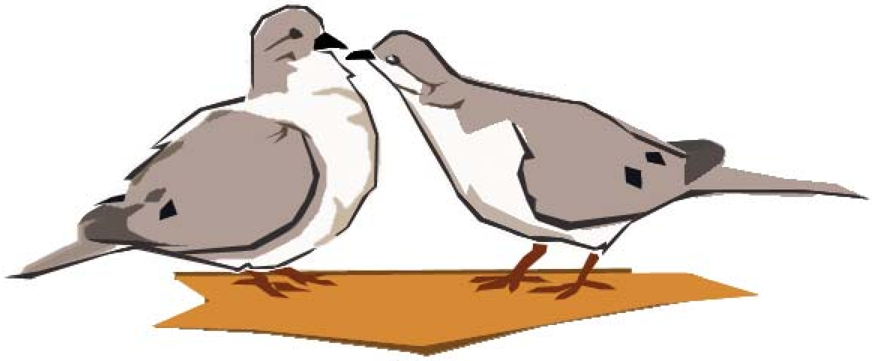

ECBB 2010
V European Conference on Behavioural Biology

16-18 July 2010, Ferrara, Italy

University of Ferrara

Plenary Lectures

V European Conference on Behavioural Biology

Ferrara, July 16th-18th, 2010

Plenary Lectures

Friday, July 16th 2010

9:15 - 10:15

Room E2+E3

WILD BEARDED CAPUCHIN MONKEYS USE STONE TOOLS. A CHALLENGE TO OUR IDEAS ABOUT TOOL USE IN HUMAN EVOLUTION

Elisabetta Visalberghi

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Wild capuchin monkeys living in Fazenda Boa Vista (Piauí, Brazil; a dry forest habitat) use hammers and anvils to crack open nuts, and then eat the nutritious kernels. I will discuss our team's studies of the cracking activities of two groups of capuchin monkeys in Boa Vista, together with our explorations of their hammers, anvils, and the nuts they crack. These monkeys crack nuts throughout the year using proportionally large stones (on average, 1 kg; an adult monkey weighs 2 – 4.5 kg). The kernels are very difficult to crack because they have a thick, tough shell and stones suitable as hammers are very rare in the habitat where capuchins live. Our work shows that these monkeys display selectivity in their choice of stones, nuts, and anvil sites, and finely honed skill in cracking the nuts. These findings challenge notions that selectivity, transport and physical skill in tool use are characteristic only of humans, human ancestors, and great apes. Stone tool use by capuchin monkeys opens up a new reference point for thinking about tool use across species and across evolutionary time.

Saturday, July 17th 2010

9:00 - 9:30 Tinbergen Award

Room E2+E3

HORMONES AS COORDINATORS AND FACILITATORS OF SOCIAL BEHAVIOUR, EXCITEMENT AND SUCCESS

Katharina Hirschenhauser

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Social interactions may provoke changes of a wide array of hormones, activate different neuronal circuits and gene expression. Testosterone (T), the major sex steroid of male vertebrates, has been particularly well studied. On top of seasonally regulated patterns, short-term T surges of variable magnitude may occur in response to social encounters. The degree of T responsiveness was shown to vary with social system, i.e. larger T responses in males from monogamous than in polygynous bird species ("challenge hypothesis). Thus, seasonal T levels are a function of the social environment. Meanwhile the phenomenon has been extended to males of all vertebrate taxa. However, despite the taxonomic breadth its functions remain puzzling. At the heart of analysis, time-scale matters and I will present examples for the social modulation of T at both levels: (a) based on seasonal T patterns, the hormonal partner compatibility in geese as example for T acting as coordinator of social behaviour, pairbond maintenance and reproductive success; (b) immediate hormone changes may be viewed as facilitators of (future) behaviour and success, e.g. T surges in winners but not losers of a fight. Yet, in fish and quail mirror-elicited fighting behaviour was dissociated from T. Recent evidence suggests that an individual perception of fighting vigour, both own and opponent's, seems to activate the expression of a T surge rather than winning or losing itself. Why engage T when social experience alone would be sufficient for inducing the winner effect? Tests with quail reveal that T-responsiveness is involved by facilitating behaviours affecting a "winner's attitude" and thus, the mutual assessment. Currently, I focus on the ability to recall social information for future encounters. Funded by the Alexander von Humboldt Stiftung

Saturday, July 17th 2010

9:30 - 10:30

Room E2+E3

A BEHAVIORAL PERSPECTIVE ON ORGANISMALITY IN A MICROBE

Joan E. Strassmann, David C. Queller

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Insights from animal behavior can transform our understanding of life, beginning with what it means to be an organism. We define an organism as an entity that exhibits high cooperation and low conflict among its parts, and need not meet any other requirement. By this definition many social insect colonies and some mutualisms are organismal. The utility of this definition of organismality can be seen in less-studied organisms like the social amoeba Dictyostelium discoideum. Amoebae prey upon bacteria in the soil, and divide by binary fission. When their prey become scarce, the amoebae aggregate into a multicellular body of thousands of cells that moves towards light, and ultimately forms a fruiting body. In the fruiting body about 20% of cells die to form a stalk upon which the remaining cells become hardy spores. During the feeding stage, individual amoebae may be considered as organisms. During the social stage, the multicellular slug has sufficient internal cooperation in movement and differentiation to be viewed as organismal. However it also exhibits internal conflict, particularly in genetic chimeras, which move less far than pure clones. Cooperation appears to be maintained by high relatedness within the group. By contrast, when low relatedness conditions are experimentally generated, and maintained over many social generations, some key cooperative traits are lost, and cheaters are favored. Our understanding of sociality comes largely from studies of macro-organisms, particularly vertebrates and insects. However it is becoming increasingly clear that these insights can be applied to all levels of life.

Sunday, July 18th 2010

9:10 - 10:10

Room E2+E3

GOING WILD, GOING GLOBAL: RETHINKING BEHAVIORAL BIOLOGY IN A NEW TECHNOLOGICAL ERA

Martin Wikelski

Max-Planck-Institute for Ornithology and Konstanz University

Behavior is the most important animal trait. Behavior links the animal to its environment and quickly drives evolution. And yet, we still know very little about how behavioral decisions exerted over time are linked to fitness. We also know little about decision rules individual animals have to drive complex behaviors such as migration. The main reason is that for most animals we can not yet observe them during their entire lifetime in the wild, nor observe the environmental context of their decisions over space and time. This also means that in most cases we do not know where, when and why individual animals die in the wild, and how they try to use behavioral decisions to avoid death. New technology is rapidly changing our abilities to observe small animals over their lifetime on a global scale. Behavioral biologists will thus rapidly gain quantitative insight into the very details how behavior changes evolutionary trajectories. We will be able to use this knowledge in population biology, biomedicine, conservation and disaster prevention. The golden times of behavioral biology are yet to come.