Scat-sniffing dog helps save endangered primates

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(Phys.org)—A scat-sniffing dog by the name of Pinkerton may be the best friend ever for a small, highly elusive group of endangered monkey and gibbon species now scrambling for survival in the vanishing forests of a remote Chinese mountain range.

Pinkerton, a high-energy Belgian Malinois, is proving to be a critical player in research aimed at preserving both the black-crested gibbon and the Phayre's leaf monkey, says Joseph Orkin, a graduate student in anthropology now studying the endangered primates for a doctoral

dissertation in Arts & Sciences at Washington University in St. Louis.

Orkin's research focuses on how the movement and breeding habits of these endangered species are influenced by geographic barriers, such as deforested lowlands and large streams and rivers, found in three mountaintops in China's Yunnan Province. Both species cling to survival in the donut-shaped remnants of forest that ring the steep mountain sides above valleys and hillsides that have been cleared and terraced to support intensive agriculture.

"The major challenge of working with these primates isn't only that they are reclusive, few, and quick moving, but that they live in steep mountainside forests littered with cliffs, which has made them especially hard to find and difficult to study for previous researchers," Orkin says.

Orkin enlisted Pinkerton as his research assistant after hearing of other studies that employed scat-sniffing dogs to sniff out data on similarly elusive species ranging from bears to whales. He located his dog through an organization that trains dogs to sniff out bombs, weapons and drugs for the Chinese police, including some of the dogs used at the 2008 Olympic games in Bejing.

Working with Yang Yu Ming, a dog trainer from the Kunming Police Dog Training Base in China, Orkin trained Pinkerton to hunt through the mountain underbrush and to signal whenever he locates the droppings of these particular primate species. With more than 175 scat samples now collected during two years in China, Orkin will use DNA analysis and other tools to identify individual monkeys and gibbons living in the study areas, and to reconstruct their movements and breeding habits, data that could be key to developing plans to assist in their preservation.

"How geographic boundaries interact with primate locomotion and ecology to fragment populations, form new species, and lead to their

extinction remains a fundamental question for biological anthropologists," wrote Orkin as part of his successful proposal for a $20,000 National Science Foundation grant to support his research. Orkin's research has also received major funding from The Leakey Foundation and The Chinese Academy of Sciences.

"Little effort has been made, however, to ascertain precisely how subtle geographic variation actually modifies the underlying population genetic relationships of primates in a changing environment. As human-induced environmental degradation continues to isolate and fragment dwindling populations of primates, it has become critical to understand how innate biological factors influence the ability of primates to disperse through and exchange genes within these variable environments."

Although the primate species in Orkin's studies share the same habitat, they have considerably different physical attributes. His research will explore how the different ways that the arm-swinging gibbons and quadrupedal leaf monkeys move through the forest allows them to overcome the obstacles of a degraded, fragmented habitat in their battle for survival.

As part of this research, Orkin has formed an ongoing collaboration with Dr. Jiang Xuelong and Dr. Douglas Yu of the The Chinese Academy of Sciences' Kunming Institute of Zoology. By forging new, long-term collaborative ties between the American and Chinese primatological communities, the study is also contributing to the mutual sharing of scientific knowledge and experience that is critical to efforts aimed at maintaining biodiversity in the region.

"Having the opportunity to go to the other side of China isn't something that a lot of Americans and other foreigners are able to see," says Orkin, noting that people in some of the small villages he's visited have told him he's the first foreigner they've seen in 30 years. "Everyone has been very kind – welcoming me into their homes, allowing me to live together with them."

"To hear the calls of these last few gibbons in the wild," he adds, "has been a wonderful thing."

Provided by Washington University in St. Louis