

## Bornean Sun Bear and Bearded Pig Research and Conservation Project

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A new field study on Malayan sun bear (*Helarctos malayanus*) and bearded pig (*Sus barbatus*) began in March 2005 at Ulu Segama Forest Reserve and Danum Valley Conservation Area, with a field station in Danum Valley Field Center, Sabah, Malaysian Borneo. The project investigates the effects of selective logging on Malayan sun bears and bearded pigs by comparing ecological parameters of bears and pigs in logged and primary forests. These parameters include home ranges, activity and movement patterns, population densities, habitat selection, physical condition, food habits, and food qualities. Research methods include radio-tracking, camera trapping, scat analysis, and collecting basic information on fruit and invertebrate production in both forest types for 24 months. During the first phase of the project (March-August 2005), three focal areas in primary and logged forests have been identified, and 2-km transect lines have been established in each. Since March 2005 we have collected fruit production information using fruit traps, fruit-on-trail, and monthly monitoring of tree phenology. We monitor invertebrate abundance by setting nightly pitfall traps and recording the abundance of two species of beetle. We collect information on animal signs, such as feeding sites, bear claw marks on trees, trees with pig rubbing signs, mud wallows, and microhabitat features to investigate habitat preference. Animal trapping started on September 17. The trapping operation has been very successful compared with efforts

in 1999-2000. In the first week, we caught and radio-collared three adult sun bears, one female and two males. The female, Bear 101 was captured on September 21st and weighed 28 kg; and the two males, Bear 102 (cover photo) and Bear 103 were both captured on September 25th and weighed 56 kg and 45 kg, respectively. Bear 102 had several bite wounds and was captured at INFAPRO nursery, a big camp within the study area with about 80 residents. He is well known at the camp where he frequently feeds on garbage. We released him about 8 km west of the camp, but he has returned to the vicinity although has not visited the camp after three weeks of close monitoring. Tracking and locating the radio-collared bears is a daily routine. Trapping is continuing for sun bears and bearded pigs until sufficient numbers of each species are captured and radio-collared.

There are already some interesting findings: First, all of the bears captured were in great physical condition, a contrast to the skinny, emaciated bears we caught in 1999-2000. Their unusually heavy weights, especially the two males, are probably related to the high fruiting activity this year. Unlike other tropical forest ecosystems, the rainforests of Borneo, Sumatra, and Peninsula Malaysia display a supra-annual fruiting cycle, where almost all members of the tree family Dipterocarpaceae and up to 88% of the canopy trees fruit almost simultaneously after many years of low fruiting activity. This observation fits an earlier hypothesis that sun bears may store fat during the fruiting year and deplete this energy reserve in low fruiting years. The second interesting discovery was that all three bears are infected with malaria

and have *Plasmodium spp.* parasites in their blood. This is the first documentation of wild sun bears infected with malaria. This finding has immense implications for human and wildlife health in these forests. Further investigation on this zoonotic disease is in progress.

This project has grown into not just pure research, but also incorporates many conservation elements on sun bears, bearded pigs, and tropical rainforests. Many public talks on the project and conservation of sun bear and bearded pigs have been delivered during the past few months, and more are planned. Two full-scale Master's degree studies are also planned under the umbrella of this project: one study will focus on the comparison of the ecology of wild and reintroduced bears, and the other will study the impacts of bearded pigs on oil palm plantations. We will launch the official website of the project at the end of the year, with general information, interesting findings and regular project updates, and conservation facts about sun bears and bearded pigs, for the public and scientific communities.

The project also seeks hard-working volunteers who are willing to work long-hours in a harsh tropical rainforest environment. The project not only will provide an opportunity for volunteers to help on field data collection, but also provide a rare opportunity for volunteers to learn about techniques to study tropical bears and other related conservation skills. Please feel free to contact us if you are interested in volunteering or have questions regarding our project. We hope this project will encourage more studies and conservation projects on these two little-known species that play important roles in the rainforest ecosystem of Borneo.