

## Acoustic and sensory discovery of Wildlife species and their Environment (AWE):

### *An explorative meeting to explore the animals' world*

Bio-acoustics is a long standing discipline that has allowed to peer into animals' communication, reproductive behavior, cognitive processes, sociality.

Yet, research has mainly focused on animals exerting complex communication (such as primates, birds or cetaceans), so that relatively little is known on the utilization of calls or, vice versa, acoustic cues by less vocal animals, such as ungulates. More recently, a strong interest on animals' responses to the ambient noise- or soundscape, has been spurred by the lockdown from COVID-19. Humans create a very complex soundscape that likely shapes animals' interactions with anthropic and non-anthropic environments. Lockdowns represented a sudden alteration of such 'sensory background' and much can be investigated on how animals reacted.

Beyond acoustics, other sensory cues – such as light, scent, vibrations- create the more complex 'sensory scape' of animals. Terrestrial mammals share land and resources with humans- rather humans subtract habitat and resources to them. Yet, little is known on the overall effect of anthropic environments in terms of animals' perception and responses.

Increasing our knowledge on these important topics of high conservation concern implies refining the researchers' ability to acquire input data on the sensory scape. In particular, the COVID 19 lockdown indirectly suggests the value of experimental approaches in wild settings to identify how animals contribute to the sound (sensory-) scape, and how much they are influenced by its variation, especially due to humans. Bio-logging (apposition of technological units to animals) and remote sensing of animals (arrays of technological units deployed in the environment) are of great aid to this purpose by directly measuring sensory variables from animals, or from the context where animals range.

The technological state-of-the-art, the forefront of it, and the ecological and conservation questions that could be addressed by such advances will be the topic of this workshop.

**Fondazione Edmund Mach, San Michele all'Adige, TN, Italy**  
**5-7 October 2022**

### ***Participants***

*Thierry Legou, University Aix-Marseille, Laboratoire Parole et Langage*

*Gianni Pavan, Federico Romani, University of Pavia, CIBRA*

*Davide Righetti, freelance*

*Michele Bighignoli, Omega s.a.s.*

*Andrea Paoli, Roberto Zorer, Luca Delucchi; FEM, Digital Agriculture Unit*

*Valerio Mazzoni, FEM, Bio-Tremology Technological Platform; Rachele Nieri, University of Trento*

*Ilaria Carafa, Fondazione Hub Innovazione Trentino - HIT*

### ***Organisers***

*Francesca Cagnacci, Federico Ossi, FEM, Animal Ecology Group*

## Programme

<i>Date</i>	<i>Time</i>	<i>What</i>	<i>Who</i>
<b>4<sup>th</sup> October</b>	<b>pm</b>	Arrivals if coming from afar	
<b>5<sup>th</sup> October</b>	<b>9.30 am</b>	<b>Introduction</b> Reasons for a workshop	<b>F. Cagnacci, F. Ossi</b>
	<b>10.00 am</b>	<b>Presentations</b> Sensing animals and their environment: state of the art, gaps, breakthroughs	<b>Brief presentation by each participants, regarding technology used in their specific field</b>
	<b>1pm</b>	<i>Lunch break, canteen</i>	
	<b>2pm</b>	<b>Techno ice-breaker</b> Showcasing technology (Labs' visit)	<b>Biotremology, Bio-Logging and Digital Agriculture Lab visits. Others: please carry your own technology!</b>
	<b>4pm</b>	<b>Presentations</b> Sensing animals and their environment: questions, challenges and opportunities	<b>F. Cagnacci, F. Ossi &amp; all those who would like to contribute</b>
	<b>5pm-10pm</b>	<i>Exercise and social dinner: walking up Monte Mezzocorona, Tortel Ai Spiazzi</i>	
<b>6<sup>th</sup> October</b>	<b>8.30 am</b>	<b>Field visit</b> An experimental site for an AWE study? The Cembra roe deer study area.	<b>All (F. Cagnacci and F. Ossi organizing the visit)</b>
	<b>12 pm ca</b>	<i>Lunch break, canteen</i>	
	<b>2.00 pm</b>	<b>Brainstorming</b> What technology for what questions? What are the innovative, concrete and viable steps ahead?	<b>All</b>
	<b>4 pm</b>	<b>Presentation</b> Technology transfer for innovation and technological development	<b>HIT (I. Carafa et al.)</b>
	<b>6 pm</b>	<i>Apero and dinner in Trento</i>	
<b>7<sup>th</sup> October</b>	<b>9 am</b>	<b>De-briefing</b> What will the next steps be?	<b>All</b>
	<b>11am</b>	<b>Public seminar</b> Words and calls: studying communication across animal systems and their environment (New trends and new tools in ecoacoustics- G. Pavan; )	<b>Thierry Legou, Aix-Marseille Université Gianni Pavan, University of Pavia</b>
	<b>12 pm ca</b>	<i>Lunch break, canteen</i>	
	<b>2 pm</b>	<b>Final Discussion Departures</b>	<b>All</b>

*All indoor meetings will happen in the 'Sala Gialla' of CTT.*

*Visits to the respective Labs of FEM residents will also be possible.*

*The field visit will happen in Cembra valley, about 30-40' away from FEM.*