

flora of the Bahamas as a high-school student in a Bahamian National Trust (BNT) Young Navigator Program, you probably would bypass that interest. Give a student a guide, provide them with a chance to learn a bit about plant morphology and taxonomy, and send them out to explore. That is how you start to grow a botanist.

The guide begins with a nicely presented coverage of the habitats, climates, and ecological communities and transitions into treatments of fungi, plants, invertebrates, fish, amphibians, reptiles, birds, and mammals. Each section begins with an overview of the natural history and figures elucidating the key characteristics needed to identify taxa. Species descriptions consist of common and Latin names, ranges, and descriptions. All species are illustrated in color. The invertebrates are lavishly photographed, and this guide provides a nice coverage useful to identify some of the more common pollinators. The treatment of fungi is honest in informing the reader of the need of mycological studies of Bahamian fungi. This illustrates yet one more valuable attribute of natural history field guides, uncovering the groups of organisms that are in dire need of investigation.

The plants are treated by Ethan Freid, resident Botanist at the Leon Levy Native Plant Preserve, Eleuthra, and long-time affiliate with the BNT. Ethan knows the Bahamian flora from Bimini to Inagua and has contributed greatly to building the next generation of Bahamian botanists. The coverage he has provided for the guide includes the most common species from throughout the archipelago. I teach an economic botany and ecology courses on San Salvador Island. I would not hesitate to use this guide as an entry point for students learning the more common elements of the Bahamian flora. Along with the web resources presented, and prepared by Ethan and the Leon Levy staff

(<http://www.levypreserve.org/>), you can offer a solid botanical field course in the Bahamas.

*The Natural History of The Bahamas: A Field Guide* should be in every classroom in the Bahamas, and it supports a number of important standards of the Bahamian curricula. Most importantly, it is a tool needed by all Bahamians affiliated with conservation initiatives in the Bahamas. This is particularly true for the BNT and its management of more than 32 national parks protecting over 2 million acres of marine and terrestrial environments. Likewise, the tourist who wants to skip the cruise and explore the real Bahamas can toss a copy of this guide in their backpack and venture out into the natural beauty of these extraordinary islands.

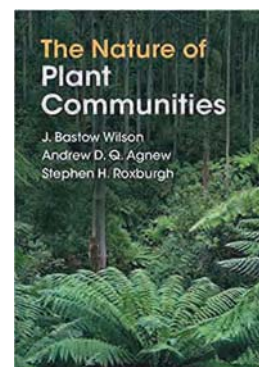
## LITERATURE CITED

Correll, D. S., and H. B. Correll. 1982. *Flora of the Bahama Archipelago*. Lubrecht & Cramer Ltd.

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### The Nature of Plant Communities

J. Bastow Wilson, Andrew D.Q. Agnew, and Stephen H. Roxburgh  
2019.  
ISBN: 9781108612265  
Hardcover US\$64.99;  
370 pp.  
Cambridge University Press



The aim of this book is to go beyond the simple characterization of plant communities to the forces that structure plant communities. The authors sought to offer a new viewpoint to challenge others to think differently about

plant community ecology. I find they were successful! This book is coauthored by two prominent, retired professors of Botany (one who worked in New Zealand, the other in northern Europe and the Middle East) and the PhD protégé of one, whose is now an ecologist at CSIRO in Australia. It is of decided interest to those of us who have become plant ecologists with primarily New World influences.

As with many classic works, this one begins with autecology, considering the physiological adaptations and movements of plants, and the challenging question with these modular organisms: what is an individual? Modular growth, plasticity in response to the environment, selecting for changes in the genotype that manifest in altered phenotype.

They go on to consider interactions between species important in plant communities: facilitation, interference, but no mention of tolerance (that in most textbooks on the subject say is necessary for coexistence in communities). They spend some time on the importance of litter, a product of plants that is useful to many as well. There is a very interesting table of possible mechanisms of herbivore- and pathogen-mediated plant-plant interactions, with discussion elaborating the mechanisms with many examples.

But the apparent omission of 'tolerance' is addressed by the chapter titled "Mechanisms of Coexistence," with the first discussion of alpha niches and their differentiations to permit coexistence. This section also covers fires and other disturbances, pest pressure, and circular interference networks. It is in this section that I learn what Spatial Mass Effect is: the constant immigration of a species into a patch where its population is maintained (i.e., the 'sink effect'). Zoologists will not be surprised by the inclusion of 'inertia,' both

temporal and spatial, in plants (as many see plants as less lively than animals!). This is a new way, for me, of considering long-lasting (perhaps "climax") communities.

Disturbance, succession, resistance, resilience, and stability are all considered in the next section on community-level processes. Many examples of communities with which I was previously unfamiliar\* are discussed, as well as some ideas: cyclic succession (though maybe this is just like a dynamic equilibrium?), switches (that lead to alternative stable states), and retrogressive succession. This section includes a discussion of stability, and whether or not it occurs in the real world.

In the discussion of niches, the authors discuss the *alpha* and *beta* niches of plant species – *alpha* being the traits of the plant species itself, *beta* being the environmental features/habitat. After considering these for individual species, the authors consider how the coincidence of plants in communities is affected by the filtering of the species and their subsequent competition and coexistence. The organization of the book in this way is logical and plausible.

I always thought 'guild' was defined first by Root (1967) as 'a group of species using similar resources in a similar way', but since most plants use the same resources, that was not the original intent. I learned that Drude (1885) coined the term for a group of species moving from one region to another. Schimper (1903) used the term to mean a synusia (such as a stratum within a community in a forest. And one of the first experimental plant ecologists, Tansley, used it to describe 'guilds of the same dependent life form, such...as lianes'. Much more like a group of species working toward the same end, as a group of human workers in the same trade.

How species interact in communities and the effects on genotypes of the species feeling various influences from others and their environment brings us back to character displacement. Some attention is even paid to other trophic levels at the end of the book, although early on the authors provide the disclaimer that although animals are important, this is a book about plants!

One interesting section of the book considers exotic species as community structure probes. In studying how and why exotic species outcompete natives in certain situations, the strengths and weaknesses of native species in their natural interactions with other species may be revealed. Why and why not introduced species become invasive or merely naturalized can be due to plant–plant interactions but also plants’ interactions with other biota, from fungi to various animals.

The volume builds to review the theories of community composition (Clements, Gleason, Whittaker, Hubbell, Grime, Tilman), comparing and contrasting them in their validity and applicability in different situations. In the final section, Synthesis, the authors review Heterogeneity, Community Structure, and Assembly Rules, and the Processes that govern plant community structure.

The book begins with a glossary that nearly put me off reading the entire work, since some of the definitions were not very useful. Maybe this section would have been better located at the end of the book. The one that particularly annoyed me was the definition of a leaf, which was just a quote from F.G. Gregory cited by L. Croizat in his *Principia Botanica*: “Although no satisfactory definition of a leaf is possible, I shall assume that we all know what we are talking about.” However, included were abbreviations and acronyms that some use constantly without adequate definition—

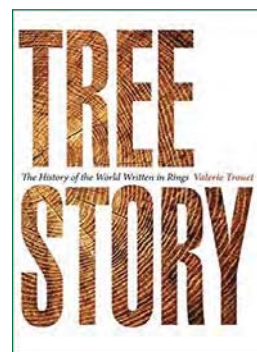
quite useful, I think. And some other other definitions brought up phrases with which I was unfamiliar\*, such as “altruistic facilitation,” “cyclic succession,” “ombrotrophic,” “spatial mass effect,” and “subvention.” If these are unfamiliar to you also, you might want to check out this volume! For anyone working in the large field of plant ecology, and teaching courses in ecology and other topics, this book may provide some new food for thought. It might be used in a graduate seminar course or as background reading for students new to the field as they are developing their career foundations and graduate research plans.

\* Maybe some of my unfamiliarity is due to my area of expertise in plant ecology (evolutionary and population ecology, plant/animal interactions), but I have lectured Plant Ecology at the undergrad and grad level since 1982.

-Suzanne Koptur, PhD, Florida International University, Miami, FL

### Tree Story: The History of the World Written in Rings

Valerie Trouet  
2020. ISBN: 9781421437774  
Hardbound US\$27.00;  
246+iii pp.  
Johns Hopkins University  
Press



What do Genghis Khan, sunspots, Belgian beer, a Stradivari violin, plagues, Frankenstein, shipwrecks, and fall of the Roman Empire have in common? Tree rings. Tree rings are scribes of history.

This book explains how tree rings can document weather, sunspots, volcanos, human events, and many more phenomena both past and present. Well written with clarity and humor, it draws on the extensive research of