Intermating threatens endangered species

Natural, evolutionary process can create chaos when caused by humans

By Sharon Guynup
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Throughout the forests of its Pacific Northwest home, the Northern spotted owl, listed as a threatened species, is facing a new challenge.

An interloper from the Midwest, the barred owl, has moved in and the birds are interbreeding — creating hybrid "sparred owls."

"It's a nasty situation," said Susan Haig, a wildlife ecologist at the U.S. Geological Survey in Corvallis, Ore. "This could cause the extinction of the Northern spotted owl."

Like an increasing number of creatures around the world, the barred owl could interbreed itself out of existence — and scientists and government agencies are taking notice.

The mating of unrelated species in the wild can cause ecological chaos, especially if endangered animals are involved. When populations dip so low that every offspring counts, interbreeding can further limit reproductive success.

Although hybridization is a natural evolutionary process, "problems arise when it's human-caused," said Nina Fascione, vice president of species conservation for the Defenders of Wildlife in Washington.

Habitat destruction and international commerce, including the pet trade, may bring together animals that have never seen each other before, like spotted and barred owls.

"Barred owls may be invading because there's been so much deforestation from logging," Haig explained. Logging creates the more open environment that the newcomers prefer.

The red wolf, an endangered species, is another case in point.

Hunting and loss of habitat decimated wolf populations until the species finally became extinct in the wild in the 1980s.

Meanwhile, coyotes were traveling east and taking over their territory.

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The red wolf, which became extinct in the wild in the 1980s, was reintroduced in North Carolina and now thrives. The wolves initially crossbred with coyotes when they were re-released in 1987.

When U.S. Fish and Wildlife Service officials reintroduced the wolf into North Carolina in 1987, they soon discovered "coywolf" pups, coyote/wolf crossbreeds.

Biologists have controlled the coyote population, and the wolves are thriving.

The interbreeding issue is global. "Human activity is changing the dynamics between species and evolution," said Benjamin Evans, a biologist at Columbia University's Center for Environmental Research and Conservation in New York. "It is happening at a speed that hasn't been seen in the past."

For example, in sub-Saharan Africa about 20 species of African clawed frogs have so successfully crossbred that they've produced at least seven genetically distinct new species.

Breeding barriers safeguard the purity of most species. Animals evolve in ways that ensure their survival, and the wrong genetic combination could breed out these traits.

The main barrier may be a simple difference in habitat or breeding areas, like preferring thick jungle over wide open spaces, explained Brian Charlesworth, an evolutionary biologist at the University of Edinburgh in Scotland. Breeding seasons and mating cues also differ widely between species.

The increase in hybrids has prompted the U.S. Fish and Wildlife Service to develop a policy on the "intercrossing" of endangered species. For now the agency is working on a case-by-case basis.

While government works out an approach, nature keeps turning up new crossbreeds.

"As habitats become more fragmented, we're going to find more and more examples of hybrids, and it's going to be a prime problem for conservationists," Haig said. "The tragic part is that I don't know if there are clear answers to the problem."