

Zoo-bred tamarins fare well in wild

It has been a year of adventure for a group of squirrel-sized, long-haired monkeys bred in U.S. zoos. The golden lion tamarins received wilderness training (SN: 3/3/84, p. 140) and were released into a Brazilian forest reserve. This release is the first systematic reintroduction of captive-bred primates into the wild. The tamarins are nearly extinct in their natural habitat, the Brazilian Atlantic forest, but a captive-bred population of about 400 animals at zoos around the world is thriving.

Today 9 out of the 14 tamarins released about six months ago are alive in the Poco das Antas Biological Reserve in Brazil. They have formed two social groups — a pair and a family of seven — and one female appears to be pregnant, reports James Dietz, a biologist with the National Zoo in Washington, D.C., who is working at the reserve. The tamarin reintroduction is part of a project to restore a portion of the natural Atlantic Coastal forest.

Tamarins from five U.S. zoos were sent in November 1983, via the National Zoo, to the Primate Center of Rio de Janeiro, Brazil. There the monkeys were trained in such forest skills as climbing through foliage, peeling fruit and hunting insects in tree bark. The researchers found that female tamarins learned more quickly than did males and that juveniles learned more quickly than their elders. During the training period, four animals died and one set of twins was born.

In May, the tamarins were placed in four wire mesh enclosures on the reserve to adapt to forest life. After a few weeks, the doors were opened and the animals were released into an area not inhabited by wild tamarins. The biologists found, to their surprise, that the tamarins didn't immediately disappear into the forest. In fact, the researchers had to dismantle the wire enclosures to prevent the animals from simply remaining on the structures.

In the first three weeks of wilderness experience, five of the monkeys died. One animal died of exposure, one was killed by a venomous animal and another was killed by a hunting dog. Two monkeys were lost during clashes among the groups, as the released animals established their territories. But after these early deaths, all the tamarins have survived.

The monkeys are tracked by radio-telemetry transmitters that some of the adults wear on collars. The tamarins also are marked with fur dye. A group of local students that tracks and observes the monkeys in the reserve reports that the tamarins have reorganized their social structure into just two groups, instead of the four groups originally released.

The biologists hope that eventually the released tamarins will intermingle and breed with the remaining wild tamarins,

Bacteria? If so, they're the oldest



Is this what life looked like 3.5 billion years ago? Geologist Miryam Glikson thinks so. The organic remains (shown magnified 50,000 times) that she photographed via transmission electron microscopy at Australian National University in Canberra may profile the oldest bacteria ever seen.

The organic matter consists of an electron-dense inner layer surrounded by a membrane. Though Glikson concedes "it is not possible to establish from observations alone whether these forms are microorganisms or organic molecular condensates," supporting evidence for their bacterial origin is offered by their carbon-13/carbon-12 isotope ratio.

The type of apparent carbon-13 deficiency in these remains, collected from 3.5-billion-year-old sedimentary rock, is similar to that associated with living species of chemoautotrophic (inorganic-chemical metabolizing) bacteria, she says. It's also known, she says, that sulfate-reducing bacteria preferentially metabolize carbon-12, and much of the mystery-matter she's examined came from rock containing barite — a sulfur-based mineral. Finally, Glikson notes that these microstructures — including their "budding" shape — resemble closely those produced by heating combinations of amino acids in the laboratory.

"We know from other evidence that there was life around at that period," comments paleobiologist Kenneth Towe of the Smithsonian Institution in Washington, D.C. So if this is really a bacterium, he says, then it would be the oldest ever pictured.

—J. Raloff

many of whom are isolated on small islands of forest, surrounded by farmland, and are at risk of deleterious effects of inbreeding.

If funding is available, the biologists plan to release more captive-bred tamarins into the wild. "But it is not our intention to throw out hundreds of tamarins from captivity to Brazil. We are developing the techniques to manage the population genetically until the population is large enough," Dietz says. "We are just holding the fort genetically while allowing the habitat to regenerate." —J. A. Miller

Secrecy comes to the space shuttle

An unprecedented blanket of secrecy, vastly different from the openness that has marked all past U.S. manned space missions since their beginnings nearly a quarter-century ago, has been drawn over the next flight of the space shuttle, and will get even thicker for some missions to follow.

Announced on Dec. 17 by the Department of Defense (DOD) and the National Aeronautics and Space Administration, the policy is designed "to limit an adversary's knowledge and capability to identify specific missions" when shuttle flights are devoted to classified military purposes. "The more mission information [the Soviets] have," said Brig. Gen. Richard F. Abel, the U.S. Air Force's director of public affairs, "the easier it is for them to counter the capabilities of those payloads."

The scheduled date of the upcoming flight — Jan. 23 — has been announced, but the launch time has been identified only as lying somewhere in a "window" from 1:15 to 4:15 p.m. EST. As for the landing, even the date is classified, and will stay that way until 16 hours before the scheduled touchdown. The press will be able to witness the launch, but will not hear any conversation between the shuttle and the ground; nor will there even be the standard running commentary that has been provided in the past by NASA public affairs officers. Gone also will be the "change of shift" briefings that are held for the press during NASA missions each time one set of flight controllers comes off duty to make room for the next. The cameras in NASA's mission control room at Johnson Space Center in Houston will not only go unused — they will be "deactivated and capped for the entire mission."

Some of these procedures may be modified somewhat if there is a "contingency," defined as "any unexpected circumstance which results in a mission management team decision to abandon mission objectives in favor of a safe recovery of the crew and orbiter." As for lesser mishaps, the expressed policy is carefully nonspecific.

Beyond the restriction of information about the "dedicated DOD missions," Abel said that even "speculation" in the press could lead to possible investigations about breaches of national security. For the upcoming mission, the only fact about the payload that has been specifically declassified is acknowledgment that it will include a booster rocket called the Inertial Upper Stage (IUS). The IUS concerns NASA because it malfunctioned last year during its first and only use, leaving a NASA tracking satellite — of which another is still to come — in the wrong orbit. (Within two days of the policy briefing, the rest of the payload was identified in the press as a satellite to monitor electronic intelligence.) —J. Eberhart