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## **The future of «Flora Europaea»**

### **Die Zukunft der «Flora Europaea»**

by

Stuart Max WALTERS

#### **1. INTRODUCTION**

I have chosen the title of this paper with some care, so as to make it clear that I am not intending to discuss the fate of the European flora itself, either from the point of view of nature conservation or the longer-term evolutionary questions. My subject is a much narrower one: namely, the effect of the completion of the project to write a Flora to cover the whole geographical Continent of Europe, from Iceland and the Azores in the West to the Ural Mountains in the East. It is particularly appropriate to assess the impact of 'Flora Europaea' as a contribution to the 'Festschrift' to mark the 60th birthday of Professor Landolt, for he has acted as 'Flora Europaea' Regional Adviser for Switzerland continuously since 1958. In this capacity he has been responsible for checking all records for 'He' (Helvetia) in all five volumes of the Flora

published between 1964 and 1980. This essential, though unspectacular, service has been available to the Editorial Committee from the early days of preparation of the Flora: it is good to be able to record our gratitude to Professor Landolt, as indeed to all our Regional advisers, for their remarkable voluntary support over many years.

## 2. AIM AND SCOPE OF 'FLORA EUROPAEA'

It is instructive to recall what the Editorial Committee stated as the aims of the 'Flora Europaea' project in a short printed Memorandum circulated widely to European plant taxonomists in 1956, less than two years after the formation of the Committee. This document, which was closely followed by a much fuller exposition in Taxon (HEYWOOD 1957), is worth verbatim quotation. It begins as follows:

'We wish to bring to your notice a project which we are undertaking: the compilation of a Flora of Europe. Such a project has often been discussed, and there can be little doubt that a general Flora of Europe is badly needed. By a historical accident the smallest of the continents has been long divided into a large number of politically and culturally independent states. This has brought about a situation in which the taxonomist or phytogeographer who seeks even superficial information about this limited and well-worked fraction of the flora of the world must have recourse (at the least) to some 30 separate Floras and innumerable smaller publications, written in over a dozen different languages, varying widely in their taxonomic presuppositions and in their intrinsic merits, many of them expensive and difficult to obtain, and many of them published over 50 years ago. Only the largest and wealthiest of our botanical institutions can provide a library stocked with all these works; and only the worker whose other duties are few enough to allow him the time to familiarize himself with this extremely diverse mass of literature can arrive at well-founded generalizations on European plants. To collect within the confines of a single work the main body of this rich but dispersed body of information will, we believe, be of use to all European botanists; but it will perhaps be of even greater service to their colleagues in America, Asia, Africa and Australia, to whom the

national frontiers which loom so large in our minds fall into a very different perspective, and to whom the difficulties in the way of compiling such a Flora, which to us seem so formidable, appear trivial and even ridiculous.'

It is good to feel that, with the publication of the fifth and final volume of 'Flora Europaea' in 1980, we had succeeded in this admirable primary aim, to collect within the confines of a single work the main part of the 'rich but dispersed body of information' on the vascular flora of Europe. We were, of course, a little too optimistic, both as to the size of the eventual work, which we estimated in 1956 as 'three or four volumes', and the time it would take: in the event, some 25 years compared with our estimate of 'ten or twelve'. Nevertheless, the pragmatic view held consistently by the Committee that a completed work with defects 'will be of greater value than a monographic fragment to be bequeathed to our grandchildren for completion' - this view paid off handsomely. It is the impact of this finished work that I wish to assess, five years after the publication of the final volume.

Although I would hope that the scope of the 'Flora' is familiar to all readers of this paper, perhaps a brief description of its main contents would be useful, if only to bring out the limitations as well as the value of the work. It covers the whole vascular flora of Europe, beginning with the Pteridophyta in volume I and ending with the Orchidaceae in volume V. Each volume has a 'synonymic index', and a Consolidated Index combining (and, incidentally, where necessary correcting) the separate indexes was published in 1983. For each family, genus and species there is a short diagnostic description and dichotomous, indented keys to genera and to species. The number of species, native or effectively naturalized, fully treated in the 'Flora' is 11, 557. The text is severely technical, with standard abbreviations to indicate geographical distribution, and there are no illustrations. The language used is English, but an attempt has been made to avoid unfamiliar vernacular terms where an alternative of classical derivation is available. An Anglo-Latin glossary of many English terms used is provided in each volume.

### 3. IMPACT OF THE FLORA

There are several ways of assessing this remarkable cooperative work, some of them more objective than others, and I shall consider only those with a degree of objectivity. The most obvious way is by looking at reviews of the separate volumes as they appeared. In general, they are laudatory. The cynic may, of course, say that, since many of those qualified to review 'Flora Europaea' have been involved either as advisers or authors in its preparation, this fact is not altogether surprising. Even if we grant this bias, it is nevertheless impressive that the small community of plant taxonomists has clearly found the Flora useful and important, and no doubt will continue to do so. We claim, however, that it is a reference work of much wider importance: can we assess whether this is true? Some reviews in more popular journals throw light on this question. Thus A.H. FITTER, reviewing the final volume in the journal 'Oryx' (FITTER 1980), takes the opportunity of assessing the whole world, and says: 'Anyone who needs to be able to name plants in Europe can be grateful to the team of authors who have put together this magnum opus. It is a relief to the professional botanist to be able to quote a source for nomenclature and taxonomy that will be accepted as standard by all other workers.' At the risk of offending those of my colleagues who believe that nomenclatural change is a regrettable necessary consequence of taxonomic 'progress', I would strongly support this view of the impact of 'Flora Europaea'. Whether we like it or not, and irrespective of whether the 'Flora Europaea' names are 'correct', the fact that the work is complete and available for references in the main botanical institutions and herbaria of the world must have a stabilising influence on nomenclature. It is worth remembering that most European plants are unambiguously designated by a single Latin binomial - indeed whole genera consisting of several species present in 'Flora Europaea' few or no nomenclatural ambiguities (good examples are Equisetum (10 spp.) and Geranium 39 spp.)). This size of the problem is often exaggerated because all professional taxonomists and many users of botanical names are irritated by particular name-changes, and 'do not see the wood for the trees'.

Most reviewers assess 'Flora Europaea' as an international cooperative work of scholarship. Thus an early review in 'Taxon' (STAFLEU 1965) con-

tains the following words: 'The first volume of 'Flora Europaea' is a splendid example of international teamwork under the technical guidance of an effectively organized national group. This plan has proved to be efficient and satisfactory.' To one who has been happily involved in the project from a very early stage, I can testify to the extraordinary quiet success of 'Flora Europaea' in providing a neutral framework of scientific cooperation towards a defined goal, around which a whole generation of plant taxonomists throughout Europe were able to cement valuable personal relationships. Perhaps we were lucky in our choice of subject, for throughout all the political tensions of post-war Europe - tension unfortunately still with us today - open collaboration between botanical colleagues was never prevented and rarely even hindered. In the development of this 'Flora Europaea mentality', the roughly biennial Symposia held in a different European country played a very important part: the first took place in Vienna in 1959, and the eighth and final Symposium was held in Cambridge in 1977.

Another objective way of assessing the influence of the 'Flora' is in terms of other published work which explicitly or implicitly reflects its influence. A striking example is provided by the Flora of Bulgaria, a multi-volume project nearing completion. From the third volume of this Flora onwards (JORDANOV 1966) the influence of 'Flora Europaea' is clearly visible, and indeed explicit reference is made in the Preface of this volume to the importance of the 'Flora Europaea' cooperation. Even more direct influence of 'Flora Europaea' is evident in the two-volume work on the Spanish flora entitled 'Claves de la Flora de Espana', now in its second edition (ROLLAN 1985). For this, the Spain publisher made an agreement with Cambridge University Press to use a mainly literal translation of the keys, descriptions and other relevant material from 'Flora Europaea', and the agreement is acknowledged in the Preface. Whilst such direct and formally-acknowledged links are understandably few, the direct influence of 'Flora Europaea' is very widely spread indeed. Thus, one of the factors influencing the decision of the Botanical Institute in Leningrad to publish a new Flora of the European part of the U.S.S.R. was the close cooperation between the 'Flora Europaea' organization and their colleagues in the Leningrad Herbarium over the flora of European Russia. This Flora, which began in 1974, is still unfinished, with five volumes published (FEDOROV et al. 1974). It is particularly gratifying to hear, at botanical conferences and gatherings in

different parts of Europe, the next generation of European botanists taking their basic information from 'Flora Europaea' as a matter of course; and references to the treatments of genera and species in 'Flora Europaea' are commonly found in technical papers, not necessarily only taxonomic studies, but over a wide spectrum of pure and applied science.

#### 4. ANCILLARY PROJECTS

From the beginning of the 'Flora' project, it was obvious that the work would stimulate or even directly yield a number of by-products. These can be divided into two kinds: those using data assembled for the 'Flora' itself, and those involving collection and presentation of related data. In the first category is the Check-List and Chromosome Index prepared by Prof. David MOORE, one of the members of the Editorial and Organizing Committee of 'Flora Europaea' (MOORE 1982). To quote the Introduction:

'This book has grown out of the requests by many users of 'Flora Europaea' for information on the sources of the chromosome numbers cited in that work. During discussions about the publication of these data it became apparent that there is also an demand for a basic checklist of the taxa recognised in the 'Flora' and that these two requirements could readily be met in the same volume.'

We have, of course, already mentioned, when considering the impact of the Flora, projects which owe much to the published volumes. One particular project, however, deserves special consideration, because it is a long-term multi-volume cooperative project born out of the 'Flora Europaea' experience, and involving many of its most committed collaborators. This is 'Atlas Florae Europaeae', with its Secretariat under the supervision of Professor Jaakko JALAS in Helsinki, Finland. Six volumes of the 'Atlas' have already been published (JALAS and SUOMINEN 1972-), and the a seventh is due in 1986. A brief history of the project, which explains the 'Flora Europaea' stimulus, is given in the first volume. The sequence and the area covered by the 'Atlas' are those of 'Flora Europaea'. As the work has proceeded, inevitably with new information and taxonomic research, the 'deviations from Flora Europaea' have become

more numerous: thus, in volume six, which provides distribution maps for part of the important Family Caryophyllaceae, there are two pages of summarised addenda, corrigenda and delenda listed in the Preface.

## 5. PREPARATION OF A SECOND EDITION OF THE FLORA

The submission of the typescript of the final volume of 'Flora Europaea' to Cambridge University Press took place immediately after the final Symposium held in Cambridge from 31st August to 4th September 1977\*, and the volume was published in 1980. Although the Editorial Committee took the decision in Cambridge 'to keep itself in being', no meeting was held between September 1977 and October 1981. Four years to recuperate was perhaps not unreasonable after more than twenty years of Committee meetings, and Professor David WEBB summed up the mixed feelings of the members of the Committee at the end of their labour in his paper entitled 'Flora Europaea - a retrospect' (WEBB 1978). This is how he finishes: '... the satisfaction was mingled with regret, for the organization, besides producing the Flora, had served as a good club, and we were sorry to see it go into liquidation. But the feeling of satisfaction is likely to be the more lasting, at least among the editors - satisfaction at having achieved, rather miraculously, their original purpose. They are content to have their work summed up in the words of W.B. YEATS:

'What they sought to do

They brought to pass.'

Carpent tua poma nepotes: we leave it to the next generation to pluck our apples - and to correct our mistakes.'

When the Editorial Committee finally re-convened in October 1981, an important item on the agenda was entitled 'Addenda and Corrigenda', and a general discussion took place on the possibility and desirability of

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\* It was, incidentally, on the occasion of the Cambridge Symposium that Professor Landolt detected for British botanists, in a ditch within the City of Cambridge, the N.American aquatic Lemna minuscula (L. valdiviana in F.E.), and stimulated the search for new localities for this interesting addition to the British flora. (See LESLIE and WALTERS 1983).

correcting any volume of the Flora due for reprinting. Two years later the Committee took the decision to employ a Research Associate on this problem, using a grant from the Trust Fund set up by the Linnean Society of London, sponsors of the 'Flora', to receive the royalties from the publishers, Cambridge University Press. Dr John AKEROYD was appointed on 1 October 1983 to work at Reading University, and has now completed the first two years of a five-year project to prepare a second edition of the first volume of the 'Flora'. Some of the statistics now available to the Committee give an idea of the size and complexity of this operation. In the twenty-two years since the completion of the typescript for the first volume, AKEROYD's survey has revealed, for example, that there are 155 species, and a further 113 subspecies, now to science in the European literature, of which some two-thirds seem to be acceptable on 'Flora Europaea' criteria. Only about ten existing numbered species in volume I are to be deleted from a new edition. Overall, it looks as if a new edition of volume I would have some 10% new material.

It is important to make clear that no decision has yet been taken to produce a second edition: the present study is, however, already showing that a new edition of at least the first and oldest volume is quite a practicable aim, and the Editorial Committee is encouraged by the progress made.

Since 1981, Professor Vernon HEYWOOD, who is still Secretary of the Flora Europaea Editorial Committee, has been setting up in the Department of Botany of the University of Reading an international project funded by the European Science Foundation entitled 'The European Taxonomic, Floristic and Biosystematic Documentation System'. A description of this important long-term project is now published (HEYWOOD et al. 1984). It will obviously be of the greatest importance to have close collaboration between this large documentation project and the more limited one which 'Flora Europaea' needs for its particular purposes: the fact that both schemes are in the same Department at Reading should ensure such cooperation. Undoubtedly modern computerised information retrieval systems will come to play an important role in all future studies of European plant taxonomy: but it seems unlikely that the bound and printed Flora will be totally superseded for many years to come. These are important questions for the next generation of European plant taxonomists to decide. The 'Flora Europaea' project has at least made it possible for that next generation to face the questions squarely, and to make informed decisions. The Editorial Committee wishes them well.

## SUMMARY

The effect of the completion of 'Flora Europaea' as well as the aim and scope of this international project are assessed. Ancillary projects using data assembled for the 'Flora' and also those involving collection and presentation of related data are briefly reviewed.

## ZUSAMMENFASSUNG

Der Gesamteindruck über die Fertigstellung der 'Flora Europaea' sowie Zweck und Umfang dieses internationalen Projektes werden festgehalten. Nebenprojekte, in denen Daten aus der 'Flora' verwendet wurden, sowie solche mit ähnlichen Daten, werden kurz besprochen.

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