About the Eastern PA Phenology Project

What is phenology?
The observation of seasonal changes. This includes the blooming of flowers, the appearance of migratory birds, the hatching of insects, and animals coming out of hibernation.

Why is phenology important?
Phenological events are very sensitive to changes in our environment, including climate change. By monitoring key species (listed in this brochure), we can observe the impact that environmental change has on our natural resources.

What is the Eastern Pennsylvania Phenology Project?
The Eastern Pennsylvania Phenology Project encourages the public to become citizen scientists by getting outside, observing nature, and sharing their observations with us. By collecting as much data as possible over a series of years, we can better understand the effects of environmental changes, such as climate change, on Pennsylvania’s plants and animals.

What is a citizen science project?
A project in which members of the public partner with scientists to collect data, answer questions, and solve problems together.

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How can you help?
By recording and reporting observations of the species listed in this brochure.

While the project will mainly monitor a list of key species of plants, insects, mammals, birds, amphibians, reptiles, and fish, any and all phenological data are welcome and appreciated.

Data and photographs can be submitted to the project e-mail address. Please include the date and species observed on all of your entries.

E-mail Address:
phenology@lgnc.org

How can you find out more information?
Eastern PA Phenology Project Web Site:
www.lgnc.org/research/phenology

Fact sheets for the different species are provided on the web site to make species identification easy, informative, and fun! Sound recordings of species identified primarily by sound can also be found on the website.

Watching the Seasons Blog:
www.WatchingTheSeasons.blogspot.com

~A Citizen Science Program~
**American Toad**  
*Bufo americanus*

The timing (date) of: first seen on land & in water; first heard vocalizing

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**Painted Turtle**  
*Chrysemys picta*

The timing (date) of: first seen on land & in water

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**Spotted Salamander**  
*Ambystoma maculatum*

The timing (date) of: first on land; first eggs in vernal pools

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**Spring Peeper**  
*Pseudacris crucifer*

The timing (date) of: first night their vocalizations are heard; last night their vocalizations are heard

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**Wood Frog**  
*Rana sylvatica*

The timing (date) of: first time adults seen in water and on land; first time heard vocalizing

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**Eastern Chipmunk**  
*Tamias striatus*

The timing (date) of: first adults and young; first seen consuming food; first seen collecting & storing food

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**Groundhog**  
*Marmota monax*

The timing (date) of: first seen; any time young are seen with a parent

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**American Shad**  
*Alosa sapidissima*

The timing (date) of: first adults migrating upstream

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**Annual Cicada**  
*Tibicen sp.*

The timing (date) of: first cicada is seen; first time heard

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**Bumblebee**  
*Bombus sp.*

The timing (date) of: first appearance; first appearance on a flower; last time seen

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**Cabbage White**  
*Pieris rapae*

The timing (date) of: first adult in spring; last time seen in autumn

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**Caddisfly**

The timing (date) of: first adult

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**Carpenter Bee**  
*Xylocopa virginica*

The timing (date) of: first adult

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**Field Cricket**  
*Gryllus sp.*

The timing (date) of: first adult; first heard chirping

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**Firefly**  
*Photuris sp. or Photinus sp.*

The timing (date) of: first adult

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**Mayfly**

The timing (date) of: first adult

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**Mourning Cloak**  
*Nymphalis antiopa*

The timing (date) of: first adult in spring

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**Monarch**  
*Danaus plexippus*

The timing (date) of: first caterpillar on a milkweed plant; first adult monarch butterfly
**Spring Azure**  
_Celastrina ladon_

The timing (date) of: first adult butterfly; first flower visitation

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**American Robin**  
_Turdus migratorius_

The timing (date) of: first full song heard; first appearance; first time seen eating; first time seen nest building

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**American Woodcock**  
_Scolopax minor_

The timing (date) of: first adult; first heard singing; first appearance; peenting and courtship flight

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**Baltimore Oriole**  
_Icterus galbula_

The timing (date) of: first appearance; building; first incubating eggs; first feeding young; last sighting of bird in summer or autumn

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**Barn Swallow**  
_Hirundo rustica_

The timing (date) of: first junco seen in spring; first junco seen in autumn

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**Dark-eyed Junco**  
_Junco hyemalis_

The timing (date) of: first appearance; first heard singing

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**Eastern Phoebe**  
_Sayornis phoebe_

The timing (date) of: first appearance; first heard singing; first seen nest building; first young seen being fed; first young fledged

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**Eastern Towhee**  
_Pipilo erythrophthalmus_

The timing (date) of: first appearance; first song is heard

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**House Wren**  
_Troglodytes aedon_

The timing (date) of: first appearance; first time heard singing

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**Killdeer**  
_Charadrius vociferus_

The timing (date) of: first appearance; first time bird is seen nesting (eggs); fledglings

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**Osprey**  
_Pandion haliaetus_

The timing (date) of: first appearance; nest building; fledglings

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**Ovenbird**  
_Seiurus aurocapillus_

The timing (date) of: first appearance; first heard singing

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**Red-winged Blackbird**  
_Agelaius phoeniceus_

The timing (date) of: first appearance; first territorial singing heard

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**Ruby-throated Hummingbird**  
_Archilochus colubris_

The timing (date) of: first appearance

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**Scarlet Tanager**  
_Piranga olivacea_

The timing (date) of: first appearance; first heard singing

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**Tree Swallow**  
_Tachycineta bicolor_

The timing (date) of: first adults; first eggs in nest; first hatched young; first fledglings out of nest box; last sighting in autumn

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**Wood Thrush**  
_Hylocichla mustelina_

The timing (date) of: first appearance; first heard singing
The Eastern PA Phenology Project was initiated in 2010 as a project supported through the Audubon TogetherGreen Fellows Program (funded by Toyota) and administered through the Lehigh Gap Nature Center. Additional support and funding has been obtained from Moravian College, the PA Department of Environmental Protection Environmental Education Grants Program, and the Lehigh Valley Greenways Conservation Landscape Initiative (funded by a grant from the PA Department of Conservation and Natural Resources, Bureau of Recreation and Conservation, Environmental Stewardship Fund, administered by Delaware & Lehigh National Heritage Corridor, Inc.). We are also grateful to the many contributing partners involved (see list at www.watchingtheseasons.blogspot.com).

### Complete List of Target Species

#### Plants
- American Witch-hazel
- Coltsfoot
- Common Dandelion
- Common Milkweed
- Mountain Laurel
- Red Maple
- Serviceberry
- Skunk Cabbage
- Spicebush
- Wild Strawberry

#### Insects
- Annual Cicada
- Bumblebee
- Cabbage White
- Caddisfly
- Carpenter Bee
- Field Cricket
- Firefly
- Mayfly
- Mourning Cloak
- Monarch
- Spring Azure

#### Amphibians & Reptiles
- American Toad
- Painted Turtle
- Spotted Salamander
- Spring Peeper
- Wood Frog

#### Mammals
- Eastern Chipmunk
- Groundhog

#### Fish
- American Shad

#### Birds
- American Robin
- American Woodcock
- Baltimore Oriole
- Barn Swallow
- Dark-eyed Junco
- Eastern Phoebe
- Eastern Towhee
- House Wren
- Killdeer
- Osprey
- Ovenbird
- Red-winged Blackbird
- Ruby-throated Hummingbird
- Scarlet Tanager
- Tree Swallow
- Wood Thrush

### Other important data:
- The date of the first and last frost
- Weather data
- The date of the first and last ice on ponds and lakes
- The date when vernal pools dry up