



EXCURSIONS AND OTHER NEWS

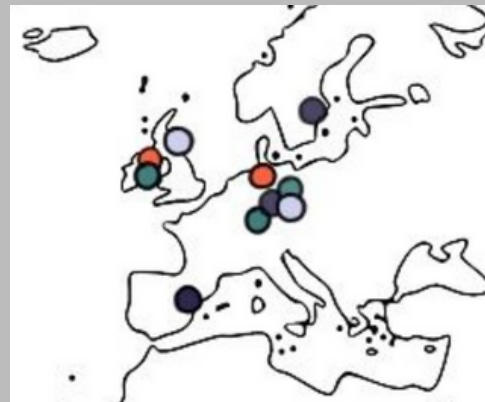
Small insights in student's or professor's points of view, field trips, and other stuff we do.

Oh The Places You'll Go!

Whether in a lab or a company, BioS students have the chance to go anywhere in the world to get a glimpse working in a variety of fields. So where have BioS students gone to complete their advanced lab rotations so far?



Asia
Bangkok



Hamburg
Frankfurt
Barcelona
Dresden
Europe
Berlin
Belfast
Dublin
Göttingen
Cambridge
Stockholm
Edinburgh



North America
Boston

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Science Communication: Career Talk

Nele Kheim

PSA (or public service announcement) for those of you who love science but do not see themselves working in the lab for the rest of your life. Science communication is a great way to closely stay in touch with science without pursuing an academic career.



Dr. Olya Vvedenskaya worked in academia for quite some time but went over to science communication after finishing her post-doc. Now working as a scientific communications officer at Lipotype, she told BioS students why people educated in science can also make great communicators and increase the outreach for companies or institutes. Data driven decision making was her key word - it's what scientists know best and what's necessary to succeed in communication and marketing. She also stressed that, while lab experience is important, we must also get out of the lab and the office to build a strong network, and of course also for mental health reasons. Thank you, Olya, for the energetic input!

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Lab Rotation in the Press Office

Layanne Abu-Bader

I first applied to the Biology in Society Masters course because I was very interested in the society aspect. I completed my bachelor's in biology, but my passion has always been with science communication, even more than conducting the research itself. This is because I found it very difficult to read scientific publications during my Bachelor's. I found that it took me three or four attempts to read a sentence before I finally understood, and my first thought was always how I would have written it. Also during my studies, I was often the one explaining new concepts in study groups, since I was able to put information into simpler terms. Since then, I have decided that I want to become a professor in Biology to help future scientists better communicate their research to the world.

For this reason, I did my first lab rotation in the public relations office of the school of science at TUD. During my time there, I got to read the newest research being conducted at the TUD from all departments in the school of science, and I was responsible for translating the research into articles that would be easily understood by the general public. I also wrote articles for the school of science website about news such as guest researchers, events, and awards. Aside from writing, I was tasked with teaching some better writing skills to the newest members of BioS during their away week in Bad Schandau. It felt so great to be teaching, and even better to see the enthusiastic response of the new students. On top of that all, I had a taste of the graphic design aspect of working in the press office by putting together event posters. By the end of my lab rotation, I had a newfound appreciation for the research in chemistry, physics, psychology, math, and, of course, biology being conducted right here at our university. It was a rewarding experience to be able to share that science with our community.

ANIMALS AND MONEY

This part of BioS Reports unravels interesting relations between animals and the economy.

Big Bad Wolf? How Wolves May Actually Benefit Our Economy

Aaron Clemens Mirko Anselmi

German fairytales are full of wolves, in contrast to German forests. Partly because of their bad image, wolves (*Canis lupus lupus*) were hunted to extinction and had been gone in Germany for more than 100 years. This was until the year 2000 when wolves started to repopulate the country[1]. Ever since the wolf came back, there has been a discussion about the economic impact of rising wolf populations.

Globally, *Canis lupus* can be found all over Eurasia. The population in Germany has grown constantly in the past years, counting 161 packs (=1175 individuals) in 2022[2,3]. The largest number of individuals in Germany is found in Brandenburg and Saxony[2,4].

Wolves are predators and play an important role in the complex ecosystem of the forest. They naturally regulate the population size of their prey. By hunting for weak and sick individuals, predators in general play an important role in disease control of herbivore populations[5,6]. Humans are not part of their prey and attacks are extremely rare[7]. However, wolves do not distinguish between wild animals and livestock which makes them a potential economic threat to farmers.

Wolves mainly hunt for forest animals like deer and boars, only 1% of their prey is livestock[8]. But wolf populations are growing and so is the number of attacks on livestock[9]. In 2021 roughly 3500 animals were harmed[10]. More than 85% of attacked livestock are sheep and goats[10, 11]. Horses and cattle are rarely hunted because of their size and their ability to defend themselves[12]. Farmers can protect their livestock against the wolf with measurable effects. Electrified fences, livestock protection dogs, safe shelters for the night and underground fences help to keep livestock safe[13]. Preventative measures are subsidized by the government with 16.639.800 € (in 2021). The government also compensates for some material damages caused by the wolf (498.433 €). Together those payments summed up to 17.138.233 € in 2021[14].

Now I want to estimate the financial damage the wolf causes by harming or killing a or a goat. Prices per goat or sheep lie between 30 € and 150 € so I assume a price of roughly 100€[15]. A harmed animal costs roughly half the price of the animal. A total of 3500 livestock animals were harmed (85% sheep and goat) by wolves in 2021, but the data does not indicate how many of those animals survived or were killed. In the best case financially, all animals were harmed but survived ($0,85 \cdot 3500 \cdot 100 \cdot 0,5$), in the worst case all sheep and goats died during the attacks ($0,85 \cdot 3500 \cdot 100$). This covers a range of financial damage between 148,750€ and 297,500€ in 2021. The value of the remaining 15,5% of attacked animals was not calculated here. With the damage compensation payments, this sums up to costs of 17,286,983€ up to 17,435,733€ in 2021. To buffer the underestimation caused by unknown costs of damage due to car accidents and harmed cattle and horses, economic costs are rounded up to 18 million Euro per year. Costs due to livestock attacks can still be lowered by improving and increasing the use of preventive measures.

Aside from the costs, potential financial benefits can be discovered in the comeback of the wolf. Sightseeing of free-living wolves may be one potential attraction for tourists. Since the reintroduction of wolves in the Yellowstone national park, 44% of tourists visit the park especially to see wolves in their natural habitat and tourism in general increased by 5%. This, along with changes in visitor spending increased the income of the park and associated shops by roughly 35.5 million USD[16]. Increased tourism is also visible in wild parks in Germany, but so far there is no survey on visitor behaviour change due to wolves[17].

Another positive side effect could be the behavioural change of wolves' prey. Wolves use roads for traveling which could make deer avoid those roads. This may lead to reduced car accidents by an average of 24%[18]. In Germany, in 2020/2021 198.730 deer were killed in traffic accidents[19]. Per deer related accident, insurance companies paid 3200 € in 2021, which sums up to deer related financial damage of 660 million Euros[20]. If the reintroduction of wolves would really lead to 24% less car accidents, 158,4 million € could be saved. With the annual costs subtracted, wolves could have a financial benefit of 140.4 million €. On the other side, the number of car accidents with wolves could potentially increase with a higher number of individuals (102 traffic accidents in 2022)[2].

A first approach on calculating the financial impact of wolves suggests that the benefits of reintroduced wolves in Germany could outweigh the costs by a factor of 9. So far however, it is not possible to argue if wolves are indeed economically beneficial currently. At least with the wolf's return humans get another chance of coexisting peacefully with a species they might be afraid of, and maybe there will be a fairytale one day with the wolf as the good guy.