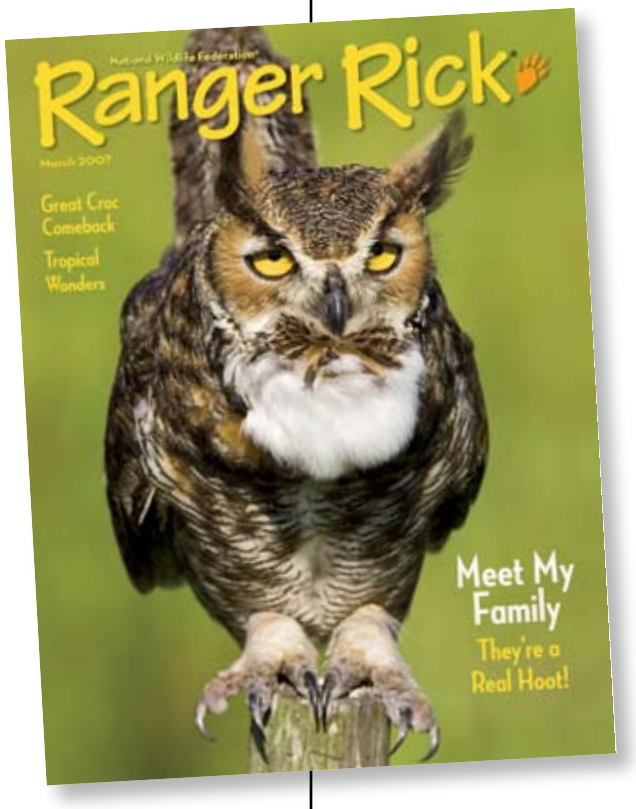
MARCH 2007

National Wildlife Federation® Ranger Rick®

EDUCATOR'S GUIDE



This guide is designed to complement the March 2007 issue of National Wildlife Federation's *Ranger Rick*® magazine.

NATIONAL WILDLIFE FEDERATION™

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Introduction

Welcome to the *Ranger Rick Educator's Guide!*

This guide provides you with educational activities to bring **National Wildlife Federation's** *Ranger Rick*® magazine alive in the classroom and beyond. Using *Ranger Rick* feature articles as an entry point, this guide engages students ages 7-12 in exploring the natural world to build literacy, critical and creative thinking skills, and understanding across the disciplines. Activities are correlated with the National Education Standards for science and language arts, and are designed to assist you in meeting required curriculum objectives.

Can we have class outside today?

Find out how you can say "Yes!" at **www.nwf.org/backyard**. The outdoor environment offers excellent opportunities for active, hands-on, interdisciplinary learning. You can enhance the learning experience by creating your own habitat site. Revitalize an entire schoolyard, a garden, or even a rooftop, windowsill, or balcony by creating an outdoor classroom and sanctuary for birds, butterflies, and other wildlife.

How To Use This Guide

Each section of the guide is matched with a specific *Ranger Rick* feature. After you read through the magazine, choose the stories and activities that complement your curriculum and that will interest your students. Sections include:

- ***Learning Links.*** A summary of concepts presented in the article.
- ***Discussion Questions and Writing Prompts.*** Entry points to engage students in discussion or writing to develop literacy and thinking skills.
- ***Resources.*** Web sites and books where you can find further information.
- ***Activity Ideas.*** Quick investigations and extended projects to complement article topics.
- ***Student Pages.*** Ready-to-copy activity sheets for students.

We have also provided a ***Family Fun*** activities page for you to copy and send home with students.

Our Space

pages 6-11

1

Learning Links:

Read Gracie's tale of growing up in a great horned owl nest for a glimpse of the lives of owl babies. They are helpless at hatching but increasingly independent as the weeks go by, and always well cared for by their super-hunter parents.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Have you ever seen or heard an owl?
- What do you think life is like for a baby owl?

Comprehension Check:

- What kind of owl is Gracie?
- Where is Gracie's nest?
- How many chicks are in the nest?
- What is Mom Owl's job? What is Dad Owl's job?
- About how old are the chicks when they're ready to be on their own?
- What do great horned owls eat?
- Who took the photos of this owl family?
- How did the photographer get such close-up shots?

Critical and Creative Thinking Connections:

- How do you think Mom Owl kept her babies warm in their nest high in the trees?
- Describe how the chicks change between the time they hatch and the time they leave the nest.
- What adaptations make a great horned owl such a super hunter?
- Would you enjoy watching owls and taking pictures from a tree perch the way Wayne Lynch does? Why or why not?
- Imagine you lived in a tree like Gracie and her family. What kind of "nest" would you want to have?

RESOURCES

Baby Owl by Aubrey Lang (Fitzhenry and Whiteside, 2004). Check out this book to see more of Wayne Lynch's photos of owl babies and read more about their lives.

www.birds.cornell.edu/AllAboutBirds/BirdGuide/Great_Horned_Owl.html Look here to find interesting facts about great horned owls and to see if they live near you.

www.learner.org/jnorth/tm/spring/OwlDictionary.html At Journey North's Owl Dictionary, you can listen to the calls of four common owls.

ACTIVITY IDEAS

Baby Books

Discuss and share examples of the kinds of things parents might record in a baby book, such as height and weight at birth, handprints or footprints, baby pictures, and "firsts" such as crawling, walking, and talking. Then have students create their own "baby books" for Gracie and her brothers, recording details relevant to an owl baby's development.

TIME:
30 Minutes
MATERIALS:
Sample baby books
Paper and pencils

Whose View?

Gracie, the oldest owl chick, tells this story from her point of view. Have students look for details in the story that show how she sees her world. Then ask them how the story would be different if told from the perspective of another character, such as one of the brother chicks, the mother or father owl, or the photographer—or as if the students themselves were watching the owls from the tree platform. They could also imagine the story through the eyes of the owls' prey or a predator such as a hawk, crow, or raccoon that might want to eat the babies. Then have students write their own versions of the tale from one of these alternate points of view.

TIME:
30 Minutes
MATERIALS:
Paper and pencils

Prowling for Owls

What kinds of owls live in your neighborhood? Engage students in an owl investigation. Check a birding field guide or go to www.enature.com and enter your zip code to find a list of local species. Listen to calls at www.learner.org/jnorth/tm/spring/OwlDictionary.html or search online for the calls of other species. Have students practice identifying the owls by their photos and calls, and challenge them to try imitating the calls. Then, if you have an opportunity for a night walk, head outside and see whooo's calling! If you're lucky enough to hear an owl, ask your most talented owl-callers to try calling back.

TIME:
45 Minutes or more
MATERIALS:
Library or Internet access

Owlish Adaptations

Owls are very well adapted to succeed in their niche as nocturnal hunters. Their features include huge eyes with excellent night vision, off-center ears for sensitive triangulated hearing, flight feathers with special fringed edges for silent hunting, and sharp talons for grabbing prey. Explore owl adaptations up close with one of the following activities:

- Have students draw an owl outline and then label its special body parts and describe how each one is used.
- Compare the characteristics of owls with those of hawks, which have a similar job in the ecosystem but work the "day shift" instead of the "night shift."
- Contact a local nature center to find out if it has an owl kit or an owl program. This is a great way to learn more about owls and may also include some hands-on exploration of artifacts such as feathers and talons.
- Dissect owl pellets. You can order them in quantity and use them to investigate what the owl ate—and even reconstruct the prey's skeleton. If you can't do the real thing, try this virtual pellet dissection: www.kidwings.com/owlpellets/index.htm

TIME:
Variable
MATERIALS:
Library or Internet access to research owl adaptations
Owl pellets (optional)

Aye-Aye

pages 12-14

2

Learning Links:

There's no doubt about it: the aye-aye is a strange creature. It is also an excellent example of an animal that is well adapted to a special niche in its habitat.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What's the strangest or most unusual animal you know?
- What makes it seem strange to you?

Comprehension Check:

- In what country do aye-ayes live? What is their habitat?
- What kind of animal is an aye-aye? Name some of its relatives.
- Why does the aye-aye have such big eyes?
- What do aye-ayes eat? How do they get their food?
- How is their way of getting food similar to a woodpecker's way? How is it different?
- Aye-ayes are endangered. What are some of the causes?
- How are people helping aye-ayes survive?

Critical and Creative Thinking Connections:

- The introduction to this story says that the aye-aye is "one of the rarest and weirdest animals in the world." Do you agree with this statement? Why or why not?
- Why do aye-ayes seem like mixed-up creatures? Which other animals do they resemble?
- How is an aye-aye like you (and other primates)? How is it different?
- If you wanted to see an aye-aye, where and when would you look? Would you use any tools to help you try to spot one?

RESOURCES

Lemurs, Lorises, and Other Lower Primates by Patricia A. Fink Martin (Children's Press, 2000). Aye-ayes belong to a group of primates called lemurs. Read more about the aye-aye and its relatives in this engaging overview.

www.nationalgeographic.com/ngkids/0510/index.html Check out more aye-aye photos and facts in this story on the National Geographic Kids Web site.

www.globio.org/glossopedia/primate Look here for more about the mammals in the primate group.

ACTIVITY IDEAS

Name Games

The origin of the name "aye-aye" isn't clear. Some say it comes from the alarm cry that people call out when they see one, due to the aye-aye's reputation for bringing bad luck. Others say it comes from the animal's own cry. In small groups, have students brainstorm their own explanations for the name or invent new names for the creature and explain their reasoning. Students could also act out their explanations in short skits. Extend the investigation by challenging students to investigate the origins of other animal names.

TIME:
15 Minutes
MATERIALS:
Paper and pencils

Scrambled Animals

The aye-aye seems to be a mixed-up version of many other animals. It's not, of course—all its odd parts work together to make it a good nocturnal insect hunter. Have students design their own imaginary creatures made up of "spare parts" from other animals. As they consider what to include, encourage them to think about how the parts they choose will work together to make the animal effective at what it does. They can name the creature, draw it in its habitat, label its adaptations, and describe how it uses those adaptations. Then give them an opportunity to present their creatures to the rest of the group.

TIME:
30 Minutes
MATERIALS:
Paper and pencils
Crayons or markers

Good-Luck Legends

One of the reasons for aye-ayes' endangered status is their reputation. In Madagascar, legends tell that the aye-aye brings sickness or bad luck to those who see it. Ask students if they consider any animals particularly lucky or unlucky and why. Then ask each student to make up his or her own legend about aye-ayes—one that would inspire people to protect aye-ayes rather than fear or harm them. Discuss or share examples of other legends to give students an idea of how they could structure the story. Hand out copies of the **Lucky Aye-Ayes student page** to guide the process. Invite students to share their legends with the group when everyone is finished.

TIME:
30 Minutes
MATERIALS:
Lucky Aye-Ayes student page
Paper and pencils

At Home in Madagascar

Madagascar, where aye-ayes live, is home to many rare and unusual animals. Take students on a "virtual field trip" to this faraway island. Find Madagascar on a map. Look at pictures and learn about some of the animals that live there, such as lemurs, fossas, tenrecs, flying foxes, and chameleons. (A good Web site on Madagascar wildlife is **www.wildmadagascar.org/wildlife/animals.html**.) Find out about the climate and vegetation of Madagascar and discuss what it might feel like to take a hike through the forest. Learn about the people there and how they live. Then have students write a journal entry or a letter home describing their "trip" to this country.

TIME:
60 Minutes
MATERIALS:
Library or Internet access to find information about Madagascar

Lucky Aye-Ayes

In Madagascar, where aye-ayes live, legend tells that the aye-aye brings bad luck to anyone who sees it. That's just a myth, but it has brought bad luck to aye-ayes. Many of them have been killed because of their reputation.

Are there any animals that you think are lucky or unlucky? Why or why not?

What if a new legend told of aye-ayes bringing good luck instead of bad? Maybe then people would want to protect them instead of harm them. Now's your chance to turn that reputation around! Write a story about the aye-aye that tells how the creature came to be lucky or helpful to people who see it.

Smile Time for Crocodiles

pages 16-21

3

Learning Links:

Meet Adam, who has landed his dream job: working with saltwater crocodiles in Australia. As he describes these powerful hunters, he also explains how the crocs have made a great comeback with help from a bold and creative plan.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What's your favorite animal?
- Would you like to have a job working with that animal when you are a grownup?

Comprehension Check:

- Who is telling this story?
- Where does he live? Why did he move there?
- What are the two kinds of crocodiles in Australia? Which kind is this story mainly about?
- Describe a saltwater crocodile.
- What do salties eat? How do they catch their prey?
- Why were so many salties hunted?
- What happened after it became illegal to hunt salties?
- What is a crocodile farm?
- How do scientists *save* crocs by letting people collect their eggs and raise them for meat and leather?

Critical and Creative Thinking Connections:

- Why is it "smile time" for crocodiles?
- Do you think that letting people collect crocodile eggs and raise crocs on farms is a good way to protect these animals? Why or why not?
- Would you want to work with a dangerous animal such as a crocodile? Why or why not?
- How do people in Australia feel about crocs? Have their opinions changed over time? If so, how and why?

RESOURCES

Crocodiles and Alligators by Seymour Simon (Harper Trophy, 2001). Dramatic photos and lively text will capture your attention as you take a close look at the crocodilian family and read more about their comeback.

Alligator and Crocodile Rescue: Changing the Future for Endangered Wildlife by Trish Snyder (Firefly Books, 2006). Read about some of the programs and people that are helping to protect and restore crocodilians around the world.

www.crocodilian.com Adam Britton's Web site pulls together lots of useful information about the natural history and conservation of crocodilians.

ACTIVITY IDEAS

Crocodile Facts

TIME:
30 Minutes
MATERIALS:
Internet access
Paper and pencils

Send students on a scavenger hunt on Adam Britton's Web site www.crocodilian.com to find answers to a series of questions. Browse the site yourself to create a list of questions appropriate to your curriculum, or have each student contribute one question to a class list. Your list might include questions such as the following:

- How many crocodilian species are found in the United States? Madagascar? India? Brazil?
- What are three situations for which crocodilians have special calls?
- What are some other names for the American crocodile?
- Why would a crocodilian not make a good pet? Give three reasons.

Call the Croc Busters!

TIME:
30 Minutes
MATERIALS:
Internet access

This story explains that one of the important steps in helping crocs make a comeback is to teach people how to stay safe around crocodiles. Ask students to imagine that they're in charge of teaching these lessons—perhaps as members of the "croc busters" squad. Divide them into small groups and have each group make up a skit to illustrate a tip for staying safe in croc country. Download a tip sheet from the Queensland EPA at www.epa.qld.gov.au/publications?id=1101. If you live in an area with crocodiles, alligators, or other dangerous wildlife, draw connections between these safety tips and tips for your own region.

Starring Crocs

TIME:
45 Minutes or more
MATERIALS:
Paper and pencils

In the story, Adam mentions that crocodiles often appear in TV shows and movies. Have students write a script for an episode of a show starring a crocodile. Encourage them to think about how the show could help viewers learn more about crocs and respect these animals. Give them an opportunity to read—or even perform—their scripts. Then discuss challenges that trainers such as Adam might face in getting a croc to follow the script!

Croc Art

TIME:
45 Minutes
MATERIALS:
Art supplies such as colored paper, glue, sand, powdered tempera paints, fabric

Crocodiles have been featured in the art of native Australian people for thousands of years. Celebrate crocodiles yourselves with one of the following croc art projects, using the photos in the story for inspiration. (Or choose a local animal to celebrate in the same way.)

- Make a mosaic. Cut colored paper into tiny squares and glue them mosaic-style onto a backing in the shape of a crocodile.
- Make sand art. Mix sand with powdered tempera paints to make an assortment of colors. Then draw a crocodile picture on a piece of cardboard, coat it with glue, and sprinkle the colored sand on top.
- Make a banner. Paint or stencil a crocodile on a piece of muslin or canvas. Tack the top edge of the fabric to a stick and hang it up.

Exploring Costa Rica

pages 34-40

4

Learning Links:

The forests of Costa Rica provide a fascinating look at a rainforest ecosystem and the diverse populations that support it. They also serve as an excellent springboard for a discussion on circumstances that lead to habitat devastation and the sometimes-complex results of simple actions.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Where is Costa Rica?
- How would you describe its geography?
- What types of wildlife would you expect to find there?

Comprehension Check:

- Who tells this story? Why were they in Costa Rica?
- What are some animals that live in the rainforests of Costa Rica?
- What is zip-lining? Would you like to try it? Why or why not?
- How are workers at Estación Las Tortugas helping sea turtles?
- Why is this important work?
- What is a machete? What is it used for?
- What is compost?
- Why do the students at Cloud Forest School use compost in their gardens?
- Why do students at Cloud Forest School plant tree seedlings?

Critical and Creative Thinking Connections:

- Costa Rica is Spanish for Rich Coast. Why is that a good name for this country?
- How would the life of a toucan change if it moved from Costa Rica to your neighborhood?
- How is the Cloud Forest School like your school? How is it different?
- Why is it important to take care of the rainforests in Costa Rica?
- Suppose you were asked to lead a nature tour in your hometown. What natural wonders would you include? What would you tell the tour group about them?

RESOURCES

Ultimate Field Trip #1: Adventures in the Amazon Rain Forest by Susan Goodman (Aladdin, 1999). In this photo documentary, a group of students from Michigan travel to the Peruvian Amazon. There they explore the rainforest canopy and understory, learn about native plants and animals, and visit a local school.

www.kidssavingtherainforest.org Learn how a young girl runs her own organization to help wildlife in Costa Rica.

www.globio.org/glossopedia/tropicalrainforest Look here for more information on tropical rainforests, including their locations, vast diversity of plants and animals, and importance to our planet.

ACTIVITY IDEAS

What Do You Know About Costa Rica?

On a large sheet of paper, draw a chart like the one on the student page. As a class, brainstorm what students already know about Costa Rica and what else they would like to know. (Use the Pre-Reading Questions on the previous page to get started.) As you record the responses on your chart, have students do the same on their own charts. Then ask students to complete the third column of their charts as they read the article. After everyone has finished, return to the posted chart and complete the third column as a class. Ask students if all the items in the first column of the chart turned out to be correct. Are there things they still want to know about Costa Rica? If so, choose volunteers to research these and report back to the class.

TIME:
Two sessions; 15-20 minutes each
MATERIALS:
What Do You Know About Costa Rica? student page
Pencils

Walk in Your Own "Rainforest"

Much of the girls' Costa Rican tour took place in rainforests where annual rainfall can be as much as 400 inches. On a rainy day, take a walk in a wooded area to show students how forests of all types use rainwater. This walk will be more effective if leaves are on the trees, but if they aren't, you can adjust the activity accordingly. First ask students to point out how the tree leaves catch rainwater. Tell them that a small amount of this water evaporates off the leaves. Then show them how some of the rainwater caught by leaves flows along a tree's branches, down the trunk, and into the soil to be absorbed by its roots. And what happens to the rest of the rainwater? Point out how it drips off leaves and branches and falls to the forest floor. Some of this water seeps slowly into the soil and some runs downhill, eventually joining streams and rivers. As the water moves along, it picks up and deposits nutrients, helping to feed plants. Once out of the rain, have students draw a diagram that illustrates rainfall at work.

TIME:
Variable
MATERIALS:
Access to a wooded area on a rainy day
Paper
Pencils

Sticky Feet

Like all treefrogs, the ones in this story can climb up trunks, branches, and leaves. How do they do it without falling? Encourage your students to follow this simple procedure and find out. First cut a frog shape from green scrap paper. Dip a finger into a small amount of jelly and touch the paper frog with the finger. The frog should stick to it. Now dab some jelly on the other side of the frog and stick the frog to a window or mirror. Explain to students that a treefrog's feet are covered with a sticky liquid (kind of like jelly) that helps it hold on to bark, leaves, and other things. In other words, the sticky liquid acts as a glue to give the frog a good grip.

TIME:
10 Minutes
MATERIALS:
Scraps of green paper
Scissors
Fruit jelly
Window or mirror

Pura Vida!

Talk about the experiences Soley, Caitlin, and Kelsey had in Costa Rica. What made this country special to them? Invite students to design a travel brochure that encourages others to visit Costa Rica (or another place if they have traveled somewhere else far from home).

TIME:
20 Minutes
MATERIALS:
Paper
Markers

What Do You Know About Costa Rica?

What I Know	What I Want to Know	What I Learned

National Wildlife Federation® Ranger Rick®

Family Fun!

Dear Parent or Guardian,
Your child is reading* Ranger Rick *magazine in class. Each month, amazing photos, feature articles, and activities bring nature, wildlife, and conservation to life. You can extend the learning and fun at home with these engaging family activities.

OWL WALK

Go listen for Gracie! After reading her story in "Our Space" on pages 6-11, take a nighttime walk around your neighborhood or in a nearby wild place. Keep your ears open for owls and other interesting night sounds. Turn your flashlight off and let your night vision take over.

STRANGE AND WONDERFUL

The aye-aye (pages 12-14) is a rare animal and a strange one. But even some very familiar animals might seem strange if you'd never seen one before. Take turns naming some common animals and imagining your reactions to seeing them for the first time. What would you think of a squirrel? A dragonfly? A woodpecker? A porcupine?

ANIMAL LAUGHS

In "Funny Fotos" on pages 22-27, you saw lots of goofy pictures. Did you also learn anything new or surprising about these animals? If so, what? Can you think of other funny things they could be saying? Send your ideas to *Ranger Rick*!

FEATHERED SPRING SIGNS

Like the sage grouse in "Ranger Rick's Adventures" on pages 28-32, many birds are looking for mates and getting ready to have chicks in the spring. They don't all have such fancy dances as the grouse, but they do lots of other things you can see and hear. Look around your neighborhood for bird-clues that spring is coming. Listen for their songs, see if you can spot a pair, and watch for signs that they are building nests or carrying food back to hungry chicks. Feel lucky if you have a nest in your yard!

TERRIFIC TRAVELOG

In "Exploring Costa Rica" on pages 34-40, you can read about three girls' adventures in Costa Rica. Have you taken a memorable trip as a family? Or is there somewhere you'd love to go? To help you remember, or to fuel your imagination, make a travelog like this one with pictures and descriptions of what you did or would like to do. Be sure to mention interesting wildlife, scenery, and connections with the local culture.

For more interactive family fun, be sure to visit www.nwf.org/kids.

NATIONAL EDUCATION STANDARDS

NATIONAL SCIENCE EDUCATION STANDARDS

		Owls 1	Aye-Aye 2	Crocodiles 3	Costa Rica 4
Science as Inquiry					
K-8	Abilities necessary to do scientific inquiry	■			■
K-8	Understandings about scientific inquiry	■			■
Life Science					
K-4	Characteristics of organisms	■	■	■	■
K-4	Life cycles of organisms	■		■	
K-4	Organisms and environments	■	■	■	■
5-8	Structure and function in living systems				
5-8	Reproduction and heredity	■			
5-8	Regulation and behavior	■	■		
5-8	Populations and ecosystems		■		■
5-8	Diversity and adaptations of organisms	■	■	■	■
Earth & Space Science					
K-4	Properties of Earth materials				
K-4	Objects in the sky				
K-4	Changes in earth and sky				■
5-8	Structure of the Earth system				■
5-8	Earth's history				
5-8	Earth in the solar system				
Science & Technology					
K-4	Abilities to distinguish between natural and human objects	■			■
K-8	Abilities of technological design				■
K-8	Understanding about science and technology	■			
Science in Personal and Social Perspectives					
K-8	Personal health				■
K-4	Characteristics and changes in populations			■	
K-4	Types of resources			■	■
K-4	Changes in environments		■	■	
K-4	Science and technology in local challenges	■			■
5-8	Populations, resources, and environments			■	■
5-8	Natural Hazards			■	
5-8	Risks and benefits		■	■	
5-8	Science and technology in society			■	
History and Nature of Science					
K-8	Science as a human endeavor	■	■	■	
5-8	Nature of science		■	■	
5-8	History of science				

ENGLISH LANGUAGE ARTS

1	Reading for perspective	■	■	■	■
2	Understanding the human experience	■	■	■	■
3	Evaluation strategies	■	■	■	■
4	Communications skills	■	■	■	■
5	Communications strategies	■	■	■	■
6	Applying knowledge	■	■	■	■
7	Evaluating data		■	■	■
8	Developing research skills	■	■	■	
9	Understanding and respecting diversity		■	■	■
10	Developing English competency	■	■	■	■
11	Participating in literary communities	■	■	■	■
12	Using language for oneself	■	■	■	■