

Flora North America: Project Nipped in the Bud

Federal budget makers have blighted the *Flora North America* (FNA) project, which was designed to produce the first comprehensive inventory of plants in the United States and Canada. The Office of Management and Budget effectively terminated the program by prohibiting the Smithsonian Institution, which was the coordinating agency, from seeking funds from Congress for the project.

The cancellation is causing considerable distress among botanists. No complete compendium of North American plants exists, and it now appears that none will be available in the foreseeable future. FNA's proponents argue that the project is badly needed in an era when the environment is under stress and plant life has its share of endangered species.

FNA was an ambitious project in which computerization and data banking played central roles. The FNA planners wanted to design a system that would be "dynamic" in the sense of being kept up to date, but would also include much more sophisticated ecological information than a conventional, hard-cover flora could contain.

FNA, which was to be a 6-year effort, got under way just 4 months ago after 7 years of planning. The National Science Foundation (NSF) had earmarked some \$1.4 million to support the first 3 years of the project. NSF support was contingent on the Smithsonian's acquiring \$200,000 from Congress for the program in the coming fiscal year and picking up full costs after 3 years. The NSF investment in the project over the last 3 years amounted to about \$350,000 in planning money, provided in roughly equal shares by NSF's biology division and its data systems program. In Canada, government agencies are providing support for operations there and Canadian scientists are highly upset.

The aim of the project was to develop a synthesis of information on plants of North America above the Mexican border. In the 6-year period planned for, the focus was to be on vascular plants; algae, fungi, mosses, and liverworts were to be excluded.

About 700 botanists in the United States and Canada have been involved in the project to some degree—"practically the whole taxonomic community," according to one member of FNA's program council. Some 300 botanists were expected to contribute directly to the project through fieldwork and writing. A relatively small full-time staff of about 15 was contemplated.

Currently, the great work in the field is the *Flora of the USSR*, which was published in 1964 after 3 decades of effort by Soviet botanists. Work on a similar scale is now in progress in Western Europe, and the first few volumes of a flora of that region have been completed.

Cancellation of FNA could cause some awkwardness in current talks with the Soviets on scientific cooperation. Negotiators are said to have completed an agreement dealing with endangered species, including endangered plants. American scientists who helped negotiate the agreement assumed FNA would provide data needed for the exchange of basic information. As one American member of the negotiating team put it, "The Russians

can say exactly which species are endangered. We can't."

FNA would have provided more detailed morphological data and more information about habitats and geographical distribution of plants than any existing work.

The practical case for data banking is stressed by FNA proponents. Howard S. Irwin, president of the New York Botanical Garden and a member of the FNA program council, emphasizes that the information would be available "for an infinite number of purposes. . . ." Under the old system one needed to know the name of a plant to get information about it. In the FNA system, a plant would be accessible not only through its name but through its traits.

Irwin cites a request from the New York State highway department for advice on what plantings to use for specific land gradients, exposure conditions, and minimum temperature. "Now there is no orderly way to get [such information] out," says Irwin. "In a data bank there would be."

The end product of FNA was to have been a hard-cover flora and the data bank, which would have been located at the Smithsonian. Arrangements for telephone terminals at universities and other institutions to provide access to data bank computers were part of the FNA grand design.

Salvageable from the thousands of hours of planning and the first few months of work will be a "guidebook" which lays out the strategy for the project and procedures and definitions for fieldworkers. A lot of other information has been collected, for example, data on manpower in the discipline and this information is in various stages of being converted to useful form. There will apparently be funds available to wind up this work and to tide over botanists employed on the project for a short period, while they look for jobs.

The extensive use of computer techniques in the project seems to have drawn fairly sharp criticism, particularly early in the planning stages. Often heard was the suggestion that, if the money expended on computer programs had been spent for botanists working in the field, the job might be well under way now. It appears, however, that the advantages of data banking were a main attraction for NSF and that botanists at large have increasingly accepted the value of the more ambitious program.

The nearest thing to a comprehensive flora available in the United States has been the *North American Flora* series published by the New York Botanical Garden. This is an open-ended series of monographs which began appearing about 60 years ago.

Although NSF and the Smithsonian are acting to phase out the program, FNA's leadership outside the government is seeking to rescue it. They will try to keep the trademark and spirit alive and will seek alternative financing. A grassroots movement—so to speak—seems to have started among the botanists of FNA to enlist the aid of their representatives on Capitol Hill, where the cause of taxonomy has seldom been pled.—JOHN WALSH