Above: Gabby Orfanides at Long Point, Ontario.

For Gabby Orfanides, the opportunity to do her PhD research on bird flight physiology at the only wind tunnel of its kind in the world, alongside researchers whose work she read throughout her undergraduate degree, has been a dream come true.

But as she tells it, studying bird physiology is a relatively recent dream. As an undergraduate student at the Rochester Institute of Technology in New York, Gabby got her first research experience banding birds. At that time, she knew she loved animals and had a curiosity well-suited for research, but she had much to learn about birds.

“I didn’t know what a Song Sparrow was!” she says now, with a laugh. But her exposure to the diversity of birds that came to her crew’s mist nests made her want to learn more. The colourful spring warblers were her gateway to birding, then the fun challenge of identifying fall warblers, and more recently, finding and identifying the diverse shorebirds that stopover near London during migration has continued to motivate her.

As an undergraduate student, Gabby's mentor, Susan Smith Pargano, shared slides with blood samples from birds with her students. Gabby realized that these smears frequently had blood parasites in them. She was curious about what they were, and what effect the parasites had on the birds. This led her to her master's research project on the prevalence and body-condition effects of blood-borne parasites in Canada Warblers and Black-throated Blue Warblers.

Above: Gabby bands a Tree Swallow.

While reading about flight physiology and parasites, a couple of names frequently came up – Chris Guglielmo (who works on flight physiology) – and Beth MacDougall-Shackleton (who works on avian malaria). She realized that both these researchers work are members of the Centre for Animals on the Move at Western University. She sent an email to introduce herself to Dr. Guglielmo, who invited her for a tour. The facilities and people inspired her to continue her research at Western. Within a few weeks of her arrival, she was capturing her first birds and rearing Yellow-rumped Warblers at the Advanced Facility of Avian Research (AFAR)'s animal facilities.

Above: Gabby wears safety gear for flying Yellow-rumped Warblers in AFAR's wind tunnel.

Now Gabby uses the hyperbaric wind tunnel at AFAR to study the flight performance of Yellow-rumped Warblers. She is interested in how avian malaria and wildfire smoke – a growing concern in recent summers – affect the flight of these birds. The wind tunnel can simulate atmospheric conditions thousands of metres above the Earth's surface, and gives researchers an opportunity to see what tiny birds experience in flight - something that would otherwise be impossible today.

Whether it's her love of science, or her love of nature, Gabby loves to share. She leads nature walks for members of the London and university communities, pointing out birds and their habitats. "It's one thing to collect a lot of data in the lab and field and then publish a paper on it to share with the scientific community," Gabby says. "It's a whole other thing to engage the public and open people's eyes to the things that you study and care about. These are the moments that I feel most proud to be a scientist."