Field Course Fortnight photo competition winner – “Students and biodiversity” – Bahamas. Yin Tan
This year was yet again one of great success for the Centre for Ecology and Conservation. In the Student Guild Awards we were crowned Department of the Year for the Cornwall Campuses. This not only evidences the excellence of our staff but the strength of the relationship with our students, particularly our student representatives, who engage so strongly in our agenda of codevelopment and improvement of educational content and process.

We have grown into a very strong department with nearly 1,000 undergraduates, nearly 100 MSc students and over 150 graduate research students. As the news of our growth and success spreads around the world, so more students from other countries join us. We are now proud to host students from all over the world as well as very many fellow Europeans. We seek to ever increase the diversity of our student body as we go forward. We are building strategic relationships with an ever-growing group of elite international institutions including University of Queensland and Chinese University of Hong Kong.

The degrees of our large student body are all focussed on aspects of whole organism biology – matching well our research strengths in ecology, conservation, behaviour and evolution. Many staff undertake marine research across these themes. This leads to a tremendous critical mass of interest in shared extracurricular activities through our wonderful student societies and organisations (see Student Societies). New for 2018 will see an expedition containing a number of our students, Sail Against Plastic: A Message from the Arctic which seeks to identify levels of non-visible pollution in the Barents sea and create awareness through art, media and film. Our students really do a great deal to make the CEC the marvellous department it has become.

We are a research-intensive unit and this year saw over £8 million in research funds awarded from research councils, government departments and charities as well as some significant prizes and fellowships (see Funding Awards). We also appointed a large group of research intensive faculty members and were particularly proud to receive a record number of successful EU Horizon 2020 Marie Skłodowska-Curie Fellowships (seven in total). It’s a good job our new buildings are well underway, they will be filled the day they open.

The CEC continues to be an exemplar in sharing science with our community (see Science in the Community). Our school’s programme continued apace reaching 4,000 students across 20 schools. We were again represented at the Cornwall Show and Penryn Day. In Falmouth Week our flagship event, Science in the Square saw 3,000 visitors treated to a veritable cornucopia of accessible science and then to end the year, the fourth annual Science of Christmas event was hosted by Falmouth Polytechnic. 2017 saw the fruition of the Professor Penny Stories which are a series of children’s books written by our staff and students. Each with a unique style and appropriate for a range of ages, these stories bring scientific research and natural history to life – from microbiology to animal behaviour and conservation. They are freely available to download on the university website where they have been read thousands of times.

One of the books, The Tale of the Turtle and the Plastic Jellyfish has already been translated into French and Greek, with other languages pending.

As the year ends, it sees me passing the baton of leadership of the Centre for Ecology and Conservation and CLES Cornwall to Professor Dave Hodgson (pictured right). It has been my honour to serve as Director and work for such an amazing group of students and staff. I have every confidence that Dave will help take the Centre forward to even better things. I will now lead the #ExeterMarine strategy across the University, an endeavour of which the students and staff in the CEC will form an important part.

Professor Brendan Godley
Director, Centre for Ecology and Conservation
Head of Discipline, CLES Cornwall

Welcome
Still growing in size and reputation

Written by Sarah Nelms
Illustrated by Kate Nelms

The Tale of the Turtle and the Plastic Jellyfish, by Sarah Nelms
Research Highlights

Marine turtles dying after becoming entangled in plastic rubbish

Entanglement in anthropogenic debris is recognised as a cause of mortality in marine turtles however quantitative knowledge gaps remain. A global summary, using expert opinion, reported entanglement across all species, life stages and ocean basins, with particular vulnerability in pelagic juveniles. Numbers of stranded turtles encountered were in the thousands per year, the majority dead with many experts considering this could be causing population level effects. Ghost gear contributed to most of reported entanglements. Collaboration among stakeholder groups as well as addressing research needs will facilitate the development of mitigating actions to begin to resolve and further understand the issue. Published in Endangered Species Research by Emily Duncan, Zara Bottrell and Professor Brendan Godley.

Forecasts help predict future of UK birds

Forecasts that predict how climate change will affect wildlife are improving, as demonstrated by research into UK birds. The accuracy of these models had never been tested before. The research tested how accurately different types of ecological models predicted range contraction and expansion of 20 UK bird species over the last 40 years. The latest generation of models, which directly account for important ecological responses to climate change, do much better at forecasting recent range shifts. For example, the Sparrowhawk has colonised the eastern UK since 1970, and this was captured by sophisticated models that included population growth rates and how far birds travel from where they are born. This means we now have tools that not only better forecast climate-driven range movements, but can be used to target conservation more effectively. Published in Global Change Biology by Dr Regan Early.

Diversity and immigration increase productivity in microbial communities

From a first kiss to a pipe discharging sewage into the sea, community coalescence (blending of multiple microbial communities into one) is common and therefore – possibly an important process. Using methane producing communities (MPCs) of microorganisms, we tested what happens when two (or more) ecosystems become one. Using MPCs allowed us to estimate, which communities (and their mixes) performed well: the more methane they produced, the healthier they were. Results show that the more communities we put in the mix, the better it functions. It produces as much methane as its best component community and also has a similar composition. If this is true for other systems, it can be used to optimise any process relying on microbial communities. Published in Current Biology by Dr Pawel Sworowski, Florian Bayer and Professor Angus Buckley.

Fish have complex personalities, research shows

Individuals of the same species, and of the same population, can differ consistently in the way they behave – a phenomenon known as ‘animal personality’. While personality has been demonstrated in many species, researchers are only beginning to appreciate its complexity. Observing individual Tinca tinca at its preferred habitat corridor repeatedly under conditions of varying stress (exposure to an unfamiliar environment, and to model predators), we found remarkable variation in their behaviour, including multiple strategies for coping with stressful situations. The predator models caused all fish to become more cautious, but individuals still retained their distinct personalities. Behaviour is flexible, enabling populations – and individuals – to respond rapidly to environmental changes, yet we also find that personality can be strongly conserved across such contexts. Published in Functional Ecology by Dr Thomas Housley, Maddalena Vierbuchten, Andrew Grimmer, Dr Andrew Young and Professor Alastair Wilson.

How camouflaged birds decide where to blend in

Many animals, and even some plants, rely on camouflage to avoid detection and recognition. This often involves looking like the general colour and pattern of the background environment. It’s been known for a long time that some species and morphs of moth can select resting sites and orientations to optimise their concealment, but little is known regarding whether individual animals have behaviours that enable them to do this based on their own specific appearance. Work by Professor Martin Stevens, Dr Jolyon Troscianko, Jared Wilson-Aggarwal and Professor Claire N. Spottiswoode shows that wild ground-nesting birds like plover and nightjars choose locations to rest that improve the camouflage of their own eggs and plumage. They can do this over a wide range of spatial scales, showing that behavioural modification of camouflage can be highly refined. Published in Nature Ecology and Evolution by Professor Martin Stevens, Dr Jolyon Troscianko and Jared Wilson-Aggarwal and Professor Claire N. Spottiswoode.

Drowsy dormice doze into decline

Even when a threatened species is protected, a major challenge for conservation is understanding how populations vary and whether conservation measures are doing any good. PhD researcher Cecily Goodwin has been working on a project supported by the Forestry Commission and Natural Environment Research Council to understand the conservation requirements of hazel dormice in British woodlands. Cecily has worked alongside the National Dormouse Monitoring Programme to use the records provided by dedicated dormouse monitors who have been counting the rodents in 26,000 nest boxes in 400 woodlands for more than 20 years. She identified a 72% decline from 1993 to 2014, despite their protection. This rate of decline may mean that dormice should be classified as Endangered in the UK. Dormice are likely to face a range of problems: Climate change and habitat loss are important but woodland management could also be key. One possibility, that Cecily is currently researching, is that more active woodland management may be needed, not less. Our further research is working with foresters to better understand the needs of dormice and how these can be integrated with active woodland management. Published in Mammal Review by Cecily Goodwin, Professor David Hodgson and Professor Robbie McDonald.

Otters learn by copying each other

Many animals copy others to tackle life’s challenges, but they are selective in whom to copy and when. Social learning research has focused on fish, birds and primates, while the dexterous, socially diverse and threatened otter species have remained neglected until now. Zoaia Ladds, William Hoppit and Dr Naelite Boogert showed for the first time that otters can learn by copying each other in smooth-coated otters, youngsters were 6x faster than their parents to solve novel food puzzles, and they were more likely to learn socially, suggesting ‘copy when young’ social learning strategy. Reinforcement efforts might benefit from facilitating the social learning of survival skills in these vulnerable species. Published in Royal Society Open Science by Dr Naelite Boogert.

Exeter researchers help to protect Peru’s river dolphins

The boto river dolphins (Inia geoffrensis) and the tuvuxi Sotalia guianensis are two species of river dolphin endemic to the Amazon. They are threatened by climate change, habitat degradation from dams, pollution and boat traffic and, more significantly, harmful interactions with fisheries. Since 2013, the Dolphin Research Project, led by Dr Joanna Alfaro-Shigueto, has been working with local communities in Peru to improve the conservation of these species. The Action Plan for the Conservation of River Dolphins and the Amazonian Manatee has been endorsed by the World Conservation Union and is currently being implemented in Peru. Dr Joanna Alfaro-Shigueto and Dr Jeffrey Mangel.

Climate change risk for animals living in prime conditions

As climate changes, many species will have to either move to new locations, or evolve to adapt to changing conditions at their current locations. This study examined whether 12 European bird species might be able to evolve to adapt to climate change within different parts of their geographic ranges. The populations that had the least evolutionary potential were those that currently live in the most favourable conditions, usually at the centre of the species’ range, and those that live in the toughest conditions were found at the very edges of the range. The populations that displayed the greatest potential to evolve with changing conditions were found living between the two extremes. Published in Proceedings of the Royal Society B by Dr Regan Early and Dr Jesus Martinez-Padilla.

Global warming kills gut bacteria in lizards

Recent climate change is a threat to biodiversity, and while many studies focus on climate-driven extinction risk of charismatic vertebrates such as birds, none to our knowledge has studied the consequences of climate change on gut microbial communities. Dr Elvire Bastian et al experimentally studied how future climate change affects the diversity of gut microbiota in a small vertebrate ectotherm, the common lizard. They found that warmer temperatures led to a large loss in bacterial diversity, with potential further consequences on hosts’ survival to climate change. By focusing on charismatic animals and forgetting microbial diversity within their guts, we might be underestimating climate-driven biodiversity loss. Published in Nature Ecology and Evolution by Dr Elvire Bastian.
Research Highlights

Insecticide-resistant flies ‘rubbish’ at courting females

Insecticide resistance sounds like a superpower for the average male fruit fly – but there’s a catch. Recent research by Professor Nina Wedell and Professor David Hosken have shown that the single genetic change which protects the flies from the pesticide DDT also makes males smaller, less aggressive and ‘rubbish’ at courting females. Resistant males are also more prone to ‘decamping’ – the technical term for giving up midway through a mating attempt. As a consequence resistant males have lower mating success than susceptible males. It is remarkable that such a trivial genetic change to a single allele can have such a dramatic impact on the morphology and behaviour of male flies. If carriers of resistance genes is generally costly for males, then this will have an impact on the spread and persistence of resistance alleles in nature. If we can figure out why resistant males have become reproductively less competitive, we could use this knowledge to develop methods to suppress insect pest populations. Published in Behaviour Genetics by Professor David Hosken and Professor Nina Wedell.

Climate change and fishing create ‘trap’ for penguins

When environments are degraded by human actions, animals may mistakenly select habitats that lower survival or reproduction. These ‘ecological traps’ can have profound consequences, but it had been unclear whether they operate in the oceans. Dr Richard Sherley and Dr Stephen Votier showed how seaweed penguins disperse across a large marine ecosystem, targeting cues that should indicate high prey abundance. Doing so compromised their survival because fishing and climate change have degraded fish stocks in the region. The study is the first to reveal the extent and effect of a marine ecological trap, and highlights the importance of matching conservation action to the scale of ecological processes. Published in Current Biology by Dr Richard Sherley and Dr Stephen Votier.

Computer game helps scientists understand animal camouflage

Could there be an advantage to being colour-blind? Colour vision varies markedly between species, and often within-species, and searching for camouflage prey is thought to be a task where limited colour vision could actually help a predator. We used online ‘citizen science’ games to pit people with ‘normal’ colour vision against simulated red-green colour blind people when searching for camouflaged nightjars or eggs. Contrary to our expectations, colour-blind participants were slower at catching the camouflaged prey than people viewing normal colours. However, over time the colour-blind participants learnt to overcome this disadvantage, even performing on a par with normal vision participants. You can play the games at: http://www.sensoryecology.com/games. Published in Behavioural Ecology by Dr Jolyon Troscianko, Jared Wilson-Aggarwal and Professor Martin Stevens.

Climate change has mixed effects on migratory geese

Migratory species are thought to be particularly vulnerable to climate change, with those living at high latitudes under most threat. Our long-term study of light-bellied brent geese shows that environmental conditions during a critical period in early summer play a central role in driving the demography of this migratory population. While warmer conditions are better for breeding success because of better rearing conditions, they are bad for female survival, because the ground nesting females carry out incubation and are more vulnerable to predation. With warmer years on the increase it seems likely that at some point in the future the increases in breeding success will not be enough to offset the loss of adult females. Published in the Journal of Animal Ecology by Dr Ian Cleasby, Dr Thomas Bedey, Dr Friedis Vglauderer, Dr Jenni McDonald and Professor Stuart Bearhop.

Year of the Mongoose

For the last 2 years, a group of researchers from the Centre for Ecology and Conservation, Penryn Campus and a team of Ugandan researchers have been following 10 families of wild banded mongooses living on the Mweya Peninsula in Queen Elizabeth National Park, western Uganda (Figure 1). This long-term study has been investigating the evolution of animal societies and is revealing the tensions that arise in even the most cooperative of family groups. Banded mongooses are unusual among mammals because multiple females in each group give birth together, usually on the same day.

The communal litter is raised by adult helpers called ‘escorts’, who form one-to-one caring relationships with particular pups (Figure 2). We’ve been wondering whether escorts direct care towards their close kin, but we showed this year that neither parents nor other escorts preferentially escort their own offspring, or discriminate between pups on the basis of genetic relatedness. Rather, this is a situation where pups gain from concealing their identity to avoid being attacked by infanticidal females. The importance of remaining anonymous can also explain why breeding females exhibit such extreme birth synchrony in this species – giving birth on the same morning mixes up the cues that mothers usually use to distinguish their own offspring from others.

Since extreme birth synchrony masks the identity of offspring, dominant female banded mongooses cannot use infanticide to suppress reproduction in their subordinates, as occurs in meerkats, Monitor lizards, and many other mammalian cooperative breeders. Instead, dominant females use another strategy to limit the amount of competition faced by their offspring: they violently evict multiple young females from the group. These evictions are sudden, chaotic and highly aggressive affairs. Females that are targeted for eviction are repeatedly attacked, driven out of the group and often wounded in the process. We showed the year that, to our great surprise, dominant individuals target their closest female kin for violent eviction, while allowing unrelated females to remain in the group. Using a game theoretical model, we showed that this type of ‘negative kin discrimination’ can evoke in cases where the recipients of aggression can put up a fight. In these circumstances, dominant females may do best to target closer kin for aggression because these individuals are less likely to fight back. Our theoretical and empirical results add to a growing recognition that patterns of aggression and co-operation among individuals depend on the extent to which animals can anticipate each other’s tactics and adjust their own behaviour accordingly.

Finally, this year we turned our attention to another very conspicuous feature of mongoose life – the violent battles that occur between neighbouring groups on the peninsula (Figure 3). Groups of banded mongooses fiercely defend their territory from rivals, and will kill the offspring of neighbouring groups if the conflict is more severe in banded mongooses than in meerkats, chimpanzees, or (to our knowledge) any other non-human mammal. Only human societies rival banded mongooses in terms of the lethality and violence of their intergroup conflicts. This year we showed that intergroup fights are driven by competition over food and territory, and conflict over matings. Fights are more frequent when food availability is low and population density is high, and when females are estrous. We then, that estrous females are often the initiators of intergroup fights because they lead their group into rival territory in search of matings with neighbouring males. Interestingly is a real problem for banded mongooses because dispersion is so rare – over 70% of adults never leave their natal group. By mating with neighbouring males, females are able to produce more outbred pups, which grow faster and survive better. The downside for males is that they suffer the costs of fighting. Males account for nearly all of the fatalities that occur during intergroup fights. Intergroup conflict is a major force shaping individual behaviour, survival, and collective decision making in banded mongooses. We are currently using specially designed GPS collars and drones to explore these effects, and hope that our theory about how intergroup fighting may promote the evolution of cooperation and teamwork, even among non-relatives.

Dr Faye Thompson and Professor Mike Cant

CASE STUDY

**EcoSoc**

This year, EcoSoc have been running even more events for our members and working with many external organisations on important conservation work. We are continuing our long-term monitoring project on the small mammals, bird ringing and moth trapping on campus. This information is more important than ever with the current developments on campus. EcoSoc are collaborating with Cornwall Bat Group on hibernation and bat box surveys, Butterfly Conservation and the National Trust doing habitat management, and Cornwall Wildlife Trust carrying out biodiversity surveys. EcoSoc has been lucky to be involved with the Cornwall Beaver Reintroduction Project at Woodland Valley Farm too!

We are carrying out various surveys at the reintroduction site to assess how the ecology of a new area is changing due to the beavers. We aim for all our events to improve the skills and employability of our members. Through these experiences members can complement their academic studies with necessary field experience.

This year, EcoSoc have been promoting the ‘Species Awareness Stall’, to raise awareness about some of the most important environmental issues we are facing today. At the moment, we are raising awareness about plastic waste and suggesting how people can make simple switches to reduce their use of single-use plastic. We are currently in the process of taking this further by working with staff and campus services to reduce plastic waste from outlets on campus. EcoSoc has had an extremely productive year and we have a lot more planned for the coming year so hope to continue our success!

**Wildlife Documentary Society**

Wild Doc Soc have had another busy year! We started running regular film nights in collaboration with other awesome societies, screening great films such as The Icy Game, Before the Flood, Chasing Ice and The Silent World. We have also held live screenings of Blue Planet II every Sunday night – a real highlight! One of our biggest ventures in autumn term has been setting up filming workshops to allow members to get hands-on experience with making their own documentaries – we look forward to seeing their films in a few month’s time. We were lucky to welcome BBC Planet Earth II producer Chadden Hunter, who delivered a thought-provoking talk on conservation in the media and provided great insight into filming Planet Earth II. To finish off the year we all got into the Christmas spirit at Polair Ball, hosted at Gylly Beach Café. We are looking forward to kicking off 2018 with a visit from Miranda Krestovnikoff!

**Bioscience Student Employability Committee**

Throughout 2017 we have continued to provide a variety of employability and networking opportunities for students. This year, we have had the pleasure of hosting a diverse mix of exciting speakers in our seminar series, from the local area and further afield including Dartmoor National Park Authority, Marine Conservation Society and Coutilbrige Nature Reserve in Costa Rica! Our annual careers fair was a huge success; it was the biggest and most varied fair to date with a wide range of organisations visiting to chat to students about careers and all things employability related. We can’t wait to see what 2018 brings!

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**Funding Awards**

CEC enjoyed many research funding successes during 2017, securing awards totalling over £3 million. Funders include the EU, Natural Environment Research Council (NERC), Biotechnology and Biological Sciences Research Council (BBSRC), Royal Society, British Academy, Human Frontiers in Science Programme, Darwin Initiative, Ascension Island Government, Department for Environment, Food and Rural Affairs (DEFRA), Met Office, Science and Technology Facilities Council (STFC), Forestry Commission, Natural Resources Wales, MAVa Foundation, Carter Centre, Wellcome Trust, Animal and Plant Health Agency (APHA), Marine Conservation Society, SeaLife Trust, British Horse Racing Authority, Racing Foundation, Rettokil, Wildlife Conservation Society, Songbird Survival Centre for Agriculture and Bioscience International CABI, Vincent Wildlife Trust and the British Ecological Society. Awards were made to Dr Edze Westra, Professor Tom Tregenza, Professor Kevin Gaston whose team will be using images taken by astronauts aboard the International Space Station to gain insights into the severity of ecological impacts of artificial lighting on the nocturnal environment; a study by Professor Robbie McDonald supported by the Carter Centre investigating infection and transmission of Guinea worms in domestic dogs in Chad, another to Professor McDonald from the Songbird Survival Trust to explore the role of predation by cats on songbird population dynamics; an industry collaboration between Professor Martin Stevens and Qinetiq funded by the BBSRC on optimising camouflage; an award to Professor Annette Brodeur from the MAVa foundation to look at the conservation of marine turtles in the Mediterranean region and an international collaboration between Dr Alex Thomson and partners in the US and Canada, funded by the Human Frontiers in Science Programme, to investigate collective behaviour and information transmission in heterogeneous societies.

We again celebrate the successes of our growing number of prestigious early career fellowship holders including Drs Laura Kelley and Neetje Boogert (Royal Society Dorothy Hodgkin Fellowships), Dr Stéphane Van Hoorebeke (BBSRC), Dr Camille Clyde (British Academy) and Dr Jolyon Trosianko (NERC Independent Research Fellowship). We also saw huge successes with the EU Horizon 2020 Marie Skłodowska-Curie Fellowship scheme, with 7 awards made to fellows at CEC and their supervisors: Dr Thomas Bodey (supervisor Professor Robbie McDonald), Dr Maxime Deres (supervisor Dr Alex Mesoudi), Dr Matthieu Giraudou (supervisor Dr Camille Clyde), Dr Maximiliano Tomarente (supervisor Professor Dave Hosken), Dr Keiko Oki (supervisor Professor Nina Wedell), Dr Uli Klumper (supervisor Professor Angus Buckling) and Dr Cecilia Nilsson (supervisor Dr Jason Chapman).
Field Course Fortnight

285 students. 35 academics. 8 field courses. 6 countries. 4 continents. 1 challenging fortnight.

One of our core principles is that shared experiences and capabilities; to deliver international experiences; to deliver first-class education and technology; and to provide multidisciplinary learning for global challenges.

A once in a lifetime experience, full of incredible people, experiences and wildlife.

Laura Juke, current student

Many of our field courses take place in January, in a concentrated fortnight, with students traveling to the Bahamas, Borneo, Costa Rica, South Africa, Tenerife, and Kenya. The wider impact of these field courses is delivered by a social media campaign. During this fortnight, students and staff document their experiences through various social media outputs, using the hashtag #fieldcoursefortnight to spread the word across the globe.

The final awards evening ceremony celebrated the social media campaign that took place during field course fortnight, where posts during the field courses were given prizes for certain awards such as the best wildlife shot and best blog.

Science with the Community

Science Outreach

During 2017, CEC researchers, staff and student ambassadors were involved with numerous outreach events across Cornwall and beyond. We reached over 4,000 students through partnerships with over 20 schools and colleges in Cornwall. We have also conducted mini research talks at some of our local schools delivered by CEC PhD students, which have been a great success and we hope to continue with more in 2018. We were also delighted to have presence at large events such as the Cornwall Careers Show and the Royal Cornwall Show, where the University had a stand for the third year, talking about our research, and running hands-on science activities with live invertebrates on the scene. For the third time we ran a Bioscience strand of the Exeter Progression Scheme, a programme designed for Year 12 students to develop their knowledge and passion for a subject. 40 students from Devon and Cornwall took part in seven practical lab and field sessions, all led by academics and students from the Centre of Ecology and Conservation, including a trip to Gyllyngvase beach where they conducted their own research project. We have already met with our 40 students for 2018 at the Progression Conference in Exeter, and have lots of exciting plans! We also have plans for another Maritime Museum outreach event early in 2018 which we hope to be even bigger and better than last year’s event.

Science in the Square

‘Why on Earth?’ was the theme for our 6th annual Science in the Square, during which over 3000 visitors attended the free family event held in August as part of Falmouth Week! Through a series of engaging talks, visitors of all ages explored topics including why on earth do animals have friends and why on earth do sea turtles cross oceans; ‘Brenda’ the turtle was a very popular character! Seven interactive zones offered chances for close encounters with rockpool creatures, microscopic organisms and exotic animal skulls. In ‘Earth Zone’ we joined forces with the renewable energy team, with their mesmerising interactive sandbox showing how landscapes are formed. Vice-Chancellor Sir Steve Smith attended and thoroughly enjoyed the afternoon. Thank you to all staff and students who worked hard to ensure the event was once again a remarkable success!

Science of Christmas

This was our fourth year of Science of Christmas which is a family friendly event and aims to discover the science of Christmas! It was, once again, a festive success and the whole audience were engaged throughout. Prof Brendan Godley acted as the compere and kept everyone in the Christmas spirit with some great singalongs! One of our PhD students, David Senderhauf, delivered a talk on ‘How to separate the naughty from the nice’, Dr Kimberley Hookins gave a very amusing talk on why we give gifts at Christmas, Dr Jason Chapman asked the question who is faster in the Christmas dash, which ended with a sonic boom; Dr Helen Bartlett from the ESI showed us how Santa can track and find you using cool GIS remote sensing technology! We had a fantastic turnout and thank you to all our amazing speakers and for inspiring all generations about science.

Students as Change Agents

Students As Change Agents is a scheme that allows students to play an active part in improving their student experience. Penryn Campus was particularly engaged with the scheme, with projects applying for the scheme including: Scifest, a science communication festival, a photography course, and a seminar/discussion group.

Wild Film Fest

In March 2017 the third annual Wild Film Fest returned to showcase top wildlife film-making and photography! The event included an afternoon seminar series with renowned professionals in wildlife documentary and conservation featuring Gillian Burke (BBC Presenter) and Dr Heather Hodriewy (ZSL). Elizabeth White (BBC Natural History Unit Producer) joined us to present the overall competition winner and to introduce the evening awards ceremony, which was hosted by University of Exeter alumni, Lizzie Daly. There was not a spare seat in house on the night! It was a fantastic event enjoyed by all, celebrating amazing student talent in the field of science communication.

Generation Wild

Generation Wild is a student-led volunteering project that delivers weekly environmental outreach sessions for local primary schools and children’s groups. From rodpod rambles and evening bug hunts to designing sustainable homes and restoring a hedgerow, 2017 was an incredible year for us! In the autumn term alone we worked with over 500 children through 16 outreach sessions and a large external event. We also coordinated multiple training courses for students throughout the year, including a trip to Camp Kewenow to learn about sustainability education, and in May we were honoured to be shortlisted at the NUS National Societies Awards for Best Local Community Contribution. We’ve had so much positive feedback from group leaders and parents this year, and it’s been so heartwarming to see the positive impacts of environmental education on the local community. With exciting developments in the pipeline, including a partnership with Cornwall Wildlife Trust, 2018 is set to be another fantastic year!

More information about our outreach activities can be found at: lifesciences.exeter.ac.uk/outreach/cornwall
# Awards and Prizes

**Prize Winners**

See also Selected Highlights for accolades to Prof Curtis Creighton, Prof Tim Caro, Prof Monique Burgerhoff-Molder, Prof Alastair Wilson, Prof Andy Russell and Prof Martin Stevens.

British Ecological Society’s photography competition “Capturing Ecology” - Christopher Beine

BBSSC Innovator of the Year award for Social Impact – Professor Juliet Osborne and the BEEHAVE team

British Ecological Society research competition – Catherine McNicoll, Sarah Neils and Sara Mynott

The FXU and Students’ Guild Teaching Awards

Best Subject Cornwall – Bioscience (Penryn)

Most Outstanding Student Led Volunteering Project Committee Members – Ellen Whitby

Most Outstanding Society Event or Project – Wild Film Fest (collaboration between Eco Soc and Wild Doc Soc)

**Graduation Awards**

Congratulations to the following CEC students who were awarded P Luoas in 2017:

Maria Eugenia Correa Coro – Macroecological Patterns of Plant Species and Anthropogenic Activities

Philip David Dobetey – Basking Shark Movement Ecology in the North-east Atlantic

Sarah Catherine Paul – The Price of Defence: Maternal Effects in an Apomictic Ladybird

James Ian Leonard Rapkin – The Spread and Sexual Selection in an Aposematic Ladybird

**Top Project Mark**

Claire Cummer – Oxford University Press – Most Improved Student Award

Holly Frances Cole – Royal Society of Biology Award for Top Overall Marks

Jack Taylor Orford – Highest Overall AWCM

**Postgraduate**

Centre for Ecology and Conservation Commissions:

MSc Applied Ecology 2016/17: Shari Mang – Best Overall Mark

MSc Conservation and Biodiversity 2016/17: Susannah Gold – Best Research Project Mark

MSc Evolutionary and Behavioural Ecology 2016/17: Karen Keegan – Best Overall Mark

Julia Slezak – Best Research Project Mark

**School’s Commendation**

for Exceptional Academic Achievement:

Shari Mang

Emma Kervin

Ben Murphy

Emily Strong

Tozzy Marbury

School’s commendation for Excellent Academic Achievement and Outstanding Contri bution to the Student Experience despite Adversity:

Katya-Rose Zaki

School’s commendation for Outstanding Contribution to Student Experience:

Peter Cooper

Karen Keegan

Alex Szczurek

Ellen Whitby

**Inaugural Professorial Lectures**

We were pleased to host Professor Curtis Creighton from Purdue University, Indiana, USA for a four month sabbatical from August to December in 2017. Prof. Creighton works on life-history evolution, parental care and conservation of burying beetles. He was hosted by Dr Nick Boyle, who also works on burying beetles. Curtis was an active participant in CEC daily life and during his stay gave a departmental research seminar about his recent work and collaborated with Nick on some research experiments. They are planning to apply for research funding in 2018 to develop their collaboration further.

Curtis Creighton

The CEC was thrilled to host world-leading researchers Monique Burgerhoff-Molder and Tim Caro from the University of California Davis on a three-month sabbatical from September to December 2017.

Monique, Professor of Anthropology at UC Davis, is a pioneer in the application of behavioural ecology to humans. In December she gave the annual CEC Christmas Conservation Lecture on her efforts to apply evolutionary theories of cooperation to wildlife and forest conservation in Africa. She also lectured on the 3rd year undergraduate module Human Behavioural Ecology, a fieldwork training session to our human-focused graduate students, and led sessions in the HubCEG seminar series.

Tim, a Professor of Wildlife Biology at UC Davis, has conducted innovative research into animal coloration, in particular the adaptiveness of coat colour in animals ranging from zebras to anteaters. In October Tim gave our annual Darwin Landing Day seminar where we were treated to a fascinating journey through his quest to discover how the zebra got its stripes. In October Tim and Monique gave a combined talk on “Plastic perspectives on adaptation: from behaviour to genes”. Tim is a behavioural ecologist whose work focuses on the role of mothers whilst Alastair is an evolutionary biologist studying how genetic and environmental processes interact with each other. At the drinks reception afterwards, Martin enjoyed a display of photographs featuring Andy and Alastair in their early years as young researchers.

In December Martin Stevens gave a talk on ‘Animal vision and the art of concealment’. Martin studies sensory ecology and evolution with an emphasis on vision and adaptive coloration. Martin was ably assisted during the lecture by his student who took charge of the slide show.

These events are always hugely enjoyable and a highlight of our year. They represent an opportunity for us to come together and celebrate individual success whilst acknowledging the importance of collaboration in the scientific community.

**Additional Events**

This year saw a number of key promotions: Annette Broderick, Andy Russell, Alastair Wilson, and Martin Stevens to Professors; Sasha Dall, Stephen Votier and Edze Westra to Assistant Professors; Kelly Moyes a Senior Lecturer and Ben Longdon a Senior Research Fellow.

This past year was one of key projects: Annette Broderick, Andy Russell, Alastair Wilson, and Martin Stevens to Professors; Sasha Dall, Stephen Votier and Edze Westra to Assistant Professors; Kelly Moyes a Senior Lecturer and Ben Longdon a Senior Research Fellow.

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# Selected Highlights

### Curtis Creighton

We were pleased to host Professor Curtis Creighton from Purdue University, Indiana, USA for a four month sabbatical from August to December in 2017. Prof. Creighton works on life-history evolution, parental care and conservation of burying beetles. He was hosted by Dr Nick Boyle, who also works on burying beetles. Curtis was an active participant in CEC daily life and during his stay gave a departmental research seminar about his recent work and collaborated with Nick on some research experiments. They are planning to apply for research funding in 2018 to develop their collaboration further.

### Inaugural Professorial Lectures

We were lucky enough to have three professorial lectures this year. In October Andy Russell and Alastair Wilson gave a combined talk on “Plastic perspectives on adaptation: from behaviour to genes”. Andy is a behavioural ecologist whose work focuses on the role of mothers whilst Alastair is an evolutionary biologist studying how genetic and environmental processes interact with each other. At the drinks reception afterwards, Martin enjoyed a display of photographs featuring Andy and Alastair in their early years as young researchers.

In December Martin Stevens gave a talk on ‘Animal vision and the art of concealment’. Martin studies sensory ecology and evolution with an emphasis on vision and adaptive coloration. Martin was ably assisted during the lecture by his student who took charge of the slide show.

These events are always hugely enjoyable and a highlight of our year. They represent an opportunity for us to come together and celebrate individual success whilst acknowledging the importance of collaboration in the scientific community.
South Africa, Lauren Bailey

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