Penn-Jersey Urban
Peregrine
Partnership

Kid's Book

Falcon Facts

Peregrine falcon (*Falco peregrinus*)

Coloration

Adults: crown and nape black; black wedge extends below eye forming a distinctive "helmet" or moustache"; back and tail are blue-gray; chin and throat whitish; upper breast deeper buff with a few black spots; remainder of underparts darker buff closely and variably barred black; eyes are dark brown with a yellow eye ring; legs and feet are bright yellow.

Immatures: dark brown back and wings; underparts light, but heavily streaked with brown; eye color is dark brown with a pale blue eye ring; legs and feet are pale creamy blue.

Size

Male

length	15-18"
wingspan	40"
weight	20-25 ounces

Female

length	18-21"
wingspan	45"
weight	32-40 ounces

Males are called "tiercels", which means one-third; they are one-third smaller than females.

Eggs

2-5
egg laying: March to April
Color: buff with red-brown markings
Incubation: 32 days
Fledging: 35-42 days after hatching

Life Span

2-8 years average, rarely 15 -20

Food

Small to medium sized birds

Method of hunting

Peregrines hunt from the wing or from a high perch. When prey is spotted, the peregrine plunges from the sky like a bullet and may exceed speeds of 200 mph. The prey is hit with the falcon's feet and stunned or killed instantly. The peregrine then swoops back around and catches the food mid-air. Peregrines pluck their prey before eating it.

Peregrine adaptations

*Sleek body and long pointed wings for fast flight
*Long, narrow tail to help maneuver quickly
*Keen eyesight (6-8 times better than humans) to spot prey
*Large feet with sharp talons to hit and grasp prey
*Hooked beak to tear food into bite-sized pieces
*Strong flight muscles to migrate long distances
*Black feathers below the eye to reduce the glare from the sun

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Introduction for the Teacher/Parent

This activity booklet was developed as part of the educational component of the Penn-Jersey Urban Peregrine Partnership. Its main purpose is to promote awareness and increase understanding of the peregrine falcon's struggle for survival. The games, activities, and coloring pages are designed for children, and the child in each one of us. It is hoped that through increased awareness and knowledge, people will be able to make more informed decisions regarding the fate of the peregrine and other endangered species. Activities in this booklet are designed for a range of age/grade levels (ages 3-10). Please feel free to adjust them according to the level of your students/child. Please duplicate these materials as needed.

The Peregrine Falcon's Struggle for Survival

The peregrine falcon (*Falco peregrinus*) is an endangered species in both Pennsylvania and New Jersey, as well as nationally. The term "endangered" signifies a species that is in danger of becoming extinct over all or most of its range. The peregrine has responded favorably to management efforts, and as such has become somewhat of a symbol for the battle to save endangered species.

Peregrine numbers have fluctuated widely in the last 50 years. In the 1940s, an estimated 350 pairs of peregrines nested east of the Mississippi. By 1970, there were only 55 known nesting sites on the entire continent. In 1973, the Endangered Species Act provided protection under law for the peregrine and other species in trouble. This marked the beginning of the peregrine's struggle for survival.

Factors that contributed to peregrine population declines included loss of suitable nesting sites and habitat, as well as human disturbance of birds and nests. By far the most serious and detrimental impact to the peregrine and other birds of prey came from the extensive use of DDT. Pesticides, especially DDT, were widely used to control mosquitoes and other insects over large areas of the country. DDT entered the food chain and biomagnified - it became more concentrated and toxic with each episode of predator eating prey. At toxic levels in peregrines, DDT interfered with egg laying metabolism and caused eggshells to become thin and break under the weight of incubating birds.

It didn't take long before the connection was made between declining populations of birds of prey and DDT. DDT was banned for use in the U.S. in 1972.

The Peregrine Fund was founded in 1970 at Cornell University to restore the peregrine falcon in the United States through the breeding of falcons in captivity and subsequent reintroduction in the wild. By 1980, nearly 400 peregrines had been raised in Cornell's hawk barn, and many of them were "hacked" into the wild.

From the mid 1970s until the present, both Pennsylvania and New Jersey continued extensive programs to create, maintain, and stabilize peregrine falcon populations in each state. State agencies involved in the effort were New Jersey Division of Fish, Game and Wildlife's Endangered and Nongame Species Program, and Pennsylvania Game Commission and the Pennsylvania Wild Resource Conservation Fund. Techniques utilized included: building and maintaining hacking boxes and towers; hacking of falcons throughout the states; monitoring nesting success and productivity; and banding all birds with USFWS bands.

In 1993, a grant from the William Penn Foundation facilitated a cooperative effort between Pennsylvania and New Jersey to introduce peregrines into key cities. The Penn-Jersey Urban Peregrine Partnership was born and efforts begun to hack and release peregrines in Trenton, N.J., and Harrisburg and Reading, Pa.

Falcon Word Find

Locate and circle the following words in the puzzle below. They may be backwards, diagonal, vertical, or horizontal.

peregrine falcon
endangered
Pennsylvania
New Jersey
pesticides
cliffs
scrape
fledging
skyscraper
talon
wings
beak
hacking
habitat
adaptation
predator
prey
stoop
birds
DDT
bridges

P E T U W S F J O Q A C B N L A

E E P D G K X B M L U T T C Z L

N F R H V Y E R P W S A A N P I

N T E E G S U H N B S T T R W C

S G D Z G C F L E D G I N G H L

Y F A J K R U W Q D O B L N D A

L F T D C A I H X T J A K I Z W

V D O Q B P W N K Y K H D K S M

A P R F S E A C E Q A Z H C V N

N E W J E R S E Y F D T R A G J

I S I O N K T P L B A A L H C M

A T G S D A O B C X P L A Z M O

S I B E A K O H D E T O C L I F

Z C J U N B P D F B A N L O N K

L I D G G H S S A E T C I M N G

U D W A E B X D N F I K F A C N

W E H S R N V R A I O N F M E U

G S W A E D H I W I N G S N C H

F S E G D I R B K B S M A E L Z

Glossary of terms

adaptation A physical characteristic or behavior that a plant or animal develops in response to its habitat.

DDT One of several chlorinated hydrocarbon pesticides used to kill organisms considered pests by people.

double-clutching The process of taking a clutch of eggs early in the incubation period such that the birds renest and produce a second clutch. This allows a clutch of eggs to be used for reintroduction elsewhere.

fostering The process of providing chicks for infertile wild peregrines to raise.

habitat The arrangement of food, water, shelter or cover, and space necessary for an animal to survive.

hacking Chicks which are hatched in captivity are raised and released from cages where food is provided with little human contact until the birds can be released into the wild.

predator An animal that hunts and eats other animals.

prey An animal that is killed and eaten by another animal.

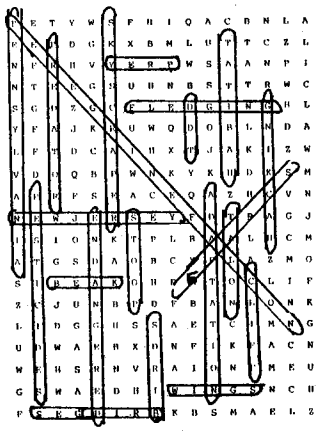
scrape The type of nest made by many birds including the peregrine; usually a shallow depression in soil, sand or gravel.

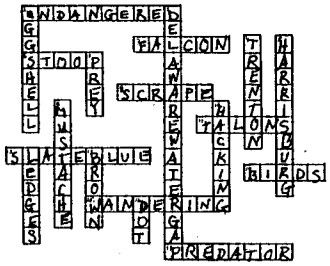
stoop A head-first, bullet-like dive through the air, usually performed by raptors in pursuit of prey.

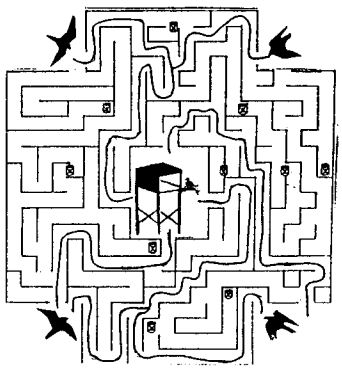
talon The sharp, hooked claws of a bird of prey.

tiercel The male peregrine falcon, thus named because it is about one-third the size of the female.

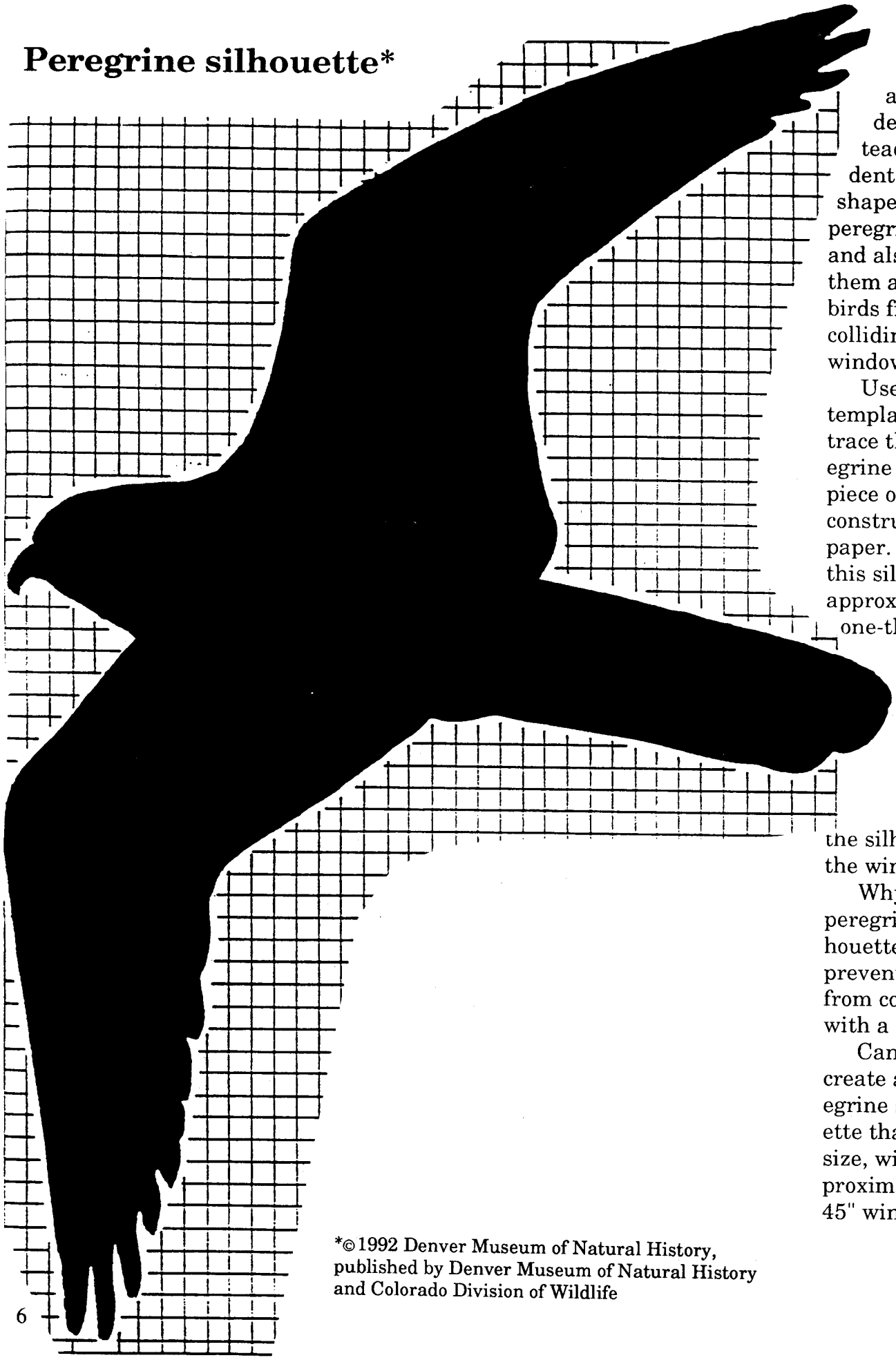
Answer Key







Peregrine silhouette*



This activity is designed to teach students the shape of a peregrine falcon and also prevent them and other birds from colliding with windows.

Use the template to trace the peregrine onto a piece of black construction paper. Note that this silhouette is approximately one-third the size of an adult peregrine falcon.

Tape the silhouette to the window.

Why would a peregrine silhouette help prevent birds from colliding with a window?

Can you create a peregrine silhouette that is life size, with approximately a 45" wingspan?

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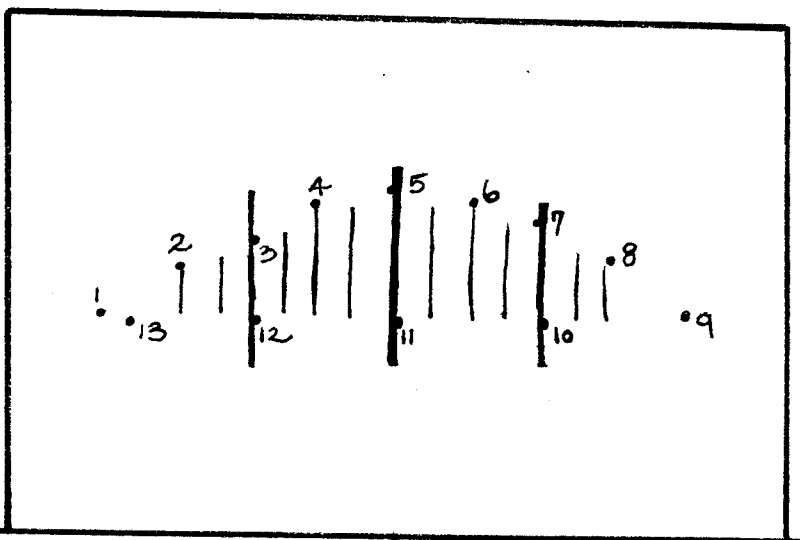
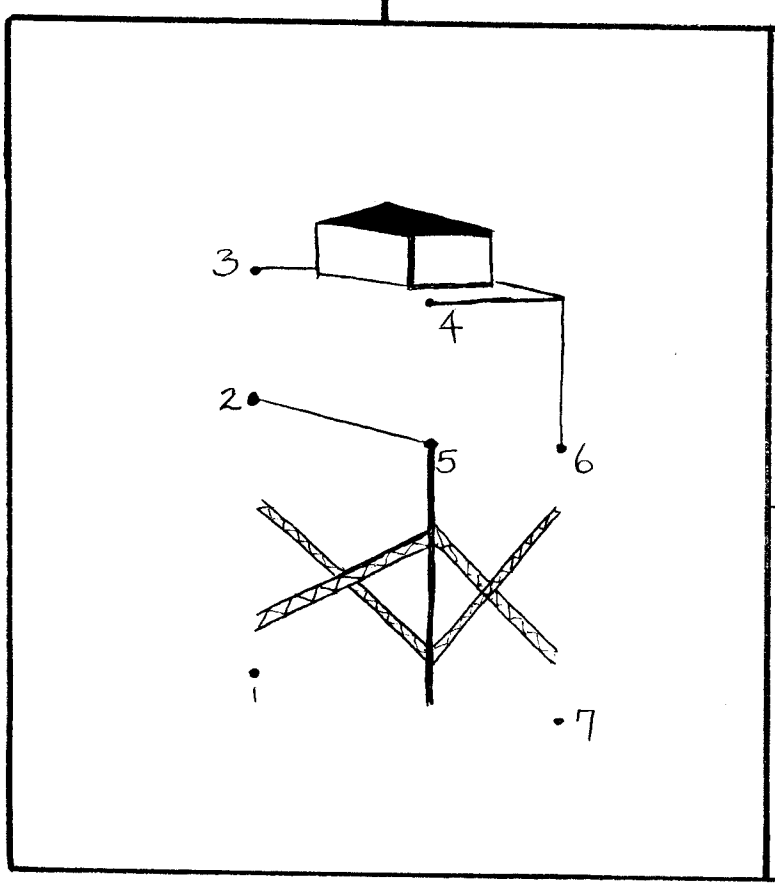
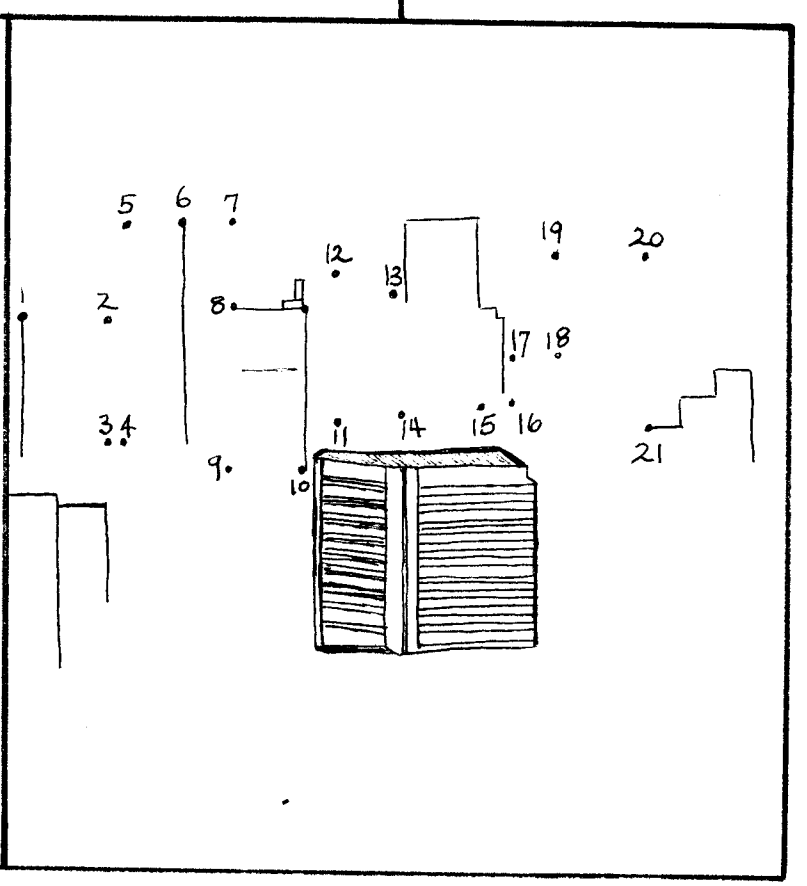
The Many Homes of the Peregrine Falcon

Directions: Below are 3 nesting sites of the peregrine falcon that are manmade; proof that people can have a positive impact on the survival of an endangered species. Peregrines nest on bridges, water towers, building ledges, and hacking towers in both New Jersey and Pennsylvania. Connect the dots to complete the pictures.







Towers and Tumbles

A game for 2 to 4 players that describes the predicament of the peregrine falcon. Players move along the game board and encounter various obstacles and aids to the peregrine's struggle for survival.

Materials

die or spinner

playing pieces (anything that can be moved along the game board such as buttons, coins, etc.)

Directions

Each player rolls the die or spins to move ahead on the board that number of spaces. Each space on the board describes a different situation involving the peregrine falcon and contains specific directions for the player that lands there:

1) Those spaces with towers above them are where positive things happen to the peregrine. The player "climbs" the tower (advances his/her playing piece to the space above it on the game board).

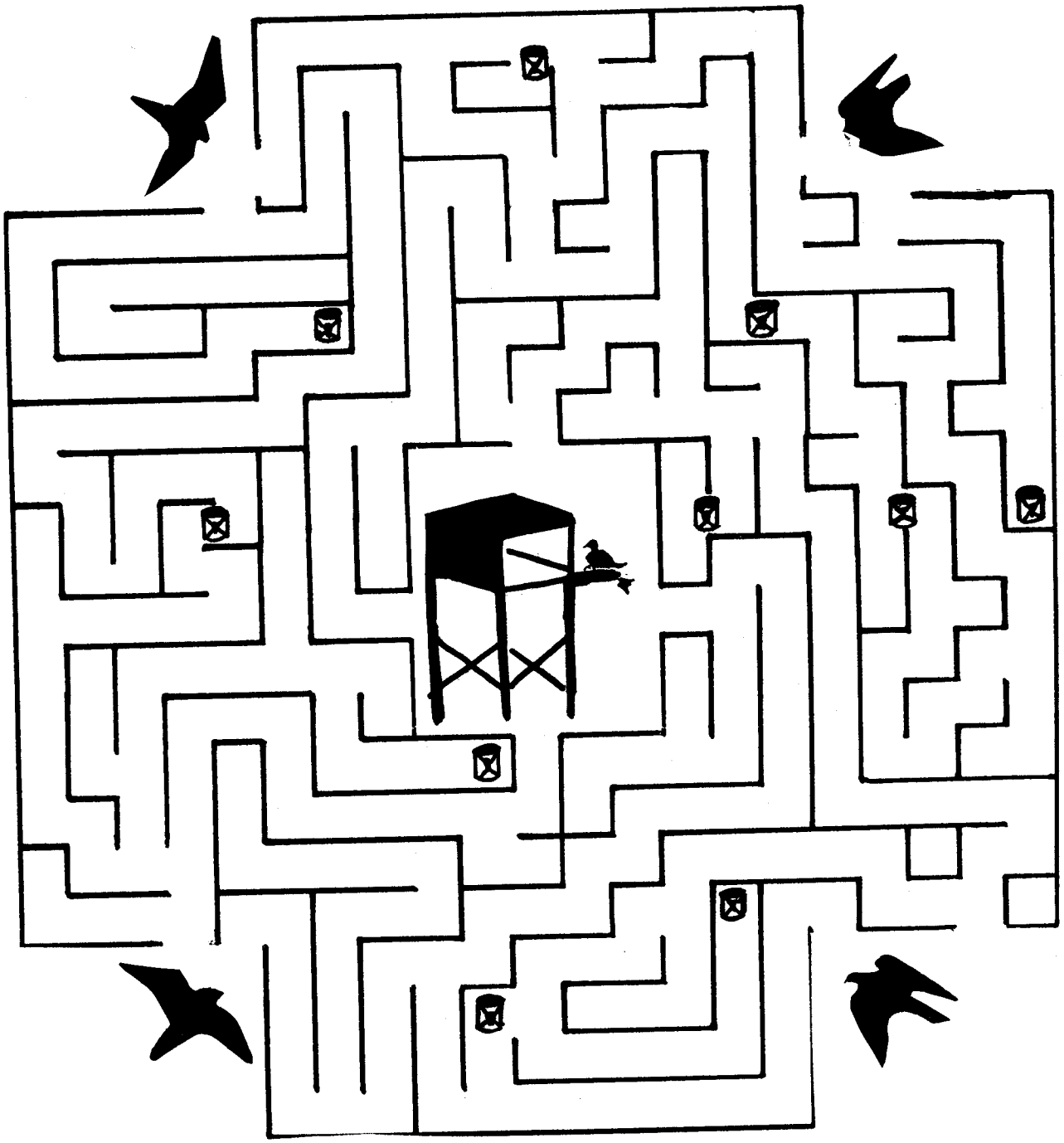
2) Some spaces have "tumbles" or slides that indicate that a negative thing happens to the peregrine. The player "tumbles" down the slide to the space on the board where the slide ends.

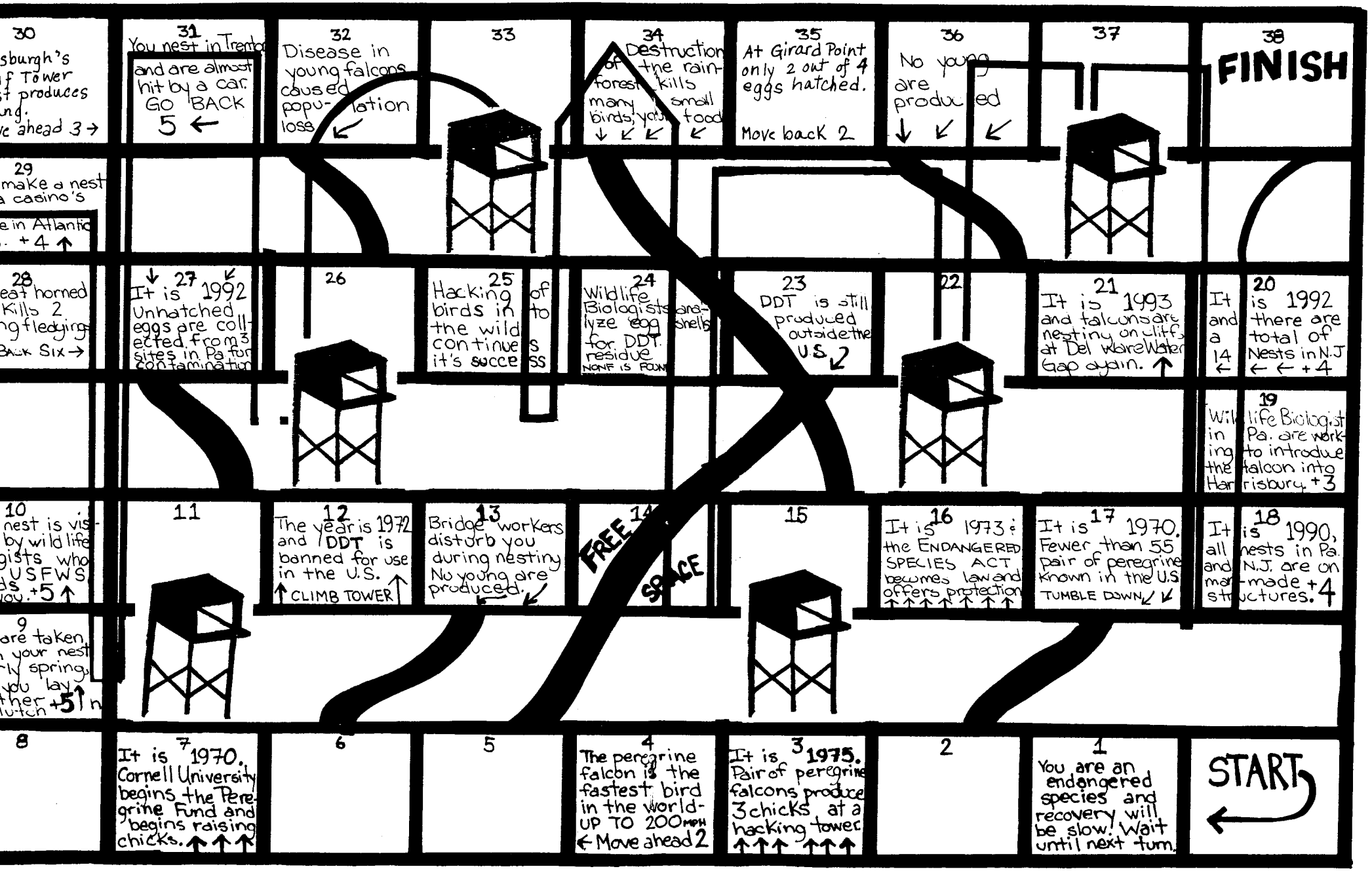
3) Some spaces simply say move ahead or move back that many spaces.

4) The player to reach the finish line with an exact roll or spin first is the winner.

A "maze" ing Falcons

Directions: Follow the peregrine falcon through the maze and try to find your way to the hacking tower in the center. There are 4 pathways that lead to the finish. Be careful along the way for the "dead ends" which are marked with DDT drums.




30
sburgh's
f Tower
t produces
ng.
e ahead 3 →
31
You nest in Trenton and are almost hit by a car. GO BACK 5 ←
32
Disease in young falcons caused popu- lation loss
33
34
Destruction of the rain-forest kills many birds, yo small food
35
At Girard Point only 2 out of 4 eggs hatched.
Move back 2
36
No young are produced
37
38
FINISH
29
make a nest
a casino's
e in Atlantic
. +4 ↑
28
eat horned
Kills 2
ng fledging
Back Six →
27
It is 1992
Unhatched eggs are collected from 3 sites in Pa for contamination
26
25
Hacking of birds in to the wild continues it's success
24
Wildlife Biologists analyze egg shells for DDT residue
NONE IS FOUND
23
DDT is still produced outside the U.S.
22
21
It is 1993 and falcons are nesting on cliffs at Del Ware Water Gap again. ↑
It and a 14 ←
20
is 1992 there are total of Nests in N.J ← ← +4
Wil in ing the Har
19
life Biologist Pa. are work- to introduce falcon into risbury. +3
10
nest is vis- by wild life gists who USFWS ds you. +5 ↑
11
12
The year is 1972 and DDT is banned for use in the U.S.
↑ CLIMB TOWER ↑
13
Bridge workers disturb you during nesting No young are produced.
FREE 14
SPACE
15
16
It is 1973: the ENDANGERED SPECIES ACT becomes law and offers protection
17
It is 1970. Fewer than 55 pair of peregrine known in the U.S.
TUMBLE DOWN
It all and mar st
18
is 1990, nests in Pa. N.J. are on -made structures. +4
9
are taken, your nest ly spring, you lay ther +5 ↑ n lutch
8
7
It is 1970. Cornell University begins the Pere-grine Fund and begins raising chicks. ↑↑↑
6
5
4
The peregrine falcon is the fastest bird in the world- UP TO 200MPH
← Move ahead 2
3
It is 1975. Pair of peregrine falcons produce 3 chicks at a hacking tower
↑↑↑ ↑↑↑
2
1
You are an endangered species and recovery will be slow. Wait until next turn.
START

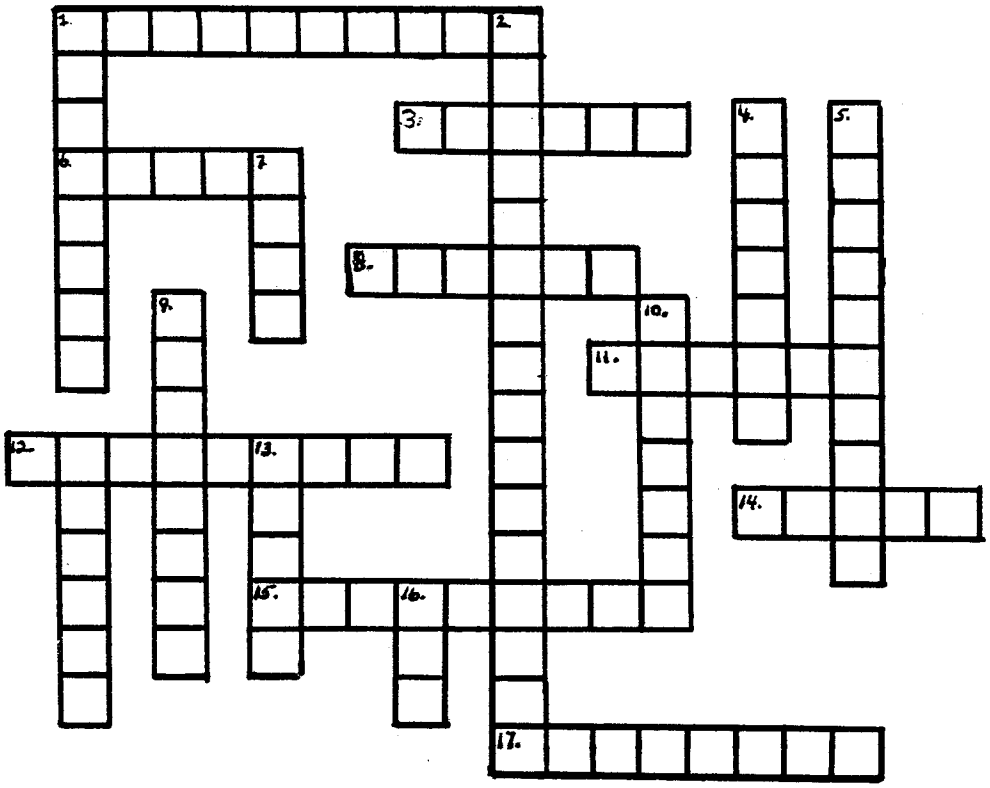
Peregrine Puzzle

Across

1) The term used to describe a species near extinction.
2) The group of birds to which the peregrine belongs.
6) The bullet-like dive of the peregrine.
8) The type of nest a peregrine makes; a shallow depression in soil, sand or gravel.
11) The sharp, hooked claws of a bird of prey.
12) The color of the back and wings of an adult peregrine.
14) The food of the peregrine.
15) "Peregrinus" means __.
17) An animal that hunts and eats other animals.

Down

1) This became thin due to the use of DDT.
2) Historical nesting site of peregrines in Pennsylvania and New Jersey.
4) The capital of New Jersey.
5) The capital of Pennsylvania.
7) An animal that is killed and eaten by another animal.
9) The distinctive facial marking of the peregrine is often called a __.
10) The process of raising chicks in captivity and then releasing them in the wild.
13) The color of the back and wings of the immature peregrine.
16) The pesticide that caused the eggshells to become thin.



Peregrine Pieces*

Peregrine falcons are superbly adapted birds of prey. They have specific characteristics or adaptations that allow them to survive. Using the information from page 3 (Falcon Facts), children will make a paper peregrine falcon by cutting and pasting together body parts.

Materials

scissors, glue, crayons, construction paper

Directions

1) Tell your students (child) that by assembling a peregrine falcon they will learn about physical characteristics and adaptations that help peregrines to survive. Explain physical adaptations and give examples.

2) Have the child cut out all of the peregrine pieces from the next page.

3) Glue the body and tail parts to a piece of construction paper. Ask them why a sleek, streamlined body and tail would be important adaptations.

4) Next, have them glue on the wings and ask why long, pointed wings would be an important adaptation. Continue with the head, emphasize the shape of the beak and its importance. Also discuss the talons.

5) Once the peregrine is assembled, discuss other features such as eyesight, flight and leg muscles, and coloration that make peregrines good hunters.

One Step Further

Take your child outside and look for other birds, or browse through magazines to find pictures of other birds. Discuss the features of these other birds and describe their adaptations.

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The Peregrine Makes a Home in the City

Can you find the hidden pictures?

Talon: the sharp, hooked claws of the peregrine

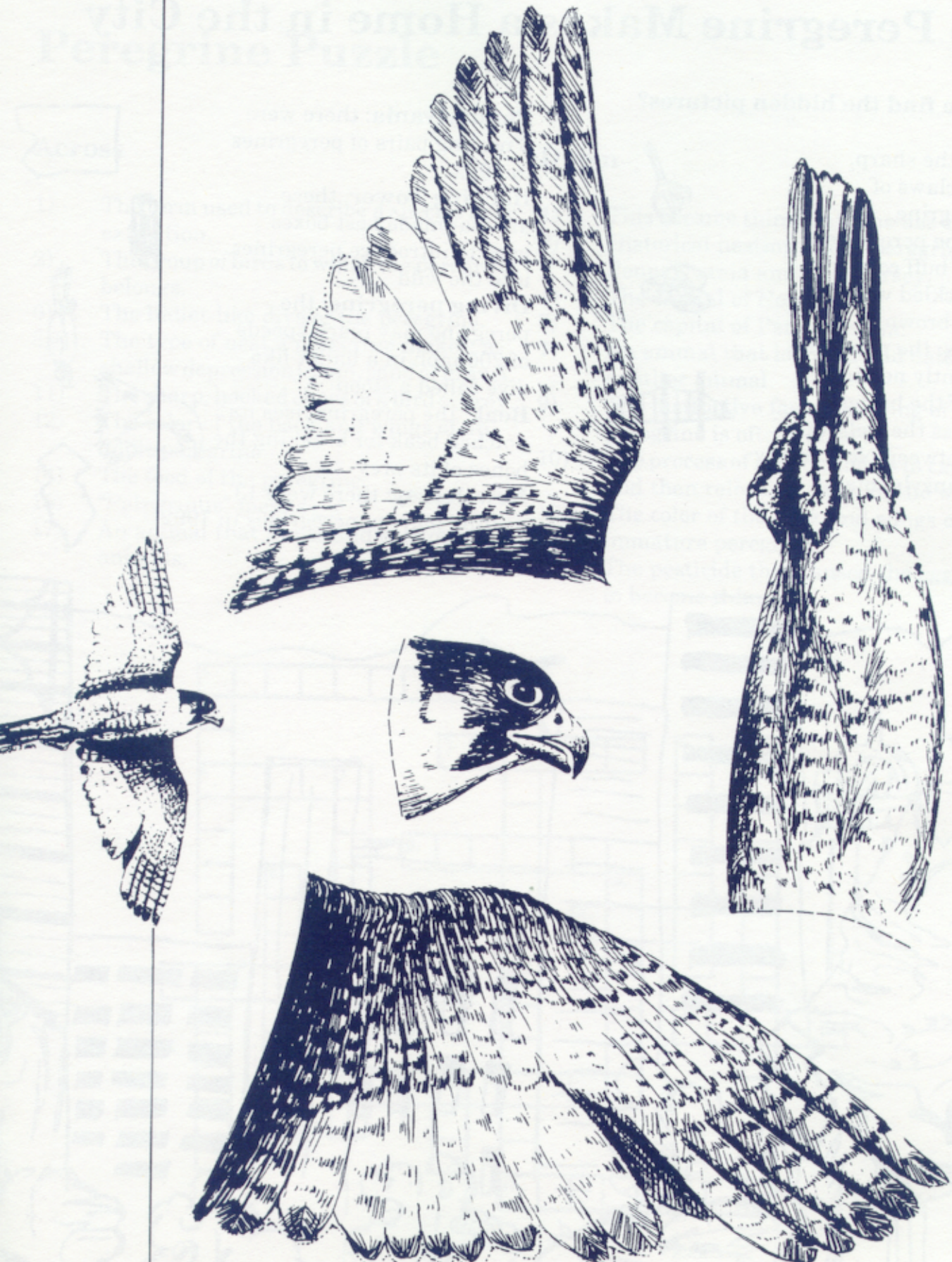
Eggs: the peregrine lays 2-5 buff colored and speckled with reddish brown

Bridges: the peregrine is currently nesting on many of the bridges that cross the Delaware River between New Jersey and Pennsylvania

Pennsylvania: there were 6 nesting pairs of peregrines in 1992

Hacking Tower: these are manmade nest boxes used to introduce peregrines into the wild

Diving peregrine: the peregrine may reach speeds of 200 mph in a bullet-like dive called a stoop

Beak: the peregrine uses its notched beak for breaking the bones of its prey

New Jersey: there were 13 nesting pairs of peregrines in 1992