covered much of Marlborough: scab weed and little else but scattered *Epilobium hectori*. Where grazing pressure declines, viper's bugloss, Canadian fleabane *(Erigeron canadensis)* and haresfoot trefoil increase in importance, sometimes with silver hair grass and *Bromus tectorum*. Black medic may be important, particularly in damper substrates.

Wetland vegetation is uncommon in the Middle Clarence Valley, the largest area seen being at the head of Elliot Stream near Lake MacRae. Dominant species are *Carex geminata,* cocksfoot, *Juncus articulatus, J. effusus, Myosotis caespitosa, Ranunculus repens, Schoenus pauciflorus,* timothy and Yorkshire fog. Small bodies of standing water along both banks of the Clarence have *Azolla rubra, Myriophyllum elatinoides* and *Potamogeton cheesemanii.*

In conclusion, the flora and vegetation have changed noticeably since the 1950s, with little evidence that an overall stability has been reached yet.

REFERENCES

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Book Review

Botany of the Manawatu District, New Zealand, *by A. E. Esler. DSIR Information Series No. 127, Government Printer, Wellington, 1978. Price $12.50.*

Many readers who knew that Alan Esler had been working for 12 years on the botany of the Manawatu District would have been pleased to find this publication in various bookshops after numerous delays.

Although the book is only 15 x 21½ cm and thus nearly pocket size, it contains a wealth of information which will fascinate and assist not only botanists but also "environmentalists".

The first half of the book is mainly a description of the past and present vegetation. After the 'Introduction', Esler restricts the book to the Manawatu and Kairanga Counties, and the city of Palmerston North, in 'The Manawatu and its Environment'. In the 'History of the District', readers will note that the Manawatu was covered with high-density podocarp forests, comparable to stands in Whirinaki State Forest, until the 1870's when sawmills were established. By 1900 very little remained: what was beyond the reach of sawmills, was destroyed in flames. Most of the land had been converted to pasture to support the thriving dairying and fat lamb industry for which the Manawatu is well known. The two

maps with this book illustrate this clearly.

Early botanists paid very little attention to the vegetation of the district, and the destruction of that vegetation has been so thorough that Esler found it very hard to reconstruct, using present-day relics and written and verbal accounts. He acknowledges the risk of subjectivity and the effect of selective tree or plant removal by loggers or browsing animals, but recognises seven forest types which he describes in detail: semi-swamp; totara; mixed podocarp; tawa; black beech; northern rata-kamahi, and dune forests. The effect of opossums in combination with deer, sheep, pigs and cattle is particularly well illustrated in the northern rata-kamahi forests where Esler observed the disappearance of these two species between 1959 and 1970. Of the 'Swamps and Other Wetlands' very little has remained also. Shrublands, grasslands (including present-day pastures), sand dune vegetation, and vegetation of waste places are all described in great detail with many photographs and diagrams.

The second half of the book lists the flora of the Manawatu, comprising 1,033 species, subspecies, varieties and hybrids recorded as wild plants. Of these, 505 are indigenous species including 354 endemics. A further 350 plants are wild exotics, mostly from Europe and North Africa. Esler has not found any plants which are endemic to the Manawatu district, but observes that *Adiantum formosum* grows here in its natural state. Moreover *Raoulia tenuicaulis* var. *dimorpha, Fuchsia perscandens* and *Libertia peregrinans* were described from plants found in the Manawatu.

Esler's Flora will be a tremendous help to botanists and students who want to confirm their identifications by means of the ecological comments, which often include exactly where the plant may be found. The students who still "have to scour the countryside for their compulsory plant collections" will be grateful for this book from a former Massey University lecturer. New localities should be reported to the author. A comprehensive index of common and botanical names facilitates the use of this book, which I regard as a model for regional botany. May the staff of Botany Division DSIR be enlarged so that the whole of New Zealand may be covered in such detail before the still remaining sources of information have passed into oblivion.

The merits of this scholarly book extend well past its narrow geographical boundaries. It is strongly recommended to all botanists and environmentalists.

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