

The frontispiece from *The Passenger Pigeon*, a 1907 book by W.B. Mershon.
The Passenger Pigeon, Outing Publishing, 1907.



PASSENGER PIGEON (*Columba Migratoria*)

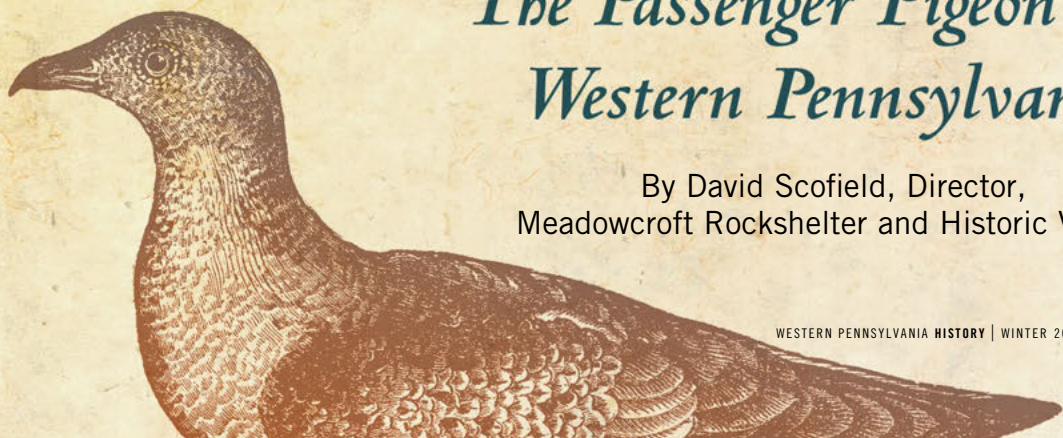
Upper bird, male ; lower, female



WE WILL
NEVER
SEE THE LIKE
AGAIN

*The Passenger Pigeon in
Western Pennsylvania*

By David Scofield, Director,
Meadowcroft Rockshelter and Historic Village



“OUR PASSENGER PIGEON has been promised to the Smithsonian Institution when it dies,” wrote the general manager of the Cincinnati Zoological Gardens to Dr. R. W. Shufeldt.¹ The bird he referenced was no ordinary passenger pigeon; she was the very last passenger pigeon, ever. This remarkable species, with its population once numbering in the billions, dwindled and made an irrevocable slide into extinction in a matter of decades. This solitary, geriatric, female pigeon named Martha outlived her mate and her kind, quietly dying 100 years ago on the afternoon of September 1, 1914.²

To fulfill the promise, zoo officials froze Martha’s remains in a 300 pound block of ice and shipped her to the Smithsonian by rail where she arrived on September 4. That morning, Dr. Charles W. Richmond, Assistant Curator of the Division of Birds, requested the assistance of Shufeldt in recording the new specimen.

A graduate of Columbian College (now George Washington University), Shufeldt was a surgeon and no stranger to military service. During the Civil War, as a 14-year-old, he served as captain’s clerk and signal officer aboard the USS Proteus, a gunboat which was under the command of his father. After medical school, he served in the army’s medical department as a surgeon during campaigns against the Sioux Indians in the west. He retired from the army with the rank of Major and was reactivated during World War I to serve at the Army Medical Museum. Shufeldt’s personal character was questionable at best. Some of his writings revealed him to be a racist and his adulterous conduct led his second wife to sue for divorce in 1898. He filed for bankruptcy and refused to pay the court-ordered alimony, which prompted the army to hold a courtmartial hearing on the charge of conduct unbecoming of an officer and a gentleman. But in spite of his personal failings, it was his scientific reputation as a keen observer and “one of the most diligent

and worthy investigators of detail in the science of osteology and paleontology of birds” that made him the obvious choice to assist Richmond with documenting Martha.³

In an unusual and impassioned preamble to the necropsy report, Shufeldt describes Martha as:

beyond all reasonable doubt, the last living representative of its race in the world — the last, the very last, of the millions upon millions of those birds which were known to pass over certain sections of the United States during their migrations to and from their feeding and breeding grounds. Many of us, whose birthdays date back to the middle of the last century and before, and who resided in the districts where these vast unnumbered hosts of migrating “blue pigeons” darkened the heavens for days at a time, distinctly remember the cruel, unnecessary slaughtering of those

birds, untold thousands of which were never used for any purpose whatever; millions of others of which were slain for their feathers alone, while it is now impossible to form any correct estimation of the number supplied to the markets of the time, or of those allowed to remain where



Martha, the last passenger pigeon.

Smithsonian Institution, Department of Vertebrate Zoology, USNM 22397. Photo by Donald E. Hurlbert.



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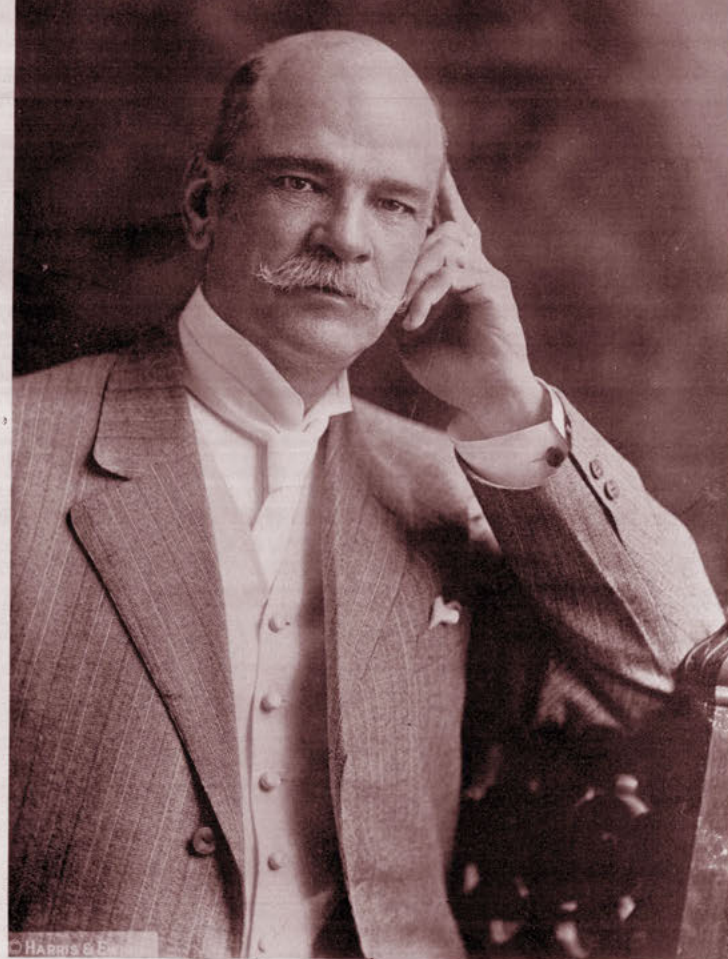
Find out more about the centenary of the extinction of the passenger pigeon.

they fell to the guns and other weapons of destruction of the army of slaughterers responsible for their extinction. All this is now past history, and will not be further touched upon in this article more than to say, that *Ectopistes migratorius* is now extinct; and what is here set forth is but a brief account of my personal observations upon the last known example of the species.⁴

The importance of the task and the extraordinary opportunity presented was not lost on Shufeldt. He carried out his systematic procedure and anatomical descriptions with the precision expected of a scientist bearing his stature. But he knew this was a somber occasion. On the table before him lay the disarticulated remains of a species never to be observed again. As Shufeldt concluded his examination, he arrived at a decision to diverge from protocol which would have him dissect Martha's heart:

I therefore did not further dissect the heart, preferring to preserve it in its entirety — perhaps somewhat influenced by sentimental reasons, as the heart of the last “Blue Pigeon” that the world will ever see alive. With the final throb of that heart, still another bird became extinct for all time — the last representative of countless millions and unnumbered generations of its kind practically exterminated through man's agency.⁵

The now-extinct *Ectopistes migratorius* were commonly called passenger pigeons (referring to their nomadic behavior), wild pigeons, or as Shufeldt called them, “Blue Pigeons.” These birds were notably larger than the closely related mourning dove—they had long pointed wings with a long tail and a smallish head. The males were arrayed with slate blue on the head, metallic iridescence of bronze, green, and purple on the neck, and a breast of reddish brown. Females were similarly attired but decidedly less colorful.



R.W. Shufeldt

Portrait of Dr. R.W. Shufeldt (1850-1934).

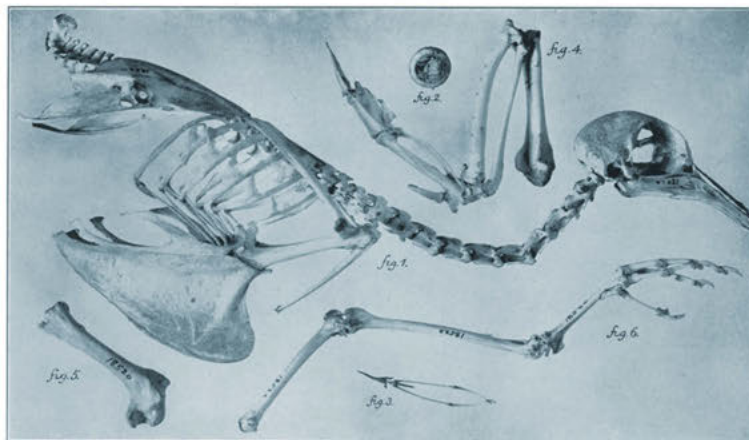
"In Memoriam: Robert Wilson Shufeldt, 1850-1934," *The Auk: A Quarterly Journal of Ornithology* 52, no. 4 (October 1935).

Published just two months before he performed the necropsy on Martha, Robert Shufeldt's paper on the osteology of the passenger pigeon contained this photo of a complete skeleton.

The Auk, July 1914.

THE AUK, VOL. XXXI.

PLATE XXXIV.



OSTEOLOGY OF THE PASSENGER PIGEON, *Ectopistes migratorius*.

COUNTLESS MILLIONS

The presence of passenger pigeons in flocks numbering “countless millions” is well documented. Their range covered the entire eastern half of the United States as well as the southern parts of Canada. The famed artist and naturalist, John James Audubon, experienced this awe-inspiring phenomenon firsthand. So remarkable was this experience that when he committed his observation to paper, he felt it necessary to qualify the account:

The multitude of Wild Pigeons in our woods are astonishing. Indeed, after having viewed them so often, and under so many circumstances, I even now feel inclined to pause, and assure myself that what I am going to relate is fact. Yet I have seen it all, and that too in the company of persons who, like myself, were

struck with amazement.

In the autumn of 1813, I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the Barrens a few miles beyond Hardensburgh, I observed the pigeons flying from north-east to south-west, in greater numbers than I thought I had ever seen them before, and feeling an inclination to count the flocks that might pass within the reach of my eye in one hour, I dismounted, seated myself on an eminence, and began to mark with my pencil, making a dot for every flock that passed. In a short time finding the task which I had undertaken impracticable, as the birds poured in in countless multitudes.... The air was literally filled with Pigeons; the light of noon-day was obscured as by an eclipse; the dung fell in spots, not unlike melting

flakes of snow; and the continued buzz of wings had a tendency to lull my senses to repose...Before sunset I reached Louisville, distant from Hardensburgh fifty-five miles. The Pigeons were still passing in undiminished numbers, and continued to do so for three days in succession. The people were all in arms. The banks of the Ohio were crowded with men and boys, incessantly shooting at the pilgrims, which there flew lower as they passed the river. Multitudes were destroyed. For a week or more, the population fed on no other flesh than that of Pigeons, and talked of nothing but Pigeons.⁶

Although Audubon's first attempt failed to estimate the size of this immense flock, his curiosity teamed up with simple mathematics for a second attempt:

It may not, perhaps be out of place to attempt an estimate of the number of Pigeons contained in one of those mighty flocks.... Let us take a column of one mile in breadth, which is far below the average size, and suppose it passing over us without interruption for three hours, at the rate mentioned above of one mile in the minute. This will give us a parallelogram of 180 miles by 1, covering 180 square miles. Allowing two pigeons to the square yard, we have one

Portrait of artist and naturalist John James Audubon by John Syme, 1826.
The White House Historical Association.



“THE AIR WAS
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AN ECLIPSE”

-John James Audubon



A sketch near Monroe, La., 1875. "At some of the pigeon-roosts in this vicinity the birds congregate in incredible numbers, the weight of the immense flocks frequently breaking and twisting the limbs of the forest trees as if a hurricane had passed through the woods. Sallying out from their resting-place, they move through the air in compact form, wheeling and twisting in graceful and undulating lines, which resemble the coils of a gigantic serpent. They fly with inconceivable velocity, every one striving to be ahead, and produce a noise similar to that made by a gale at sea passing through the rigging of a close-reefed vessel. As the torrent rolls along, the gunners keep up a continued fire upon the flying birds, and but little skill is required to soon obtain a game-bag well filled."

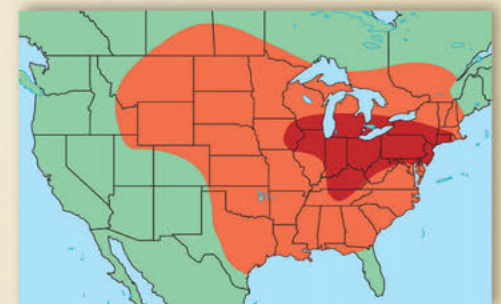
LoC USZ62-69248, sketch by Smith Bennett, from *Illustrated Sporting and Dramatic News*, July 3, 1875, p. 332.

billion, one hundred and fifteen millions, one hundred and thirty-six thousand pigeons in one flock.⁷

So incredibly numerous were these birds that the simple, daily behavior of roosting for the evening was a devastating spectacle. Eyewitness accounts tell of large tree limbs and even whole trees, strained by the weight of innumerable birds, snapping off and causing the death of many of them. The floor of the forest covered for miles with several inches of dung from a single night. The damage to

the trees and the undergrowth was evident for several years. Audubon witnessed this phenomenon as well and, of course, described it for us:

The dung lay several inches deep, covering the whole extent of the roosting-place, like a bed of snow. Many trees two feet in diameter, I observed, were broken off at no great distance from the ground; and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Every thing proved to



Passenger pigeon range in North America. The red area indicates where the extensive flocks usually nested.

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From Billions to None.



JUNIUS BRUTUS BOOTH

“By far the strangest example of sympathy for the bird was expressed by Junius Brutus Booth, one of the leading actors of the nineteenth century and even more famously the father of John Wilkes Booth.... Booth was in Louisville for an acting engagement when he wrote a local Unitarian clergyman, James Freeman Clarke, to secure a gravesite for a recently departed friend.... Clarke was shocked to see that the object of Booth's sorrow was a bushel of passenger pigeons!

‘Booth knelt down by the side of the birds, and with evidence of sincere affliction began to mourn over them. He took them up in his hands tenderly, and pressed them to his heart....’

Clark quoted Booth:

‘You see,’ said he, ‘they’re innocent victims of man’s barbarity. I wish to testify, in some public way, against this wanton destruction of life.’”

~Joel Greenberg,
*A Feathered River
Across the Sky*,
pp. 62-63.

me that the number of birds resorting to this part of the forest must be immense beyond conception.... Here and there the perches gave way under the weight with a crash, and falling to the ground, destroyed hundreds of the birds beneath.... It was a scene of uproar and confusion.... I found it quite useless to speak, or even to shout to those persons who were nearest to me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading.⁸

ANCIENT EVIDENCE

While their writings were separated by a century, neither Audubon nor Shufeldt (whose second wife that divorced him, was, coincidentally, Audubon's granddaughter) could have known that the “mighty flocks” of “unnumbered generations” would be numbered, in part, by archaeological evidence of passenger pigeons at the Meadowcroft Rockshelter in Avella, Washington County, Pennsylvania.

It was another scientific observer, John E. Guilday, Associate Curator of Vertebrate Fossils at the Carnegie Museum of Natural History, who, like Shufeldt, had

the opportunity to spread out the remains of the extinct passenger pigeon on the table before him. However, this time it was not one specimen, it was hundreds and, rather than a recently expired example, the bird remains examined by Guilday in the 1970s were, in some cases, many thousands of years old.

Guilday and others performed the analysis of vertebrate faunal remains excavated from the Meadowcroft Rockshelter during the initial years of the excavation from 1973 to 1978. He reported that among the 13,350 bird bones recovered at Meadowcroft (representing 68 species),⁹ was an overwhelming 7,050 passenger pigeon bones.¹⁰ Almost all of these bones were from adult birds; however, a scant number of juvenile bones from Meadowcroft provide the only evidence that passenger pigeons ever nested in southwestern Pennsylvania. This archaeological collection represents a minimum of 810 individual birds and the largest existing collection of passenger pigeon remains.¹¹ Other Pennsylvania archaeological sites in Huntingdon, Lancaster,

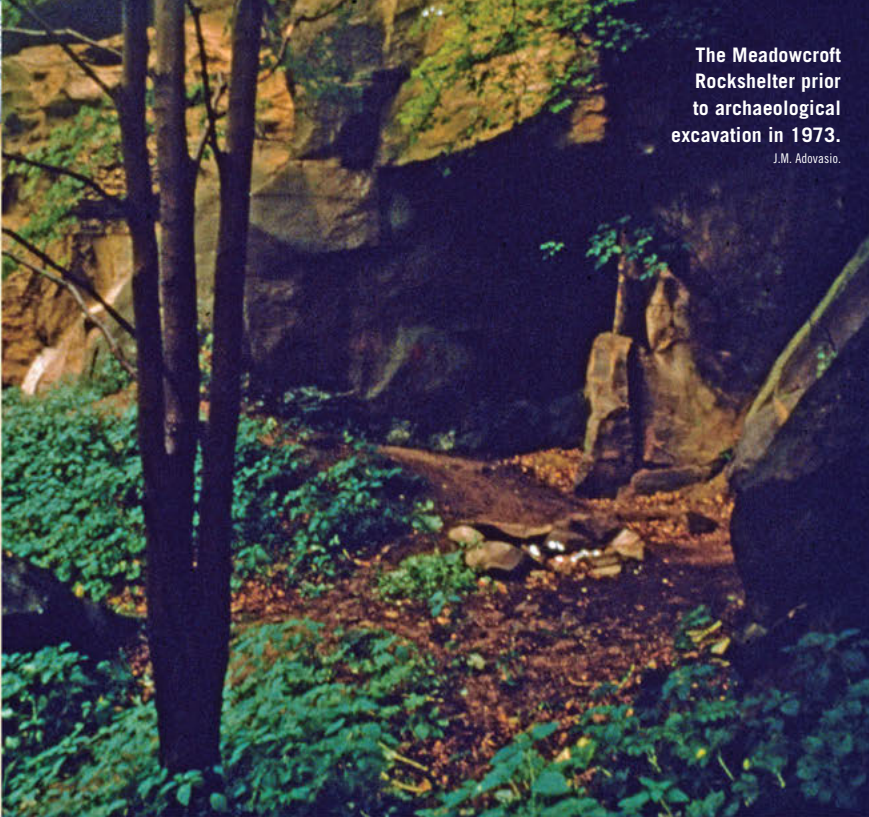
A male passenger pigeon at Meadowcroft on loan from Carnegie Museum of Natural History is paired with the October 19, 1971 issue of *Look* magazine that included a story on naturalist John James Audubon, who was the subject of a painting by Norman Rockwell, Audubon Observing The Passenger Pigeon.

Photo by David Scofield.



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The Meadowcroft Rockshelter prior to archaeological excavation in 1973.
J.M. Adovasio.



The Meadowcroft Rockshelter as it appears today from the same vantage point.
David Scofield

Somerset, and Venango counties have produced small numbers of bones from these pigeons but nowhere near the number recovered at Meadowcroft.¹²

The fact that passenger pigeons represent such a high percentage of the total number of bird remains in the Meadowcroft faunal collection is not surprising. Because of the extraordinary size of the flocks observed, it has been estimated that the passenger pigeon population at one time made up 25% to 40% of the total bird population in the United States.¹³

The earliest evidence of passenger pigeons at Meadowcroft was recovered from a level bracketed by dates of roughly 13,000 and 15,000 years ago. Pigeon remains are also present in every subsequent stratum of the site up to the most recent, which is dated to the eve of the American Revolution

and marked by a radiocarbon date of A.D. 1775 (+/- 50 years). Most of the surviving bones were broken due to both their fragile nature and the environment in which they were preserved, or due to the fact that they were broken by the raptor that caught and consumed the bird. Guilday reports that ninety per cent of vertebrate faunal remains at Meadowcroft are the result of raptors roosting at the site and casting the undigested portion of their quarry.¹⁴ The careful examination by Guilday revealed two examples

with evidence pointing to bone injuries suffered by the birds that eventually healed.¹⁵ Apparently these two birds evaded their predators for at least one more day.

NATIVE USE OF PASSENGER PIGEONS

The first people to live in Western Pennsylvania were the so-called Paleoindians who used the Meadowcroft Rockshelter for a base camp as early as 16,000 years ago. These prehistoric

people left no written records to shed light on their experience with passenger pigeons. However, because the conditions at the Meadowcroft site were favorable to the preservation of faunal material, the presence of passenger pigeons, contemporaneously with prehistoric people, has been conclusively demonstrated.



THE EARLIEST EVIDENCE OF PASSENGER PIGEONS AT MEADOWCROFT WAS RECOVERED FROM A LEVEL BRACKETED BY DATES OF ROUGHLY 13,000 AND 15,000 YEARS AGO.

It is relatively safe to assume that such an abundant, seasonal food source was utilized at Meadowcroft by the Paleoindians, in competition with the raptors, even though only one charred passenger pigeon bone was recovered at the site, which suggests it was cooked over a fire.

Native Americans in the Upper Ohio Valley often led a life characterized by feast or famine. With winter stores depleted, word spread quickly in the springtime of the arrival of the nesting pigeons or “big breads” that would annually supply the villages with an abundance of food.¹⁶

Merle H. Deardorff documented the tradition of passenger pigeon hunting

among the Seneca Indians in 1941. A Warren, Pennsylvania banker, Deardorff’s interest in Indian culture led him into close relationships with the remaining Seneca living on the Cornplanter Tract in Warren County, Pennsylvania. This tract was a land grant made in 1791 to Chief Cornplanter of the Seneca Nation by the Pennsylvania General Assembly to convey gratitude for his service as a diplomat among the Iroquois during the American Revolution. A community of Seneca Indians continued to reside on the Cornplanter Tract until 1964 when the Kinzua Dam project flooded the area to create the Allegheny Reservoir.

Deardorff interviewed several of the

remaining Seneca who either remembered the annual pigeon hunts or hearing tales of the bounty. In 1943, Deardorff co-authored “The last passenger pigeon hunts of the Cornplanter Senecas” with Smithsonian ethnologist William N. Fenton that was published in the *Journal of the Washington Academy of Sciences*.

The flocks of pigeons began to return from their winter territory to Pennsylvania in March or April. The Seneca hunting grounds, in what are now the counties of Warren, McKean, Potter, Elk, Cameron, Forest, and Jefferson, were also pigeon habitat. Seneca Willie Gordon relates to Deardorff: “We would see the *jäh’ gowa*, ‘big bread’ flying north in flocks so large that their numbers darkened the sky and their wings sounded as thunder. They came as a plague of locusts and devoured every sprouting plant. They would nest in patches of beechwood timber where they flocked to eat the beechnuts.”¹⁷

Native hunters successfully trapped pigeons, shot them with arrows or guns, and also collected the immature birds, known as squab, from their nests. First-hand accounts of the Iroquois in the New World, as early as the mid-17th century, describe the use of nets to take hundreds of pigeons. Jesuit missionaries wrote “that sometimes as many as seven hundred are caught in the course of one morning.”¹⁸ The Swedish-born naturalist, Pehr Kalm, visited America in the mid-18th century, making the following observation near Lake Onondaga, New York in August of 1750:

and here they had erected sloping nets with a cord attachment leading to the huts where they were sitting; when the pigeons arrived in swarms...the savages pulled the cords, inclosing them in the net, and thus at once secured the entire flock. At certain times, when they come in such numbers that the ground could hardly be seen for them, the savages found it more advisable to use a gun, as by a single discharge of bird-shot they could sometimes kill as many as 50 or more; and this proved a splendid source of food supply.¹⁹



Mark Catesby's 1754 illustration of the Passenger Pigeon is thought to be the first published depiction of the species.

The Natural History of Carolina, Florida, and the Bahama Islands, Marsh and Wilcox, 1754.

“EVEN THE MEANEST DOG IN CAMP HAD HIS FILL OF PIGEON MEAT”

Collecting squab was a high-yield endeavor. Just two weeks after hatching, the adult birds fed the young one last time and abandoned the nest, leaving a forest full of fat, succulent squab for the taking.

These young birds had grown rapidly on a diet of pigeon milk—a nutritious food produced in the crop of both the male and female parent. When the parents took their leave, the corpulent young birds weighed as much, or more, than the adults, rendering the juveniles unable to fly for the next three or four days. During this time of vulnerability, opportunistic hunters frequently moved into the nesting grounds.

In the spring of 1780, Benjamin Gilbert, along with members of his family and several others, was taken captive from his home near Bethlehem, Pennsylvania by a group of several Cayuga and Seneca Indians and at least one Delaware Indian. The captives were taken west, split up, and adopted by various families to replace their own members lost in war. A



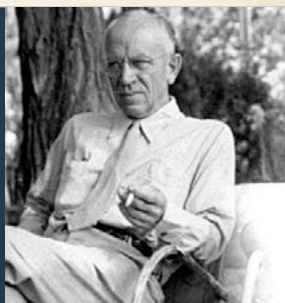
“THEIR NUMBERS DARKENED THE SKY AND THEIR WINGS SOUNDED AS THUNDER. THEY CAME AS A PLAGUE OF LOCUSTS AND DEVoured EVERY SPROUTING PLANT.”

year later, In the spring of 1781, Benjamin was with his adopted family when an Indian arrived with news that “an astonishing Number of young Pigeons might be procured at a certain Place, by falling Trees that were filled with Nests of young.... This Information delighted the several Tribes; they speedily joined together, young and old, from different Parts, and with great Assiduity pursued their Expedition, and took Abundance of the young ones, which they dried in the Sun and with

Smoke.... They lived with Extravagance for some Time, faring sumptuously every Day.”²⁰

Horatio Jones, another Pennsylvanian captured and adopted by the Seneca in 1779, also took part in a squab collecting party. While on a trip with his Seneca captors to visit Cornplanter along the Allegheny River, a runner arrived with news of the “big breads” two days journey away on the Genesee River:

All was now bustle and confusion, and every person in the village who could



ALDO LEOPOLD

Here is my favorite passage regarding the passenger pigeon by the ever-so-eloquent Aldo Leopold. This passage is, in fact, my favorite natural history prose writing of all time. I still am saddened each time I read it.

~ Jay Banta, Manager for 19 years, Fish Springs National Wildlife Refuge, Utah.

“ We have erected a monument to commemorate the funeral of a species. It symbolizes our sorrow. We grieve because no living man will see again the onrushing phalanx of victorious birds, sweeping a path for spring across the March skies, chasing the defeated winter from all the woods and prairies of Wisconsin.

Men still live who, in their youth, remember pigeons. Trees still live who, in their youth, were shaken by a living wind. But a decade hence only the oldest oaks will remember, and at long last only the hills will know.

There will always be pigeons in books and in museums, but these are effigies and images, dead to all hardships and to all delights. Book-pigeons cannot dive out of

a cloud to make the deer run forever, or clap their wings in thunderous applause of mast-laden woods. Book-pigeons cannot breakfast on new-mown wheat in Minnesota, and dine on blueberries in Canada. They know no urge of seasons; they feel no kiss of sun, no lash of wind and weather. They live forever by not living at all. ”



bear the fatigue of travel at once set out for the Genesee. On their arrival at the place designated by the runner, Jones beheld a sight that he never forgot. The pigeons, in numbers too great to estimate, had made their temporary homes in a thick forest. Each tree and branch bore nests on every available spot. The birds had exhausted every species of nesting material in the vicinity, including the small twigs of the trees, and the ground was as bare as though swept with a broom...the Indians cut down the roosting-trees to secure the birds, and each day thousands of squabs were killed. Fires were made in front of the cabins and bunches of the dressed birds were suspended on poles sustained by crotched sticks, to dry in the heat and the smoke. When properly cured they were packed in bags or baskets for transportation to the home towns. It was a festival season...and even the meanest dog in camp had his fill of pigeon meat.²¹

THE PATH TO EXTINCTION

The taking of passenger pigeons by the Indians and by the European settlers, even though it was done in large numbers, did not seem to have a negative impact on the overall population of the massive flocks. However, the arrival of the railroad in the middle of the 19th

is present.
All specimens of ducks that have com-
tion have been taken during the spring migration, and, to my
mind, at least, the discoloration is due to iron "in the water
frequented by the ducks" in their winter quarters.
CIRCLEVILLE, OHIO, Nov. 1, 1909.

A LAST ATTEMPT TO LOCATE AND SAVE FROM EXTINCTION THE PASSENGER PIGEON.

Through the interest and generosity of Col. Anthony R. Kuser, I am able to offer the following award:
Three Hundred Dollars (\$300) for information of a nest-
ing pair of wild Passenger Pigeons (*Ectopistes migratoria*),
UNDISTURBED.

Before this award will be paid such information must be
furnished (exclusively and confidentially) as will enable a
committee of expert ornithologists to visit the nest and con-
firm the finding. If the nest and parent birds are found un-
disturbed the award will be promptly paid.
(Signed) C. WILLIAM BEEBE.

Until January 1st, 1911, during Dr. Beebe's absence from
America, all information concerning the existence of Passen-
ger Pigeons should be sent to C. F. Hodge, Clark University,
Worcester, Mass.

In making this offer Col. Kuser withdraws his former of-
fer of One Hundred Dollars (\$100) for a freshly killed Pas-
senger Pigeon. He does this because of the great danger of
complete extermination.

century brought easier access to city markets for pigeon meat and for live birds used in the sport of trapshooting. The expanding rail service and the accompanying expansion of telegraph service, which provided rapid communication of nesting site locations, was a boon to professional pigeon trappers.

Cages full of live birds and barrels holding 25 to 35 dozen birds packed in ice, filled the railroad cars. In 1855, it was reported that 18,000 pigeons were shipped out of New York State and Pennsylvania over the Erie Railroad in a single day.²² Estimates of the number of birds shipped from each region in a given season vary widely, but certainly it numbered in the millions.

Within a couple of decades, the number of pigeon flocks and the size of those flocks were noticeably declining. In 1873, and again in 1875, the Pennsylvania legislature attempted to curb the decline by establishing laws prohibiting the disturbance of pigeon nesting areas and the shooting of roosting birds. A twenty-five dollar fine was the penalty. These legislative efforts were not effective. In 1905

another law was passed establishing a ten-year period of protection for passenger pigeons with a fine of twenty-five dollars for each bird killed. It was simply a case of too little, too late. The laws were frequently ignored and largely ineffective. The species was already well on its way to extinction.

The extinction of the passenger pigeon is by all accounts a dramatic story and much has been written about this irrevocable loss. In the last half-century, two major works have been produced on the subject of passenger pigeons.²³ Both authors point to over-harvesting as the primary cause of extinction. There is no doubt that the astonishing number of birds taken by unregulated trapping and hunting had a devastating effect on the species. However, there was more at play in this drama. In addition to the extensive predation by humans, other factors such as loss of habitat also adversely affected the population of these birds. Even certain innate characteristics of the birds themselves, when coupled with hunting pressure and habitat loss, contributed to the decline in population.

FAR LEFT: Audubon painted this watercolor of passenger pigeons in the fall of 1824 while he was in Pittsburgh.

University of Pittsburgh Library System, Special Collections, The Birds of America, Volumes I-IV.

LEFT: By 1909, sightings of passenger pigeons in the wild were rare, prompting this offer of a \$300 reward for locating a nesting pair of the nearly extinct bird.

The Wilson Bulletin 21, no. 4 (October 1909): 223.

THE LARGEST DOCUMENTED
NESTING WHICH TOOK PLACE
IN CENTRAL WISCONSIN
DURING 1871 COVERED 850
SQUARE MILES AND CONTAINED
136 MILLION NESTING PIGEONS.



A passenger pigeon
egg collected in 1849.
Collection of James Bond/Jacques Perrin
de Brichambaut.

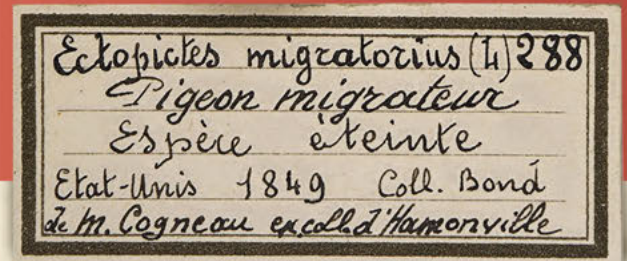


Fig. 8. Crowned pigeon (*Goura coronata*).

Fig. 7. Turtle-dove (*Turtur communis*).

Clearly, intense hunting of passenger pigeons took place and is well documented. One dramatic example is recorded during the largest documented nesting, which took place in central Wisconsin during 1871.²⁴ The nesting covered approximately 850 square miles and contained an estimated 136 million nesting pigeons. Roughly 1.2 million birds were taken from that nesting by 600 professional pigeon netters.

While passenger pigeons ate a variety of things such as earthworms, snails, and various insects, they were highly dependent on mast and the seemingly endless forests of eastern United States and Canada provided an abundance of their preferred beechnuts as well as acorns and chestnuts. As the virgin timber was cut to sustain a growing nation and open the landscape for agriculture, the forests were reduced and became fragmented. Naturally

The Passenger Pigeon amongst some of her relatives. Pigeons and doves together constitute the bird family Columbidae, containing about 310 species.

W.P. Pycraft, *A Book of Birds*, Sidney Appleton, 1908.



The east face of the Meadowcroft excavation where evidence of prehistoric campfires spans thousands of years.
Photo by David Scofield.

this diminished the abundance of mast from its former state and would have presented a hardship for the great flocks.

Certain characteristics of passenger pigeons had an impact on their ability to overcome these challenges. The birds typically laid only a single egg upon nesting, so any disturbance of the breeding cycle would have a significant impact on maintaining the population. In addition, the social attributes of immense flocks facilitated food finding. Because mast trees typically produce abundant crops every two to five years, they

are a somewhat irregular source of food. As the mast forests diminished and became fragmented, the declining pigeon population may have experienced significant challenges in locating this irregular food supply across a vast geographical area.

For any species to survive, they must reproduce at a rate that exceeds loss. When predation, habitat loss, diminished food resources, and disruption of breeding cycles all apply pressure on a population, the outcome cannot be favorable. In the recently published book, *A Feathered River Across the Sky*, author

Joel Greenberg speaks of the various factors necessary for a species to sustain itself as “links in the chain of life” and laments that, in the case of passenger pigeons, “...all of the links were simultaneously being compromised.”²⁵

WE WILL NEVER SEE THE LIKE AGAIN

Many of those who saw the extraordinary spectacle of an immense flock of passenger pigeons darkening the sky or experienced the din of a colony nesting in the forest were compelled to write about their experience. We are indebted to those who recorded in their journals and memoirs the details of a sight we will never see.

The irrevocable loss of any species demands reflection. On the centenary of the extinction of the passenger pigeon we should reflect not only on the beauty and uniqueness of this species but also on the lessons learned and the implications for stewardship and future wildlife conservation efforts.

Arlie W. Schorger, author of a seminal work on the natural history and extinction of the passenger pigeon, tells of a boyhood outing on the roads of northern Ohio with his uncle:

We came to a segment of the highway then bordered by fields. He told me that the area was once covered with a large beech forest. In spring when there were beechnuts on the ground, huge flocks of wild pigeons would appear. Their numbers were so great that the earth was shadowed and dung struck the dry leaves like hail. Men stood in the rift in the forest and fired at the passing birds until the road was dotted with their blue bodies, and more were killed than could be carried. He ended by saying, “We will never see the like again.”²⁶

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Visit passengerpigeonpittsburgh.org for information on Pittsburgh area passenger pigeon centenary events, exhibits, and performances.

¹ R. W. Shufeldt, "Anatomical And Other Notes On The Passenger Pigeon (*Ectopistes Migratorius*) Lately Living In The Cincinnati Zoological Gardens". *The Auk* Vol. 37 (January, 1915), 29.

² There is discrepancy surrounding the origin of Martha, her exact age and the time of her death but, most accounts place her death on September 1, 1914.

³ Kalman Lambrecht, "In Memoriam: Robert Wilson Shufeldt, 1850-1934". *The Auk* Vol. LII (October, 1935), 359.

⁴ Shufeldt, op cit., 29-30.

⁵ Ibid., 38.

⁶ John James Audubon and William Macgillivray, *Ornithological biography, or An account of the*

habits of the birds of the United States of America: accompanied by descriptions of the objects represented in the work entitled The birds of America, and interspersed with delineations of American scenery and manners /v.1., <digital.library.pitt.edu/cache/3/1/7/31735056284882/0345.jp2.s.jpg> accessed 12/7/2012, 320-321.

⁷ Ibid., 322.

⁸ Ibid., 323-324.

⁹ J.E. Guilday, P.W. Parmalee, and R.C. Wilson, "Vertebrate Faunal Remains from Meadowcroft Rockshelter, Washington County, Pennsylvania: Summary and Interpretation". In *Meadowcroft: Collected Papers on the Archaeology of Meadowcroft Rockshelter and the Cross Creek Drainage*, edited by R.C. Carlisle and J.M. Adovasio (1984), 167-168.

¹⁰ J.E. Guilday, P.W. Parmalee, and R.C. Wilson, "Vertebrate Faunal Remains from Meadowcroft Rockshelter, (36WH297) Washington County, Pennsylvania". (Unpublished manuscript on file at Mercyhurst Archaeological Institute, 1980), 31.

¹¹ Guilday, et al., op cit., 168.

¹² John B. Orlandini, "The Passenger Pigeon: A Seasonal Native American Food Source". *Pennsylvania Archaeologist*, Vol. 66(2) (1996), 71-77.

¹³ A.W. Schorger, *The Passenger Pigeon: Its Natural History and Extinction*, (Madison: University of Wisconsin Press, 1955), 205.

¹⁴ Guilday, et al., op cit., 163.

¹⁵ Guilday, et al., op cit., 33.

¹⁶ William N. Fenton and Merle H. Deardorff, "The Last Passenger Pigeon Hunts of the Cornplanter Senecas". *Journal of the Washington Academy of Sciences* Vol. 33, No.10 (October 15, 1943), 294.

¹⁷ Ibid.

¹⁸ Reuben Gold Thwaites, editor, *The Jesuit relations and allied documents*, 73 vols. Cleveland, 1896-1901. In Fenton and Deardorff, 289.

¹⁹ Pehr Kalm, "The passenger pigeon". *Annual Report of the Smithsonian Institution for 1911*. In Fenton and Deardorff, 290.

²⁰ Frank H. Severance, editor, *The Captivity and Sufferings of Benjamin Gilbert and his Family, 1780-1783*, (Cleveland: The Burrows Brothers Company, 1904), 115-116.

²¹ George H. Harris, *Life of Horatio Jones*, (Frank H. Severance, editor.) Buffalo Historical Society Vol. 6, 1903. In Fenton and Deardorff, 291.

²² Schorger, op cit., 145.

²³ A.W. Schorger's *The Passenger Pigeon: Its Natural History and Extinction*, see note xiii, and Joel Greenberg's recent publication of *A Feathered River Across the Sky*, (New York: Bloomsbury, 2014)

²⁴ Schorger, op cit., 91.

²⁵ Joel Greenberg, *A Feathered River Across the Sky*, (New York: Bloomsbury, 2014), 195.

²⁶ Schorger, op cit., vii.

Passenger pigeon remains recovered from the Meadowcroft Rockshelter in a level dated between 13,000 and 16,000 years old.

Carnegie Museum of Natural History. Photo by David Scofield.

