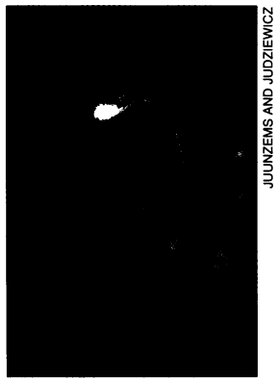
logging, hunting, snowmobile, and related interests mobilized to oppose the botanists' proposal. "The overriding concern is that practical use [of the forest would be restricted]," says Scott W. Hansen, attorney for the coalition, which filed a friend of the court brief in the case. Hansen adds that "there's little empirical data that supports the need for such [diversity maintenance] areas."

Somewhat daunted by the criticism, the botanists sent their proposal to some of biology's best-known thinkers about diversity.* "We wanted a reality check," says Waller. The written reviews came back in the form of 13 thumbs up, validating the use the botanists had made of recent developments in conservation biology and affirming the necessity for large blocks of habitat to minimize edge effects. "We desperately need to understand how mature ecosystems function, and every road, every forest edge, every clearing, is a wall between us and that understanding," wrote Dan Janzen, a University of Pennsylvania ecologist who specializes in tropical forest conservation.

The 13 statements became part of the blizzard of paper filed in an administrative appeal of the plans in 1986 by the botanists to the Forest Service head office in Washington. The head office did make changes in the plan—including mandating more monitoring of rare plants. But the issues of habitat fragmentation and edge effects were not addressed, the botanists say. Still, Don Meyer, director of planning and budgeting in the regional Forest Service office in Milwaukee, defends the plans as a "very strong and good faith effort" to meet the ecological requirements of the 1976 law. They have "an ecological basis," he says, though he acknowledges that basis is "not to the extent that we understand ecosystems now." The plans provide, he argues, for multiple purposes, including species preservation.

The botanists organized into a task force and joined forces with the Sierra Club and the Audubon Council to file lawsuits. Once the information was boiled down into oral arguments in a federal courtroom, the main questions seemed to deal with scientific knowledge: What did the forest planners know about the relevant science—and when did they know it? The botanists maintain that knowledge of habitat fragmentation and edge effects was widely accepted scientifically at the time the plans were written and that it should have been incorporated into the planning. "We don't think there's that much mystery about the scientific principles," attorney Kuhlmann told the judge. "They'd been in the literature for 20 to 25 years" before the plans came out.



JUUNZEMS AND JUDZIEWICZ

Worth preserving? Ram's head ladyslipper, an uncommon plant from Nicolet National Forest.

The Forest Service has a different view. "The conservation biology theories advanced by Plaintiffs were emerging at the time the Plans were developed and could not be expected to be incorporated, to the degree advocated by Plaintiffs, into federal land management decision making," reads one brief. But in a somewhat franker statement, Wells Burgess, the Justice Department attorney representing the Forest Service, offered a different explanation: "That's how the government works. They're going to be behind the curve."

If the botanists win, the impact of the cases will depend in part on how Judge Reynolds casts his opinion. If he writes a broad opinion, requiring that environmental impact statements must consider biodiversity questions, the effects could well ripple out through all federal projects. A decision is expected this fall or winter. But the cases already seem to have had an effect on the Forest Service. This summer the Service launched its official "ecosystem management" program, in which the agency claims to shift from an emphasis on exploitation of timber resources toward sustaining ecological processes in the nation's forests, which one Forest Service brochure describes, ironically, as "chief among the country's most important reservoirs of biodiversity."

—Christine Mlot

Christine Mlot is a science writer based in Milwaukee.

*The reviewers and their affiliations at the time (1986): Jared M. Diamond, University of California, Los Angeles; Paul R. Ehrlich and Bruce A. Wilcox, Stanford University; David Wilcove and Barry R. Flamm, The Wilderness Society; Richard T. T. Forman and Edward O. Wilson, Harvard University; Larry D. Harris, University of Florida, Gainesville; Daniel H. Janzen, University of Pennsylvania; Robert M. May, Princeton University; Peter H. Raven, Missouri Botanical Garden; Daniel Simberloff, Florida State University; Michael E. Soulé, Society for Conservation Biology.

NIH BUDGET

No Help in Sight From the Senate

Most officials at the National Institutes of Health (NIH) probably thought they were having a bad dream last June when the House approved a 1993 budget for the National Institutes of Health that was about $200 million less than the Bush Administration had requested. Well, if they did, the nightmare is deepening. Last week, the Senate Appropriations Committee recommended to the full Senate a 1993 budget for NIH of $10.37 billion, only about a 3% increase over the 1992 budget and virtually the same amount as the House approved. The budget numbers have incensed NIH officials, including Director Bernadine Healy, who are accustomed to Congress adding to—not subtracting from—the Administration's request.

"Congress is snookering the American public," Healy told *Science*. Healy estimates that NIH will "barely" be able to fund 5000 new grants—1000 fewer than last year—if the NIH budget remains at this level. Whether this bad dream will come true will be decided when the Senate votes on the committee's recommendation (the vote was expected to occur earlier this week after *Science* went to press) and after the Senate and the House resolve the differences over the bill.

Healy is particularly incensed that the Senate committee recommended only $833 million for the National Institute of General Medical Sciences (NIGMS), 9% less than the House approved and 29% less than the Administration requested. The NIGMS supports basic research in areas such as genetics, biophysics, and structural biology, and is "the underpinning of all the work at NIH," Healy says. She described the level of funding for the NIGMS as a "classic example" of what's wrong with this year's appropriations.

Healy also complains that Congress is directing NIH to do more research on breast cancer without providing adequate funding. "It's a 'Sophie's Choice' on women's health. If we do more on breast cancer, we take away from lung cancer. I think it's cruel politics," she says. But an appropriations staffer disputes Healy's charge, pointing out that the committee has approved $220 million for breast cancer research, about $83 million more than the Administration requested.

Another cut will affect Healy's ability to start new initiatives: The Senate committee slashed the director's discretionary fund from $20 million in 1992 to $3 million in 1993. Last year, Healy created the Shannon Awards, a program that uses discretionary money to fund research projects that just miss obtaining a regular NIH grant. Now, besides having less money to fund the Shannons, there will be about 1000 more grants competing for them, Healy asserts.

An appropriations staffer makes no apologies for the cuts, and blames the tight NIH budget on the stagnant U.S. economy. "We love Bernadine Healy," he says. "We wish we had more money to take care of her."

—Richard Stone