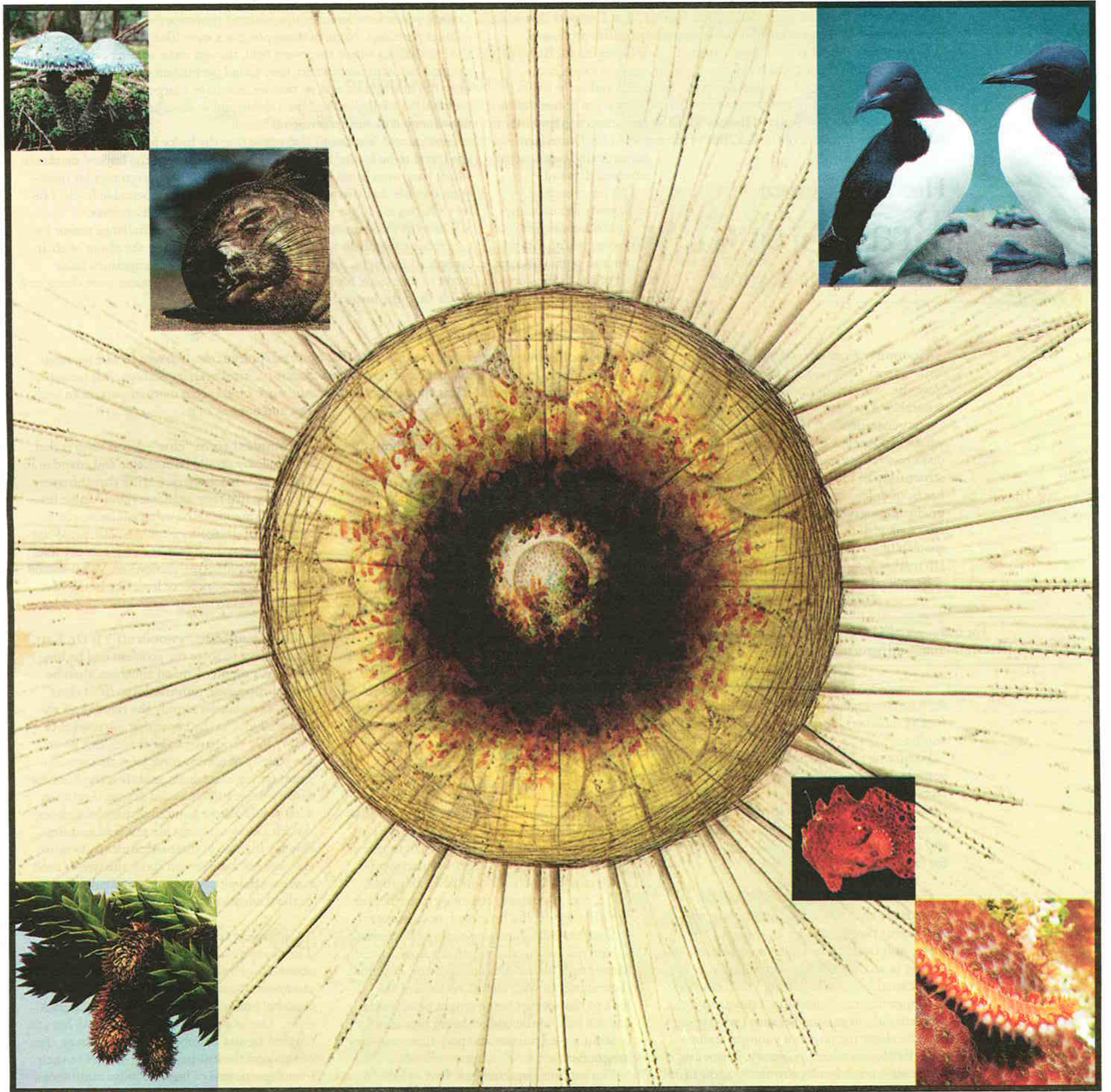


# *The Chronicle Review*

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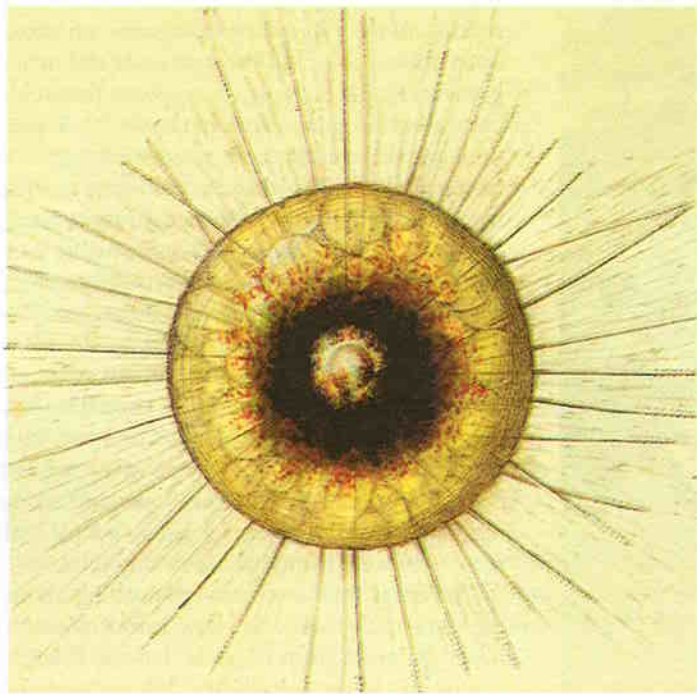
## Will the 'Encyclopedia of Life' Be the Death Knell for Species?

By RANDY MALAMUD

In Search of Freud, Hegel, and Marx • Richard Wright's Integration Agonies • Education and the Wage Gap



JIRI DUCHON



ERNST HAECKEL



JOHN E. RANDALL



From left: *Stropharia aeruginosa*, *Aulacantha scolymantha*, *Antennarius commerson*

# Life as We Know It

Does classifying nature heighten, or substitute for, our appreciation of it?

By RANDY MALAMUD

**L**AST YEAR the Harvard biologist E.O. Wilson, one of our great naturalists, presented the visionary challenge to create what he called an Encyclopedia of Life, a massive online project that would catalog every living plant and animal: 1.8 million species, each with an infinitely expandable page.

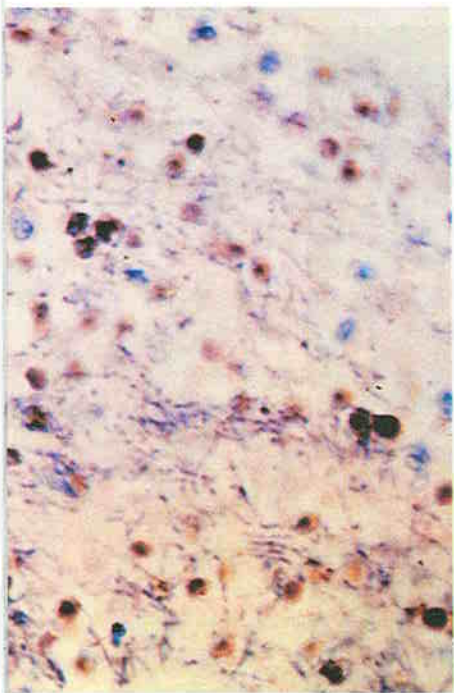
This encyclopedia, generated by thousands of scientists around the world as well as amateurs, and financed by \$50-million from the John D. and Catherine T. MacArthur Foundation, the Alfred P. Sloan Foundation, and others, would “create the key tools that we need to inspire preservation of

earth’s biodiversity” and make “all key information about life on earth accessible to anyone on demand anywhere in the world,” Wilson said.

Our ecological condition, Wilson suggests, will improve or decline in proportion to our knowledge or ignorance about nature: “Sadly, our knowledge of biodiversity is so incomplete that we are at risk of losing a great deal of it before it is even discovered. ... We are, in short, flying blind into our environmental future. We urgently need to change this. We need to have the biosphere properly explored so that we can understand and competently manage it. We need to settle down before we wreck the planet. And we need that knowledge.”

*Continued on Following Page*

## Does the Encyclopedia of Life's digital nature "compete" with the real-life objects? Will it encourage us to appreciate plants and animals more, or to spend more time surfing online?



CENTERS FOR DISEASE CONTROL



KURT STUEBER

From left:  
tissue  
infected with  
*Bacillus*  
*anthracis*,  
*Araucaria*  
*arucana*

### Continued From Preceding Page

I'm not convinced that our current environmental plight is really the result of ignorance rather than overdeveloped nations' greed and resistance to conservation. Nor am I convinced that knowing more will inspire people to reduce our intrusive desecration of nature. I have concerns about the frame, the platform of this knowledge, in light of earlier intellectual and archival traditions that have tried to compile comparable taxonomies of life.

Will ecology benefit from this new electronic interface, or might "life" get swallowed up in its ether? Ecology demands subversive resistance to the status quo of unsustainable overdevelopment, and I have doubts about whether an Internet enterprise can transcend its implication in consumer culture.

**I**N FEBRUARY the EOL made its debut at <http://www.eol.org> (and crashed almost immediately, as hordes of users logged on). Thirty thousand entries are somewhat developed—mostly fish, as an early database integrated into the EOL was FishBase. Two dozen fully developed "exemplar pages" show what the EOL promises to become over the next 10 years. What's there now is an ambitious template: It's obviously an undertaking that merits great interest, not just as a scientific document but also as a cultural phenomenon.

Each page will offer material on the life-form's classification, distribution, habitat, and life cycle. Entries link to specialists' home pages and scholarly articles, many from the vast Biodiversity Heritage Library, a digital commons from a consortium of natural-history museums, botanical libraries, and research institutes. Other valuable databases to be integrated into the EOL include Tree of Life, Catalogue of Life, and the Global Biodiversity Information Facility, solid sources that will mesh well with this project.

Here's a quick sampling of what you'll see browsing the EOL: Clicking on "coloration" on the Australian giant cuttlefish page, you learn that the "overall appearance of the animal—termed the body pattern—can change in less than a second due to direct neural control of the skin patterns"; you can watch this on video, too. The entry for *Amanita phalloides*, the death-cap mushroom, extensively describes its toxicity (death occurs seven to 10 days after ingestion—watch out!). There's

some fairly arcane information, like a detailed discussion of the rootlets of the *Cafeteria roenbergensis*, an oceanic protozoan. We learn about ecological determinants and niche: The Madagascar periwinkle, for example, "has spread from cultivation to become naturalized in many parts of the world. Some therefore consider the plant to be an invasive weed. Although it does readily escape from cultivation, it does not proliferate to the point of overgrowing and wiping out native vegetation in areas where it becomes established, as do seriously invasive plants such as kudzu or Japanese knotweed. Its introduction therefore probably does not cause significant harm to most local ecosystems." Some entries describe economic impact: An infestation by the white-pine weevil may destroy 25 percent of a forest's timber value.

Notice the quiet elision of the meddling human presence: It is people who cultivate periwinkles and kudzu, and who appraise a forest in terms of "timber value." One might be more explicitly accusatory about how human habits affect nature. There is no heading labeled "Dangers posed by people and how to remediate these"; if I were in charge, there would be.

The entry for cacao conveys nothing about its implication in the slave trade, only the bland information that demand for the beverage made from its pods "led the French to establish cacao plantations in the Caribbean." We do learn that "the full story of cacao pollination is not yet known," and the entry ventures enthusiastically into this controversy.

I notice a prevalent sense of isolation as I skim through the entries. Most pictures show individual creatures, rarely the featured animal alongside any other species. Sometimes there's a bit of nature in the background, but not enough to give a full sense of habitat. Some pictures depict animals in zoos or cages, or taxidermied, which I find especially alienating from nature. Plants, too, are generally shown as if each is a solitary portrait, rather than part of a much larger cast.

In the same vein, each page itself seems too bounded. As Wilson's writing brilliantly teaches us, ecology is about symbiosis. I don't think the EOL's structure facilitates our ecosystemic awareness as clearly as possible. Some of the most-engaging aspects of Web design today involve social networking; the EOL might take a cue from Facebook or MySpace for an enhanced sense of connectivity.

Some pages have tabs for "interesting facts," but frankly they're sometimes not that interesting. The exemplar page for the black-and-yellow argiope, a North American spider, has no interesting facts listed at all. It took me just a minute of Googling to discover, courtesy of the University of Kentucky's Cooperative Extension Service, that argiopeps are also called "writing spiders" because of the bold zigzag pattern they build into their webs. That Web site offers urban legends: "I was always told when I was younger to never say your name or the name of a loved one around these spiders because any name they heard they would write in their web and that person would die."

Another EOL page, for the Australian imperial blue butterfly, listed the acacia as a host plant, but I got a richer lead from Google, which sent me to a site informing not only that these butterflies live in the acacia but also that Aborigines used the acacia's seeds as food, its gum as an adhesive, and its wood for ax handles.

So if Aborigines spent a lot of time around acacias, I wondered what they thought about the butterfly. And indeed, Googling "Aborigines" and "butterfly" generates a wealth of material: I learned that Aborigines consider butterflies the returning souls of the dead. I found a lovely painting by the Aboriginal artist Peter Muraay Djeripi Mulcahy called "Birth of the Butterfly," with what look like imperial blue butterflies, and lots of other kinds as well, along with trees, birds, lizards, snakes, and a koala, all moving in a marvelous cycle, a vortex: It's a colorful, exuberant picture of dynamic life. At the risk of reopening the conflict

between C.P. Snow's two cultures of science and humanities, I'd wish for more art and wonderment from the EOL: The spark of art is not only compatible with science, but necessary if we are to engage with nature as fully as possible.

Returning to the EOL butterfly entry, I noticed there's very little about Australia there. The EOL should do a better job of linking animals to their places—that's a fundamental facet of who those animals are, and an especially needed corrective to earlier natural-scientific practices of extracting animals from their habitats and framing them in our culture (think of pinned butterflies).

By and large, the information that's here seems solid, though when my 11-year-old son tried out the site, he wanted to know what the peregrine falcon ate. He couldn't find that basic information on the bird's exemplar page. I told him it must be there, but I looked and couldn't find it either. We watched a video of people banding falcons, and I wondered why they were doing this. I assume there's an ecological reason, and I hope it's a good one because the process looks pretty unpleasant for the birds, though the researchers say it doesn't hurt.

**B**YOND SPECIFIC NITPICKING, I have some philosophical and epistemological concerns. Information about animals dovetails with the culture in which it is produced and consumed. What good, and harm, do people do with this information? How is the subject (whether it be plants, animals, or habitats) affected by the discourse in which it is presented?

The proliferation of information may generate direct assaults by poachers and smugglers who profit from trade in exotic plants and animals (see "Endangered by Research," *The Chronicle*, July 21, 2006). Online databases help criminals locate rare and newly discovered species. Knowledge is not abstract; it exists within a culture, and our culture is acquisitive, so it shouldn't be surprising that such knowledge may become used against nature.

I worry that we fetishize comprehensive knowledge, and I question whether we deserve to "have" so many animals, even virtually, when we are destroying so many. I wonder whether we might cultivate the EOL somehow in place of real animals. As a species becomes extinct, perhaps we'll miss it less if we have it bookmarked. Animals are becoming ever more ensconced on the Internet as they become more tenuous in nature.

John Berger's 1977 essay "Why Look at Animals?" discusses how reproductions and other animal substitutes—rocking horses, zoos, animal toys, and cartoons—began to proliferate in the 19th century as people drifted out of contact with actual animals in their daily lives. He surmises that the substitution was not merely compensatory for vanishing animals, but that this profusion of nonanimal animals itself "belonged to the same remorseless movement as was dispersing the animals"—that is, promoting unnatural animals marginalized real ones. The first stuffed animals, for example, were made of skins from real animals. The capture and display of a single zoo animal meant the death of scores who didn't survive collection and acclimatization.

Zoos, I've always thought, have the palliative effect of making the public less concerned about threats to animals—less worried about their diminution in nature—because they preserve (token) animals in plain view. We can still see them, so what does it matter if they're endangered in some world out there that we never experience anyway? I wonder if virtual animals have the same effect.

Does the EOL's digital nature "compete" with the real-life objects? Will it encourage us to appreciate plants and animals more, or to spend more time surfing online? If technology is accelerating our destruction of the environment, what are the risks of developing ventures like this, hitching nature's wagon to what may be in some sense "the enemy"?

**W**E HAVE A HABIT of framing the natural world in ways that suit our purposes and facilitate our interaction with other forms of life, our use of them. We want everything to be available and accessible to us (again, zoos exemplify this craving for a vast helping of nature served up quick and easy). Perhaps nature would be more secure if it were harder for us to get at.

Looking back at people's relationship to nature over the past 300 years, we see on the one hand an accelerated effort to learn about and "arrange" plants and animals and, on the other hand, an exponentially

increasing exploitation of nature—unsustainable harvesting, habitat destruction, deforestation, greenhouse-gas emissions, industrialized agribusiness. I suggest that these two phenomena are related. Either our sophisticated encyclopedias and taxonomies directly abet the exploitation, or they insufficiently persuade us of the importance of ecology on its own terms.

The great age of encyclopedias, the Enlightenment and Victorian periods, produced works replete with information about exotic "others," yet regarded them with detached superiority. Writers and readers didn't enter into the perspectives of the subjects but, the philosopher Alasdair MacIntyre argues, "insisted upon seeing and judging everything from their own point of view."

An encyclopedia flatters its society's breadth of universal knowledge. (The entry for "London" in the 1911 *Encyclopaedia Britannica* begins: "The capital of England and of the British Empire, and the greatest city in the world. ...") An archive presumes that its cultural ideologies and epistemologies—its ways of valuing, processing, and diffusing knowledge—fittingly overlay its content.

Aristotle's *History of Animals* colors its subjects in the hierarchical tropes of Aristotelian logic, arranging nature as a ladder, a *scala naturae*, the seed of the "Great Chain of Being." Human beings (especially men) are construed as the ultimate form of life; the presumption of human perfection renders all other creatures inferior.

Carolus Linnaeus's 18th-century *Systema Naturae* captured all of the natural world within one schema, transforming the amorphous "wild" into structures that were named and organized—thus, somehow, owned—by people. Linnaean classification "separated people from the other animals," the MIT historian Harriet Ritvo writes in *The Platypus and the Mermaid, and Other Fictions of the Classifying Imagination*. Taxonomists following in this tradition "easily conflated the metaphorical dominion of knowledge with more practical or literal modes of appropriation. Naturalists in the mother country automatically claimed the rights to classify the plants and animals of its growing colonial territories. ... This system was a means of consolidating the intellectual dominion of science over nature."

Linnaeus's Latin names and his Enlightenment hierarchy reflect a particular set of values; imposing classifications and epistemological portals bespeaks control, establishing the vocabulary that privileges some types of interaction with the subject and discourages others. Structuring the natural world meshes with the structure of imperial power.

Even Charles Darwin's canon, for all its brilliant science, cannot fully escape the paternalism, racism, and sexism of its age. His discourse of rationalism and empiricism abets the Victorian narrative of progress. As Darwin's metaphors invoke capitalism, competition, polity, and market niches, his enterprise dovetails with the ecologically disastrous ideology of imperial expansion.

"The classification of animals," Ritvo writes, "is apt to tell us as much about the classifiers as the classified."

Many natural compendia resonate with the aesthetic eloquence of their creators: Jean-Henri Fabre's entomological writing is so vividly poetic that Victor Hugo called him "the Homer of the insects." The creatures in John James Audubon's 1838 *Birds of America* resonate with the rich ethos of American Romanticism—colorful, powerful, dramatic, brash—while those in the comte de Buffon's 18th-century best seller *Histoire Naturelle* embody the piquant grand generalities of the French Enlightenment.

Yet those efforts don't reflect different natures. Their subject is the same—but transformed, transposed, through different cultural lenses. We must recognize how much our own perspective colors our accounts of nature, and move beyond it to understand nature as it really is. In the past, imperial discourse permeated naturalism, often to the detriment of nature. Today the Internet rivals imperialism as an all-reaching epistemological influence. I hope the Encyclopedia of Life will work hard to maximize the potential strengths of cyberspace—universal, free, instant, shared information—while fending off the hegemonies of technology and consumerism that are so entwined in this medium, and that are anathema to the prosperity of nature. ■

*Randy Malamud is a professor of English at Georgia State University. He is editor of A Cultural History of Animals in the Modern Age (Berg Publishers, 2007) and Reading Zoos: Representations of Animals and Captivity (New York University Press, 1998).*