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# An Icon of the American Wilderness is Alive in the Bronx



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**On the surprising research underway in Van Cortlandt Park and the American Museum of Natural History.**

*This is Sidewalk Naturalist, a monthly column by Lenora Todaro which offers a portrait of New York City through its wildlife citizens, whose lives tell us something about the way we live in the fragile ecosystem that is the city today.*

Major the Coyote stands atop a boulder in the southwest corner of Van Cortlandt Park in the Bronx. Up above, the elevated Broadway local train lumbers into 242nd Street, last stop on the line; the Major Deegan Expressway runs nearby—north to Albany, south to Manhattan. Major looks up and out, proud, poised, alert, a monument in bronze. A plaque notes that she was found dead on the highway on February 8, 1995.

Major, named for the highway, wasn't a grizzled survivor, as you might expect, driven out by development, highways, fast cars, and the like. Quite the opposite: She was the first coyote reported in New York City in modern memory. In the quarter-century since her death, coyotes have arrived in New York City to stay: They breed in the Bronx and Queens, and have appeared all over Manhattan from Riverside Park to Chelsea and Battery Park City.



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Eastern Coyotes, the kind found along the East Coast, are part western coyote, part wolf and part dog, the outcome of 200 years of breeding between the species. They are smaller than wolves, about the size of border collies. They have yellow eyes and thick fur, whose color ranges from grey-brown to reddish blonde. Their ears point up, while their bushy, black-tipped tails point down. They can run forty miles per hour, faster than road runners (twenty-five miles per hour). Looney Tunes had it all wrong.

Van Cortlandt Park is the city's third largest park. I grew up not far from "Vannie," with its hulking, battered concrete stadium at one end, a place where teenagers or lost souls could hide out. But it's a place with a grand history: The Van Cortlandts were a wealthy mercantile family who harvested wheat on their estate. Before the Van Cortlandts, the land was home

to Lenape Indians, who hunted caribou, giant beavers, and mastodons. Before them, it was buried beneath a glacier that melted and carved the drop-offs and smooth hillsides that are characteristic of the park. Today, one can find old growth forests, a freshwater lake, sports fields, bridle paths, hiking and walking trails, and the oldest golf course in the country.

This is the landscape where coyotes have chosen to den. Usually, a den is a hole in the ground, but coyotes adapt to their environment and can live in a small patch of woods, or snuggled inside in an old rotting log, or under debris, or beneath a porch. Among coyotes, the inviolable rule is one family per territory, which in the case of Van Cortlandt is the whole park.

“People have this idea that a forest is natural, a coyote is natural, but that New York City is not—and therefore a coyote in the city equals cognitive dissonance,” Chris Nagy, a wildlife biologist and a co-founder of the Gotham Coyote Project, told me. Urban coyotes, he believes, bridge the nature/city divide. “Having a mesopredator [in a modern city] is evidence of a more balanced system,” he says. A mesopredator is a medium size predator (like foxes, raccoons, and yes, coyotes) as opposed to an apex predator, which is large (like wolves and bears).

I meet Chris Nagy at the stables in the park. Once a year, he puts up camera traps that are sensitive to movement. He has five in this park, and he is adding two more today. We are in a section of the park called the Northwest Forest, with its 200 million-year-old protruding rocks, 150-year-old trees, and variegated wildflowers. Just off one trail, Nagy sets up a camera on a black locust tree. He threads a lock through the camera and wraps it around the tree at knee height—where it’s most likely to catch images of a coyote’s face. From an empty soda bottle, he pours a sticky orange synthetic fish oil on the ground as “bait.” That way, he hopes, a coyote will stay long enough for the camera to register a few images. “Coyotes are a tricky species,” says Nagy. “They’re skittish and cautious.”

Coyotes partner for life, mate in the winter, and (if all goes well) have pups in March or April. Last year, the Van Cortlandt family had none. An adult coyote had been found dead on the Mosholu Parkway, leaving its mate solo. As coyotes roam in search of territory some hover nearby avoiding the residents and hoping for a vacancy. In the case of a lost mate, that wanderer will be welcome. Coyotes are quick to find new partners and recently two adults have been spotted together, so perhaps we will hear about pups this spring.

Coyotes are the number one adapter among large and medium predators. It has been said that in the case of an apocalypse, coyotes and cockroaches would be the survivors. “Coyotes are here because they can survive and reproduce in our urban landscape,” Nagy says. They filled a niche, he explains, left by the extirpation of wolves in the nineteenth century by loggers and hunters. Coyotes began migrating from west to east. As of now, coyote, who once occupied only midwestern prairies and the southwest, have expanded their territory from Alaska to Panama.

Tales of the coyote peg this species as both a trickster and a buffoon. But Dan Flores, who wrote the beautiful Coyote America, thinks that characterization is too simple. “Not only did western Indians select the coyote, among all the animals available to them as a deity responsible for the creation of the world,” he writes, “he also functioned as an avatar—a stand-in for humans in the world—whose real function was to instruct humans about the foibles of human nature.” Indeed, he sees the coyote howl with its yips, whines, and barks “as the original American anthem.”

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How will the coyotes get to Long Island? No one knows for sure. If you are a human who wants to travel from the Bronx to Long Island, you have options: You can take the subway to the LIRR, or drive across the Triboro Bridge to the LIE. But what if you are a coyote? Do you jog along the Bruckner Boulevard, cross Randall’s Island, take the stairs to the Triboro, streak down Astoria Boulevard, take the Flushing Meadows pedestrian bridge, cross the Queens Botanical Garden bridge, and make your way to the Hempstead Parkway? You could—but you would probably wind up as roadkill.

Coyotes killed by cars or other means arrive at The American Museum of Natural History. The cadavers are put on ice and prepped to join the collection of cadavers in mammalogy. Some of their tissue is stored in a cryogenic facility, where liquid nitrogen cools tissues from a wide range of creatures, for genetic studies. “In one hundred years, we’ll be able to track them to their Adam and Eve,” Mark Weckel, a co-founder with Nagy of Gotham Coyote, tells me. “Who were the first coyote to colonize Long Island? The tissue library will help answer questions that we don’t even know to ask yet.”

One of the goals of Gotham Coyote, a small group of researchers, scientists, educators, and students, is to map the paths taken by the coyote and to help establish nature corridors that coyotes and other wild animals can travel safely through. The only way to do this is with

telemetry. The telemetry research is a pilot project coordinated by Gotham Coyote with the American Museum of Natural History and the New York City Parks Department. Enter Neil.

Neil lopes along the East Bronx waterfront late at night. He lives in Soundview Park, where the Bronx River mingles with the East River. In the six years he has lived there, he has fathered an annual litter of pups.

A radio collar transmits his location in the park to a website every hour, and if he leaves the park it transmits every thirty minutes. He may be crossing water at low tide, or going up on a bridge. He can see Hunt's Point, and the tip of Rikers Island. If you saw him, you might think he was a dog, until you saw his angular ears, skinny body, and telltale yellow eyes.

By the time you read this, Neil's collar will have fallen off as it was programmed to do, and he'll be free of tracking. But for the past year, his collar has been sending researchers invaluable information about where and when he prefers to move. "The collar is our first opportunity to look into the world of the coyote on an hourly basis," says Weckel.

Peter Galante, a spatial ecologist at the Museum of Natural History, maps Neil's whereabouts and studies his habitat usage. Galante and two high school students from the museum's Science Research Mentoring Program use QGIS, an open source system for organizing geographic information, to create dazzling, color-coded maps. The maps show where Neil goes and when: You can see that he passes buildings, shrubbery, water, green and brown space. "So far Neil is behaving like a model coyote," Weckel tell me. "He spends time in green areas where there are few to no people. When he has to cross from one park to the next, he does so in the late hours to avoid people," confirming that urban coyotes adapt to busy city life by becoming nocturnal.

Eventually, researchers will learn how coyotes get from the Bronx to Manhattan. Galante suspects they follow a path along the Hudson River, cross the Spuyten Duyvil railway bridge that goes over the Harlem River, and enter Manhattan's north end through Inwood.

At the Museum of Natural History, Claudia Wultsch, who calls herself a carnivore ecologist, studies coyotes' microbiomes using bacteria swabbed from them when they were collared or found dead. I meet Wultsch and her SRMP student in the museum at the coyote diorama. Growing up, I came to the museum several times a year, as have my own children, and it is hard not to feel a swell of love every time I walk in there to visit my "friends"—the

perpetually nursing zebra, the three black rhino, the giant squid, the crocodile, the huge mosquito. The coyote diorama presents a blissful scene: One coyote howls, while the other digs a den. A lake and mountains surround them, and the sky is bright blue. It ain't the Bronx.

We go to Wultsch's office behind the scenes on the fifth floor—past a Tarantula and a case of crickets. She explains how this emerging field of study can tell a coyote's story. “Our first goal is to describe what kind of bacteria there are,” she tells me. “A diversity of bacteria is an indicator that says whether the animal is healthy or not. The microbiome is like a fingerprint, but right now we are seeing new bacteria that we're not even sure how to classify. It may be that the coyote's microbiome helps them avoid certain diseases—but maybe not.”

Carol Henger, a PhD student at Fordham University, is creating a family tree of New York City's coyotes. She uses DNA taken from the same coyotes as Wultsch, as well as coyote scat (poop)—which is collected, analyzed, and stored at the museum. Coyote scat is distinctive from dog poop in that it tends to twist because of hair or fur from the mammals that the coyote has eaten. Biologists and their high school SRMP students scout for it, sift through it, and extract bones, beaks, and skulls to figure out what they eat. Henger also keeps scat in a freezer at her lab. “Basically, I have nine years worth of coyote scat and have found some forty-five individuals [coyotes]. We think there are about twenty individual coyote right now.”

To judge from their scat, Henger tells me, the city's coyotes eat mostly raccoon; some deer, mice, pigeons, and the occasional chickpea or carrot. Like Nagy, she sees the coyotes' presence as a sign of the city's health: If coyote can live here, “then New York City is not just a place we design for human consumption. It means we have a functioning ecosystem.”

Henger found that the first coyote pair spotted in Van Cortlandt Park were related to coyotes in Westchester, where there have been colonies since the 1970s. The Van Cortlandt coyotes' surviving pups went on to establish dens in Soundview, Pelham Bay, and Ferry Point Park. Neil in Soundview is related to a coyote that was killed by a car near Alley Pond in Queens. “Are coyotes finding each other, even though they live in parks that are isolated within the city?,” she asks. “It appears that they are.”

Except for Frankie. Henger has nine years of scat from this coyote, who settled alone in a small forest in central Queens, between housing developments and the Long Island Railroad. Every year Frankie digs a den in anticipation of finding a mate. And every year he remains alone.

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Meanwhile, the coyotes have to coexist with human New Yorkers, and us with them. There's a good way and a bad way.

Here's the good way: One day in April 2016 a man was walking his Doberman off leash in the Delafield Estates in Riverdale when a coyote chased them. A few days later, the homeowner's president called Ferdie Yau, a wildlife biologist and former polar bear trainer at the Central Park Zoo. Yau had been working with Gotham Coyote to find coyote scat. (He trained his Jack Russell terrier to sniff it out.) Yau knew right away what was going on at Delafield: There was a den with pups under protection—otherwise an adult coyote would not have come out and challenged a human. Yau told the residents how to coexist with the coyotes: Never feed them, don't leave garbage around, don't harass them, and keep your dog on a leash. Meanwhile, he set up cameras. A month or so later, after the pups grew, the coyote family left Delafield Estates and moved into Riverdale Park to dig a more private den. "We didn't harm the family, and all was good," says Yau. "You don't want to capture them and relocate them. If they end up in another coyote's territory, that coyote will kill them." Yau has since seen the matriarch of the Delafield family in Riverdale park. "Most coyotes look very similar, but this female has three legs and no tail. She's a survivor."

Here's the bad way: In the fall of 2016 a family of coyotes made their den near an employee parking lot at LaGuardia Airport that borders a bridge to Rikers Island. The Port Authority of New York and New Jersey believed the coyote were a threat to employees—even though there had been no incidents of aggression. They made a plan to exterminate the coyotes. Word spread, and Gotham Coyote, airport employees, and other animal activists urged the Port Authority to wait a few weeks until the family moved on. But the Port Authority stuck to its plan, and ten of the eleven were trapped and killed (and sent to AMNH). They were believed to be the first family of New York City coyote to have had pups outside of the Bronx. One, nicknamed Dumbo, eluded them and is still at large. "We have to ask ourselves, what kind of society do we want?" says Nagy, "One where living things are a valued part of our ecosystem? One where we treat other living things benevolently because it's the right thing to do? Or not?"