



Media only: Michele Urie (202) 633-2950
Randall Kremer (202) 633-2950

May 7, 2009

Media Web site: <http://newsdesk.si.edu>

Scientists Focus on the Foot to Solve a Hominin Mystery

A team of scientists are looking more than 17,000 years into the past for the most complete glimpse of how a primitive bipedal foot was designed and differed from that of later hominins and modern humans. Skeletal remains of *Homo floresiensis*—an extinct endemic population of hominin discovered on Flores Island, Indonesia in 2003—are shedding new light on the evolution of bipedal gait and have important implications for hominin dispersal into Asia. The team’s findings are published in the scientific journal *Nature* today, May 7.

The skeletal remains of *Homo floresiensis* have been dated to the late Pleistocene, between approximately 17 to 95 thousand years ago. They have been popularly nicknamed the “hobbits” due to their small stature (they stood about 3 and 1/2 feet tall) and relatively large feet. Among the mysteries that scientists are trying to solve about *Homo floresiensis* is its place on the human family tree—Is *Homo floresiensis* an island dwarfed species descended from an earlier Southeast Asian population of *Homo erectus* or are they the descendants of an earlier small-bodied species of *Homo* that may also have made it out of Africa? The answer, however, may be in their feet.

The international team of scientists, led by William Jungers of Stony Brook University Medical Center, documented an unusual combination of ape-like and human-like features of the *Homo floresiensis* foot. The feet are exceptionally long relative to the femur and tibia bones, proportions never before documented in modern humans or *Homo erectus*, but seen in some African apes. Unlike apes, however, the hobbit foot clearly enabled bipedal walking. *Homo floresiensis* appears to have been “flat-footed” and poorly designed for endurance running though, one of the features believed to characterize human ancestors since the time of *Homo erectus*.

“Despite their late Pleistocene age, these feet, together with many other parts of the skeleton of *Homo floresiensis*, might represent the primitive condition for the genus *Homo*, and that could well imply an additional hominin dispersal event out of Africa that has previously been undocumented,” said Matt Tocheri, a paleoanthropologist at the Smithsonian’s Human Origins Program at the National Museum of Natural History, and a co-author of the study. “These specimens remind us how little we

may know about which other hominin species walked out of Africa, when they did it, and the many possible places their feet helped take them.”

All species of the genus *Homo*, except *Homo sapiens* (modern humans), are extinct. *Homo neanderthalensis*, traditionally considered the last surviving relative, appears to have died out around 30,000 years ago. However, the discovery and subsequent research of *Homo floresiensis* suggests to some that it in fact may be our last surviving relative. The answer to the hobbit's specific place on the hominin family tree is still inconclusive—*Homo erectus* is known to have made it to Southeast Asia, but much of the hobbit's anatomy does not suggest an ancestral-descendant relationship. The search for answers returns researchers to the foot.

“A foot like this one has never been seen before in the human fossil record,” said Jungers. “If the feet and skeleton of the hobbits are instead the result of ‘island dwarfing’ from Southeast Asian *Homo erectus*, then an amazing number of evolutionary reversals to primitive conditions had to occur as a by-product.”

Future excavations planned elsewhere on Flores and in other parts of Indonesia will perhaps hold the answer as to which of these competing hypotheses is correct.

###