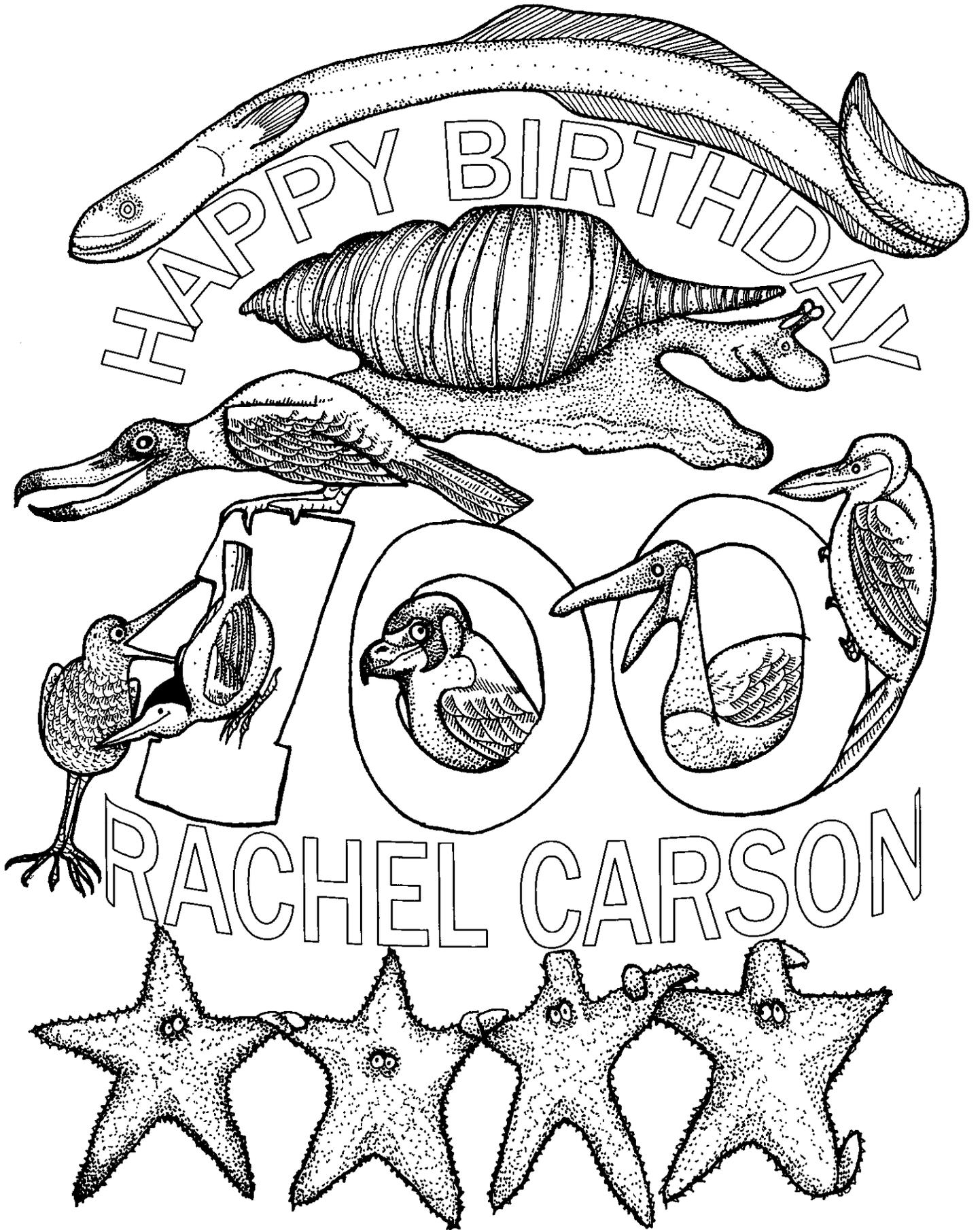
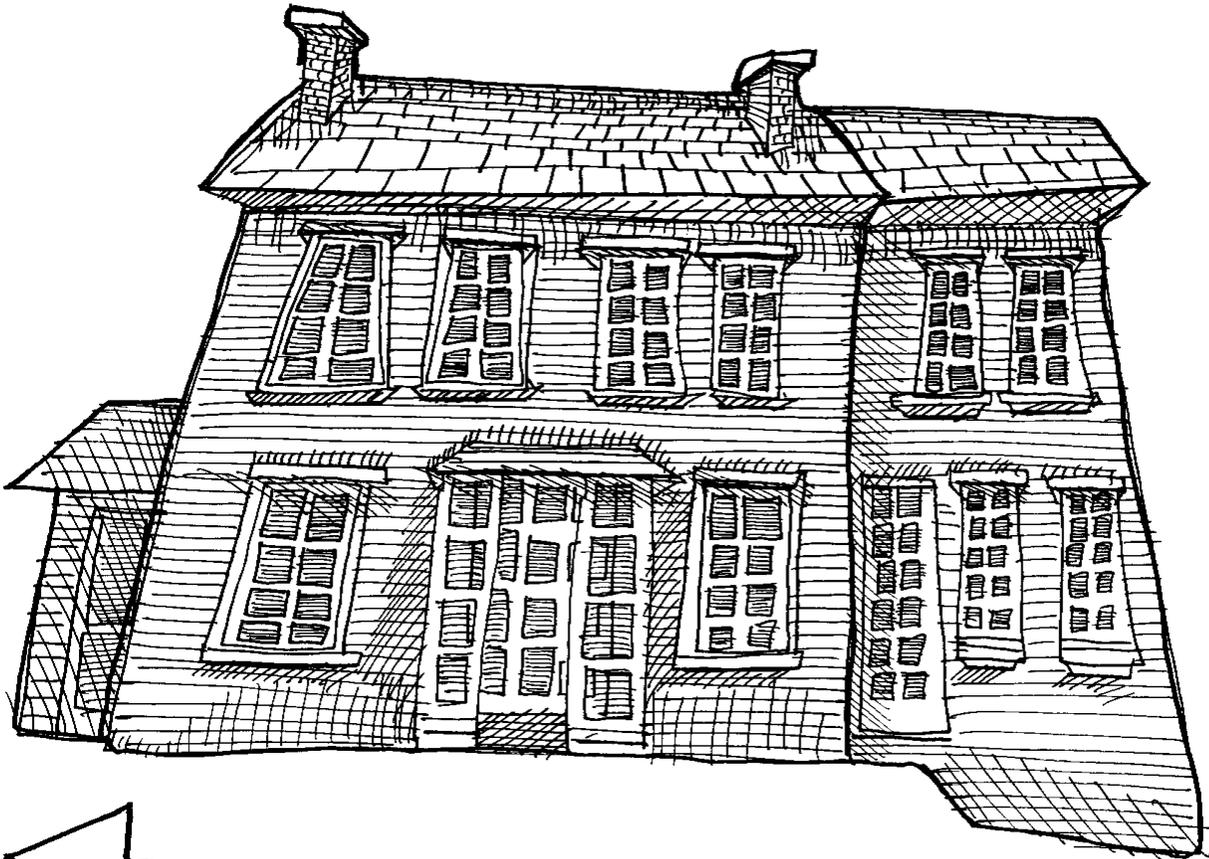


Let's Celebrate Rachel Carson







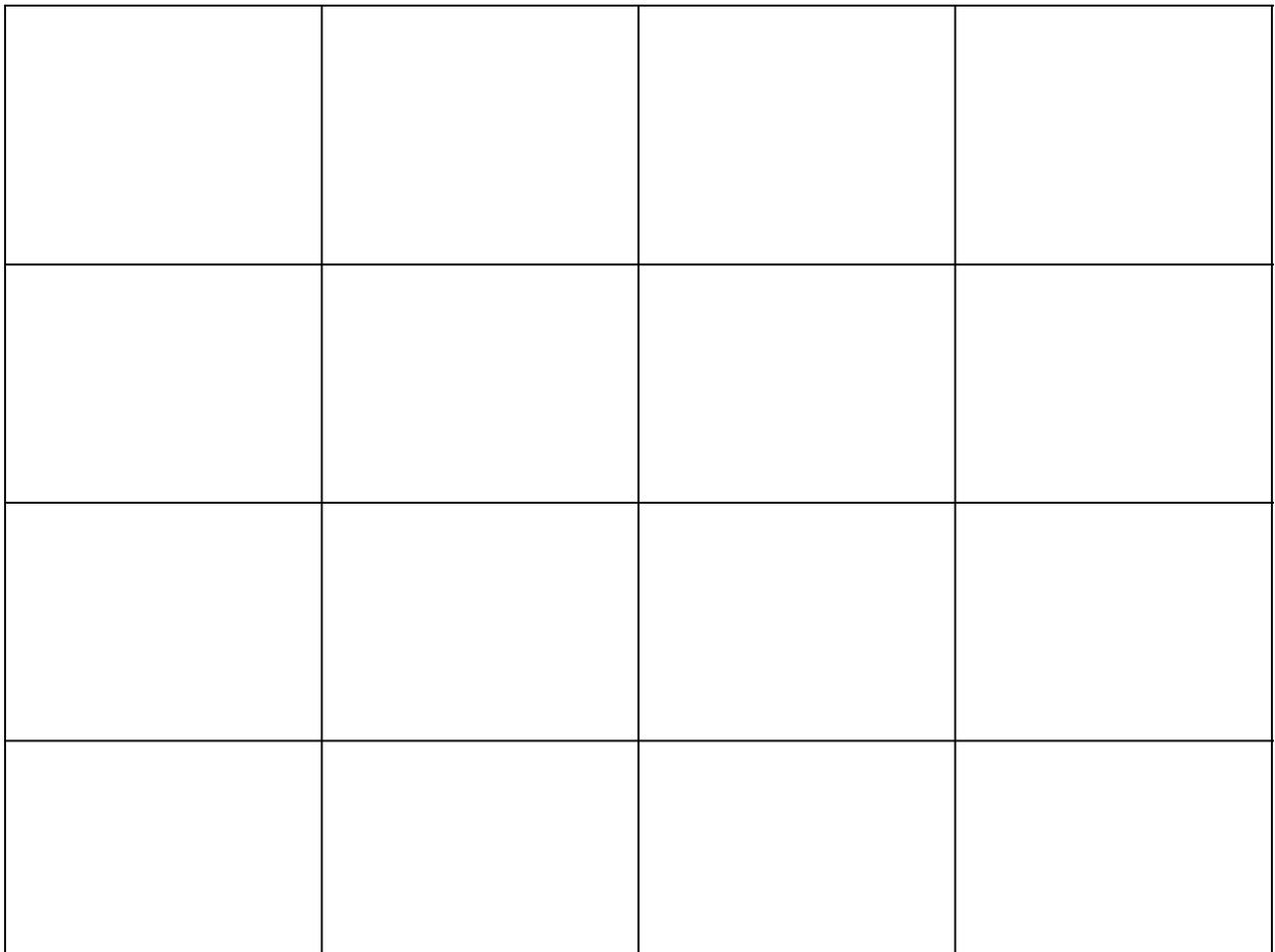
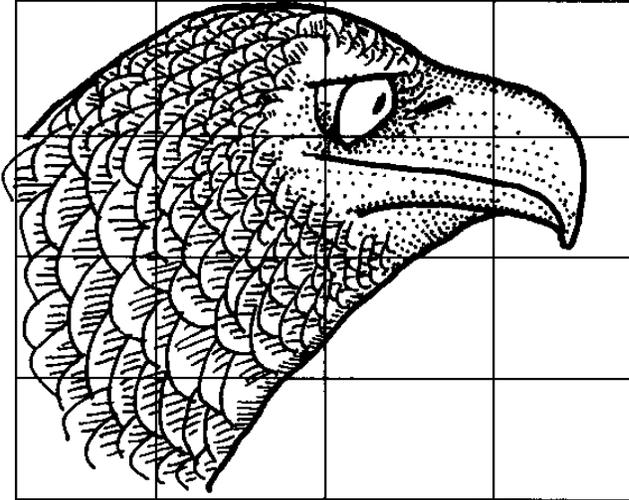
Rachel Carson was born May 27, 1907, in Springdale, Pennsylvania. She went to high school and college in Pennsylvania too, and studied more in Massachusetts.



As a child, she loved to read; especially books by Beatrix Potter and any books about the sea, which she didn't even see until she was grown up.

YOU CAN DRAW!

Use the grid to
draw the Bald Eagle.

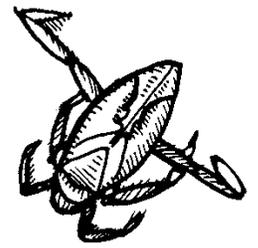
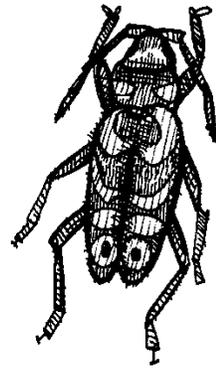
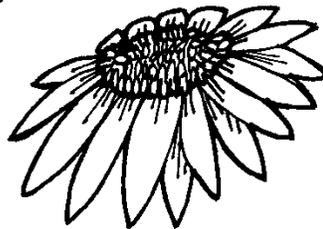
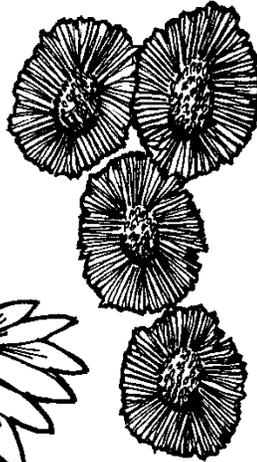


Rachel also loved to explore the woods behind her house with her mother...

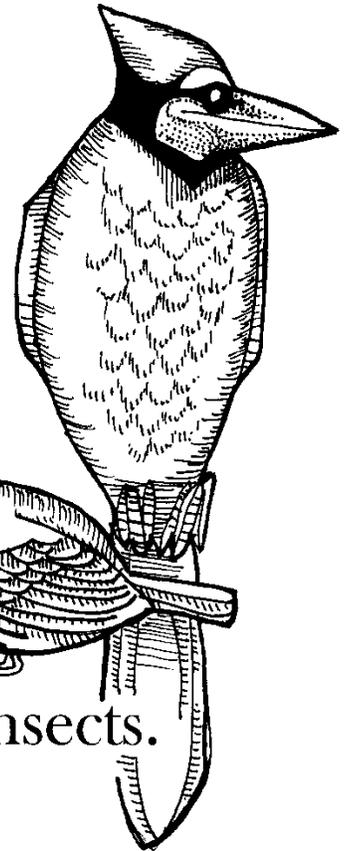


Flowers

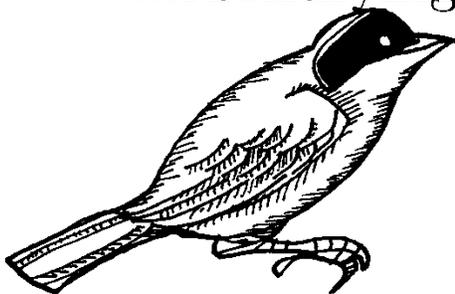
Insects



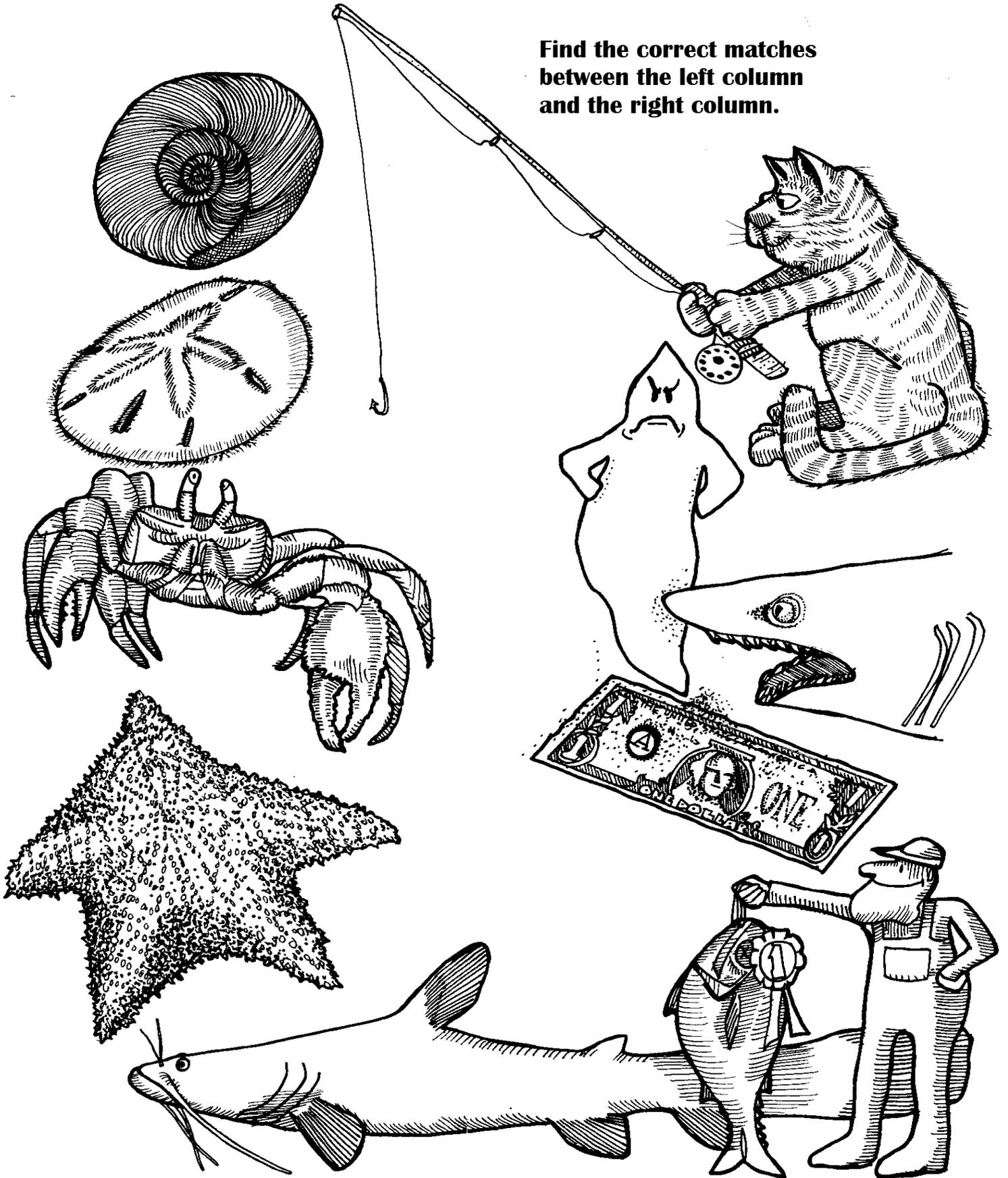
Birds



...identifying birds, flowers, and insects.



Find the correct matches between the left column and the right column.



Answers: shark's eye snail and eye of shark; sand dollar and sandy dollar; ghost crab and crabby ghost, starfish and star fisherman; catfish and fishing cat



As a result, a sense of wonder and appreciation for all plants and animals was instilled in Rachel. This provided a foundation for her life's work.



When she grew up, Rachel Carson worked as a writer and a biologist for the United States Fish and Wildlife Service for 15 years!

How many words can you make from the letters in:

**UNITED STATES
FISH AND WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR**

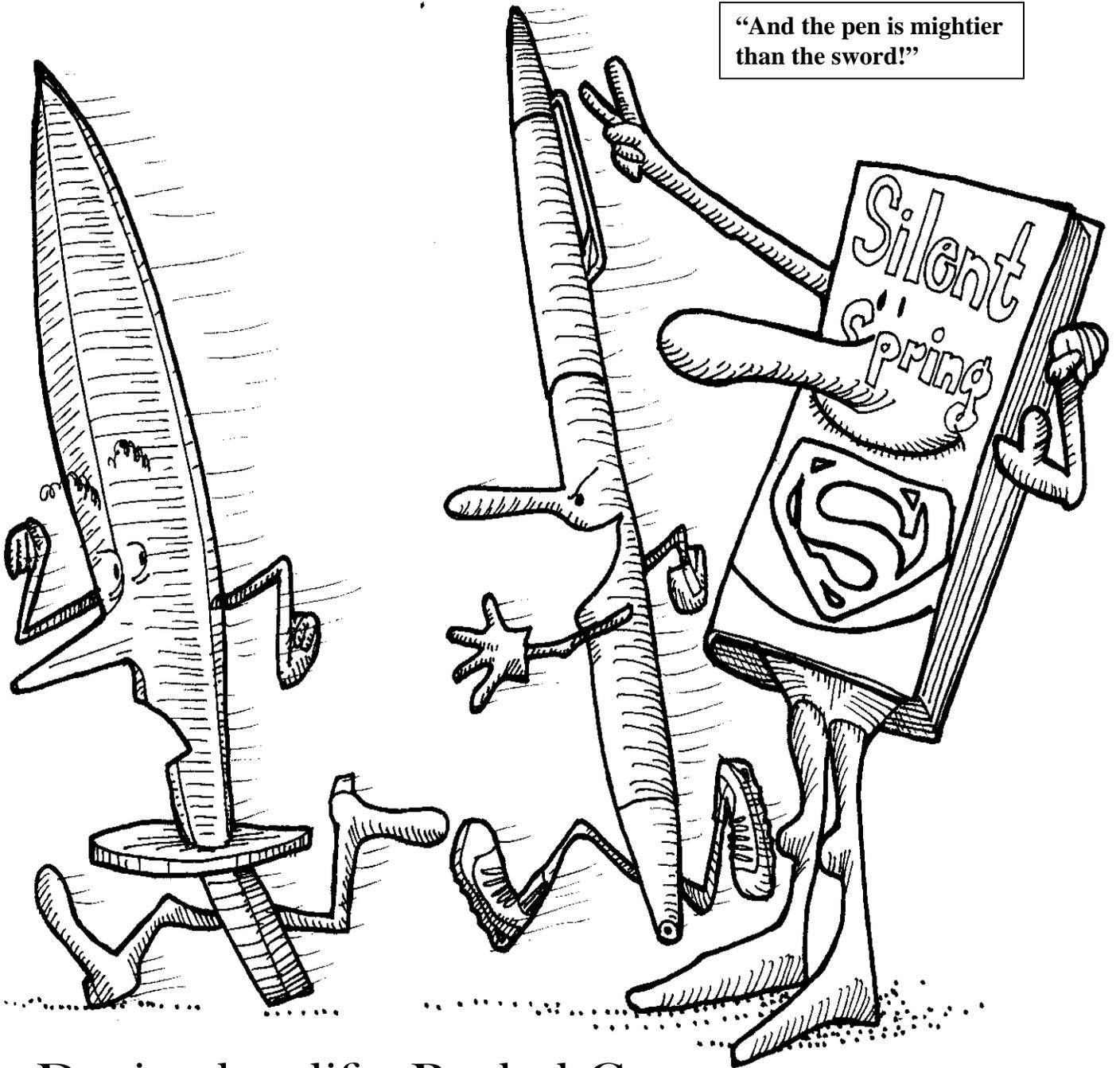


leaf

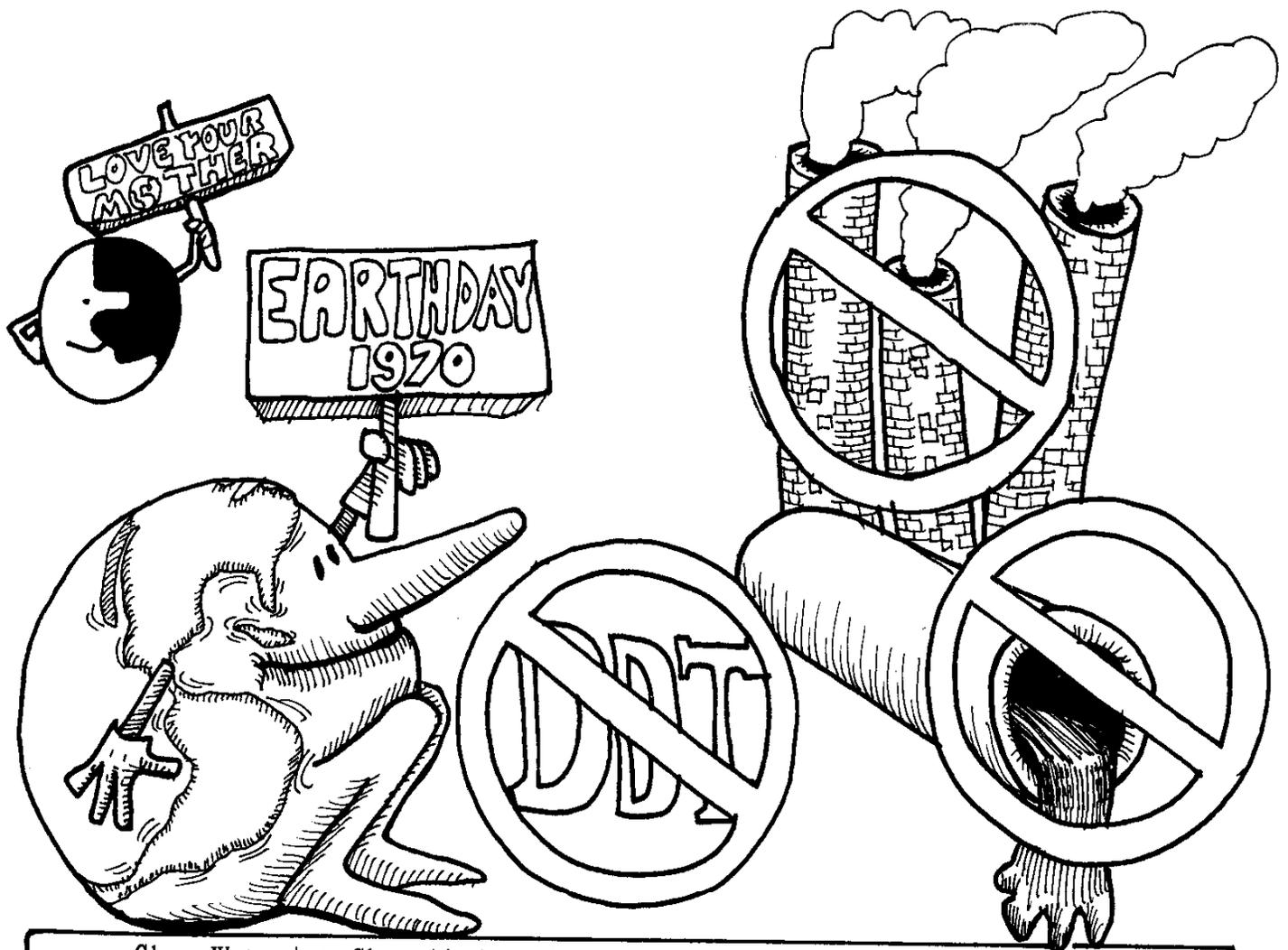
wren

Handwriting practice lines consisting of two columns of horizontal lines. The left column has 10 lines, and the right column has 10 lines. The first line of each column is connected to the text 'leaf' and 'wren' respectively. The remaining 9 lines in each column are blank for writing.

“And the pen is mightier
than the sword!”



During her life, Rachel Carson wrote many articles and books which illustrate her poetic and powerful writing style, passion for writing, and genuine concern about the Earth.



Clean Water Act, Clean Air Act, SPDES, National Environmental Policy, CERCLA

RACHEL
L. CARSON
UNDER
THE
SEA WIND

The
SEA
around US
RACHEL L.
CARSON

the
EDGE
of the
sea

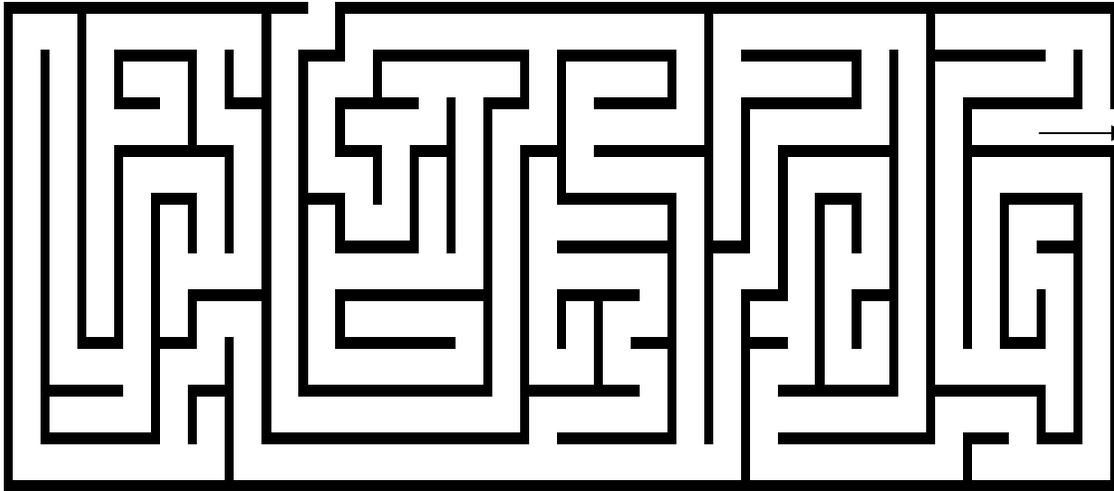
SILENT
SPRING
RACHEL
CARSON

Four of her books are still well-known today in 2007 and were a big part of the foundation for the Environmental Movement in the 1960s.

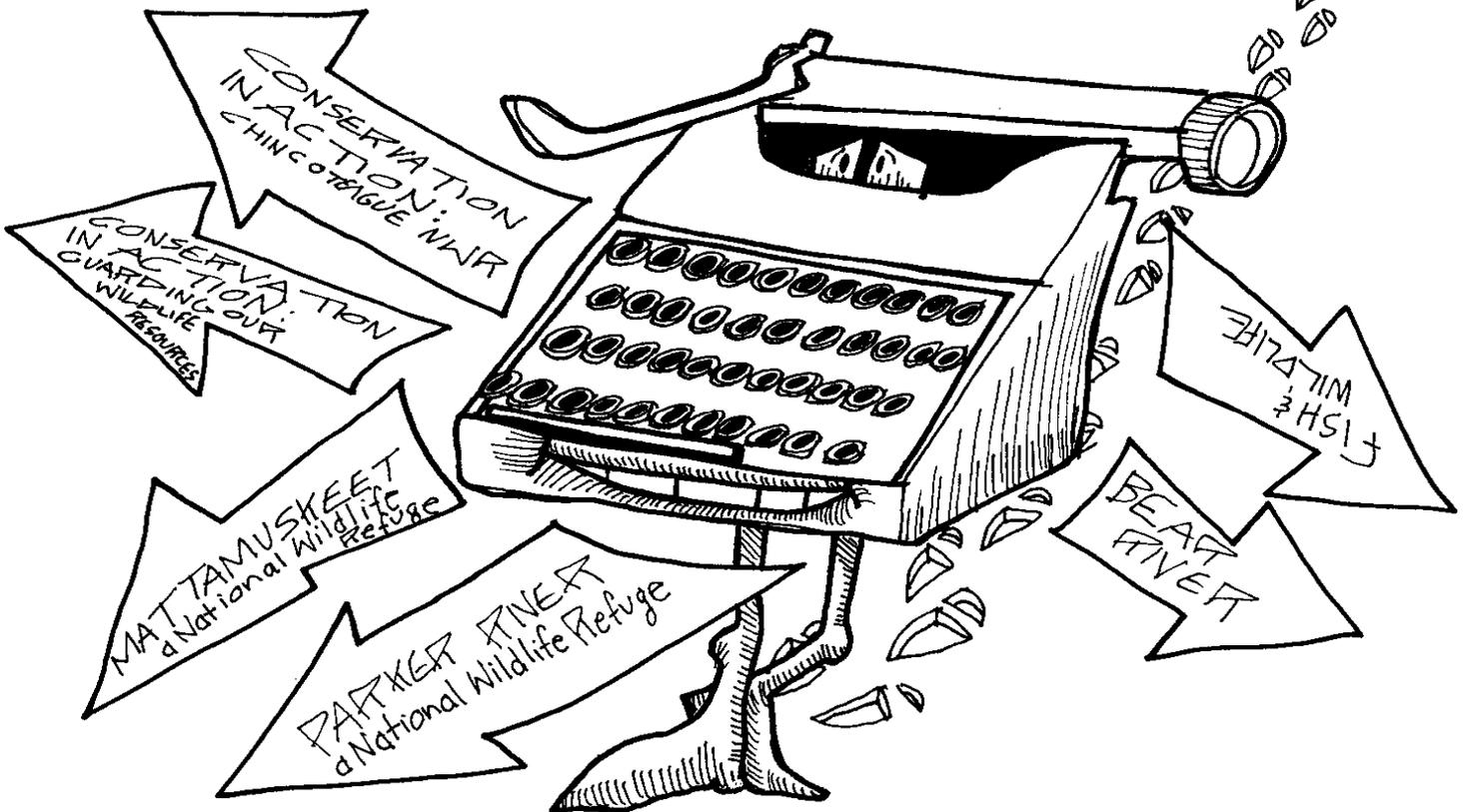


Help Rachel find her Typewriter!

Start

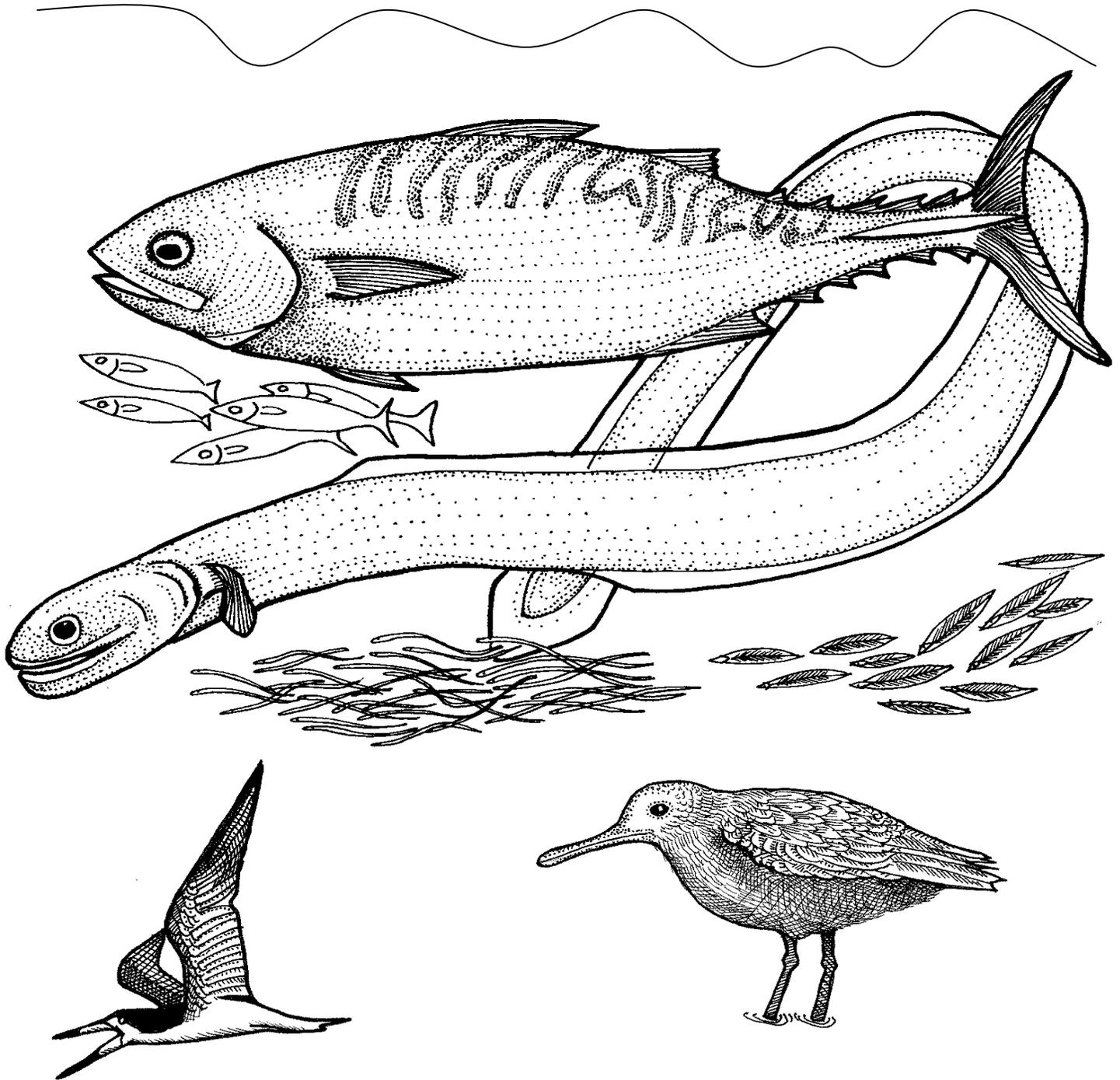


Finish

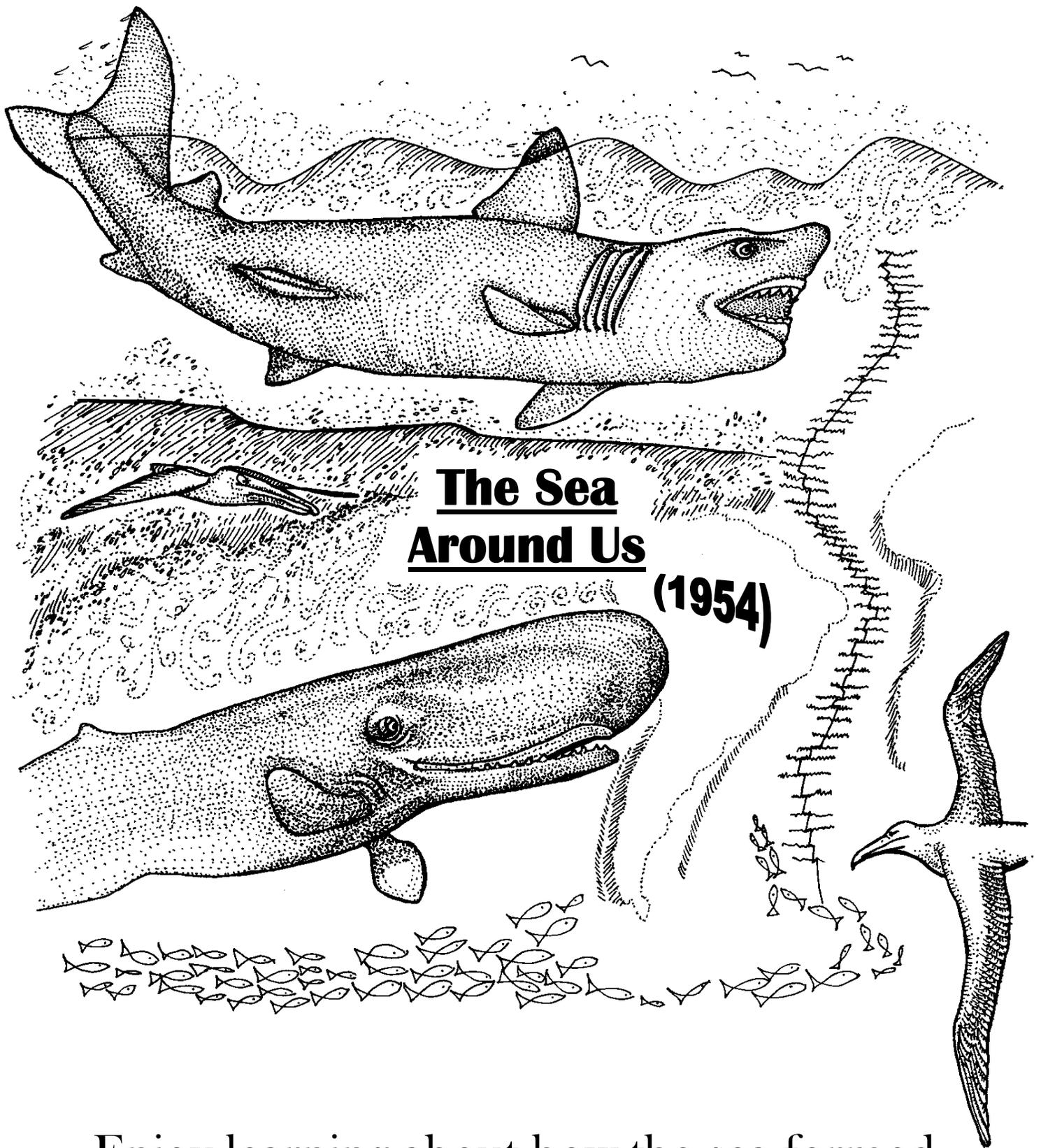


Under the Sea Wind

(1941)



A special mystery, and beauty of the sea, following the lives of Blackfoot the Sanderling sandpiper, Rynchops the Black skimmer, Scomber the mackerel and Anguilla the eel.

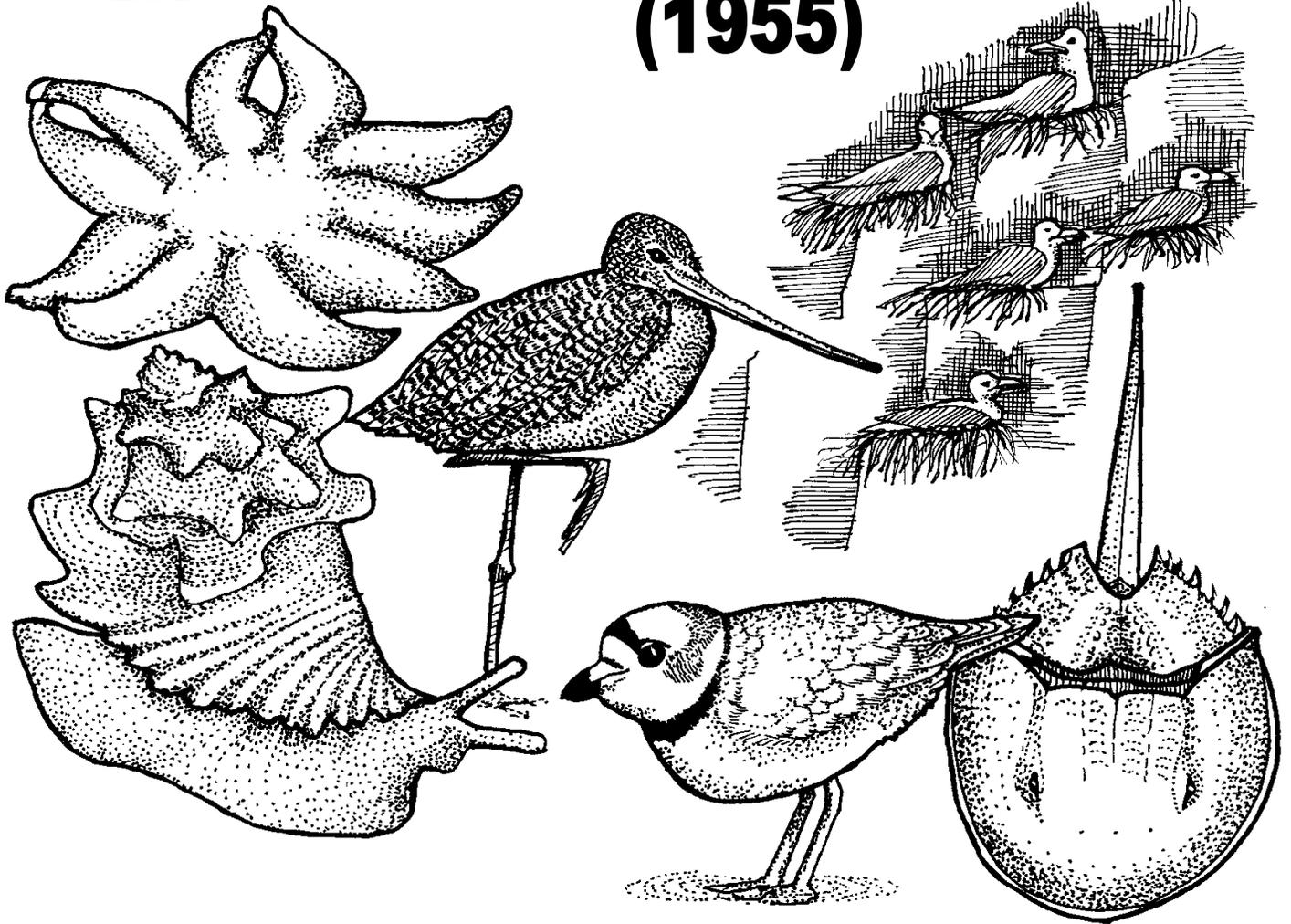


The Sea
Around Us
(1954)

Enjoy learning about how the sea formed, what it looks like, and the creatures that inhabit it.

The Edge of the Sea

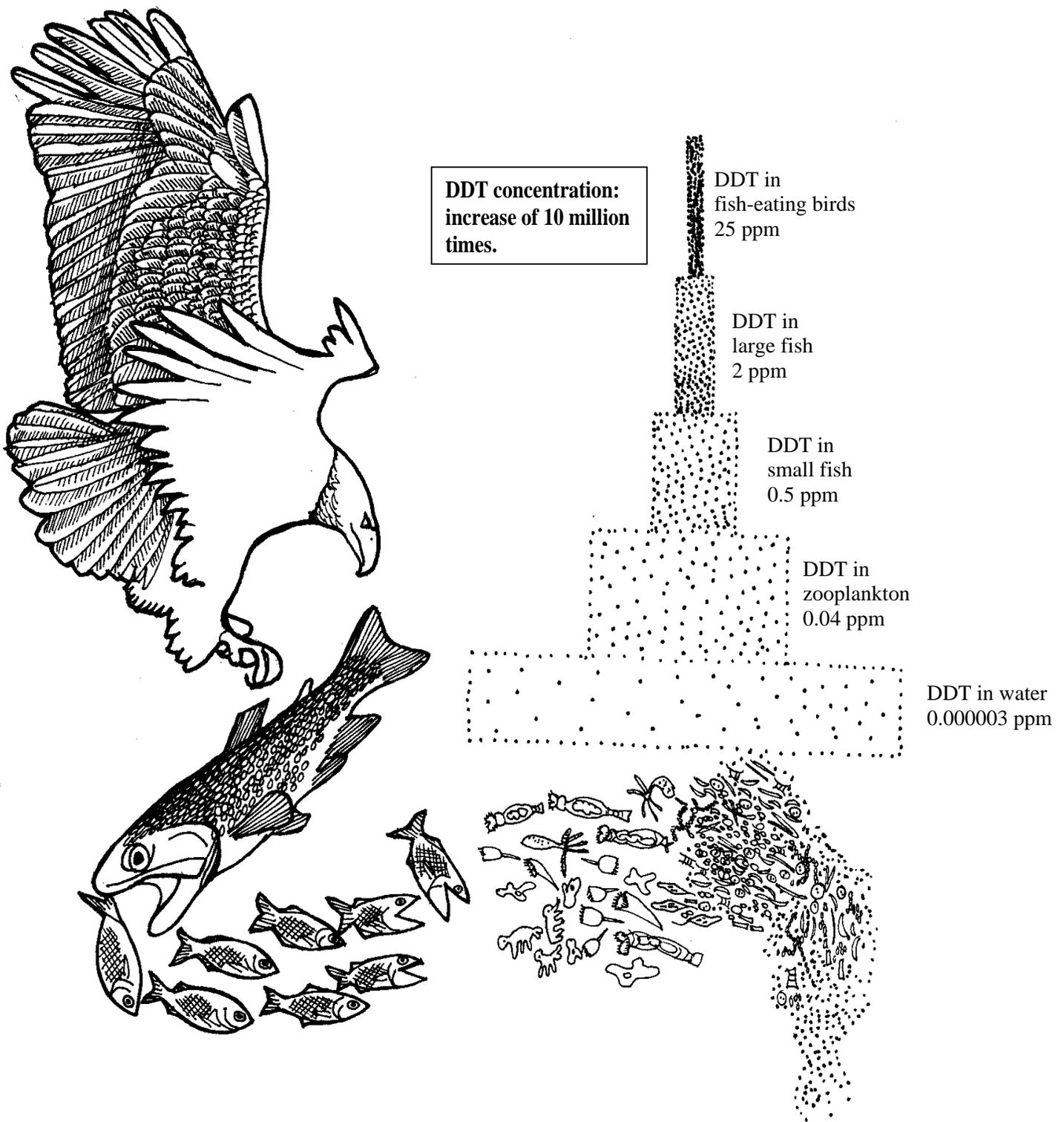
(1955)



Rachel Carson unfolds to us a world that is entirely different from that of the deep sea. Join Rachel as she takes you on a tour of creatures that inhabit The Edge of the Sea.

Silent Spring (1962) illustrates the environmental and human dangers of the careless use of pesticides, which gave rise to changes in the laws affecting our water, land, and air.

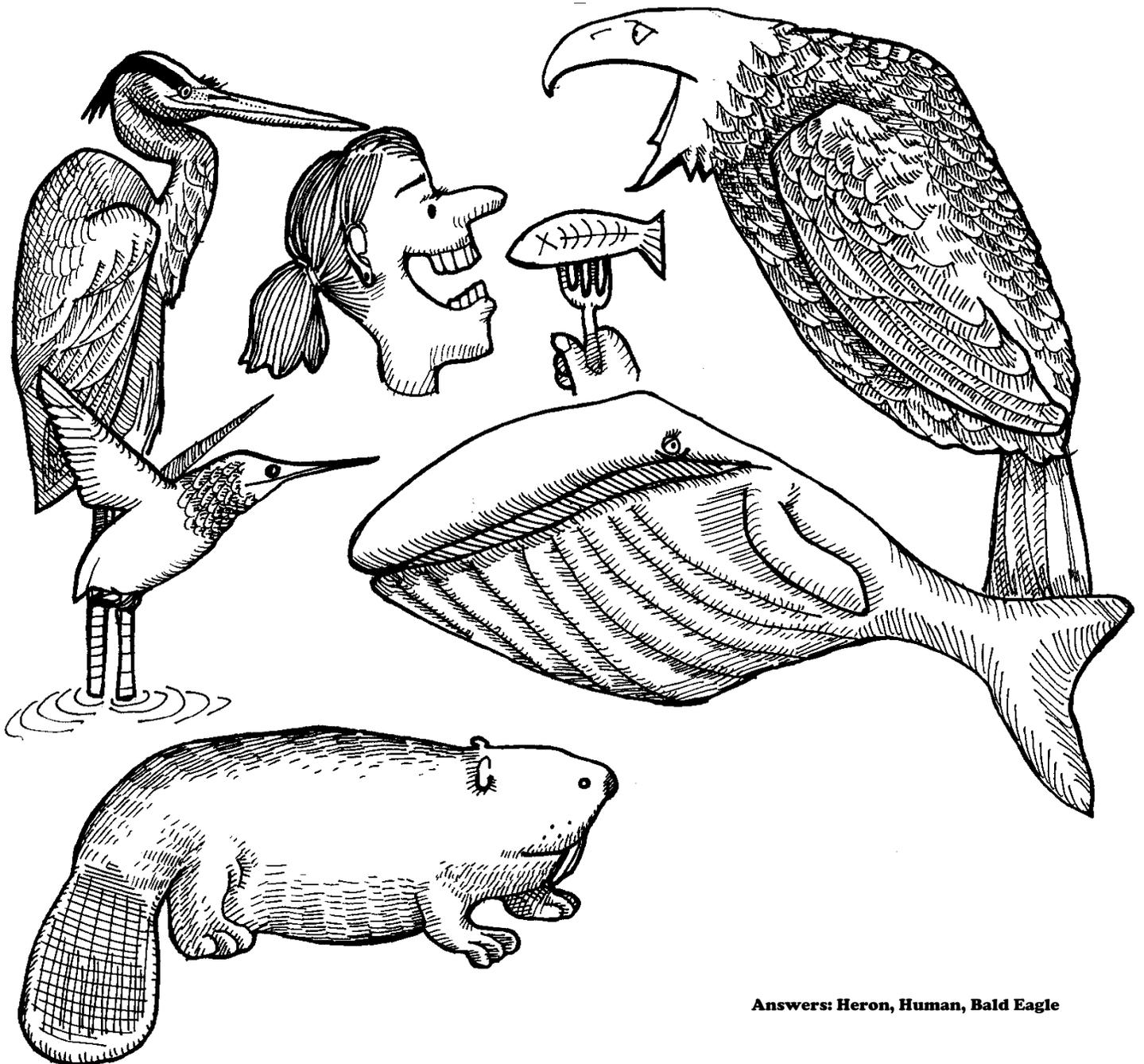




Biomagnification: The accumulation of a substance (e.g. DDT) up the food chain from smaller organisms to larger organisms. Silent Spring sounds the alarm about how people were using chemicals without knowing their impacts on the environment.

Top predators, like those who eat fish, end up with high levels of chemicals in their bodies; this can make them sick!

Can you identify which animals eat fish?

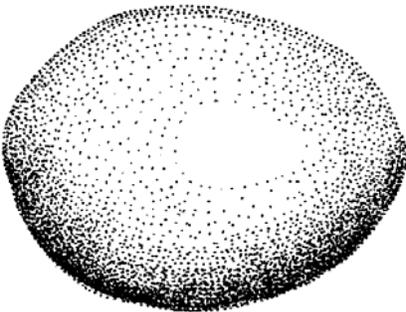


Answers: Heron, Human, Bald Eagle

Removing one chemical, DDT, from the environment has contributed to the recovery of the nation's symbol and most beloved bird...



...the Bald Eagle



Egg size: 6-12 cm



Nest size: up to 12 feet diameter

Bald Eagles

Common Name: Bald Eagle

Class: *Aves*

Order: *Falconiformes*

Family: *Accipitridae*

Genus species: *Haliaeetus* (sea eagle) *leucocephalus*
(white head)

Size: 3 - 3.5 ft. in height; 6.5 - 7.5 ft. wing span

Weight: males 8 - 9 pounds; females 10 - 14 pounds

Description: Adults have a distinctive white head and tail with a dark brownish black body and a bright yellow bill. Juveniles (younger bald eagles) lack the white head and tail. They are mostly chocolate brown with varying amounts of white over the body, tail, and under wings.

Life Span: up to 30 years in the wild and 48 years in zoos.

Adulthood Age: 4 - 5 years old (this is the age when bald eagles get their white heads).

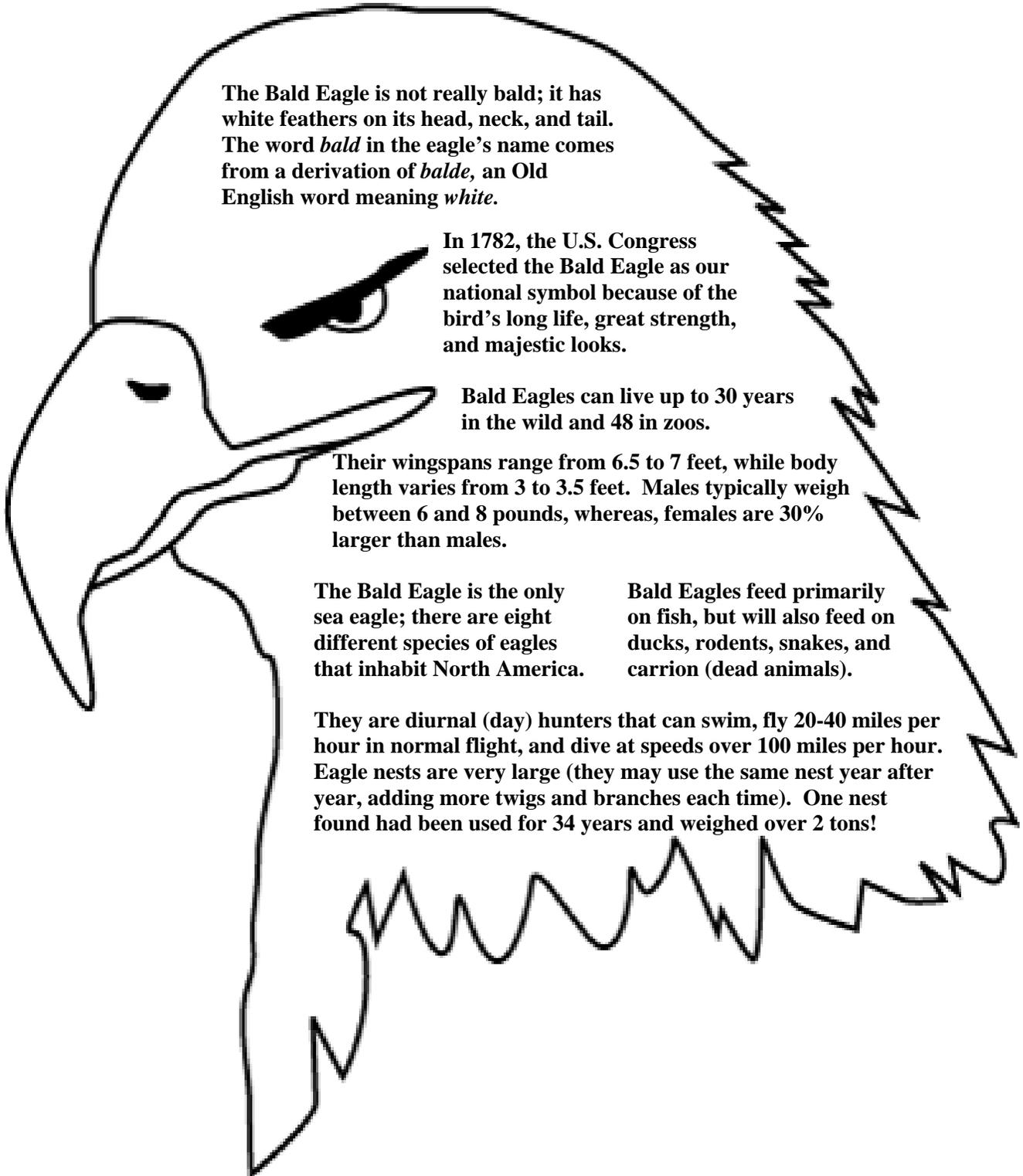
Eggs hatch in: 31 - 45 days

Habitat: Bald Eagles occur from Baja, California, and Florida north to Newfoundland and Alaska.

Within this area, they live and nest near coastlines, rivers, lakes, wet prairies, and coastal pine lands. During migration, they may pass over mountains and plains.

Diet: Bald Eagles are predators & scavengers. Their primary prey is fish, but they will sometimes take small mammals, waterfowl, wading birds, and dead animal matter, especially during the winter.

FuN fAcTs



The Bald Eagle is not really bald; it has white feathers on its head, neck, and tail. The word *bald* in the eagle's name comes from a derivation of *balde*, an Old English word meaning *white*.

In 1782, the U.S. Congress selected the Bald Eagle as our national symbol because of the bird's long life, great strength, and majestic looks.

Bald Eagles can live up to 30 years in the wild and 48 in zoos.

Their wingspans range from 6.5 to 7 feet, while body length varies from 3 to 3.5 feet. Males typically weigh between 6 and 8 pounds, whereas, females are 30% larger than males.

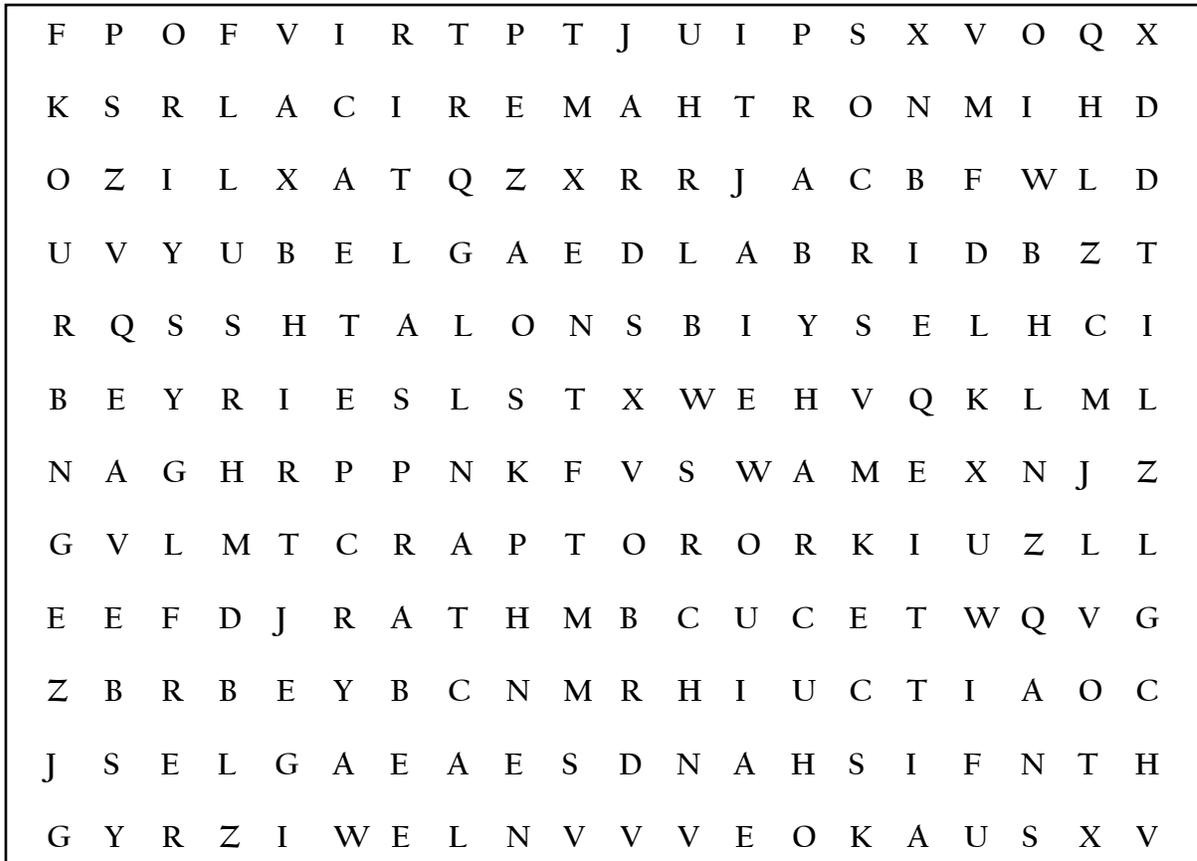
The Bald Eagle is the only sea eagle; there are eight different species of eagles that inhabit North America.

Bald Eagles feed primarily on fish, but will also feed on ducks, rodents, snakes, and carrion (dead animals).

They are diurnal (day) hunters that can swim, fly 20-40 miles per hour in normal flight, and dive at speeds over 100 miles per hour. Eagle nests are very large (they may use the same nest year after year, adding more twigs and branches each time). One nest found had been used for 34 years and weighed over 2 tons!

Bald Eagle Basics Word Search

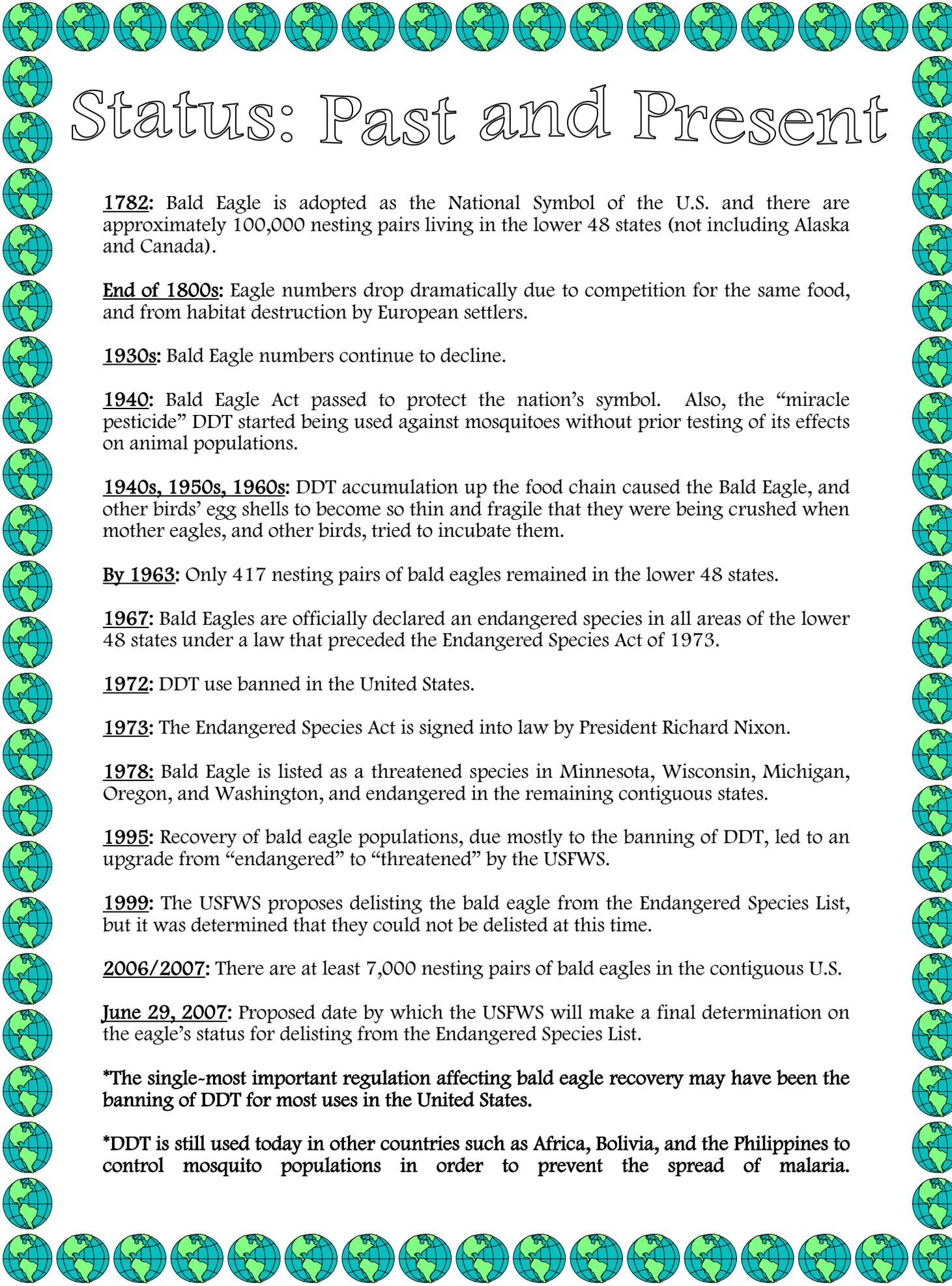
Directions: Find the terms listed below. Words can appear horizontally, vertically, diagonally; forwards or backwards.



Fish and Sea Eagles
Bald Eagle
Talons
Fish
Balde

Raptor
North America
Beak
DDT
Eyries

*See page 37 for word definitions.



Status: Past and Present

1782: Bald Eagle is adopted as the National Symbol of the U.S. and there are approximately 100,000 nesting pairs living in the lower 48 states (not including Alaska and Canada).

End of 1800s: Eagle numbers drop dramatically due to competition for the same food, and from habitat destruction by European settlers.

1930s: Bald Eagle numbers continue to decline.

1940: Bald Eagle Act passed to protect the nation's symbol. Also, the "miracle pesticide" DDT started being used against mosquitoes without prior testing of its effects on animal populations.

1940s, 1950s, 1960s: DDT accumulation up the food chain caused the Bald Eagle, and other birds' egg shells to become so thin and fragile that they were being crushed when mother eagles, and other birds, tried to incubate them.

By 1963: Only 417 nesting pairs of bald eagles remained in the lower 48 states.

1967: Bald Eagles are officially declared an endangered species in all areas of the lower 48 states under a law that preceded the Endangered Species Act of 1973.

1972: DDT use banned in the United States.

1973: The Endangered Species Act is signed into law by President Richard Nixon.

1978: Bald Eagle is listed as a threatened species in Minnesota, Wisconsin, Michigan, Oregon, and Washington, and endangered in the remaining contiguous states.

1995: Recovery of bald eagle populations, due mostly to the banning of DDT, led to an upgrade from "endangered" to "threatened" by the USFWS.

1999: The USFWS proposes delisting the bald eagle from the Endangered Species List, but it was determined that they could not be delisted at this time.

2006/2007: There are at least 7,000 nesting pairs of bald eagles in the contiguous U.S.

June 29, 2007: Proposed date by which the USFWS will make a final determination on the eagle's status for delisting from the Endangered Species List.

***The single-most important regulation affecting bald eagle recovery may have been the banning of DDT for most uses in the United States.**

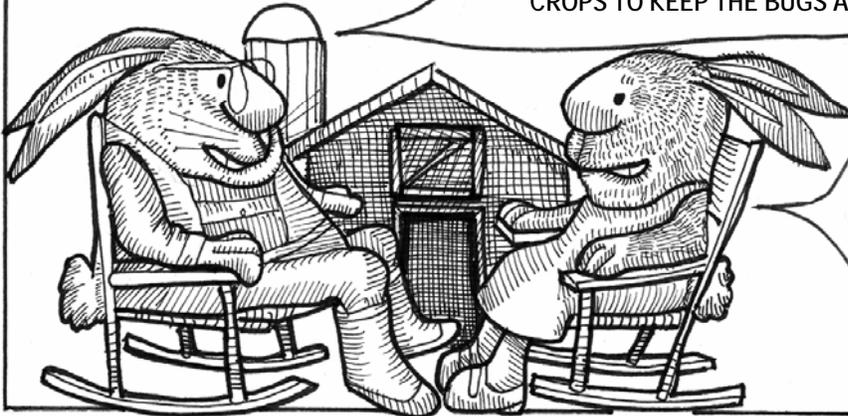
***DDT is still used today in other countries such as Africa, Bolivia, and the Philippines to control mosquito populations in order to prevent the spread of malaria.**

THE STORY OF CALVIN AND CALISTA COTTONTAIL

CALVIN AND CALISTA COTTONTAIL OWN AND OPERATE A SMALL FARM IN UPSTATE NY. ONE DAY WHILE SITTING ON THE PORCH ENJOYING THE EVENING BREEZE, CALVIN REMARKED:

"YOU KNOW, CAL, I JUST DID A RECON OF ALL THE FIELDS AND DON'T YA KNOW I THINK THAT WE HAVE SOME PEST PROBLEMS. I JUST DREAD EVERY SUMMER HAVING TO SPRAY THE CROPS TO KEEP THE BUGS AWAY".

WHAT IS UP 45 YEARS AFTER CARSON'S SILENT SPRING WAS PUBLISHED?



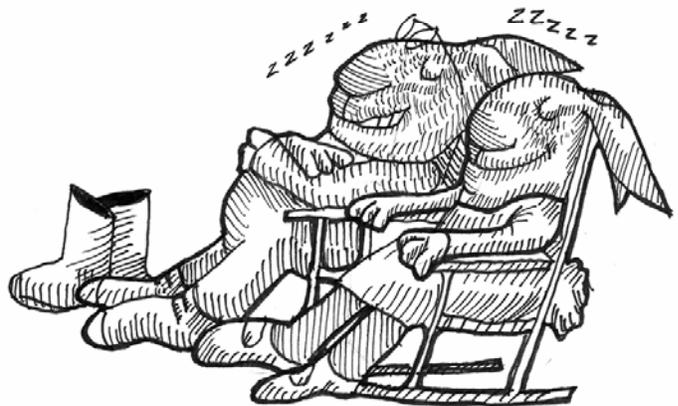
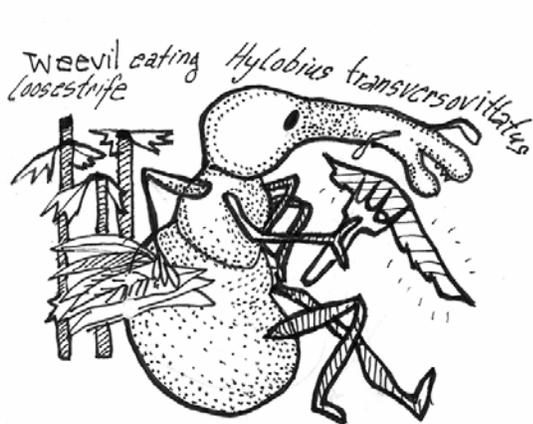
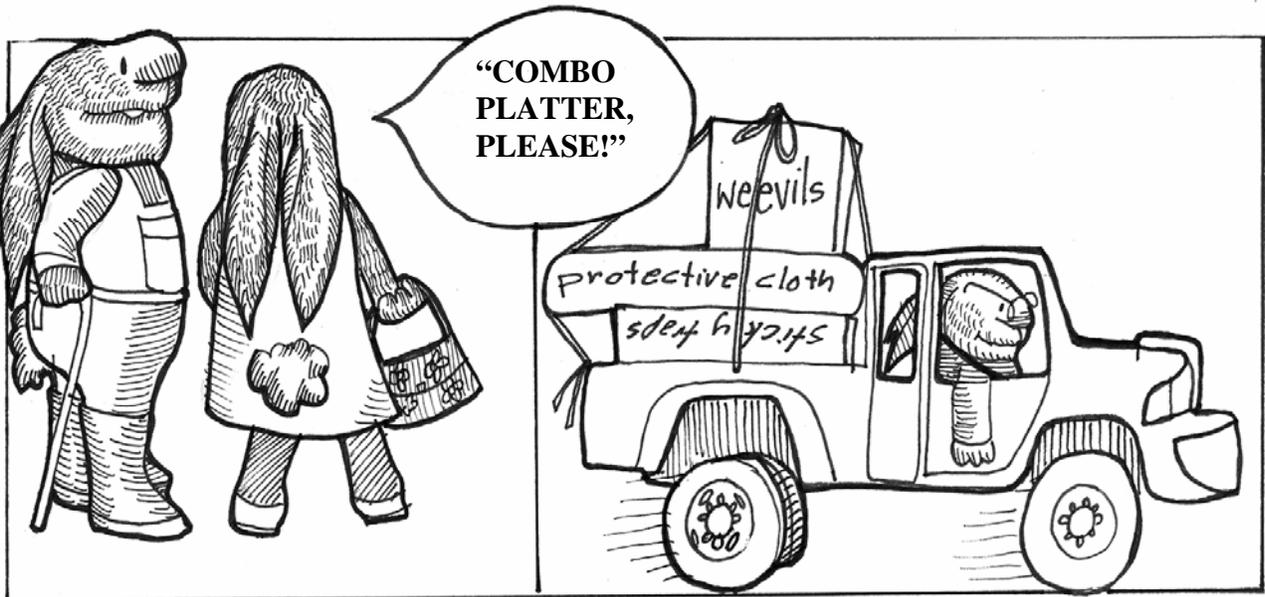
"I'M WORRIED ABOUT THAT PESKY PLANT, LOOSESTRIFE, TAKING OVER OUR MARSH. I HATE TO SPRAY THE MARSH TO KILL THE LOOSESTRIFE. LET'S GO OVER TO THE I.P.M. AND SEE WHAT THEY HAVE TO OFFER!"

I P M STORE



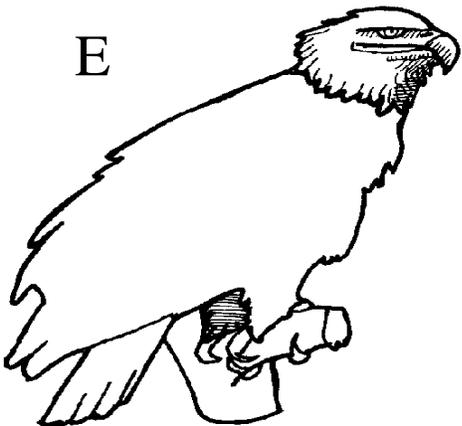
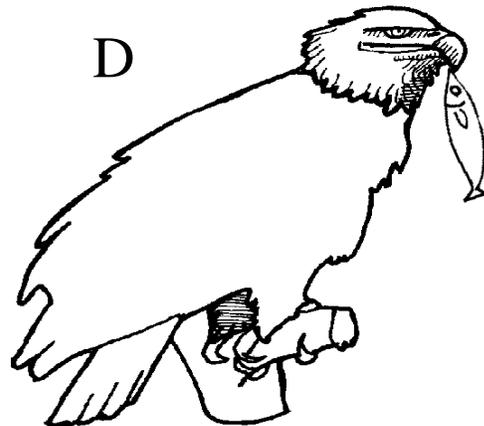
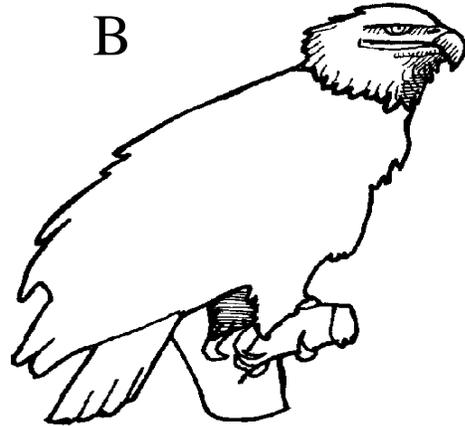
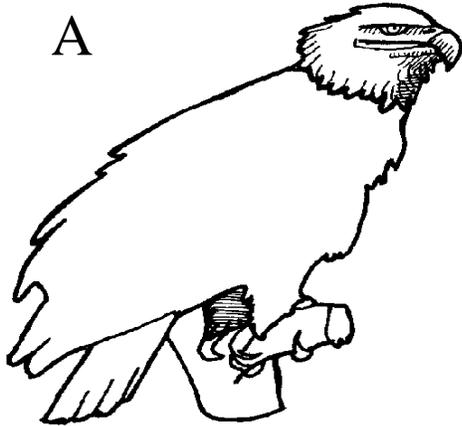
Integrated Pest Management means carefully using two or more "environmentally friendly" methods of pest control together to minimize crop loss from pests and for safe removal of other pests (like those in homes and schools).

CROP ROTATION	MECHANICAL WEED CONTROL
PROTECTIVE CLOTH	LIMITED TARGETED SPRAYING
SPECIALS:  <p>“WHAT CAN I GET YA TODAY?”</p>	GENERAL PREDATOR BEETLES
	MINUTE PIRATE BUGS
	EUROPEAN WEEVILS
	ROW CROPPING
	STICKY TRAPS
	PHEROMONE TRAPS
	ALUMINUM FOIL MULCH



For more information on Integrated Pest Management, start by exploring these websites:
www.epa.gov/pesticides/factsheets/ipm.htm; www.nysipm.cornell.edu
www.ipm.ucdavis.edu; www.ipm.iastate.edu; <http://paipm.cas.psu.edu>

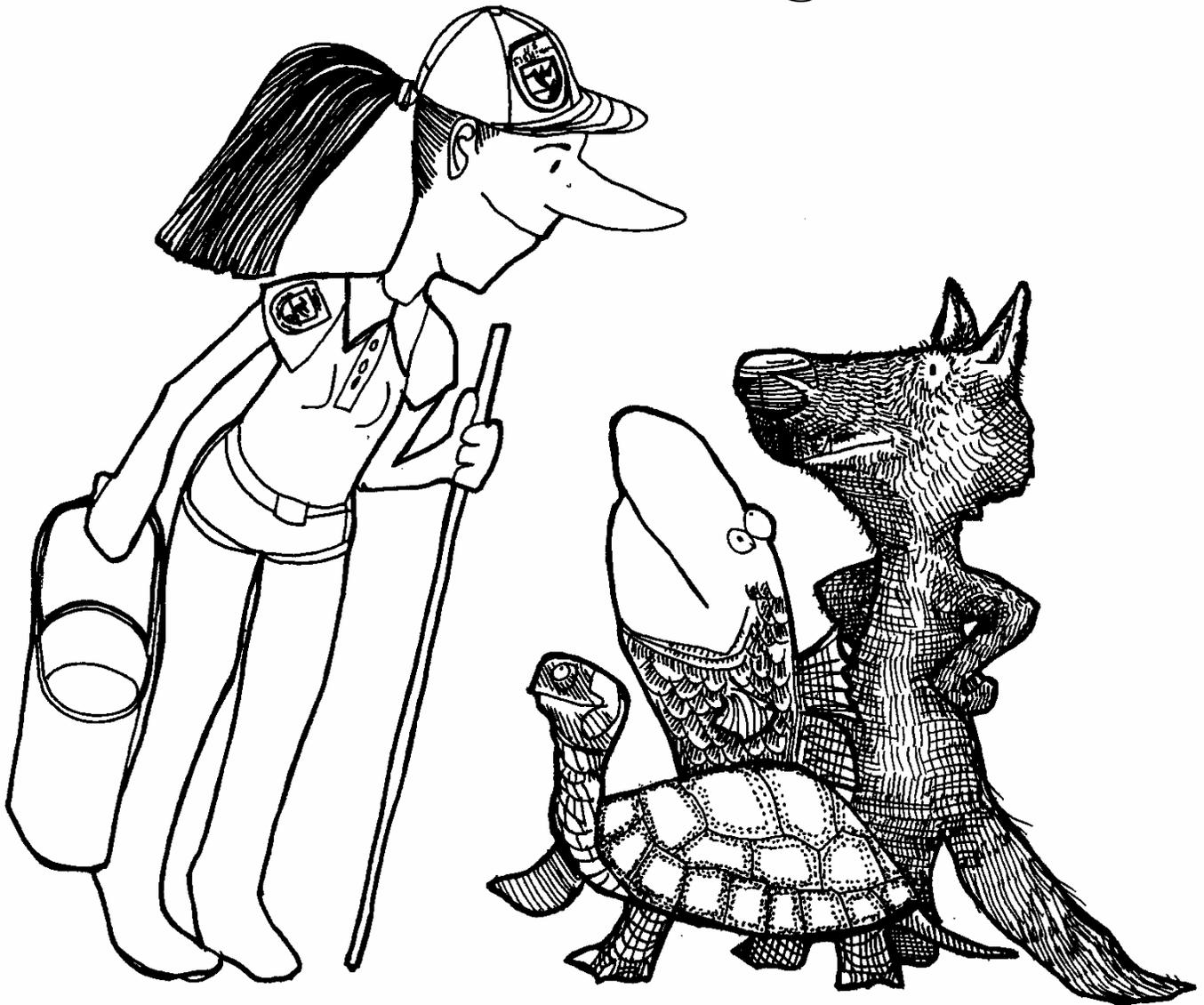
Which picture is different?



Your answer:

Answer: D

U.S. Fish and Wildlife Service: Who we are



Providing over 125 years of service, the USFWS helps protect a healthy environment for people, fish, and wildlife, and helps Americans conserve and enjoy the outdoors and our living treasures. The USFWS major responsibilities are for migratory birds, endangered species, certain marine mammals, and freshwater and anadromous fish.

What's Happening to FROGS?

Frogs are a good indicator of habitat health because they are found in many places, from ponds, to ditches, to even tire ruts. They also may come in contact with different environmental contaminants throughout their amphibian lives (eggs laid in the water; spend part of their life in water, part on land).

Since 1995, researchers have been looking at frogs to see whether missing, extra, or unusual body parts are caused by changes in climate, predators, parasites, bacteria, fungi, or viruses;...or pollution and contaminants such as pesticides, metals, and fertilizers.

INTENSIVE CARE

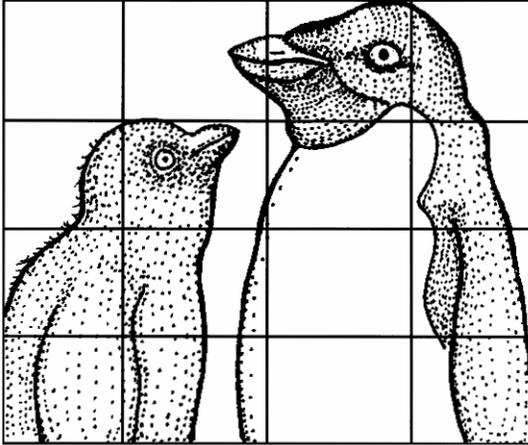


Since 2000, the USFWS has been studying frogs on 131 National Wildlife Refuges in 47 States. For more information, check out:

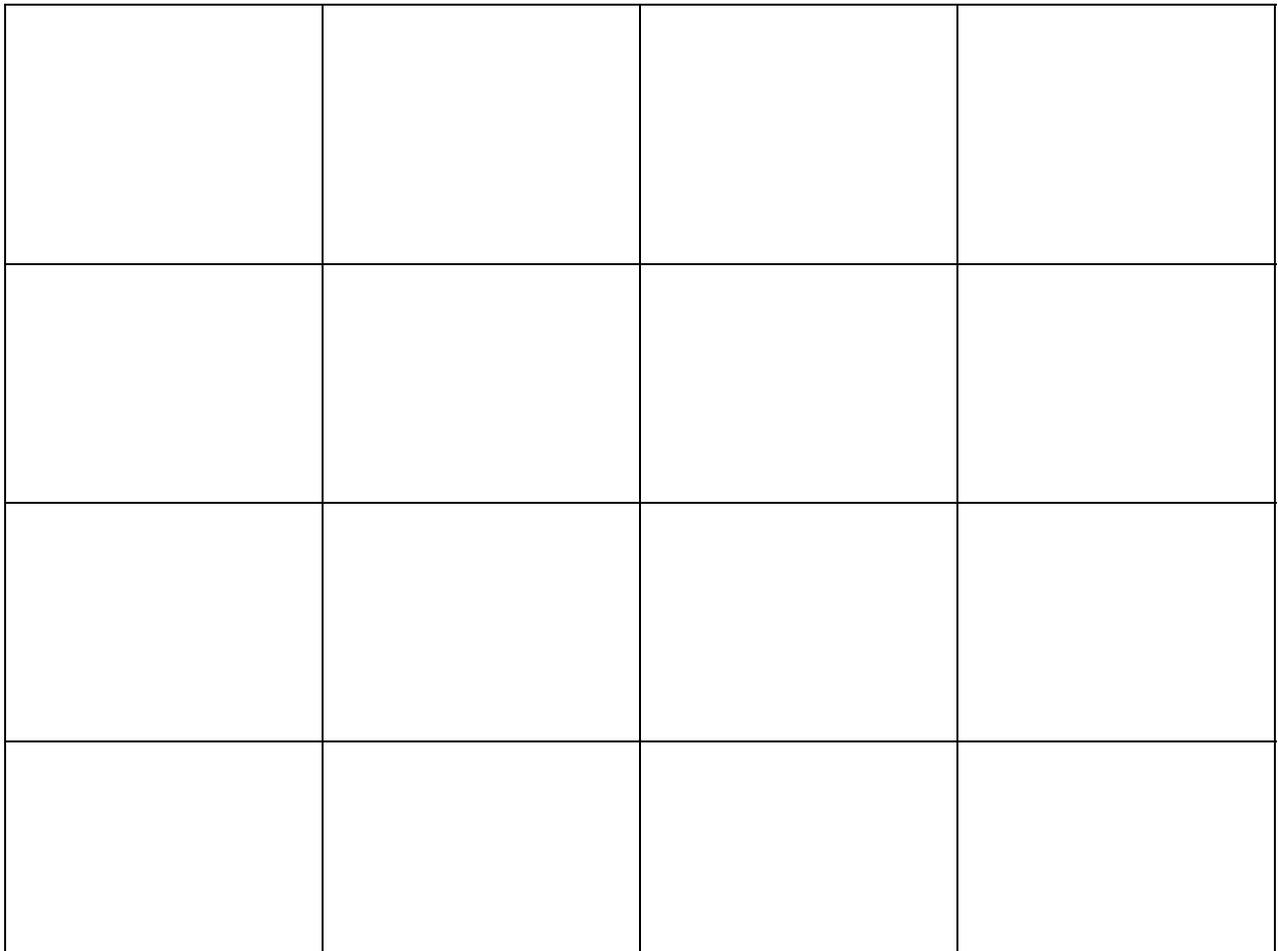
<http://www.fws.gov/contaminants/Issues/Amphibians.cfm>

YOU CAN DRAW!

**Use the grid to
draw the Penguin.**



**Even penguins living
thousands of miles from
the developed world are
impacted by chemicals in
the environment.**



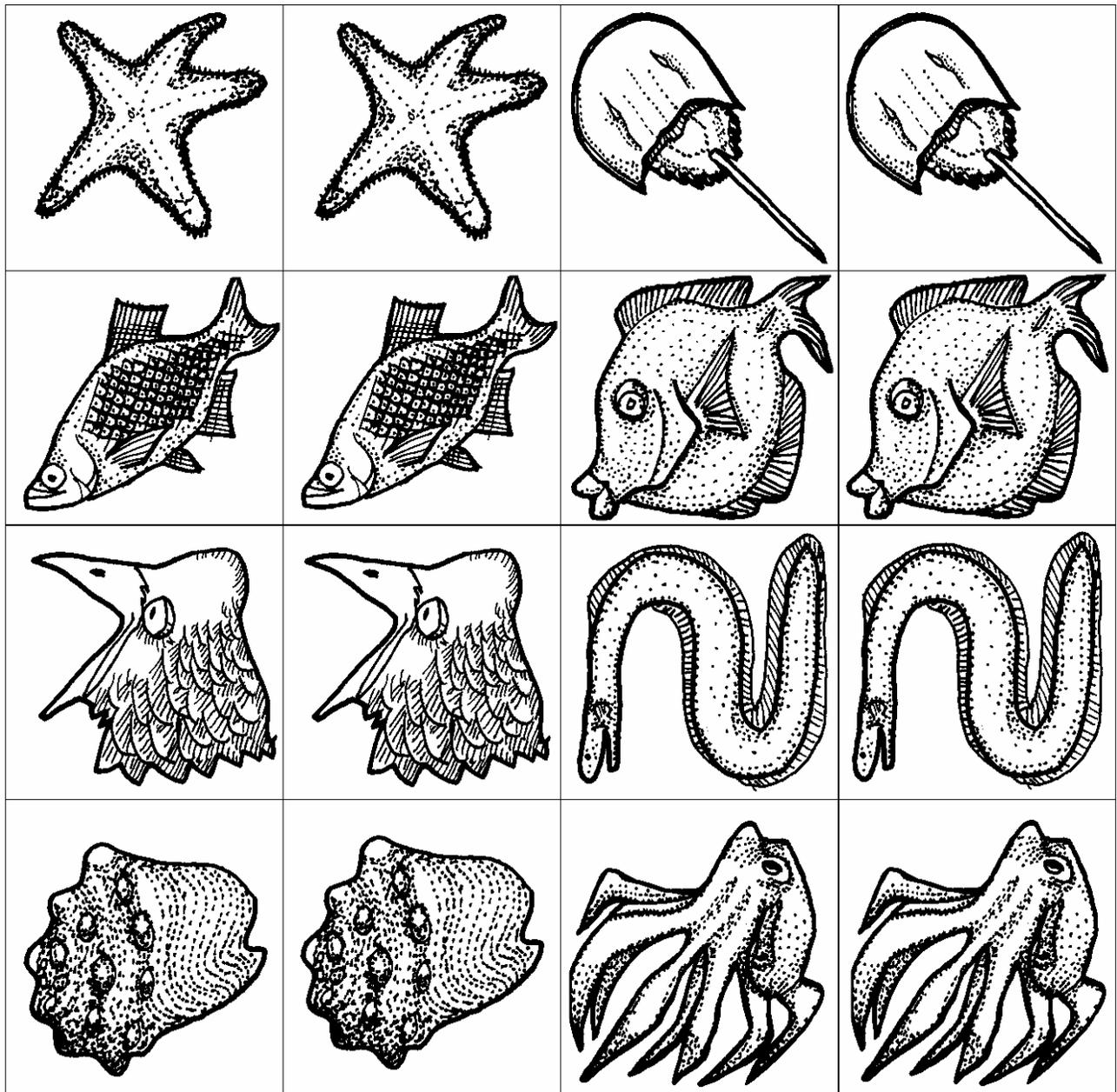
MEMORY GAME

Object of the Game:

To find all the matching pairs of cards.

How to Play:

- Cut the cards out and lay all of the cards with their faces down.
- Flip over two cards.
- If both cards are the same, you keep the match and get another turn. If they are different, flip the cards back over and the next person takes a turn.
- The game is over when all of the pairs are matched and all of the cards are gone.



PUZZLE TIME

Glue this entire page to poster board to make it stronger and then cut out the shapes.



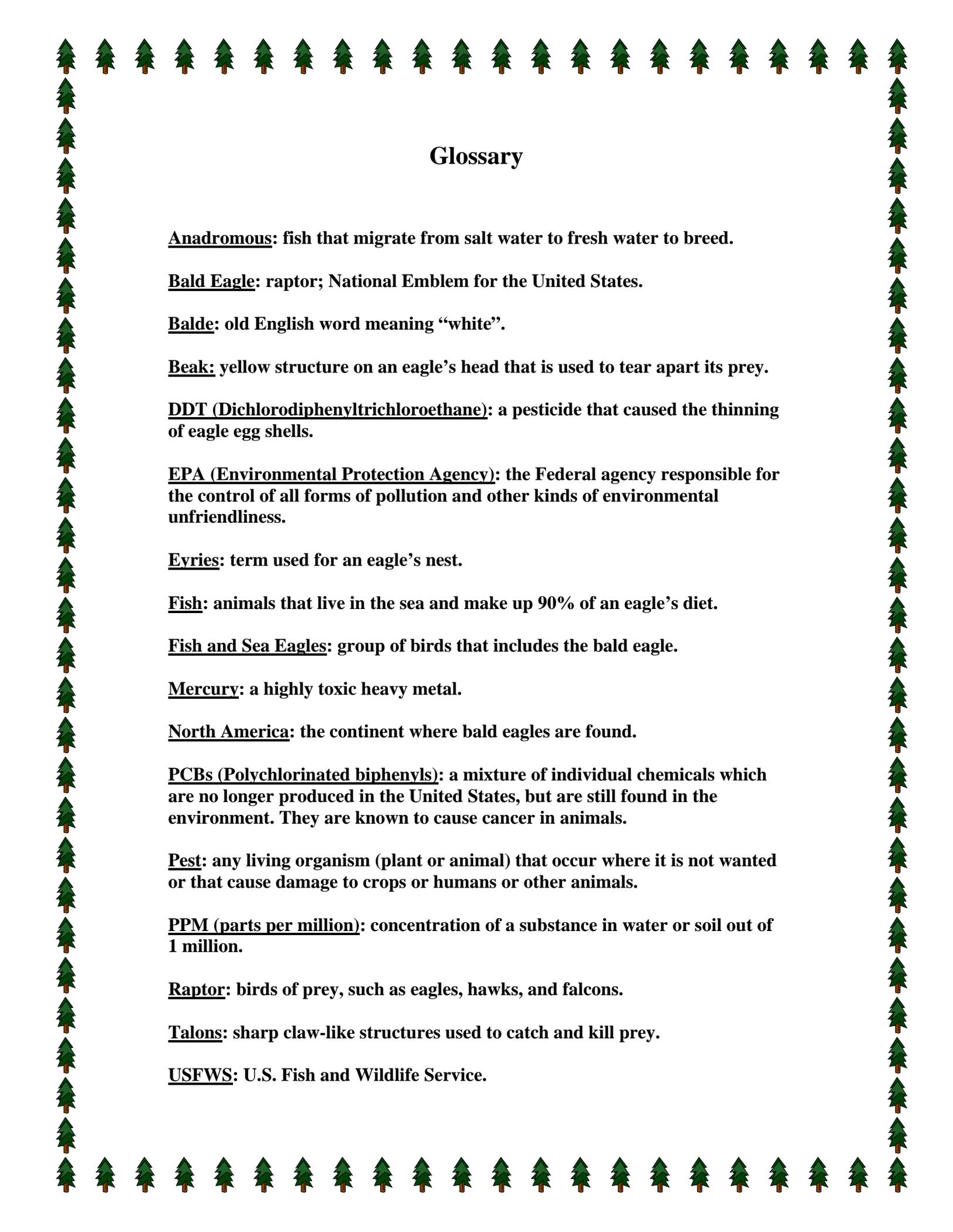
PUZZLE TIME

Cut out the pieces and glue or tape them to cardboard or poster board to make them stronger.



L-R:
Sister: Marian,
Rachel,
Mother: Maria,
Brother: Robert

Courtesy:
USFWS



Glossary

Anadromous: fish that migrate from salt water to fresh water to breed.

Bald Eagle: raptor; National Emblem for the United States.

Balde: old English word meaning “white”.

Beak: yellow structure on an eagle’s head that is used to tear apart its prey.

DDT (Dichlorodiphenyltrichloroethane): a pesticide that caused the thinning of eagle egg shells.

EPA (Environmental Protection Agency): the Federal agency responsible for the control of all forms of pollution and other kinds of environmental unfriendliness.

Eyries: term used for an eagle’s nest.

Fish: animals that live in the sea and make up 90% of an eagle’s diet.

Fish and Sea Eagles: group of birds that includes the bald eagle.

Mercury: a highly toxic heavy metal.

North America: the continent where bald eagles are found.

PCBs (Polychlorinated biphenyls): a mixture of individual chemicals which are no longer produced in the United States, but are still found in the environment. They are known to cause cancer in animals.

Pest: any living organism (plant or animal) that occur where it is not wanted or that cause damage to crops or humans or other animals.

PPM (parts per million): concentration of a substance in water or soil out of 1 million.

Raptor: birds of prey, such as eagles, hawks, and falcons.

Talons: sharp claw-like structures used to catch and kill prey.

USFWS: U.S. Fish and Wildlife Service.

