

My Uncle Larry

Larry Slobodkin has been making fundamental advances in ecology for more than half a century. *Evolutionary Ecology Research* is privileged to publish his delightful look back, as well as a small number of companion papers contributed by some of his former students and colleagues. (A few other contributions, which took shape as personal memoirs, appear only in the on-line version of *EER* but will be available without charge to all.) Probably, I should just shut up and let him speak, but I cannot give up the opportunity to praise him with a few words of my own.

One of Larry's earliest contributions forever altered the way ecologists study energy flow in ecosystems. When he began, work was purely descriptive and inchoate. He first carefully set out meaningful definitions of efficiency in ecology. Then he organized available results and suggested, based on the evidence he had brought together, a provocative rule-of-thumb: 10% transfer efficiency between trophic levels (Slobodkin, 1962: in *The Exploitation of Natural Animal Populations*, E.D. LeCren and M.W. Holdgate, eds., pp. 224–241. Oxford: Blackwell). As a result, almost all discussion of trophic dynamics changed. Some people debated whether Slobodkin was correct. Others sought the conditions that would provide exceptions. Although Larry himself has recanted, the ecological community appears unwilling to let the matter go.

Larry Slobodkin had a similar influence on studies of dynamic stability. His 1968 essay (Slobodkin and Sanders, 1969: in *Diversity and Stability in Ecological Systems*, G.M. Woodwell and H.H. Smith, eds., pp. 82–97. Upton, NY: Brookhaven Symposium in Biology #22) showed us that stability could be defined in many ways, and that these were all careful and worthy of consideration. Finally, he showed that the differences are consequential; changing one's definitions can and does reorder the stability rank assigned to various systems.

A third contribution actually created a fundamental ecological question (Slobodkin, 1974: *Am. Nat.*, **108**: 665–678): What is the nature of a prudent predator? That is to say, how should one species harvest another to maximize the amount and reliability of the yield? In these days of concern about environmental sustainability, few questions are as relevant. Slobodkin's has been asked by so many for so long that he has achieved the signal honour of having it taken for granted. Many do not even know its parent, but check its DNA. He is the father.

Slobodkin has also had a hand in other research of monumental ecological significance. Most noted is probably an elegant paper some four decades ago; it is known to many students as HSS (Hairston, Smith and Slobodkin, 1960: *Am. Nat.*, **94**: 421–425). This work steps way back and looks at issues of dynamics and standing crops on a global scale. Why is much of the land surface of the planet largely green? The question remains vital to this day.

My own favourite co-authored Slobodkin work is not as well known. Why do some hydra species harbour algal symbionts while others do not? Slobodkin and his co-authors were able to reduce this question to another: the regulation of one species' population growth by its symbiotic host individual (Slobodkin, Dunn and Bossert, 1987: in *Evolutionary Physiological Ecology*, P. Calow, ed., pp. 151–167. Cambridge: Cambridge University Press). They used a mathematical theory – backed up with laboratory and field data – to study the problem as a trade-off: the cost and problems of having an algal farm vs. the farm's nutritional benefits. That approach goes to the heart of understanding much of the world's diversity because, without trade-offs, life would be dominated by a tiny number of species that did everything as well as it could be done.

Despite his devotion to basic research, Larry Slobodkin also led in graduate-level ecological education. He conceived and organized the world's first graduate programme in ecology and evolution. The results (at SUNY-Stony Brook) have had a profound influence on the way ecological graduate studies are conducted. And it is absolutely impossible to imagine ecology or evolution today without the splendid contributions of Stony Brook's faculty and alumni working in the environment he provided for them.

Larry Slobodkin's three books extend from a basic and formative graduate text in the 1960s to more general works in 1992 and 2003. My personal favourite? *Simplicity and Complexity in Games of the Intellect* (1992: Cambridge, MA: Harvard University Press). *SCGI* provides creative and brilliant insight into the nature of change in all human enterprises, including ecology. It sees us a herd led by a distant, often dimly perceived and sometimes even deceased shepherd. So guided, we collect our efforts and channel them into one stream, elaborating on their theme until they collapse under the weight of their own gratuitous intricacies and the simple clarity of a new leader.

His first book, *Growth and Regulation in Animal Populations* (1961: New York: Holt, Rinehart & Winston), set the stage for countless ecological careers (including mine) and may still be read with profit. I cannot forget working in its pages while waiting for my interview with the Dean of Medicine at the University of Pennsylvania. Applying for admission, I nevertheless lectured that poor dean about the transcendent importance of Larry's book and our field. (I got in – and immediately took a leave of absence to work with Robert MacArthur, Larry's intellectual sibling. And so Larry became my uncle.)

In his most recent book, *A Citizen's Guide to Ecology* (2003: New York: Oxford University Press), Slobodkin turns his attention to the informed citizenry and lays out, in the lucid prose to which he has accustomed us, the complexities of our science. We are living in a world whose ecological issues are of unsurpassed importance. But citizens cannot make decisions when confronted merely by a menu of mindless slogans. Realizing this, Dr. Slobodkin offers his understanding not simply of 'an ecological condition anywhere in the world', but of the ecological condition everywhere in the world. Were anyone else to have dared, I would shout, '*Hutzpah!*' In his hands, it was not only possible, but done!

Michael L. Rosenzweig

Editor-in-Chief and Publisher

(© 2009 and correspondence: scarab@u.arizona.edu)