Introduction

There comes a time in everyone's young life when he or she realizes that the world is wide indeed. Growing up in Gatlinburg, Tennessee, in the shadows of towering Mt. LeConte, mountains were all I had known until I became old enough to gaze out of the back window of our '49 Ford Coupe. On family trips to the big city, we'd pass through Sevierville and head west along Chapman Highway, U.S. 441. North of Chilhowee Mountain, in Seymour, I noticed that the terrain begins to open up as the highlands give way to rolling fields and grassy pastures. Passing through the tip of Blount County, we'd enter Knox County from the south, zipping past a dizzying array of small businesses, fruit stands, and used car lots that clung to the highway like ants to sugar water—establishments like French's Market, the white and windowless Farmer Dan's, and the Sleepy Hungry Tired and Sunset motels. Closer to the city I'd see the Ol' Smoky Tourist Court, the much-beloved Young High School, Babe Maloy's Drive In, and the Hill Top Market just before Cas Walker's, the brick building of Kern's Bakery, and a three-story-tall RC Cola sign with a giant smiling face that rocked back and forth, showing its obvious approval of the popular soft drink. The wonderfully kitschy billboard was amazing, but it, like most commercial signage, had the permanence of early morning mist. The pop culture cola advertisement sat opposite Baptist Hospital, and it was there, where Old Maryville Pike intersects Chapman Highway, that we'd cross the Henley Bridge over the Tennessee River. At the time it was the biggest body of water I had ever seen. Today I live less than a mile from that great river, and like so many before me, I now call the valley my home.

From a loftier vantage point the Tennessee Valley is unmistakable. It carves through the mountainous terrain diagonally: northeast to southwest. To the east lie the rugged Appalachian Highlands, to the west the elevated and flattened Cumberland Plateau. The expanse is a continuation of Virginia's Shenandoah Valley that fades to the south into Alabama's gulf coastal plain. In East Tennessee the broad valley, wider to the north, is roughly forty-five miles across and two hundred miles long, but the gash through the southeastern mountains is not clean—it's ragged, as though routed by a chainsaw.

Geologists call the province "valley and ridge," for within the broad lowlands of the Tennessee Valley are numerous long, parallel ridges giving the valley the look of a plowed field. I live on one of these raised furrows: Chapman Ridge, just south of downtown Knoxville and the University of Tennessee. The valley's ridges are products of weathering, made up of erosion-resistant rock like sandstone and siltstone, while the valley floor itself is primarily shale and limestone, softer rock that has been dissolved away over time. The valley's limestone bedrock crumbles to yield sweet, alkaline soil—perfect for growing cedars, grasses, pastures, and fields.

Because the valley is centrally located, it's the northern-most limit of some tropical plants and the southern-most of some northern ones. During the last ice age, glacial ice never reached this far south, but the colder climate that spawned them forced northern trees, like the eastern hemlocks that grow near my driveway, to retreat south. In Shady Valley, in the northeastern part of the state, naturally occurring cranberry and sphagnum bogs can still be found today pushed south by the advancing ice sheets. Tropical trees like pawpaws and South American animals such as opossums moved north as the climate warmed.

Similarly, the valley is the summer nesting ground for many birds such as whip-poor-wills and cuckoos that spend their winters far to the south and the winter vacation retreats for northern species such as sapsuckers and hermit thrushes that spend their summers farther to the north.

The combined waterways of the Southeast lead all global temperate regions in total aquatic diversity, which is believed to be second only to the tropical Amazon River Basin. The World Wildlife Fund and Nature Conservancy report that the Tennessee River and Cumberland River basins have the highest number of fish, crayfish, and mussel species and the highest number of endemic species in North America, making it one of the most diverse river systems in the world. (The Cumberland flows into the Ohio River just north of the Land Between the Lakes in Kentucky.) The state of Tennessee has more than 315 species of fish, while 500 species can be found in the Southeast. The Tennessee River system has about 210 species of fish and hundreds of varieties of freshwater mussels, crayfish and aquatic insects. As Pat Rakes of Conservation Fisheries points out, "A single pool or reach in Little River in the Tennessee Valley can have more species of fish than several combined river watersheds, spanning multiple states in the American West."

While the last ice age was still in place, the first humans entered the valley roughly fifteen thousand years ago. They were nomadic hunters whose presence, a former campsite near Chattanooga, was first documented at a site called LeCroy. The Tennessee Valley they camped in was a very different place than the one we know today. Over the next several millennia other early Native Ameri-

cans moved into the Southeast. They gave up their nomadic lifestyle and settled down to grow corn, beans, and squash. Eventually they organized themselves into territories called chiefdoms. A high chief reigned over each province, and great mounds were built at the heart of the towns the rulers called home. This way of life existed for thousands of years until it disintegrated after Spanish conqueror Hernando de Soto and his army marched though the Southeast in the mid-1500s. After the death, disease, and destruction caused by the Spaniards, the indigenous people slowly re-formed into the Cherokees, Creeks, Seminoles, Chickasaws, and Choctaws of the eighteenth and nineteenth centuries. The plants and animals they found around them were an integral part of their everyday lives. They made canoes from tulip tree and homes from river cane.

Seeking a stronger alliance with the Overhill Towns of the Cherokee, the British Colony of South Carolina built Fort Loudoun near the town of Chota during the winter of 1756–57. It was the first planned trans-Appalachian fort built by the English in East Tennessee. The relationship soon soured, and the garrison was forced to withdraw in August 1760. But that didn't stop the "new" Americans—trappers and traders followed by settlers of European ancestry—from pouring into the valley.

To the newly arriving pioneers, the territory beyond the Appalachians was the rugged, unknown West. Pioneers who moved there were known as "westerners." Traveling down from Pennsylvania, the restless Scotch-Irish progressed southwest through the Shenandoah Valley. The early settlers looked for cedars, sycamores, and river cane. The cedars were a sign of sweet pasture-loving soil, the sycamores an indication of good water, and the cane served as silage for their livestock. The settlers built homes from tulip trees and hunted wild turkey and deer. In 1769 they settled along the Watauga River near today's Elizabethton. These pioneers thought they were in the British colony of Virginia, only to learn two years later that their home was part of North Carolina instead. They sought protection and were denied, probably because their wilderness home was too remote to be governed. To establish law and order, the group formed their own government known as the Watauga Association, and the Wataugans became the first group of American-born settlers to create a free and independent community. The association was short-lived. After the American Revolution they became the "Lost State of Franklin," and finally the growing cluster of communities fell under the protection of the new state of Tennessee.

To sate the growing appetite for more land, the U.S. government rounded up the last of the native Cherokee and marched them at gunpoint from the valley in 1838. Thousands died. This shameful episode of American history is today known as the "Trail of Tears."

The sixteenth state took its name from the great river that flows through its boundaries, not once but twice. The first pass through the state—which includes the upper Tennessee River and its tributaries (the French Board, Holston, Clinch, Pigeon, Powell, Little Tennessee, Nolichucky, and Hiwassee rivers)—is the heart of the Tennessee Valley. Communities have formed along the shorelines of these rivers for thousands of years: first came the Native Americans, then the European newcomers.

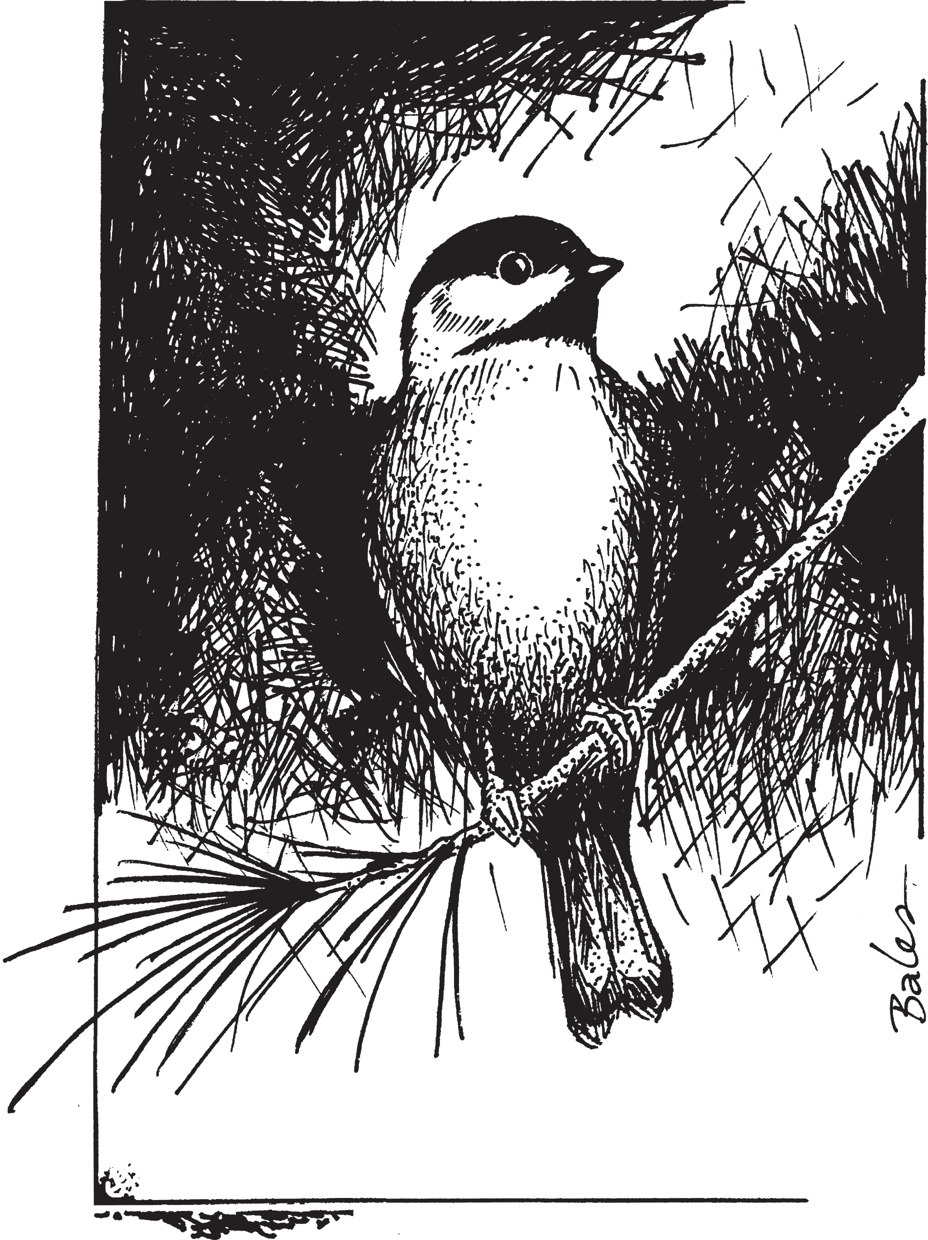
It's the interaction between these peoples and the plants and animals they found in the valley that is the heart of this book. Call it the collision of human and natural history, for the advent of people has caused the greatest change to the valley's environment since the last ice age. Passenger pigeons and Carolina parakeets are no longer found in the skies over the valley, while European starlings and house sparrows are commonplace. For a time, turkeys, beavers, and eagles had all but disappeared, but with a little help they have returned, while bison and wolves are still missing. The latter have been replaced naturally by a burgeoning population of eastern coyotes.

Arguably, the Tennessee Valley Authority has been the boldest mover and shaker. The agency's construction of dams brought jobs and abundant electricity to the poor valley. It also changed the raging river into a series of controlled reservoirs that have been called the "Great Lakes of the South." In the process, several plants and animals have declined or been lost, while birds such as great blue herons, ospreys, and cliff swallows nest in places they've never been before.

There's an ebb and flow at play here, part of it natural and part human-related, but suffice it to say our influence has not always been negative. Working on this book, I've met many people who have dedicated their lives to restoring a balance to the biodiversity—variety of life—historically found here. Scientists know that the greater the variety, the healthier the environment.

It's this rich variety found in the Tennessee Valley that serves as the grist for the millstone of this project. This is not a natural history of the valley but rather a collection of natural histories of individual plants and animals. All the stories in this volume begin, end, or pass through the valley. As a writer, I simply followed the thread wherever it led. Interwoven, the threads form a tapestry. Surprisingly, the individual strands often took me not only through the greatest stories of East Tennessee history but through the great human stories of America as well.

Winter


Bales

Carolina Chickadee

Parus carolinensis

> To the attentive eye, each moment of the year has its own beauty and in the same field, it beholds, every hour, a picture which was never seen before, and which shall never be seen again.
>
> **Ralph Waldo Emerson**
> *Nature,* 1836

The new year dawned pallid—no wonderland. A heavy gray sky hugged Chapman Ridge and the entire river valley like a sodden blanket. If the sun was still in its rightful place, you'd never know. Printmakers Currier and Ives would have found little to ballyhoo. But then again, things are not always as they seem.

A mixed flock of woodland birds chatted through: six chickadees, three titmice, a pair of kinglets, a nuthatch, and a downy woodpecker or two. The chickadees and titmice served as kingpins, keeping the group together by their constant vocalizations. Winter is a time for hunkering down, huddling up, and pooling one's resources, but chickadees rarely seem to give into the season. During the bleakest, coldest days of winter, their effervescence is often the perkiest part of any given day. As they lead their flock mates through the woods beyond our home, it's impossible not to notice their vitality. No wonder they're the ringleaders; their vigor is contagious. There are advantages in being part of a group; more foragers looking for food is a plus. Safety is another boon, with more eyes to watch the neighborhood tabby or the lurking Cooper's hawk, a bird-killer that hunts like a feline, with quiet stealth.

Later in the year, as the seasons warm in early spring, this group cooperation will vanish as the flocks break up and individual mated pairs establish nesting sites within the woods, but for now it's one for all and all for one.

The mixed winter flock of small birds is loosely formed, its dynamics constantly shifting. The flock changes as individual chickadees called "floaters" drift in and out of the mix. These birds are opportunists, looking to break into the group's dominance hierarchy and take the place of an established bird—and perhaps its mate—should the senior member be killed. Within each flock, each bird postures to improve its position in the pecking order. Pair formation is also an important part of the social structure. Studies of black-capped chickadees reveal that a floater that pairs with a dominant mate improves its position profoundly. Openings created by the death of a low-ranked individual usually go unfilled. For an unmatched floater it's better to drift in and out of different flocks, waiting for an opening in the higher ranks. Why is this? Researcher Susan Smith speculates that there's no guarantee that a low-ranked pair will get to nest locally; they may be driven out of the neighborhood by high-ranked pairs when breeding season starts. So, it's better for the unmated floater to keep its options open and wait for the inevitable opening among the higher ranked birds. All it has to do is drift from flock to flock and seize the moment—*carpe diem.* This leads me to another speculation. Because floaters have a wider range, moving from flock to flock, wouldn't they get a better sense of a broader area, information that would serve them well if they are able to move quickly into the high ranks?

It's generally believed that chickadees mate for life, which means until one of the mated pair dies, something that happens often. As a general rule, in the world of birds, 50 percent of the population of most species die each year. To overcome this high mortality, birds have to produce copious offspring. A typical pair of chickadees will raise a family of five each year; but a clutch of as many as eight is possible, and at times they'll generate two broods during nesting season. It's an arduous life but necessary. Few chickadees live longer than five years.

Depending on the territory and availability of food, a mixed winter flock can have anywhere between two and eighteen chickadees, although six to ten is the norm. There may be more than one flock in a given location, and the separate flocks may merge at times to work together. If the mixed flock contains several nuthatches, kinglets, and woodpeckers, the actual number of chickadees may be smaller. Suburban neighborhoods with lots of bird feeders tend to have larger flocks. If food sources become scarce, chickadees higher in the pecking order will drive away the lower-ranked birds.

Chickadees are small songbirds of woodlands and suburbia—just a handful of feathers held together by an intense will to live. I recall a Carolina chickadee that smashed into a window at a family Thanksgiving several years ago. Alarmed, eight-year-old Leigh-Anna and I rushed to it. Picking it up, we held it

as it twitched, apparently dying, its head askew; then it trembled, righted itself, blinked, and flew away. Its death rattle had not yet come.

Bird expert and author David Allen Sibley lists the weight of a chickadee at 0.37 ounce (about the same as two U.S. quarters). It would take forty-three Carolina chickadees to make a pound, fewer if they're soaking wet. With little body fat and a high metabolism, these tiny dynamos search for food almost unceasingly.

A chickadee's daytime temperature rises to about 108 degrees, but on a cold night in January they can lower it to around 86 degrees using controlled hypothermia. This ability to go into a nightly torpor is called "noctivation," and it saves valuable energy. During this downtime, if they're startled, they can still fly but only feebly.

At first light they're searching again for new food sites or tidbits they've cached since fall. The autumnal chickadee has to grow a new brain, or at least part of one. Studies show that a chickadee's hippocampus fluctuates in size with the seasons. In the fall it enlarges as the bird changes from purely a forager to a hunter-gatherer. The increased hippocampus helps the bird remember where it hoards its foodstuffs. As the seasons cool, chickadees change from eating mostly insects to a more mixed diet. Seed collecting becomes important. They also begin to hide most of the food they find—a seed here and a dead moth there. They'll cram their piecemeal larder under bits of lichen, loose bark, or sprigs of verdant pine needles. Each piece of food is separately stashed and memorized. Surprisingly, they seem to have the ability to remember just where they've stored hundreds, perhaps thousands, of food-bits. It's called "scatter hoarding"—spreading the wealth—a strategy that works even though up to 20 percent of the chickadee's hoarded food may be lost to foraging squirrels and nuthatches that hear what naturalist Robert Michael Pyle calls "serendipity's whisper."

There are currently seven chickadee species listed in North America. Two have limited ranges: the Mexican chickadee is the southernmost, while the hardy gray-headed chickadee, once known as the Siberian tit, is a subarctic species found only in northern Alaska and Canada. The black-capped and Carolina chickadees are the most common species. The two are closely related and virtually identical in appearance. Yet, side-by-side, you'd notice that the Carolina is slightly smaller and somewhat drabber and that it has a shorter tail. Their breeding songs are also noticeably different: the black-capped has a whistled three-note song, *fee bee-be,* while the Carolina's song is a four-note *fee-bee fee-bay.*

Both species have wide ranges: the black-capped is found in the northern half of the United States, extending into Canada; the Carolina is found in the Southeast. Both occur in East Tennessee, but while the black-capped chickadee lives only in the higher elevations of the Appalachians, the Carolina chickadee is found at lower elevations and far and wide throughout the Tennessee Valley. Despite their close proximity, the breeding ranges of the two species don't really overlap, and it is believed that they rarely interbreed.

Chickadees are highly social. On February 9, 1854, Henry David Thoreau recorded the following in his journal:

> I do not hear Therien's axe far of late. The moment I came on his chopping-ground, the chickadees flew to me, as if glad to see me. They are a peculiarly honest and sociable little bird. I saw them go to his pail repeatedly and peck his bread and butter. They came and went a dozen times while I stood there. He said that a great flock of them came round him the other day while he was eating his dinner and lit on his clothes 'just like flies.' One roosted on his finger, and another pecked a piece of bread in his hand. They are considerable company for the woodchopper.

A consummate observer, Thoreau is best known for his book about his two years living alone on Walden Pond. But his most formidable work is a handwritten journal he kept from 1837 to 1862. He missed few details around his Concord, Massachusetts, home, and he often wrote of the lively chickadees. On January 12, 1860, this country's seminal nature writer recorded:

> As I stand by the hemlocks, I am greeted by the lively and unusually prolonged *tche de de de de de* of a little flock of chickadees. The snow has ceased falling, the sun comes out, and it is warm and still, and this flock of chickadees, little birds that perchance were born in their midst, feeling the influences of this genial season, have begun to flit amid the snow-covered fans of the hemlocks, jarring down the snow—for there are hardly bare twigs enough for them to rest on—or they plume themselves in some snug recess on the sunny side of the tree, only pausing to utter their *tche de de de.*

There's a curious irony at work here: Thoreau, the transcendental loner, caught up in the chattering lives of the gregarious chickadees, like a bystander quietly watching the festivities of an impromptu party. Yet, this is more than just reticent voyeurism. All nature writers share the secret. It's impossible not to feel totally alive and "in the moment" when witnessing such scenes in nature. You want to shout with joy or, at least, wax poetic: "I, too, am alive!" Even on the coldest day, a chickadee's energy is infectious. The tableau the master of Walden

is describing—chickadees foraging through snow—is one of the great winter dramas. I've watched it dozens of times, bundled and pink-cheeked, always wondering: how do these little sprites survive this harsh season?

Part of what helps them endure may be the use of their own semi-language. Yes, language. The *tche de de de* Thoreau refers to is the often-uttered, highly variable call made by the elfin songbirds. Chickadees, in fact, get their name from the call they make: *chick-a-dee-dee-dee,* although Thoreau the scientist would have been delighted to learn that there is more to the phrase than a sing-along name. *Chick-a-dee-dee-dee* calls vary. They have hidden nuance. According to Todd Freeberg, assistant professor of psychology at the University of Tennessee, a highly social animal needs a complex system of communication. As the group size increases, social organization and interaction becomes more complicated; human beings are a perfect example. Freeberg first became interested in chickadee communication in Indiana in the early 1990s when he read a paper by Jack Hailman and Millicent Fieken. The account reported on the chickadee's communication skills. Skeptical, Freeberg began his own investigation of chickadee calls, first in Indiana and later in Tennessee. In addition to noting behavior, he made audio recordings and produced visual representations (called sonograms) of the calls, looking for hidden syntax.

Buried within the chick-a-dee-dee-dees, his Indiana recordings found four note types he labeled A, B, C, and D. The high-frequency A notes "virtually always" came first, and the lower-frequency D notes, if they occurred, "virtually always" came last. If Bs occurred, they followed the higher As, and Cs, if present, preceded the D-note coda. To most human ears the calls happen so quickly they're gibberish. Yet, Freeberg and his colleague Jeffrey Lucas deciphered a subtle meaning. The presence of a C note seemed to coincide with the discovery of a new food source—a call-to-action, as if to say "hey troops, heads up. I found some food." The flock rallies and moves in to investigate. It's teamwork like this that helps the mixed flock survive winter.

"Isn't it interesting," remarked biologist Pam Petko-Seus, "that a chickadee would alert other chickadees to available food? You'd think it would want to keep it all to itself."

"It's an example of reciprocal altruism," answered Freeberg. "A sort of *quid pro quo.*" I'll show you where food is today, if you return the favor tomorrow. This also brings to mind the theories presented by famed Harvard biologist E. O. Wilson. His controversial 1975 book, *Sociobiology: the New Synthesis,* explored the origins and benefits of social behavior and the unselfish act of altruism. How does group behavior benefit individual chickadees and the likelihood that their genes are passed on to future descendents? Although Wilson's work primarily

focuses on social insects—ants, termites, bees—it could apply to groups of all kinds. "How well does that group survive vis-à-vis other groups and vis-à-vis solitary individuals of the same species, and how well does that group produce its own kind?" asks Wilson. "For group [natural] selection to happen, all you need is one gene that would cause individuals to come together, and for some of them to be willing to be subordinated and become workers." Could there possibly be a bit of DNA that codes for altruism? But doesn't that fly in the face of survival of the fittest; dog eat dog; reproduce *your* genes or pass from this earth?

Follow-up studies conducted in Tennessee at Norris Dam State Park, the University of Tennessee Forest Resources Research and Education Center near Oak Ridge, and Ijams Nature Center in south Knoxville seem to suggest that the communication within the chickadee's call is even more complicated. Eight note types have now been isolated, which may be the components of the little bird's rudimentary language. Their avian lexicon may help the tiny social birds warn one another of predators, keep track of the number of birds in the flock, and communicate location and whether or not they are in flight or getting ready to be, as if to say, "I'm here now, but I'm getting ready to move on." All of this would serve a highly mobile flock well.

One secondary study conducted by UT graduate student Ellen Mahurin suggests that the Tennessee chickadees produce more D notes than C notes when a new food source is discovered. This contradicts Freeberg's earlier Indiana study, but it may be just a geographic variation or dialect difference between the two populations. Thoreau would have been captivated. One wonders: could his Walden birds have chattered to my Chapman Ridge troop?

Research conducted by Chris Templeton of the University of Washington in Seattle also suggests that black-capped chickadees have "one of the most sophisticated means of communication discovered in animals." His study indicates that if a chickadee detects a predator in the vicinity of its flock, it adds extra *dee* notes to the end of its *chick-a-dee-dee* call; the more dangerous the perceived threat, the more *dee* notes it adds. In this case, however, size matters. Smaller, more maneuverable predators illicit more *dees* than large birds of prey that would in truth have a hard time catching the sprightly chickadee's flock mates. Small predators like pygmy owls sometimes garner as many as twenty-three extra *dees* at the end of alerted chickadee's call.

There is an even more ominous cloud than winter hanging over this mixed flock, a plague that even teamwork cannot overcome. The newly imported West Nile

virus has rapidly spread across North America, reducing bird populations in its wake. It first appeared in this country in New York in 1999, and by 2002 West Nile had moved to forty-four states and five provinces in Canada.

Birds play a part in the pathogen's modus operandi. They serve as unsuspecting hosts for the virus. Blood-sucking mosquitoes replicate the virus from one bird to the next and can spread the sickness to mammals they also bite. So far, the primary mammals made ill by West Nile are humans, horses, and a small number of squirrels, dogs, and cats.

The illness was first isolated in a feverish adult woman in the West Nile District of Uganda in Africa in 1937, but the virus didn't make the jump across the Atlantic until the late 1990s. By 2005 it had been reported in all forty-eight continental states, throughout Mexico, and in seven provinces in Canada. Since its introduction into this country, more than fifteen thousand people have contracted the illness and five hundred have died. Somewhat lost in the front page headlines is the enormous toll avian populations are suffering, for it's fatal to birds as well. Crows and blue jays are most often mentioned in newspaper accounts, but according to the U.S. Centers for Disease Control and Prevention (CDC), by 2002 West Nile virus had been found in 138 different species. Birds as different as bald eagles and ruby-throated hummingbirds are among those stricken.

Initial losses from the Midwest were alarming. Regions around Chicago were almost completely devoid of crows. In late summer 2002, between eight hundred and one thousand bird-of-prey deaths in Ohio may have been caused by the virus. The two species of raptors that seem to have been most affected were great horned owls and red-tailed hawks. Infected birds act disoriented, unaware of their surroundings. They lose the ability to stand and eat, and eventually they develop tremors and blindness before they die.

By October 2002 researchers wondered about the status of songbirds. As reported online by *Chicago Wilderness Magazine,* a study was initiated by the National Audubon Society and the Bird Conservation Network. Chickadees were chosen because of their known ubiquitous presence. A six-county region around Chicago was searched by seventy-four trained monitors. They found that the black-capped chickadee, the northern look-alike to the southern Carolina chickadee, was "completely extirpated in large areas." Twenty-two separate searches in one 120-square-mile area northwest of the city turned up only two chickadees. There should have been hundreds.

Bird enthusiasts everywhere were obviously alarmed by the apparent disappearance of chickadees in the Chicago area, but was the decline even more widespread than that? In the spring of 2003, David Bonter and Wesley Hochachka of the Cornell Laboratory of Ornithology conducted another study. They looked

at the combined census data of two separate bird counts held during the winter 2002–03. The first, Project FeederWatch (PFW), is conducted by thousands of birdwatchers at backyard birdfeeders across the country. The second, the Audubon Christmas Bird Count (CBC), is held every winter at widely dispersed "count circles" fifteen miles in diameter. The advantage of the PFW data is that it's collected at thousands of locations; the disadvantage is that the count has only been going on since 1988 and in many areas even fewer years than that. The CBC data comes from more widespread locations, but the count has been going on for decades.

For the purpose of the study, Bonter and Hochachka combined all sightings of both the black-capped and the Carolina chickadees in the FeederWatch numbers. The data from the winter of 2002-03 was compared to that from the winter before and revealed that indeed chickadee populations had declined at 74 percent of 203 PFW sites in the upper Midwest and Northeast. Since the Christmas Bird Count has been taking place longer, Bonter and Hochachka were able to look at data from several count circles for the past thirty years. The CBC totals confirmed the PFW data and revealed that black-capped chickadees had declined at twenty-six of twenty-eight locations in the same parts of the country.

Surprisingly, though, the CBC data also revealed that the chickadee population had had other declines in the past thirty years. In fact, the 2002–03 decline was at most only the third-largest fluctuation recorded since the early 1970s. It's altogether possible that West Nile virus caused the most recent drop in chickadee numbers, but if that's so, what caused the earlier ones? Are sudden drops in population completely normal? And will the Chicago chickadees recover as they have before? Will surviving pairs produce more young? More clutches? And would they know their population was down? Do the chickadees do a head count during the winter flocking season? A verbal census? Is that information also hidden in their chatter?

At this point, no one knows what the long-term affect of West Nile virus will be on chickadees or other birds. Recent loses may just be a temporary blip on the radar. It may be commonplace for their populations to fluctuate. But, as for me, living in a world without the commonplace *chick-a-dee-dee-dees* is virtually impossible to imagine. One cannot help but wonder what Thoreau would have thought. His affection for the woodland pixies is obvious in his writings, as he noted on October 15, 1859: "The chickadees sing as if at home. They are not traveling singers hired by Barnum. Theirs is an honest, homely, heartfelt melody. Shall not the voice of man express as much content as the note of a bird?"

Thoreau was right to express concern about the voice of man, for when are human beings ever content? We're restless, to put it mildly. Needless to say, as I

watch the mixed winter flock of small birds work its way over Chapman Ridge, chattering as they pass, I can't help but be apprehensive about what lies ahead; call it gray winter or cabin fever. That's why the chickadee's melody, honest and homely, is such a needed respite.

Yet, as any good naturalist knows, there's an ebb and flow in the natural world; manmade or otherwise, the pulse is unmistakable. There's fluidity to winter chickadee flocks, perhaps even to whole populations—a rise and fall, hither and thither, always in motion. Nature is an ethereal beast, filled with permutations, never quiescent; it's embarrassingly hard to pin down to anything constant. What is here one year may not be here the next, or vice versa. The valley I live in today is very different from the one that existed three hundred years ago. The dynamics are observable: all you have to do is apply Emerson's "attentive eye," and what lies ahead is truly anyone's guess.