

BOOK REVIEW

Australian Tropical Rain Forest Trees: An Interactive Identification System. — B.P.M. Hyland and T. Whiffin. Published by CSIRO, Melbourne. 1993. 3 volumes & computer disks. ISBN 0 643 05403 0. \$AU 195.00

Anyone who has collected or carried out any ecological surveys in rainforest will know that the chance of collecting flowering material of all species present is virtually nil. The use of a standard flora (if one exists) is therefore impossible and one must rely on either matching material with specimens that have, hopefully, been correctly identified (a method which easily produces incorrect identifications) or have someone who is familiar with the flora do the identifications instead (a luxury that is not always available).

Bernie Hyland overcame this problem of using flowering material for identifying rainforest material by producing a punched-hole computer card key to the rainforest trees of north-east Queensland in the mid 1970's. It was very innovative at the time and I think the first and only polyclave regional flora in Australia. The card key (as it is commonly called) used only leaf and bark characters to determine any tree over 2 m tall and, until recently, was regularly used to identify the native trees of the Wet Tropics. However, with age, it had developed a number of flaws. Over the years the nomenclature of the species present had changed as a result of the increased awareness of the rainforest flora, the number of species present in the rainforest had increased, and a correct or satisfactory result was not guaranteed when identifying plants out of the immediate range of the card key. The descriptions were also very scanty and not every species was illustrated.

It was a delight, then, to see the long awaited 'Australian Rain Forest Trees' computer package. With its expanded character list (it now includes flowers, fruits and seedlings), extended range to include all of the tropical rainforests of northern Australia, updated taxonomy, and expanded descriptions and illustrations, as such it alleviates most of the problems associated with the card key. It can also be regularly updated — something which was not possible for the card key, as the machinery needed to punch the slots was no longer available.

The package comes in the form of three volumes and three computer disks. The system can be installed on either MS-DOS computers (3.5" or 5.25" disks) or Apple Macintosh computers; only one disk is required for installation. The system can be used on notebooks that lack hard drives using a 2-disk system. The programme can be used on either monochrome or colour monitors. On some monochrome screens, however, the highlighted bar that should appear once a character is chosen is not always present. This requires the user to either make a note of the character used or to frequently use the characters used option, which can become annoying and frustrating.

The system is very user-friendly and one does not need a background in computers to be able to successfully identify a specimen. The main menu offers a number of character sets to choose from, which include morphological features such as leaves, flowers, fruit, seedlings and bark as well as a family list and geographic area options. A character list is chosen and by simply pressing the space bar at the character which matches one on the specimen, the number of possible taxa is whittled down to a manageable number of possibilities. A couple of words of caution though; it is better to leave out any character that is missing, rather than trying to guess whether the feature is there or not. The same can be said for characters that are not fully formed or have become distorted in some way. By including these guesses, there is a higher probability of misidentification. The other is, if you do not succeed in getting a correct identification the first time, try the same characters but in a different order i.e. start with leaves instead of flowers the second time, and start looking at the remaining taxa list once you have reduced the list to about 20 or so. Occasionally, I have managed to correctly match my unknown via this method.

Volume 1 gives simple, easy-to-follow installation instructions, an explanation of the character lists, a family and generic list, species lists (by code number, and alphabetically by genus and common name), and a glossary of terms. This volume is important when using the computer key and is constantly referred to in the early stages

of becoming familiar with the system. It is important to read what the authors define for each character state. This is the criteria they used for coding each species, and by following their clear definitions, any ambiguities that are likely to arise over character states that can be interpreted differently are eliminated. The lists that make up the bulk of Volume 1 are useful if you want to jog your memory on a particular species or you are familiar with the common name and would like the botanical name or vice versa. I felt the list of species by code number to be purely academic and I have not had a use for it yet. The only use I can think of would be to use it as a shorthand form when compiling species inventories. Of course, this would break down if species being recorded are not included in the computer key.

Volume 2 is used to help confirm the specimen identified. It is set out in alphabetical order — first by family, then genus, then species. The species code number is located along the right hand margin in bold. What follows is a description of the plant and then a list of additional diagnostic characters, and finally its distribution and ecology. The diagnostic characters are detailed and comparable to any flora treatment. These descriptions are far superior to the three or four line entries that were used in the accompanying book for the card key. What is disappointing is there is not a list of diagnostic characters after the family heading. Most families found in the rainforest have one to several vegetative characters which are diagnostic to that family. This omission is something Betsy Jackes from James Cook University first pointed out to me and I wholly agree with her in this unfortunate exclusion. It would have added no more than 10 pages to the book and is something that is sorely absent from the literature. Hopefully, this can be added to future editions.

Finally, but by no means least, Volume 3 comprises the leaf atlas compiled by David Christophel and Bernie Hyland. Leaves of all of the taxa in the computer key have been illustrated using x-ray photography. The result is a fine reproduction of the size, shape and venation pattern of every leaf. Most of the leaves are present at their actual size and for compound leaves, one or more leaflets are presented. Venation patterns are often a good diagnostic character to distinguish species and the photos replace the 'thousand words' it would take to describe some of the important features.

Each book has on its cover reprints of paintings of rainforest taxa by local North Queensland artists. These front covers only enhance the desirability of the boxed set. I strongly recommend this computer key to anyone who has an interest in the rainforest tree flora of northern Australia. Some people may be hesitant at the price of \$195.00, but I can assure them it is excellent value for money.

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