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## Book Reviews

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### Research and Conservation on an Artificial Island in a Shipping Lane and Elsewhere in the Tropics

**Tropical Conservation. Perspectives on Local and Global Priorities.** Aguirre, A.A., and R. Sukumar, editors. 2017. Oxford University Press, Oxford, U.K. 520 pp. £64.00 (hardcover). ISBN 978-0-19-976698-7.

**Coexistence. The Ecology and Evolution of Tropical Biodiversity.** Sapp, J. 2016. Oxford University Press, Oxford, U.K. 275 pp. US\$49.95 (hardcover). ISBN 978-0-19-063244-1.

Perspectives on functioning and importance of tropical regions, home of 75% of the world's human population and 90% of its biodiversity, have been evolving over time. Coexistence of species was soon established as a key problem of tropical ecology, whereas coexistence of humans and wildlife was identified as a key problem of tropical conservation. After decades of development, the time is ripe for a historical summary, overview of successes, failures, and struggles of both.

Aguirre and Sukumar's *Tropical Conservation* is a vivid collection of perspectives on current tropical conservation that react to pressing conservation needs in the last three decades in Latin America, Africa, and Asia. The book is mostly a collection of contributions from members of the Wildlife Trust Alliance (WTA), established in 2000 in Bangalore, India, which was created on a simple concept: build an egalitarian network among leading local scientists committed to sustaining the ecosystems they study. In concordance with the WTA's original mission, the book represents a practical collection of case studies and real-world scenarios reported by scientists based in the tropics. The book is the swan song of the original WTA and was conceived at its last meeting in Costa Rica in 2009, shortly before the organization became the Eco-Health Alliance in 2011 and its focus changed to wildlife health and pandemic prevention.

The collection of case studies introduces important conservation concepts and illustrates their applications. Although it points out some failures and shortfalls, the book actually reflects the insufficient progress most of the tropical nations have made in establishing protected areas and training ecologists and conservation scientists. Most of the topics discussed by the authors relate to the actual biological systems and functions that need to be conserved, but all the authors, as conservation practitioners, know that in the end only a little progress can be made without understanding the human social dynamics

and economics that both cause the pressures and offer conservation solutions.

The book is organized into 5 major themes that are nicely connected to each other. The first theme, "Conserving Biodiversity and Ecological Functionality in Human Dominated Landscapes" reviews what can be accomplished in heavily populated underdeveloped countries. It deals with habitat loss and fragmentation, integration of ecological corridors into multiuse landscapes, community-based conservation, and policy interventions. Case studies include corridors for elephants in India, biodiversity conservation in megacities, and links between land-use and infectious disease emergence.

The second theme, "Resolving Conflicts between Wildlife and Humans" develops and reviews the strategies needed to balance human and wildlife needs. A broad spectrum of species is covered including gorillas, bats, dolphins, manatees, and sea turtles. There is a very interesting chapter on invasive plants that have a lesser known potential to indirectly contribute to wildlife-human conflicts. A case study on *Lantana camara* reports on its negative impact on forest species composition which in turn has directly affected herbivore populations and indirectly affected carnivore populations and networks of dispersers.

The third theme, "Approaches to Conserving Species: Emerging Lessons and New Science" comprises especially valuable contributions on umbrella species. Although the prominence of this approach (i.e., diversity being conserved under the umbrella of a single, often charismatic species) has declined somewhat, it remains one of the most useful conservation tools in the tropics and subtropics. The contributions to this theme discuss innovative approaches, new insights into population dynamics, metapopulation analyses, and conservation genetics. The case studies focus on wildlife in Ethiopia (Neotropical deer, peccaries, and tapirs), Mexican jaguars, and insects of tropical archipelago in Indonesia.

The fourth topic, "Integrating Conservation and Sustainable Use" deals in wonderful way with the never-ending fight between hunters, poachers, and wildlife. Some of the chapters describe difficulties that need to be addressed to reconcile human use and conservation of species. For example, the excellent paper about crocodile harvesting provides very useful and detailed strategies that worked or failed in different countries and compares the best and worst examples of how crocodile hunting might be managed. Other contributions provide

an overview of illegal trade and genetic techniques used to address poaching and bushmeat consumption. Examples are linked to crocodile farming, consumption of the nests of the swiftlet *Aerodramus fuciphagus*, and trade in Barbary macaques (*Macaca sylvanus*).

The final chapters, under the theme “Building Capacity to Sustain Conservation: People, Institutions and Networks” nicely wraps up all previous cases and studies. Several contributions report, quite surprisingly, a lack of meaningful practical knowledge and state that lack of factual knowledge of biological details about conservation is not a problem in the studied countries. These contributions also argue for educating mainly the residents of urban areas and promote an education system that adheres to the basic human virtue of environmental stewardship. This seems to be the main direction several contributors believe current tropical conservation should be heading. They ultimately agree that conservation hinges on well-trained and motivated people and adequate institutional infrastructures. Tropical conservation has been driven for many decades mostly by scientists from temperate latitudes, rather than its being a cause in local social settings. In the final part of the book, the reader is provided a genuine overview of such shortfalls, the challenges to some major institutions involved in conservation, and background on what has and has not worked.

The book provides a unique and readable exposure to conservation in Latin America, Africa, and Asia and has the potential to become a key resource on the biodiversity conservation crisis in the tropics for university professors, students, researchers, and practitioners in conservation. Although the majority of the contributions deals with fauna, several chapters on flora and biodiversity are also included and provide interesting perspectives.

Sapp’s *Coexistence* is a hybrid. It combines a century-long history of field research centered on the Barro Colorado Island (BCI) with an overview of ideas in tropical ecology as they evolved over time. Coexistence of species is a key problem of tropical ecology, but the author also addresses the coexistence of researchers in small communities at tropical field stations and the coexistence of these stations with an often uncomprehending society around them. The approach works well because the author alternates drier chapters on science with livelier descriptions of often colorful characters and their doings in Panama. The BCI station, gradually morphing into the Smithsonian Tropical Research Institute (STRI), is an appropriate subject for a historical perspective on tropical ecology - no other biological discipline is dominated by a particular study site to the same degree as tropical ecology has been dominated by the BCI.

Bizarrely, the most studied tropical rainforest in the world is on a small, artificially created island in the middle of a busy shipping lane that for most of its existence was also in a military zone. The guardianship of BCI by the U.S. Army ensured its longevity, but also embroiled it in

the political complexities of the United States—Panama relationship. Skillful negotiations ensured the transformation of STRI from an arm of a colonial-era power to an international organization with a mission that entailed a genuine partnership with the Panamanian government, a rare success story in the postcolonial tropics. The STRI has inspired students of ecology worldwide, but its impact is surprisingly small in its immediate neighborhood. According to our quick search in Web of Science, scientists at the University of Panama coauthored only 2% of ecological papers published from Panama during the last decade, compared with STRI’s 89%. Overseas-driven research establishments operating in the tropics generally have a hard time networking with their local research counterparts, but it appears that Panama, STRI, or both are doing particularly poorly in this regard.

Although the BCI station was secure in the Canal Zone, STRI lost the use of its San Blas marine station in 1997. The tribal Kuna landowners voted against the renewal of their license, after 20 years of operation on their lands, amid rumors that the STRI was stealing corals, gold, and lobsters. Tribal politics is exceptionally difficult and researchers do not tend to excel at it. No matter what legal documents say, each tribal deal has to be renegotiated every generation, and each generation should be persuaded anew about the station’s merits. The STRI kept Kuna people informed about its activities at the San Blas by “presenting them with published research papers . . .” No wonder the station was lost.

Ecologists’ struggle to explain why a tropical rainforest looks like an intelligently designed arboretum, nicely mixing trees from many different species, represents a recurrent theme of tropical ecology as well as of this book. To solve the mystery, S. Hubbell and R. Foster proposed to monitor >250,000 individual plants with stem diameter  $\geq 1$  cm within a 50-ha plot on BCI. This was a significant departure from the customary  $\sim 1,000$  plants  $\geq 5$  cm in diameter in 1-ha plots. Predictably, such an audacious proposition faced resistance from the U.S. National Science Foundation. Any suggestion to increase the standard sample size by two orders of magnitude implies that everybody else had done a really poor job. In the end, the proposal was saved by an ornithologist, F. James, precisely because ornithologists are not personally committed to plant plots.

The BCI plot laid the foundation for a global network, the Center for Tropical Forest Science (CTFS). The network spread rapidly, particularly in Asia, where it was spearheaded by P. Ashton from the Arnold Arboretum. After his retirement, Harvard University left CTFS in 2012 because, as put by a staff botanist, “the new director of the Arnold Arboretum was more interested in gymnosperm ovules than global research networks.” The Smithsonian Institution had no problem recognizing the golden-egg-laying goose and promptly expanded its role to replace the funds and services previously provided by

Harvard. At present, CTFS (rebranded as ForestGEO to reflect its broadened research scope) is probably the most successful ecological research collaboration in the world. It monitors 6 million trees from 10,000 species and is expanding to temperate forests and in new research directions, such as monitoring insect communities on trees.

In a rare case of having an inspirational idea at an airport, A. P. Smith realized that a standard construction tower crane erected in a rainforest could bring researchers to the forest canopy, “the last biological frontier.” The world’s first canopy crane was erected by STRI in the Panama City’s Metropolitan Park in 1990 as another pioneering act that started a global ecological network. In 1997 another crane was installed, also in Panama, in the San Lorenzo rainforest on the Caribbean coast. However, it took years for even basic accommodation to be built next to the crane, and to this day the crane operators drive daily back and forth between the crane and Panama City, limiting the time available to scientists for work on the crane. Employees’ comfort, regrettably, wins over research efficiency, in sharp contrast to the 1920s, when the crucial decision was made to build a basic field station on BCI, where the biological action was, rather than a much more comfortable facility in Panama City.

The fate of the International Canopy Crane Network was unfortunately very different from that of CTFS. There has never been any significant collaboration among the crane projects in different countries. The dynamics of the crane network expansion slowed down after the first enthusiastic decade, and no cranes were built from 2002 to 2013. The recent revival of crane construction, particularly in China, may offer the global crane network a second chance (Nakamura et al. 2017).

Although the forest plots, cranes, and other field methods continued to generate large data sets on rainforest vegetation and its consumers, the debate on the determinants of tropical biodiversity has been progressing slowly. The Janzen-Connell hypothesis, which contends that high plant diversity in rainforests is due to the effects of specialized natural enemies on plant population dynamics, has been examined since its inception in 1970. Interestingly, there were initially no attempts to test the hypothesis experimentally, in contrast to testing of the theory of island biogeography (Wilson & Simberloff 1969). We had to wait 40 years and to the penultimate chapter of *Coexistence* to learn the results of such experiments. They will probably feature much more prominently in the next volume, hopefully describing the travails of tropical ecology and the BCI research station in the 21st century.

Tropical ecology has been driven mostly by scientists from temperate latitudes, which made their field research stations often socially and intellectually awkward foreign elements in tropical locations. The life span of such stations tends to be rather short, but there is little doubt that STRI will live to see its 100th birthday. Its history

illustrates the crucial role of longevity, made possible by reliable and predictable financial support of field research stations in the tropics.

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### Ecological Design to Shape New Urbanities

**Wild by Design: Strategies for Creating Life-Enhancing Landscapes.** Ruddick, M. 2016. Island Press, Washington, D.C. 243 pp. US\$45.00 (paperback). ISBN 978-1-61091-5984.

**Restoring Neighborhood Streams: Planning, Design, and Construction.** Riley, A. L. 2016. Island Press, Washington, D.C. 288 pp. US\$35.00 (paperback). ISBN 978-1-61091-740-7.

By 2020, 66% of the world population, 6.3 billion people, will live in urban areas (UN DESA 2014). In migrating toward cities *Homo sapiens* “urbanum” (Williams 2007) occupied natural and seminatural lands, converting them into new settlements, strategic infrastructure, and productive areas. This often happened at the expense of vulnerable habitats such as rivers, deltas, and coasts, that is, biodiversity hotspots, where human population growth is higher than in other landscape types (Cincotta et al. 2000; Kühn et al. 2004). As this human migration toward cities increases so does the need to conserve biodiversity in anthropogenic areas (Müller & Werner 2010; Kowarik 2011). The reasons are multiple: to preserve local biodiversity, to create stepping stones and corridors to improve habitat connectivity, to provide ecosystem services that improve human well-being, and to increase awareness and promote environmental education (Dearborn & Kark 2010). Cities are important arenas for experimenting and finding solutions to global challenges (Grimm et al. 2008) such as implementing the targets set in the Convention on Biological Diversity (de Oliveira et al. 2011).

Sustainable design that leads to sustainable biodiversity in towns, cities, and megacities is crucial. *Restoring Neighborhood Streams: Planning, Design, and Construction* and *Wild by Design: Strategies for Creating Life-Enhancing Landscapes* can be seen as an imaginary dialogue between a landscape architect and a hydrologist settled in a world where a code common to both

disciplines exists. Luckily, such a dialogue can exist without discipline territorialism and is supported by the rise of the biophilic movement (Ignatieva & Ahrné 2013).

The question, what are we doing here anyway kept humming in my head as I read *Wild by Design*. Margie Ruddick presents her story in 5 chapters focusing on different scales. Her garden, the laboratory for *Wild by Design*, is the microscale. In small-scale reinvention, the appearance and the functionality of a place could change completely (the Queen Plaza in New York). In medium-scale restoration, one should decide whether to restore a prior natural state or certain ecological functions that have been lost (the Living Water Park in Chengdu, China). In big-scale conservation, the necessity to act has to account for delicate ecosystems, where the “less [action] is more [conservation]” (Shillim Retreat and Institute in India). In large-scale regeneration, actions create self-sustaining systems that eventually activate a cascade of other events in equilibrium between nature and people. Finally, the scale of expression is the one of the designer (or of a group of) who will fix one thing at a time.

The author brings readers, be they students of landscape architecture, ecologists, or skeptical, conservative landscape architects, behind the scenes of ecological design, with all its emotions, controversies, fights, successes, fears, relationships, dialogue, multidisciplinary thinking, and experimentation. The book shows it is feasible to “design with nature” (McHarg 1969), that collaborative work between ecologists and designers is possible, and scientific knowledge and creative intuition can be combined to good effect. However, it seems landscape architects may focus too much on individual artistic expression and use it to justify, for instance, the planting of exotic species. Guidelines and checklists may shackle creativity and the mystification of beauty, but disdaining them may prevent the design of well-functioning ecosystems. From a conservation viewpoint, while reading Margie Ruddick, some doubts remain: Are people ready to enjoy and live in a less-domesticated nature? Are landscape architects ready to embrace landscape ecology, partially waiving their need for personal expression? Should not landscape architects in this second wave of ecological design also be ecologists in order to combine the ways of nature and the ways of humans?

Although there is no explicit mantra in Ann Riley’s book, it could be yes, we can; restoring neighborhood streams is not only possible but worth it. The first thing to do when going against the grain (e.g., encasing channels in concrete and creating culverts) is to believe that the proposed ideas are actually feasible (e.g., river daylighting [i.e., bringing a river that was previously culverted back above ground]). The second is to put them into practice. The third is to monitor and learn lessons from their implementation. The final steps are to draw conclusions, spread the knowledge, and develop new ideas (or give the tools to someone else to do so). This is what Ann

Riley has done with her work over 30 years and with this publication, in which she presents 10 study cases of river restoration at different extents (reaches from 0.1 to 1.5 km) and periods (from 1980s to 2010s) in northern California.

The book has 4 chapters. The first 2 define restoration and provide historical background on urban stream restoration and different schools of restoration (e.g., focused on hydrology, geomorphology, native plants, and fish biology). The third is the most practical because it meticulously describes the study cases (project history, project design and construction, landscaping and maintenance, related projects, project lessons and significance) to defend the main thesis (i.e., yes, we can). The fourth chapter draws conclusions and summarizes lessons learned from past and recent projects that follow different schools of restoration and have contributed to the evolution of the applied approaches and methods. Besides the latest definition of restoration, what is important is to consider humans part of the ecosystem dynamic and thus of recovery. This means framing the recovery of human communities as reconciliation with nature that provides a sense of the place (genus loci) and reestablishes social and historical identity. This means, for instance, that daylighting should not solely aim to bring back urban rivers literally into the light but also to restore their ecological function and processes. For this reason, it is possible to work at restoration levels from the highest to the lowest: historical, ecological, functional restoration, and enhancement of controlled channels. However, considering the land-use changes and high disturbance levels that characterize metropolitan areas, it is impossible to restore historic environments, but it is very important that restoration not be confused with beautification. I recommend Riley’s book to landscape architects who have not widened their horizons beyond functionality so they can familiarize themselves with alternative approaches to urban greening project. Teachers, ecological engineering, and design students and practitioners will benefit from it. However, I pose here some questions: Is the rigorous scientific method constraining too much the creative process? Is it really possible to make these 2 worlds, that of science and of design, speak to each other and understand each other’s reasoning?

Despite the 2 authors coming from different disciplines, they agree that restoration projects have to be resilient both ecologically and economically: after completion, maintenance should be minimal and the system should be able to adjust itself to environmental changes. With that, it is implicit that they both consider it more important to restore certain environmental processes than to go back to a specific historical moment.

On the one hand, I consider Ann Riley’s work science-based design that still pays close attention to social aspects, as in the case of the large trees saved in the daylighting project of Blackberry Creek in Berkeley

because of Tai Chi students training under their foliage. Citizen involvement is for her the keystone to watershed restoration. On the other hand, Margie Ruddick's work offers life-supporting design able to conjugate creatively cultural and natural elements (Lister 2007). Also for her, the social aspect is important because designing wild landscape will help shape needed future stewardship.

A nice symbolic parallel between the stories in these 2 books is the creative reuse of concrete structures and paving necessitated by budget limitations. In the Queen Plaza project in New York (2003 Long Island), the old concrete roadbeds and sidewalks were transformed from a meaningless slabs of concrete to functional pieces with a simple but masterful action: they were rotated from a horizontal to a vertical position, one close to the other, in between plants. In this way, people were discouraged from walking through that part of the square. The brutal concrete kept its hostile connotation but helped people orient themselves through the garden infrastructure. In the Strawberry Creek daylighting project (1983 Berkeley), one of the first of the genre, the demolished culvert parts were piled horizontally to stabilize the riversides and placed between plants. At that time, this approach was innovative and thrifty. Today, one would look at this differently; the concrete rigidity (the same would happen with stones) will prevent the natural development of the river (erosion and deposition) from reducing ecosystem services (water quality and habitat provision).

Even if the 2 books refer only to U.S. study cases and design schools of thought, both are globally applicable because overall there is skepticism for new ideas based on previous knowledge. This skepticism is valid for the mainstream actions of channelizing rivers and installing culverts to constrain their natural and unpredictable flow (flood control projects) and for the picturesque and romantic-gardening approach still in vogue in the small flowerbed and in big urban parks.

For the architect, the landscape architect, and the planner, ecology has to become a model for creating projects that are part of a greater spatial network. Ecologists, in contrast, have to operate in a relatively new arena, the built environment, and have to work from their side to reveal the ecological patterns and processes existing in urban environments. Finally, all of them have to work together with the aim of incorporating ecology into urban development and planning (Niemelä 1999) because this will be crucial to protecting "endangered life-supporting system[s]" (Odum 1993).

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### Noted with Interest

#### Long-Term Ecological Research. Changing the Nature of Scientists.

Willig, M. R., and L. R. Walker, editors. 2015. Oxford University Press, Oxford, U.K. 442 pp. £45.99 (hardcover). ISBN 978-0-19-938021-3.

The way of making science changes quickly: networking, multi-, inter-, and transdisciplinary studies, big-data processing, building science-policy interface, organizing citizen science, social networking, outreach, etc. In the field of ecology, the long-term ecological research network (LTER) of the United States has been a major worldwide promoter of those changes for decades. The scientists of LTER have been both actors and subjects of those changes. In this book, LTER scientists share their stories, experiences, challenges, and achievements in 44 chapters organized into 21 parts. Parts 1 and 21 provide a general scope and the other 19 are dedicated to particular LTER sites. All the chapters have the same basic structure: short summary, extended summary or personal overview, and conclusions. In part 1, the editors briefly describe the network. From this part, the

reader learns of its impressive size: 26 sites (2 more accepted since publication) that range from suburban areas, to rain forest, to coral reef and 2000 scientist and graduate-student participants. Thirty-six scientists share their personal experiences at LTER sites, often spanning their entire careers. These experiences are unveiled in a detailed and intimate picture of the history, challenges, and achievements of the scientists, their research, and of the U.S. LTER itself. The first challenge was to find a way for experts and students in different disciplines and people from outside academia to collaborate. The next challenge was building network-wide collaborations among the sites. The first real networking took place in the field of data management (introducing metadata standards, data sharing rules, etc.). Real networking was then required for the integration of the social aspects of the ecological research. Now, information technology and social science networks are integral to the U.S. LTER. The share of U.S. LTER-based research in the literature and the presence of LTER scientists in conferences, organizations, and offices clearly show its prominence as does work at the international LTER sites. The “Analysis and Synthesis” section provides a useful wrap up. This somewhat unusual book is not a source of scientific observations; rather, it provides personal and intimate insight into how to make science in the beginning of the 21st century, as we face huge environmental and social challenges.

### **Darwinian Agriculture: How Understanding Evolution Can Improve Agriculture.**

Denison, R.F. 2016. Princeton University Press, Princeton, NJ, U.S.A. 258 pp. US\$29.95 (paperback). ISBN 978-0-691-13950-0.

The title of this book promises a combining of evolutionary theory with agriculture. The book is generally well written, and scientific terms are defined in the text and in a glossary. The author guides the reader through the 3 core principles of Darwinian agriculture (e.g., natural selection) with various examples from insects, to plants, to caribous. Denison especially focuses on the enormous role natural selection has played in adaptation to environmental factors. That existing phenotypes are a result of natural selection has to be acknowledged in the search for improved agricultural approaches. Biotechnology could profit from the “experiments” of natural selection if it is realized that it takes more to create a new plant than just changing a gene; the environment and interspecific competition play essential roles. The author also highlights the importance of long-term research to agricultural systems and the conclusions that can be drawn from them. Through discussions of agricultural examples and biotechnology trends, the author offers ideas on how to learn and profit from evolutionary theory in agricul-

ture. Readers interested in agricultural research and biologists and biotechnologists will get a different angle on their own subjects because there are many examples to relate to and learn from. Although it is not explicitly stated, the book points to the importance of saving the outcomes (i.e., ancient cultivars) of the natural experiment of selection because these outcomes may prove essential in the quest for new and useful traits for cultivated crops.

### **Wildness: Relations of People and Place.**

Van Horn, G., and J. Hausdoerffer. 2017. University of Chicago Press, Chicago, IL, U.S.A. xii + 272 pp. US\$30.00 (paperback). ISBN 978-0-22-644483-3.

There can be many different and contrasting definitions of *wild*. Often for ecologists, *wild* has a positive meaning; it is a sort of synonym for *healthy* or *pristine*. For others, *wild* indicates, as it did for the first European settlers in North America, a place that has not been exploited and must be converted into a familiar landscape. Collected in this book are many definitions of *wild*, but rather than discussing different points of view, it tries to break the artificial, mental barrier that divides us from nature by emphasizing the archetypal link between humans and nature. Twenty-four chapters are divided into 4 almost equal parts: “Wisdom of the Wild,” “Working Wild,” “Urban Wild,” and “Planetary Wild.” The chapters are written in very different styles. Most are narrative stories, but some are poems. I was fascinated to discover that there is no word for wilderness in any of the native Alaskan languages or among Raramuri people (who live in the Sierra Madre in Chihuahua, Mexico); to read Courtney White’s opinion about the bond between knowledge and ethics; and to read first-hand accounts of the work of conservation scientists in natural areas, such as Drakes Estero, California, Wrangell-St. Elias National Park, Alaska, and in the urban wild of Chicago. In the last chapter, “Earth Island,” Wes Jackson projects a utopic future, which I found overoptimistic. The narration begins by imagining a “great awakening” achieved when we are threatened by several environmental catastrophes of anthropogenic origin, is followed by a discussion on the history (and meaningfulness) of the human-nature split; and ends in a time where we come to understand that ethical values should never be subordinated to economic interests. While reading, the concept of cultural ecosystem services (e.g., psychological, religious, and philosophical values of nature) occurred to me more than once together with the oft-discussed provisioning, regulating, and supporting ecosystem services. It is essential to underline that biodiversity is also important for ethical reasons because this forces us to reflect on our place and role in the world, on what we are without nature, and on how much humanity is lost when we lose

a habitat or species. The book contains both scientific and ethical perspectives on wilderness. Although the book is not aimed at students specifically, the last chapter and contributions by conservation scientist are worth discussions in any university ecology class. Thoreau said “. . . in wildness is the preservation of the world.” How much attention will future generations devote to the wild that is left?

### Urban Wildlife Management.

3rd edition. Adams, C. E., editor. 2016. CRC Press, Boca Raton, FL, U.S.A. 569 pp. US\$120.00 (hardcover). ISBN 978-1-49-870201-0.

In this new edition of *Urban Wildlife Management*, Adams expanded the scope of the previous editions and provides a comprehensive examination of the anthropogenic activities and other factors that drive the need for effective urban wildlife management. He provides a wide range of contemporary case studies and outlines key ecological concepts. Throughout this well-illustrated book, Adams and other contributors present a range of current and historical North American scenarios that examine human interactions with wildlife species in urban ecosystems. The case studies presented include discussion of key political, social, and economic issues that need to be considered in wildlife management plans and urban planning. The species profiles include original research data and an overview of the current management issues related to the species in North America. The book has

5 sections (“Human–Wildlife Interface,” “Urban Ecosystems,” “Urban Habitats and Hazards,” “Urban Wildlife Species,” and “Urban Sociopolitical Landscape”). Each of its 17 chapters begins with a set of key concepts that examined in the chapter. The book effectively identifies opportunities and challenges of wildlife conservation in North American urban communities and factors that support or threaten its presence. It provides useful information and a good foundation for both students and experienced practitioners in the ecological principles required for understanding the effects of urban environments and human activities on wildlife. *Urban Wildlife Management* provides a practical approach to applying the fundamental principles of ecology to examine human-dominated landscapes and the interplay between wild and domestic species in the urban setting, including introduced and invasive species and protected native species. In this third edition, material presented in the previous editions is built on effectively. Five chapters, 90 figures, 4 case studies, a comprehensive analysis of terrestrial vertebrate locations in North America, and 7 appendices and species profiles have been added. Twelve chapters are updated. It also includes updated contemporary chapter activities, case studies, discussion points, and perspective essays. A key aim is to highlight the need for readily available information for communities and policy makers dealing with the human–wildlife interface. This edition provides a good range of relevant current and historical North American case studies and will be a useful teaching tool and resource for practitioners and students of conservation science.

