ECBB 2014 Prague

Book of Abstracts Errata

Programme overview:

Thursday, July 17th
16:00 – 18:00 Registration (Canteen)
18:00 – 20:00 Welcome drink (Canteen)

Friday, July 18th
08:00 – 18:00 Registration (SIC)
09:00 – 09:20 Opening ceremony (Congress hall)
09:20 – 10:20 Plenary lecture
10:20 – 10:50 Coffee break
10:50 – 12:30 Symposia/Sessions
12:30 – 14:00 Lunch
14:00 – 15:00 Plenary lecture
15:00 – 16:00 Posters (odd numbers) and Coffee break
16:00 – 18:00 Symposia/Sessions
18:30 AGM of Czech and Slovak Ethological Society (MII)

Saturday, July 19th
09:00 – 10:00 Plenary lecture
10:00 – 10:30 Coffee break
10:30 – 12:30 Symposia/Sessions
12:30 – 14:00 Lunch
13:00 – 14:00 ASAB AGM (MI)
14:00 – 14:40 Nico Tinbergen Award: Erica van de Waal
14:40 – 15:40 Symposia/Sessions
15:40 – 16:40 Posters (even numbers) and Coffee break
16:40 – 18:00 Symposia/Sessions
19:00 – 24:00 Social dinner (Canteen)

Sunday, July 20th
09:00 – 10:00 Plenary lecture
10:00 – 10:30 Coffee break
10:30 – 12:10 Symposia/Sessions
12:10 – 12:30 Closing ceremony (Congress hall)
12:30 Lunch

Last-minute abstracts and those omitted by mistake:

The evolution of honest signalling

T. Fitch

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Do animals signals reliably carry accurate information, and if so, why? These are central questions in the evolution of communication, and despite a large theoretical literature, many core issues remain unresolved. Key concepts include those of "signal", "information" and "reliability", all of which receive different definitions or interpretations by different authors. Largely following the terminology of John Maynard Smith, I will show that there are many evolutionary sources for "honesty" in animal signals, and that "handicaps" rarely play an important role (despite their popularity in the contemporary literature). Important factors ensuring honesty include, repeated interactions among members of stable groups ("reputation"), sharing of information among kin and constraints imposed by the physics and physiology of the signal production system. In each case, these factors can lead to stable honest signaling systems, with no costs beyond the efficacy costs required to simply produce a perceptible signal. I will provide illustrations of each of these sources of honesty, and conclude that research on signaling in any particular species should explore a wide range of possible alternative hypotheses. Animal communication research needs to move beyond its infatuation with handicaps and costly signalling.

(plenary lecture)

Influence of temporal variation in host resource availability on exploitation strategies of cereal aphid parasitoids

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Exploitation strategies of organisms should adapt to the richness and quality of available resource, in order to maximize their fitness. Parasitoids insects are an interesting biological material to work on this subject, because they are organisms that are obligate parasites resulting in the death of the host, and the fitness of female parasitoids is strictly linked to the quality of the host in which its offspring develop. In cereal aphid parasitoids, resource abundance can fluctuate significantly between winter and spring. Parasitoids should then show a temporal evolution of their strategy of resource exploitation. In winter, when there is low host resource

abundance, parasitoids should parasitize all hosts found in the environment, without showing any preference towards an aphid species, whereas in spring, when resources become more abundant, parasitoids should choose the most profitable host resources. The aim of this study is to consider aphid and parasitoid communities present in fields during each season, and to work exclusively on biological material from fields. Parasitoid strategies of resources exploitation were studied in winter and spring. Behavioral analysis of host choice by parasitoid females and life history traits were measured (parasitic success rate, development time, size, weight and wing loading of offspring) in order to study preference and performance of parasitoid females in the various hosts available in environment in each season. Results validate our hypothesis, showing no preferences towards host species in female parasitoids in winter, even if there is a difference of profitability between the hosts. In spring, on the contrary, females show host preference. However, no difference of host profitability was found during this season. Finally, this study highlights the capacity of parasitoids to adapt their exploitation strategies according to temporal fluctuation in resource availability.

(other topics - poster 130)

Calling predicts mating success in the Lusitanian toadfish

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Females often choose males of high phenotypic or genetic quality. In Lusitanian toadfish (*Halobatrachus didactylus*) calling rate reflects male quality and appears to predict male reproductive success (i.e. number of eggs in the nest). However the number eggs may not be an adequate proxy of male reproductive success if sneaking or nest takeovers occur. We tested the influence of calling activity on reproductive success with two experiments. First, we tested the relation between acoustic signalling and male reproductive success by comparing brood size among muted (deflated swimbladder, the sound-producing apparatus), sham-operated (intact swimbladder) and unmanipulated males in the Tagus estuary (Portugal). Males were confined in artificial nests that only allowed females to enter. Individual calling rate was quantified using a matched filter of Ishmael software. We did not find significant differences in the number of obtained eggs among male groups probably because the sample size for muted fish was small (N=5). However, when excluding muted males, egg number was significantly correlated with calling activity but not with male length or weight. In the second experiment we used microsatellites to quantify the percentage of eggs sired by unrestrained nest-holders in the population. We found a mean of 84% of eggs sired by free nest-holders suggesting a relatively low sneaking pressure. In summary, this study suggests that calling activity, but not male size, influences reproductive success in Lusitanian toadfish. Moreover, it calls for the need of offspring parental analysis when assessing fish reproductive success.

(other topics - oral presentation)

Changes in fisheries in the East Sea due to climate change

Y. Kim, Y. Jang

Ewha Womans University

Korea is a peninsula in Asia bordering China and Russia, and nearly encircled by the islands of Japan. All three seas have distinct characteristics, but the East Sea is especially unique because it is an area where a warm current and a cold current meet. It has traditionally been a very productive fishery due to the dual current that flows through it, allowing for organisms with drastically different temperature requirements to both live and flourish there. Recent rise in sea surface temperature, attributed to climate change, was suspected to have affected the species that are found in the East Sea. I compared sea surface temperature (SST) data and the catch of two representative species, the walleye pollock (*Theragra chalcogramma*) that prefers cold temperatures and the Japanese flying squid (*Todarodes pacificus*) that prefers warm temperatures in order to see the correlation between SST and the species abundance in the East Sea. The SST of the East Sea has increased about 3℃ in certain areas, strengthening the warm Tsushima current while weakening the North Korea Cold Current. The change in temperature has led to a change in the fish that are living in the East Sea, which can be seen in the yearly and monthly catch of each species. There is a sharp decrease in the catch of walleye pollock and a steady increase of Japanese flying squid that corresponds with the weakening cold currents in the area. Because this area is a place where two currents with differing temperatures meet and create a thermal front, the advancement and retreat of currents dramatically affect the species that live in the East Sea, changing species abundance in the area.

(Poster 132)

Does *Wolbachia* infection produce parthenogenetic dunces?

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Several factors, such as cold exposure, aging, number of experiences or virus infection have been shown to affect learning ability and memory duration in different organisms. Wolbachia has been found worldwide as arthropods parasite/mutualist symbiont in a wide range of species, including insects, with different effects on their physiology and behavior which generally increase the transmission rate of Wolbachia. However, the effect of *Wolbachia* infection was never studied on the learning ability of their host. The current research was conducted to compare learning ability and memory duration of two strains of the parasitoid Trichgramma

brassicae, one uninfected (sexual) and one infected (asexual) by Wolbachia. Both strains were able to associate the novel odors of lemon or peppermint to the reward of an oviposition in a host egg, but the percentage of females able to learn was higher for the sexual strain. Memory duration was longer in sexual wasps (23.8 h and 21.4 h after conditioning with peppermint and lemon respectively) than in asexual wasps (18.9 h and 16.2 h after conditioning with peppermint and lemon respectively). Memory duration increased in response to the number of conditioning sessions in both strains, but the memory duration was always shorter for asexual wasps than for sexual ones. Possible reasons and effects of lower learning ability and memory duration of asexual wasps are discussed.

(other topics - poster 131)

The role of pheromones and other semiochemical in animal behavior. The impact of sex pheromones masking to laboratory mouse mating

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The aim of this study was to demonstrate the importance of olfactory communication in animals life and the consequences of the disorder by experiment, which shows that masked sex pheromones affect on the reproductive behavior of laboratory mice. The experience was conducted on 160 laboratory mice. Observations have shown significant differences between the control group and the experimental groups, suggesting a masking effect or deterrent effect on male laboratory mice, as shown on the latency axis. Statistical research have only shown the importance of the smell of “mint”, which demonstrate that different odors mask with different strength. To calculate the relationship between the measured parameters following statistical programs were used: IBM SPSS Statistics 20 and Statistica”

(affective states and the proximate control of behaviour - poster 7)

Interspecies differences in behavior of cotton-top tamarin (*Saguinus oedipus*) and red-handed tamarin (*Saguinus midas*)

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Studies of personality in nonhuman primates have recieved considerable attention. Studies of platyrrhine primates, however, are rare and thus restrict interspecies comparisons. The main aim of this study was to compare behavior of cotton-top tamarins (*Saguinus oedipus*) and red-handed tamarins (*Saguinus midas*). Behavior of 42 individuals in 10 groups was recorded from July 2011 to May 2012 in 9 zoological gardens in the Czech Republic and in Slovakia. Relationships among wide range of behaviors were evaluated separately for each species and species-specific personality models were revealed. PCA identified 2 dimensions (Activity, Confidence) for the cotton-top tamarins and 3 dimensions (Social activity, Nervousness, Assertiviness) for red-handed tamarins. Relationship between personality traits and other characteristics of individulas (age, sex, breeding status) were examined.

(animal personality in comparative perspective - poster 13)

Stress-induced behaviour in adult rats: long term effects of exposure to extremely low frequency magnetic field

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It is believed that electromagnetic fields do have beneficial and harmful biological effects.The aim of the present work was to study the long-term consequences of 50 Hz electromagnetic field(ELF-EMF) exposure on behavioural stress responses. Adult male Wistar ratswere exposed to ELF-EMF (50 Hz, 1mT) for 7 days, 1 h daily.Stress responses were studied in open-field test immediately after exposure to ELF-EMF and 28 days later.The travelled distance and the time spent in the central zone of the open-field were significantly shorter in rats exposed to ELF-EMF compared to control animals immediately ($p<0.05$, $p<0.001$, respectively) as well as 28 days ($p<0.05$, $p<0.05$, respectively)after exposure to experimental conditions. The exposure to relatively low intensity electromagnetic field may count as a mild stress situation causing the permanent changes in the hypothalamo-pituitary –adrenal axis, which we observed as behavioural disturbances in open-field test.In conclusionELF-EMF could be a factor in the development of stress-related disorders.

(other topics - poster 120)

Ravens' stress responses to separations depend on social integration

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Before young common ravens (*Corvus corax*) form monogamous breeding pairs they live in non-breeder groups with a high degree of fission-fusion dynamics. Within such groups, birds have social relationships of varying quality and valence. Affiliated individuals provide benefits, such as social support during or after conflicts with others, and are therefore presumably reducing corticosterone levels and alleviating stress. Previous studies have found that pair mate separations are causing stress, but so far little is known about the endocrine activity in the context of fission-fusion dynamics, where long-lasting separations of affiliated birds may occur more frequently. The present study aims to investigate these endogenous effects by separating sixteen ravens individually from their group for four days and subsequently reintroducing them. To determine stress response patterns in the isolated individuals we measured the amounts of excreted immunoreactive corticosterone metabolites (CM) in droppings using an enzyme immunoassay against 3α,11oxo-CM, previously validated for ravens. Our findings suggest that most individuals seem to be stressed when they are isolated from their group, though this only applies to socially well-integrated birds. For ravens that lack affiliates, or only have very few, group living appears to be even more stressful than being alone. The birds' stress responses to the separation and the subsequent reunion, thus, seem to depend on their social integration.

(birds, brains, and behavior - oral presentation)

Artificial sheep and sheep flocks

A. Taylor, R. Aylett, P. Green

Heriot-Watt University, United Kingdom

"This research presents a new approach to the study of biologically inspired agents within multi-agent systems, using the phenomena of sheep flocks as an example. Several approaches have been taken to the modeling of these type of systems including the 'Boids' model by Reynolds (1987) and the fish schooling simulation by Tu (1990). These models are rule-based systems which are inadequate to the task of validly reproducing flocking behaviour for three primary reasons a) they impose a global homogeneity of behaviour across all agents b) these models ignore the evolution of a population's behaviour over time. In order to address these problems, we have developed an evolving neural network architecture based on the work of Floreano & Nolfi (2004), for use with groups of prey agents. We have then compared the behaviour of this system with the behaviour of a 'Real' sheep flock by using the Anisotropy measure mentioned by Ballerini et al (2008). We have found that the genetic algorithm finds a level of Anisotropy similar to that of real sheep flocks, without this being explicit within the fitness function used. Thus we have found a method of 'Faithful reproducing' natural flocking behaviour amongst artificial agents. We have also observed that the type of anisotropic movement present within the movement of sheep flocks differs radically from that present within flocks of starlings as measured by Ballerini et al (2008).

(other topics - poster 129)

Changes and corrections:

Page 232:

~~**Fehmer Jürgen**~~ --> **Martin Seltmann**, Environmental and Marine Biology, Åbo Akademi University, Tykistökatu 6, 20520 Turku, Finland, *martin.w.seltmann@gmail.com*

Page 138 – Possibilities of a heart rate monitoring of the dog (*Canis familiaris*) in behavioral physiology - a pilot study (poster 72)

--> belongs to other topics.

Page 140 – A nap to recap: reward strengthens relational memory during daytime sleep (oral presentation)

--> belongs to symposium: Reference frames in spatial memory

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Isabelle Laumer
Alexander Moreno
Christine Schwab