Photo album tells story of wildlife decline

August 31 2010

This is one of the 5,000 plus camera-trap images used to develop the Wildlife Picture Index, a new way to measure biodiversity across large landscapes. Credit: Wildlife Conservation Society

With a simple click of the camera, scientists from the Wildlife Conservation Society and Zoological Society of London have developed a new way to accurately monitor long-term trends in rare and vanishing species over large landscapes.

Called the "Wildlife Picture Index," (WPI) the methodology collects images from remote "camera traps," which automatically photograph anything that lopes, waddles, or slinks past. These virtual photo albums - sometimes containing thousands of photos of dozens of species - are

then run through a statistical analysis to produce metrics for diversity and distribution of a broad range of wildlife.

Though camera traps are already used by conservationists to track individual species or to survey wildlife in small protected areas, this study marks the first time they have been used to scientifically measure long-term trends of multiple species on a landscape-wide scale.

The study appears in the August, 2010 issue of the journal Animal Conservation. Authors include: Tim O'Brien and Linda Krueger of the Wildlife Conservation Society, Jonathan Baille of the Zoological Society of London, and Melissa Cuke of the University of British Columbia.

The WPI was designed to meet the future needs of the Convention of Biological Diversity, (CBD) a treaty signed by 188 countries to reduce the rate of biodiversity loss.

"The Wildlife Picture Index is an effective tool in monitoring trends in wildlife diversity that previously could only be roughly estimated," said the study's lead author, Tim O'Brien of the Wildlife Conservation Society. "This new methodology will help conservationists determine where to focus their efforts to help stem the tide of biodiversity loss over broad landscapes."

The authors used the WPI to track changes in wildlife diversity over a 10-year period in Bukit Barisan Selatan National Park in southwest Sumatra, Indonesia. The 1,377 square-mile park contains the last remaining tracts of protected lowland forest in Sumatra - important habitat for large mammals including Sumatran tigers, rhinoceros, and Asian elephants. It is also threatened by poaching, illegal logging, and agriculture.

After running the statistical analysis of some 5,450 images of 25

mammals and one terrestrial bird species photographed throughout the park, the Wildlife Picture Index showed a net decline of 36 percent of the park's biodiversity. In addition, the analysis revealed that wildlife loss outpaced the rate of deforestation; and that large, commercially valuable wildlife such as tigers, rhinos, and elephants declined faster than small primates and deer, which are only hunted only as crop raiders or for subsistence.

The authors not only believe the WPI can be used to assess biodiversity in large ecosystems throughout the world, it can also help redefine how camera traps have been used for wildlife conservation.

"The Wildlife Picture Index will allow conservationists to accurately measure biodiversity in areas that previously have been either too expensive, or logistically prohibitive," said John Robinson, WCS Executive Vice President for Conservation and Science. "We believe that this new methodology will be able to fill critical gaps in knowledge of wildlife diversity while providing much-needed baseline data to assess success or failure in places where we work."

"We expect that the Wildlife Picture Index can be implemented and maintained as a relatively low cost per species monitored and provide important insights into the fate of rainforest and savannah biodiversity," O'Brien said.

Provided by Wildlife Conservation Society