

Why Practice Natural History?

The Aesthetic Roots of Natural History

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The first song of a male Red-winged Blackbird in late winter reminds me of the many hours I have spent among these birds studying their social lives and trying to discover the meanings of their alarm and contact calls and songs. What messages were the males communicating, to whom were they signaling, how did other individuals respond to the messages, and how did their responses influence their success?

Those hours were among the happiest of my life, but why was what superficially might appear to be a rather boring task so pleasurable? The answer lies in the distant past.

Our remote ancestors lived in constant, direct contact with a complex and challenging environment. To survive on the African savannas and reproduce successfully, they needed to navigate through the landscape, recognize objects, understand and make tools, judge distance, avoid predators, identify and harvest edible plants, and capture animals. They needed to avoid disease-causing organisms and consume a balanced diet. They needed to decide which foraging efforts repaid their energy expenditure and which did not. They needed to select mates of high reproductive value and successfully court and defend them. Because they lived in groups they had to interpret complex social situations correctly, deter aggression, maintain friendships, and cooperate.

Evolutionary biologists know that when we are moved to act by strong emotions those actions were almost certain to have been evolutionarily important (Cosmides and Tooby 2000). That is, our ancestors evolved to prefer or “like” beneficial objects, events, and actions that increased their chance of surviving and reproducing. They evolved to avoid or “dislike” objects, events, and actions that were dangerous. It is obvious that those ancestors who enjoyed sexual intimacy would have passed on more copies of the genes influencing those preferences to subsequent

generations than those who did not enjoy sexual intimacy and, hence, were less stimulated to seek out sexual partners.

By the same logic, individuals who were attracted to and settled in environments rich in resources (such as caves, water, and food) should have left more offspring than individuals who were attracted to and settled in inferior habitats.

Thus, an evolutionary perspective on aesthetics suggests that beauty and ugliness are not intrinsic properties of objects. Rather our sense of beauty and ugliness arose from interactions between traits of objects and our nervous system. Beautiful objects are ones that, if we responded to them positively, improved our lives—increasing our likelihood of surviving, winning a good mate and leaving offspring. Ugly objects were ones that interfered with or impeded some component of living.

In other words, to understand our emotions and our aesthetic response we need to try to find out how these responses helped our ancestors solve problems. I explore these and related topics in greater detail in my forthcoming book on environmental aesthetics (*Snakes, Sunsets, and Shakespeare: How Evolution Shapes Our Loves and Fears*) that will be published by The University of Chicago Press in 2014.

Paying Attention to Biodiversity

The resources our ancestors required—such as food, fiber, medicines, and shelter—came from many species. Knowledge of those species would have helped them find and use those species. To decide when to shift from a dry-season to a wet-season camp or from a winter to a spring camp, our ancestors would have benefited by having a deep understanding of life cycles of local species of plants and animals. Throughout human history, knowledge of other

species, especially their availability and suitability as food, has been crucial to survival.

Paying attention to timing and location of flowering plants would have told our ancestors where they could find fruit in the future. Signs of animal activity—tracks, broken branches, scat, and odors—would have provided hunters with valuable information. Movements of herds of mammals and flocks of birds would have offered direct information about food.

Humans have long observed other species of animals to determine what is safe to eat. They learned which plants were dangerous to eat by observing plants eaten by animals that later became sick. The behavior of female mammals indicated where their vulnerable offspring were hidden. Seafarers have long used the behavior of seabirds as a navigation aid.

The value of this deep understanding of other species is one reason why we are attracted to the great diversity of living things.

Although we are attracted to a variety of organisms, the kinds of environments we recreate in our gardens and other humanized landscapes show that landscapes with few species also can be very attractive. The most highly developed garden traditions—European formal gardens and Japanese gardens—are dominated by a few species of woody plants.

Most of us respond positively to gardens that display a profusion of flowers of different species and colors, but environments that contain a jumble of plants of many species receive low scores in psychological tests (Kaplan and Kaplan 1989). They are too difficult to interpret; it is hard to determine how to enter and use them. We respond positively to large flocks of birds and herds of mammals that have only one species, but I am not aware of experiments that test our responses to scenes of flocks and herds that differ only in the number of species in them.

Natural History and Classification

To respond appropriately to different species, it helps to categorize them, to create stereotypes that greatly simplify deciding what to do with the members of each category. Therefore, following Darwinian logic, classifying things should have evolved to be pleasurable. And it has! As psychologist Nicholas Humphrey (1980) pointed out, pleasure happens when we view and attempt to order shapes and patterns because “an activity as vital as classification was bound to evolve to be a source of pleasure. . .”

We can classify things that lack names, but it is much easier to remember things if they have names. Ancient Hebrews recognized the importance of names by giving Adam, as his first task, naming the animals. The writers of Genesis had poor knowledge of the extent of Earth’s biodiversity; they imagined Adam’s job to be a fairly simple one that he could accomplish in less than a day; plus, they did not care if plants had names.

We classify anything that can be ordered, but the value of paying attention to other species may be the origin of our desire to classify things. The pleasure we gain from finding order in nature may also help explain our propensity to seek and find “order” where there is none. We find forms of living organisms in clouds. We imagine outlines of people, animals, and human artifacts in rock formations that are the result of normal erosion. We find monsters in driftwood and wave patterns.

Common species probably provided most of the resources used by our ancestors as they still do today in hunting and gathering societies, but rare and unusual species and events may have provided valuable information about environmental changes. Indeed, unusual events (e.g., more powerful hurricanes and tornadoes, early flowering of plants, early breeding of birds) are currently telling us about the consequences of climate change. Rare species have provided special flavors (spices), scarce nutrients, and medicinal benefits.

So one answer to the central question of this essay series is clear: We practice natural history because our ancestors did, as a core component of survival in a world they shared with a myriad of other species. Our affiliation with nature is a legacy of the importance of nature to our ancestors.

Rebuilding Our Connections with Nature

Fortunately, many people in modern industrialized societies, even though they have much less contact with nature than our ancient ancestors did, continue to believe that a world with many fewer species would be a less desirable place to live in. This belief spurs them to donate to organizations that work to preserve species that live in places they may never visit. Knowing that those species continue to exist is sufficient motivation for donating.

The deep evolutionary roots of our strong emotional responses to other living organisms are the foundation of what Edward O. Wilson has labeled “biophilia.”

Yet biophilia, like many other human traits having a partial genetic basis, needs to be nurtured if it is to flourish (Kellert 2002, Konner 2010). People will not care about and act to preserve things whose existence they are unaware of, regardless of how deeply our ancestors were connected to nature. This is why the "No Child Left Inside" Project (Louv 2005) is so important. Nurturing delayed may be nurturing denied.

Early exposure is vital but we also need to modify how we teach science in general and biology in particular in secondary schools, colleges, and universities. Today much of college education is job oriented, designed to prepare students for a profession. It offers the hope, if not the promise, of a salary that will repay a massive student loan debt. Gaining a broad understanding of natural history does not seem to offer good financial prospects.

Yet, as Aldo Leopold articulated many years ago, "Liberal education in wildlife is not merely a dilute dosage of technical education. It calls for somewhat different teaching materials and sometimes even different teachers. The objective is to teach the student to see the land, to understand what he sees, and enjoy what he understands" (Flader and Callicott 1991).

Leopold's words ring as true today as they were when he penned them. Indeed, they are even more pertinent now as we recognize that our activities are ushering in a time of mass extinction of species, many of which have not even been described and named, and whose roles in nature are unknown.

The evolutionary history of our species has been embedded within the natural world and has given rise to our sense of aesthetics, beauty, and pleasure. Our future may very well depend on the success of our efforts to protect – and reconnect – with our natural roots.

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