didn't have telescopes on it already.

Could the conflict have been headed off at this point? Possibly. Strittmatter says that he did try. In 1984 he put out feelers to several environmentalist and citizen's groups to join an external advisory committee on the project, with the express purpose of maintaining a dialogue. There was even a fair amount of interest, he recalls. However, any such committee had to be approved by the Coronado National Forest. And chief forester Tippeconic's response was that the Forest Service could handle public relations very nicely by itself, thank you. The National Environmental Policy Act (NEPA) already allowed plenty of opportunity for public comment during the preparation of an environmental impact statement, he said.

So Strittmatter let the matter drop. Whereupon, he and his colleagues got to learn the hard way that there is a world of difference between having a dialogue with people *during* a project's design, when concerns can be worked out quietly, and letting people see it only during the NEPA public comment period *after* it is designed—when it tends to look like a fait accompli.

In 1984, for example, the astronomers were told that the environmental impact statement would require a description of the maximum size their project could ever possibly be. So, as the astronomers tell it, they innocently drew up a site design that crammed telescopes onto every spot that could possibly take one. There were 18 in total, far more than anyone had definite plans for. But when the environmentalists saw the design, they were outraged: they saw a total devastation of the mountaintop.

Still, by 1986, Strittmatter's vision of Mount Graham as a new world center of astronomy seemed to be coming true beyond all expectations. The Smithsonian Astrophysical Observatory, the Max Planck Institute in Germany, the Vatican Observatory—all were either interested or committed. And Arizona itself was forming a consortium with several other institutions to build the Columbus telescope, which would have two of Angel's 8-meter mirrors arranged like a pair of binoculars. Indeed, the Mount Graham project had far outgrown Strittmatter's department; overall authority for the effort was now vested in Laurel Wilkening, then vice president for research at Arizona and now the provost of the University of Washington.

However, by 1986 it was also clear to everyone on the project that the university had to get out in front on the environmental issues. Biological surveys conducted for the draft environmental impact statement had underscored the fact that the spruce fir forest on the summit had been an isolated "sky island" for some 11,000 years, since the last ice age. "In just 6 weeks of research we found six new species of insects," says survey leader Peter Warshall of the university's arid lands department. There were also several unique species or subspecies of plants, snails, and rodents. And, of course, there was the the Mount Graham red squirrel, whose estimated population of 328—considered dangerously low by Warshall and other wildlife biologists—made it a prime candidate for listing under the Endangered Species Act.

The university originally agreed not to oppose the listing. But then Wilkening got in touch with California attorney Robert Thornton, who had formerly worked on the Endangered Species Act as a staff counsel on Capitol Hill. "He advised us that listing the red squirrel and going through the entire process would likely tie the university up in litigation for a long time," says Wilkening. However, he also pointed out an alternative: protect the squirrel and its habitat so thoroughly that it wouldn't *need* to be listed. (The Endangered Species Act allows the Secretary of the Interior to consider existing conservation plans when deciding upon a listing.) That is, the university would immediately institute a Habitat Conservation Plan involving intense study and conservation of the entire mountaintop ecosystem, and would establish an ongoing dialogue with environmentalists and citizen's groups to monitor the plan while the observatory was under construction.

Wilkening and her colleagues loved it. "It seemed like a logical, rational plan to achieve our goals *and* to preserve the habitat for the squirrel," she says. Confident that they would be greeted as heroes, she and Thornton presented the plan in a public hearing on 26 August 1986.

The next day, the headline in the Arizona *Daily Star* read "UA asks U.S. to drop rare squirrel from endangered list," and the outraged activists were already dismissing Thornton's proposal as a hash of bizarre and cynical legalisms.

"We thought we were trying to do the right thing," sighs Wilkening. "But to present the plan at a public hearing and expect people to say 'Oh, how wonderful,' was naïve." Apparently it had never occurred to anyone to talk about the plan with the opposition groups beforehand.

In any case, the issue was soon moot. The Forest Service's response to the university's proposal was that its own land use plan would protect the squirrel. The red squirrel was duly listed as an endangered species on 3 June 1987, and the protests started to

Cornell Got Out in Front

Not every environmental issue is destined to explode into a full-scale conflagration. Witness the experience of Cornell University in August 1989, when it collaborated with the nearby Boyce Thompson Institute for Plant Research and the New York State Agricultural Experiment Station to spray a genetically-engineered virus, made as part of a program for designing better viruses for pest control, onto a quarter-acre cabbage field in Geneva, New York. The experiment might have been a public relations nightmare since it was the first time a recombinant virus, albeit a disabled one, had been introduced into open fields. Yet there was minimal controversy about the spraying, and local and national media coverage was largely positive.

So what went right? The answer, says John F. Burness, vice president for university relations and the top public relations officer at Cornell, is that a few administrators anticipated the concerns, both scientific and emotional, of a wary public, and acted to deflect them. "We could not wait until someone else controlled the story," he explains. "The story had to be focused on hard fact rather then emotional innuendo."

Thus, Cornell/Boyce Thompson officials issued a series of news releases at key stages of the research project, such as the time of application to the Environmental Protection Agency for approval to do the experiments, and hosted a press conference at the field site on the day of the spraying. They also prepared faculty and staff for dealings with the media, and one Boyce Thompson administrator spent days speaking to mayors and other elected officials in and around Geneva. The EPA, for its part, gave a detailed presentation on the project to every environmental and citizen's group that might have any interest in the matter—including activist Jeremy Rifkin.

The goal, says Ralph W. F. Hardy, president of the Boyce Thompson Institute, "was to operate in an open manner and to make sure that the people in the local community and in a broader area were informed early and at each significant step." The strategy paid off. ■ ANNE SIMON MOFFAT

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