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*Obituary*

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## Remembering Dr. Ben Collen, an exemplary conservation biologist

Dr. Ben Collen was a conservation biologist known for establishing science-based indicators to track biodiversity trends and employing them to inform global conservation policies. He died on 19 May 2018, shortly after his 40th birthday and following a bone cancer diagnosis just 15 months earlier. He tackled his illness with the same attitude that characterized his work, always positive, open, creative, and of great good humor.

Ben was born and brought up in Norfolk, England. He spent his final school years in Italy, where he had the first of many international experiences that he valued highly. After receiving his undergraduate degree in Biology from Imperial College London, he spent a year in East Africa supporting field projects on large mammals. He enjoyed the experience enormously, and it led him to seek a career in animal conservation. He took a masters degree at the University of York, and during his research project, based at the Institute of Zoology (Zoological Society of London), he found himself at home among conservation biologists developing quantitative approaches to species conservation. Ben stayed on at the Institute of Zoology to do a PhD, where he worked with Georgina Mace and Andy Purvis at Imperial College. He studied patterns in mammalian extinctions and published his first paper in 2004 (Collen et al. 2004). In 2005, with his PhD completed, Ben joined the newly formed Indicators and Assessments Unit at the Institute of Zoology and worked with Jonathan Baillie. His first task was to relaunch the most widely used indicator of wildlife population trends—the WWF Living Planet Index (LPI). Ben built up a large team and massively enhanced the underlying data and rigor of the analysis, putting the LPI onto a much firmer footing (Collen et al. 2009). He collaborated with other conservation data centers and contributed greatly to the landmark 2010 assessment of the state of global biodiversity (Butchart et al. 2010) and many other biodiversity assessments.

In 2013, Ben moved to University College London to join the newly formed Centre for Biodiversity and Environment Research (CBER), again working with Georgina Mace. He embarked on his research career at UCL with his characteristic energy, wholeheartedness, good humor, and intellectual curiosity and quickly built a large and energetic research group, including diverse field and



computational projects. He attracted a lively set of graduate students and won large grants amid a growing network of international collaborators. Ben also transformed undergraduate field ecology, developing new courses at UCL's field center at Blakeney Point in Norfolk. Ben thrived in the academic environment of UCL. In 2015, he was awarded the ZSL Marsh Award for Conservation Biology and was promoted to Reader. Everything was going well, and we were all looking forward to the next steps in his career when it was so cruelly cut short.

Ben brought a significant dose of pragmatism and clear thinking to his research on strengthening conservation practice through development of stronger scientific and theoretical underpinnings. His approach was realized through several different but interconnected strands. One element was to support the ongoing assessment of species for the IUCN Red List of Threatened

Species to build on continual efforts to expand coverage of taxonomic groups, in particular understudied groups such as reptiles (Böhm et al. 2013) and invertebrates (Dirzo et al. 2014). He undertook his own field work on penguins and his favorite species the pygmy hippo (Collen et al. 2011). He also took an interest in underrepresented regions such as Central Asia, for which he led an analysis of vertebrate extinction risk based on regional red lists (Collen et al. 2006).

Ben was central to developing the scientific underpinnings of biodiversity indicators that made them more robust, reliable, and useful for conservation. Previously, measures of the state and trends in biodiversity were often haphazard, disorganized, and idiosyncratic; different countries, scientists, and practitioners used different measures based on patchy data sources. Throughout his PhD work and later in his roles at ZSL, Ben combined theory, quantitative methods, and pragmatism to strengthen biodiversity indicators, such as the Living Planet Index and Red List Index (Baillie et al. 2008; Collen et al. 2009). He did this with patience and charm, building trust with fellow ecologists so that they were willing to submit their data to global databases (no mean feat) and thus enabling a picture to be developed of the changes occurring in our natural world.

Ben's capacity to understand conservation's knowledge needs and act personally to fill these gaps inspired an agenda to improve the information base underpinning global biodiversity policy making. He took a long view, investing several years in making the RL and LPI databases into the comprehensive and powerful tools they are. This was a brave move, career-wise, because quick wins and high-profile publications are needed to gain a reputation and secure a tenured position. It was also a very unselfish thing to do because the time he spent in developing and populating these databases was for the benefit of the many others who are now using them for scientific research and to inform and drive international and national policy and practice.

Dissatisfied with indicators simply being used to illustrate biodiversity's decline (Butchart et al. 2010), Ben's focus turned to how indicators can support policy and management decisions (Collen & Nicholson 2014). This included not only strong alignment between conservation targets and monitoring indicators, but also the use of indicators with models to evaluate actions needed to achieve targets under a range of scenarios and to test the indicators themselves (Jones et al. 2011; Nicholson et al. 2012; Costelloe et al. 2016). This new predictive approach saw a shift in the purpose of global biodiversity indicators from simply recording the failure of policy choices to informing and improving policy decisions.

Throughout his too-short career, Ben changed the way science was done and the lives of those he worked with. He had many wonderful characteristics—his charm, his

intellect, his unflappability, and his delightful sense of humor. He was a natural, effortless leader and a wonderful colleague. He was always generous with his time and ideas, and unlike too many people at the same career stage, he seemed to have his work-life balance well under control.

Ben was unfailingly patient and respectful with his students and peers, made everyone feel valued, and could always be relied on to bring out a laugh in times of stress. He managed a large team of interns working at the Indicators and Assessments Unit, for most of whom this was their first foray into professional conservation science. EJ Milner-Gulland came into contact with many of them as they entered postgraduate study after their internships. They unfailingly spoke of how Ben had supported their personal development, taken an interest in them, and made the fundamentally boring task of searching the literature for data and entering it into the databases a fulfilling job that taught them how conservation science is done.

Ben's way of working and personal generosity is exemplified by how he visited Emily Nicholson in Australia to continue their collaboration, knowing that with small children, it was very difficult for her to travel to the UK. When he was invited to write a perspective article for *Science* in 2014, with great generosity he asked Emily to coauthor the article with him (Collen & Nicholson 2014). At the time, Emily was working part-time, having just returned from maternity leave, so this was a career changer for her, and Emily has no doubt Ben recognized this, but he told her he did not trust himself to write it alone.

The number of people Ben influenced is vast; conservationists across the world mourn his loss—a surprising reach for someone so relatively early in his career. Ben was taken from us, and from his family, cruelly early. He leaves behind his wife Alanna and baby daughter, and all our sympathies go out to them.

We miss him terribly. But Ben's legacy will be felt for many years, through his scientific work and other material and intangible outputs and in the lives and careers of his students and others he influenced. He stands as a model for managing an academic career in conservation biology that was not only effective and enjoyable, but also generous and kind.

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