

## ENES Friday Seminar Series | 2021 Schedule

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Link to talks online: <https://ujmstetienne.webex.com/meet/clement.cornec>

### JANUARY 2021

JAN 8			BWS
JAN 15			BWS
JAN 22	2:00 PM	<b>Loïc POUGNAULT</b> (ENES / EthoS / ZooPark PhD student)	<b>PhD Defense:</b> Sur les traces de l'origine de nos conversations : Etude comparative des règles d'interactions vocales chez les grands singes
JAN 29	12:30 PM	<b>Daria VALENTE</b> (ENES postdoc, formerly PhD at the University of Torino, Department of Life Sciences and Systems Biology)	<b>Vocal Complexity in <i>Indri indri</i></b>  The acoustic channel is fundamental in the communication system of a species. Within primates, while the use of extremely diversified vocal signals is widespread among taxa, few species exhibit the so-called singing behavior. This rare communicative trait relies on sequences of vocal emissions, commonly defined songs, and is indeed found in only four primate families. The aim of this research was to deepen the knowledge on <i>Indri indri</i> vocal behavior, by considering different measures of communicative complexity, to better understand which factors may have contributed to shaping vocal communication in basal primates. The species is a monogamous, forest-dwelling primate living in small family units composed of a reproductive pair and their offspring. Each social group occupies and actively defends an exclusive and stable territory. <i>Indris'</i> songs, complex sequences of vocal units organized in phrases of two to six units, are choruses in which all the individuals within a group from one year of age may utter their contribution in a coordinated manner. These choruses are powerful loud calls that usually travel over multiple neighboring territories and are used to mediate their occupancy and defense. I, therefore, first investigated the inter-group dynamic of the species, and the song's role in negotiating the relationships among neighboring groups. I then measured two indicators commonly associated with complexity: the number of different vocalizations that <i>indris</i> are able to emit (their vocal repertoire), and the rhythmic abilities of the species. Lastly, as primate songs have canonically been considered inherited, I investigated to what extent <i>indris</i> vocal behavior is genetically determined or, rather, the result of learning processes.

### FEBRUARY 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
FEB 5	12:30 PM	<b>Romain LEFEVRE</b> (ENES visiting PhD, from Behavioural Ecology Group, University of Copenhagen, Denmark)	<p><b>Horse vocal communication: Investigating the function and production mechanisms of biphonation</b></p> <p>From the tropics to polar regions and in many distantly related taxa, vocalizations constitute an efficient and rapid means of transmitting information to conspecifics (e.g. information on the identity, quality and internal state of the sender). Such information can be encoded in the sequence of elements composing an utterance, or in the acoustic structure of the vocalization itself (i.e. duration, frequency, amplitude). However, in order to transmit different types of information efficiently, the pieces of information that can vary independently from each other (e.g. information about the internal state of the sender) should be encoded in non-correlated acoustic features, suggesting segregation of information or biphonation. Biphonation is a very rare phenomenon in mammals which refers to the production of two fundamental frequencies that are not harmonically related. While the lowest of these two frequencies ("F0") provides information about the emotional arousal (i.e. intensity) of the sender, the highest fundamental frequencies ("G0") encodes the emotional valence (i.e. positive vs negative). Interestingly, this phenomenon has been observed in horses, a highly sensitive species that uses different acoustic cues to organize its social structure and behave accordingly.</p> <p>In my PhD research, I propose to explore the structures involved in the production of these two frequencies at the level of the vocal apparatus, as well as their implications for horse communication. The mechanisms of production will be investigated through a unique combination of in vivo and ex vivo studies, including videoendoscopic recordings performed on living animals, recordings of horses suffering from laryngeal hemiplegia (which affects the laryngeal muscles), and excised larynges experiments. Then, the implications of F0 and G0 for horse vocal communication will be studied through playback experiments, during which a combination of natural horse vocalizations, artificial vocalizations and vocalizations of horses suffering from laryngeal hemiplegia will be broadcast. This research will provide an understanding of the nature of animal vocalizations in regard of their evolutionary implications, and shed light on the means through which animals can transmit multiple and independent pieces of information simultaneously.</p>
FEB 12	12:30 PM	<b>Derry TAYLOR</b> <i>Inviter F. Levrero</i> (University of Neuchâtel, Switzerland; University of Portsmouth, England)	<p><b>Bioacoustics of chimpanzee vocal ontogeny</b></p>

FEB 19	UJM Vacances d'hiver		
FEB 26	12:30 PM	<b>Anna ZANOLI</b> <i>Inviter E. Demuru</i> (PhD student, Department of Life Sciences and Systems Biology, University of Turin)	<b>Unimodal and multimodal communication of emotional states in human and non-human primates</b>  Anna will give an overview of her PhD project and the results obtained thus far. Specifically, she will talk about the acoustic and visual communication that geladas use during mating, with a small mention about the communicative role of yawning in humans.

## MARCH 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
MAR 5	12:30 PM	<b>Doris NICOLAKIS &amp; Maria Adelaide MARCONI</b> <i>Inviter F. Levrero</i> (Konrad Lorenz Institute of Ethology, University of Veterinary Medicine Vienna)	<p><b>Doris NICOLAKIS: Ultrasonic courtship vocalizations in house mice</b></p> <p>We study the adaptive functions of ultrasonic vocalizations (USVs) in wild-derived house mice. USVs consist of different syllable types and have complex spectro-temporal features similar to songs of songbirds. Mice can use USVs to signal information during social and sexual contexts. Although the functions of USVs are still unclear, previous studies reported that USVs might provide information about kinship, identity or male's quality, and they might facilitate courtship and mating. Thus, it has been suggested that USVs can serve as a secondary sexual trait, but the effects of USV emission on reproductive success are still unknown. The aims of our study were (1) to record wild-derived house mice (<i>Mus musculus musculus</i>) during the early phases of courtship interactions, (2) to compare USVs emitted when mice interacted with related versus unrelated partners and (3) to correlate USV emission with a pair's subsequent reproductive success. We found that mice alter their USVs during different phases of courtship, and provide evidence that mice modulate their USV emission depending upon their relatedness to a mating partner and that USV emission correlates with subsequent reproductive success.</p> <p><b>Maria Adelaide MARCONI: Individual acoustic signatures during courtship in male house mice</b></p> <p>Many studies report that house mice vocalize throughout their lives and emit most vocalizations in the ultrasonic range during social interactions. Most studies are conducted on lab mice, whereas our group works with wild-derived mice (<i>Mus musculus musculus</i>) and investigates the adaptive function of their vocalizations. Ultrasonic vocalizations (USVs) might be used for individual recognition by conspecifics, they are especially emitted by male house mice during courtship and mating and might attract females and thus enhance their reproductive success. However, few studies have investigated whether males' courtship vocalizations contain individual signatures</p>

			<p>when individuals are offered to interact with females or their scent. The goals of our study included 1) detailed analyses of males' courtship USVs before and during exposure to female scent; 2) investigate whether males show high variation between individuals and high consistency within individuals in their USVs; and 3) detect individual vocal signatures using different statistical approaches. We found that mice vary their USV emission according to social context and increase repertoire of vocalizations upon female exposure. These parameters together with other spectro-temporal features showed that most males were individually distinct and consistent in USV emission over the recording period suggesting that vocal individual signatures might be relevant for individual recognition.</p>
MAR 12	12:30 PM	<p><b>Lucia DI LORIO</b>  <i>Inviter M. Beauchaud</i>  (CHORUS Institute, Grenoble)</p>	<p><b>Tuning into marine acoustic communities</b></p> <p>Monitoring marine biodiversity and understanding their drivers is essential to preserve ecosystems functions and associated services. Monitoring marine habitats, their responses to environmental pressures or management actions is often challenging, in particular at large scales. Ecoacoustics is a promising avenue, yet the drivers of acoustic community composition remain unknown, as well as to which extent acoustic biodiversity can reflect environmental status and the effectiveness of protection measures. Here I will illustrate how acoustic fish communities are shaped by habitat parameters and environmental protection levels using data from Marine protected areas and from 27 sites covering 2000km and three regions of the North-Western Mediterranean Sea. This work reveals that acoustic biodiversity can depict habitat conditions, be indicative of protection levels, and is promising in inferring information on biogeography and ecosystem functioning. This is highly relevant for conservation and habitat monitoring.</p>
MAR 19	12:30 PM	<p><b>Roman WITTIG</b>  <i>Inviter F. Levrero</i>  (Max Planck Institute for Evolutionary Anthropology, Germany ; Director of Tai Chimpanzee Project, Ivory Coast).</p>	<p><b>Evolution of cooperation, cognition and communication: insights from chimpanzees</b></p> <p>The complexity of human sociality, cognition and communication remains an evolutionary puzzle. Since we lack a fossilized record of behaviours and brains, we need to approach the question "what makes us human?" with a phylogenetic comparison. Chimpanzees, one of our closest living relatives, cooperate on both the dyadic and group level. They also show prolonged dependency through ontogeny and only slowly acquire complex skills required in ecological and social domains, including in tool use and vocal production. Coordinating a consortium project between Max Planck and CNRS institutes, I source wild ape brains after natural death. We demonstrate, that relevant brain pathways also mature through development. Chimpanzees offer a model system to examine social and ecological drivers that precipitated prolonged investment in brain growth and skill development through the first years of life.</p>

MAR 26	12:30 PM	Lab meeting and discussion	
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#### APRIL 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
APR 2	12:30 PM	<b>Jeremy ROUCH</b> (ENES postdoc)	TBA
APR 9	12:30 PM	<b>Wenjing WANG</b> (ENES PhD student)	TBA
APR 16	12:30 PM	<b>Carolyn MCGETTIGAN</b> (University College London, UK, Professor) <i>Inviter K. Pisanski</i>	TBA
APR 23	UJM Vacances de Printemps		
APR 30	12:30 PM	<b>Catherine CROCKFORD</b> <i>Inviter F. Levrero</i>	TBA

#### MAY 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
MAY 7		<b>Tao JIANG</b> (ENES researcher)	
MAY 14	UJM Fermeture		
MAY 21			
MAY 28	12:30 PM	<b>Gary LEWIN</b> <i>Inviter N. Mathevon</i>	

#### JUNE 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
JUNE 4			
JUNE 11	UJM Fermeture		
JUNE 18	12:30 PM	<b>Nicole Geberzahn</b> <i>Inviter C. Cornec</i>	
JUNE 25			

## JULY 2021

Date	Time	Speaker (affiliation)	Talk title & abstract
JULY 2			
JULY 9			UJM Fermeture
JULY 16			
JULY 23			

### Unscheduled speakers:

- Camille FAUCHON (April or May, to be determined)