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# Forgotten Scourge: Gray Squirrels on the American Frontier

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# The Old Northwest

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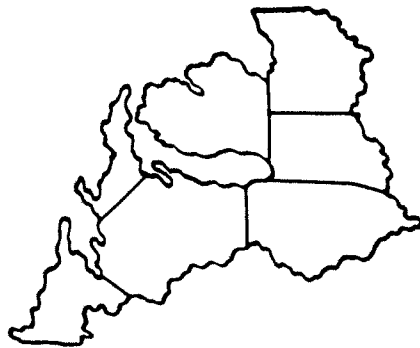
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## FORGOTTEN SCOURGE: GRAY SQUIRRELS ON THE AMERICAN FRONTIER

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One billion strong they came: "Devouring on their way everything that is suited to their taste, they laid waste the corn and wheat fields of the farmer. Although their numbers were thinned by the gun, the dog, and the club, others fell in and filled up the ranks, till they occasioned infinite mischief and called forth more than empty threats of vengeance." The shocked witness to this destruction was John Bachman, the naturalist-aristocrat and colleague of John James Audubon. The year was 1819, and Bachman, exploring the Ohio river near Cincinnati, declared what he saw worse than "the flight of the devouring locust."<sup>1</sup>

Pondering the future of American frontier agriculture, Bachman worried that such phenomena would discourage further settlement. Along with Indian relations and the general uncertainties of frontier life, the gray squirrel problem was yet another "scourge" of the frontier. Gray squirrels? In modern America, the gray squirrel enjoys a rather harmless image. Ranging from North Dakota to New Brunswick in the North to eastern Texas and northern Florida in the South, the gray squirrel is popularly viewed as an urban tree dweller. As much a part of the big city environment as skyscrapers and traffic congestion, the gray



squirrel is now one of the few examples of everyday urban life that is considered "cute." The shy, forever foraging and burying *sciurus carolinensis* (Eastern gray squirrel) is more the target of student photographers than gun-toting farmers and trappers. Squirrel soup and filet de boeuf avec Parisienne Sauce de Squirrel are offered as recipes in notable cookbooks, but rarely served at either gourmet or greasy spoon restaurants.<sup>2</sup> With few exceptions, Americans and gray squirrels have made their peace.

From the early colonial period through the 1840s, however, that peace remained elusive. It was not only gentleman scholars, such as Bachman and Audubon, who worried about coexistence with gray squirrels, but also common farmers, governments, and even visiting Swedish adventurers. Admittedly, the gray squirrel was only one item on a substantial list of frontier worries, but that it was a source of concern to so many people is a reminder of how much the environment has been altered in the last 150 years.

The tree squirrel, once known as the forest-dwelling gray, began to influence American colonial and frontier history shortly after the first Englishman stepped ashore. Early Massachusetts records estimated east coast gray squirrels in the virgin forests of mast-bearing trees to be in the billions. Immediately becoming a staple item of food for the colonists, they also became synonymous with the term pest. While these pests swarmed over gardens and the edges of crop fields, the early colonists fought a losing battle against superior numbers.<sup>3</sup>

Although fox and gray squirrels are members of the same *Rodentia* order and *Sciuridae* family, it was only the latter, more abundant group, that troubled frontier farmers. The fox squirrel (also known as the cat or stump-eared squirrel) varied in color across the frontier. In South Carolina, they were black. In Maryland, they were white and silver gray. And, in Michigan, they were a mixture of orange and rusty brown. Often twice as large as gray squirrels, they ranged well-beyond the Mississippi River. They could be found in

swamp lands and other areas away from the deep woods. Indeed, if seventy percent of an area was wooded, the fox squirrel was absent.

The colonists discovered that the gray squirrel preferred extensive, mature hardwood forests with dense undergrowth. Their range, as well as density, expanded or contracted depending on changes in land use by Indians and white settlers.<sup>4</sup> Since early America enjoyed continuous forests, it was obvious that the forest-dwelling gray, as opposed to the rarely seen fox squirrel, would have an unfortunate impact on the development of frontier agriculture. Triumph over the gray squirrel would not be truly realized until the 1840s, when extensive hunting, lumbering, and urbanization finally took its toll on the forest-dwelling gray throughout its range.

As the early colonies expanded, the settlers found more gray squirrels. By 1700, the colonial authorities in the growing settlements of western Massachusetts and Virginia warned their wards that the basic crops of wheat and corn, if located near virgin timber, would fall to the squirrel. But the settlers preferred action to warnings. The first bounty established in the colonies was in reference to pushing back the squirrel boundary. Gray squirrel-inflicted crop damage in the late 1600s and early 1700s had been so severe in Pennsylvania that the local government set up a three pence bounty. This method was effective, but the squirrel continued to win the numbers game. In 1770 over eight thousand pounds sterling was paid to a group of Pennsylvania squirrel hunters who delivered 600,000 squirrel pelts to Philadelphia. The hunters were told that their efforts were commendable, but not good enough.<sup>5</sup> The Pennsylvania authorities considered 640,000 a good kill. Few hunters were up to the task.

In addition to acorns, beechnuts, hickory nuts, walnuts, corn, and soybeans, the gray squirrel sought a diet of all freshly planted seeds. This dietary preference could mean doom for many new farmers, and moving deeper into the

frontier guaranteed a second crop failure to the same cause. Early settlers in Ohio, Kentucky, and Missouri learned this lesson well. The Ohio government, on the other hand, hoped to succeed where Pennsylvania had failed. In the early 1800s, all white males in Ohio were legally bound to pay the then expensive tax of \$3.00. The more attractive alternative was to deliver 101 dead squirrels to the local tax collector. Meanwhile, the Ohio government encouraged "communal" squirrel hunts, whereby teams of beleaguered farmers would compete for the highest daily squirrel kill. A body count of 7,000 was considered a good day's total. The preferred weapon was a wooden squirrel club since ammunition for the famous frontier or Kentucky squirrel rifle was usually too costly, and the rifle too time-consuming to load for a farmer on a competition hunt. Only a few members of the hunt carried rifles, while the majority chased and killed the squirrel dens that the rifles brought down. The Missouri and Kentucky governments quickly followed Ohio's lead.<sup>6</sup>

The seemingly countless numbers of gray squirrels were partially responsible for the invention of firearms unique to the frontier. In the early battles against the gray squirrel, colonial farmers instantly discovered the futility of heavy, less than accurate European firearms. They needed rifles that could kill both small and large animals, and that were lighter and easier to shoulder than the big-barreled military guns. This new rifle would also be required to shoot beyond the range of Indian arrows. Developed at the edge of the Pennsylvania frontier in a heavily infested gray squirrel area, the Kentucky rifle met the settler's requirements. Tried and tested during the early 1700s in Hickory Town, Pennsylvania, the long-barreled, thin-stocked "squirrel rifle" offered a certain winning edge to the frontiersman in the squirrel wars.<sup>7</sup> But it would still take another century and the continuous destruction of the gray squirrel's environment before total victory could be declared.

As in any combat, especially one of long duration, certain legends arose. The frontier squirrel hunters had their share

of folk heroes and tall tales. Symbolizing the heroic nature of the American frontiersman, Daniel Boone was at the center of one of those legends. Since Boone was considered the finest marksman of the late eighteenth and early nineteenth centuries, one of the best demonstrations of his skill was squirrel hunting. Small (383-525 mm in total length), elusive (twelve meter flying leaps were observed), and camouflaged in its forest environment, the gray squirrel tested any marksman's skill. Boone's squirrel hunting strategy called "Barking," won him considerable respect and fame from fellow frontiersmen. Boone aimed his rifle at the branch where the gray squirrel rested. Upon firing, the shot sent both a stunned squirrel and tree bark tumbling to the forest floor. The butt of his rifle then quickly dispatched the sprawled prey. "Barking" accomplished two tasks for Boone. First, it meant one less pest on the frontier and a possible bounty. Second, since a direct hit would blow apart the squirrel, "Barking" assured a good-tasting squirrel dinner.

Tall tales were usually concocted over Boone's and other frontiersmen's success at "Barking." The stories ranged from catching falling squirrels one-handed after "Barking" to a one-handed catch of a still sleeping squirrel clinging to the shattered branch. Despite his skill and the efforts of others to emulate it, Boone witnessed no significant decimation of the gray squirrel hordes in his lifetime. During 1815, John James Audubon ran into the then eighty year old Boone at a ford on the Kentucky river. Although slow-moving and tired, Boone, Audubon wrote, spent an entire day "Barking" gray squirrels. "We moved not a step from the place," he remembered, "for the squirrels were so numerous that it was unnecessary to go after them."<sup>8</sup>

Just when squirrel kills reached phenomenal numbers, and a feeling of security concerning crop safety came to be shared within a frontier community, thousands, if not millions, of gray squirrels often appeared. How and why this occurred both mystified and angered the frontiersmen. In 1749, Peter Kalm, a self-proclaimed adventurer and natural-

ist, became the first white man to record a massive squirrel migration. The Swedish born Kalm came to American to study natural history as well as frontier life. To his own surprise, he found the squirrel problem a fascinating subject.

Kalm witnessed the death of entire farming communities to a gray squirrel migration. Countless numbers of squirrels, he observed, descended from the mountainous forests of Pennsylvania to the piedmont and coastal areas. "Maize is what they are most greedy of," he noted. Barns were "raided" for their maize, and he saw an entire community's corn crop destroyed in an afternoon. The ruined farmers concluded that it was their very success in raising corn that attracted the corn-hungry squirrels. Kalm had his own theories. The only possible explanation for the mass movement, he reasoned, had to be the depletion or spoiling of the acorn and other nut supplies elsewhere in the forest. Consequently, the gray squirrels had begun a long, hungry trek for food. Kalm believed it was by accident they had stumbled upon the welcome corn crops.<sup>9</sup>

Kalm's starvation theory helped explain some of the bizarre squirrel behavior that accompanied the migrations. Thousands of squirrels were seen swimming deep lakes and rivers. Most of them drowned. New tall tales often followed these sightings, such as sworn statements concerning gray squirrels that somehow made personal rafts from forest shrubs, or even from settlers' roofs, in order to cross deep water. The gray squirrel's necessary food supply, the tales suggested, was always on the other side of that deep water river or lake.<sup>10</sup>

In reality, the farmers soon discovered, the gray squirrel often kept moving through areas that could more than sustain his diet. Moreover, the migrations originated in areas where the acorns and other nuts were bountiful and unspoiled. Following no seasonal or annual pattern, the migrations made little sense, and the fact remained one of the more disturbing aspects of the entire squirrel problem. Despair and the desire for revenge usually swept through a

farming community that had been ravaged by a gray squirrel migration. One late eighteenth century farmer wrote about these feelings in his diary, comparing the migration that destroyed his crops and those of his friends to "a great army" that had invaded his home. We must "wage war" against the "brute creation," he proclaimed. Having seen more than one migration in his lifetime, the farmer welcomed the opportunity to counterattack the wandering squirrels:

Men collect themselves and go to attack them in their native woods. The country assembles and forms itself into companies to which a captain is appointed. Different districts of woods are assigned them; the rendezvous is agreed on. They march, and that company which kills the most is treated by the rest; thus the day is spent.<sup>11</sup>

In 1819 Audubon observed a squirrel migration in southern Ohio that continued for over two weeks on a 125 mile front. The phenomenon interested him, and he urged his naturalist colleagues to keep detailed records of these events. The primary reason for this request was that no one really knew what began or ended the migrations. Further mass movements were recorded in Ohio and Kentucky during 1826, 1828-29, and 1843. Indiana noted a particularly large one in 1834. The precise number of squirrels involved in these reports is difficult to estimate, particularly in the case of Indiana. The Indiana authorities used terms such as "strewed forever," "endless streams," "numerous hosts," and "countless myriads."<sup>12</sup>

Early twentieth century naturalists like Ernest Thompson Seton expressed regret at never having seen these massive movements. An 1842 migration in southeast Wisconsin, the most detailed of all migration recordings in American frontier history, offers naturalists the best source for analysis. The territorial government of Wisconsin carefully calculated the numbers involved at over one-half billion. Additional Wisconsin data on individual squirrel behavior during the migration led Seton and others to conclude that a

combination of parasite infestations in squirrel dens and the resulting physical and psychological traumas led to squirrel migrations. The data pointed against food supply causes, and the few naturalists who cared about gray squirrel studies also concluded that their favorite subject was probably more intelligent than previously believed.<sup>13</sup> This latter conclusion was apparently based on the squirrel's ability to leave its infested home, shed its unwanted parasites, and begin a new life in an uninfected area.

By 1842, the American frontier farmer had had plenty of experience with gray squirrel migrations and gray squirrels in general. Translating that experience into special crop protection against marauding gray squirrels was another matter. Wisconsin farmers tried their best. One Wisconsinite surrounded his corn crop with a fence that he considered his defensive line. Beginning in the early 1820s, the farmer kept rifle-bearing members of his family on patrol in the corn field during key months. When a gray squirrel was spotted and shot, the body was kept near one of the fence posts. Shortly, the farmer's defensive line was surrounded by dead squirrels. His hope was that the stench of the dead would keep their live comrades away. He claimed partial success, although the stench in the summer months was especially unbearable to himself and his family. Still, this technique failed to spare his farm from the 1842 migration.<sup>14</sup>

The 1842 migration proved to be a watershed event. After over two centuries, it was finally apparent that Americans had won the upper hand in the gray squirrel wars. Never again would the figure of one-half billion or more be recorded. As the century wore on, migration recordings lessened dramatically, and the general threat of squirrels to crops lessened as well. The next major gray squirrel migration after the 1842 episode was not until 1855. Once again centered in Wisconsin, "only" hundreds of thousands were involved. Another major migration was not seen again until 1878. The dwindling numbers of squirrels in these movements and the rare occurrence of movements after 1842 has

led some modern scientists to doubt Seton's parasite/psychological theory on migration. After the largest movement in this century ("thousands" in New York in 1968), scientists found few gray squirrels troubled by parasites.<sup>15</sup> Hence, although several theories abound, modern science remains as baffled by squirrel behavior as the early frontiersmen.

As the timberlands of the gray squirrel's range disappeared, making way for new settlements and more squirrel hunters, so disappeared the squirrel "scourge" for the American farmer. For the gray squirrel, the frontier was closing over forty years before Frederick Jackson Turner and others declared its passing to the American people. The forests, the Indians told the early colonial settlers, had stretched for thousands of miles, surrounding great lakes, and continuing on. To illustrate the point, they said that a gray squirrel could travel that distance for weeks without touching ground. Obviously, both frontiersmen and Indian enjoyed their brand of tall tales, but like many tall tales there was some substance to the Indian account. As the once contiguous forests were slowly divided, the squirrel's environment was carved into isolated blocks and often completely destroyed.<sup>16</sup>

No adequate record exists of the time, money, and total crop damage lost to gray squirrels from the colonial era to the 1840s. But we can say that the gray squirrel problem was one of several plagues in frontier life that hunting, time, and development licked. Meanwhile, the gray squirrel has fared better than more famous four-legged symbols of frontier America, such as the buffalo. Once regarded as a creature of the rural United States, the gray squirrel remains safer and better protected from the developer and hunter in urban parks and suburban trees. Although they may occasionally wreck havoc in grandma's garden, gray squirrels are usually described today as "playful," not "brute creations."<sup>17</sup> Their new image will probably save them from further decimation and extinction.

## NOTES

<sup>1</sup>The authors would like to thank the librarians of the Library of Congress and U.S. Department of Agriculture for their assistance in locating the rare source material for this work. John Bachman, "Northern Grey and Black Squirrels," *Magazine of Natural History* 3 (May 1839): 226; John James Audubon and John Bachman, *The Viviparous Quadrupeds of North America* (New York: G. R. Lockwood, 1870) 265-66.

<sup>2</sup>Ruth Tyndall, *Eat Yourself Full* (New York: D. McKay, 1967) 68-69; Poppy Cannon and Patricia Brooks, *The President's Cook Book: Practical Recipes from George Washington to the Present* (New York: Doubleday, 1961) 196-97; James Beard, *James Beard's American Cookery* (Boston: Little, Brown, 1972) 247-48; Robin Howe, *The International Wine and Food Society's Guide to Poultry and Game* (New York: Drake Publishers, 1972) 164.

<sup>3</sup>Rollin Baker, "The Gray Squirrel, Past, Present, and Future," *Symposium on the Gray Squirrel* 32 (Washington, D.C., October 1959): 390; William Blane, *An Excursion Through the United States and Canada* (London: Baldwin, Cradock and Joy, 1824) 95-96; A. W. Schorger, "Squirrels in Early Wisconsin," *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, 34 (Madison: U of Wisconsin, 1955): 195; Samuel Hildreth, *Pioneer History of the Ohio Valley* (Cincinnati, OH: H. W. Derby, 1848) 496; Frederick Barkalow and Monica Shorten, *The World of the Gray Squirrel* (Philadelphia, 1973) 14; Robert Kennicott, *The Quadupeds of Illinois: Injurious and Beneficial to the Farmer* (Washington, D.C., 1856) 54.

<sup>4</sup>John Madson, *Gray and Fox Squirrels* (East Alton, IL, 1964) 10, 59; George Laycock, *Squirrels* (New York: Norton, 1975) 13, 15, 20; Louis Brown and Lee Yeager, "Fox Squirrels and Gray Squirrels in Illinois," *Natural History Survey Division Bulletin* 23 (Sept. 1945): 449-536; Dorcas MacClintock, *Squirrels of North America* (New York: Van Nostrand Reinhold, 1970) 103-104; H. H. T. Jackson, *Mammals of Wisconsin* (University of Wisconsin P, 1961) 158.

<sup>5</sup>Nelson E. Jones, *The Squirrel Hunters of Ohio or Glimpses of Pioneer Life* (Cincinnati: Robert Clarke, 1898) 166-72; W. Bullock, *Sketch of a Journey through the Western States of North America* (London, 1827) xxviii; W. Priest, *Travels in the United States of America, 1793-1797* (London, 1802) 91; C. Hart Merriam, *Mammals of the Adirondack Region* (New York: U of New York, 1884) 27a, 225-28; Byron A. Dalympole, *North American Game Animals* (New York, 1978) 419, 422; Bill Bilbert, "When Squirrels Go Nuts," *Audubon* (July 1980): 104.

<sup>6</sup>Jones 166-72; Hildreth 496-97.

<sup>7</sup>The development and use of the "squirrel rifle" is noted throughout John Filson's *The Discovery, Settlement and Present State of Kentucky* [sic] (Wilmington: John P. Morton, 1784). See also, John Beckless, *Daniel Boone* (Harrisburg: V. Morrow, 1965) 10, 36-39, 146-47, 188, 214-15, 218-19, 274-79, 305, 308, 415.

<sup>8</sup>Jones 166-72; Hildreth 496-97; Filson; Bakeless; Audubon and Bachman 272-73; Constance Rourke, *Audubon* (New York: Harcourt, Brace, 1936) 60, 63.

<sup>9</sup>Peter Kalm, *Travels into North America* (Bane, MA: The Imprint Society, 1972—originally published in 1748) 55-56, 160-64.

<sup>10</sup>Jones 168; F. J. Laughlin, "Depredations of a Gray Squirrel," *Journal of Mammalogy*, 26 (1946): 440-41; Jim Carson, "Squirrels! Are they Invincible?" *West Virginia Conservation* 21 (Sept. 1957): whole volume; H. H. T. Jackson, "A Recent Migration of Gray Squirrels in Wisconsin," *Journal of Mammalogy* 2 (1921): 113-14.

<sup>11</sup>Hector St. John de Crevecoeur, *Letters from an American Farmer and Sketches of Eighteenth-Century America* (New York, 1963) 294-95.

<sup>12</sup>Audubon and Bachman 272; Ralph C. Jackson, "Migration of Gray Squirrels," *Science* 82 (Dec. 6, 1935): 549-50; John M. Allen, *Gray Fox and Squirrel Management in Indiana* (Indianapolis, 1964) 18.

<sup>13</sup>E. T. Seton, "Migrations of the Gray Squirrel (Sciurus Carolinensis)," *Journal of Mammalogy* 1 (1920): 53-58; Seton, "Gray Squirrels and Nuts," *Journal of Mammalogy* 2 (1921): 238-39; James S. Buck, *Pioneer History of Milwaukee* (Milwaukee, 1976) 55; A. W. Schorger, "An Emigration of Squirrels in Wisconsin," *Journal of Mammalogy* 28 (Nov. 1947): 401-03; F. M. Fryxell, "Squirrels Migrate from Wisconsin to Iowa," *Journal of Mammalogy* 7 (Feb. 1926): 60; Philo R. Hoy, *Man's Influence on the Fauna of Southeast Wisconsin* (Racine, 1885). Hoy's pamphlet stresses squirrel research.

<sup>14</sup>Schorger, "Squirrels in Early Wisconsin," *Transactions*, 34 (1947-49): 195-96. The "stench" technique was not unique to Wisconsin. Ohio farmers have been recorded using the same method. See the Rev. Joseph Bever's lament on early-to-mid-nineteenth century squirrel control in W. Lang's *History of Seneca County, Ohio* (Springfield: Transcript Printing, 1880) 528. Other techniques included placing several bushels of corn at the edge of the corn field in an effort to lure gray squirrels away from planted corn. Like other techniques, this approach, recorded by a Missouri farmer, met with limited success. See Laycock 30.

<sup>15</sup>Vagn F. Flyger, "Movements and Home Range of the Gray Squirrel (Sciurus Carolinensis) in Two Maryland Woodlots," *Ecology* 41 (April 1960): 365-69; J. S. Larson, "Notes in a Recent Squirrel Emigration in New England," *Journal of Mammalogy* 43 (1962): 272-73; E. M. Reilly, Jr., "Squirrels on the Move," *New York State Conservationist* (Dec.-Jan. 1968-69): 6; Calvin Martin, *Keepers of the Game: Indian-Animal Relationships and the Fur Trade* (Berkeley: U of California P, 1978): 77, 172; Madson 10, 59.

<sup>16</sup>The significance of gray squirrel decimation since the close of the frontier and the likelihood of extinction by the early 25th century is noted in Donald Christisen, "Are Squirrels Expendable?" *Missouri Conservationist* 11 (Aug. 1950): 1-3.

<sup>17</sup>In addition to grandma's garden, one squirrel received national attention in July 1986 for wreaking havoc in the Duke University snackbar. The gray squirrel had "methodically" eliminated the snackbar's supply of nut-filled "Baby Ruth" and "M&M" candies. "Nuts to You," NBC-TV news film, WTMJ-Milwaukee; *10PM Report*, 9 July 1986.