Young
Naturalists

by Christine Petersen

All Together Now!

American white pelicans fly, feed, and nest together.

I didn't expect to see pelicans at the summer festival in my Twin Cities neighborhood, but here they are. Around me, hundreds of people are focused on the live music, food, and crafts. No one else seems to notice the huge birds passing overhead.

The flock glides silently over the street, barely higher than the rooftops and trees. Their snowy feathers gleam in the late-afternoon sunshine. This *plumage* gives the species its name: American white pelican. With heads hunched back against their shoulders and short legs tucked beneath their tails, the birds look sleek and sturdy.

RICHARD HAMILTON SMITH

Now I understand why pelican flocks are called *squadrons*. Like fighter planes ready for battle, they form a tidy line with each bird evenly spaced from its neighbors. The leader flaps once, almost lazily. Then, holding its broad wings flat, it gently tips to one side. Down the line, the birds copy this motion and the squadron angles away from this noisy scene.

My curiosity soars along with the pelicans. What are such big animals doing in the middle of a city? Where did they come from, and where are they going? And most important: Where can I see more of them?



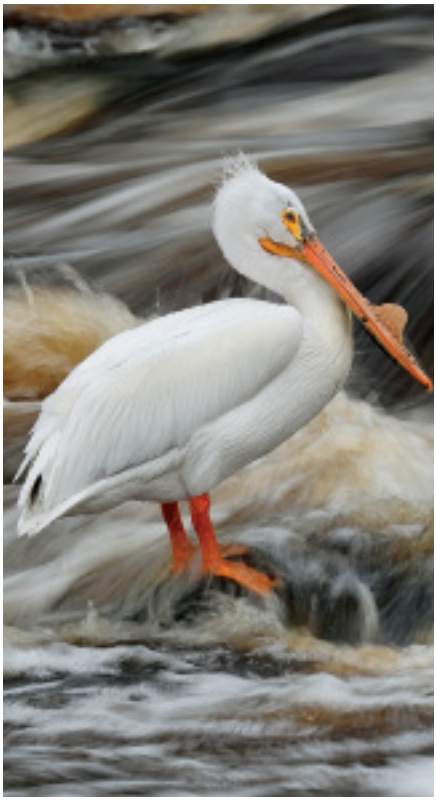
STEPHEN MAXSON

Big, Big Birds

The American white pelican is one of North America's largest bird species. Its body may be five feet long. That's almost twice the size of a bald eagle. And its wings spread up to 9½ feet—wider than a trumpeter swan's. Compare that to the height of your ceiling, which is probably 8 or 9 feet above the floor.

Like all birds, pelicans don't have a separate mouth and nose. Instead, those structures are combined to form the *bill*. The white pelican's bill is completely, wonderfully different from the bills of other birds, though. It's up to 13½ inches long and pointed like a knight's broadsword. Stretchy, loose skin connects the lower half of the pelican's bill to its slender neck below. This *pouch* allows the pelican to scoop up to three gallons of water—along with small fish, salamanders, tadpoles, or crayfish that it quickly swallows. In spring, a rounded plate grows on top of the bill. This "horn" indicates the bird is ready to mate.

Despite its name, the white pelican isn't purely white. When it rises into flight, a wide triangle of black feathers is revealed at the tip and lower edge of each wing. The bill and webbed feet are also brightly colored—pumpkin orange during the nesting season, fading to pinkish-yellow in winter.



STEPHEN MAXSON



Moving Around

Worldwide, there are eight pelican species. Two can be found in North America. The smaller species, called the brown pelican, always sticks close to the ocean or saltwater lakes. American white pelicans visit coastlines in winter but usually nest inland.

Adult males and females *migrate* in separate groups, following river valleys northward for hundreds of miles. They head for the Great Plains region at the middle of the continent. Minnesota is located on the eastern edge of the Great Plains, and almost one-quarter of the world's American white pelicans nest here.

Young white pelicans don't breed until they are about 3 years old. Some of these *immature* birds remain on the coast, while others migrate. The young birds don't stay in one place, though. They move around in search of food—which they sometimes find on lakes, rivers, and wetlands in cities and towns. That might explain the flock I saw during the summer festival.



USDA WILDLIFE SERVICES-MN (DRONE IMAGE)

Island Homes

While I'm pondering pelicans in the city, Francesca Cuthbert is on her way to find them in the wilderness. Cuthbert is a professor at the University of Minnesota and an expert on waterbirds and shorebirds. Since 2004, she and her team have conducted a *census* of American white pelicans to help the Minnesota Department of Natural Resources track the number of pelicans in our state and where they nest.

Life in the Colony. I called Cuthbert to ask about her research. "White pelicans nest on islands," she explained. "Some colonies are protected, and some are so remote that few people know they're there." Marsh Lake, where the Minnesota River begins in western Minnesota, has the state's largest white pelican colony. In northern Minnesota, Lake of the Woods and Leech Lake also provide good nesting habitat.

Many of these nesting islands are flat and almost bare of vegetation. Cuthbert



A mixed American white pelican and double-crested cormorant nesting colony north of the Twin Cities.

jokingly compares it to being on the moon. The pelicans seem to like it that way. A few weeks after arriving, they choose partners and begin to build nests. This structure isn't fancy—just a ring of pebbles and sticks that keeps the eggs from rolling away. Pelicans are quite social, so their nests are placed close together. "A single colony might have 2,000 nests or more," Cuthbert tells me. But the nesting birds are also serious about social distance. They poke and spread their bills threateningly wide when a neighbor comes too close.

White pelicans may return to the same islands year after year, but they have to be flexible. Dry or wet weather can dramatically change lakes, rivers, and wetlands. The water level is lower during a drought. That makes it easier for coyotes, foxes, and other predators to reach the colony and eat eggs or chicks. In rainy years, water rises up the shoreline and covers some of the nest area. Pelicans that arrive late may have to look elsewhere.



A mixed American white pelican and double-crested cormorant nesting colony in western Minnesota in early June.

COURTESY OF FRANCESCA J. CUTHBERT, UNIVERSITY OF MINNESOTA





USDA WILDLIFE SERVICES-MN (DRONE IMAGE)

Counting

Cuthbert uses a few methods in her census. Sometimes the nests are easily visible and can be counted from boats. More often, the team must land its boat on the island. "We walk through the colony," she says, "and mark each nest with a dot of orange paint that will wash away soon after." The researchers move slowly and quietly so the birds don't become alarmed. Two or more people count the marked nests and compare the result to be sure it's right.

A few of Minnesota's pelican colonies can't be reached by boat. To census these, Cuthbert must do an *aerial* count. "Pelicans are big and white—easy to spot from the air," she says. In the future, the researchers might be able to use drones for this work. For now, they fly over the colonies in a small airplane and take pictures. The digital photos are loaded onto a computer. Special software is used to identify and count nests in the images.

Drone image of American white pelican colony at Pigeon Lake, Wright County, in June 2020.



RICHARD HAMILTON SMITH

Recent counts show Chase Lake in North Dakota to be the largest nesting site in North America.

A Close Call

White pelicans are fairly common today. But this wasn't always the case. As millions of European settlers moved west in the mid-1800s, they plowed up prairies and filled in wetlands for farmland. In just a few decades, a lot of pelican habitat was lost across the Great Plains.

The new settlers often shot pelicans for entertainment or to prevent pelicans from eating fish. Colonies also failed because of disturbance. Adult pelicans may abandon their eggs and chicks if people get too close. By 1904, only one nest was found in the whole state of Minnesota.

The next year, a visitor to North Dakota counted only 500 pelicans on Chase Lake, where there once had been a huge nesting colony. He convinced the U.S. government to make the place a wildlife refuge. Federal laws were soon passed to protect all migratory bird species and save more of their habitat.

These actions allowed the pelican population to grow at Chase Lake. After a number of years, the site became too crowded and young birds had to look for new locations to nest. In 1968, biologists were excited to find about 50 white pelicans nesting on remote lakes in west-central Minnesota.

Over the years, Cuthbert's census has found several dozen white pelican colonies in Minnesota, with as many as 22,000 nests spread among them. But white pelicans are still at risk from the effects of climate change, which could cause a weird mix of strong summer storms and drought that affects the pelicans' nesting habitat.



COURTESY OF FRANCESCA J. CUTHBERT, UNIVERSITY OF MINNESOTA

Family Life

White pelicans arrive at their colonies over a period of weeks, usually in April. The earliest birds set up house near each other. Those that show up later settle in different locations. In these neighborhoods, the chicks all hatch around the same time.

White pelicans are good parents. They spread their large, webbed feet over the eggs to warm them. After about a month, each chick begins to peck through its shell. The hatchlings have no feathers and are completely helpless. One parent must stay close to protect them while the other flies off to hunt.

Food is not held in the pelican's pouch. It goes down the bird's throat to the *crop*, a storage area where digestion begins. The parent can spit up this soupy mixture and dribble it into a small chick's gaping mouth. As the young pelican grows, it will begin to "dive" into a parent's open bill to pull food from its crop.

White pelican chicks grow quickly. They form a downy covering of feathers for warmth, then sprout flight feathers on the wings. Within a month, the chicks have left the nest and learn to swim. Until they are strong enough to fly, at about two months of age, all the chicks in the neighborhood hang out together. Their parents return only to provide food.

Teachers resources. Find a Teachers Guide and other resources for this and other Young Naturalists stories at *mndnr.gov/young_naturalists*.



ROLAND JORDAHL

Working Together

Every day, white pelicans fly 30 miles or more from their nests in search of good fishing grounds. According to Cuthbert, a white pelican eats 4 to 5 pounds of food a day, and each chick needs about 150 pounds of food to grow up strong. This typically doesn't make fewer fish available to people. White pelicans prefer minnows and other species that we rarely eat.

The flock often works as a team to ensure the best catch. The birds paddle slowly around, peering down or ducking their heads into the water. They watch for movement that reveals schools of fish below. Two pelicans, or sometimes many more, form a line or half-circle around their prey. Then they rush forward, herding the fish into shallow water. Sometimes, hungry pelicans steal food from other waterbirds that live nearby—or even from other pelicans.

In October and November, cold weather causes lakes to freeze across Minnesota and the Great Plains. American white pelicans take to the skies again, moving southward bit by bit. Wherever you live in Minnesota, look up in autumn! You might spot these elegant birds soaring high overhead.