

# Botanocrats & the Fading Flora



BY JANET HOPSON WEINBERG

**Ten percent of U.S. plants are in danger of extinction. Some may be saved—unless they choke in red tape first.**

The middle-aged botanist and his wife launched their canoe on the east fork of the Kickapoo River just south of Rockton, Wis. They had come up from Cedar Falls for the weekend, to search the sandstone bluffs along the river for *Sullivantia* plants—rare, slender herbs with tiny white flowers.

A botanist from the Interior Department's Office of Endangered Species had called a week before, asking for information: Was *Sullivantia* an endangered species? Would they have time to go up to Wisconsin and study it in its habitat?

They paddled 10 miles south through the shaded rock walls to LaFarge, site of a proposed dam project. If built, this dam would inundate the walls and kill, the botanist calculated that weekend, more than half of the country's remaining *Sullivantia* plants.

Yes, he later wrote the Government botanist, in his opinion *Sullivantia* is an endangered species—more so because of the pending flood control dam. But wouldn't such a project, he asked, if it caused the loss of an endangered plant, be illegal under the Endangered Species Act?

Yes, the Government botanist sighed, reading the letter, it would be illegal. But what, he wondered, can really be done about the collision between a dam and a wildflower?

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"I can see how it would be frustrating to the people back home," Keith Schreiner says, staring off into the gray corner above the bookcase in his Washington office. "They look at us and say, 'Humph, those big fat bureaucrats in Washington don't do anything but sit on their duffs. All they have to do with endangered species is put them on the list!



Smithsonian Museum of Natural History

*Wiliwilinui*: One of Hawaii's 50 percent.

Why don't they do it? What's holding them back?"

He shifts his weight and the spring base of his chair creaks loudly. "Doing it legally. That's what holds you back. For every species, my botanists have to write all new material. Contact the experts of the world, find out what is known about everything. Then come out with the best current scientific and commercial information available—that's what the law requires.

"We have to put all that into a status report and an environmental assessment and a proposed rulemaking and a final rulemaking. It comes out," he says, spreading his pudgy thumb and forefinger two inches, "like, that thick for every species."

From his huge office behind its stenciled glass door—one of thousands that open onto the long, dim corridors of the Interior Department building—Schreiner oversees the U.S. Fish and Wildlife Service's endangered species program. One of his newest charges under the 1973 Endan-

gered Species Act is to gear up the Federal machinery to protect endangered and threatened plants—an alarming 10 percent of all U.S. plants.

Protecting delicate, pink wildflowers from extinction in Nebraska or Florida with reams of paper in Washington is a very slow process. And since the 1973 act was passed, forward movement remains nearly imperceptible. A plant or animal species in order to receive the quite extensive protection afforded by the act, must first be named officially to the Interior Department's endangered species list. But despite a year and a half of bureaucratic effort, no plants have yet been listed.

"Have I ever told you my little story," Schreiner asks in an Iowa farm drawl, "about the endangered species universe? It gives you a little idea about what we're dealing with. The endangered species universe has about 2 million species of plants and animals, give or take 100,000. There are probably four or five times that many subspecies and God knows how many populations. Now there is good evidence to suggest that as many as 10 percent of all animal and plants on earth are endangered right now.

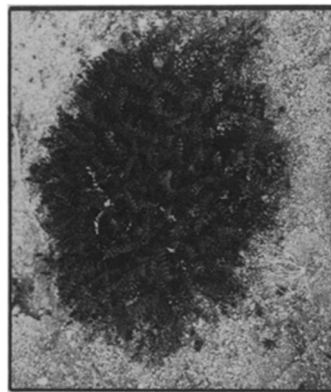
"The simple facts are these," he says. "It takes us a minimum of 36 professional man days to list a single plant or animal species and I've only got six full time professionals who work at this—among other things—for the whole lot of them. It will take us, at this rate, the next 6,000 years just to list all the endangered plants and animals that need protection by the Endangered Species Act, not to mention developing programs for them. So I just can't think in terms of time. We'll never get the job done, so it becomes important that we prioritize our list and do the most



*Large yellow lady's slipper. Over-collected.*



*Hawaiian Sesbania, endangered on coastal sands.*



*Locoweed, threatened on California sand dunes.*



*Stemless lady's slipper, showy woodland orchid.*

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important ones first. We're starting to do this now," Schreiner says. "with the Smithsonian list."

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Robert DeFilipps' office is buried in the dark labyrinth of the academic wing of the Smithsonian Institution's National Museum of Natural History. Linnaeus, amidst the watercolor of a mango plant and a set of nature posters, gazes down onto the cluttered desk and the cramped office. Behind the desk, DeFilipps takes a report from a file cabinet drawer. "Congress directed the Smithsonian to prepare the list of endangered and threatened plants and to submit it within a year," he says carefully. "We did that this January." He directed much of the listing project, which is officially headed by Edward Ayensu, chairman of the Smithsonian's botany department. DeFilipps is a large man, balding, and with a perpetual look of concern. He shares his small office with two assistants in the Endangered Flora Project.

The list, he explains, represents the first such national compilation. It names 761 endangered and 1,283 threatened plant species from the continental United States and Alaska. "Endangered," DeFilipps reads from the report between shallow, nervous drags on a cigarette, "means in danger of extinction throughout all or a significant portion of their range. Threatened means likely to become endangered in the future. Hawaii is a special case," he says, his expression deepening. "We've listed almost one thousand Hawaiian plants as endangered or threatened. That's almost 50 percent of the 2,000 or so species there."

The list contains vascular plants (flowering plants, conifers and ferns) from dozens of plant groups, including members of the aster, forget-me-not, cactus, sedum, heath, spurge, lily, mallow, orchid, buckwheat, rose, saxifrage and snapdragon families. Rare and endangered species are usually found, the report states, in narrow niches, such as mountain tops, ravines, river banks, acid bogs or rock cliffs.

"My favorite example," DeFilipps says, "is French's shooting star. It's

adapted to growing in these cave-like depressions beneath overhanging sandstone ledges in Arkansas and Kentucky and southern Illinois. It's on the list because of its narrow range and restricted habitat. But it would be rare, regardless of human activity." Giant sequoias, Florida yews and Georgia plumes are other examples of "endemics," rare plants limited to such small ranges that protection is considered necessary, even without people pressure.

But people pressure is causing the demise of many other plants. Habitat destruction is clearly the greatest threat to plants. Man's technology and growing population have lead him, increasingly, to gobble up "empty" land: strip mining, oil shale recovery, construction of power plants and houses and highways and dams all seem to lead, unfortunately, to permanent losses in the plant gene pool. Agricultural practices, too, the Smithsonian report states, destroy natural plant habitats: timber removal, especially clear cutting, overgrazing by cattle, introduction of foreign plants that compete too successfully with indigenous species, the use of some fertilizers and pesticides and fires.

"Collecting of rare plants is another big problem," DeFilipps says. He has his back to a window that overlooks the Mall and the Washington Monument, which, at that moment, looks like the giant sterile spike of a mechanical plaitain, sessile gray flowers long since blown away. "Cacti, maybe 30 percent of them, are endangered now largely because of collectors and the fad for rarities among plant enthusiasts." The exact locations of threatened and endangered species can't even be revealed in publications, he says, because "that status immediately increases the plant's worth, and people will fight with each other to dig up the last one."

Several cacti, some types of lilies, irises and orchids and exotic-looking species like pitcher plants and Venus fly traps often are collected and sold after being uprooted from remote and delicate habitats. They seldom survive for long in cultivation. "But, except for some state and local laws, digging up these plants

is still quite legal," DeFilipps frowns, "since none of the plants have yet been named to the Endangered Species list." The act itself, in fact, does not specifically prohibit the taking of endangered plants as it does the taking of endangered animals, he says, although it does regulate interstate commerce of listed plants. Other Federal laws prohibit collecting in national parks.

Consumers, DeFilipps says, should try to find out, before buying a rare plant, if it is considered endangered and if it was taken from its natural habitat or was propagated commercially. The Smithsonian lists 77 commercially exploited plants.

Now that the list has been submitted to the Government, DeFilipps and his assistants have begun to map the ranges of all the listed species. This, he says, will show aggregations of endangered species that can be protected in plant refuges. "There is, for example, a bank of the Apalachicola River in the Florida panhandle, with 14 endangered plant species all living near each other." Other centers of plant endemism occur in the southern Appalachians, Texas, California, Nevada, Arizona, Utah and the Pacific Northwest.

Mapping the plant habitats is a huge project and will take the Smithsonian Endangered Flora Project staff most of the next year, DeFilipps says. In light of the efforts being made, he is not thoroughly pessimistic about the prospects for the thousands of endangered and threatened plants, and as part of the Smithsonian, takes an "officially impartial view." But personally, he says, he thinks "we can at least save some of them, eventually."

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"We're already in the Federal Register, as of July 1, with the intent to accept the whole Smithsonian list as a petition," Schreiner says, clearly pleased with this bureaucratic move. Under the Endangered Species Act, he explains, a citizen or group can petition the Interior Department to consider whether a certain species is endangered. Private groups have bombarded the two Interior Department botanists with letters, swamping them before they could begin to arrange the important Smithsonian list into priorities. This

move, accepting the whole list as a petition, lets them consider the thousands of Smithsonian plants *along with* those suggested by private groups so that the most desperate cases can be processed first.

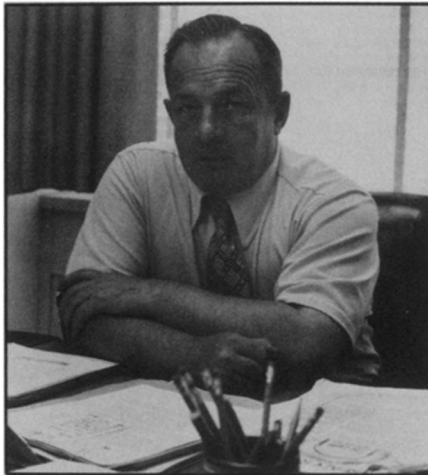
"And then once we get an endangered plant on the list, it gets the full protection of Section 7 of the Endangered Species Act." This section, Schreiner says, tells all the other agencies of the Federal Government, in effect, "Thou shalt do nothing to harm endangered animal or plant species or habitats or you are in violation of the act." The agencies must ensure, he says, that none of the actions they authorize, fund or carry out will harm listed animals or plants or destroy their habitats. Could this really stop a Corps of Engineers dam project or a Department of Transportation highway exchange? "You bet," Schreiner says, "it could stop literally trillions of 'em!"

"If the Department of Agriculture were to spray herbicide all over a large forest that contained an endangered plant, that action would be prohibited. Or clear cutting a block of timber, if it destroyed an endangered species' habitat in the process, would be a violation." What about habitat destruction by a private company on private lands? "If a project were strictly private, with no Federal funds, then it would not be in violation. But in the vast majority of cases," Schreiner says, "such a project is Government subsidized in one way or another and would be regulated by Section 7."

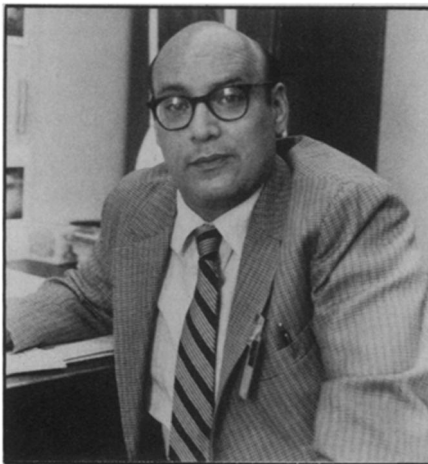
"All we have to do," he muses, "is get the plants on the list." He reaches for a pack of cigarettes and pushes over a brick sitting on his desk. The brick has an inscription on it, written by a colleague—something about Jack Anderson. "Yep," Schreiner drawls, "he kinda laid one on me pretty good." He has, it turns out, the dubious distinction of having had a Jack Anderson column devoted entirely to his alleged inaction while administering the Endangered Species program. "I felt it was a bit unjust," he grins, "but then I could be considered to have a biased viewpoint."

Critics charge that Schreiner has yielded to pressure from the gun lobby, industry and other Government agencies, and has not allowed the listing of a single endangered plant or animal species since the act was passed in 1973 (kangaroos and grizzlies have been listed as threatened).

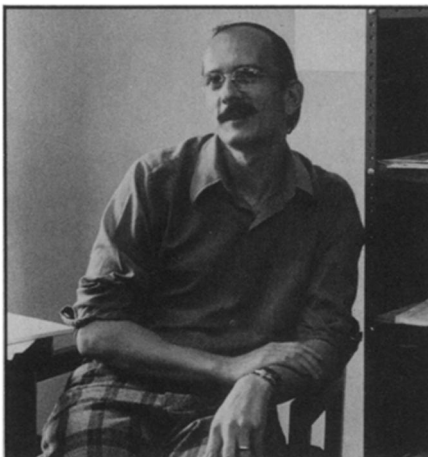
Schreiner has an answer to this. "You know, I wouldn't like to lose a species, but I'd hate like hell to lose the whole Endangered Species Act. And I'm worried sick about that right now." If Section 7 of the act is used by environmental groups to stop major projects such as flood control dams, because they would wipe out an endangered species or destroy its habitat, those agencies are going to pressure Congress to weaken Section 7. (Several government officials expressed concern that oversight hearings to be held this Fall by



Schreiner: Protecting an endangered act.



DeFilippis: Listing, mapping fading flora.



MacBryde: Watching politics of botany.

the House Merchant Marine and Fisheries subcommittee on fisheries and wildlife will be a forum for such attacks on the Endangered Species Act.) "Stopping a multi-million dollar dam because of a little mushroom just doesn't make sense to the Corps of Engineers," he says.

"Sure, we've been going slow, but I'm trying to avoid the hard confrontation until we've got some firm foundations built in law and precedent." (Interior just published some important rules and regula-

tions in the Federal Register, he says, and there are several court cases pending that will set precedents in the implementation of Section 7 and its power to stop Federal projects.) "I'd rather avoid confrontation until I'm firmly entrenched and it's harder to blow me out of the water," Schreiner says. "Then we'll lay it on 'em."

Environmentalists such as Lewis Regenstein of the Fund for Animals don't really object to Schreiner's protection of the potentially powerful act, but emphasize that not all endangered species are a threat to public works projects. "You take something like the Cedros Island mule deer," Regenstein says, "or the Caribbean monk seal. There are increasingly few of these left, and they are not a threat to the gun lobby or to a public works project. And yet the Interior Department has stalled on listing them until they are just about extinct."

A consortium of national environmental groups called Monitor, Inc., has just written the Interior Department to protest its inactivity on another set of regulations, the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Two years ago, the United States hosted 80 other nations in a convention to protect endangered wildlife from commercial international trade, and has since ratified the convention, which protects thousands of plants and animals. Two years after the convention, however, the Interior Department has yet to set up procedures for enforcing the import and export regulations and has, according to Monitor president Milton Kaufman, instructed the Fish and Wildlife Service not to enforce the convention at ports of entry.

Both the endangered species act and the international convention are potentially strong measures, Regenstein says, but "they don't mean a damn thing if the rules aren't set up or the plants and animals aren't listed in the first place."

When confronted with such criticism, Schreiner's jaw takes on a stubborn set. "No matter how long it takes, I insist on biological and legal accuracy. We haven't been ready to list some of the animals in the past, and the groundwork hadn't been set. But it's just about ready now. Pretty near ready. Besides," he says, "my botanists are working on listing the first four plant species right now."

One of them is *Sullivantia renifolia*, from Kickapoo River rock walls.

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"The help we have been getting is just amazing," Bruce MacBryde says. He is leaning back in his office chair, hands locked behind his head. "Like the botanist from Iowa and his wife canoeing down the Kickapoo river. Without that kind of concern, our list would take, well, maybe forever."

MacBryde is one of two botanists in the Government's Endangered Species Office. He and his colleague Gail Baker share a small office that looks up 16th

Photos: J. H. Wienberg

Street in Washington toward the Russian Embassy. MacBryde is 34, intense and a bit harried. From an 11th-story office crammed with metal file cabinets, maps and botanical monographs, he and Baker must decide, sight unseen, whether 24,000 plants are endangered or threatened, and whether they should be protected by the full project-stopping force of the Endangered Species Act.

"We just don't have the time to go check out these plants ourselves, in most cases. We also don't have a lot of contract money to pay other people. But we have to know whether a species is endangered throughout all or a significant portion of its range—that's what the law requires in order to call it endangered—how many plants there are and data on the critical habitats. So we're telling botanists around the country, 'You go out and do the hunting in your areas.' We have to rely on your free help and commitment."

"In a region where no one cared enough to volunteer his time," Baker says, "the plants could just become extinct. That's why we have to put pressure on the botanical community."

The phone rings for the fifth time in 40 minutes. MacBryde operates the botanical intelligence-gathering web from that phone. "This one's for you, Gail," he says, punching a phone button. He has only been with the Interior Department since May. Before that there were no botanists at all. Baker has only worked with him for about a month. Both straight from academia, they are still adjusting to bureaucratic procedures and are watching carefully to see how severely their botanical judgments will be modified by politics.

"There's no question about it," he says, "politics does play a role. I consider myself first and foremost a botanist, and we're all on the side of the organism in the Endangered Species Office. But we have to consider the impact of protection. You take the LaFarge dam project, for example. We not only have to find out if *Sullivantia* and monkshood and the others—Bird's-eye primrose and Forbes' saxifrage—would be destroyed by the dam impoundment area. We have to find out what the cost would be in terms of jobs. Economics. This all goes into our impact assessment report. But," he says, suddenly uncomfortable with the political sound of this botany, "we just give the data on the impact. Someone else must balance these factors—the dams and the plants."

"The Endangered Species Act is potentially so powerful. We're already getting vibrations from state and federal agencies. 'Do you know what you could do with this law? With this list of plants?' So we have to be careful. Absolutely correct botanically.

"But then," he says slowly, "there can be so much pressure on building a beautiful, airtight case, that the plant can die in the process. I just don't know." □

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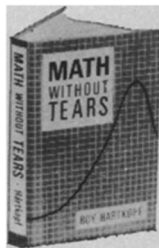
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