

Scientists' lights blind deep-sea shrimp

The pink clothespin-shaped eye spot on the back of a deep-water shrimp appears to go permanently blind when blasted by the light from scientific craft exploring the ocean.

The latest evidence comes from Peter J. Herring and his colleagues at Southampton Oceanography Centre in England. In the March 11 *NATURE*, they describe shrimp with chalky-white eyes, indicating degraded photopigments, at two fields of hydrothermal vents on the Atlantic seabed.

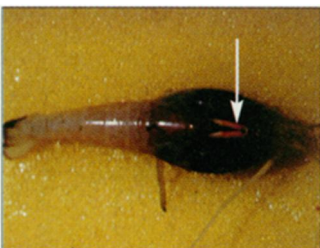
At one site, most of the shrimp collected were blind. That vent field, called Lucky Strike, had been visited often by light-beaming submersible craft. The other site, called Rainbow, had been visited for the first time only a month before Herring's team sampled the shrimp in 1997. Fewer animals with degraded pigments turned up there.

The damage reminds Herring of problems in the deep-water crustacean *Nephrops*. Well-intentioned fishers off Scotland tossed undersized catch back into the water, not realizing that surface light had blinded the creatures.

Scientists observing vent shrimp need to be aware that the animals may already have been blinded, Herring observes. "It's a cautionary tale," he says.

The warning is not new to vent scientists (*SN*: 2/11/89, p. 90; 1/1/94, p. 14). Herring's group has now "stated the case more strongly," says Robert N. Jinks of Franklin and Marshall University in Lancaster, Penn. He and his colleagues in 1995 published descriptions of shrimp eyes and predicted damage.

Jinks favors the idea of setting aside certain vents as dark sanctuaries until scientists develop gentler observation techniques. "I think we need to worry," he says. —S.M.



A deep-sea shrimp, its eye spot (arrow) still pink, might be able to detect the glow from hydrothermal vents that spew water of 360°C.

Chipmunks' unpleasant reminders

Want to remember which kitchen cupboard is bare? Just urinate on it.

That may be the strategy among least chipmunks (*Tamias minimus*), suggest Lynn Devenport of the University of Oklahoma in Norman and his colleagues. Red foxes, coyotes, and wolves have been known to leave such marks at empty larders. A report in the March *ANIMAL BEHAVIOUR*, however, provides the first description of that behavior in a rodent, the authors say.

They noticed that chipmunks sometimes urinate, seemingly purposefully, after they dug up seeds. Otherwise, the animals rarely relieved themselves in open areas. Checking videotapes of laboratory chipmunks, the researchers saw none making wet spots farther than 4 centimeters from a wall or other sheltering object unless the animal had just found food. Then, the animals increased that distance to up to 18 cm. Chipmunks so marked about a third of the depleted patches, but they did not urinate on spots still holding goodies.

Researchers next put urine-laden sand on richly stocked patches that the lab chipmunks had already sampled but not depleted. All 16 of the test animals immediately moved on to an unmarked, skimpy patch. When none of the patches were marked, chipmunks harvested the bonanza first. In the wild, in a version of this experiment, chipmunks dug out the unmarked patches first in 15 out of 20 observations. All in all, Devenport sees the urine markings as a means of bookkeeping for foragers. —S.M.

Help is on the way for insomnia

Behavioral changes and a frequently prescribed medication can help elderly people overcome insomnia, the most common sleep disorder, a U.S.-Canadian study finds.

For 8 weeks, researchers tracked the sleeping patterns of 72 people, average age 65, who suffered from insomnia but not from other medical or psychological disorders. Seventeen of the participants took a sleeping pill called temazepam an hour before bedtime, 18 used techniques that promote better sleep, 19 did both, and 18 received an inert pill. All participants recorded sleep information in diaries at breakfast.

The training required participants to limit time in bed to periods of sleep or sex, to awaken at a set time every morning, and to get up within 15 minutes if unable to fall asleep. Daytime naps of 1 hour were permitted, but only before 3 p.m.

Because a key problem in the elderly is the inability to return to sleep after waking in the night, researchers focused on time awake after having fallen asleep. Participants who received both training and medication reported nearly a two-thirds reduction in such time awake. Those receiving only the training saw a decline of slightly more than half, while people getting only medication had a reduction of slightly less than half. The placebo had little effect, researchers report in the March 17 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

During the 3 nights before and after the trial, each participant was monitored while sleeping in a laboratory. These findings supported the diary information. Reports filed 3, 12, and 24 months after the end of the test showed that volunteers receiving sleep-training techniques had the least insomnia.

To alleviate sleep anxiety, the participants getting training were also counseled about sleep misconceptions. For example, they were told that there is no need for a person to sleep 8 hours, says study coauthor Charles M. Morin of Laval University in Sainte-Foy, Quebec.

Awakening daily at a set time can be difficult for people with insomnia, but it serves a purpose, Morin says. "We have internal clocks that synchronize our sleeping cycle," he explains. A full-time job often enforces the cycle for working adults. —N.S.

Vinegar swab reveals cervical problems

A simple, low-technology procedure may provide an inexpensive means for health officials in developing countries to diagnose precancerous cervical lesions, U.S. and Zimbabwean researchers report in the March 13 *LANCET*.

Six nurse-midwives screened 2,144 women attending clinics in Zimbabwe. They checked for cervical lesions by first taking a Pap smear—a scraping of cells that are analyzed in a lab for abnormal growth. Afterward, they swabbed each woman's cervix with a mild vinegar solution and observed the tissue with a flashlight. The nurse-midwives recorded whether any cervical tissue turned white when exposed to the vinegar, a reaction that can signal abnormal cell growth.

The researchers then took cells for a biopsy or gave the women a colposcopy examination, in which the cervix is closely inspected under magnification. These techniques indicated that 77 percent of the vinegar tests showing signs of abnormal cells were accurate, whereas only 44 percent of the positive Pap smears were correct, says study coauthor Lynne Gaffikin of Johns Hopkins University in Baltimore. The poor Pap-smear results may have stemmed from flaws in either sample collection or laboratory evaluation, she says.

In screening for cervical cancer, the standard in industrialized countries is a Pap smear and, if indicated, colposcopy. Such services don't reach many rural people in developing countries, Gaffikin says. The vinegar-swab and naked-eye inspection by a nurse "provides great coverage in not as many spots" as the other techniques, she concludes. —N.S.