

James P. Bennett

The natural area parks of the US National Park System contain a vast array of vascular and non-vascular plants. The documented number of vascular plant species ranges from a low of about 222 at Black Canyon of the Gunnison National Monument to a high of approximately 1650 at Great Smoky Mountains National Park. This range may be extended as more floristics are done in the national parks. The number of species is of course dependent on the area of the park. After adjusting for park size, Chiricahua National Monument and Virgin Islands National Park appear to have the greatest number of different species per acre (between 0.05 - 0.07) while Everglades National Park and North Cascades National Park have the lowest (0.0006). Obviously, these statistics would change if the non-vascular plants were added to the park listings of plant species, commonly known as "floras". Very few non-vascular plant floras have been done for the national parks.

This information has been generated from floras collected for an on-going project in the Air Quality Division to computerize the floras of the 48 "Class I" parks. These are parks that have the most stringent level of protection from the effects of air pollution, as designated in the Clean Air Act. The Air Quality Division has the responsibility of carrying out the National Park Service mandate to protect these parks. This responsibility is met by conducting Prevention of Significant Deterioration permit application reviews and by conducting air pollution monitoring and research in the parks. Of all the natural resources in the parks, vegetation is generally regarded as the most sensitive to the commonest gaseous air pollutants entering the national parks. For this reason, most of the research and biomonitoring of air pollution effects and permit reviews focus on vegetation effects. To do this, information on the floras of the Class I parks must be accessible.

The floras of the national parks are variable in quality, ranging widely in completeness, accuracy, and synonymy. Of the 48 Class I parks, only 15-17 have useful floras. The remainder can only be inferred from regional or state floras. The difficulty in locating and centralizing these floras and making them useful for determining what species occur where, and how frequently, has necessitated the computerization of the floras. By storing species names in a data base, searches through the base can be made with appropriate software to answer the following questions:

- What and how many species occur in park X?
- What and how many species of *Agrostis* occur in park X? In all parks?
- How many genera and species of grasses occur in park X? In all parks?

● Does species A occur in park X? In any parks?

Species names are being entered in the System 2000 data base management system running on a CDC CYBER computer. The following entries are being made for each species:

Park unit in which found	Data source
Division or phylum	Class, Subclass
Order	Family
Genus	Species
Subspecies (if relevant to threatened or endangered status)	
Exotic or native status	

Space in the data base has been provided for making other entries for each species in the future as uses of the data base grow and expand beyond those of the Air Quality Division. The project is starting on a small scale because of financial constraints and to ensure a successful beginning. The exotic versus native status of each species is the only entry beyond the taxonomic ones being added to the data base for two reasons: first, because the Natural Science Division has identified the problem of exotics in the parks with a high priority, and second, because very little is known about them.

Early in the project it was discovered that some computerized floras already existed. The flora of Grand Canyon National Park currently is being developed on a computer by Art Phillips of the Museum of Northern Arizona. The Soil Conservation Service has published the National List of Scientific Plant Names (SCS-TP-159), which is computerized and accessible through interactive terminals. Our project will use this plant list as much as possible. The use and incorporation of these existing data bases is currently being explored so as to reduce potential redundancy in the project. In addition, as species are entered, synonymy is checked and updated using the Soil Conservation Service synonymy list.

An objective in setting up a separate, smaller data base was to be able to keep the data base on-line. Very large data bases such as the EPA Air Pollution Effects Literature Data Base are so large that it can cost prohibitive amounts of money to keep them on-line. These large bases consequently are only available on tape and must be accessed using a computer operator and a tape drive on a one-time search-through basis. Smaller, on-line data bases can be stored on disk, are accessible on demand, and can be manipulated interactively. The National Park Service flora data base will be kept deliberately small to ensure easier and less expensive use. If it does grow beyond these criteria, certain lesser-used park floras may have to be stored off-line.

This project was begun in FY 82 and is currently in the development phase. Gary Waggoner of the Denver Service Center is directing the entry of the floras, checking the synonymy, and collecting some of the floras. The project is expected to continue in FY 83, subject to funding allocations. Plans to make the data base accessible to users outside the Air Quality Division will be developed when it is debugged and running smoothly and it reaches a useful size.

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## TRIENNIAL ELECTION OF OFFICERS AND BOARD MEMBERS

An announcement in the Winter FORUM presented the method to be used for the autumn election, and named the Nominating Committee. The Committee has presented the following slate (two nominees for each position, from 1 January 1983 through 31 December 1985):

**For President:**

W. James Judge, Archeologist, Chaco Center, Albuquerque, NM.

Douglas H. Scovill, Anthropologist, Washington, DC

**For Vice President:**

Kenneth L. Diem, Director, Jackson Hole Biological Station, Laramie, WY.

Roland H. Wauer, Natural Resources Management, Springfield, VA.

**For Secretary:**

Jean Matthews, Writer-Editor, Corvallis, OR.

Clay E. Peters, Congressional Staffer, McLean, VA.

**For Treasurer:**

William P. Gregg, Jr., MAB Program, Harpers Ferry, WV.

\* Caby C. Smith, President, World Computergraphics Assoc., Alexandria, VA.

**For Board Member:**

F. Ross Holland, Historian, Silver Spring, MD.

Jackson W. Moore, Jr., Archeologist, Washington, DC.

**For Board Member:**

J. Robert Stottlemeyer, Biologist, Houghton, MI.

Russel Grater, Naturalist (NPS, Retired), Boulder City, NV.

\* Current incumbent

Ballots will be sent to each member of the Society on 1 September; these must be returned on or before 19 October (preferably by 1 October) to be tabulated by the Triennial Membership Meeting on the evening of 19 October—see Program, center-fold, this issue.