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# Raptor Academy



Conserve. Educate. Protect.

## Pre-Program Packet

For Educators, By Educators



# Table of Contents



Dear Educators.....2

About AEF.....3

What is a Raptor?.....4

Raptor Types.....5

How We Care for Resident Raptors.....6

How to Help Raptors.....8

Helping Injured Wildlife.....10

Worksheets.....11

Answer Keys.....13

Support AEF.....15

Vocabulary.....16

CONSERVE • EDUCATE • PROTECT



## Dear Educators,

We recognize your invaluable work and service to the youth in your classroom. During the past few years, you have been called upon to perform your responsibilities in new, unprecedented ways. We cannot even begin to understand the challenges that you and your students have navigated together, but we can support you as you continue to be present for your pupils during these difficult times.

In this spirit, we are delighted to share these educational resources with you. First and foremost, we hope that these materials instill in your students a passion for conservation, all while equipping them with transferable skillsets that meld seamlessly into your curriculum. We also hope that our lesson plans and program nurture your students' enthusiasm and connection with you.

What follows in this pre-program packet is a carefully curated collection of materials designed to supplement our program together. This packet covers some of the basics about raptors: what they are, some common vocabulary terms used in describing them, and how to help them.

As you prepare for your raptor program, we invite you to use this pre-program packet to enrich your student's understanding of birds of prey and their role within our ecosystems.

If you feel so inspired, we've also gathered some materials in the appendices detailing how to further get involved with American Eagle Foundation after your program.

Thank you for your interest in an American Eagle Foundation Raptor Academy program. We hope that this program marks the beginning of a working partnership between our AEF educators, our educational ambassador birds, and your school.

Feel free to reach out to us with any ideas or questions that you may have. We also hope that you will take the time following your program to provide us feedback via the provided survey. Your feedback is valuable to us, and it allows us to better serve educators like you!

Remember it will be voices like yours and your students that continue to protect our native wildlife and their habitats.

Warm Regards,

The American Eagle Foundation

[education@eagles.org](mailto:education@eagles.org)



# About the American Eagle Foundation



The American Eagle Foundation is a 501(c)(3) non-profit organization dedicated to inspiring the global community to guard and protect the bald eagle and all birds of prey through educational outreach and a deeply passionate commitment to conservation.

In the name of conservation and protection, American Eagle Foundation's headquarters feature a raptor rehabilitation clinic, where we care for injured raptors. AEF has released over 180 eagles back into the foothills of the Great Smoky Mountains over the course of our history. Some of these eagles were hatched onsite through AEF's historic bald eagle propagation program. AEF has shifted their focus from bald eagle propagation to other pressing conservation needs, including barn owl propagation and the support of global vulture conservation initiatives.

The American Eagle Foundation is home to over 70 non-releasable birds of prey. "Non-releasable" means that they are incapable of thriving in the wild due to previous illness, injury, or disability. Though they live a comfortable life under human care, they are not pets but, rather, ambassadors for their wild counterparts. Our educational ambassadors represent the astonishing variety of raptor species in Tennessee and the world. You may see species of hawks, falcons, owls, vultures, corvids, and eagles.

## AEF Fast Facts:

- Founded in 1985
- Mission Pillars: Conservation, Education, and Protection
- Cares for 70+ permanent raptor residents
- Successfully rehabilitated and released over 180 eagles and many more other raptors
- Home to Eagle Mountain Sanctuary, the largest population of non-releasable bald eagles
- Performs flighted bird shows for Dollywood, our largest corporate sponsor



# What is a Raptor?

The term “**raptor**” refers to diverse species of bird whose diet largely consists of vertebrates. It comes from the Latin verb “*rapere*,” which means to seize or grab. Traditionally, raptors were said to share some physical traits:

KEEN EYESIGHT



HOOKED BEAK



STRONG, TALONED FEET



There are exceptions to this definition, which has led to heated debate in the scientific community about how to define raptors! Owls, for example, are extremely farsighted, and they have a hard time seeing things right under their beak. Though considered raptors, New World vultures don't hunt live prey, and they don't have strong feet. Some songbirds, corvids, and waterfowl are known to hunt and eat prey. Parrots are certainly not raptors, but they have hooked beaks.

Though keen eyesight, hooked beaks, and sharp talons are traits shared by many raptors, American Eagle Foundation subscribes to the Peregrine Fund's recent definition:

“Raptors are those species that evolved from raptorial land-birds who maintain their ancestry's vertebrate-eating lifestyle.”<sup>1</sup>

“Vertebrate,” of course, means that raptors' diets primarily consist of prey that has a backbone or spine. Though occasionally included under the “raptor” umbrella by previous definitions, corvids and shrikes (a type of songbird) are excluded from our definition of raptor. Even though birds like crows and shrikes eat vertebrates, they are not descended from raptorial land-birds.

<sup>1</sup> Christopher J. W. McClure, Sarah E. Schulwitz, David L. Anderson, Bryce W. Robinson, Elizabeth K. Mojica, Jean-Francois Therrien, M. David Oleyar, Jeff Johnson "Commentary: Defining Raptors and Birds of Prey," *Journal of Raptor Research*, 53(4), 419-430, (11 November 2019)

# Types of Raptors

Our definition of “raptor” includes falcons, vultures, eagles, hawks, owls, kites, and seriemas. The types of raptors that you will encounter during your program are described below. You can find additional information about these raptor types (and key terms) in the vocabulary section of this packet!



**EAGLES**

Eagles are day-time hunting raptors known for their size and power!

There are two native species in the U.S.: bald eagles and golden eagles.



**HAWKS**

Hawks are medium-sized, day-time hunting raptors.

Hawks come in a variety of shapes and sizes, weighing anywhere from 3 ounces to 5 pounds.



**OWLS**

Owls are nocturnal hunters capable of silent flight and excellent hearing.

Their faces act as satellite dishes that funnel sound back to their hidden ears.



**FALCONS**

Falcons are medium-sized, day-hunting birds of prey.

Tapered wings, spiraled nostrils, and long toes are some of the adaptations that make falcons the fastest animals.



**VULTURES**

Vultures are nature’s clean-up crew! Unlike other raptors, they primarily eat carrion.

Their unique adaptations stop the spread of disease, and they help protect economic and human health!

## How We Care for Our Resident Raptors



The raptors you will see in your program are non-releasable, meaning that they have a permanent disability that would prevent them from surviving and thriving in the wild.

American Eagle Foundation adheres to a gold standard of care when it comes to looking after our educational ambassadors. We are a federally permitted facility with skilled staff. Our **raptors are not pets**, and we care for them in a way that respects their status as wild animals. We also respect our raptors as unique individuals with personalities and unique quirks.

Here are some routines and practices that you may see during your program:

### 1. Weight and Diet Management

Avian Care Specialists serve as “life coaches” for our birds in that we monitor their diet and weight. We only feed ethically source, thawed food to our raptors. They get a variety of foods (such as quail, fish, mouse, and rat) that simulates their natural diet.

We also weigh our birds daily to ensure that they maintain an optimum level of health.

### 2. Freedom of Choice

Because our birds must spend their lives under human care, we give them as much freedom of choice as possible. They choose their caretakers and the extent of their interaction with their caretakers.

This results in a daily routine for each bird that is unique as they are. Many birds have a special behavior that indicates when they’re willing participants in their daily routine (such as weathering and training sessions), or they may cooperate in their own health care (such as letting their caretakers trim their talons).

These incredible behaviors are all made possible through **positive reinforcement**, meaning that their caretakers observe things that they enjoy (like food and toys) and reward good behaviors with those favorite treats.



### 3. Weathering

If they choose to do so, each resident raptor has a dedicated outdoor perch or pen in a covered location where they may enjoy “weathering.” As the name implies, “weathering” involves exposing our birds to sun, rain, and outside stimuli. Because the great outdoors can be unpredictable (and because the sounds of our birds attracts their wild neighbors), we keep our birds tethered to their perches to prevent them from injuring themselves or each other.

Weathering isn’t just a change in scenery; sun and even rain keep our birds healthy and happy. Some really enjoy bathing in the rain or being misted on a hot summer day!

### 4. Training

Our birds receive their daily diet during a training session. Training is relationship-building between bird and caretaker, and it allows us, through positive reinforcement, to communicate with our raptors (and vice versa)!

We may train behaviors that increase physical fitness, allow our raptors to communicate when and how they want to interact with their caretakers, or showcase their natural behaviors for programs. Training also helps keep their minds and bodies active and healthy!

### 5. Enrichment

“Enrichment” is a complicated concept that we could write pages about! In short, it’s anything that promotes the mental well-being of our resident raptors. We enrich our birds with toys, paper or cardboard for shredding, new locations, training, weathering, and even their rooms. Each raptor has a room that is customized to suit their unique needs and disabilities, and the interchangeable perches, bathing pan, and different surfaces are all enriching.

We consistently offer our raptors new experiences to support their mental and emotional wellbeing.

## How to Help Raptors



We call our resident raptors “Educational Ambassadors” because they represent their wild counterparts, and they help us educate our community on how to join us in conserving and protecting all birds of prey!

Though our feathered friends may be great at connecting you to the natural world, we cannot enact our mission pillars of conservation, education, and protection alone. Here’s how you can join us in caring for all birds of prey:

### 1. Be Their Voice

Raptors can’t speak for themselves. Speaking up on their behalf and educating those around you is a super-powered way of protecting them!

### 2. Protect Their Habitats

A universal threat facing raptors is habitat loss. We can protect their habitats by cleaning up litter, installing nest boxes, planting native species, and planning construction projects and treework around nesting seasons.

### 3. Change Habits and Hearts

There are many ways that we may unintentionally hurt our wild raptor neighbors. Always be sure to properly dispose of fishing line, twine, and other string-like waste to avoid entangling raptors. Some holiday practices—like releasing balloons, flying lanterns, or hanging fake spiderwebs—can also catch and strangle raptors.

Roadside litter is also a serious risk to raptors! The litter attracts rodents and other prey, and then our natural pest control experts end up flying into traffic in pursuit.

#### 4. Keep Toxins out of Our Ecosystems

Toxins are quickly becoming a huge concern, too. Consider swapping to non-lead ammunition and fishing weights, and bury any gut piles. A lead fragment the size of a grain of rice is lethal to an adult bald eagle, and eagles—and other raptors—might consume lead by eating carrion or prey that has also ingested lead.

Rat poison is another threat to our birds of prey! Pests don't die immediately upon consuming the rodenticides, and they'll often consume more than a lethal dose. When the poison does take effect, they'll become sluggish and make easy prey for raptors and other predators, which then become poisoned in kind. Even "contained" bait or bait kept indoors is dangerous to owls and other natural pest control experts.

#### 5. Support Impact Organizations

Researchers, nature centers, non-profits, wildlife rehabbers, and other conservation organizations are on the frontlines of protecting our wildlife. Though these kind-hearted groups are helped by monetary donations, you can also support them through other means.

Check to see if your local wildlife organization has a wishlist for animal care items. Some may have a volunteer program, which will allow you to learn about our incredible native wildlife while helping conserve it.



## Helping Injured Wildlife



### Please Note:

ALWAYS contact your local wildlife agency, organization, or rehabber first if you encounter injured wildlife. This information is for educational purposes only.

Remember: injured wildlife will be afraid and possibly in pain. Choosing to intervene on their behalf poses a risk of injury to yourself or the wildlife. We encourage leaving any interactions with wildlife to the professionals.

1. **Contact your local wildlife agency, organization, or rehabber.** Contact information for federally licensed rehabbers can be found on Animal Help Now (<https://ahnow.org/>) or on your state agency's page (<https://www.fws.gov/southeast/wildlife-and-you/injured-or-orphaned-animals/>)
2. **Confirm that the wildlife really does need help!** Look for visible signs of injury, distress, or immobility.
3. **If the wildlife is young, speak with a professional or ensure you understand its natural history!** Raptors and other birds go through a "brancher" stage, meaning that they've left the nest but can't fly well. Some wildlife parents may leave their young during the day (such as deer or rabbits). Their parents may still be caring for them, and they may not need rescuing!
4. **If you choose to intervene, minimize contact with the wildlife and prioritize your safety.** Follow any directions from your rehabber or wildlife officer. Use a durable blanket and thick, leather gloves to secure the wildlife. Keep the animal in a dark, quiet place in a box or kennel with plenty of airflow; you should cover its cage with a sheet to minimize stress during transportation to the vet or rehabber.
5. **Never give food or water to injured wildlife.** Doing so may cause further health issues to the wildlife or risk imprinting them on humans, endangering the animal's chances of returning to the wild.
6. **NEVER rehabilitate wildlife yourself!** It is illegal! Attempting to care for injured wildlife does more harm than good, even with the best of intentions. Wildlife requires specific care, facilities, and resources that only federally licensed rehabbers can provide.

# Raptor Traits

Raptors are land birds descended from raptorial species that still eat prey with vertebrae. We use this definition because not every raptor has the same traits!

Using the word bank, fill out the descriptions of each type of raptor. Be careful: all words should be used at least once!

Word Bank					
Keen Eyesight	Good Hearing	Strong Grip	Diurnal	Weak Feet	
Silent Flight	Good Sense of Smell	Bald Head	Nocturnal	Powerful	Fast
Mustachial Stripes		Plumicorns			

 <b>EAGLES</b>		 <b>HAWKS</b>	
 <b>OWLS</b>		 <b>FALCONS</b>	
 <b>VULTURES</b>			

# Wingshapes Worksheet

In the raptor world, the shape of a bird's wings and tail can tell us a lot about their hunting habits and flight abilities. Look closely at the following silhouettes and draw a line to match the silhouette to the species.



## Bald Eagle

- long, straight "ironing board" wingspan
- large, soaring bird



## Red-Tailed Hawk

- Broad, bulky wings and tail
- Built for power and effortless soaring



## Cooper's Hawk

- Short, rounded wings with long tail
- Built for agile flights



## Peregrine Falcon

- long, angled wings with medium tail
- built for speed and diving



## Black Vulture

- long, forward reaching Wings
- short tail

# Raptor Traits (Answers)

Raptors are land birds descended from raptorial species that still eat prey with vertebrae. We use this definition because not every raptor has the same traits!

Using the word bank, fill out the descriptions of each type of raptor. Be careful: all words should be used at least once!

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	Mustachial Stripes	Plumicorns			

 <b>EAGLES</b>	Keen Eyesight, Strong Grip, Powerful, Diurnal	 <b>HAWKS</b>	Keen Eyesight, Strong Grip, Powerful, Diurnal
 <b>OWLS</b>	Good Hearing, Strong Grip, Silent Flight, Nocturnal, Plumicorns	 <b>FALCONS</b>	Keen Eyesight, Strong Grip, Fast, Diurnal, Mustachial Stripes
 <b>VULTURES</b>	Keen Eyesight, Weak Feet, Good Sense of Smell, Bald Head		

# Wingshapes Worksheet (Answers)

In the raptor world, the shape of a bird's wings and tail can tell us a lot about their hunting habits and flight abilities. Look closely at the following silhouettes and draw a line to match the silhouette to the species.

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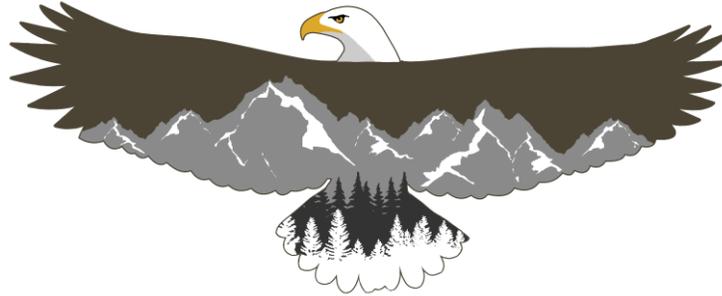
**Red-Tailed Hawk**  
-Broad, bulky wings and tail  
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**Cooper's Hawk**  
-Short, rounded wings with long tail  
-Built for agile flights

**Peregrine Falcon**  
-long, angled wings with medium tail  
-built for speed and diving

**Black Vulture**  
-long, forward reaching Wings  
-short tail

## PROJECT EAGLE



# Support American Eagle Foundation

## Project Eagle

In 2020, American Eagle Foundation will be opening our biggest expansion in our history. This brand-new facility, housed on 57 spacious acres, will become the largest raptor education and rehabilitation facility in the United States.

Visit [eagles.org/project-eagle/](https://eagles.org/project-eagle/) to leave your legacy on our future.

## Raptor Adoptions

A symbolic adoption is a great way to foster a connection between your school or organization and our charismatic resident raptors! If you adopt before our program, let us know, and we'll do our best to feature your adopted raptor during the session!

To adopt a raptor, look at our educational ambassadors at [eagles.org/meet-our-birds/](https://eagles.org/meet-our-birds/), then click "adopt" on the individual bio of your chosen bird!

## Collect Enrichment Items

Our resident raptors enjoy daily enrichment to nourish their mental wellbeing. Collecting and donating enrichment items is a great way to directly support the birds that you will see during your program without spending a dime!

To see a list of items that we need for enrichment, visit [eagles.org/needed-items/](https://eagles.org/needed-items/) and scroll to the enrichment items list.

# Thank you!



# Vocabulary



**Anklets:** Leather cuffs fastened around a bird’s ankles. Typically, these are secured with a metal eyelet through which the jesses are threaded. The soft anklet leather is molded and treated to maximize comfort for the birds. Anklets and jesses are used for the protection of the bird and handler.

**Beak:** The beak—or a raptor’s mouth—helps them rip and tear their food. The beak is covered in keratin and grows just like our fingernails.

**Bird of Prey:** A term referring to any carnivorous bird that evolved from raptorial land bird. Typically, this refers to hawks, eagles, owls, kites, vultures, falcons, and seriemas.

**Buzzard:** Though this word is often incorrectly used to describe vultures, it correctly refers to several hawk-like species of birds. Many buzzards are in the *Buteo* genus, which includes the red-tailed hawk.

**Cast:** “To Cast” refers to the regurgitation of a pellet, or indigestible fur and bones. It is sometimes used as a noun to describe the pellet as well.

**Carrion:** Carrion refers to dead and decaying meat, though it may also be used to describe those species that eat carrion (like “carrion birds”).

**Conservation:** The planned preservation or management of natural resources, including habitat and wildlife, to prevent exploitation, destruction, or extinction.

**Convergent Evolution:** Species that are not closely related independently evolve to fulfill the same ecological purpose.

**Crepuscular:** An animal that is most active during dusk and dawn of each day.

**Diurnal:** Refers to wildlife that is active during the day.

**Eagle:** A common name referring to over 60 large and powerful birds of prey in the Accipitridae family. Eagles are diurnal hunters known for their striking wingspan and strength.



**Ecosystem:** Biological systems that include an environment and its resident organisms. To discuss an “ecosystem” is to examine such wild spaces as an interconnected community.

**Enrichment:** Anything that improves well-being by providing physical and mental stimulation, encouraging natural behaviors, or allowing animals greater control over themselves and their environment. Enrichment is key to reducing stress and improving mental health.

**Falcon:** Birds of prey within the genus *Falco* that are known for their agility and speed. There are roughly 40 species of falcon, among which is the fastest animal on earth: the peregrine falcon.

**Hawk:** Hawks are medium-sized, diurnal—or day-time hunting—birds of prey in the family Accipitridae. There are over 200 types of hawks.

**Jesses:** Short leather straps that are threaded through the br. Jesses help a handler manage a trained bird.

**Kite:** Kites are diurnal raptors in the family Accipitridae or, more specifically, the three subfamilies Milvinae, Elaninae, and Perninae. These birds are usually distinguished by their long, narrow wings, long tails, and hovering hunting style.

**Moustachial Stripes:** Refers to the dark stripe underneath falcon’s eyes. This marking, which is sometimes called “malar stripes,” is thought to help protect eyes from the glare of a sun, just like the black paint worn by football and baseball players.

**Nocturnal:** Typically refers to wildlife that is active at night.

**Non-Releasable:** A term used to describe a wild animal that is unable to thrive in the wild due to previous injury, illness, or other disability despite attempts to rehabilitate the animal. Non-releasable birds are often identified as such by a paperwork process involving veterinary professional and state official assessment.

**Owl:** Owls are nocturnal—or night-time hunting—birds of prey with a great sense of hearing. They typically have large heads, stocky bodies, and short tails. There are over 200 species of owl found worldwide.

**Positive Reinforcement:** Training an animal’s behavior with a high-value treat or other desired outcome to increase the frequency of the behavior or associate it with a specific cue. For example, a raptor may receive a tidbit—or small piece—of their food for stepping on to their caretaker’s glove.

**Plumicorn:** Twin tufts of feathers on the heads of some species of owl, such as the great horned owl and eastern screech owl. These feathers are often mistaken for ears, but they are thought to be used for camouflage and communication.

**Pellet:** An indigestible mound of fur and bones produced by birds of prey. Because raptors eat their prey whole, pellet production is part of a healthy, functional digestive tract.

**Primary Feathers:** Long feathers on a bird’s wingtips that are used for flight. These feathers are sometimes



called “flight feathers”

**Raptor:** This phrase refers to a bird of prey. It stems from the Latin word “Rapere,” which means to seize, grab, or carry off. Because of this, “raptor” refers to any carnivorous bird that evolved from vertebrae-eating land bird.

**Rehabilitation:** The act of providing professional care to injured, sick, or orphaned animals with the goal of returning them to the wild. Only federally licensed rehabilitators should try to rehabilitate wildlife for their protection and the welfare of wildlife.

**Rodenticide:** Poisons designed to attract pests like mice and other rodents. Most of these poisons use something called an “anti-coagulant,” which causes internal bleeding. Rodenticides may also kill predators that eat a poisoned animal through a process called secondary poisoning.

**Scavenger:** An animal that feeds on carrion or refuse. Scavengers may be “obligate,” meaning that their diet only consists of carrion, or they may be “facultative,” meaning that carrion is only a portion of their diet.

**Seriema:** Seriemas are members of the family Cariamidae, and there are only two surviving species in this family. Long-legged and crane-like in appearance, these unique birds primarily eat insects, fruit, seeds, plant material, and small vertebrates like snakes, lizards, and rodents. They use a unique thrashing method to hunt and subdue their prey.

**Talons:** A word used to describe a bird of prey’s large, hooked claws. These serve as a knife and fork for raptors, allowing them grab and tear at their meal.

**Vulture:** Vultures are diurnal—or daytime—scavengers equipped with a bald head and long neck. They are classified into two groups: New World Vultures (like those found in the Americas) and Old World Vultures (European vultures). These two groups are not related to each other, but they evolved to serve as nature’s cleanup crew through “convergent evolution.”

