

The Squeeze on Endangered Species

Although Capitol Hill has seethed in the past month with heated debate over the fate of the Endangered Species Act, Erik Eckholm, a senior researcher at the Worldwatch Institute, called the whole show a "tempest in a teapot" compared to the ongoing worldwide extinction of endangered species. In the latest of the Worldwatch papers, *Disappearing Species: The Social Challenge*, Eckholm says that at least one species is disappearing each day in tropical forests alone — and that in a few years there may well be a species lost each hour.

Booming populations and export demands on tropical products lead to the clearing of unique rain forest ecosystems, Eckholm says. Even in the United States, once-abundant plants are threatened by intensive collecting. More than one-half million rattlesnake orchids have been collected in Tennessee for sale in terrariums. In one Texas town, sheds are filled with as many as 30,000 field-collected small globular cacti awaiting sale.

Although nearly half the drugs used in medicine today are based on substances first discovered in nature, and although less than 10 percent of the world's plants have been screened for medically useful compounds, human activity is being allowed to destroy entire species of plants by the hundreds every year, according to Eckholm. Also, as the pressure grows to develop new sources of food, plant breeders turn increasingly to wild plants to find genetic traits that can be bred into the 20 crop species upon which most of the world's people depend. Some plant breeders warn that the potential for improvement in that small number of crop species may be reaching its limit. It may be time, they say, to go back into the wild and find new plant species that can be domesticated for food.

"The overriding conservation need of the next few decades is the protection of as many varied habitats as possible," says Eckholm. Conservation, however, cannot be isolated from broader economic issues. Besieged by restless legions of the jobless and the landless, Third World governments will transform many pristine areas into agricultural settlements. Eckholm therefore calls for a massive expansion of the Biosphere Reserve system being coordinated by UNESCO. To date, 144 Biosphere Reserves in 35 countries have been established, but tropical ecosystems in particular are badly underrepresented. Unless precautions are taken, "the fabric of life will not just suffer a minor rip," says Eckholm. "Sections of it will be torn to shreds."

On Capitol Hill, meanwhile, the Endangered Species Act was under siege. Al-

though one of its sponsors expressed a reluctance "to tinker with the universe," an amendment to the Endangered Species Act was passed by the Senate last week, which for the first time would allow human beings to deliberately decree the death of a species. Similar legislation is pending before the House. Far from being a proponent of "progress at any price" who would build dams and squash creatures, Senator John C. Culver (D-Iowa), the leading backer of the bill, considered his measure a way to avoid the total crippling of the Endangered Species Act.

As now written, the act gives threatened forms of life (except insects) absolute priority over any public works project. If the species would die, the construction cannot proceed. Upholding this principle, the Supreme Court last month ruled that the \$120 million Tellico Dam on the verge of completion in Tennessee must be stopped in order to save an endangered species of perch, the three-inch snail darter (SN: 6/24/78, p. 403). Almost immediately moves got underway in the House and Senate to gut the act.

At one point during the Senate debates, ushers ejected a spectator who shouted at Sen. William Scott (R-Va.) as he spoke in support of an amendment that would have covered only species identified as beneficial to humanity. The unidentified spectator blurted out that such a determination would be impossible to make. Another amendment, introduced by Sen. John Stennis (D-Miss.), would have exempted dozens of federal public works projects. Stennis, in an impassioned call for support, argued that the unmodified act would cost jobs, stop public works projects, and "deter progress."

Heated bickering apparently did not shake up the Senate. In the end it passed a three-year extension of the Endangered Species Act and adopted the "moderate" Culver amendment. It calls for the creation of a seven-member Cabinet-level committee empowered to arbitrate conflicts between endangered species and federal public works projects and, in cases of unbreakable impasses, to exempt projects from the law. It could thus allow certain species to die off. Congressional and Interior Department officials said they doubted that the Tellico Dam would qualify for an exemption under it.

Some environmentalists were resigned to the new legislation. Others said they would fight for a stronger bill in the House, where floor action on extension of the Endangered Species Act is expected within the next month or so. Calling the Culver amendment "overly broad," Michael Bean of the Environmental Defense Fund said the committee's exemption power could

end up politicizing the fate of a particular species and "destroy the consultation process that has worked so well." Under the present act, government officials and environmentalists have hammered out species-saving compromises that still permit the completion of scores of dams and other public works projects. □

Skylab: Is that a dirge I hear?

The outlook for keeping the Skylab orbiting workshop from "falling" out of orbit has gone from iffy to bleak. As though malfunctioning components and escalating predictions of atmospheric drag (SN: 7/22/78, p. 52) were not enough, a major problem during an attempt to re-stabilize the craft last week has caused highly placed space agency officials to all but give up hope that Skylab can be saved by sending space-shuttle astronauts to fire it into a higher orbit. "Unfortunately," says Christopher Kraft, director of the NASA Johnson Space Center in Houston, "I think that Skylab is going to die."

The difficulty this time was not with the breaking down of pieces of equipment stressed far beyond their originally planned lifetime. Instead, it grew from the complexity of the instructions needed by Skylab's on-board computer to let it hold the workshop in a desired orientation in space. Controllers at jsc have only limited telemetry to work with, and the craft's attitude-control system is so complex that it is difficult to identify early signs of impending trouble. In addition, limited coverage by tracking stations on the ground (a fourth station is being added) means that problems can sometimes occur with no way to know until it is too late.

All of these factors combined on the night of July 19 to produce what may be the largest single blow so far to the planned life-saving effort. It happened when Skylab's movements caused two of its three gyroscopic stabilizers to reach their limits of position in their respective axes (a condition known as "saturation"). The on-board computer followed its pre-programmed instructions, ordering the guidance system to ease the saturation by rolling the workshop on its remaining axis. Another part of the program caused the guidance system to try to compensate for the rolling by firing its attitude-control jets. This cost Skylab 1,800 pound-seconds of its total available thrust, leaving only a thin margin above what project officials are calling "the redline."

The redline is the minimum amount of thrust expected to be needed by Skylab