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Josh Van Buskirk (1959–2021)

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For those of us who knew about his two-year struggle against cancer, the news should not have come as a total surprise; yet the message that Josh Van Buskirk (Fig. 1) had succumbed to the disease has deeply shaken us. We had never given up the hope that Josh would recover. We refused to believe that this friendly, enthusiastic, energetic, and brilliant man would have to go at the age of 61 and leave behind his family, many friends, and colleagues. We were particularly thinking how unfair and painful his untimely passing would be for his wife, two sons, his mother, and two sisters. But our wishful thinking was in vain. On August 20, Josh lost his battle. One thing, however, has not gone with him: the memory of what he meant to many of us. The following text with photos and the subsequent quotes from friends and colleagues may help in keeping this memory alive.

Josh's Professional Career

After receiving his PhD from Duke University (Durham, NC) in 1991, Josh held postdoctoral positions at the North Carolina State University (Raleigh), the Institute of Ecosystem Studies (Millbrook, NY), and the University of Michigan (Ann Arbor), followed by an Assistant Professorship at Texas Tech University (Lubbock) from 1994 to 1996. In 1996, he applied for a Senior Research Assistant position ("Oberassistenz" in German) in the Ecology Group at the Zoological Institute of the University of Zurich, together with more than 60 candidates from all over the world. Yet, the selection process was an easy one: Josh clearly topped them all in terms of the scientific quality of his research, the brilliance of his presentation, and his extremely pleasant personality. Given that the position was nontenured, we lost Josh in 2003 to the University of Melbourne, where he became a lecturer in the Zoology Department; but in 2006, we were able to hire him back to Zurich, this time on a permanent position. Although formally Josh again belonged to my Chair in Ecology, he led his own research group independently. After the foundation of a new *Department of Evolutionary Biology and Environmental Studies* (IEU), this independence was formalized by making Josh officially a research group leader. In 2012, he was also elected to the department's Board of Directors, on which he served until his death.

Figure 1. Josh Van Buskirk at Gibson Steps in Port Campbell National Park, Australia (photo credit: Yvonne Willi).

JOSH AS A SCIENTIST AND NATURALIST

Working mainly (but not exclusively) on larval stages of amphibians, Josh's research centered on the factors causing phenotypic plasticity in morphology and behavior and on the ecological and evolutionary consequences of such plasticity in terms of population and community biology, species interactions, and selection for ecological specialization. Starting from intriguing theoretical concepts and the complex biology of the animals under natural conditions, he phrased his questions in such a way that they could be answered through a combination of comparative field studies and large-scale common garden experiments (Figs. 2 and 3).

Josh's ability to set up experiments rigorous enough to fulfill statistical requirements and yet realistic and complex enough to mirror the natural situation was admired by many of us.

Figure 2. Josh sampling densities of tadpoles and dragonflies (frames from a video taken by Uli Reyer).

Figure 3. Josh among his "cattle tanks" in 2007: one of the many common garden experiments in which he studied how genetic relatedness and ecological factors affect the phenotype and survival of tadpoles (photo credit: Benedikt Schmidt).

Every experiment and fieldwork was carefully planned, and data were collected efficiently and analyzed with sophisticated statistical methods. His numerous publications—the vast majority in the most respected journals of the field—were written with elegant and clear prose.

Among the top three of Josh's most cited papers is one from 1996 in *Evolution* (50: 583–593), jointly published with Andy McCollum: "Costs and benefits of a predator-induced polyphenism in the gray treefrog *Hyla chrysoscelis.*" It set the stage for further *Evolution* papers (including three in 2020 and 2021), in which Josh addressed a question that fascinated him throughout his whole career: What are the costs and benefits of phenotypic plasticity, and under what spatial and temporal circumstances does selection maintain it? He addressed this question by raising amphibian larvae from populations within and between different elevational zones in reciprocal transplant experiments and subjecting them to carefully controlled environmental conditions, usually involving different predation pressures through dragonfly larvae (Fig. 3). One important finding was that in studies where theory predicted a plastic response, but it was not found, costs at later life stages had been ignored and/or conditions had changed over time, favoring plasticity only during part of the larval development but hampering it during another.

Given Josh's publication success, and hence his visibility to many colleagues, it is not surprising that he has regularly attracted substantial amounts of external funding, initially from the U.S. National Science Foundation (NSF) and later mainly through the Swiss National Science Foundation (SNF), but also the British NERC, the Australian Research Council, and some others. His excellent reputation as a researcher is also documented by numerous invitations to international conferences and university seminars as well as by hundreds of review requests from about 50 scientific journals and major funding organizations from various countries, including the United States, Canada, Switzerland, Britain, Australia, Israel, and the Netherlands. From 2004 to 2010, he also served on the Editorial Boards of three journals published by the *Ecological Society of America* (ESA): *Ecology*, *Ecological Applications*, and *Ecological Monographs*; and from 2005 to 2010 he was a Research Associate at the *Carnegie Museum of Natural History* in Pittsburgh, PA (USA).

At the same time, Josh's interests and knowledge went far beyond the focus of his own work. He has supervised student projects and published together with colleagues (including his wife Yvonne Willi) on a wide range of topics and organisms such as shark behavior, bird migration, Lyme disease, farmland biodiversity, and population genetics in fragmented habitats, to mention just a few. These examples illustrate Josh's broad approach to ecological and evolutionary questions, and his interests in topics ranging from the level of individuals to single species and whole communities. Along with this broad approach went a deep and always up-to-date knowledge of the theoretical and empirical literature. It allowed him to clearly identify unsolved and highly relevant problems in both basic research and conservation needs.

Josh was also a dedicated and enthusiastic naturalist with an excellent knowledge of the flora and fauna, especially of bird species. Wherever he traveled in the world, a field guide of the local bird fauna was traveling with him. He enjoyed being outdoors, not only for scientific reasons but also for physical exercise, be it hiking or kayaking in which he was an expert. Once, while working as an undergraduate on Isle Royale in Lake Superior he did 20 consecutive kayak rolls, with no pause in between, gradually working his way across a pool sideways.

JOSH AS A TEACHER AND SUPERVISOR

Josh's broad knowledge and fascination for science and nature also made him an excellent and versatile teacher and supervisor. The subjects he taught over the years in his different affiliations include ecology, evolutionary ecology, community ecology, conservation biology, population genetics, animal diversity, vertebrate zoology, Australian wildlife biology, animal behavior, environmental measurement, and scientific writing. Josh loved teaching and supervising! He took it as seriously as research and invested a massive amount of time and considerations into planning

Figure 4. Josh in his office at the University of Zurich, preparing a lecture (photo credit: Uli. Reyer).

and running his lectures, courses, seminars, and journal clubs for undergraduates and advanced students, as well as in training MSc and PhD candidates (Fig. 4). In courses, which were jointly taught with various scientists, his projects always attracted a disproportional large number of students, and the questionnaires which we regularly handed out confirm that he was always successful in getting his message across – even when it came to statistical analyses, which are not very popular with most students.

What is even more important: Josh knew how to motivate students and stimulate their own thinking. None of my colleagues that I knew from their everyday work could compare with Josh when it came to supervising students and discussing science with them. In such discussions, he was equally good at listening and arguing, at providing guidance and granting freedom. Given these abilities, it is not surprising that Josh attracted the most interested undergraduate students for his course projects, and the most bright and hard working MSc and PhD candidates. Those that "fledged" from his supervision were clearly above average and regularly published their studies with Josh's assistance, including some of my students that he helped to supervise. How much his supervision was appreciated is well illustrated by the entry that his last MSc student made into the book of condolence:

> Dear Josh, I want to thank you for a great year. I couldn't imagine a better way to carry out a Master thesis. Even when you were at a low, your optimism and positivity shined through. I will remember you as the great, humble and very helpful guy that you were. Your door was always open; no matter what question came up, you were always there.

Josh was also a popular source of assistance for students other than his own and always willing to help them. As an advisor for designing experiments and statistically analyzing data of any sort, he became indispensable for our Ecology Group, and

his help was even sought after by—and given to—members from other labs.

Josh as a Co-director in the Departmental Board

There is no better indication of Josh's commitment to the local scientific community than his long-term service on the directorial board of the *Department of Evolutionary Biology and Environmental Studies*. Josh had a command of our teaching portfolio like nobody else in the department. In a department that teaches more than 130 courses, Josh amazed by knowing all the relevant details—who was teaching what and when, and at what cost to the department. This was extremely helpful to set priorities, avoid overlaps and identify gaps in our teaching program. Josh was wonderful to work with, very collegial, and always trying to find compromises to resolve tensions arising from conflicting teaching interests and programs. He was very generous with his time, and consistently put the department's interest before his own. He was never shy to point out when there was anything that he perceived as unfair, and he was fearless and outspoken—in the best possible way—whenever spotting that an inequality had crept in without anyone noticing, be it in teaching load or any other matter. However, even when he had a "firm" opinion on topics or about people, he was never dogmatic but would listen, respect other perspectives and revise his opinion if necessary. As a result, it was never "unpleasant" to have controversial discussions with him. It would be hard to find anybody better suited for the tasks that he volunteered to take on. It was a true privilege to work with him and he will be sorely missed by all.

Heinz-Ulrich ("Uli") Reyer, Emeritus Professor, on behalf of the Board of Directors and all colleagues and members of the *Department of Evolutionary Biology and Environmental Studies* at the University of Zurich. Email: uli.reyer@ieu.uzh.ch

September 2021

Personal Remembrances of Some Friends and Colleagues of Josh

Dear Josh, I wish I could believe in life after death and hence hope to meet you again somewhere at some point in time. We would go frog catching and tadpole sampling; I would listen to your insightful arguments in seminars, would discuss science, and plan new experiments with you, maybe over a beer at the *Neubühl*, our favorite restaurant; I would pass by your always open office door, come in for a chat or seek your advice. I would enjoy your excellent sense of humor and your occasional singing to the guitar (Fig. 5). Unfortunately, all this is an illusion, but one thing is reality: you will always be on my mind as a dear friend: energetic, helpful, generous, and humble; as a great colleague, a superb scientist, excellent teacher, and dedicated supervisor of students—and as my indispensable right hand in running our Ecology Group and making it successful over so many years. Thank you for all of that!

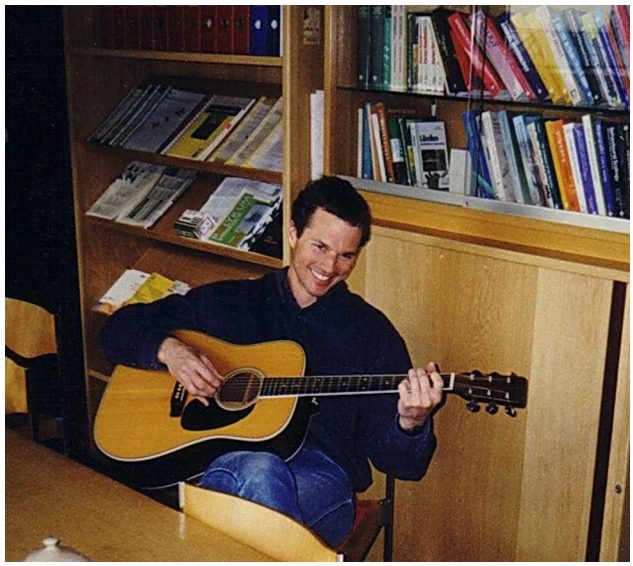

Figure 5. Josh playing the guitar. *"He had a good voice, and would sing excerpts from musicals"* (David C. Smith; photo credit: Uli Reyer).

Uli Reyer, University of Zurich, Switzerland

I met Josh as a fellow PhD student. Then, and whenever I met him over the next 35 years, I was always warmed and inspired by his liveliness and enthusiasm for being in the natural world and understanding the miracle of how it all fits together. His positivity and friendliness always brightened the room. I wish he had kept his Australian job for longer; he would have been a great addition to the community of biologists here.

Ross Alford, James Cook University, Cairns, Australia

Josh, I remember your generous spirit at Melbourne and your willingness to engage in constructive scientific debates with students and early career staff. You were often ahead of the "game" and your formidable contributions with Yvonne and others will be remembered for a long time.

Ary Hoffmann, University of Melbourne, Australia

When I arrived in Zurich, Josh took me under his wing, toured the campus and the city with me, and even helped me get my first Swiss bank account. He became a confidant, academic advisor, and friend. I cannot believe he is gone.

Trenton W.J. Garner, Institute of Zoology, Zoological Society of London, England

When we first met Josh in Zurich in 2002, we were both impressed by his youthful vigor and energy. We had far ranging discussions of life history evolution that started with local frogs

and took us to dragonflies on the shores of Lake Superior. He was the ideal person to train and inspire students in evolutionary biology, ecology, and behavior, with an emphasis on experiments in outdoor enclosures. He will be sorely missed by his many friends and students who he encouraged and motivated through his stimulating discussions, and warm friendship.

Rosemary & Peter Grant, Princeton University, Princeton, NJ, USA

As an elder grad student, Josh became a mentor as well as a peer and a friend. Our lab discussions were always lively, as Josh was so enthusiastic about his ideas and well capable of defending his opinions in a room filled with smart, strong-willed personalities. He became my go-to sounding board for any ideas I had and for reading anything I was writing. When we began working closely together as postdocs in Earl Werner's lab, I learned what an indefatigable worker he was […]. He made me a better scientist. But mostly I think of Josh as a good friend. I will remember him joking, laughing, playing his guitar, cooking, and marveling at nature.

Andy McCollum, "The Tangled Bank," Mount Vernon, IA, USA

Josh had a tremendous curiosity for nature that inspired superb experiments and made major contributions to ecology and evolution. He was a brilliant mind and a kind-hearted soul. I treasure the years we spent in Michigan working and living at the E.S. George Reserve, where we discussed science, entertained ourselves with outlandish debates over preposterous ideas, and enjoyed his evening guitar.

Rick Relyea, Darrin Fresh Water Institute, Troy, NY, USA

After planning, doing and publishing my first experiments with Josh in the mid-1990s, he wrote a proposal to the Swiss National Science Foundation (SNF) that allowed me to do a PhD. It was a great time. I had a lot of freedom but also support whenever I needed it. Without Josh, my life would have been very different and my scientific career less successful.

Benedikt Schmidt, University of Zurich, Switzerland

Josh was always so full of energy and enthusiasm, like a breath of fresh air. We spent a good part of the last year putting together a paper on the Isle Royale tadpoles, and doing that with Josh will always be a treasured memory for me.

David Smith, Williams College, Williamstown, MA, USA.

Josh was a remarkable scientist. He had a talent for asking just the right questions and then designing just the right combination of observations and experiments to answer the questions. His experiments were as close to perfect as a human being can design an experiment. Josh made the rest of us see things we had not seen before, even though we had all been looking at the same stuff. He made the difference between looking and really seeing something for the rest of us to strive for. He was also a perfect gentleman, generous in recognizing others' work and, as far as I know, devoid of the vanity that too many successful scientists develop.

Joseph Travis, Florida State University, Tallahassee, FL, USA

As an avid birdwatcher and naturalist, Josh greatly enjoyed exploring Australia's amazing biodiversity during countless trips to the bush, and his cheerful and engaging personality was well received Down Under. A fond memory is a joyful Christmas gathering of several expats and "left-behinds," where Josh managed to cook the best Christmas turkey ever in the blistering heat of the Australian summer.

Christoph Vorburger, EAWAG's Aquatic Ecology Department and ETH Zurich, Switzerland

I am very deeply saddened by the news of Josh's passing; he was a wonderful, warm, and open colleague who made a very substantial impact on my own work and that of my graduate students. He (with Andy McCollum) had obtained an NSF grant to support postdocs in my lab, and their studies of morphological plasticity took us in many new directions. Josh thought deeply about ecological issues, and was incredibly generous with his time and ideas. I immensely enjoyed his presence, and I will sorely miss his visits from Switzerland, the discussions of current ecological theory, and the stories of sampling the outlying islands of Isle Royale in his kayak.

Earl Werner, University of Michigan, Ann Arbor, MI, USA

Josh was a wonderful friend, excellent scientist, and a joy to be with in the field. He was a real athlete on the soccer field and the ultimate frisbee pitch. As a skilled birder and enthusiastic naturalist, he added much to the field trips of my research group and continued to make me proud over the last three decades.

Henry Wilbur, University of Virginia, Charlottesville, VA, USA.

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