the threads of Rowe's argument together, reinforced his main points, and provided an orientation for popular culture studies and future research.

Rowe's book, like Stevenson's, is described on the book cover as "essential reading" for scholars studying social and cultural theory as well as mass communications. But leisure researchers hoping to gain from either work will likely conclude that both have essentially the same weaknesses: the authors do a poor job of guiding readers less informed in social theory through postmodernist versions of critical and interpretive cultural analysis. Instead, North American leisure researchers may wish to start with other, more approachable work about media and culture, such as the liberal symbolic interactionist analyses of Altheide and Snow (1991) or Meyrowitz (1985). With those as a basis, the critical and interpretive paradigms of Stevenson and Rowe can be placed in a broader, more coherent context.

If the Stevenson and Rowe books do have an immediate value for us, it is probably in their contrast with contemporary thinking and approaches in leisure research. Our scholarly efforts would surely improve with broader recognition and more adventuresome application of contemporary social theory. Though there may be easier ways of learning social theory than reading these two books, we encourage leisure researchers to expand their horizons. Perhaps by forcing ourselves to read complex theoretical and philosophical ideas, we may become the hybrid, enlightened scholars we wish to be.

References

Altheide, D. L., & Snow, R. P. (1991). *Media Worlds in the Postjournalism Era.* New York: Aldine de Gruyter.

Critcher, C. (1992). Is there anything on the box? Leisure studies and media studies. *Leisure Studies 11*(2), 97-122.

Meyrowitz, J. (1985). *No Sense of Place: The Impact of Electronic Media on Social Behavior.* New York: Oxford University Press.

STEVEN G. HILL, Texas A&M University
PATRICIA A. STOKOWSKI, Ph.D., Texas A&M University

Leakey, Richard, & Lewin, Roger (1995). *The sixth extinction: Patterns of life and the future of humankind.* New York: Doubleday. ISBN 0-385-42497-3 (Cloth, $24.95, 304 pages). ISBN 0-385-46809-1 (Paper, $14, 288 pages).

Quammen, David (1996). *The song of the dodo: Island biogeography in an age of extinctions.* New York: Scribner, ISBN 0-684-80083-7 (Cloth, $32.50, 702 pages). ISBN 0-684-82712-3 (paper, $16).

Wilson, Edward O. (1992). *The diversity of life.* Cambridge, Massachusetts: Belknap Press of Harvard University Press. ISBN 0-674-21298-3 (Cloth, $29.95, 424 pages). ISBN 0-393-31047-7 (Paper, Norton, $16.95, 424 pages).

Strange as it may seem, the above three books reminded me of an analogy often used in alcohol counseling. The analogy compares having a "drinker" in the family with having an elephant in your living room: it's obviously there and it's obviously affecting things. But the elephant and the alcoholic differ in one big way. If there's an elephant in your living room, you talk about it. If there's a drunk in your family, you don't. Biodiversity, like alcoholism, is much discussed in certain circles (mostly academic), but when it comes to facing the facts of massive extinctions caused by human activity, there is a kind of denial that is as powerful as that of the substance abuser and his family. Recently, for example, in a graduate class, I saw a student begin to cite figures relating to human overpopulation and overconsumption, and their negative impact on biodiversity. The numbers were so large and the implications so obvious that a kind of glaze came over the eyes of many of the other students. They seemed unable to focus on the topic. The implications, of course, were that we humans have so disrupted the biological systems of the planet that we may indeed destroy ourselves. It is a conclusion simply too distressing for many to contemplate or discuss.

However, it is a conclusion difficult to avoid after reading one, two, or all of the three books that are the subject of this essay. The first is *Diversity of Life*, by Edward O. Wilson. The second is *The Sixth Extinction: Patterns of Life and the Future of Humankind*, by Richard Leakey and Roger Lewin. The third is *The Song of the Dodo: Island Biogeography in an Age of Extinctions*, by David Quammen.

The authors of these books are at the top of their respective fields, which gives a certain credibility to all three. Wilson is a Harvard University professor who has earned great distinction both in the scientific and general community. He has won two Pulitzer Prizes, has been the focus of great controversy for his work on what he termed "sociobiology," and has won more awards, it seems, than General Patton. Leakey, the principal author of *The Sixth Extinction*, is a member of the famous family of paleontologists noted for their discoveries of human origins. Leakey grew up in paleontology, spent twenty years as director of the national museums of Kenya, and in 1989 became director of the Department of Wildlife, Conservation, and Management for Kenya, a position in which he made national news with his aggressive war against poaching and his televised burning of a pile of ivory worth $3 million on the black market. Quammen is a science journalist whose "Natural Acts" column was the best reason to purchase *Outside* magazine between 1981 and 1995.

All three of these writers explain compellingly how we got to the position we are now in. In Wilson's *The Diversity of Life*, we learn that there have been five major periods of mass extinction in the past half billion years. He touches briefly on the question which seems to so captivate the major media at present: whether asteroids caused the disruption that led to the extinction of dinosaurs some 66 million years ago. But he points out something else that may be more important: "The Cretaceous [dinosaur] extinction was only one of five such catastrophes that occurred over the last half billion years,

and it was not the most severe. Furthermore, the earlier spasms appear not to have been associated with meteorite strikes or unusually heavy volcanism" (page 29).

Using his gift of explaining complex matters without dumbing down, Wilson goes on to discuss the five major extinctions and to propose that we are now well into the sixth one, which is being caused by a single species, homosapiens. He lists as the most important direct causes of extinction, in order of importance, destruction of habitat, displacement by introduced (exotic) species, pollution, and overharvesting by humans. He cites numerous dramatic examples of large numbers of extinctions recently occurred or presently occurring. Here are two examples, of many, that might be cited:

—One fifth of the world's bird species have gone extinct in the past two thousand years.

—The same percentage of the world's freshwater fish species are either extinct or approaching extinction.

On a broader level, Wilson estimates that we presently lose 27,000 species each year. And in the tropical rain forests, where most of the world's species live, human activity has increased extinction between 1,000 and 10,000 times over what might be called the normally expected level. "Clearly," says Wilson, "we are in the midst of one of the great extinction spasms of geological history." (p. 280).

Leakey and Lewin's book, *The Sixth Extinction*, covers much of the same ground as Wilson's. As its title implies, Leakey agrees with Wilson that we are in another extinction spasm. Leakey draws upon his experiences in Africa to illustrate certain points. He believes, for example, that humans are the ultimate exotic species. Exotic species, of course, are those introduced from one ecosystem to a new one where, because they find no competition, they overpopulate exponentially and crowd out many of the species that had evolved in the area over long periods of time. He cites numerous examples, including several in North America, where the fossil record appears to show that mass extinctions followed closely on the heels of human colonization. Africa, says Leakey, is the richest big-game continent because humans and African big game coevolved there. Since they coevolved, they had a symbiotic (though not static) relationship, but this was not the case when humans expanded to other continents. Much of the big game in these other continents had no evolved defenses against human strategies of predation. Leakey also cites fossil records in Australia and New Zealand which seem to show a close connection between the first human colonization of those islands and mass extinctions of mammals.

Leakey has an interesting discussion of the Humpty Dumpty effect. Just as, in the nursery rhyme, all the king's horses and all the king's men could not put Humpty together again, ecologists are finding that all of the data and all of the science cannot reconstruct ecological systems when they have unraveled beyond a certain point. Leakey cites computer modeling studies in which ecological systems are constructed on computers by adding species one at a time and allowing the ecosystem to accept or reject them based

upon numerous factors of climate, timing, food needs, and so forth. The ecological communities thus constructed appear to be realistic examples of how such communities actually do evolve. What is surprising, however, is that once built and then taken apart, these computer-modeled communities could not be rebuilt from scratch. Referring to an effort by a scientist named Drake to rebuild a torn-down ecosystem in his computer, Leakey observes that, "He could not do it. Once he took the community apart, he couldn't put it back together again, no matter in what order he added the species." (p. 167)

And, as Leakey also observes, the Humpty Dumpty effect can be observed in the real world. He cites efforts to restore prairie ecosystems in the Midwest and semi-tropical ones in the Florida Everglades. In those cases, ecologists knew what species had once occurred. Their approach, says Leakey, "was simply to gather the requisite species for the ecosystem they were planning to restore, and then let them loose in the chosen habitat." They were puzzled, says Leakey, when this approach did not work. But, "Now we know why." (p. 167).

In the third book, *Song of the Dodo*, David Quammmen looks at this topic through a slightly different lens: the subdiscipline of island biogeography. The book is both a history of the science of island biogeography and a travelogue in which Quammen visits various places where island biogeography is most dramatically illustrated. This may sound tedious, but it is not. Quammen, as implied earlier, is one of those writers who can make an academic subject fascinating. There are profiles of eccentric personalities, conflicts between strong-headed scientists, a murder mystery, and animal stories galore, all built around the central theme of a biosphere unraveling like a Persian rug cut into thirty-six pieces. The latter is Quammen's own metaphor:

> When we are finished cutting, we measure the individual pieces, total them up—and find that, lo, there's still nearly 216 square feet of recognizably carpet-like stuff. But what does it amount to? Have we got thirty-six nice Persian throw rugs? No. All we're left with is three dozen ragged fragments, each one worthless and commencing to come apart." (p. 11)

The Persian rug metaphor refers to the way humans are carving up the earth's biological systems into tiny fragments—islands—nearly all of which, we are learning, are too small to support the variety of life that once occurred within them.

All very intriguing, one might say, but how does it relate to leisure studies? Some of the relationships, I suppose, are obvious. We set aside parks, wilderness areas, nature reserves—call them what you may—for the dual purpose of providing leisure experiences for us and providing homes for fellow creatures. Land stewardship has always been a stated goal of the park and recreation profession. Another connection is provided in *The Diversity of Life*, where Wilson describes his theory of "biophilia." He has a whole other book on the subject, but refers to it more briefly in this one. Biophilia, says

Wilson, is "the connections that human beings subconsciously seek with the rest of life" (p. 350). In explaining why we seek such connections, Wilson points out that, "only in the last moment of human history has the delusion arisen that people can flourish apart from the rest of the living world" (p. 349). He observes that humans evolved over huge expanses of time in direct contact with nature. We have, therefore, certain reactions to nature, and certain needs for contact with nature, which are genetically programmed, though perhaps poorly understood. Wilson points out that when given a choice most people choose to live on a hill near water from which open space can be viewed. He believes this is because, "for most of deep history, human beings lived in tropical and subtropical Savannah in East Africa, open country sprinkled with streams and lakes, trees and copses" (p. 350). In other words, we are instinctively drawn to such locations.

Perhaps even more germane is the need Wilson believes we have to recreate in nature:

> Given the means and sufficient leisure, a large portion of the populace backpacks, hunts, fishes, birdwatches, and gardens. In the United States and Canada more people visit zoos and aquariums than attend all professional athletic events combined. (p. 350)

This theory that we are genetically programmed to desire interactions with nature is intriguing, if hard to prove. Advocates of unchecked technological progress would perhaps argue that it is sentimental tripe. Nevertheless, one wonders whether virtual reality games and simulations will adequately substitute for actual wild places and actual wild animals in the year, say, 2100.

These three books all suggest that, for humans and their pursuit of leisure, three possibilities now seem to exist. The first is that we will alter the planet to such a degree that we cause our own extinction. Indeed, the geological evidence suggests we'll go extinct eventually, one way or another. And if we look ahead, say, several million years, and find humans no longer existing, this seems somehow okay, perhaps even natural. But in the shorter term, when we contemplate the physical and spiritual suffering that our last descendants may endure because we could not stop ourselves from ripping apart the fabric of life—that is much more unsettling.

The second possibility is that we manage to save ourselves through our own cleverness but in the process become even more alienated from nature. This is the scenario described by Edward Abbey (1979) who envisions a possible future in which "we can foresee the transformation of Spaceship Earth into an orbiting food machine, automatically processing rock, seawater, garbage, sewage, air into vitamin enriched snack packs for a population of 40 billion drug-pacified, comatose semi-human inhabitants" (pp. xxi-xxii).

Abbey is obviously being sarcastic and displaying his unique genius for eloquence through overstatement. (Don't try it at home.) Surely nobody advocates material "progress" to the degree that we become that artificial. Well, not quite nobody. Consider one apparently dead-serious scenario by

John S. Lewis, professor of planetary sciences at the University of Arizona, Tucson. In his new book, *Mining the Sky*, Lewis (1996) writes that our present population (around 5.8 billion) is in fact "pitifully small" (p. 256). To remedy that, he says, we should exploit the resources of outer space. We could then, "make a metal sphere 920 kilometers (550 miles) in diameter." The sphere would be "hollowed out into rooms with iron walls, like a gigantic city" (p. 194). And then:

> Allowing 300 cubic meters for each resident, a family of five would then have 1,500 cubic meters (54,000 cubic feet). . . This artificial world would contain enough room to accommodate more than 10^{16} people. And how can we grasp what 10^{16} people means? That's 10,000,000,000,000,000—ten *quadrillion* people. Very simply, that is a million times the ultimate population capacity of Earth; *a million Earths of resources and room* [Lewis' emphasis]. (p. 194)

Perhaps if pressed, Lewis would say that he is not exactly advocating that we live in such a beehive, just that it would be possible. Still, his scenario raises questions that bring us back around to our three books on biodiversity: Is the purpose of human life simply to see how many billions of us we can pack into our allotted space, even at the expense of all the other creatures? Even if it's possible to live in a sterile world with no wildness, does anybody *want* to? And, of course, where's everybody going to *park*?

The third possibility is that we find a way to stabilize our own population, preserve enough wild country in large enough chunks with wide enough connective corridors that biodiversity is somehow stabilized (if not completely saved), and humans are still able to find the spiritual nourishment they crave from natural places. If we do manage to bring about the third scenario, it will be in no small part due to the work of scientist/journalists such as Wilson, Leakey, and Quammen.

References

Abbey, E. A. (1979). Introduction by Edward Abbey. In P. Wild. *Pioneer Conservationists of Western America* (pp. xvii-xxiii). Missoula, Montana: Mountain Press Publishing.

Lewis, J. S. (1996). *Mining the sky: Untold riches from the asteroids, comets, and planets.* Reading, Massachusetts: Addison-Wesley.

JAMES M. GLOVER, Ph.D., Large Primate and Associate Professor of Recreation, Southern Illinois University at Carbondale

Jordan, Debra J. (1996). *Leadership in leisure services: Making a difference.* State College, PA, Venture Publishing, Inc., ISBN 0-910251-83-5, $35.95 (cloth), 504 pages.

Debra Jordan suggests, in introducing the "synergy" section of *Leadership in Leisure Services: Making A Difference,* that an effective leader is one who is