



**Animal Behaviour
Twitter conference 2023
#AnimBehav2023**

Programme of abstracts

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Here we have the abstracts for the conference presentations

The full schedule for the event can be found online at www.animbehav2023.com/schedule

You will find the most up-to-date version of the programme online.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 12:20:00 PM

Presenter: Sydänheimo, A.

Twitter address: twitter.com/SydanheimoAnna

Presentation title: Co-operative care does not scare - the impact of choice and control in dog's stress levels during nail clipping

Presentation abstract:

The relationship between a dog and its owner is based on their interactions. If the dog feels stressed around people, it decreases their welfare and poses a risk to bites. This study investigated the impact of choice and control on the level of stress signals displayed by the dog during routine nail clipping. Dogs were in two individual groups – group 1, where the dogs had been trained with choice and were not restrained during nail clipping and group 2, where the dogs were restrained during nail clipping and could not "opt out". According to the Mann-Whitney test ($p=0.003$, $w=52$), there was a significant difference between the groups in the amount of stress signals. These findings suggest that offering choice and control to a dog during husbandry procedures will most likely lower their stress levels and therefore might have a positive impact on their own and their handlers welfare.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 12:30:00 PM

Presenter: Turza, F

Twitter address: twitter.com/filipturza

Presentation title: Large vs small: the effect of body size on rescue behaviour in ants

Presentation abstract:

Rescue behaviour is a type of altruism of general interest in the context of interactions between animals. Among social organisms, ants are best studied in the context of engaging in rescue actions directed toward endangered individuals. However, variation in rescue behaviour expression is great among and within ant species. Our research aimed to investigate the connection between the body size of ants and their behaviour in rescue situations. The study was conducted on *Formica cinerea* ants, a species in which some individuals engage in vigorous rescue while other individuals fail to do so. We found that both the rescue persistence of the workers that provide help to others and the activity of individuals that require help were higher in smaller than larger workers. We demonstrated that body size can be associated with altruistic behaviour within the ant colonies. The study was funded by the National Science Centre, Poland (grant Preludium 16 number 2018/31/N/NZ8/02312).

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 12:40:00 PM

Presenter: Caicoya, A. L.

Twitter address: twitter.com/CaicoyaA

Presentation title: Giraffes are great statisticians! Big brains are not necessary to make statistical inferences

Presentation abstract:

Making inferences based on statistical information is an ability thought to require large brains, and thus limited to few species like great apes and keas. Here, we tested for the first-time non-primate mammals on this ability. Following similar studies on larger-brained species, in particular, we tested whether giraffes (*Giraffa camelopardalis*) rely on relative quantities to predict sampling outcomes and whether they also integrate physical information about the presence of a barrier to make their inferences. Giraffes could make decisions based on statistical information and also integrate physical information to correctly predict sampling information. These results provide the first evidence of true statistical inference outside primates and parrot species, and suggest that the ability to use statistical information to make decisions might be evolutionarily more widespread than previously thought.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 12:50:00 PM

Presenter: Bracic, M.

Twitter address: twitter.com/markobracic

Presentation title: The ecology of judgement bias: exploring potential consequences of individual differences in "optimism"

Presentation abstract:

Individuals differ in their response to ambiguous information: some individuals behave as expecting positive, while others as expecting negative outcomes. Although such "optimistic" or "pessimistic" biases have become a promising indicator of animal welfare, their ecological relevance is not yet explored. Thus, we investigated whether more optimistic lab mice choose different environmental conditions than more pessimistic ones. To assess this, we developed a test where mice choose between traversing a chamber with predator cues to obtain a large reward and a safe option with a small reward. We successfully established this novel test and found highly repeatable individual differences in their choices; thus, it is a promising and ecologically relevant tool for assessing environmental choices in mice. However, their choice of environment did not depend on their "optimism" level, and therefore we could not confirm that judgment bias has potential ecological relevance.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 1:00:00 PM

Presenter: Bray, A. E.

Twitter address: twitter.com/AmyBray94529852

Presentation title: To hide or to seek: testing differences in the mode of protective colouration in a polymorphic nudibranch mollusc

Presentation abstract:

Prey have evolved mechanisms to avoid predators including behavioural adaptations, chemical defences and protective colouration. Crypsis is often paired with behaviour to maintain camouflage. Aposematic species pair chemical defences with conspicuous warning signals so can move more freely in search of resources. *Polycera quadrilineata* is an aposematic sea slug. It is polymorphic: some individuals develop dark stripes while others remain white with yellow markings. We measure for the first time the conspicuousness of each morph against natural backgrounds (their food: bryozoans growing on different seaweeds). We test if morphs prefer to associate with certain backgrounds and compare activity of each morph in the presence of predator cues. If aposematism is the mode of protective colouration, we expect the morph to be conspicuous against preferred backgrounds and to maintain normal activity in the presence of predator cues. We expect cryptic morphs to be inconspicuous and hide.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 1:10:00 PM

Presenter: Chan, S.

Twitter address: twitter.com/sheila7115

Presentation title: Differences in nests affect accuracy, but not latency, in nest-site selection in acorn ants

Presentation abstract:

When cavity-dwelling *Temnothorax* ants emigrate to a new nest, individual ants assess available options based on attributes like the brightness and the shape of the cavity. If the new nest is good, more ants would be recruited. The recruitment effort reflects the quality of the nest. Each individual ant does not need to compare all the nests themselves, so the colony avoids making a wrong decision due to overwhelming information like the number of options or the different attributes, as seen in previous studies. In this study, we investigated how the number of differences between options affected the decision-making process of acorn ants *Temnothorax curvispinosus* by using pair-wise trials on colonies. The accuracy but not the latency of the decision-making process was significantly affected by the number of differences between candidate nests. The results show that collective decision making can help the colonies make decisions effectively, which could be crucial to their survival.

Session name: Differences & Decisions

Presentation time (GMT): 1/18/2023 1:20:00 PM

Presenter: Benvenuto, C.

Twitter address: twitter.com/cbenvenuto73

Presentation title: Sex control

Presentation abstract:

Are queens in social insects or naked-mole rats imposing sterility on workers? In sequential hermaphrodites, are individual of the second sex preventing others from changing sex? In other words, are dominant breeders controlling other individuals' reproduction? And how? Alternatively, less reproductively successful individuals could self-restrain from reproduction in presence of dominant breeders (i.e., all individuals signal their quality, assess relative status, and make appropriate opportunistic decisions). Shifting perspective from a top-down manipulation to a broader view (which includes all contestants) and using a multi-taxa approach, we consider a resolution of reproductive-skew conflicts based on signalling rather than control, along a continuum of strategies. We thus propose a "strategic regulation of reproduction", where individuals monitor the social context and make their reproductive decisions, rather than one or few individuals manipulating others.

Session name: Physiology & Genetics I

Presentation time (GMT): 1/18/2023 2:00:00 PM

Presenter: Hernández, A.

Twitter address: twitter.com/Hdz_Amrica

Presentation title: Suboptimal incubation temperature influence yolk testosterone transformation in eggs of the Japanese quails

Presentation abstract:

Changes in hormone level deposition by females into avian eggs in response to adverse environmental conditions can influence maternal behavior and offspring phenotype. Female's nest attendance during the incubation period might play a role regulating embryo exposure to maternal hormones. We tested if incubation temperature modulate exposure to testosterone (T) metabolites during embryo development, increasing experimentally yolk T from *Coturnix japonica*, incubating the eggs at optimal or suboptimal temperatures and analyzing T, 5 α -dihydrotestosterone (DHT), and estradiol (E) titers. We found that eggs with experimentally increase testosterone levels and those incubated at suboptimal temperature showed high DHT titers. T and E levels were not affected by incubation temperature. If incubation temperature modifies T metabolism, suboptimal incubation temperatures may act as pathway for shaping adaptive phenotype

Session name: Physiology & Genetics I

Presentation time (GMT): 1/18/2023 2:10:00 PM

Presenter: Collet, J. M.

Twitter address: twitter.com/JulieMCollet

Presentation title: High-throughput phenotyping to characterise exploration behaviour in three lines of broilers

Presentation abstract:

Extensive farming enables chickens to spend a lot of their time exploring but, too often, they choose to stay in the coop. In 2 lines of broiler chickens used for outdoor production (28g and 50g daily weight gain), we used RFID to localise 200 chickens per line every 30s, in the coop or on the field, for the whole time of outdoor access. All birds but 10 went outside every day. Using PCA, we identified 2 independent indicators, representing more than 95% of the variance. Indicators were significantly repeatable across days and correlated to live observations. The first indicator varied with time spent outside and movements around the field, the second one varied with how much chickens covered the field. Both exploration indicators increased with age and were higher in the slower-growing breed but were similar in males and females. This fine scale understanding of exploration behaviour in broilers will enable improve field use in free-range farming. H2020 PPILOW project 816172

Session name: Physiology & Genetics I

Presentation time (GMT): 1/18/2023 2:20:00 PM

Presenter: Abondano, D.

Twitter address: twitter.com/venaabondano

Presentation title: Courtship pheromones in sexually dimorphic finger glands of the Neotropical poison frogs

Presentation abstract:

Sexual chemical communication in amphibians is mediated by pheromone secretion produced in sexually dimorphic glands. Among these, Sodefrin precursor-like factors (SPFs) are known to have a reproductive function. Males of some species of the Neotropical poison frogs (Dendrobatoidea) develop macroglands in their fingers and it is not known if those are specialized for pheromone production. Using a transcriptomic approach, we investigate the pheromone production in the fingers of *Leucostethus brachistriatus*. We studied the differential gene expression of known pheromones associated with the presence of macroglands in the fingers of adult males. We identified 58 SPFs isoforms significantly expressed in the fingers with macroglands compared to the fingers lacking the glands. These results support the hypothesis of dendrobatoid species with specialised glands using pheromonal signalling and further the evidence of sexual chemical communication in Dendrobatoidea

Session name: Physiology & Genetics I

Presentation time (GMT): 1/18/2023 2:30:00 PM

Presenter: Gnanadesikan, G. E.

Twitter address: twitter.com/g_gnanadesikan

Presentation title: Williams-Beuren syndrome, behavior & cognition, and training success in assistance dogs

Presentation abstract:

Williams-Beuren Syndrome is a neurodevelopmental disorder in humans-caused by the deletion of 28 genes-involving hyper-sociability and cognitive deficits. In canines, the homologous region shows

signatures of selection in dog-wolf comparisons and 4 structural variants have been associated with social behavior. We genotyped 1,001 assistance dogs, including successful graduates and those released for behavioral reasons. Phenotypic data included questionnaires and cognitive and behavioral tests. Mixed models revealed associations between genotypes at all 4 loci and certain phenotypic measures, including separation-related problems, unfamiliar dog reaction, and dog distractibility. We found moderate differences in the genotypes of dogs who graduated versus those who did not; insertions in GTF2I showed the strongest association ($\beta=0.23$, CI95 =-0.04-0.49). Our results provide insight into the role of these loci in dog sociability and may inform breeding and training practices.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:00:00 PM

Presenter: Barou-Dagues, M.

Twitter address: twitter.com/MBarouDagues

Presentation title: Social instability during adolescence affects brood social interactions and nestling personality in a monogamous bird species

Presentation abstract:

Adolescence is a sensitive period characterized by an increasing number of social interactions, neurological, hormonal, and behavioural changes that can be permanently altered by the social environment. Here, we investigated the effect of social instability in the parental nexus during adolescence on brood social interactions and nestling personality in zebra finches (*Taeniopygia guttata*). During this phase, we replaced the father by an unfamiliar male (stressed group) or removed the father from the brood for 5 min (control group), monitored social interactions within the broods and measured nestling neophobia, explorative tendencies, activity, and aggressiveness. We found more agonistic and sexual behaviours in stressed compared to control broods and stressed chicks were less neophobic and more explorative than control chicks. Our results suggest that social instability during adolescence alters nestling personality and this could be a source of inter-individual variability.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:10:00 PM

Presenter: Yllan, L.

Twitter address: twitter.com/LuciaYllan

Presentation title: Effect of social context on behaviour in anemonefish hierarchies

Presentation abstract:

Animal social groups can be organized in hierarchies where individual status determines privileges within the group, and stability is maintained through aggression, submission and cooperation. Aggression, submission and cooperation are not homogeneous among group members and are influenced by social context and associated trade-offs. Here, we performed rank ascension

experiments using 15 groups of *Amphiprion clarkii*, a relatively mobile anemonefish, to assess rank-specific behaviour related to social context. We showed that: promoted ranks increased cooperation frequencies compared to non-promoted ranks; subordinates did not increase cooperation after group size reduction; and agonistic encounters within the group was asymmetric and higher for lower ranks. We provide evidence that social context in the form of rank has an important effect on individual behaviour and appears to be the key driver of cooperation and within-group conflict.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:20:00 PM

Presenter: Gaffney, K.

Twitter address: twitter.com/kirstinkg

Presentation title: Pay to stay' in anemonefish societies

Presentation abstract:

In cooperative societies of unrelated individuals, helping by non-breeders is an evolutionary mystery, as it is unclear why they invest in unrelated offspring. One explanation is that subordinates are appeasing dominants to avoid group eviction (the 'pay-to-stay' hypothesis). This has been seen in mammals, birds and freshwater cichlids, however, in marine fish within-group behaviours are largely unknown. We tested this hypothesis in anemonefish groups which form strict size hierarchies consisting of one dominant breeding pair and non-breeding subordinates. We hypothesised that subordinates 'help' by defending and maintaining the anemone host. We investigated if subordinates were punished for not helping (as predicted by 'pay to stay') by experimentally manipulating this behaviour through handicapping subordinates. Findings will clarify the role of helping behaviours in maintaining social groups and expand our understanding of the evolution of sociality in the marine realm

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:30:00 PM

Presenter: Fisher, D. N.

Twitter address: twitter.com/DFofFreedom

Presentation title: Dolphins possess unique social phenotypes that respond to monthly but not yearly variation in climate and food availability

Presentation abstract:

Social behaviours can allow individuals to flexibly respond to environmental change, potentially buffering adverse effects. However, individuals may respond differently to the same environmental stimulus, complicating our ability to model population-level response to environmental change. Here we show that bottlenose dolphins (*Tursiops truncatus*) possess unique social phenotypes, become more gregarious in months of low salmon abundance, and less well connected to distant members of the population in months with a high North Atlantic oscillation index. However, social phenotypes did not vary with climate or food availability at the yearly scale and did not consistently change with

age. Accounting for individual-specific response to environmental factors was nearly always necessary, indicating that forecasting population responses to environmental change requires accounting for among-individual variation in mean and plasticity of social behaviour.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:40:00 PM

Presenter: Park, Y. H.

Twitter address: twitter.com/YiHangPark

Presentation title: Sex differences in indirect effects on the escalation of agonistic behaviors of bean bugs *Riptortus pedestris*

Presentation abstract:

Aggression is a representative interacting phenotype because its expression is determined by the social partner during interactions among conspecifics, which is referred to as indirect effects. In general, aggressive behavior does not consist of a single type of display but of multiple types of displays with escalation. Animals can express a sequential set of ritualized behaviors indicating from lower to higher levels of aggression. That is, the extent of indirect effects can differ between different types of aggressive behaviors within a species, and such patterns can also show sexual differences. In this study, we examined how the extent of indirect effects differed between different types of aggressive displays, ranging from low to high levels (e.g., kicking with legs) during male and female dyadic intrasexual contests in bean bugs (*Riptortus pedestris*).

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 3:50:00 PM

Presenter: Loveland, C.

Twitter address: twitter.com/ChloeLoveland

Presentation title: Does stress impact mutualism? How predation affects aggressive defense of aphids in honeydew-tending ants

Presentation abstract:

Environmental stressors can affect behaviors necessary for mutualistic interactions, affect the fitness of the groups involved, and indirectly impact the larger community. Thatch ants (*Formica obscuripes*) engage in a mutualistic relationship with honeydew-producing aphids: in exchange for their sugary diet from the aphids, ants aggressively defend aphids from predators. Thatch ants experience environmental stressors (e.g., fires, bear predation) and display less aggressive nest defense behavior after wildfires, suggesting environmental stressors may impact behaviors necessary for their mutualistic relationship. To investigate how simulated bear attacks affect thatch ants' aphid defense, we exposed thatch ants tending aphids to a freeze-dried ladybeetle (i.e., aphid predator) for one minute at 30 nests and recorded their behavioral responses. We assessed how ants exposed to stress differed in their aggressive defense behavior, considering stress' impact on mutualistic interactions.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 4:00:00 PM

Presenter: Chakrabarti, S.

Twitter address: twitter.com/StotraChakraba2

Presentation title: Social distancing in lions

Presentation abstract:

Lions are considered to be group-living with multi-male-female associations prevalent in a group. However, long-term demography and behavioral data across African and Asian lion populations show that while males follow females to get access to kills, females steer away to reduce competition. Reluctance of females to interact with males are the highest when food is scarce, having strong implication on mating strategies and vocal communication of lions. What was once considered to be ubiquitous, lion sociality, is in fact a milieu of diverse strategies that are mediated by local resources and male- and female-demography.

Session name: Social Behaviours

Presentation time (GMT): 1/18/2023 4:10:00 PM

Presenter: Aiempichitkijkarn, N.

Twitter address: twitter.com/NalinaAiemp

Presentation title: Exploring tuberculosis infection in free-ranging long-tailed macaques (*Macaca fascicularis*) using social network analysis

Presentation abstract:

Group living is a significant evolutionary driver for many primate species. However, socializing can increase exposure to diseases. My project focused on Tuberculosis (TB) infection in macaques using analytical network approaches to investigate how demographic and social factors influence TB transmission. Behavioral observations and non-invasive samples (fresh feces and rope-baited buccal cells) were collected from 98 free-ranging long-tailed macaques living in Wat Khao Tamon, Thailand, between Aug 2021 and Feb 2022. 11 out of 98 monkeys (11.22%) tested positive for active TB using a IS6110 nested-PCR method, with many infected monkeys residing in the periphery of the grooming network. Individuals with higher network connectivity may benefit from stress-relieving effects of grooming, decreasing susceptibility to tuberculosis despite increased exposure frequency. This study demonstrates the potential health benefits of grooming as a mitigating factor against infection.

Session name: Communication

Presentation time (GMT): 1/18/2023 5:20:00 PM

Presenter: Kolff, K.

Twitter address: twitter.com/KaylaKolff

Presentation title: Communicative repair in non-linguistic communication

Presentation abstract:

Communicative repair is ubiquitous in language and is defined as the use of distinct mechanisms to fix a problem in hearing, speaking or understanding. Surprisingly, relatively little is known about the evolution of repair and possible precursors in non-linguistic species. Thus, this presented study introduces potential precursors of communicative repair during grooming interactions in one of our closest living relatives, the chimpanzees (*Pan troglodytes schweinfurthii*). In 1996, Dunbar suggested that early humans engaged in complex grooming interactions, before grooming was replaced with a more efficient bonding system, namely language. Therefore, grooming offers an ideal platform to investigate the evolutionary precursors of communicative repair. We further propose a framework that incorporates features of human communicative repair to allow for a systematic cross-species comparison across non-linguistic and linguistic communication systems.

Session name: Communication

Presentation time (GMT): 1/18/2023 5:20:00 PM

Presenter: Kolff, K.

Twitter address: twitter.com/KaylaKolff

Presentation title: Communicative repair in non-linguistic communication

Presentation abstract:

Communicative repair is ubiquitous in language and is defined as the use of distinct mechanisms to fix a problem in hearing, speaking or understanding. Surprisingly, relatively little is known about the evolution of repair and possible precursors in non-linguistic species. Thus, this presented study introduces potential precursors of communicative repair during grooming interactions in one of our closest living relatives, the chimpanzees (*Pan troglodytes schweinfurthii*). In 1996, Dunbar suggested that early humans engaged in complex grooming interactions, before grooming was replaced with a more efficient bonding system, namely language. Therefore, grooming offers an ideal platform to investigate the evolutionary precursors of communicative repair. We further propose a framework that incorporates features of human communicative repair to allow for a systematic cross-species comparison across non-linguistic and linguistic communication systems.

Session name: Communication

Presentation time (GMT): 1/18/2023 5:30:00 PM

Presenter: Logue, D.

Twitter address: twitter.com/BirdSongLab

Presentation title: Are you even trying? Skewed distributions of performance as evidence of motor constraint in sports and animal displays

Presentation abstract:

Animal displays often involve extreme behaviors that push signalers to the limits of their motor abilities. If motor constraints limit display performance, displays can act as reliable "index" signals of quality. We propose a conceptual model of the evolution of performance under constraint and use it to predict that the distribution of constrained display performance should skew away from the constraint. We tested this prediction with sports data because we know that athletic performance is constrained and that athletes attempt to maximize performance. Athletic performance in a variety of sports was consistently skewed in the predicted direction, indicating that skewed performance can be evidence of constraint. We characterized the challenge faced by athletes and displaying animals with models based on the skew normal distribution. These models quantify the heretofore ambiguous idea that performance reflects the degree of challenge for a given level of behavior.

Session name: Communication

Presentation time (GMT): 1/18/2023 5:50:00 PM

Presenter: Graham, K. E.

Twitter address: twitter.com/kirstyegraham

Presentation title: Towards a great ape dictionary

Presentation abstract:

Ape gesture has provided the first demonstrations of flexible, intentional communication outside human language. Rich repertoires of these gestures have been described in all ape species, bar one: us. Given that most great ape gestures are shared, this creates a conundrum: where did the ape gestures go in human communication? Here, we test human understanding of 10 ape gestures. We crowd-sourced data from 5,656 participants through an online game, which required them to select the meaning of chimpanzee and bonobo gestures in 20 videos. We show that humans may retain an understanding of ape gestural communication, across gesture types and meanings. By assessing comprehension, we accessed the great ape gestural repertoire for the first time in adult humans. Cognitive access to an ancestral system of gesture appears to have been retained after our divergence from other apes, drawing deep evolutionary continuity between their communication and our own.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 6:20:00 PM

Presenter: Langehennig-Peristenidou, A.

Twitter address: twitter.com/alexandra_lanp

Presentation title: First insights into the vocal repertoire of Etruscan shrews

Presentation abstract:

To coordinate social interactions animals emit different call types in different contexts. One species whose vocal repertoire has not been described are the Etruscan shrews, the smallest extant

mammal. We conducted 47 confrontation experiments between 33 Etruscan shrews, with the confronting dyads differing in sex, familiarity and housing condition. The acoustic parameters of the vocalisations were used in a two-level unsupervised cluster analysis applying hard and soft clustering approaches. A behavioural context analysis was also carried out. Four call types (screech, screams, chirp, very short tonal) and a transition between the screech and the scream were described. The chirps and the very short tonal were mainly observed during socio-positive behaviour, while the screeches, the screams and their transitions were emitted during agonistic interactions. To conclude, this study delivered a first insight into the vocal repertoire of Etruscan shrews with additional research required.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 6:30:00 PM

Presenter: Lau, A. R.

Twitter address: twitter.com/AllisonRLau

Presentation title: Female titi monkey responses to social playbacks

Presentation abstract:

Pair-bonding primates often participate in species-typical coordinated vocal duets. Coppery titi monkey (*Plecturocebus cupreus*) long calls that constitute the titi monkey duet travel long distances, are individually identifiable, and contain cues about caller age and pairing tenure. Additionally, titi calls may advertise pairing status, or be perceived differently based on the listener's pairing status. To test how pairing status impacts perception of titi monkey calls, we conducted playbacks in which female titi monkeys (N=6) listened to recordings of unfamiliar males, unfamiliar pairs, and non-monkey control recordings both before and after being paired. We recorded titis' behavioral response to each playback, including vocal responses, amount of time orienting to the playback, duration of time locomoting, and other behaviors. Behaviors scored, as well as CORT and T levels, indicate high levels of inter-individual variation.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 6:40:00 PM

Presenter: Zapata, D.

Twitter address: twitter.com/Zapata_D_

Presentation title: Intrasexual territoriality, degree and mode of aggression, and duet function in the Carolina wren (*Thryothorus ludovicianus*)

Presentation abstract:

Territorial behavior is fundamental for the reproductive success of birds. In many monogamous birds, mated pairs defend year-round territories and engage in complex vocal interactions known as duets. For these species, a thorough understanding of their territoriality entails asking (1) What is the main sex targeted during intrusions by each pair member? (2) How different are the sexes in their degree and mode of aggression during territorial interactions? and (3) what is the duet

function? Here we addressed these questions in a population of Carolina wrens (*Thryothorus ludovicianus*), using a stereo playback design to simulate a single male intrusion, a single female intrusion, and a pair intrusion. Our analyses show that Carolina wrens exhibit a stronger response to same-sex intruders, but respond to both sexes. Overall, males are more aggressive than females, except during intrusions of single females. Finally, duetting behavior appears to be consistent with a mate-guarding function.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 6:50:00 PM

Presenter: Dobney, S. L.

Twitter address: twitter.com/SDobney2

Presentation title: Quiet in the nest: Nest environment diminishes song transmission in a grassland songbird

Presentation abstract:

Vocal learning animals, including humans and songbirds, learn to vocalize from conspecific animals early in life. Young animals deprived of exposure to adult sounds have impaired vocal learning, while increased exposure improves vocal learning. We investigated the acoustic environment of nestling Savannah Sparrows, *Passerculus sandwichensis*, testing the hypothesis that song transmission is diminished by vegetation surrounding the nest. We collected recordings of live Savannah Sparrows using two microphones: one microphone inside a nest (typical nestling position) and another 1m high (typical adult position). We compared signal-to-noise ratios of songs produced at variable distances and directions from each microphone. We found that songs recorded inside a nest are 10.9dB quieter, and that listening from inside a nest is equivalent to being 40m further away. Knowing how sound transmits through the homes of young vocal learners is critical to understand which sounds are learned.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 7:00:00 PM

Presenter: Digweed, S. M.

Twitter address: twitter.com/ShannonDigweed

Presentation title: Acoustic cues to individual identity in the American pika (*Ochotona princeps*)

Presentation abstract:

Our research focused on potential voice characteristics, or individual identity cues, in the vocalizations of American pika (*Ochotona princeps*). Past research indicates that pika produce squeak calls, which may contain cues to individual identity, aiding in territory protection. We recorded pika vocals from a population of individuals in the Highwood region of Kananaskis, AB. Data suggests these calls do contain acoustic features that should allow individuals to recognize each other by sound alone. This provides us with a better understanding of territorial behaviour in pika. Because pika live in high alpine scree locations they are key indicators of the effects of climate

change. Therefore, any exploration into their behaviour may aid in understanding the potential effects of climate change on this species and perhaps alpine species more generally.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 7:10:00 PM

Presenter: Sánchez, N. V.

Twitter address: twitter.com/Nati_SanchezU

Presentation title: When are there too many in the neighbourhood? The effects of neighbours on vocal behaviour in birds

Presentation abstract:

Among territorial birds, the number of conspecific neighbours sets the social context for communication. There have been many investigations of vocal behaviour in the context of territory defense and female attraction in birds, however, the effect of the density of neighbours has received little attention. In this study, we reviewed the literature on the effects of density on vocal communication in songbirds, exploring how the number of neighbours influences the vocal behaviour of territorial birds. Then we developed a playback experiment designed to manipulate the density of neighbours focused on Rufous-and-White wrens in a tropical dry forest. Our preliminary results reveal a bias towards the study of male songs in the context of neighbourhood density, with very few studies on female song. Song rate was the most studied vocal behaviour. Further, our preliminary results reveal variation in the vocal behaviour of male and female wrens in response to manipulations of territory density.

Session name: Vocalization

Presentation time (GMT): 1/18/2023 7:20:00 PM

Presenter: Kalra, L.

Twitter address: twitter.com/latika505

Presentation title: Investigating pulse shape as an auditory stream segregation cue in gray treefrogs

Presentation abstract:

Auditory stream segregation is the mechanism through which animals hear relevant sound sequences, (like repeated signals or signal elements) as distinct 'auditory streams', perceptually segregated from other concurrent sounds. Humans exploit various perceptually salient acoustic differences to segregate sounds into separate streams. In the context of non-human acoustic communication, stream segregation cues remain relatively unexplored. Using gray treefrogs, we test whether differences in pulse shape (pulse rise and fall time), a perceptually salient signal discrimination cue, can guide segregation of sound sequences into separate auditory streams. We designed tasks in which recognition of a mating signal depended on a receiver's ability to segregate sound sequences. We found no evidence of pulse shape serving as a stream segregation cue. These findings expand on our current understanding on the relevance of various sound segregation cues in non-human animals.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 7:30:00 PM

Presenter: Felsche, E.

Twitter address: twitter.com/ElisaFelsche

Presentation title: Does abstract information influence the sampling behaviour of children, chimpanzees and capuchin monkeys?

Presentation abstract:

Abstract concepts are a powerful tool for making wide-ranging predictions in new situations based on little experience. However, its development and phylogenetic distribution are still debated. Here, we tested the abilities of 3 to 5-year-old children, chimpanzees, and capuchin monkeys in a unified foraging task. Participants sampled high- and low-valued items from containers that either each offered items of uniform value or a mix of item types. In a test situation, participants should switch away earlier from a container offering low-valued items when they learned that, in general, items within a container are of the same type, but should stay longer if they learned that containers bear a mix of types. We compared their performance to the predictions of a probabilistic hierarchical Bayesian model adapted to each species' reward preferences. Children and, to a more limited extent chimpanzees but not capuchin monkeys demonstrated their sensitivity to abstract patterns in the evidence.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 7:40:00 PM

Presenter: Falk, J. J.

Twitter address: twitter.com/JJinsing

Presentation title: The daily life of a hummingbird

Presentation abstract:

Hummingbirds live life at the extremes of vertebrate diversity. Yet their small size and rapid movements have made it difficult to study them in the field. This has occasionally led to widely held, but rarely tested assumptions about their behaviors, especially in reference to their movement strategies. We developed a technique to monitor movement strategies of individual hummingbirds using Radio Frequency Identification (RFID) and gathered data on over 150 white-necked jacobin hummingbirds (*Florisuga mellivora*) and 70,000+ feeder visits in Gamboa, Panamá. Individual hummingbirds demonstrate a high degree of flexibility, often shifting their feeding strategies from one day to the next. We also found that some males exhibit territoriality more often than females, but this was not consistent within nor across individuals. Ultimately, these data represent a powerful technique for studying small birds in the field and offer a more nuanced understanding of the daily lives of hummingbirds.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 7:50:00 PM

Presenter: Hobbs, K. S.

Twitter address: twitter.com/kayeshobbs

Presentation title: Factors affecting intraspecific variation in altitudinal bird migration

Presentation abstract:

The factors influencing animals' migratory decisions are largely unknown. Migration studies often focus on obligate migrants, but facultative migrants offer opportunities to test alternative hypotheses explaining this behavior. White-ruffed manakins (*Corapipo altera*) are tropical birds that make facultative downhill migrations during the non-breeding season. Migration compromises social status but yields survival benefits due to heavy rains at breeding elevations. Quality, condition, or residual reproductive value may explain differences in migratory behavior among adult males. I compared individuals' breeding season display rates with a metric of migratoriness the following season. Results were not consistent with high-quality individuals migrating less, or with the costs of display forcing individuals to migrate, but may be driven by age and residual reproductive value. Understanding the causes of migratory decisions helps elucidate how migration mediates life-history tradeoffs.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 8:00:00 PM

Presenter: Wessling, E.

Twitter address: twitter.com/northernlimitpt

Presentation title: Using animal observation to quantify food availability– important considerations for future application

Presentation abstract:

Frequently, researchers quantify food availability using ecological sampling methods that are supplementary to their ongoing behavioral data collection. These methods are intentionally independent of consumer behavior, and therefore only measure potential abundance but not the intended measure of availability of selectable resources to consumers. Here, we describe a method that uses animal observational data for evaluating resource availability and demonstrate its potential application using multiple observation years on two bonobo groups. We demonstrate how the aggregation of feeding location data can be used to measure food availability while accounting for resource selectivity and describe the strengths and weaknesses of this method relative to traditional food availability quantification. We use our case study to explore how this method can best be applied and offer a potentially time-saving avenue for future ecological measurement in animal behavioral research.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 8:10:00 PM

Presenter: Parsons, M. A.

Twitter address: twitter.com/MammalMitchell

Presentation title: Cougar foraging on invasive, dangerous prey

Presentation abstract:

Invasive prey present predators with a novel foraging choice. Predators may integrate the species into their diet or avoid the species and continue consuming familiar prey. Integrating novel prey may benefit predators by increasing prey availability but may be costly if prey are dangerous. Wild pigs (*Sus scrofa*) are an invasive ungulate in the Americas, where they often overlap with cougars (*Puma concolor*) that can prey on wild pigs. The extent of cougar predation may indicate the costs and benefits of doing so. We monitored cougar hunting behavior in an area with wild pigs to understand the contexts where cougars kill pigs. Cougars consumed pigs, but deer were the primary prey. Most pigs consumed were juveniles, and most consumption of pigs occurred in winter, when deer are less vulnerable. These patterns indicate that the decision to consume invasive, dangerous prey depends on the vulnerability of the prey and accessibility of primary prey.

Session name: Foraging & Movement

Presentation time (GMT): 1/18/2023 8:20:00 PM

Presenter: Wilkinson, C. E.

Twitter address: twitter.com/ScrapNaturalist

Presentation title: Spotted hyaena landscape navigation on a coexistence frontier

Presentation abstract:

Coexistence frontiers, or areas where human development is newly appearing or rapidly increasing, are novel environments where wildlife must learn to navigate and coexist with people. As a behaviourally plastic apex predator, the spotted hyaena (*Crocuta crocuta*) is a model species for understanding how carnivores navigate such spaces. We used fine scale GPS collar data and camera traps to assess spotted hyaena navigation of ecological, anthropogenic, and human perception covariates in Nakuru County, Kenya. Our results show that hyaena landscape navigation varies by scale, season, and land management type, and that hyaenas may cross the protected area boundaries' electric fences only out of need. We also document a high number of individuals (235) approaching the national park fence at just 16 sites during the study period. We recommend incorporating human perception into multiscale analyses of carnivore movement to effectively plan for human-carnivore coexistence in a changing world.

Session name: Physiology & Genetics II

Presentation time (GMT): 1/19/2023

Presenter: Cusick, J. A.

Twitter address: twitter.com/JessicaCusick1

Presentation title: Tis it the season? The influence of photoperiod on microbiome-behavior relationships in Siberian hamsters (*Phodopus sungorus*)

Presentation abstract:

The gut microbiome plays an important role in regulating host physiological processes and social behavior. Stressors and environmental changes that disrupt the host microbiome can impact these relationships. Although seasonally breeding animals, like Siberian hamsters (*Phodopus sungorus*), experience changes in their reproductive physiology, social behavior, and microbial communities in response to changes in photoperiod, less is known about the relationship between these physiological systems in a seasonal context. In this study, we housed female hamsters in long- and short-day photoperiods for nine weeks and then exposed them to one of three treatments for one week: (1) social stressor, (2) antibiotics, or (3) no treatment. Some social behaviors, like aggression, were photoperiod-dependent and differed across treatments, while grooming behavior was not impacted. Collectively, these results highlight the complexity of microbiome-behavior interactions in seasonally breeding species.

Session name: Physiology & Genetics II

Presentation time (GMT): 1/19/2023 12:10:00 AM

Presenter: Kirby, R. L.

Twitter address: twitter.com/Renae95083028

Presentation title: Beneath the surface: Understanding the social structure and population genetics of a cryptic burrowing shrimp

Presentation abstract:

Many decapod crustaceans are utilised as bait sources in the fisheries industry, and also play critical roles that influence community composition. However, they can lack adequate catch regulations that are informed by all aspects of a species ecology. These species then have the potential to be over-exploited, resulting in consequences for populations, ecosystems and fisheries. In particular, Thalassinid burrowing shrimp are a cryptic invertebrate. Our study aimed to quantify the social structure and population genetics in the Australian burrowing shrimp, *Trypaea australiensis*. We show that *T. australiensis* exhibits intraspecific variation in social structure that can be attributed to body morphology, seasonality and site. There is a lack of population structure at our three sampled locations. Our findings demonstrate some of the first work aimed at understanding a cryptic species social structure and population genetics, which can better inform management strategies.

Session name: Physiology & Genetics II

Presentation time (GMT): 1/19/2023 12:20:00 AM

Presenter: Issar, S.

Twitter address: twitter.com/issarswastika

Presentation title: How does seasonality impact natural populations of a necrophagous insect?

Presentation abstract:

For organisms in temperate environments, seasonality can be a powerful and critical source of environmental variability. Seasonal changes in resource availability and weather conditions exert fluctuating selection pressures on survival and fitness, resulting in diverse adaptive responses. Burying beetles are necrophagous insects that breed on vertebrate carcasses. These beetles are active in Europe between April and October, after which they burrow in the soil and overwinter. By manipulating resource availability on a local spatial scale, we studied seasonal patterns of resource use within natural populations of beetles in a Cambridgeshire woodland. We then compared the fecundity and physiological state of beetles that differed widely in their resource use pattern through breeding and mass spectrometric experiments, respectively. We found that seasonality has a profound impact on burying beetle reproductive success and cuticular hydrocarbon profiles.

Session name: Physiology & Genetics II

Presentation time (GMT): 1/19/2023 12:30:00 AM

Presenter: Hanis, F.

Twitter address: twitter.com/Farahjuana2

Presentation title: How does dietary intake influence oral stereotypic and redirected behaviors in horses? - Ghrelin and leptin as potential biomarkers

Presentation abstract:

This study aims to develop an understanding of how dietary intake influences the development of oral stereotypic and redirected behaviors (AOB) in working horses (leisure, equestrian, patrolling, and endurance). We found that all horses in the studied population exhibited AOB (low and high levels). Crude protein and fat were found to be inversely associated with the likelihood of sham chewing. Bedding eating and coprophagy had positive associations with macronutrients and digestive energy. Plasma cortisol and ghrelin levels were higher, but plasma leptin was lower in high AOB compared to low AOB. No significant differences were found in telomere length. The high-forage, high fiber diet improved the performance of AOB, bodyweight, plasma cortisol, ghrelin and leptin of high AOB horses. However, no significant changes were observed in the telomere length. The present findings can be used to strengthen the development of biomarkers for the diagnosis of oral stereotypy in horses.

Session name: Health & Welfare I

Presentation time (GMT): 1/19/2023 12:40:00 AM

Presenter: Littlewood, K. E.

Twitter address: twitter.com/katlittlewood

Presentation title: Two domains to five: Advancing veterinary duty of care to fulfil public expectations of animal welfare expertise

Presentation abstract:

Veterinarians are animal health experts. More recently, explicit references to veterinarians as animal welfare experts have proliferated. Veterinarians are ideally situated to act as animal welfare experts by virtue of their core work with animals, influence over owners, their roles in policy development, compliance, and monitoring, and as educators of future veterinary professionals. However, the discipline of animal welfare science has moved beyond a focus on nutrition and health towards an acceptance that the mental experiences of animals are the focus of welfare consideration. The Five Domains Model is a framework for assessing animal welfare and focuses on mental experiences arising from a broad range of impacts or opportunities. The Model can be used as a framework to integrate contemporary understanding of animal welfare science in veterinary curricula and improve welfare literacy within the veterinary profession.

Session name: Health & Welfare I

Presentation time (GMT): 1/19/2023 12:50:00 AM

Presenter: Macintosh, A. J. J.

Twitter address: twitter.com/andrewjjmac

Presentation title: The life zooentropic: Leveraging complexity for zoo animal welfare

Presentation abstract:

Complexity in, complexity out. Animal behavior emerges from a complex suite of evolutionary and ecological forces. Some view behavior as a complex adaptive system optimized for (or against) biological encounters, where alterations between behavior states produce complex, non-linear dynamics. Critically, patterns of complexity in individual behavior vary with environmental and internal conditions. We thus explored behavior sequences in zoo-housed brown capuchins (*Sapajus apella*) at Kyoto City Zoo and Japan Monkey Centre to test whether this approach can provide a useful behavioral indicator of animal health and housing conditions. We focus on two classes of complexity indicators - entropy and fractality - and demonstrate that complexity signatures correlate significantly with other key welfare indicators, like frequency of stereotypical behavior. This proof-of-concept study provides preliminary evidence for the utility of leveraging complexity for zoo animal welfare assessment.

Session name: Health & Welfare I

Presentation time (GMT): 1/19/2023 1:00:00 AM

Presenter: Eagan, B. H.

Twitter address: twitter.com/BaileyHopeEagan

Presentation title: Behaviour Real-Time Spatial Tracking Identification (BeRSTID) used for cat behaviour monitoring in an animal shelter

Presentation abstract:

The ability to efficiently track animal behaviour in an animal shelter has direct lifesaving applications. Individualized care and early recognition of distress in cats are often missed. Our research required a method of behavioural observation that was simple, accessible, used limited human and computer

resources and allowed for real-time feedback. Here, we present BeRSTID, an open-source behaviour real-time spatial tracking identification system demonstrated on six cats in an animal shelter using unique 2D fiducial markers. Our findings show BeRSTID correlated closely to human-coded data in both real-time and post-event processing modes of eating and drinking behaviours of cats in naturalistic shelter environments. By building upon a lateral concept of marker tracking for direct applied use in a new context, we present a low-barrier user-friendly solution using common technologies that can track and help improve welfare in animal care facilities such as shelters.

Session name: Health & Welfare I

Presentation time (GMT): 1/19/2023 1:10:00 AM

Presenter: Platto, S.

Twitter address: twitter.com/PlattoSara

Presentation title: To interact or not to interact: Trainer-dolphin social interaction in the absence of food rewards

Presentation abstract:

The interactions between trainers and dolphins were monitored at The Dolphin's Reef facility, where feedings and training activities were separated, allowing dolphins to decide whether or not to interact with their trainers without food reward. The season influenced the dolphins' participation to the trainers' sessions, and possibly affected by the animals' reproductive cycle. Dolphins exhibited preferences for the trainers, probably linked with the person's personality and the activity they were proposing to the dolphins. Among dolphins, adults and females participated more than young and males, but males were the quickest to arrive at the training area upon the trainers' call. Moreover, the willingness to share the trainer's attention depended on the dolphins' sex-age classes. These results show that dolphins' willingness to interact with their trainers was not linked to food reward, but to factors such as dolphins' reproductive cycle their sex and age, and trainers' personality.

Session name: Health & Welfare I

Presentation time (GMT): 1/19/2023 1:20:00 AM

Presenter: Hodgson, G. M. W.

Twitter address: twitter.com/gmw_hodgson

Presentation title: How does sex and dominance status affect allogrooming in free-ranging feral cattle?

Presentation abstract:

Over a billion cattle are used in production globally, and thus the majority of research on their behaviours is conducted on farms. The opportunity to study cattle behaviour in free-ranging groups is rare, as there are only a few feral populations worldwide. Cattle allogrooming is a positive social behaviour that involves one individual licking another. To investigate allogrooming behaviours in a feral cattle herd in Hong Kong, we recorded dominance interactions and allogrooming events for a herd of 55 animals. All individuals received allogrooming, but not all individuals performed

allogrooming. Males performed allogrooming more towards females than other males, but females groomed both sexes equally. Dominant females received more allogrooming than subordinates, but no such pattern was found for males. We show that feral cattle exhibit preferential grooming, and the asymmetrical distribution of licking could improve our knowledge of positive social behaviours and animal welfare.

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 5:30:00 AM

Presenter: Subramaniam, N.

Twitter address: twitter.com/NimsGoobe

Presentation title: An arachnid's guide to being an ant: Morphological and behavioral mimicry in ant-mimicking spiders

Presentation abstract:

Myrmecomorphy, morphological and behavioral resemblance to ants, is observed in at least 13 spider families despite spiders having a distinct body plan compared to ants. Quantifying the extent to which these spiders resemble model ants will allow us to comprehend the evolutionary pressures that have facilitated myrmecomorphy. *Myrmaplata plataleoides* are thought to closely resemble weaver ants, *Oecophylla smaragdina*. In this study, we quantify the speed of movement of model, mimic, and non-mimetic jumping spiders. We use morphometric tools to quantify traits such as leg size, body shape between the model ant, mimic, and non-mimics. Our results suggest that mimics are better at mimicking ants' locomotory movement than morphology and overall body shape. Some traits may compensate others, suggesting differential selection on these mimetic traits. Our study helps understand the multimodal nature of mimicry and discern the relative contributions of such traits that drive mimetic accuracy.

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 5:40:00 AM

Presenter: Baheerathan

Twitter address: twitter.com/BaheerathanM

Presentation title: Bat nights with bulbs bright: Effect of artificial light on activity in frugivorous bats (*Pteropodidae*)

Presentation abstract:

Artificial lighting at night affects behaviour in many animals, especially nocturnal species. Its effect on frugivorous bats remains less explored, especially in the family *Pteropodidae*, which rely predominantly on vision and light-based cues. In a semi-urban site in southern India, we compared emergence-return activity of the cave-roosting *Rousettus leschenaultii*, between a roost in an undisturbed, naturally-lit agricultural well and an artificially-lit roost in a temple. We compared emergence times between five colonies of the tree-roosting *Pteropus giganteus* that were exposed to different intensities of artificial light. Emergence-return flights at the naturally-lit *R. leschenaultii*

roost occurred significantly earlier than the artificially-lit roost. In *P. giganteus*, emergence was significantly earlier in the highly light-polluted roost than in the other roosts. The consequences of artificial lighting on the ecology and physiology of fruit bats require further investigation

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 5:50:00 AM

Presenter: Witczak, L. R.

Twitter address: twitter.com/lynea_witczak

Presentation title: Daddy's little girl: How a daughter's bond with her father promotes healthy adult bonding

Presentation abstract:

Social interactions regulate our behavior and physiology, and early-life relationships may play a pivotal role in shaping adult behavior and neural activity. Coppery titi monkeys (*Plecturocebus cupreus*) are socially monogamous South American monkeys that display classic attachment behaviors. Infants form selective bonds with their fathers, making them ideal for studying father-daughter bonds. We established a novel method for measuring relationship quality in females (n=9). Preference test results suggested higher-quality relationships with the father established a stronger foundation for forming and maintaining an adult pair bond. Our examination of neural activity pre- and post-pairing suggested a high degree of overlap between circuitry driving filial attachment and adult pair bonding, despite overall activity being lower post-pairing ($p < .001$). Findings from the present studies advance current knowledge of the neurobiological mechanisms foundational to attachment relationships.

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 6:00:00 AM

Presenter: Cuaya, L.V.

Twitter address: twitter.com/Lauveri

Presentation title: Dogs process happy human faces in the right temporal cortex

Presentation abstract:

We aimed to describe the cerebral correlates of emotional human face perception in dogs using fMRI. In Experiment 1, eight dogs observed happy and neutral human faces. We found increased brain activity in the right temporal cortex and the caudate when dogs viewed happy faces. In Experiment 2, twelve dogs observed human faces expressing happiness, anger, fear, or sadness. Using the right temporal cortex cluster from Experiment 1, we trained a linear support vector machine classifier, and we found that it could only discriminate between happiness and negative emotions, suggesting that the right temporal cortex is involved in processing happy faces, not emotions in general. Representational analysis revealed that the dog brain can distinguish angry vs. fearful faces and sad vs. fearful faces, but not between sad vs. angry faces. Our results show that dog

brains thus seem to represent certain human emotions more distinctly, highlighting their importance for inter-species communication.

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 6:10:00 AM

Presenter: Hernández-Pérez, R.

Twitter address: twitter.com/RaulHernandezP

Presentation title: High-level visual cortex of dogs and humans

Presentation abstract:

Similarly to primates, dogs encode object categories from visual stimuli. However, carnivore and primate high-level visual structures evolved independently. Here we compare the neural structures underlying high-level visual feature detection in dogs and humans. We acquired functional magnetic resonance images while the participants observed natural videos. We tested for category-sensitive regions and used cross-species representational similarity analysis (RSA) to compare both visual pathways. We found that category-sensitive regions overlapped in occipitotemporal regions in both species. RSA revealed similar activity patterns in the dog occipitotemporal cortex to human category-sensitive regions. The similarity was driven by low-level visual features rather than stimuli categories. Our results suggest that category-sensitive regions in the dog brain are more spread and specialized than in humans, and that the dog brain represents categories in a different way than the human brain does

Session name: Neuro & Sensory Biology

Presentation time (GMT): 1/19/2023 6:20:00 AM

Presenter: Yalçın Ülger, E.

Twitter address: twitter.com/eprufaffle

Presentation title: A meta-analysis: Auditory function in awake dogs with functional magnetic resonance imaging technique

Presentation abstract:

Approximately 10 studies in the Neuroethology of Communication Laboratory on voice and speech perception in awake dogs since 2014 will be evaluated. In the evaluation, fMRI images of the auditory function of approximately 50 trained dogs will be analyzed. We hope to find answers to the following issues with the meta-analysis method: Functional characterization of the primary-secondary auditory cortex of dogs; Effects of training level, age, and head shape on auditory cortex function; Identifying auditory function asymmetry; Determining the effects of aging on auditory function

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 6:50:00 AM

Presenter: Hyun, H.

Twitter address: twitter.com/jqabab_hsl

Presentation title: Jekyll and Hyde: Day-night personality differences in the water scorpion *Nepa hoffmanni*

Presentation abstract:

While diel differences in among-individual behavioural variations might reflect previous selection on specific behaviours, it is less well known. Here, we explored diel differences in (1) average behaviour, (2) among-individual variation, (3) individual rank order in terms of activity and tonic immobility (TI), and (4) the behavioural syndrome (among-individual correlations between behaviours) in the water scorpion *Nepa hoffmanni*. At night, *N. hoffmanni* was more active and exhibited shorter TI duration. Also, there were both (1) day-night differences in among-individual variation and (2) individual variation in diel plasticity in the activity, and we suggest that it might contribute to the light-dependent sign of behavioural syndromes. Our findings highlight the need for individual-level studies to fully elucidate diel influences on animal behaviour.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:00:00 AM

Presenter: Heo, J.

Twitter address: twitter.com/wlaksaoal1

Presentation title: Individual differences in plant preferences of a cicada *Tettigetta isshikii*

Presentation abstract:

We used the cicada (Hemiptera: *Tettigetta isshikii*) to investigate individual plant preferences in the field and territoriality within habitats. Accordingly, we evaluated among individual variations in plant preference and territoriality through the use of plants within the habitat. We set up a grid in the field to record the territoriality using the capture-mark-recapture, and the plant on which the individual sat was recorded to investigate the individuality of plant use. Plant preference was found to be distinctly different for each individual, and there was a significant difference in preference over time. It has also been shown that males use a larger territory than females in habitat use, but it does not seem to have distinct boundaries between individuals. This study could offer empirical field evidence for the insect personality which is less highlighted.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:10:00 AM

Presenter: Langgeng, A. L.

Twitter address: twitter.com/langamagi19

Presentation title: Heat it up: Linking hot spring bathing behavior and louse-parasitism in Japanese macaques

Presentation abstract:

Louse infestation poses significant health risks to hosts. Lice respond to environmental conditions. Heat exposure is thought to reduce louse mobility. Animals often perform grooming to manage louse infestation. Two species of lice are reported to infect Japanese macaques, the latter of which perform a conspicuous louse-directed behavior, where they use the first digit and thumb to 'nit-pick' louse eggs from the base of the hair. One population of Japanese macaques (*Macaca fuscata*), at the Jigokudani Snow Monkey Park, Japan, perform hot spring bathing behavior (HSBB) during cold seasons. There are no studies about the impacts that HSBB may have on louse infestations. Hence, we tested for a relationship between HSBB and louse infestation, using nit-picking rates as a proxy. The study was conducted over two winter seasons in 2019 – 2021. Sixteen adult female macaques were selected as subjects. Our results suggested that HSBB may affect louse egg distribution and/or detection by groomers.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:20:00 AM

Presenter: Mohring, B.

Twitter address: twitter.com/BertilleMohring

Presentation title: Habituation, sensitization or consistency of escape responses? Investigating adjustment of antipredator behaviour to prior experience in incubating female common eiders *Somateria mollissima*

Presentation abstract:

Flexible antipredator behaviour should theoretically allow prey to cope with fluctuating environments. However, the impact of prior experience on antipredator behaviour has been overlooked. Here, we monitored individual variation in flight initiation distance (the distance at initiating escape from an approaching potential predator) by exposing 655 incubating female common eiders *Somateria mollissima* to repeated human approaches within the same breeding event. We expected females to habituate to repeated harmless stimuli. Surprisingly, females did not consistently habituate, but rather differed markedly in their response by either habituating, sensitizing or staying consistent in their escape behaviour. This heterogeneity was state- and context-dependent. Indeed, older females were more prone to habituate, while females nesting on conspicuous nests sensitized to repeated stimuli. Our study highlights the need to consider prior individual experience when studying antipredator behaviour.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:30:00 AM

Presenter: Gokcekus, S.

Twitter address: twitter.com/samingokcekus

Presentation title: Exploration styles and age predict inhibitory control performance in marmosets

Presentation abstract:

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:40:00 AM

Presenter: Corregidor-Castro, A.

Twitter address: twitter.com/AlexCoCastro

Presentation title: Effect of ambient temperature on nest abandoning behaviour of a Mediterranean raptor

Presentation abstract:

An increment in the frequency of extreme weather events associated with climate change (e.g. heatwaves) can have major impacts on bird reproduction, especially during early development, when offspring from nidicolous species are constrained to the conditions of the nest. Nestlings can face these challenges by abandoning the nest in search of a microhabitat with reduced temperature. However, by doing so, individuals perceive an increased risk of mortality due to predation or starvation if not able to return to the nest. We manipulated nest temperature on nestboxes placed on rooftops to reduce direct sunlight, reducing their maximum temperatures by ~ 4 °C. Using camera traps, we calculated nest abandoning probability. Experimental shading had a strong impact on nestling behaviour, where nestlings from warmer nests were more likely to abandon the nest. Thus, projected future increases of temperature may pose an additional threat to individuals during the early stages of development.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 7:50:00 AM

Presenter: Krapf, P.

Twitter address: twitter.com/krapfpatrick

Presentation title: Foraging valour linked with aggression: selection against completely abandoning aggression in a high-elevation ant?

Presentation abstract:

Aggression is beneficial for animals to acquire food and is often linked with other behaviors (behavioral syndromes). The adaptive benefit-cost ratio of such behaviors has often been studied but less so in social insects. Here, we use the ant *Tetramorium alpestre* to test the behavioral consistency and population means in boldness, exploring, foraging, and risk-taking behaviors of two behaviorally different populations, an aggressive and a peaceful one. We predicted that the former would be bolder, more explorative, and risk-prone than the latter. Boldness and exploring were consistent in both populations, and the aggressive population was bolder, more explorative, and

risk-prone than the peaceful one. The results indicate the presence of behavioral syndromes in this ant. We speculate that such linked behaviors may be vital for finding food under specific ecological conditions. Aggression may have an adaptive value, possibly indicating that selection maintains aggression in *T. alpestre*.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 8:00:00 AM

Presenter: Horváth, G.

Twitter address: twitter.com/GergHorvat

Presentation title: Does stress canalise or diversify individual behavioural strategies? A case study in Carpetan rock lizards

Presentation abstract:

Spatiotemporal differences in environmental conditions, as well as variation in traits linked to individual state (e.g. energy stores, rate of parasite infection) may have substantial effect on components of individual behaviour. In theory, extreme level of stress, like severe drought, may force individuals to follow a single behavioural strategy, thus canalise, while when the stress doesn't pose immediate negative effects on survival, like mild hunger, diverse individual behavioural strategies may emerge. By conducting a long-term manipulative experiment on adult males of carpetane rock lizards (*Iberolacerta cyreni*), we tested whether (i) suboptimal environmental conditions (represented by presence vs. absence of predator cues and corticosterone treatment vs. control) have canalising or diversifying effect, further, whether (ii) differences in the individual state (body length, hind limb length, parasite load) affect between- and within-individual components of behavioural variation.

Session name: Behavioural Plasticity

Presentation time (GMT): 1/19/2023 8:10:00 AM

Presenter: Alfakih, A.

Twitter address: twitter.com/SaudiZoologist

Presentation title: Colour-based behaviours in the Arabian killifish

Presentation abstract:

Many species with allopatric populations exhibit differences in morphology, physiology, and behaviour. Colouration is one of the labile morphological traits and certain animals can actively change their colouration to cope with temporal and spatial variation in their habitats. There is remarkable diversity in the ability to change colour within and between species, but the specific evolutionary pressures leading to these variations remain poorly understood. Euryhaline fish are excellent models to examine geographical variation in phenotypic traits, due to their adaptability to various environments, and the potential to become landlocked. Here, we utilise the euryhaline Arabian killifish (*Aphanius dispar*) to study the evolution of colouration and colour-based behaviours of its allopatric populations.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:00:00 AM

Presenter: Chertoff, S.

Twitter address: twitter.com/ChertoffSydney

Presentation title: Tongue-flicking: An idiosyncratic displacement behavior in a free-ranging and urban-dwelling population of Balinese long-tailed macaques

Presentation abstract:

Abnormal behaviors in non-human animals are almost exclusively reported in captive individuals. Described as being atypical in occurrence or rare, abnormal behaviors may be indicative of negative welfare. This brief report describes the occurrence of an idiosyncratic, potentially abnormal behavior or displacement behavior, labeled tongue-flicking, that was performed by one subadult male long-tailed macaque living in a free-ranging population in Bali, Indonesia. Tongue-flicking may be a displacement behavior in which the subject sticks his tongue out of his mouth and moves it either slightly up and down or in and out without bringing it all the way back into the mouth. Our preliminary descriptive analysis of tongue-flicking aims to highlight the need for understanding the motivational bases and affective implications (e.g., welfare) of abnormal behaviors in captive and free-living animals.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:10:00 AM

Presenter: Szabo, B.

Twitter address: twitter.com/birgit_szabo

Presentation title: What can we learn from studying gecko cognition?

Presentation abstract:

Animals are adapted to their environment to maximize reproductive success and survival. Across taxa, we find species that have evolved to cope with similar problems and should, therefore, have evolved similar cognitive abilities to solve these problems. Lizards are an extremely diverse group of animals and have undergone millions of years of independent evolution. As such, they represent great models to study cognition in comparison to other vertebrates. For the last 1.5 years, we have been studying the cognitive abilities of the Tokay gecko, the second largest gecko in the world. We found that they show neophobia and distinguish novel from familiar stimuli. They show lateralisation in a social but not in a foraging or predator context. They can chemically distinguish themselves from same-sex conspecifics and they learn to navigate a radial arm maze to find food and remember the locations of food for a week. Thus, geckos are a powerful model to study cognition comparatively.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:20:00 AM

Presenter: Fišer, O.

Twitter address: twitter.com/LaniusOndrej

Presentation title: Signs of holistic perception in predator recognition by untrained great tits (*Parus major*).

Presentation abstract:

Holistic object perception simultaneously evaluates the character and configuration of individual object features. This type of rapid perception has been repeatedly demonstrated in the recognition of human faces in cognitive-psychological tasks. It has also been demonstrated in several other animals but has not yet been adequately tested in birds. We presented untrained free-ranging great tits with modified dummies of the European sparrowhawk. We provided them with two different experimental settings (except a control one): a modified predator face with the body present; a modified face isolated from the body. Aviary experiments were conducted under natural conditions. We observed the fear behaviour of the tits before and during the presentation of the tested dummies. Based on our results, we can conclude not only the presence of key features of the predator's face is important but also their configuration. Significantly, the face of raptors could be perceived holistically.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:30:00 AM

Presenter: Bandini, E.

Twitter address: twitter.com/elisa_bandini

Presentation title: Naïve orangutans (*Pongo abelii* and *Pongo pygmaeus*) individually acquire nut-cracking using hammer tools

Presentation abstract:

Nut-cracking is considered one of the most complex non-human primate tool-use behaviours. We investigated nut-cracking in naïve captive orangutans who have not (yet) been observed nut-cracking in the wild. Secondly, we aimed to identify the learning mechanisms driving the acquisition of orangutan nut-cracking. To do so, we tested four unenculturated orangutans (*P. abelii*; Mage = 16; 4F) in a baseline, in which the materials of the behaviour were provided without demonstrations. We also report on a similar unpublished baseline study in eight orangutans (*P. abelii* & *P. pygmaeus*; Mage = 14; 5F). Across the two studies, at least four orangutans spontaneously used the hammers provided to crack open the nuts. These findings demonstrate that despite its apparent complexity, nut-cracking can be acquired by naïve orangutans individually. This does not preclude the existence of social learning mechanisms that homogenise the frequencies of this innovation in affected groups.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:40:00 AM

Presenter: Sommese, A

Twitter address: twitter.com/andrea_sommese

Presentation title: A comparison of personality traits of gifted word learner and typical border collies

Presentation abstract:

We exploited recent findings on giftedness in a specific cognitive skill, object label learning, in dogs to explore the potential association between this exceptional skill and personality traits. We administered the Dog Personality Questionnaire to 21 gifted dog owners and compared the personality traits of their dogs to those of matched samples of 43 Hungarian and 101 Austrian typical dogs, i.e., dogs lacking this capacity. We hypothesized that the Gifted Word Learner dogs may show higher levels of Playfulness. As expected, we found that the gifted dogs were rated as more playful than both the Hungarian and Austrian typical ones. Our results suggest that an extremely high level of Playfulness is associated with giftedness in a specific cognitive trait in dogs: the capacity to learn object verbal labels, thus opening new possibilities for comparative research on the relationship between giftedness and personality.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 9:50:00 AM

Presenter: Forman, J.

Twitter address: twitter.com/jemma_forman

Presentation title: Fetching in felines: A survey of cat owners on the diversity of cat fetching behaviour

Presentation abstract:

Despite the increased interest in domestic cat (*Felis catus*) behaviour in recent decades, the diversity of cat behaviour remains largely unexplored (Turner, 2017). Cats can learn a variety of tricks such as meowing on command (Voith & Borchelt, 1996). One behaviour, less common in cats than dogs, is the fetching and retrieving of objects. A previous survey of cat owners found that fetching was the most common trick, more so than a cat coming when called (Voith & Borchelt, 1996). Cats have not been bred for fetching, yet a number of cat owners report their cats playing fetch (Grigg & Logan, 2019; Voith & Borchelt, 1996). We surveyed the owners of 1,201 fetching cats, finding that only 5% of cats were trained to fetch and that cats were equal partners in the initiation and termination of fetching bouts. Cats displayed preferences for diverse objects, including toys and spherical objects (e.g. balls, crumpled paper). Thus, most cats who fetch display a spontaneous propensity for fetching.

Session name: Cognition I

Presentation time (GMT): 1/19/2023 10:00:00 AM

Presenter: Nawroth, C.

Twitter address: twitter.com/GoatsThatStare

Presentation title: Goats that stare at video screens – assessing behavioural responses of goats towards images of familiar and unfamiliar con- and heterospecifics

Presentation abstract:

Many cognitive paradigms rely on active decision-making, creating participation biases (i.e., lack of learning how to indicate a choice) while once learned contingencies might bias future test performance. We here present a promising approach to study goat perception and cognition without the need to train animals, allowing repeated testing of subjects and adhering stronger to the 3Rs principle. In a looking time paradigm, we tested 10 dwarf goats in their attention towards images of familiar and unfamiliar con- and heterospecifics. Subjects were confronted with images on a screen on either the left or right side of a testing apparatus. Images were faces of either familiar or unfamiliar goats and humans, presented for 10 seconds each. This was repeated in 8 trials per subject and for each stimulus type. Goats paid more attention to images depicting other goats compared to humans but did not change their degree of attention when looking at familiar vs. unfamiliar individuals.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 10:10:00 AM

Presenter: Xu, Z.

Twitter address: twitter.com/zho3215/

Presentation title: Linking parasitism to network centrality and the impact of sampling bias in its interpretation

Presentation abstract:

Increased social contacts are often associated with increased parasite abundance or diversity. Yet, studies investigating the links between sociality and parasitism have only accounted for parts of the group (e.g., only adults), which may impact the interpretation of results. This study focused on Japanese macaques (*Macaca fuscata*) and their intestinal parasite, aim to test whether social contact predicts infection, and whether excluding portions of individuals might impact the observed relationship. Our result shown network centrality in Japanese macaques predicts infection, while partial networks generated divergent results. Furthermore, simulations shown that these changes are partly a power issue and partly an effect of sampling the incomplete network. Our study indicates sampling bias can hamper our ability to detect real network effects involving social interaction and parasitism. This work introduces methodological considerations for research on dynamics of social transmission.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 10:20:00 AM

Presenter: Perroux, T. A.

Twitter address: twitter.com/PerrouxT

Presentation title: Phenotypic characterization of a unique feral cattle population.

Presentation abstract:

The feral cattle in Hong Kong (HK) are characterised by striking phenotypic diversity. Originally used as draught animals, they were released into the wild where they now form part of local heritage and are found in various locations. Being genetically distinct and resulting from breeding between wild and domesticated bovid species, their phenotype could reflect this crossbreeding. Phenotypic characterisation can be used to characterise breeds, populations and individuals. We developed a non-invasive methodology for scoring phenotypes in feral populations. First, we established a colour chart based on our field observations and established bovid phenotypes. Then, we defined horn types based on length, curvature and orientation on 3 axes. Finally, we scored 5 measures of body lengths based on photos using a triangulation method adapted to our field conditions. HK cattle provide a unique opportunity to link phenotypic, social and behavioural diversity in a free-ranging population.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 10:30:00 AM

Presenter: Jeschke, M. J.

Twitter address: twitter.com/MNJeschke

Presentation title: Bumblebees dash through an artificial forest by integrating different guiding mechanisms

Presentation abstract:

Bumblebees are excellent navigators and were observed to travel along routes and optimize routes between multiple feeding locations. While foraging, obstacles require the bees to deviate from their path in order to avoid collisions. However, it remains unknown how bees establish these routes and how experience affects the flight paths of bees in clutter. By recording flights of bees in an environment with many obstacles, we show that bees quickly learn to cross the clutter efficiently. Bees display a behavior that could be explained by an interaction of different mechanisms, such as following the most familiar scenery, avoiding an obstacle, while aiming for their nest, along their routes. We studied the underlying mechanisms by comparing model responses to the flight path, by using a novel causality detection method (convergent cross-mapping). Our findings shed light on the route following mechanisms that drive bees at different stages of their foraging life.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 10:40:00 AM

Presenter: Canteloup, C.

Twitter address: twitter.com/Cha_Canteloup

Presentation title: When monkeys meet an ANYmal robot in the wild

Presentation abstract:

From food vending machines to domestic, military and industrial robots, robots have an important place in our society. No behavioral study has tested the social integration of a robot in a wild group of primates. To fill this gap, we investigated the interactions between the quadruped ANYmal robot and vervet monkeys. We introduced this food provider robot to a group of 37 wild vervet monkeys over 6 days and following different steps: 1) the robot was laying down and 2) stably standing up quadruped surrounded by food on the ground; 3) the robot was slightly moving while standing up and 4) slightly moving its body and its head while standing up with no food on the ground. During video analysis, we recorded the reaction of the monkeys and the time they spent feeding and in proximity to the robot. Statistical analyses are currently being performed and will be presented. This pilot study offers exciting perspectives on the phenomena of social acceptance of machines in mammal societies.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 10:50:00 AM

Presenter: Pérez Fraga, P.

Twitter address: twitter.com/Paula_PeFraga

Presentation title: Consistency in family pigs' response to novelty measured with a motion sensor device

Presentation abstract:

Response to novelty (e.g. locomotor activity and object exploration) is a measurement used in personality studies of pigs but there are no conclusive results about its consistency in time. Moreover, motion sensor devices can measure accurately an animal's locomotor response. Our aim was to investigate individual variation in family pigs' response to novelty measured with a harness-worn motion sensor and behaviour variables and to assess the consistency in time of this response. We performed novel object tests in N=9 pigs at 4, 8, 12 and \pm 35 months old. Our behaviour results show that the object-oriented behaviours were consistent at 4, 8, and 12 months but not at adulthood. The sensor activity data was consistent with the behaviourally coded total activity and it showed correlations with the object-oriented behaviours, meaning that more active pigs were also the more explorative ones. This enhances the possibility of substituting the ethological coding for motion-sensor devices.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 11:00:00 AM

Presenter: Woods, J. M.

Twitter address: twitter.com/AnimalWelfarist

Presentation title: Accurately determining animal location from non-aerial cameras

Presentation abstract:

Video-based methods for tracking the location of animals in indoor facilities can provide information on resource use and be used to validate automated positioning systems. However, researchers may

have to mount cameras at angles due to structural or financial limitations, introducing perspective views that make it difficult to accurately determine an animal's location. We propose a user-friendly solution to extract an animal's location from non-aerial video using QGIS, an open-source geographic information system. The approach involves: (1) mapping facility-based coordinates to pixel coordinates in the non-aerial images; (2) transforming non-aerial images to an aerial view, and (3) determining facility-based x, y coordinates of animals from the transformed images. We found an accuracy of 0.28 ± 0.11 m (mean \pm SD) when comparing manual measurements to coordinates obtained through QGIS. Our technique will allow researchers to accurately code animal locations from non-aerial camera views.

Session name: Tech, Methods & Models

Presentation time (GMT): 1/19/2023 11:10:00 AM

Presenter: Larue, B.

Twitter address: twitter.com/Benji_Larue

Presentation title: Determinants of spring molt in bighorn sheep: Life-history, plasticity and phenology

Presentation abstract:

Anthropogenic climate change and habitat alterations increase the importance of understanding variation in phenological traits. Although the timing of phenological events may vary in response to direct and indirect effects, methods to estimate both types of effects have seldom been used. We used a Bayesian structural equation model (SEM) to evaluate direct and indirect effects of individual and environmental variables on the timing of spring molt in bighorn sheep. The SEM showed that molt phenology varied directly with individual and environmental variables. The SEM also underlined strong indirect effects of environmental variables mediated through individual variables. Our SEM thus shows that total phenotypic plasticity should be measured as the sum of direct and indirect effects. Because indirect effects can substantially affect inferences about plasticity, they should be estimated to accurately predict phenological mismatches and consequences of environmental change.

Session name: Education

Presentation time (GMT): 1/19/2023 12:20:00 PM

Presenter: Evans, C. V.

Twitter address: twitter.com/ASABeducation

Presentation title: ASAB Education - resources

Presentation abstract:

Do you teach vigilance behaviour? Mate choice? Data collection? Maybe you need a bit of inspiration? Or perhaps you've got a great activity you'd like to share. We have some excellent resources and a grant scheme to develop more. Follow our twitter thread to find out.

Session name: Education

Presentation time (GMT): 1/19/2023 12:30:00 PM

Presenter: Deacon, A. E.

Twitter address: twitter.com/amy_e_deacon

Presentation title: Behaviour in your backyard: Using a processionary caterpillar to teach Tinbergen's four questions

Presentation abstract:

We developed an interactive online lab for introducing Tinbergen's Four Questions to undergraduate biology students in Trinidad & Tobago. By focusing on the subject of our own research, the caterpillar *Hylesia metabus* and its unusual processionary behaviour, we engage students with a more relatable case study than those typically found in textbooks. Basing the lab on work by a Trinidadian ECR is empowering and inspiring for our students, and as our research was sparked by a chance encounter in a garden, it also emphasises the importance of natural history observations as starting points for behavioural studies. Students work in small groups to devise questions and hypotheses relating to the caterpillars' behaviour for each of the 4 questions, then outline potential experiments. Through group and class discussions, alongside examples of how we, the authors, approached these questions, students gain insights into the scientific process as well as a deeper understanding of the 4 questions

Session name: Education

Presentation time (GMT): 1/19/2023 12:40:00 PM

Presenter: Srivastava, M.

Twitter address: twitter.com/manishi_s

Presentation title: The BeeZee dancing event series

Presentation abstract:

Based in Himachal, India, is an educational trust named Aavishkaar which aims to make science and math fun for teachers and students and inculcate conceptual understanding. With support from ASAB-UK through their Public engagement grant, and using the network of schools and community that Aavishkaar engages with, I started a series of events to spread awareness about honeybee behaviour and significance. For each event, our team would arrange around 10 stalls where exhibits are used to engage the attendees into different aspects of bee behaviour and their life. Clearing certain misconceptions about bees and their role in pollination has been one of the major highlights of this series. We aim to complete 25 such events (11 covered so far) by the end of this year and document the interesting questions and responses of the students, teachers and community members.

Session name: Education

Presentation time (GMT): 1/19/2023 12:50:00 PM

Presenter: Prantik, D.

Twitter address: twitter.com/Prantik16D

Presentation title: Understanding behavior of recreational anglers towards mahseer and public's response to it on YouTube

Presentation abstract:

Mahseers are group of freshwater megafishes many of which are endangered. Among various anthropogenic threats, Recreational Angling (RA) is a major concern hence studying behavior & practices of anglers towards fishes & public response to it in real-digital realm could give insights for managing fish populations. Study analysed RA videos of *T.khudree*, *T.putitora* & *N.hexagonolepis* from YouTube (Jan 2010-May 2022). Of 3 most commonly angled Mahseer species in India, Blue-fin Mahseer (*T.khudree*) with minimum number of videos attracted maximum Social Engagement (SE). Catch&Release an ethical RA practise was lowest for Chocolate Mahseer (*N.hexagonolepis*). In all 3 species, SE improved with increase in angled fish size. It points to higher degree of RA pressure that larger individual specially *T.khudree* may face in future as anglers may make videos on fish getting more SE. Higher share of non-C&R videos of *N.hexagonolepis* is alarm call to make anglers aware of near threatened status of this species

Session name: Culture

Presentation time (GMT): 1/19/2023 1:00:00 PM

Presenter: Tennie, C.

Twitter address: twitter.com/CTennie

Presentation title: Can non-human apes enter the stone age on their own accord?

Presentation abstract:

The stone age began with the earliest production and use of sharp stone tools. For some, it represents the roots of human culture – a turning point in which skills required copying of "supra-individual" know-how. However, naïve modern humans can individually develop stone tool skills without know-how copying (Snyder et al. 2022 Sci Adv). Early tests with apes found that they can also show these skills, in principle, after human demonstrations. However, these early studies failed to test ecologically relevant (i.e. unenculturated) apes. Our team repeated these tests on ecologically-relevant apes, and included baseline conditions. The unenculturated apes never developed levels of skill even approximating those seen earlier in enculturated subjects. Our findings show that unenculturated apes cannot enter the stone age without human interference. In summary, amongst apes, the stone age likely evolved (primarily biologically) in the human lineage alone.

Session name: Culture

Presentation time (GMT): 1/19/2023 1:10:00 PM

Presenter: Wessling, E.

Twitter address: twitter.com/northernlimitpt

Presentation title: A new tool for addressing the role of culture in conservation: The IUCN Section on Great Apes Working Group on Chimpanzee Cultures

Presentation abstract:

Chimpanzees exhibit diverse cultural repertoires and are frequently placed at the forefront of calls for considerations of culture in conservation. However, no consensus has been reached about how best to bridge the domains of chimpanzee culture and their potential contributions to conservation action. Best practices for integrating culture into chimpanzee conservation policy are urgently needed, therefore, the IUCN SSC PSG SGA Working Group on Chimpanzee Cultures (WGCC) was formed in 2020 with the purpose of bringing together expertise on chimpanzee cultural behavior, and conservation science and policy to drive multidisciplinary approaches to protect chimpanzees. Current activities of this group include identifying and defining appropriate avenues for integrating culture into conservation advocacy, developing best practices for recording cultural behaviors, and creating a publicly available online catalog of chimpanzee cultural behaviors.

Session name: Culture

Presentation time (GMT): 1/19/2023 1:20:00 PM

Presenter: Rondeau Saint-Jean, C.

Twitter address: twitter.com/CamilleRstj

Presentation title: Artificial intelligence for the study of intraspecific variation in bird song: Classifying savannah sparrow microdialects with a deep neural network

Presentation abstract:

Cultural diversity is a vital feature of bird populations, and yet we lack state-of-the-art techniques for quantifying it. Existing automated tools designed for the monitoring of bird populations through acoustic surveys focus on species-level differences in sounds, ignoring important variation within species. This deficiency arises due to the lack of substantial training datasets of audio clips where different song types are labeled by expert researchers. Using thousands of hours of recordings collected in an insular population of Savannah Sparrows, we built a computational tool transferring the detailed annotations of experts to a neural model. This allows us to identify different individuals and population-level songtypes from massive amounts of field recordings, shedding light on individual and cultural variation within the population. Through detailed study of a single species, this research is expanding the limits of automated sound analysis focused on within-species variation.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:00:00 PM

Presenter: Sarkar, R.

Twitter address: twitter.com/SarkarRohan1

Presentation title: It's a dog-eat-smart world: Scavenging strategies in free-ranging dogs

Presentation abstract:

Free-ranging dogs (FRD) have been recorded to be the earliest urban animals. In India, they mostly subsist on carbohydrate-rich diet. We tested 136 groups in a multiple-choice test experiment using boxes filled with garbage, simulating dustbins, a common food-source for FRD to examine their foraging strategies. We compared the results against 68 individual FRD, tested with the same set-up to see the influence of social cost like intra-group competition. We found dogs in groups respond faster, display decreased resource selectivity (compromise on quantity, not quality) & vigilance behaviour, show a "eat first, sample later" patch behaviour as compared to solitary dogs. In both cases, the dogs employ random sampling of patches when information about them is low but switch to systematic foraging with more information, allocating more time & effort to preferred patches. The above strategies fulfill multiple characteristics of a stochastic optimal foraging strategy.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:10:00 PM

Presenter: Dutta, T.

Twitter address: twitter.com/tusheemaD

Presentation title: Factors affecting seasonal variation in escape behavior of birds

along an urban-rural gradient

Presentation abstract:

Cities act as ecological traps. Contrary to rural populations, Urban creatures face lower predation but the energy expense of escape behaviours are equal for both. So urban fauna are predicted to show higher tolerance towards humans. From March 2020 to December 2021, we analyzed the behavioural plasticity in escape behaviour of avifauna (30 species) in 120 paired urban and rural populations for a distance of 2300 km in India to find profound seasonal variation in the escape behaviours in the two groups. For the study of escape behaviour we noted 3 types of distances between the bird and the predator Alert distance, Starting distance and Flight initiation distance (FID). Body and brain size had positive correlation with FID. Flock size had inverse relation with FID. There was high correlation between FID and reproductive behavior. Further studies are needed to understand the role of reproductive hormones in anti-predatory decision making for all the concerned species.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:20:00 PM

Presenter: Crouchet, T.

Twitter address: twitter.com/ThomasCrouchet

Presentation title: Behavioural plasticity in an urban world, a benefit for reproductive success?

Presentation abstract:

Rapid environmental changes like urbanisation imply challenges for animals. Although evidence highlighted differential adaptation of species, less is known about how individuals react to these changes. Selection pressures is supposed to favour more plastic individuals but this still needs experimental confirmation. Using audio playbacks, we tested the link between behavioural plasticity and reproductive success in wild great tits along an urbanisation gradient. First, we explored social plasticity variation in various contexts. Individual plasticity was impacted by context (predation, territory defence) changes. Second we related this plasticity variation with reproductive success. Depending on the plasticity trait considered, the link between plasticity and reproductive success differed. We thus provide experimental evidence for the link between a context-dependent plasticity and reproductive success, expanding our understanding of birds' responses abilities in an urban world.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:30:00 PM

Presenter: Neslund, E. M.

Twitter address: twitter.com/LizzyNeslund

Presentation title: Effects of anthropogenic noise and urbanization on the entropy of male song in the gray catbird, *Dumetella carolinensis*

Presentation abstract:

As urbanization increases, so does anthropogenic noise pollution, and animals that communicate acoustically are increasingly impacted by noise-masking of their signals. Oscine songbirds have been shown to changing their behavior to avoid masking from low-frequency anthropogenic noise such as by raising the minimum frequency of their songs. In contrast to most bird species that have been studied which sing short, stereotyped songs, the gray catbird, *Dumatella carolinensis*, sings long bouts with an immediate variety of different song elements and employs mimicry of other species' songs. This singing style makes quantifying song differences of catbird populations along an urban gradient difficult. I hypothesized that urbanization would have an effect on male catbird song entropy, which is the dispersion of energy across a frequency spectrogram, because of higher minimum frequencies and decreased song bandwidth (Rhodes 2020, Moseley Lab unpublished data).

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:40:00 PM

Presenter: Baldassarre, D. T.

Twitter address: twitter.com/evornithology

Presentation title: Urban Northern cardinals have shorter flight initiation distances and are less neophobic than rural birds

Presentation abstract:

Some birds are better able to coexist with humans than others, but behavioral explanations remain elusive. For example, the Northern Cardinal readily breeds in urban habitats. We hypothesized that urban cardinals would be less fearful of humans and less neophobic than rural birds. We trained wild males to use platform bird feeders at a rural (Oswego, NY) and urban (Syracuse, NY) site. We then placed four novel objects (blue and yellow frisbees and rulers) on feeders and measured individual flight initiation distance (FID) and latency to return to the feeder. Supporting our hypotheses, urban birds had shorter FIDs and returned to feeders with novel objects more quickly than rural birds. There was no difference in how the birds reacted to the four novel objects. Whether these behavioral differences are plastic or the result of genetic evolution is unclear. Together, these results suggest that urban birds may exhibit a suite of behaviors that allow them to adapt to human disturbance.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 2:50:00 PM

Presenter: Hope, S. F.

Twitter address: twitter.com/sydneyfhope

Presentation title: Parenting in the city: Urbanization promotes inefficient incubation of eggs in great tits, *Parus major*

Presentation abstract:

With 68% of the world's population expected to live in cities by 2050, it is crucial to understand how animals respond to urbanization. One important aspect of animal behavior that may be affected by urbanization is parental care. In birds, a critical aspect of parental care is incubation, where parents must maintain egg temperatures for successful offspring development. To determine whether urbanization affects incubation, we measured incubation behavior and egg temperature in an urban and forest population of great tits. We found that, compared to forest females, urban females spent more time incubating, took shorter off-bouts and ended their last daily off-bouts at a later hour. Despite urban females spending more time on the nest, eggs in both habitats experienced similar average egg temperatures, and urban eggs tended to experience more variable egg temperatures. Thus, it appears that urban parents must work harder to achieve similar incubation conditions to those in the forest.

Session name: Urban Adaptation

Presentation time (GMT): 1/19/2023 3:00:00 PM

Presenter: Young, J. K.

Twitter address: twitter.com/DrJulieKYoung

Presentation title: A continental-scale experiment testing if city or country coyotes are bolder

Presentation abstract:

Few heavily persecuted carnivores thrive like the coyote. Coyotes live in cities and rural areas where they are hunted for sport or killed for conflict management, yet they have robust populations and rapidly expand their range. The risks and rewards are very different in urban vs. rural areas and this could affect coyote behavior in populations. We used camera traps to measure behavioral responses of coyotes to a novel object, pairing rural and urban sites at 16 places in the USA for comparisons. We used a scent lure as an attractant at each camera site and added a novel object at half to the sites as a treatment. We found urban coyotes were generally bolder; they attended treatments more, and moved closer to and interacted more with the novel objects (e.g., eating bait or digging). However, other aspects of their demeanor and behavior varied substantially across places, suggesting many unique aspects of coyote behavior in different places, influenced by local coyote and human culture.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 3:20:00 PM

Presenter: Khan, A. S.

Twitter address:

Presentation title: Re-wilding experience: Stimulating foraging competency in captive red pandas (*Ailurus fulgens fulgens*) selected for augmentation programme at Darjeeling Zoo, India

Presentation abstract:

The ultimate goal of conservation breeding is to reintroduce zoo-bred animals into their wild habitats. Enhancing naturalistic behaviour like foraging is essential for successful reintroduction. Four red pandas were selected for augmentation to be released in Singalila National Park, India. Feeding enrichments were performed to induce foraging competency in individuals. The experiment was divided into two phases i.e. training and test. Results showed increased foraging in subjects during the experiment. Mean foraging was significantly different from zero between the training and test phase. Activity budget was positively shifted analogous to wild counterparts. The hypothesis that individual maintains foraging behaviour with consistent enrichments was found to be true for the subjects. The study conclusively recommends appropriately designed feeding enrichments to stimulate foraging behaviours in captive animals to be reintroduced.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 3:30:00 PM

Presenter: Wythe, S.

Twitter address: twitter.com/sophieewythe

Presentation title: A day in the life - Activity budget and enclosure use in a mixed species mammal exhibit

Presentation abstract:

Southern tamanduas (*Tamandua tetradactyla*) are a nocturnal, arboreal species, whilst six-banded armadillos (*Euphractus sexcinctus*) are a terrestrial species shown to exhibit different activity patterns in response to climatic changes. A male and female of each species was studied, using camera trap footage for a total of 24 days. Spatial use was determined through dividing the exhibit into multiple unequal zones based on the resources accessible. The results highlighted both species activity to significantly differ seasonally ($P < 0.002$), and between day and night ($P < 0.03$). Both species enclosure utilisation significantly differed seasonally ($P < 0.001$), and between day and night ($P < 0.001$). Armadillos portrayed a diurnal activity pattern, whereas the tamanduas activity was more sporadic, with both species exhibiting most activity in Autumn. These conclusions have recognised the requirements of the species to vary throughout the day, so factoring this into management could enhance welfare.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 3:40:00 PM

Presenter: Lewis, K. E.

Twitter address: twitter.com/KEleanorx

Presentation title: Biologging reveals behavioural differences between lame and non-lame sheep

Presentation abstract:

Biologging technology could provide early warning of lameness in farm animals, potentially allowing farmers to treat animals faster, improving welfare. A biologging platform was fitted to 50 ewes and their 68 lambs and data processed to create 24-hour summaries for 13 days. Accelerometer features were reduced into behavioural states, and these were reduced to two components with principal components analysis - 'grazing' and 'inactive' for ewes, and 'inactive' and 'feeding' for lambs, and posture assessed by percentage time standing. The effect of lameness and other characteristics (age, litter size, social behaviour - daily hours spent with both family and non-family sheep, measured using proximity sensors, weather, and space available) on behaviour and posture were assessed using linear mixed effects models. Identified behavioural differences were that lame ewes and lambs stand less and are more inactive, while lame ewes spend proportionally less time grazing and ruminating.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 3:50:00 PM

Presenter: ManyGoats

Twitter address: twitter.com/TheManyGoats

Presentation title: ManyGoats - an initiative to promote open and reproducible research on goat behaviour and welfare

Presentation abstract:

Due to contextual idiosyncrasies of individual testing sites, the results of single-site studies on goat behaviour could only be valid for the particular group of animals that has been tested and thus may not always be reproducible. Multi-site approaches can offer a resource-efficient opportunity to tackle this problem and increase the external validity of scientific results. We established the ManyGoats initiative with the aim to increase the generalisability of findings in research on goat behaviour by implementing identical experimental protocols and simultaneously testing animals across different facilities. To date, the ManyGoats initiative consists of more than 35 researchers across five continents, and more researchers are invited to join. In ManyGoats1, we will focus on goats' behavioural responses to different human attentional states during an Avoidance Distance test. Currently, we are developing the ManyGoats1 test protocol and anticipate starting data collection in 2023.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 4:00:00 PM

Presenter: Bemister, K.

Twitter address: twitter.com/k_bemister

Presentation title: Record, recall, reflect: A qualitative examination of compassion fatigue in Toronto Zoo staff

Presentation abstract:

This qualitative study explores Metropolitan Toronto Zoo staff experiences with compassion fatigue – a state of emotional and physical exhaustion within those that care for individuals that have experienced trauma; with the goal to provide a deeper understanding of the impactful experiences that staff have while caring for non-human animals in their profession. A participatory methodology allows for detailed exploration of first-hand experiences of animal care professionals (ACPs), specifically intended to centre participant lived experiences. Findings, as displayed through images and select quotes, will enable the Toronto Zoo to provide more comprehensive mental health supports for their staff and allow participants, researchers, partner organizations, and the general public to discover more about this phenomenon – in the hopes that the lessons learned will last a lifetime.

Session name: Health & Welfare II

Presentation time (GMT): 1/19/2023 4:10:00 PM

Presenter: Sandbach, C. E.

Twitter address: twitter.com/CE_Sandbach

Presentation title: Can beaver behavioral traits predict translocation success?

Presentation abstract:

Beaver translocation has become a popular method in stream restoration projects because beavers improve in-stream and riparian habitat through dam building and contributions of large woody debris. These translocations typically require a large number of beavers to be released to a site before there is an established population; yet we have limited knowledge on why some beavers stay and survive while most do not. We investigated whether behavioral traits of individual American beavers (*Castor canadensis*) influenced survival and site fidelity after translocation to a section of a degraded and simplified desert river in east-central Utah. We conducted four behavioral assays on beavers while they were in captivity and monitored them using VHF and PIT tags after translocation release to determine if there were correlates between behavior and survival or site fidelity. Our results will determine if the use of pre-release behavioral assays can improve beaver translocation strategies.

Session name: Learning

Presentation time (GMT): 1/19/2023 5:20:00 PM

Presenter: Miler, K

Twitter address: twitter.com/KrzysMiler

Presentation title: Learning in antlions and its impairment following exposure to elevated temperatures

Presentation abstract:

Pit-building antlions can associate vibrations in the sand with the arrival of prey. Recently, new evidence for cognitive abilities in these ambush predators has been found. In a T-maze, antlions can be successfully trained to turn right or left, leading to a suitable substrate for digging pit traps. This presents the first evidence for operant conditioning and T-maze solving in antlions. Furthermore, this operant learning is vulnerable to increased temperature. Exposure of antlions to an elevated temperature leads to impaired retention of what is learned in a T-maze compared to larvae raised under a more benign temperature. As such, climate change, involving an increase in mean temperatures as well as rare events (e.g., heatwaves) might negatively affect the retention of operant conditioning in antlions, alongside known, more frequently studied life-history effects.

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Session name: Learning

Presentation time (GMT): 1/19/2023 5:30:00 PM

Presenter: Watrobska, C. M.

Twitter address: twitter.com/cecyliaaw1

Presentation title: Investment in learning does not reduce colony founding success in bumblebee queens

Presentation abstract:

Learning and memory are widely considered to be beneficial to an individual, yet they are predicted to carry significant energetic costs. Investing in learning may, therefore, trade-off with other costly traits. At the start of the bumblebee colony life-cycle, queens must invest simultaneously in learning about rewarding floral resources, and colony founding, yet a potential trade-off between these two traits remains unexplored. In a large-scale experiment using 200 bumblebee queens, we compared colony founding success between queens that underwent a six-day reversal learning task, and two control groups. We found that investing in visual learning did not reduce colony founding success, suggesting it does not carry a cost large enough to impact on reproduction during this life-cycle stage. Our results build on our knowledge of evolutionary trade-offs, and have applications for pollinator conservation.

Session name: Learning

Presentation time (GMT): 1/19/2023 5:40:00 PM

Presenter: García-Salazar, J.J

Twitter address: twitter.com/JesusGarSal97

Presentation title: A learning during the metamorphosis

Presentation abstract:

The habituation is a phenomenon which has been studied in different species and different life stages. We investigated whether a beetle (*Tenebrio Molitor*) in pupa stage can habituate to light and vibration. To do that we did two experiments, both experiments had two phases. Phase 1 consisted in a continuous presentation of the stimulus (light in experiment 1 and vibration in experiment 2). In both cases the pupae showed a decrease in their number of abdominal contractions across the thirteen minutes. In phase 2 was presented a different arrangement to demonstrate the recovery of their response and ruled out motor fatigue or sensory adaptation. We found that when there was a change in the stimulus (same or in a distinct sensory modality) the abdominal contraction increased,

also there was a recovery of their response when there was a period without stimulation. The findings are similar to those found in other animals.

Session name: Learning

Presentation time (GMT): 1/19/2023 5:50:00 PM

Presenter: Almaguer-Azpeitia, M.

Twitter address: twitter.com/MarielAlmAzp

Presentation title: Ticks, memories and rats

Presentation abstract:

The renewal effect refers to the recovery of an extinguished response due to changes in the context of extinction. Contextual manipulations typically involve changes in physical features, but interoceptive cues have been also suggested to function as contexts, such as affective states. Therefore, we investigated whether positive affective states exert control over instrumental behavior in an ABA renewal design using instrumental conditioning in rats. To generate positive affect, we administered the tickling procedure. Rats learned a response where each acquisition session was preceded by tickles (Context A). Then, in the extinction phase rats received a pure handling treatment (Context B) before each session. During a final test session, we found stronger responding when the session was preceded by tickling compared to handling, indicating an ABA renewal effect. These results are relevant to understand basic processes of behavioral adaptation, learning and memory.

Session name: Learning

Presentation time (GMT): 1/19/2023 6:00:00 PM

Presenter: Gutiérrez, B.

Twitter address: twitter.com/brissa_gtz

Presentation title: Effects of training different levels of operant variability in rats

Presentation abstract:

If high levels of variability are initially trained, responding remains variable even if the criterion for variability is eliminated. This effect, reported in college students, could have resulted from rule-governed behavior. To extend the generality of this finding, this experiment explored the effects of increasing or decreasing the criteria for reinforcing variability in rat subjects. The variability of a sequence of 3 responses distributed on five levers was reinforced using a Lag procedure. For one group of rats (0 - 50) the criterion in successive conditions was Lag 0, 2, 10, 25, and 50. For the other group (50 - 0) the criteria were presented in decreasing order. For both groups, variability, measured as U values was higher with higher Lag values. For Group 50 - 0, U values with Lags 10, 25, and 50 were higher than for Group 0- 50. The results suggest that in rats and humans, high levels of variability established early in training produced more variable behavior.

Session name: Parental Care

Presentation time (GMT): 1/19/2023 6:10:00 PM

Presenter:

Twitter address:

Presentation title: Caring is sexy: female mate choice in *Hyalinobatrachium valerioi*

Presentation abstract:

In species where males provide paternal care, it is relatively unknown whether females also evaluate male parental care performance when selecting between suitable mating partners. In this study, we assessed male mating success in the glass frog *Hyalinobatrachium valerioi*. Males take care of the clutches until they hatch, while females leave immediately after oviposition. For 62 days during the peak of their breeding season, we conducted morning and night surveys at Quebrada Negra, Costa Rica. We combined GIS, parentage and statistical analysis to get deeper insights into individuals' movement and behavior. We found that the likelihood of getting a new clutch is bigger in males that were present the previous night, that call, and that already have clutches.

Session name: Parental Care

Presentation time (GMT): 1/19/2023 6:20:00 PM

Presenter: Sheard, C.

Twitter address: twitter.com/sheardcat

Presentation title: The evolution of parental care in freshwater fish

Presentation abstract:

Vertebrate parental care can be found in a vast array of forms, from brief egg guarding to viviparity. Though much of our understanding of parental care macroevolution comes from studies of birds and mammals, freshwater fish display a remarkable variety of care behaviours, the broad-scale causes and consequences of which are generally unknown. Here we present a comparative study of parental care in 3,872 species of freshwater fish. First, we examine the extent to which freshwater fish parental care evolves in a stepwise fashion. Second, we determine whether care can be linked to variation in offspring size, a fundamental life history trait. Finally, we determine whether care and offspring size co-evolve, testing if they follow the 'safe harbour' hypothesis (that the evolution of care facilitates an increase in offspring size) or the 'offspring-first' hypothesis (that an initial trend towards larger eggs necessitates the subsequent evolution of caring behaviours).

Session name: Parental Care

Presentation time (GMT): 1/19/2023 6:30:00 PM

Presenter: Engebretsen, K. N.

Twitter address: twitter.com/KN_Engebretsen

Presentation title: I will survive: High survival of cougar kittens despite variation in maternal care

Presentation abstract:

Providing care to offspring is risky and energetically expensive for mammals but necessary to ensure offspring survival. Many female carnivores provide exclusive care for their young but must also continue to hunt to ensure adequate nutrition. This results in a temporal trade-off between providing protection and care to neonates and leaving them unattended while hunting. Cougars (*Puma concolor*) are solitary carnivores that exhibit maternal care for up to two years. We investigated if differences in maternal time allocation influenced kitten survival from birth to 6 months old. We quantified maternal presence and duration of time spent with kittens and fitted known-fate Bayesian survival models to estimate daily survival probability and the influence of maternal care. Kitten survival was high despite differences in time allocation of mothers, suggesting that cougar moms can successfully raise litters using different adaptable strategies to meet the challenges of raising their young.

Session name: Parental Care

Presentation time (GMT): 1/19/2023 6:40:00 PM

Presenter: Blackburn, A.

Twitter address: [twitter.com/@esandhaus](https://twitter.com/esandhaus)

Presentation title: California condors: Parental investment during nesting

Presentation abstract:

The California Condor (*Gymnogyps californianus*) is a critically endangered New World vulture. California Condors rear a chick about every 2 years with investment from both parents. Understanding nesting behavior is important to ensuring the conservation of this scavenger. We predicted differences in parental allocation between sexes and between egg and chick stage. We observed nesting behavior of free-flying condors in S. California from 35 nests that fledged a chick. Nests were sampled on 1192 days between 2007-20. Male and female condors significantly differed in parental investment. Females spent significantly more time (mean 220 min.) in attendance than males (mean 209 min.) during the egg stage. During the egg stage, females visited the nest 9% more often. Males visited the nest 13% more often than females during the chick phase. California condors exhibit behavioral asymmetries in parental care, with females investing more effort in incubation.

Session name: Parental Care

Presentation time (GMT): 1/19/2023 6:50:00 PM

Presenter: Bray, E. E.

Twitter address: twitter.com/DrEmilyBray

Presentation title: Effects of early maternal care on puppy behavior and training outcome

Presentation abstract:

Early maternal interactions have long-lasting effects in many species of mammals. In the current study, we observed 59 litters of Canine Companions service dog puppies (n = 415) from birth until three weeks of age. We then conducted behavioral tests at 8 weeks of age and collected observations via questionnaires over the first year and a half of life to measure later behavior. We found several associations between maternal care and diverse measures of subsequent cognitive and temperament traits of their puppies. We also found that puppies who experienced greater maternal investment were more likely to graduate from the service dog program, relative to dogs who experienced less maternal investment. While environmental influences on common dog behaviors are widely recognized, few studies have considered the consequences of experiences during the first weeks of life. Our results suggest that this period may make important contributions to the etiology of diverse behavioral outcomes.

Session name: Cognition II

Presentation time (GMT): 1/19/2023 7:30:00 PM

Presenter: Reindl, E.

Twitter address: twitter.com/Miss_Daffodil

Presentation title: The Shifting Shelf task: A new, non-verbal measure for attentional set shifting

Presentation abstract:

Attention shifting is essential to cognition, allowing for fast adaptation to environmental changes. How it compares between humans and other primates is not well known. We developed and validated a new behavioural task on 3- to 5-year-old children and chimpanzees. Experiment 1 (46 3- to 5-year-olds) established content validity, showing that the majority of errors were specific attention switching mistakes. Experiment 2 (178 3- to 6-year-olds) examined age effects, showing that older children made fewer mistakes, but a larger proportion of those were switching mistakes rather than "random" errors. Experiment 3 (52 chimpanzees) validated the task for chimpanzees and showed that their performance was comparable to 3- and 4-year-olds', but worse than 5-year-olds'. This suggests that chimpanzees and young children share attention shifting capacities, but that there are unique changes in the human lineage from 5 years.

Session name: Cognition II

Presentation time (GMT): 1/19/2023 7:40:00 PM

Presenter: Jim, H-L.

Twitter address: twitter.com/HoiLam_Jim

Presentation title: Pet dogs fail to form reputations of humans after indirect and direct experience in a food-giving situation

Presentation abstract:

Reputation is a key component in social interactions of group-living animals and appears to play a role in the establishment of cooperation. Dogs can cooperate with humans, so we investigated whether dogs can form reputations of humans in a food-giving situation and whether age has an

effect on their ability to do so. We hypothesised that older dogs, who have had more experience with humans, would outperform younger dogs. The experimental procedure comprised three parts: baseline, observation and testing. In the observation phase, the subject observed two humans interact with a dog demonstrator—one acted generously and fed the dog, and the other acted selfishly and refused to feed the dog. The subject could then choose which person to approach in the test phase. We found that dogs of all ages did not differentiate between a generous or selfish partner after indirect or direct experience. Our results suggest that reputation formation may be more difficult than expected for animals.

Session name: Cognition II

Presentation time (GMT): 1/19/2023 7:50:00 PM

Presenter: Jacobson, S. L.

Twitter address: twitter.com/SarahLJacobson1

Presentation title: Individual variation in innovation in Asian elephants across anthropogenic landscapes in Kanchanaburi, Thailand

Presentation abstract:

Wild Asian elephant habitat has faced rapid human modification, presenting novel challenges for elephants to navigate. Some individual elephants living close to human communities are spending significant time foraging in agricultural landscapes, while others remain inside protected areas. The ability to innovate can allow animals to exploit new resources or establish themselves in new environments, but how or whether innovation varies between individuals living across varying anthropogenic landscapes is not well understood. We installed a multi-access box inside a Thai wildlife sanctuary and on its borders with farms to investigate elephants' innovative abilities. We test for a number of behavioral traits, including innovation, neophilia, persistence and exploration, and attempt to quantify variation in these traits between individuals and landscapes.

Session name: Cognition II

Presentation time (GMT): 1/19/2023 8:00:00 PM

Presenter: Bray, E. E.

Twitter address: twitter.com/ManyDogsProject

Presentation title: ManyDogs Project: Leveraging big team science to understand canine behavior and cognition

Presentation abstract:

The ManyDogs Project is an international, multi-lab initiative in Canine Science. From a basic science perspective, studying dogs informs our understanding of behavior and cognition, evolutionary processes, and human health. Given that dogs are also prevalent in our society and homes, there are also many practical and applied benefits—with welfare implications—to understanding them. The mission of ManyDogs Project is to replicate important findings in the field of canine science, set rigorous methods, leverage large samples to study moderators (e.g., breed) and cultural differences,

and foster collaboration. In launching our first study, ManyDogs 1, which finishes data collection in December 2022, we have demonstrated the feasibility of a big team science approach and our consortium's ability to address our scientific aims. Importantly, we have built a framework that we will continue to build upon as we further our mission and address a variety of important questions in the future.

Session name: Cognition II

Presentation time (GMT): 1/19/2023 8:10:00 PM

Presenter: Huidobro-Dávila, J.

Twitter address: twitter.com/cincco_uaem

Presentation title: Cambios en la respuesta conductual de perros mayores ante estímulos emocionales de conoespecíficos

Presentation abstract:

El envejecimiento está asociado a cambios en la percepción y procesamiento de emociones. En adultos mayores se ha observado un sesgo hacia la información emocional positiva conocido como "efecto de positividad del envejecimiento". Estudios recientes sugieren que dicho fenómeno también ocurre en perros domésticos, sin embargo, no está claro si pudiera presentarse ante estímulos provenientes de conoespecíficos. Es por eso que se realizaron pruebas con perros jóvenes ($n=20$) y perros mayores ($n=18$) donde se utilizaron sonidos de otros perros con valencia emocional positiva, negativa y neutral para explorar las diferencias conductuales relacionadas con la edad ante estímulos emocionales. Se encontró que los perros mayores presentaron mayor latencia en el procesamiento perceptual ante sonidos con valencia negativa, mientras que en el resto de estímulos no hubo una diferencia significativa, lo cual apunta a que tal efecto pudiera presentarse desde etapas tempranas del procesamiento perceptual. Aging is associated with changes in the perception and processing of emotions. The "positive effect of aging" is a bias towards positive emotional information; this bias has been reported in older adults. Recent studies suggest that this bias also occurs in domestic dogs. However, it is unclear whether it might occur in response to conspecific stimuli. We, therefore, tested young dogs ($n=20$) and older dogs ($n=18$) using sounds from other dogs with positive, negative, and neutral emotional valence to explore age-related behavioral differences to emotional stimuli. Older dogs showed longer latency only in the perceptual processing of negatively valenced sounds. Our results suggest that such an effect may be present from the early stages of perceptual processing.

Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 8:20:00 PM

Presenter: Warrington, M.

Twitter address: twitter.com/miya_warrington

Presentation title: Lovers, not fighters: Docility influences fitness, but not survival, in male Cape ground squirrels (*Xerus inauris*)

Presentation abstract:

Personality traits, such as aggression, may have survival and fitness consequences. However, in some species, suppressing, rather than using aggression may be beneficial. Cape ground squirrels, *Xerus inauris*, are promiscuous and male reproductive competition is high. Yet, males have docile personalities, lack physical aggression and do not hold territories. Males have two discrete alternative reproductive tactics (ART) and either live socially in family groups ('natal'), or in all-male groups ('band'). ARTs do not differ in copulation frequencies, reproductive success, or docile personality. As continuous, individual variability in behaviours may be influencing reproductive success, we investigated the associations between docile personalities, and fitness and survival. Docility significantly covaried with fitness with more docile individuals siring more offspring, indicating that aggression is not reproductively advantageous. Contrastingly, docility was not associated with survival.

Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 8:30:00 PM

Presenter: Barrett, L.P.

Twitter address: twitter.com/lisapbarrett

Presentation title: Does pair duration relate to reproductive success in the 'Alala (Hawaiian crow)? Implications for breeding a species that is extinct in the wild

Presentation abstract:

Managers of conservation breeding programs select and manage pairs in an attempt to maximize compatibility and genetic diversity. Therefore pair duration is often human-imposed. There is critical need to evaluate whether pair duration is an accurate measure of reproductive success of animals in human care. The 'alala is a monogamous crow, native to Hawaii, that is currently extinct in the wild. Today, 'alala exist only in human care where the species is undergoing intensive conservation breeding. A major goal of the 'alala breeding program is to maximize reproductive success before the species is returned to the wild. We analyzed breeding program data from 2018-2021 to test for pair duration effects on reproduction (nest building, egg laying, hatchability, and fledging). Preliminary results suggest that pair duration may not impact 'alala reproduction in human care, and thus practitioners can be more aggressive when it comes to re-pairing birds in the program.

Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 8:40:00 PM

Presenter: van Breukelen, N. A.

Twitter address: twitter.com/DrVBtheFishLady

Presentation title: Daily changes in male pupfish aggressive & spawning behavior

Presentation abstract:

We examined spawning and aggressive behaviors of territorial male pupfish in shallow pools in Independence Creek, Texas. These males are hybrids of native Pecos pupfish (*Cyprinodon pecosensis*) and the invasive sheepshead minnow (*Cyprinodon variegatus*). The shallow pools experience dramatic changes in water temperature throughout the day, ranging from an average of 26°C in the morning to an average of 34°C in the evening. We found that male overall activity and aggression did not differ from morning to evening but that both attempted spawnings and actual spawnings occurred with higher frequency in the morning than in the evening. This could be related to increased temperature of the shallow pools in the evening, though there are other possible explanations.

Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 8:50:00 PM

Presenter: Lev, A.

Twitter address: twitter.com/AvigayilLev

Presentation title: Does male quality affect the strength of male mate choice in *Drosophila melanogaster*?

Presentation abstract:

Although females are traditionally thought of as the choosy sex, it is now widely accepted that males can be discriminating about their mating partners as well. However, all males may not be equally discriminating. Theory predicts that high-quality males should be choosier than low-quality males since high-quality males are generally more successful in acquiring mates. Here, we used the fruit fly, *Drosophila melanogaster*, to test whether male quality affects the strength of both pre- and post-copulatory male preferences for high-quality females. We found that high- and low-quality males had equally strong pre-copulatory courtship preferences for high-quality females, but differed in their post-copulatory investment. When paired with low-quality females, high-quality males had significantly shorter matings than low-quality males. Our results have implications for the plasticity of male preferences, the benefits associated with those preferences, and the potential for assortative mating.

Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 9:00:00 PM

Presenter: Mennill, D. J.

Twitter address: twitter.com/DMennill

Presentation title: Froggie went a-courtin': Colour, male competition, female choice, and parasites in yellow toads

Presentation abstract:

Courtship signals play an important role in animal communication. Male Neotropical yellow toads, *Incilius luetkenii*, display bright-yellow colouration during their explosive mating events and then revert to a dull brown colour following amplexus and fertilization. There is considerable variation in

the brightness of yellow colouration in courting males, ranging from dull olive-green to vibrant lemon-yellow. We conducted two-choice model presentation trials to test what form of sexual selection may drive this variation. We presented live males and females with hyper-realistic robotic model toads – RoboToads – with one model painted to match a bright yellow male and the other a dull yellow male. We also identified blood parasites in male Neotropical Yellow Toads to investigate the Hamilton–Zuk hypothesis, comparing body colour to blood parasite levels. Our research sheds light on the colour signaling of Neotropical yellow toads.

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Session name: Mating & Sexual Selection

Presentation time (GMT): 1/19/2023 9:10:00 PM

Presenter: Sharma, S. P.

Twitter address: twitter.com/SSarika29

Presentation title: Animal real estate: Do age, neighbours, and population density influence songbird territory size?

Presentation abstract:

The size of an animal's breeding territory can have important implications for both survival and reproductive success. The characteristics of a territory can be highly dynamic, acting in one sense as an extension of an individual's phenotype, and in another sense as a reflection of diverse extrinsic factors. We explored territory size variation in a breeding population of Savannah Sparrows using an eleven-year dataset through the use of a geographic information system. After georeferencing and digitizing field maps to quantify spatial characteristics of territory size, we studied the relationship

between territory size and the age of male territory holders, the number of neighbours surrounding each focal territory, and the density of the population. Our results show that territory size in male Savannah Sparrows varies with population size and male age.

