

# LABORATORY PRIMATE NEWSLETTER

Vol. 47, No. 3

July 2008



**JUDITH E. SCHRIER, EDITOR**

**JAMES S. HARPER, GORDON J. HANKINSON AND LARRY HULSEBOS, ASSOCIATE EDITORS**

**MORRIS L. POVAR, CONSULTING EDITOR**

**ELVA MATHIESEN, ASSISTANT EDITOR**

**ALLAN M. SCHRIER, FOUNDING EDITOR, 1962-1987**

**Published Quarterly by the Schrier Research Laboratory**

**Psychology Department, Brown University**

**Providence, Rhode Island**

**ISSN 0023-6861**

## POLICY STATEMENT

The *Laboratory Primate Newsletter* provides a central source of information about nonhuman primates and related matters to scientists who use these animals in their research and those whose work supports such research. The *Newsletter* (1) provides information on care and breeding of nonhuman primates for laboratory research, (2) disseminates general information and news about the world of primate research (such as announcements of meetings, research projects, sources of information, nomenclature changes), (3) helps meet the special research needs of individual investigators by publishing requests for research material or for information related to specific research problems, and (4) serves the cause of conservation of nonhuman primates by publishing information on that topic. As a rule, research articles or summaries accepted for the *Newsletter* have some practical implications or provide general information likely to be of interest to investigators in a variety of areas of primate research. However, special consideration will be given to articles containing data on primates not conveniently publishable elsewhere. General descriptions of current research projects on primates will also be welcome.

The *Newsletter* appears quarterly and is intended primarily for persons doing research with nonhuman primates. Back issues may be purchased for \$10.00 each. We are no longer printing paper issues, except those we will send to subscribers who have paid in advance. We will not accept future subscriptions, unless subscribers are willing to pay \$100/year. (Please make checks payable to the Brown University Psychology Department.) Readers with access to electronic mail may receive a notice when a new issue is put on the Website by sending the message **subscribe LPN-WARN your-own-name** to [listserv@listserv.brown.edu](mailto:listserv@listserv.brown.edu). (Send the message **subscribe LPN-PDF** to receive PDF files by e-mail; or the message **subscribe LPN-L** to receive the nongraphic contents of each issue.) Current and back issues of the *Newsletter* are available on the World Wide Web at <http://www.brown.edu/primate>. Persons who have absolutely no access to the Web, or to the electronic mailing, may ask to have paper copies sent to them.

The publication lag is typically no longer than the three months between issues and can be as short as a few weeks. The deadline for inclusion of a note or article in any given issue of the *Newsletter* has in practice been somewhat flexible, but is technically the tenth of December, March, June, or September, depending on which issue is scheduled to appear next. Reprints will not be supplied under any circumstances, but authors may reproduce their own articles in any quantity.

**PREPARATION OF ARTICLES FOR THE NEWSLETTER.** – Articles, notes, and announcements may be submitted by mail, e-mail, or computer disk, but a printed copy of manuscripts of any length or complexity should *also* be sent by regular mail. Articles in the References section should be referred to in the text by author(s) and date of publication, e.g., Smith (1960) or (Smith & Jones, 1962). Names of journals should be spelled out completely in the References section. Latin names of primates should be indicated at least once in each note and article. In general, to avoid inconsistencies within the *Newsletter*, the Latin names used will be those in *Mammal Species of The World: A Taxonomic and Geographic Reference*, 2nd Ed. D. E. Wilson & D. M. Reeder (Eds.). Washington, DC: Smithsonian Institution Press, 1993. For an introduction to and review of primate nomenclature see the chapter by Maryeva Terry in A. M. Schrier (Ed.), *Behavioral Primatology: Advances in Research and Theory* (Vol. 1). Hillsdale, NJ: Lawrence Erlbaum Associates, 1977.

All correspondence concerning the *Newsletter* should be addressed to:  
Judith E. Schrier, Psychology Department, Box 1853, Brown University  
Providence, Rhode Island 02912 [401-863-2511; FAX: 401-863-1300]  
e-mail address: [primate@brown.edu](mailto:primate@brown.edu)

Current and back issues of the *Newsletter* are available on the World Wide Web at  
<http://brown.edu/primate>

## ACKNOWLEDGMENTS

The *Newsletter* is supported by Brown University

Cover photograph of a Douc Langur (*Pygathrix nemaeus*),  
taken at the San Diego Zoo by Paul G. Wilde, June 1997

Copyright © 2008 by Brown University

## Bam Bam's Story: Raising a Marmoset Without a Mother

Joan Castle  
United Kingdom

Fred and Wilma were a pair of common marmosets (*Callithrix jacchus*) used in medical research at a large teaching establishment.



Fred & Wilma (Wilma has the red-dyed ears for easy ID).

Unfortunately, even though Wilma had been sent to us as being surgically sterilized, she became pregnant!

She was immediately removed from the research protocol and a few weeks later she gave birth to twins. Sadly, one was stillborn. Blood and tissue samples were taken from the stillborn to ascertain whether the compounds used on Wilma during her pregnancy had crossed the placenta and affected the young. This proved to be negative, so we thought all was well.



Wilma feeding Bam Bam two days after his birth.

However, Wilma developed a huge hematoma on the inside of her left hind leg. It was obviously a weak vein from blood sampling and the strain of pregnancy caused it to rupture and bleed. We naturally wanted to attend to this problem but were concerned for the welfare of the baby. Therefore, under consultation with our veterinary surgeon, we took one day at a time.

---

Author's e-mail address: [joan.castle@kcl.ac.uk].

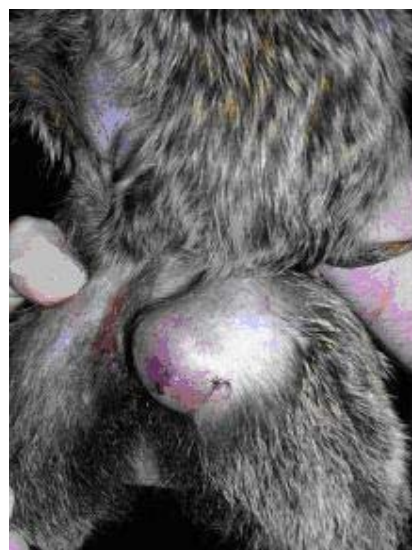
Baby Bam Bam was growing well and Fred was doing his correct, marmoset-fatherly role of carrying junior for the most part and only handing him back to Wilma for feeding.

The race was now on as we did not want to risk putting Wilma under anesthetic while the baby was still suckling. Wilma's leg was monitored daily and an attempt to drain it was made to give us a few extra days.



The hematoma, under veterinary inspection, with Bam Bam still clinging onto Mum.

However, the day came when we had no alternative but to have the vet surgically attend to Wilma's leg.



The hematoma could no longer be left alone; surgical intervention was unavoidable.

The hematoma was successfully removed but, sadly, just as she was being taken off the anesthetic machine, Wilma died. Attempts were made to resuscitate her using respiratory stimulants, but to no avail.

Our concern now was whether Bam Bam was old enough to survive without too much intervention from us. He had just reached 6 weeks of age. The general consensus was that, although ideally weaning is at about 12 weeks, we might be in luck if we could encourage him to feed independently.

We then embarked on a shopping spree to purchase human baby food preparations. We bought milky cereal products plus jars of dessert, in banana, peach, and mango flavors, and offered him several feedings a day from a syringe, which he readily took.

We also purchased some SMA Gold® baby milk and mashed banana into it, which Bam Bam loved. As well as offering food in a syringe, we also left a bowl with milky cereal in it, trying to encourage him to feed himself (and to give Fred a treat, as he was still being the dutiful father and carrying Bam Bam around).

It wasn't necessary to stimulate defecation and urination as Bam Bam had passed this stage while still with his Mum.

Bam Bam now weighed 108 gm, which is a good weight for a 6-week-old.

At seven weeks we noticed that he was beginning to eat out of the bowl and, as his weight was increasing steadily, we reduced the syringe offerings. We feel he learned a lot from Fred when it came to eating out of the bowl.

As his weight reached 118 gm and 8 weeks had passed, we began to lessen the milky content of the feed and provide more solids in the way of fruits (grapes, banana, plum, apple, pear, melon) and forage (maize, sunflower seeds, peanuts, cereal).



Bam Bam being forced to venture out on his own while Fred looks on.

It was now becoming obvious that Fred was getting fed up with carrying his son around, and often tried to force him off.

Bam Bam was still feeling insecure at this stage so we hung a sock, filled with hay, in the cage for him to cling to. He was rarely seen to use this, preferring to try to cling to his Dad instead.

Bam Bam, being shunned by his Dad more often, soon learned to cope on his own. Occasionally, if spooked, he would run and cling to Fred, who would tolerate him for a short while and then encourage him to get off by rubbing his back against the bars of the cage. Although sometimes this was sad to watch, Fred was being the perfect parent in teaching his son to fend for himself.



Fred began to turn his back on Bam Bam more and let him fend for himself.

At 9 weeks Bam Bam's weight had increased to a healthy 128 gms and he was becoming more and more independent.

Although he is very friendly with the staff, we do not treat him any differently from the other marmosets in our care. Having said that, if he chooses to come and sit on our hands when we service the cage we do not discourage him, because it is his choice.

Apart from being therapeutic for him it is certainly very enjoyable for us!



Bam Bam developing his adult characteristics.

Last week, June 4, 2008, Bam Bam had his first birthday.

He is now 370 gms, which is probably a bit above average for his age, but then he has had exceptionally good care!

His birthday was marked with several new toys (swings and a ladder) plus a “cake” made from jelly, custard, and marshmallow, the latter being his utmost favorite. Fred never refused a portion either!

N.B.: their staple diet is Mazuri marmoset pellets and fresh fruit; the marshmallow, etc., are only treats.

Bam Bam is still living happily with Fred. Obviously we will continue to monitor their relationship as it is possible they may fight in the future, but at the moment they are enjoying each other’s company.



Bam Bam being fully independent.

\* \* \*

### Travelers’ Health Notes: IAMAT

The International Association for Medical Assistance to Travelers (IAMAT), a volunteer group, compiles an annual list of doctors around the world who meet the organization’s criteria, who speak English or another second language, and who agree to charge a specific fee. The 2008 Directory lists the current schedule of fees as US\$80 for an office visit, US\$100 for a house (or hotel) call, and US\$120 for night, Sunday, and local holiday calls. These fees do not include consultants, laboratory or surgical procedures, hospitalization, or other expenses. The current listing of doctors and centers includes 93 countries, plus a listing of mental health resources in 16 countries.

IAMAT also publishes and provides to its members pamphlets on immunization and malaria, as well as

“World Climate Charts” and a “Traveler Clinical Record” form. IAMAT has a scholarship program for physicians from developing countries to attend travel medicine training courses in North America, and offers lectureship grants to international medical societies, which allow visiting travel and tropical medicine scholars to exchange information and research on the prevention and treatment of tropical diseases.

For information, contact IAMAT, 40 Regal Rd, Guelph, Ontario, N1K 1B5, Canada [519-836-0102]; 1287 St. Clair Ave. West, Toronto, Ontario M6E 1B8, Canada; 1623 Military Rd, #279, Niagara Falls, NY 14304-1745, U.S.A. [716-754-4883]; 206 Papanui Rd, Christchurch 5, New Zealand; or [e-mail: [info@iamat.org](mailto:info@iamat.org)]; or see [www.iamat.org](http://www.iamat.org).

\* \* \*

### IPS Congress Silent Auction

Katie Leighty writes: “The International Primatological Society’s Silent Auction has become a staple of our Congresses. The 2006 IPS Silent Auction held at the Entebbe Congress raised over \$2700. All funds generated from these auctions go directly to the IPS Conservation Fund, which supports conservation efforts of the IPS membership worldwide. If you are coming to the Edinburgh Congress, please bring along items to donate. Items may be submitted for the auction upon arrival at the Congress registration desk. If you wish to

send your donations ahead of time, please ship them to “IPS 2008 Congress Secretariat, c/o Meeting Makers, Jordanhill Campus, 76 Southbrae Dr., Glasgow G13 1PP, Scotland, U.K.” Please be sure to include a note indicating that the item is a donation for the 2008 IPS Silent Auction.

“If you have any questions regarding the auction, please contact Katie Leighty [e-mail: [katherine.leighty@disney.com](mailto:katherine.leighty@disney.com)].”

\* \* \*

## Grants Available: Cell Fate and Cell Life Spans in the Aged

The National Institute on Aging (NIA), National Institutes of Health (NIH), invites Exploratory/Developmental Research Grant applications from institutions/organizations that propose to develop tools to track cell fate determination (cell lineage) and to determine cell life spans in normal tissue homeostasis and in response to injury or disease in the elderly. This Funding Opportunity Announcement (FOA) will support basic and applied exploratory/developmental research projects for the development of tools needed to determine cell life spans and cell fates in various tissues of aged mammals, specifically in humans or in model organisms (e.g., rodents or nonhuman primates). Applications will address the design, development and quantitative testing of integrated systems for cell turnover rates and lineage tracing in one or more cell types. Such systems should be applicable to determine the age-dependent changes in cellular turnover and fates in

tissues that lose function with advanced age. Application and submission requirements and peer review processes will follow NIH guidelines. This FOA will utilize the NIH Exploratory/Developmental Research Grant (R21) grant mechanism.

NIA expects to award \$1.0 million in Fiscal Year 2009 (FY2009) to fund up to five meritorious projects that are responsive to this FOA. Awards issued under this FOA are contingent upon the availability of funds and the submission of a sufficient number of meritorious applications. The maximum total direct costs allowed are \$275,000 over a two-year project period. No more than \$200,000 in direct costs is allowed in any single year.

Application due date is October 30, 2008. For complete information, see <[grants.nih.gov/grants/guide/rfa-files/RFA-AG-09-004.html](http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-09-004.html)>.

\* \* \*

## Workshop Announcements: Association of Primate Veterinarians

### Call for Case Reports, Posters, and Presentations

The Association of Primate Veterinarians' (APV) 36<sup>th</sup> Annual Workshop will be held November 6-8, 2008, in Indianapolis, Indiana. The deadline for submitting case reports and/or "What's Your Diagnosis?" for the Workshop is August 1, 2008. Please keep length of abstract to one page. If you have time constraints and cannot submit your abstract by this date, please submit your intent to present, presentation title, and author(s). Clearly identify the presenting author and provide his or her CV by the August 1 deadline date. For those requiring additional time, full abstract submittals will be required no later than August 15, 2008. Electronic versions (PowerPoint, video) of the case report and/or "What's Your Diagnosis?" are due no later than October 1, 2008. Electronic abstracts of case reports can be submitted online through the APV Website: <[www.primatetvets.org](http://www.primatetvets.org)>. Please

contact Dr. Susanne Rensing [49-251-9798266; e-mail: [Susanne.Rensing@covance.com](mailto:Susanne.Rensing@covance.com)], or Dr. Gwen Maginnis [503-690-5221; e-mail: [maginnis@ohsu.edu](mailto:maginnis@ohsu.edu)], if you have any questions about case reports.

This year you will also have an option to present your information as a poster rather than a presentation. Abstracts for posters will be submitted on the same form as used for the oral presentations. You will be able to select whether you prefer to present your material during a case report session or as a poster. Please contact Dr. Rick Rockar [609-252-3679; e-mail: [richard.rockar@bms.com](mailto:richard.rockar@bms.com)].

If you are not an APV member and are interested in membership, applications are available online at <[www.primatetvets.org](http://www.primatetvets.org)>. Additional information concerning the Workshop can be found on that same Website.

\* \* \*

## Announcement of the IPS Council Election Results

Richard Wrangham, the President and Chair of the Nominations Committee of the International Primatological Society, has announced the incoming Council of the Society. The new Council members will take office at the IPS General Assembly in Edinburgh and will meet for the first time on August 9, 2008, immediately after the Congress. As a result of our decision to ensure that no more than 50% of the Council membership changes at each election, members of the new Council are appointed for a variable number of years. The new Council, together with their appointment years, are as follows:

- President (2008-2012): Juichi Yamagiwa
- Secretary General (2008-2010): Nancy Caine
- Treasurer/Vice President (VP) for Membership (2008-2010): Steven Schapiro
- VP for Education (2008-2012): Elizabeth Lonsdorf
- VP for Conservation (2008-2010): Janette Wallis
- VP for Research (2008-2010): Peter Kappeler
- VP for Captive Care (2008-2012): Debby Cox
- VP for Communications (2008-2012): Katie Leighty

## Information Requested or Available

### Blogs “From the Conservation Frontlines”

Paula Kahumbu, Conservation Director of WildlifeDirect, wrote to the Primate-Science mailing list: “I’d like to inform all members about the work of WildlifeDirect, Inc., which manages a Website of blogs from the conservation frontlines, mainly from Africa. These blogs are written by rangers, scientists, managers, students, and community scouts. Many are about primate conservation. <wildlifedirect.org> is perhaps the fastest way to find out what is happening in the Congo with regard to mountain gorillas.

“WildlifeDirect blogs create global online communities that care about conservation and support individual projects. This approach has given field people a voice and concerned citizens everywhere an opportunity to participate in conservation. The funds raised are significantly contributing to empowerment of people on the ground.

“I invite anyone who would like more information to contact me [e-mail: [paula@wildlifedirect.org](mailto:paula@wildlifedirect.org)].”

### More Interesting Websites

- Asociación de Rescate y Conservación de Vida Silvestre (ARCAS): <[www.arcasguatemala.com](http://www.arcasguatemala.com)>
- All issues of *IPPL News* since the first one, published in 1974: <[www.ippl.org/newsletter-archive.php](http://www.ippl.org/newsletter-archive.php)>
- IUCN/SSC Primate Specialist Group’s Publications: <[www.primate-sg.org/publications.htm](http://www.primate-sg.org/publications.htm)>
- “JRDavis (unofficial) Gorilla Studbook”: <[www.gorilla-haven.org/jrdavis-gorilla-studbook](http://www.gorilla-haven.org/jrdavis-gorilla-studbook)>
- Latest news at Gorilla Haven: <[www.gorilla-haven.org](http://www.gorilla-haven.org)>
- Lemur training videos: <[www.kattas.de/lemurs.de.training-clips.htm](http://www.kattas.de/lemurs.de.training-clips.htm)>
- Regional Action Plan for the Conservation of the Cross River Gorilla: <[www.primate-sg.org/PDF/CRG.Action.Plan.pdf](http://www.primate-sg.org/PDF/CRG.Action.Plan.pdf)>
- Zoo and Aquarium Links: <[www.zandavisitor.com/page-713](http://www.zandavisitor.com/page-713)>

\* \* \*

## The Animal Language Institute Website

*Dr. C. N. Slobodchikoff, Professor of Biology at Northern Arizona University, sent the following announcement to the animal behavior e-mail list, absnet:*

“The Animal Language Institute Website, <[www.animallanguageinstitute.org](http://www.animallanguageinstitute.org)>, is designed to promote interest in animal communication research, especially where it touches upon the cognitive capabilities of animals. With the Internet extending past barriers of geography, politics, and economics, it is an ideal way to bring together researchers, students, and curious lay-people from around the world to share ideas and information that will deepen our understanding about the communication systems of other species.

“The Animal Language Institute Website hopes to be the most extensive and easily accessible repository of information about research into the communication and cognitive abilities of various species of animals. Towards this end, we are amassing a core collection of outstanding scientific papers that will be available to any registered visitor.

“By inviting seriously dedicated individuals to participate in the Institute, we aim to provide a forum for dialogue and lively debate about such things as comparisons between species, possible development of integrated theo-

ries, and sharing of techniques. As the interactive capabilities of the Internet expand, so too will the opportunities offered through this Website.

“The Institute Website currently has five major sections: 1) A database of papers published on animal communication; 2) A listing of people who are doing important work in the field; 3) Equipment and software reviews; 4) Interactive tutorials; and 5) a forum for discussions. In the future, we will be adding an online journal where original research contributions and theory papers can be published.

“We will maintain open access to the Web pages of the Animal Language Institute through June, so that anyone can access any page without registering. After that, we will ask people to register in order to access some parts of the Website. Registration is free, and can be done at any time. We are asking people to register so that we can keep track of how many people are using the resources of the site. Our privacy policy shows that we will keep all registration information confidential, and we will not knowingly divulge any information to anyone.

“We invite you to stop by. Our mission statement is expressed in detail on our home page, and all links to other sections are currently open. We invite your feedback, your ideas, and submittal of any of your writings that you may wish to contribute. It is important that the ideas of thinkers in this field see the light of day beyond the traditional journal review process.”

---

Dr. C. N. Slobodchikoff, Dept of Biological Sciences, Northern Arizona Univ., Flagstaff, AZ 86011 [928-523-7231; fax: 928-523-7500; e-mail: [Con.Slobodchikoff@nau.edu](mailto:Con.Slobodchikoff@nau.edu)].

## News Briefs

### Vaccine for Ebola Virus

One of the world's deadliest diseases, caused by the Ebola virus, may finally be preventable thanks to U.S. and Canadian researchers, who have successfully tested several Ebola vaccines in primates and are now looking to adapt them for human use. Dr. Anthony Sanchez, of the Centers for Disease Control and Prevention in Atlanta, Georgia, presented an overview of Ebola vaccine development at the Society for General Microbiology's 162nd meeting on April 2.

So far, there have been over 1500 cases of Ebola hemorrhagic fever in humans. Illness starts abruptly and symptoms include fever, headache, sore throat, weakness, joint and muscle aches, diarrhea, vomiting and stomach pain. A rash, red eyes and bleeding may also occur. Ebola hemorrhagic fever can have a mortality rate of around 90% in humans.

Because Ebola virus is so dangerous, producing and testing a vaccine is extremely challenging for scientists. One significant factor slowing down progress has been that there are only a very limited number of high containment facilities with staff capable and authorized to conduct the research.

"Ebola vaccine trials using nonhuman primates have provided unambiguous results and have allowed the development of protective vaccines to progress rapidly," says Dr. Sanchez. "Successful human trials will mean that we can vaccinate healthcare workers and other key personnel during outbreaks of Ebola hemorrhagic fever, helping us to protect their lives and control the spread of the disease". – *March 30 press release from the Society for General Microbiology*

### New Chimp Enclosure at Edinburgh Zoo

The Budongo Trail, which is believed to be the world's largest chimpanzee enclosure, is due to open in May at Edinburgh Zoo in Scotland. The five-million-pound exhibit, which will replace the existing chimpanzee enclosure, will house up to 40 chimpanzees. It will feature an extensive outdoor climbing area and three indoor rooms of varying humidity, temperature, and lighting so that the chimpanzees can choose their preferred living conditions. Additionally, there will be interactive exhibits for visitors to learn more about the primates and their native habitats. The building also includes a 180-seat auditorium and a cognitive research laboratory.

Groups wishing to get close to the inhabitants will be able to view the chimpanzees from panoramic windows and a viewing balcony which is level with the top of the climbing area.

### Fire hoses may help save Borneo orangutans

Two animal keepers at zoos in Tokyo and Chiba Prefecture hope to help extinguish the threat facing orangutans in Malaysia with a novel item – old fire hoses. Hidetoshi Kurotori, of Tama Zoological Park in Hino, western Tokyo, and Shigekazu Mizushina, at Ichikawa Zoological and Botanical Garden in Ichikawa, Chiba Prefecture, will place lengths of used fire hoses among trees and across rivers to help orangutan bands that have become isolated in deforested areas to migrate to other forests.

The project will start around the Kinabatangan River, which runs through northeast Borneo Island. Forest development is expanding in the area to produce palm oil, resulting in a rapid decrease of orangutan food sources, including fruits, tree bark and leaves. The decrease in trees also limits the orangutans' activities, leaving some bands isolated in the forests as the ape, which does not like water, cannot swim across rivers to move to other areas.

Researchers are concerned that the great ape might become weaker as a species if such bands remain isolated and unable to interact with each other. The idea of using fire hoses to save orangutans came first to Isabelle Lackman-Ancrenaz, a French researcher who had been based on the island to study and protect the species.

In October, when she came to Japan to give lectures on orangutans, she observed orangutans at the Tokyo zoo moving around in their captive space by hanging from fire hoses that were provided for them. She thought the hoses also could be introduced on Borneo, as a bridge to cross rivers and assist mobility in the forests.

In February, Lackman-Ancrenaz and local researchers placed two fire hoses over the Kinabatangan River. However, the cautious orangutans did not use it, so she asked Kurotori and Mizushina for advice. The two zookeepers are planning to place used fire hoses on trees in Borneo's forests, allowing orangutans to gradually get used to the hoses by having the animals play freely with them. The pair also plans to stretch hoses over the 10-meter-wide river to act as a bridge between trees on both banks.

For the project, they have sent 38 10-meter lengths of fire hose to the island. The hoses, which had been used at a fire station in Osaka, were donated by a Japan-based nonprofit organization. If the project proves successful, a local support group in Malaysia will increase the locations where hoses are placed.

According to Kurotori, it is not unusual for animals in zoos to play with hoses and other artificial items, but he "had never imagined it could be used in the wild." He added, "I'd be so happy if Japanese zoos' know-how can help to save orangutans."



According to the International Union for Conservation of Nature and Natural Resources' Red List, the wild orangutan population is thought to have decreased to less than half the numbers of 60 years ago. The number of the orangutans living on Borneo Island is estimated to range from 45,000 to 69,000. – The Yomiuri Shimbun, *April 10, 2008*

#### **New Executive Director of AAALAC International**

AAALAC International, the Association for Assessment and Accreditation of Laboratory Animal Care, has appointed Christian E. Newcomer, VMD, Dipl. ACLAM, as its new Executive Director. Dr. Newcomer, who is currently the Associate Provost for Animal Research Resources and Associate Professor in the Department of Comparative Medicine at Johns Hopkins University, will serve as AAALAC's chief executive officer and chief spokesperson. He succeeds Dr. John G. Miller who is retiring after having served as AAALAC's Executive Director since 1996. AAALAC International is a private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation and evaluation programs. More than 750 institutions have received accreditation through AAALAC. For more information, see <[www.aaalac.org](http://www.aaalac.org)>.

#### **Frans de Waal Named to AAAS**

Frans de Waal, director of the Living Links Center at the Yerkes National Primate Research Center at Emory University, has been named a 2008 fellow of the American Academy of Arts and Sciences (AAAS), one of the nation's oldest and most prestigious honorary societies. A member of the National Academy of Sciences since 2004, and the Royal Dutch Academy of Sciences since 1993, de Waal is a world-renowned primatologist and best-selling author. He is widely recognized for his behavioral and evolutionary work with great apes as well as for nine books, two of which the New York Times named "Notable Books of the Year". In 2007 de Waal was featured in *Time Magazine's* "Top 100: The People Who

Shape Our World" special issue. – *from an Emory University press release, April 29*

#### **Orangutan Escapes Enclosure at L.A. Zoo**

Visitors to the Los Angeles Zoo had to evacuate Saturday after an animal escaped its enclosure. Officials at the zoo said an orangutan named Bruno got out of its cage in the afternoon, but did not leave the area around its enclosure. Bruno is 29 years old, 300 pounds, and is one of six orangutans at the zoo. The animal has since been recaptured, and no one was hurt. "Fortunately all of our great apes have been trained to allow medical procedures, so the keeper actually put him through his behaviors, and he allowed her to hand inject him with anesthetic and went right to sleep. They carried him to his bedroom, and it was all over in about 20 minutes," said John Lewis, L.A. Zoo Director.

Zoo officials said visitors were never in any danger. – *May 17, 2008 © KABC-TV/DT*

#### **Rescued Macaques Find a Better Life**

"Born Free USA Primate Sanctuary, Sacramento, California, recently welcomed a large group of longtail macaques (*Macaca fascicularis*) into their care. The 31 monkeys, many of them elderly, have been retired after spending up to 13 years in laboratory research. After a period of acclimation and rehabilitation, our aim is to release them into a large, free-range enclosure of many acres, covered with trees and other thick vegetation and containing water pools.

"Thankfully, laboratory staff made the right decision to find a sanctuary for these animals, where they can live out the rest of their days without fear of further human interference. And there is even more good news! The research laboratory has ended its use of primates – so these monkeys will not be replaced by others." – *From an announcement by Born Free USA, May 21, 2008*

\* \* \*

### **White-Handed Gibbons Extinct in China**

China's fauna exhibits a unique diversity of apes. Unfortunately, the apes are more strongly endangered by extinction in China than in any other country. A research team assembled by anthropologists of Zürich University now conclude that another ape species has just become extinct in China's Yunnan province.

A scientific team, consisting of members of the *Gibbon Conservation Alliance* based at Zürich University and the Kunming Institute of Zoology, as well as staff members of the Nangunhe National Nature Reserve, carried out a survey in all Chinese forests reported to support white-handed gibbons (*Hylobates lar*) during the last 20

years. The species was last observed in 1988 in the Nangunhe Nature Reserve in southwestern Yunnan province, and their loud, melodious calls were last heard in 1992.

After two weeks of field work, the 14 member Swiss-Chinese team realized this: as a result of continued forest destruction, fragmentation, and deterioration, as well as hunting, this gibbon species is no longer part of the Chinese fauna.

"This loss is particularly tragic", says anthropologist Thomas Geissmann, "because the extinct Chinese population was described as a distinct subspecies, the so-called Yunnan white-handed gibbon." This subspecies (*Hylo-*

*bates lar yunnanensis*) is not known from any other place. Geissmann now hopes that the subspecies may have survived in neighboring Myanmar, but so far, he has no evidence for this.

“The extinction of the Chinese white-handed gibbons is an urgent alarm signal, because several other ape species in China are also endangered by extinction,” says Geissmann. For instance, the white-cheeked crested gibbon (*Nomascus leucogenys*) has not been sighted in China since the 1980s. Of the Cao-Vit crested gibbon (*N. nasutus*) in the provinces Guangxi (China) and Cao Bang (Vietnam) there are less than 50 individuals, and of the

Hainan crested gibbon (*N. hainanus*) on the south Chinese island of Hainan less than 20 individuals, to mention just the two most endangered species. Therefore, the scientists warn that the loss of the Yunnan white-handed gibbons may only be the beginning of an unprecedented wave of extinctions which threatens to terminate most, if not all, Chinese ape species.

“We hope that our research results will alarm the Chinese government, as well as international conservation agencies, and encourage them to initiate immediate efforts to save China’s last surviving apes,” says Geissmann. – *Press Release from Zürich University, May 15*

\* \* \*

## Announcements from Publications

### Gorilla Gazette

“The Electronic *Gorilla Gazette* (*GG*) is available free of charge, and can be printed out yourself. One free printed copy is sent to gorilla holding facilities, including zoos and sanctuaries, as well as research centers currently studying gorillas. Authors in an issue will also receive one free printed copy.

“Skyrocketing printing and mailing fees, compounded with a downturn in the U.S. economy, have affected everyone, including the Dewar Wildlife Trust, Inc., which has paid for the *GG* in its entirety since 2002. Work on the layout and production of the *GG* is done free of charge, but actual printing and mailing costs have run between 10 and 12 thousand dollars, which is unsustainable at this time. Although we ask for donations, in the past we have collected less than 100 dollars a year, which isn’t enough to offset expenses.

“Therefore a subscription fee will be assessed for additional printed copies for all zoos (curators, libraries, directors), organizations, or individuals.

- Domestic *GG* subscription: \$20 for the first additional copy; \$10 each subsequent extra.
- International *GG* subscription: \$25 for the first additional copy; \$10 each subsequent extra.

“To request printed copies, contact Jane Dewar (P.O. Box 210, Morganton, GA 30560 [e-mail: [jdewar@gorilla-haven.org](mailto:jdewar@gorilla-haven.org)]) as soon as possible. Checks or money orders can be mailed to Gorilla Haven or you can use PayPal (credit cards) by going to [www.gorilla-haven.org](http://www.gorilla-haven.org) and clicking on “donations” and following the directions. Please mark your payments for the *GG*!

“Hardship cases will be considered, since the goal remains to keep the *GG* available to everyone working with gorillas. Just contact us and explain why you need additional copies but cannot afford the subscription fee or access the E-version, and we’ll work something out.” – *Jane Dewar*

### Implementation of NIH Public Access Policy

This is a reminder that as of April 7, 2008, all articles arising from NIH funding must be submitted to PubMed Central upon acceptance for publication as part of the new NIH Public Access Policy. This policy is mandatory only for articles ACCEPTED on or after April 7, 2008, by peer-reviewed journals, but older papers may be submitted voluntarily. The policy also calls for the submission of the FINAL MANUSCRIPT, not a copy of the published paper.

The NIH Public Access Policy implements Division G, Title II, Section 218 of PL 110-161 (Consolidated Appropriations Act, 2008) which states:

SEC. 218. The Director of the National Institutes of Health shall require that all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine’s PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, That the NIH shall implement the public access policy in a manner consistent with copyright law.

For more information about this policy, or instructions for submitting papers, see [publicaccess.nih.gov](http://publicaccess.nih.gov). – *Posted to Primate-Science by Ray Hamel, Director, Jacobsen Library, Wisconsin Primate Center*

### IPPL News Archives Available

All issues of *IPPL News* since the very first one, published in 1974, are now on-line at [www.ippl.org/newsletter-archive.php](http://www.ippl.org/newsletter-archive.php). We also have a search function. We hope that other groups will have their publications on-line before too long and that everyone will find our archives useful in their primate protection work. – *Shirley McGreal*

## Meeting Announcements

The **2008 American Veterinary Medical Association National Meeting** will be held in New Orleans, Louisiana, July 19-22. For information, see <[avmaconvention.org](http://avmaconvention.org)>. The 2009 National Meeting will be held in Seattle, Washington, July 11-15, 2009.

**Measuring Behavior 2008**, the 6th International Conference on Methods and Techniques in Behavioral Research, will be held August 26-29, 2008, in Wageningen, the Netherlands, sponsored by Noldus. For information, see <[www.noldus.com/mb2008](http://www.noldus.com/mb2008)>, or write to <[mb2008@noldus.nl](mailto:mb2008@noldus.nl)>.

**The Genetic Basis of Work-Related Disease: Science and Public Policy** will be held September 2-4, 2008, at the Jackson Laboratory, Bar Harbor, Maine. "This meeting will bring together scientists, policymakers, ethicists and occupational health professionals to discuss the genetics of occupational disease, how genetic information might be used to predict work-related disease risk and what legal and ethical issues surround the use of genetic information in the workplace. Morning sessions will focus on the science behind genetics of asthma and assessing risk in workplace environments, highlighting some of the more common exposure hazards. Afternoon sessions will consider ethics and policy from government, industry and public health perspectives." For more information, contact Erin McDevitt [2007-288-6659; e-mail: [erin.mcdevitt@jax.org](mailto:erin.mcdevitt@jax.org)].

The **45th Annual Meeting of the Gesellschaft für Versuchstierkunde** – Society of Laboratory Animal Science (GV-SOLAS) – will be held in Dresden, Germany, September 14-17, 2008. This year there will be both English and German sessions held in parallel. The meeting provides a platform for interaction and exchange between scientists from all disciplines. Moreover, it includes workshops and facilitates contacts between young and established researchers as well as experienced laboratory animal experts. The meeting is recognized as a major instrument to draw scientific and public attention to the importance of animal based biomedical research.

The simultaneously held Advanced Training Course of the Interessengemeinschaft der Tierpfleger/innen und des technischen Personal (IgTp; Community of Interest of Animal Caretakers and Technicians) – provides the opportunity for animal caretakers and technicians to get information about recent results and developments as well as to communicate within workshops and to gain practical skills.

This year, the Max Planck Institute of Molecular Cell Biology and Genetics and the Experimental Center of the Medical Faculty Carl Gustav Carus of the Technische Universität Dresden are organizing the Congress. The Council of the GV-SOLAS, as well as the organizers, wish to encourage all scientists involved in animal experimentation to attend the meeting and to present recent results of their research. The schedule of the scientific program will allow for intense discussions. At the same time everyone is very welcome to actively participate in the Advanced Training Course of the IgTp, which offers plenty of communication possibilities.

The Genetics Policy Institute will present the **2008 World Stem Cell Summit** in Madison, Wisconsin, on September 22-23. "The World Stem Cell Summit is a gathering of the global stem cell community, with the shared mission to advance stem cell research from the laboratory to lifesaving treatments. It brings together researchers, industry leaders, policy-makers, regulators, patient advocates, legal experts, investors, and philanthropists to illuminate the critical issues and together chart the future of regenerative medicine." See <[www.worldstemcellsummit.com/story\\_wscs.html](http://www.worldstemcellsummit.com/story_wscs.html)> for more information.

The **11th Meeting of the German Society of Primatology (GfP)** will be held February 24-26, 2009, in Hannover, organized by the Institute of Zoology, University of Veterinary Medicine, Hannover. Further information can be viewed on <[www.gfp2009.de](http://www.gfp2009.de)>. If you would like a poster announcing the meeting as an e-mail attachment, please contact Marina Scheumann, University of Veterinary Medicine, Hannover, Institute of Zoology, Bünteweg 17, 30559 Hannover, Germany [00495119538743, fax: 00495119538586; e-mail: [marina.scheumann@tiho-hannover.de](mailto:marina.scheumann@tiho-hannover.de)].

\* \* \*

## Resources Wanted and Available

### Free Online Resource for Scientific Events

The journal *Nature* has made a free digital edition of the *Natureevents Directory 2008* available at <publishing.yudu.com/A65j7/natureeventsdir08>. This publication has nine pages of listings of meetings, symposia, workshops, etc. – about 500 separate events.

To advertise events, e-mail <natureevents@nature.com>.

### Saving the Mono Titi: A Documentary

Kevin Peterson, CEO of the Eco Preservation Society, has written that his Society is working with the Phoenix Zoo, the Association for the Preservation of the Mono Titi (ASCOMOTI), Tree Bank, Inc., Kids Saving the Rainforest, and the Rainmaker Conservation Project in a massive reforestation project that will create a new habitat for the mono titi (*Saimiri oerstedii*). This species, highly endangered, is endemic to the Central Pacific coast of Costa Rica. Only 1700 animals remain and their habitat is highly restricted.

The Eco Preservation Society is producing a documentary on the subject, and ASCOMOTI has planted 25,000 trees. These organizations are hoping that the documentary will drive funding for this ambitious undertaking. They are asking for help in spreading the word: see <ecopreservationsociety.wordpress.com/2008/04/05/mono-titi-the-endangered-squirrel-monkeys-of-Manuel-Antonio> to see a trailer for this documentary.

### New FAQs Added to OLAW Web Page

The NIH Office of Laboratory Animal Welfare (OLAW) has added new Frequently Asked Questions

(FAQs) to their Web page at <grants.nih.gov/grants/olaw/faqs.htm>. OLAW developed the new FAQs in response to requests for guidance on these topics. Topics include minority reporting, the Freedom of Information Act, adoption of research animals as pets, safety during shipping, and preparing for a pandemic. Institutions are encouraged to review OLAW's FAQs and make use of this resource.

OLAW accepts questions, suggestions, and comments relating to the FAQs and other information posted on OLAW Web pages. For questions or further information, contact: OLAW, Office of Extramural Research, National Institutes of Health, RKL1, Suite 360, 6705 Rockledge Dr., Bethesda, MD 20892-7982 [301-496-7163; fax: 301-402-2803; e-mail: [OLAW@od.nih.gov](mailto:OLAW@od.nih.gov)], or see <grants.nih.gov/grants/olaw/olaw.html>.

### Listing of International Ethics Resources Available

The NIH Program on Clinical Research Policy Analysis and Coordination (NIH CRpac Program) maintains a compendium of ethics resources that are available over the Internet. These may be found on the NIH site titled, "Bioethics Resources on the Web" <bioethics.od.nih.gov>. Recently, the NIH CRpac Program augmented the site through the addition of a compilation of international guidelines, codes, regulations, policies and declarations <bioethics.od.nih.gov/internationalresthics.html>. These materials will be of interest to researchers, Institutional Review Board members, administrators, and others involved in international research activities. For more information contact Allan C. Shipp, NIH Program on Clinical Research Policy Analysis and Coordination [301-435-2152; e-mail: [shippa@od.nih.gov](mailto:shippa@od.nih.gov)].

\* \* \*

## Call for Award Nominations: NCAB/AALAS Technician Award

The Scientists Center for Animal Welfare (SCAW) is offering a 2008 NCAB/AALAS Technician Award to help defray the cost of attending the annual National Capital Area Branch/American Association for Laboratory Animal Science (NCAB/AALAS) meeting. This event is September 17-18, 2008, at Turf Valley, Maryland. SCAW will provide one two-day conference registration, one night's hotel reservation, and one banquet ticket. To apply for the award you must be currently working as an animal care technician.

Submit the following in Microsoft Word or plain text format by e-mail or regular mail no later than noon, August 1, 2008: • Current resume or CV • Complete name,

address, telephone and email • One paragraph to explain "Why the animal care technician is an important part of the research team". The paragraph should not exceed 200 words and should be double spaced. Submit information to: SCAW, Attn: Lee Krulisch, Executive Director, 7833 Walker Dr., Suite 410, Greenbelt MD 20770 [301-345-3500; e-mail: [lee@scaw.com](mailto:lee@scaw.com)].

A panel of experts will review all entries and the Award will be announced on the SCAW Web site [[www.scaw.com](http://www.scaw.com)] on August 8, 2008. The recipient of the award will receive notification and there will be an announcement in the SCAW Newsletter.

\* \* \*

## Recent Books and Articles

(Addresses are those of first authors unless otherwise indicated)

### Books

- *Taking Better Care of Monkeys and Apes: Refinement of Housing and Handling Practices for Caged Nonhuman Primates*. V. Reinhardt. Washington, DC: Animal Welfare Institute, 2008, <[www.awionline.org/pubs/PRIMATES/prim-refine.html](http://www.awionline.org/pubs/PRIMATES/prim-refine.html)>; or write to <[viktor@snowcrest.net](mailto:viktor@snowcrest.net)> for a free hard copy.
- *The Human Use of Animals: Case Studies in Ethical Choice* (2nd ed.). T. L. Beauchamp, F. B. Orland, R. Dresser, D. B. Morton, & J. P. Gluck. New York: Oxford University Press, 2008. [Paperback, Price: \$35]
- *Nim Chimpsky: The Chimp Who Would Be Human*. E. Hess. New York: Bantam Books, 2008. [Price: \$23; eBook: \$17.95]
- *Primeval Kinship: How Pair Bonding Gave Birth to Human Society*. B. Chapais. Cambridge, MA: Harvard University Press, 2008. [Price: \$39.95]

### Magazines and Newsletters

- *Committee News*, Spring, 2008. American Bar Association Animal Law Committee, <[www.abanet.org/tips/animal/animalspring08.pdf](http://www.abanet.org/tips/animal/animalspring08.pdf)>.
- *Folia Primatologica*, 2008, 79[4], <[www.karger.com/fpr](http://www.karger.com/fpr)>. Contents: Obituary: Steven Karger; Spatial memory during foraging in prosimian primates: *Propithecus edwardsi* and *Eulemur fulvus rufus*, by E. M. Erhart & D. J. Overdorff; Tracking dietary transitions in weanling baboons (*Papio hamadryas anubis*) using strontium/calcium ratios in enamel, by L. T. Humphrey, W. Dirks, M. C. Dean, & T. E. Jeffries; and Taxonomic attribution of the Olduvai hominid 7 manual remains and the functional interpretation of hand morphology in robust australopithecines, by S. Moyà-Solà, M. Köhler, D. M. Alba, & S. Almécija.
- *Gorilla eNews*, May, 2008, <[www.gorillafund.org](http://www.gorillafund.org)>. Dian Fossey Gorilla Fund International (800 Cherokee Ave, S.E., Atlanta, GA 30315-1440 [e-mail: [2help@gorillafund.org](mailto:2help@gorillafund.org)]).
- *The Gorilla Gazette*, May, 2008. (Contact <[jdewar@gorilla-haven.org](mailto:jdewar@gorilla-haven.org)> for subscription access).
- *Great Ape Trust Newsletter*, April 2008, issue 41, <[www.greatapetrust.org/maillinglist](http://www.greatapetrust.org/maillinglist)>.
- *International Journal of Primatology*, 2008, 29[1].

Contents: Editorial Note, by R. Tuttle; The International Primatological Society as a coalition: Primatolo-

---

We would like to acknowledge Primate-Science as a source for information about new books.

gists and the future of primates, by R. Wrangham; Thomas T. Struhsaker: Recipient of the Lifetime Achievement Award of the International Primatological Society 2006, by H. Box, T. M. Butynski, C. A. Chapman, J. S. Lwanga, J. F. Oates, W. Olupot, R. Rudran, & P. M. Wasser; Primate populations and their interactions with changing habitats, by G. M. Isabirye-Basuta & J. S. Lwanga; History and present scope of field studies on *Macaca fuscata yakui* at Yakushima Island, Japan, by J. Yamagiwa; Sexual differences in chimpanzee sociality, by J. Lehmann & C. Boesch; Tool use by chimpanzees at Ngogo, Kibale National Park, Uganda, by D. P. Watts; Feeding ecology of *Propithecus diadema* in forest fragments and continuous forest, by M. T. Irwin; Habitat utilization of three sympatric cheirogaleid lemur species in a littoral rain forest of southeastern Madagascar, by P. Lahann; Evidence of invasive *Felis silvestris* predation on *Propithecus verreauxi* at Beza Mahafaly Special Reserve, Madagascar, by D. K. Brockman, L. R. Godfrey, L. J. Dollar, & J. Ratsirarson; Ranging behavior and possible correlates of pair-living in southeastern avahis (Madagascar), by I. Norscia & S. M. Borgognini-Tarli; Feeding ecology of *Trachypithecus pileatus* in India, by G. S. Solanki, A. Kumar, & B. K. Sharma; Nutritional and health status of woolly monkeys, by K. Ange-van Heugten, S. Timmer, W. L. Jansen, & M. W. A. Versteegen; Seasonal effects on play behavior in immature *Saimiri sciureus* in eastern Amazonia, by Anita I. Stone; Acoustical aspects of the propagation of long calls of wild *Leontopithecus rosalia*, by V. Sabatini & C. R. Ruiz-Miranda; Evaluating dominance styles in Assamese and rhesus macaques, by M. A. Cooper & I. S. Bernstein; Examination of the taxonomy and diversification of *Leontopithecus* using the mitochondrial control region, by B. M. Perez-Sweeney, C. Valladares-Padua, C. Saddy Martins, J. C. Morales, & D. J. Melnick; Identification of 13 human microsatellite markers via cross-species amplification of fecal samples from *Rhinopithecus bieti*, by Z. J. Liu, B. P. Ren, Y. L. Hao, H. R. Zhang, F. W. Wei, & M. Li; and Proceedings of the XXI Congress of the International Primatological Society, Entebbe, Uganda, June 25–30, 2006, by E. Visalberghi, K. A. Leighty, & S. J. Schapiro.

- *International Journal of Primatology*, 2008, 29[2].

Contents: Rosalià Abreu and the apes of Havana, by C. D. L. Wynne; Life in unpredictable environments: First investigation of the natural history of *Microcebus griseorufus*, by F. Génin; Reproductive schedules of female *Microcebus rufus* at Ranomafana National Park, Madagascar, by M. B. Blanco; Chemical properties of the diets of two lemur species in southwestern Madagascar, by N. Yamashita; Potential effects of ateline extinction and forest fragmentation on plant diversity and composi-

tion in the western Orinoco Basin, Colombia, by P. R. Stevenson & A. M. Aldana; Diet and feeding ecology of *Ateles chamek* in a Bolivian semihumid forest: The importance of *Ficus* as a staple food resource, by A. M. Felton, A. Felton, J. T. Wood, & D. B. Lindenmayer; Intersexual conflict and group size in *Alouatta palliata*: A 23-year evaluation, by S. J. Ryan, P. T. Starks, K. Milton, & W. M. Getz; Behavior, ecology, and demography of *Aotus vociferans* in Yasuni National Park, Ecuador, by E. Fernandez-Duque, A. Di Fiore, & G. Carrillo-Bilbao; Sociality in *Callithrix penicillata*: I. Intragroup male profile, by D. P. Decanini & R. H. Macedo; Ecology of *Callithrix kuhlii* and a review of eastern Brazilian marmosets, by B. E. Raboy, G. R. Canale, & J. M. Dietz; The repertoire and social function of facial displays in *Cebus capucinus*, by A. De Marco, O. Petit, & E. Visalberghi; Relatedness and social behaviors in *Cercopithecus solatus*, by M. J. E. Charpentier, D. Deubel, & P. Peignot; Demographic modeling of a predator-prey system and its implication for the Gombe population of *Procolobus rufomitratus tephrosceles*, by M. Fourrier, R. W. Sussman, R. Kippen, & G. Childs; Himalayan *Semnopithecus entellus* at Langtang National Park, Nepal: Diet, activity patterns, and resources, by K. Sayers & M. A. Norconk; Pelage Color variation of *Macaca arctoides* and its evolutionary implications, by D. B. Koyabu, S. Malaivijitnond, & Y. Hamada; Fishing in *Macaca fascicularis*: A rarely observed innovative behavior, by A.-M. E. Stewart, C. H. Gordon, S. A. Wich, P. Schroor, & E. Meijaard; and Using dung to estimate gorilla density: Modeling dung production rate, by A. F. Todd, H. S. Kuehl, C. Cipolletta, & P. D. Walsh.

- *IPPL News*, May, 2008, 35[1]. (International Primate Protection League, P.O. Box 766, Summerville, SC 29484 [e-mail: [info@ippl.org](mailto:info@ippl.org)]).

Contents include: Primate Trade in Peru; Colombia's owl monkey crisis; Gibbon overpasses in Assam, India; Planned Gibraltar monkey cull; Uganda's illegal monkey exports; Camp Uganda project; Argentina's black howler refuge; Abkhazia horror lab; Monkeys to Mars? IPPL launches new Website; and Summaries of talks at IPPL-2008 Members' Meeting (Taiping Four gorillas, Reports from Nepal and Indonesia, Malaysia's primate trade, etc.). Selected articles are available at [www.ippl.org/news.php](http://www.ippl.org/news.php).

- *Journal of Medical Primatology*, 2008, 37[3], [www.blackwell-synergy.com/toc/jmp/37/3](http://www.blackwell-synergy.com/toc/jmp/37/3).

Contents: Substance P receptor antagonist reverses intestinal pathophysiological alterations occurring in a novel ex-vivo model of *Cryptosporidium parvum* infection of intestinal tissues derived from SIV-infected macaques, by A. Garza, A. Lackner, P. Aye, M. D'Souza, P. Martin, J. Borda, D. J. Tweardy, J. Weinstock, J. Griffiths, & P. Robinson; The efficacy of orally dosed ketamine and ketamine/medetomidine compared with intra-

muscular ketamine in rhesus macaques (*Macaca mulatta*) and the effects of dosing route on haematological stress markers, by A. N. Winterborn, W. A. Bates, C. Feng, & J. D. Wyatt; The fate of paternal mitochondria in marmoset pre-implantation embryos, by C. M. Luetjens & R. Weselmann; Thoracic radiography of pet macaques in Sulawesi, Indonesia, by M. A. Schillaci, L. Jones-Engel, J. E. Heidrich, R. Benamore, A. Pereira, & N. Paul; Osteopenia and osteoporosis in adult baboons (*Papio hamadryas*), by L. M. Havill, S. M. Levine, D. E. Newman, & M. C. Mahaney; Barbiturate euthanasia solution-induced tissue artifact in nonhuman primates, by J. L. Grieves, E. J. Dick, N. E. Schlabritz-Loutsevich, S. D. Butler, M. M. Leland, S. E. Price, C. R. Schmidt, P. W. Nathanielsz, & G. B. Hubbard; and Spontaneous diabetes mellitus in captive *Mandrillus sphinx* monkeys: A case report, by N. Pirarat, S. Kesdangakolwut, S. Chotiapisitkul, & S. Asarasakorn.

- *NCA Newsletter*, May 2008, issue 24, [www.vet.uu.nl/nca/newsletters/current\\_issue](http://www.vet.uu.nl/nca/newsletters/current_issue). Netherlands Centre Alternatives to Animal Use.

- *NCR Reporter*, Winter/Spring 2008, 30[4], [www.ncrr.nih.gov/newspub/winter-spring2008](http://www.ncrr.nih.gov/newspub/winter-spring2008).

Includes an article on generating embryonic stem cells from skin tissue in rhesus macaques.

- *NIH Extramural Nexus*, March, 2008, [nexus.od.nih.gov/nexus/nexus.aspx?Month=3&Year=2008](http://nexus.od.nih.gov/nexus/nexus.aspx?Month=3&Year=2008).

- *Pain & Distress Report*, 2007, 7[5]. The Humane Society of the United States: [www.hsus.org/animals\\_in\\_research/pain\\_distress](http://www.hsus.org/animals_in_research/pain_distress); to receive copies by e-mail, write to [ari@hsus.org](mailto:ari@hsus.org).

- *Primates*, 2008, 49[1], [www.springerlink.com/content/r879658313v9](http://www.springerlink.com/content/r879658313v9).

Contents: Fruit diet of *Alouatta guariba* and *Brachyteles arachnoides* in Southeastern Brazil: Comparison of fruit type, color, and seed size, by M. M. Martins; Body mass of wild ring-tailed lemurs in Berenty Reserve, Madagascar, with reference to tick infestation: A preliminary analysis, by N. Koyama, M. Aimi, Y. Kawamoto, H. Hirai, Y. Go, S. Ichino, & Y. Takahata; Textural characteristics of the iliac-femoral trabecular pattern in a bipedally trained Japanese macaque, by V. Volpato, T. B. Viola, M. Nakatsukasa, L. Bondioli, & R. Macchiarelli; How many for dinner? Recruitment and monitoring by glances in capuchins, by H. Meunier, J.-L. Deneubourg, & O. Petit; Genetics of the Shimokita macaque population suggest an ancient bottleneck, by Y. Kawamoto, K.-i. Tomari, S. Kawai, & S. Kawamoto; Influence of chimpanzee predation on the red colobus population at Ngogo, Kibale National Park, Uganda, by S. Teelen; Density and population estimate of gibbons (*Hylobates albibarbis*) in the Sabangau catchment, Central Kalimantan, Indonesia, by S. M. Cheyne, C. J. H. Thompson, A. C. Phillips, R.

M. C. Hill, & S. H. Limin; Borna disease virus RNA detected in Japanese macaques (*Macaca fuscata*), by K. Hagiwara, Y. Tsuge, M. Asakawa, H. Kabaya, M. Okamoto, T. Miyasho, H. Taniyama, C. Ishihara, J. C. de la Torre, & K. Ikuta; Predation of wild spider monkeys at La Macarena, Colombia, by I. Matsuda & K. Izawa; STR polymorphism of mtDNA D-loop in rhesus macaques of Bangladesh, by M. M. Feeroz, K. Hasan, Y. Hamada, & Y. Kawamoto; Responses of wild chimpanzees (*Pan troglodytes schweinfurthii*) toward seismic aftershocks in the Mahale Mountains National Park, Tanzania, by M. Fujimoto & S. Hanamura; Chimpanzee deaths at Mahale caused by a flu-like disease, by S. Hanamura, M. Kiyono, M. Lukasik-Braum, T. Mlengeya, M. Fujimoto, M. Nakamura, & T. Nishida; Adult male replacement and subsequent infant care by male and siblings in socially monogamous owl monkeys (*Aotus azarai*), by E. Fernandez-Duque, C. P. Juárez, & A. Di Fiore; and Pilot survey of avahi population (woolly lemurs) in littoral forest fragments of southeast Madagascar, by I. Norscia.

- *Primates*, 2008, 49[2], <www.springerlink.com/content/p45r43257435>.

Contents: Morphological study of the anthropoid thoracic cage: Scaling of thoracic width and an analysis of rib curvature, by M. Kagaya, N. Ogihara, & M. Nakatsukasa; Using extant patterns of dental variation to identify species in the primate fossil record: A case study of middle Eocene *Omomys* from the Bridger Basin, southwestern Wyoming, by F. P. Cuzzo; Food conditions, competitive regime, and female social relationships in Japanese macaques: Within-population variation on Yakushima, by G. Hanya, M. Matsubara, S. Hayaishi, K. Zamma, S. Yoshihiro, M. M. Kanaoka, S. Sugaya, M. Kiyono, M. Nagai, Y. Tsuriya, S. Hayakawa, M. Suzuki, T. Yokota, D. Kondo, & Y. Takahata; Reproductive parameters over a 37-year period of free-ranging female Borneo orangutans at Sepilok Orangutan Rehabilitation Centre, by N. Kuze, S. Sipangkui, T. P. Malim, H. Bernard, L. N. Ambu, & S. Kohshima; The relationship between female rank and reproductive parameters of the ringtailed lemur: A preliminary analysis, by Y. Takahata, N. Koyama, S. Ichino, N. Miyamoto, M. Nakamichi, & T. Soma; Interspecies and intraspecies variations in the serotonin transporter gene intron 3 VNTR in nonhuman primates, by M. Inoue-Murayama, E. Hibino, H. Iwatsuki, E. Inoue, K.-W. Hong, T. Nishida, I. Hayasaka, S. Ito, & Y. Murayama; Observed case of maternal infanticide in a wild group of black-fronted titi monkeys (*Callicebus nigrifrons*), by C. Cäsar, E. Silva Franco, G. de Castro Nogueira Soares, & R. J. Young; A case of adoption in a wild group of black-fronted titi monkeys (*Callicebus nigrifrons*), by C. Cäsar & R. J. Young; Wild mixed groups of howler species (*Alouatta caraya* and *Alouatta clamitans*) and new evidence for their hybridization, by L. M. Aguiar, M. R. Pie, and F. C. Passos; Tolerated mouth-to-

mouth food transfers in common marmosets, by C. Kasper, B. Voelkl, & L. Huber; A more detailed seasonal division of the energy balance and the protein balance of Japanese macaques (*Macaca fuscata*) on Kinkazan Island, northern Japan, by Y. Tsuji, N. Kazahari, M. Kitahara, & S. Takatsuki; and Habitat use analysis of Dian's tarsier (*Tarsius diana*) in a mixed-species plantation in Sulawesi, Indonesia, by S. Merker & I. Yustian.

- *ProImmune News*, April 2008, <www.proimmune.com/ecommerce/pdf\_files/NewsApr08.pdf>.
- *Tropical Medicine & International Health*, 2008, 13[3], <www.blackwell-synergy.com/toc/tmi/13/3>.
- *Veterinary Anaesthesia and Analgesia*, 2008, 35[3], <www.blackwell-synergy.com/toc/vaa/35/3>.
- *Zoo and Aquarium Visitor*, eNews letter, May 5, 2008, <www.zandavisitor.com/enewsedition-4>.

### Proceedings

- Conference for Laboratory Animal Science and Technology 2008. *Experimental Animals*, 2008, 57[3, Supl.]. The 55<sup>th</sup> Annual Meeting of Japanese Association for Laboratory Animal Science and the 42<sup>nd</sup> Annual Meeting of Japanese Association for Experimental Animal Technologist.

### Special Journal Issues

- Climate Change and the Fate of the Amazon. Y. Malhi, R. Betts, & T. Roberts (Eds.). *Philosophical Transactions of the Royal Society B: Biological Sciences*, 2008, 363[1498], <journals.royalsociety.org/content/1r473163776q>.
- Proceedings of the 6th World Congress on Alternatives & Animal Use in the Life Sciences, held in Tokyo, Japan, March 31, 2008. *AATEX Journal*, 2008, 14[Spec. issue], <altweb.jhsph.edu/wc6>.

### Animal Models

- Neural correlates of social target value in macaque parietal cortex. Klein, J. T., Deaner, R. O., & Platt, M. L. (Dept of Neurobiology, Duke Univ. Med. Ctr, P.O. Box 3209, Durham, NC 27710 [e-mail: kleinjeff@duke.edu]). *Current Biology*, 2008, 18, 419-424.  
 "Animals as diverse as arthropods, fish, reptiles, birds, and mammals, including primates, depend on visually acquired information about conspecifics for survival and reproduction. For example, mate localization often relies on vision, and visual cues frequently advertise sexual receptivity or phenotypic quality. Moreover, recognizing previously encountered competitors or individuals with preestablished territories or dominance status can eliminate the need for confrontation and the associated energetic expense and risk for injury. Furthermore, primates, including humans, tend to look toward conspecifics and

objects of their attention, and male monkeys will forego juice rewards to view images of high-ranking males and female genitalia. Despite these observations, we know little about how the brain evaluates social information or uses this appraisal to guide behavior. Here, we show that neurons in the primate lateral intraparietal area (LIP), a cortical area previously linked to attention and saccade planning, signal the value of social information when this assessment influences orienting decisions. In contrast, social expectations had no impact on LIP neuron activity when monkeys were not required to make a choice. These results demonstrate for the first time that parietal cortex carries abstract, modality-independent target value signals that inform the choice of where to look.”

- A neural representation of depth from motion parallax in macaque visual cortex. Nadler, J. W., Angelaki, D. E., & DeAngelis, G. C. (G. C. D., Dept of Brain & Cog. Sci., Univ. of Rochester, Rochester, NY 14627 [e-mail: [gdeangelis@cvs.rochester.edu](mailto:gdeangelis@cvs.rochester.edu)]). *Nature*, 2008, 452, 642-645.

“Perception of depth is a fundamental challenge for the visual system, particularly for observers moving through their environment. The brain makes use of multiple visual cues to reconstruct the three-dimensional structure of a scene. One potent cue, motion parallax, frequently arises during translation of the observer because the images of objects at different distances move across the retina with different velocities. Human psychophysical studies have demonstrated that motion parallax can be a powerful depth cue, and motion parallax seems to be heavily exploited by animal species that lack highly developed binocular vision. However, little is known about the neural mechanisms that underlie this capacity. Here we show, by using a virtual-reality system to translate macaque monkeys (*Macaca mulatta*) while they viewed motion parallax displays that simulated objects at different depths, that many neurons in the middle temporal area (area MT) signal the sign of depth (near versus far) from motion parallax in the absence of other depth cues. To achieve this, neurons must combine visual motion with extra-retinal (non-visual) signals related to the animal’s movement. Our findings suggest a new neural substrate for depth perception and demonstrate a robust interaction of visual and non-visual cues in area MT. Combined with previous studies that implicate area MT in depth perception based on binocular disparities, our results suggest that area MT contains a more general representation of three-dimensional space that makes use of multiple cues.”

- LNA-mediated microRNA silencing in non-human primates. Elmén, J., Lindow, M., Schütz, S., Lawrence, M., Petri, A., Obad, S., Lindholm, M., Hedtjörn, M., Hansen, H. F., Berger, U., Gullans, S., Kearney, P., Sarnow, P., Straarup, E. M., & Kauppinen, S. (S. K., Santaris Pharma, Bøge Allé 3, DK-2970 Hørsholm, Denmark [e-mail:

[sk@santaris.com](mailto:sk@santaris.com)]). *Nature*, 2008, 452, 896-899, <[www.nature.com/nature/journal/v452/n7189](http://www.nature.com/nature/journal/v452/n7189)>.

“microRNAs (miRNAs) are small regulatory RNAs that are important in development and disease and therefore represent a potential new class of targets for therapeutic intervention. Despite recent progress in silencing of miRNAs in rodents, the development of effective and safe approaches for sequence-specific antagonism of miRNAs *in vivo* remains a significant scientific and therapeutic challenge. Moreover, there are no reports of miRNA antagonism in primates. Here we show that the simple systemic delivery of a unconjugated, PBS-formulated locked-nucleic-acid-modified oligonucleotide (LNA-antimiR) effectively antagonizes the liver-expressed miR-122 in nonhuman primates. Acute administration by intravenous injections of 3 or 10 mg kg<sup>-1</sup> LNA-antimiR to African green monkeys resulted in uptake of the LNA-antimiR in the cytoplasm of primate hepatocytes and formation of stable heteroduplexes between the LNA-antimiR and miR-122. This was accompanied by depletion of mature miR-122 and dose-dependent lowering of plasma cholesterol. Efficient silencing of miR-122 was achieved in primates by three doses of 10 mg kg<sup>-1</sup> LNA-antimiR, leading to a long-lasting and reversible decrease in total plasma cholesterol without any evidence for LNA-associated toxicities or histopathological changes in the study animals. Our findings demonstrate the utility of systemically administered LNA-antimiRs in exploring miRNA function in rodents and primates, and support the potential of these compounds as a new class of therapeutics for disease-associated miRNAs.”

- Free choice activates a decision circuit between frontal and parietal cortex. Pesaran, B., Nelson, M. J., & Andersen, R. A. (Ctr for Neural Science, New York Univ., New York, NY 10003 [e-mail: [bijan@nyu.edu](mailto:bijan@nyu.edu)]). *Nature*, 2008, 453, 406-409.

“We often face alternatives that we are free to choose between. Planning movements to select an alternative involves several areas in frontal and parietal cortex that are anatomically connected into long-range circuits. These areas must coordinate their activity to select a common movement goal, but how neural circuits make decisions remains poorly understood. Here we simultaneously record from the dorsal premotor area (PMd) in frontal cortex and the parietal reach region (PRR) in parietal cortex to investigate neural circuit mechanisms for decision making. We find that correlations in spike and local field potential (LFP) activity between these areas are greater when monkeys are freely making choices than when they are following instructions. We propose that a decision circuit featuring a sub-population of cells in frontal and parietal cortex may exchange information to coordinate activity between these areas. Cells participating in this decision circuit may influence movement choices by



providing a common bias to the selection of movement goals.”

- Contributions of non-human primates to neuroscience research. Capitanio, J. P., & Emborg, M. E. (California NRC, Univ. of California, Davis, CA [e-mail: [jcapitanio@ucdavis.edu](mailto:jcapitanio@ucdavis.edu)]). *The Lancet*, 2008, 371, 1126-1135.

“Nonhuman primates have a small but important role in basic and translational biomedical research, owing to similarities with human beings in physiology, cognitive capabilities, neuroanatomy, social complexity, reproduction, and development. Although nonhuman primates have contributed to many areas of biomedical research, we review here their unique contributions to work in neuroscience, and focus on four domains: Alzheimer’s disease, neuroAIDS, Parkinson’s disease, and stress. Our discussion includes, for example, the role of nonhuman primates in development of new treatments (e.g., stem cells, gene transfer) before phase I clinical trials in patients; basic research on disease pathogenesis; and understanding neurobehavioral outcomes resulting from genotype–environment interactions.”

- Quantifying food intake in socially housed monkeys: Social status effects on caloric consumption. Wilson, M. E., Fisher, J., Fischer, A., Lee, V., Harris, R. B., & Bartness, T. J. (Yerkes NRC, 954 Gatewood Rd, Emory Univ., Atlanta, GA 30329 [e-mail: [Mark.wilson@emory.edu](mailto:Mark.wilson@emory.edu)]). *Physiology & Behavior*, 2008, 94, 586-594,

[www.sciencedirect.com/science/journal/00319384](http://www.sciencedirect.com/science/journal/00319384)

“Obesity results from a number of factors including socio-environmental influences. Rodent models show that several different stressors increase the preference for calorically dense foods leading to an obese phenotype. We present here a nonhuman primate model using socially housed adult female macaques living in long-term stable groups given access to diets of different caloric density. Consumption of a low fat diet (LFD; 15% of calories from fat) and a high fat diet (HFD; 45% of calories from fat) was quantified by means of a custom-built, automated feeder that dispensed a pellet of food when activated by a radio-frequency chip implanted subcutaneously in the animal’s wrist. Socially subordinate females showed indices of chronic psychological stress having reduced glucocorticoid negative feedback and higher frequencies of anxiety-like behavior. Twenty-four hour intakes of both the LFD and HFD were significantly greater in subordinates than dominants, an effect that persisted whether standard monkey chow (13% of calories from fat) was present or absent. Furthermore, although dominants restricted their food intake to daylight, subordinates continued to feed at night. Total caloric intake was significantly correlated with body weight change. Collectively, these results show that food intake can be reliably quantified in nonhuman primates living in complex social environments and suggest that socially subordinate females consume more calories, suggesting this ethologi-

cally relevant model may help understand how psychosocial stress changes food preferences and consumption leading to obesity.”

- Electrical microstimulation thresholds for behavioral detection and saccades in monkey frontal eye fields. Murphey, D. K., & Maunsell, J. H. R. (J. H. R. M., Howard Hughes Med. Inst./Harvard Med. Sch., 220 Longwood Ave, Boston, MA 02115 [e-mail: [maunsell@hms.harvard.edu](mailto:maunsell@hms.harvard.edu)]). *Proceedings of the National Academy of Sciences, U.S.A.*, 2008, 105, 7315-7320.

“The frontal eye field (FEF) is involved in the transformation of visual signals into saccadic eye movements. Although it is often considered an oculomotor structure, several lines of evidence suggest that the FEF also contributes to visual perception and attention. To better understand the range of behaviors to which the FEF can contribute, we tested whether monkeys could detect activation of their FEF by electrical microstimulation with currents below those that cause eye movements. We found that stimulation of FEF neurons could almost always be detected at levels below those needed to generate saccades and that the electrical current needed for detection was highly correlated with that needed to generate a saccade. This relationship between detection and saccade thresholds can be explained if FEF neurons represent preparation to make particular saccades and subjects can be aware of such preparations without acting on them when the representation is not strong.”

- A rhesus monkey model of self-injury: Effects of relocation stress on behavior and neuroendocrine function. Davenport, M. D., Lutz, C. K., Tiefenbacher, S., Novak, M. A., & Meyer, J. S. (Div. of Behavioral Biology, New England PRC, Harvard Med. Sch., Southborough, MA). *Biological Psychiatry*, 2007, 63, 990-996.

“Self-injurious behavior (SIB), a disorder that afflicts many individuals within both clinical and nonclinical populations, has been linked to states of heightened stress and arousal. However, there are no published longitudinal data on the relationship between increases in stress and changes in the incidence of SIB. This study investigated the short- and long-term behavioral and neuroendocrine responses of SIB and control monkeys to the stress of relocation. Twenty adult male rhesus macaques were exposed to the stress of relocation to a new housing arrangement in a newly constructed facility. Daytime behavior, sleep, and multiple measures of hypothalamic-pituitary-adrenocortical (HPA) axis function were investigated before and after the move. Relocation induced a complex pattern of short- and long-term effects in the animals. The SIB animals showed a long-lasting increase in self-biting behavior, as well as evidence of sleep disturbance. Both groups exhibited elevated cortisol levels in saliva, serum, and hair, and also an unexpected delayed increase in circulating concentrations of corticosteroid binding globulin (CBG). Our results indicate that reloca-

tion is a significant stressor for rhesus macaques and that this stressor triggers an increase in self-biting behavior as well as sleep disturbance in monkeys previously identified as suffering from SIB. These findings suggest that life stresses may similarly exacerbate SIB in humans with this disorder. The HPA axis results underscore the potential role of CBG in regulating long-term neuroendocrine responses to major stressors.”

- Clinical pathology data from cynomolgus monkeys from China in which diarrhea was observed during quarantine. Liu, Y.-W., Suzuki, S., Kashima, M., Tokado, H., Fukuzaki, K., & Miyajima, H. (Shin Nippon Biomedical Laboratories, Ltd., 2438 Miyanoura, Kagoshima 891-1394, Japan). *Experimental Animals*, 2008, 57, 139-143.

Shin Nippon Biomedical Laboratories, Ltd. (SNBL) imported and quarantined 3,148 cynomolgus monkeys (aged 2.5 to 6.5 years) from China in 2002. The hematology and blood biochemistry data obtained from these monkeys on Day 32 of quarantine were analyzed separately by sex (2,890 animals in which no abnormalities were observed during the 35-day quarantine period [normal group], and 258 animals which exhibited diarrhea 1 to 12 times [diarrhea group]). The values obtained for all parameters were within the normal range (mean  $\pm$  SD), and no significant abnormalities were noted in either sex. The clinical pathology data from 11 animals (6 males and 5 females) exhibiting diarrhea repeatedly (10 to 12 times) were statistically analyzed, and significant differences were noted in platelet count (PLT) and alkaline phosphatase (ALP) in both sexes. The PLT values of these animals were within the normal group mean  $\pm$  2 SD, and were considered within the normal range. A significant difference was noted in some individual ALP values (males: Nos. 2 and 3, females: Nos. 1, 3, and 4). The clinical pathology data obtained from the normal group in this study basically correspond to the widely reported results already obtained from healthy cynomolgus monkeys, from which it can be concluded that the cynomolgus monkeys from China were generally healthy and presenting no particular abnormality. The clinical pathology data from the normal group will serve as valuable baseline data for experimenters using cynomolgus monkeys.

### Animal Welfare

- Building an inner sanctuary: Complex PTSD in chimpanzees. Bradshaw, G. A., Capaldo, T., Lindner, L., & Grow, G. *Journal of Trauma & Dissociation*, 2008, 9, 9-34.

“Through the analysis of case studies of chimpanzees (*Pan troglodytes troglodytes*) in residence at a sanctuary, who previously sustained prolonged captivity and biomedical experimentation, we illustrate how human psychological models of diagnosis and treatment might be approached in great apes. This study reflects growing attention to ethical, scientific, and practical problems as-

sociated with psychological well-being of animals. The analysis concludes that a diagnosis of Complex PTSD in chimpanzees is consistent with descriptions of trauma-induced symptoms as described by studies of human trauma research. We discuss how these findings relate to diagnosis and treatment of chimpanzees in captivity and the issue of their continued laboratory use. This clinical study contributes toward theory and therapeutic practices of an emergent trans-species psychology inclusive of both humans and other species. Such an ability to extend what we know about models of human trauma opens deeper understanding and insights into ourselves as well as individuals from other species.”

### Behavior

- A fruit in the hand or two in the bush? Divergent risk preferences in chimpanzees and bonobos. Heilbrunner, S. R., Rosati, A. G., Stevens, J. R., Hare, B., & Hauser, M. D. (B203 LSRC, Research Dr., Duke Univ., Box 90999, Durham, NC 27708 [e-mail: sarah.heilbrunner@duke.edu]). *Biology Letters*, 2008, 4, 246-249.

“Human and non-human animals tend to avoid risky prospects. If such patterns of economic choice are adaptive, risk preferences should reflect the typical decision-making environments faced by organisms. However, this approach has not been widely used to examine the risk sensitivity in closely related species with different ecologies. Here, we experimentally examined risk-sensitive behavior in chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*), closely related species whose distinct ecologies are thought to be the major selective force shaping their unique behavioral repertoires. Because chimpanzees exploit riskier food sources in the wild, we predicted that they would exhibit greater tolerance for risk in choices about food. Results confirmed this prediction: chimpanzees significantly preferred the risky option, whereas bonobos preferred the fixed option. These results provide a relatively rare example of risk-prone behavior in the context of gains and show how ecological pressures can sculpt economic decision making.”

- Geophagy: Soil consumption enhances the bioactivities of plants eaten by chimpanzees. Klein, N., Fröhlich, F., & Krief, S. (Muséum Nat. d’Histoire Naturelle, 57 rue Cuvier, 75231, Paris Cedex 5, France). *Naturwissenschaften*, 2008, 95, 325-331.

“Geophagy, the deliberate ingestion of soil, is a widespread practice among animals, including humans. Although some cases are well documented, motivations and consequences of this practice on the health status of the consumer remain unclear. In this paper, we focused our study on chimpanzees (*Pan troglodytes schweinfurthii*) of the Kibale National Park, Uganda, after observing they sometimes ingest soil shortly before or after consuming some plant parts such as leaves of *Trichilia rubescens*, which have in vitro anti-malarial properties. Chemical

and mineralogical analyses of soil eaten by chimpanzees and soil used by the local healer to treat diarrhoea revealed similar composition, the clay mineralogy being dominated by kaolinite. We modelled the interaction between samples of the two types of soil and the leaves of *T. rubescens* in gastric and intestinal compartments and assayed the anti-malarial properties of these solutions. Results obtained for both soil samples are similar and support the hypothesis that soil enhances the pharmacological properties of the bio-available gastric fraction. The adaptive function of geophagy is likely to be multi-factorial. Nevertheless, the medical literature and most occidental people usually consider geophagy in humans as an aberrant behavior, symptomatic of metabolic dysfunction. Our results provide a new evidence to view geophagy as a practice for maintaining health, explaining its persistence through evolution.”

### Care

- A new device for the capture and transport of small nonhuman primates in scientific research. Williams, P. T., Poole, M. J., Katos, A. M., & Hilmas, C. J. (C. J. H., Neurobehavioral Toxicology Br., Analytical Toxicology Div., U. S. Army Med. Res. Inst. of Chem. Defense, 3100 Ricketts Point Rd, APG-EA, MD 21010-5400] *Lab Animal*, 2008, 37, 116-119, <[www.labanimal.com/labanimal/journal/v37/n3/abs/labanimal0308-116.html](http://www.labanimal.com/labanimal/journal/v37/n3/abs/labanimal0308-116.html)>.

Conventional methods of capturing marmosets and other small nonhuman primates (NHPs) require prolonged physical contact between animals and their handlers. This causes NHPs to become stressed and exhausted and can put both animals and handlers at risk of injury or exposure to infectious diseases. The authors designed a self-contained device for the capture and transport of small NHPs. Food rewards encourage primates to enter the device independently, and handlers can then easily access the animals for routine veterinary or experimental procedures. Preliminary observations suggest that marmosets quickly become accustomed to the device and that the device causes less stress than capture by hand or by net.

### Conservation

- Pandemic human viruses cause decline of endangered great apes. Köndgen, S., Kühl, H., N’Goran, P. K., Walsh, P. D., Schenk, S., Ernst, N., Biek, R., Formenty, P., Mätz-Rensing, K., Schweiger, B., Junglen, S., Ellerbok, H., Nitsche, A., Briese, T., Lipkin, W. I., Pauli, G., Boesch, C., & Leendertz, F. H. (F. H. L., Robert Koch-Institut, Nordufer 20, D-13353 Berlin, Germany [e-mail: [leeandertzf@rki.de](mailto:leeandertzf@rki.de)]). *Current Biology*, 2008, 18, 260-264.

“Commercial hunting and habitat loss are major drivers of the rapid decline of great apes. Ecotourism and research have been widely promoted as a means of providing alternative value for apes and their habitats. However, close contact between humans and habituated apes

during ape tourism and research has raised concerns that disease transmission risks might outweigh benefits. To date only bacterial and parasitic infections of typically low virulence have been shown to move from humans to wild apes. Here, we present the first direct evidence of virus transmission from humans to wild apes. Tissue samples from habituated chimpanzees that died during three respiratory disease outbreaks at our research site, Côte d’Ivoire, contained two common human paramyxoviruses. Viral strains sampled from chimpanzees were closely related to strains circulating in contemporaneous, worldwide human epidemics. Twenty-four years of mortality data from observed chimpanzees reveal that such respiratory outbreaks could have a long history. In contrast, survey data show that research presence has had a strong positive effect in suppressing poaching around the research site. These observations illustrate the challenge of maximizing the benefit of research and tourism to great apes while minimizing the negative side effects.”

### Disease

- Insecticide-treated bednets to control dengue vectors: Preliminary evidence from a controlled trial in Haiti. Lenhart, A., Orelus, N., Maskill, R., Alexander, N., Streit, T., & McCall, P. J. (P. J. M., Vector Group, Liverpool Sch. of Tropical Med., Pembroke Pla., Liverpool L3 5QA, U.K. [e-mail: [mccall@liv.c.uk](mailto:mccall@liv.c.uk)]). *Tropical Medicine & International Health*, 2008, 13, 56-67.

“Insecticide-treated bednets (ITNs) are effective in preventing nocturnally transmitted vector-borne diseases, but their effect on diurnally active dengue vectors has never been studied. We investigated the efficacy of ITNs in reducing *Aedes aegypti* populations and dengue transmission. Insecticide-treated bednets had an immediate effect on dengue vector populations after their introduction, and over the next 5-12 months, the presence of ITNs may have continued to affect vector populations and dengue transmission.”

- Simian immunodeficiency virus-induced mucosal interleukin-17 deficiency promotes *Salmonella* dissemination from the gut. Raffatellu, M., Santos, R. L., Verhoeven, D. E., George, M. D., Wilson, R. P., Winter, S. E., Godinez, I., Sankaran, S., Paixao, T. A., Gordon, M. A., Kolls, J. K., Dandekar, S., & Bäumlner, A. J. (A. J. B., Dept of Med. Microbiol. & Immunol., School of Med., UC-Davis, One Shields Ave, Davis, CA 95616-8645 [e-mail: [ajbaumler@ucdavis.edu](mailto:ajbaumler@ucdavis.edu)]). *Nature Medicine*, 2008, 14, 421-428.

“*Salmonella typhimurium* causes a localized enteric infection in immunocompetent individuals, whereas HIV-infected individuals develop a life-threatening bacteremia. Here we show that simian immunodeficiency virus (SIV) infection results in depletion of T helper type 17 (TH17) cells in the ileal mucosa of rhesus macaques, thereby impairing mucosal barrier functions to *S. typhimurium* dis-

semination. In SIV-negative macaques, the gene expression profile induced by *S. typhimurium* in ligated ileal loops was dominated by TH17 responses, including the expression of interleukin-17 (IL-17) and IL-22. TH17 cells were markedly depleted in SIV-infected rhesus macaques, resulting in blunted TH17 responses to *S. typhimurium* infection and increased bacterial dissemination. IL-17 receptor-deficient mice showed increased systemic dissemination of *S. typhimurium* from the gut, suggesting that IL-17 deficiency causes defects in mucosal barrier function. We conclude that SIV infection impairs the IL-17 axis, an arm of the mucosal immune response preventing systemic microbial dissemination from the gastrointestinal tract.”

- Experimental hut evaluation of the pyrrole insecticide chlorfenapyr on bed nets for the control of *Anopheles arabiensis* and *Culex quinquefasciatus*. Mosha, F. W., Lyimo, I. N., Oxborough, R. M., Malima, R., Tenu, F., Matowo, J., Feston, E., Mndeme, R., Magesa, S. M., & Rowland, M. (M. R., London Sch. of Hygiene & Trop. Med., Keppel St, London WC1E 7HT, U.K. [e-mail: [mark.rowland@lshtm.ac.uk](mailto:mark.rowland@lshtm.ac.uk)]). *Tropical Medicine & International Health*, 2008, 13, 644-652.

To determine the efficacy of chlorfenapyr against *Anopheles arabiensis* and *Culex quinquefasciatus* in East Africa and to identify effective dosages for net treatment in comparison with the commonly used pyrethroid deltamethrin, chlorfenapyr was evaluated on bed nets in experimental huts in Northern Tanzania, at application rates of 100–500 mg/m<sup>2</sup>. In experimental huts, mortality rates in *A. arabiensis* were high (46.0–63.9%) for all dosages of chlorfenapyr and were similar to that of deltamethrin-treated nets. Mortality rates in *C. quinquefasciatus* were higher for chlorfenapyr than for deltamethrin. Despite a reputation for being slow acting, >90% of insecticide-induced mortality in laboratory tunnel tests and experimental huts occurred within 24 h, and the speed of killing was no slower than for deltamethrin-treated nets. Chlorfenapyr induced low irritability and knockdown, which explains the relatively small reduction in blood-feeding rate. Combining chlorfenapyr with a more excito-repellent pyrethroid on bed nets for improved personal protection, control of pyrethroid-resistant mosquitoes, and pyrethroid resistance management would be good.

- Vaccination and timing influence SIV immune escape viral dynamics in vivo. Loh, L., Petravic, J., Batten, C. J., Davenport, M. P., & Kent, S. J. (S. J. K., Dept of Microbiol. & Immunol., Univ. of Melbourne, Melbourne, Victoria, Australia [e-mail: [skent@unimelb.edu.au](mailto:skent@unimelb.edu.au)]). *PLoS Pathogens*, 4[1]: e12, <[dx.doi.org/10.1371/journal.ppat.0040012](https://doi.org/10.1371/journal.ppat.0040012)>.

“CD8+ cytotoxic T lymphocytes (CTL) can be effective at controlling HIV-1 in humans and SIV in macaques, but their utility is partly offset by mutational escape. The kinetics of CTL escape and reversion of escape mutant

viruses upon transmission to MHC-mismatched hosts can help us understand CTL-mediated viral control and the fitness cost extracted by immune escape mutation. Traditional methods for following CTL escape and reversion are, however, insensitive to minor viral quasispecies. We developed sensitive quantitative real-time PCR assays to track the viral load of SIV Gag164–172 KP9 wild-type (WT) and escape mutant (EM) variants in pigtail macaques. Rapid outgrowth of EM virus occurs during the first few weeks of infection. However, the rate of escape plateaued soon after, revealing a prolonged persistence of WT viremia not detectable by standard cloning and sequencing methods. The rate of escape of KP9 correlated with levels of vaccine-primed KP9-specific CD8 $\beta$ T cells present at that time. Similarly, when non-KP9 responder (lacking the restricting Mane-A\*10 allele) macaques were infected with SHIVmn229 stock containing a mixture of EM and WT virus, rapid reversion to WT was observed over the first 2 weeks following infection. However, the rate of reversion to WT slowed dramatically over the first month of infection. The serial quantitation of escape mutant viruses evolving during SIV infection shows that rapid dynamics of immune escape and reversion can be observed in early infection, particularly when CD8 T cells are primed by vaccination. However, these early rapid rates of escape and reversion are transient and followed by a significant slowing in these rates later during infection, highlighting that the rate of escape is significantly influenced by the timing of its occurrence.”

- Serologic evidence for novel poxvirus in endangered red colobus monkeys, western Uganda. Goldberg, T. L., Chapman, C. A., Cameron, K., Saj, T., Karesh, W. B., Wolfe, N., Wong, S. W., Dubois, M. E., & Slifka, M. K. (Univ. of Illinois, Coll. of Vet. Med., Dept of Pathobiol., 2001 S. Lincoln Ave., Urbana, IL 61802 [e-mail: [tlgoldbe@uiuc.edu](mailto:tlgoldbe@uiuc.edu)]). *Emerging Infectious Diseases*, 2008, 14[5], <[www.cdc.gov/EID/content/14/5/801.htm](http://www.cdc.gov/EID/content/14/5/801.htm)>.

Enzyme-linked immunosorbent assay, Western blot, and virus neutralization assays indicated that red colobus monkeys in Kibale National Park, western Uganda, had antibodies to a virus that was similar, but not identical, to known orthopoxviruses. The presence of a novel poxvirus in this endangered primate raises public health and conservation concerns.

- Tauopathy with paired helical filaments in an aged chimpanzee. Rosen, R. F., Farberg, A. S., Gearing, M., Dooyema, J., Long, P. M., Anderson, D. C., Davis-Turak, J., Coppola, G., Geschwind, D. H., Paré, J.-F., Duong, T. Q., Hopkins, W. D., Preuss, T. M., & Walker, L. C. (L. C. W., Yerkes NPRC, Emory Univ., Atlanta, GA 30329 [e-mail: [lary.walker@emory.edu](mailto:lary.walker@emory.edu)]). *Journal of Comparative Neurology*, 2008, 509, 259-270.

“An enigmatic feature of age-related neurodegenerative diseases is that they seldom, if ever, are fully manifested in nonhuman species under natural conditions. The

neurodegenerative tauopathies are typified by the intracellular aggregation of hyperphosphorylated microtubule-associated protein tau (MAPT) and the dysfunction and death of affected neurons. We document the first case of tauopathy with paired helical filaments in an aged chimpanzee (*Pan troglodytes*). Pathologic forms of tau in neuronal somata, neuropil threads, and plaque-like clusters of neurites were histologically identified throughout the neocortex and, to a lesser degree, in allocortical and subcortical structures. Ultrastructurally, the neurofibrillary tangles consisted of tau-immunoreactive paired helical filaments with a diameter and helical periodicity indistinguishable from those seen in Alzheimer's disease. A moderate degree of A $\beta$  deposition was present in the cerebral vasculature and, less frequently, in senile plaques. Sequencing of the exons and flanking intronic regions in the genomic MAPT locus disclosed no mutations that are associated with the known human hereditary tauopathies, nor any polymorphisms of obvious functional significance. Although the lesion profile in this chimpanzee differed somewhat from that in Alzheimer's disease, the copresence of paired helical filaments and A $\beta$ -amyloidosis indicates that the molecular mechanisms for the pathogenesis of the two canonical Alzheimer lesions – neurofibrillary tangles and senile plaques – are present in aged chimpanzees.”

- Transthyretin amyloidosis and two other aging-related amyloidoses in an aged vervet monkey. Nakamura, S., Okabayashi, S., Ageyama, N., Koie, H., Sankai, T., Ono, F., Fujimoto, K., & Terao, K. (Res. Ctr for Animal Med. Sci., Shiga Univ. of Med. Sci., Seta-Tsukinowa-Cho, Ohtsu, Shiga 520-2192, Japan [e-mail: [snakamura@belle.shiga-med.ac.jp](mailto:snakamura@belle.shiga-med.ac.jp)]). *Veterinary Pathology*, 2008, 45, 67-72.

“An aged male vervet monkey showed severe cardiac arrhythmia for more than 3 years. A multifocal amyloid consisting of transthyretin was deposited in all areas of the heart wall, especially in the extracellular stroma among muscle fibers and external tunica of arterioles. Moreover, the amyloid was deposited in the stroma and arterioles of other systemic organs except the liver and spleen. These characteristics are consistent with senile systemic amyloidosis in humans. A second amyloid consisting of amyloid  $\beta$  protein was in senile plaques and cerebral amyloid angiopathy in the cerebral cortex. A third amyloid consisting of islet amyloid polypeptide was deposited in islets of the pancreas. Apolipoprotein E and amyloid P component colocalized with the 3 amyloids. Thus, 3 different aging-related amyloids were found in an aged vervet monkey. In particular, to our knowledge, this is the first report on spontaneous transthyretin amyloidosis in animals.”

- Malignant nephroblastoma in a common marmoset (*Callithrix jacchus*). Zöller, M., Mätz-Rensing, K., Fahrion, A., & Kaup, F.-J. German Primate Center, Dept

of Infectious Pathology, Kellnerweg 4, D-37077 Göttingen, Germany [e-mail: [mzoeller@dpz.gwdg.de](mailto:mzoeller@dpz.gwdg.de)]. *Veterinary Pathology*, 2008, 45, 80-84.

Necropsy of a 17-month-old male common marmoset with a history of increased abdominal girth resulted in the finding of a unilateral polycystic renal neoplasm. Detailed histopathologic and immunohistochemical investigations revealed different tissue types within the tumor including stromal connective tissue and fusiform mesenchymal cell formations surrounding blastemal cells as well as different developmental stages of organ-specific epithelial cells accompanied by extensive cyst formation. Metastases were not observed. In consideration of the macroscopic, histologic, and immunohistochemical findings, the tumor was classified as a nephroblastoma closely resembling the so-called Wilms' tumor, a malignant embryonic renal tumor frequently observed in humans, especially in young children. In contrast, this tumor entity has rarely been observed in nonhuman primates. This report represents the first documented case of a cystic variant of nephroblastoma in a nonhuman primate.

#### Evolution, Genetics, and Taxonomy

- Close correspondence between quantitative- and molecular-genetic divergence times for Neandertals and modern humans. Weaver, T. D., Roseman, C. C., & Stringer, C. B. (Dept of Anthropology, Univ. of California, One Shields Ave, Davis, CA 95616 [e-mail: [tdweaver@ucdavis.edu](mailto:tdweaver@ucdavis.edu)]). *Proceedings of the National Academy of Sciences, U.S.A.*, 2008, 105, 4645-4649.

“Recent research has shown that genetic drift may have produced many cranial differences between Neandertals and modern humans. If this is the case, then it should be possible to estimate population genetic parameters from Neandertal and modern human cranial measurements in a manner analogous to how estimates are made from DNA sequences. Building on previous work in evolutionary quantitative genetics and on microsatellites, we present a divergence time estimator for neutrally evolving morphological measurements. We then apply this estimator to 37 standard cranial measurements collected on 2,524 modern humans from 30 globally distributed populations and 20 Neandertal specimens. We calculate that the lineages leading to Neandertals and modern humans split  $\approx 311,000$  (95% C.I.: 182,000 to 466,000) or 435,000 (95% C.I.: 308,000 to 592,000) years ago, depending on assumptions about changes in within-population variation. These dates are quite similar to those recently derived from ancient Neandertal and extant human DNA sequences. Close correspondence between cranial and DNA-sequence results implies that both datasets largely, although not necessarily exclusively, reflect neutral divergence, causing them to track population history or phylogeny rather than the action of diversifying natural selection. The cranial dataset covers only aspects of cranial anatomy that can be readily quantified with

standard osteometric tools, so future research will be needed to determine whether these results are representative. Nonetheless, for the measurements we consider here, we find no conflict between molecules and morphology.”

- The *Homo floresiensis* cranium (LB1): Size, scaling, and early *Homo* affinities. Gordon, A. D., Nevell, L., & Wood, B. (Dept of Anthropology, Ctr for the Advanced Study of Hominid Paleobiology, George Washington Univ., 2110 G St Northwest, Washington, DC 20052 [e-mail: [adam.d.gordon@gmail.com](mailto:adam.d.gordon@gmail.com)]). *Proceedings of the National Academy of Sciences, U.S.A.*, 2008, 105, 4650-4655.

“The skeletal remains of a diminutive small-brained hominin found in Late Pleistocene cave deposits on the island of Flores, Indonesia, were assigned to a new species, *Homo floresiensis*. A dramatically different interpretation is that this material belongs not to a novel hominin taxon but to a population of small-bodied modern humans affected, or unaffected, by microcephaly. The debate has primarily focused on the size and shape of the endocranial cavity of the type specimen, LB1, with less attention being paid to the morphological evidence provided by the rest of the LB1 cranium and postcranium, and no study thus far has addressed the problem of how scaling would affect shape comparisons between a diminutive cranium like LB1 and the much larger crania of modern humans. We show that whether or not the effects of its small cranial size are accounted for, the external cranial morphology of the LB1 cranium cannot be accommodated within a large global sample of normal modern human crania. Instead, the shape of LB1, which is shown by multivariate analysis to differ significantly from that of modern humans, is similar to that of *Homo erectus sensu lato*, and, to a lesser extent, *Homo habilis*. Our results are consistent with hypotheses that suggest the Liang Bua specimens represent a diminutive population closely related to either early *H. erectus s. l.* from East Africa and/or Dmanisi or to *H. habilis*.”

- The first hominin of Europe. Carbonell, E., Bermúdez de Castro, J. M., Parés, J. M., Pérez-González, A., Cuenca-Bescós, G., Ollé, A., Mosquera, M., Huguet, R., van der Made, J., Rosas, A., Sala, R., Vallverdú, J., García, N., Granger, D. E., Martínón-Torres, M., Rodríguez, X. P., Stock, G. M., Vergès, J. M., Allué, E., Burjachs, F., Cáceres, I., Canals, A., Benito, A., Díez, C., Lozano, M., Mateos, A., Navazo, M., Rodríguez, J., Rosell, J., & Arsuaga, J. L. (Inst Català de Paleoecologia Humana i Evolució Social, Àrea de Prehistòria, Univ. Rovira i Virgili, Plaça Imperial Tàrraco 1, 43005 Tarragona, Spain [e-mail: [eudald.carbonell@urv.cat](mailto:eudald.carbonell@urv.cat)]). *Nature*, 2008, 452, 465-469.

“The earliest hominin occupation of Europe is one of the most debated topics in palaeoanthropology. However, the purportedly oldest of the Early Pleistocene sites in

Eurasia lack precise age control and contain stone tools rather than human fossil remains. Here we report the discovery of a human mandible associated with an assemblage of Mode 1 lithic tools and faunal remains bearing traces of hominin processing, in stratigraphic level TE9 at the site of the Sima del Elefante, Atapuerca, Spain. Level TE9 has been dated to the Early Pleistocene (approximately 1.2–1.1 Myr), based on a combination of palaeomagnetism, cosmogenic nuclides, and biostratigraphy. The Sima del Elefante site thus emerges as the oldest, most accurately dated record of human occupation in Europe, to our knowledge. The study of the human mandible suggests that the first settlement of Western Europe could be related to an early demographic expansion out of Africa. The new evidence, with previous findings in other Atapuerca sites (level TD6 from Gran Dolina), also suggests that a speciation event occurred in this extreme area of the Eurasian continent during the Early Pleistocene, initiating the hominin lineage represented by the TE9 and TD6 hominins.”

- Variation at the mu-opioid receptor gene (*OPRM1*) influences attachment behavior in infant primates. Barr, C. S., Schwandt, M. L., Lindell, S. G., Higley, J. D., Maestripieri, D., Goldman, D., Suomi, S. J., & Heilig, M. (Lab. of Clinical & Translational Studies, NIH/NIAAA, Bethesda, MD 20892 [e-mail: [cbarr@mail.nih.gov](mailto:cbarr@mail.nih.gov)]). *Proceedings of the National Academy of Sciences, U.S.A.*, 2008, 105, 5277-5281.

“In a variety of species, development of attachment to a caregiver is crucial for infant survival and partly mediated by the endogenous opioids. Functional mu-opioid receptor gene polymorphisms are present in humans (*OPRM1* A118G) and rhesus macaques (*OPRM1* C77G). We hypothesized that rhesus infants carrying a gain-of-function *OPRM1* 77G allele would experience increased reward during maternal contact and would, therefore, display increased measures of attachment. We collected behavioral data from rhesus macaques ( $n = 97$ ) during early infancy and at 6 months of age, across four cycles of maternal separation (4 days) and reunion (3 days). Animals were genotyped for the *OPRM1* C77G polymorphism, and the effects of this allele on attachment-related behaviors were analyzed. Infants carrying the G allele exhibited higher levels of attachment behavior during early infancy. During prolonged periods of maternal separation, although infant macaques homozygous for the C allele exhibited decreases in their levels of distress vocalization with repeated separation, this response persisted in G allele carriers. The *OPRM1* 77G allele also affected social preference during reunion. C/G infants spent increasing amounts of time in social contact with their mothers as a function of repeated separation and were less likely to interact with other individuals in the social group, a pattern not observed among infants with the C/C genotype. These findings suggest a role for

*OPRMI* variation in the expression of attachment behavior in human subjects, especially as a function of separation from the caregiver.”

• Flying lemurs – The “flying tree shrews”? Molecular cytogenetic evidence for a Scandentia-Dermoptera sister clade. Nie, W., Fu, B., O’Brien, P. C. M., Wang, J., Su, W., Tanomtong, A., Volobouev, V., Ferguson-Smith, M. A., & Yang, F. (State Key Lab. of Genetic Resources & Evolution, Kunming Inst. of Zool., Chinese Acad. of Sciences, Kunming, Yunnan 650223, P.R.C. [e-mail: [whnie@mail.kiz.ac.cn](mailto:whnie@mail.kiz.ac.cn)]). *BMC Biology*, 2008, 6:18doi:10.1186/1741-7007-6-18, <[www.biomedcentral.com/1741-7007/6/18](http://www.biomedcentral.com/1741-7007/6/18)>.

“Flying lemurs or Colugos (order Dermoptera) represent an ancient mammalian lineage that contains only two extant species. Although molecular evidence strongly supports that the orders Dermoptera, Scandentia, Lagomorpha, Rodentia, and Primates form a superordinal clade called Supraprimates (or Euarchontoglires), the phylogenetic placement of Dermoptera within Supraprimates remains ambiguous. To search for cytogenetic signatures that could help to clarify the evolutionary affinities within this superordinal group, we have established a genome-wide comparative map between human and the Malayan flying lemur (*Galeopterus variegatus*) by reciprocal chromosome painting using both human and *G. variegatus* chromosome-specific probes. The 22 human autosomal paints and the X chromosome paint defined 44 homologous segments in the *G. variegatus* genome. A putative inversion on GVA 11 was revealed by the hybridization patterns of human chromosome probes 16 and 19. Fifteen associations of human chromosome segments (HSA) were detected in the *G. variegatus* genome: HSA1/3, 1/10, 2/21, 3/21, 4/8, 4/18, 7/15, 7/16, 7/19, 10/16, 12/22 (twice), 14/15, 16/19 (twice). Reverse painting of *G. variegatus* chromosome-specific paints onto human chromosomes confirmed the above results, and defined the origin of the homologous human chromosomal segments in these associations. In total, *G. variegatus* paints revealed 49 homologous chromosomal segments in the HSA genome. Comparative analysis of our map with published maps from representative species of other placental orders, including Scandentia, Primates, Lagomorpha and Rodentia, suggests a signature rearrangement (HSA2q/21 association) that links Scandentia and Dermoptera to one sister clade. Our results thus provide new evidence for the hypothesis that Scandentia and Dermoptera have a closer phylogenetic relationship to each other than either of them has to Primates.”

• Cladistic analysis of continuous modularized traits provides phylogenetic signals in *Homo* evolution. González-José, R., Escapa, I., Neves, W. A., Cúneo, R., & Pucciarelli, H. M. (Unidad de Investigación de Diversidad, Sistemática y Evolución, Centro Nacional Patagónico, CONICET, Blvd Brown 2825, U9120ACF

Puerto Madryn, Argentina [e-mail: [rolando@cenpat.edu.ar](mailto:rolando@cenpat.edu.ar)]). *Nature*, 2008, 453, 775-778.

“Evolutionary novelties in the skeleton are usually expressed as changes in the timing of growth of features intrinsically integrated at different hierarchical levels of development. As a consequence, most of the shape-traits observed across species do vary quantitatively rather than qualitatively, in a multivariate space and in a modularized way. Because most phylogenetic analyses normally use discrete, hypothetically independent characters, previous attempts have disregarded the phylogenetic signals potentially enclosed in the shape of morphological structures. When analysing low taxonomic levels, where most variation is quantitative in nature, solving basic requirements like the choice of characters and the capacity of using continuous, integrated traits is of crucial importance in recovering wider phylogenetic information. This is particularly relevant when analysing extinct lineages, where available data are limited to fossilized structures. Here we show that when continuous, multivariate and modularized characters are treated as such, cladistic analysis successfully solves relationships among main *Homo* taxa. Our attempt is based on a combination of cladistics, evolutionary-development-derived selection of characters, and geometric morphometrics methods. In contrast with previous cladistic analyses of hominid phylogeny, our method accounts for the quantitative nature of the traits, and respects their morphological integration patterns. Because complex phenotypes are observable across different taxonomic groups and are potentially informative about phylogenetic relationships, future analyses should point strongly to the incorporation of these types of trait.”

• Primate mating systems and the evolution of neocortex size. Schillaci, M. A. (Dept of Social Sciences, Univ. of Toronto Scarborough, 1265 Military Trail, Scarborough, Ontario M1C 1A4, Canada [e-mail: [schillaci@utsc.utoronto.ca](mailto:schillaci@utsc.utoronto.ca)]). *Journal of Mammalogy*, 2008, 89, 58-63.

“The evolution of the neocortex in primates has been associated with social complexity, but the relationship between neocortex evolution and components of social complexity such as sexual selection and mating systems is not well studied. I examined the evolutionary relationship between relative neocortex size and the intensity of male-male competition for mates among various primate mating systems using bootstrapped estimates of least-squares regression parameters. A significant negative evolutionary relationship was found between relative neocortex size and the level of male-male competition for mates associated with various mating systems. The largest relative neocortex sizes among primate species were associated with monogamy. This negative evolutionary relationship suggests that monogamy may require greater

social acuity and abilities for deception and manipulation, and promote selection for larger brains.”

- Nonhuman primate IgA: Genetic heterogeneity and interactions with CD89. Rogers, K. A., Jayashankar, L., Scinicariello, F., & Attanasio, R. (R. A., Dept of Biology, Georgia State Univ., P.O. Box 4010, Atlanta, GA 30302 [e-mail: rattanasio@gsu.edu]). *Journal of Immunology*, 2008, 180, 4816-4824.

Nonhuman primates are extremely valuable animal models for a variety of human diseases. However, it is now becoming evident that these models, although widely used, are still uncharacterized. The major role that non-human primate species play in AIDS research as well as in the testing of Ab-based therapeutics requires the full characterization of structure and function of their Ab molecules. IgA is the Ab class mostly involved in protection at mucosal surfaces. By binding to its specific Fc receptor CD89, IgA plays additional and poorly understood roles in immunity. Therefore, Ig heavy  $\alpha$  (*IGHA*) constant (C) genes were cloned and sequenced in four different species (rhesus macaques, pig-tailed macaques, baboons, and sooty mangabeys). Sequence analysis confirmed the high degree of intraspecies polymorphism present in nonhuman primates. Individual animals were either homozygous or heterozygous for *IGHA* genes. Highly variable hinge regions were shared by animals of different geographic origins and were present in different combinations in heterozygous animals. Therefore, it appears that although highly heterogeneous, hinge sequences are present only in limited numbers in various nonhuman primate populations. A macaque recombinant IgA molecule was generated and used to assess its interaction with a recombinant macaque CD89. Macaque CD89 was able to bind its native ligand as well as human IgA1 and IgA2. Presence of Ag enhanced macaque IgA binding and blocking of macaque CD89 N-glycosylation reduced CD89 expression. Together, the results suggest that, despite the presence of IgA polymorphism, nonhuman primates appear suitable for studies that involve the IgA/CD89 system.

#### Miscellany

- It is time to take a stand for medical research and against terrorism targeting medical scientists. Krystal, J. H., Carter, C. S., Geschwind, D., Manji, H. K., March, J. S., Nestler, E. J., Zubieta, J. K., Charney, D. S., Goldman, D., Gur, R. E., Lieberman, J. A., Roy-Byrne, P., Rubi-now, D. R., Anderson, S. A., Barondes, S., Berman, K. F., Blair, J., Braff, D. L., Brown, E. S., Calabrese, J. R., Carlezon, W. A., Jr., Cook, E. H., Jr., Davidson, R. J., Davis, M., Desimone, R., Drevets, W. C., Duman, R. S., Essock, S. M., Faraone, S. V., Freedman, R., Friston, K. J., Gelernter, J., Geller, B., Gill, M., Gould, E., Grace, A. A., Grillon, C., Gueorguieva, R., Hariri, A. R., Innis, R. B., Jones, E. G., Kleinman, J. E., Koob, G. F., Krystal, A. D.,

Leibenluft, E., Levinson, D. F., Levitt, P. R., Lewis, D. A., Liberzon, I., Lipska, B. K., Marder, S. R., Markou, A., Mason, G. F., McDougle, C. J., McEwen, B. S., McMahon, F. J., Meaney, M. J., Meltzer, H. Y., Merikangas, K. R., Meyer-Lindenberg, A., Mirmics, K., Monteggia, L. M., Neumeister, A., O'Brien, C. P., Owen, M. J., Pine, D. S., Rapoport, J. L., Rauch, S. L., Robbins, T. W., Rosenbaum, J. F., Rosenberg, D. R., Ross, C. A., Rush, A. J., Sackeim, H. A., Sanacora, G., Schatzberg, A. F., Shaham, Y., Siever, L. J., Sunderland, T., Tecott, L. H., Thase, M. E., Todd, R. D., Weissman, M. M., Yehuda, R., Yoshikawa, T., Young, E. A., & McCandless, R. (Dept of Psychiatry, Yale Univ. Sch. of Med., New Haven, CT 06510 [e-mail: john.krystal@yale.edu]). *Biological Psychiatry*, 2008, 63, 725-727.

A critical commentary written by the Editors, members of the Editorial Committee, and the Editorial Board of *Biological Psychiatry*.

#### Physiology and Behavior

- The evolution of the arcuate fasciculus revealed with comparative DTI. Rilling, J. K., Glasser, M. F., Preuss, T. M., Ma, X., Zhao, T., Hu, X., & Behrens, T. E. J. (Dept of Anthropology, Emory Univ., 207 Anthropology Bldg, 1557 Dickey Dr., Atlanta, GA 30322 [e-mail: jrillin@emory.edu]). *Nature Neuroscience*, 2008, 11, 426-428 <[www.nature.com/neuro/journal/v11/n4/abs/nn2072.html](http://www.nature.com/neuro/journal/v11/n4/abs/nn2072.html)>.

“The arcuate fasciculus is a white-matter fiber tract that is involved in human language. Here we compared cortical connectivity in humans, chimpanzees, and macaques (*Macaca mulatta*) and found a prominent temporal lobe projection of the human arcuate fasciculus that is much smaller or absent in nonhuman primates. This human specialization may be relevant to the evolution of language.”

- Perception of emotional expressions is independent of face selectivity in monkey inferior temporal cortex. Hadj-Bouziane, F., Bell, A. H., Knusten, T. A., Ungerleider, L. G., & Tootell, R. B. H. (NIMH, Lab. of Brain & Cognition, 49 Convent Dr., Bldg 49/1B80, Bethesda, MD 20892 [e-mail: hadjf@mail.nih.gov]). *Proceedings of the National Academy of Sciences, U.S.A.*, 2008, 105, 5591-5596.

“The ability to perceive and differentiate facial expressions is vital for social communication. Numerous functional MRI (fMRI) studies in humans have shown enhanced responses to faces with different emotional valence, in both the amygdala and the visual cortex. However, relatively few studies have examined how valence influences neural responses in monkeys, thereby limiting the ability to draw comparisons across species and thus understand the underlying neural mechanisms. Here we tested the effects of macaque facial expressions on neural activation within these two regions using fMRI in three



awake, behaving monkeys. Monkeys maintained central fixation while blocks of different monkey facial expressions were presented. Four different facial expressions were tested: (i) neutral, (ii) aggressive (open-mouthed threat), (iii) fearful (fear grin), and (iv) submissive (lip smack). Our results confirmed that both the amygdala and the inferior temporal cortex in monkeys are modulated by facial expressions. As in human fMRI, fearful expressions evoked the greatest response in monkeys – even though fearful expressions are physically dissimilar in humans and macaques. Furthermore, we found that valence effects were not uniformly distributed over the inferior temporal cortex. Surprisingly, these valence maps were independent of two related functional maps: (i) the map of “face-selective” regions (faces versus non-face objects) and (ii) the map of “face-responsive” regions (faces versus scrambled images). Thus, the neural mechanisms underlying face perception and valence perception appear to be distinct.”

• Acoustic divergence in communication of cryptic species of nocturnal primates (*Microcebus* spp.). Braune, P., Schmidt, S., & Zimmermann, E. (Inst. of Zoology, Univ. of Vet. Med. Hannover, Bünteweg 17, 30559 Hannover, Germany [e-mail: pia.braune@tiho-hannover.de]). *BMC Biology*, 2008, 6:19doi:10.1186/1741-7007-6-19, <www.biomedcentral.com/1741-7007/6/19>.

“A central question in evolutionary biology is how cryptic species maintain species cohesiveness in an area of sympatry. The coexistence of sympatrically living cryptic species requires the evolution of species-specific signalling and recognition systems. In nocturnal, dispersed living species, specific vocalisations have been suggested to act as an ideal premating isolation mechanism. We studied the structure and perception of male advertisement calls of three nocturnal, dispersed living, mouse lemur species, the grey (*Microcebus murinus*), the golden brown (*M. ravelobensis*) and the Goodman’s (*M. lehilahytsara*) mouse lemurs. The first two species occur sympatrically, the latter lives allopatrically to them. A multi-parameter sound analysis revealed prominent differences in the frequency contour and in the duration of advertisement calls. To test whether mouse lemurs respond specifically to calls of the different species, we

conducted a playback experiment with *M. murinus* from the field, using advertisement calls and alarm whistle calls of all three species. Individuals responded significantly stronger to conspecific than to heterospecific advertisement calls but there were no differences in response behavior towards statistically similar whistle calls of the three species. Furthermore, sympatric calls evoked weaker interest than allopatric advertisement calls. Our results provide the first evidence for a specific relevance of social calls for speciation in cryptic primates. They furthermore support that specific differences in signalling and recognition systems represent an efficient premating isolation mechanism contributing to species cohesiveness in sympatrically living species.”

• Communicative signaling activates “Broca’s” homolog in chimpanzees. Tagliatela, J. P., Russell, J. L., Schaeffer, J. A., & Hopkins, W. D. (Yerkes NPRC, Atlanta, GA 30329 [e-mail: jtaglia@emory.edu]). *Current Biology*, 2008, 18, 343-348.

“Broca’s area, a cerebral cortical area located in the inferior frontal gyrus (IFG) of the human brain, has been identified as one of several critical regions associated with the motor planning and execution of language. Anatomically, Broca’s area is most often larger in the left hemisphere, and functional imaging studies in humans indicate significant left-lateralized patterns of activation during language-related tasks. If, and to what extent, nonhuman primates, particularly chimpanzees, possess a homologous region that is involved in the production of their own communicative signals remains unknown. Here, we show that portions of the IFG as well as other cortical and subcortical regions in chimpanzees are active during the production of communicative signals. These findings are the first to provide direct evidence of the neuroanatomical structures associated with the production of communicative behaviors in chimpanzees. Significant activation in the left IFG in conjunction with other cortical and subcortical brain areas during the production of communicative signals in chimpanzees suggests that the neurological substrates underlying language production in the human brain may have been present in the common ancestor of humans and chimpanzees.”

\* \* \*





## CONTENTS

### *Articles and Notes*

Bam Bam's Story: Raising a Marmoset Without a Mother, by J. Castle.....	1
---	---

### *News, Information, and Announcements*

Travelers' Health Notes: IAMAT.....	3
Grants Available: Cell Fate and Cell Life Spans in the Aged.....	4
Workshop Announcements: Association of Primate Veterinarians.....	4
Announcement of the IPS Council Election Results.....	4
Information Requested or Available.....	5
Blogs "From the Conservation Frontlines"; More Interesting Websites	
The Animal Language Institute Website.....	5
News Briefs.....	6
Vaccine for Ebola Virus; New Chimp Enclosure at Edinburgh Zoo; Fire hoses may help save Borneo orangutans; New Executive Director of AAALAC International; Frans de Waal Named to AAAS; Orangutan Escapes Enclosure at L.A. Zoo; Rescued Macaques Find a Better Life	
White-Handed Gibbons Extinct in China.....	7
Announcements from Publications.....	8
Gorilla Gazette; Implementation of NIH Public Access Policy; <i>IPPL News</i> Archives Available	
Meeting Announcements.....	9
Resources Wanted and Available.....	9
Free Online Resource for Scientific Events; Saving the Mono Titi: A Documentary; New FAQs Added to OLAW Web Page; Listing of International Ethics Resources Available	
Call for Award Nominations: NCAB/AALAS Technician Award.....	10
IPS Congress Silent Auction.....	10

### *Departments*

Recent Books and Articles.....	11
--------------------------------	----