

associated fuel-fabrication facility, or a research institute. Fuel-fabrication facilities are likely candidates for a nuclear thief, DeVolpi says. Such facilities, where uranium and plutonium are converted to oxide and stored, include Elektrostal near Moscow, the Chim Concentrate fuel factory in Novosibirsk, Russia, and Ust'-Kamenogorsk in Kazakhstan. However, other experts are banking on scientific institutes. "Because the material out of Munich is high in plutonium, I would suspect a research reactor rather than a power plant," says William Sutcliffe, a physicist at the Center for Security and Technology Studies at Lawrence Livermore National Laboratory.

So that leaves the question: Which research reactor? ETUI investigators considered the Kurchatov Institute, a physics re-

search lab in Moscow. "We happen to know that the [Kurchatov] has an electromagnetic isotope separator" that could be used to increase the composition of plutonium-239, says the Oak Ridge scientist. But the Kurchatov probably is not the culprit in this case—"it wouldn't have enough material," says Vladimir Minkov, an Argonne nuclear engineer and former employee of the Krzhizhansky Power Engineering Institute.

Minkov, who has been in close contact in recent weeks with Russian atomic energy officials and other Russian scientists, has his own candidates that best fit the technical profile drawn by ETUI and have less stringent security than the weapons labs. They are the Buchvar Institute of Inorganic Materials in Moscow, the Institute of Physics and Power Engineering in Obninsk outside Mos-

cow, and the Institute of Atomic Reactors in Dimitrovgrad, 500 miles east of Moscow. Several other weapons experts contacted by *Science* concurred with Minkov's list.

Schenkel has declined to say whether ETUI has found a match for the confiscated plutonium. And Russian officials have denied that there is any plutonium missing from their military bases or scientific institutions, a claim that physicist Wolfgang Panofsky, chair of a National Academy of Sciences panel that produced a recent report on plutonium management, says is "not credible." Even so, ETUI scientists and German police hope to collaborate with Russian officials to determine the exact source of the plutonium that flew into Munich 3 weeks ago—and to prevent a repetition.

—Richard Stone

## ASTRONOMY

### Scopes and Squirrels Return to Court

Once again, Arizona astronomers hoping to peer deep into space with a new telescope are seeing nothing but squirrels and lawyers. In a decade-long turf war over the summit of Arizona's Mount Graham, the astronomical community has frequently sparred with environmentalists bent on keeping telescopes off the mountaintop, largely because it's the only home for the endangered Mount Graham red squirrel. Until this summer, astronomers have won all their legal battles. But last week, a U.S. appeals court handed down a ruling that will—for the time being—keep them from preparing a site for one of the world's most powerful optical telescopes.

This latest court decision denied the University of Arizona's emergency request to lift an injunction against further work on the summit. That injunction had been granted by a lower court judge in late July when he ruled that new environmental and biological impact reviews were needed because astronomers had changed the planned location of the telescope. In an ironic twist, researchers argue that they had made the site change to minimize harm to wildlife. "I thought these people were on the side of the squirrels. In my view, this is pure obstructionism," says Arizona astronomer Roger Angel. Robert Smith of the Sierra Club doesn't disagree: "We simply don't want them to build telescopes."

For more than a decade, the University of Arizona has spearheaded the push to build a world-class observatory on the summit of Mount Graham. Despite opposition from the Mount Graham Coalition, which includes groups like the Sierra Club, the National Audubon Society, and the National Wildlife



**Seeing red.** Environmentalists seeking to protect the endangered Mount Graham red squirrel have blocked new telescope construction on the mountain.

Federation, astronomers have so far managed to erect two telescopes. And last December, after getting permission from the U.S. Forest Service and the Fish and Wildlife Service, the university began cutting down trees as site preparation for a third instrument: the Large Binocular Telescope (LBT), a \$60-million facility that would combine the light-gathering powers of two 8-meter mirrors. Although the red squirrel furor has scared away a number of LBT backers, two partners, the Research Corporation of Tucson and an Italian consortium, have remained on board.

As soon as those trees fell, however, a new round of controversy erupted. Astronomers had gotten federal approval to shift the telescope's site to another peak on the mountaintop, about 1000 feet from the original site. Similar site changes had been made for other structures on the mountain, says Angel, and university and U.S. Forest Service biologists monitoring the squirrel population had concluded that the new site would have

less effect on the squirrels. Not everyone shares that view. "The jury is still out on whether it's better or worse," says Roger Featherstone of the coalition.

The site change did, however, provide observatory opponents like Featherstone with an opening to stall the project. In 1988, in a move that infuriated environmentalists, the Arizona astronomers successfully lobbied Congress for a law that exempted the observatory from the Endangered Species Act and the National Environmental Policy Act, both of which would have required federal reviews of biological and environmental impact of any development on the mountain. Those exemptions, however, were limited in the law to the first three planned telescope sites, says Kimberly Wallely, a lawyer who represents the coalition.

So when Arizona began work on the new LBT site, environmentalists filed suit against the U.S. Forest Service and the Fish and Wildlife Service, claiming that they were bound to conduct extensive reviews of the new site before construction could move forward. On 28 July, Tucson district court judge Alfredo Marquez agreed and ordered a halt to work on the LBT site.

The appeals court last week declined to lift the injunction, but quickly scheduled a full hearing on the issue for November. The court also ruled that the university could petition the lower court to continue with work that would do no irreparable harm to the summit. Though they've lost this first fight, university astronomers are optimistic that the LBT will still end up as a neighbor to the red squirrel, noting that the same appeals court has ruled in their favor five previous times. "I'm confident we'll do a third telescope" on Mount Graham, says Peter Strittmatter, director of Arizona's Steward Observatory.

—John Travis