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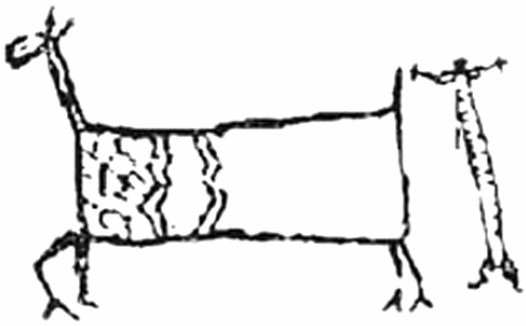

XXIV ENCONTRO ANUAL DE ETOLOGIA

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Revista de Etologia

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A *Revista de Etologia* tem por objetivo publicar artigos de pesquisa, artigos teóricos e revisões críticas da literatura, comunicações breves e resenhas sobre comportamento animal, inclusive sobre o comportamento humano. Os trabalhos podem ser descritivos ou experimentais, versar sobre temas básicos ou aplicados, e ter sido realizados no laboratório, em condições de cativeiro ou no campo.

Os trabalhos poderão ser redigidos em inglês, português ou espanhol. Em função do objetivo de a *Revista de Etologia* alcançar uma difusão ampla, recomenda-se a redação em inglês.

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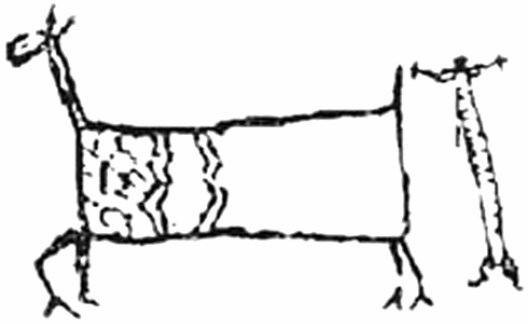

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Comparative studies of social behavior in domestic and wild cavies.

CÉSAR ADES
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The comparison of social behavior of domestic (*Cavia porcellus*) and wild (*C. aperea*) is a relevant model for the study of both speciation and domestication. Our group at the University of São Paulo has carried out research on *C. porcellus*' sexual, maternal, allomaternal, paternal and defensive behaviors and has addressed the question of mother-pup individual recognition. We also investigated differences in the vocal repertoire of *C. porcellus* and *C. aperea* and in courtship behavior of these species, with a view to understand interspecific behavior and reproductive barriers. The program will go on with bioacoustic studies in several caviid species and a field research on *C. intermedia*, a species limited to a single island in Southern Brazil. CNPq, FAPESP grants.

Antipredator training as a conservation tool.

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Human activities have been diminishing many animal populations throughout their occurrence area. Most of the captive-born animal reintroduction programs have failed in the establishment of viable populations since predators killed the individuals reintroduced. Captive-born animals that have been isolated from predators for many generations can lose their predator recognition abilities. To enhance the survival rates of the reintroduced animals, researchers are now using antipredator training techniques. In this lecture, we will evaluate the use of antipredator training in reintroduction programs as a tool for success enhancement. We will provide some results of Brazilian antipredator training studies, with fishes, amphibians, birds and mammals.

A aprendizagem e a capacidade cognitiva nos animais domésticos: conseqüências para o bem-estar.

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Seriam os animais da fazenda e os animais de estimação pouco inteligentes? Quais dos animais merecem proteção? Os conceitos de sensibilidade, consciência, cognição, dor, medo, e ansiedade são relevantes para obter-se uma resposta. A percepção de muitas pessoas de que todos os animais da fazenda e a maior parte dos cães não são inteligentes deriva do fato de os animais terem medo dos seres humanos durante a realização de experiências. Experiências com bovinos e com muitos outros animais domésticos mostram que o reconhecimento individual é possível. Os ovinos fazem distinção entre os indivíduos calmos e os indivíduos com ansiedade. As

experiências com cães e com galinhas mostram que os animais compreendem que um objeto existe quando ele está não visível. As experiências com suínos, bovinos e ovinos mostram que os animais têm conceitos complexos e certo nível de consciência, demonstrando até mesmo o "efeito eureka" nos bovinos e ovinos. Se respeitarmos os animais haverá menos crueldade e mais bem-estar.

The prey through the predator's eyes: colors in animal defense.

KLEBER DEL-CLARO
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Animal color patterns have distinct functions: thermorregulation, intra- and interspecific communication. Defense can be included in this spectrum of the utility of color to animals. However, in most cases, only when associated to behavior does color achieve an effective function in ways that produce or enhance defense against predators. My aim in this talk is to present examples of association between color, morphology and behavior that may enlighten our perception of how predators can be cheated by potential prey. This area constitutes a rich field of research for tropical ethologists.

Social hierarchy and reproduction in cichlid fish.

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Dominance hierarchy and reproductive behavior characterize fish social behavior. Aggressive conflict is a common way to establish social rank in cichlid fish, wherein a dominant male successfully assesses territory and mature females for mating. Even though defended resources can vary among species, the main role of the territory is to serve as a spawning site. After mating, cichlids perform broodcare that can be done by one (mouthbrooding species) or both parents (biparental cichlids). In biparental cichlids male and female cooperate to care for the brood, mostly by task division, wherein the male spends much of his time defending the territory while the female remains near the offspring. Moreover, some partners cooperate by labor division. In some species, nonbreeding helpers (subordinates) associate with breeding pairs and in others, subordinates engage in sneaking behavior. I will discuss in my talk the complex behavior of cichlids in terms of social conflict and reproductive cooperation.

Insect behavior in the crime scene – a forensic taphonomy perspective.

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Forensic taphonomy is the study of the transition of organic remains, the accumulation, modification and the understanding of a selective transport of remains. A cadaver constitutes a dynamic system that supports a rich community of arthropods, which is affected by several local factors. In forensic entomology, the development rate of necrophagous insects and their successional ecological patterns can be a valuable tool to estimate the postmortem interval. However, this estimation depends on information about the composition and dynamics of the local communities of necrophagous insects. Usually, insect behavior can be a cause of important modifications and artifacts in the crime scene. Herein we described two cases where the behavior of the insects modified the remains. The first case shows the artifacts produced by insect activities on 26 human cadavers. The second case shows a movement of a pig carcass (*Sus scrofa*) caused by the action of the dung beetle (*Coprophanaeus lancifer*). Financial support: CNPq/MCT and SENASP/MJ.

Born to sing: function and evolution of song in the serin.

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The Serin (*Serinus serinus*) belongs to a large genus with known song performers, such as the Canary. We developed a research program on the singing behaviour and song function and evolution in the Serin, so that a good understanding on the selective pressures acting presently in the species under focus would allow us to draw a consistent picture on the evolution of song in this genus. I shall go through more than a decade of studies trying to address several aspects related to song function and evolution in Serins and in the genus Serinus. We asked questions about whether females preferred some of the most extreme characteristics of serins' songs, such as very fasts songs or those with a comparatively higher average frequency compared to other species. We also wanted to determine the role of song in female stimulation. We found very significant indications that song plays such a role in in Serins. We also comparatively evaluated the vocal performance of syllable characteristics of the genus by measuring the relative amplitudes of syllables within songs. We documented that the species performance on several syllable characteristics is generally not positively related to the preponderance of those characteristics in their songs.

Parental care and cooperative foraging: factors important to the evolution of social behavior in arachnids?

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One of the crucial questions in the study of evolution is "how did social behavior evolve?". This question becomes still more interesting and difficult to be answered when we think about

arachnids, which are intra-specifically aggressive animals. To better understand the social behavior of arachnids, researchers in several countries develop studies evaluating the importance of cooperative foraging and breeding. The central question to be discussed here is how parental care and cooperative prey capture may increase cohesion among individuals. Recent studies with spiders and pseudoscorpions demonstrate that the presence of the caring female increases the life quality of juveniles and reduces cannibalism among siblings, extending the aggregation period of the cluster. Cooperative foraging seems to be a consequence of social life, but it acts as a feedback mechanism, reducing hunger and cannibalism and favoring tolerance among individuals. Financial support: CNPq.

Mandibles, stings and pheromones: nest founding behavior in the neotropical social wasps.

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The study of conflict and cooperation can be easily observed in social wasps during the foundation of nests. According to their nest founding behavior, social wasps can be classified into two groups: wasps of independent foundation and swarm-founding wasps. The wasps of independent foundation are represented in their majority by the genus *Polistes* and *Mischocyttarus* in which a single female or an associations of two or more females initiate colonies. During foundation, these wasps use aggressive interactions to establish a linear hierarchy. Foundation by swarms occurs mainly in species of the Epiponini tribe (belonging to the subfamily Polistini), where swarms are generally composed by dozens of queens and hundreds of workers which complete the nest in a few days. This behavior is coordinated by the action of specific pheromones and does not involve aggressive interactions. Financial support: FAPEMIG, CAPES and CNPq

The evolution of religiosity: adaptation or exaptation?

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Religious beliefs, emotions and practices have been present in all human groups from the beginning of human culture, and can also be observed in everyday activities that are not necessarily linked to religious doctrine. Explanations for this typically human behavior stem from the human desire to escape misfortune, from morality issues or from an innate need to describe the universe and the unknown. This model argues that religious-like behaviors emerged from a combination of mental processes that solved problems of social coexistence. As empathic abilities (affective, behavioral and cognitive) appeared in human evolution, the ground was set for altruistic and moral behaviors to acquire social survival value. Emotion labeled gratitude and forgiveness became important. These experiences became associated with an ability to perceive violations of cognitive dominion (supernatural, miracles), ritualistic behaviors (homogenization of internal states) and the separation between sacred and profane. In different environments these separately evolved abilities can be expressed in diverse forms.

New approaches to the study of behavior and temperament in guide and service dogs.

JAMES A. SERPELL, PHD
School of Veterinary Medicine, University of Pennsylvania, USA

Behavioral or temperament problems represent the most common category of reasons why prospective guide and service dogs are rejected from breeding and training programs. A major goal of most working dog selection and breeding programs is therefore to reduce or eliminate behavior/temperament problems either by genetic selection or by modifying a dog's developmental environment and experience. The success of both approaches, however, relies on the ability of these organizations to measure canine behavior in valid and reliable ways.This presentation will describe a new program of research sponsored by a consortium of guide and service dog organizations in the USA that seeks to accomplish these goals by designing and developing a suite of practical measures (questionnaires and tests) of canine behavioral phenotypes. The paper will address the reliability and validity of such measures, and will consider some of their uses in the evaluation, selection and breeding of working dogs.

Breed differences in aggressive behavior in dogs.

JAMES A. SERPELL, PHD
School of Veterinary Medicine, University of Pennsylvania, USA

This paper examines the distribution of stranger-directed aggression (SDA), owner-directed aggression (ODA) and dog-directed aggression (DDA) in a randomized sample (N=1552) of pet dogs comprising eleven common breeds. Highly significant breed differences in behavior were found for all three categories of aggression. Significant within-breed differences were also detected in two breeds when field and conformation (show) bred lines were compared. Male dogs obtained significantly worse scores for ODA than females, but not for SDA or DDA. Spayed female dogs tend to be more aggressive toward their owners and to strangers than intact females, although these effects of sex and neutering on aggression were breed specific. Further research with larger samples will be needed to confirm these findings. The results point to a strong genetic basis for the expression of aggressive behavior in dogs that is variously modulated among the different breeds by sex, reproductive status, and other factors.

Effect of infant care on activity budgets of wild golden Lion Tamarins at Poço das Antas Biological Reserve, Brazil.

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Activity budgets may reflect constraints on body size or energetic demands and can indicate patterns of individual investment in survival or reproduction. We investigated the effect of infant care on activity budgets of wild golden lion tamarins (Leontopithecus rosalia; GLTs). Throughout 2004 and 2005, behavior data were collected using focal sampling on 5 groups of GLTs. On average, GLTs spent 42% of the time eating or foraging for fruit and animal prey,

26% resting, 15% stationary yet alert, 13% traveling (including locomotion while foraging), and 4% in social activities. When infants were present in the group, however, time spent eating/foraging for fruit decreased while traveling and social activities increased. Individuals carrying infants decreased time spent eating/foraging for fruit as well as animal prey, and increased time spent stationary, a shift that may conserve energy and increase predator detection. Reproductive females carrying infants decreased time spent traveling following infant birth. In contrast, adult males and adult females carrying infants increased time spent traveling while sub-adults spent more time stationary. The difference may be explained by energetic constraints on lactating females and the body size of individuals. Financial Support: Animal Behavior Society, American Society of Mammalogists, American Society of Primatologists, L.S.B. Leakey Foundation.

Enriquecimento ambiental, dias de alimentação e visitação no zoológico: efeitos e influências sobre bem estar animal.

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O "bem estar animal" é definido como o estado de um organismo durante a tentativa de se ajustar ao meio ambiente. Na natureza, anormalidades comportamentais revelam indícios primários de degradação ambiental. Em cativeiro, o bem-estar psicológico de animais é visto na relação entre as necessidades dos animais e as condições ambientais a eles oferecidos. O enriquecimento ambiental proporciona modificações no recinto do sujeito ou em sua rotina. A presença ou a atitude do visitante de zoológicos se traduz numa influência ambiental sob os comportamentos dos animais e pode atuar para o sucesso ou fracasso de estratégias de enriquecimento ambiental. Vários estudos realizados em diversas espécies de felinos, canídeos e primatas no Zôo de Brasília enfocam essa problemática sob a luz das neurociências cognitivas e da psicoetologia.

Study of stress response in small primates: effect of sex, age and relatedness in common marmosets, *Callithrix jacchus*

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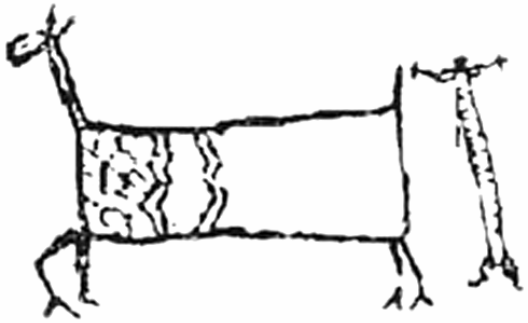
Changes in the physical and social environment of social primates trigger both behavioral and physiological modifications that express the evolutionary adaptations selected to allow the animals to cope with challenging situations. In a series of experimental studies on stress response using common marmosets from both sexes at different ages and degrees of relatedness, the animals were moved to a new environment and/or deprived of their family group or pair mate which are potentially stress-producing situations. Affiliative and agonistic behaviors as well as fecal cortisol were recorded during baseline and after the changes. Results showed that the endocrine and behavioral profile of common marmosets varied according to the investigated variables. As a whole, the data we have collected so far suggest that the behavioral and hormonal responses of common marmosets to challenging situations varied according to ontogenetic development and differ between males and females and degree of relatedness.

Simpósios



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A Psicologia do senso comum em cenários para a evolução da mente humana.

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Segundo a "hipótese da inteligência social", a complexidade do meio ambiente social teria exercido uma pressão seletiva no sentido da evolução da capacidade para ler mentes e, também, de habilidades interpretativas. A psicologia evolucionista serve-se de argumentos com base numa 'pobreza de estímulos' para sustentar a tese de que temos um módulo inato responsável pela inteligência social. De acordo com uma explicação alternativa, a psicologia de senso comum, subjacente às nossas habilidades interpretativas, é adquirida pelos indivíduos através de uma aprendizagem social, e é facilitada por um tipo particular de construção de nichos. Trata-se de um cenário para a evolução da mente na linhagem hominídea, proposto por K. Sterelny, com base num tripé envolvendo, além da cooperação (favorecida por uma seleção no nível do grupo) e da construção de nichos, a plasticidade do desenvolvimento.

Social enrichment as a complement to environmental enrichment for confined pet cats.

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Results of our own observations as well as of other researchers show that domestic cats apparently need and do use a certain amount of time with no contact with humans and/or away from their residences. To explain this we propose that, due to the state of domestication, a process still underway, cats need interspecific social contact. Thus, pet cats living in relatively restricted environments like apartments and closed houses, lacking in social contact, may develop behavioral disorders such as boredom, aggressiveness, fear, anorexia, anxiety, stress, low reproductive success, behavioral stereotypy, self mutilation, etc. The development of such disorders may be reduced by environmental and social enrichment techniques. These techniques might involve enrichment of the physical, occupational and nutritional environments. The enrichment of the social environment of the confined pet cat, with the owner acting as a substitute for its conspecific, is our proposal to supplement the general environmental enrichment. Financial support: Fapesp

Nesting biology and social behavior of *Euglossa* Species (Apidae, Euglossini).

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Euglossa nests are usually founded by solitary females and the occurrence of multifemale nests is the result of nest re-use by succeeding generations. Thus, multifemale nests are formed by females of different generations (mother-daughter) or of the same generation (sister-sister). In multifemale nests of *E. fimbriata* and *E. cordata* the oldest female becomes dominant over the others. The dominant female is the major guard bee, and oviposits in cells provisioned and oviposited by subordinate females. The oviposition by the dominant female is preceded by

oophagy. The dominance is also maintained through agonistic interactions. In *E. townsendi* more than one female may behave as dominant, and they are called egg-laying females, while the others are called forager/egg-laying females. Agonistic interactions among females and hierarchy among the egg-laying females do not occur. The studied species have bionomical traits suggested as precursors for the origin of eusociality in the corbiculate Apidae. Financial support: Capes and CNPq.

Influence of fire on ant behavior during ant interactions with plants of the cerrado

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Interactions between ants and plants supply information on mutualism and coevolution among species. This study investigated how combustion of the vegetation influenced the relationship between ants and herbivores in a plant with extrafloral nectarines (EFN) through time. The study was performed in burned versus not burned areas of the Cerrado in Uberlândia-MG (2004-2005). The plant with EFNs selected for study was *Ouratea spectabilis* (Ochnaceae). The study was developed by: demarcation of the plants and exclusion of the ants; measurement of leaf herbivory; assessment of reproductive impact and identification of herbivores and associated ants. A total of 36 ant morphospecies was found associated to EFNs and 10 orders of herbivores (predominantly coleopterans, lepidopterans and tisanopterans). The presence of ants significantly reduced herbivory and favored larger formation of fruits and seeds among burned and not burned areas. The benefits of the associations between ants and *O. spectabilis* were constant through time. The interaction seems to be equally advantageous and important for ants and plants in both environments (with or without burning). Financial support: CAPES/FAPEMIG

Performance differences in foraging activities in *Callithrix jacchus*

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The common marmoset (*Callithrix jacchus*) has traditionally been described as a species characterized by behavioral similarities between males and females. Recent studies have found some differences, especially in foraging behavior; with females showing preferential access to resources. Data from our laboratory, using isolated animals show the existence of other differential patterns, including more cautious reactions toward novel food by males. Females seem to be more selective relatively to food resources and show a stronger motivation toward food task resolution. These differences can be attributed to the food context itself and to the consequences from visual polymorphism typical of this species. Future studies involving other kinds of food tasks may contribute to elucidate the nature of these intersexual differences. Financial support: UFRN and CAPES

Social context and psychological profile in the adaptation to stress

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Agonistic interaction is widely used to study the effects of psychosocial stress in rodents. Social conflict results in dominant and submissive animals which show behavioral and physiological adaptations to the new demand. Several studies have highlighted a negative impact of chronic social stress on the immune response. To investigate this effect, we subjected male mice to social stress and a physiological stressor (immune challenge). We also evaluated anxiety-like behavior (ALB) before and after subjecting the animals to social interactions. In this context, the influence of social stress on humoral immune response (HIR) was more marked in submissive mice. A positive correlation between HIR and ALB was observed in dominant mice, before they were subjected to social stress. A negative correlation was however found in these animals when the ALB was measured after social stress exposure. In submissive animals, the ALB exerted an inhibitory effect on humoral immune response, before and after stress exposure. Financial support: CAPES, CNPq.

Who will be adapted in the future, human or sand crab?

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Several abiotics and biotics factors affect the intertidal populations. Tourism and overexplotation of shore natural resources are antropogenic stressors to the intertidal fauna. Sand crabs are important indicators of the human disturbances in the shore. They has been used to quantify the effects of polluants and overcharge of metals in the water sea, but behavioral researches are rare. The escape strategy can be influenced by physical pressures such polluants. The sand crab, *E brasiliensis*, a little crustacean, is an important element of the intertidal food chain. I will present examples, including results from our own research, about the consequences on the behavior of sand crabs, when human disturbance is extreme.

The importance of the study of brain and immune system interactions

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The Central Nervous System (CNS) and the Immune System (IS) are involved in the maintenance of internal homeostasis that requires precise coordination of autonomic, neuroendocrine, immune and behavioral responses to contend with disturbances of the internal and external environments. The communication between these systems is bidirectional and occurs through chemical messengers secreted by nerve cells, endocrine organs or immune cells. Stressful stimuli can disrupt these networks. Previous study showed that stress, and more specifically social stress, has strong and long-lasting effects on autonomic nervous, endocrine and behavioral

functioning. We studied the impact of social stress on the responsiveness of the immune system by the presentation of a systemic inflammatory challenge through the injection of bacterial endotoxin lipopolysaccharide (LPS). We conclude that social stress can seriously compromise the effectiveness of the adrenal response and the homeostasis favouring the risk of the development of septic shock. Financial support: FAPESC.

Sexual differences in the social behavior of wild marmosets (*Callithrix penicillata*)

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The results of a study of social relationships in the black-tufted-ear marmoset (*Callithrix penicillata*) and a review about sex differences in the social behavior of wild marmosets will be presented. Behavioural data from a wild group of marmosets helped to assess both within and between group social patterns. Analyses of the within-group agonistic interactions revealed the existence of a hierarchical social structure, the reproductive female being dominant. Males did not differ clearly from one another in dominance but, in general, they dominated the females. During intergroup encounters, agonistic interactions were directed primarily against same sex individuals, but females also directed agonistic behaviour against extra group males that attempted copulation. Intergroup affiliative interactions occurred mainly as copulations/attempted copulations, and all adult members of the focal group participated, with the exception of the dominant female. Financial support: Capes, CNPq, Animal Behavior Society.

Conflict and cooperation in the dialogue between Sociology and Biology

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The official process for the creation of the section of Evolution and Sociology in the American Sociological Association (ASA) was initiated in 2004. In fact, it is possible to affirm that the strive for a recognition began in the early 60's, when ethology became current in the USA. Resistance still remains among sociologists when the subject comes to an interdisciplinary interchange with biological sciences. However, according to the analysis of two traditional periodicals of sociology (*American Sociological Review* and *American Journal of Sociology*) the attempt to establish a section of Evolution and Sociology demonstrate that: (1) the fundamental purpose of such section is to provide sociologists with legitimacy to incorporate evolution and biology into their theories and researches; (2) the resistance against the evolutionay perspective is stronger than the one against the interdisciplinary dialogue with biology; (3) the establishment of the section means that a step forward in the dialogue between sociology and biological sciences has been given.

Conflict in the behavioral repertoire of stingless bees

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Stingless bees display highly eusocial behavior. Their complex social organization involves the existence of distinct castes and an elaborate division of labor among workers. Many taxa of stingless bees present ovary-developed workers in normal colonies. However, most of eggs they lay are eaten by the queen (trophic eggs). In some instances, and under special conditions, these worker-produced eggs develop into males. It seems thus likely that a competition or conflict between the castes may underlie an apparent social harmony. Indeed, many behavioral observations in the stingless bees do suggest agonistic interactions between workers and the physogastric queen. Additional agonistic aspects may involve the occurrence of miniature queens, differential oophagy by the queen, ritualized behaviors, dominance among virgin queens etc. Such behaviors probably derive from incomplete submission of the workers relatively to the dominant queen and indicate that intra-caste and inter-caste conflicts do occur in the stingless bees.

Interactions between the estuarine dolphin, *Sotalia guianensis* and tourist activities in cananéia region, southern coast of São Paulo.

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The industry of cetacean observation in natural habitats has increased dramatically in the last years. This activity generates employment and economic benefit for local communities and may produce beneficial results from the point of view of the conservation of cetaceans and of their habitats. If not adequately controlled, however, such tourism may result in significant disturbances to the local animal population, drastically changing their natural behaviour, and modifying their distribution, survival and reproduction. The aim of our study is to detect negative effects which arise from activities of observational tourism of the estuarine dolphin (*Sotalia guianensis*) in Cananeia region, SP, Brazil. We propose initiatives which may optimize the local touristic industry and the conservation of the dolphins' habitat. Our results may supply a basis for the establishment of a conservation area allowing conservation of the estuarine dolphin according to local conditions. Financial support: CNPq.

Olfactory communication in domestic cats (*Felis silvestris catus* l.): the role of feces and urine

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We analyzed aspects of the olfactory communication among domestic cats via feces and urine behavior. The location of excreta sites (far from or close to the resting and feeding sites), the

number of movements and the time spent to dig the ground (before the defecation or urination), the number of movements and the time spent to bury the feces or urine, and whether there was olfactory assessment of the excrement of castrated domestic cats (*Felis silvestris catus*) without defined breed and from both sexes were recorded. Results indicate that the animals perform a greater number of movements and spend a higher amount of time to bury their feces, compared to urine performance. Females invest more effort than males after the elimination of feces, as a possible strategy for kitten protection. Feces are olfactorily assessed more frequently than urine, in males and females, and both of them preferably deposit their urine close to the places used for resting and feeding. The effort spent by cats to omit the information transmitted by the feces shows the relevance of this excreta in these animals communication.

Mother knows best: differential maternal investment in eggs

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Female birds are known to invest differentially in their offspring under different circumstances, which can include the female's own condition, the sex of the different offspring, or the quality of her mate. This differential allocation is known as maternal effects and can be through the female's behaviour after the eggs hatch or earlier through differences in the resources that she allocates to her eggs. We tested for maternal effects on cross-fostered offspring due to differential investment in response to male attractiveness in zebra finches (*Taeniopygia guttata*). Attractiveness in zebra finches is easily manipulated experimentally with coloured leg rings. We found the begging rate, growth rate and final size of the chicks when fledged were all affected by the attractiveness of the father, and, when adult, female offspring with attractive fathers were larger and laid larger eggs, and there was a tendency for male offspring to be more attractive to females.

Stress and behaviour of farm animals

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When exposure to a stressor overrides the ability of the physiological systems to react, the continued action of catecholamines and glicocorticoids may disturb the immunological, reproductive and metabolic systems of animals, reducing growth, health and longevity. The study of the behaviour of animals in their rearing environments may reveal the several factors of rearing systems that may be a source of stress. Behavioral studies complement and qualify other indicators of animal welfare and stress, such as physiology, disease and pathologies. Studies that combine all such approaches are likely to make the most significant contributions to the understanding of the quality of life of farm animals in their environment.

O cão e sua família: temas de amor e agressividade

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A investigação abordada aqui é a da interface entre os campos de conhecimento do veterinário e do psicólogo, interface essa que possibilita a compreensão de como o cão se insere no contexto da família urbana, com sua estrutura, organização e dinâmica. Usarei os resultados do meu estudo de doutorado (PUC, São Paulo, 2005) sobre queixas de agressividade do cão e sua inserção na dinâmica familiar, e sobre os subsídios que possibilitam um melhor atendimento a este tipo de queixa e contribuem para o bem estar de todos os envolvidos. Concluirei enfatizando a importância da compreensão da dinâmica familiar para a construção e aderência de protocolos de intervenção a distúrbios comportamentais dos cães bem como de qualquer forma de atuação ou elaboração de projetos associados à promoção de bem estar animal.

Conflict and policing in ant societies

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Life in group must be rewarding: genes combine to form genomes, cells arrange themselves into multicellular organisms and ants live in cooperative colony. There is, however, a "dark side of social life" that leads to conflict. In ants, conflict is related with reproduction, since nonclonal individuals have dissimilar interests. To prevent exploitation, social policing commonly solves conflicts, suppressing individual selfishness and removing the incentive for individuals to act selfishly. Egg-laying workers may evade policing, but their eggs are discovered and almost immediately eaten. As in human societies, policing in ants is a very costly method to solve conflicts, and induces workers to act in favor of the colony. By policing, three key factors combined (kinship, coercion and constraint) may limit the effects of reproductive conflict for the welfare of the colony.

Extra-pair copulation in neotropical birds: when, where and why

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It is now known that the majority (90%) of socially monogamous birds studied in temperate regions produce offspring that result from extra-pair fertilizations (EPF). Numerous hypotheses have been proposed to explain the variation in EPF among different bird species, but no consensus has been reached. Although there are few available studies of genetic paternity for tropical birds, there have been some emphatic proposals as to what may be the general patterns. In this talk I will present some of the main hypotheses concerning EPF in birds, with special emphasis upon their applicability to tropical bird systems. I will also briefly review data available for tropical birds in general, including the Blue-black Grassquit, studied in the Laboratório de Comportamento Animal, Universidade de Brasilia.

Ecology and conservation of carnivorous species in the Cerrado

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The increase in human population and the consequent habitat losses are transforming broad areas in fragments, surrounded by anthropic areas. The conservation of several species depends on the existence of protected areas. Populations considered protected, within existing conservation areas, may however undergo local extinction, since such areas are not large enough for the maintenance of viable populations. Habitat fragmentation affects both small and large organisms. Carnivores which stay at the top of the tropic chain and use broad areas, are extremely vulnerable to the reduction and fragmentation of the habitat. Research on carnivorous species is scarce due to their nocturnal habits. Camera trapping allows the gathering of data on ecology and behavior of carnivores (such as habitat utilization, periodic organization of activities, and home range). The study of the distribution patterns of these animals helps to assess the effectiveness of protected areas, as to conservation aims. Financial support: CNPq.

Behavioral flexibility and conflict between humans and urban capuchin monkeys in Goiânia, Goiás

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Original populations of primates are being progressively encroached upon by human rural and urban frontiers. In Goiânia, remnants of wild populations and introduced capuchin monkeys are common within urban parks, and interact frequently with humans. Data on these animals reveal a large proportion of provisioned items in their diet, including industrialized ones such as bread, candies, crackers, popcorn and soda. Their time budget is also influenced by provisioning, since peaks of activity, particularly feeding, coincide with time of incursion to areas where humans feed the monkeys. Group and population densities are extremely high, and outbreaks of threats to humans, invasion of urban properties and even physical aggression are becoming common during times of food shortage. Humans also react with aggression, killing of animals and unauthorized translocations. These data suggest a dependency of monkeys upon human provisioning, and a need for management plans that protect both humans and monkeys from further conflict.

Spiders and their chemically protected prey (insects): ecological and behavioral aspects

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Spiders are the main terrestrial predators of insects. Many insects, as the Ithomiinae butterflies, possess chemical defenses (pyrrolizidinic alkaloids). The objective of this study is to assess the effect of unpalatability of these butterflies on spiders of diverse habits and families, and to check if predation behavior (tolerance to alkaloids) is a characteristic of functional ecological groups or of monophyletic groups. 115 butterflies of 5 species against 86 spiders of 48 species were tested. Categories of behavior were: predation (the spider eats the prey) and rejection.

Rejection occurred in 73% of the cases (142 experiments). With regard to the capture method, there was a tendency for an increase in tolerance to alkaloids in orb weaving spiders which capture flying insects. Ground spiders (except tarantulas, Theraphosidae) rejected butterflies. Three independent evolutionary lineages (Araneidae, Pholcidae and Mygalomorphae) presented some degree of tolerance, considered as an apomorphy. The rejection of prey with alkalloids is a phylogenetic restriction (plesiomorphy) shared with external groups, being probably not of adaptative origin.

The historic relationship between humans and cetaceans

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Throughout the years, cetaceans have been metaphorically close to humans and this has revealed an ambiguous interrelationship since they may evoke images of smartness and mystery at the same time that they are sources of subsistence and economic exploration. Undoubtedly, the positive human-cetacean relation has peaked during the ancient Greek civilization as proven by historical records of dolphin-related legends and myths. On the other hand, it is known that whale hunting is a very old activity practiced since the pre-history by primitive peoples. This ambiguity is present nowadays: there are still problems related to hunting and to the presence of cetaceans and humans in rivers, seas and oceans, at the same time that we are increasingly interested and curious about these animals.

Motivational gender differences, in discriminative tasks, among callitrichid primates

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Adult marmosets (*Callithrix*) and tamarins (*Saguinus*)females have priority of access to food items and compared with males; females spend more time in foraging activities. This does not seem, however, to constitute a general pattern among callithrichids, as it is not reported in *Leontopithecus* species. The present study compared the responsiveness of males and females of callitrichids through discriminative tasks involving food acquisition. Five *Callithrix penicillata*, six *Leontopithecus chrysomelas* and three *Saguinus midas niger* were individually submitted to a behavioral procedure of color discrimination learning. The number of cues per experimental session was predetermined and session's mean duration was used as criterion for motivational assessment. Males needed more time to accomplish the tasks. Results support the idea that females of callitrichids respond more persistently than males to tasks involving food acquisition, possibly a general pattern among callitrichids.

Sexual differences in primates' color perception revealed through discriminative studies with munsell color chips

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Electrophysiological and genetic studies in many species of platyrrhines have demonstrated that these primates possess a color-vision polymorphism characterized by dichromatic phenotypes in all males and X-chromosome homozygous females. However, a good survey on color vision perception should include behavioral tests with careful control for brightness cues. This study examined the color discrimination abilities of three species of callitrichids (*Callithrix penicillata, Saguinus midas niger, Leontopithecus chrysomelas*) and two species of cebids (*Cebus apella, Saimiri ustus*). The stimuli were pairs of Munsell color chips presented with random brightness values in order to assure that discriminations were based on color rather than brightness. Results indicate that all males from all tested species behaved like dichromats while females behaved as trichromats or dichromats. The data are in accordance with the existence of a visual polymorphism in platyrrhines and show the adequacy of Munsell papers to reveal color vision phenotypes in non-human primates.

Beaks, song and mate choice

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Mate choice in many animals is mediated by mating ornaments and displays. Female songbirds, for instance, choose mates largely on the basis of vocal signals produced by males. The evolution of mating signals may be influenced by a number of factors, including female preferences, the structure of the environment through which signals propagate, and, in the case of bird song, cultural transmission via learning. In this talk I review the impact of morphological variation on the production and evolution of vocal signals in Darwin's finches of the Galapagos Islands, Ecuador. Our recent work has documented, at one field site, the presence of small and large beak morphs of the medium ground finch, *Geospiza fortis*. We find that the morphs produce songs that vary in vocal structure, in accordance with beak size differences, and that vocal differences appear to facilitate assortative mating by morph. These results have potential implications for patterns of finch speciation.

Does tourism mod ify animal behavior? the case of the humpback whales

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Whales behavior is markedly influenced by environmental changes. Humpback whales (*Megaptera novaeangliae*) are docile and charismatic animals known by the frequency of high energy demand behaviors such as breaching and lobtailing. Due to these and other characteristics, whale-watching has expanded rapidly in Brazil. It has become a highly profitable activity and an

important conservation mechanism for this species. However, a concern exists about the benefits of whale-watching tourism and its continued growth: possible animal behavior alterations may be caused by the presence of boats. On the behalf of humpback whale conservation, it is crucial that rules for whale-watching be observed and that the monitoring of the animal's behavior over long term periods be performed.

Cetacean-fisheries interactions and conflicts inside marine protected areas

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The nature of the interactions between cetaceans and fishing activities may vary from negative to positive, with many instances of both recorded worldwide. Accidental entanglement in fishing gear is one of the commonest causes of cetacean mortality. Cetaceans have also been observed to steal fish from long line fisheries, such as the killer whale depredation of swordfish and other species off the coast of Brazil. Another type of interaction is the foraging of bottlenose dolphins near trawling boats off Australia. Dolphins take advantage of trawler discards, increasing feeding opportunities. The most interesting cases of interaction between fisheries and dolphins are the positive ones. In southern Brazil, fishermen associate with dolphins to fish mullets with throwing nets (*tarrafa*). Both species take advantage of such association: the dolphins push fish schools toward the fishermen, while dolphins catch fish stunned after the net is thrown. Inside marine protected areas, dolphins are subject to a variety of human activities that pose threats to their conservation. Considering cetacean and human behavior while planning and managing such protected areas is essential to increase effectiveness of conservation efforts. In this talk I will provide examples of how the understanding of behavior can help this endeavor.

Stress and conservation

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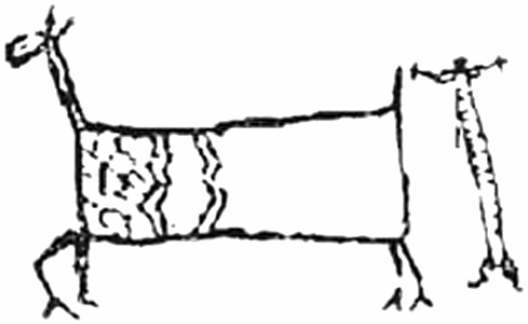
It is widely known that the adverse effects of stress must be considered in animal conservation programmes. However, a full consideration of how and where stress occurs in animal conservation programmes has not been undertaken, especially in translocation and reintroduction programmes. The literature concerning these types of programmes shows high levels of mortality, despite researchers considering the effects of stress. However, an analysis of the literature shows that many conservation biologists have only a superficial knowledge about stress. For example, most do not understand the importance of sub-clinical stress or the fact that the effect of successive stressors can be additive or accumulative. While most conservation biologist knew that stress was bad for animal health few gave consideration to its adverse affects on cognitive abilities, which an animal needs to survive in the wild (e.g., memory). In this lecture, we will consider how stress can influence the success of animal conservation programs and we will give suggestions of how to improve the efficiency of animal conservation programmes, in terms of the number of animals surviving after being reintroduced or translocated.

Apresentações Orais



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Are plasmatic cortisol and stressful behavior correlated in the domestic cat (*Felis catus*)?

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The cat is an interesting species for behavioral studies, due to its increasing presence in the urban environment in our society. Stress studies of the cat are rare if compared with stress dog studies. The observation of stress is difficult due to the stoic and unconspicuous behavior of cats. We observed the behavior of 20 adult tomcats in the Laboratory of Neuroethology (University of Brasilia). The animals were restrained in a transport cage for 5 to 6 h, in a silent and dark room, after which they were released individually in an enriched room of 3 x 5m. They were observed during 15 min through focal animal method and recording of all occurrences. Blood samples for plasmatic cortisol measurements were taken after the observation period. There was no correlation between plasmatic cortisol and stressful behavior (r=0.029; $p>$ 0,05). Behavioral and physiological indices of stress in cats have interesting characteristics, and the stressful behavior and glucocorticoid standards relationship is a challenge to be addressed in ethology.

The influence of religiosity on the fecundity of undergraduate women from Porto Alegre: a Darwinian look at faith

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The omnipresence of religiosity in human culture suggests that it has an adaptive advantage. Using a Darwinian approach, the possibility of the existence of differences in reproduction possibly associated to the degree of religious belief was assessed by correlating religiosity with a genetic base characteristic, the self-transcendence, which shows a heritability of 41%. A total of 96 women in post-reproductive age and holding an undergraduate degree were asked to answer a standardized questionnaire. The variables of interest and the religious activities correlated with self-transcendence were combined into a religiosity index. Our findings suggest that as the religiosity, as a singular way of interpreting the world, increases, so does the number of children. Results suggests that some mental process relating religiosity to fecundity might still be undergoing selection.

Psicologia da coalizão: percepção de raça e coalizão

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A codificação da raça no encontro entre indivíduos, precondição para o racismo, tem sido considerada um processo automático e inevitável. Uma interpretação alternativa propõe a codificação racial como subproduto do mecanismo cognitivo evoluído para detectar coalizões. Comparou-se a codificação de coalizão e raça na ausência e na presença de pista visual de coalizão. Após assistir a uma discussão de dois times rivais, o participante deveria lembrar qual jogador disse cada frase. Participaram 570 indivíduos de sete estados brasileiros, 280 homens e 290 mulheres de 17 a 58 anos. Metade participou da condição em que os jogadores vestiam camisas iguais, e outra metade da condição em que cada time vestia camisa diferente. Os resultados mostraram um aumento na codificação de coalizão e um decréscimo na codificação da raça na presença de pista de coalizão, demonstrando que a codificação racial pode ser reduzida em contextos que alianças não se correlacionam com raça.

Mating behavior and male contests in the neotropical pseudoscorpion *Americhernes bethaniae* (Arachnida, Chernetidae)

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The pseudoscorpion superfamily Cheliferoidea shows a very elaborate courtship mediated through pedipalp vibrations. Although the vibrational communication in pseudoscorpions is common, this behavior was studied in less than 15 species. We investigated mating behavior and male-male contests in *Americhernes bethaniae* using individuals (12? and 25?) maintained in Petri dishes at LECI-UFU. Behavioral observations followed the sequential sampling method. Courtship behavior was described according to the following sequence: sex identification, pedipalp grasp, dance, spermatophore formation, sperm transfer, runway or restart. *Americhernes bethaniae* has dimorphic males based on class size. As other Cheliferoidea, this species exhibits an elaborate courtship behavior that differs between males size classes. Smaller males invest more time than larger males in courtship and produce more spermatophores. This fact could indicate the existence of different mating strategies depending on male size. Smaller males can compensate for female preference for larger males by attempting to interrupt the courtship and producing a higher number of spermatophores.

Why do blue-black grassquits reproduce in Clustered territories?

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Individuals of some species reproduce in clustered groups. We evaluate four hypotheses that could explain cluster formation during reproduction of the blue-black grassquit (*Volatinia jacarina*). They are: males of grassquits aggregate (1) in areas where vegetation structure is more

complex; (2) in areas with higher food availability; (3) to reduce depredation of nests; and (4) to attract more females. Plots were marked inside areas with clusters and in places with solitary individuals. We registered the number of displaying males, territorial contests, and females. Finally, we evaluated the vegetation structure registering: percentage and height of grasses (total and with seeds); number, height and diameter of shrubs and trees; number of perches and percent coverage of ground vegetation. Results corroborated hypotheses one, two and four. Thus, grassquits that reproduce in clusters are in areas with more complex vegetation, presenting more seeds and with a higher presence of females, but exhibit a lower reproductive success. Agências Financiadoras**:** CAPES e CNPq

A functional analysis of allosuckling in domestic guinea pigs

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Allosuckling is an infrequent and theoretically relevant behavior among mammal species. We conducted an experiment in which domestic guinea pig mothers (*Cavia porcellus*), of multicolored and albino strains, were housed as pairs together with their litters (paired females condition, n = 23 pairs) or alone with their pups (alone female condition, n = 24 individuals). Suckling and allosuckling were video recorded throughout pup development. Results show that allosuckling occurred less frequently ($p<0.05$) and for a shorter period ($p<0.05$) than suckling, that it was not necessarily symmetrical among paired mothers, that it might have an influence on pups' weight, and that allosucking episodes were started by pups, not by dams. These results do not support intepretations in terms of reciprocal altruism but suggest the existence of a resource optimization strategy in guinea pig pups.

Ovipositional behaviour of fossil crickets from the Brazilian northeast Cretaceous

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Important paleoethological inferences can be extracted from morphological aspects founded in fossil crickets, as for example, the ovipositor length in females. The rate body/ovipositor length is indicative of specific ovipositing site preferences (based on extant representatives). When body length is smaller than the ovipositor, the niche will be closer to a lake with sandy shores. When the ovipositor is as long as body length, ovipositing sites are farther from a lake, and females deposit their eggs at greater soil depth, enough to surpass the detritus bed (dead leaves, rock fragments, vegetation), or the surface of a tree stem. The Santana Formation orthopterofauna (Lower Cretaceous, northeast Brazil) reveals at least five classes of ovipositor length indicating five distinct ovipositional behaviours and, consequently, five distinct niches.

Effect of water level reduction on aggressive motivation of isolated cichlid fish Nile tilapia

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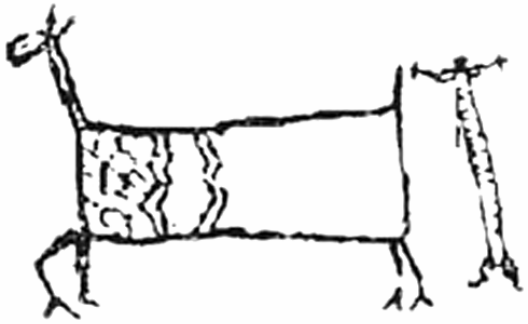
Reduction of water level increases aggressiveness in social groups of Nile tilapia. To test whether such behavior occurs due to rising individual aggressive motivation or due to the increased chance of encounters, we studied isolated Nile tilapia males. Adult fish were isolated in 60x60x40 cm aquaria and tested in REDUCTION (water level reduced 5cm/day, from 30cm to 15cm; n = 7), or CONTROL (water level constant at 30cm; n = 6) conditions. The mirror test was used to measure fish aggressiveness right after a water level reduction and 24 hours afterward (15 minutes recording). Frequency of attacks was higher in CONTROL right after the last reduction and also 24 hours later. Such results indicate water level reduction does not increase aggressive motivation. Thus, the high aggressive behaviour observed in social groups is probably explained by increased fish density and not by increased individual aggressive motivation.

Painéis



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Inducing sexual behaviour in young *Tapirus Terrestris* (Linnaeus, 1766) males: a case study.

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Tapir (*Tapirus terrestris*) is the largest land mammal in Brazil, considered today by IUCN as vulnerable to extinction. The objective of this study was to identify the most suitable method of inducing sexual behaviour in males to ensure the perpetuation and genetic variability of this species. The methodology consisted of: sighting the individual; approaching; sexing; focal male observation of the existence of penile erection, with or without food. We collected data on: height and weight of individuals, length and width of testicles, ggeographic coordinates, environmental temperature, quality and quantity of the food supplied. Both food (bananas) and bodily manipulation led to penile erection. However, erection was seen after bodily manipulation in 94.7% of cases and when food was offered in 57.1%, representing a significant difference in the frequency of both behaviours. In conclusion, bodily manipulation was the most successful method for inducing sexual behaviour in young male *Tapirus terrestris*.

Estudo dos fatores que interferem na expressão da reatividade de doadoras de embriões

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A avaliação da reatividade em bovinos tem sido proposta como critério de seleção, com a finalidade de melhorar os índices produtivos e facilitar o manejo. Esta característica é avaliada pela mensuração do comportamento dos animais ante a presença humana, associando-a ao medo. O objetivo do estudo foi avaliar quais fatores interferem na expressão da reatividade em vacas doadoras de embriões. Foram avaliadas 314 matrizes da raça Nelore, da central "Sete Estrelas Embriões" localizada em Terenos-MS, utilizando método direto de escore composto de agitação (escores de deslocamento, tensão e respiração). Os fatores avaliados foram: categoria animal (novilha e vaca) e local de mensuração (tronco e balança), utilizando o procedimento GLM do SAS. Houve diferenças estatísticas ($P<0,0001$) para ambos os fatores. As médias ajustadas de escore para categorias: $2,72 \pm 0,08$ e $2,13 \pm 0,06$, novilha e vaca, respectivamente. Para local: $2,63 \pm 0,07$ e $2,22 \pm 0,07$, balança e tronco, respectivamente. Conclui-se que as vacas são habituadas ao manejo e que o local de avaliação interfere na expressão da reatividade.

Web building behavior in the golden orb-web spider *Nephila Clavipes* (Tetragnathidae, Araneae) in a urban forest fragment

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This study describes the web building behavior of *N. clavipes*, a large spider that builds a big elastic and resistant orb-web. The individuals were located in the semideciduous mesophytic forest in the John Kennedy Garden, situated in the urban perimeter of Araguari, MG. Four groups, containing 11, 13, 16 and 24 webs, were selected. All the spiders were grouped in glade areas. To describe the web building behavior, five spiders of each group were measured, marked and their webs were manually removed. Building behavior of marked individuals was observed (*ad libitum* method) following two 24-h intervals. We identified five different building stages: 1-establishment, 2-support rays, 3- auxiliary rays, 4-first sticky layer, 5-second sticky layer. The webs were woven at night, probably as a protection against daylight predators. Hunting and feeding, however, only occurred during the day.

Indução à enxameação por aumento de temperatura em colméias com colônias de abelhas africanizadas no nordeste (Mossoró-RN)

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Comportamento enxameatório é a saída em massa de indivíduos de uma colméia. Indução a enxameação por aumento de temperatura em abelhas africanizadas pode ser estudado, através do monitoramento da atividade de vôo das abelhas, com a ajuda de registradores automáticos (apidômetros), e de temperatura e umidade relativa do ambiente e dentro do ninho. Nosso estudo visou analisar o comportamento de resposta dessas abelhas por aumento de temperatura através de uma câmara climática e de registradores. Os estudos foram desenvolvidos em Mossoró (RN), com 5 colméias-núcleo de fecundação (3 controle e duas tratamento) de junho a julho de 2006. A temperatura de indução variou de 35-50^{o}C, sendo aumentada gradualmente. Em condições normais, a temperatura interna da colônia se mantém a 35^{o}C e a umidade 70-80%. A temperatura do ambiente externo teve um efeito direto sobre a atividade de vôo das abelhas africanizadas e altas temperaturas promovem saída em massa de indivíduos, tendo como resposta a enxameação por abandono.

Fishing with a bait and sharing in a captive group of C*ebus Xanthosternos*.

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Capuchin monkeys are known to develop different foraging strategies through manipulation of objects and tool using. In captivity, the uses of food items as bait during fishing activities have been reported for *Cebus libidinosus*. We provide a quantitative description of such behavior in a captive group of *Cebus xanthosternos* at Salvador zoo. All occurrences of fishing behavior were registered during 94 hours of observation. Although 9 individuals were registered in a fishing posture (n= 231), only 2 adult females and two juveniles actually used baits (n= 74). Successful captures were restricted to one female (n= 16) and one juvenile (n= 3). Captured fish were shared with other group members, but with an apparent control of the fisher over who could approach and participate and benefit from the capture. Our results corroborate descriptions of flexibility and adaptability of capuchins to diverse environments.

Ethogram of *Columbina Talpacoti* (Columbiformes) in the urban area of Uberlândia, MG

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Columbina talpacoti is a typical Cerrado pigeon adapted to the urban area, being common in squares, parks, fallow lands and back yards. The aim of this study was to develop an ethogram of *C. talpacoti* during their diurnal activity period (07:00-17:00 h). Field work was done between July-August of 2006, through 50 h of ad libitum observation. Group formation for foraging was verified in the early morning and at the end of the afternoon (08:00–10:45 h; after 15:30 h). Solitary individuals (51.50%) were seen in perches (36.50%; 07:00-8:00 h; 11:00-15:45 h). Pairs (25%) were observed between 10:45–15:30h, self-grooming (12.55%) and vocalization (95%) were common behaviors. Flight activity (24%) was most frequent in specific time periods (07:00-08:00 h; 13:00-15:00 h; and after 16:00 h). Competition (35%) and interspecific relationships (52.4%) occurred during foraging. Mating behavior (12.75%) and copulation was also observed (08:00-09:00 and 12:00-15:00 h).

Descrição preliminar do comportamento do cachorro-do-mato (*Cerdocyon Thous*) no zoológico municipal Parque Jacarandá, Uberaba, MG.

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Cerdocyon thous é um canídeo de médio porte e hábitos noturnos, amplamente distribuído na região neotropical. Dois machos de cachorro-do-mato tiveram seus hábitos comportamentais registrados em etograma, pelo método de amostragem focal, totalizando 20 h de observação. Os animais são cativos há mais de um ano em recinto telado de 383 m², contendo toca, espelho d'água, árvores e cerca viva em parte do entorno. Receberam alimentação diariamente. O indivíduo 1 passou o período diurno deitado, com eventuais caminhadas pelo recinto, teve suas atividades aumentadas por volta das 18 h, quando forrageou, alimentou-se, vocalizou e caminhou, sempre demarcando território utilizando urina ou se esfregando nos locais. O indivíduo 2 raramente andou pelo recinto e não se alimentou ou demarcou território em hora alguma do período observado. Através das observações constatou-se a necessidade da utilização de técnicas de enriquecimento ambiental, a fim de amenizar comportamentos anômalos ou de estresse.

Comportamento cidadão em coletivos urbanos no uso de assentos reservados a portadores de condição especial

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O comportamento humano (*Homo sapiens*) na sociedade urbana tem sido moldado por regras estabelecidas culturalmente ou legalmente, numa tentativa de facilitar o convívio social. Este estudo pretendeu avaliar o comportamento dos cidadãos campo-grandenses no uso de assentos especiais em coletivos. Registrou-se, por 60 minutos em 24 observações, o número de bancos reservados e idosos no veículo, em pé e sentados nos bancos reservados ou não e o número de indivíduos que cederam lugar aos idosos. Em média havia 6,46 bancos especiais e 10,34 idosos/veículo – oferta de assentos 37,75% menor que a demanda. Foram registrados 249 passageiros idosos, sendo que 69,88% viajaram sentados, 45,88% fora dos assentos reservados, 30,12% em pé. Quando houve demanda de assento apenas em 27% este foi oferecido por passageiros comuns. Observou-se que, além de uma conduta de desrespeito ao idoso pelos cidadãos, há também uma subestimação da demanda de assentos especiais pelo setor público que define o número de assentos que devem ser disponibilizados nos coletivos.

Preferência de morcegos nectarívoros por flores de diferentes cores em bebedouros artificiais

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A quiropterofilia é utilizada por muitos vegetais para sua reprodução, estabelecendo-se uma interação planta-polinizador. Objetivando conhecer as cores preferidas pelos morcegos nectarívoros, foi analisada a preferência a flores artificiais de diferentes cores, por esses animais. Foram utilizados quatro bebedouros artificiais com flores azuis, amarelas, brancas e vermelhas, com solução de açúcar a 20%, trocados de posição a cada noite. Visitas por morcegos foram registradas. Ocorreu um total de 9082 visitas. O bebedouro com flores azuis foi o mais visitado (2904, 31,98% do total), seguido daquele com flores amarelas (2664, 29,33% do total), brancas (1772, 19,51% do total) e vermelhas (1742, 19,18% do total). Os resultados mostram uma preferência às cores no sentido ao centro do espectro luminoso. Novas pesquisas devem ser feitas, reunindo-se maiores informações acerca do assunto, dissipando o estigma aos quais os morcegos têm sido submetidos devido ao desconhecimento.

Diet analysis of two atlantic forest tapirs and observations of their daily activities

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Tapirus terrestris is a great herbivore locally extinct in the Northeast Brazilian Atlantic Forest. Its population downfall has been caused by hunting, destruction and fragmentation of their habitat. Those environmental changes may have an impact over their daily routine and diet. We have focused on two female tapirs living freely in the forest of Dois Pintos (3000 ha), Usina Serra Grande, Alagoas, for this study. We observed their diet and their daily routine by direct and indirect observations. These two individuals were observed eating provided feed, cultivated plants (manioc) and about 20 indigenous forest plant species. The tapirs used their front legs to break the plant's stem and to gain access to leaves. They were observed eating, swimming and resting during mid-end of day. Defecation was often observed in the same place, in the water. Data concerning tapir behavior are lacking, and supplementary studies regarding natural and fragmented populations are necessary to ensure conservation. Financial support: MEQ, OQAJ, Université de Sherbrooke, UFPE and Usina Serra Grande Alagoas.

Agressive behavior of a flesh fly (Diptera: Sarcophagidae) when larvipositing on rat carcasses

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With more than 750 described species for the Neotropical region, Sarcophagidae is one of the most important families related to Forensic Entomology. A great diversity of species normally occurs on vertebrate carcasses, including human bodies, but *Peckia (Pattonella) intermutans* consists in one of the first flies to arrive at the carcass and uses it to larviposit offspring, which will colonize it. In the present study, I have observed that females of *P. intermutans,* when ready to larviposit on a dead rat (*Rattus norvegicus*), often kick some blowflies (Calliphoridae) and even other females of *P. intermutans*. It is known that a hard competition between fly's larvae is established for the temporary amount of source, which is offered by the carcass. The aggressive behavior shown by *P. intermutans* could be a strategy to guarantee the success of its own offspring, disabling other flies to oviposit or larviposit on the carcass. Financial support: CNPQ – PIC/UnB

Randomicidade ou regularidade na seqüência dos comportamentos de vigilância de micos-estrela cativos expostos a estresse de predação?

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A sequência dos comportamentos de vigilância foi analisada em micos-estrela (*Callithrix penicillata*) expostos a: 1) quatro sessões de habituação ao labirinto sem predador; 2) seis sessões de confronto ao predador (gato-do-mato taxidermizado); e 3) quatro re-exposições ao labirinto sem predador. Foram analisadas: duração/freqüência do intervalo de monitoramento aéreo e terrestre, duração do intervalo inter-monitoramento (IIM), e freqüência dos *glance* aéreo e terrestre. Durante as primeiras sessões de habituação e confronto, e todas as sessões de re-exposição, a sequência do IIM seguiu um padrão regular, sendo randômicas nas demais sessões; padrão que ocorreu independente dos níveis gerais de vigilância. Ademais, foram observadas diferenças significativas no comportamento de vigilância entre/dentre as condições experimentais testadas. Portanto, a vigilância parece ser uma estratégia anti-predação importante para esta espécie, ocorrendo em altas taxas, influenciada por condições específicas do ambiente (predadores), e adequa-se diferentemente após exposições repetidas. Financiamento: CAPES/DAAD/PROBAL (137/02); M.Barros (bolsista de pós-doutorado da CAPES).

A comparison between two veterinarian procedures applied to cats: cage transport and elisabethan collar (*Felis catus*).

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Some procedures in veterinary medicine, such as transport in cages or use of the "elizabethan collar" (EC), supress the free movement of cats. There is a consensus that cage transport and EC are stressors to cats, but scientific studies of this effect are scarce. To quantify the distress effect of transport cage and EC, we observed 20 adult tomcats in the laboratory. The cats were restrained in a transport cage in a silent and dark room, during 5 to 6 h, after which they were released individually in an enriched room. The cats were observed, using a focal animal, all occurrences procedure, with and without EC in two 15-min sessions. No difference in stress behaviour between the EC and no-EC conditions was detected (Wilcoxon, $Z = 0.59$; $p = 0.55$).The EC condition did not produce more stress than restraint in a transport cage. Transport cage and EC devices induce similar stress levels in cats.

The behavioral repertoire of primates from Serra do Brigadeiro State Park, Minas Gerais

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We here compare the behavioral patterns of different primate species (titi monkeys, *Callicebus nigrifrons*, brown capuchin, *Cebus nigritus*, brown howler monkey, *Alouatta guariba clamitans*, northern muriqui, *Brachyteles hypoxanthus* and buffy-tufted-ear marmoset, *Callithrix aurita*) recorded from June 2004 to March 2006 in Serra do Brigadeiro State Park (MG). Using an *ad libitum* sampling methodology during 156 days, we recorded the following behavioral items: escape (n=14), curiosity (n=61), vocalization (n=20) and indifference (n=120). The percentage of behaviours for each species was: (1) Indifference: *A. g. clamitans* (75%), *C. nigritus* (66%), *C. nigrifrons* (53%), *B. hypoxanthus* (44%) and *C. aurita* (25%); (2) Curiosity: *C. aurita* (50%), *B. hypoxanthus* (41%) and *C. nigritus* (27%); (3) Vocalization: *C. aurita* (25%), *B. hypoxanthus* (13%) and *C. nigrifrons* (11%). Escape behavior was low in *C. nigrifrons* (12%), suggesting that the community is not suffering hunting pressure. Behavior differences may be attributed to: species, social system, group size, foraging speed, habituation degree and observer's distance. Financial support: PROBIO - MMA/CNPq/BIRD/GEF

Luminosity does not affect snail *Pomacea bridgesii* (Mollusca: Ampullariidae) spatial distribution.

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The snail *Pomacea bridgesii*, an important animal from an aquarism point of view, is an introduced pest in agriculture. We studied the spatial distribution of *P. bridgesii* in an aquarium under differential light levels in order to better the management of this snail in captive conditions. 12 snails were tested in an aquarium (96 l) under 6 levels of luminosity, each lasting 24 h. The number of the snails, in 8 equal quadrants was recorded, three times a day. Temperature, ammonia, and pH level of water were also recorded. No significant difference in spatial distribution of snails was detected among quadrants. Time of the day did not seems to influence spatial distribution. Further studies may indicate the influence of other environmental factors on the distribution *P. bridgesii* in aquaria.

Behavior of wild mammals in the presence of observers at Serra do Brigadeiro State Park, Minas Gerais

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From June 2004 to March 2006 random searches were carried out at Serra do Brigadeiro State Park with the objective of describing behaviors exhibited by mammals in the presence of observers. The following behaviors were quantified: escape (ES, n=4), alert (AL, n= 1), vocalization (VO, n= 1) and indifference (IN, n=5).Sixteen species were recorded. Species detected by indirect evidence were: *Dasypus sp.*, *Procyon cancrivorus*, *Felis tigrinus*, *Felis pardalis*, *Puma concolor*, *Agouti paca*, *Mazama sp.* and *Bradypus variegatus*. Species sightings, between 07:00 h and 17:00 h, were: five for *Nasua nasua* (3ES, 1AL, 1VO), three for *Pecari tajacu* (1ES, 2IN), one for *Eira barbara* (IN), one for *Philander frenata* (IN) and one for *Sciurus aestuans* (IN), the latter recorded for the first time in the park. The groups of *N. nasua* and *P. tajacu* had an average 2.3 individuals, the other observed species had solitary individuals. Financial support: PROBIO - MMA/CNPq/BIRD/GEF

Ethogram of captive harpy eagles (*Harpia harpyja*)

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Studies about the behaviour of Harpy eagles (*Harpia harpyja*: Aves, Accipitridae) are scarce, and no ethogram for the species has been published. Therefore, the objective of the present study

was to produce a definitive ethogram for this species. Four individuals were observed at the Belo Horizonte Zoo, and a further 23 individuals at the Crax Captive Breeding Centre. Birds were observed using *ad libitum* observations, approximately 10 hours per week during 30 months. A total 25 different behaviours were observed and described, which can be grouped into the following categories: locomotion and exploration (3); maintenance (7); feeding (4); social behaviour (3); courtship and parental-care (7); and vocalization. Despite the fact that this study focused on captive animals, their behaviour was similar to that of wild conspecifics.

Reproductive behaviour and parental care of captive harpy eagles (*Harpia Harpyja*)

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Despite Harpy eagles being commonly kept in captivity, successful captive breeding and chick-rearing have proved difficult. The Crax captive breeding centre has 12 years of experience with this species, during which time 13 chicks were born. The objective of this study was to evaluate the behaviour of three pairs of harpy eagles (2 reproducing and 1 non-reproducing), at this institution, during their reproductive phase. The pairs were observed directly for one hour per day and also filmed. Data were recorded using focal animal sampling and instantaneous recording of behaviour (interval of 30 seconds). In total 100 hours of observations were made. A qualitative analysis of the data revealed details of their reproduction, for example, one animal would take a twig to the nest and then copulation would occur. One of the pairs that laid eggs successfully reared a chick. Statistical analyses revealed gender differences within pairs, for example, females incubated the eggs more than males. There were also differences in the expression of behaviours related to reproductive success.

Assessment of workers behavior of *Acromyrmex* mayr, 1865 (Hymenoptera, Formicidae) at a common food source, in the laboratory.

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The purpose of the present study was to describe the foraging behavior of workers of different colonies of *Acromyrmex brunneus subterraneus* and *A. subterraneus molestans*, in a laboratory setting. Standardized fresh leaf disks were presented in a foraging arena connected to four pots, each one containing twenty workers. The common nutritional source, with the presence of allo-colonials individuals, represented a context of imminent threat, and foraging-related activities were not performed. The highest aggressiveness observed was interspecific, suggesting that there is some tolerance among same species allo-colonial individuals. Financial support: CAPES

A survey of Brazilian ethology from papers presented at the 24th meeting

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To characterize the nature of Brazilian ethological research in 2006, we used as a sample the abstracts (approximately 220) submitted at the 24th Brazilian Ethologial Meeting (24th Encontro Anual de Etologia). Ethology and Behavioral Ecology (42%) was the predominant area of research, followed by Applied Ethology (33%), General Ethology (15%), Behavioral Neurosciences (6%) and Human Ethology (4%). Most of the research was done with mammals (41%), followed by insects (23%), reptiles (8%) and multi-taxon studies (8%). The majority of studies had between two and four authors (67%), 15% of them had a single author, while 18% had more than four authors. Males and females authors were equally represented (49% and 47%, respectively). Scientific production was strongly biased toward the southeastern region of Brazil (São Paulo, 24%, Minas Gerais, 28%). The 24th Brazilian Ethological Meeting was balanced in its more general aspects but we recommend that strategies be adopted to foster a geographically more distributed practice of ethology in Brazil.

A study of agonistic behaviour of Brazilian damselfish *Stegastes fuscus* (Teleostei: Pomancentridae) in Santa Catarina island, Brazil

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The territorial damselfish *Stegastes fuscus*, which occurs in many reefs along the Brazilian coast, was observed in Santa Catarina Island.. The present study focused in observing territory defense and attacks on conspefics and other fishes. Field observations were made during the morning by snorkelling. Agonistic behaviour was sampled for 3 min. by using the animal focal method. The results show that *S. fuscus* attacks different fish species, mainly conspecifics and *Abudefduf saxatilis*, which was commonly seen feeding on *S. fuscus* territory. The relation between feeding behavior and agonistic behavior was also assessed.

Fire and the behavior of ants in the interactions with plants of cerrado

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We investigated how burning influences the relationship between ants and herbivores in a plant with extrafloral nectarines-EFNs. The work was developed in burned and not burned areas of the cerrado in Uberlândia-MG (2004-2005). The plant with selected EFNs was *Ouratea*

spectabilis (Ochnaceae). The study was divided in: demarcation of the plants and exclusion of the ants; measurement of the herbivoria of leaves; reproductive impact and identification of herbivores and associated ants. 36 morfospecies of ants were found associated to EFNs and 10 orders of herbivores, with prominence to coleopterons, lepidopterous and tisanopterous. The presence of ants reduced the herbivory significantly and avored larger formation of fruits and seeds among burned and not burned areas. The benefits of the associations between ants and *O. spectabilis* were maintained through time. The interaction seems to be equally advantageous and important for ants and plants in both environments (with or without burning). Financial support: CAPES/FAPEMIG

Influence of motivation on task resolution by common marmosets (*Callithrix jacchus*): differences between captive-born and wild-born animals

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In common marmosets, data about the performance of captive-born and wild-born animals on task resolution, as well as possible differences between animals in experimental contexts unrelated to feeding activities, are scarce. We investigated 4 captive-born and 4 wild-born individuals of *C. jacchus*, in a manipulative task consisted in fitting a circular plastic object in a cylinder fixed on a plane surface. Motivation was described according to the number of sessions to solve the task. Compared to captive-born animals, wild-born individuals were more involved in the trials. Differential responsiveness of the animals may beattributed to the poor environmental conditions of captivity. Wild born animals had probably a richer exploratory experience in natural environments.

Feeding behavior effects of two passion vines on larva of *Heliconius erato phyllis* (Fabricius) (Lepidoptera: Nymphalidae)

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In the state of Rio Grande do Sul (Brazil), larvae of *Heliconius erato phyllis* feed preferentially on *Passiflora misera* (as compared to feeding on *Passiflora suberosa*): consumption rates and performance are greater on *P. misera*. Macro and micro nutrients, however, occur in higher concentrations in *P. suberosa*. We evaluated larvae behavior (resting, walking, tasting, feeding and trenching), on both passion vines, under laboratory conditions. Sequential samples (n=10 larvae/instar) were taken every two minutes, during six hours. Larvae spent more time resting in *P. suberosa* (77.61%) compared to *P. misera* (65.66%). When in activity during the first instar, they spent more time feeding on *P. misera* (average + standard error = 9.00 ± 1.11 minutes/hour) than on *P. suberosa* (5.11 ± 1.79 minutes/hour). Similar result was obtained for the fifth instar (17.05 ± 1.63 and 12.94 ± 1.57 minutes/hour, respectively). Data thus show that besides influencing performance, passion vines affect *Heliconius erato phyllis* larval feeding behavior, with a greater time spent feeding and less time resting for *P. misera*. Financial support: CAPES

Social wasps occurrence (Hymenoptera, Vespidae) in urban area of Uberlândia, Brazil

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Social wasps are important predators and pollen carriers, but surveys about them are rare in Brazil. In this study, we assessed the occurrence of nests and substrata of nest building of the types present in an urban environment close to a preserved. 138 houses out of 329 inspected presented nests. 418 nests (36.2% inactive, 27.5% active, 33.3% inactive/active, and 2.9% not identified), belonging to three genera (*Mischocyttarus* sp., *Polistes* sp. e *Polybia* sp.) were recorded. Concrete was the most used substrata for nest building, followed by metal. Nests installation was facilitated by the architecture details of houses: a high frequency of nests were observed in houses with borders in the roof. Wasps' nests were taken as indicating 'good luck'. Results suggest reasons for wasps success in urban habitats. Further studies are needed to understand wasps relevance in urban areas and their use in the control of plagues and endemic diseases.
Financial support: CAPES, FAPEMIG.

Functional laterality in the sand crab (*Emerita brasiliensis*): the escape and burying behavior

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Lateralized behavior is a common phenomenon in animals, but there are few studies in crustaceans. We investigated the sand crab escape behavior in a semi-naturalistic experiment. In a beach, 489 sand crabs were getting from the water and immediately released on the center of an aquarium with sand and sea water. We recorded the side and the four quadrants which the sand crab escaped and buried itself. The main route of escape was for the sea direction, compared to the opposite direction (beach) ($p \leq 0{,}01$). There was no difference between right or left side escape. However, males escaped twice more frequently towards quadrant 4 (right *plus* beach) than females ($p \leq 0{,}01$). Low weight and weaker pleopods in males may be conditions for the development of a sex biased alternative strategy to lateralized escape behavior in the sand crab.

Burying behavior and demography of the mole crab (*Emerita brasiliensis*) affected by urban sewage efluents on bombinhas beach, Brazil.

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Several factors may interfere in the temporal and spatial variation of intertidal communities, modifying the abundance and diversity of macrofauna. In Bombinhas beach, Southern Brazil,

we observed changes in demographic and escape/burying behavior in the mole crab after an accidental discharge of urban effluents which caused a substantial increase in the sea water concentration of ammonia, but did not affect pH, water temperature, salinity, and the microclimatic conditions. During the phase of increased ammonia, we captured a significantly lower number of animals which were smaller, but the latency in an escape/burying test conducted in an aquarium, immediately after capture, remained unaltered. The discharge of organic pollutants affected the surf zone mole crab population, decreasing their density and favouring the smaller individuals, probably males. The maintenance of escape latency by males suggests a greater physiological resistance to short term contamination. Financial support: FINATEC and CNPq.

Effects of environmental enrichment for a couple of ocelots (*Leopardus pardalis*) of São Bernardo's zoo - SP

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The objective of this study was to increase the activity of a couple of ocelots at São Bernardo's Zoo in São Paulo. The observations were made through focal animal sampling procedure, in three stages: before, during and after enrichment, from May to September of 2004. The three enrichment procedures were: use of artificial essences and blood to stimulate olfaction; pieces of meat thrown into their enclosure to increase movement, and a perforated pumpkin stuffed with meat that made feeding more difficult. Daily activity was statistically compared and results show that the enrichment procedures produced the expected effects, increasing activity time, with the exception only of the use of essences for the female.

Light intensity modulates aggressiveness in the angelfish, *Pterophyllum scalare*

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Light intensity, which regulates many behavioral and physiological processes (such as melatonin release by the pineal gland), may affect aggressive interactions in fish. In this study we tested the effect of increases in light intensity on agonistic behavior of the Amazonian cichlid fish *Pterophyllum scalare*. The effects of a lower level (253.56 ± 62.25 lx) and a higher level (1435.92 ± 481.40 lx) were compared. The animals were isolated for 96 h and a dyad was formed (resident-intruder paradigm). Agonistic interactions were recorded for a 20-min period. Pair exhibited higher frontal display and mouth fight frequency at the higher level condition. High levels of light also induced a rising frontal display for the resident and in escape undulation and mouth fighting for the intruder fish. Luminosity is directly related to the frequency of the agonistic interactions in *P. scalare*. Financial support: CNPQ

Differential advantages of callitrichids' color vision phenotypes

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Several studies have shown that callithrichids display a sex-linked polymorphism characterized by the presence of trichromatic and dichromatic females and only dichromatic males. This polymorphic trichromacy seems to represent a balance between dichromatic advantages for detecting cryptic keystone resources and trichromatic advantages for detecting conspicuous fruits. Our aim was to analyze the advantages and disadvantages of each color vision phenotype, found in callithrichids, in detecting fruits against a background of mature foliage. The color of 100 fruits and 100 leaves, from 10 different Cerrado's native species, were assessed with use of an Oceanoptics USB2000 spectroradiometer. For different color vision phenotypes, perceptual differences (JND) between color of fruits and leaves were inferred throw mathematical models. In almost 50% of the analyzed situations phenotype 543/563nm showed the highest JNDs, outperforming other trichromatic phenotypes. Our results are in accordance with other studies in literature, predicting correctly the phenotypic and allelic frequencies found in callitrichid's populations. Financial support: FINATEC, FUNPE.

Why cant't we be friends? multispecific aggregations involving three species of harvestmen (Arachnida, Opiliones).

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Goniosoma spelaeum and *Goniosoma proximum* are harvestmen found in Southeastern Brazil. *G. spelaeum* lives in caves, while *G. proximum* is found on leaves and rocks, close to rivers or cave entrances. Harvestmen are known to compose aggregations, possibly as a defense mechanism. The population of *G. spelaeum* of the Moquem cave (P.E.Intervales, Ribeira Valley) was observed throughout 14 months, and its relations with individuals of *G. proximum* living close to that cave was registered. We found that, during winter, these species composed multispecific aggregations, also including some individuals of another species, *Promitobates sp*. In 11 out of the 15 multispecific observed aggregations, one species represented more than 70% of the total amount of individuals. Though there could be some mechanism of intra-specific recognition leading individuals to aggregate essencially with conspecifics, as known in several taxa, the presence of individuals of other species may increase the defensive effectiveness of the aggregation. Financial support: FAPESP, CNPq.

Dimorphic pattern in the behavioral response to stress in males and females of the common marmoset (*Callithrix jacchus*)

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Many primates have been used to study the behavioral effect of stressful conditions. The aim of this study was to investigate the behavioral response to stress in dyads of adult captive common marmosets. Males (n=7) and females (n=5) were observed followed in four successive phases: (1) baseline; (2) contact with a new environment; (3) social deprivation; (4) reunion. Sex significantly influenced all behaviors recorded, except autogrooming (Mann-Whitney U test, $p<0.05$). Females displayed higher frequency of agonistic behaviors (individual and simultaneous piloerection, scent-marking) than did males in all phases. Males showed significant changes throughout the phases in both types of piloerection, avoidance and huddling behaviors whereas females displayed changes in scent-marking and huddling behaviors. Results suggest that there is a dimorphic pattern in coping with stressful situations in common marmosets, with females reacting less to the environmental and to social changes and intensifying agonistic behavior.

Color perception in *Callithrix jacchus* (Primates, Callitrichidae): assessing the role of light intensity

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Psychophysical studies have suggested that rods and cones may interact in order to enhance color vision. However, this interaction does not seem to be restricted to humans, and have also been found in Old World and New World monkeys. In *Callithrix jacchus*, LGN electrophysiological recordings showed that rod inputs occurs under a great range of intensities, including part of human photopic range. There are no behavioral data verifying the participation of rods in color vision of non-human primates. In order to assess this issue, the influence of light intensities over color perception was examined in *C. jacchus* through a behavioral paradigm of color discrimination, making use of Munsell color chips as stimuli. Results indicate that, under photopic intensities, *C. jacchus* sustains a visual polymorphism, with dichromat males. Accordingly, at least under these light conditions, rods do not seem to play a role in color perception. Financial support: FUBRA.

Temporal division of work among the saúva-limão (*Atta sexdens rubropilosa*)

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Atta sexdens rubropilosa is a leaf cutting ant species with a complex social organization and task division. We investigated how workers exhibit a dial subdivision of turns (diurne and nocturnal). We painted all the ants leaving or entering the nest by one hole. We marked individual ants using four color codes to identify ants seen during the day, during the night, carrying leaves or not. We applied this marking protocol from 10 am to 11 am and from 10 pm to 11 pm the same day, totalizing 400 painted ants. During the following three days, we counted painted ants both at day and nigth. Ants marked during the day were much more likely to be seen again at day time ($X^2>10.827$, df=1, $P<0.001$), suggesting the intriguing possibility that alternative circadian rhythms coexist within colonies of social ants. Further experiments should confirm this pattern and exclude alternative interpretations.

Parental care of chestnut-eared Araçari (*Pteroglossus castanotis*) (Gould, 1834) (Piciformes, Ramphastidae) in captivity using micro-cameras.

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Pteroglossus castanotis is the most well-known and common species of araçaris in Brazil, but has rarely been studied. The first breeding registered for the species occurred in 1997 at the Bird Park in Iguassu. Due to the interest in the maintenance and reproduction of ramphastids by various Brazilian institutions, the main objective of this study was to obtain information about care given to nestlings, an information which may be used to improve the management of these birds in captivity. The behavior of a pair of chestnut-eared araçari was recorded with a micro-camera installed inside the nest log, 24 hours per day, during the breeding season. A total duration of 450 hours was analyzed. 13 behaviors used in parental care of three nestlings were described based on an *ad libitum* method. The male helped the female in providing care to the nestlings.Analyses showed a difference in the frequency of behavior of male and female throughout the three weeks of the nestlings' development, and also between different periods of the day.
Financial support: CAPES, CNPQ

Variations in foraging behavior among populations of the estuarine Dolphin, *Sotalia guianensis* (Van Bénéden, 1864) in south and southeastern Brazil

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Geographically distinct populations from the same species have behavioral differences that reflect adaptations for different ecological conditions. This study analyzed the variations in

foraging behavior among populations of the estuarine dolphin and evaluated the influence of the underwater geomorphological characteristics in these variations. In the Estuarine Complex of Cananéia/Paranaguá, between 2004 and 2005, the foraging behaviors were observed and divided in four categories. The regions were separated in sectors and the frequencies of behavioral categories were verified. Geomorphological samples were collected in each sector. Regional variations were observed and we found that the development of different foraging techniques restricted to one region is related to different selection pressures from each area. The geomorphological differences represent a selection pressure, given its influence over the dynamics of prey and capture efficiency by the dolphins. Certain behaviors are transmitted between generations through a teaching and learning process in the studied areas. Financial Support: CNPq, Post graduation in Zoology/UFPR, IPeC and Idea Wild

Interspecific interaction between spiders of the family Theridiidae and *Loxosceles intermedia* Mello-Leitão, 1934 (Araneae; Sicariidae)

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Some spiders of the family Theridiidae are considered as predators of *Loxosceles*. Our objective was to evaluate the interactions between *Achaearanea* sp and *Theridium* sp with *L. intermedia* spiderlings in Curitiba where both occur inside buildings. An individual *L. intermedia* was put in the web of Theridiidae and observed for 10 min. The state of this spider was checked after 1, 24 e 48h (N=47). *Gnathocerus cornutus* larvae (N=15) were offered to determine predation rate. The predation rate was of 73%, and *L. intermedia* predation was of 48% ($c^2_{(1)}=12$; $p<0,01$). *L. intermedia* also captured Theridiidae (N=19%). There was no difference in predation among the two species, neither among adult and juvenile, but each group exhibited different behaviors and *Theridium* sp was more active. Both species took more than 24h to capture the prey. In spite of the low frequency of predation, the possibility of Theridiidae to capture juvenile *Loxosceles* in dispersion should be considered in programs of control of *L. intermedia*.

Tunnel excavation by workers of *Atta sexdens* (Hymenoptera, Formicidae)

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Nest construction in ant colonies can be considered as an investment in colony infrastructure that supplies essential resources, especially environmental conditions, to offspring. While investment in eggs and larvae can be partially recovered (they may be eaten if necessary), energy invested in nest construction cannot be recovered. The objective of this study was to describe the tunnel and chamber excavations, evaluating division of labor among worker size classes. Five laboratory colonies were placed in a transparent glass container filled with translucent gel. The colonies were observed immediately after the transference and also after 24, 48 and 36

hours. The results are discussed in order to identify the worker size classes with the best performance, as well as to evidence the innate nature of this behavior, since workers never had contact with the ground.

Behavioral study and environmental enrichment of a captive, one eye blind crab-eating fox (*Cerdocyont thous*).

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There is little information about *Cerdocyon thous*, a common species from South America. To contribute with the knowledge about the species and offer welfare conditions to a captive one-eye blind female, the objectives of this study were to elaborate an ethogram and to evaluate which environmental enrichment could improve its welfare. The study lasted a month. The methods used were a*d libitum*, focal animal and instantaneous sampling (each 30 seconds), in intervals of two hours, and sections from 0,5 to 1 hour. The enrichments were evaluated by changes in frequency of the behavior, before, during and after their application. The behaviors identified were: Resting, Maintenance, Feeding, Interaction with Objects, Aggressivity, Submission, Sniffing, Displacement, Pacing, Elimination and Wakefulness (the most often). From eleven enrichments tested, the animal responded to alimentary ones, to liana plus ginger ball, and to bamboo mobile. There were no changes in frequency during and after the enrichment.

Effects of changes in diet on the behavior of howler monkeys - a field test

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The howler monkeys, *Alouatta guariba*, are particularly sensitive to changes in food availability and quality. This study tests the effect of supplemental feeding on the behavior of two groups of *A. guariba* in an urban forest reserve in Sorocaba, SP. We quantified the behavior of each group, with and without food supplementation. The monkeys, after the period of supplemental feeding, spent less time eating leaves, fruits, and flowers, when compared with the period without supplemental feeding. Apparently, the size of the territory of each group was small when food was offered. The groups remained almost stationary, except when fruits of *Syagrus* sp. and flowers of *Chorisia* sp. were available in the forest. In this case, the monkeys fed on bananas and the above mentioned items. Financial support: PIBIC-PUC-SP.

Contribuições da semiótica para o estudo da comunicação e linguagem animal

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Apresentamos a Semiótica de Charles S. Peirce e suas possíveis contribuições para o estudo de processos cognitivos e sociais em animais, especificamente a comunicação animal. A semiótica

de extração Peirceana fornece um quadro teórico conceitual que permite compreender a linguagem para além das estruturas convencionais apontadas pela lingüística e da idéia de arbitrariedade semântica. Enfatizamos como a concepção triádica de signo e suas derivações, podem oferecer um útil refinamento conceitual para a compreensão dos processos comunicativos animais. Estabelecemos um diálogo com casos já trabalhados pela etologia e pela psicologia experimental a fim de ilustrar e enriquecer o tema proposto.

Desenvolvimento e uso de câmeras remotas de vídeo no estudo do comportamento animal

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A etologia é muitas vezes dificultada, por exemplo, pelo hábito e habitat do animal. Desta forma, novas ferramentas, como câmeras remotas acopladas ao próprio animal, surgem para auxiliar esse tipo de estudo. No presente trabalho, testamos a eficiência de um modelo de câmera remota em cães (*Canis familiaris*). Contou-se o tempo de imagens com e sem transmissão, além da duração de atividade e repouso dos indivíduos. Ao todo 28,7 horas de imagens foram gravadas em sete dias de coleta. A duração dos períodos com e sem sinal foi 50,15% e 49,85% respectivamente. Os animais passaram mais tempo parados (25,30±13,67) do que deslocando (4,49±3,14) ($Z=-4,59$; $p<0,001$). Não foi encontrada diferença significativa ($H=1,96$; $p=0,579$) entre os animais para o tempo em deslocamento, assim como tempo parado ($H=7,10$; $p=0,068$). A ocorrência de outros comportamentos também foi considerada. Câmeras remotas são eficientes nos estudos etológicos e fornecem novas informações sobre o animal e suas interações. Agência financiadora: CNPq, Projeto Cervídeos Brasileiros.

The influence of sociosexuality, empathizing/sistemizing profiles and love styles on mate selection.

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Homogamy – similarity between characteristics of self and preferred characteristics of the ideal romantic partners – is a well-studied aspect of mate selection behavior. We studied homogamy through questionnaires of sociosexuality, empathizing/sistemizing and love styles. There was a preference for homogamy in Pragma, Ágape and Estorge, but not in the other styles nor in sociosexuality or empathising/sistemising. More systemizing individuals preferred partners of Pragma style, more empathizing partners of Ludus and Ágape styles, and the more unrestricted individuals preferred the Eros ones. Results show the existence of a relationship between love styles and preferences for characteristics indicated by evolutionary theories of mate selection.

"Carcará: uma aventura na caatinga"

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A Etologia proporciona à prática do ensino de biologia um caráter interdisciplinar, resultado de sua visão integrada, que abrange disciplinas como Ecologia, Zoologia, Botânica e Evolução, e suas intersecções com ciências como a Geografia. A Etologia aliada ao Jogo de Representação (RPG) na prática de ensino, anexa a condição sócio-cultural humana à sua rede disciplinar, através da representação de personagens humanos que interagem com uma história. Com tais recursos em mãos, produzimos um material didático no formato de RPG, utilizando como local de ambientação a Caatinga (Região do Parque Nacional Serra da Capivara), e como fonte primária de informação e entretenimento a preservação da fauna e flora local, e o comportamento de forrageio do Carcará (*Polyborus plancus*). Chegamos à conclusão que a interdisciplinaridade da Etologia e a flexibilidade do RPG propiciam um desenvolvimento de uma visão sistêmica e estimulam a capacidade de comunicação e expressão, fundamentais para um ensino autônomo.
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Affiliation in four echimyid rodent species based on Intrasexual dyadic encounters: evolutionary implications

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We evaluated the evolution of sociality in cursorial spiny-rats (Echimyidae) by comparing affiliation among three species of *Trinomys* and one species of *Thrichomys*. For each species, we recorded 12 intra-sexual dyadic encounters in a neutral arena in order to test the hypothesis that species and sex influence the level of affiliation. This response variable was accessed based on two indexes: mean distance between individuals during the experiment (DI) and affiliation index (AI). Hypothesis tests were performed by means of two parametric ANOVA. The test was able to detect significant differences only among species based on AI. *Trinomys yonenagae* was the most affiliative species while *Thrichomys apereoides* and *Trinomys albispinus* were the most agonistic ones. *Trinomys setosus* showed an intermediate pattern. We suggest that affiliation in *Trinomys* increased in the lineage containing *Trinomys setosus* and *Trinomys yonenagae* and that higher affiliation in the last species can be adaptive for life in the desert-like habitat where it lives.
Financial support: FAPESB, CNPq

Eggsac defense in *Loxosceles intermedia* Mello-Leitão, 1934 e *L. laeta* (nicolet, 1832) (Araneae; Sicariidade)

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Loxosceles spiders occur in high populations in Curitiba, Brazil. Eggsacs defense behavior in *L. intermedia* and *L. laeta* against conspecifics intruders (male, female, juvenile) was evaluated. In 114 experiments, an intruder was introduced into the resident's box (10x15cm) and its behavior was evaluated during 30 min and after periods of 1, 2, 6, 24 e 48h. Most of the intruders of *L. intermedia* were not killed ($c^2_{(1)}=3,8$; $p<0,05$), killing being more frequent for females. In *L. laeta*'s case, most of the intruders were killed on the eggsacs quadrant ($c^2_{(1)}=15$; $p<0,01$). In the case of *L. intermedia* (33%) and *L. laeta* (16%), the female intruder killed the resident and destroyed its eggsacs. The results reinforced the hypothesis of a lower aggressiveness in *L. intermedia*. Both species, however, do not allow the presence of conspecifics close to the eggsac.

Foraging behavior of the estuarine dolphin, *Sotalia guianensis* (Van Bénéden, 1864).

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The foraging behavior of the estuarine dolphin was observed between January 2004 and July 2005 in the Estuarine Complex of Cananéia/Paranaguá, totalizing 502 effort hours. The observations were made from a land-based site using the "focal animal sampling" and the "continuous recording sampling" methods. For the regions of Cananéia and Ilha das Peças island the most frequent group structure during foraging behavior was the "familiar" followed by the "great groups". In both regions interactions of the estuarine dolphin with seabirds were observed during foraging behavior. Twenty-one types of behavior were observed and they could be divided among four categories: Individual Foraging, Small Groups Foraging, Great Groups Foraging and Infants Foraging. The frequency of these behavioral categories is similar in both regions, but specific behaviors for each of the areas were also observed. Financial Support: CNPq, Post graduation in Zoology/UFPR, IPeC and Idea Wild

Song output of white-shouldered fire-eye *Pyriglena leucoptera* (aves: Thamnophilidae) during raids of army ant swarms

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The main objective of this study was to assess whether (1) the amount of food (arthropods flushed by army-ants) or (2) the rate of competitive behaviour are responsible for the intense vocal signaling of White-shouldered Fire-eye *Pyriglena leucoptera* foraging on army-ant swarms.

The vocalizations were recorded by *ad libitum* method while the competitive behaviours were recorded by *scan* sampling. Arthropods were sampled by window traps. 30 samples of 60 minutes were collected. Both food amount (measured as total number and biomass of captured arthropods) and rates of competition were not correlated to the rates of the different vocalizations (r values: from 0,04 to 0,44; r_s values: from -0,26 to -0,20), emphasizing that neither of these variables were detected as proximal factors of vocal output. Probably, the intense vocalization of *P. leucoptera* is the result of each individual vocalization type playing a different role in the complex communication system established among the birds sharing the same resources. Financial support: FAPEMIG, US Fish and Wildlife Service, CEMIG.

Patterns of male and female betrayal and jealousy in university students from Goiânia

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Evolution is supposed to have selected different patterns of sexual and jealous behavior in human males and females, with men being more predisposed to multiple partners and sexual jealousy. We replicated a questionnaire that has been applied to different human samples (e.g. China, Sweden and São Paulo) with 50 males and 50 female Brazilian University students from Goiânia. As expected, males were more prone to sexual jealousy, and to break up with a cheating partner. Males also stated more often to have had sexual relationships without being emotionally involved and to have had sexual relationships with third parties during previous relationships. On the other hand, emotional betrayal seemed equally disturbing to men and women; nearly half of the women (46 %) stated that a sexual betrayal would be worse than an emotional one. Our results thus support the generality of previous findings, despite differences due to cultural factors.

Environment enrichment for a pair of tayras (*Eira barbara*) of the São Bernardo's Zoo, São Paulo

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The maintenance of animals in captivity may lead to the development of anomalous behaviors. Environmental enrichment techniques were used to decrease the behavioral stereotypy of a pair of tayras. Observations, by focal animal sampling, were conducted between November 2004 and March 2005. In the enclosure tunnels and stairs confectioned with kindling wood and rope had been placed. The average of the frequency of the stereotyped behaviors (pacing, coprophagy and to lick a wound) increased in 5% in the presence of the enrichments, for both animals. These results indicate that the relevance of keeping track of the effects of any enrichment intervention in order to assess if it actually raises the welfare of animals.

Environmental enrichment with small cats (*Leopardus tigrinus and Leopardus wiedii*) at the Brasília zoo

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The purpose of this study with male and female oncilla (*Leopardus tigrinus*) and margay (*Leopardus wiedii*) of the Zoo of Brasília, was to assess the effects of environmental enrichment as well of the influence of the presence of visitors of the Zoo on both species. Design included three stages (before, during and after enrichment), each with nine observations, on days with different people affluence. Enrichment items included a sandbox, paper balls and catnip *Nepeta cataria* pillows, and the number and duration of visits to the enclosures were recorded. Non-visibility decreased during enrichment and increased thereafter above initial levels, observation of people and other animals was reduced during enrichment. This decrease (especially marked with other animals observation) was sustained and indicated that enrichment could have long term effects.

Heterospecific adoption in domestic and wild guinea pigs

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Interspecific courtship behaviour is a critical criterion for the existence of a reproductive barrier. Previous research in our lab showed that female domestic guinea pigs (*Cavia porcellus*) accept to mate with male wild guinea pigs (*Cavia. aperea*), but not the opposite. Here we examine the possibility that such a reproductive barrier might influence cross-fostering care in wild and domestic guinea pigs. A newborn wild pup was added to the one-pup litter of a domestic nursing guinea pig and, conversely, a domestic newborn pup was offered to a wild nursing female who had just lost her own pup. The domestic guinea pig female's maternal performance towards the adoptive wild pup was normal, including nursing, cleaning, and contact behaviors. The wild guinea pig female, although interacting peacefully with the adoptive domestic pup, never nursed it. This first observation, to be replicated, suggests the existence of an asymmetry in maternal behavior that may be associated with the reproductive barrier between wild and domestic guinea pig species. Agentes financiadores: CNPq e FAPESP

Behaviour and social structure based on the chemical communication by domestic cat faeces (*Felis silvestris catus* l.): a model for felines in captivity

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We examined in domestic cats spatial and social aspects of defecation and the role of faeces elimination in olfactory communication. Domestic cats, castrated or not, adults, juveniles and

kittens of both sexes were used and data were collected by plotting occurrences on a map and taking focal animal records. Results show that the sites chosen to defecate depended on resting and eating areas, and that female cats took longer to process faeces than male cats.

Interações entre o parasitóide *Megaselia scalaris* (Diptera: Phoridae) e a vespa social *Polistes simillimus* (Hymenoptera: Vespidae)

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A vespa social *Polistes simillimus* apresenta um ninho composto por um único favo descoberto preso ao substrato por um pedúnculo, favorecendo a ação de *Megaselia scalaris*, parasitóide de pupas dessa vespa. O objetivo desse estudo foi descrever as interações entre *M. scalaris* (parasitóide) e *P. simillimus* (hospedeiro). Foram realizadas 40 horas de filmagens, em colônias de *P. simillimus*, registrando-se quatro eventos envolvendo o parasitóide/hospedeiro. *M. scalaris* possui cerca de três milímetros de comprimento e coloração acinzentada, tornando-se camuflado sobre o ninho o que dificulta seu encontro pelas vespas. Os eventos ocorreram no período da tarde (15 - 17 h). O parasitóide permaneceu de 2-8 segundos no ninho, visitando 1-4 células com larvas e/ou pupas, gastando de 1-4 segundos/célula. Quando *M. scalaris* está sobre o ninho, as vespas de *P. simillimus* exibem comportamentos típicos, reconhecidos como uma série de arremetidas a curta distância, seguidos de uma mudança na posição do corpo. Esse *display* é exibido durante todo o tempo em que o parasitóide esta no ninho. Isso sugere que *P. simillimus* não detecta visualmente o parasitóide sobre o ninho, contudo sua presença é percebida, muito provavelmente pelo seu odor, estimulando o comportamento de patrulha e alerta nas vespas.
Apoio Financeiro: Programa PROBIC/FAPEMIG/UFJF, CNPq e CAPES.

Ecdise na aranha social *Parawixia bistriata* (Rangger) (Aranae, Araneidae): sincronia e comportamento individual.

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Em *Parawixia bistriata* a ecdise é individual, altamente estereotipada e ocorre sincronicamente em cada colônia. Considerando os aspectos de reprodução, defesa e forrageamento, como poderia uma atividade individual passar a ter um valor adaptativo importante ao se tornar um comportamento sincronizado, coletivo? Esta mudança é influenciada pela ecdise individual, fatores ambientais e disponibilidade de alimento. A escolha do local, posicionamento, período do dia e o tempo gasto no processo são características intrínsecas do comportamento individual e influenciam no sincronismo de muda. Indivíduos de colônias diferentes sofrem ecdises praticamente simultâneas sob as mesmas condições micro-climáticas. A sincronia sugere o desenvolvimento de adultos em uma mesma fase para propiciar a reprodução, bem como uma diminuição da agressividade e do conseqüente risco de canibalismo, durante este período de maior vulnerabilidade.
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Territorial and reproductive behavior of two coenagrionidae damselflies (Odonata:Zygoptera) in neotropical savanna

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Odonates are predatory insects at all life stages, and are extremely abundant in the tropics. There are surprisingly few studies of their ecology and behavior in Brazil. We investigated the intra and interspecific interactions of two Coenagrionidae species (Odonata:Zygoptera) at a pond in a Cerrado environment. Previous observations identified oviposition sites in the pond. These sites were watched during the species' higher activity time and all behavioral acts performed were registered following the all occurrence sampling method. We observed agonistic intra and interspecific interactions (which differed in: wing display, chase, tolerance and attack) for the oviposition sites domain, as well as territory defense from both species. We also describe the copulatory and postcopulatory behavior in a natural environment. Financial support: CNPQ

Behavioral repertory of the neotropical harvestman *Mepachylus grandis* (Opiliones, Gonyleptidae)

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In this study, an ethogram of the neotropical harvestman *Mepachylus grandis* is provided and a comparison is made between the repertory of *M. grandi*s and *Ilhaia cuspidata*, another neotropical harvestman. Four females and two males of *M. grandis* were maintained in the same terrarium from August to September, 2006. 18 behavioral acts were recorded, classified in five categories and the relative frequency of each was determined: resting (62,3%), exploration (14,9%), social interactions (12,0%), groomig (6,6%) and feeding (4,2%). There was no difference in the frequency of behavioral categories performance between sexes (reproductive behavior was not observed). During most of the daylight, individuals remained inside shelters and became active from 19:00-07:00h. The higher relative frequency of the behavioral category "resting" associated with the lower "feeding" comparing with *Ilhaia cuspidata*, may be explained by lower temperature during the observation months.

Nest construction by captive Harpy eagles (*Harpia harpyja*)

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The presence of a well constructed nest, either made by a reproductive pair or provided by

care-takers, is essential for successful reproduction. The objective of this study was to evaluate how captive Harpy eagles construct their nest using provided nesting material. This study was conducted at the Crax Captive Breeding Centre where four reproductive pairs were observed for a total of 45 hours during their nesting phase. Birds were observed using animal focal sampling with instantaneous recording of behaviour every 30 seconds. Statistical analyses of the data revealed that pairs which eventually laid eggs expressed much more nest building behaviour than those that did not. Copulations were only observed in the pair that successfully reared a chick. Between the pairs differences in enclosure or nest use were not observed.

Foraging activity of *Camponotus sericeiventris* Guérin, 1838 (Hymenoptera, Formicidae)

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The foraging behavior of ants *Camponotus sericeiventris* was observed, in Juiz de Fora, Minas Gerais, from 08:00 to 18:00 h, during a period of four days. Every 30 min, the number of exits and returns, the temperature and the relative humidity of the air were recorded. Forty workers were individually marked to estimate the duration of foraging. Foraging time averaged 67 minutes. Frequency of exits and returns/hour was 237.87±171.94 (0-524) and 237.39±159.34 (1-497), respectively. There was a significant correlation between frequency of exits and temperature ($r=0.42$; $p<0.0001$) but no correlation between frequency of exits and humidity ($r=0.03$; $p=0.7807$).

Food resources of *Camponotus sericeiventris* Guérin, 1838 (Hymenoptera, Formicidae)

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In order to determine the foraging habits of *Camponotus sericeiventris*, food items were collected through the interception of foraging individuals, during a period of 20 hours. Items and ants were weighed to assess the correlation between individual workers and their load. Identification of items captured by the ants was made in only 5,2 % of 7459 food transportations. Most of the incoming ants did not exhibit a visible load, probably because they had liquid substances stored in the crop. The identified loads were 35.40% of faeces; 27.65% of protein and 36.95% of vegetable fiber, confirming the omnivorous habit of the species. A worker of *C. sericeiventris* carries about 10% of its corporal mass.

Enriquecimento ambiental para Jaguatiricas (*Leopardus pardalis*) Cativas: resultados iniciais

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A reprodução em cativeiro é essencial para a conservação de felinos e seu sucesso está diretamente relacionado ao bem-estar dos animais. Diversos trabalhos já demonstraram a eficácia de técnicas de enriquecimento ambiental (EA) em melhorar o bem-estar. Objetivou-se estudar o comportamento da jaguatirica, enfocando comportamentos anormais em conseqüência de estresse. O estudo foi realizado na Associação Mata Ciliar (Jundiaí/SP) e foi dividido em observações Pré-EA, Durante EA e Pós-EA. Nesta primeira etapa, 4 animais foram observados. Os EA foram: Físico (vegetação, cestos, serrapilheira, bolas, troncos e toca) e Alimentar (diariamente, alimento escondido ou com obtenção dificultada, em horário aleatório). Os animais interagiram com todos os EA e foi observada significativa ($P<0,05$) diminuição na freqüência de repouso, aumento na de locomoção, além de aumento de *pacing* na fase Pós-EA. Indicador de Uso do Espaço físico mostrou significativo aumento no uso do ambiente terrestre ($P<0,05$), mas o aumento do Índice de Diversidade Comportamental, não foi significativo. Apoio finaceiro: FAPESP; Associação Mata Ciliar.

Marcação com fezes e *scrapes* por carnívoros

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Carnívoros utilizam sinais visuais e químicos para comunicação e marcação de território, como urina e fezes. Em uma área de eucaliptos com fragmentos de cerrado (Brotas/SP) foram coletadas fezes. Das 29 fezes de onça-parda (*Puma concolor*), 20% estavam associadas a pequenos montes de substrato raspados no solo (*scrape*) e das 57 fezes de lobo-guará (*Chrysocyon brachyurus*), 19% estavam em cruzamentos de estradas e 7% sobre pequenos montes, condições que podem tornar os sinais mais visíveis. Três trilhas eram frequentemente marcadas por onça-parda com *scrapes*, sendo que em uma noite foram realizados 19 *scrapes* em uma mesma trilha (1000 metros), distante entre si de 10,7 a 141,8 metros (média de 67,5m). Todas as fezes estavam em trilhas, não foram enterradas e não houve grande diferença entre a posição do depósito, no meio ou na lateral da trilha. Sabendo-se da dificuldade de estudos comportamentais de carnívoros, relatos como estes são relevantes. Apoio: Associação Mata Ciliar e International Paper do Brasil

Mate choice in adolescence: partner age and romantic relationship involvement level

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Most human (*Homo sapiens*) mate choice studies investigate the behavior of young and mature adults. In this research, we investigated mate choice in adolescence, concerning age preferences. Addtionally, we compared the actual and the ideal romantic relationship involvement level. A total of 106 heterosexual students (76 females and 30 males) answered a questionnaire and the mean age (± S.D.) was 16.04 (± 1.67) years old. The results indicate that the age preferred by both male and female adolescents is similar to those preferred by adults concerning a long term relationship. We also observed that the involvement level supports this tendency. Partner age and idealized romantic involvement reflect the investment level in reproductive effort. Our data are discussed within an evolutionary psychology perspective. Financial Support: UFRN and CNPq

Relation between levels of fecal cortisol and behavior of *Callithrix penicillata*

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The Callitrichidae are used as models to investigate social-endocrinological stress. The objective of this study was to associate *C penicillata* behavior with the level of cortisol. We conducted 20 h of behavioral observation, using the focal animal method. The cortisol measurements were made in the Hormonal Dosages Laboratory of UFRN. The observed categories were: Pa (animal stationary and alert), Pi (stationary without paying attention or sleeping), Mv (moving), Cb (eating or drinking), Is (interacting socially), Ac (self-grooming), Vc (vocalizing), Rm (gnawing or scent marking) and Es (hidden). Mv was the only category that showed a positive correlation with cortisol level. The other categories did not show a significant correlation. These results demonstrate that fecal cortisol can be associated with abnormal behaviors such as excessive movement, which needs more studies. Financial Support: PIBIC/CNPq/UFJF and Centro da Biologia da Reprodução.

The ideal number of partners for lunch from a quail's perspective

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Domestic quails (*Coturnix coturnix japonica*) are generally kept in small and crowded enclosures, for economic reasons. In a traditional cage for 10 animals, up to five animals can feed side by side, simultaneously. The question we addressed was if a five-feeding-places cage is functional and adequate for quails. Ten groups of quails were observed, distributed in 10 cages, 10 minutes per day, during 12 weeks. Time and number of animals feeding at the same time were recorded. Quails spent longer times feeding when alone or in dyads, but decreased feeding time significantly if in trios or quartets. This result suggests that the design of the traditional cages is not appropriate in terms of the welfare of domestic quails.

Comportamento de Capivaras (*Hydrochoerus hydrochoeris* Linnaeus, 1766) em ambiente urbano

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A espécie *Hydrochoerus hydrochoeris* habita regiões próximas a áreas de coleções de água. Com o crescente desenvolvimento urbano, muitas áreas naturais têm sido degradadas e espécies viventes, como a capivara, passam a conviver com as novas condições ambientais. Assim, o objetivo do trabalho foi registrar os comportamentos de capivaras em área urbana, na margem do Rio Paraibuna, Juiz de Fora, MG. No período de março a maio/2005, foram feitas 54 horas de observação pelo método *ad libitum*, sendo estudados 12 capivaras, entre machos, fêmeas e filhotes. Os indivíduos iniciam sua atividade por cerca das 16h se estendendo até o período das primeiras horas da manhã. Os comportamentos registrados e o percentual de tempo gasto nas atividades foram: 40% do tempo em alimentação, 22,5% em descanso, 17,5% nadando, 2,5% andando, 2,5% em apnéia, 2,5% "grooming", 2% correndo, 1,5% brincando, 1% se comunicando, 1% amamentando, 0,5% de comportamento sexual, 0,5% demarcando território e 6% outros. Estes comportamentos são semelhantes aos descritos em trabalhos em áreas não urbanizadas.

Behavioral acts used by the lizard *Eurolophosaurus Nanuzae* (tropiduridae): inter-sexual differences?

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We studied the behavioral acts used by individuals of the lizard species *Eurolophosaurus nanuzae*. Specifically, we asked: 1) Do males and females differ in the type and frequency of behaviors? 2) Is the frequency of push-up displays and the frequency of locomotion related to the males' body size? Data were obtained by 20 minute focal sampling of 14 males and 12 females. Both sexes used the same behavioral acts. Males and females did not differ in the number of push-up displays, frequency of locomotion, nor total number of behavioral acts. Male body size did not affect the number of push-up displays and locomotion. Nonetheless, inter-sexual differences may occur in the structure of some behavioral acts, as occurs for other lizard species.

Seasonal variation in foraging of black-tufted-ear marmosets (*Callithrix penicillata*)

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Black-tufted-ear marmosets (*Callithrix penicillata*) inhabit the central plateau region of Brazil, an area that presents dry winters and rainy summers. This can possibly imply in seasonal variation in feeding behavior, because the same foods may not have the same availability throughout the year. The objective of this study was to identify the feeding components of

marmosets, relating the frequency that they feed on each component with climatic variation. Field data were collected from September to December of 2005 and from April to June of 2006, using an all occurrences sampling of feeding behavior. We found that there were no significant differences in feeding rate between the two seasons nor among items within the rainy season. However, marmosets differed in the amount of food items consumed in the dry season. This result substantiates the hypothesis that there is a sazonal variation associated with food availability, and that the marmosets exploit resources differently through the year.
Financial support: CNPq

Flight activity during autumn and winter in natural colonies of the Brazilian stingless bee guira (Geotrigona mombuca smith, 1863) from Dourados-MS.

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The flight activity of *Geotrigona mombuca* was studied in two colonies located in University of Dourados (UFGD), from Dourados, MS, from June to July 2006 (colony 1) and September (colony 2). Observations were conducted from 7:00 to 17:00 h, and all bees entering/leaving the hives were counted. Forty observations were made and the materials carried by the bees were recorded. Data were analysed in relation to temperature, relative humidity, wind velocity, light intensity and time of day. Forager flight activity was relatively constant in a wide range of temperature, from 17.5ºC to 38.0ºC. The minimum temperature for the beginning of flight activity was 19.1ºC. These bees also flew within a wide range of relative humidity, from 34.0% to 89.0%, decreasing slowly after 50.0%. Flight activity increased as light intensity intensified throughout the morning, reaching a peak around midday and decreasing gradually afterwards. Pollen and nectar were collected all day, while resin collection was relatively constant.

Behavior of a white-cheeked spider monkey *(Ateles marginatus*) under environmental enrichment at the Brasília Zoo

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Environmental enrichment may contribute to animal welfare in captivity by stimulating natural behavior. The goals of this project were to introduce novelties into the enclosure of a single White-Cheeked Spider Monkey and to observe the behavior before and during the introduction of enrichment items (a bamboo feeder and a resting net). Focal animal sampling, samples taken every 5 min, was used for 20 h, totalling 60 h. The animal displayed mostly ground level locomotion and interacted with enrichment items. There were differences in “ground walk” amd “ground resting” between the resting net and the bamboo feeder conditions. Resting most of the time on the ground, in captive primates, may be associated to the absence of predadors and to activity opportunities in this context. Support: Zoo Brasília

Do bird species use different strategies for capturing and handling *Copaifera langsdorffii* (Caesalpinaceae) diaspores?

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During the winter, *Copaifera langsdorffii* produces a great amount of fruits that are visited by some bird species. In August 2006, focal samplings were performed in three plants from the Fazenda Água Limpa, DF, which permitted the description and comparison of bird capturing and handling behaviors while consuming *C. langsdorffii* diaspores. Each one of the 168 captured and handled diaspores was considered as an independent event, and for each event the bird species, behavior and total time for capturing and handling diapores were recorded. Amongst the 14 recorded species, *Amazona xanthops* was the most frequent. The mean time spent capturing and handling the diaspores varied among the bird species. Capture of the diaspores by extending the body from a perch and the whole consumption of the diaspore were the events with higher occurrence in all species. Differences in capture and handling behaviors seem to be more pronounced in less related species, reflecting selective pressures.Financial support: CAPES.

Environmental enrichment with a black mangabey (*Lophocebus aterrimus*) at the Brasília Zoo

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Environmental enrichment is an alternative that tries to minimize negative effects of captivity on animals. With the purpose of increasing the complexity of the exhibit in which a single female black mangabey is kept in the Brasilia Zoo, we added a bamboo feeder and a resting net on its island. Observation was performed during 20 h, no novelty period and during 20 h, after the introduction of each enrichment item (a resting net and a bamboo feeder). Enrichment reached the project's goals. "Top resting" and "novelty interaction" differed statistically between control to enrichment periods. "Ground resting" during the control period and with the bamboo feeder were more frequent than during the period with the resting net. Wild mangabeys live in groups of up to 20 individuals, thus the lack of partners may be responsible for the apathy of this captive animal. Support: Zoo Brasília.

Wandering and searching behavior in the tortoise *Geochelone carbonaria* (spix, 1824) in captivity

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The activities of *Geochelone carbonaria* are driven by the search for food, refuge, water, partnership and basking sites. We analyzed the movement patterns of 16 captive tortoises during daily and seasonal activity for one year. Movement was recorded through the route left by a string unrolled

from a source attached to the back of the turtle's shell. Only one tortoise was used each day for a period of 12 hours. There were differences among individuals related to the routes, shelter preferences and effect of the temperature in activity. Differences were also found between dry and rainy season relative to sheltering site, and relative to either building or finding new shelter. Activities were more intensive during the hot and rainy season than the dry and cold season. The routes preferred by the tortoises were narrow, and bordering the holding compound. Wandering behavior and activity were more influenced by the rain, season, or random use of the area than by temperature or intra-specific interactions. Financial support: CNPQ/PIBIC

Behavioral repertoire of castrated and intact domestic cats (*Felis catus* – Linnaeus, 1758) introduced in different social groups

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This study evaluated the behaviour of intact and castrated domestic cats introduced in different social groups. Twenty male cats (one year old) were used, divided in four groups, castrated (A_1 and A_2) and intact (B_1 and B_2). A ten-minute permutation was made for each animal between the groups, accordingly to the order: A_2-A_1; B_1- B_2; A_1-B_1; B_2-A_2. Observation was made using the focal animal method. The types of behaviour recorded were: smelling, rubbing, scratching, exploring, staring, hiding, vocalizing, auto-grooming, snarling and ignoring. The results showed that the most frequent behaviors were: exploring and staring. The less frequent were: auto-grooming and ignoring. Statistical analysis did not show significant difference in the behavioral repertoire between castrated and intact cats. Therefore, in this study, castration did not influence the cats' behavioral repertoire. Financial support: CAPES and UFJF

Comportamento de defecação e micção de vacas leiteiras no curral de espera e sala de ordenha

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O estudo do comportamento de bovinos é importante para a busca do bem-estar e de formas produtivas de manejo. O objetivo deste estudo foi analisar o comportamento eliminatório de vacas leiteiras durante a ordenha. Foram realizadas observações do comportamento eliminatório (defecação e micção) de 32 vacas leiteiras da raça holandesa e 124 mestiças (gir com holandês), criadas em sistema semi-intensivo, com ordem de partos e estágio de lactação variada. Os animais estudados pertencem à fazenda experimental da EMBRAPA Gado de Leite, em Coronel Pacheco, MG. A coleta dos dados foi realizada durante a ordenha mecânica, das 14 às 17h, durante quatro dias com cada grupo. As vacas com caracteres europeus defecaram 1,09 vezes no curral de espera (CE) e 0,15 na sala de ordenha (SO). Estes mesmos animais urinaram 1,15 e 0,37 vez nos respectivos locais. Já

as mestiças defecaram 0,82 vez no CE e 0,25 na SO. A micção ocorreu 0,79 vez no CE e 0,13 vez na SO. Os dados apresentaram uma diferença significativa na freqüência de defecação e micção no CE e na SO, para os grupos estudados, sendo o comportamento eliminatório mais acentuado no curral de espera. Apoio Financeiro: Programa BIC/UFJF e EMBRAPA Gado de Leite.

Análise preliminar do comportamento alimentar e evidências de predação e antagonismo em protozoários ciliados (Protista, Ciliophora) no rúmen de ovinos (O*vis aries* l.)

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Objetivou-se verificar indícios do comportamento alimentar e antagônico das populações de ciliados no rúmen de ovinos. Foi analisado o conteúdo ruminal de cinco ovinos mestiços Santa Inês, fistulados no rúmen, mantidos em pastagem natural de caatinga, no Centro de Treinamento em Caprino-Ovinocultura, Sertânia, PE. As amostras de conteúdo ruminal foram fixadas em formalina 18,5% (v/v) e analisadas, registrando-se a ocorrência de organismos dos gêneros *Entodinium*, *Isotricha*, *Eudiplodinium*, *Metadinium*, *Epidinium, Dasytricha*, *Diplodinium*, *Eremoplastron*, *Diploplastron*, *Enoploplastron*, *Epidinium,* e *Ophryoscolex,* sendo que estes dois últimos apresentaram uma clara relação de antagonismo, tendendo a não estabelecerem populações mistas. Evidenciou-se ainda o comportamento predatório de *Elytroplastron* sobre *Enoploplastron*, *Diploplastron* e *Epidinium*; e de *Eudiplodinium* sobre *Enoploplastron*. Registraram-se indícios do comportamento alimentar, a ingestão de fibras e a formação de grânulos de amido no citoplasma, o que demonstra a atividade celulolítica e amilolítica desenvolvida por estes microorganismos no ambiente ruminal.

Interactions between humans and capuchin monkeys (C*ebus apella*) at a children's park in Goiás

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Interactions between humans and capuchin monkeys were investigated using *ad libitum* observations, video tapes, one/zero sampling and all occurrences technique. Most conflicts occurred at the playground. Carrying of food items by humans was an important factor associated with the conflicts, which were mainly initiated by humans. The monkeys attacked in response to threats, attacks, interference in their play, and to obtain food (they developed extortion strategies, intercepting people and stealing from them). When humans attacked the monkeys they did so in self-defense, anticipating possible attacks, when their expectations were frustrated, and sometimes for no apparent reason. It appears that one major cause of conflicts is that people lack knowledge about the animals and their behavior, about when and how to interact with them. General measures are suggested to prevent conflicts between humans and monkeys in public places. Financial Support: CAPES.

People´s perceptions of their interactions with capuchin monkeys (C*ebus apella*) in a children´s park in Goiás

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In an attempt to assess people's perception of the interactions between humans and monkeys, we interviewed people that attended a public park specifically to observe the monkeys that lingered preferentially near the playgrounds. These people stated that they liked to watch, talk to, feed, and try to touch the monkeys, but not attack them. Most people said they saw people attack the monkeys first and not vice-versa. These people associated monkey attacks with human aggression and lack of food. Most people said they liked the monkeys and thought they should not be removed from the location. They thought humans could live alongside monkeys if environmental education was provided. People's opinion of the relations between humans and monkeys was positive in general, and they understood that the monkeys were not solely responsible for provoking the conflicts, but did not know how to behave relative to the monkeys. Hence, the importance of environmental education is suggested. Financial Support: CAPES

Leukocytes profile in poodle dogs (*Canis Familiaris*) before and after bathing and shearing procedures

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During stressful situations humans and non-human primates respond by increasing the total number of leukocytes, which includes an increase and decrease in relative neutrophil and lymphocyte counts, respectively. The aim of this study was to analyze the shearing and bathing effects on leukocyte profile in poodle dogs of both sexes. Blood samples were collected from twenty-three healthy adult dogs (11 males and 12 females), before and after the procedures. No significant differences for neutrophils and lymphocytes were found in the males, but the females showed a significant increase of neutrophils and decrease of lymphocytes. These findings suggest that the immune system is more responsive in female than in male poodle dogs, similar to what has been found for primates.

Utilização de recursos florais por vespas sociais em uma área de caatinga na Bahia

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A importância das vespas sociais está diretamente relacionada ao comportamento trófico destes insetos, pois atuam nos ecossistemas como herbívoros e/ou predadores. O objetivo deste trabalho foi identificar as plantas utilizadas pelas vespas, além da descrição do comportamento na utilização desses recursos. O estudo foi desenvolvido em uma área de caatinga na Bahia, de Outubro de 2005 a Maio de 2006. As plantas visitadas pelas vespas foram identificadas e o comportamento de visitação registrado. Foram registradas sete espécies de vespas sociais visitando 22 espécies de plantas (Leguminosae 40,9%; Euphorbiaceae 18,2%; Boraginaceae e Malvaceae 9,1%). As vespas pousaram preferencialmente próximas a flores pequenas, em cachos e se deslocavam sobre estas tocando as antenas. A vespa *Polybia ignobilis* visitou 17 espécies de plantas, apresentando o nicho trófico mais amplo (3,7). Já as espécies *Mischocyttarus cearensis* e *Brachygastra lecheguana*, apresentaram os de nicho mais estreitos (0,51 e 0,34, respectivamente). As informações preliminares deste trabalho fornecem subsídios para futuros estudos de ecologia comportamental e de interações entre vespas e plantas. Agências Financiadoras: UFJF, CODEVASF e CAPES.

Capture behavior of Tenebrionidae by *Pachycondyla striata* fr. Smith, 1858 (Hymenoptera: Formicidae: Ponerinae) in laboratory.

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Ants present adaptations to almost all terrestrial environments and have a world-wide distribution. The feeding resources of ants are very diverse. With the objective of observing prey capture behavior in *Pachycondyla striata*, six colonies were collected, accommodated in plastic trays and observed during 20 h. When tenebrionidae larvae were offered, the ants located them and exhibited a recognition behavior through antennation, and soon after the larvae were touched by the *P. striata* mandibles. Sometimes, the ant went through almost all the larva's body, touching it with the mandibles, subsequently either accepting or rejecting the prey. When the prey was accepted, *P. striata* held it with the mandibles and stung it several times, depending on the size of the larva. The sting could be stimulated by brusque movements executed by the larva. This ant species presents high aggressiveness and an efficient hunting strategy.

Feeding behavior of *Pachycondyla striata* larvae fr. Smith, 1858 (Hymenoptera: Formicidae: Ponerinae) in laboratory.

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Ants occur in almost all terrestrial environments and adopt different strategies to feed their

larvae. The Poneromorph are predators in most cases Feeding is an important interaction link among the immature and the adults in these social insects. A *Pachycodyla striata* colony containing larvae, collected at the Rio Claro UNESP Campus, was placed in a transparent plastic tray, observed for a 15 h period and fed with tenebrionidae larvae. The *P. striata* larvae moved their head frequently and could not reach the ventral part of their body, until a worker helped to move them close to the prey. Sometimes the worker held the prey between its mandibles and the larva inserted its head in the sectioned tenebrian part and fed on tissue and hemolymfh. This "begging for food" behavior was observed more frequently in the oldest larvae.

Division of labour between workers of the genus *Acromyrmex* (Hymenoptera, Formicidae) from artificially mixed colonies

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Leaf cutting-ants present a sophisticated division of labor during foraging, fungus-garden cultivation and devolution of foraged materials. To determine the allocation of tasks between individuals, three mixed sub-colonies of *Acromyrmex subterraneus brunneus* (Asb) and *A. rugosus rugosus* (Arr) were artificially mounted. Workers of different size and age classes were observed during the performance of 13 subtasks. The workers from control colonies and co-specific mixed colonies of both species showed relatively homogeneous division of labor among age and size classes. However, in allo-specific mixed colonies, frequency of execution subtasks was differently distributed among age and size classes of workers. We suggest that different odors influence and modify the allocation of tasks among workers. Financial Support: FAPEMIG

Recognition between *Acromyrmex* workers (Hymenoptera, Formicidae) from artificially mixed and non-mixed colonies

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Nestmate recognition in ants is generally based on chemical cues, provided by cuticular hydrocarbons. The following experiment investigated if an individual reared in a mixed group integrates olfactory cues provided by the social environment (alo- and co-specific odors) to acquire a mixed memory and recognition as well. Six mixed sub-colonies of *Acromyrmex subterraneus brunneus* (Asb) and *A. rugosus rugosus* (Arr) were created. Levels of interaction between species were established (1, 7, 14, 21 days) and behavioral responses observed during individuals' confrontations. In Arr, aggressiveness decreased, probably because the individuals' cuticular hydrocarbons changed except for individuals from control group in which aggressiveness increased after 21 days, probably because isolation modified their hydrocarbon profile. In Asb, the control group aggressiveness decreased, probably because they are less tolerant of an alian's presence than Arr, demonstrated by the higher average aggressiveness index for Asb. Chemical determination of the cuticular hydrocarbons' profile would confirm these results. Financial Support: FAPEMIG

Estratégia de predação de vespas sociais pela aranha *Nephilengys cruentata*

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Estudou-se a predação, pela aranha *Nephilengys cruentata*, de vespas sociais de agressividade e tamanho diferentes: *Polybia paulista* (pequena), *Mischocyttarus cerberus* (média) e *Polistes lanio lanio* (grande). Analisou-se o comportamento de captura da aranha, registrando-se o número de vespas de cada tamanho ingerido e armazenado. As presas foram oferecidas seqüencialmente às aranhas, por ordem de tamanho. A análise dos dados indicou diferenças comportamentais na captura das diferentes espécies de vespas oferecidas. As vespas maiores foram mais agressivas, o que dificultou sua captura pela aranha (apenas 43,5% das presas grandes oferecidas foram capturadas).82.6% das presas pequenas e 86.6% das presas médias foram capturadas. Agência Financiadora: CNPq/PIBIC.

Nutcracking in the wild, tool using *Cebus libidinosus* of northern Goiás.

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Tool use by capuchin monkeys has been extensively documented in captivity, and recently in the wild. We report four new locations in Goias (2 in Mara Rosa, 1 in Porangatú, 1 in Alto Paraíso) where nutcracking behavior has been inferred from the presence of stones and/or fallen tree trunks with marks of heavy pounding (anvils), fragments of nut shells stuck on rocks (hammers), and broken shells. All locations are in northern Goiás, and more than 100 km apart from each other. Each location contained several nutcracking sites. Three species of nuts, and different kinds of rocks and/or tree trunks were used as anvils and hammers. Other locations (n = 14) reported from northern and central Goiás have not been confirmed by the authors, although detailed reports of behavior and/or sites were provided by biologists and locals. *Cebus libidinosus* may therefore represent a good model for comparative data on the evolution of tool use in primates.

Effect of substrate privation on mating success in the cichlid fish nile tilapia, *Oreochromis niloticus* (l.)

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Dominant Nile tilapia males dig mating nests in the substrate. Some rearing systems use tanks without substrate, but spawning is not abolished. Thus, we tested the effect of nest privation on the dominant's mating success using two groups (2 males and 3 females each; 10-days grouping): a substrate inside-group (INS; n = 9), whose aquaria had gravel inside, and a non substrate-

group (NOS; n = 11) where animals were unable to dig nests. Latency to spawn and frequency of spawning was similar among INS and NOS groups. Nest investment was the main factor driving female choice in INS group, but no other variable (e.g. body size, courtship and aggressiveness) drove female choice in the NOS group. Thus, although nesting is associated with sexual selection in Nile tilapia, it is not necessary for the occurrence of reproduction, which may explain the reproductive success of such species in a wide range of environments and aquaculture. Finalcial support: CNPq

The role of gravitational cues during return to the hub in the orbweb spider *Argiope argentata*.

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Spiders are interesting models for the study of specialized, species-specific cognitive processes. In order to evaluate the influence of memorized gravitational cues on spatial orientation of orbweb spiders (*Argiope argentata*, Fabricius), we offered insects to spiders on the upper, lower, and lateral sides of the web, and subjected their web to a rotation in its own plane (changing the direction of gravitational force) before spiders returned to the hub. Analysis of video records showed that spiders were guided, during return, by stored, up-down information and that they could correct their path according to cues obtained from the structure of the web. Influence of spatial memory was also present when spiders returned from horizontal paths towards insects, an indication that they were possibly able to discriminate and store cues associated to locomotion to the left or right of the starting point. Financial support: CNPq, FAPESP

Comunicação olfativa e comportamento social em gatos domésticos (*Felis silvestris catus*, l.).

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Os gatos domésticos apresentam uma hierarquia de dominância diretamente ligada à reprodução. É nesse aspecto que sua estrutura social ganha maior importância: machos dominantes possuem maior probabilidade de efetivo acasalamento, e essa dominância é exercida entre os membros de um grupo através da comunicação olfativa. Esse trabalho pretende compreender de que maneira machos castrados e fêmeas reprodutivas relacionam-se hierarquicamente, numa população de cerca de 350 indivíduos. Foram coletados 956 dados de animais defecando e urinando, sendo 510 de fêmeas e 446 de machos, em diferentes fases do seu desenvolvimento, focando o número de movimentos e o tempo gasto para enterrar seus dejetos. As diferenças significativas foram entre indivíduos em grupos etários diferentes e entre os diferentes estágios reprodutivos para fêmeas, confirmando a suposição inicial de uma estrutura social alterada em função da ocorrência de indivíduos machos não-reprodutivos.

Removing fish from dangerous areas.

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Entrainment loss of fish in large hydroelectric facilities is an animal conservation and welfare problem. Barriers may cause fish to avoid hazard or move away. We tested environment enrichment designed to attract fish (*Danio rerio*) to the left side of aquarium and tested preference. We used strobe lights to make fish avoid the side wherein they were motivated to stay, and thereby determine the effects of light, using it as an aversive stimulus. Tests were divided into three treatments: Treatment 1 – control, Treatment 2 – environmental enrichment, and Treatment 3 – strobe light applied to enriched side. Fish did not show side preference in Treatment 1, during Treatment 2 they visited enriched side more often and in Treatment 3 they reversed preference. Results suggests that fish can develop a preference and be motivated to stay in enriched conditions, and strobe lights are effective in removing them from such areas. Preference test. Strobe light.

The role of male blue-black grassquits (*Volatinia jacarina*, aves: Emberizidae) in parental care

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Male parental care is considered an important aspect of mate choice and sexual selection in monogamous species. We investigated parental care in the first day after hatching of blue-black grassquit clutches to understand its consequences relative to the species´ mating system. Females spent most of their time inside the nest, and males near the nest Comparing between sexes, females spent more time at the nests, while males spent more time nearby or at medium distances. There was no difference between sexes relative to time spent far from the nest or number of feeding visits to hatchlings. We suggest male parental care is important to nestling development and may have direct consequences to the species´ mating system.

Use of mucus trail for *Achatina fulica* bowdich, 1822 (Mollusca; Achatinidae).

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The giant African snail *Achatina fulica* follows mucus trails made by conspecifics. Our objective was to determine if snails would show behavior changes with mucus of relatives. The experiment (N=40) began with the placement of the first snail in a glass plate. All of the movements patterns

were registered for 10 min. Another snail was introduced at the starting point and its movements registered for 30 mins. The majority of snails (75%) oriented toward the mucus, but only part of the time. In both study groups there were no differences between the frequencies of the animals that finished movement toward the footpath or in the opposite direction. Also, there were no differences in exploratory behavior and duration of movement patterns. Thus, relatedness has no influence in the use of the mucus trail, something that can be applied in the elaboration of traps for the control of this invasive species.

As abelhas higiênicas são mais eficientes em detectar e remover crias mortas pelo processo de perfuração?

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Entende-se por comportamento higiênico a capacidade das abelhas do gênero *Apis* de detectarem e removerem crias mortas, doentes ou parasitadas do interior de suas células. Nós avaliamos o tempo que operárias higiênicas e não higiênicas levam para desopercular e remover as crias mortas da colméia de observação depois de serem mortas usando o método de perfuração. Para o experimento, 2 colméias (higiênica 92% e não higiênica 3%) foram selecionadas. A cada dia uma cria era perfurada e após a perfuração dava-se início às filmagens. Foram analisados processos unitários a cada 1 hora (de 0 a 24 horas). Em relação ao tempo gasto para desoperculação e remoção das células, pudemos observar que as operárias higiênicas gastaram respectivamente 8 horas e 12 horas para completarem o trabalho e na colônia não higiênica gastaram respectivamente 12 horas e 17 horas. Dessa forma, observamos que a colônia higiênica realiza o seu trabalho de desoperculação e remoção com mais rapidez que a colônia não higiênica.

The habit of drinking water during carbohydrate-rich meals increases glycemic response.

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The habit of ingesting liquids during meals is very common and may alter the metabolic responses promoted by food. The increase of blood glucose caused by a meal is associated to various complications well known in diabetic patients. Our objective was to verify the metabolic responses caused by the inclusion of water in a carbohydrate-rich meal. Two tests were done with 30 volunteers, in which their glycemia was measured in different moments after a standard meal, during which some subjects drank water whereas the others did not. A significant increase in blood glucose parameters (e.g. the area under the glycemic curve) was observed after the inclusion of water to the carbohydrate-rich meal. The data allow a better understanding of the various physiological processes involving human eating behavior, thus showing the way to better eating habits, to health promotion and prevention of illnesses.

Sea urchin *Echinometra Lucunter* displacement under stress conditions.

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This work consists of the observation of sea urchin *Echinometra lucunter* displacement under stressful and normal conditions. The experiments took place on the sheltered side of the rocky coast at Praia do Éden, Guarujá-SP. On February 2006, 53 sea urchins (group A) were obtained from 0.5 – 4m depth by autonomous diving. The animals were kept on a wash-basin where they received cotton swab numbered sticks on their spines. Subsequently, the sea urchins were taken back to the rocky coast but not at the same place from where they had been collected. Inn August, 29 sea urchins (group B) were marked but not removed from the substrate. These animals were observed at 0, 2, 22 and 24 h after they were marked and their displacement distances recorded. Group A displacement mean was 1.00 ± 1.1m, while group B displacement mean was 0.3 ± 0.3m. We conclude that sea urchins under stress move farther than unstressed ones.

Etapas do comportamento alimentar do cágado pescoço-de-cobra *Hydromedusa Maximiliani* (Mikan, 1820) (Testudines, Chelidae) observadas em laboratório.

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Para a procura e localização das presas os quelônios exibem determinados comportamentos. Objetivando descrever o comportamento alimentar do cágado pescoço-de-cobra Hydromedusa maximiliani, foram capturados uma fêmea e dois machos adultos e dois jovens, individualizados em aquário contendo água e larvas de moscas (Diptera, Chironomidae) e observados pelo método animal focal, totalizando oito horas de observação. Durante o forrageio os cágados caminhavam no fundo com movimentos lentos com pescoço e cabeça esticados, ou permaneciam imóveis. A aproximação era lenta e o pescoço não ficava totalmente esticado, fazendo o reconhecimento olfativo, aceitando ou rejeitando a presa. A apreensão ocorria através da rápida projeção da cabeça em direção à larva e a ingestão quando o animal abria e fechava a boca, projetando a cabeça para frente e para trás, deglutindo o alimento. A ausência da etapa dilaceração, descrita para outras espécies da mesma família, pode estar relacionada com o tamanho das presas oferecidas. Agência financiadora: CNPq

Food competition among ants (Hymenoptera: Formicidae) in a field area of the State University of São Paulo.

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Competition has been pointed out as an important factor contributing to the structure of ant communities. The objective of this study was to verify the preference of different genera of ants for two types of bait. The study was carried out at the campus of UNESP, in Rio Claro, SP, by setting four parallel 20 m transects, 5 m apart. At the beginning of each transect a protein-based or carbohydrate-based bait was offered, totaling 5 baits at each transect. Ten protein baits and ten carbohydrate baits were analyzed. The carbohydrate baits attracted representatives of the genera *Paratrechina*, *Solenopsis*, *Odontomachus*, *Pheidole*, *Ectatoma* and *Petalomyrmex*, while the protein baits lured ants of the genera *Solenopsis*, *Dorimyrmex*, *Paratrechina*, *Petalomyrmex*, *Pheidole* and *Ectatoma*. Financial support: CNPq/Capes

Foraging activity of the neotropical swarm-founding wasp *Metapolybia docilis* richards, 1978 (Vespidae, Epiponini).

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Social wasps of the genus *Metapolybia* (Ducke, 1905) have small nests, with cells built directly on the substratum and covered with an envelope. The objective of this work was to analyze the foraging activity of *Metapolybia docilis*, correlating this activity with climatic variables. We conducted 100 h of observation of a colony in the post-emergency phase, in the city of Juiz de Fora, MG. The average number of exits and returns/hour were 18.23 ±13.9 and 19.9 ±16.58, respectively. The number of foraging exits and temperature were correlated. Humidity was negatively correlated with the number of foraging exits. Luminosity influenced foraging activity: there was a positive relationship between intensity of light and number of exits. Speed of the wind was the factor that least influenced foraging activity. The results demonstrate that foraging activity of *M. docilis* is more intense in the hottest period of the day, in higher temperatures and lower relative humidity of the air, conditions which favor the flight of wasps. Financial support: CAPES, UFJF.

Daily pattern of vigilance-associated behaviors in captive black tufted-ear marmosets (*Callithrix penicillata*).

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Marmosets, which belong to a family of small neotropical primates, demonstrate high levels of vigilance, partly due to elevated rates of predation. This highly complex anti-predation strategy, however, is poorly understood. Therefore, this study determined the daily pattern of vigilance-associated behaviors (scan, glance) in ten heterosexual pairs of captive black-tufted-ear marmosets (*Callithrix penicillata*). Subjects (n=20) were observed in their homecages during five distinct periods along the day. For each period, four 20-min observation sessions were held and the

following behaviors scored: aerial/terrestrial scan, aerial/terrestrial glance, foraging and locomotion. Marmosets were found to maintain high basal levels of vigilance, regardless of the period of the day. Furthermore, males and females did not differ significantly for any of the behaviors scored. However, distinct vigilance profiles were observed when each pair was analyzed separately. Thus, the general vigilance profile of captive individuals of this species may be more influenced by specific pair-bonds, than by gender.

Chemical cuticular differences between the castes of *Frieseomelitta varia* (Hymenoptera, Apidae, Meliponini).

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Social bees show great variety in caste differentiation across species. In the primitively eusocial bees (e. g. Halictinae), the differences between the castes are often more physiological than morphological, while in the stingless bee taxa, strong divergences between workers and queens are noted. Cuticular compounds can also vary between castes, and it is known that these compounds can be used as cues in recognition systems. Thus, the aim of this study was to identify chemical differences between the castes of the stingless bee *Frieseomelitta varia*. Cuticle compounds were extracted from individuals through hexane washes. The samples were analyzed using gas chromatography coupled with a mass spectrometer system (GCMS-QP2010). The results showed that the cuticle compounds were clearly correlated with castes. Some compounds were caste-specific and the qualitative concentration of compounds varied between castes. Financial support: FAPESP Proc. 05/58510-8.

Aggressive interaction in the lizard *Tropidurus torquatus* (Wied, 1820) (Sauria: Tropiduridae).

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Nearly all lizard species display some form of intraspecific aggression when they defend exclusive areas. In this work we conducted direct observations of an aggressive interaction between two males of *Tropidurus torquatus* at the Municipal Ecological Park Chico Mendes, Rio de Janeiro, in May of 2006. The interaction began at approximately 10:50 h, had a duration of 7 minutes, which was registered with photographic camera. The individuals exhibited behaviors that included chase, move away, head bob and face-off. In the beginning of the interaction, they displayed the face-off and, soon after, a chase began and continued throughout the whole period, in which both males displayed the head bob intensively. There was no physical combat and at the end of the interaction the pursued individual fled from the male that started the persecution. These observations of *T. torquatus* in the field, although preliminary, describe part of the possible aggressive behavioral repertoire of guided lizards. Financial support: CAPES.

Dispersion of *Jenipa americana*, by brown howler monkeys in a forest fragment.

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Alouatta guariba, a howler monkey from Southeast Brazil, has a diet that includes leaves, fruits and flowers. The Northwest area of the State of São Paulo has few remaining forest fragments surrounded by pasture or sugar cane plantations. The vegetation within these fragments depend on specialized fauna for reproduction. In this study we investigated the dispersion of seeds of jenipapo, *Jenipa americana* that resulted from the foraging activities of a troop of eight individuals of *A. guariba*. Twenty-five records of ripe fruit feeding were obtained within the life area of the group, with two individuals. Defecation sites were geographically located, germinated seeds were quantified and distances from the plant mother assessed. We identified 75 trees with minimum and maximum distance of dispersion of 60.4 and 423 meters, respectively. Results reinforce the importance of howler monkeys in the maintenance of habitat quality. Financial support: CNPq

Scent marking in wild groups of black tufted-ear marmoset (*Callithrix penicillata*).

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This study analysed the nature and function of chemical communication through scent-marking in *Callithrix penicillata*. In the studied group, all ocurrences of scent marking were recorded and classified according to context. We conducted 10 min 'focal animal' observation of adults and also used scan sampling of the gum tree (angico) used by the marmosets. We found no variation in scent-marking of different areas within the group´s territory (border or core) or between gender of individuals. This implies that scent-marking in this group does not have the function of territorial defense and is unrelated to a sexual context. Scent-marking in intergroup encounters was not related to eating gum, while outside intergroup encounters it was strongly related to gum consumption. This suggests that scent marking has distinct communication functions that depend upon the social context. There was no variation in scent marking among tree quadrants, but the gum tree was only marked below 2m after its third month of use, which may be associated with resource distribution in the tree.

Arrival, exit order and usage time by marmosets (*Callithrix penicillata*) in a gum tree (*Anadinathera macrocarpa*).

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Marmosets (*C. penicillata*) are food generalists, but are obligatory gumnivores. Gumnivory seems to be stratified according to age-class categories in a social hierarchy in marmosets. In a study carried out in the Jardim Botânico de Brasília, from April to September, 2005, we recorded the first marmoset that used the tree and the last one to exit from it in the morning, and also recorded the total usage time. Arrival-exit and usage time differences between males and females were investigated. Males and females did not differ in their arrival order. Males exited after females in most days. Marmoset usage of gum trees was shorter in August and September (dry season), compared to the other months. Results suggest that there is a sex-bias difference in gum tree usage and that exploration of trees is not the same along the wet and dry seasons.

Behavioral budget and basic ethogram of the wattled jacana (*Jacana jacana* Linnaeus, 1766), in pantanal Mato-Grossense.

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The Pantanal Mato-Grossense is an important ecosystem because it shelters an enormous range of fauna and flora. The Wattled Jacana (*Jacana jacana*) is a common freshwater marsh bird, the behavior of which is insufficiently known. In this study, we elucidate part of the behavioral budget of *J. jacana* in gender and age categories, and characterize the behaviors exhibited at the end of the of the dry season, through the construction of an ethogram. We conducted focal animal observations, totaling 60 hours, during four daily incursions into the Pantanal of Poconé. Ten behavioral categories were identified. Courtship and parental care were not observed since the period of the study did not coincide with breeding. The results showed a division of the budget, with foraging and moving being the predominant behaviors. Offspring explored the environment more than did the adults. Behavior was mostly centered on activities of foraging, resting and displacement.

Individual identification of estuarine dolphins *Sotalia guianensis* in the population of Cananéia, SP.

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With the goal of individually identifying estuarine dolphins, *Sotalia guianensis*, of Cananéia's region, we compared the methods of photo and video identification, observed the duration of markings and the degree of philopatry of the animals. This study was developed during June 2001 to August 2002 and August 2004 to August 2005. Dolphins' images were taken with video cameras Hi8 and MiniDV. The video images had less quality than the photos, but did not affect individual identification. Digital images presented more quality than Hi8. The costs of video identification were 60% lower than photo identification. The reconstitution of wounded areas was not observed and the scratches disappeared between one and six months. The dolphins were present in 100% of the sampled days, 66.7% was registered just once and 33.3% was registered twice or more. The great number of new identifications probably occurred because the population was either large or very fluid. Financial support: CNPq

Enriquecimento ambiental de macacos-aranha-da-cara-vermelha (*Ateles paniscus*) em cativeiros do jardim zoológico de Brasília.

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Este estudo de enriquecimento ambiental (EA) foi dividido em três etapas, de três semanas cada, de observação de três indivíduos de macaco aranha da cara vermelha: antes, durante e depois do EA Houve uma diminuição significativa no comportamento de vocalização (p£0,05) e autolimpeza (p£0,05), na presença do EA e depois de sua aplicação, sugerindo um efeito de longo prazo sobre esses comportamentos. Os animais demonstraram um aumento significativo da locomoção nos dias nublados e de esconder-se nos dias de chuva. O macho apresentou em comparação as fêmeas um número significativamente elevado de comportamentos anormais e um reduzido número de locomoções. Quanto ao tipo de enriquecimento, as garrafas-problemas (c/frutos) foram mais motivantes. O maior interesse pelo EA diminuiu a vocalização e a impulsividade na autolimpeza comportamental, sem atenuar os comportamentos ativos. Órgão Financiador: FUNPEB e IP – UnB.

Agonistic behaviour in the neotropic cormorant (*Phalacrocorax Brasilianus*).

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The Neotropic Cormorant belongs to the group of aquatic birds known as cormorants. They have a wide distribution in all Neotropical regions and in North America. The main objective of this study was to describe the behaviours and vocal patterns for this species. The study was conducted in Curitiba, at the São Lourenço Park and in the "Ilha do Rato", Guaratuba between the years of 2000 and 2004. We described five behaviours and compared them between the two areas. The six vocal patterns obtained presented tonal note and no modulation of frequency. Other variables included variations in frequency, time and intensity. The birds avoid the direct confrontation (17.7%, N=141) and used alarm call together with vocalization (63.9%, N=141). These were more successful than the use of alarm calls only (18,4%, N=141) to intimidate or banish an intrusor. We were able to demonstrate the effectiveness of different vocalization patterns during agonistic behaviour. Financial Support: CAPES

Análise do tempo de pastejo ao longo do dia entre raças bovinas, nas épocas chuvosa e da seca.

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O estudo do comportamento de pastejo auxilia na resolução de problemas relacionados com a diminuição do consumo em épocas críticas. Este trabalho consistiu em avaliar o tempo de pastejo nos períodos de seca e chuvas. O estudo foi realizado na Estação Experimental de Zootecnia de Sertãozinho, avaliando o tempo de pastejo de doze novilhas (6 Nelores e 6 Caracus). O comportamento das novilhas foi registrado por 72 horas em cada um dos períodos estudados, com registros a cada a cada cinco minutos. No período de chuvas a atividade de descanso foi mais freqüente e com maior duração, provavelmente devido à alta oferta de forragem nesse período. Entretanto, não houve diferença (P=0,223) entre o tempo de pastejo dos dois períodos (25,31±23,11 e 23,95±23,25 minutos de pastejo/hora, no período seco e chuvoso, respectivamente). Esse resultado sugere um padrão de comportamento de pastejo fixo independente da época do ano.

Influência da dispersão de malhadouros nas pastagens na distribuição de excretas de bovinos

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A maioria dos autores defende que o pastejo dos animais tem papel importante na movimentação dos nutrientes, porém a distribuição dos *malhadouros* (lugar onde o gado costuma dormir, em lotes) também pode influenciar na distribuição dos mesmos, dado o maior acúmulo de fezes. Objetivamos demonstrar que áreas de malhadouro não são fixas e que podem contribuir na

distribuição de excretas na pastagem. As observações foram realizadas na Estação Experimental de Zootecnia de Sertãozinho, com 11 novilhas da raça Nelore. Foi utilizado o índice de dispersão (ID = variância/média) para determinar o grau de agregação dos animais no piquete durante os períodos de descanso. Verificou-se que o ID diferiu entre os períodos diurno e noturno, com maior agregação dos animais a noite. Por outro lado, houve maior freqüência de excreção durante o dia (entre 6:00 e 18:00h). A combinação de maior defecação com menor ID (animais menos agregados durante os períodos de descanso) no período diurno, resultou em melhor distribuição das placas de fezes durante o período de pastejo. Financiamento: FAPESP

Características do ambiente e o comportamento de *Hydrochaeris hydrochaeris* (Rodentia).

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Não há estudos de campo com capivaras no estado do Espírito Santo. Estudamos capivaras em duas áreas da Escola Agrotécnica Federal de Colatina representando diferentes micro-habitats. Foram feitas gravações em vídeo e observações do comportamento (varredura instantânea) em 270 horas de trabalho de campo. Os menores grupos e indivíduos solitários foram avistados mais freqüentemente no ambiente com vegetação mais fechada, terreno em declive e presença de lago perene. Os maiores grupos foram freqüentemente avistados no ambiente mais aberto, com vegetação esparsa e sazonalmente inundável. No ambiente mais fechado os animais foram avistados freqüentemente na postura sentado e na área mais aberta, freqüentemente pastando. Independentemente do local, no período da manhã os animais foram observados freqüentemente na postura deitado (descanso) e, à tarde, pastando. Concluímos que áreas de vegetação mais fechada limitam o tamanho do grupo e que em grupos menores os indivíduos podem passar mais tempo em vigilância (sentado). Agência Financiadora: FAPES, Apoio: Universidade Federal do Espírito Santo.

Interação entre as formigas *Pseudomyrmex triplarinus* e *Acromyrmex subterraneus* em diferentes alturas de *Triplaris americana l.*

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A interação mutualística mirmecofilica ocorre entre a planta *Triplaris americana L.* (novateiro) e a formiga da espécie *Pseudomyrmex triplarinus*. Avaliamos se o tempo que *P. triplarinus* leva para retirar um invasor (tempo de ataque) varia em função da altura que este é posicionado no tronco. A espécie utilizada no experimento como invasora foi a formiga *Acromyrmex subterraneus*. Selecionamos nove plantas de tamanhos equivalentes, três para cada altura pré-determinada (0,50m; 1,00m; 1,50m). Em cada árvore colocamos um indivíduo de *A. subterraneus* e cronometramos o tempo até o ataque de *P. triplarinus*. Não houve diferença significativa entre o

tempo médio de ataque entre as diferentes alturas (75±18, 88±80 e 60±56 segundos, respectivamente). Concluímos que a altura do invasor no novateiro não influencia no tempo que os indivíduos de *P. triplarinus* levam para defender a planta.

Cooperative nest building increases juvenile survival in the social pseudoscorpion *Paratemnoides Nidificator* (Arachnida, Atemnidae)

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The building of a silk chamber is a common behavior in pseudoscorpion nymphs, the functional value of which has not been tested. Nymphs of *Paratemnoides nidificator* build the chamber cooperatively. Here we describe the silk chamber building and test its functional value. Experimental petri dishes contained 3-5 deutonymphs (N=10; control-group; allowed cooperate); Single builder (1 deutonymph; N=12); Impeded to Build (1 deutonymph; N=12). Observations were made using a sequential sampling method. Building behavior rigorously followed a sequence of four stages, independently of communal or single mode. In Group treatment, all building stages were completed and juvenile survival reached 85%, while Single Builder group stopped at second or third stage and had 66.66% survival. In Impeded to Build group survival was 41.66%. We suggest that the silk chamber increases the nymphs' survival probably acting as a physical protection against predators, parasites, desiccation and moulting. Financial support: CNPq and FAPEMIG.

Daily pattern of vigilance-associated behaviors in captive black tufted-ear marmosets (*Callithrix penicillata*)

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Marmosets, which belong to a family of small neotropical primates, demonstrate high levels of vigilance, partly due to elevated rates of predation. This highly complex anti-predation strategy, however, is poorly understood. Therefore, this study determined the daily pattern of vigilance-associated behaviors (scan, glance) in ten heterosexual pairs of captive black-tufted-ear marmosets (*Callithrix penicillata*). Subjects (n=20) were observed in their homecages during five distinct periods along the day. For each period, four 20-min observation sessions were held and the following behaviors scored: aerial/terrestrial scan, aerial/terrestrial glance, foraging and locomotion. Marmosets were found to maintain high basal levels of vigilance, regardless of the period of the day. Furthermore, males and females did not differ significantly for any of the behaviors scored. However, distinct vigilance profiles were observed when each pair was analyzed separately. Thus, the general vigilance profile of captive individuals of this species may be more influenced by specific pair-bonds, than by gender.

Social relationships of collared peccaries (*Tayassu Tajacu*) in an intensive production system

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The collared peccary (*Tayassu tajacu*) is one of the most promising candidates for domestication among American wildlife. Until now, knowledge on its social organization in captivity is still controversial. The present study attempts to determine social relationships in six groups of collared peccaries in an intensive production system. From June 2004 to December 2005, behavioral observations were conducted in the experimental farm of EMBRAPA-Amazonia Oriental (Belém, Pará). A total of 18,158 interactive acts were recorded with a digital camcorder. Interactive acts were mainly amicable (88%). When becoming older, males engaged in more sexual interactions, preferentially with old females. Older sows were more aggressive than younger ones. Dominance relations were evidenced in all groups, based on the frequencies of agonistic and submissive behaviors, but no linear hierarchy was detected. The high sociability of the species confirms its potential for domestication.

Influence of courtship and sexual behavior on the reproduction of females of captive collared peccary (*Tayassu Tajacu*)

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Females of collared peccaries bred in an intensive production system have heterogeneous reproductive performances. Such differences are probably influenced by social factors. We investigated how the reproductive performances of captive females were influenced by their sexual and courtship relations with their congeners. Six groups of collared peccaries (n=41) were studied in the experimental farm of EMBRAPA-Amazonia Oriental (Belém, Pará). Adult females, less than three years old, were much less courted than older ones, independently of their cycle phase. Conversely, the courtship initiated and received by older females was related to their cycle phase and reproductive status (pregnant/non pregnant). Occasionally, behavioral observations allowed estrus detection. Some females did not show any significant courtship or sexual activity. One explanation suggested by our results is that young females are sexually inhibited by older and/or related females. Another interesting finding is that close relatives did not interact sexually, probably due to behavioural or ontogenetic mechanisms. Financial support: PIBIC/UFPA; European Union - Research for the Development, INCO-DEV; Fifth Framework Programe; (PECARI nº: ICA4-CT-2001-10045); CNPq (TAYATAJA-CNPq, n°: 471705/03); Secretaria Executiva de Ciência, Tecnologia e Meio Ambiente (SECTAM/FUNTEC/UFPA n°: 307412).

Divisão de tarefas entre as operárias de abelhas africanizadas *Apis Mellifera* durante o comportamento higiênico

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O comportamento higiênico é definido como a capacidade das abelhas detectarem e removerem as crias mortas, doentes ou parasitadas do interior das colméias. O presente trabalho objetivou verificar quais são as atividades desenvolvidas pelas operárias durante este comportamento. Para tal, foram utilizadas duas colônias de abelhas africanizadas instaladas em colméias de observação (1 higiênica e 1 não higiênica) contendo abelhas marcadas com etiquetas coloridas e numeradas para identificação individual dentro das colméias. A cada dia, uma cria operculada foi morta pelo método de perfuração e as observações foram realizadas. Utilizando-se um favo especial que permitiu uma visualização lateral das crias, foi possível averiguar que as operárias se comportaram de uma maneira bastante variável, exibindo quatro comportamentos distintos: inserção das antenas no interior das células de cria, desoperculação destas células, inspeção das crias mortas e remoção destas crias. Foi verificado que houve uma divisão na realização destas tarefas por parte das operárias em ambas as colméias, ou seja, algumas operárias especializaram-se em realizar apenas uma das quatro tarefas supra citadas, entretanto, outras realizaram duas ou até três destas tarefas, porém, o número de operárias especializadas em uma única atividade foi superior comparado com aquelas que realizaram várias atividades. Apoio financeiro: CAPES

Urine washing in primates as a response to ectoparasites

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Urine washing consists of urinating on the hands and rubbing it on the feet. This behavior is prevalent among Cebidae. Previous studies have attributed urine washing to response to irritation from ectoparasites. This study investigated the relationship between urine washing and behaviors associated with ectoparasite infestation. Data were collected through 10-min focal sampling on individuals of two free-ranging groups of *Cebus libidinosus* (N= 60 focal samplings). Results revealed that 69.5% of bouts of urine washing were followed by scratching some body part. We found a positive correlation between frequency of urine washing and scratching and between urine washing and self-grooming. These data support the hypothesis that urine washing functions as a response to ectoparasite irritation. Additional studies should investigate the relationship between urine washing and ectoparasite infestation and analyze the consequence of rubbing urine over the irritation. Financial support: CAPES.

Trees used for resting by *Bradypus variegatus* Schinz, 1825 (Xenarthra: Bradipodidae) in the Parque Centenário of Barra Mansa – RJ

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The common sloth or *Bradypus variegatus*, spends good part of its time resting. The objective of the present study was to determine the species of trees used for resting by the sloths, in a semi captivity environment. The study was conducted in the Parque Centenário of Barra Mansa city - RJ, an area of semicaptivity with 9,000m^2. The population had five males, two females, one juvenile and two babies. The study took place from August 1999 to August 2001, totaling 448 h of observations using *ad libitum* and focal animal methods. Of the 227 arboreous specimens present in the park, the group was observed resting in 10 species from seven families, with special emphasis on the Moraceae family. The best represented species were: *Ficus microcarpa*, *Ficus clusiifolia*, *Manguifera indica* and *Livistona australis*. These results demonstrate certain selectivity relative to resting places, and seem to be related to the architecture of the tree and to the potential food supply.

Resting positions presented by *Bradypus variegatus* Schinz, 1825 (Xenarthra: Bradipodidae)

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Because of its true leaf-eating habit, the sloth *Bradypus variegatus* needs to rest a great part of the day to facilitate digestion. The goals of this study were to describe and quantify the positions of resting in a population of sloths. The work was conducted in the Parque Centenário of Barra Mansa city - RJ, with a population in semi-captivity within a 9,000 m^2 enclosure. The population counted contained five males, two females, one juvenile and two babies. Monitoring occurred from August 1999 to August 2001, totaling 448 h of observations using *ad libitum* and focal animal methods. Six positions were characterized as resting, wherein the animal remained completely immobile during observation sessions, whether sleeping or not. The most common positions recorded were: motionless curled like a ball, followed by motionless seated and motionless hanging. Similarly to what has been reported in the literature, the predominant occurrence of the ball-like position may be a strategy of camouflage in the natural environment. The positions presented in this study coincide with those recorded in previous studies.

Arquitetura do ninho da vespa social *Mischocyttarus mirificus* (Hymenoptera, Vespidae)

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O gênero *Mischocyttarus* encontra-se amplamente distribuído pelas Américas do Sul e Central e possui cerca de 300 espécies de vespas sociais, as quais são pouco estudadas. O objetivo desse

estudo foi descrever a arquitetura dos ninhos de *Mischocyttarus mirificus*. Foram estudadas duas colônias de *M. mirificus*, na área rural do município de Juiz de Fora, MG. As colônias foram encontradas fixadas nos ramos de uma mangueira (*Mangifera indica*). O ninho de *M. mirificus* é constituído de material vegetal, o que lhe confere uma coloração acinzentada. Suas células formam uma única fileira vertical, que se prende ao substrato através de um pedúnculo. As vespas, quando não estão ativas (início da manhã e final da tarde), assumem uma postura inclinada, formando um ângulo de 45º em relação ao eixo do ninho. Essa postura é reforçada pela posição das asas, que permanecem estendidas em um ângulo de 90º graus em relação ao corpo. Os autores acreditam que a arquitetura do ninho somada a postura das vespas, caracterizam uma estratégia de proteção contra os inimigos naturais, através da camuflagem. Apoio Financeiro: UFJF, CNPq e CAPES.

Behavioral enrichment reduces stereotypic pacing in maned wolves (*Chrysocyon brachyurus*)

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Pacing is a conspicuous stereotypic behavior displayed by maned wolves (*Chrysocyon brachyurus*) kept in captivity. In order to evaluate the effectiveness of a feeding enrichment technique on the extension covered in pacing, two maned wolves, in the Zoo of São Bernardo do Campo, were observed daily during a period of 16 weeks, with an 8-week enrichment period alternating with two 4-week control periods. Enrichment consisted of placing food items on tree branches, in cloth bags, in boxes, in PVC tubes or hiding them amidst the vegetation. A record was kept of onset time of pacing, duration of pacing bouts and distance covered. A significant reduction in the extension covered during the pacing performance was obtained under enrichment relative to control conditions. It remains to be determined if such enrichment technique has sustained effects on the behavior of maned wolves. Financial support: FAPESP.

Feeding behavior in pampas cat (*Oncifelis colocolo*)

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Considered rare in wildlife and captivity, the species *Oncifelis colocolo* has a wide distribution in South America. I conducted a 9-day study of feeding behavior of two females, divided into three phases, in which the animals were offered: 1) a recently killed prey item (rat); 2) camouflaged rat; 3) live rat within a pipe. Differences were found both between the tested animals and the experimental phases. The highest interaction time occurred in phase 3, followed by 1 and 2. One of the cats exhibited a higher time of interaction than the other in all the phases, with larger differences in the third one. One took 10 minutes to kill the rat and 18 until starting to ingest it and another one killed it and began to ingest it 2 minutes later. Thus, despite similar conditions of captivity, there were observed differences in behavior, influenced by the way the food was supplied. Financial support: Associação Mata Ciliar (AMC).

Estudo preliminar das associações entre o boto-cinza (*Sotalia guianensis)* e as aves marinhas na região de Cananéia, SP

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Associações entre aves marinhas e cetáceos são relativamente comuns, porém, pouco foi estudado a respeito destas envolvendo o boto-cinza (*Sotalia guianensis*). No período entre maio e agosto de 2006, foram descritas e quantificadas as associações entre os botos e cinco espécies de aves a partir de um ponto-fixo na Ilha Comprida, totalizando 62 horas de esforço de campo, sendo 73,79% de observação direta dos botos. Amostragens preliminares foram feitas através do método *Ad libitum* e posteriormente por amostragem seqüencial com registro contínuo. As interações estiveram sempre associadas a comportamentos de pesca dos botos e as espécies de aves envolvidas foram: trinta-réis (*Sterna sp.*), em 42,85% do total de interações; atobás (*Sula leucogaster*) em 26,61%; biguás (*Phalacrocorax brasilianus*) em 4,76%; gaivotas (*Larus dominicanus*) e fragatas (*Fregata magnificens*), ambas em 1,19%. Os resultados ressaltam a importância de estudos mais aprofundados que indiquem como tais inter-relações contribuem para a dinâmica da comunidade.

New data on the ontogenetic growth in Mesosaurids (Amniota) from the Irati Formation (Permian, Paraná Basin): diferential humeri growth

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Extensive collecting of mesosaurid remains in the last decade, specifically from three classical Permian localities in São Paulo State (Tietê, Laranjal Paulista and Rio Claro municipalities), has revealed specimens of the three generally accepted species, at diverse stages of ontogenetic growth: *Stereostermum tumidum* Cope, *Mesosaurus tenuidens* McGregor and *Brazilosaurus sampauolensis* Shikama & Osaka. The size of the specimens vary from 5 cm to 1 m or more. Comparing the morphology and shape of the humeri of adults as well as young specimens of the three species we observed that all three adult species exhibit a humerus morphology very distinct from the femora, with the distal part notably wider than the proximal one; the femora of the three species exhibit the distal part as wide as the proximal one, narrower at mid length; this occurs both in adult and young specimens. *Stereostermum tumidum* exhibits a distinct ontogenetic pattern of growth on the humeri: in young specimens the humerus is morphologically indistinct relative to the correspondent femur, changing for a typical morphology along growth. These data reveal that only *S. tumidum* could have a distinct paleobiomechanical pattern while young, with a distinctive posture and gait, and due to this, a distinct paleobehaviour.

Paleotanatosis: a new and fertile field of animal behaviour research

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Tanatosis is one of the more interesting behaviours exhibited by invertebrates, due the fact that it can be readily observed in nature and presumed with relative precision in fossils. There are incontestable cases of derivation of tanatosis preserved in fossils, as is the case of curling behaviour (not properly tanatosis but a derivation of it: a defensive behaviour). Several arthropods such as myriapods, diplopods, isopods and trilobites exhibit this adaptation, a variation of true tanatosis, wherein the animal protects its vital and important body parts, remaining immobile until the total disappearance of the situation that generated the behaviour. Several trilobites have curling ability, forming a defensive ball or capsule, effectively protecting vital body parts, including ventral ones, while simultaneously exhibiting a pseudo-aggressive posture that repels predators.

"Death Behaviour" (Thanatoethology) in fishes from the santana formation (Lower Cretaceous, Northeast Brazil)

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Taphonomy (*tafos*, death, *nomia*, laws), is a term that originally meant "the laws that drive death", from the organism's existence in the biosphere, either living (biocenosis) or dead (thanatocenosis), until it passes into the lithosphere, when the organism is buried and transported (taphocenosis), until it is fossilized, when it becomes part of a site (orictocenosis). Thanatoethology could be interpreted as the intermediate stage between biocenosis and orictocenosis or "death behaviour". A slab of laminated limestone wich comes from the sediments of the lowermost unit of the Santana Formation (Crato Member), Araripe Basin, reveals a typical eight-shaped mark, that can be attributed to fishes of the genus *Dastilbe*, moments before its definitive death (Thanatoethology), in agony through asphyxiation.

Paleoethological inferences in fossil crickets: the evolution of musicality

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Cricket song has an important role that varies for each species, wherein the more significant differences occur in the rhythm. Different songs are species-specific, and this is also applicable to fossil species: different morphological aspects of the stridulatory apparatus to produce songs represent different paleospecies. Paleontological fossil records contain ancestors of recent crick-

ets, dating back 300 to 350 m.y.b., presenting wings with rudimentary lime (the "Z" of the stridulatory apparatus), resulting in muteness. Just after the Jurassic period (around 180 m.y.b.) there is the emergence of crickets with rudimentary harp and chords in the fossil record. What was still lacking was the amplificator (speculum), which appeared in the crickets circa 110 m.y.b (Cretaceous period). Thus, the musical capacity of these insects evolved through time, until attaining the present stage.

Behaviour of hens (*Gallus gallus* l., 1758) kept in laboratory conditions

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Although the relationship between humans and domestic animals initiated a long time ago, certain aspects lack deeper studies. The objective of this study was to describe the behaviour of hens under laboratory conditions. Eight individuals were kept in separate cages in the Advanced Laboratory of Zoology of UFJF. Observations were made for seven consecutive days. Each animal was observed for 30 minutes in the morning and in the afternoon using the scan sampling methodology, with a one min gap. Sixteen types of behavior were identified: lying, motionless, eating, investigating feathers, exploring, apathetic, pecking newspaper, vigilant, drinking, stepping on one leg, cleaning, scratching, eating newspaper, ground scratching, stretching and wing flapping. We found significant differences in the frequency of behaviors among individuals. Lying down was the most frequent behaviour (11.26 ± 9.06), followed by eating (4.73 ±4.96) and motionless (4,18 ±4.96). The low activity level observed was related to the confined environment and lack of proper stimulation, suggesting that captivity influences behavior. Financial support: CAPES, CNPq and UFJF.

Effect of environment enrichment on the behavior of hens (*Gallus gallus* l. 1758) kept in laboratory conditions

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Captive animals are exposed to environmental deprivation resulting in abnormal behavior indicating stress. The objective of this study was to evaluate environmental enrichment effects on the behavior of hens kept in the laboratory. The experiment was carried out in May /June 2006, at Advanced Laboratory of Zoology- UFJF. Observations were conducted during four weeks, I (control), II (addition of perches), III (addition of sand) and IV (addition of pastures). Eight cages with one individual each were observed during 30 minutes (morning and evening), using the scan sampling method. We found significant differences relative to frequency of interactions in the different types of enrichment. The animals exhibited the following mean interaction: pastures (19.63 ± 4.83), sand (15.25 ± 4.28) and perches (4.70 ± 8.01). During

week II animals showed more frequent abnormal behavior (11.87± 6.80) than during others (week I: 8.41 ± 4.90; week III: 4.06 ± 4.43; week IV: 1.79 ± 1.72). These results suggest that environmental enrichment for hens decreases abnormal behaviors. Financial support: CAPES, CNPq and UFJF.

As cores de *Apistogramma hippolytae* (Perciformes, Cichlidade)

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A coloração em ciclídeos tem um importante papel na comunicação intra e interespecífica. Embora a mudança de coloração de acordo com o humor dos ciclídeos seja conhecida pelos aquaristas, não se conhece nenhum trabalho que relacionou quantitativamente as atividades executadas com as cores exibidas pelos indivíduos, buscando inferir o humor do animal. O presente estudo objetivou preencher essa lacuna, utilizando *Apistogramma hippolytae* como objeto de estudo. O trabalho foi desenvolvido na Amazônia Central, utilizando-se observações diretas através de mergulho livre. Foram realizadas cinco horas de observação com o método animal focal. Caracterizou-se seis padrões de coloração em *A. hippolytae* de acordo com a atividade executada: alimentação, repouso e fuga, agressão, display agonístico, display sexual, cuidado parental. As mudanças eram rápidas, permitindo os indivíduos se adaptarem às situações. Conclui-se que a coloração pode indicar o humor do animal, refletindo modificações fisiológicas e comportamentais. Apoio financeiro: PET – SESu/MEC e PDBFF – INPA/Smithsonian Institution.

Não tampe seus olhos para o bem-estar animal, tampe os olhos dos bovinos

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O objetivo foi analisar o bem-estar de bovinos durante a aplicação de medicamentos. Os grupos controle (Co), olhos destampados, e tratamento (Tr), olhos tampados, foram compostos por 31 e 32 animais, totalizando 382 e 423 medidas, respectivamente. Conduziu-se os animais ao tronco e os animais Tr tinham seus olhos tampados imediatamente. Registraram-se os comportamentos: forçar a saída pela frente (FF), por trás (FT) e movimentar a cabeça (MC). A reatividade (Re) foi registrada através da movimentação dos membros, empregando-se os escores: 0-imóvel, 2-movimento e 3-coice.O tempo da entrada à saída do animal do tronco (TA) foi medido. A moda definiu o comportamento dos grupos. Animais de Tr apresentaram Re 2 e não apresentaram FT. Já em Co, ocorreram Re 4, FF, FT e MC. Os TA médios foram diferentes ($P<0,05$): Co= 152 e Tr= 133 s. Para prejudicar menos o bem-estar dos bovinos, esses devem ter os olhos tampados durante a aplicação de medicamentos.

Reconhecimento de cores e formas por peixes apanhadores de superfície: um estudo piloto com o paulistinha *Danio rerio*

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Danio rerio é um peixe tropical que pertence à família Cyprinidae, conhecido popularmente no Brasil como Paulistinha. Freqüentemente é usado como modelo em diversos estudos, incluindo aqueles sobre visão em peixes. O objetivo do experimento foi analisar a percepção de cores por *D. rerio*, substituindo a ração em flocos por lantejoulas de diferentes cores. Utilizando-se lantejoulas pretas como controle, percebeu-se que o peixe ataca principalmente a cor vermelha, em seguida a verde e não ataca a azul. Para o reconhecimento de forma, utilizou-se uma formiga morta com tamanho e cor similar ao da lantejoula. Foi observado que apenas um indivíduo avançou sobre a formiga, e pareceu que o peixe não reconhece a formiga como sendo diferente da lantejoula. Conclui-se que *D. rerio* é capaz de reconhecer bem as cores preta e vermelha, menos a cor verde, mas não é capaz de reconhecer a cor azul. Apoio financeiro: PET – SESu/MEC.

Bem-estar de vacas leiteiras: escolha a via de aplicação adequada no controle de doenças

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O objetivo foi definir a via de aplicação que menos prejudica o bem-estar dos animais no controle da mastite. Empregaram-se 47 animais e um total de 800 aplicações distribuídas entre a via intramuscular (IM), intramamária (IMM) e subcutânea (SC), respectivamente: 98, 118 e 584. Conduziu-se e contiveram-se individualmente os animais em um tronco, registrando-se os comportamentos: forçar a saída pela frente (FF), por trás (FA), movimentar a cabeça (MC) e reatividade (Re). A reatividade foi registrada através da movimentação dos membros, empregando-se os escores: 1- imóvel, 2- movimento membros posteriores, 3- movimentos de todos os membros e 4- coice. A moda foi utilizada na definição do comportamento referente à via de aplicação. A aplicação IM causou desconforto no tronco, evidenciando FF, FA, MC e Rea 4. Na via SC, os animais apresentaram Rea 2. Já na via IMM, os animais mantiveram-se quietos, prejudicando pouco o bem-estar dos animais durante a ação.

Tabela de vida e divisão de trabalho de *Melipona scutellaris* (Hymenoptera, Apidae, Meliponini)

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Uma colônia de *Melipona scutellaris* foi observada quanto às respostas dos indivíduos aos estímulos que geram a divisão de trabalho e a homeostase da colônia. Através de observações diárias de

109 indivíduos marcados, realizadas entre 05 dez 2005 a 04 maio 2006, foi possível verificar que a idade das operárias esteve diretamente relacionada às tarefas que desempenharam. A tabela de vida indica que a média de sobrevivência foi de 70,02 ± 14,97 dias, ocorrendo maior mortalidade no intervalo de 70 – 75 dias de idade, a maior longevidade atingiu 86 dias. A tarefa de forragear iniciou por volta dos 45,5 ± 15,8 dias. As curvas de longevidade e mortalidade são características dos Apoidea e estão diretamente relacionadas com a divisão de trabalho da espécie. A divisão de trabalho contou com especializações nas tarefas de POP, trabalho no invólucro e desidratação de néctar e, com grande flexibilidade comportamental, havendo ajuste das ações das operárias às necessidades da colônia. Apoio financeiro: CNPq, Fapesp.

The influence of hoarding site on searching behavior of the spider *Argiope argentata* (Fabricius)

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Orbweb spiders hoard prey at the periphery of the web when ingesting previously caught insects and use searching movements to locate and retrieve such prey. To assess the influence of hoarding site on searching behavior, 10 spiders (*Argiope argentata*) were tested in a successive capture paradigm in which a second fly (f2) was offered and hoarded at the upper or lower part of the web (on a vertical axis), during ingestion of a first fly (f1) at the hub. Latency and duration of searching f2, elicited by the removal of f1, and other performance parameters, were obtained from videotaped records of capture sequences with upper and lower hoards. There was no difference in searching parameters for both conditions, a result that suggests that there are no sensorial or motor differences due to hoarding site and no bias towards quicker retrieval of prey hoarded at the lower part of the web. Funding: FAPESP, CNPq.

Comportamento de defesa do ninho por cupins arbóreos (*Constrictotermes cyphergaster*)

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Cupins arbóreos (*Constrictotermes cyphergaster*) são isópteros eusociais e a produção de soldados com estratégia de defesa química tem elevado custo energético. Foi avaliado o comportamento de defesa de cupins arbóreos no cerrado sentido restrito do Parque Estadual da Serra de Caldas Novas-GO (17°30'-18°00'S e 48°30'-49°00'W). Em 29 cupinzeiros, 17 danificados e 12 intactos, foi feita uma injúria de 2x2cm e contado o número de soldados que apareceram na superfície durante cinco minutos. O número de soldados alocados para defesa não variou entre cupinzeiros previamente danificados (8,0±14,7) e intactos (8,0±10,6). Entretanto, cupinzeiros sombreados foram melhor defendidos (4,0±17,7 soldados) que aqueles expostos ao sol (8,0±10,7 soldados). Cupins têm corpo mole, sensível às variações de temperatura e umidade. Quando o cupinzeiro é exposto ao sol, os cupins deslocam-se para porções mais internas deixando a superfície vulnerável aos predadores. Assim, a termo-regulação parece ser mais importante do que a atividade de defesa do ninho. Agências Financiadoras: PPGE/UnB, CAPES e CNPq.

Cupins arbóreos (*Constrictotermes cyphergaster*) preferem alguma espécie de árvore para nidificar?

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Cupins arbóreos (*Constrictotermes cyphergaster*) constroem ninhos conspícuos nos troncos de árvores, mas seu comportamento de nidificação é desconhecido. Foi avaliada a preferência de nidificação do cupim por espécies arbóreas no Parque Estadual da Serra de Caldas Novas-GO (17°30'-18°00'S e 48°30'-49°00'W). No cerrado sentido restrito, foram identificadas as hospedeiras de 94 ninhos, e estimada a freqüência de espécies arbóreas utilizando-se ponto-quadrante, em 36 pontos distribuídos em seis transectos de 50m. A freqüência relativa das hospedeiras foi comparada à freqüência de ocorrência das espécies na comunidade arbórea. Apenas 14 das 24 espécies tiveram ninhos, sendo as preferenciais *Qualea grandiflora*, *Bowdichia virgiloides* e *Pouteria ramiflora* ($\div^2$=67,25; p<0,001) . Destas, *Q. grandiflora* foi a mais freqüente na área de estudo, e *B. virgiloides* a décima. Em 76% dos casos as hospedeiras tiveram casca rugosa. A escolha da hospedeira por um cupim arbóreo não é aleatória, dependendo de fatores específicos como a textura da casca. Agências Financiadoras: PPGE/UnB, CAPES e CNPq.

Natureza humana: imutável, boa, egoista, incontrolável e indefectivel?

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É consenso nas Humanidades que a Biologia tem pouco a dizer sobre o comportamento humano. Para se conseguir uma maior integração entre as ciências é necessário apontar as razões históricas e conceituais que originaram essa aversão e propor soluções. Através de análises documentais por levantamento de livros de expoentes na biologia, como Gould, Ridley, Pinker e Mayr, identificamos abusos históricos, como o darwinismo social, eugenia e nazismo, fortemente atrelados a cinco mal-entendidos frente à Biologia do comportamento humano: determinismo genético, falácia naturalista, confusão entre níveis de causas, fatalismo incontrolável e seleção natural como perfeccionista. Estes mal-entendidos se originam do medo infundado de que uma natureza inata no homem inevitavelmente justifique comportamentos detestáveis como discriminação, opressão, guerra, estupro, nepotismo, com isso eximindo a culpabilidade do indivíduo e impossibilitando qualquer tentativa de reforma social. Contextualizar e superar os mal-entendidos à luz da Biologia moderna é um meio de integrar as ciências. Agencias financiadoras: CNPq, CAPES

Behavioral response of brown capuchins to environmental enrichment in the municipal zoo Parque Jacaranda, Uberaba, MG.

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Brown capuchins are known for their cognitive capacity. In a study on environmental enrichment, the behavior of one male and two female captive individuals in an 18m² enclosure was registered by focal-animal sampling with intervals, with a total of 20 h before enrichment and 60 h after enrichment. Banana, bamboo and palm tree leaves, branches, grass, falling leaves, paper towels, toilet paper, tissue paper, tracing paper, telephone book, newspaper, magazines, fabric, tubes, carton boxes, coconut shells, cardboard boxes, mirrors and dolls were introduced into the enclosure. Food was offered as single pieces and unpeeled inside boxes, tubes, bags. *Cariniana* spp. Seeds were spread on metal mesh and frozen like a popsicle. Diet was diversified with watermelon, guava, ears of corn, kaki, manioc, chayote, tomatoes, grapes, mulberry, hibiscus (*Hibiscus* sp.) flowers, honey and herbs. Although they displayed a great interest towards all items, stereotypic behaviors, such as masturbation and rocking back and forth, were not reduced.

Effects of enviroment enrichment and visitation on the behavior repertoire of Brasília Zoo's hoary-foxes (*Peudalopex vetulus*)

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Environment enrichment has been used for the improving the quality of life of captive animals. Our objective was to investigate the effect of environmental enrichment and of visi tation on the behavioral repertoire of Brasília's Zoo's hoary-foxes. Observations were made before, during and after enrichment; each period had the duration of three weeks. Presence of enrichment did not produce significant alterations in the behavioral repertoire. However, we observed that there was a positive correlation between the number of visitors and locomotion, "self-scratching" and "tail-raising" records. Positive correlation was also observed between the visitor's time of permanence and "trotting" behavior. Animals only displayed interest toward environmental enrichment during the night, which was noticed by verifying the effects of manipulation on enrichment items in the following morning. Results suggest that enrichment might be applied and observed without the presence of visitors and at night.

Does boat traffic interfere with estuarine dolphin's (*Sotalia guianensis*, Cetacea, Delphinidae) behavior?

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The objective of this study was to verify the relation between boat traffic and dolphins´ behavior. The studied area was in Baía de Paranaguá, a bay of the Paraná State coast. We observed seven types of behaviors associated to boat traffic. The observed boats were classified in three types: motorboats, diesel engine boats and jet skis. The behaviors considered as negative interactions were of avoidance, such as "Deep Dive", "Prolonged Dive", "Escape Jump" and "Grouping". The behaviors considered as positive interactions were "Stay", "Return" and "Surf". Results show that the behaviors were independent of the type of boat. In general, there were four times more negative interactions than positive interactions, and the motorboats were responsible for most of the negative interactions. The impact caused by motorboats and jet skis is greater than the one caused by diesel engine boats, because of their moving speed. Despite the negative interactions with boat traffic, the dolphins do not leave the area.

Escape distance of estuarine dolphins (*Sotalia guianensis*, Cetacea, Delphinidae) related to boats

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This study was conducted in Baía de Paranaguá, a bay of the Paraná State coast. Escape distance was observed when the estuarine dolphin showed avoidance behavior with boat traffic. It occurred with different types of boats at different speeds, especially with motorboats and jet skis. Considering only the type of engine of the boats, in general, the rough average of the escape distance was smaller for the jet skis, followed by motorboats and diesel engine boats. The rough average escape distance for motorboats, was inversely proportional to speed, thus, the higher the speed, the smaller the escape distance. This probably occurred because when the boats were at high speed, the estuarine dolphin did not have time to escape before the boat approached. The variation in the average of the escape distance for different kinds of boats depends on the type of engine and speed.

Comportamento lúdico de gato-do-mato pequeno (*Leopardus tigrinus*) frente a alimentação

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O comportamento lúdico é freqüentemente realizado por filhotes, sendo um comportamento instintivo para a sobrevivência. Este estudo tem o objetivo de quantificar a presença deste comportamento em *tigrinus* adultos, que fazem parte de um projeto de reintrodução. Os testes foram realizados no Zoológico de S. Paulo. Através de observações "*ad libitum*" realizou-se 68

testes, de 20 minutos, com um macho e uma fêmea em recintos distintos, onde foi observado e comparado o comportamento lúdico frente a presas vivas: pintinho, preá, rato e gerbil. Verificou-se maior freqüência de comportamento lúdico no macho: 92% em relação a 8% da fêmea. Os comportamentos executados pelo macho foram: perseguição 26%; patadas 26%; lançar presa 17%; mordiscar 15%; manipular a presa dorsalmente 4%; carregar presa 3%; cheirar 1%. Enquanto na fêmea se observou: lançar a presa 3%; mordiscar 3%; manipular a presa dorsalmente 1% e sacudir 1%, de todos os comportamentos realizados pelos animais.

Comportamento de gato-do-mato pequeno (*Leopardus Tigrinus*) e gato-mourisco (*Puma yagouaroundi*) frente a fezes de presa (cobaias) (*Cavia Porcellus*).

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Este trabalho tem como objetivo conhecer as respostas de *Leopardus tigrinus* e *Puma yagouaroundi* frente aos odores de fezes de presas. Os testes foram realizados no Zoológico de São Paulo. Através de observações «*ad libitum*» realizou-se 15 testes, de 30 minutos, com cada espécie, onde foi observado o comportamento dos felinos frente ao estímulo odorífero, constituído de 1 grama de fezes de presa diluída em 6 ml de água destilada . Constatando-se maior incidência de 'pacing' em *tigrinus,* 11 minutos, contra 8 segundos em *yagouaroundi*. Para 'tempo de descanso' os valores são: 11 minutos para o *tigrinus,* e 8 segundos para o *yagouaroundi*. O comportamento 'cheirar' foi realizado por 8 segundos pelo *tigrinus* e por 3 segundos pelo *yagouaroundi,* e a 'aproximação ao aparato-estímulo': 12 segundos em *tigrinus* e 0,8 segundos em *yagouaroundi*. As duas espécies dedicaram pouco tempo na exploração do odor de presa.

Estimativa da habilidade materna em éguas da raça pantaneira através do tempo de mamada

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Este trabalho teve como objetivo estimar a habilidade materna em éguas da raça Pantaneira através do tempo de mamada. Utilizaram-se 30 éguas com potro ao pé com idade média de 7,2±1,92 ano. Nove observadores foram distribuídos em turnos de 6h/dia, anotando-se o tempo da mamada, horário, clima, égua, sexo do potro, interrupção da mamada realizada pelo potro/égua. Não houve associação entre o tempo de mamada e o horário (manhã ou tarde), bem como horário e interrupção da mamada, independente do potro ou a égua interromper a mamada. Observou-se tempo médio de mamada (n=746) de 1,14 ± 0,59 minutos com coeficiente de variação de 42%. Houve associação (X^2, P=0,001) entre ordem do parto e tempo da mamada, evidenciando que a habilidade materna das éguas primíparas é inferior as demais éguas com idade superior a 4,5 anos ou mais de duas crias, decrescendo após os sete anos ou mais de cinco partos.

Comportamento sexual de garanhão da raça de pantaneira em monta natural

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Este trabalho teve como objetivo realizar observações do comportamento sexual de eqüinos em monta natural a campo. Utilizaram-se um garanhão e 30 éguas, da raça Pantaneira, em estação de monta (EM) com duração de 90 dias (Novembro a Janeiro) no Pantanal. As observações foram realizadas de acordo com o método focal, anotando-se todas as manifestações sexuais realizadas pelo garanhão a cada meia hora. Utilizaram-se seis observadores montados a cavalo, distribuídos em intervalos de 6h/dia durante 21 dias ininterruptos. Os resultados revelaram não haver diferença significativa (P=0,108) entre períodos de monta, sendo 25,64%, 18,66%, 27,33% e 28,18%, para os períodos da manhã, tarde, entardecer e noite, respectivamente. Observou-se taxa de prenhez de 80% nos primeiros 21 dias da estação de monta, indicando que o garanhão da raça Pantaneira suporta uma relação garanhão: égua superior a 1:30 em uma EM de 120 dias de duração sem causar prejuízos a fertilidade geral do rebanho.

O efeito do cuidado infantil em orçamentos de atividade de micos-leões-dourado selvagem na Reserva Biológica Poço das Antas, Brasil

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Os orçamentos de atividades são informativos porque podem refletir limitações em tamanho de corpo ou exigências energéticas e podem indicar padrões de investimento individual em sobrevivência ou reprodução. Investigamos o efeito do cuidado infantil em orçamentos de atividade de mico-leõs-dourado selvagens (*Leontopithecus rosalia*; MLD). De janeiro de 2004 a dezembro de 2005, dados de comportamento foram coletados usando amostragem focal em 5 grupos de MLD. Em média, MLD usou 42,7% do tempo comendo ou procurando frutas e presa animal, 26,5% descansando, 14,7% parado porem alertas, 12,5% viajando (que inclui locomoção enquanto procuravam comida), e 3,6% em atividades sociais. Entretanto, quando infantes estavam presentes no grupo, o tempo gasto comendo/procurando frutas diminuiu enquanto viajando e atividades sociais aumentaram. Os indivíduos carregando infantes diminuíram o tempo gasto comendo/procurando frutas assim como presa animal, e aumentaram tempo em que estavam estacionados e alertas, uma mudança que pode conservar energia e aumentar descoberta de predadores. Como predissemos, fêmeas reprodutivas carregando infantes diminuíram o tempo gasto viajando. Em contraste, machos adultos carregando infantes aumentaram o tempo gasto viajando. A diferença de sexo pode ser explicada por limitações energéticas em fêmeas lactantes e o maior tamanho de corpo dos machos.

Do males of *Junonia evarete* defend territories?

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Junonia evarete is a butterfly that often lands with open wings by paths or roads, exhibiting eye-spots. In this study, I attempted to identify evidence of territory defense by *J. evarete* males in the protected area of Fazenda Água Limpa (Universidade de Brasília, DF). I registered inter- and intra-specific interactions and use of the same portion of the path during 840 min of observation. In a transect of 250m between 0800-1200, 32 individuals were sampled and 280 cases of flight were observed: 56.1% of spontaneous flight, 17.6% of intra-specific flight and 36.3% of inter-specific flight. Flights lasted between 1-300 seconds, with a mean length of 10.6±25.9s. The extension of the territory defended by these individuals varied between 3-32m (mean extension=13.5±8.7m) and the most frequent interaction was brief horizontal chases. According to these data and information available for other butterfly species, *J. evarete* males seem to defend small territories to maximize mating opportunities. Financial support: Capes.

A influência do tamanho territorial e do contato prévio entre machos de *Betta splendens* no nível de agressividade da espécie.

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O confronto é uma forma universal dos animais competirem por recursos. O objetivo deste estudo foi observar se o nível de agressividade entre machos de *Betta splendens* é influenciado pelo contato prévio e tamanho do território. O contato prévio foi feito por 24 h., posicionando-se lado a lado dois recipientes, cada um contendo um macho (sete pares ao todo). Adicionamos o par em um aquário pequeno, separando os indivíduos por uma placa de vidro por 10 minutos, e posteriormente em um aquário maior. Foram contados o número e tempo de confrontos. Todo o experimento foi repetido após sorteio de novos pares, sem contato prévio. O contato prévio teve influência sobre a agressividade apenas no aquário grande e apenas em relação ao tempo de duração dos confrontos. O tamanho do aquário teve influência sobre o tempo de duração do confronto apenas no aquário pequeno.

Efficiency of bait trap for pit-viper *Bothrops jararaca* in laboratory conditions

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Bothrops jararaca has wide a distribution in Brazil and is responsible for most snake-biting accidents. The present study was carried out with four specimens, using a wooden trap system composed of two interconnected boxes in a T-shaped design. The four serpents were arranged

in an 80m² arena. Data collection was divided into four 48-h modules of continuous observation. During the first stage, the trap without bait was visited twice. In the second stage, the trap contained a trail with rat urine and excrements; no capture was observed. In the third stage, the trail was complemented with a live rat inside the second box; this arrangement resulted in eleven captures. In the fourth stage, the live rat inside the second box did not include a trail, and no capture was observed. All specimens followed the trail and entered the second box. The rat alone was not enough as a bait. We concluded that our trap system was highly efficient, and more tests are currently being conducted in the field.

Marmosets (*Callithrix penicillata*) do not prefere right hand to feed and left hand to scratch

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Hand preference depends on the nature of the task. An increasing number of studies about non-human primate hand preference are attempting to answer evolutionary, neurological and ethological issues. Feeding is a manipulative task with a high cognitive demand. Several studies suggest that scratching is an anxiety-related behavior in primates. We observed 24 marmosets in captivity, distributed in groups of 2 or 3 individuals. We conducted observations (focal group) and recorded behaviors with a handcam during 8.5 h (15 min each session). All ocurrences of feeding and scratching were recorded. There were no significant differences between right and left hand to either feed or scratch. The results do not suggest a hand preference for feeding or scratching.

Characterization of construction of web pattern and preferential micro-habitats in *Latrodectus geometricus*, Koch 1841 in Dourados, MS

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Most spiders live in restricted environments. The limitations are set by physical conditions, such as temperature, wind, humidity, and light intensity, and also by biological factors, such as the type of vegetation, food supply, competitors, and enemies. The objective of this study was to determine the construction pattern of webs and preferential micro-habitats of brown widows (*Latrodectus geometricus)* in urban areas. We investigated webs of 23 individuals. The micro-habitat was characterized adopting temperature, wind velocity, relative humidity and light intensity. Web pattern was established by larger diameter, smaller diameter, height/ground and height/web. The diurnal micro-habitat period averages were: 27.72ºC ± 0.75; 4.58 mph ± 14.31; 45,91% ± 14.70; 999.23 lux ± 12150,91. Nocturnal: 18ºC ± 3,01; 0,015 mph ± 0,03; 75,16% ± 7,65; 2,51 lux ± 1,52. Webs presented averages: 16.56cm ± 13.21 larger diameter, 8.0cm ± 8.62 smaller diameter, 79.72cm ± 35.73 height/ground and 40.67cm ± 28.39 height/web.

A influência do hábito de fumar no comportamento reprodutivo

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A escolha do parceiro é importante para o sucesso reprodutivo do indivíduo. Para isto é necessário que os indivíduos demonstrem características que transmitam boas condições de saúde, conforme a visão sociobiologica da seleção natural. Um questionário sobre o uso do cigarro e a aceitação desse hábito em um possível parceiro reprodutivo foi submetido a 136 pessoas com idades entre 18 e 30 anos. Entre os homens, 60% disseram detestar a idéia de ter como parceiro uma fumante, 20% não gostariam e 20% disseram não se importar. Entre as mulheres, 39,51% disseram detestar, 43,21% não gostariam e 16,05% não se importariam. O estudo mostra uma maior preocupação masculina com relação a uma possível reprodução com uma parceira fumante. O maior tempo dispensado pela mãe na formação e na criação do filho devido a sua dependência materna, pode estar relacionado com os resultados obtidos, apontando uma desvantagem para o fumante no relacionamento interpessoal.

Relationship between resource availability and home-range of wild *Callicebus nigrifrons* Spix, 1823

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Callicebus nigrifrons is a primate found in the south-eastern region of Brazil, except in Espírito Santo. The home-range of primates is typically related to group size and diet (food availability). The objective of this study was to determine the relationship between resource availability and home-range use in groups of *C. nigrifrons*. Data were collected in the private nature reserve Santuário do Caraça, MG from August 2005 to August 2006. Behavioural observations were made using 15-min focal animal sampling, and the geographic location of animals was registered using a GPS. The results showed that this species used similar routes in the forest each day, thereby repeatedly visiting the same feeding sites. Groups showed overlap in their home-ranges, and may compete for seasonally available food resources. It is therefore necessary to conduct phenological studies and to determine the distribution of food resources, and thereby better understand the behaviour and ecology of this species. Financial support: FAPEMIG.

Viability analysis of positive reinforcement training technique vs. capture during routine weighing procedure of captive marmosets (*Callithrix penicillata*)

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Positive Reinforcement Training (PRT) may enhance animal well-being and maximize research results, particularly for marmosets, a family of small Neotropical primates frequently submitted to routine procedures that induce physiological and behavioral changes. This study, therefore, analyzed the viability of employing PRT versus standard capture procedures during routine weighing of captive black tufted-ear marmosets (*Callithrix penicillata*) at the Primate Center, University of Brasília. For PRT, marmosets (n=9) were submitted to a three-phase procedure, rewarded by a desired food (1/8 raisin): sit on scale, touch target (plastic spoon) while sitting on scale and hold target (10-s) while sitting on scale. Number of animals trained, number of sessions required and total time to reach criterion were scored. All marmosets were trained, requiring on average nine-ten 10-min training sessions. Furthermore, weighing trained animals (10-s/each) was significantly faster than by standard capture procedure (mean: 42-s/each). Thus, PRT may be a viable routine management procedure for these captive marmosets.

Insect/flora interactions in the Brazilian Permian: possible coleopteran (Insecta) perforations in fossil stem from Itapetininga, SP (Irati formation, Paraná basin)

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We present a totally mineralised stem of plant species attributed to the genus *Tietea sp*., which came from the Permian sediments of the Irati Formation, Paraná Basin, collected near the Itapetininga municipality, São Paulo State, Brazil. The slab exhibits conspicuous circular perforations, concentrated on the side of the stem. The stem does not exhibit signs of decaying before fossilization, which allows us to conclude that the damage occurred when the plant was alive, with preferential patterns of positioning (exposure to the sun or exposure to the shadow). The responsible organisms could be coleopterans, which represents the first record, though indirect, for the Palaeozoic sediments of the southeast region. The great number of perforations is indicative of gregarious behaviour of these organisms, at distinct stages of development (variation in perforations diameter). The perforations are also concentrated along the bark fissures of the stem, indicative of a homogeneous behaviour of perforation.

The colour patterns in fossils: a probable unpalatable butterfly from the São Paulo state (Brazil) Oligocene

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We present a nymphalid butterfly, *Neorinella garciae* Martins-Neto, which came from the

Tremembé Formation (Oligocene, São Paulo State) that exhibits a colour pattern very similar to that of *Pierella stollei,* consisting in a narrow V-shaped, colored pattern row, overlying both the anterior as well as the posterior wings. A "mid moon" pattern is also present, similar for example to the extant species *Taygetis ulia* D'Almeida. The shape and displacement of the A spots (false eyes) seems unique just to the fossil species. The colour pattern combination (the "V" and the spots) allows us to infer that this mechanism evolved as defensive behaviour by the butterfly (the false eyes to repel predators), and likely produced a deimatic response in predators. We cannot discard the possibility that this was a mimic species of an unpalatable one.

Evaluation of the influence of castration on the relationship of domestic felines (*Felis catus*) with humans

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The aim of this study was to evaluate the relationship between castration and relationship of cats with people. This study included 25, 1-year-old male cats, classified in three control groups and two castrated groups. A 30-min film was recorded by a person who remained indifferent to the animals. Behaviors registered were: smelling, scrubbing, scratching, playing, chewing clothes and auto-grooming. In the castrated cats, behaviors listed above were more frequent than in the control groups. The more relevant behaviors were smelling and chewing, although they were not statistically different. We noticed that the castrated animals interacted more with people, even though this difference also was not statistically significant. We conclude that castration does not significantly influence the relationship of cats and humans.

Color perception evaluation in squirrel monkey (*Saimiri ustus*) by the HRR pseudoisochromatic test

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This objective of this study is to compare, through a behavioral approach, *S. ustus* and color blind human's performance in a test designed for humans. The HRR pseudoisochromatic test consists of plates with the same gray circle matrix, varying in size and brightness. Some circles are colored and form a geometric shape, which is segregated from the gray pattern. The identification of these shapes determines the existing type of dischromatopsy. The animals, an adult couple of *S. ustus*, were tested under natural sunlight, by a discriminative learning behavioral paradigm. *Saimiri ustus* had to choose between two HRR plates in each trial. The male was diagnosed as protan dichromat and the female as deutan dichromat. The same methodology was used in two color-blind humans. Results show that the methodology used here can be used to diagnose *S. ustus* color vision and suggests that the color perception of this species is quite similar to humans.

A complex mimetic pattern inferred for fossil crickets from the Brazilian northeast Cretaceous

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The fauna of Ensifera of the Santana Formation is notably diverse, especially Grylloidea. Within gryllids one of the dominant genera is *Cearagryllus* Martins-Neto, 1991, a peculiar, large-sized Orthoptera. Females exhibit a notably long ovipositor (longer than the body), and a forewing as long as the body. Another genus, *Euclydes*, exhibits the same peculiar characteristic ovipositor but a completely distinct venation pattern in its wings, with a relatively small body length (smaller than the forewing length) and a relatively larger ovipositor. The similar general aspect of this species (large-sized and notably long ovipositor) suggests that it could occupy the same ovipositional niche that the *Cearagryllus* species, which occurs in arboreal vegetation. Another interpretation is that, for unknown reasons, this genus could be mimetic to the *Cearagryllus* species, but in a completely distinct way: it is mimetic only in a resting position (wings closed over the abdomen) so that the total length of both species is similar (size and shape mimetics). In both taxa we cannot verify wing or body colour pattern to infer palatability.

Evaluation of the influence of castration in the domestic animal's behaviour: owners' perception

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This study investigated the relationship between the owners and castrated or intact pets. Interviews were made in 352 residences with pets in August/2005. A questionnaire used requested information such as: the number dogs (*Canis familiaris*) and cats (*Felis catus*), if these were castrated or intact, and the relationship with owners, totaling 376 animals. For the statistical analysis the Chi-square test was used (c^2). Using the answers in the questionnaires, we found no significant differences in the temperament between castrated and intact dogs. Among cats, the castrated ones showed less aggressiveness than the intact ones. The present study concluded that cats' castration influences the relationship with owners. No significant differences were observed for dogs.

Divisão de tarefas na vespa social *Polistes simillimus* Zkán, 1951 (Hymenoptera, Vespidae)

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As vespas do gênero *Polistes* apresentam uma organização hierárquica estabelecida por interações agressivas. Estas interações também são exibidas na divisão de tarefas entre os indivíduos, resultando no conjunto de tarefas desenvolvidas por dominantes e subordinadas. O objetivo deste trabalho foi verificar se os padrões de dominância estão relacionados com busca e distribuição de recursos alimentares na vespa *Polistes simillimus*. Foram realizadas 32h de registros comportamentais em três colônias de *P. simillimus,* todas em pós-emergência. Com relação ao tempo gasto na busca de recursos, constatou-se que fêmeas subordinadas de *P. simillimus* gastam um tempo (34,86±40,94min) cinco vezes maior do que fêmeas dominantes (7,03 ±11,95min) nesta atividade, contudo, estes valores não demonstraram diferença significativa (U=0,61; p=0,54, teste de Mann-Whitney). A análise da distribuição do néctar entre fêmeas de *P. simillimus*, demonstrou que sempre ocorre a transferência de alimento de um subordinado para um dominante. As interações agonísticas exibidas por *P. simillimus*, desempenham um papel importante no controle da divisão de tarefas entre co-específicos, onde dominantes obrigam agressivamente subordinadas a forragear, poupando energia e concentrando as atividades reprodutivas.
Apoio Financeiro: Programa PROBIC, FAPEMIG, UFJF.

Interações de dominância em um agregado de *Polistes simillimus* zikán, 1951 (Hymenoptera, Vespidae)

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As vespas do gênero *Polistes* se organizam em uma hierarquia linear que é estabelecida por interações agressivas entre as fêmeas. Estas interações podem variar em intensidade de acordo com as fases do ciclo biológico. O objetivo deste estudo foi descrever as interações de dominância em *Polistes simillimus* na fase de agregado. Foram realizadas 10 horas de observações, por filmagens, em um agregado de *P. simillimus* com 50 indivíduos, em agosto/2006. Todas as fêmeas foram marcadas, permitindo o registro individual de suas interações. Foram observadas 104 interações e a distribuição destas agressões entre fêmeas do agregado permitiu a identificação de um *ranking* hierárquico linear. As quatro primeiras fêmeas do *ranking* exibiram significativamente mais interações de dominância do que as demais fêmeas (U=3,07; p < 0,01, Teste de Mann-Whitney). Houve uma correlação positiva entre a posição ocupada no *ranking* e atividade forrageadora (r=0,93; p<0,01), demonstrando que fêmeas subordinas realizam mais forrageio do que dominantes. Estes resultados revelam que no agregado, as fêmeas dominantes de *P. simillimus* exibem interações agressivas sobre as subordinadas, forçando estas últimas a forragear em seu favor, o que provavelmente contribui para sua longevidade. Apoio Financeiro: Programa PROBIC/FAPEMIG/UFJF.

Parental roles in a biparental cichlid fish

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We studied parental roles of the non-described cichlid *Laetacara* sp, during pre- and post-spawning periods, at a natural stream. Territorial defense, frequency of nest digging and time spent near brooding were quantified in three contexts: before spawning (n=7), during caring of eggs or wrigglers (n=9), and during free-swimming fry care (n=12). Parental roles were similar between sexes but quantitative differences occurred before spawing. In the pre-spawning phase, males invested more frequently in territorial defense, whereas females provided nest digging. After spawning, while one member of the pair provided nurturance, the other defended the territory. Parents spent similar amounts of time near the brood or in territorial defense, exchanging the roles on occasion. Tasks were synchronized such that only one parent stayed away from the offspring. Thus, reproductive cooperation in such species is defined by performing distinct roles in the pre-spawning stage and by constant exchanging of roles in the post-spawning period. Financial support: CAPES

Social relationships of immigrant male northern muriquis (*Brachyteles hypoxanthus*)

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The northern muriqui (*Brachyteles hypoxanthus*) is one of the few primate species with male philopatry. However, increase of group size causes the atypical migration of males. Therefore, the purpose of this study was to analyse the social relationships among male northern muriquis in a group where immigration had occurred. Behavioural data were collected by focal animal sampling and the focal subjects were classified as: residents (RE, founder group males) and immigrants (IM, males that join the group after it is established). The results indicated the IM males: (1) associated more with RE than with IM, and (2) were responsible for maintaining proximity and affiliative behaviour with RE. In addition, the mean frequency of copulations of IM was lower than that of RE males. We suggest that the observed asymmetry in social relationships may indicate the lower social status of IM and that reproductive strategies influence the social relationships between RE and IM males.Financial support: FAPESP.

Predatory behavior of *Ectatomma brunneum* (Hymenoptera; Formicidae; Ectatomminae) in laboratory condition

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In this study we evaluated the predatory behavior of *Ectatomma brunneum* (Hymenoptera: Formicidae: Ectatomminae) utilizing living larvae of *Tenebrio molitor* (Coleoptera: Tenebrionidae) as prey, in laboratory conditions. Two behaviors were distinguished, rejection and attack; in the latter there was a prevalence of transport of the larvae to the interior of the nest, immobilized or not due to the ant poison.This behavior was not observed in solitary attacks. There was no significant difference in the predatory behavior relative to the larvae sizes, showing that prey size does not interfere in this behavior. High rates of rejection were registered maybe due to the absence of immature individuals in the observed nests or because observations happened during a cold period of the year causing a decrease in activities. Financial support: CNPq

Influence of resource distribution on blue-black grassquit (V*olatinia jacarina*, Aves: Emberizidae) territorial aggregation

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Habitat selection has a defining role in a populations´ spatial distribution, and may conflict with individual social interests. We investigated how habitat structure relates to male territorial distribution in the Blue-Black Grassquit, which presents small and clustered territories. A PCA revealed two components that together explain 72.20% of variance in ecological components. The first, influenced negatively by low grass cover and positively by medium-sized grass cover, was not associated with territorial distribution (Mann-Whitney U test, $p > 0.05$). The second component, negatively loaded by high grass cover and positively loaded by food abundance, had lower scores where territories were located ($U = 313$, $p = 0.009$), indicating that grass height may be an important cue for individuals when deciding where to settle. However, very little variance is explained by this component alone (28.76%), and thus we suggest that social factors, such as the pursuing of extra-pair copulations, may also influence territory clustering.

Do Brazilian people desire the same as others? An evolutionary approach for mate choice in humans

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Trends in mate choice systems evolved under the influence of mechanisms that enhanced differences between male and female sexual traits, according to hypotheses of sexual selection. Many studies have tested this tendency using morphological and behavioural characteristics in a variety of vertebrate groups, including *Homo sapiens*. Here, we evaluated responses in a sample of 282 men and women, from the State of Goiás, using a standard Likert-form scale encompassing 67 mixed morphological, psychological and cultural attributes that are potentially related with human mate choice. Variation in 60% of the sample differed between males and females, with 23 attributes responding significantly according to theoretical expectation. Approximately 44% of men´s choices was associated with health features of females, such as beauty and youth, while women prefered 56% of attributes that showed male´s capacity to provide maintenance resources, for instance, ambition, intelligence and financial independence. Overall, the results indicate a possible cross-cultural sexual behaviour pattern for humans. Financial Support: PRPPG/UEG

O efeito de um cão na formação de primeiras impressões

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Avaliamos o efeito de um cão na formação de primeiras impressões, a partir da idéia de que o animal funciona como um catalisador social. Foram comparadas impressões suscitadas por pranchas mostrando a aproximação de um casal, esquematicamente representado. Havia cinco versões da prancha: ausência de cão, cão filhote ou cão adulto conduzidos pela figura masculina ou feminina. 223 graduandos (124 homens e 99 mulheres) responderam ao questionário avaliando as figuras quanto a vários atributos numa escala de 1-7. Uma análise de variância (ANOVA) revelou interação entre a idade do cão e o condutor. A presença de um cão filhote fez com que a figura masculina recebesse notas mais altas de poder aquisitivo e de gostar de crianças, não afetando a impressão suscitada pela figura feminina. Os resultados são consistentes com a idéia de que um cão com características neotênicas funciona melhor como um catalisador social.
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Behavioral effect of social enrichment and enclosure changing in woolly monkeys (*Lagothrix lagothricha*)

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Social environmental enrichment is used for improving life quality and welfare of animals in captivity. In order to assess the effect of social enrichment, a study was developed in three stages with (1) a couple of woolly monkeys already in the Brasilia Zoo, (2) a recently-arrived couple in the quarantine enclosure, and then (3) both couples together when transferred into a new enclosure, which represented a social enrichment. ANOVA analysis revealed significant differences due to enclosure change in: vocalization, social and individual play, social contact, watching other animal species and people, foraging food, abnormal, active and inactive. Results suggest that the animals answered positively to social enrichment. They expressed social behaviors, never displayed before, and stereotyped behaviors (pacing) disappeared. Interest in watching other species and people decreased, an indication that there was greater socialization within the group.

Substratos utilizados para nidificação e distribuição vertical dos meliponini (Hymenoptera: apidae) da região de Cataguases, MG

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As abelhas Meliponini são os principais polinizadores em diferentes ecossistemas e utilizam diferentes substratos para nidificação. O objetivo deste trabalho foi verificar os tipos de substratos utilizados para nidificação dos Meliponini da região de Cataguases-MG e a distribuição vertical dos ninhos das espécies. Foram feitas entrevistas com a população do centro urbano e meio rural obtendo informações da existência de ninhos e caminhadas para procura em fragmentos florestais. Foram encontrados 35 ninhos pertencentes a 11 espécies em 16 tipos de substratos. *Tetragona clavipes* nidificou exclusivamente em árvores, *Tetragonisca angustula* foi quem mais

variou de substrato, *Nannotrigona testaceicornis* foi a única espécie que não nidificou em árvores e a que se distribuiu verticalmente mais próximo do solo, *Trigona hyalinata* nidificou mais alto, a 10m de altura. Apoio financeiro: FAPEMIG

Relação entre escolha de alimento para o fungo e a umidade da colônia em *Atta sexdens rubropilosa*

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A despeito das variações do ambiente externo, as saúvas conseguem manter alta a umidade dentro de suas colônias, o que é necessário para o cultivo do fungo com o qual alimentam as formas imaturas. Verificar a relação entre a umidade da colônia e escolha de alimentos secos (aveia e quirera de milho) ou úmidos (maçã e folhas) foi o objetivo deste trabalho. Foram usadas simultaneamente duas subcolônias de laboratório, sendo uma submetida a estresse hídrico e a outra não. Os resultados indicaram diferenças significativas na coleta de alimentos entre ambas. A colônia submetida ao estresse hídrico coletou significativamente mais maçã ($p<0,05$) do que os demais alimentos oferecidos, enquanto que a outra colônia coletou significativamente mais quirera e aveia ($p<0,05$). A preferência por maçã pelas formigas da colônia submetida ao estresse hídrico evidencia sua sensibilidade à umidade e sua capacidade de mudar o comportamento em direção ao equilíbrio hídrico da colônia.

Use of environmental enrichment with a female orangutan (*Pongo pygmaeus*) to reduce aversion toward a new caretaker at the Brasília Zoo

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A new caretaker can be a problem for the emotional stability of orangutangs. To reduce the aggressive behavior displayed by Kathai, a 20 year-old female orangutan living in the Zoo of Brasília, towards a new caretaker, we introduced novelty associated with presence of this caretaker. The caretaker presented Kathai with new and attractive objects while cleaning the enclosure. Using focal animal sampling, we observed all the occurrences of behavior, during 15 min sessions, for six days: three for diagnostic and three for enrichment (E). Observations of the orangutang couple were made early in the morning, in their enclosure. The aggressive behavior occurred mainly during the cleaning of the "bedroom". Kathai only modified the following two behaviors: she tended to rest more and to increase social contact with the male during enrichment. Enrichment was not effective to reduce the aggressive behavior but the increasing of rest and social contact are a good welfare index. More enrichment time may be necessary to improve the relationship between Kathai and the caretaker. Financial support: Funpeb/Zoo, FINATEC, DPP-UnB.