

recognition, cited literature, glossary, and a series of appendices. The authors have undertaken the formidable task of attempting to recognize and classify the complex mosaic of vegetational patterns and microhabitats occurring within the lower foothills, upper foothills, montane, and sub-alpine forest communities. The ecosite and ecosite phase sections comprise the bulk of these books and include a general description of each site and details on the successional relationships and trends under different physical conditions, moisture and nutrient regime, topographic position, slope, aspect, edaphic characteristics, and floristic composition. The data listed for each ecosite and ecosite phase are cross-referenced with other pertinent book sections, flow charts, and appendices. Although the terminology and manner in which the data are presented may seem a little overwhelming at first, these books are well written and the plants discussed in each section are well illustrated. The authors should be congratulated on the results so far obtained.

These volumes however, clearly reflect the micro-management style and mandate of Forestry Canada and are designed to point out the "limitations and opportunities" of each microhabitat within a larger forest ecosystem. That is, each microsite is considered to be a sustainable resource and its potential value seems to have been measured against an economic yardstick. Though the authors espouse that ecosystem classification systems such as this one will enable us to better understand ecosystem dynamics and function, their preoccupa-

tion with implementation of an ecosystem management strategy has left fundamental environmental questions unanswered. Problems which I was able to recognize were few, but annoying nonetheless. Given that these volumes are ecological guides, the failure to provide at least a brief description of the plants in the plant recognition section was puzzling. The absence of Latin binomials in many of the sections, ambiguous terms such as "poor/rich nutrient regime", and need to continuously cross-reference the data in the fact sheets with other book sections were particularly vexing.

While these volumes are bursting with information, they seem to be in a format that only the authors and those intimately associated with the development and use of this system of ecosite classification can fully appreciate. Attempting to understand how to quickly implement this system of classification was reminiscent of the frustrating exercise of learning new computer software using the often incomprehensible manuals provided by the manufacturer. It is my opinion that the time investment required to learn how to use these books will be long, even for individuals familiar with ecological concepts and terminology. Nonetheless, if you have a great deal of time on your hands these volumes are potentially valuable resources.

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British Columbia — A Natural History

By Richard Cannings and Sydney Cannings. 1996. Greystone Books, Vancouver and Toronto. x + 310 pp., illus. \$45.00.

A wonderful book! Well written and beautifully illustrated, it presents what could be dull, dusty facts in an imaginative, highly readable mode. Part of my enthusiasm may be due to my reading the book in early March, when, after months, the temperatures were still much below freezing and there was a metre of icy, unskiable snow everywhere. It was refreshing, if not inspirational, to gaze at the two-page spread of the Brittle Prickly-pear Cactus in full bloom or at the carpet of April flowering Arrow-leaved Balsamroot under huge Ponderosa Pines. I began to feel the heat and smell the flowers.

However, the book is a lot more than pretty pictures. The photos and drawings were selected to illustrate phenomena of nature (to tell a story, if you prefer), whether it is the Western Toad (an individual species) or Krummholz (a treeline community).

The landscape of British Columbia is remarkable and its uniqueness is due to its topography. The

mountains determine where the precipitation falls and how much there is. That determines what plants and animals live in specific regions. The influence of one item, whether it be the soil, the height of the mountains, the woodpeckers, or the snails, determines or effects the individuals or landscape around it. And this interrelatedness is what the book is all about.

The book has ten main chapters. One treats the geology and the other nine deal with particular communities, such as rainforest, marine, grasslands, etc. The main focus of each chapter is the interrelationships between the land and the organisms. A few of examples illustrate the point:

1) How do fungi effect the survival of the famous Spotted Owl? A variety of the larger fungi, especially truffles, are the main food for the Northern Flying Squirrel, which, in turn, is the main prey of the Spotted Owl. The complex becomes more involved when the relationship between the tree and the truffles, i.e., a mycorrhizal association, is interjected.

2) How do Sea Otters assure the survival of Giant Kelp beds? The relationship became evident after humans eradicated the Sea Otters from much of their range. After the Sea Otters were gone the Giant Kelp began to disappear, and when they went so did the community of plants and animals they sheltered. What had happened was the Sea Urchin population exploded in the absence of their main predator the Sea Otters. The Urchins were eating the stems and roots of the kelp, and the kelp forests were replaced by "urchin barrens."

These connections and interconnections are the basic core of natural history (the web of life). The authors detail an interesting selection of relationships occurring the various communities.

The Epilogue, while describing the devastation caused by man, is a rational plea for sustainable

management of the magnificent natural resources of British Columbia.

The formatting of the book is excellent, the binding is substantial but flexible enough so the book lies open to the any selected page. On a note of minor criticism, the compilers of the index missed some topics, such as Skunk Cabbage (page 143), Sunspots (page 206), Nuclear polyhedrosis virus (page 196). White Mountain Avens (page 173), and page 222 is missing from the entries for mushrooms and truffles.

Highly recommended to all naturalists! It is the type of book that high school seniors should read, because it would encourage some to get seriously interested in biology, and others to get out and see the glories of Canada.

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MISCELLANEOUS

Charles Darwin, *Voyaging*

By J. Browne. 1996. Princeton University Press, Princeton, New Jersey. xv + 605 pp., illus. U.S. \$18.95.

When will the Darwin industry end? It is very trying at times to count the number of biographies (in book form, never mind specific analysis in essay form of his life or influence) written on Charles Darwin within the last decade and a half. Many of these are a rehash of the same old stereotype: a reclusive thinker, terribly worried about removing the last veil between humanity and animality. One of the best, I thought, was Adrian Desmond and James Moore's 1991 thick tome *Darwin, the Life of a Tormented Evolutionist* (Time Warner Company). If anything, the copious note taking of Darwin and his community were exploited by Desmond and Moore in a style that was more novel-like than dry historical. So, it was with some hesitation that I picked up the most recent Darwin biography *Charles Darwin, Voyaging* by Janet Browne.

Granted, of the heavy thinkers in the last century, Darwin left behind much, from daily expenses, to various versions of his species work, to deeply personal flatulence. And there are few people who have had the opportunity to delve deeply into this material than Janet Browne. For a number of years she has edited the voluminous correspondence of Darwin and is also editor of the *British Journal of the History of Science*. Yet, *Voyaging* also develops like no other book the associated players in Darwin's life and times with brief microhistorical sketches which for the most part distract little from the flow of the text; though there are some brief sketches that beg for more information. For example, brief mention is made of the developing relations between Darwin, at a time when he was look-

ing for editors for his species work if he were to die prematurely, and Hugh Strickland, an up and coming naturalist. Strickland's "potential [as a scientist] was never fully realized; he was run over by a train in 1853 while searching a railway cutting for fossils" (page 451). Unfortunately, in searching Browne's citation we find an error in the reference preventing further inquiry.

Despite a few minor glitches *Voyaging* is detailed to the extreme, from family history, Darwin's upbringing, and schooling ("I was so sickened with lectures at Edinburgh that I did not even attend [Adam] Sedgwick's eloquent and interesting lecture. Had I done so I should probably have become a geologist earlier than I did" (page 138)), to the Beagle voyage and marriage. It wasn't too long after settling down at Downe that his colleagues realized that "If Darwin had become a barnacle during the previous years, he now turned his house into the Beagle: a self contained, self regulating scientific ship methodically ploughing onwards through the waves outside" (page 530). It was at Downe that his experiments were conceived and implemented, wish lists of collections and experiments sent to sympathetic colleagues, that the formulation, clarity, and estimated response to the *Origin of Species* was made.

After 543 pages of text it is here that *Voyaging* ends at the precipice of Darwin publishing his thesis. This is a suitable point for the reader to take a break but, more importantly, a notable point for Darwin. Because, when Darwin publishes his ideas, after years of cooking in his head, they become fair game for any pope and popper to pick clean with victorian tooth and claw. The promised companion volume by Browne will assuredly pick up where the first left off.



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