



UNIVERSITY OF
CAMBRIDGE

CAMBRIDGE BIODIVERSITY INTERNSHIP SCHEME

CAREERS
SERVICE

REPORTS 2018

www.careers.cam.ac.uk

Alice Stuart – Birdlife International

This summer I undertook an eight-week internship at BirdLife International. A valuable, although at some points trying, experience. BirdLife is a secretariat, a non-governmental organisation consisting of multiple partner organisations from around the world, each of which do relatively local “on-the-ground” conservation in their respective areas, each reporting back to the global headquarters, situated in the David Attenborough Building in Cambridge. As a global organisation, BirdLife is responsible for many things: updating and maintaining the IUCN Red List of Threatened Species™ for all 11,000 bird species; managing the global database for Key Biodiversity areas; and carrying out, coordinating and collating the results of a number of multinational conservation projects. The partner organisations are each able to work individually, carrying out the research and conservation projects they see as important for birds in their region, receiving funding and guidance from the global headquarters.

The majority of my time as an intern was concerned with improving the integrity of the Red List datasets and profiles. Initially, this included proof-reading the profiles of species covered by species specialist groups (SSGs) to find mistakes such as spelling, grammar and referencing. This acted as a crash-course in the fields used in the Red List and how they were meant to be filled out, as well as the difficulty in maintaining the integrity of a dataset characterised by incremental improvements. Unfortunately, as we did not have access to SIS (Species Information Service), the platform through which edits to the Red List are made, we were unable to institute these changes, instead gathering them in an Excel spreadsheet. As well as this, we began to work through the backlog of magazines and publications which needed to be read through in case they contained new information on a species’ range population size and trend. This provided me with some information I never expected to know, such as all of the major UK twitching events over the past few years – including a Brown-footed Booby found on the UK coast - courtesy of Birdwatch magazine.

The majority of our time was spent updating the “Major Threat(s)” text, used in the Red List profile to contextualise threats believed to face the species for seabirds. This provided an opportunity to practice writing a concise and factual text, finding and incorporating information from scientific literature. This also gave an insight into the difficulties faced by BirdLife when updating the Red List, any change in status is preceded by a period of consulting experts through the BirdLife forums, many of which don’t reply, with those that do often opposing the changes proposed. I also had the opportunity to carry out some of the analysis for a

report written on the East Atlantic Flyway Initiative (EAFI) which aims to provide a coherent approach to the conservation of migratory birds across the countries covered. This included comparing the protection statuses, reported by governments and BirdLife partners in the region, of Important Bird and Biodiversity Areas (IBAs) in existence due to their importance to migratory birds. Due to leaving on the day of the deadline for sending updated Red List profiles to IUCN, the end of my internship was spent proof-reading species profiles on SIS and instituting any required changes.

This internship has been a valuable experience, but not without its downsides. Due to a lack of desks in the office I have spent the majority of the internship either at a desk formerly for receptionists, and receiving jokes asking whether I was one, followed by moving between free desks left by members of staff on holiday. On two occasions we were left to work in a near-empty office as the team had gone on an away day, in one case to BirdFair, a national celebration of birds and their conservation which the interns had been invited to the year before. Despite this, the biodiversity internship scheme offers an incredibly valuable opportunity to experience office life and observe the inner workings of a global conservation organisation, something for which I am thankful.

“This internship has been the best kick-starter I could have ever hoped for.”

Alisa Davies – UNEP-WCMC

I have been wanting to work in conservation since I was a child and when I heard about the WCMC internships, I knew it was exactly what I needed to really get started. My degree has been in psychology and I did not initially know where to begin with applying it to conservation. This internship has been the best kick-starter I could have ever hoped for.

During my internship, I was working to support the centre’s Ocean Literacy and Social Science projects. Ocean Literacy refers to a person’s understanding of the ways the ocean affects them, and the ways they affect the ocean. A more Ocean Literate society is better equipped to protect its marine environment. I had two main tasks during my internship. The first was to draft a review of a UNESCO document that proposed a range of

activities for teaching children and young adults about ocean issues. My job was to suggest ways that these activities could be extended to promote behaviour change. The second task was to review the current literature on behaviour change strategies and how they could be applied to issues affecting the ocean. I then summarised these findings in a report, which will be used by the team in their future social science work. This work was challenging as I was collating, organising and analysing large numbers of papers and documents. However, this really helped to improve my organisation skills. I also needed to make the information accessible for a non-specialist audience and this was a useful exercise having just come out of my psychology degree. In my last week, I gave a brief presentation on my report to members of the centre.

One of the most rewarding and challenging aspects of my internship was the fact that the work really mattered. While this was exciting and made me feel valued, the responsibility was also intimidating at times. Still, my line managers were supporting me every step of the way. We had regular meetings, both work related and pastoral. In my work meetings, I got to play a really active role in determining the direction and shape of the documents I was creating. In the more pastoral meetings, my line manager got us both to write down my achievements and things I was proud on post-it notes. This activity has helped me to become much more confident in general.

Even beyond these meetings, the centre placed a real emphasis on personal development and encouraged us to take opportunities. I got to participate in both assertiveness and GIS (Geographic Information System) training and a session was provided to give us advice on job applications and interview technique, information that will be very useful moving forward. I was also encouraged to independently attend a workshop on conservation co-management strategies at the David Attenborough Building. Throughout the internship, everyone was only too happy to have a chat, offer advice and tell me about their experiences. I now have an amazing group of contacts from the centre and beyond who I will continue to keep in contact with.

Finally, the centre itself was the most welcoming, upbeat places I have ever worked. Announcements on a Wednesday were always accompanied by considerable amounts of laughter and cake. In fact, cakes and laughter were a common occurrence everywhere in the building. There were weekly drinks on a Friday, where I had some great chats with people and got to know others outside my team. I have made some wonderful friends during my internship who I hope to keep for a long time.

Overall, my internship was an incredible experience with a group of wonderful, dedicated individuals. Anyone doing a WCMC internship should take every opportunity available, as so many are offered. I hope that at some point, I can return to continue working at the centre.

Bethan Clark - UNEP-WCMC

Over the summer I have been undertaking a 12 week internship with UNEP-WCMC. UNEP-WCMC is a partnership between the United Nations Environment Programme and the World Conservation Monitoring Centre, an NGO. UNEP-WCMC works to inform, facilitate, and support decision- and policy-making for conservation and biodiversity goals internationally. I am coming to the end of my 8th week with UNEP-WCMC, so my internship will continue for another 4 weeks. I am with the Conventions and Policy Support (CPS) team, which is now part of the Ecosystem Assessment Programme. This team focuses on facilitating the work of multilateral environmental agreements such as the Convention on Biological Diversity (CBD).

My internship consists of two main strands. Firstly, I have been reviewing the documents submitted to the CBD meetings in order to identify where UNEP-WCMC has made a significant contribution, and the decisions of the Conference of Parties (COP) to the CBD in order to identify references to the work of UNEP-WCMC. The overall aim of this is to assess the organisation's ongoing impact at the CBD meetings including the COP. Understanding this impact is important for the organisation to communicate their strengths at the COP and beyond. To do this I have been exploring ways to visualise this data, once I have identified the correct documents and decisions. This has ranged from simple Excel graphs, to creating more complex charts with Google fusion tables and R. I had to teach myself some R coding to do that! This task is a satisfying combination of guided and creative, since there are clear criteria for identifying the raw data but I have been able to investigate the data visualisation tools I think would work best.

This is the task that was explained in the internship description, but due to the direction my internship has taken I have spent more time on the second strand of work. The second strand is assisting with the work of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). IPBES is an international body that was established to strengthen the science-policy interface for biodiversity and ecosystem services, like the IPCC aims for climate change. One of the ways it is planning to achieve this is by creating an

online catalogue of policy support tools and instruments, such as laws, financial approaches, and social interventions that can be used for conservation purposes. UNEP-WCMC has the role of providing technical support on building this catalogue. To start filling the catalogue, I am going through the IPBES Regional Assessments to identify policy instruments and tools discussed. Then I research each one and write up summaries, effectiveness evaluations, and contextual information for entry into the catalogue. I also helped out at a meeting of experts on the topic, organised by the CPS team, and have been assisting with the follow up from that such as drafting reports from the meeting for the upcoming major IPBES meeting.

I have learnt a lot in a short amount of time during this internship. The nature of my work means I have covered a lot of information on a whole range of policies, which has given me a good overview of the policy landscape. This is exactly what I was looking for, as I have been interested in science policy for a long time. It has been a steep learning curve, especially as my academic background is not in conservation (for Part II I specialised in development with the Zoology Department), but this has not been a barrier. Everyone at the centre is very friendly: people readily offer help and advice on anything from what you're working on to your career intentions. I'm looking forward to the remainder of my internship!

“It has been a great way to see conservation management in action and apply ecological theories learned at university to a variety of real life examples.”

Calum Maney – UNEP-WCMC

My 12-week internship was based with the Science Team at the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC). This team works alongside all of UNEP-WCMC's projects across other teams, as well as doing their own research for groups all over the world. With a motto of “knowledge that makes a world of difference”, UNEP-WCMC have played important roles in performing research and

providing guidance to solve conservation problems for over 40 years. My project for the 3 months was centred on cocoa and biodiversity modelling. I was working as a part of the CocoaSoils project on promoting sustainable cocoa worldwide and was tasked with working on a model in the PREDICTS framework to analyse the response of biodiversity to land-use change in and around cocoa plantations. This project involved skills I had not developed in the past in analysis, modelling, data organisation, communication (with authors and scientists from all over the globe) and teamwork. This involved a lot of background research, literature searching, extraction of useful data, and writing requests to authors. This provided me with great perspective when it comes to doing scientific research, as I hadn't considered before quite how collaborative a lot of conservation science is, especially when it comes to ecological modelling on a large scale.

The help I received from members of my team was absolutely fantastic. My project supervisor was extremely helpful in walking me through the steps needed to undertake my research and was equally keen to help me develop my broader skills, such as programming and using GIS tools. In fact, through this internship I have been able to attend skills training sessions, as well as using “continuing personal development” time to go to classes on skills that will contribute to my future as a conservation scientist. All of the staff were very willing to discuss career opportunities with me, helping to suggest experience I could look for after the internship. The team went above and beyond to make sure I felt I had gotten something out of the project, and that really stuck with me as a highlight of work with UNEP-WCMC. I also worked alongside the PREDICTS team, which works both in UNEP-WCMC through my supervisor and in the Natural History Museum. I was lucky enough to collaborate with these groups on the modelling side of things, as their expertise and resources were invaluable to my analysis. I especially enjoyed going to work at the Natural History Museum for a day during my trip, getting to experience the field from an academic perspective too.

The UNEP-WCMC centre on Huntingdon road was a friendly and welcoming place to work. With regular informal meetings to discuss progress across the team, as well as organisation-wide tea on a Wednesday where successes, new hires, and big news were discussed, I always felt up-to-date with the organisation. This fostered a very understanding environment between the teams and helped everyone understand how the larger projects come together. Equally, getting to work in the DAB was just as good in a different way: being around so much interesting and important work, I felt like a part of something bigger. One of the highlights of working in the wider Cambridge

Conservation Initiative was that I had access to some of the events that went on there. The best of these was the Conservation Leadership MPhil reunion event, which ran over three days in August. I went to a debate from four global conservation leaders from around the world, and I also enjoyed attending the Alumni Presentations event the next day, which showcased each of the cohorts and what they have achieved since studying in Cambridge. This inspired me, as it highlighted all the different ways to contribute to the field of conservation and made me optimistic about my own potential future. Being lucky enough to see Sir David Attenborough give a talk was an added bonus!

In summary, this internship has provided me with key research experience needed to advance my career into its next phase. I have learned a lot about the operation of global conservation NGOs, and the difference they can make to people, as well as biodiversity, all over the world.

Heather Rigby - University of Cambridge Environmental and Energy Section (Living Lab)

This summer, I carried out a Sustainability Communications and Engagement Internship for 8 weeks at the University of Cambridge Environmental and Energy (E&E) Section, which is part of the University's Estate Management. The internship is run through the Living Laboratory, which is part of E&E.

This project involved contributing to E&E's work to engage staff and students across the University in sustainability.

The aim of this project was to build upon previous work to improve E&E's communications and engagement techniques, involving the better embedding of processes, support for the development of a revised communications and engagement strategy, and development of resources for the coming year to encourage engagement on environmental matters across the University.

Throughout my internship, I undertook a number of tasks. Firstly, I reviewed and redesigned the E&E Communications and Engagement Strategy, to develop consistent and key messages on core topics as set out in the Environmental Sustainability Vision, Policy and Strategy. I reviewed current communications and engagement work to inform the writing of the strategy, including a review of the website, for which improvements were suggested. I designed and analysed a survey on staff

engagement with sustainability and fed back departmental results. I analysed the 2018 E&E student engagement survey and the 2017 NUS student skills survey to inform student engagement work. I developed resources for the coming year to encourage engagement including a calendar for the year, content and scheduled posts for social media for the year, templates and standardised resources for 'Spotlight On' months. I liaised with departmental contacts on types of support requested regarding environmental engagement and communications and completing spreadsheets on timings, contracts and type of content for departmental newsletters. I completed the compilation of the *GreenBRIDGE* resources to write an article that was sent out in the E&E newsletter, *Greenlines*. I carried out ad hoc support on Green Impact, including assistance in the creation of a Youtube video to promote the Green Impact scheme. Lastly, I helped organise an engagement workshop for staff in which I gave a short interactive presentation on how to harness organisational culture to bring about change in the workplace.

This project has reaffirmed the central principle that effective communications and engagement has an important role to play in making the University more sustainable and achieving the *Environmental Sustainability Vision, Policy and Strategy*. It is clear that strategic communications and engagement techniques tailored to target audiences will be the most effective in conveying information and enabling behaviour change.

From this internship, I have gained much more knowledge about sustainability in the HE sector, including in-depth knowledge about environmental communications and engagement. The internship has taught me the responsibility of managing projects, and has enhanced my interpersonal and communication skills.

I am grateful to E&E to have given me the opportunity to intern with them, and I am especially grateful to the Cambridge University Not For Profit Bursary for enabling me to carry out this work.

Ho-Yee Lee, Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire

This summer, starting on 23 July, I spent 6 weeks at the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire as a Monitoring and Research intern, based at their head office in Cambourne. The Wildlife Trust BCN is a non-profit organisation that manages over 100

nature reserves for the benefit of wildlife and people.

As one of my first tasks, I visited some of the Trust's chalk grassland reserves, including Pegsdon Hills, Blow's Downs and Totternhoe Quarry to help with butterfly surveys. The data collected will be used in a post-doc research project by a member of a research group in the Zoology Department at the University of Cambridge, investigating the capability for different butterfly species to buffer their body temperature and how this varies with other variables. This involved measuring their abdominal temperatures and other physical characteristics, while also recording various aspects of the habitat in which they were caught.

I also assisted with conducting drone surveys at nature reserves, from which aerial maps and 3D landscape models can be constructed and analysed. As part of the internship, I learned how to use QGIS software to create maps of reed cover, hedges, scrub and mature trees in Wimpole, Pitsford and Summer Leys, which will be used to inform management plans for the reserves.

Promoting the work of the Wildlife Trust and educating the wider public about wildlife is also an important aspect of conservation work. In addition to QGIS, I also learned how to use Adobe Premier Pro to edit drone footage, creating promotional videos for reserves to use on the Trust's YouTube channel and website. Additionally, I posted regular updates on Facebook and assembled blog entries for the Trust's website.

Most of the time however, I was working outside of the office. This could range from helping to clear out and re-line the office's pond, to carrying out wildlife surveys. I particularly enjoyed conducting aquatic plant and water quality surveys in areas of the Great Fen, which will serve as an important baseline for future management plans. Volunteers also play a huge role and are important pillars of support to NGOs, and I had the honour of working with new and long-time volunteers of the Trust in reserve management activities such as pulling up invasive Rosebay willowherb, Goldenrod and Himalayan balsam.

My timetable was highly flexible, allowing me to take part in extra tasks in my free time. One weekend I attended the Peterborough Green Festival, while in another I volunteered to assist with the monthly dormouse box checks at Brampton woods – while I was unfortunate not to see any, I learned much about the history behind this ancient woodland and the flora and fauna within it. Throughout the internship, both staff and volunteers have imparted much new knowledge. It has been a great way to see conservation management in action and apply ecological

theories learned at university to a variety of real life examples. I also managed to significantly improve my animal and plant identification skills - a personal skill I wanted to improve this summer!

An internship with the Wildlife Trust has been extremely rewarding – I have developed new skills and knowledge, met many wonderful people and have a better idea of my future in conservation. I would like to thank all the staff at the Trust for being so welcoming and creating a friendly work atmosphere (not to mention for all the sweet treats)! One main goal of the internship was to experience many different aspects of the Trust's work, and I certainly did just that. I would wholeheartedly recommend this internship to anyone interested in conservation, to explore the different sides of conservation, develop relevant skills and relations, all while knowing you have made a positive contribution that benefits both people and wildlife.

Ida Petajasoja - UNEP-WCMC

I spent two months doing a conventions and policy support internship at UNEP-WCMC (United Nations Environment – World Conservation Monitoring Center). The center does a lot of work around data collection and provision for different biodiversity related goals.

During my time there I conducted a literature review of Environmental Impact Assessment (EIA) guidance documents. The focus of the research was on how well the mitigation hierarchy is incorporated into these guidance documents. The mitigation hierarchy is a sequence of actions to take in order to avoid, minimise, restore and finally to offset any damage to biodiversity in light of a quantitative goal. The research focused on the mining, energy and infrastructure sectors in three different regions. I also got to conduct interviews with experts in the field of conservation to complement the literature review. In the end I produced a written report of my findings and gave a lunch-time presentation at the center.

The internship scheme at the center provided the perfect mixture of challenge and guidance. I had quite a bit of discretion in how to delimit my research project as well as a lot of independence in actually executing the research. At the same time, my line manager and everyone else at the center were very helpful when any trouble did occur. The center also provides training opportunities - I received beginner GIS training even though it was not strictly relevant to my internship.

Doing an internship at the center was an amazing opportunity to learn about conservation and to meet

many inspiring people. I got a lot of good career advice, for example, the lead economist at the center spent a full hour discussing possible career paths with me. The atmosphere was very friendly and it was easy to get to know people – the social committee arranged a weekly social and a sports day after work. I would like to thank both UNEP-WCMC and the staff at the Career Center for providing me with this fantastic opportunity.

Isobel Shears – United Nations Environmental Programme-World Conservation Monitoring Centre

In the summer before beginning Part II of my Geography degree, I undertook research into fishing communities in Cambodia for my undergraduate dissertation. This sparked a deep interest in marine matters, especially the human-environment interface and socio-ecological interactions in coastal and marine areas. At the Cambridge University Geographical Society careers fair, I spoke to a Programme Officer from UNEP-WCMC, who encouraged me to apply for an internship through the Cambridge Biodiversity Internship Scheme. I was particularly pleased to find the “Social Science in Marine Governance” internship advertised; the project description appeared to suit my interests and skillsets, in that it focussed upon the role that social science plays, and has the potential to play, in marine policy and conservation.

The application process was simple and easy; following the submission of my CV and covering letter, I was called for interview at the centre. The interview was held by two Associate Programme Officers, and I was given a short tour of the building and the different teams. The application gave me experience of interviews and CV and cover letter writing. Upon hearing that I had got the internship placement, I was very pleased, and began planning the logistics of working at WCMC for 10 weeks from the start of August. Luckily, I live near to Cambridge, and so I applied for the Careers Service Not-For-Profit bursary to cover the costs of travelling between my house and the centre via bus, which I was awarded.

The experience of working at WCMC has been significant for my personal development, and I have gained wide and varied skills that are unique to this kind of working environment. UNEP-WCMC is a project-led organisation that collates data and information on conservation globally. My role was within the Conserved Land and Seascapes (CLS) programme, but working on marine issues specifically.

At the beginning of my time at the centre, I was allocated a line manager and technical supervisor, and given clear project goals. My internship objectives included producing three documents for internal use, but additionally, I was encouraged to suggest projects I'd like to be involved in, or work I'd like to help with. In this way, I felt I had an active role in shaping the responsibilities of my time at the centre. The documents I was tasked with producing included a briefing note on the social sciences, an annotated form of the centre's strategy document and literature review of Marine Spatial Planning. These documents involved systematic literature review, a skill I was familiar with from my undergraduate degree. However, I also held semi-structured interviews with members of the CLS programme, constructed online surveys, and held workshops to brainstorm ideas. These were new skills that I had the opportunity to gain in a working environment.

I expressed an interest in learning more about a number of projects that the CLS programme had been working on. As a result, my line manager suggested to her colleagues that I was available for proofreading or simple document production. During my time at WCMC, I proofread a number of the resources they have since published online and sent to clients. For example, one document I proofread detailed conceptual guidelines for the application of area-based management approaches to the achievement of the Sustainable Development Goals. From proofreading, I gained significant experience of the kind of project that WCMC works on, what high-level policy-making information documents look like, and what kind of marine issues are currently discussed at national and regional government levels.

Social science uptake in conservation policy and practice was discussed regularly at the centre, and listed as a potential priority action in the centre's strategy. As part of my internship, I worked with 3 members of the team to initiate the establishment of a Social Science Hub at the centre; a focus group or workshop type session to discuss social science findings, recent research and methods. In order to start the process of establishing the hub, I organised a preliminary meeting and wrote an online survey (through the program SurveyMonkey) to send out to the centre to gauge interest.

I was given the opportunity to present my work in a lunchtime session, and given support from my line manager and supervisor through feedback on practice presentations that I'd given throughout my internship. At university, presenting was a skill I sometimes felt I lacked confidence in, and would often avoid situations where I would have to present to a group. The support of the other interns and my superiors at WCMC was invaluable in building my confidence in presenting, and I have

gained useful experience in dealing with presenting nerves, and answering tricky questions from specialists at the centre.

Having worked in the field as a research assistant and during the data collection for my undergraduate dissertation, I found working at WCMC at the science/policy interface to be a completely new experience. However, I felt that my degree was relevant and useful, and that the work of the centre has the potential to make tangible changes in ways that research alone cannot achieve. The adaptability of my supervisor and line manager, and their receptiveness to my wants and needs, made my time at WCMC indispensable to my personal development post-university. The work I've undertaken at the centre has been so interesting and rewarding. As I'm coming to the end of the internship, I'm applying for an Associate Programme Officer position in the CLS programme, as well as looking for vacancies in other organisations where the aim is to act at the interface of research and policy to inform conservation policy and practice.

Matthew Harding – UNEP-WCMC

I spent 8 weeks working at UNEP-WCMC on the Madingley Model. In a few discussions at the start of the internship, we identified a number of different projects I could undertake involving the model, some of them based around doing software development on the model and some involving using the model to search for interesting phenomena - eg, ecological phase transitions. In the end, I thought it would be an interesting challenge to try and develop new features for the model, and improving the dispersal and predation mechanisms for animals in the model. This development work was all done in C++. I spent the first week getting a broad overview of the way the model worked and then started development work. At the end of the internship, I spent a few weeks analysing the output data and how the new implementation had changed things and gave a talk on the work I had done.

Outside of the specific work I did, I learned a lot about the type of work that is done in a conservation organisation, in general how one operates. Talking to staff their about the work they were doing was always a fascinating conversation. In general, I thought the internship program at WCMC was really well-organised. With this particular internship, I think it definitely helped to have a working knowledge of object-oriented programming, as well as git and github, but I'm sure someone with slightly different skills could also come up with an interesting project. I'd highly

recommend the internship to anyone looking to improve their programming and modelling ability.

Rachael Beasley – International Union for Conservation of Nature, Red List Unit

For seven weeks in the summer of 2018, I interned with the IUCN Red List Unit in Cambridge which is based in the David Attenborough Building. This unit aims to update and expand the IUCN Red List, which is an information resource that summarises the extinction risk of species across the globe. By doing this, they help promote conservation action for threatened species, and allow better prioritisation of conservation resources. My role as an Intern was to help fulfil the IUCN's aim through a range of admin tasks.

Before I started work at the IUCN, I had to complete an online training course to ensure I understood the main procedures and guidelines for the Red List. It only took a couple of days and was exceptionally useful; it allowed me to make a running start of my tasks and made me appreciate further just how useful the Red List is. It helped my confidence too, as I came in feeling far more knowledgeable about the criteria and definitions I would be using. After an introduction on the first day, my first task was to transfer assessment information on sea snakes from word documents to the Species Information Service database (SIS). Admittedly by the fourth, out of 26, assessment, I was finding it a bit tedious. However, it was an easy first task to start with, which helped me relax into my role. It also reinforced the guidelines I had learnt in the training course, and familiarised me with SIS, which I worked with throughout my internship. My motivation was also kept up, as I knew I was being useful; these easier tasks were still essential to ensuring the Red List was kept updated.

This was true for my later tasks as well, which required taking information from SIS and placing it in the Red List Index for corals and mammals; this information source allows trends on extinction risk to be more easily shown for key taxa. There were over 400 records to input and quality check, which took over two weeks. However, despite the depressing state that the world's corals are in, it went remarkably quickly. It soon became a competition with myself to see if I could beat my previous days record. In addition, I got to learn about United Nations Millennium Development Goal areas and became an expert at identifying Biodiversity Hotspots on species distribution maps. My final fortnight was spent doing a variety of

smaller tasks from adding references and taxonomic authorities to assessments, and species to working sets, to editing fields in plant assessments.

When I wasn't filling in SIS, I was emailing experts on a range of different taxa asking for information. First it was about discovering whether a species had been formally described, and later it was investigating whether species had been recently assessed. If not, I had to try and find contacts to politely pester people to do so. These were really fun tasks; I loved seeing how wide the IUCN network spread, and the willingness of so many experts and organisations to help out. On the downside, there was frustration as some people are far less responsive than others, and the problem is irritatingly common; one of the team said he was still waiting for people to reply for over five months! However, when people do cooperate, it's delightful and inspiring to see the experts work together. I loved being directly involved in the conversation as they discussed the queries and copied others into the fold. There is a real sense of community in the conservation world, which is something I was so elated to see first-hand so soon. I also liked the investigative aspect of it, as I tried to figure out who to contact, and what to do with the information I had obtained.

What also helped make the internship enjoyable were my supervisors who were wonderful; they were very approachable and patient, and always walked me through the tasks. Therefore, I never felt particularly daunted by having to work independently on them. This was especially true as I was also introduced to the rest of the team. All of them were friendly and open to questions if my supervisors were away or busy. I worked in the office every day, and I loved seeing everyone work together. The atmosphere was surprisingly relaxed and informal, and there always seemed to be a supply of treats around. Although I kept myself to a strict timetable, my working hours were very flexible, and I had the option of working from home if I wanted to. This overall relaxed atmosphere was something I found very surprising and broke my preconceptions of working at an office-based organisation. The internship also taught me more about having a good work life balance, which is something I never achieved while studying at Cambridge.

Upon entering this internship, I knew that I wanted a career in conservation, but wasn't sure which area in this wide field I would enjoy most. This internship was especially enlightening as it showed me the lesser known middle ground between research, and practice and policy. The tasks made me appreciate how much work there is to be done, with so many assessments having to be continually updated and smaller jobs having to be left aside

(That is until an intern comes along...). It was rewarding to see the behind-the-scenes work the Red List requires, and the amount of cooperation it actually takes. I loved too how meaningful my work was, and how it did contribute to the IUCN'S aim. More pragmatically, it showed me how quickly I could adapt to working somewhere new and grew my confidence for when I enter a permanent full-time role in the future. It was a real pleasure to have been able to assist the IUCN, while gaining experience, to help guide my career, and confidence in a working environment. I would like to thank my supervisors and team members for being so friendly and welcoming, and the Bursary Scheme which made it feasible to do this internship.

“The atmosphere was very friendly and it was easy to get to know people – the social committee arranged a weekly social and a sports day after work”

Sam Buckton - The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire

The Wildlife Trust BCN's Monitoring & Research internship – part of the University of Cambridge's Biodiversity Internship scheme – stood out for me as having a particularly varied work remit, with a combination of field- and desk-based activities. The internship has certainly lived up to expectations! I started a voluntary seven-week stint with the Trust on 18 June 2018 and have come away with a wide range of new skills and ideas.

The Wildlife Trust BCN aims to conserve wildlife across Bedfordshire, Cambridgeshire and Northamptonshire, improve public access to nature and inspire others to support conservation. The Trust's Monitoring & Research team focuses on wildlife surveys which provide information on species population trends and the impact of management interventions. Having survey data to hand is particularly important for making funding applications to support the Trust's work. A specific aim of this internship was to aid in undertaking surveys using an Unmanned Aerial Vehicle (UAV), otherwise known as a drone. My line manager is a licensed drone pilot, and the Trust is still discovering the versatility of drones as a conservation tool.

I enjoyed much of 2018's unusually hot summer outside in some of the Trust's beautiful chalk grassland reserves including Pegsdon Hills and Totternhoe Quarry, assisting in a post-doc butterfly project. Part of a member of a research group in the University of Cambridge Zoology Department, the project investigates butterfly associations with habitat and temperature. Practically, this involves catching butterflies with nets, identifying them, taking their body temperature with a sensitive non-invasive probe, and recording various other attributes of the butterfly and the site where it was caught. This will enable us to assess how different butterfly species vary in their ability to buffer their body temperature, and how this in turn varies with sex, condition, size, etc., while also revealing the preferred habitats and microclimates of different species. Ultimately, the project will help to inform the Trust's reserve management, with particular relevance for adapting to climate change.

Participating in the butterfly project has deepened my appreciation of the scientific process, study design, the hurdles faced when organising fieldwork schedules, and the fascinating ecology of butterflies. It has also given me ideas as to what direction my academic career could take in the next few years. I graduated in 2018 with a BA in Natural Sciences from Churchill College, University of Cambridge, and am now considering putting in a PhD application for the research group, working on a project focused on invertebrates and climate in close connection with the Wildlife Trust BCN. I am also keen to gain further research experience by applying as a research assistant with the Royal Society for the Protection of Birds (RSPB) in 2019.

As for drone surveys, these involved careful planning, including the notification of nearby airports and pre-programming the drone's flight path using specialised software on an iPad. The survey itself is relatively straightforward: press go and the drone automatically carries out its mission! The drone flies along high linear transects, taking photographs at intervals, and the resulting photographs are later stitched together into a composite image ('orthomosaic'). In this way, I helped to map scrub cover on the Devil's Dyke, hedgerows at Wimpole Estate and various other habitat features on other reserves. After completing an online training course, I analysed the drone orthomosaics using Quantum Geographic Information System (QGIS) software to produce maps which highlighted particular habitat types, and I included these maps in written reports. It was rewarding to learn that the report I produced for the Devil's Dyke will be used in a funding application for work to clear scrub encroaching on this reserve.

I undertook many other activities besides with the Trust. These included:

- grassland, hedgerow and ditch surveys;
- writing a management plan for Cambridgeshire's Hayley Wood;
- writing blogs and Facebook posts to promote the Trust's work;
- removing invasive Himalayan Balsam with the practical management work party (hot but satisfying work!).

A bonus of volunteering with the Trust is the opportunity to attend the Trust's programme of wildlife workshops for free. So far, I've gained confidence in identifying grasses, leafhoppers and froghoppers, and solitary wasps. I'm worried at how much natural lore is being lost among the younger generations as we become an increasingly urbanised species alienated from wildlife, so I'm keen to learn as much as I can - especially relating to more understudied groups of organisms - and hopefully pass on this knowledge to others in the future.

Thanks to the Monitoring & Research Internship I'm now more proficient in the identification of plants (including brown and crispy specimens!) and invertebrates, have a better understanding of woodland and grassland management and the challenges they face, and am a strong believer in the power of drones and GIS to do cool conservation stuff quickly and cheaply! I am currently completing another internship with the University of Cambridge Living Lab for Sustainability, and have been able to apply much of what I've learnt at the Trust as I'm working on a baseline biodiversity report and biodiversity action plan for the University estate.

Overall, it's been exciting to work with an organisation which places such strong emphasis on conservation informed by scientific evidence, and the contacts I've made at the Trust will not only be invaluable for my future career but will also hopefully remain lifelong friends. I'm very grateful to the Not for Profit Bursary Scheme for making this experience possible.

Thomas Kemenes - International Union for the Conservation of Nature

In my placement from the Cambridge Biodiversity Internship scheme I worked for the International Union for the Conservation of Nature (IUCN). I spent eight weeks working on the Global Invasive Species Database (GISD), which is a publicly available database compiled by the IUCN to

provide information on invasive species throughout the world. It was developed between 1998 and 2000, and in its twenty years it has compiled information on a huge number of species and has undergone much development to facilitate its use. The database is maintained by the Invasive Species Specialist Group (ISSG), which consists of a network of scientific and policy experts on invasive species. This massive network means that each profile is proofread by experts to ensure that all the information on the species is accurate and up to date. My primary task was to compile profiles on thirteen species, including invasive vertebrates, invertebrates and fungi.

Although the main goal of the internship was well defined, which helped me have a direction in the work that I undertook, I was given a lot of freedom as to how to do the work. The first thing that was immensely useful for me to be able to do this internship was that I was free to work from home once I learned everything I needed to know to complete my work. Of course, I wanted to stay in the Cambridge office of the IUCN for as long as I could to get to know more about the IUCN, but sadly I was not able to acquire enough funds to stay the full two months. Thankfully, the careers service was very kind and provided me with enough funds to stay for a month in Cambridge through their bursary scheme. In this month I had the opportunity to work at the office and ask as many questions as I needed to get the hang of compiling profiles for the database. I was also able to meet and talk to many of the people who worked at the office, most of whom worked on the Red List of the IUCN. Everybody was very kind and more than happy to tell me about their background, details of their jobs and how the IUCN is run. I got to learn about the Red List, all the work that goes into maintaining this large database of species, and the inner workings of the IUCN as a whole. On top of that, everybody was very welcoming and invited me to join them multiple times for cake, of which there seemed to be at least one home made one every week for everyone to share. Going home after those weeks I felt that I had learned a lot about the IUCN, and about the hard work and coordination that goes into all of these knowledge products created by the organization.

I was also given the freedom to choose which species I wanted to make profiles for. Although I had some in mind, there was already a list that was being worked on that consisted of high-priority species. These were determined by a newly developed assessment system called the Environmental Impact Classification of Alien Taxa (EICAT). The species on the list were classified as having a high impact yet were not present in the GISD. Because I was very keen to learn about these high-impact species, such as the Musk rat and a parthenogenetically reproducing crayfish

called the Marbled crayfish, I decided to focus on finishing that list. To compile one of these profiles, I had to gather peer reviewed literature or other authoritative literature relevant to the general biology of the species, such as the life cycle and description, the native and alien ranges, including the dates and ways in which the species arrived, the impacts this species has had, and finally management methods of the species, such as prevention methods, control methods and eradication attempts. From all of this literature I summarized the information into template documents that helped me separate the information into appropriate sections. All of this involved reading a lot of literature and learning to sort through it to gather all the relevant information without missing important points. Thankfully, I was also able to contact experts easily by email, and everyone was incredibly helpful in clarifying anything that seemed unclear from the literature. At first, my time in the office allowed me to ask all the questions I needed to learn how to sort the information properly and which information was the most important. My supervisor was very helpful in answering every question I had promptly and clearly, and I was then able to continue the work on my own when I left. Finally, sometimes sorting through so much information became tedious and difficult, and I learned a good lesson from one of the people at the office, which was to always focus on the end-goal when working on a project like this one. Although each species' profile may seem like a lot of work for only one entry, each is important, and as a whole the GISD is an incredible resource.

Besides compiling the information for the profiles, I also had the time to work on a number of other related tasks. One of the first tasks I did was to provide feedback on an online platform designed for easily inputting the profile's information into the online database. As I mentioned before, the GISD has been worked on for about twenty years and making it easy to input and access profiles to update them is a great improvement to the system. Because this system is not yet ready, I also decided to practice some of the theory I had learned from first year to write an R code that would make it easier for me to manage some of the formatting changes that have to be done so that reviewers can look at the drafted profiles. The database runs on a number of codes that you input to label whether and how a species is impacting an ecosystem, for example, and these have to be translated to words for the reviewers to be able to quickly proofread the drafts. The code that I wrote transforms all of these codes from the input file into the statements that they correspond to, which makes it much easier to format drafts for the reviewers. Although the online panel will eliminate the need for this, so the code will only be useful temporarily, the opportunity to implement what I have learned showed me practical ways of applying

knowledge from my course. Finally, after compiling each profile, I directly contacted researchers with experience on each species to ask them for permission to add them as contacts for the profiles. This was a great experience, as most of these researchers were very helpful. They not only often agreed to be contacts but asked if I could keep them informed on their progress and provided additional information for a number of species, even some that were not on the database yet. I later also had the opportunity to ask one of these experts to review one of the profiles I compiled and received their feedback promptly. This was wonderful because it showed me the essence of how this database, and the IUCN as a whole, has been so successful. These researchers were keen to provide me with their valuable time and help so that these profiles would be completed and of high quality.

While I was not able to stay at the IUCN office for all of my placement, the flexibility of my supervisor ensured that this internship was fruitful and enlightening. This internship allowed me to really develop my ability to direct my work independently, without ever feeling like I was alone if I needed help or guidance. Compiling these profiles taught me an incredible amount about invasive species, about each of these 13 species specifically, about the amount of cooperation that goes into making these databases and the incredible effort that hundreds of researchers make to create a supportive network for the projects of the IUCN. I feel that I have come out of it with a much deeper understanding of how the IUCN works and have been able to practice and implement much of the theoretical background that I have acquired through my Natural Sciences undergraduate. I highly advise this internship for anyone interested in conservation, whether they are considering a research or policy career, because learning about organizations like the IUCN is a great advantage in understanding the landscape in which a large part of conservation is played out.

“Doing an internship...was an amazing opportunity to learn about conservation and to meet many inspiring people.”

Tonje Fjågesund – Birdlife International

In June-August 2018, I spent nine weeks working for BirdLife International. BirdLife is a leading organisation in bird conservation and the world's largest nature conservation partnership! The Global Secretariat, including the Science Division, is housed in the David Attenborough Building and carries out governing work, influencing the other 121 partner organisations around the world.

I was primarily working with the Red List Team, but were also assisting other members of the wider Science, Policy and Information (SPI) department. My work revolved around data management and ensuring the integrity, coherence and relevance of the species database. I was presented with tasks well within my abilities and trusted to work mostly independently.

I started off proof-reading species factsheets to gain familiarity with the key documents that underlie and justify the given conservation status of any species. Subsequently, I took a more active role in editing and rewriting the section dealing with threats to seabird species. Later on, I browsed digital and printed literature to identify relevant publications and surveys, to update the information that is currently held in the database. Birds and their ecosystems are highly dynamic, hence numbers, trends and ecologies need to be revised as often as possible! Lastly, the 2018 updates were uploaded to the IUCN database where all Red List assessments are stored and the revised Red List species will be publicised later this year.

Through my work at BirdLife, I gained a thorough insight into the IUCN (International Union for Conservation of Nature) Red List categories and criteria, by taking part in each stage in the process of making a Red List assessment. I learnt that redlisting is a highly systematic process, strictly guided by a framework which is applied equally to all animal species, allowing for interspecific comparisons and priority-setting. With this rigour comes integrity and legitimacy, but also some problems; what I found particularly interesting were the borderline cases, which are not easily classified into a category, either due to data deficiency, dubious data, bias in research methods or inferences, sometimes leading to exaggerated concern from conservationists, or understatement of threats from exploiters with economic stakes in natural resources. The problems of fitting a discrete category framework onto a complex world, is also demonstrated by the sudden change in conservation status as taxonomy is revised, e.g. when a new species is being split from a previously lumped taxon.

Working with big datasets suited me well, as I feel comfortable working with a systematic approach. The work has admittedly been repetitive at times, but it also forces you to appreciate the unique features of each species and the undeniable notion that each and every one requires special attention. Only after laying that detailed foundation can one start making generalisations and tease out trends and wider lines to guide nature management and conservation action.

Comprising 121 partner organisations worldwide, BirdLife encompasses a vast global structure, uniting ornithologists around the world. This expanse and diversity is immediately discernible in the international staff in the Cambridge Office. BirdLife has a democratic way of working, exemplified by the two-way exchange between the central secretariat and national partner organisations and the online forums where BirdLife welcomes the opinions of external contributors in discussions about changes to Red List status. The forum delivers valuable information which might otherwise have been overlooked, e.g. recent data provided by the researchers of not yet published papers, but it also attracts peers who vigorously oppose downlisting of species they are passionate about (read: penguins). But even as a concerned conservationist, one must appreciate that The Red List would lose legitimacy if it did not take a neutral stance and reduced the threat category in accordance with new species data, documented recovery or reduced threat levels.

Working in the David Attenborough Building has been a nice experience. Situated in central Cambridge, now accompanied by the astonishing Zoology Museum, this is truly a hub for biodiversity and conservation research of international significance. As a student of Ecology, I have enjoyed taking my first dip into the conservation work place and learning more about the practicalities and realities of doing ecology professionally. I am happy to have spent my time making a contribution to a respectable organisation, working towards the overarching goal of establishing a more harmonious, equitable and sustainable relationship between nature and people. I end the internship feeling more confident in continuing and directing my future path through the professional conservation field and I stand back with many valuable learnings.

Finally, I would like to express my gratitude to my friends and colleagues in the Science, Policy and Information department (SPI), and to the Cambridge University Careers Service for bringing me this opportunity and enabling it through the not-for-profit bursary.

“I end the internship feeling more confident in continuing and directing my future path through the professional conservation field.”

**CAREERS
SERVICE**

University of CambridgeCareers Service

T: 01223 338283

E: enquiries@cam.ac.uk

www.careers.cam.ac.uk