

percent more respiratory disease than did the other group. The comparisons took into account the parents' smoking behavior—smoking was associated with two to three times more respiratory illness in the children than was use of gas stoves.

Nitrogen dioxide appears to be generated in the kitchen when natural gas is burned, oxidizing nitrogen monoxide. Speizer told *SCIENCE NEWS* that gas heating does not seem to have the same effect on children's lungs. He attributes the difference to the effective venting of furnaces, and he says gas cooking effects might be avoided by venting stoves to the outside.

The researchers say their findings must be replicated to eliminate any subtle bias or alternative explanation. Although the effect on the lung function they observe is small, they believe it might contribute significantly to eventual development of respiratory disease.

A variety of studies on animals are mapping just how the nitrogen oxides affect the body. Elliot Goldstein of the University of California at Davis exposed rhesus monkeys to nitrogen dioxide labeled with ^{15}N , a positron-emitting nitrogen isotope that can be tracked from outside the monkey's body. Goldstein says approximately 60 percent of the NO_2 inhaled is retained in the primate. The pollutant is absorbed continuously throughout the lungs, and some NO_2 (or its derivatives) is carried in the blood to other sites. Experiments simulating lung conditions indicate that NO_2 reacts with water vapor to form nitrous and nitric acid. Irritation by those acids, Goldstein explains, accounts for the NO_2 toxic effects.

Nitric oxide (NO) is the other important component of nitrogen oxide pollution. An important discrepancy between its action in biochemical experiments and in health observations has been examined by Katsumi Yoshida of Mie University Medical School in Tsu, Japan, and Taichi Nakajima and Hajime Oda of the Osaka Prefectural Institute of Public Health. In laboratory experiments NO binds to hemoglobin with an affinity 300,000 times that of oxygen, indicating that NO exposure should seriously threaten human life. Yet the expected harm is not observed.

Looking at the fate of ^{15}NO , Yoshida finds it is rapidly changed into different compounds, such as nitrate, which are transferred into blood and eventually urine. Nakajima and Oda, using electron spin resonance methods, for the first time were able to detect hemoglobin in the blood bound to nitric oxide. They found only 0.01 percent of the hemoglobin thus bound in mice exposed to nitric oxide for their entire lives. Nakajima and Oda agree with Yoshida that inhaled NO is probably changed to nitrate in the lungs. Although the scientists expect only a very minor effect, they say inhaled nitrogen oxides may contribute to formation of nitrosamines. □

Endangered species: Abroad and at home

Grevy's zebra cannot be traded, they decided. Nor can the Guadalupe fur seal or the Chilean mussel. The pigmy marmoset now requires only an export license, they said, and Mearn's quail can be traded without restrictions.

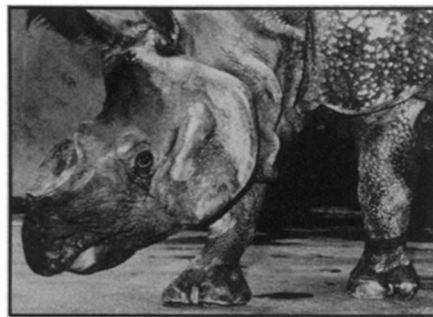
Sounds like a zoological swap mart. And with delegates from 34 countries and 55 lobbying groups wrangling for two weeks over international trade regulations on 250 kinds of plants and animals, that's probably not an inaccurate description of the recent conference in Costa Rica on the endangered species treaty.

The 51 members of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, negotiated in 1973, have agreed to eliminate commercial trade as a cause of the decline of any species (*SN*: 3/10/73, p. 151). By agreements made at this and a 1976 conference, the members have listed nearly 1,000 plants and animals they hope to save from human exploitation—the rhinoceros whose horn may adorn a shiek's dagger or even the orchid grown and exported solely to grace a private atrium. These regulations affect a multi-million-dollar commerce. One official said more than 90 million wildlife products made from endangered species, including snakeskin belts, lizard skins and shells, were imported into the United States in 1977 alone. For some species—those threatened with extinction—trade is prohibited; for others that are not in as much danger, import and/or export permits are required for international trade.

The conference scored a major coup, according to delegate Richard Parsons of the Federal Wildlife Permit Office (which issues U.S. trade permits for protected species), by placing trade restrictions on all whales. The move reinforces the protection offered whales by the quotas set through the International Whaling Convention. Owls and falcons came under similar protection by vote of the nations, who agreed to require licenses for their trade.

Many of the resolutions adopted by the convention, Parsons told a public meeting, would help remove major stumbling blocks to carrying out the treaty, such as the methods for listing species and enforcement and management of the regulations. For instance, the nations adopted a proposal for listing species that would require references to scientific literature in support of the claim for protection. A species identification manual for import authorities, presented in prototype, would help regulators spot restricted species and their parts and products. The convention members also adopted a detailed set of guidelines for the humane transfer of plants and animals—the first such guide ever developed, Parsons said.

Nearly 250 proposals were made for



changes in the list of regulated species, Parsons said. Between pressure from nonmember lobbying groups and bargaining among member nations, the final count was much lower. All told, 31 animal taxa and 17 plant taxa were added to the convention's protection. Fourteen taxa of animals were released from all trade restrictions, eight were given less protection and 17 plant and animal taxa became more controlled. The new regulations become effective this June. Of particular interest to U.S. conservationists is the new status of the alligator, which, pending changes in the Endangered Species Act, will be allowed to enter international commercial trade.

Before considering the alligator, however, the Endangered Species Act has to look out for its own hide. Picking up where they left off last fall (*SN*: 10/21/78, p. 279), the Senate subcommittee on resource protection, chaired by Sen. John Culver (D-Iowa) last week held the first hearings on the full reauthorization of the Endangered Species Act. The act nearly became extinct in the last Congress due to controversial amendments attached to its reauthorization. In the end, Congress passed an 18-month reauthorization and established a Cabinet-level committee to resolve disputes between the act and projects that may threaten species. A bill to extend the act's funding will not be presented to Congress until May; the recent hearings were held to determine whether the act should be funded and at what level.

But already the waters are beginning to muddy. Three bills have entered the Senate—one to eliminate the arbitrating committee, one to exempt the Tellico Dam project (which was abolished by the committee) and one to do both. A draft report from the General Accounting Office presented at the hearing found deficiencies in the act's method of listing species and in the required consultations between federal agencies and the endangered species office, and recommended amendments to clear up such problems. Robert Herbst, assistant secretary for fish and wildlife and parks, called some of the GAO conclusions "simply inaccurate." The subcommittee staffer, who told *SCIENCE NEWS* they hope to present a "clean bill" in May, might be disappointed. □