

## Introduction

*The ornithologist Charles Pease* had no idea what kind of bird he had just shot in northeastern Ohio on May 13, 1851, but he knew what to do with it: give it to his father-in-law, Dr. Jared Kirtland.

Kirtland was, by all accounts, an extraordinary man. As a child in Connecticut, he didn't show much interest in the games of his fellow schoolchildren. Instead, under the guidance of his grandfather, Dr. Jared Potter, Kirtland studied the Linnaean system of biology and learned how to observe and identify plants and animals and how to accurately record his observations and sightings.

After becoming one of the first students at Yale University's new medical school and graduating when he was only twenty-one, Kirtland went on to a long career as a practicing physician, a horticulturist, and, after moving to the Cleveland area, a cofounder of Case Western Reserve University's medical school and member of the Ohio legislature. He was also a collector of bird skins and an accomplished zoologist, authoring the first complete survey of the animals of Ohio.

But for all his knowledge, Kirtland could not identify this bird. He and Pease compared it to other species with which they were familiar. They quickly realized that even though this specimen bore a resemblance to magnolia and yellow-rumped warblers, it was too big and the field marks didn't match. This, they concluded, was something unique. But what was it?

As luck would have it, a few days later, Dr. Spencer F. Baird, a renowned bird biologist and assistant secretary of the Smithsonian

Institution, happened to be passing through Cleveland on his way back to Washington from a meeting in Cincinnati. Kirtland gave the skin of the unknown bird to Baird, who took it back to the museum.

The following year, Baird published an account of this new species in the *Annals of the Lyceum of Natural History of New York*. Running about a page and a half long, "Description of a New Species of Sylvicola," by S. F. Baird, featured a short description of the bird's overall appearance and dimensions and the lengths of the bill, hind toe, and second through sixth primary flight feathers.<sup>1</sup> Baird's account closes, "This species, which was shot near Cleveland, Ohio, by Mr. Charles Pease, May 13, 1851, is appropriately dedicated to Dr. Jared P. Kirtland, of Cleveland, a gentleman to whom, more than any one living, we are indebted for a knowledge of the Natural History of the Mississippi Valley."

*Although Kirtland's name* is now bound to this species forever, the bird might just as easily have been called Cabot's warbler—if only Dr. Samuel Cabot of Boston had realized what he had in his possession. While on a boat passing through the Bahamas in 1841, ten years before Pease aimed his shotgun at his specimen, Cabot shot a male Kirtland's warbler near Abaca Island. The story goes that Cabot became so engrossed by tropical birds he saw on the Yucatan Peninsula later on that same expedition that he forgot about the unidentified warbler, and the specimen languished in his collection for more than twenty years.

It seems odd that Cabot would let this specimen just sit in a drawer because as an ornithologist he was no slouch. On his trip to the Yucatan, he discovered the ocellated turkey (*Meleagris ocellata*) and thoroughly described several other bird species. Upon his death in 1885, he was lauded as a contemporary of John James Audubon and Thomas Nuttall, two giants who helped to revolutionize biological science through their studies of the plants and animals of the North American frontier in the early nineteenth century.<sup>2</sup>

*Baird, Cabot, and Kirtland* discovered the Kirtland's warbler at the time of an amazing expansion of human knowledge about the natural sci-

ences. The Lewis and Clark expedition had been completed forty-five years earlier, and other explorers were scouring the American West to fill in the gaps. John James Audubon had published his *Birds of America* twenty years earlier, but the European public clamored for more information and illustrations of the exotic species of the New World. Charles Darwin was preparing his breakthrough book, *On the Origin of Species*. Great Britain's Charles Lyell's theories of uniformitarianism were becoming the basis of modern geology. Scientific societies and governments in England and France sent expeditions to survey the farthest reaches of the earth to bring plant and animal specimens back to museums in London and Paris.

In North America, the National Museum of Natural History in Washington, DC, the Academy of Natural Science in Philadelphia, and the New York Academy of Sciences were eagerly competing with each other to document the zoology of North America and create the best collections of plants and animals in the country. Museums at Harvard University and the University of Michigan were also making important contributions and building impressive collections. Any new species was greeted with great excitement, and those that were rare—like the Kirtland's warbler—were even more highly prized. Based on the number of specimens taken in the Bahamas in the late nineteenth and early twentieth centuries, it had become clear that this is where the warbler spent its winters. But where did the bird go each summer to nest and raise its young?

In the fifty years after Baird named the species, only a handful of Kirtland's warblers would be sighted or collected on the North American continent. Many of those would come from the Mississippi Valley region of Missouri, Illinois, and Minnesota. Those sightings led the ornithologist Frank Chapman to speculate in writing in October 1898 that the Kirtland's warbler's migratory route took the bird across the southern United States from the Bahamas to the Mississippi Valley and then north.<sup>3</sup> Furthermore, since one specimen was found dead after it had run into a lighthouse in the middle of Lake Huron on May 21, 1851, Chapman was certain that the bird was “doubtless en route to a more northern breeding ground in the Hudson Bay region.”<sup>4</sup>

It's perhaps ironic then that the obscurity of the Kirtland's warbler (with some help from Chapman's errant speculation) may have helped save it.

No one in Chapman's day knew how many individual Kirtland's warblers existed, but ornithologists, collectors, and museum curators all knew they wanted a skin or an egg—or several—for their collections. Science, well into the twentieth century, was conducted at the end of a shotgun; if a species was going to go extinct, museums and collectors were going to do whatever they could to get a skin, even if it meant shooting the last bird. Certainly, hunting by professional collectors helped push the ivory-billed woodpecker over the edge and contributed to the decline of the piping plover.<sup>5</sup> In the case of the Kirtland's warbler, however, they couldn't collect what they couldn't find.

Luckily, that ethic has changed in the past hundred years. Over the past half century, at a time when the warbler teetered on the edge of extinction, hundreds of researchers, government biologists, and amateur ornithologists have worked feverishly to unlock the secrets of the Kirtland's warbler on its northern Michigan nesting grounds. Instead of hastening the bird toward extinction as would have been done by a previous generation, they have brought the species back. Researchers have discovered that the Kirtland's warbler is a discriminating creature and found innovative ways to meet its needs. From a total population estimated at four hundred birds in 1987, the Kirtland's warbler population had grown to more than thirty-five hundred by 2010. And with the Kirtland's warbler expanding its nesting range into Michigan's Upper Peninsula, Wisconsin, and Ontario, the population is poised to grow further. It now appears likely that the Kirtland's warbler will be removed from the federal Endangered Species List. And with the support of researchers, educators, private citizens, professional fundraisers, and government officials from the United States, Canada, and the Bahamas, the future of the Kirtland's warbler seems secure. No one, of course, is certain, because the Kirtland's warbler's story is one of boom and bust and just plain luck. Population swings have taken the bird close to extinction at least twice in the past fifty years. The first time it was pushed to the brink by nature, and humans unintentionally

brought it back. The second time it was pushed to near extinction by humans, and an act of nature accidentally brought it back.

The truth is that the Kirtland's warbler is a "conservation reliant" species. It would not have survived to this point without human intervention in the form of intense habitat management and parasite control, and it will take that same intervention in order to ensure its future. It also took the cooperation of government agencies, businesses, and the people with whom the bird shares the northern woods. It took the insight of Norman Wood, the curator of birds at the University of Michigan Museum of Natural History, who traveled for three days from Ann Arbor by train, rowboat, and foot to discover the Kirtland's warbler's breeding ground along the Au Sable River. Josselyn Van Tyne, Harold Mayfield, and Lawrence Walkinshaw documented the bird's nesting habits and biology. Even Nathan Leopold, a brilliant young man who helped commit one of the most notorious murders of the twentieth century, made a significant contribution to the knowledge base by recording the warbler's activities at its nest and being among the first to note the threat posed by the brown-headed cowbird.

Later it was the work of a college professor who collected Kirtland's warbler droppings to be later analyzed to learn that the bird eats aphids and spittlebugs, among other things, and a private citizen who led a quixotic attempt to get the Michigan Legislature to name the Kirtland's warbler the state bird. Today it's a volunteer who keeps migration records, helps count the birds in an annual census, and leads field trips during an annual festival. It's a now retired research biologist who has kept tabs on the Kirtland's warbler population every year since 1973. It's the children in Michigan and the Bahamas who participate in an annual contest to get their drawings on a calendar. It's the government employees who act as ambassadors for the bird, building bridges with the suspicious and educating the interested.

Why do so many people find this bird a source of fascination? Why do so many care so much about it? It's not like the Kirtland's warbler is cuddly like a panda or cute like a baby seal. It doesn't provide an opportunity for cross-species kinship like a dog or demonstrate a capacity to learn amusing tricks like a captive orca. The Kirtland's

warbler, however, is not without charisma. The male is a handsome bird, with a lemon-yellow breast, a blue-gray back, and an arc of white above and below his eyes. On a warm spring morning, he'll sit atop a pin oak branch and sing for hours. Nearly everyone who witnesses this display is charmed by the warmth of the warbler's song and the depth of his effort. Researchers who work with Kirtland's warblers on their nesting grounds talk openly of the admiration they have for the birds they have encountered. They tell amazing stories about how it seems that the warblers welcome humans into their world.

The real answer to the question of why so many people care is less aesthetic and more philosophical. The Kirtland's warbler is endangered because of human activity, and the bird's fans carry a sense of obligation to make things right. But many fans are also driven by a sense of pride. Until the warbler started nesting in Wisconsin in 2008, it was thought to be the only bird species that nested exclusively in Michigan.

To tell the story of the Kirtland's warbler is to tell a story of complex relationships between the bird and its environment, the bird and humans, and the bird and the state and federal governments' complex policies toward it. And just when it appears that the Kirtland's warbler has recovered for good and the boom and bust cycle is over, a policy change may send it into a downward spiral once again.

The Kirtland's warbler is often described as a "bird of fire" because of its preference for nesting in areas after a wildfire. But it just as easily could be called a bird of fire for the passion it ignites in the humans who have dedicated themselves to understanding and protecting the species. This book is the story of that unusual relationship.