UNIVERSITY OF CAMBRIDGE

CONSERVATION INTERNSHIP SCHEME 2020 REPORTS

CAREERS SERVICE

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Eleanor Fox – BirdLife International

I spent six weeks across July and August carrying out a remote internship with the Preventing Extinctions programme at BirdLife International. I was based in the species division of the Europe and Central Asia Conservation team. I completed a research project on pressures and threats to bird species across the European Union's member states.

I had a lot of freedom to determine my research direction and time management within the internship. Before it began, I met my internship supervisors on Teams to discuss potential project ideas. They gave me an overview of the sorts of work they were doing, and we discussed areas that I was particularly interested in (climate change!) as well as what I hoped to gain from the internship. From here, we decided to focus on an analysis of data collected by EU member states as part of the EU Birds Directive on pressure and threats to bird species in the EU.

My initial work on the dataset involved getting accustomed to how the data quality varied between different countries, species and seasons. I also drew upon multiple other sources to add to the original data, which supported further analysis later down the line. I carried out an overview of broad level pressures and threats (such as agriculture, forestry, climate change, and more), and then studied climate change in more depth, exploring how threats to species were expected to change over time, which species were worst affected and how the problem differed between countries too. Most of this work was carried out using Excel, which I had experience of from my degree of course, but I found that I became far more confident with it and could use it for a much greater range of tasks than before, due to such regular use of the program.

Although the entire internship was remote, I met regularly with my supervisor and still felt included within Birdlife, learning a lot about how the organisation worked and its ethos. At the beginning there was an online induction program, where new members of staff – in locations from Cambridge to Ecuador – were introduced to the CEO, as well as the global science, policy, communications and operations teams. Throughout the six weeks, I also attended team meetings for the Europe and Central Asia conservation team and had the chance to present my research on multiple occasions. This was a great opportunity to learn more about the work being done within Birdlife and allowed me to show how my project could be of use with their future objectives.

Overall, this internship was a really enjoyable experience. It was a great chance to experience working in a scientific setting, supported by policy, which contrasts with most of my prior experience which involved working in a policy setting, supported by science. I thoroughly enjoyed working on an extended projected beyond the context of my degree, learning new skills and different ways of working and problem solving. Of course, I learnt so much about bird conservation and I now have a far greater appreciation for the interaction between biodiversity and climate change; I look forward to applying this knowledge to my final year course.

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Emma Lecardonnel, United Nations Environmental Programme – World Conservation Monitoring Centre

My nine-week internship occurred remotely due to the pandemic. I had a great time and I learned a lot about the successes and challenges of biodiversity policy and structural governance within and across nations. In particular, I realised the importance of mainstreaming biodiversity conservation into all sectors of the economy, including agriculture.

I am very thankful to the Careers Service for advertising this fantastic internship opportunity. I am also very thankful to my two supervisors – Dr Mike Harfoot and Dr Michelle Harrison – for allowing me to learn from their rich experience and to investigate biodiversity policy with a lot of freedom.

My internship was called “Designing a brighter future for biodiversity” after the name of a new multiyear project aiming to identify pathways to sustainable, evidence-based and biodiversity-friendly policies at all levels within countries. The goal was to create a network of policies for different countries that would include how commitments ‘cascade down’ to the local level where individual actions impact biodiversity. This involved looking at how national commitments related to biodiversity (under the Convention on Biological Diversity) are implemented at subnational levels (regional and local levels) and researching whether science was used to design policies and assess their effectiveness.

I started with a literature search on global biodiversity policy setting, Western European countries’ NBSAPs (national biodiversity strategies and action plans) and EU biodiversity policies. In order to narrow down my focus, I studied France’s NBSAPs in the area of agriculture through its most recent reports submitted to the CBD on progress made towards the 2020 Aichi targets on incentives, pollution, consumption and production. I also studied the most recent national voluntary review submitted by France about the implementation of the Sustainable Development Goals (#2 and #15 are related to agriculture). This allowed me to get an idea of the policy decisions made by both the Environment and the Agriculture Ministries in France. To investigate policy planning and action at the subnational levels, I selected 4 French regions with an important agricultural activity and I analysed their regional biodiversity plans. I used Dr Sutherland’s Conservation Evidence online open database to research how specific agricultural practices impact local biodiversity.

This research project allowed me to better understand how national commitments made in the context of a global environmental agreement are translated into national and regional policies and action plans. I also researched the competencies of local authorities (mainly Regions and municipalities) in the domain of sustainable agriculture and biodiversity action and monitoring. Talking to members of the Policy Support Team of UNEP-WCMC gave me a better understanding of the mechanisms that often hinder policy implementation, effectiveness and assessment at subnational levels.

I attended fascinating webinars by the Cambridge Conservation Initiative on the politics of conservation in violent contexts; engaging the finance sector for sustainable agriculture; the Development Corridors Partnership (a research project on existing and proposed development corridors in Kenya and Tanzania); the history of seed banks and its link with food security; an introductory training course on R software; and green economy development in mountainous regions of the Global South.

The Science Team was friendly, enthusiastic and very open and patient with my questions. Weekly tea meetings with the whole Centre and with the Science Team were a great occasion to meet more people and to learn about their current projects. Alongside my Master in Environmental Policy, I am still editing and expanding upon my project report and in contact with some members of the Centre.

Kerry Smith, United Nations Environmental Programme – World Conservation Monitoring Centre

I undertook a 12-week internship at UNEP-WCMC this summer, as the Next Generation Biodiversity Modelling intern in the Science team. My work was based around the Madingley Model, a general ecosystem model which aims to make mechanistic predictions about the structure and function of whole ecosystems on land and seas, although I focused on terrestrial ecosystems.

I ran Madingley through a newly developed R package, which greatly increased the ease with which I could gather results. During my time at WCMC I investigated the effect of land use change and climate change on ecosystem functioning. To do this, I first had to develop metrics of ecosystem functioning. Using outputs of the model I was able to develop around 10 ecosystem functioning metrics that could be used to understand and visualise how the composition of the ecosystem was changing in response to applied land use

change or climate change. I found this process particularly rewarding as it encouraged me to think in abstract ways about how ecosystems work, and how these processes can be detected and communicated. It was also great for developing my numerical and statistical skills.

Next, I applied land use change and climate change, in varying severity, over a period of 160 years. I also applied land use change and climate change together, to investigate interactions between these pressures on ecosystem function. I used random forests (ensemble machine learning method used for regression in this case) to interpret the results. I found that despite marked decline in abundance and biomass, ecosystem functioning metrics such as functional similarity, mean body mass, and rate of insectivory, show little response to these pressures. This could be because the metrics were not very sensitive; functional similarity did show notable decline in response to warming but resulted in very little cumulative change. Alternatively, it could be that this finding is actually representative of reality, as it agrees with findings of empirical studies; that tipping points in ecosystem functioning are very difficult to detect. It is my intention to read around this possibility further.

I found carrying out this project extremely interesting and contributing to the great work of UNEP-WCMC was very rewarding. The Science team were very friendly and welcoming, which made my experience all the more enjoyable. I got to learn about the role of the centre within the broader context of conservation, and how work from different projects and different teams around the centre contributes to this role. Alongside my project I was able to attend webinars and GIS training, which added to my knowledge of conservation topics and gave me skills which will be useful for my career in future. I would greatly encourage people to apply to UNEP-WCMC internships, and particularly this one if it is running, as the Madingley model is awesome and worth learning more about.

Sam Goldsmith, Wildlife Trust – Bedfordshire, Cambridgeshire & Northamptonshire

My internship in the summer of 2020 with the Wildlife Trust at Trumpington Meadows reserve, has definitely been a highlight of my year. As all my other plans were being cancelled due to the pandemic, it came as such a relief to hear that the internship would still go ahead. This was possible due to the highly practical and outdoors nature of the role. The office was formally closed and was only used as a base, no working allowed.

Therefore, if thinking of applying bare that in mind. Even without COVID you will spend the majority of your time in the field. For me this was absolutely wonderful. Coming from Dorset, a land of heathland and chalk downlands, I was not familiar with a dry unimproved grassland-habitat such as Trumpington. The diversity and abundance of insects was breath-taking, and I almost forgot that I was a birdwatcher, instead becoming an amateur lepidopterist as a result of weekly butterfly and moth surveys. Additionally, there was a whole suite of plants to familiarise myself with in order to reliably carry out grassland surveys.

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However, I did definitely feel a sense of not having a true reflection of what a ranger’s role would entail. Data analysis and other IT work was minimal, being restricted to one day a week homeworking due to the pandemic, instead of being integrated into the week with available office space. Nevertheless, the experience was still a fantastic development opportunity and I would thoroughly recommend it to anyone passionate about conservation on the ground. No doubt in years to come, there will be more opportunities for more advanced data analysis and GIS under supervision in the office.

In terms of what I did on the internship, I would break it down into three areas: practical

conservation, research and monitoring, and public engagement. A definite strength of the internship was that it provided a holistic experience – all three of these areas are vitally important for reserves work. Practical conservation tasks involved hay raking to maintain the nutrient profile of the grassland and ragwort pulling to make the hay sellable. Research and monitoring tasks involved grassland surveys, butterfly and moth surveys, mapping work and QGIS, and setting up our own surveys to be carried out in the future. Public engagement involved assisting with some community initiatives on the reserve, communicating the Trust's work with residents on the Facebook page and blog writing.

Overall, the internship was a great way to spend six weeks. My insect and plant ID skills improved dramatically, I learnt the fundamentals of QGIS and I became more confident with using social media as a tool for conservation communication. Finally, the staff are wonderful and full of conservation career wisdom!