

The Ethiopian Flora Project: Lessons learnt

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Abstract

The Ethiopian Flora Project was initiated in 1980 as bilateral agreement between the Ethiopian and Swedish governments and implemented through Addis Ababa and Uppsala Universities. There was an international support from many institutions, but the major ones include the Royal Botanical Gardens, Kew, UK; the Universities of Copenhagen, Denmark; Oslo, Norway and Uppsala, Sweden. By the end of the project, all the intended 10 volumes of the Flora of Ethiopia and Eritrea covering the ferns and gymnosperms and all flowering plants with ca. 6,000 species were published. During the Flora Project the herbarium collections grew from 18,000 in 1980 to over 80,000 in 2009. The success of the Project was mainly due to the involvement of local expertise in the flora writing, and the publication of the Flora locally, that reduced the cost of publication which in turn encouraged institutions and individuals to buy and use these publications. The project was planned for 15 to 20 years when it was initiated in 1980, but took nearly thirty years to complete (in 2009). This was due to the fact that some contributors did not provide the contributions on time as planned. In the future there is a need to digitize the 80,000 or so specimens at ETH - that requires support, and to avail the Flora electronically - that requires permission to do so by Addis Ababa University.

Keywords

Flora of Ethiopia and Eritrea, overview, lessons learnt

Introduction

The Ethiopian Flora Project (EFP) was initiated in 1980 as a collaborative project between the Universities of Addis Ababa, Ethiopia and the University of Uppsala, Sweden. The leaders of the project were Prof. Tewolde-Berhan Gebre-Egziabher on the Ethiopian side and Prof. Olov Hedberg with Prof. Inga Hedberg on the Swedish side. Over the years the project received international support from many institutions, the major ones including the Royal Botanic Gardens, Kew, UK; the Universities of Copenhagen, Denmark; Oslo, Norway and Uppsala, Sweden (Sebsebe Demissew, 2006a, Hedberg, 2009).

Objectives of the Ethiopian Flora Project

1. Write up a Flora of Ethiopia within the shortest time possible;
2. Build-up a National Herbarium and a related library to be used as reference centres for pharmacognosists, agriculturists, foresters, wild-life specialists, etc. and
3. Promote scientific activities in taxonomic botany, economic botany, forestry, plant ecology, plant physiology, etc. through training

1. Write up a Flora of Ethiopia within the shortest time possible. At the start of the project, the leaders of the project felt the need for training of nationals before embarking on the writing of the Flora. Thus the initial phases of the project were mainly devoted to the training of nationals (Table 1) and the preparation of the first volume to be published.

At the start of the EFP in 1980, the publications of the various volumes were “indicated” to be completed in about 15-20 years. However, the completion of the Flora has taken about 29 years between 1980, when it was initiated and 2009, when it was completed, but 20 years since the publication of the first volume (Volume 3), in 1989 (Table 2). As shown in the table, volume 3 was published in 1989 (nine years after the initiation of the project, which meant, the first eight years of the project were devoted to the training of Ethiopians, which made possible the full participation of nationals in contributing to writing flora accounts of various families and participation in the editorial work. The completed flora volumes are shown in Fig. 1.

The contribution of scientists based in Ethiopia in writing family accounts grew over the years from about 4% in Volume 3, published in 1989 to almost 100% in Volume 4(2), in 2004. These include writing accounts of Families with about 440 species in Asteraceae in Volume 4(2) (Mesfin Tadesse, 2004); over 200 species in the Family Acanthaceae (Ensermu Kelbessa, 2006) and about 130 species in the Family Convolvulaceae (Sebsebe Demissew, 2006), both of the latter Families are in Volume 5 of the Flora of Ethiopia and Eritrea (FEE).

Opportunities, Challenges and achievements

Opportunities

Many outstanding professional botanists, Mr. Mike G. Gilbert and Dr Kaj Vollesen (employed by the FEE, based at the Royal Botanic Gardens, Kew, Prof. Ib Friis, University of Copenhagen, Denmark, Prof. Christian Puff, University of Vienna, Austria, Prof. Mats Thulin, University of Uppsala, Sweden, and Prof. Inger Nordal, University of Oslo, Norway, participated actively in contributing accounts of various families and also contributed to increasing the number of collections at the National Herbarium. In so doing they shared their knowledge and expertise with botanists based at the National Herbarium.

A number of national botanists have increased the number of plant specimen collections at the National Herbarium. The major collectors include: Profs. Ensermu Kelbessa, Sebsebe Demissew, Sileshi Nemomissa, Sue Edwards, Tamirat Bekele Tewolde Berhan GebrEgziabher, Zemedede Asfaw, Zerihun Woldu, PhD and MSc students. Many individuals at the Institute of Biodiversity Conservation (IBC) and Ethiopian Institute of Agricultural Research (EIAR) and various institutions under the Ministry of Agriculture and Rural Development have also contributed to the increase in the number of plant specimen collections.

Challenges

One of the major challenges of the Flora Project was caused by the death of Prof. Pichi Sermolli in 2005. He had promised to deliver the Fern accounts, based on his wide experience and knowledge of the Ferns. Thus accounts of the families had to be started as new. The contributors of this challenging volume are shown in Table 3 and the national botanists also responded to the challenge.

Achievements

The publications of the eight volumes resulted in the documentation of about 6,000 plant species (angiosperms, gymnosperms, ferns and fern allies) with ca. 10% endemism. In addition to completing the documenting of the botanical resources, all the volumes were published locally. This made the cost of the publication cheaper and also availed the published volumes

locally to the benefit of students, teachers, agronomists, foresters, other researchers etc. in the country.

Strengthening the National Herbarium

One of the three objectives was to strengthen the National Herbarium (ETH). The National Herbarium in Addis Ababa University was established in 1959 with the donation of about 6,000 species by an Irish Forester, H.F. Mooney. Mooney was keen to send to Kew for identification and receive the properly identified plant specimens. Between 1959 and 1980, the number of collections were about 16,000. Between 1980 to date, the number has increased to over 80,000. One of the outstanding contributors to the collection is Prof. Ib Friis who together with others have collected a series with over 10,000 specimens.

Promotion of scientific activities in taxonomic botany, economic botany, forestry, plant ecology, plant physiology

The project leaders who initiated the project had thought of this objective right from the initial stage of the Ethiopian Flora Project. The training of Prof. Legesse Negash in Plant Physiology, Prof. Zemedu Asfaw in Ethnobotany, and Prof. Zerihun Woldu is testimony to this.

Plant identification services to many institutions and individuals are being provided by staff of the National Herbarium from the beginning of the project, and will continue for the foreseeable future.

Conclusions

The Ethiopian Flora Project has achieved its objectives by completing the Flora of Ethiopia and Eritrea with about 6,000 species and ca. 12% endemism. In so doing the accomplishment of the FEE has contributed to addressing the Ethiopian contribution towards achieving Target 1 of the GSPC targets; strengthened the National Herbarium with the collection increased from 6,000 to over 80,000 (at present), and is used by a number of professionals for identification of plant specimens and contribution to conservation activities in Ethiopia. The lessons to be learned from the Ethiopian Flora Project are the training of national botanists in documenting the national floras, and also the publication of the floras locally which would avail the resources to a wider participation locally.

References

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Table 1: PhD training sponsored by the Ethiopian Flora project

Name	Year	Place of Study	Subject Specialization	Current Residence
Mesfin Tadesse	1980-84	Systematic Botany, Uppsala	Systematics: Asteraceae	USA
Sebsebe Demissew	1981-85	Systematic Botany, Uppsala	Systematics: Celastraceae	Ethiopia
Zemedede Asfaw	1983-89	Systematic Botany, Uppsala	Ethnobotany: Barley	Ethiopia
Ensermu Kelbessa	1984-90	Systematic Botany, Uppsala	Systematics: Acanthaceae	Ethiopia
Legesse Negash	1984-88	Physiological Botany, Lund	Physiology	Ethiopia
Elizabeth Kebede	1989-95	Limnology Institute, Uppsala	Limnology	UK
Damtew Teferra	1986-87	Illustrator, Copenhagen	Illustration	USA
Damtew Teferra	1993-94	Publishing studies, Stirling, UK	Publishing	USA

Table 2. Publication and editorship of the Flora Volumes by botanists based in Ethiopia

Volume	Families Covered	Year of Publication	Editors
Vol. 3	Pittosporaceae- Araliaceae	1989	I. Hedberg & S. Edwards*
Vol. 7	Poaceae	1995	I. Hedberg & S. Edwards*
Vol. 2:2	Canellaceae- Euphorbiaceae	1995	S. Edwards*, Mesfin Tadesse* & I. Hedberg
Vol. 6	Hydrocharitaceae- Arecaceae	1997	S. Edwards*, Sebsebe Demissew* & I. Hedberg
Vol. 2:1	Magnoliaceae- Flacourtiaceae	2000	S. Edwards*, Mesfin Tadesse*, Sebsebe Demissew* & I. Hedberg
Vol. 4:1	Apiaceae-Dipsacaceae	2003	I. Hedberg, S. Edwards* & Sileshi Nemomissa*
Vol. 4:2	Asteraceae	2004	I. Hedberg, I. Friis & S. Edwards*
Vol. 5	Gentianaceae- Cyclocheilaceae	2006	I. Hedberg, Ensermu Kelbessa*, Sebsebe Demissew*, Sue Edwards* & E. Persson
Vol. 1	Lycopodiaceae- Pinaceae	2009	I. Hedberg, I. Friis & E. Persson
Vol. 8	General part & Index	2009	I. Hedberg, I. Friis & E. Persson

*Scientists based in Ethiopia.

Table 3: Contributions of number of Families by authors

Contributor/s	Number of Families
Ensermu Kelbessa	7
Ensermu Kelbessa & Henk Beentje	1
Ensermu Kelbessa & Kous Roux	1
Sebsebe Demissew	8
Sebsebe Demissew & Ib Friis	1
Ib Friis	7
J.P. Roux	16

Figure 1: Completed flora volumes 1-8.

