



International Society for Neuroethology

Newsletter/June 2021

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The Prez Sez
Eric Warrant
President of the ISN



Hello everyone!

As I write this, I am sitting in my library at home sweltering. We are having a heat wave in Sweden at the moment, and here in Lund the daytime highs are reaching around 31°C, which is a lot for this part of the world! I know many of you are currently experiencing much higher temperatures than this, but for me the heat is a reminder that summer is finally here. For many of us – at least in the

northern hemisphere – this also means that a well-earned break from the stresses and strains of university life is just around the corner. And just as last year, this break will be spent close to home due to COVID.

It's hard to believe that 18 months after it broke out, the virus is still causing major havoc in many parts of the world. And I know that many of our members have personally been hit very hard, having lost loved ones in the most appalling of circumstances. The terrible situation in India – where I have so many friends and colleagues, and where a large number of ISN members live and work – brought the devastation of the pandemic into shocking focus. I suppose that the only light in an otherwise very dark tunnel is that the rate of vaccination is steadily on the increase in large parts of the world – in two weeks I will have my second shot and here in Sweden basically all adults will be fully vaccinated by early autumn. Hopefully we should finally see the virus coming under control. But to all of you who have suffered tragedy and loss I send my sincerest heartfelt condolences on behalf of the society.

Although incomparable to the grief, shock and emotional upheaval of losing a loved one, COVID has also devastated many research projects. Many of us have watched on helplessly as distant field sites remain inaccessible due to travel restrictions and infection risk, or have built up hopes of returning to field sites in the not-too-distant future (“Surely we will be able to go back in the autumn?!”), only to have those hopes dashed as the time to start planning and booking draws nearer. I know this only too well. My prestigious five-year European Research Council project to study the sensory basis of long-distance nocturnal migration in the Australian Bogong moth is now in tatters thanks to COVID. After the end of the second year of the project, with everything moving forwards incredibly well, COVID struck. We only just managed to get out of Australia after our last field season – in March and April last year – before all flights were cancelled and the country closed. As it was, one of my students and a postdoc battled to leave, as flight after flight was cancelled. Finally they somehow managed to secure flights and got out in the nick of time. Australia has been effectively closed ever since, and the Australian government claims it will stay that way until the end

of next year. In other words, the final three years of my project – with two two-month field seasons every year – have been snatched away. Obviously this has been devastating for my own research, but there is a much greater disaster – the young scientists employed on my grant have not been able to get the research done to progress their careers. The worry and sleepless nights this has caused me are not insignificant. And I know that many of you are in exactly the same boat.

But on a more positive note, the last few months have been busy ones for the society. Firstly, our dedicated committees for deciding prizes and awards have done a fantastic job and chosen many wonderful winners. Our prestigious Capranica Prize was won by **Fernanda Duque** from Georgia State University for her splendid work on vocalisations and hearing in hummingbirds. We also awarded two Konishi Neuroethology Research Awards to **Madza Farias-Virgens** from UCLA and **Fanny de Busserolles** from the University of Queensland. This year we also awarded two Heiligenberg Student Travel Awards to **Valerio Tettamanti** from the University of Queensland and **Saumya Gupta** from the University of Minnesota. And finally, it gives me enormous pleasure to announce the three winners of our inaugural ISN Diversity Award which has been created by the Inclusion and Diversity Committee “to support neuroethological scientists disadvantaged due to gender, ethnicity, disability, class, or other characteristics, and help them overcome the barriers they face”. This year's inaugural winners are **Kristina Corthals** (University of Lund), **Heba Ali** (Florida International University) and **Isabel Ortega-Insarraulde** (University of Buenos Aires). You can read all about the prize winners and their terrific projects later in the newsletter. My heartiest congratulations, on behalf of the society, to all of them!

Finally, don't forget that we are still planning to hold our postponed congress in just over a year from now (24-29 July 2022) – in Lisbon and in real life! As you might remember, we have simply moved the entire conference – program, venues and all – to next year, and our speakers are all committed and coming as planned! So please keep checking the website for news (neuroethology2020.com) – information about

the congress, including registration, should begin appearing later in the year.

But now summer is here! No matter whether you are about to embark on a summer beach holiday, or are preparing in the southern hemisphere for a wintery ski trip, I wish everyone a restful and enjoyable mid-year break!

My warmest regards, and I hope very much that you and your families are all well and remain safe!

Eric Warrant
President, ISN



2021 ISN DIVERSITY AWARD



Congratulations to the 2021 recipients (from left to right) **Heba Ali** (Florida International University), **Kristina Corthals** (University of Lund) and **Isabel Ortega-Insaurralde** (University of Buenos Aires).

On the mission to make our research community more inclusive and support people of underrepresented or historically disadvantaged groups in neuroethological research, the ISN has launched the annual **Diversity Award** (<https://www.neuroethology.org/DiversityAward>). For this year's first edition of the Award, the Inclusion and Diversity Committee has decided to split the award money equally among three excellent early career researchers: **Heba Ali** (Florida International University, USA) is working on the energy trade-offs between competing metabolic demands in electric fish; **Kristina Corthals** is currently investigating the neuronal basis for hygrosensation at Lund University in Sweden; and **Isabel Ortega-Insaurralde** from the University of Buenos Aires (Argentina) is focusing on the sensory biology of disease vector insects. Congratulations to

the awardees! We hope the funds can support their careers and open new opportunities for their research.

The 2021 Diversity Award was clearly timely for ISN membership and had nine excellent applicants from three continents. All applicants presented genuine barriers jeopardizing the progress of their work and hindering their diverse and valuable contributions to the field of neuroethology. We think it is in the interest of our scientific society to support more awardees in the future and ensure that historically disadvantaged people do not remain excluded from participation. To facilitate this, an ISN Diversity Award fund has been set up and ISN members can now donate:

(<https://www.neuroethology.org/Donate>).



2021 CAPRANICA PRIZE



Congratulations to **Fernanda Duque** (Georgia State University).

For my dissertation, I am studying the evolution of high-frequency (HF) vocalizations in hummingbirds, which a colleague and I discovered in some species of Andean hummingbirds a few years ago [Duque et al., (2018). *Current Biology*]. These vocalizations are produced in a frequency range beyond that at which most birds vocalize and hear. Our research shows that these sounds are also produced in a bandwidth free of other ambient noise, suggesting that these hummingbirds are avoiding signal masking in a noisy habitat. A question that stemmed from our discovery was whether hummingbirds that produce these vocalizations can hear them. For years, it has been widely accepted that birds can hear best between 2-6 kHz, in accordance with their vocal

production. Only a few species of owls have been found to hear sounds above 10 kHz, which are produced by their prey. Nonetheless, there has not been any evidence that birds communicate in the HF range. In the article High-frequency Hearing in a Hummingbird, published in the journal Science Advances on July 17, 2020, we presented behavioral and neural evidence of HF hearing in an Andean hummingbird, the Ecuadorian Hillstar (*Oreotrochilus chimborazo*). Using playback experiments in the field, we found that the hummingbirds shifted their attention and body posture at the onset of HF song but did not respond to playback of ambient noise. Moreover, we induced the expression of the immediate-early gene ZENK in the brain auditory regions in response to the playback of conspecific song. We found robust ZENK expression, a marker of neural activity, in the brain auditory regions of hummingbirds exposed to the HF song compared to those in hummingbirds exposed to a recording of silence. In this paper, we also described how male Hillstars court females while singing this HF song, strongly suggesting that the song is used in conspecific communication. Altogether, these findings show that this hummingbird can hear its HF song and constitute the first evidence of avian communication using HF sounds. Our research opens new opportunities to investigate the evolution of vocal signals and sensory adaptations to facilitate communication in complex acoustic environments. It also highlights the relevance of conducting field and controlled laboratory studies to investigate the neural basis of natural behaviors.



2021 KONISHI NEUROETHOLOGY RESEARCH AWARDS

Congratulations to **Fanny De Busserolles** (, University of Queensland) and **Madza Farias-Virgens** (UCLA).



Fanny de Busserolles

The deep-sea remains the least explored environment on earth although biological adaptations to this extreme habitat have led to exceptional discoveries. Due to limited access and resources, and to the difficulty in performing in-situ experiments, the behavior and ecology of most deep-sea organisms remains a mystery. The study of sensory systems can be used to shed light on the behavior of these animals. One way to do so in teleost fishes, is to analyze the structure and size of the different brain areas of a species to identify sensory specializations. Myctophidae (lanternfish) is one of the most abundant families of deep-sea fish. Recently, their visual system was investigated in detail and results showed a great interspecific variability in eye designs at all levels suggesting that some species might rely more on vision than others. The aim of this study is to assess the diversity in brain morphology within the myctophid family to confirm whether some species rely more on vision than others and assess what other sensory systems lanternfish preferentially rely on. Relationships between specific brain area dimensions and the preferred environmental conditions of each species (i.e. depth, bioluminescence, sexual dimorphism) will be assessed, considering the evolutionary history of the family. This study will shed some light on the ecology and behavior of several deep-sea fish species as well as expand our knowledge about the evolution of sensory systems in the deep-sea environment and in teleost fishes.



Madza Farias-Virgens

Looking at today's Brazilian city hubs, like Rio de Janeiro, Sao Paulo or Salvador, we can hardly imagine that those megalopolises were built over a once dense tropical forest, extending along South America's Atlantic coastline, from the uppermost northeast corner to the south of Brazil,

well into the borders of Paraguay and Argentina. The past 500 years of urbanization and industrialization leading to Brazil's economic growth happened at the expense of reducing the Atlantic Forest to 25% of its original area, endangering and extinguishing several of its former plant and animal residents. Despite brutal habitat loss and fragmentation, the Atlantic Forest's extraordinary biodiversity resists, with a number species not found anywhere else. Among those unique species is the black Jacobin (*Florisuga fusca*), a hummingbird shown to vocalize at frequencies (>10 kHz) well above the hearing range of any other bird known to science.

Besides mammals and insects, several of which are well equipped to communicate in the ultrasound range, there are only scant examples of other taxa that utilize these upper registers. These include a couple species of frogs that live nearby very loud waterfalls, and a gecko. Birds, in contrast, including hearing specialists like owls, are highly limited in their ability to hear high sound frequencies, including even hearing specialists like owls. The black Jacobin vocal specialization has been newly described by my fellow Brazilian national, Prof. Claudio Mello M.D. Ph.D. at Oregon Health and Science University, and his collaborator Prof. Christopher Olson Ph.D. at Midwestern University. Mello and Olson documented this peculiar vocal behavior during visits to the Instituto Nacional da Mata Atlantica (INMA – National Institute of the Atlantic Forest in Brazil) in 2015 and 2016. This discovery opens a number of important questions, including how these birds can produce such sounds, as it likely requires unique specializations of the vocal organ that have not yet described in any bird species; how their ears evolved to detect such sounds; how effectively these high-frequency vocalizations can propagate through the noisy forest, and in which behavioral contexts they are produced. Our main goal is to address these questions by studying black Jacobins and their vocalizations further in their natural environment.

Our study of the black Jacobin will be conducted at the Instituto Nacional da Mata Atlantica (National Institute of the Atlantic Forest - INMA) in Santa Teresa, ES, Brazil, a biology museum with strong educational and cultural ties to the local community. We also intend to join local outreach efforts,

enhancing this Institute's ability to convey in its events and display the importance of tropical forest conservation and research.



2021 HEILIGENBERG STUDENT TRAVEL AWARDS

Congratulations to **Saumya Gupta** (University of Minnesota) and **Valerio Tettamanti** (University of Queensland).



Saumya Gupta

Noise is ubiquitous in nature and has profound impacts on acoustic communication in humans and other animals. Perception of vocal signals is often impaired in high background noise. In animal communication studies, impaired perception in noise has mostly been attributed to a phenomenon known as energetic masking, which occurs when signal and noise produce competing excitation at the same peripheral auditory filter. Studies on the human auditory system, however, have determined that our ability to perceive speech in noise is also limited by the information processing capacity of the central auditory system. Surprisingly, this so-called problem of “informational masking” has not been addressed in animals, even though central processing is crucial for extracting biologically relevant information from animal vocal signals. Here, we studied the impact of informational masking on the auditory perception in Cope's gray treefrogs (*Hyla chrysoscelis*) by exploiting the unique features of the gray treefrog vocalizations and that of the amphibian auditory system. We generated informational masking conditions by synthesizing temporally structured noises that could potentially disrupt the processing of information-carrying temporal structure of gray treefrog vocalizations but were well-separated in frequency from signals so that they were unlikely to cause energetic masking. Using no-choice phonotaxis experiments, we found that female gray treefrogs were less likely to recognize conspecific advertisement calls in informational masking

conditions than in quiet and in the presence of band-limited noise (control masking conditions). We also found that this negative effect of informational masking increased with decreasing signal-noise-ratios. Together, our data provide evidence in support of the hypothesis that informational masking impairs the perception of vocal signals in gray treefrogs and highlights that central processes constrain animal communication in noisy environments.



Valerio Tettamanti

With more than 405 described species and a circumglobal distribution, damselfishes (Pomacentridae) are one of the most abundant and species-rich coral reef fish families. Damselfishes differ greatly in ecologies (e.g., benthic algivores, pelagic zooplanktivores, pelagic and non-pelagic larval stages), behaviour and in colour, which has recently been shown to correlate with visual specialisations (differences in visual gene expression (opsins) and retinal photoreceptor specialisations) in the adult phenotype. However, little is known about the earlier stages (larval and pre-settlement), which are crucial for successful settlement and therefore survival on the reef. Moreover, many damselfish species show drastic ontogenetic colour changes, but the ecological significance for changing colour remain for the most part elusive. Using a multidisciplinary approach, including high-throughput RNA sequencing (RNAseq), histology, calibrated photography, spectrophotometry and theoretical visual modelling, my thesis aims to investigate the development of the visual system and colouration in damselfishes from the Great Barrier Reef in Australia. First data from the RNAseq approach has revealed both interspecific and ontogenetic differences in visual gene expression. At settlement, some damselfishes already show the adult expression patterns, while others seem to rely on a different opsin gene repertoire early on in life. Few species express multiple copies of short-wave visual pigments (SWS1), which could be used for intra and interspecific communication in the ultraviolet, while others are longer wave-shifted, expressing two red-

sensitive pigments (LWS). These findings suggest the need of a certain degree of early visual specialization to maximize survival during the settlement stage, a bottleneck for survival on the reef. Ongoing experiments will investigate the retinal structures of various species, whether differences in visual gene expression are correlated with ontogenetic changes in colouration and what role phylogeny plays in the visual development of these fishes.



EARLY CAREER PERSPECTIVE: USING SOCIAL MEDIA FOR CAREER NETWORKING IN SCIENCE

Early career representative **Saumya Gupta** explores how social media allows neuroethologists to connect with each other.

Gone are the days when scientists had to rely mainly on conferences and workshops to build their global research network. Nowadays scientists worldwide are embracing social media and using it to make connections with like-minded researchers, share their research, and increase equity in science. This explosion in the use of social media for professional activities is particularly advantageous for early-career researchers who can now find support among their community, communicate and promote their research on a broader scale, build connections with collaborators and future mentors early in their career, and find jobs and funding opportunities. However, given the wealth of information and the fast-paced nature of social media, it is not always clear what the most effective strategies of using social media for career networking are. Below, we present interviews with three neuroethologists who shared their perspective and advice on social media engagement.

Note: If you have a topic in mind that you would like our early-career representatives, Saumya Gupta (gupta333@umn.edu) and Miriam Henze (miri@mhenze.net), to address in the next newsletter, please email them directly.

Adam J. Calhoun
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What are your impressions about the usefulness of social media for career networking?



Adam J. Calhoun

In my experience, people on social media are open to helping and giving advice. I have found that invaluable throughout my career, and it had very direct impacts on my career. For example, I have a review article with someone I met on Twitter. Also, I found out about my postdoc advisor through Twitter. When I

was looking for postdocs, I asked on Twitter if anyone has suggestions about who I should work with (in a particular area) and several people suggested my now postdoc advisor's name.

There are many social media platforms that academics use to discuss science. In your experience, are there some platforms that might be more useful for networking in science?

In academia, Twitter seems to be the most popular one. LinkedIn is very important for industry, but it is not used as much in academia. In the industry, recruiters primarily use LinkedIn to find potential employees. So, it can be very useful for anybody interested in joining the industry.

Many people, especially introverts, can find it intimidating to engage on social media. Do you have any advice for those people?

It is hard to engage on social media, especially if you are an introvert and are intimidated by interacting with people. But most people on Twitter are very open to discussions, and they notice when people interact with them a lot. So, selectivity ignoring accounts that are setup for fighting and engaging in meaningful conversations instead can be helpful. One more thing that is not as popular but could be used to network easily is to write blogs. My dad always said that if you really understand something,

you can always explain it to someone else. If people start writing blogs about their work, they won't have to engage with multiple people directly. It also might help them have constructive discussions because people are always looking for someone to explain things.

There is a growing fear among early-career researchers (ECRs) that their lack of digital footprint might negatively impact their job prospects. Do you think that is a fair assessment of the current job market?

I think not having a website or a google scholar page would have a negative impact because it would be harder to find those people. But I don't think not having a social media account is a negative yet. Although, it might be beneficial for making good connections with people on social media, which can be reinforced later by meeting them at conferences.

Any last advice for our fellow neuroethologists?

Remember that there are people who work on similar ideas outside your area of expertise. A great thing about Twitter is that one can easily see what is happening outside their little intellectual circle. That could potentially be helpful in formulating ideas.

Lauren O'Connell
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Lauren O'Connell

What are your impressions about the usefulness of social media for career networking?

I started using social media when I started my own lab. I use social media for finding papers and learning about social justice issues. I also use it for networking. For example, I have formed collaborations over

Twitter, and I do a lot of hiring from social media because I post jobs there.

There are many social media platforms that academics use to discuss science. In your experience, are there some platforms that might be more useful for networking in science?

I only have a Twitter account, which I use for professional activities. I think LinkedIn is very useful for industry, but not many academics use it. Although, it might be changing a little bit.

It is more challenging for students to build their network on Twitter than it is for faculty. Do you have any suggestions on how one can increase their visibility on social media without feeling like they are getting consumed by it?

Twitter has less of a barrier to interact with faculty than email or to approaching them at a conference. It is helpful to not only be a consumer of tweets but engage with other people. The more you engage, the more followers you will get on Twitter. But at the same time, it is important to take care of your mental health. Personally, I do not use Twitter all the time and I restrict my social media use to select time blocks.

There is a growing fear among ECRs that their lack of digital footprint might negatively impact their job prospects. Do you think that is a fair assessment of the current job market?

I do think that some type of online presence is necessary for jobs and networking. Having a website or other ways so that people can find you and know how to contact you is important. Also, if you are looking for a job, Twitter and other social media spaces are good places to find advertisements.

Any last advice for our fellow neuroethologists?

It can be hard to maintain mental wellness on social media when all you see is positive things happening around you – awards, fellowships, grants, jobs. Keep in mind that failure is a common feature of academic life, and in most cases, it is not visible on social media.

Catherine Perrodin

Sir Henry Wellcome Fellow
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Catherine Perrodin

What are your impressions about the usefulness of social media for career networking?

I haven't (yet?) gotten a job because of being on social media, and therefore, I cannot say that it is essential. The reason I started to use

Twitter was to practice expressing myself to the

point since it has a character limit: I see my Twitter presence as curating a content stream focused on communication, hearing, natural behaviour and diversity. I thought it was a great opportunity to practice science communication. Now, I use Twitter to keep up with new literature: I am more aware of recent research happening in and around my field than I ever was before. Also, people often post tutorials and advice on Twitter. So, I think, that even if you engage with social media passively, you can get a lot out of it.

There are many social media platforms that academics use to discuss science. In your experience, are there some platforms that might be more useful for networking in science?

I mostly use Twitter for science networking. I think that LinkedIn, although more business-oriented, also has some utility in the academic world: I use it as a dynamic professional address book. It is especially helpful in cases when I need to advise students about an alternate career path. I can connect the students with people I know on LinkedIn. It helps me to be a better mentor and keeps me in touch with opportunities outside academia.

Do you have any suggestions on how one can increase their visibility on social media without feeling like they are getting consumed by it?

I think it is important to think about your goals and think about what you want to achieve from social media. The reality is that with all platforms, there is a degree of instant gratification that can be addictive. Twitter is a fast-moving stream of information that requires you to be responsive. So, being aware of this

and making a usage plan that suits your social media goals can be helpful.

There is a growing fear among ECRs that their lack of digital footprint might negatively impact their job prospects. Do you think that is a fair assessment of the current job market?

Every researcher should be discoverable online. It does not have to be Twitter but a google scholar profile, or a simple web page with basic information, such as what you do, what you are interested in, and maybe a CV. If people do not have any kind of internet presence, it becomes hard to find them and offer them opportunities they might have been well-suited for.

Any last advice for our fellow neuroethologists?

Do not be afraid of networking. To many, networking might seem like an unauthentic way of asking for favors from people. In my opinion, it is not a constructive way to think about it because it stops people from engaging and prevents them from gaining valuable experiences and advice. I approach networking as finding areas of common ground with others, and thinking first of how I could help *them*.



A WARNING ABOUT PREDATORY CONFERENCES

A predatory organization called WASET has been advertising an “International Conference on Neuroethology (ICN)” that takes place twice a year in Paris or Kuala Lumpur. This organization is NOT affiliated with ISN and is on Beall’s List of Potential Predatory Journals and Publishers. Please do not respond to any of their solicitations.

The real International Congress on Neuroethology will take place in Lisbon Portugal from July 24-29, 2022. For more details, see <https://neuroethology2020.com/>.

Here are some tips gathered from around the internet for spotting a fake conference:

- The conference program is very broad.

- The language on the conference website or emails contains grammatical or spelling errors.
- The conference claims to be backed by overly impressive sponsors.
- Contact details are hard to find or include non-existent email addresses.
- Registration fees are higher than normal.
- Conference frequency is unusually high (e.g. twice a year instead of every two years).
- Turnaround time for acceptance of abstracts or conference papers is too quick.
- The list of speakers or authors of accepted papers include individuals from a broad range of disciplines (and/or you don’t recognize any names). Be aware that some predatory conferences use researchers’ names without their permission.

Steps you can take:

- Communicate with colleagues about conference attendance.
- Check lists of known predatory conferences.
- Search for the conference name and see if multiple, similar conference titles pop up.
- If you have any doubts, contact an officer of a trusted scientific society such as ISN.

If you have any questions, concerns or suspect another organization is targeting our members, please contact me at ghw23@case.edu. Please be aware that ISN does not share or sell membership information for any reason.

Gabriella Wolff
ISN Secretary

