

ENVIRONMENT

Jobs, costs and the environment

A looming argument between industrialists and environmentalists revolves around the number of jobs lost because of plant shutdowns resulting from stiffer environmental regulations, compared to the number of new jobs created in the overall effort to clean up the environment. Patrick Heffernan, a professor at the University of California at Berkeley, reviews the statistics in the April *SIERRA CLUB BULLETIN*.

Heffernan quotes an estimate by Chase Econometrics that the total number of workers laid off because of environmental regulations will approach 50,000 to 125,000 by next year. This compares to nearly one million new jobs created so far in the environmental protection movement (EPA figures), and since less than 10 percent of the required pollution-control investments have been made, Heffernan feels the number of new jobs may reach two million by next year.

The greatest number of new jobs has resulted from the Federal Water Pollution Control Act of 1970—some 20,000 workers employed in manufacturing control systems and another 150,000 in operating them. Nearly 55,000 workers were on the job last year installing the waste-water treatment facilities.

Solid waste control follows next, employing about 100,000 people, with another 20 percent to be added this year. Because of the diversity of air-pollution control devices, the number of jobs created in installing and operating them is hard to estimate, but 4,500 people are directly involved in their manufacture and operation.

The future looks even brighter, Heffernan suggests. Urban renewal programs have destroyed 337,000 more housing units than they created and if current national housing goals are met, 1.1 million new jobs would be created. Similarly, if \$5 billion were transferred from the Highway Trust Fund to urban transit construction, a 3.2 percent increase in the number of transportation-construction jobs might be created.

Critics respond that new environmental expenditures would be hard to come by during a recession and would affect inflation adversely. To this, Heffernan answers that the cost of pollution control raised the Consumer Price Index in 1974 by only one-half of one percent—about a seventh as much as rising fuel prices. Also, he says, “these increases are not inflationary. They represent real value received for the money spent. Better health, longer lasting products and homes, better car mileage . . . are all concrete benefits whose value can be and has been calculated.”

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But individual industries will continue to be hard-pressed. The Arthur D. Little Company has just released a study of the likely impact of pollution standards on the steel industry, and finds that by 1983, the industry will have to spend at least \$12 billion to meet Federal environmental standards and another \$36 billion to replace and build enough capacity to keep up with demand. Operating costs would rise by 8 to 10 percent because of pollution standards.

This, say industry officials, indicates that the most rigid pollution standards should be softened. Edgar B. Speer, chairman of U.S. Steel, told a press conference that even if the industry continues to make its 1974 record rate of return, it would fall \$500 million short of the \$5.5 billion capital spending needed annually to keep up with environmental and growth demands.

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According to May 26 *BUSINESS WEEK*, industry as a whole is devoting seven percent of its capital funds to pollution control this year—\$8.35 billion. The stone, clay and glass industry paid the highest proportion—18.7 percent. For industry to eventually meet existing standards will require \$34 billion.

BIOLOGY

Pondering a baffling projection

A South African tree cricket, singing happily from the underside of a sunflower leaf, attracted the attention of some entomologists a couple of years ago. Following observations, field tests and the application of acoustics theory, they now report that the insect, *Oecanthus burmeisteri*, builds a sound baffle to give his mating song some extra oomph.

L. Prozesky-Schulze and O.P.M. Prozesky of the Transvaal Museum and F. Anderson and G.J.J. Van Der Merwe of the Council for Scientific and Industrial Research in Pretoria report their discovery in the May 8 *NATURE*. On closer inspection, they found that the tree cricket sitting on the underside of the sunflower leaf was actually sitting *in* the leaf, in a small pear-shaped hole it had gnawed. Its head and forebody were protruding to the top leaf surface and its wings were spread against the underside, covering the hole. With quick overlapping movements of the wings, it rubbed “toothed” edge against “scraper” edge and released the bursts of low frequency sound so commonly heard on summer evenings.

The team knew that another cricket, the mole cricket, digs its burrow in the shape of twin horns to increase its sound intensity. So they wondered—is the wing-covered hole a functioning sound baffle? They measured the cricket’s sound while sitting next to, then in its hole. And sure enough, the sound amplitude was far greater in the second case.

Remarks one U.S. entomologist: “We’ve noticed several tree cricket species that sing with their heads through holes in leaves and wondered what they were doing. Now we know.”

A cricket with a loudspeaker. Far out.

Wildflowers in distress

Several million miles separate the gray bastions of bureaucratic machinery in Washington and the delicate pink and lavender wildflowers paying homage to spring in quiet midwestern meadows. It now seems the machinery is beginning to grind in their direction—gingerly—and with a gentle purpose.

The Department of Interior, acting on a petition from some midwestern botanists, has begun the first official review of plant species for possible inclusion on the endangered species list. DOI scientists will study four midwestern wildflowers: Monks-hood, Sullivantia, Bird’s-eye Primrose and Forbe’s Saxifrage.

Inclusion of a species on the endangered list is a complicated, three-step bureaucratic process requiring, one official says, about 36 to 40 professional man-days effort. But there is, apparently, a great need for review of threatened and endangered plants. The Smithsonian Institution’s botany department at the request of Congress, recently compiled a list of U.S. species which may be threatened or endangered. The list is over 2,000 species long, and includes 10 percent of all wild plant species, a Smithsonian project scientist says. The DOI machinery is starting to grind toward that list, too.

Passive resistance in the underworld

Millipedes live a dark, dank life, crawling through rotting logs and debris in search of decaying morsels. They probably would have been eliminated long ago by their acidic, pugnacious neighbors the ants, if it weren’t for one thing. Millipedes pump a unique, irritating repellent out of tiny portholes, and it sends ants running for cover and protracted cleaning activities. The repellent is a novel nitrogenous terpene (that smells like camphor) and was reported in the May 16 *SCIENCE* by Cornell chemists Jerrold Meinwald, A. F. Kluge, J. Smolanoff and colleagues. A super ant repellent could be designed based on a synthetic version of the terpene, they say.