

The spiders cooperatively erect the long silk lines to which individuals anchor their orbs. Each spider fends for itself within the scaffolding, however, ejecting other spider intruders and parasites, hiding from predators, and catching insects that land on its own orb.

Insects that fly into the long quilt of webs may bounce out of the first orb they hit, but they are likely to ricochet right into a neighbor's lair, says Uetz. Each spider captures about as much prey as its neighbors, he says.

In flush times, it behooves a colonial orb spider to live in large groups, because the big net that the spiders collectively create provides each individual with plenty to eat. When times are tight, however, this modified group-hunting system breaks down. Each individual still captures about the average amount of prey, but that smaller amount isn't enough to sustain it.

In such conditions, says Uetz, a spider's best chance would be to fend for itself. Theoretically, some would still starve, but others would survive.

Uetz started studying social spiders 20 years ago in Mexico, where orb-weaving



Cooperative orb weavers suspend their individual webs from communal scaffolding.

species anchor their orbs to cactus spikes. Uetz wondered whether the sparse desert vegetation concentrated the orb weavers, their proximity only giving the appearance of communal behavior. To test this, he picked spiders up and introduced them to new locations with more abundant sites. He found that the orb weavers do seek each other out and

build their colonies together.

No one knows yet whether the social orb weavers always live in colonies. In different environments, says Uetz, the spiders may try different strategies for survival. He is following a species of colonial orb weavers that he found just below the cliffs of Pebble Beach in California. During last year's bug-rich El Niño spring, the orb weavers lived together in a large colony. He plans to return when food is sparser to see whether the spiders are still living socially.

Social spiders have evolved independently in Africa, the Middle East, the Americas, and Australia. The repeated appearance of social behavior has puzzled spider experts. "We're all trying to figure that out," says Evans. "And we all disagree."

It may be that communal living offers some spiders their only chance in a harsh world. When leaving a nest is too dangerous, rebuilding a web each day is too demanding, or finding mates is too difficult, sociality can win out over solitude.

Living together and sharing resources "may not be a good option," Evans says, but in certain circumstances, "it's the best of all available options." □

Biomedicine

Most cancers less common, less deadly

Cancer deaths in the United States declined steadily between 1990 and 1996, resulting in a total drop of about 4 percent, according to a new report. The number of new cancer cases diagnosed annually also dropped, by 0.9 percent each year.

Reductions in lung cancer helped drive the overall decrease in cancer rates, but this trend could change since more young people are smoking, warns Phyllis A. Wingo of the American Cancer Society in Atlanta. She and her colleagues from the National Cancer Institute (NCI) in Bethesda, Md., and the Centers for Disease Control and Prevention in Atlanta present their results in the April 21 *JOURNAL OF THE NATIONAL CANCER INSTITUTE*.

The researchers analyzed cancer data from five states and six cities, representing 14 percent of the U.S. population. Many of the most common and most deadly cancer types declined during the 7-year period. Diagnoses of leukemia and colon, bladder, and oral cancer dropped, while the rates of breast- and uterine-cancer diagnoses in women remained steady. However, new melanoma and non-Hodgkin's lymphoma cases increased.

Death rates declined for cancers of the colon, pancreas, brain, prostate, and stomach, as well as for breast cancer in women. However, melanoma and non-Hodgkin's lymphoma fatalities, like diagnoses, rose.

No one knows why non-Hodgkin's lymphoma rates are increasing, says Brenda K. Edwards of NCI. It's a cancer of the immune system that could be triggered by chemicals or viruses, including HIV, she says.

The number of new lung-cancer cases and deaths from that disease are dropping in men, but the incidence and death rate continue to climb for women. The rate of new diagnoses was highest among blacks and lowest among Hispanics.

"Tobacco . . . has condemned our nation to a grimy sea of preventable cancer," says Howard K. Koh of the Massachusetts Department of Public Health in Boston in an article accompa-

nying the report. Lung cancer, once a medical rarity, now kills more people than any other type of cancer. "Future medical historians will undoubtedly recall the 1990s as the 'tobacco and cancer' century," he predicts. —L.H.

Portrait of the artery as a motivator

A picture may be worth a thousand doctors' admonitions. People who carried in their wallets an ultrasound image of one of their major arteries and posted a copy of the picture on their refrigerator door were more likely to reduce their risk factors for heart disease than those who saw images of their arteries just once.

"If people have a picture of their own artery, there are no more excuses," says Jacques D. Barth of the Southern California Prevention and Research Center in Los Angeles, who presented the research on April 29 to a meeting of the American Heart Association in Boston. "They adhere well to the changes we have recommended."

All 210 study volunteers had at least one risk factor for heart disease, such as high cholesterol or a smoking habit. After 6 months, the half of the volunteers who had the reminders of their mortality were more likely to have quit smoking. They had also lost more weight than the half who only saw the images of their arteries immediately after the ultrasound was taken. Compared with the group without photos, twice as many sedentary people in the photo group started exercising.

Ultrasound analysis of the carotid artery, which runs through the neck to the brain, can indicate risk of heart attack or stroke, says Philip Greenland of Northwestern University Medical School in Chicago. The ultrasound itself is difficult to administer and read, so Greenland cautions against relying too heavily on this technique. However, giving people the images "may be a motivating, behavior-focusing technique," he says. —L.H.