

BOX 1.1

Natural History: The Taproot of Ecology

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A dozen college students lean into the steep hillside above the snout of the enormous valley glacier. For the moment, though, they pay no heed to the massive muscle of ice—their attention is focused, laser-like, on the enchanting internal structures within tubular corollas. The world suddenly takes on new depth and beauty as these details emerge as tiny, significant patterns.

Groups of curious urbanites—in bright clothing and rubber boots—wade into the mountain stream with dip nets, squealing with surprise and delight as wiggly invertebrates emerge from the black ooze.

A young Charles Darwin comes ashore on equatorial islands, midway through a five-year voyage, and carefully observes, then records, the lengths and shapes of the bills of the small birds he finds.

At a predetermined moment, small clusters of biologists begin identifying and counting shorebirds on the expansive mudflats, trying to learn how important this mangrove estuary is to the lives of these intercontinental migrants.

Each of these encounters is an example of the oldest continuous human endeavor—*natural history*, the practice of intentional, focused attentiveness and receptivity to the more-than-human world. Barry Lopez noted that natural history “is as old as the interaction of people with landscape.” Simply put, there have never been people without natural history. Every hunting-gathering culture throughout the history of our species practiced careful, deliberate attentiveness to nature—indeed, survival depended on it. Pliny the Elder coined the term *natural history* in the first century AD with the publication of his encyclopedic *Historia Naturalis*—literally, “the story of nature.”

Natural history—careful description based on direct observation—provides

Likewise, ecological science today is increasingly cognizant of the social implications of ecological systems. Some fields within ecology, such as conservation biology, are already well along this path. But observational methods are cropping up all over ecological inquiry and also spreading ecology far out into other realms of inquiry. One of Rafé’s more unusual projects, for example, is working with an interdisciplinary group

the empirical foundation for biology, geology, anthropology, and ecology. The first textbook in ecology, Charles Elton’s *Animal Ecology* (1927), began: “Ecology is a new name for a very old subject. It simply means scientific natural history.” Most theoretical breakthroughs in ecology have come from thinkers accomplished in field natural history. Witness Charles Darwin and Alfred Russel Wallace, who were both committed naturalists, and E. O. Wilson, who titled his autobiography *Naturalist*. However, academic science in the twentieth century placed abstract theorizing on a pedestal, and devalued the basic descriptive science on which all abstract models are based. The bottom line: without accurate empirical observations, theory is just so much fluff. And, as Harry Greene has pointed out, new natural history information about organisms continually resets research agendas—helping scientists ask better questions and refine theories.

Conservation, too, has always depended directly on natural history. How can we save species from extinction if we don’t know where they are, when they’re there, and what they’re doing? Moreover, for many of us who do field ecology, I suspect, our commitment to conservation has been deepened as much by our direct personal encounters with the world’s brilliant wildness as by the data we’ve collected.

Aldo Leopold frequently deplored the loss of traditional natural history study. In 1938, he delivered an address entitled “Natural History—the Forgotten Science,” in which he criticized the new wave of science that increasingly took things apart but failed to explain how they were connected. Leopold objected to the way science forsook natural history when, as he saw it, society needed it most.

Society still needs natural history. Ecology grounded in the best natural history is more dependable, and less vulnerable to political meddling, than science floating on a sea of abstractions. Sustainable resource management depends on natural history insight. And natural history can inoculate society with gratitude for the uplifting beauty of the world, and with the humility this engenders.

of ecologists, anthropologists, psychologists, public health experts, and counterterrorism experts, as well as soldiers, cops, firemen, and spies, to figure out what we can learn from 3.5 billion years of biological evolution for security questions in modern human society (Sagarin 2012; Sagarin et al. 2010; Sagarin 2010). Although some people have called this “Natural Security” project a “new” approach to security questions, it is essentially