



Landscaping and Gardening for Birds

The Oklahoma Cooperative Extension Service Bringing the University to You!

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Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

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Attracting birds to landscapes and outdoor areas is an activity that can bring much enjoyment to the entire family. Landscaping and gardening for birds is gaining in popularity as people become more aware of the benefits of having a diverse environment around them. Bringing these beautiful creatures near homesites also helps manage insect populations and maintain the ecological balance of outdoor environments.

Birds need three things to survive — food, water, and shelter. These elements can easily be supplied in your backyard. One of the key elements for attracting many species of birds is a wide variety of plants arranged into sheltered areas of shrubs and trees, open areas of lawns and gardens, and/or wet areas around ponds and streams.

Gardeners and landscapers should be aware that the predominant habitat type in the area will determine which bird species can be attracted to a yard. For example, if the entire neighborhood is heavily wooded, purple martins will be difficult or impossible to attract. On the other hand, areas with many tall, mature trees will have numerous birds, such as some of the owls, vireos, and warblers, that open areas may not attract. Some species such as the cardinal and mockingbird require shrub cover. In particular, a new house in a recently built residential area, will need time for the yard to mature. As the shrubs and trees grow, so will the number of birds that visit the yard. New areas with few mature trees and little shelter for birds will take several years to become hospitable places for birds requiring trees and shrubs.

Food

Plant Materials

Use a diverse selection of plant materials to provide food and shelter for birds. Fill the yard with fruit- or seed-bearing plants for the best habitat development. Although most plants are beautiful, not all benefit wildlife other than to give shelter. For example, a forsythia (*Forsythia* spp.) or lilac (*Syringa* spp.) hedge can provide shelter and be a spectacular sight in the spring, but they provide no seeds or fruits for birds. On the other hand, an evergreen holly (*Ilex* spp.) hedge loaded with

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berries will be attractive, provide shelter in the winter, and still feed wildlife.

Use native plants whenever possible. Our native birds are adapted to the native plants, which are often drought resistant, cold and heat tolerant, and many are proven bird attractors. An additional benefit is that they are often low maintenance.

Use flowering plants. Hummingbirds require a constant and diverse supply of flowers on which to feed from April until late fall. Some early blooming plants are the American columbine (*Aquilegia* spp.), petunia (*Petunia* spp.), foxglove (*Digitalis* spp.), hardy fuchsia (*Fuchsia* spp.), and larkspur (*Delphinium consolida*). Late blooming plants include red bergamot (*Monarda* spp.), cardinal flower (*Salvia coccinea*), scarlet trumpet honeysuckle (*Lonicera* spp.), salvia (*Salvia* spp.), and trumpet creeper (*Campsis radicans*). For best results, choose plants that prefer bright sunny areas. The plants will yield greater quantities of nectar given adequate access to sunlight, and the hummingbirds will benefit from the sun's warming rays.

Trees and Shrubs

Many tree and shrub species can be useful for both wildlife and gardeners. There are several selections in the listings that follow. An example would be the many oaks that grow throughout Oklahoma such as chinkapin (*Quercus muehlenbergii*), live (*Q. virginiana*), red (*Q. rubra*), and shumard (*Q. shumardii*) oaks. Check for species best adapted to your location and soil type. (See Tables 1, 2, and 3.)

Herbaceous Plants

Herbaceous plants can be either annuals or perennials. Annuals are those plants that need to be replanted each year. Perennial plants that are adapted to Oklahoma's Winter Hardy Zones 6 and 7 should provide years of benefit to the landscape. Some perennials are tender and need extra protection by mulching during the winter. There are also a few tender perennials grown as annuals. Many grasses, both ornamental and native, may serve as resources for food, nesting material, or shelter.

Vines on fences and other supports can turn a part of the yard into prime real estate for food, nesting, and shelter. Bittersweet (*Celastrus scandens*), trumpet creeper (*Campsis radicans*), clematis (*Clematis* spp.), honeysuckle (*Lonicera*

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spp.), grapes (*Vitis* spp.), and Virginia creeper (*Parthenocissus quinquefolia*) have the added attraction of flowers and/or fruits. (See Tables 4 and 5.)

Miscellaneous Plant Materials

Vegetable crops make nice choices for many birds. Sacrifice a few vegetables each year by picking damaged pieces and leaving them in another open location for the birds to eat. Many times the rest of the crop will be left alone.

In a smaller section of the garden or landscape, incorporate legumes, grains, or native grasses like alfalfa, clover, millet, quaking oats, sea oats, or switchgrass. Harvest a few heads for feed during the winter and then let the finches, quail, pheasants, mourning doves, and juncos eat what is left. Farm supply stores carry these seeds.

Bark, leaf, or compost mulches attract insects on which many animals and birds feed.

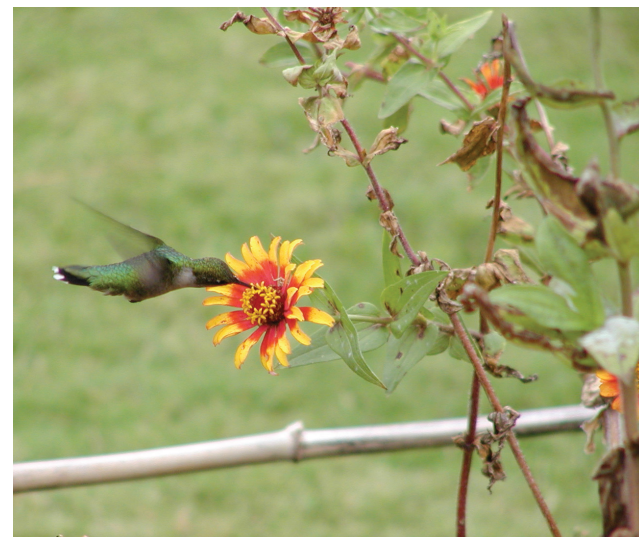
Lawns play a role in feeding several species of birds such as robins, mockingbirds, and flickers because of the insects and worms they find there. For this reason pesticide use should be minimized.

Allow weedy areas to grow up at the back of the yard or wherever the homeowner and the neighbors will not see them. Weeds in the right places, usually far away from gardens, can be very useful for animal food and shelter. Dandelion seeds are a favorite of goldfinches, buntings, chipping sparrows, and finches.

Supplemental Feeding

Supplying bird feeders in the landscape will create additional opportunities to watch birds feed. Place bird feeders where they can easily be seen from the house and enjoy the activities of the birds. Keep feeders stocked, especially during bad winter weather, but do not forget that summer feeding can also be rewarding. Shrubs or trees should be no closer than 10 feet so birds can escape in case of danger.

Bird feeders should be cleaned regularly. Diseases can grow in wet and moldy seed, in bird droppings, and in warm sugar water. It is a good idea to move your feeders each season to give the ground underneath time to break down the seed debris and bird drop-pings, or rake up the seed debris and place it in the compost pile.



Seed feeders are visited by cardinals, juncos, sparrows, chickadees, finches, mourning doves, blackbirds, squirrels, chipmunks, and others. Fruit feeders (wedges of oranges, apples, bananas) are favored by orioles, bluebirds, towhees, woodpeckers, tanagers, brown thrashers, catbirds, and robins. Nectar feeders attract hummingbirds, orioles, and occasionally a variety of other seemingly unlikely birds such as woodpeckers and chickadees.

Hummingbird Feeders

For the best success, hummingbird feeders should be placed in or near the hummingbird garden to encourage feeding from natural sources. However, additional feeders may be placed near a window or porch in order to see and photograph the hummingbirds up close. When placing the feeders near the house, be sure to use several feeders and hang them far apart. Hummingbirds are extremely territorial and aggressive around a single food source.

It is important to use a feeder with a bee and wasp guard. This will eliminate aggressive competition for nectar between these insects and hummingbirds. However, do not be concerned if small insects are found in the mouth of the feeder. They fulfill the protein requirements for hummingbirds and should not be removed from the feeder until cleaning.

Never use honey or a sugar substitute when making a nectar mix. Honey will attract bees as well as a black fungus that will cause a fatal liver and tongue disease in hummingbirds. Also, the use of red food coloring in the solution is both unnecessary and unhealthy for the birds, especially when the feeder already has the appropriate red plastic blossom. Either buy a commercial nectar solution or simply make one using one part granulated sugar to four parts boiling water. Allow the nectar to cool before filling the feeder.

Hummingbird feeders require cleaning every two to three days, especially in warm weather. Feeders made of plastic, glass, or ceramic should be washed with a solution of 1 tablespoon white vinegar and 1 cup water. Use a bottle brush to clean hardened debris on feeders, and rinse thoroughly with warm water.

Water

Water can be supplied by bird baths, shallow edges of decorative ponds, or natural streams, ponds, or lakes. Dripping water is especially enticing to birds and can be as elaborate as a fountain or as simple as a garden hose turned on at low volume. Equally effective is a milk jug (with a small hole in the bottom) hung from a tree branch over a bird bath.

Bird baths should have a clear area of ten feet in diameter around the bath to prevent predators from sneaking up on birds drinking from the water. The water level should be no deeper than two inches. Place a rock in the center to make it easier for birds to use. Keep the bath away from the bird feeder to prevent food from spoiling the water. The bath should be washed out every three to four days and disinfected once or twice a year with bleach. Do not add any chemicals to the water. A bird bath heater can be used during the winter to keep the water from freezing and thus attract an amazing variety of birds.

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	ENVIRONMENT			PEOPLE		WILDLIFE				REMARKS	
	Sun	Shade	Pt. Sun	Moist	Dry	Flowers	Foliage	Fruit	Flowers		Shelter
Marigold (<i>Tagetes</i> spp.)	X					Sum					annual, spider mites
Mexican Sunflower (<i>Tithonia rotundifolia</i>)	X					Sum					annual, spider mites
Milkweed (<i>Asclepias</i> spp.)						Sum					perennial
Mint (<i>Mentha</i> spp.)	X		X		X	Sum					*perennial, invasive biennial
Mullein (<i>Verbascum</i> spp.)	X					Sum					*annual
Nicotiana [Flowering Tobacco] (<i>Nicotiana glauca</i>)	X			X		Sum		Sum			annual
Partridge Pea (<i>Cassia fasciculata</i>)	X				X	Sum					annual
Penstemon (<i>Penstemon</i> spp.)	X		X			Sp			Sp		*perennial
Pentas (<i>Pentstemon</i> spp.)	X					Sp/F			Sp/F		annual
Petunia (<i>Petunia hybrida</i>)	X					Sum			Sum		*annual
Phlox (<i>Phlox</i> spp.)	X					Sum			Sum		*annual or perennial
Pineapple Sage (<i>Salvia elegans</i>)	X				X	F			F		tender perennial
Pot Marigold (<i>Calendula</i> spp.)	X				X	Sp			Sp		cool season annual
Primrose (<i>Primula vulgaris</i>)	X				X	Sum			Sum		*perennial, cool season, tender
Red Hot Poker (<i>Kniphofia uvaria</i>)	X				X	Sum			Sum		*perennial, red varieties
Sage (<i>Salvia</i> spp.)	X				X	Sum			Sum		*annual (are red) & perennial
Scabiosa [Pincushion Flower] (<i>Scabiosa</i> spp.)	X					Sum			Sum		annual or perennial
Sedum (<i>Sedum</i> spp.)	X					Sum/F			Sum/F		perennial
Snapdragon (<i>Antirrhinum</i> spp.)	X					Sum			Sum		cool season annual
Sunflower (<i>Helianthus</i> spp.)	X				X	Sum			Sum		well-drained moderately fertile soil
Sweet William (<i>Dianthus barbatus</i>)	X		X			Sp/F			Sp/F		annual
Tickseed (<i>Bidens</i> spp.)	X		X			Sum			Sum		*annual or perennial
Tomato (<i>Lycopersicon esculentum</i>)	X			X		Sum			Sum		annual
Verbena (<i>Verbena</i> spp.)	X			X		Sum			Sum		annual, leave some fruit for wildlife
Yarrow (<i>Achillea</i> spp.)	X			X		Sum			Sum		moisture retentive soil, annual or perennial
Zinnia (<i>Zinnia</i> spp.)	X			X		Sum			Sum		annual or perennial

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KEY: * Hummingbird Favorite
W - Winter, Sp - Spring, Sum - Summer, F - Fall, YR - Year Round

SOURCE: The New Royal Horticultural Society Dictionary of Gardening, 4 Vols. MacMillan, 1992.

TABLE 5

HERBACEOUS PLANTS	ENVIRONMENT			PEOPLE		WILDLIFE			REMARKS					
	Sun	Shade	Pt. Sun	Moist	Dry	Flowers	Foliage	Fruit		Seed	Nuts	Fruit	Flowers	Shelter
Alyssum (<i>Lobularia maritima</i>)	X				X	Sum						Sum		annual, cool season
Aster (<i>Aster</i> spp.)	X				X	F						F		perennial
Beebalm [Bergamot] (<i>Monarda didyma</i>)	X				X	Sp/Sum						Sp/Sum		*perennial
Bellflower (<i>Campanula</i> spp.)	X				X	Sp/Sum						Sp/Sum		perennial
Blackeyed Susan (<i>Rudbeckia hirta</i>)	X				X	Sum			Sum			Sum		perennial
Blanket Flower (<i>Gaillardia</i> spp.)	X				X	Sum						Sum		perennial
Butterfly Weed (<i>Asclepias tuberosa</i>)	X				X	Sum						Sum		*perennial
Canna (<i>Canna</i> spp.)	X			X	X	Sum/F	Sum					Sum/F		*perennial
Cardinal Flower (<i>Lobelia cardinalis</i>)	X			X	X	Sum						Sum		*perennial
Columbine (<i>Aquilegia</i> spp.)	X			X		Sp/Sum						Sp/Sum		*perennial
Coneflower (<i>Echinacea</i> or <i>Rudbeckia</i> spp.)	X				X	Sum						Sum		perennial
Coral Bells (<i>Heuchera sanguinea</i>)	X			X		Sp						Sp		*perennial
Coreopsis (<i>Coreopsis</i> spp.)	X				X	Sum						Sum		perennial
Corn (<i>Zea mays</i>)	X				X	Sum		Sum				Sum		annual, leave some for quail & pheasants
Cosmos (<i>Cosmos</i> spp.)	X				X	Sum						Sum		annual
Dame's Violet (<i>Hesperis matronalis</i>)	X				X	Sum						Sum		*annual
Daylily (<i>Hemerocallis</i> spp.)	X				X	Sum						Sum		perennial
Dill (<i>Anethum graveolens</i>)	X				X	Sum		Sum				Sum		annual, swallowtail butterfly favorite
Evening Primrose (<i>Oenothera</i> spp.)	X				X	Sp		Sum/F				Sp		*perennial
Firebush (<i>Hamelia patens</i>)	X				X	Sum		Sum				Sum		annual
Fire Pink (<i>Silene virginica</i>)	X				X	Sum		Sum				Sum		*perennial
Four O'Clocks (<i>Mirabilis jalapa</i>)	X				X	Sum		Sum				Sum		*reseeding perennial
Foxglove (<i>Digitalis grandiflora</i>)	X				X	Sp/Sum		Sp/Sum				Sp/Sum		*tender perennial
Fuchsia (<i>Fuchsia</i> spp.)	X				X	Sum		Sum				Sum		*tender perennial
Gentian (<i>Gentiana</i> spp.)	X				X	Sum		Sum				Sum		*perennial
Gerardia (<i>Gerardia</i> spp.)	X			X	X	Sp/Sum		Sp/Sum				Sp/Sum		perennial wildflower
Goldenrod (<i>Solidago</i> spp.)	X				X	Sum		Sum				Sum		perennial
Hibiscus (<i>Hibiscus</i> spp.)	X				X	Sum		Sum				Sum		annual or perennial, Lord Baltimore: scarlet—hummingbird favorite
Hollyhock (<i>Alcea rosea</i>)	X				X	Sum		Sum				Sum		*perennial
Impatiens (<i>Impatiens</i> spp.)	X				X	Sp/Sum		Sp/Sum				Sp/Sum		*annual
Indian Paintbrush (<i>Castilleja coccinea</i>)	X				X	Sp		Sp				Sp		*perennial
Joe Pye Weed (<i>Eupatorium</i> spp.)	X				X	Sum		Sum				Sum		perennial
Lantana (<i>Lantana</i> spp.)	X				X	Sum		Sum				Sum		tender perennial
Larkspur (<i>Delphinium consolida</i>)	X				X	Sum		Sum				Sum		*annual, cool season
Lavender (<i>Lavandula angustifolia</i>)	X				X	Sp		Sp				Sp		perennial
Liatris [Gay Feather] (<i>Liatris</i> spp.)	X				X	Sum		Sum				Sum		perennial
Lupine (<i>Lupinus</i> spp.)	X				X	Sp/Sum		Sp/Sum				Sp/Sum		*perennial
Mallow (<i>Malva</i> spp.)	X				X	Sp		Sp				Sp		annual

Shelter

Birds require shelter for nesting as well as protection from predators and inclement weather. Shelter can be provided in many ways. If there is room, pile broken branches, prunings, and other miscellaneous plant materials into an open pile for cardinals, wrens, towhees, and sparrows. Thorny or densely branched trees and shrubs, such as shrub roses, blackberries, raspberries, barberries, trifoliolate orange, and rose acacia provide excellent shelter.

Evergreens provide shelter during the winter when other plants have lost their leaves. Pine trees, hollies, southern magnolias, and rhododendrons are examples. Junipers also provide berries in the winter but are so common in Oklahoma that wildlife may benefit more from less prevalent evergreens.



Nest Boxes

Bluebirds, wrens, chickadees, and woodpeckers can be attracted to the yard with the right nest boxes. Boxes should

NEST BOX SPECIFICATIONS FOR OKLAHOMA CAVITY NESTERS

SPECIES	Floor of Cavity (inches)	Depth of Cavity (inches)	Entrance above Floor (inches)	Diameter of Entrance (inches)	Height above Ground (feet)	Preferred Habitat
SMALL CAVITY NESTERS						
Eastern Bluebirds	4x4	12	6	1 1/2	3-6	Open land with scattered trees
Chickadees	4x4	12	6-8	1 1/2	4-15	Open woods & edges
Titmice	4x4	12	6-8	1 1/2	4-15	Open woods & edges
Nuthatches	4x4	12	6-8	1 1/2	4-15	Open woods & edges
Wrens	4x4	12	4-6	1 1/2	3-10	Old fields & thickets
Prothonotary Warblers ^a	4x4	12	4-6	1 1/2	3-12	Wooded streams & swamps
Swallows ^b	5x5	10	1 side open	1 1/2	3-8	Open land near ponds or lakes
Great-crested Flycatchers	6x6	12	6-8	1 3/4 ^c	6-20	Open woods & edges
House Finches	6x6	8	4-6	2	5-10	Backyards & porches
Purple Martins	8x8	6	2	2 1/4	15-25	Open country near water
LARGE CAVITY NESTERS						
American Kestrels	8x8	18	9-12	3	8-30	Open farmland & wooded edges
Screech Owls ^d	8x8	18	9-12	3	8-30	Farmland, orchards, woods
Wood Ducks ^{a,d,e}	12x12	24	12-16	4	3-30	Wooded swamps, rivers, marshes
Barred Owls ^d	14x14	28	18-20	8	15-30	Mature bottomland forests
Barn Owls ^d	16x20	16	4	6	15-30	Farmland; on barn, silo, or large tree
WOODPECKERS ^f						
Downy Woodpeckers	4x4	12	6-8	1 1/2	5-15	Forest openings & edges
Hairy Woodpeckers	6x6	14	9-12	1 1/2	8-20	Forest openings & edges
Red-bellied & Red-headed W.	6x6	14	9-12	2	8-20	Forest openings & edges
Northern Flickers	7x7	18	14-16	2 1/2	8-20	Farmland, open country
Pileated Woodpeckers	12x12	24	16-18	4	15-25	Mature forest

KEY:

- a - Species prefer nest box mounted on post 3 ft. to 4 ft. above open water
- b - Staple 3"-wide hardware-cloth "ladder" directly under hole on inside of nest box
- c - Use a 1 9/16" hole if starlings are problem
- d - Add 2" to 3" wood chips to simulate floor of natural cavity
- e - Staple 5"-wide hardware-cloth "ladder" directly under hole on inside of nest box
- f - Pack woodpecker nest box with sawdust for birds to "excavate"

be cleaned and ready for occupancy by mid-February. Clean nest boxes at the end of each nesting season to prepare them for next year's occupants.

The European starling and English (house) sparrow are introduced species of birds that may cause problems in nest boxes. Both species compete with native songbirds for nest cavities and structures. They often physically drive native species from nest sites. Neither of these species are protected

SEVEN STEPS TO LANDSCAPING YOUR YARD FOR WILDLIFE

1. Set your objectives and priorities. Decide which types of birds or other animals you may feasibly attract given the habitat surrounding your yard and already in place (for example, whether the area is open, forested, etc.). Organize your landscape design accordingly, using plants that you know will work best for you.
2. Draw a map of your property. A map will help determine how much available space you have and other features about your yard. A map can help you experiment with different designs, keeping in mind those areas that are either shady, sunny, wet, dry, or scenic.
3. Review the basic needs of birds (food, water, shelter, cover) and determine those components already present in your yard and those that may be lacking. Check the tables for listings of plants to determine which plants are appropriate for your area that you may want or need to obtain. Realize that while your yard and garden may not provide all of the necessary components, your neighbor's yards may contain some of these. Emphasize native plants!
4. Check with natural resource professionals and various reference books at your library or bookstore for practical tips.
5. Develop a planting plan. It is important to draw shrubbery and trees at full or mature size to plan for space needs. Determine how much money you are willing to spend. Realize that you do not have to plant it all in one season. Use native plants where possible.
6. Implement your plan. Shop local nurseries and garden centers as well as catalogues of plant and seed suppliers to determine the availability of plant materials. Keep records of your expenses and take pictures as your plan develops.
7. Maintain your plan. This involves watering, fertilizing, pruning, weeding, and mowing. Remember, native plants will be more forgiving of lack of care and will require less maintenance than exotics. Maintaining nest boxes and feeders on a regular basis is also necessary.

by law and should be controlled if necessary. One good way to control starlings is to make entrance holes less than 1 3/4 inches in diameter. Removing house sparrow nests is a way to successfully control sparrow numbers in the yard.

Purple martin houses are especially popular and widely used. For success with martin houses, place them in an open area within 100 feet of a house, as martins seem to prefer being close to humans. There should be no vines or shrubs by the pole and no trees within a 50 foot radius of the martin house. Cleaning the martin house requires raising and lowering the apparatus. It may be necessary to regularly evict starlings and house sparrows until a colony of martins finds the house and starts to occupy it; use a crescent shaped opening to eliminate starlings. Once they use it to nest, the martins should come back around the middle of March year after year. For additional information in building bird houses and feeders, you may obtain Shelves, Houses, and Feeders for Birds and Mammals from your local OSU Cooperative Extension office.

Further Wildlife Enhancements

1. Leave as many thick, dead branches and tree trunks (snags) in the landscape as possible. Woodpeckers, chickadees, warblers, nuthatches, and brown creepers will look for insects on them. Other birds can use the cavities in dead wood for homes. Safety of the trees must be considered, too.
2. Place short pieces of yarn (4 to 6 inches), hair, or the feathers from an old feather pillow in the yard. Birds will use the material for their nests.
3. Keep a small area of the garden muddy for robins and swallows to use for making their mud nests.
4. Minimize the use of chemicals in the yard. The more insects around the yard, the more birds will visit. Try to remove problem insects by hand. Some insects can be ignored without damaging plants too much. Most plants can tolerate some insect or disease damage without harmful effects.
5. If you have a cat, keep it indoors as much as possible. Keeping the cat inside all the time would be best. Cats are very efficient predators and can kill numerous birds each day, generally more than the owner realizes. Encourage your neighbors to keep their cats inside or to use collars with bells.
6. Open, dry, dusty areas are great for birds to use as dust baths. Leave a small area of the garden unplanted and dry to make a dust bath. Stir up the soil occasionally to get it started. A pile of sand or crushed egg shells nearby can also serve as grit for birds that need it for digestion of food.

Hummingbirds

Of all of the hundreds of bird species, hummingbirds are particularly interesting and delightful to attract to the yard. These tiny, energetic birds can provide hours of enjoyment through their dazzling flying abilities, acrobatics, and bold personalities. In addition, hummingbirds are often as brightly colored as jewels.

The hummingbird is the smallest native bird in North America, length totaling about 3 1/2 inches overall. Its weight is only about 1/4 of an ounce. Hummingbirds are identified by

TABLE 4

VINES/GROUND COVERS	ENVIRONMENT			PEOPLE		WILDLIFE			REMARKS		
	Sun	Shade	Pt. Sun	Moist	Dry	Flowers	Foliage	Fruit		Flowers	Shelter
Bittersweet (<i>Celastrus scandens</i>)	X	X	X	X	X			Sum/F			primarily native species
Boston Ivy (<i>Parthenocissus tricuspidata</i>)	X	X	X	X	X	F		Sum/F			needs male and female, scale is possible
Bugleweed (<i>Ajuga reptans</i>)	X	X	X	X	X	Sp/Sum		Sum			beautiful fall color
Coral Bean (<i>Erythrina herbacea</i>)	X					Sum		Sum			perennial
Creeping Mahonia (<i>Mahonia repens</i>)	X		X	X	X	Sp	YR	Sp			*annual, moderately fertile, well-drained soil
Creeping raspberry (<i>Rubus calycynoides</i>)	X		X	X	X	Sp	YR	Sum	Sp		evergreen
Cross Vine (<i>Bigonia capreolata</i>)	X	X	X	X	X	Sum		Sum			evergreen/semi-evergreen
Cypress Vine (<i>Ipomoea quamoclit</i>)	X		X	X	X	Sum		Sum			evergreen vine
English Ivy (<i>Hedera helix</i>)	X		X		X	Sum	W	Sum		YR	aggressive, annual, red tubular flowers
Field Pea (<i>Pisum sativum</i> var. <i>arvense</i>)	X		X			Sum		Sum			evergreen
Grapes (<i>Vitis</i> spp.)	X		X	X	X	Sp/Sum	W	Sum		YR	aggressive
Honeysuckle (<i>Lonicera</i> spp.)	X		X	X	X	Sp/Sum	W	Sum		YR	numerous species, shrubs to vines
Morning Glory (<i>Ipomoea</i> spp.)	X		X	X	X	Sum		Sum			*annual
Passion Vine (<i>Passiflora</i> spp.)	X		X	X	X	Sum		Sum			often fragrant, nectar-rich flowers, attractive, sometimes edible fruits, shade in hot summer sun
Pepper Vine (<i>Ampelopsis arborea</i>)	X	X	X	X	X	Sum		Sum			native, root suckers
Pipevine (<i>Aristolochia</i> spp.)	X	X	X	X	X	Sum		Sum			unusual, often malodorous flowers, well-drained loamy soil rich in organic matter, water sparingly in winter, plentifully in growing season
Scarlet Runner Bean (<i>Phaseolus coccineus</i>)	X			X	X	Sp/Sum	Sum	Sp/Sum			*
Sweet Autumn Clematis (<i>Clematis</i> spp.)	X		X	X	X	F		Sum			*fragrant white flowers early fall
Trumpet Creeper (<i>Campsis radicans</i>)	X		X	X	X	Sp/Sum		Sum			*very aggressive, prolific, rootsuckers (Madame Galen var. will not root sucker), coral flowers
Virginia Creeper (<i>Parthenocissus quinquefolia</i>)	X	X	X	X	X	Sp/Sum		Sum			beautiful fall color

KEY: * Hummingbird Favorite
W - Winter, Sp - Spring, Sum - Summer, F - Fall, YR - Year Round

SOURCE: The New Royal Horticultural Society Dictionary of Gardening

TABLE 3

SHRUBS	ENVIRONMENT			PEOPLE		WILDLIFE			REMARKS				
	Sun	Shade	Pt. Sun	Dry	Moist	Dry	Flowers	Foliage		Seed	Nuts	Fruit	Flowers
Abelia (Abelia spp.)	X		X	X			Sp/Sum	Sum				Sp/Sum	
Autumn Olive (Elaeagnus spp.)	X		X	X			Sp	Sum				Sum	
Azalea (Rhododendron spp.)	X	X	X	X	X		Sp	F/W				Sp	YR
Barberry (Berberis spp.)	X	X	X	X			Sp	W				Sum	YR
Bayberry (Myrica pensylvanica)	X	X	X	X			Sp	F/W				Sum	
Beautyberry (Callicarpa spp.)	X	X	X	X			Sp	W				Sum	
Blackberry (Rubus spp.)	X		X	X			Sp	Sum				Sum	YR
Blueberry (Vaccinium spp.)	X		X	X			Sp	F				Sum	
Burning Bush (Euonymus alatus)	X		X	X			Sp	F				Sum	
Butterfly Bush (Buddleia spp.)	X		X	X			Sp/Sum	Sum				Sum	
Carolina Buckthorn (Rhamnus carolinianus)	X		X	X			Sp	Sum				Sum	
Carolina Cherry Laurel (Prunus caroliniana)	X		X	X			Sp	Sum				Sum	
Chokeberry (Aronia spp.)	X		X	X			Sp	Sum/F				Sum	
Clove Currant (Ribes odoratum)	X		X	X			Sp	F				Sum	YR
Cotoneaster (Cotoneaster spp.)	X		X	X			Sp	Sum				Sum	YR
Elderberry (Sambucus canadensis)	X		X	X			Sp	Sum				Sum	
Fetterbush (Lyonia lucida)	X		X	X			Sp	W				Sum	YR
Firethorn (Pyracantha coccinea)	X		X	X			Sp	F/W				Sum	
Flowering Quince (Chaenomeles spp.)	X		X	X			Sp	Sum				Sum	YR
Holly Grape (Mahonia spp.)	X		X	X			Sp	W				Sum	YR
Holly (Ilex spp.)	X		X	X			Sp	W				Sum	YR
Huckleberry (Gaylussacia spp.)	X		X	X			Sp	F				Sum	
Indian Current Snowberry (Buckbrush) (Symphoricarpos orbiculatus)	X		X	X			Sp	Sum				Sum	
Juniper (Juniperus spp.)	X		X	X			Sp	W				Sum	
Mahonia (Mahonia spp.)	X		X	X			Sp	YR				Sum	YR
New Jersey Tea (Ceanothus americanus)	X		X	X			Sp	Sum				Sum	YR
Prickly Pear (Opuntia spp.)	X		X	X			Sp/Sum	W				Sum	YR
Privet (Ligustrum spp.)	X		X	X			Sp	Sum/F				Sum	YR
Rose (Rosa spp.)	X		X	X			Sp	Sum				Sum	YR
Roughleaf Dogwood (Cornus drummondii)	X		X	X			Sp	Sum				Sum	YR
Sand Plum (Prunus augustifolia)	X		X	X			Sp	Sum				Sum	YR
Spicebush (Lindera benzoin)	X		X	X			Sp	Sum				Sum	YR
Spiraea (Spiraea spp.)	X		X	X			Sp	Sum				Sum	YR
Staggerbush (Lyonia mariana)	X		X	X			Sp/Sum	Sp/Sum/F				Sum	YR
Strawberry bush (Euonymus americanus)	X		X	X			Sum	Sum				Sum	YR
Sumac (Rhus spp.)	X		X	X			Sum	F				Sum	YR
Sweet Bay (Magnolia virginiana)	X		X	X			Sum	F				Sum	YR
Viburnum (Viburnum spp.)	X		X	X			Sum	Sum/F				Sum	YR
Weigelia (Weigelia spp.)	X		X	X			Sp/Sum	Sum				Sum	YR
Yucca (Yucca spp.)	X		X	X			Sp/Sum	W				Sum	YR

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SOURCE: The New Royal Horticultural Society Dictionary of Gardening

the extremely rapid movement of their tiny wings that creates a humming sound as they fly or hover. The average wingbeat of a hummingbird in flight is 55 strokes per second.

The metabolism of hummingbirds is also one of its distinguishing features. For its size, it surpasses all other warm blooded creatures on earth in energy consumption. On average, it must feed every fifteen minutes during the day in order to survive. Because there is no way for the hummingbird to continue this feeding activity during the night, it must either store up excess fat and carbohydrates prior to nightfall or go into a torpor, which is a period of dormancy. By becoming torpid, its feeding requirements are drastically reduced. Torpor is utilized by all species of hummingbirds except for those females that are incubating or brooding their young. Torpor will usually not occur unless the outside temperature is less than 95°F, or there have been negligible sources of food.

Hummingbirds are unique in their method of feeding, which requires them to extract nectar from blossoms using their long, split, retractable tongue. Contrary to popular belief, hummingbirds do not use their tongues as humans would a straw, but rather, exhibit a licking motion at a rate of about 13 licks per second. Their tongues have tiny fringes along the split edges that help with the ingestion of small insects trapped in nectar. Hummingbirds also capture small insects flying about in the air, especially when raising their young.

Male hummingbirds exhibit their most dramatic display of color and behavior during courtship and defensive displays. In these displays, the male will ascend to varying heights and then dive straight down toward the object of his affection or irritation. His wingbeat will sometimes increase to up to 200 beats per second, which creates both a loud humming sound and a wonderful visual display of his iridescent feathers.

All North American hummingbirds are migratory except the Anna's hummingbird which remains in California. The two species of hummingbirds most frequently seen in Oklahoma are the two that migrate the farthest distance each year. These are the ruby-throated and the less frequently occurring rufous hummingbirds which may travel 2,000 miles or more. For the ruby-throat, 500 of those miles are nonstop over the Gulf of Mexico. In order for the ruby-throated hummingbird to sustain itself for the journey, it must accumulate about half of its normal body weight in fat. These trips are made individually and not in flocks or small groups. In addition to the ruby-throated and rufous hummingbirds, the black-chinned and broad-tailed hummingbirds can be seen, although rarely, in the western part of the state.

Hummingbirds have many similarities with butterflies, moths, and skippers (Lepidoptera). Hummingbirds are probably able to distinguish all wavelengths of light which is functional for feeding and mating. They have iridescent colors on their bodies, although these are produced with tiny feathers rather than with scales. The most prominent similarity between lepidoptera and hummingbirds is that both feed on nectar, although lepidoptera prefer more fragrant blossoms than hummingbirds. Lepidoptera need petals to provide

a secure landing place because they must perch before nectaring. Hummingbirds and some sphinx moths hover and therefore prefer flowers with tubular corollas. As a result, some plantings for lepidoptera may also benefit hummingbirds, and vice-versa. Like lepidoptera, hummingbirds cannot survive on nectar alone.

To fulfill their nutritional requirement, hummingbirds rely on the protein found in small insects trapped in the sticky nectar that they ingest from flowers. This protein is especially important for the feeding of young. Last, hummingbirds and lepidoptera share a dependence upon body temperature for the ability to fly. Hummingbirds cannot fly if their body temperature is below 86° Fahrenheit. For additional information on lepidoptera, see Fact Sheet No. HLA-6430 Landscaping to Attract Butterflies, Moths, and Skippers.

ADDITIONAL INFORMATION

Inquire about Oklahoma's Backyard Certification Program through:

Landscaping for Wildlife
Oklahoma Department of Wildlife Conservation
1801 N. Lincoln Blvd.
Oklahoma City, OK 73105
(405) 521-3851
<http://www.wildlifedepartment.com/wildlifemgmt/landscape.htm>

The National Wildlife Federation
PO Box 1583
Merrifield VA 22116-1583
800-822-9919

Oklahoma Partners in Flight
<http://www.partnersinflight.org/>
Oklahoma contact:
Mark D. Howery, Wildlife Diversity Biologist
(405)424-2728



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Visit the Backyard Wildlife Habitat at the OKG Studio Gardens located in the Botanic Garden in Stillwater.

TABLE 1

	ENVIRONMENT				PEOPLE		WILDLIFE			REMARKS				
	Sun	Shade	Pt. Sun	Moist	Dry	Flowers	Foliage	Fruit	Seed		Nuts	Fruit	Flowers	Shelter
TREES Medium - Large (>25')														
Black Gum (<i>Nyssa sylvatica</i>)	X		X	X		F					F			tolerant of pollution, resents root disturbance, flowers small & obscure very shade tolerant
Buckeye (<i>Aesculus</i> spp.)			X	X			Sp				FW	Sp		
Cherry (<i>Prunus</i> spp.)	X		X	X		Sp		Sum			Sum	Sp		
Chittimwood (<i>Bumelia lanuginosa</i>)	X		X		X						FW			need male & female, evergreen durable, galls on foliage
Eastern Redcedar (<i>Juniperus virginiana</i>)	X				X	W		FW			FW	FW		
Hackberry (<i>Celtis</i> spp.)	X				X						FW			
Hickory (<i>Carya</i> spp.)				X										interesting bark evergreen, fragrant blooms
Lacebark Elm (<i>Ulmus parvifolia</i>)	X			X	X	Sp/Sum	YR	F			F		YR	
Magnolia (<i>Magnolia grandiflora</i>)	X			X		Sp	F							messy, pest prone, cultivars with some resistance to vascular wilt diseases are 'Charlotte' & 'Tryon'
Maple (<i>Acer</i> spp.)	X			X		Sum								fruit messy in high traffic areas
Mimosa or Silk tree (<i>Albizia julibrissin</i>)	X			X				Sp						
Mulberry (<i>Morus</i> spp.)	X			X										numerous species galls on foliage evergreen
Oak (<i>Quercus</i> spp.)	X			X							FW			
Pecan (<i>Carya illinoensis</i>)	X			X							FW			
Pine (<i>Pinus</i> spp.)	X			X	X	W					FW		YR	interesting bark
River Birch (<i>Betula nigra</i>)	X	X		X				FW			FW			*
Southern Catalpa (<i>Catalpa bignonioides</i>)	X			X	X	Sum						Sum		does poorly in central and western Oklahoma
Tulip Tree (<i>Liriodendron tulipifera</i>)	X			X		Sp						Sp		

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SOURCE: The New Royal Horticultural Society Dictionary of Gardening

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TABLE 2

	ENVIRONMENT				PEOPLE		WILDLIFE			REMARKS				
	Sun	Shade	Pt. Sun	Moist	Dry	Flowers	Foliage	Fruit	Seed		Nuts	Fruit	Flowers	Shelter
TREES - Small (<25')														
American Persimmon (<i>Diospyros virginiana</i>)	X		X		X	F								fruit edible in late fall
American Red Plum (<i>Prunus americana</i>)	X				X		Sp							
Carolina Buckthorn (<i>Rhamnus carolinianus</i>)	X		X	X		Sp		Sum/F			Sum/F			
Cherry & Plum (<i>Prunus</i> spp.)	X			X		Sp		Sum			Sum			
Crabapple (<i>Malus</i> spp.)	X				X	Sp		FW			FW			select single-flowered varieties only, select cedar apple rust & scab resistant types
Desert Willow (<i>Chilopsis linearis</i>)						Sum						Sum		
Dogwood (<i>Cornus</i> spp.)		X		X		Sp	F	F			F			needs wind protection in western OK
Fringe tree (<i>Chionanthus virginicus</i>)	X		X	X		Sp	F	Sum/F			Sum/F		YR	usually thorny
Hawthorn (<i>Crataegus</i> spp.)	X		X	X		Sp		F/W			FW		YR	need male & female, most are evergreen, foliage may have thorns
Holly (<i>Ilex</i> spp.)	X			X		W		F/W			FW			fruit edible
Pawpaw (<i>Asimina triloba</i>)			X	X								Sp		can be a problem
Pear (<i>Pyrus</i> spp.)	X			X	X	Sp	F	Sum				Sum		lustrous foliage, fragrant flowers
Sassafras (<i>Sassafras albidum</i>)	X			X		F		F			F			glossy aromatic foliage, deep, fertile, moist, well-drained soil
Serviceberry (<i>Amelanchier</i> spp.)	X			X		Sp		Sum				Sum		colors well in fall
Wax Myrtle [Bayberry] (<i>Myrica cerifera</i>)	X			X	X									birds like purple-black fruits, intense fall foliage color
Western Soapberry (<i>Sapindus saponaria</i> var. <i>drummondii</i>)	X				X	W		F/W			FW		YR	evergreen

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SOURCE: The New Royal Horticultural Society Dictionary of Gardening

HLA-6435-7