellent information on installing nest boxes:
<http://texasbluebirdsociety.org/>

Not all birds are cavity nesters. Many common backyard birds are not, including

robins, mockingbirds and cardinals.

Space: Landscape Considerations

Structural Diversity and Niches



Canopy – owls, robins, warblers, tanagers

Mid-story – jays, chickadees, titmice

Understory – cardinals, wrens, mockingbirds, doves

Ground level – sparrows, cardinals, doves, wrens

Slide Objective: Discuss importance of vertical layering of vegetation (structural diversity) to attracting birds (and other wildlife).

- In addition to balancing the food type composition of native plants in your landscape, considering structural diversity is a key element in creating a bird-friendly landscape. Typically, our urban and suburban landscapes feature tall canopy trees interspersed throughout low-growing vegetation, primarily low-mown grass. What's missing? The midstory and taller shrub layers favored by many species of birds are missing.
- Here, trees provide the canopy layer or over-story, the mid-story layers are created by small trees and shrubs, and the understory is provided by the ground cover of grasses and broad-leaved herbaceous plants. The more habitat layers you have, the more birds your space can support -- even if it's a tiny urban yard. This layering is important in its ability to provide adequate spaces for foraging, roosting, and nesting. Depending on your ecoregion, your layers may be different; ornamental trees may serve as your canopy layer.
- Birds favor different parts of the vertical habitat. They may use different levels for different purposes. Example: cardinals nest in the understory and can feed on the ground level.

Structural Diversity



Slide Objective: Structural diversity may be aesthetically pleasing to humans in addition to being useful to birds.

- A bird friendly landscape need not look wild and unkempt – bird needs can be met in a space that looks attractive and inviting to people.
- Including plants of varying heights, bloom times, and planting multiple plants of the same species within a landscape will create the ideal refuge for wildlife throughout the entire year.
- Borders, paths, and other structural elements can lead the eye and serve as visual indicators to human viewers that the space is cared for and designed with intention.
- Some plants in photo by height: Escarpment live oak, Texas sage (Cenizo), TX lantana (orange and yellow blooms), non-native lantana (all yellow blooms)

Consider taking the Native Plant Society of Texas (NPSOT) Native Landscape Certification Program (NLCP) Level 2 (Level 1 a pre-requisite) to learn more about design considerations in creating a native landscape.

(Host chapters use local photos if desired.)

Create a Thicket



Slide Objective: Thickets are important for providing roosting, nesting and foraging spots.

- To create a thicket, think thick. Plan for your vegetation to have at least a six-foot wide footprint. Plant plants closer together than the spacing directions recommend. Since your landscape is dynamic, eventually some plants will outcompete others, but you will still maintain the thicket effect. Your plant choices are going to vary depending on your soil and light conditions. Visit a natural area close to your house to get ideas for the plant mix.
- Here is the anatomy of a designed-by-nature dry hot west-facing thicket, roughly 18 feet long by 10 feet wide on Mesa Drive in NW Hills in Austin. Plants are listed by height: cedar, Mexican buckeye, Lindheimer silk tassel, evergreen sumac, fragrant sumac, elbowbush, agarita, white mistflower, golden-eye, zexmenia, Indian mallow, lovegrass, sedges, all tied up with balsam gourd vine and snailseed vine.

(Host chapters use local photos, if desired.)

Landscaped Thicket



Slide Objective: Thickets may be transitioned into a more aesthetically pleasing (human driven) landscape.

- Here is a landscaped thicket with layers of habitat and foraging spaces underneath small trees and shrubs.
- Some plants in photo by height: escarpment live oak, TX mountain laurel, huisache, thornless prickly pear cactus, twisted leaf yucca, TX lantana (orange and yellow blooms), zexmenia, MX feathergrass

(Host chapters use local photos, if desired.)

Structural Diversity Varies

Pollinator gardens may lack woody mid-story and canopy, and still attract birds



U.S. Dept. of Agriculture Flickr Creative Commons

Slide Objective: Pollinator gardens offer a different type of bird habitat.

- Some typical pollinator gardens, like the one pictured, have fewer habitat layers. They may provide nectar for pollinators, seeds for granivorous birds (if deadheading is limited) and also attract invertebrates that birds will eat, as well as provide nesting material.
- When creating a backyard habitat for both birds and other pollinators, keep habitat layers in mind.
- Some plants in photo by height: Maximilian sunflower, purple coneflower, purple prairie clover.

Consider Nearby Habitat

- Use your landscaping to increase connectivity between habitat areas
- Ecological context matters



Miguel Vieira Flickr Creative Commons



JE Theriot Flickr Creative Commons

Slide Objective: Consider the larger ecological context (ecoregions) when landscaping.

- Your landscape has a role to play in the larger ecosystem. Consider the ecoregion in which you are designing (forest? prairie? desert?) and nearby habitat or geologic features (streams, rivers, wetlands) when developing a species list for a landscape.
- Ideally, your landscape will serve as a stepping stone or a piece of a larger mosaic of habitat for birds at the regional scale.
- Some plants in woodland photo by height:
- Some plants in prairie photo by height:

(Host chapters use local photos, if desired.)

Consider Site Specific Conditions

Sun/shade, moisture, soils, space



Cathy Nordstrom

Slide Objective: Group plants according to site specific conditions in the landscape to ensure success.

- Plant native species with similar requirements for sun/shade, moisture, and soil conditions together.
- Natives are adapted to climate and soils of an ecoregion and, after establishment, will not need supplemental watering unless drought conditions occur.
- Natives do not require fertilizers; do NOT use pesticides.
- Some plants in photo by height: yellow Columbine (Hinckley's columbine)

Design Considerations



- Composition
- Texture
- Color
- Pattern
- Arrangement
- Proportion

Slide Objective: Take aesthetic (human driven) design considerations into account.

- A bird-friendly landscape need not look wild and unkempt. Food, water, shelter, and safety needs can all be met in a space that looks attractive and inviting to people.
- Diversity is the key to a great bird habitat. But, planting multiple plants of a single species next to one another will form a clump that is more noticeable to pollinators and birds passing by, especially in landscapes that may be hidden by tree canopies.
- Including plants of varying heights, bloom times, and planting multiple plants of the same species within a shady landscape will create the ideal refuge for wildlife throughout the entire year.
- Structural elements can serve as visual indicators to human viewers that the space is cared for and designed with intention.
- Some plants in photo by height: escarpment live oak, anacacho orchid, autumn sage.

Consider taking the Native Plant Society of Texas (NPSOT) Native Landscape Certification Program (NLCP) Level 2 (Level 1 a pre-requisite) to learn more about aesthetic design considerations in creating a native landscape.

Design Considerations

Borders can keep native landscapes looking neat and organized



Jane Tillman

Mills Pond at Wells Branch, Austin



Jane Tillman

Lady Bird Johnson Wildflower Center, Austin

Slide Objective: This is an example of a bird-friendly landscape with layers, diversity of plants, and aesthetic elements.

- Mowed borders (left) and walls (right) lead the eye and serve as indicators to viewers that the space is cared for and designed with intention.
- Diversity is the key to a great bird habitat. But, planting multiple plants of a single species next to one another will form a clump that is more noticeable to pollinators and birds passing by.
- Some plants in photo on left by height: oak species, ash juniper (cedar), MX hat, grasses (native and non-native)
- Some plants in photo on right by height: oak species, ash juniper (cedar), Lindheimer muhly, purple coneflower, autumn sage, Gregg's dalea (gray mass of plants).

Design Considerations



Cathy Nordstrom

Slide Objective: An example of a bird-friendly landscape with layers, diversity of plants, and aesthetic elements.

- The path leads the eye through the landscape.
- Diversity of species and structure.
- Plants in photo by height: yellow indiangrass blooming.

(Host chapters use local photos, if desired.)

Design Considerations



Slide Objective: An example of a bird-friendly landscape with layers, diversity of plants, and aesthetic elements.

- Diversity of species and vertical structure.
- Structural element – bird bath.
- Some plants in photo by height: Eastern Red Cedar, Possumhaw Holly, Standing Cypress, Frostweed, Purple Coneflower, Firewheel (Indian Blanket), Gayfeather.

(Host chapters use local photos, if desired.)

Landscape Conversion



Carol Feldman

Slide Objective: An example of a traditional landscape being converted to a native landscape.

- This is a traditional landscape with non-native turf grass and crape (crepe) myrtles and in the background.
- However native plants have been incorporated into the landscape creating a bird-friendly landscape with layers, diversity of plants, and aesthetic elements.
- More native species may be added over time.
- Some native plants in photo by height: background trees, Big Muhly bunch grass, purple coneflower, black-eyed Susan, Zexmenia

Consider taking the Native Plant Society of Texas (NPSOT) Native Landscape Certification Program (NLCP) Level 2 (Level 1 a pre-requisite) to learn more about design considerations in converting a native landscape.

(Host chapters use local photos, if desired.)

Maintenance Best Practices



Pine Siskin

Jennifer Jewwett USFWS Flickr Creative Commons

- Minimize chemical use
- Reduce lawn/allow part to “grow wild”
- Allow plants to go to seed
- Prune trees/shrubs late winter
- Leave leaf litter as mulch
- Create brush piles; leave downed woody material
- Clean water elements; feeders frequently

Slide Objective: Summarize maintenance best practices that support a bird-friendly landscape.

- Reduce pesticide use.
- Reduce lawns. Lawns offer little food to birds, and cut grass often gives an advantage to predators because it doesn't provide cover.
- Allow flowers to go to seed to provide food for a variety of birds in your yard. When you deadhead flowers you are preventing the plant from going to seed. If plants are consistently deadheaded through the year you run the risk of killing the plant. To have blooms in your yard year round add native plants such as Black-eyed Susans and Scarlet Sage that bloom through the fall.
- Leaf litter is beneficial to your yard; it acts as a natural mulch and adds nutrients to the soil as it decomposes. Leaves provide habitat for both invertebrates and birds. White-throated Sparrows, Fox Sparrows, thrashers and towhees prefer feeding among leaves where they can scratch for invertebrates.
- Collect and set aside fallen branches, logs, and other garden debris to create a brush pile somewhere in your landscape, and leave snags or logs in your landscape whenever possible.
- Keep water elements and feeders clean to prevent the spread of disease to visiting birds.
- Use petroleum-free (electric) gardening tools is one of the best things you can do to help both wildlife and people.

We Can Make a Difference



Slide Objective: Introduce solutions that people can take to have a positive impact on bird populations.

Common birds are experiencing steep declines in population:

Indigo Buntings have declined 62% since the 1960s.

Eastern Meadowlarks have declined 71% in the last 40 years.

Purple Martins have declined 78% since the 1960s.

Red-headed Woodpeckers have declined 89% since the 1960s.

The 2014 State of the Birds report summarizes decades of population monitoring data for North America's bird populations based on their associated habitat.

- Overall, populations of our native birds have been in steady decline.
- Birds associated with native grasslands have declined roughly 40% since 1968.
- However, one group of birds is showing an opposite trend: birds associated with wetlands. The increase is due to a concerted effort driven by a partnership between hunters (who are interested in sustainable waterfowl populations) and conservationists. Protection of wetlands and on-the-ground wetland restorations have resulted in recovery of birds that rely on wetland habitats. The message here is encouraging: when you bring back quality native habitat, you help can stabilize or increase bird populations.

Start Small...



Slide Objective: Introduce the idea of a habitat mosaic of smaller landscapes.

You can begin one plant at a time, installing native plant alternatives to the standard alien ornamentals. Over time, reduce the amount of your turf grass lawn. Your native plant garden will help create corridors connecting and supporting larger natural areas. One person can't create a corridor, but a neighborhood can. It is the synergistic effect of all our habitat gardens that will make the big impact for birds. Think of it like a patchwork quilt—each patch of habitat can create a mosaic of critical habitat for birds.

Think Big



Lorelei Stierlen

Clymer Meadow – Managed by the Nature Conservancy



Lorelei Stierlen

Dickcissel at Clymer

Slide Objective: In addition to creating a mosaic of neighborhood yards, support conservations groups who are working to keep large blocks of suitable habitat available.

Using native plants to create a mini refuge for birds in your own landscape, you can make a difference in our native birds' ongoing fight for survival. When lots of people in a neighborhood all start doing the same thing, together they can make a huge difference for native birds. But, it's good to remember that some birds need specialized habitats and large acreage that few of us working alone can provide. Support bond issues that set aside water quality protection lands and green space. Support land conservancies. Become an advocate for state programs such as those provided by Texas Parks and Wildlife to get people outside, and for federal programs such as the Land and Water Conservation Fund and National Wildlife Refuge funding. Volunteer at a refuge, urge politicians to keep wild spaces, create an article for publication to raise awareness, or simply donate to conservation groups who are already doing the work. The future depends on what we do today.

The Clymer Meadow is run by the Nature Conservancy and is 1,400 acres of unplowed Texas Blackland Prairie. It is home to rare native plants, many birds whose habitats have been shrinking, and a huge amount of biodiversity on all levels.

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