

had observed these animals using sticks to extract seeds from the *Neesia* fruit. In Borneo, however, other researchers never see such handiwork, even though *Neesia* is readily available. Curious to see if the orangutan research community could come up with a list of behaviors similar to that compiled by chimpanzee researchers, van Schaik invited his colleagues to a 3-day meeting to compare notes.

Even van Schaik was surprised by the results. With many of the commonly observed behaviors, he says, “you just assume every [orangutan] does it the same way everywhere.” But as the researchers compared notes—and videotapes when possible—it became clear that many behaviors were strikingly different between orangutan groups.

The list of probable cultural traits is not as long as that for chimpanzees. But Bennett Galef of McMaster University in Hamilton, Ontario, says that nevertheless, the evidence from the orangutan watchers is stronger in some ways. “They were able to document two behaviors that are present in every member of one group and [in] no member of another,” he says, strength-

ening the case that individuals learn behaviors from the group rather than discover them randomly on their own. Furthermore, orangutans’ tendency to interact with their neighbors less than chimps do made the pattern of learning even clearer. The researchers found that groups of more sociable orangutans had larger behavioral repertoires than groups of relatively solitary individuals had, supporting the theory that social contact spreads cultural behaviors.

The observations might help researchers learn more about the roots of human culture by clarifying what makes it distinctive. One critical difference, many researchers note, is that animal groups do not appear to improve upon a previous invention, although humans have been doing so for millions of years. Humans might excel at tinkering because they are great imitators, says psychologist Michael Tomasello of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. He and others have shown that human children can imitate a demonstrated skill more readily than captive

apes can, an ability that might allow children to acquire complex behaviors more easily from other group members.

Tomasello cautions that the orangutan study is only a beginning. Researchers “talking about their impressions is an excellent way to generate hypotheses, but it’s only step one,” he says. Van Schaik agrees that he and his colleagues now need to return to the field with the full list of orangutan behaviors to verify that they’re present in some groups and not in others.

Chimp researchers, meanwhile, are meeting this month in Leipzig, Germany, to refine their list of possible cultural behaviors. The meeting will include representatives from three additional study sites not included in the first survey.

Chimp and orangutan researchers have little time to waste. Both species are gravely threatened by habitat loss and poaching. Illegal logging and civil unrest have taken a toll: One of the sites van Schaik canvassed for the current study is now “pretty much gone,” he says, with its unique cultural traditions wiped out as well. —GRETCHEN VOGEL

JAPAN

Science Fares Well in a Tight Budget

TOKYO—Japan’s scientific community last week got a pleasant surprise. Despite belt-tightening that will hold total growth in government spending to just 0.7% in the fiscal year beginning on 1 April, the administration’s budget includes a 3.9% rise, to \$10.3 billion, for science. And a separate economic stimulus package, which will be appropriated during the last 3 months of the current fiscal year, will provide a hefty dollop of funds to upgrade research facilities. The Cabinet approved both budgets on 24 December, and the legislature is expected to endorse them in the next few weeks.

“Compared to other fields, [science] has been treated very favorably,” says Toichi Sakata, deputy director-general for research promotion at the Ministry of Education, Culture, Sports, Science and Technology. The few grumbles within the community focus on worries that the spending is emphasizing quick results at the expense of long-term scientific health.

Particularly notable jumps are in store for competitive grant programs. Funding for peer-reviewed grants for scientific research, the largest source of support for individual academic researchers and small groups, will rise

3.6% to \$1.5 billion. Several large-scale physics projects are also getting significant increases. Funding for a high-intensity proton accelerator being built in Tokai, northeast of Tokyo, will jump 54% to \$41 million to support a ramp-up in construction. And support for neutrino studies—set to grow by 23% to \$18.8 million—includes money to begin fully restoring the Super-Kamiokande neutrino observatory. An accident late last year destroyed two-thirds of the facility’s 11,000 photomultiplier tubes (*Science*, 11 January 2002, p. 247). The facility recently restarted observations using the remaining sensors. Super-Kamiokande project director Yoichiro Suzuki says that “we benefited from a tailwind,” in the form of publicity sur-

rounding the award of a share of last year’s Nobel Prize in physics to Masatoshi Koshihara for his work on neutrinos using the original Kamiokande observatory.

The supplementary budget, intended to stimulate the economy primarily through public works spending, will also benefit science. The education ministry’s share of that pie includes \$1.8 billion for upgrading university research equipment and facilities. Indeed, several programs facing reductions in the ordinary budget, including space science and earthquake research, managed to cover the cuts with funds from the supplementary budget.

One area that was not so fortunate is nuclear power, where the budget will drop 3.4% next year, to \$2.6 billion. A spokesperson for the education ministry’s nuclear power research division says most of the cuts will be covered by efficiencies resulting from merging two major research labs. But he admits there will be a yet-to-be-defined impact on research.

Finance Minister Masajuro Shiokawa emphasizes that the government gave priority to science and technology, among other fields, because it is expected to help revitalize the economy. Those expectations make some researchers nervous. One institute head, who asked to remain anonymous, says there is “too much of an emphasis on short-term results rather than long-term benefits.”

—DENNIS NORMILE



Booster shot. A proton accelerator at Tokai will get a budget boost to accelerate construction.