

## **NEW ENGLAND ENVIRONMENT The Great Squirrel Apocalypse | One Year Later** In the fall of 2018, millions of squirrels met their demise on New England roadways. One year later, we look back at the why and the how, and what's in store for 2019.

Jim Salge · September 23, 2019 ·



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One year ago, it was practically all we were talking about in northern New England.

Everyone had stories to share, and some were absolutely unbelievable. It dominated the news cycle for weeks. People were counting, tallying, and comparing. There were memes and Halloween costumes. There was even a craft beer.

It was the Great Squirrel Apocalypse of 2018 — and, pardon the pun, it was nuts.

#### Why Was There So Much Squirrel Roadkill in 2018?

Millions of squirrels met their demise on New England roadways last fall. We're talking about driving past thousands of carcasses on a single commute, and in extreme cases, hundreds per mile. Those who witnessed it will never forget it.

Although a specific alignment of natural events led to this unparalleled carnage, if you take a step back you'll see it's only part of a much larger story of boom and bust that continues to play out today.

So, one year later, we present: The Great Squirrel Apocalypse, a retrospective and epilogue.

#### What Led to the Great Squirrel Apocalypse?

Lots of different trees in the forest produce food (known as *mast*) for squirrels. Hard mast — such as acorns, hickory nuts, beechnuts, and walnuts — is the most important because it can keep for a long time. Squirrels and chipmunks are incredibly efficient at "squirreling away" caches of nuts in times of abundance to prepare for more meager seasons ahead.



Squirrels and chipmunks are very efficient at storing hard mast (nuts). Kevin Talbot

The populations of these animals closely follow the abundance of hard mast. If trees produced roughly the same amount of nuts every year, the population of squirrels and chipmunks would rise to a level that could consume just about all of it, meaning there would be little left to actually produce new trees.

So the trees evolved something amazing: *regional synchronicity*.

Every few years, all trees in a given species will produce an excess of flowers and pollen, and, if the conditions are right, they go on to produce an overwhelming amount of seeds and nuts — so many that the animals can't even come close to consuming all of it, and the mast can go on to germinate. (This does come at a cost, though: Trees grow more slowly during mast years, as more of their energy goes into producing this bumper crop.)



Acorns, beechnuts, and maple helicopters were all scarce in 2018. Jim Salge

In 2016 and 2017, many species of trees in New England had rare back-to-back mast years. Because of that, squirrels and many other forest animals successfully raised multiple, large litters of offspring. Populations skyrocketed.

But 2018 was different.

Maple seeds never appeared in spring, beechnuts never appeared in summer, and acorns never appeared in fall. There were some hickory nuts, but not enough.

Panic set in.

#### Scenes of the Great Squirrel Apocalypse

All those hungry squirrels began ranging farther and farther in search of food. And if sustenance is scarce on one side of the road, foraging on the other side is the next step.

But when faced with an oncoming vehicle, squirrels tend to be terribly indecisive. Some may make it most of the way across before panicking and retreating, and while many are lucky enough to survive a car passing over them, many more do not.

I am burdened with a vivid memory from last year of a squirrel flying over my car, backwashed out of the traffic in front of me. I was surprised and relieved when it got up and kept running — sadly, into the path of another car. (I'm curious how many accidents were caused last year by well-intentioned drivers trying to dodge squirrels.)

Roads were phase one.



Virginia Moore rescues a swimming squirrel from Conway Lake. Judith Necker Paul

Here in New Hampshire last fall, I read an article in *The Conway Daily Sun* about a squirrel that climbed into the boat of local paddler Virginia Moore, who kindly brought it back to shore. I had never heard of squirrels swimming before that day.

Then more stories came out.

On the radio, I heard the tale of a squirrel diving again and again into the Merrimack River, unsure if it really wanted to swim across, but — knowing it had insufficient food where it was — it eventually did. And then I saw a squirrel swim across Pawtuckaway Lake myself.

The squirrels' emigration (and ensuing carnage) continued until late October or so. Eventually, the population was reduced to the carrying capacity of the food in the forests, and the surviving squirrels settled in for the winter.



By winter, squirrel populations were back in balance with food supplies in New England. Kevin Talbot

#### Who Benefitted from the Squirrel Apocalypse?

The failure of nearly every tree to produce mast in 2018 continues to have an impact. Hard mast feeds smaller animals, like squirrels and chipmunks, which in turn feed larger animals. Many of the latter populations were affected, although not all these animals saw their numbers decline.

The roadsides covered in carcasses were a feast for scavengers, which meant the Great Squirrel Apocalypse was a boon to crows, ravens, and turkey vultures. The abundance of ravens in particular seems most notable to me, as they've audibly changed my local landscape. A whole flock of them — in folk terminology, an *unkindness* of ravens — took to roosting in a neighbor's tree this summer, cawing loudly at dawn and dusk. My daughter named one "Queen," and she marveled as "my bird" followed her seemingly everywhere this summer.

Birds of prey are another story, however. The high squirrel and chipmunk populations of the past few years led to a rise in their numbers — and then the Great Squirrel Apocalypse arrived. Barred owls were everywhere this spring, and many were not doing well. In addition to the lower number of squirrels, their food sources were limited by the deep and icy snowpacks that had blanketed the region all winter.



Jane Kelly from On the Wing releases a barred owl this summer. John McCarthy

Jane Kelly, owner of On the Wing, a rehabilitation and education center specializing in birds of prey, saw dozens of owls brought to her facility in late winter; they were either emaciated or had been hit by cars as they searched for food. So far this year, she has rehabbed and released 32 barred owls, many more than in previous seasons.

The released owls still face a forest ecosystem very different from that of a year ago, with the population of white-footed mice, one of their preferred prey, rebounding only slowly. Last year, mice moved into houses early and in huge numbers after the acorns failed, but they are staying in the forests longer this year, providing much-needed food for hawks, owls, and animals like foxes, coyotes, and fisher cats.

Larger animals with more diverse diets typically see longer lags before any changes in their population. The adults usually don't starve when one key species declines, but the success in breeding and raising their young declines, which can slowly bring down the population.



The black bear population has generally held steady, but cubs were orphaned in unusually high numbers this year.

This has been especially true of bears in the past year. Bears rely on hard mast, especially beechnuts, to fatten up before the long winter hibernation, and many hibernated early and hungry. The adult population has generally been stable, but there was a huge increase in orphaned cubs this spring.

Some mothers ran out of milk for the newborn cubs over the winter while still in the dens, forcing them to abandon their cubs. Later, mother bears who made it through the winter were hit by cars searching for food. Wildlife and bear rehabilitators have said they have never seen a year like this.

Which brings us to today, and some good news.

### The Good News!

All the major tree species in the New England forests had mast years in 2019. Maple helicopters were so heavy this spring that the trees looked red instead of green well into spring. Acorns are falling heavily now, and beech are ripening in their spiked husks. And even notoriously hard-to-pollinate witch hazels have abundant seeds on the branch.

The cycle continues, and nature will find balance.

### **Final Thoughts**

Boom-and-bust population cycles are common in the natural world, and the crash of one species will often have ripple effects throughout the ecosystem.

For example, this year, grasshoppers are everywhere. Is it related to the squirrel apocalypse or a completely different phenomenon? Hard to say.

Also, a few years ago New England had a huge irruption of snowy owls from the Arctic north. This followed successful breeding years for the owls before a crash in lemming populations left no food for winter, and they came all the way down here to find it. It caused a midwinter craze on our coasts!



Snowy owls visited New England in large numbers recently as a result of boom-and-bust population dynamics.

These cycles have long been nature's way of strengthening the gene pool, controlling disease, and ensuring that population dynamics remain balanced.

Recently, though, thanks to globalization and invasive species, as well as climate change, these population pendulum swings seem to be widening.

Saying that the squirrels of New England had never before faced a crisis like this is supported by the idea that the American chestnut was eradicated from the landscape due to an invasive blight about a century ago. The tree was notable in that it was not a tree with mast years. It reliably produced large crops of nuts and would carry populations through cycles like this.

As we continue to change the makeup of the forests of New England, perhaps significant, shocking events may become more commonplace.

For the sake of the squirrels, let's hope not.

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## Comments

Elizabeth October 6, 2019

Mice! You forgot to mention the inundation of mice in our houses. Around here (Nelson, NH) we had contests of who had trapped the most mice (30, on average). I had used hav-a-heart traps until that year. Kill traps from now on. Some friends used the bucket of water traps. My terrier dug so many holes in our yard and garden looking for chipmunks and mice it was a disaster. And yes, we're curious about those grasshoppers. Reply

Bill October 3, 2019 Interesting article but I don't think baseball players eat eat mice (Fisher Cats). Reply

Elizabeth October 6, 2019 LOL. Good one. Reply