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Behavioral Ecology*

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CONFERENCE ABSTRACT BOOK

Each abstract has been approved by double-blind peer-review

Conference chair: Prof. Mark E. Hauber, Hunter College, CUNY

Co-chair: Asst. Prof. James Higham, New York University

envelope of the spermatophore.

Universidad Nacional Autónoma de México, Ecología de la Conducta de Artrópodos, Ecología Evolutiva; jaimecamacho@ieciologia.unam.mx; ISBE2014 Poster.

Cameron EZ*, Edwards AE, Wapstra E: Constraints on maternal sex allocation in mammals.

Mothers are predicted to invest in offspring so as to enhance their own lifetime reproductive success, beginning at conception. While recent reviews have shown consistent sex biases around conception, the effect sizes tend to be smaller than predicted, implying that there may be constraints on maternal ability to adjust sex ratios. Using mice as a model species, we test whether paternal sex allocation constrains maternal sex allocation, through both sperm sex ratios and the constituents of seminal fluids. We show that the X-Y ratio of sperm is variable, and consider the consequences of this variability for mothers. Moreover, the variation in seminal fluid constituents could alter the environment in the female reproductive tract to favour the conception of one sex over the other. Lastly, we show that foetuses receiving an induced maternal stress effect during late gestation became adult mothers who have litters with a biased sex ratio. Thus, maternal effects could further constrain maternal ability to adjust sex ratios. We discuss the implications of our findings for maternal sex allocation research.

University of Tasmania, School of Biological Sciences; elissa.cameron@utas.edu.au; ISBE2014 Talk.

Campobello D*, Sealy SG: Social versus individual learning: fitness consequences of two different strategies for antiparasite defence.

Individuals may adopt different defensive strategies that may be learned by observing conspecifics. Quantification of fitness advantages gained either by adopting one defence strategy rather than another, or by individually or socially learning presents some insuperable logistic difficulties in studies of wild populations. Predation events are rarely observed and if the individual has successfully escaped the predatory event it is difficult to track an indirect measure of its fitness. Avian brood parasitism offers an option to quantify both defensive efforts of parasite hosts and their reproductive success as a measure of their seasonal fitness. We investigated two parasitic systems, one involving the common cuckoo (*Cuculus canorus*) and its host, the reed warbler (*Acrocephalus scirpaceus*), and another, the brown-headed cowbird (*Molothrus ater*) and its host, the yellow warbler (*Setophaga petechia*). Starting in 2002, we tested individual versus social learning and recorded defensive responses by these warblers to taxidermic mounts of the parasite presented at their nest. Individuals of both warbler species that adopted a strong defence showed a higher fitness than weak defenders. Contrary to yellow warblers, reed warblers acquired a specific antiparasite defence by observing conspecifics, i.e., by socially learning. Despite its fitness advantages, learning defensive responses was not commonly spread in populations. This last result indicates possible trade-offs in adopting contrasting responses effective to both parasites and predators that threaten warbler nests.

Universities of Manitoba and Palermo, Section of Animal Biology; daniela.campobello@unipa.it; ISBE2014 Talk.

Carey JR*: The role of diet in shaping the mortality, reproductive and behavioral dynamics of tephritid fruit flies.

I will present a synopsis of the main published findings from our National Institute on Aging-funded large-scale research program over the past two decades concerned with how different dietary regimes shape age- and sex-specific mortality trajectories, reproductive trends, and behavioral patterns in tephritid fruit flies. Part I will focus on diet and mortality. Here I will present the results of studies showing how diet composition (sugar; yeast) and access (starvation; periodic) can drastically alter mortality patterns in both sexes and at all ages, particularly older ones. I will also include the results of a recent study on how diet affects the outcome of geriatric trauma in fruit flies. Part II will be on diet and reproduction. In this section I will show how dietary regime and/or periodic access to food influences the age-patterns of egg laying or the scale and patterns of mating in males. Early dietary experiences can have a profound impact on late-life mortality and remaining reproduction. Part III will be on how diet affects various aspects of behavior as recorded by a recently-developed high resolution behavioral monitoring system. We use genome-inspired software to analyze behavioral sequences and create dendrograms and clusters of related behavioral patterns over different ages. I will end with a synopsis of the long-term findings regarding the effects of nutrition and diet on the demography and behavior of fruit flies and identify general principles.