population models, and survivorship curves. The progression is well thought out: the experience I gained from working through the simpler models and theories of earlier chapters was good preparation for the complexities of stage-structured matrix population models encountered in Chapter 14. Having spent a fair bit of time struggling with these algebra-heavy models in the past, I was pleased to find that several key concepts became clear when I had completed the chapter.

From the beginning the authors adopt an exploratory approach, guiding the reader through the use of spreadsheets to illustrate mathematical concepts. Using spreadsheets allows for easy experimentation, instantly revealing the consequences of altering formulas or model parameters, and encourages independent exploration of the models. Models are by definition abstractions, and I found the exercises very effective in translating the sometimes esoteric mathematical concepts into concrete numbers and informative graphs. Each chapter required between one and two hours to work through, a reasonable evening's diversion for the aspiring ecologist.

Some exercises are more successful than others. Generally, I thought the ecology section was very well done. The population and demography models lend themselves to this sort of presentation, and the authors do a good job of organising them in an engaging way. The evolution chapters were less consistent. Some of the basic concepts, such as Hardy-Weinberg Equilibrium, were clearly laid out. However, I don't think the model used to illustrate gene-flow and population structure was as effective as it could have been. The section on landscape ecology is generally weak. The ideas they try to present here are too complex to allow for easy partitioning into manageable chapters. There were also a handful of typos or minor errors which made some examples unintentionally difficult.

To properly take advantage of the exercises readers will need access to a computer with a recent spreadsheet program installed. The authors have chosen to use Microsoft Excel 98 for their examples. As this is one of the most widely used programs this is a reasonable choice. Many of the exercises use features not available in earlier versions of this program, and people using spreadsheets from different companies may have to spend some time figuring out how to convert the Excel-based instructions to suit their program.

While the *Spreadsheet Exercises* are published in two volumes, this is not intended as a set. More than half of the chapters are shared by both books. Both books have the six introductory chapters. The *Ecology and Evolution* edition is then divided into an ecology section: population, demographic, niche, and succession models; and an evolution section: genetic, selection, and mating system models. The *Conservation Biology and Landscape Ecology* edition contains many of the same chapters under the heading conservation biology, and seven chapters on aspects of landscape ecology: edge effects, reserve design, and landscape statistics. It's unfortunate that the chapters on population viability analysis and harvest models appear only in the *Conservation Biology and Landscape Ecology* edition. These would have been a strong addition to the *Ecology and Evolution* edition. The landscape ecology section requires further development and perhaps an entire book of its own. As is, it left me feeling it was an unfinished last minute add-in.

All things considered, I think the *Ecology and Evolution* edition will be a valuable addition to any undergraduate course in either discipline – indeed, it has already been adopted in biology courses at several universities. The question remains, will it be of interest to naturalists generally? If your interest in natural history is strictly field-oriented, as a botanist, birder etc., probably not. But if you have an interest in biological theory, enjoy math puzzles and learning new tricks on your computer, I think you'll find this an engaging way to introduce yourself to ecological concepts. *Spreadsheet Exercises* isn't the sort of book that will find a place of honour on your reference shelf, but it might help you to better understand the books that have.

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Quantitative Conservation Biology: Theory and Practice of Population Viability Analysis

This is a great book which should affect how we research and manage wildlife and its controlling factors. The topic of a Population Viability Analysis (PVA) is not really new, but there are only a few books that describe the topic well for the general public and managers. "PVA is the use of quantitative methods to predict the likely future status of a population or collection of populations of conservation concern".

"The promise that PVA holds as a tool for guiding conservation decision-making has been recognized by governmental science advisory boards, by professional organizations such as the Ecological Society of America and by nongovernmental conservation organizations such as The Nature Conservancy." This statement also holds for the Habitat Conservation Plans and for the Recovery Plans of the U.S. Endangered Species Act. However, "Instead of seeing PVA as a valuable tool to aid their decision making, most field-oriented conservation biologists retain the misinterpretation that PVA models can only be constructed and understood by an elite priesthood of mathematical population ecologists".

Fortunately, this book is supposed to make PVAs easier to understand. It is based on the advanced

matrix-based population modeling concept and uses count-based and demographic PVAs. The authors actually present a very good introduction to demographical population studies and even to the relatively new AIC concept. It explains its concepts with examples from a great variety of different animal and plant populations world-wide. The authors make a great effort to explain important concepts such as Vital Rates, Lambda, Bonanzas and Catastrophes, Density Dependence, Ricker Curve, Beverton-Holt Model, Log-Population Growth Rate, Accounting for Errors, Environmental Stochasticity, Sensitivity Analysis and many others. As a key take-home message from this book I see the authors' focus on confidence intervals, rather than the pure population means. Such an approach embraces the uncertainty among population estimates in a much more transparent fashion than is usually done. Many conservationists world-wide have encountered the sad but so often true statement made by the authors: "While data uncertainties are frequently used as a reason to rely solely on expert opinion – or on simple political expediency – when deciding difficult issues, we believe that use of more formal analyses can frequently benefit conservation practice. In the absence of such scientific analysis of conservation situations, personalities, politics, and dollars will drive what actions are and are not taken, often with little or no regard to their real conservation value".

The reader will also learn in this excellent PVA-book about the great importance of the extinction-time cumulative distribution function, plotted against years into the future. As the authors show, there are five measures to express extinction risk: the probability of extinction by a given time, the probability of extinction ever occurring, and the mean, median and model times to extinction. Of these, only the first three are the most useful, but the last two are still the ones most often used.

This book has contributing software in MATLAB and SAS code (also available on the website www. sinauer.com/PVA/), which the practitioner will benefit from. Fourteen pages of literature references and a well organized index will be very helpful to the reader as well.

Despite the "how to" focus of the book, I find the text is not that easy to understand, and it refers the reader too often all over the book. So from my experience, I suspect that most managers will not really read it, nor fully understand all relevant (statistical) details; the mathematical codes alone take up an Appendix. The book on how to link PVAs with Geographic Information Systems (GIS) still waits to be written.

In either case, I admire in this book that is promotes an overall quantitative approach to wildlife conservation, and specifically I love the last chapters, e.g. Management with Uncertainty, Multiple Site PVAs, Viability-Analysis for Spatially Structured Populations and When and When Not to Perform a PVA (a great argumentation help when doing PVAs). There just is no escape from numbers and reliability in this important conservation field.

This important book makes it clear that well-designed demographical studies and PVAs are nowadays among the basics for any wildlife population to be studied and managed. It provides crucial tools for a quantitative wildlife monitoring and conservation in the new millienium. Now it's once more up to the managers to read, to understand, and fully implement all relevant lessons learnt from this baseline publication.

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MISCELLANEOUS

A Bird in the Bush: The Story of the Province of Quebec Society for the Protection of Birds 1917-2002

The Province of Quebec Society for the Protection of Birds (PQSPB) commissioned this history to celebrate their 85th Anniversary. From the beginning, there was a close connection between the Society, *The Canadian Field-Naturalist* (before 1919, titled *The Ottawa Naturalist*) and members of the Ottawa Field-Naturalists' Club, with which the PQSPB affiliated. The impetus for the PQSPB founding came from the Migratory Birds Convention Act of 1916 and one of the aims of the PQSPB was to provide assistance in carrying out the provisions of the Act. The early members were well connected and used their social contacts to further their cause of conservation. Mount Royal Park and the two Mount Royal Cemeteries were declared bird sanctuaries in 1917 and the Quebec government established bird sanctuaries in the Magdalen Islands, the Gaspe and the Lower North Shore in the early 1920s after petitions by the PQSPB and others. Lewis McIver Terrill was the first president, influential scientist, and a key member from 1917 to 1953. Another very effective president was V. C. Wynne-Edwards (president from 1936 to 1942). Women played a very significant role in the club from the beginning and have always been members of the board. Mrs. Christine Henderson was the first woman president, in 1933.

For over 20 years from 1926 the Education Committee, who were mostly women, organized an Annual