

## Researcher Dodges Elephants, Mudslides To Track Tigers

Of the estimated 7,000 tigers left in the world, scientists know the least about the roughly 2,000 thought to remain in Southeast Asia.

Unstable or repressive political conditions have long impeded Western biologists trying to study tigers there. Much of the big cats' habitat, meanwhile, consists of remote, extremely wild rain forest that offers near-perfect cover to the shy and elusive predators.

So tiger experts are hailing a new study of the tiger population



Smithsonian's National Zoological Park in Washington, D.C., and chairman of ExxonMobil's Save The Tiger Fund Council. "This is essential to securing the tiger's future through much of the rain forest remaining in Southeast Asia."

Based on 61 photos of tigers taken by self-activating cameras in Taman Negara National Park, a 1,677-square-mile protected area that is one of the largest

parks in Southeast Asia, Kawanishi used population models to estimate that the park supported a population of between 52 and 84 adult tigers.

Equally significant, she found no evidence of illegal hunting or other human-induced threats to the tigers.

"When you compare that result with the threat to tiger populations in similar-sized parks in other tiger ranges, Taman Negara is unique and superb," said Kawanishi, now a technical adviser for research and conservation for the Malaysian national park system.

But while her results are important, the grueling, nearly three years that Kawanishi endured in the rain forest also highlight the huge challenges and sacrifices faced by many wildlife biologists.

Kawanishi, 35, who graduated in December with her doctorate in wildlife ecology and conservation, began her field work in 1998 at Taman Negara. With only one eight-mile road and few trails, the park is among the world's wildest regions.

Wildlife biologists trying to estimate tiger populations and gauge their ranges have long relied on their tracks or on capturing the tigers and fitting them with radio collars. However, neither

method works in the rain forest, where tracks are hard to find, or lose definition, and vegetation blunts radio signals.

As a result, Kawanishi used "camera traps" consisting of self-activating cameras set up along game trails or other spots where tigers were likely to visit. Dominated by huge, ancient trees with rivers and streams cutting through valleys, Taman Negara's terrain made setting up and monitoring the cameras a mammoth, risky project.

Kawanishi and a support team of several Malaysian assistants and rangers set up some 150 camera traps on three 75-square-mile study sites. At two of the sites, the team spent at least two days on a boat just to reach base camp — trips that often included portaging over shallow areas. The team then had to hike several hours to reach each camera.

Hazards were numerous. For one thing, the rain forest's mammoth trees stand on thin, eroding soil and frequently fall over, bringing down many smaller trees and vegetation with them.

Researchers also had to watch out for elephants and poisonous snakes, while insects, leeches and other pests were a constant annoyance.

The researchers sampled each of the three sites for 11 months.

But their perseverance paid off. The team wound up with thousands of photos of reptiles, numerous birds and mammals, including porcupines, wild dogs, sun bears, elephants and mouse deer. Among other potentially important findings, Kawanishi said the team also captured the first evidence of the rare Storm's stork in the park and found that all leopards (about 150 were photographed) are melanistic, or largely black, because of a recessive gene. During her time in the rain forest, Kawanishi never saw a tiger — but her 61 photos of the animals were adequate for the study to succeed.

*Aaron Hoover*

in Malaysia as something of a landmark in research and conservation of the animals. The study, by recent University of Florida graduate Kae Kawanishi, provides the first scientifically rigorous estimate of a tiger population in Malaysia and one of the first such studies in the entire region. These studies are important because they will aid conservation efforts in an area facing huge population and development pressures, experts say.

The research "has greatly advanced our understanding of the dynamics of tigers and their prey and, for the first time, given us a holistic picture of tigers living in the rain forest," said John Seidensticker, a research scientist at the