images covering 12% of the sky for fast-moving faint objects, turning up 126 candidate halo stars. Then the team checked for the blue color spectrum using four nights of follow-up observations from the 4-meter Blanco telescope at the Cerro Tololo Inter-American Observatory in Chile. In the end, the team plucked out 38 new cool white dwarfs orbiting in the galactic halo. By multiplying the density of the newfound cool dwarfs by the volume of the galactic halo, Oppenheimer's team estimated that white dwarfs make up at least 3% of the total galactic dark matter density.

There is only one catch, astronomers say: Some of the newly discovered dwarfs might not actually be from the halo. Physically, they are all inside the galactic disk. Because they are moving faster than typical disk stars, the white dwarfs are almost certainly just passing through as they circle the halo. "The gravity of the galaxy is not strong enough to confine such objects to a disklike geometry," Hansen explains. But even a small contamination of disk white dwarfs could reduce the estimated halo dwarf density, so Richer won't draw his final conclusions until several ongoing white dwarf surveys that probe farther into the halo start producing results in a year or two. "We are in the very early stages," he says. "Things haven't all shaken out yet." **–MARK SINCELL**

Mark Sincell is a science writer in Houston.

ECOLOGY

U.N. Report Suggests Slowed Forest Losses

A comprehensive survey of the world's forests, released last week by the United Nations (U.N.), suggests that global rates of forest loss decreased in the 1990s. But the ink was barely dry on the report before the World Resources Institute (WRI), a think tank in Washington, D.C., disputed that conclusion. "We need good news about the world's forests," says Dirk Bryant, who directs WRI's forest program. "But this is definitely not it."

Previous reports have been an important source of information for policy-makers, climate change scientists, and others. So WRI scrutinized the data as they were released on the Web over the last 6 weeks. It claims that the numbers are "out-of-date, patchy, and inaccurate." Moreover, the WRI says, changed baselines and methods invalidate the comparison of deforestation rates. The U.N. admits that the quality of data varies but says its methods and conclusions are sound.

Up in smoke. Slash-and-burn agriculture, as shown here in Panama, destroys much tropical forest.

Every 5 to 10 years, the U.N.'s Food and Agriculture Organization (FAO) reports on the status of forests. For the current Global Forest Resources Assessment 2000 (FRA2000), it tabulated the latest data, such as forest areas and composition for 217 countries—a challenging task because few countries undertake regular inventories of their forests. To get estimates for 2000, FAO analysts sometimes had to use economic statistics and other information to project trends from older forest data. As a supplement, they examined satellite images that covered 10% of the world's tropical forests.

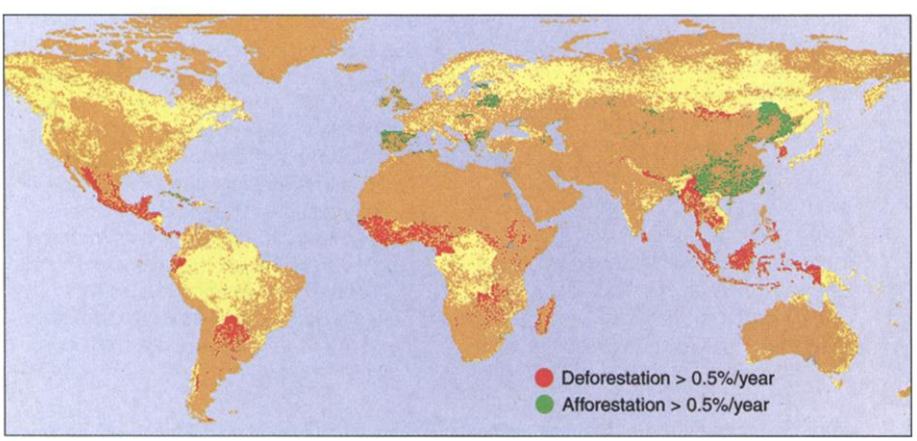
The report suggests that the average annual net loss of forests during the 1990s was 9 million hectares—0.2% of the global total—or an area roughly the size of the state of Maine. That rate is at least 10% lower than the one FAO calculated for the first half of the decade in a 1997 report, says Peter Holmgren of FAO's Forest Resources Assessment Program in Rome, Italy. The slowdown is mainly due to new tree plantations, particularly in India and China, and forest growth on disused farms. The rate of loss apparently remained the same in the tropics, however. Satellite images combined with data supplied by the countries themselves suggest a gross annual loss of natural forest of 14.5 million hectares, which Holmgren says differs little from figures from the 1980s.

The WRI disagrees with both of FAO's assessments. "I don't believe we can say deforestation is slowing down based on this report," says WRI's Emily Matthews, an environmental analyst. For the FRA2000 report, Matthews says, FAO revised many of the 1990 forest areas to be much larger than in the 1997 report. Although done partly to standardize worldwide forest definitions, this reduced, perhaps erroneously, the percentage of forest lost calculated in FRA2000 for the decade. Holmgren admits that the comparison is not straightforward, but he says that estimates using other FAO reports also indicate a slowdown.

Matthews also worries that the report will send a "damaging" message that natural forests are in less danger than before, although as Holmgren notes, the report makes clear that deforestation of tropical, natural forests has not declined. And still another criticism concerns FAO's sampling of satellite images.

The problem, remote-sensing experts say, is that deforestation in tropical forests is highly concentrated along roads and rivers. As a result, says Compton Tucker of NASA's Goddard Space Flight Center in Greenbelt, Maryland, a small and random sample—such as the 10% used by FAO—"will give you grossly inaccurate numbers." Holmgren responds that funding constraints prevented wider coverage, but that each sampling area—3.4 million hectares—did cover some roads and rivers. Even more important for an accurate assessment of forests, he says, is field sampling—something that most countries don't do systematically.

Indeed, everyone agrees on the need for better and more consistent forest data from almost all countries. To minimize such problems in the future, Holmgren says the FAO has proposed an initiative, called the Global Forest Survey, that would establish a global standard for data collection and support individual countries in monitoring their forest resources. **–ERIK STOKSTAD**



Extremes. Forests (yellow) are colored red where deforestation was especially high during the 1990s. Green shows new plantations and regrowth.

CREDITS: (TOP TO BOTTOM) DANNY LEHMAN/CORBIS; FAO