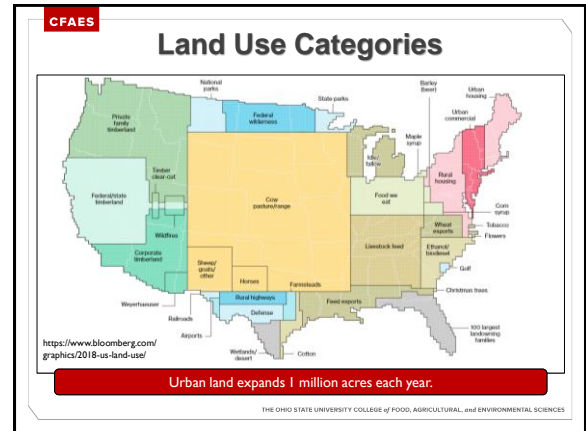**Slide 1**

Enhancing Your Landscape for Birds and Other Wildlife
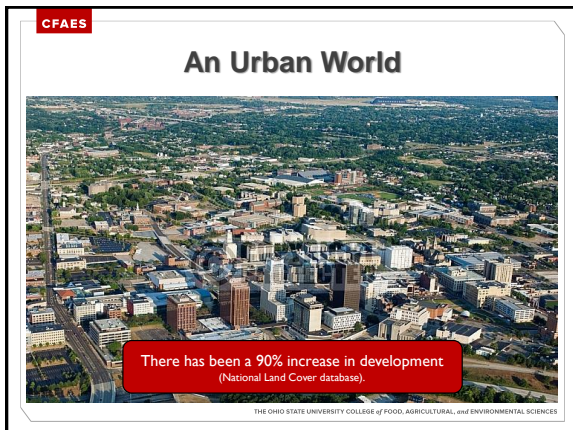
Marne Titchenell, Extension Program Specialist – Wildlife
School of Environment & Natural Resources

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Slide 2

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Land Use Categories

https://www.bloomberg.com/graphics/2018-us-land-use/

Urban land expands 1 million acres each year.

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Slide 3

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An Urban World

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

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www.3billionbirds.org

2.9 billion birds gone since 1970

1970 1980 1990 2000 2010

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

4

Slide 5

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Wildlife and Habitat Loss

Many native bee pollinators are at risk.

Monarch butterflies are now a candidate for listing under the ESA.

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Urban Green Spaces

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

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

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Slide 7 — Urban Green Spaces

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

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Slide 8
Publication by the Ohio Bird Conservation Initiative **obcinet.org**

go.osu.edu/ smallpatches

8

Slide 9 — Urban Green Spaces

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

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

9

Slide 10 — homegrownnationalpark.org

10

Slide 11 — Where Do You Start?

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

11

Slide 12 — What Habitat Means to Wildlife:
FOOD

COVER

WATER

SPACE

12

2

Slide 13

FOOD

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Slide 14

Plants in Urban Areas

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

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Slide 15

Plants provide the foods birds and pollinators need.

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Slide 16

"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.

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Choose Caterpillar-Loving Plants

White-breasted Nuthatch

Black-capped Chickadee

Oaks, willow, cherry, plum, and birch

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Berries

Cedar Waxwing

American Robin

‣ Cedar waxwings specialize in eating berries.
‣ Many insect-eating birds switch their diet to berries pending migration.

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Berries for Birds & Birds for Berries

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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*)

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Less Tasty to Deer

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

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The Threat of Non-Native, Invasive Species

- Bush honeysuckle
- Callery pear
- Burning bush
- Autumn olive
- Privet
- Oriental bittersweet

✓ Poor nutrition

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The Importance of Seeds & Nuts

American goldfinch are strict seed eaters.

Blue jays cache 3000+ acorns/year.

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The Importance of Seeds & Nuts

Southern flying squirrels feast on acorns, hickory nuts, and seeds.

Seeds make up 75% of a Dark-eyed junco's diet.

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Top Nut and Seed Producers

Trees	Herbaceous
Oak	Coneflowers
Hickory	**Asters**
Beech	Sunflowers
Maple	Thistles
Birch	Goldenrod
Spruce	Bergamot
Pine	Ironweed
Fir	Golden alexanders

Jim Ellis

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Leave those plants standing!

Please Leave your Gardens messy

Spring Migrants and Year-Round Residents are looking for last season's seeds

Habitat Network
powered by yardmap

© Rick Cameron via Flickr

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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
Plant in clumps

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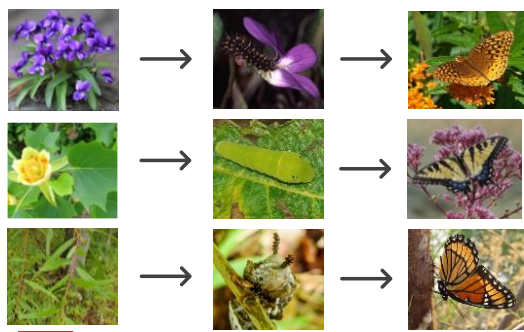THE OHIO STATE UNIVERSITY COLLEGE of FOOD, AGRICULTURAL, and ENVIRONMENTAL SCIENCES

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Insect-friendly plants are BOTH herbaceous and woody!

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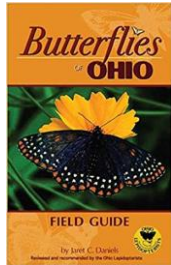
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Butterfly Host Plants

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More Host Plant Info:

▸ Butterflies & Moths of NA –**butterfliesandmoths.org**

Butterflies of OHIO
FIELD GUIDE
by Jaret C. Daniels
Reviewed and recommended by the Ohio Lepidopterists

Caterpillars of Eastern North America
David L. Wagner

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Slide 31

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
- Coneflower
- **Bergamot**
- Virginia Mountain mint
- Milkweed
- Goldenrod
- Foxglove beardtongue

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Native Plant & Diversity BONUS!

Soldier beetle

Seven-spotted lady beetle

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

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Plants for Insect Predators

Annuals
- **Dill** (*Anethum graveolens*)
- Coriander (*Coriandrym 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 carpensis*)

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More Info on Insect Predators:

Good Garden Bugs — Everything you need to know about beneficial predatory insects — Mary M. Gardiner, Ph.D.

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More Plant Lists and Bird Info!

THEWILDSIDE@OSU
News, Education, and Conversations on Ohio Wildlife
u.osu.edu/wildside

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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

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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…**

37

Provide a Variety of Food

Seed Preferences of Common Feeder Birds

38

Project Feeder Watch

www. feederwatch.org

39

COVER

40

Bird Cover = Shelter and Nesting Sites

41

Plants that Provide Cover

Dense structure
- Willow (*Salix*)
- **Hawthorn (*Crataegus*)**
- *Rubus*
- Holly *(Ilex)*
- Conifers

Nesting material
- Milkweeds (*Asclepias*)
- Cinnamon fern (*Osmunda*)
- Native thistles
- Asters

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Another way to help nesting birds:

Dog fur *Tufted Titmouse, Chickadees*

Feathers *Tree Swallows*

43

The Threat of Non-Native, Invasive Species

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

✓ Poor nutrition
✓ Poor nesting habitat

44

The Importance of Dead Wood

45

"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

46

The Importance of Dead Wood

Primary cavity nesters

Secondary cavity nesters

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CAVITY-NESTING NATIVE BEES

CAVITY NEST
EGG
BEE BREAD
CAVITIES IN ROCKS
CAVITIES IN WOOD
Standing Dead Trees
Rotting Wood
Logs on the Ground
CAVITIES IN PLANT STEMS

Graphics and content: Colleen Satyshur, Elaine Evans, Heather Holm, Sarah Foltz-Jordan

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Dead Wood in the Landscape

SPRING

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

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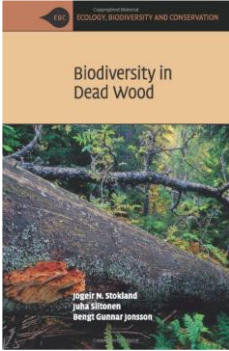
nest in stem

Graphics and content: Colleen Satyshur, Elaine Evans, Heather Holm, Sarah Foltz-Jordan

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ECOLOGY, BIODIVERSITY AND CONSERVATION

Biodiversity in Dead Wood

Jogeir N. Stokland
Juha Siitonen
Bengt Gunnar Jonsson

Want to Learn More?

Recorded webinar:

The Importance of Dead Wood for Wildlife

u.osu.edu/deadwood

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Nest Boxes

wildohio.gov

DIVISION OF WILDLIFE

NEST BOX PLANS

ATTRACTING BIRDS

Eastern Bluebird

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A few Ohio nest box users…

Ben McGann/ Macaulay Library at the Cornell Lab of Ornithology

Tree Swallow

House Wren

Tufted Titmouse

Great Crested Flycatcher

Ryan Schain/ Macaulay Library at the Cornell Lab of Ornithology

Prothonotary Warbler

Black-capped Chickadee

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Interested in bat houses?

Ohio Bat Working Group

Communication and collaboration between bat-minded people.

Bat Week   Coexisting with Bats   Educator Resources   Get Involved   Habitat Management   About

u.osu.edu/obwg

The Ohio Bat Working Group works to facilitate communication, information-sharing, and collaboration between people with an interest in bats throughout Ohio.
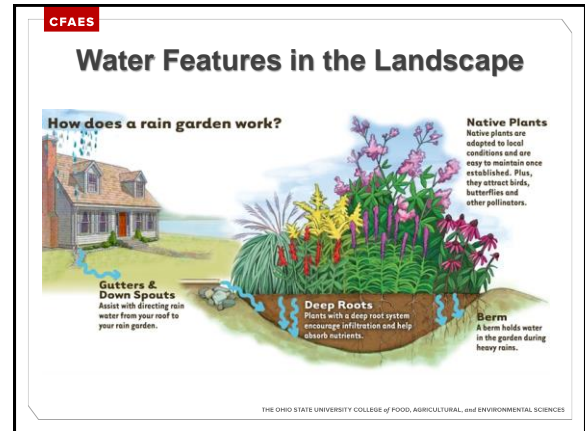
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Slide 54

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WATER

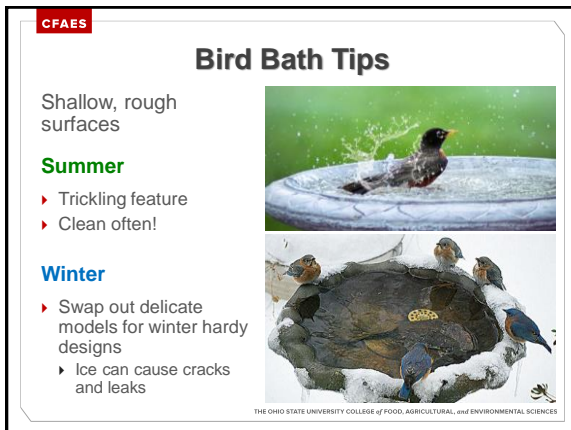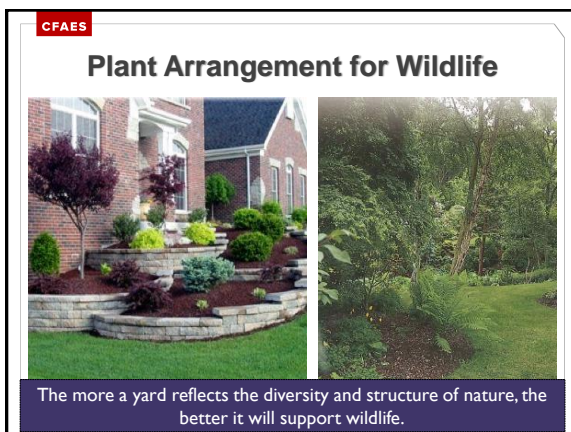THE OHIO STATE UNIVERSITY COLLEGE of FOOD, AGRICULTURAL, and ENVIRONMENTAL SCIENCES

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Water Features in the Landscape

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Water Features in the Landscape

How does a rain garden work?

Native Plants
Native plants are adapted to local conditions and are easy to maintain once established. Plus, they attract birds, butterflies and other pollinators.

Gutters & Down Spouts
Assist with directing rain water from your roof to your rain garden.

Deep Roots
Plants with a deep root system encourage infiltration and help absorb nutrients.

Berm
A berm holds water in the garden during heavy rains.

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Bird Bath Tips

Shallow, rough surfaces

Summer
- Trickling feature
- Clean often!

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

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SPACE

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Plant Arrangement for Wildlife

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

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Messy is OK!!

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Big or Small – It Matters!!

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A Real Possibility:

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

u.osu.edu/wildside
'Dealing with Wildlife Conflict in the Garden'

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This is ALSO a Real Possibility:

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

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If you can't do – don't worry!
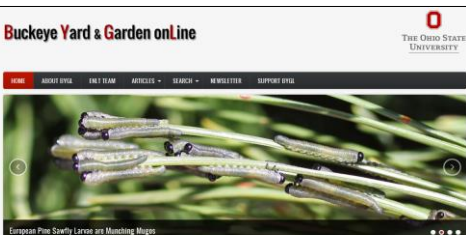
Journey North
www.learner.org/jnorth/monarch

Project Monarch Health
www.monarchparasites.org

Monarch Larva Monitoring Project
http://mlmp.org

Monarch Watch
www.monarchwatch.org

Project Feeder Watch
www.feederwatch.org

Project Nest Watch
www.nestwatch.org

Lights Out
www.ohiolightsout.org

iNaturalist - Ohio Bee Atlas
https://u.osu.edu/beelab/ohio-bee-atlas/

iNaturalist – Chadwick Arboretum Bio-Inventory
https://www.inaturalist.org/projects/chadwick-arboretum-bio-inventory

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

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Buckeye Yard & Garden onLine
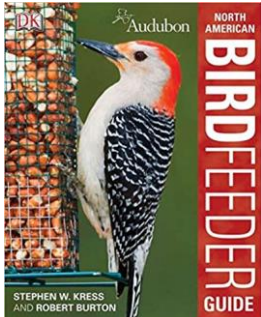
bygl.osu.edu or bygl.osu.edu/newsletter

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Great Resources:

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