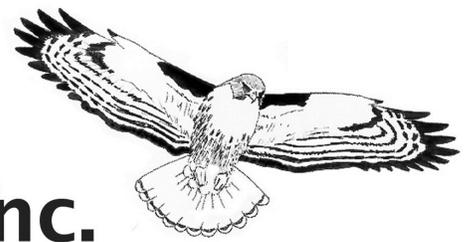
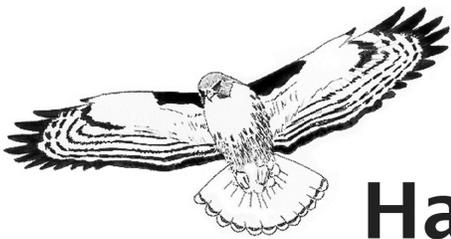
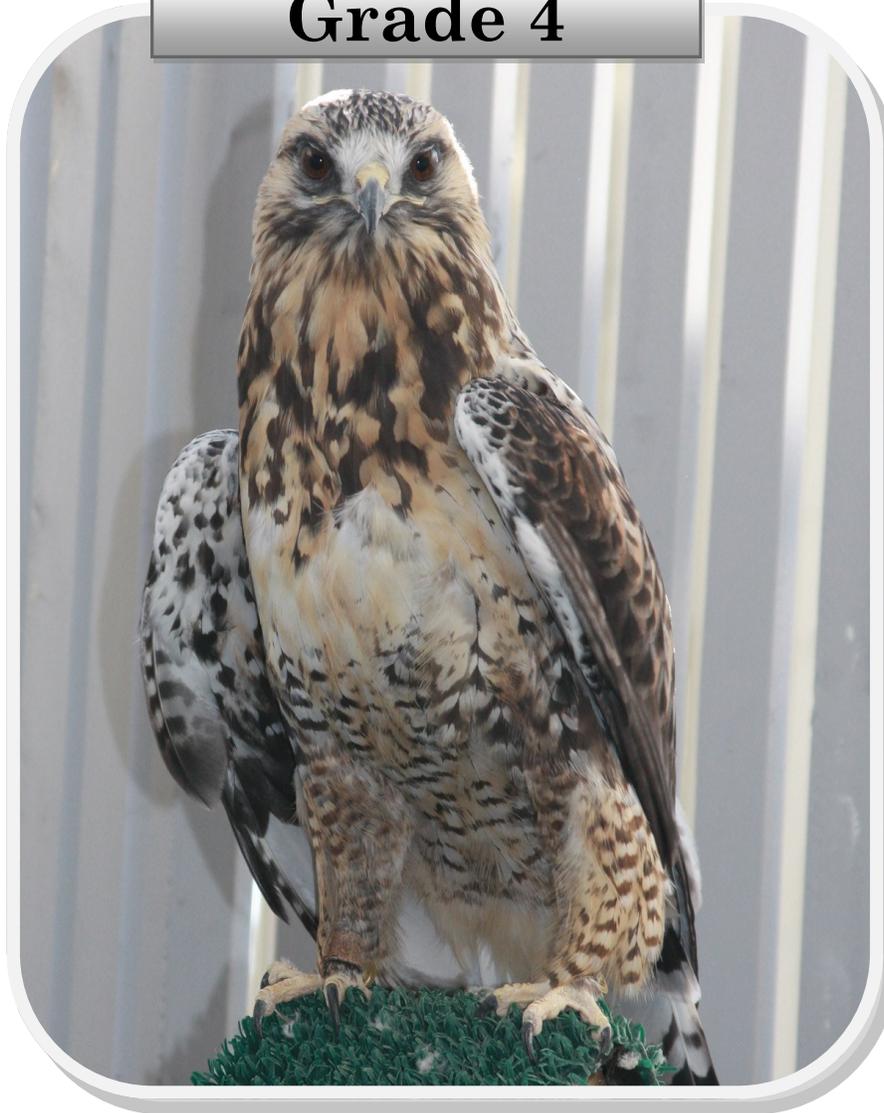


Living with the Landscape

Pre-Packet

Grade 4



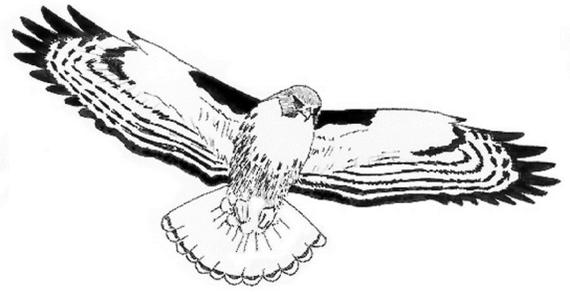
Hawks Aloft, Inc.

Conservation, Avian Research & Education

Albuquerque, NM

(505)828-9455

www.hawksaloft.org



We are so excited that you have invited Hawks Aloft, Inc to visit your classroom! The following packet includes background information and additional activity suggestions to help your students get the most out of our visit.

All of the materials in this packet can be reproduced for educational purposes and we encourage you to share this packet with your colleagues.

We also offer a single-visit program called Bird of Prey that features two live raptors and can be tailored for students from grades 2-12. Teachers can choose from a variety of topics, including bird biology, migrations, and adaptations, or we can modify a lesson

to fit classroom needs. For a full list of the programs offered by Hawks Aloft and to download free bird-related lessons, visit our website: www.hawksaloft.org.

H A W K S A L O F T , I N C

**POST OFFICE BOX 10028
ALBUQUERQUE, NEW MEXICO 87184
PHONE / 505-828-9455 FAX / 505-828-9769
WEBSITE / <http://www.hawksaloft.org>**

About Us

Hawks Aloft, Inc. is a non-profit organization located in Albuquerque, New Mexico that works to conserve indigenous wild birds and their habitats through avian research and conservation education. We work closely with local rescue groups and often help rehabilitate injured raptors. In addition, we care for 20 non-releasable raptors who serve as Avian Ambassadors, visiting schools and community events to teach the importance of conservation. Visit our website, www.hawksaloft.org for more information.

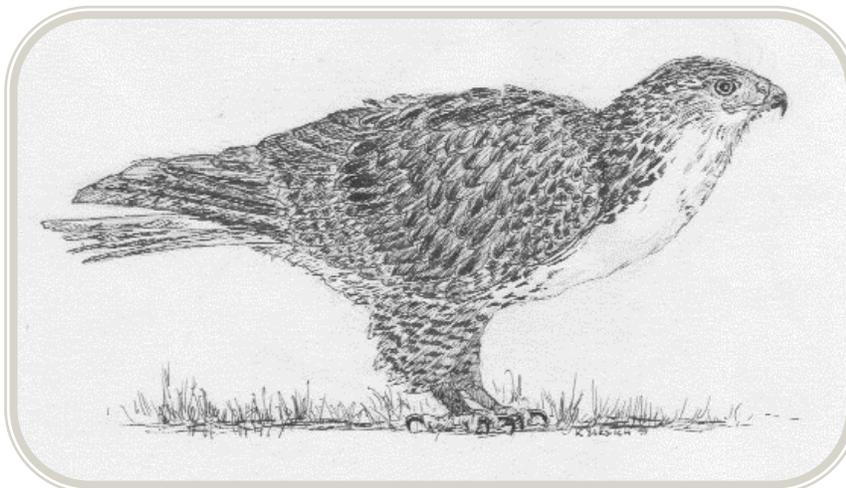
Research

Through the hard work of both staff scientists and volunteers, Hawks Aloft has been researching songbirds and raptors in New Mexico for over 20 years. Projects include: the effects of riparian restoration on songbird populations, monitoring of the endangered Mexican Spotted Owl, and raptor nest surveys.

Education

Our best hope for the future of our planet is through education. It is for this reason that Hawks Aloft delivers hundreds of educational programs each year to thousands of children and adults throughout New Mexico. Using live, non-releasable raptors to engage

and excite the public about the importance of conserving wildlife, our programs are tailored to suit the needs of each individual audience. We offer programs for children and adults of all ages. Visit www.hawksaloft.org to learn more about the education programs offered by Hawks Aloft.



Meet Our Avian Ambassadors

In order to promote conservation and awareness of birds of prey, Hawks Aloft houses and cares for twenty non-releasable birds of prey. All of our education birds have some permanent disability that prevents them from surviving in the wild, such as an injured wing or vision impairment. We provide them with zoo-quality housing, a natural diet, and veterinary care so they can live out their lives in comfort. They live in specially built cages called mews that have been adapted to suit their disability. For example, birds that cannot fly have special ramps that allow them to reach their perches.

Our education birds are given names in order to help identify them. They are, however, wild animals and we treat them as such, never handling them with bare hands or petting them. In order to care for them we require special permits. Any individual found in possession of one of these birds who lacks proper permits faces jail time and up to a \$10,000 fine.

Here are a few spotlights of our education birds. For full profiles of all of our education birds, visit our website: www.hawksaloft.org.



Name: Aztec
Species: Great Horned Owl
Disability: Fractured arm bones, can't fly.



Name: Hudder
Species: Swainson's Hawk
Disability: Fractured left wing, vision impaired in right eye.



Name: Clark Kent
Species: American Kestrel
Disability: Fractured bone near collar bone, can't fly well.



What do I do if I find an injured bird?

If you find an injured bird, approach with caution! An injured bird will be frightened and may try to attack when approached. If possible, contact wildlife rescue to capture the bird. If immediate rescue is needed, it is best to place a towel over the bird before picking it up. **Be extremely careful of its talons and beak.** Place the bird in a cardboard box and close the cover. Then place the box in a dark, quiet area. Do not give the bird any food or water as it could make the bird's condition worse.

In the Albuquerque area, contact the **NM Department of Game and Fish** at 505-841-8881 or **Wildlife Rescue** at 505-344-2500. In Santa Fe/Espanola you can contact the **Wildlife Center** at 505-753-9505, or the **Santa Fe Raptor Center** at 505-699-0455. They will either come get the bird or give you the name of a nearby rehabilitator. In other areas contact the local game and fish office or a veterinarian.

What about baby birds?

If you find an abandoned baby bird, it is best to leave the bird alone. Most likely the bird is learning to fly and the parents are probably nearby. Just like human children, baby birds sometimes need a little time before they are ready to completely leave the nest. If you find a nestling that does not have all of its feathers, return it to its nest if possible. Contrary to common belief most adult birds do not have a great sense of smell and will accept the young bird even if it has been touched by humans. If you cannot return it to its nest or you think that it has been abandoned, place it in a cardboard box and call a rehabilitator.



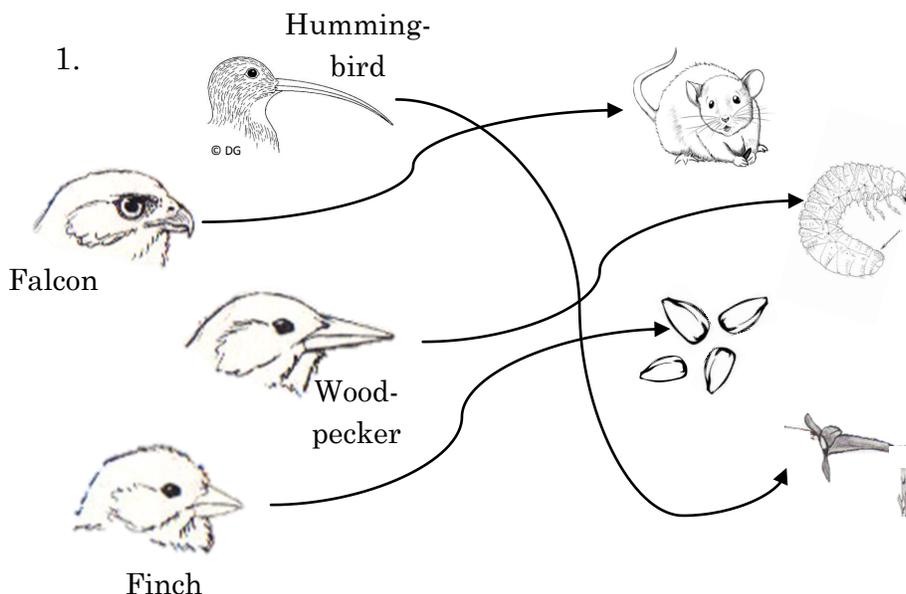
What is a Raptor?

The term “bird of prey” describes any bird that eats other animals. This group includes hawks, pelicans, roadrunners, robins and hummingbirds! Raptors are specialized members birds of prey that use their feet to catch their food. Owls, hawks, and falcons are all raptors. Raptors have specially adapted claws called **talons** that are very sharp and strong.

The following definitions will help your students complete the “What is a Raptor?” student hand-out on Page 7.

- **Adaptation** - A body part or behavior that helps a living thing to survive. For example: Polar Bears have thick fur to stay warm in the Arctic.
- **Birds of Prey** - Birds that eat other animals. For example: robins eat insects, herons eat fish, and hawks eat rodents.
- **Predator** - An animal that hunts other animals for food.
- **Prey** - An animal that is hunted and eaten by other animals.
- **Raptor** - A bird of prey that uses its strong feet and talons to catch and kill its prey. For example: eagles, hawks, owls, and falcons.
- **Talons** - The sharp claws at the end of a raptor’s toes.

Answers to the Student Handout are to below:



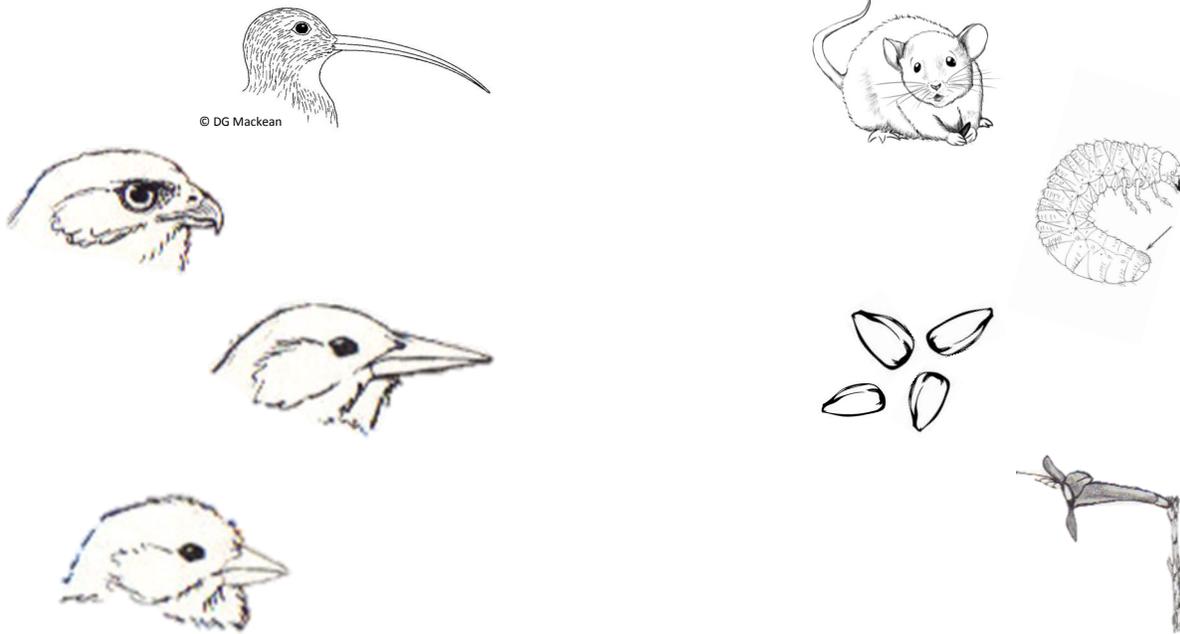
2. Names in parentheses are examples of birds with those type of feet.

- A. Swimming (Duck or Goose)
- B. Wading through mud (Crane or Flamingo)
- C. Running (Ostrich or Emu)
- D. Catching prey (Hawk or Eagle)

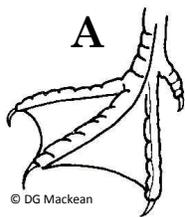


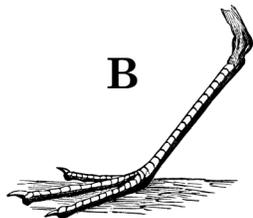
What is a Raptor? Student Handout

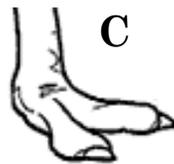
1. The body parts of all living things are all specially adapted to help them survive. For birds, beaks and feet have a large amount of diversity. Match the beaks below with the food they are adapted to eat.



2. Raptors are a group of birds that use their feet to catch their food. Owls, hawks, and falcons are all raptors. For each bird foot below, write what you think it is adapted to do.









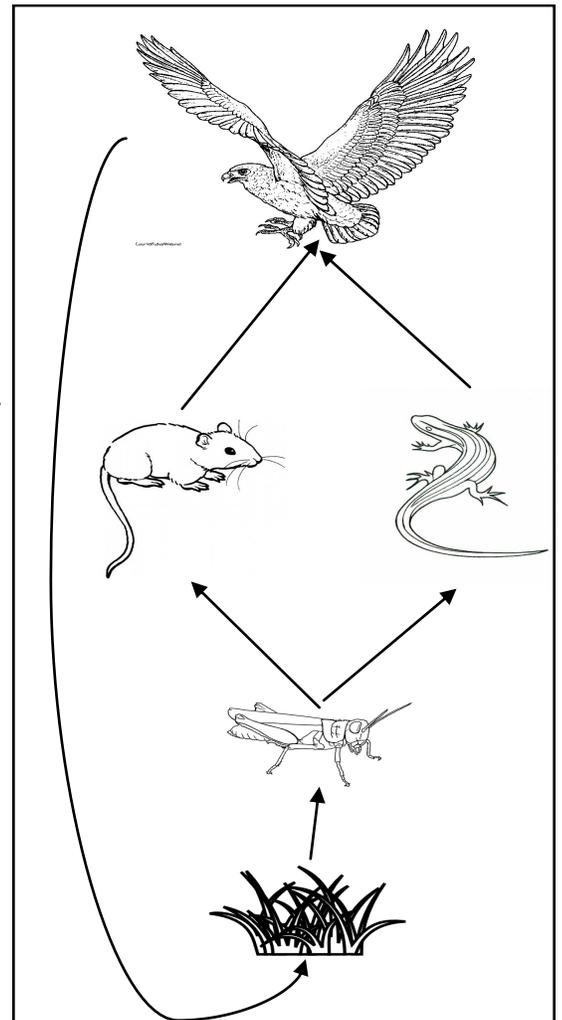


Predator & Prey

A food web is a network of interactions between animals and plants in an ecosystem. Food webs can be very simple or very complicated. The following definitions will help your students to complete the Predator & Prey Student Handout on Page 9.

- **Carnivore** - An animal that eats only meat. For example: lions, snakes, and sharks.
- **Decomposer** - An organism that breaks down dead plants and animals. Decomposers help turn dead matter into soil. For example: fungi and bacteria.
- **Ecosystem** - A community of living (plants and animals) and non-living things (rocks and soil). For example: forests, deserts, and oceans.
- **Environment** - Natural and/or man-made surroundings.
- **Habitat** - The area where an animal or plant lives and finds everything that it needs to survive. Plants and animals need food, water, shelter, and space from their habitat.
- **Herbivore** - An animal that eats only plants. For example: rabbits, deer, and grasshoppers.
- **Omnivore** - An animal that eats both animals and plants. For example: humans, bears, and coyotes.
- **Predator** - An animal that hunts other animals for food.
- **Prey** - An animal that is hunted and eaten by other animals.
- **Producer** - An organism, often a plant, that produces its own energy, usually from the sun.

Answers to the Student Handout are to the right:





Predator & Prey Student Handout

A food chain describes the relationships between animals and plants in an ecosystem. Write the definitions of the following terms.

1. Write the definitions for the following terms:

Carnivore:

Decomposer:

Habitat:

Herbivore:

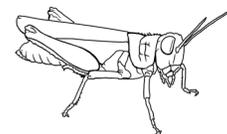
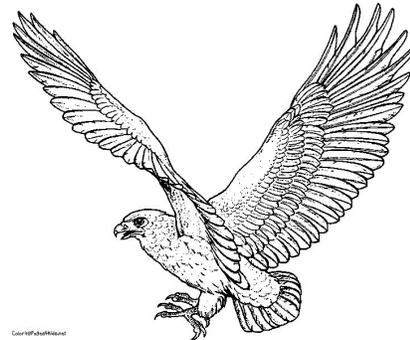
Omnivore:

Predator:

Prey:

Producer:

2. Use arrows to connect the plants and animals in the desert food chain.





Habitat Fragmentation

A habitat is where an animal can get all of its basic needs: food, water, and shelter. However, more and more wildlife are losing their habitats due to habitat fragmentation.

Habitat fragmentation is when an area of land used by wildlife is split into smaller sections due to roads, housing, or other developments. Today, the bosque is facing fragmentation with the development of roads and new communities.

Why is splitting the land bad for wildlife? Roads become barriers for the animals to reach other parts of their habitat, and often get hit by cars while crossing the road. The high traffic can also attract more trash along the side of the road and introduce toxins into the once clean environment. The plants animals rely on for food, water, and shelter are also removed. The remaining smaller sections of the habitat will become crowded, and most of the animals will be forced to move out or die. The remaining sections will only provide enough space for few species to remain, thus lowering the biodiversity of the area.

Other causes and effects of habitat fragmentation include: *Answers to Question 1 on the Student Handout are below.*

Cause:

- A. Two Great-Horned Owl pairs are trying to nest in the only tree cavity available
- B. Many mice and other rodents eat trash along the road
- C. A restaurant is newly built in a wildlife habitat
- D. Bears can't find enough food in the small patch of habitat that is left
- E. There is a drought.

Effect:

- A. Many hawks and other raptors get hit by cars
- B. The already small habitat dries up and more animals move out or die
- C. At least one pair does not breed this year
- D. Animals that once lived in that habitat now must move out
- E. Bears come into people's yards to eat their trash; may get sick from eating poison



Habitat Fragmentation

Student Handout

Habitat fragmentation is when an area of land used by wildlife is split into smaller sections due to roads, housing, or other developments. Today, the bosque is facing fragmentation with the development of roads and new communities. To better understand the impact of fragmentation, let's look at what happens animals live in small spaces.

1. Draw an arrow from the Cause on the left to the corresponding Effect on

Cause:

- A. Two Great-Horned Owl pairs are trying to nest in the only tree cavity available.
- B. Many mice and other rodents eat trash along the road.
- C. A restaurant is newly built in a wildlife habitat
- D. Bears can't find enough food in the small patch of habitat that is left.
- E. There is a drought.

Effect:

- A. Many hawks and other raptors get hit by cars.
- B. The already small habitat dries up and more animals move out or die.
- C. At least one pair does not breed this year.
- D. Animals that once lived in that habitat now must move out.
- E. Bears come into people's yards to eat their trash; they may get sick from eating poison.

2. List 3 things that people like building in wildlife areas:

3. List 3 ways to help wildlife that gets too close to humans:

Changes Through Time

Animals have lived on planet Earth for 600 million years. In that time, animals have changed drastically. Some prehistoric animal species changed into other species that are familiar to us today. Other species went extinct, never to be seen again. Scientists have discovered that some animals that were once thought to have gone extinct actually just changed into different animal species. For instance, while we once thought that all dinosaurs went extinct at the end of the Cretaceous Period, but recent fossil evidence suggests that a few dinosaur species survived and became what we know as birds today! That means that one of the closest living relatives of the dinosaurs is living in the tree in your yard!

The following definitions will help your students complete the Changes Through Time Student Handout on Page 13.

- **Endangered Species**– A species with a small, decreasing population that is in danger of becoming extinct. For example: Whooping Crane, Mexican Wolf, Panda Bear.
- **Extinct** - A species where all individuals have died. For example: Dodo and Woolly Mammoth.
- **Pesticide** - A chemical used to control and kill insects and other organisms considered to be pests. They are often sprayed on crops or plants.
- **Pollution** - A substance that damages the environment. For example: trash, human sewage.
- **Species** - A specific type of plant or animal that lives together and breeds. For example: Red-tailed Hawk, Grizzly Bear, or Ponderosa Pine.
- **Threatened Species** - A species with a declining or unstable population that is close to becoming endangered. For example: Mexican Spotted Owl and Chiracahua leopard frog

Answers to the Student Handout are below:

Farmer Daniel lives in New Mexico. This year, he has had problems with grasshoppers eating his crops, so he decided to spray a chemical called a pesticide on his crops in order to kill the grasshoppers. The next day it rains and the chemicals are washed into the Rio Grande, causing the water to become polluted. Near Farmer Daniel's farm is a nest of Southwestern Willow Flycatchers which are a threatened species, a species with a small, decreasing population. The mommy flycatcher flies down into the crops and picks out some slow grasshoppers to feed to her babies. When the babies eat these grasshoppers they become sick, because the grasshoppers have been sprayed with the pesticides. If Farmer Daniel continues to use pesticides on his crops, the Southwestern Willow Flycatchers babies might die and the species could become endangered or even extinct.

What could Farmer Daniel do to help the Southwestern Willow Flycatchers?

Answers could vary, but includes: reducing pesticide use or building nest sites away from crops



Changes Through Time

Student Handout

Animals have lived on planet Earth for 600 million years. In that time, animals have changed drastically. Some prehistoric animal species changed into other species that are familiar to us today. Other species went extinct, never to be seen again.

In the present day, human actions have caused many species to become at risk of going extinct. Let's learn about one way that humans are hurting wildlife and how we can help.

Use the following words to fill in the blanks below & complete the story.

Every word should only be used once.

extinct

endangered

threatened

pesticide

polluted

sick

Farmer Daniel lives in New Mexico. This year, he has had problems with grasshoppers eating his crops, so he decided to spray a chemical called a _____ on his crops in order to kill the grasshoppers. The next day it rains and the chemicals are washed into the Rio Grande, causing the water to become _____. Near Farmer Daniel's farm is a nest of Southwestern Willow Flycatchers which are a _____ species, a species with a small, decreasing population. The mommy flycatcher flies down into the crops and picks out some slow grasshoppers to feed to her babies. When the babies eat these grasshoppers they become _____, because the grasshoppers have been sprayed with the pesticides. If Farmer Daniel continues to use pesticides on his crops, the Southwestern Willow Flycatchers babies might die and the species could become _____ or even _____.

What could Farmer Daniel do to help the Southwestern Willow Flycatchers?



Bird's the Word

A B S M E T S Y S O C E I J K
 G D E S R I Y G S W X K P E A
 U F A B A L D E A G L E S N N
 K K W P P R K Q E P R T F B O
 P L Y E T B E A B G R I H M I
 T W O S O A C S D E A O X C T
 E O F T R R T J L Y H K M M A
 X Y R I S T W I V P A A E I V
 T W M C L K F E O T B J M G R
 I O T I E O C A R N I V O R E
 N N Z D F Q R W E S T B G A S
 C S P E C I E S G N A G S T N
 T A X W H J T A R D T F P I O
 H A W K S A L O F T M I L O C
 G P R E D A T O R U C A S N V



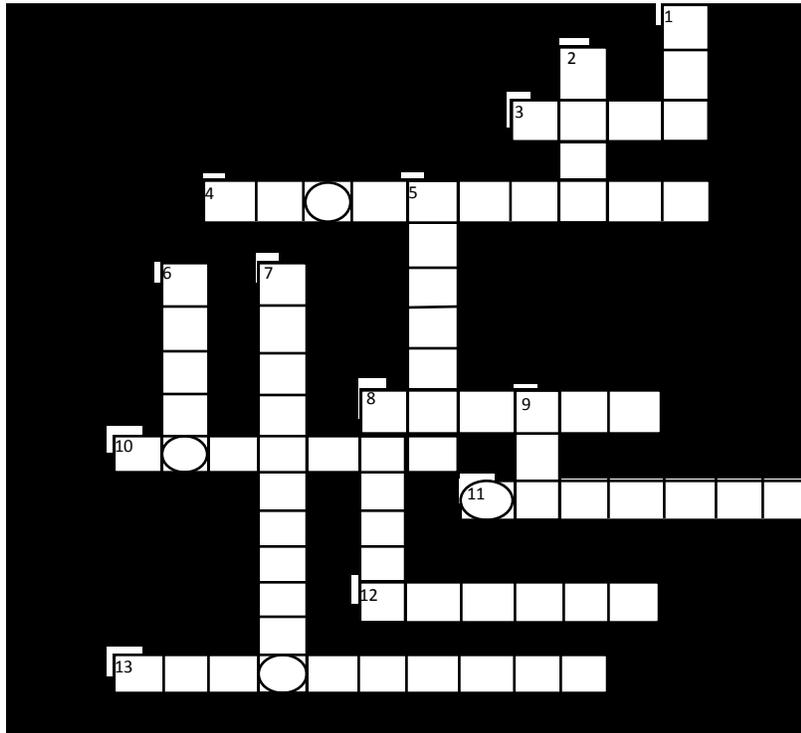
Find these words in the puzzle:

- | | | |
|--------------|-------------|-----------|
| adaptation | extinct | pesticide |
| Bald Eagle | habitat | predator |
| conservation | Hawks Aloft | raptors |
| Carnivore | Kestrel | species |
| Snowy Owl | ecosystem | migration |





What Bird Am I?



Directions:

This is a three part puzzle.

1. Solve the clues below.
2. Fill the answers into the crossword puzzle.
3. Take the four circled letters and unscramble them to discover the mystery bird.

MYSTERY BIRD CLUE:

I am known as the symbol of peace. _ _ _ _ .

ACROSS

3. I usually live by the ocean. I eat crabs, fish, and leftover food from people.
4. I drum my beak on the trunks of trees to drill holes and capture insects.
8. I live in cities with lots of my friends. I am a P_ G_ _N.
10. I have a huge beak, like a net for catching my favorite food, fish!
11. My favorite food is dead animals! I help clean up by eating them!
12. I am very popular at Thanksgiving!
13. I am the state bird of New Mexico. I love eating mice, lizards, and other birds.

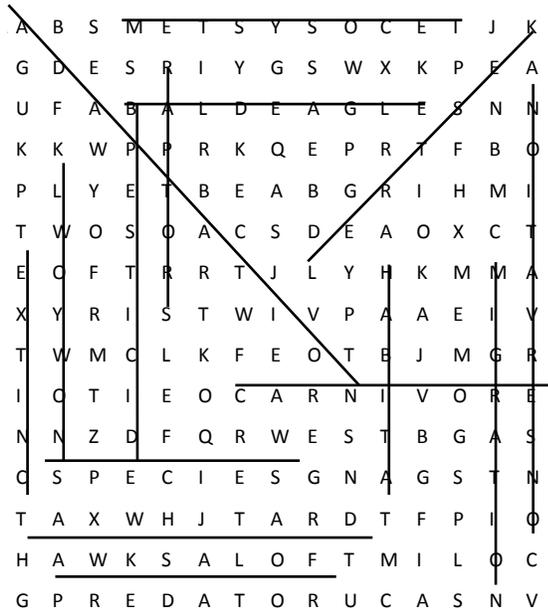
DOWN

1. I am most active at night and I sleep during the daytime. I make a hooting sound.
2. My large webbed feet help me swim around ponds and rivers. My glossy feathers keep me dry.
5. I live in cold places the Arctic. I eat fish and cannot fly, instead I swim!
6. One of my species is the national bird of the US. My wingspan measures about six feet!
7. My favorite food is nectar from flowers, but I also will drink from feeders outside of houses. My wings beat very rapidly.
8. I am brightly colored and can sometimes speak like you! Some people have me as a pet.
9. I am a large bird that cannot fly. My cousin is the ostrich.



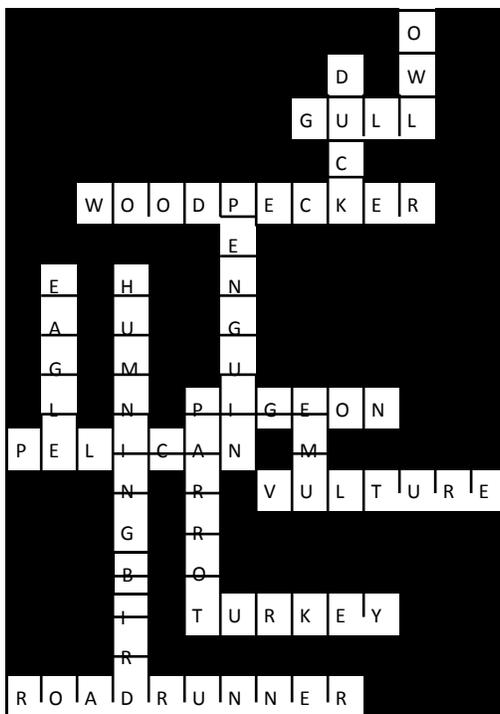
Bird's the Word

Answer Key



What Bird Am I?

Answer Key



Mystery Bird Clue: DOVE

ACROSS

- 3. Gull
- 4. Woodpecker
- 8. Pigeon
- 10. Pelican
- 11. Vulture
- 12. Turkey
- 13. Roadrunner

DOWN

- 1. Owl
- 2. Duck
- 5. Penguin
- 6. Eagle
- 7. Hummingbird
- 8. Parrot
- 9. Emu



Books to Include in your Classroom

Integrate birds into your whole curriculum! Here are some suggested books that can be read by the students.

Fiction

- *Hoot* by Carl Hiaasen
- *Poppy (The Poppy Stories)* by Avi, Illustrated by Brian Floca
- *Moonbird: A Year on the Wind with the Great Survivor B95* by Phillip Hoose
- *Seabird* by Holling C Holling
- *Frightful's Mountain* by Jean Craighead George
- *Flyaway* by Lucy Christopher
- *Summer and Bird* by Katherine Catmull

Non-Fiction

- *Atlas of Endangered Species* by Steve Pollock
- *Birds in Your Backyard* by Barbara Herkert
- *Earth Book For Kids* by Linda Schwartz
- *Every Living Thing* by Cynthia Rylant
- *Everything you Never Learned About Birds* by Rebecca Rupp
- *How Nature Works* by David Bernie
- *The Life Cycle of a Bird* by Bobbie Kalman
- *Peterson Field Guides: Birds of Prey for Young Naturalists* by Jonathan Latimer, Karen Stray Nolting, and Roger Tory Peterson (Illustrator)
- *Protecting Our World: A Beginners Guide to Conservation* by Felicity Brooks
- *Raptor! A Kid's Guide to Birds of Prey* by Christyna M. and René Laubach, and Charles W.G.Smith
- *Saving Birds: Heros Around the World* by Pete Salmansohn
- *Sharing the Wonder of Birds With Kids* by Laura Erickson and Kathryn Marsaa (Illustrator)





Attracting birds to your school

Attracting birds to your school or home is a perfect opportunity to observe birds close-up. Building a bird feeder is an inexpensive and fun way to create a bird-friendly habitat! Below are three different bird feeders you can build. Try building them all to see if certain birds prefer specific food.

Treat Bag

Materials:

- Mesh bag (from oranges)
- Birdseed
- Suet
- Unsalted peanuts
- Yarn

Directions:

1. Tie a length of yarn to the top of the bag.
2. Fill the bag with treats and hang it from a tree branch or hook.



Fruit Feeder

Materials:

- Orange, apple, or pear
- Yarn (2-3 feet long)
- Knife

Directions:

1. Have an adult help you cut the fruit in half.
2. Poke a hole through the center of the fruit.
3. Pull the yarn through the hole and tie it to make a handle and hang on a tree.

Pine Cone Feeder

Materials:

- Peanut butter
- Pine cones
- Yarn (2 feet long)
- Birdseed
- Scissors

Directions:

1. Tie a length of yarn to the end of a pine cone.
2. Cover the entire pine cone with peanut butter.
3. Roll it in birdseed and hang it outside your window.



How to Help

Around the world, wildlife is being threatened by human activities. Brainstorm with your students on some of the biggest threats to wildlife & ways that they can make a difference in their own communities.

Some of the major threats to wildlife are:

- **Loss of habitat:** Habitat loss is the primary threat to all plants and animals on Earth. Habitat is destroyed for agriculture, urban development, oil & gas exploration, and water diversion.
 - **Ways to help:** Plant native plants in your yard to help create habitat. Get involved in efforts to restore or re-plant damaged habitat.
- **Pollution:** Human activities have led to the contamination of many habitats. Pollution can be very visible, such as trash thrown on a beach, or it can be invisible, such as chemical pesticides polluting a stream.
 - **Ways to help:** Organize a trash clean-up day to pick up litter around your neighborhood or school.
- **Climate Change:** Changes in normal weather patterns are a big threat to wildlife. Drought, severe storms, and higher temperatures can cause animals to lose their food sources, get thrown off their migration routes, or lose their habitat all together.
 - **Ways to help:** The burning of fossil fuels, such as gasoline in our cars, is one of the

major contributors to climate change. When you can, walk or ride your bike instead of driving.

- **Invasive Species:** Humans have introduced non-native species to every habitat on Earth. These introductions were sometimes accidental, such as stowaways on ship hulls, and sometimes on purpose, such as the release of pets into natural habitats.

- **Ways to help:** Plant native plants in your yard instead of exotics which can become invasive. Don't release any pets into the wild. When you travel, clean any mud or dirt off your shoes before you go to a new place. This will help prevent stowaways.



Get Involved

Hawks Aloft has 20 education birds that need your support! Currently, a large portion of our donations go towards caring for our educational birds.

How can you help?

Enjoyed our visit? Your students can continue to learn about raptors through our Adopt-a-Raptor program. Your class will receive a certificate with a picture of your bird, a description of its history, and video links updating you on the status of your chosen bird.

What are the donations used for? Donations help provide the raptors with a quality diet, equipment, housing, and medical care. Our education birds are all non-releasable due to a permanent disability. Your donations help to ensure they live a long and comfortable life serving as ambassadors for their species.

Here are just a few of our raptors available for adoption.

Visit www.hawksaloft.org/education/our-educational-ambassadors/ to view the profiles for all our education birds and decide which one to sponsor today!

Adopting a raptor gives you exclusive access to video updates on your bird before they are released to the public!

To adopt a raptor, fill out and mail in the request on Page 21, or visit our website.





YES! We want to adopt an Educational Raptor!

Please check one:

- | | |
|--|--|
| <input type="checkbox"/> Screech Owl: \$35.00 | <input type="checkbox"/> Cooper's Hawk: \$60.00 |
| <input type="checkbox"/> Burrowing Owl: \$35.00 | <input type="checkbox"/> Red-tailed Hawk: \$75.00 |
| <input type="checkbox"/> American Kestrel: \$35.00 | <input type="checkbox"/> Swainson's Hawk: \$75.00 |
| <input type="checkbox"/> American Crow: \$35.00 | <input type="checkbox"/> Peregrine Falcon: \$100.00 |
| <input type="checkbox"/> Merlin: \$50.00 | <input type="checkbox"/> Ferruginous Hawk: \$100.00 |
| <input type="checkbox"/> Great Horned Owl: \$60.00 | <input type="checkbox"/> Rough-Legged Hawk: \$100.00 |

Specific Bird Requested _____

Teacher's Name _____

Phone _____ Email _____

School/Organization _____

Name on Certificate _____

Address _____

City, State, Zip _____

Complete this form and send with your payment to:

Hawks Aloft, Inc.

P.O. Box 10028

Albuquerque, NM 87184

Please make checks payable to **Hawks Aloft, Inc.**

Or call us at **505-828-9455** to use your credit card!



Program Evaluation

Hawks Aloft wants your feedback! This helps us to improve our programs and better serve our community.

Your honest critique helps us to improve our program. Attach additional sheets if necessary.

Name: _____ Email: _____

School/Group _____

Program Date _____ Type of Program _____

For the following questions, check the box that best describes your feelings.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The program met or exceeded my expectations.					
2. My students were engaged in the program.					
3. My students benefited from the program.					
4. I learned something from the program.					
5. The pre-packet was age-appropriate & helpful.					
6. Scheduling my program was easy.					
7. This program was worth the cost (if applicable).					
8. I would recommend this program to my colleagues.					

9. What part of the presentation had the most impact on the students?

10. Which part of the program did they enjoy the least?

11. How can the program be improved?

Please send all completed evaluations to: Hawks Aloft, Inc., Attn: Education Dept.

PO Box 10028, Albuquerque, NM 87184

Or send us the information by email to education@hawksaloft.org

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