Workshop: Build Your Own Business Plan for a Product or Service that Conserves Biodiversity

Timothy C. Haas, Emeritus Associate Professor, Sheldon B. Lubar
College of Business, University of Wisconsin at Milwaukee;
Industry Affiliate, UCLA Department of Computer Science;
and
Director, *Profitable Biodiversity* Consultancy
haas@uwm.edu

1 Overview

Ecology is everywhere – including within for-profit, private firms. This workshop aims to introduce ecologists to the nuts-and-bolts of starting a business venture whose ultimate goal is to conserve biodiversity while making a profit. Indeed, long-term biodiversity conservation may only be possible if such conservation projects are funded by private firms who do so in order to make money.

It is now clear that the present way that biodiversity conservation projects are funded has failed to conserve biodiversity. Government conservation programs have nowhere near enough resources nor sufficient political sustainability to stem the rapid loss of biodiversity everywhere. The charity-based business model that conservation-focused NGOs have adopted is not able to draw in enough resources to take up the slack left by governments. There is no time in this workshop to debate this global failure to stem biodiversity loss. Rather, this workshop will help ecologists start to think about how to bring the enormous forces of non-charitable, non-public-relations, profit-driven capitalism to bear on stemming biodiversity loss.

Habitat loss is often pointed to as the principal driver of global biodiversity loss (Hanski 2011). But recently, one study could find no statistical difference between loss of habitat and *direct exploitation*, i.e., intentional harvesting of wildlife either legally or illegally (Jaureguiberry et al. 2022). Illegal harvesting and trading of wildlife is often referred to as *wildlife trafficking*.

The literature suggests that there is a large number of potential *biodiversity-concerned*

customers (Petro 2022, Haas 2024) and that further, these customers would rather buy a product or service that is associated with a project that is directly contributing to biodiversity conservation rather than simply donating to a biodiversity-focused charity (Elfenbein and McManus 2010).

This workshop will run for 90 minutes. The first 25 minutes will be an overview of the *biodiversity offering* business model developed in Haas (2022). The remaining time will be devoted to a practicum wherein participants build their own business plan for a product or service (hereafter, *offering*) that, through its sale, contributes to biodiversity conservation. A firm makes a profit by selling an offering to a niche of biodiversity-concerned customers who, because of a technology-enabled feedback loop, learn that their continued purchasing of this offering is leading to a measurable improvement in the sustainability of a species. Call such a firm that sells its offering to these customers, a *customer-facing* firm. The conservation of rhinoceroses in South Africa will be briefly described as an example of this strategy.

For the practicum, participants will either have a particular offering in mind or will select one from a previously distributed list of potential offerings. Participants will be guided step-by-step through the design of a biodiversity offering's business plan, associated biodiversity project, political-ecological monitoring program, and a customer feedback loop operationalized as a web-based *biodiversity dashboard*. Participants will select appropriate monitoring technologies for their particular biodiversity offering.

Participants may customize their business plan for firms that sell only to other firms, called here, *upstream firms*. Examples of such firms include Alcoa, Boeing, Boise Cascade, and Maersk.

2 Background

Business is both the main driver of the planet's current catastrophic loss of biodiversity and the key to stemming it. To address this challenge, a business strategy has been developed wherein firms launch profitable business lines that harness market forces to fund projects that result in the enhancement of biodiversity. This strategy employs a new procedure for minimizing the costs of such projects while maximizing their positive impacts on biodiversity. The gulf between customer interactions with such offerings and the conservation of a particular species is bridged with technology. First, technological tools are devel-

oped to build a profitable and biodiversity-enhancing business venture via new stochastic, agent-based models of business networks that span consumer countries and species-hosting countries. These models are optimized for profitability through the use of new optimization algorithms that run on high performance computers. Then, customer loyalty to the offering is maintained through a new technology called a *biodiversity dashboard*. This web-based dashboard displays in real-time, monitoring data of the project's impact on the targeted species.

Customers viewing this dashboard see for themselves how the offering is positively impacting that species. By maintaining biodiversity dashboards attached to biodiversity offerings, firms would give these biodiversity-concerned customers a way to assess what effects their individual purchases are having on biodiversity. Such detailed, real-time feedback of how a purchase affects biodiversity would help to address the sense of powerlessness that many biodiversity-concerned customers experience when deciding to purchase an environmentally sustainable offering (Seyfang 2005). Such feedback would also help build brand loyalty since customers, through repeated visits to the offering's dashboard, would be able to verify that the firm is having a continuing, rather than a one-time positive impact on biodiversity.

Biodiversity offerings are built by first, understanding the political context of a particular biodiversity threat, second, designing a profitable product or service that is tied to a minimum-cost project that enhances biodiversity, and third, showing the project's ecological impacts to customers who want to know if their purchases of the biodiversity offering are actually curbing the targeted species' destruction.

The political context of the biodiversity project is comprehended by first acquiring data using new algorithms that parse in real-time, social media commentary on the targeted political-ecological system. Then, this data is used to fit a set of interacting agent-based models of that system.

3 Customer feedback loop technologies

Depending on the offering's particular industry and targeted ecosystem, different technologies will be needed to forge feedback loops from the ecosystem back to the biodiversity-concerned customer.

3.1 Political

1. Real-time parsing and display on the biodiversity dashboard of actions affecting the project's ecosystem as reported in online news stories.

2. Real-time mining of social media sites for references to actions affecting the project's ecosystem.

3.2 Ecological

1. Automatic acquisition and summarization of remotely-sensed data on the project's ecosystem. An example is the use of satellite images to estimate below-ground biomass of a carbon sequestration plantation (Chapungu et al. 2020). Such images can also be used to detect large animals (Haas 2018).

2. Per-month average value of a water quality index observed across all water sources. For example, Kaur et al. (2023) develops an index that is optimized for measuring the quality of drinking water for wildlife living on a grassland or lowveld.

3. Real-time parsing of scientific reports on the project's ecosystem.

4. Smart-device uploads by project personnel of observations on metrics maintained on the project's ecosystem.

4 Lists of Practicum Offerings

The two lists, below will be enlarged and distributed prior to the workshop.

4.1 Offerings made by customer-facing firms

Types of offerings for sale to biodiversity-concerned customers:

1. Consumer goods: food, healthcare products, household goods, vehicles, and entertainment electronics.

2. Consumer services: communication providers, energy, insurance, entertainment (sports, movies, concerts), travel, tours, cruises, education, and restaurants.

4.2 Offerings made by upstream firms

An upstream firm runs a biodiversity project and charges a premium for its offering when selling it to a customer-facing firm who in-turn, passes this premium to customers who purchase their associated biodiversity offering. To take a hypothetical example, say that Alcoa charges a premium to Ford Motor Co. for their biodiversity aluminum ingots that are associated with a mine-tailings restoration project. Ford Motor Co. in-turn, charges a premium to customers for the biodiversity version of their Focus model because it contains parts made from these Alcoa ingots.

Both the upstream firm and the customer-facing firm advertise the biodiversity project but only the upstream firm maintains the biodiversity project and attached biodiversity dashboard.

The four main steps a firm executes to build and bring to market a profitable biodiversity offering are as follows.

Step 1: A firm selects a species they want to conserve. One way of determining the status of a species is its rank on the Red List Index (RLI). This list is managed by the International Union for the Conservation of Nature (IUCN) (Young et al., 2014). The firm could select one or more endangered or critically endangered species from this list.

Step 2: The firm develops a biodiversity project. This project is associated with the biodiversity offering by (a) directing the marketing department to market the offering and project as a pair; and (b) directing the accounting department to assign the offering and project to the same budget line. If the project involves operations in other countries, the firm enters into a partnership with each involved country and secures all needed permits.

Step 3: The parameters of this project are tuned so that it has the highest chance of being politically feasible while maximally conserving biodiversity. This is accomplished by using the EMT to build a *political-ecological system simulator* (hereafter, *simulator*) of the species-hosting political-ecological system. This simulator is an agent-based model of the interactions through time of all groups that impact the ecosystem. Using the EMT, the simulator's parameters are fitted to a *political-ecological data set* (Haas & Ferreira, 2018).

Next, firm planners add the biodiversity project to the simulator and use the EMT to solve for the *most practical ecosystem management plan* (MPEMP) (Haas & Ferreira, 2018). This plan is a set of project parameter values that (a) makes the project politically feasible to implement; (b) minimizes its cost; and (c) makes it maximally effective at conserving the species identified in Step 1.

The firm markets the biodiversity offering by advertising that part of the offering's purchase price is a *biodiversity premium*. This premium will support the offering's associated biodiversity project. This marketing campaign involves using data analytics to *shape demand* (Chase, 2013: ch. 9), i.e., by executing a combined strategy of a pricing schedule, and an advertising campaign that focuses on the biodiversity-enhancing benefits from purchasing the offering. Then, under this demand shaping strategy, demand is forecast. Using this forecast, the firm finds a price for the offering that is both profitable and, through its biodiversity premium, is sufficient to maintain the biodiversity project.

Step 4: After launching the biodiversity offering, the firm maintains a public-facing biodiversity dashboard that contains real-time information on the project and the species being conserved. The dashboard's credibility is maintained by having an auditing firm conduct audits of the accuracy of the dashboard's data. These audit reports are accessible from the dashboard.

5 Lean Startup Business Plan Structure

According to the United States Small Business Administration (SB) Lean Startup Business Plan has the following structure:

1. Key partnerships: Note the other businesses or services you'll work with to run your business. Think about suppliers, manufacturers, subcontractors, and similar strategic partners.

2. Key activities: List the ways your business will gain a competitive advantage. Highlight things like selling direct to consumers, or using technology to tap into the sharing economy.

3. Key resources: List any resource you'll leverage to create value for your customer. Your most important assets could include staff, capital, or intellectual

property. Don't forget to leverage business resources that might be available to women, veterans, Native Americans, and HUBZone businesses.

4. Value proposition: Make a clear and compelling statement about the unique value your company brings to the market.

5. Customer relationships: Describe how customers will interact with your business. Is it automated or personal? In person or online? Think through the customer experience from start to finish.

6. Customer segments: Be specific when you name your target market. Your business won't be for everybody, so it's important to have a clear sense of whom your business will serve.

7. Channels: List the most important ways you'll talk to your customers. Most businesses use a mix of channels and optimize them over time.

8. Cost structure: Will your company focus on reducing cost or maximizing value? Define your strategy, then list the most significant costs you'll face pursuing it.

9. Revenue streams: Explain how your company will actually make money. Some examples are direct sales, memberships fees, and selling advertising space. If your company has multiple revenue streams, list them all (SBA 2023).

Participants will leave the workshop with their own draft business plan that addresses these nine elements.

6 Issues of scale and the need for local liaisons

Any project that seeks to draw would-be poachers away from poaching has a scale problem: The number of needed jobs may need to be large given the large number of economically-disadvantaged people in an ecosystem that see poaching as their main source of livelihood.

Also, any project initiated by a firm outside of a country will need a local liaison who understands how to acquire the necessary permits, and who can mitigate the nationalistic reservations many locals will feel towards the foreign-owned project.

7 N.B.: Business is About Profit – Not Conservation

Milton Friedman, a Nobel Prize winner in economics (1976), stated:

> There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits (https://www.mckinsey.com/featured-insights/corporate-purpose/from-there-to-here-50-years-of-thinking-on-

References

Chapungu, L., Nhamo, L., and Gatti, R. C. (2020), "Estimating biomass of savanna grasslands as a proxy of carbon stock using multispectral remote sensing," *Remote Sensing Applications: Society and Environment,* Volume 17, January, 100275 DOI: https://doi.org/10.1016/j.rsase.2019.100275.

Elfenbein, D. W. and McManus, B. (2010). "A Greater Price for a Greater Good? Evidence That Consumers Pay More for Charity-Linked Products," *American Economic Journal: Economic Policy,* 2(2), May: 28-60.

Haas, T. C. (2024), "A New Technology-Based Tool for Building Profitable Biodiversity-Conserving Offerings," *The European Journal of Sustainable Development,* 13(3): 1-13. https://doi.org/10.14207/ejsd.2024.v13n3p57

Haas, T. C. (2022), "Profitable Biodiversity," *Cogent Social Sciences*, 8(1): 1-24. doi: 10.1080/23311886.2022.2116814. https://www.tandfonline.com/doi/full/10.1080/23311886.2022.2116814

Haas, T. C. (2018), "Automatic Acquisition and Sustainable Use of Political-Ecological Data," *Data Science Journal*, 17, p.17, doi: 10.5334/dsj-2018-017

Hanski, I. (2011), "Habitat Loss, the Dynamics of Biodiversity, and a Perspective on Conservation," *Ambio*, 40(3): 248-255. https://doi.org/10.1007/s13280-011-0147-3 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3357798/

Jaureguiberry, P., Titeux, N., Wiemers, M., Bowler, D. E., Coscieme, L., Golden, A. S., Guerra, C. A., Jacob, U., Takahashi, Y., Settele, J., Daz, S., Molnr, Z., Purvis, A. (2022), " The Direct Drivers of Recent Global Anthropogenic Biodiversity Loss." *Science Advances,* 8(45): eabm9982. https://doi.org/10.1126/sciadv.abm9982 https://www.science.org/doi/pdf/10.1126/sciadv.abm9982

Kaur, M., Das, S. K., and Sarma, K. (2023), "Water quality assessment of Tal Chhapar Wildlife Sanctuary using water quality index (CCME WQI)," *Acta Ecologica Sinica,* 43: 82-88, https://doi.org/10.1016/j.chnaes.2021.09.017.

Petro, G. (2022), "Consumers Demand Sustainable Products and Shopping Formats," *Forbes*, March 11. https://www.forbes.com/sites/gregpetro/2022/03/11/consumers-demand-sustainable-produ ?sh=68ad9b456a06

SBA (2023), *Write your business plan,* United States Small Business Administration, https://www.sba.gov/business-guide/plan-your-business/write-your-business-plan

Seyfang, G. (2005). "Shopping for Sustainability: Can Sustainable Consumption Promote Ecological Citizenship?" *Environmental Politics,* 14, 290-306.