

nutrient-rich, and at least some of them have a good taste or can be used as both food and medicinal plants, people all over the world usually like them very much. They also are saleable in the markets. In China, the use of woody starch plants have been used for a long history; however, due to the unreasonable use and immoderate picking, the resource of wild woody starch plants is becoming exhausted or endangered.

Obviously, effective exploitation, use and protection of the increasingly precious and exiguous woody starch plant resources is pressing. This needs to be recognized and the background information, summarized in terms of the present knowledge and further detailed research carried out. The timely publication of the book *Woody Starch Plants in China* meets this demand in at least some of these aspects. This book is the first monograph on the woody starch plant resources and their present status in China. It is divided into three major parts, the woody starch plant resources, their cultivation and their processing. In the first part, a total of 21 families and 242 species of woody starch plants are described in detail, in terms their morphological characteristics, growth habits and distributions. Illus-

trative text and figures are given in contrast, which are particularly helpful for readers to recognize and identify the species. In the second part, the theories and techniques on sowing, seedling cultivation, silviculture, stand thinning and pest control of the main woody starch plants are addressed systematically and in detail. In the third part, the physical and chemical properties and the processing methods for the starch of different woody starch plant species are addressed. The book includes authors' research data accumulated over many years, and also the major research achievements of other Chinese scientists.

The book is well-structured, and with strong readability. The book is suitable for staff who engage in forest research, education, production, cultivation, management, exploitation, utilization or other persons who are interested in these fields.

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ENVIRONMENT

The Burning Season

By A. Revkin. 2004. Island Press, 1718 Connecticut Avenue, N.W., Suite 300, Washington, D.C. 20009-1148 USA. 319 pages. Not illustrated, 22.50 USD

This book is a timeless classic of environmental history. It presents the reader with the fight for the interior Amazonian rainforest, an area which represents one third of the world's rainforest. *The Burning Season* must easily be among the best biographies of the murdered main character: rubber tapper Chico Mendes. Being deeply entrenched with naturalists, he actually is in the same rank as Lech Walesa, Cesar Chavez, or Martin Luther King, applying Ghandi-style non-violence sustainability progress, approved for instance by Prince Charles, by leaders of UNEP (M. K. Tolba), as well as the Canadian, Dutch and Swedish governments of the time.

The captivating and well-investigated text is thorough, and nicely written for the naturalist, for the lay audience as well as for the science-minded environmentalist. It tells how one political lobby, the land-owning large-scale Brazilian ranchers, and organized in the UDR (Rural Democratic Union), fought a vicious war against the rainforest, and with the support of weapons and governmental subsidies to keep the land in an intensive farming scheme at all costs. If that schema failed, the UDR supporters simply burned the offices that held the records of the historic land titles or intimidated local decision-makers, judges and citizens oth-

erwise in order to get by. The UDR did not approve of the great Liberation Theology movement in the Catholic Church either, and thus serious pressure was also put on those church ministers.

The term "burning season" refers to the seasonal occurrence of cultivating forest land for agricultural purposes. Burning forest land goes back to the old-fashioned legal Brazilian concept that is based on the right of possession (where a squatter can acquire a paper title if the land is used and under harvest or similar agricultural operation; e.g., cattle, for over five years). Further, "Grilagem", a policy of grabbing false land titles, has been known for a long time as a convenient method to own land in wild Amazonia and beyond. However, the rubber tappers defend their rainforest against the ranching lobbies and their army of squatters hired to burn the land, turning it into cattle land eventually, once the soil nutrients are quickly eroded. The rubber tappers, with Chico Mendes as one of their main leads, fight this off via "Zapates": a local justice activity demanding illegal squatters to leave the rainforest in a non-violent fashion.

Revkin shows us in painful detail that Brazil has a sad track record of killings, torture and brutal regimes, including governmental censorship, dictatorship, and approved shootings of native populations. He summarizes vividly that Mendes is actually only one out of 48 rural workers and environmental union activists that got killed in Brazil during the last few decades.

The fact that the killings in Brazil are still not over with, and that the disputes are still raging, is well indicated by the events in 2001 and 2002 when two leading land reform activists were assassinated. Other realities in Brazil are that about one-third of the population live without plumbing, that the income pyramid is fully reversed, and subsequently, that the poor land squatters are a major force wherever they can get access to rainforests; e.g., via roads. Undeniable witness accounts provided by satellite images and Brazilian scientists such as Alberto Setzer and Tebaldi Tardin were initially ignored by Brazilian decision-makers.

Revkin provides us with a fascinating account that leads the reader eventually to the killing event of Chico Mendes in his own home in the small town of Acree (Rhodonia province). The concept that Mendes promoted sounded easy: Setting up a system of extractive reserves that provides natives, rubber tappers, rubber trees and brazil nuts, as well as the ecological services and all of the regional Brazilian biodiversity a space to live. Many of these reserves are centred around the *seringueiros* (~ established harvest regions of individual rubber tappers).

For his life-long efforts the highly acclaimed Mendes got several internationally prestigious awards (e.g., the Global 500 Award, the Better World Society Protection of the Environment Medal, and worthy mention in *The New York Times* front pages). The book's author shows us in a fascinating way how this local union leader promoting sustainable land use practices becomes promoted by NGOs abroad (e.g., Oxfam, Ford & GAIA Foundations, Environmental Defence Fund) achieving the status of an international icon. Many of these achievements were supported and helped by anthropologists (e.g., Mary Allegretti and Stephan Schwartzman) and by the international media (e.g., through the English film maker Adrian Cowell). Other Brazilian eco-celebrities such as Jose Lutzenberger (GAIA movement, and late Environmental Minister of Brazil) or Raimundo de Darro (German Environmental awardee) are also mentioned.

Amazonia aside, this book actually centres primarily on rubber, latex, and the rubber tree (*Heveia brasiliensis*), also called caoutchouc or "weeping wood" by the local Indians. Subsequently, the reader is presented with a fascinating in-depth overview of the rubber history, its commerce and extraction from the wider Belem and Manaus region, which are the natural hot spots of rubber booms. Revkin reminds us vividly that obtaining rubber was "among the most brutal forms of labor exploitation in modern history". From 1850 onwards, much of the rubber business in Brazil was already in the hands of the English and other European merchants, and it gave the western European countries a major head start when it came to industrialization (and its associated electrification). This is because back then only rubber could insulate electrical wires and produce tires as well as to waterproof coats and boots. But it was the English Kew Botanical Garden research-

er Dr. Clements Mackham who found, in 1900, a way to break the global rubber monopoly of Brazil. Instead of having to rely on wild rubber from Brazil, now rubber was produced in industrial plantations of Singapore of Southeast Asia, and thus, this ended the rubber boom in 1912. In turn it destroyed a large part of the Brazilian economy and that nation as a whole. Because this happened at a time when Brazil was already running its virtual coffee monopoly at maximum capacity, the country could not grow any further and compensate. Consequently, Brazil was forced to borrow money from banks abroad, including from UK ones. The international borrowing scheme then set Brazil's path towards a development country with tragic national consequences, including the rise of a civil war led by Luis Carlos Prestes (supported by Moscow), military coups and major dictators and politicians such as the infamous Getulio Vargas. But a sudden need for rubber for the western armies during the second World War, and together with the associated Japanese threat to Singapore, Brazil became very interesting again to the U.S. government, which then further interfered with Brazilian politics.

The author reminds us vividly in this well-crafted read that various international influences overruled Brazilian politics. For instance, German Volkswagen in Brasil affected not only the car market but also helped to push for more roads. The U.S. company Dow Chemicals widely promoted Tordon, a herbicide to defoliate forests in favour of cattle ranches. And Japan became once more a driver for some Brazilian politics: it planned to build the access road "Highway BR-364" via Peru to western interior Brazil to obtain access to Amazonia, which then affected much of the environment Mendes worked in.

In its 13 chapters, the book covers well the tropical biodiversity, explaining the tropical ecosystem, pollination of brazil nuts and sustainable growing of cashew, cocoa and mahogany trees. Less than 2% of Amazonian plants are actually studied, yet. Such facts are apparently ignored by the World Bank and the Brazilian government alike. Because, and as the 319 pages convincingly show, Brazil offers textbook examples of environmental management and Mega-projects gone wrong. The conflicts caused by FUNAI (Fundacao Nacional do Indio, National Foundation for Indians) are mentioned, such as the infamous Ticunai tribe conflict vs. mahogani, and the Yanomami. Further, the human footprint in Brazil is huge, and the "Brazil Wood", for instance, is by now virtually extinct. Mega hydroelectric dams at Tucuri, or the largest iron ore reserve in the world (Serra dos Carajas), the Trans-Amazonian highway, or the Belem-Brazilia highway are mentioned as good examples. Another major initiative with massive negative environmental and socio-economic disasters was Polamazonia: Fifteen zones set up with help of the World Bank were to attract people with mega projects into selected target areas (Polonoroeste was described by the author as a worst case example). It

makes a virology textbook case that the spread and increase of deadly strains of malaria in South America were brought by these projects and deforestation.

Ultimately, this fight for land that made Mendes so famous is a fight for global sustainability, minorities, environmental justice, ecology and science-based management. Currently, Brazil is still not achieving this goal, and the killing of Chico Mendes left us with stunning evidence of their failure.

This book leaves little to be desired, although some readers might be eager for more photographs and an index. The 14 pages of notes, appendices and resources

Ecology

By Michael L. Cain, William D. Bowman, and Sally D. Hacker. 2008. Sinauer Associates, Inc., 23 Plumtree Road, P.O. Box 407, Sunderland, Massachusetts 01375-0407 USA. 621 pages. 130 USD Cloth.

There is arguably no scientific discipline more diverse than ecology. This presents a serious challenge to anyone faced with teaching this subject at the undergraduate level. With their book *Ecology*, Michael Cain, William Bowman and Sally Hacker have risen to this challenge. Lavishly illustrated, and thoughtfully written, this book strikes a good balance between information content and accessibility, and I expect it will serve admirably as an introductory textbook.

The first section presents the physical and biological framework for life on earth: climate, physical environment, and biosphere. I was pleased to see they have included a chapter addressing the connection between ecology and evolution. The two disciplines have long been treated as separate domains within biology, but the distinction is more cultural than biological. Some of the most interesting recent work in either discipline is focussed on developing new ways to integrate evolutionary data in ecological analyses (and vice versa).

Subsequent sections are devoted to population ecology, including life history analysis; interspecific interactions, with separate chapters covering competition, predation, parasitism and mutualism; community ecology and biogeography; ecosystem ecology; and applied and large-scale ecology, including conservation biology, landscape ecology, and global ecology. Some of the material, particularly in the first section, is likely to overlap substantially with other lower year courses in biology and geography. However, having it all together in a single book provides the instructor with some flexibility in terms of the required background and review material for students. Each chapter begins and ends with a case study, providing context for the more conceptual content. The examples are generally fairly recent, taken from studies published in the last 10 years. The text itself is clearly written, and accompanied by eye-catching illustrations that clarify and expand on the prose. The authors boast that the illustrations stand on their own, and tell stories that can be

make it a well-rounded standard text to be used in environmental history courses. With global climate change, globalization and a globally uncontrolled economic growth policy on the rise, one would wish we would breed more Chico Mendes types (e.g., in China, India, Russia and OECD countries), to halt and reverse the ongoing global habitat destruction folly.

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understood without the accompanying text. This is indeed the case, and I enjoyed flipping through the book simply to look at the photographs.

In the preface, the authors state their two core principles were "Teaching comes First" and "Less is More". They have succeeded in sticking to their principles, without watering down the product. I was initially put off by the colourful page layout, as I assumed it meant that substance had been sacrificed for presentation. Happily, this was not the case. They manage to cover the core issues in each chapter with enough detail and illustrative examples to convey the message, but without overwhelming the reader with information. Each chapter is about 30 pages, and easily digested in a single sitting. They conclude each chapter with a list of suggested readings, which includes a good mix of classic texts, recent reviews, and key papers from the primary literature. This should satisfy motivated students, or provide material for class assignments.

Additional material is provided on a website devoted to the book, most of which is publicly accessible. Most notably, this includes additional empirical examples with questions suitable for use in a lab.

I would be quite happy to use this book as a textbook for a first or second year course in ecology. It doesn't provide enough depth for an upper year ecology course, however. The mathematical content is generally quite low. While this makes for a less intimidating introduction to ecology, I wonder if we do our students a disservice by shielding them from the complexity of ecological theory until after they've already forgotten their calculus. The publisher offers this textbook bundled together with Gotelli's *A Primer of Ecology*, which is more mathematically oriented, and additional theoretical detail is provided on the website. At \$130, this book is likely out of the price range of most amateur naturalists. However, birders or botanists interested in the science of ecology would certainly find this an accessible introduction to the topic, as would non-biology students.

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