[anthology] REPORTS IN BRIEF

[*above right*]
Vietnamese leaf monkeys struggle to survive in a habitat ravaged by Agent Orange, which was used during the Vietnam War.
Image Courtesy of Nancy Stevens

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[monkey movement]

SCIENTIST TRACKS ENDANGERED PRIMATES IN GLOBAL TROUBLE SPOTS

Leaf-eating monkeys inhabit the limestone karst mountains of Vietnam, surviving on the sparse vegetation left in the region after Agent Orange rendered lush forests barren during the Vietnam War. They continue to dwindle in number, living a marginal existence in the trees clinging to the cliff sides — a non-human example of the enduring devastation of war.

The lemurs of Madagascar's Manombo forest also struggle to survive in a habitat hit by natural disasters. In 1996, a cyclone wiped out nearly half of the trees in Manombo, which is the last patch of lowland coastal rainforest on the island. Three years ago, many of the remaining trees went up in flames during a natural forest fire. To complicate matters, the critically endangered lemurs inhabiting Manombo must compete with local people who rely upon the ever-smaller patch of forest for firewood.

Ohio University researcher Nancy Stevens studies primates that inhabit each of these countries, which contain about 40 percent of the world's most critically endangered primate species. Stevens, assistant professor of functional morphology in the College of Osteopathic Medicine, studies the kinematics, or biomechanics of locomotion, of the animals occupying forest fragments in order to examine how they adapt their behaviors to move about in disturbed habitat settings.

Stevens films primates in the wild at a rate of up to 240 frames per second. The video films not only provide a highly detailed view of the way animals move in their natural environments, but help her expand on traditional laboratory-based research, she notes.

That's a topic of interest for Stevens, who organized a symposium at the 2006 International Primate Congress in Entebbe, Uganda, to allow researchers to exchange ideas on new techniques for integrating field and laboratory approaches.

She and colleague Kristin Wright of the Kansas City College of Osteopathic Medicine recently have begun to document the frequent use of a unique form of brachiating locomotion by leaf monkeys in Vietnam. Brachiation — the type of locomotion by which gibbons swing under the tree branches using alternating movements of their forelimbs — is common among apes but not previously documented in monkeys.

Unraveling such complex relationships between primates and their environments requires an integrated interdisciplinary effort among scientists using different research techniques, says Stevens, who has received funding from the Louis Leakey Foundation, the National Science Foundation, and Ohio University for her locomotor work. Behavioral researchers can provide information on how often animals engage in different types of locomotor behaviors, she explains, whereas kinematic data helps to quantify specifically how animals accomplish different locomotor tasks.

Conducting research in the natural setting presents certain challenges, Stevens notes, as animals are often visible in the camera view only briefly before disappearing into the dense undergrowth of the rainforest. Forests can be steep and challenging to negotiate while filming, and the patchy light of the tree canopy often causes uneven lighting.

Even so, Stevens and her colleagues have been successful in collecting detailed data on potential effects of forest disturbance upon primate habitat use and movement patterns. Such data provide critical real-world information on the habitat requirements of endangered animals, and can be used to inform conservation efforts, says Stevens, whose work has been published in the *American Journal of Primatology*, the *Journal of Experimental Zoology*, and the *American Journal of Physical Anthropology*.

Like many scientists, Stevens underscores the complexity of the conservation question. Such efforts will not succeed as long as people require the food and firewood resources of dwindling habitats in order to eat and put a roof over their heads. Conservation education is also critical, as many communities don't realize that the only place certain species exist is in their own backyards.

"These issues are always a lot more complex than they seem from the outside," she says, "but it's pretty incredible to see what these animals have withstood. You really hope that in the long run they can survive."

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