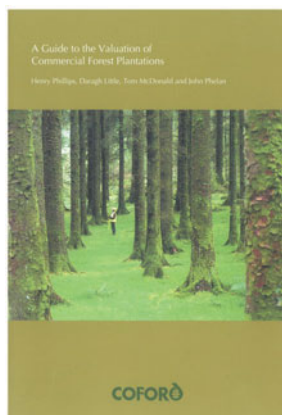


A Guide to the Valuation of Commercial Forest Plantations

Phillips, H., Little, D., McDonald, T. and Phelan, J.
COFORD. 2013.

Softbound. ISBN 978-1-902696-72-0

€20



The expansion of the forest estate, especially the increased number of private forest owners, will result in a greater need for the valuation of forest plantations, not only for sales purposes, but also for investment, insurance, financial reporting and other reasons. Therefore, the publication of *The Guide to the Valuation of Commercial Forest Plantations* by COFORD comes at an opportune time. The important role that forests can play in the national recovery, as well as in the mitigation of climate change through carbon sequestration, the provision of renewable energy, and the wide range of ecosystem goods and services that they can provide to the owners and society, has put a new emphasis on the proper valuation and financial management of this resource that now covers more than 10% of the land area in the country.

The publication begins with an almost two-page long glossary of acronyms used in the book. During my subsequent read of the book, I frequently had to refer to this list, to refresh my memory of the large range of acronyms used. The separate glossary of terminology, which appears at the end of the publication before the Appendices, should have been included together with the glossary of acronyms at the start of the text, as I only discovered it when I reached the end of the book.

The Executive Summary is almost seven and a half pages long and was not easy to get through. The summary gives a complete overview of the material in the book in a structured and logical manner. However, the density of information, and also of the layout and presentation, made it hard work to fully comprehend the information contained in it. I would have preferred a more “light-weight” summary, with

frequent linkages to the detail in the actual report. This would, in my opinion, make the book more accessible to readers, many of whom are probably not very familiar with the details of financial analysis.

The main body of the book consist of 11 chapters, organised in a very logical way, starting with an Introduction (Ch 1) and progressing into the background of valuation (Ch 2), and the actual valuation methods (Ch 3), including the International Accounting Standard 41 (Ch 4). The subsequent chapters deal with specific inputs into the valuation process, such as the value of land (Ch 5), revenues and costs (Ch 6), forecasting timber volumes (Ch 7), the discount rate (Ch 8) risk (Ch 9), and special considerations such as the sale of bare forest land and broadleaf stands (Ch 10). The final chapter (Ch 11) covers the preparation and execution of a forest valuation, including the all-important valuation report. I felt these chapters were very clearly presented, dealing with each issue in a transparent and easy-to-follow manner. I particularly enjoyed the chapter on valuation methods, where each method is introduced and benefits and disadvantages are presented.

The chapter on the forecasting of timber volumes and the identification of a series of crucial factors that need to be included in this forecasting process is especially relevant. These factors include open space, attrition, harvest loss and product outturn. A chapter that I was rather disappointed with is the one dealing with discount rates. All the important information is included here, but after reading this chapter several times, I am none the wiser as to which discount rate should be used in valuation projects. It is of course true that there is no one correct rate to use, and examples of rates applied in different countries and for different scenarios are presented, but to some extent the reader could conclude after reading this chapter that any discount rate will do, and that rates can be selected to produce the results that one is looking for. This has always been a controversial issue in forest economics, with individuals and organisations justifying the use of a particular rate based on the fact that the outcome of the analysis with that rate was the preferred one. As is mentioned, high discount rates favour short-term projects while low rates favour long-term projects. Actually, high rates have a negative impact on the discounted cash flow or net present value (NPV) for both short- and long-term projects, but for long-term projects this impact is greater. The opposite is true for low discount rates. But all of this is irrelevant, as the choice of discount rate should not be based on the outcome, but on the inputs. As is clearly stated, the discount rate should be made up of a risk-free component and a risk rate. These should be chosen based on market values, the time preference level of the owner, and on the assessment of the riskiness of the particular project. It is true that for certain long-term projects a lower discount can be justified, but this is only the case if economic efficiency needs to be balanced against intergenerational equity, as for instance in the social cost-benefit analysis of climate change mitigation, and the resulting social discount rate should be applied in a step-wise manner, with the standard rate applied to the first period (say 30 years), and then a lower rate to the next period, and so on, as for instance recommended by the UK Government (e.g. http://www.dfpni.gov.uk/eag_net_present_values). In terms of risk, the book includes the useful suggestion that, as much as possible, risk should be taken out of

the discount rate and dealt with by including factors such as wind, fire and the markets, in the actual analysis. This leaves only the systematic or non-diversifiable risk component that needs to be incorporated in the discount rate itself. Very important, and maybe not sufficiently emphasised, is the need to prevent risk from being “double counted” or even “triple counted”, first by including it in the discount rate, then as separate elements in the valuation process, and finally by including insurance costs in the cash flow, that are actually incurred to reduce the overall risk level.

Of course a book dealing with forest valuation cannot be complete without the introduction of Land Expectation Value (LEV). This very interesting, and I feel, useful concept is rather downplayed. The fact that it is based on the idea of a perpetual series of similar rotations makes it initially rather abstract, but the same is true in many ways for the Annual Equivalent Value (AEV). Here the net present value of a single rotation is expressed as an AEV to allow for comparisons of project with different (rotation) lengths. The questions arise: What happens after that rotation? What is the value of the land? What use will be made of the land? The answers to these questions will of course have an impact on the overall valuation of the project. I also had a problem with the section dealing with the potential for a negative LEV. In the book, a negative LEV is assumed not to be realistic, expressing a negative value of the land, and remedies are suggested including using a lower discount rate. However, a negative LEV can only result from a negative NPV. A negative NPV indicates that a particular investment or project is earning a rate of return which is lower than the discount rate used, identifying that the project should not go ahead (unless non-financial reasons justify this). A negative LEV indicates the same thing: the land has a negative value for the particular forestry scenario analysed. Finally, in relation to the LEV, a worked LEV example in Appendix 2 includes the cost of upgrading the road at age 17 (i.e. a year before first thinning). I assume this cost relates to the upgrading of a low-quality establishment road to a timber haulage road. This cost should probably not be included in the analysis, as inclusion assumes that a similar road upgrade will occur in year 17 of each rotation. The road construction and upgrade costs should be kept out of the LEV calculation, similar to the cost of the land, and should be incorporated in the analysis afterwards. On the other hand, regular recurring road maintenance costs should be included in the LEV calculation itself.

Finally, I would have liked it if the authors had included more details on the valuation of non-timber ecosystem goods and services. Nowadays, with the emphasis on sustainable forest management and multi-functional land use, it would have been useful to inform the readers about the progress in the development of methods to value carbon sequestration, recreation, biodiversity, water quality and quantity, and other (positive and negative) outputs. In this context, I also would recommend that the term “crop” is not used; foresters manage forests and stands, and valuation should also relate to the stand and not just the crop.

Unfortunately there are quite a few typographical and syntax errors in the text and, even more importantly, errors in the formulas included. For instance, the LEV formulas on page 26 include the t variable as a multiplier (the formula is correct in

Appendix 2), while this should be as an exponential. The same is true for the PV formula on page 18. In the formula in Appendix 4, there is confusion about the use of i , idr and i_{dr} .

As is obvious from the above, I have quite a few issues with the publication, but this is only to be expected given the complexity and often subjectivity of the concepts and assumptions behind valuation methods. Overall I think it is very important that this book has been published and that foresters and forest owners can get a basic understanding of the valuation process and of the multiple and often complex parameters and factors that go into it. I therefore recommend that all professional foresters and interested forest owners obtain a copy of this publication, while being cognisant of the issues raised in this review.

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