**2024 Envirothon**

**Wildlife Key Learning Topics & Objectives**

**Key Topic 1: Wildlife Ecology**

* Understand the definition of “wildlife”.
* Know the parts of the environment and the dependence of living organisms on

environmental elements (water, temperature, soils, mineral nutrients, and sunlight) of the

 ecosystem.

* Identify the source of energy for all life, the processes for producing energy, and

 the flow of energy through an ecosystem. Describe food webs, food chains, and

 energy pyramids.

* Describe the various niches of wildlife and give examples of organisms in each

 niche.

* Explain the carrying capacity of an ecosystem, the factors that affect carrying

 capacity, and its importance to wildlife populations.

* Know the meaning of “habitat,” and be able to name the habitat requirements for wildlife and factors that affect wildlife suitability.
* Know and understand basic ecological concepts and terminology.  Define and explain basic ecological concepts and terminology, e.g., limiting factor, biological carrying capacity, cultural carrying capacity, territory, home range, population, community, succession, forest fragmentation, etc.
* Understand the difference between ecosystem, community and population. Be able to explain how communities interact with their non-living surroundings to form ecosystems.

**Key Topic 2: Emerging wildlife diseases and issues (Kentucky)**

* Define and become knowledgeable of biological descriptions and identification of wildlife diseases including Chronic Wasting Disease, Rabbit Hemorrhagic Disease RHDV2, White-nose Syndrome, Deer Hemorrhagic Disease (Blue Tongue), Batrachochytrium salamandrivorans (BSAL), snake fungal disease and avian influenza
* Identify and demonstrate understanding of habitat diversity threats. Examples: emerald ash borer, spotted lanternfly, non-native invasive plants and laurel wilt disease.
* Identify and have general understanding of issues with non-native, invasive wildlife. Ex. Wild pigs & Asian Carp
* Be knowledgeable of how climate change may affect wildlife in Kentucky. Be able to describe how increased temperatures, decreased precipitation and changing weather patterns can impact populations and ranges of wildlife.

**Key Topic 3: Wildlife Diversity**

* Identify and explain the terms: extinct, extirpated, endangered, threatened, “species of greatest conservation need”, endemic species.
* Define keystone, indicator, game, and non-game species and give examples of

each.

* Define biodiversity and explain the importance to people and wildlife.
* Identify and explain factors that lead to species population decline. Ex. Habitat loss, invasive species, pollution, etc.
* Identify “species of greatest conservation need.” Know the natural history and conservation efforts to restore populations in Kentucky. (See attached list for animals of emphasis)
* Identify “priority habitats”: wetlands, grasslands and riparian buffer zone. Be able to describe the characteristics of these habitats and why they might be vital to species population recovery.
* Identify significant governmental laws, policies and acts that have been passed to protect endangered and threatened species (ex. Migratory Bird Treaty Act, Endangered Species of 1973, Lacey Act).

**Key Topic 4: Wildlife and Habitat Management Field Skills**

* Be able to identify, describe the natural history, determine the wildlife biology, and evaluate habitat for the animals listed as “species of emphasis”.  Identification signs can include: a picture, a replica, decoy, fur, hair, feather, gnawing, rubbing, pellet, nest, scat, track, song or sound
* Describe teeth aging process of white-tail deer. Be able to identify pictures or samples of a one-year old deer, a two-year old deer and deer that may be three-years old or older.
* Be able to identify the sounds of Kentucky frogs and other listed species of emphasis (see list).
* Be knowledgeable of common wildlife habitat improvement methods.
* Identify some types of animal adaptations –physical and behavioral –and provide

examples of each

* Define a fire-maintained ecosystem. Describe a native fire-maintained ecosystem

and the wildlife adapted to the system. Identify practices used to manage fire-

dependent ecosystems (prescribed burns).

**Key Topic 5: Conservation & Management of Wildlife (Kentucky)**

* Be familiar with and able to explain how the Pittman-Robertson Act & Dingall-Johnson Act are important in the funding of KDFWR and wildlife conservation.
* Identify native species KDFWR has, has had a part in or has made great strides in successfully restoring in Kentucky. Examples-Bald Eagle, Peregrine Falcons, river otter, elk, white-tail deer, wild turkey, etc
* Identify and describe wildlife management and reintroduction efforts utilized in the effort to restore wildlife populations and the benefits of each. Examples: “hacking”, mussel breeding efforts
* Identify the agencies responsible for wildlife management and conservation.
* Describe the role of hunters in wildlife management and conservation.
* Describe the principles of wildlife management and recognize the difference

between conservation and preservation.

2024 Species of Emphasis:

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| --- | --- | --- |
| Amphibians | Reptiles | Birds  |
| Bird-Voiced Tree FrogNorthern Crawfish FrogSouthern Leopard FrogMole SalamanderSpotted Dusky SalamanderEastern HellbenderWestern Lesser Siren | Slender Glass LizardScarlet King SnakeNorthern Pine SnakeCopperbelly Water SnakeAlligator Snapping TurtleEastern Mud TurtleSmooth Softshell Turtle  | Barn Owl Eastern Whip-poor-willLoggerhead shrike Common RavenKentucky WarblerBobwhite QuailOspreyBald EaglePeregrine FalconWild TurkeyEastern BluebirdBlack VultureEuropean Starling |
| Mammals | Insects | Fish & Others |
| Eastern Spotted SkunkSwamp RabbitGray BatIndiana BatVirginia Big Ear BatMuskratLeast weasel White-tail DeerElkRiver OtterBeaverArmadillo Nutria  | Monarch ButterflyRusty Patched BumblebeeRattlesnake-Master Borer MothCave Beetles | Alligator GarPaddlefishKentucky Arrow DarterLake SturgeonBlackside DaceCave FishMussels Louisville CrayfishBottlebrush Crayfish |

Key Topic 1:

<http://www.envirothonpa.org/pdfs/Helping%20Wildlife%20Working%20With%20Wildlife.pdf>

Key Topic 2:

[Kentucky Emerging Forest Threats Fact Sheet.pdf (usda.gov)](https://www.climatehubs.usda.gov/sites/default/files/Kentucky%20Emerging%20Forest%20Threats%20Fact%20Sheet.pdf)

[Invasive Species - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/InvasiveSpecies/Pages/default.aspx)

<https://fw.ky.gov/More/Pages/Nuisance-Species-Plans.aspx>

[Invasive Species Archives - Kentucky Native Plant Society (knps.org)](https://www.knps.org/category/invasive-species/)

<https://envirothon.org/wp-content/uploads/2022/09/2023-Current-Issue-Part-A.pdf#page=63>

Key Topic 3:

[Wildlife Diversity - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/Wildlife/Pages/Wildlife-Diversity.aspx)

[app.fw.ky.gov/speciesinfo/speciesinfo.asp](http://app.fw.ky.gov/speciesinfo/speciesinfo.asp)

[Kentucky Wild](https://app.fw.ky.gov/kywild/)

[State Wildlife Action Plan - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/WAP/Pages/default.aspx) (Currently in Revision)

<https://www.fws.gov/law/migratory-bird-treaty-act-1918>

<https://www.fws.gov/law/endangered-species-act>

Key Topic 4:

[Improve Your Land for Wildlife - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/Wildlife/Pages/Improve-Your-Land-for-Wildlife.aspx)

[A Key for Aging White-Tailed Deer Using the Tooth Replacement and Wear Technique | Land-Grant Press (clemson.edu)](https://lgpress.clemson.edu/publication/a-key-for-aging-white-tailed-deer-using-the-tooth-replacement-and-wear-technique/)

Key Topic 5:

[Kentucky's Deer Restoration - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/More/Pages/Kentucky%27s-Deer-Restoration.aspx)

[Microsoft Word - The Kentucky Warbler Permissions.docx](https://fw.ky.gov/Wildlife/Documents/2017OspreyReport.pdf)

[Elk In Kentucky - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/Hunt/Pages/ElkInKentucky.aspx)

[Bald Eagles - Kentucky Department of Fish & Wildlife](https://fw.ky.gov/Wildlife/Pages/Bald-Eagles.aspx)