

## Conference Running Order (for media)

Event: BIEA STEM Conference 2019  
 Venue: Royal Institution, 1 Albemarle Street, Mayfair, London W1S 4BS  
 Date: 15 January 2019  
 Time: 13:00 – 17:00

Time	Activity	Guest/Speaker
13:00 -13:25	Registration	All guests to sign on the large board and photos taken
13:25 -13:35	Getting guests to sit down Housekeeping; introduce BIEA STEM Chairman David Hanson	Host Dr Alex Holmes (BIEA) Head of STEM
13:35 -13:40	Welcome from BIEA	David Hanson (BIEA) STEM Chair
13:40 -14:00	<b>1<sup>st</sup> Presentation:</b> Using machine learning to identify animals	Joshua Veitch-Michaelis (Liverpool John Moore University), Researcher
14:00 - 14:20	<b>2<sup>nd</sup> Presentation:</b> The future is theirs	Dr Alex Holmes (BIEA) Head of STEM
14:20 - 14:40	<b>3<sup>rd</sup> Presentation:</b> Fixed-wing drones in marine environments	Melissa Schiele (ZSL)
14:40 – 15:00	<b>4<sup>th</sup> Presentation:</b> The challenges faced by conservationists on the ground and what benefit tech can be in the fight to conserve wildlife	Dr Liz Greengrass (Born Free Foundation) Head of Conservation Howard Jones (Born Free Foundation) CEO
Tea/Coffee Break - 20 min Signing of BIEA/Born Free Partnership Contract		
15:20 - 16:00	<b>Panel Discussion:</b> How we engage young people in STEM. A short Q&A session afterwards.	Moderator: Penny Sarchet from New Scientist Guests: 1. (RI) Director Dr Fitzgerald 2. (British Council) Adrian Fenton 3. (Microsoft) Sarah Hedley

		<p>4. (LJMU) Dr Joshua Veitch-Michaelis</p> <p>5. (ZSL) Melissa Schiele</p> <p>6. (BSA) Jane Dowden</p>
16:00 -16:30	<p><b>BIEA Competition Speech /Presentation</b></p> <p>Competition launch ribbon cutting ceremony</p> <p>Closing speech &amp; end</p>	<p>David Hanson (BIEA) STEM Chair</p> <p>Ribbon cutting by Geoff Galding (DIT) Gareth Bullock (BIEA) Andrew Holmes OBE, Arran Goodchild (Engineering UK), Yongli Wang (Chinese Embassy)</p>

## Presentation Summaries

### **Presentation 1: How we are learning to turn our telescopes upside-down.**

*By Dr Joshua Veitch-Michaelis – Liverpool John Moores University*

Dr Veitch-Michaelis combines his expertise in astro-ecology to present the pioneering work created the team led by Dr Serge Wich at Liverpool John Moores University. Finding a way to help researches gather data on animals and illegal poachers in the wild, the team has worked to develop machine learning systems that lets hundreds of hours of infra-red drone footage be nearly instantly compressed into useful data on location, number and type of species. Using data taken from real-world field tests Dr Veitch-Michaelis shows the power of drones when combined with machine learning in some of the most challenging environments on the planet.

### **Presentation 2: The future is theirs!**

*By Dr Alex Holmes - British International Education Association*

Dr Alex Holmes discusses the opportunities and challenges that come with the face of modern STEM education in the UK. With a focus on the real skills that young people need to learn Dr Holmes asks what is the most effective way to learn when it comes to both STEM-specific skills but also what has been classed as transferable employable skills which are universality desired by industry.

### **Presentation 3: Development and assessment of a fixed-wing amphibious UAV for marine megafauna surveys and enforcement**

*By Melissa Schiele – Zoological Society of London*

Development and assessment of a fixed-wing amphibious UAV for marine megafauna surveys and enforcement. Melissa Schiele talks through the fascinating development of fixed-wing amphibious UAVs and her work in monitoring ocean wildlife under challenging and remote conditions in the middle of the Indian Ocean. Schiele and her team provide valuable data on endangered species in this rarely monitored patch of ocean as well as invaluable tracking of the illegal fishing practices which threaten them.

### **Presentation 4: The use of technology in conservation & Integrated wildlife protection**

*By Dr Liz Greengrass and Howard Jones – Born Free Foundation*

Dr Liz Greengrass presents the increasing importance of technology in Born Free's conservation activities around the globe, often in challenging environments. Howard Jones discusses how technology can be integrated into the protection of wildlife across the organisation's activities.

## Speaker Bio



### **David Hanson (STEM Chair, BIEA)**

As the BIEA STEM Chair, David is fully committed to bring together educators and young people of all ages from around the world, who share a passion for STEM. David started his career as a teacher in London comprehensive schools and later was a heads' mentor, OfSTED inspector and Director of Education. During his career, David has also been Chief Executive of the Teaching Awards Trust, working with Lord Putnam and the BBC. He was President of the Association of Assessment Inspectors and Advisers and Editor of the British Journal of Curriculum and Assessment for five years. More recently, David was CEO of The Independent Association of Prep School. David joined British International Education Association BIEA in August 2018 and is passionate about supporting the organisation on its overseas development strategies.

### **Presenters**



### **Melissa Schiele\* (Researcher, ZSL)**

Melissa Schiele is an experienced project manager and marine ecologist, with a recent masters degree from Imperial College in conservation science, where she started working with the Zoological Society of London on a pioneering fixed-wing drone which has the ability to land on water. Her past projects include working at the Natural History Museum in London and in the Maldives for over two years. Melissa will be taking the drone to Belize this February to continue perfecting the system, alongside the local marine protected area management team, who plan to use the drone to catch illegal fishing vessels.



### **Dr. Alex Holmes (Head of STEM, BIEA)**

As BIEA's Head of STEM, Alex is the lead designer of the BIEA International STEM Youth Innovation Competition. Alex was a highly successful science teacher for nearly 20 years, who early in her teaching career retrained from a biology specialist to being, in addition, a physics specialist. This led to her interest in the barriers that many students face in studying physics - the subject of her PhD - and her work in supporting other teachers in their teaching of physics. While teaching she contributed to curriculum development, teacher training, assessment strategies and research projects across various schools, universities and academic institutions. In 2015, she received a National Teaching Award for her contribution to engaging

girls in STEM education. She continues to be a regular speaker at conferences on transferable skills in STEM education.



**Howard Jones (CEO, Born Free Foundation)**

Howard is the CEO of the Born Free Foundation, an international wildlife charity active around the world, protecting wild species in the wild and rescuing animals from suffering. After 16 exciting and challenging years in the military involving service around the world, Howard became one of the key leaders of the Eden Project, driving the development, reach and capacity of the organisation for more than 10 years, before running his own social business engaged upon social justice. Howard is committed to

building resilient and sustainable futures and is a visionary leader for Born Free, where he leads the team that he joined in 2017, together with all the charity's activities.



**Dr. Liz Greengrass (Head of Conservation, Born Free Foundation)**

Liz Greengrass began her career working with Jane Goodall and studying the chimpanzees at Gombe National Park in Tanzania. After obtaining her doctorate, she worked as a field biologist safe-guarding large mammal diversity in West Africa for both the NGO and private sector. Working as a consultant for the extractive industries: mining and oil and gas exploration companies and agribusiness, in particular, oil palm, she gained detailed insight into the pressures facing wildlife in Africa's equatorial rain forest, and the negative impacts that development and industry have on these natural resources. Since 2014, she has been working for the Born Free Foundation in the UK, and is currently Head of the Conservation Department, in charge of Born Free's portfolio of conservation projects in Africa and Asia. Since 2016 she has been the principle investigator of a project to safeguard forest elephant and primates at the Banyang-Mbo Wildlife Sanctuary in Southwest Cameroon.

She is a member of the IUCN Primate Specialist Group, Section on Great Apes, and a member of the Taskforce for the Protection of Apes and their Habitat from the Impacts of Extractives, Energy and Associated Infrastructure Projects (EEAI).



**Dr. Joshua Veitch-Michaelis\* (Researcher, Liverpool John Moores University)**

Josh is a computer vision researcher at Liverpool John Moores University, working on drones for conservation (Astro Ecology). His background includes a PhD in space science from UCL and several years of experience in the robotics industry. He has been involved in outreach for almost a decade and is currently vice president of the International Workshop for Astronomy e.v.

## Panelists



**Moderator: Penny Sarchet (News Editor, New Scientist Magazine)**

Penny Sarchet is News Editor at New Scientist magazine, where she previously specialised in biomedical and life science news. She holds a degree in biological sciences and a doctorate in plant evolutionary developmental genetics, both from the University of Oxford. Before joining New Scientist, she was a reporter for the science policy magazine Research Fortnight, and freelanced for a range of publications including The Guardian, BBC Focus and Times Higher Education.



**Dr. Shaun Fitzgerald (Director, RI)**

An academic and business leader, Shaun Fitzgerald is the Director of the Royal Institution. He leads the Ri in its mission to create opportunities for everyone to discover, discuss and critically examine science and the way in which it shapes the world around us.

Shaun has enjoyed a long association with Cambridge University and as well as leading the Ri, he is also a Royal Academy of Engineering Visiting Professor at the University's Department of Engineering, and a Teaching Fellow in Engineering at Girton College. Prior to joining the Ri, Shaun was the CEO of Breathing Buildings Ltd, a leading technology company pioneering hybrid ventilation systems. And prior to founding Breathing Buildings in 2006, he was a Research Associate at The University of Cambridge's BP Institute, and undertook a number of business development roles in the private sector. From 1995 to 1997 he was Geothermal Programme Manager, at Stanford University.

Shaun is a Fellow of the Royal Academy of Engineering and a Fellow of the Chartered Institution of Building Services Engineers. He has published widely in academic journals. Journals.





**Adrian Fenton (Science Advisor, STEM Education and Public Engagement, British Council)**

With a background in secondary science teaching (Physics specialism) I have taught in a variety of settings including UK secondary schools, as a Head of Science in Tanzania with VSO and with deaf students in FE/HE. Over the last 16 years I have worked in curriculum support, CPD and education project management through roles with the Association for Science, STEMNET and the British Science Association, with particular interests in enquiry based learning, special educational needs and international science education. My current role with the British Council

relates to science public engagement and STEM Education, with FameLab International being one of the key programs.



**Sarah Hedley (National Skills Lead, Microsoft)**

Sarah Hedley is Microsoft's National Skills Lead. She is responsible for delivering Microsoft UK's Digital Skills Programme which aims to provide everybody with basic online skills, nurture young people's passion for computer science, and provide essential training to businesses and IT professionals who need to develop their understanding of the cloud. Prior to joining Microsoft, Sarah held roles at Civil Service World as a journalist and Inside Government as a programme manager specialising in Public Sector training. Sarah also sits on the BIMA Young Talent Council Advisory Panel.



**Jane Dowden (Innovations Manager, BSA)**

Education Innovations Manager for the British Science Association with previous experience working for Inspire! and the as the Learning Resource Coordinator for the London Science Museum.

\*Will also appear as panellists