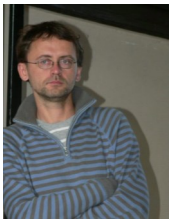
Newsletter

Issue 2 Spring 2014

On-line at http://www.hpi-lab.com/en/news/newsletter

HEADSPACE



It is my pleasure to present second (spring) issue of our HPI-lab newsletter. The aim of this issue is to announce two events organized by our research team, which will take place at our university. The first event is a conference entitled "Primate Parasitology: Development, Methods and Future". Several renowned scientists have already promised to take part in, and we hope that the meeting will attract attention of diverse community of parasitologists. The second event is a training program entitled "Summer School of Primate Parasitology" focused on introducion of fundamental methods in primate parasitology. The training will be provided by HPI-lab members and other experienced colleagues from the Czech Republic and from abroad. You can find detailed information for both events in this newsletter.

Further, in this issue we are introducing new lab members, our new study site and recent papers published by HPI lab team.

I wish you a pleasant reading.

David Modrý

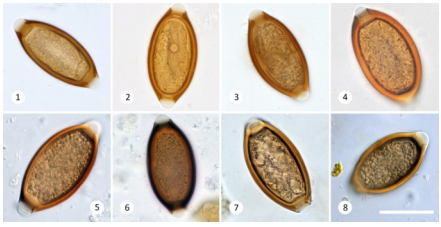
INSIDE THIS ISSUE:

"Laboratory for infectious diseases common to humans and (non-human) primates"

UPCOMING EVENTS

A symposium entitled „**Primate Parasitology: Development, Methods and Future**" will take place on June 12-14 2014 in Brno, the Czech Republic. The three-day event will focus on selected topics related to infection diseases common for both great apes and humans.

The keynote speakers of the symposium are **Dr. Michael Muehlenbein** from Indiana University, USA, **Dr. Lihua Xiao** from Centre for Disease Control and Prevention, USA, **prof. Robin Gasser** from Melbourne University, Australia, **Andres Gomez** from Illinois University, USA, **prof. Ananias Escalante** from Arizona State University, USA, **Dr. Thomas Gillespie** from Emory University, USA, **Dr. Fabian Leendertz** from Robert Koch Institute, Germany and **prof. Julius Lukeš** from Biology Centre, CR.



The HPI-lab organises "**Summer School of Primate Parasitology**" that will take place June 16-21st at University of Veterinary and Pharmaceutical Sciences Brno, the Czech Republic. The aim of the summer school is to introduce and help in gaining skills in basic methods used in primate parasitology.

During the summer school the participants will be trained and supervised by highly skilled lecturers having long-term experience with the topics.

For more information see Pages 4-5

Newsletter editor: Lenka Polačiková, polacikoval(AT)vfu.cz

EUROPEAN UNION
MINISTRY OF EDUCATION, YOUTH AND SPORTS
OP Education for Competitiveness
INVESTMENTS IN EDUCATION DEVELOPMENT

Upcoming symposium

Title: Primate parasitology: Development, Methods and Future

Date: June 12-14, 2014

Venue: University of Veterinary and Pharmaceutical Sciences, Brno, Czech Republic

Registration

- **no registration fee** will be charged
- If you want to participate actively or passively, please register by filling in this form: http://www.hpi-lab.com/en/outcomes/events/international-conference. Send the form to **polacikoval(AT)vfu.cz** by **May 15 2014**
- we cannot provide any financial support, but we will be happy to help you with arranging the travel and accomodation

The aims:

- to inform scientific audience about the state-of-art achievements in the field of primate parasitology
- to share ideas, lay grounds for future collaboration, discuss various methodological approaches
- to outline the future of the field, identify important challenges

Organizers:

1) **Laboratory for Infectious Diseases Common to Humans and (non-Human) Primates (HPI-lab)** shared by the **University of Veterinary and Pharmaceutical Sciences** (UVPS), Brno, the Czech Republic and **Institute of Parasitology**, Biological Centre of Academy of Sciences of the Czech Republic (BC ASCR)
2) **Institute of Vertebrate Biology** of the Academy of Sciences of the Czech Republic (IVB ASCR)
3) **Evolutionary Physiology and Ecology Laboratory**, Indiana University, USA (EPE lab)
4) **Durham University,** UK (UDUR)

Scientific board:

David Modrý (HPI-lab)
Michael Muehlenbein, Indiana University, USA (EPE lab)
Klára Petrželková (HPI-lab, IVB ASCR)
Joanna M. Setchell (UDUR)

Managing committee:

Lenka Polačiková, Veronika Bumbálková

Programme:

DAY 1 (12.6.2014)

Michael Muehlenbein (Indiana University, USA): A history of primate parasitology, with an emphasis on proper study design and analyses, and a call for better training of students

Opportunistic protists and helminthes:

Keynote talk: Lihua Xiao (Centre for Disease Control and Prevention, USA): Advanced molecular detection of enteric protists

- Martin Kváč (Biology Centre AS CR, CR): *Cryptosporidium* and cryptosporidiosis in non-human primates
- Bohumil Sak (Biology Centre AS CR, CR): Microsporidiosis in non-human primates
- Ivan Čepička (Charles University, CR): Trichomonads of African great apes
- Jana Petrášová (UVPS Brno, CR): Diversity of *Blastocystis* sp. infections in captive and free-ranging primates

Keynote talk: Robin Gasser (Melbourne University, Australia): Molecular tools to investigate helminths of primates

- Barbora Kalousová (UVPS Brno, CR): Diversity and transmission of strongylid nematodes in CAR
- Rui Sá (UVPS Brno, CR): Molecular phylogeny of *Trichuris* sp. recovered from colobines living in sympatry in Guinea-Bissau
- Jana Petrášová (UVPS Brno, CR): Do we share the same anoplocephalid tapeworms with primates?

DAY 2 (13.6.2014)

Taxonomy and virology:

Keynote talk: David Modrý (UVPS, Brno): What the names are for: Taxonomy in medical parasitology

- Kateřina Pomajbíková (Biology Centre AS CR, CR): Molecular diversity of intestinal ciliates
- Jana Petrášová (UVPS Brno, CR): New insights into whipworm infections of primates

Keynote talk: Fabian Leendertz (Robert Koch Institute, Germany): Viruses and wild great apes

- Kristýna Hrazdilová (UVPS Brno, CR): Anellovirus infections in primates
- Eva Slaninková (UVPS Brno, CR): Adenovirus infections in Ugalla chimpanzees
- Kristýna Brožová (UVPS Brno, CR): Widespread infection of parvoviruses in Ugalla chimpanzees

Bacteriology, NGS

Keynote talk: Andres Gomez (Illinois University, USA): A Meta-"OMICS" systems approach to microbial community studies in non-human primates

- Klára Vlčková (UVPS Brno, CR): Effects of antibiotic treatment on the gastrointestinal microbiota of free-ranging western lowland gorillas (*Gorilla g. gorilla*)

DAY 3 (14.6.2014)

Blood parasites seen through "brown glass"

Keynote talk: Ananias Escalante (Arizona State University, USA): Phylogenetic systematic analyses of nonhuman primate malarias

Keynote talk: Julius Lukeš (Biology Centre, CZ): Trypanosome infections in primates

- Mwanahamissi Issa Mapua (UVPS Brno, CR): Ecology of the western lowland gorillas malaria parasite in Dzanga Sangha Protected Areas, Central African Republic
- Erhan Yalcindag (Masaryk University, CR): *Plasmodium* species in monkeys: a look from out of Hominidae family

Keynote talk: Michael Muehlenbein (Indiana University, USA): Statistical considerations in primate parasitology

Keynote talk: Thomas Gillespie (Emory University, USA): Ecological and anthropogenic drivers of zoonotic disease transmission in primates

- Ivona Foitová (Masaryk University, CR): Orangutan parasites and natural antiparasitics

Upcoming summer school

Following the symposium "Primate Parasitology: Development, Methods and Future" we cordially invite you to attend and participate in the

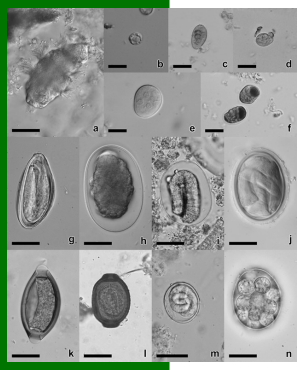
Title: Summer School of Primate Parasitology

Date: June 16-21, 2014

Venue: University of Veterinary and Pharmaceutical Sciences, Brno, Czech Republic

Registration

- **no registration fee or tuition** will be charged
- please register by filling in this form **http://www.hpi-lab.com/en/outcomes/events/summer-school**. Send the form to **polacikoval(AT)vfu.cz** by **May 15 2014**
- we cannot provide any financial support, but we will be happy to help you with arranging the travel and accomodation



Mission:

The aim of the summer school is to introduce various methods used in primate parasitology with special emphasis on coproscopic examination for gastrointestinal parasites. The participants will also perform post mortem examination and collect samples from primate cadavers. All participants will be also encouraged to discuss and seek advice for potential problems in their own projects.

Organizers:

Laboratory for Infectious Diseases Common to Humans and (non-Human) Primates (HPI-lab) shared by the **University of Veterinary and Pharmaceutical Sciences** (UVPS), Brno, the Czech Republic and **Institute of Parasitology**, Biological Centre of Academy of Sciences of the Czech Republic (BC ASCR)

Scientific board:

David Modrý (HPI-lab)
Barbora Kalousová (HPI-lab)
Ilona Pšenková (HPI-lab)

Managing committee:

Lenka Polačiková, Veronika Bumbálková

Upcoming summer school

Programme:

DAY 1 (16.6.2014)

David Modrý (UVPS Brno, CR): Opening lecture of the Primate Parasitology Summer School
Barbora Kalousová, Mwana Issa (UVPS Brno, CR): Collection and preservation of the samples (*lecture*)
Ilona Pšenková (UVPS Brno, CR): Microscopy in use (*lecture + practicum*)
Kateřina Pomajbíková (Biology Centre AS CR, CR): Coproscopical methods (*lecture + practicum*)
Thomas Gillespie (Emory University, USA): Zoonotic diseases and transmission in primates (*evening lecture*)

DAY 2 (17.6.2014)

Jana Petrášová (UVPS Brno, CR): Methods used for parasite quantification (*lecture + practicum*)
Zuzana Hůzová (Health Institute, CR)**, Martin Kváč** (Biology Centre AS CR, CR): Staining methods used for faecal and blood samples (*lecture + practicum*)
Pavla Smejkalová (Charles University, CR): Detection and cultivation of trichomonades in primates (*evening lecture*)

DAY 3 (18.6.2014)

Barbora Kalousová (UVPS Brno, CR): Methods used for detection of different nematode stages (*lecture + practicum*)
Chris Whittier (Tufts University, USA): Obtaining of the samples post mortem (*lecture*)
Chris Whittier (Tufts University, USA): Autopsy of primate cadaver (*practicum*)
Chris Whittier (Tufts University, USA): Applied veterinary medicine for great ape conservation (evening lecture)
Rui Sá (UVPS Brno, CR): Hunting and poaching: conservation issue, health risk (*evening lecture*)

DAY 4 (19.6.2014)

Transport to the zoo/ breakfast in the zoo
Primate curator: Work with the captive animals (*lecture*)
Collection and preservation of the samples (*practicum*)
Visit of the zoo
Processing of the samples collected in the zoo (*practicum*)

Klára Petrželková (UVPS Brno, CR; IVB ASCR, CR): The pitfalls of the research on animals living in captivity versus in the wild (*evening lecture*)

DAY 5 (20.6.2014)

Barbora Kalousová, Ilona Pšenková (UVPS Brno, CR): Determination of the parasites found in primates with emphasis on chimpanzees and gorillas (*lecture*)
Barbora Kalousová, Ilona Pšenková (UVPS Brno, CR): Determination of the parasites found in samples collecting in the zoo and in interesting preserved samples from wild primates (*practicum*)
Rui Sá (UVPS Brno, CR): Molecular tools used in primate parasitology (*lecture + practicum*)

Social evening, banquet

DAY 6 (21.6.2014)

Barbora Kalousová, Ilona Pšenková (UVPS Brno, CR): Final summary: brainstorming (*practicum*)
David Modrý (UVPS Brno, CR): The closing words of the Primate Parasitology Summer School

New lab members

Peter Vallo

Peter Vallo has been focusing since his PhD studies at molecular phylogenetics and taxonomy of Afrotropical bats. at the Institute of Vertebrate Biology, Academy of Sciences of the Czech Republic Currently, he is working on assessment of molecular genetic variation in strongylid nematodes of the genera *Mammonogamus* and *Necator* in African primates, and reconstruction of their phylogenetic relationships and possible transmission to other, human and non-primate hosts.

Ilona Pšenková

Ilona Pšenková conducted her PhD study on entodiniomorphid ciliates of gastrointestinal tract of great apes, their diversity and hydrolytic activities and described thier contribution to ape digestion. Currently she is focused on monitoring of gastrointestinal parasites of Ugalla chimpanzees and gorillas from Central African Republic (Dzanga-Ndoki National Park). She also works on cross-transmission of strongylid nematodes between great apes and humans at several research sites in Africa.

Dagmar Jirsová

Dagmar Jirsová is member of University of Veterinary and Pharmaceutical Sciences Brno, Department of Pathological Morphology and Parasitology. Dagmar finished her BSc. and MSc. at University of South Bohemia in České Budějovice, Fakulty of Science specialized at phylogenetic relationships of trematodes of the families Opisthorchiidae and Heterophyidae. Currently, Dagmar works on population and evolution genetics of *Wenyonia virilis* from Nile basin, evolution and colonization of *Hepatozoon* sp. at Canary Islands, intraspecific competition of co-infections between *T. brucei* and *T. evansi.*

Gabon

The zone of Petit Loango within the Parc National de Loango is situated on the south-west coast of Gabon between the boarder with Congo and the capital city of Libreville. Research activities are directed by L'Agence Nationale des Parcs Nationaux (ANPN). The study site covers approximately 20 km2 and may be divided into two areas: coastal forests and interior swamp forests. It contains several habitat types: complex mosaic of closed- and open canopy forest, secondary forest, swamp areas, savannas, coastal scrub and Sacoglottis gabonensis-dominant forest.

Our research is focused on:

1) parasite fauna and microbiota of local primate populations
2) parasite fauna in other large herbivores, mainly forest elephants and forest buffalos
3) parasite insect vectors

Our study area is a developing ecotourism concession, which means in the next several years it will go from an area devoid of human presence to having a low level of low impact human activities.

KALINZU FOREST RESERVE (KFR)

KFR is one of the largest forest blocks situated near Queen Elizabeth National Park in southwestern part of Uganda. It covers an area of 137 km2, with an elevation of 1000-1500 m above sea level. The KFR was gazetted as a Central Forest Reserve and in 2003 was listed by Uganda Wildlife Authority as one of the conservation priorities. Several projects have been conducted to help protect and widen the knowledge on the KFR biodiversity. Six different species of primates including chimpanzees can be found in KFR. Based on 2001 primate census, the number of chimpanzees was estimated to be 240. Four groups have been identified, two of which are can be accessed by researchers and tourists. There is a high level of illegal hunting in this reserve, leading to high cases of chimpanzees' snares. Since 1997 there are ongoing ecological studies of chimpanzees and other primates led by Dr. Chie Hashimoto from Primate Research Institute, Kyoto University, Japan. Valuable data collected from these studies triggered the initiation of snare removal program. In 2007, members of our team conducted a research on the dynamic of entodiomorphid ciliate *Troglodytella* and other parasite of chimpanzees.

Our current research is focused on

1) parasite fauna of chimpanzees in relation to complexity in behavioral organization
2) genetic diversity and patterns of malaria infections in chimpanzees
3) diversity of strongylid nematodes in chimpanzees

Dja Faunal Reserve (Dja)


Photo by PGS

Dja (FR) a UNESCO World Heritage site is situated in southeast Cameroon. The Dja FR covers approximately 5260 km² with an elevation range of 400-800 m above sea level. Dja FR is directed by the Cameroonian government and ECOFAC (Ecosystemes Forestiers en Afrique Central). The reserve is one of the largest protected areas of the African rainforests: 90% of its area remains undisturbed. The area has been declared as an exceptional priority area for the conservation of great apes in western equatorial Africa. Great apes research is carried out around a research camp La Belgique (13°07'-013°11' E; 03°23'-03°27' N), a 40 km^2 study area, in the northern periphery of the Dja FR and managed by Projet Grands Singes (PGS; http://webh01.ua.ac.be/crc/PGS/PGS_home.html) under the Centre for Research and Conservation (CRC), Royal Zoological Society of Antwerp, Belgium (RZSA; www.zooantwerpen.be). The site has no official protected status and the forest was partially and selectively logged more than 30 years ago. Chimpanzees and gorillas remain intentionally unhabituated to human observers because of the high hunting pressure in the surrounding areas. The area has low human population density, however both subsistence and commercial hunting pressure is high.

Our research is focused on:

1) parasite fauna of local primate populations and humans

2) communities of strongylid nematodes in primates and humans

3) factors important for zoonotic transmissions of strongylid nematodes between ape and human populations

We believe that this information will be of high conservation value and allow controlling potential threats to health of both great apes/primates and humans.

Recent publications

Hasegawa, H., Modrý, D., Kitagawa, M., Shutt, K. A., Todd, A., Kalousová, B., Profousová, I. & Petrželková, K. J. (accepted). Humans and great apes cohabiting the forest ecosystem in Central African Republic harbour the same hookworms. PLOS Neglected Tropical Diseases

Kalousová, B., Piel, A. K., Pomajbíková, K., Modrý, D., Stewart, F. A. & Petrželková, K. J. (accepted). Gastrointestinal parasites of savanna chimpanzees (*Pan troglodytes schweinfurthii*) in Ugalla, Tanzania. International Journal of Primatology

Shutt, K., Kalousová, B., Heistermann, H., Kasim, A., Petrželková, K., Modrý, D., Profosouvá, I., Todd, A., Fuh, T., Dicky, J. F., Bopalanzognako, J. B. & Setchell, J. M. (accepted). Fecal glucocorticoids and gastrointestinal parasite infections in wild western lowland gorillas involved in ecotourism. Conservation Biology

Janatová, M., Albrechtová, K., Petrželková, K. J., Dolejška, M., Papoušek, I., Masariková, M., Čížek, A., Todd, A., Shutt, K., Kalousová, B., Profousová-Psenková, I., Modrý, D., Literák, I. (In press). Antimicrobial-resistant Enterobacteriaceae from humans and wildlife in Dzanga-Sangha Protected Area, Central African Republic. Veterinary Microbiology

Shutt, K., Heistermann, M., Kasim, A., Todd, A., Kalousová, B., Profosouvá, I., Petrželková, K.,J., Fuh, T., Dicky, J.F., Bopalanzognako, J.B., Setchell, J.M. (2014) Effects of habituation, research and ecotourism on faecal glucocorticoid metabolites in wild western lowland gorillas: Implications for conservation management. Biological Conservation 172: 72–79

Laboratory for infectious diseases common to humans and (non-human) primates

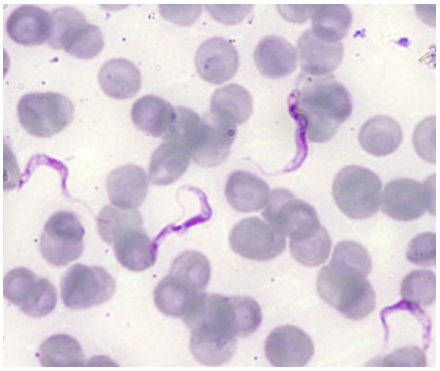
Department of Pathology and Parasitology
Faculty of Veterinary Medicine
University of Veterinary and Pharmaceutical Sciences Brno
Palackeho 1-3, 612 42 Brno
Czech Republic

modryd@vfu.cz
phone: +420541562270
fax: +420541562266

www.hpi-lab.com

The **HPI-lab** started on the basis of a three-year grant project "Development of scientific team and laboratory for infectious diseases common to humans and great apes" funded by the operational programme "Education for Competitiveness Operational Programme" (ECOP) controlled by the Ministry of Education, Youth and Sports of the Czech Republic funded by the European Union.

The ECOP project further develops current research at Faculty of Veterinary Medicine at University of Veterinary and Pharmaceutical Science Brno and increases the quality of PhD. study level with the aim to establish the project team across international research in the given field. The project focuses mainly at young, perspective scientists but assigns an important role to senior scientists, too.



EUROPEAN UNION
MINISTRY OF EDUCATION, YOUTH AND SPORTS
OP Education for Competitiveness
INVESTMENTS IN EDUCATION DEVELOPMENT