

**Let's talk about the birds and the bees:  
the uncomfortable conversation about biodiversity risks**

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## 2019 Cambridge - McKinsey Risk Prize Bio-sketch and Photo Page

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**Title of Submission:** Let's talk about the birds and the bees:  
the uncomfortable conversation about biodiversity risks

**I am a candidate for the degree:** Executive MBA



### Bio-sketch (Approximately 150 words)

I am an Executive MBA candidate at the Judge Business School. My background is ecology and nature conservation and I currently work full-time managing an online environmental data subscription platform on behalf of four NGOs: UN Environment World Conservation Monitoring Centre, BirdLife International, the International Union for the Conservation of Nature, and Conservation International.

I have a degree in Environmental Science and a PhD in ecology. I have gained wide expertise in biodiversity conservation during my career with a particular focus on the application of science to policy and decision-making, and connecting biodiversity data providers with end users. I have developed and managed projects with UN Environment and the European Commission, amongst others, in Europe, Africa, and Asia and played leadership roles in the Global Biodiversity Observation Network, the European Biodiversity Observation Network, the Biodiversity Indicators Partnership, and Butterfly International.

I am passionate about the environment and finding impactful approaches to address biodiversity loss.

# 2019 Cambridge - McKinsey Risk Prize Declaration Form

**Student Name:** Eugenie Christine Regan

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**Title of Submission:** Let's talk about the birds and the bees: the uncomfortable conversation about biodiversity risks

**Number of words of submission:** 2,861

**I am a candidate for the degree:** Executive MBA

**Academic Institution/Department:** Judge Business School

## **Declaration**

I confirm that this piece of work is my own and does not violate the University of Cambridge Judge Business School's guidelines on Plagiarism.

I agree that my submission will be available as an internal document for members of both Cambridge Judge Business School and McKinsey & Co's Global Risk Practice.

If my submission either wins or receives an honourable mention for the Risk Prize, then I agree that (a) I will be present at the award presentation ceremony 20-21 June 2019, (b) my submission can be made public on a Cambridge Judge Business School and/or McKinsey & Co websites.

This submission on risk management does not exceed 10 pages.

Signed (Electronic Signature)

A handwritten signature in black ink that reads "Eugenie Regan". The signature is written in a cursive style with a large initial 'E' and 'R'.

## **Let's talk about the birds and the bees: the uncomfortable conversation about biodiversity risks**

Between 1995 and 2015 Infinito Gold, a Canadian mining company, lost over USD\$94 million because of a series of delays and mine closures at their Las Crusitas mine in Costa Rica. What was behind these delays and closures? Public outcry over impacts on biodiversity, specifically the rare Great Green Macaw (Dyer 2015). In 2005 Royal Dutch Shell was subject to severe international criticism in relation to a planned oil and gas development in Russia's Far East. "Shell Project May Doom Western Gray Whale to Extinction" declared a WWF press release following the publication of a report by the International Union for the Conservation of Nature which stated that the project posed "potentially catastrophic threats" to the Western Gray Whale (WWF 2005). These are just two examples of the now numerous instances of companies facing severe reputational damage, financial losses, and significant delays as a result of biodiversity. Indeed, on a global scale, the World Economic Forum recently reported that 'major biodiversity loss and ecosystem collapse' is one of the top ten risks facing our world in 2019 both by likelihood and by impact (World Economic Forum 2019).

Despite being a significant risk to businesses, biodiversity loss (and associated ecosystem collapse) is a risk that is extremely difficult to quantify and therefore address within business decision-making (Addison et al. 2019). In this essay, I outline the issue of biodiversity risks for businesses and make a number of recommendations for how biodiversity risks can be addressed and in some circumstances present how risks can present opportunities for businesses.

### ***Biodiversity and its loss***

Biodiversity, as defined by the UN Convention on Biological Diversity, is "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." Its loss has been widely documented (*inter alia* WWF 2018; Regan et al. 2015; Tittensor et al. 2014). Of the 96,000+ species that have been assessed by the International Union for the Conservation of Nature, more than 26,500 species are threatened with extinction (IUCN 2019). The reports of the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES)(the biodiversity equivalent of the Intergovernmental Panel on Climate Change (IPCC)) highlight that biodiversity loss is now evident on every continent, in every taxonomic group, and in every ecosystem ([www.ipbes.net](http://www.ipbes.net)). The major causes of this loss are well understood and include land-use change, invasive species, pollution, overexploitation, and climate change (UN Environment 2019).

The World Economic Forum has stated that "the accelerating pace of biodiversity is a particular concern" and is now affecting health and socioeconomic development, with implications for well being, productivity, and security (World Economic Forum 2019). Costanza et al. (2014) estimate the economic value of ecosystem services (benefits to humans from nature) at US\$125 trillion per year - around two-thirds higher than global GDP. The pollination of crops by bees and other animals is worth up to \$577 billion globally and yet pollinators are in decline (Regan et al. 2015). Biodiversity as a commodity in itself is becoming more and more valuable as it becomes scarcer. An illustration of this is the recent record sale of a Pacific Bluefin Tuna for \$1.3m in Japan in January 2019 – over twice the price fetched five years ago. This species is assessed by the International Union for the

Conservation of Nature as under threat of extinction with a population that is continuing to decline as a result overexploitation. As Sir Robert Watson, IPBES chair, so aptly stated “We are at a crossroads. The historic and current degradation and destruction of nature undermine human well-being for current and countless future generations”.

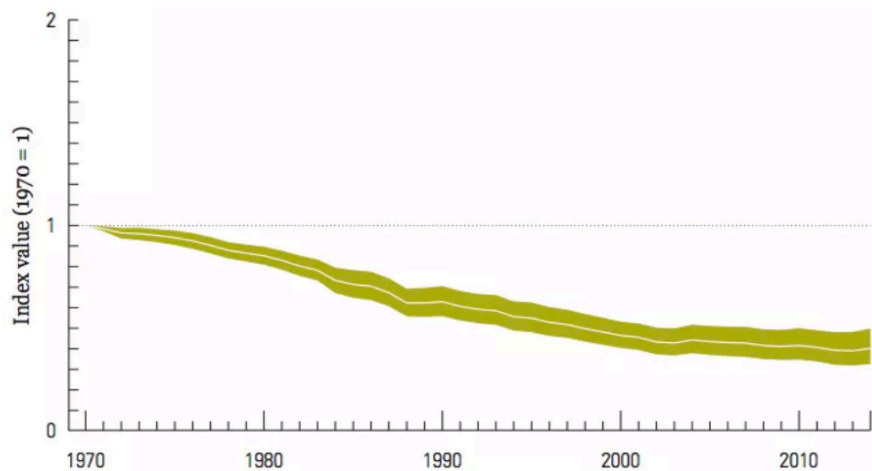


Figure 1. WWF’s Living Planet Index 1970-2014 shows that biodiversity has been decreasing rapidly over the last 40 years (WWF 2018). This global asset is depreciating over time with a consequent degradation of its ability to deliver ecosystem services.

### ***Biodiversity loss and its implications for business***

Biodiversity loss and ecosystem collapse is now widely acknowledged as a business risk with a potentially large impact and increasing likelihood (World Economic Forum 2019). The risk that biodiversity loss poses to businesses is potentially catastrophic. The whole of the agricultural sector, for example, is dependent on ecosystem services such as soil biodiversity and pollination. Other sectors, such as fisheries and forestry, are also directly dependent on biodiversity.

Sharp declines in biodiversity and ecosystem services, increasing demands on natural resources, accelerating climate change and growing expectations of corporate responsibility are combining to create a challenging external environment for business that threatens to become a perfect storm.

This perfect storm is a potentially catastrophic combination of:

- a. Increased societal opposition to environmentally damaging business practices;
- b. Raised societal expectations about business environmental performance;
- c. Tighter regulatory and financing requirements; and
- d. For companies that fail to stay ahead of these challenges, significant risks to their license to operate; constraints on growth and resource access; and delays, damage and expense to core business practices.

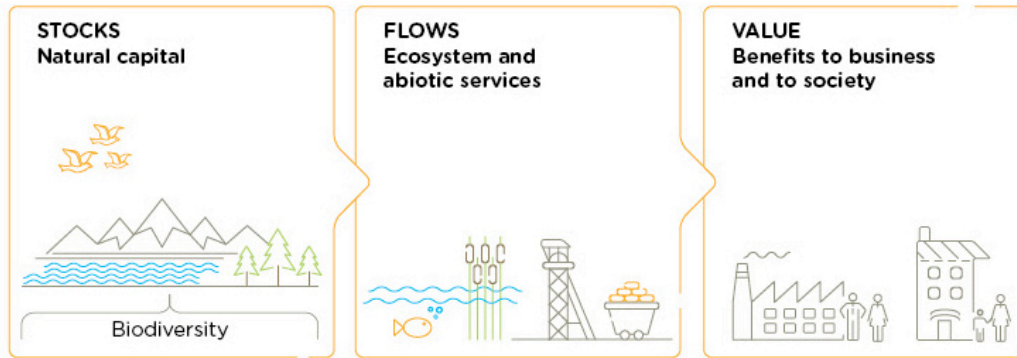


Figure 2. The benefits to business derived from natural capital as described in the natural capital protocol. Credit: Natural Capital Coalition.

The sectors most likely to be affected are primary industries (such as forestry, agriculture, and fisheries). However, no sector escapes untouched by some form of biodiversity risk (World Economic Forum 2010).

Biodiversity risks fall into four categories:

1. Physical risks including reduced productivity, scarcity and increased cost of resources, and disruption of operations;
2. Regulatory and legal risks such as restricted access to land and resources, litigation, reduced quotas, and pricing and compensation regimes;
3. Market risks including changing customer preferences and purchaser requirements;
4. Other risks such as reputational risk, financing risk, and supply chain risk.

Of course, every company is potentially affected by these risks in different ways and the examples of Infinito Gold and Shell at the beginning of this essay illustrate this. It is clear, however, that businesses that don't incorporate biodiversity into their decision-making are more likely to be affected by these risks – particularly those businesses that are directly dependent on biodiversity and ecosystem services such as soil fertility and pollination.

***Biodiversity risks are real and they are predicted to get worse***

A key issue with biodiversity loss and ecosystem collapse is that other risks are strongly positively correlated such as extreme weather events (increasing with climate change), food crises, and failure of climate change mitigation and adaptation (Figure 3). Combined, these risks are more than the sum of their parts and could, therefore, be even more seriously damaging to industry and human health and well being than currently predicted. Indeed, biodiversity loss and climate change are predicted to worsen over the coming years including having a domino effect on each other and so the likelihood of these risks impacting on business are increasing.

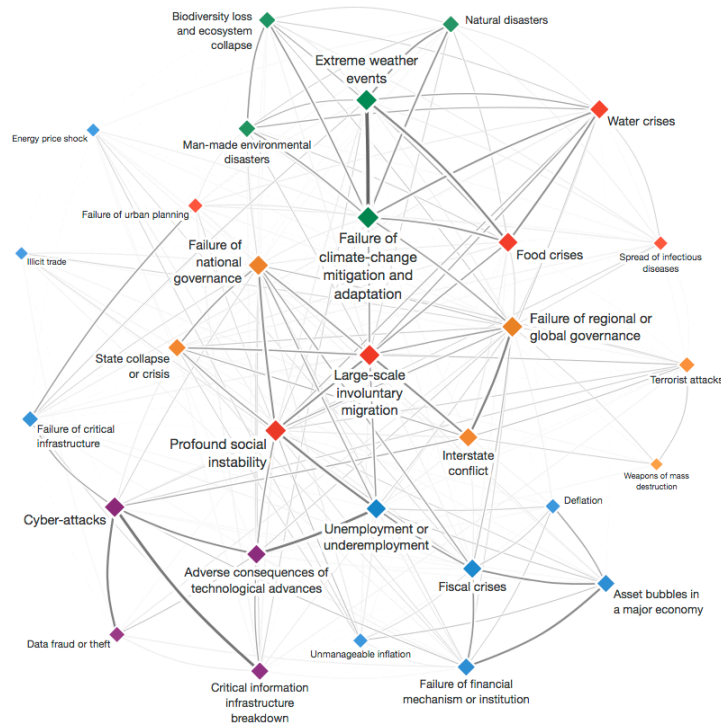


Figure 3. The World Economic Forum's 2019 global risks and their interconnectedness.

**Biodiversity is also a business opportunity**

The chinese symbol for risk is made up of two symbols: the first is the symbol for danger, while the second is the symbol for opportunity. Biodiversity is both a risk and opportunity for businesses and good practice biodiversity management creates many positive opportunities including securing a license to operate, maintaining access to capital, reducing operating costs, enhancing reputation and brand, improving productivity and staff morale, and increasing market access (Figure 4).



Figure 4. Good practice biodiversity risk management creates many positive opportunities (after the International Finance Corporation's biodiversity business risks).

Natura Brasil has long been recognised as a brand that seeks to reduce its environmental impact and has won numerous sustainability awards including the UN’s Champions of the Earth Award in 2015. Natura has successfully demonstrated that biodiversity is more valuable intact than overexploiting it by creating a demand for the products of the Amazon forest: its seeds, fruits, and oils. For example, the company has demonstrated the fruit of the ucuuba tree is three times more valuable than its wood and the resulting change in demand has reversed the fate of the tree that had become nearly extinct (Anon 2016).

*“Mainstream investors constantly searching for larger returns have come to the conclusion that a company that considers their material Environmental, Social, and Governance opportunities and risks in their long-term strategies will outperform and outcompete those firms that do not.”*

*Louis Coppola, Governance & Accountability Institute*

By accounting for and understanding biodiversity risks and opportunities, a company can equip itself to grow and remain the operator, partner, and employer of choice in an increasingly constrained and challenging environment. Those industries that are highly dependent on biodiversity will increase their financial returns by embedding it into their business practices. For example, increased agricultural yield due to the management of a healthy pollinator population. While those industries with potentially large impacts on biodiversity will lower the risk of investments with a robust biodiversity management approach (Figure 5).



Figure 5. The incorporation of good biodiversity management into business decision-making is a de-risking instrument.



## ***Biodiversity risk management for business***

Businesses need to strengthen their resilience to environmental uncertainty and position themselves as part of the solution to biodiversity loss. There are now numerous initiatives established to help them achieve sustainability including managing their biodiversity risks and opportunities. These include initiatives such as the Cross Sector Biodiversity Initiative, the Cement Sustainability Initiative, the Convention on Biological Diversity's Business and Biodiversity Forum, UN Environment World Conservation Monitoring Programme's Proteus Partnership, and the Natural Capital Coalition.

*"We have to understand that to protect our environment is to preserve our productivity and to improve the environment is to develop our productivity"*

*President Xi Jinping*

However, the real challenge has been around embedding biodiversity within business decision-making. Biodiversity is very complex and it can vary widely between locations. No two places are alike. No two ecosystems are alike. No two species are alike. Biodiversity – it is its diversity that makes it complex and difficult to measure. How can something be managed when it can't be properly measured? How do you find a metric to measure the variety of life? How can we compare the risk of making a butterfly species extinct with that of a tiger? How do we measure the pollination service provided by a bee? The challenge within the business and biodiversity sector has been around measuring the impact of a business on biodiversity, understanding the complexities of how a business is dependent on biodiversity, planning how they can build resilience, and demonstrate whether their risk management practices are being effective. One of the reasons that biodiversity is being inadequately addressed by businesses may be because the science of measuring, monitoring, and embedding biodiversity within business decision-making remains inadequate (Bolt et al. 2016).

*"We have long-term predictions for climate change and for analysing the implications on our supply chains and business operations. It seems to us that the next step would be stress testing our supply chains in terms of biodiversity productivity. The complexities behind biodiversity make this hard to measure and monitor – but we need to start doing this now because it underpins many of our operations."*

*Chris Brown, Sustainable Business Director, Asda*

Using a risk-focused approach may be a simpler approach than trying to measure and monitor the complexity of biodiversity. In this approach, the first step is to understand which categories of biodiversity risk a company is most likely to be affected by (physical, regulatory & legal, market, other) and then understand whether these risks are preventable risks, strategy risks, or external risks.

Preventable risks are internal risks that are controllable and ought to be eliminated or avoided. In biodiversity risk management this would include measures taken to avoid creating impacts on biodiversity from the outset, such as the siting of infrastructure to avoid impacts on certain components of biodiversity.

Strategy risks are those risks that a company accepts in order to generate returns on its strategy. For example, BP accepted the high risks of operating in deep water in the Gulf of Mexico because of the high value of the oil and gas therein. The key here is to reduce the probability that the assumed biodiversity risks materialise and improve the business' ability to manage those risks should they occur.

External risks are those that arise from events outside of a business and are beyond its influence or control. Biodiversity change as a result of climate change is an example of an external risk that is beyond a company's control.

Strategy and external risks require an approach based on open and explicit risk discussions. Research has shown, however, that we have strong cognitive biases that discourage us from thinking about and discussing risk until it's too late. Indeed, it is clear that businesses are not giving biodiversity risk enough attention despite the growing momentum around it. In a study analysing the sustainability reports of the top 100 Fortune 500 Global companies, only 31 made clear biodiversity commitments and no company reported quantitative biodiversity outcomes from their business actions (Addison et al. 2019). Biodiversity isn't getting the attention that mitigation of this risk requires – not just within the business sector but government and civil society. It is far less talked about than climate change (Legagneux et al. 2018) and yet just as dangerous. A “black elephant” is a new concept introduced by Thomas Friedman in his book *Thank You For Being Late* (Friedman 2016). Friedman describes a “black elephant” as a cross between a “black swan” – a rare, low probability, unanticipated event with enormous ramifications – and “the elephant in the room” – a problem that is widely visible to everyone, yet that no one wants to address, even though we know that it will have vast, black-swan-like consequences. Biodiversity loss is widely visible to everyone. There are now thousands of scientific papers and reports documenting the loss. It is a huge problem that will impact our economies, our health, and our well being. It is key, therefore, that businesses acknowledge the problem and start to put in place risk management activities in order to avoid the otherwise inevitable black-swan-like consequences.

## **Conclusion**

In this essay I have outlined why biodiversity loss is key risk for businesses and a number of ways in which this risk can be effectively mitigated. I also argued that there are numerous positive opportunities for business and biodiversity and that by mitigating the risks and taking advantage of the opportunities, businesses will be able to ensure that they are truly sustainable – not only in the environmental sense of the word but also the traditional sense of the word meaning that a company will be long-term viable and successful.

However, despite clear evidence that biodiversity risk will affect business profoundly and beyond what we can currently predict, it is a risk with low salience and as a result is being overlooked. Biodiversity loss and extinction is, without doubt, an environmental black elephant. The aim of this essay is to start uncomfortable conversation about the elephant in the room and, hopefully, help us all start to give this risk the attention that it requires.

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