



WIKO AND BERLIN ON MY MIND
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I combine the evolutionary history of species, mostly plants, with experiments on their current ecology to learn how their roles in natural communities evolve. I was raised in New York City, the child of German-Jewish refugees from Nazi Berlin. I earned my A.B. from Harvard University in Biology and my M.Sc. at the University of Minnesota on insect communities. My Ph.D. at Florida State University was on community ecology. I spent five years as a post-doc, self-supported by National Science Foundation grants, solving the “two-body” problem, having two kids. In 1994, I became a professor at the University of California at Davis Dept. of Evolution and Ecology and served as Chair from 2015 to 2018. Mentoring diverse students and making fabulous science together is my greatest love; we have received Mercer Awards from the Ecological Society of America (2018, 2009) and published more than 100 papers. This Fall, I received the Sewall Wright Award from the American Society of Naturalists, and I am an elected fellow of AAAS (2015) and CAS (2009). I have been continuously funded since 1989 by the US National Science Foundation and am an avid researcher of natural communities around the world. – Address: 2437 Elendil Lane, Davis, CA 95616, USA. E-mail: systrauss@ucdavis.edu.

Although our time at Wiko was crippled by COVID and social distancing, I still gained so much from my time at Wiko. There was something wonderful about being surrounded by interesting people from diverse disciplines and interacting over meals and colloquia, all in the heady cultural milieu of Berlin. I study organisms in their natural habitats and attempt to piece together rules that allow natural communities to persist and function, and the forces that maintain biodiversity. I use experimental approaches in the field,

supplemented with experiments in simplified greenhouse environments that allow me to dissect elements of the complexity in the natural world. I couple these results with the evolutionary history of the organisms I work with to understand how much their roles have been set in stone through evolution, or how much these roles can evolve over time. Of course, I couldn't really do field work at Wiko, (though I did engage with Co-Fellow David Kikuchi in a small study with clay caterpillars of different colors and patterns that were placed in the yard of Villa Walther to observe their fates with bird encounters). Instead, my goal was to synthesize a number of ecological studies into a book for the lay reader. The theme is underappreciated ecological processes that link us all together around the globe. For the book, I don't want to dwell on the doom-and-gloom scenarios that folks often hear about the environment, but rather to illuminate the reader about the extent to which we are all connected via the natural world, even if we are continents apart. The book title, "Hitched", is inspired by the great naturalist and environmental activist John Muir, who wrote in his diaries "When we try to pick out anything by itself, we find it hitched to everything else in the universe." The first completed chapter is on global connections through dust storms. Saharan dust gets blown across the Atlantic Ocean and is a really important source of nutrients for the Amazonian rainforest, ocean ecosystems, and even nutrient-poor volcanic islands like Hawaii. We care about the dust fertilization of the Amazon because the forest absorbs so much of the excess CO₂ we dump into the atmosphere, and it is home to a tremendous amount of Earth's biodiversity. Darwin even collected some dust at sea during his voyage on the Beagle in the 19th century. He deduced the dust was from the Sahara and appreciated that dust might also contain living microorganisms. In fact, Darwin's dust samples are in Berlin at the Natural History Museum. I wasn't able to visit and photograph them before we left, but the samples did turn out to have a large diversity of microorganisms, and chemical analyses have confirmed a Saharan origin. So I will return to Berlin for those images of Darwin's dust samples! I benefited from discussions on style from Co-Fellow poet and writer Georgi Gospodinov, who, along with his partner Bilyana, gave me comments on my draft. In fact, I wrote two different versions of this chapter, inspired by Georgi's colloquium. The second draft I wrote from the point of view of dust particles. I am trying to decide which I will use in the final version.

Following instructions from Daniel, I focused my colloquium on the theme of "what keeps me up at night". That theme had to include some of the environmental doom and gloom that ecologists around the globe face every day. Perhaps one of my most interesting

Wiko experiences was when, after I gave my colloquium, one of my Co-Fellows, who was not a scientist, asked me, “Do all ecologists feel as discouraged as you do about the state of our ecosystems?” I replied that we all did, and this fact was a sad revelation to my colleague. In general, colloquia were revelations to me – enlightening and so stimulating. When I arrived, I thought there was no way we would use a whole hour for Q&A for each colloquium. But we always did, often with additional questions left unanswered. The questioning part was as much fun as the lecture, hearing the perspectives of such different fields on the same topics. I even attended colloquia at 2–4 a.m. California time, after we left Berlin to return home early because of COVID. One of the things we were really looking forward to was participating in the June 2020 Fellows’ meeting in a panel – “Biodiversity: Conceptual Challenges in an Era of Rapid Change” organized by Daniel and Mark. This panel got postponed until the June 2021 Fellows’ meeting and we will do everything in our power to get back to Wiko for this!

Our cohort slid naturally into great camaraderie, oddly, not through drunken dance parties, as had occurred for cohorts past, but by building self-organized trips that took advantage of the local expertise we had in the cohort and at Wiko. I had the honor to share the cohort speaker role with Dror Wahrman, and Dror and I set up a number of visits to local museums and attractions led by folks from our own cohort and their partners. We were inspired by the great tours we received on Berlin architecture and the Natural History Museum from former Fellows. We followed up with our own tours: there was a guided tour of some paintings at the Gemäldegalerie (Roni Taharlev), a tour of the Green Vault and some spectacular miniatures in Dresden (Dror Wahrman) – the day before the Vault closed because of a diamond heist (coincidence?) – a tour of the Pergamon Museum with our local Assyriologist (Nicole Brisch), who read to us from cuneiform tablets, and a trip to Dessau/Bauhaus and Opera (Krystian Lada); Luca Giuliani led not one, but two tours of the Laocoon. There was a tour of photographs with the photographer Akinbode Akinbiyi at the Gropius Bau museum, and even a Thanksgiving dinner... Unfortunately, COVID impeded the planned birding tour (Johanna, Sharon) and others we had up our sleeves. That said, we Fellows and partners had a packed schedule. It was hard to find time to work between the extra Wiko symposia, Fellow gatherings, Abendkolloquien, lunches, and Mariella-inspired dance club outings on the weekends. But it was all good.

I also carried out some science projects during my Wiko time. I started a new collaboration with Co-Fellow Johanna Mappes; the project grew out of a question I had from

Fellow Mariella Herberstein's colloquium. Mariella was part of Johanna's working group on warning coloration. Johanna and I are currently collecting data on whether there is less within-species variation in color patterns in warningly colored species than in species that use camouflage or crypsis as a defense. The prediction was that warningly colored bright insects that are toxic should be very similar among individuals to reinforce the association between color, pattern, and toxicity to predators. In contrast, prey that are trying to blend into a background and hide from birds could do so in several ways and thus might be more variable among individuals within species. We are currently using museum specimen images to test this hypothesis. I also continued ongoing work on a project on the evolution of caterpillar coloration. My graduate student and I presented this work to the Wiko Biology club – the Life Sciences Fellows, Ulrike, and the other Fellow and partner biologists; we met most weeks for a couple of hours through Christmas. While at Wiko, I also completed several projects and papers I had started before I arrived.

One cannot really separate time at Wiko from the amazing culture of Berlin. And luckily, Mark and I spent a lot of time visiting museums and going to galleries and opera before COVID restrictions eliminated these activities. These included a fine expedition to a "Dido and Aeneas" opera production with nine other Fellows. I was also lucky to catch the fourth 6-hour production of Taylor Mac with some fellow Fellows – an avant-garde production that entailed, among many other antics, same-sex close dancing audience participation on stage, and two battling Cold War blow-up phalluses of epic proportions. Although many think science and the arts are antithetical, in fact, creative science and creative arts share many aspects. I have always been an art lover, and in my arts time in Berlin, I was inspired to design a photography project linked to my book project. I contacted one photographic team that I thought would be perfect, but alas, got no reply from them. I'll keep looking...

My husband Mark and I went to every English production at the local playhouse, the Schaubühne, and loved them! We also dipped our toes into Freikörperkultur at the Teufelssee in September and spent many hours walking and biking in the Grunewald. I even rode my clunker bike to Potsdam twice! We enjoyed the Christmas markets with our kids and with our fellow Fellows.

On a more somber note, I also spent substantial time acquainting myself with the Nazi past of Germany and my parents' experiences. I was very moved by the Stolpersteine in Berlin and even tried to keep the one outside Villa Jaffé more polished. I visited the addresses of my parents' former homes in Berlin and found the Gleis 17 exhibit to be a very moving remembrance. All my visitors went to Gleis 17 as part of the Berlin tour.

Of course, no visit to Wiko can be summed up without acknowledging the staff, who are so gracious in every way. Vera and Maike patiently helped us sort out gym membership and event tickets at good prices. I went with Katarzyna to the farmer's market at ungodly early hours, where we picked out flowers for the lobby display. I loved those bright and fragrant lobby displays, especially on gray dreary Berlin days (of which there were too many for this Californian). Thorsten was understanding of our COVID-inspired early exit. Daniel was helpful and thoughtful in so many ways. And Dunia kept our spirits up literally and figuratively, in the kitchen. And of course so many others who helped us in the apartments with computing and generally navigating German rules and regulations. Finally, Barbara and Thorsten steered the ship expertly through treacherous COVID waters.

I will miss my friends and Fellows at Wiko and hope that we stay in touch (Giovanni and Marija, Holger and Cansu, Dror and Roni, David K., Johanna, Mariella, Marco, Achille and Friederike, Kim and Hannes, Georgi and Bilyana... that means you!). All colleagues and staff, you are welcome at our place if you find yourself in California (I recommend not coming in the August–September fire season.) This year will always be remembered as a special and good time for us, despite the stresses of COVID... Thanks for the memories.