

D.C., points out that the red wolf, as a top predator, was important in maintaining the balance of species in the ecosystems in which it lived. The Endangered Species Act specifically provides protection for such key predators, he told SCIENCE NEWS, whether or not they are genetically distinct.

But in an editorial accompanying Wayne and Jenks' paper, zoologists John L. Gittleman and Stuart L. Pimm of the University of Tennessee in Knoxville suggest the red wolf may be getting more protection than it deserves. The reintroduction program, they contend, is not likely to benefit the red wolf because the animal's genetic identity will only be obscured once again by mating with coyotes. In addition, they argue that the important ecological role once performed by red wolves is now being filled by other predators. Gittleman and Pimm question whether "the red wolf's undeniable cuddliness is enough to warrant according it special attention."

The U.S. Fish and Wildlife Service is taking a wait-and-see attitude. "We're just getting a few bits and pieces of the puzzle," says Gary Henry, coordinator of the agency's red wolf conservation program in Asheville, N.C. "There needs to be a lot more work done before we'll ever finally sort this out." — C. Ezzell

Quasar quandary upsets cosmic status quo

In explaining the evolution of the universe, cosmologists face a formidable task. Although the cosmos apparently began as a highly uniform soup of matter and energy, it somehow congealed into the lumpy collection of stars and galaxies seen today. Standard theories portray a relatively gradual transition between these two cosmological snapshots — a time when the soupy material formed into identifiable structures. New observational studies, however, suggest the lumpiness began earlier in the universe than any current theory can easily explain.

These provocative findings emerge from the detection of extremely distant quasars — massive, highly luminous powerhouses thought to lie at the center of some galaxies. Finding just a couple of these objects, as reported last month (SN: 5/4/91, p.276), might not carry enough statistical significance to challenge theoretical models of how and when the universe developed its complex structure. But last week, astronomers announced they had detected another 27 distant quasars — a discovery that may provide the most compelling reason yet for modifying our notions about cosmic

evolution after the Big Bang.

An analysis of images from the U.K. Schmidt Telescope at Epping, Australia, reveals that the most distant luminous quasars ever observed have the same density as those closer to Earth, report Richard McMahon and Michael Irwin of the University of Cambridge in England. Since viewing distant objects is essentially the same as peering back through time, this finding suggests that the universe contained about as much lumpiness when it was just 7 percent of its current age — the first billion or so years of its existence — as at later times.

"The present generation of theories can't explain this," McMahon says.

As recently as a decade ago, astronomers had found no extremely distant quasars — those with spectra shifted strongly to the red — and most didn't believe the objects existed, McMahon notes. But by using a computer scanning technique and special color criteria to analyze millions of images on photographic plates, McMahon and his collaborators found 20 quasars that rank among the most distant objects known.

All of the 20 quasars have a redshift between 4 and 5, which means they lie an estimated 10 to 12 billion light-years from Earth. McMahon and Irwin described these findings — which increase the number of known objects in this high-redshift range to about 33 — at a quasar workshop last week in Victoria, British Columbia.

Another seven quasar discoveries emerged from a project in which McMahon compared radio sources found by the Very Large Array in Socorro, N.M., with corresponding visible-light images from a sky survey conducted at Mount Palomar in California. He identified 11 radio-loud quasars with redshifts between 3 and 4. The seven new ones, he says, include the most distant radio quasar ever detected — lying more than 10 billion light-years from Earth.

McMahon says the relatively large number of high-redshift radio quasars he detected further supports the notion that the density of bright quasars doesn't diminish at far distances. At the same workshop, Maarten Schmidt of Caltech in Pasadena reported data suggesting that the density of less luminous quasars may decline beyond distances corresponding to a redshift of 3.

Theorists have yet to come to terms with "these improbable monsters," observes cosmologist Edward L. Turner of Princeton (N.J.) University. And this mother lode of distant quasars may represent just the first of many such challenges. Looming ahead, notes McMahon, are radio surveys that will search for quasars so distant and so highly redshifted that they would not appear on photographic plates. — R. Cowen

Space station gains full House reprieve

The House of Representatives last week rescued, at least temporarily, NASA's proposed Space Station Freedom. It reversed a decision by its appropriations committee to delete all but \$100 million for the orbiting platform — a move that would have effectively canceled the project (SN: 5/25/91, p.324).

A vote by the full House restored \$1.9 billion in funds for the controversial structure. But to free up the needed money, House members froze NASA's budget at 1991 levels. This could delay planned shuttle improvements and the development of new, unmanned launching rockets, and could perhaps kill some smaller programs such as the Comet Rendezvous Asteroid Flyby, a mission that would send a probe into a comet.

Rep. George E. Brown Jr. (D-Calif.), chairman of the House Science, Space and Technology Committee, called last week's House vote "satisfying, but a satisfaction that is mixed with considerable pain since we had to freeze at '91 levels."

Intense lobbying from NASA and the administration (the President had threatened to veto the appropriations bill unless it included the space station), plus pressure from partner nations who had already spent more than \$2 billion on the project, apparently persuaded the House. Since the money

came from eliminating budget increases for NASA, representatives were not forced to make a politically difficult choice between the space station and the veterans and housing programs.

The space station's future remains uncertain. A similar battle is expected in the Senate, whose appropriations committee budgeted only \$50 million for the project. Brown predicts the Senate will save the project.

The recent showdown caught NASA, the aerospace industry and the White House by surprise. Yet it seemed inevitable in light of the budget deficit. NASA must compete for money with other independent federal agencies, such as the departments of Veteran Affairs and Housing and Urban Development, not just with other federal science agencies. This sets the stage for budget battles in the years to come.

"[NASA] is certainly no match for the veteran and housing lobbies," contends Rep. Dick Zimmer (R-N.J.), who opposes the space station.

Brown says his staff is investigating other methods of funding NASA. Some change appears necessary to ensure NASA's fiscal stability and to mollify foreign partners, who now wonder if they can trust the U.S. commitment to cooperative "big science" projects, he says. — J. Travis