

evidence for this as yet. In fact, a recent paper (D. M. Bird and P. C. Laguë. 1982. *Canadian Journal of Zoology* 60: 71-79) showed that physically smaller handreared American Kestrels (*Falco sparverius*) laid larger eggs than parent-raised birds. This may be an artifact of captivity, but there also is no evidence indicating that larger eggs produce larger fledglings more capable of surviving. Hence, I do not think we have seen the end of this great debate.

I agree with Cade that "copulation in falcons has become ritualized into another form of courtship display" and hasten to add more evidence. Spermatozoa can remain viable in the Kestrel oviduct up to 12 days (D. M. Bird and R. B. Buckland. 1977. *Canadian Journal of Zoology* 54: 1595-1597). Why should this be so if every copulation need result in sperm transfer?

Another section I fancied was Cade's argument for the existence of falconry. I have heard many arguments for and against this sport, some based on fact and others on pure sentiment, but I have never read a more eloquent and soundly based one as that put forth by Cade. This is required reading for anyone with strong feelings on the subject.

It is understandably difficult to cover everything on a given topic, but I was surprised that little or nothing was mentioned of the falcon's remarkable eyesight, nor the Kestrel's astounding ability to fix its head in one position while its body undergoes various gyrations, allowing it to maintain a "fix" on prey while hovering or sitting on a moving perch. Also, finding falcon eggs to be as beautifully coloured as the birds themselves, I would have liked a word or two describing them for each species (where known).

My criticisms of the editing are relatively minor. In fact, throughout the entire book, I found no more than two dozen typographical, grammatical and spelling errors. The only annoying aspect of the writing style (which may not have been the author's fault) was the inconsistency of the reference system. In some places, *et al.* was used and in others not. This even occurred on the same page, e.g. p. 120. Frequently, the

periods at the ends of sentences preceded the reference which was not always in brackets.

The range maps are extremely useful and a welcome addition. If Cade's plea for further research on many species is heard, then these will undoubtedly change. For example, five years ago, I received a brood of orphaned American Kestrels from as far north as the east coast of James Bay (well above that shown on Cade's map), and to top that, in the summer of 1982, I observed a male Kestrel perched on a hydro line beside the airport in Fort Chimo in Ungava Bay! As an aside, some readers may be confused by the lack of referencing for a few of the maps covering two species.

Besides Cade's authoritative writing, the book is richly endowed with 40 full-page colour paintings. I personally like R. David Digby's style, which is to be expected because I also favoured D. M. Reid-Henry's work (the former studied under the latter) above seven other artists in an earlier raptor book. Some readers might have liked to see both sexes and the immature plumages presented for each species (where warranted), but with the painstaking hard labour incorporated into each painting, I think this is asking too much. Digby's work is impressive and indicates he is no stranger to falcons.

In summary, my criticisms of the book are largely miniscule when one considers the author is sharing with us more than 40 years of experience in observing both wild and captive falcons. As a "student of falcons", I devoured the book and examined it with a fine-tooth comb. It has without doubt much to offer to those with an unquenchable curiosity for knowledge of these magnificent birds and to those with a refined appreciation for superb artwork.

DAVID M. BIRD

Macdonald Raptor Research Centre, Macdonald Campus of McGill University, Ste. Anne de Bellevue, Quebec H9X 1C0

## BOTANY

### Survey of Canadian Herbaria

By Bernard Boivin. 1980. *Provancheria* No. 10, Université Laval, Québec. Louis-Marie, Université Laval, Québec. Available from the author at Herbiier Louis-Marie, Université Laval, Québec. 187 pp. \$10.

This book includes descriptions of 404 Canadian herbaria, both past and present, with 335 being institutional, 69 private, and 248 still presumed active today. The author's three-fold objectives for the book were: 1) to provide information about the research

capabilities of Canadian herbaria, 2) to suggest the herbaria that might contain specimens for particular research needs, and 3) to provide information on locations of voucher specimens for previous studies. The nature and purposes of herbaria in general, previous herbarium surveys relevant to Canada, objectives and methodology of the present survey, and its format, are briefly described respectively in four short introductory chapters. The actual descriptions of Canadian



herbaria follow the introductory chapters and comprise the main text. The book concludes with a brief chapter attempting to give some statistical summaries, an appendix reproducing some facsimiles of relevant historical documents, and a relatively extensive alphabetical index giving the herbarium acronyms and/or names, institutions, collectors, and plant taxa mentioned in the text.

In the main text body, the included herbaria are alphabetically arranged and cross-referenced by their official and previously used acronyms, owner's names (if the herbaria are private), and cities where located. The herbarium descriptions vary considerably from very brief (3-5 lines) to relatively extensive ( $\frac{1}{2}$ -2 pages). Information is usually given on date of origin (and sometimes also considerable history), size, area of concentration, main collectors, comments on exchanges and loans (but only in reference to Department of Agriculture, Ottawa (DAO) and the author), and some abbreviated references to information about the particular herbarium.

This survey represents the results of a 30-year compilation of information about various Canadian herbaria by the author, a prodigious compiler, who obviously invested much time and effort on this task. Included is much useful and interesting historical information about various herbarium collections in this country. It has performed a valuable service in recovering and preserving such historical knowledge as part of our botanical heritage, aside from its stated primary objective of providing information on Canadian herbaria as resources for research.

This publication is not, however, the even-handed and updated review of all present-day herbaria across the country that readers might expect. It was admittedly a personalized compilation and biased by the author's own interests and his rather informal information-gathering methods, which consisted mainly of personal impressions and notes accumulated during his herbarium visits and studies spanning 30 years. The result, although highly informative and often fascinating in many details, is a distinctly uneven coverage of Canada's herbaria, both in terms of the amount of detail included and the recency of much information. Some herbaria seem very well described

(e.g. CAN, DAO, MFJB, MT, MTMG, QFA, QK, TRT), but others are much less thoroughly reviewed. Sometimes the descriptions of particular herbaria appear fragmentary, subjective or uncertain, or scarcely if at all updated from information that must have been obtained 15, 20 or even 30 years ago (or often with only a size-amendment from *Index Herbariorum* Edition 6, 1974). The lists of "main collectors" given with each herbarium description appear particularly non-uniform and in fact often seriously distorted with regard to inclusions vs. exclusions and to the recency of information. For some herbaria, the "main collectors" listed are strictly historical including none (or very few) more recent than 20-25 years ago, but for other institutions the lists may even include collectors up to the late 1970s. Obviously the author's symbol-annotated alphabetical list of Canadian collectors in his extended concluding index can hardly be more consistent and complete than the individual lists from which it was compiled.

One might have expected the author of a publication, professing by its very title to be a national survey of herbaria, to have made a determined and systematic effort to update his information prior to publication and to attempt giving a roughly equivalent treatment of all herbaria across the country. A form letter requesting needed information circulated to all curators (not just a selected few) might have avoided much of the excessive unevenness evident in this survey. But as a curator himself, this reviewer can attest that no such communication concerning at least his herbarium was received during the last 14 years.

This *Survey of Canadian Herbaria* represents an interesting and informative work of considerable historical value that is certainly recommended to readers. It should not, however, be uncritically accepted as an accurate, even-handed and up-to-date assessment of Canadian herbaria today or of the collectors associated with them.

VERNON L. HARMS

The W. P. Fraser Herbarium, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0

### The Rare Vascular Plants of the Yukon

By G. W. Douglas, G. W. Argus, H. L. Dickson and D. F. Brunton. 1981. National Museum of Natural Sciences, Ottawa, Canada. Syllogeus No. 28. 61 pp. (English), 64 pp. (French) + 35 pages of maps. Free.

This is one of a series of publications dealing with the rare plants of the various Canadian provinces and

territories: #14(1977) Ontario; #17(1978) Alberta; #18(1978) Nova Scotia; #20(1979) Saskatchewan; and #27(1980) Manitoba.

For their purpose, the authors consider a rare plant as "one that has a small population within the area under consideration. It may be restricted to a small





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