Marne Titchenell, Extension Program Specialist – Wildlife
School of Environment & Natural Resources

An Urban World

There has been a 90% increase in development (National Land Cover database).

Wildlife and Habitat Loss

Many native bee pollinators are at risk.
Monarch butterflies are now a candidate for listing under the ESA.

Urban Green Spaces

Green spaces within urban areas can serve as incredibly important hotspots of biodiversity (Ives et al. 2016).

1 in 4 birds

- 3 in 4 Meadowlarks
- 53% loss of grassland birds
- 2 in 5 Baltimore Orioles
- 28% loss of migratory species
- 2 in 5 Barn Swallows
- 32% loss of aerial insectivores

Urban land expands 1 million acres each year.

Songbird Ecology

Enhancing Your Landscape for Birds and Other Wildlife

Enhancing Your Landscape for Birds and Other Wildlife

Land Use Categories

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Enhancing Your Landscape for Birds and Other Wildlife

Enhancing Your Landscape for Birds and Other Wildlife
Urban Green Spaces

Small patches of mature upland forest in urban areas used by several species of Neotropical migrant birds (Rodewald and Matthews 2012).

go.osu.edu/smallpatches

Publication by the Ohio Bird Conservation Initiative obcinet.org

Both bee abundance and richness increased in neighborhoods with higher human population density (Lowenstein et al. 2014).

Where Do You Start?

Must provide habitat throughout the year, and accounting for changing needs.

What Habitat Means to Wildlife:

- FOOD
- COVER
- WATER
- SPACE

homegrownnationalpark.org

WE CAN DO THIS! ONE PERSON AT A TIME RESTORE BIODIVERSITY

The Ohio State University College of Food, Agricultural, and Environmental Sciences
Plants in Urban Areas

The retention of native vegetation is an effective strategy to conserve urban biodiversity (Aronson et al. 2014).

Plants provide the foods birds and pollinators need.

“The little things that run the world.”
~E. O. Wilson

96% of North American terrestrial bird species rely on insects and other arthropods (Dickinson 1999).

75% of the 100+ birds that breed in Ohio depend on caterpillars.

Choose Caterpillar-Loving Plants

- White-breasted Nuthatch
- Black-capped Chickadee
- Oaks, willow, cherry, plum, and birch

Berries

- Cedar waxwing
- American Robin

- Cedar waxwings specialize in eating berries.
- Many insect-eating birds switch their diet to berries pending migration.
Berries for Birds & Birds for Berries

Top Berries for Birds
- Serviceberry (Amelanchier)
- Dogwoods (Cornus)
- Elderberry (Sambucus)
- Black/Raspberries (Rubus)
- Cherries, plums (Prunus)
- Crabapple (Malus)
- Viburnum
- Blueberries (Vaccinium)
- Spicebush (Lindera benzoin)
- Eastern Red Cedar (Juniper virginiana)
- Chokeberry (Aronia)
- Hawthorn (Crataegus)
- Sumac (Rhus)
- Holly (Ilex)

Less Tasty to Deer
- Red Chokeberry (Aronia arbutifolia)
- Red Osier Dogwood (Cornus sericea)
- Winterberry Holly (Ilex verticillata)
- Fragrant sumac (Rhus aromaticca)
- Red Elderberry (Sambucus racemosa)
- Viburnum (Viburnum sp.)
- Serviceberry (Amelanchier sp.)
- Hawthorn (Crataegus sp.)

The Threat of Non-Native, Invasive Species
- Bush honeysuckle
- Callery pear
- Burning bush
- Autumn olive
- Privet
- Oriental bittersweet

The Importance of Seeds & Nuts
- American goldfinch are strict seed eaters.
- Blue jays cache 3000+ acorns/year.
- Southern flying squirrels feast on acorns, hickory nuts, and seeds.

Seeds make up 75% of a Dark-eyed junco’s diet.
Top Nut and Seed Producers

**Trees**
- Oak
- Hickory
- Beech
- Maple
- Birch
- Spruce
- Pine
- Fir

**Herbaceous**
- Coneflowers
- Asters
- Sunflowers
- Thistles
- Goldenrod
- Bergamot
- Ironweed
- Golden alexanders

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Pollen and Nectar

Hummingbirds visit flowers that are:
- Red (and others!)
- Tubular
- Horizontal
- Room to hover

Insect pollinators visit flowers that are:
- Diverse in their shape, color, and size
- Plants in clumps

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Butterfly Host Plants

Insect-friendly plants are BOTH herbaceous and woody!

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More Host Plant Info:

- Butterflies & Moths of NA – butterfliesandmoths.org
Nectar, Pollen, and Host Plants

BIRD-FRIENDLY, TOO!!

- Serviceberry
- Eastern redbud
- Maple
- Cherry, Plum
- Witch-hazel
- Sumac
- Viburnum
- Oak
- Willow
- Birch
- Tuliptree (yellow poplar)
- Crabapple
- Red buckeye
- Dogwood
- Sassafras
- Asters
- Coreopsis
- Bergamot
- Virginia Mountain mint
- Milkweed
- Goldenrod
- Foxglove beardtongue

Native Plant & Diversity BONUS!

Landscapes with high native plant diversity are more stable (i.e., less pest outbreaks).

Plants for Insect Predators

**Annuals**
- Dill (Anethum graveolens)
- Coriander (Coriandrum sativum)
- Sweet alyssum (Lobularia maritima)

**Perennials**
- Asters (Aster)
- Lobelia (Lobelia)
- Lupine (Lupinus)
- Bergamot (Monarda)
- Giant Hyssop (Agastache)
- Ironweed (Vernonia)
- Goldenrod (Solidago)

**Extrafloral nectar**
- Milkweed (Asclepias)
- Hawthorn (Crataegus)
- Sunflower (Helianthus)
- Apple (Malus)
- Plum, cherry (Prunus)
- Willow (Salix)
- Elderberry (Sambucus)
- Viburnum (Viburnum)
- Hibiscus (Hibiscus)
- Pumpkin/Squash (Cucurbita)
- Jewelweed (Impatiens capensis)

More Info on Insect Predators:

Good Garden Bugs

Everything you need to know about beneficial predators

More Plant Lists and Bird Info!

THEWILDSIDE@OSU
News, Education, and Conversations on Ohio Wildlife
[osu.edu/wildside](http://osu.edu/wildside)

Hummingbird Feeder Tips

- ¼ cup of sugar & 1 cup of water
- 1/3 cup of sugar during winter
- No food coloring or honey
- Boil water if storing in fridge
- Replace sugar water every 2-3 days during summer
- Daily in very hot weather
- Feeder style?
  - At least 1x per week
- Many feeders vs. one
- Place is quiet, shady area
Songbird Feeders Tips

- Diversity of feeders
  - Elevated feeder
    - Chickadees, titmice, finches
  - Bird Table
    - Doves, sparrows, jays
  - Ground feeder
    - Juncos, mourning doves, sparrows
- Place near shrubs or trees
- Wash every 2 weeks
  - 1 part bleach, 9 parts water
- Variety of food...

Provide a Variety of Food

- Seed Preferences of Common Feeder Birds
  - Safflower
  - Canola
  - Sunflower

Bird Cover = Shelter and Nesting Sites

- Plants that Provide Cover
  - Dense structure
    - Willow (Salix)
    - Hawthorn (Crataegus)
    - Rubus
    - Holly (Ilex)
    - Conifers
  - Nesting material
    - Milkweeds (Asclepias)
    - Cinnamon fern (Osmunda)
    - Native thistles
    - Asters

Project Feeder Watch

www.feederwatch.org
Another way to help nesting birds:

- Dog fur
- Tufted Titmouse
- Chickadees
- Feathers
- Tree Swallows

The Threat of Non-Native, Invasive Species

- Poor nutrition
- Poor nesting habitat

Nest predation higher when nesting in honeysuckle and buckthorn (Schmidt and Whelan 1999).

The Importance of Dead Wood

- These tiniest life forms—-insects, fungi and bacteria-- are reservoirs of diversity that recycle our biosphere.”
  ~ Matt Kane of the National Science Foundation (NSF) Division of Environmental Biology

The Importance of Dead Wood

- Primary cavity nesters
- Secondary cavity nesters

CAVITY-NESTING NATIVE BEES

- CAVITY NEST
- EGG
- BEE BREED
- CAVITIES IN WOOD
- CAVITIES IN PLANT STEM
- CAVITIES IN ROCKS

Dead Wood in the Landscape

**Spring**
Cut back dead flower stalks leaving stem stubble of varying height, 6 to 24 inches, to provide nest cavities.

Female bees find cut or naturally-occurring open stems, drill a small hole, then lay an egg in the pollen ball. Larvae eat the pollen.

Graphs and content: Colleen Eady, Keri, Blaine Swanson, Heather Hoke, Eric-Frank Amateau

Want to Learn More?
Recorded webinar: The Importance of Dead Wood for Wildlife
u.osu.edu/deadwood

Nest Boxes

**wildohio.gov**

Eastern Bluebird

A few Ohio nest box users...

- Tufted Titmouse
- Tree Swallow
- Prothonotary Warbler
- Great Crested Flycatcher
- Black-capped Chickadee

Interested in bat houses?
Ohio Bat Working Group
Communication and collaboration between bat-minded people.

u.osu.edu/obwg

WATER
Water Features in the Landscape

Bird Bath Tips

Shallow, rough surfaces

- Trickling feature
- Clean often!

Winter

- Swap out delicate models for winter hardy designs
- Ice can cause cracks and leaks

Plant Arrangement for Wildlife

The more a yard reflects the diversity and structure of nature, the better it will support wildlife.

Messy is OK!!
It Matters!!

Too much conflict can lead to backlash against wildlife and habitat conservation.

A Real Possibility:
 u.osu.edu/wildside
 ‘Dealing with Wildlife Conflict in the Garden’

This is ALSO a Real Possibility:

Urban green spaces are where many people will gain first-hand experience with wildlife.

If you can’t do – don’t worry!

Journey North
www.learner.org/jnorth/habitat

Project Monarch Health
www.monarchparasites.org

Monarch Larva Monitoring Project
http://xdmp.org

Monarch Watch
www.monarchwatch.org

Project FeederWatch
www.feederwatch.org

Project Nest Watch
www.nestwatch.org

Lights Out
www.ohiolightout.org

Bumble Bee Watch
https://www.bumblebeewatch.org/

The Great Sunflower Project:
https://www.greatsunflower.org/

National Phenology Network:
https://www.usanpn.org/usa-national-phenology-network

Buckeye Yard & Garden onLine

bygl.osu.edu or bygl.osu.edu/newsletter

Great Resources:
"I still look forward to the date when we shall hear discussions on the management of songbirds, wildflowers, and the biota of a city..."

—Rudolf Bennitt, 1946
First president of The Wildlife Society