

A New Nest-Tracking App Lets Researchers Retire Their Notebooks

Created by a software designer with help from ornithologists, NestStory brings collecting bird data into the digital age



Michelle Stantial testing out NestStory, which has vastly improved how she collects and stores nest data in the field. Photo: Jim Verhagen

Jim Verhagen protects his beach like old men protect their lawns. Every spring the software designer

Become an Audubon Member

and photographer heads to his home on New Jersey's Long Island Beach, where he spends his days appreciating—and defending—the local wildlife. Piping Plovers, with their vulnerable sand nests, receive special attention; Verhagen confesses he is “someone who runs along the beach yelling at dog walkers” and keeping vehicles away from the nesting birds and their chicks.

Membership benefits include one year of *Audubon* magazine and the latest on birds and their habitats. Your support helps secure a future for birds at risk.

[Join Today](#)



But as frustrating as he's found beachgoers over the years, Verhagen has also been irked by a more surprising group: ornithologists. Whenever he would join them to observe the birds, Verhagen watched in awe as researchers fumbled through notebooks of data. Even worse, he learned that the pages of numbers never ended up in databases all ornithologists could use. That these teams were doing such important work but did not have the means to efficiently share it appalled him. “Just as a total outsider, the only word I can use is shameful,” Verhagen says.

Researchers told him previous attempts to digitize data collection never gained traction. As a software engineer, Verhagen took this as a challenge. So this past summer, after

three years of development, wildlife agencies from New York, New Jersey, and Massachusetts tested [NestStory](#), a nest behavior tracking app created by Verhagen. It was a wild success. By cutting down on how much time researchers spent logging and sifting through data, “people can’t imagine not using [NestStory],” say Verhagen. He has big hopes for the app’s future, including a release for other organizations next season.

NestStory is built to track individual nests—where they are, how many eggs they hold, and how many of those eggs hatch. No handwriting; just thumb swipes. Verhagen hates typing on phones, he says. Anytime he realized the prototype requested too much tapping, he would go home and redesign for less of a finger workout. To make sure users don’t forget any necessary numbers, the app offers prompts for each data point. And in areas where birds are banded, pairs can be tracked as well, allowing researchers to monitor every couple’s nesting behavior.

Verhagen’s original rendition only tagged specific nest locations, but the app gained additional features and more comprehensive functionality once Michelle Stantial also got involved in the project. A PhD candidate at the State University of New York College of Environmental Science and Forestry, Stantial studies East Coast populations of banded Piping Plovers on the same beach that Verhagen lives on. She

began working with Verhagen on the app in 2015, when she saw Verhagen's first model and recognized what a more advanced version could do for her.



Michelle Stantial and team recording bird data the old-fashioned way. Photo: Jim Verhagen

In the decade Stantial has focused on plover research, she admits too much of her time was spent on logistical issues. Scrolling through documents to listing all kinds of nest activities was inefficient, and with every data transfer she and her team made from a list to a spreadsheet to a report, they ran the risk of making a mistake. With NestStory, the chances of human error drastically shrink.

Stantial already trusts the app so much that she is currently entering in data from 2013. Once done with backlogging, she'll be able to distribute a single spreadsheet containing five year's' worth of daily nest survival metrics with the click of a button. Compared to the files she used to juggle, "it's really exciting," she says.

Stantial is not the only wildlife tracker enthusiastic about NestStory. Verhagen has received requests to adapt the app for different species, too. This past summer, Biodiversity Works, a wildlife conservation and research initiative at Martha's Vineyard, found NestStory to be a perfect fit for tracking American Oystercatchers, and the New Jersey Department of Nongame Endangered Species wants a version for salamanders. Verhagen also says the United States Geological Survey has expressed interest in amassing a national Piping Plover database, which he thinks his app would be ideal for building.

As for what to do with all her hours not spent scrolling through computer documents, Stantial has a few ideas. "Everybody in the world of ecology is strapped for time right now," she says. She plans to spend more time with the birds and surrounding beachgoers, helping answer their questions about the endangered species she studies. And even with the burgeoning NestStory on his hands, it sounds like Verhagen won't give up on berating beach drivers any time soon. At the

end of the day, "I'm just a beachbum and a surfer, and I'm just passionate about my local wildlife," he says.