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The startup culture of conservation entrepreneurship

Falko T. Buschke

Laboratory of Aquatic Ecology, Evolution and Conservation, KU Leuven, Ch Deberiotstraat 32, 3000, Leuven, Belgium, email falko.buschke@gmail.com

Introduction

Entrepreneurship is the pursuit of opportunity without regard of the resources within your control (Stevenson & Jarillo 1990). Although commercial entrepreneurship focuses on creating demand for new products or services, a new breed of entrepreneurship, social entrepreneurship, aims at serving basic, long-standing needs more effectively (Austin et al. 2006). Social entrepreneurship is unique because it tries in a prominent way to create social value by exploiting unique opportunities and applying innovative methods and technology to overcome resource limitations (Peredo & McLean 2006). Despite extensive examination of entrepreneurship in sociology, anthropology, politics, law, and education (reviewed by Short et al. 2009), its potential in conservation has been mostly ignored. However, certain conservation problems are particularly amenable to innovative solutions and can be financed through novel fundraising tools. I argue that an entrepreneurial approach to conservation can complement conventional approaches and increase conservation efficacy.

Conservation Entrepreneurship versus Conventional Conservation

Various definitions of *entrepreneurship* are loosely based on the size of an enterprise, its rate of growth, its innovativeness, and its adaptive capacity (Stevenson & Jarillo 1990). However, it is perhaps more pragmatic to define *entrepreneurship* in conservation by contrasting it to conventional conservation. Although this is complicated by differences in size and geographic location of areas and the species and ecosystems conventional agencies aim to protect (Armsworth et al. 2012), one feature typifying many modern agencies is their centralized focus on a limited number of clearly defined priorities. This approach limits needless duplication (Mace et al. 2000), reduces competition among independent agencies (Armsworth et al. 2006; Bode et al 2011), and increases the cost-effectiveness of identifying and acquiring land for conservation due to economies of scale (Kark et al. 2009; Armsworth et al. 2012). Despite these considerable benefits, this centralized approach also has 3 major shortcomings. Conservation activities are predominately carried out by a few large organizations, especially at the international level (Armsworth et al 2012), and these organizations usually do not represent a variety of divergent conservation values (Robinson 2011). The desire to leverage economies of scale immediately directs resources toward large and commonly shared conservation objectives, which overshadows smaller local issues. Due to substantial investments of time, money, and effort, large, and long-term conservation projects are more susceptible to the negative consequences of sunk costs (i.e., their future decisions may be affected by retrospective costs, which cannot be recovered), and this hinders the rapid realignment of strategies.

The distinction between conventional conservation and conservation entrepreneurship should, however, be viewed as a continuum. At one end is the caricature of conventional conservation described above, whereas the brand of entrepreneurship I propose forms the opposite extreme. This brand of self-started entrepreneurship aims to sustain many, smaller conservation startups, promote diversity of objectives, and address local conservation problems through innovative and cost-reducing methods. These startups may demonstrate lower vulnerability to sunk costs and a greater tolerance of uncertainty than conventional approaches (Peredo & McLean 2006); thus, they may be especially effective with problems requiring adaptive-management solutions.

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The Time for Conservation Entrepreneurship

In the wider economy, entrepreneurship rose in prominence after the manufacturing-based industrial economy was replaced by the current service-based information economy. A similar shift is taking place within conservation. Although centralized conservation agencies remain more effective at certain tasks (i.e., the identification and purchasing of land for conservation), many issues in conservation are more amenable to an entrepreneurial approach. These types of problems can be addressed by inspired individuals who use innovative tools to provide high conservation returns for each dollar spent. Typical examples include the rise of evidence-based conservation (Sutherland et al. 2004) and the systematic evaluation of past conservation interventions (Possingham 2012). Assuming that entrepreneurs possess all the necessary skills for these tasks, the only limiting factors are original ideas and data availability; the open access movement throughout conservation science is making the latter less restrictive. Comparable opportunities include the development of analytical decisionmaking tools (Starfield 1997; Burgman & Yemshanov 2013) and the aggregation of scientific output in a userfriendly format to enhance scientific communication (e.g., Decision Point, the magazine of the Australian Environmental Decision Group [www.decision-point.com. aul).

Innovation alone may not always be enough, but advances in technology and financial mechanisms are making fundraising more accessible to those outside traditional donor-funded systems. One new source of funds is crowdfunding, which uses Web-based platforms to solicit donations from the general public. Philanthropists contribute to conservation projects without expecting financial returns in donation-based crowdfunding; the most popular form of crowdfunding. The majority of successfully funded initiatives are relatively small (<US\$1,000), but others reach upwards of US\$45,000 in rare cases, as was the case for a Kenyan initiative to patrol for rhinoceros poachers with unmanned aircrafts in the Ol Pejeta Conservancy (Indiegogo 2013). A drawback of this form of funding, however, is the uncertainty surrounding its effectiveness. Although self-reported success rates of various crowdfunding web platforms vary between 20% and 50%, it is almost impossible to confirm these figures independently because failed fundraising campaigns are rarely publicized. Consequently, crowdfunding is still very experimental in conservation, but one could argue that this uncertainty is offset by the low cost of participation.

Other flavors of crowdfunding are even more experimental. For instance, equity-based crowdfunding offers impact investors shares in an enterprise, which partly compensates for the risk associated with high failure rates of startups. While there are no obvious public cases of equity-based crowdfunding in conservation yet, this may soon change due to progressive legislation promoting it, such as Section III of the Jumpstart Our Business Startups, or JOBS, Act in the United States. A similarly untapped source of funds in the conservation sector is debt-based crowdfunding, or microfinance, where individuals make loans instead of donations. Here borrowers gain access to favorable interest rates because individual lenders bear lower risks of loan defaults. Microfinance currently serves 90 million borrowers worldwide and, despite practicing in some of the poorest countries, is a US\$65 billion industry (Bugg-Levine et al. 2012). Although equity- and debtbased crowdfunding risks alienating donors who contribute to charities for moral, social, or tax-based reasons, these forms of crowdfunding could create opportunities for conservative investors who prefer market-driven conservation.

As with other new technologies, crowdfunding should be viewed with a healthy dose of skepticism. Despite increasing our ability to meet donor expectations more effectively by allowing the support of individual initiatives, Web-based fundraising suffers from the same limitations as conventional fundraising because the internet cannot create donors that do not already exist (Morozov 2013). This perpetuates the view that crowdfunding can only sustain projects involving charismatic species that grab the public's attention. However, such perceptions have been dismissed by those who argue that public engagement, whether through online social media or offline public outlets, is the greatest predictor of crowdfunding success (Wheat et al. 2013).

Additional funding opportunities for entrepreneurial conservation involve a fusion of financial tools; an option not always available to conservation agencies registered as charities for tax purposes. Currently, <15% of the investment assets of charitable foundations in the United States are donated annually, so the other 85% could be leveraged to attract investment from mainstream portfolios through novel financial mechanisms (Bugg-Levine et al. 2012). By combining donations and loans, for instance, The Bill and Melinda Gates Foundation now provides philanthropic organizations the option to raise commercial debt at lower rates by issuing loan guarantees instead of direct funds (Bugg-Levine et al. 2012). This flexibility also benefits investors, who can serve as intermediaries by supplying venture capital funds and rigorously selecting recipients based on their potential contributions (Kaplan & Grossman 2010). The Wildlife Conservation Network (www.wildnet.org), for example, increases the proportion of funding for on-the-ground conservation by acting like a venture capital fund and investing in external startup initiatives rather than using these funds themselves.

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The Path Forward

As with commercial entrepreneurs, those initiating their own conservation startups might face considerable personal investment and high rates of failure. However, these disincentives should be considered in light of the prospects for permanent employment in conservation. The conservation community has always relied on unpaid volunteers and interns, a practice that often causes undue personal hardship, excludes many potential candidates based on economic status, fails to meet societal labor expectations, and devalues conservation science as a profession (Whitaker 2003). Moreover, the prospects of permanent employment in the conservation sector are also dwindling. Just recently, the World Wide Fund for Nature followed Conservation International and The Nature Conservancy by downsizing its core group of conservation scientists (Stokstad 2014). They now intend to collaborate with external scientists on a part-time basis in a move designed to provide more flexibility in response to modern conservation challenges. These events suggest that early-career conservationists should prepare for a future where being employed means maintaining a portfolio of independent projects, each with a predefined start and end date, rather than a life-long career with a single organization. Perhaps we can make this transition easier by embracing conservation entrepreneurship and assimilating the available technology and funding models into everyday use. This necessitates transparent reporting of early successes and failures, which will not only assist donors make more informed investments, but also guide future entrepreneurial efforts.

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