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SCIENCE FILE

For Chernobyl birds, color is a curse

Gaudier species seem to be more affected by radioactive fallout. Scientists say that's because they have fewer antioxidants to spare.

By Amber Dance, Times Staff Writer
July 14, 2007

Radioactive fallout near the site of the 1986 Chernobyl nuclear power plant disaster in northern Ukraine has reduced populations of brightly colored birds more than those of their drab cousins, scientists reported this week.

Growing those vividly colored feathers uses up a lot of antioxidants, which are also needed to fight radiation damage.

The research, published online Wednesday in the Journal of Applied Ecology, suggested that such birds don't have enough antioxidants left over to thrive in highly contaminated areas.

Radiation causes the production of free radicals, reactive compounds that can damage DNA. They are also made during normal existence, as a result of exercise and other natural processes.

Antioxidants mop up free radicals to defend the body, but there is a limited supply of the protective molecules.

The forest surrounding Chernobyl, where an accident released clouds of radioactive particles, might look like a wildlife preserve, said study author Timothy Mousseau, an evolutionary biologist at the University of South Carolina.

But to the eye of a trained naturalist, something is clearly wrong. Many birds have abnormalities, such as deformed beaks or bent tail feathers.

To analyze the wildlife populations, Mousseau's team went into the forest and counted birds at 254 sites.

Some spots had very low levels of radiation, but others were so contaminated that the scientists had to don protective suits and masks.

Brightly colored birds such as orioles and blue tits were less numerous in the highly contaminated sites. "Survival and reproduction is depressed in those areas," Mousseau said.

Mousseau hopes to return to Chernobyl to track the bird populations over time. Armed with this information, he said, "we can develop better predictors of the effects of these kinds of accidents."

Other species that use high levels of antioxidants, such as those that lay large eggs or travel long distances, were also affected.

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Migrating birds use up antioxidants because of physical activity, and eggs tend to contain high levels of the defensive molecules.

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