CREWCIAL® PARTNERS

Q4 2023 | Quarterly Commentary

NATURAL CAPITAL – THE ULTIMATE ASSET CLASS

WELCOME TO THE ANTHROPOCENE: WHERE HUMANS WERE ONCE A PART OF NATURE, WE ARE NOW A FORCE OF NATURE.

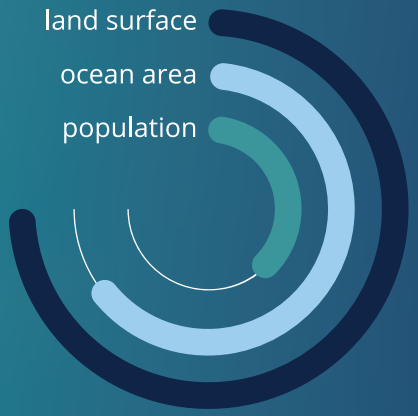
CREWCIAL®

What is Natural Capital?

As defined by the Scottish Wildlife Trust, "Natural capital can be defined as the world's stocks of natural assets which include geology [metal and minerals], soil, air, water, and all living things. It is from this natural capital that humans derive a wide range of services, often called ecosystem services, which make human life possible."[1]

This idea is not new. A statement attributed to Chief Seattle in a speech given in 1854 exemplifies the value placed on the environment long before the current Environmental, Social, and Governance ("ESG") movement: "Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web, he does to himself."[2]

When our earliest ancestors walked bipedally, our limited population and resource use did not pose a threat to the planet's ecosystem. Fast forward two million years and eight billion people later, homo sapiens have transformed the planet, stressing and exhausting the very ecosystem that allowed us to initially flourish. CO_2 concentration, biodiversity loss, ocean acidification, deforestation, and pollution are just some of the fundamental planetary boundaries[3] that we have breached or are in the process of breaching, threatening nature and human existence along with it. We do not exist in a vacuum and depend on our natural environment to survive. The increasing severity of the climate crisis coupled with the lack of mitigating action suggests either a lack of awareness or perhaps that humans consider themselves somehow separate from the natural order and immune to the effects of their actions. We are not.



75% of the Earth's land surface has been significantly altered by human actions, including 85% of wetland areas

66% of ocean area is impacted by human activities, including from fisheries and pollution

≈40% of the global population is adversely affected by land degradation

1.6

We are using the equivalent of 1.6 Earths to maintain our current way of life.

$577b

Up to $577 billion in annual global crop production is at risk from pollinator loss.

Source: https://www.unep.org/facts-about-nature-crisis

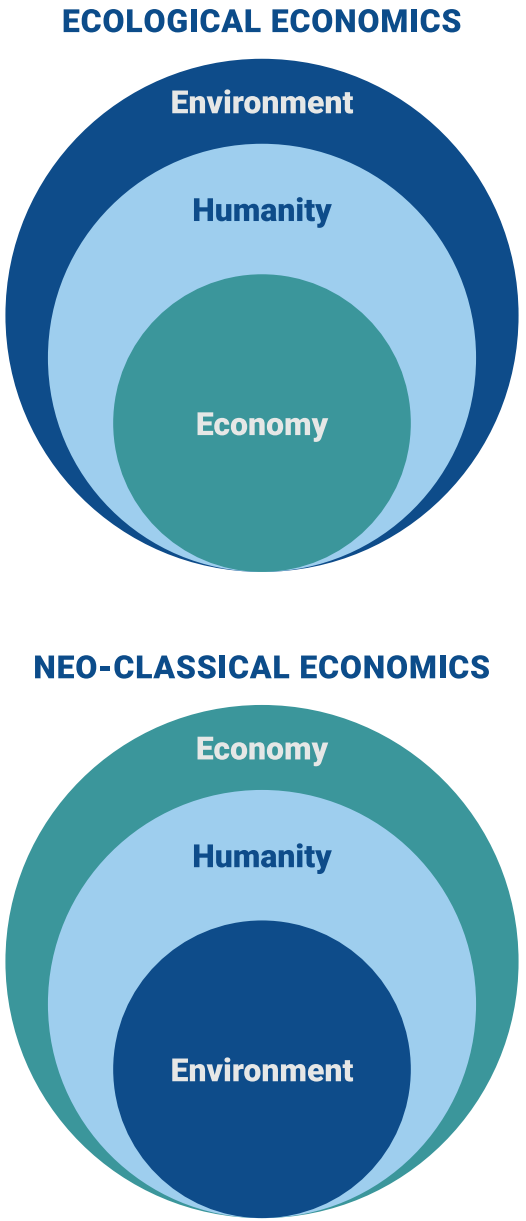
Why is Natural Capital Under Threat?

Consumption, production, and growth are the primary reasons. Most goods and services are not sustainably produced or rendered. Carbon emissions, water usage, chemical usage, natural resource usage, biodiversity loss, and waste management/recycling are nowhere near the levels needed for sustainable production and consumption. It has been estimated that humanity is using the resources of 1.6 Earths, while developed nations are on track to use that of 4 Earths[4] (the developed nations of North America and Europe account for less than 1/8 of the Earth's population). If the remainder of the planet's population in emerging economies achieve the standard of living of developed economies without sustainable production and consumption, the results would be catastrophic. Fight Club's Tyler Durden's critique of consumerism articulates the issue rather bluntly, "... advertising has us chasing cars and clothes, working jobs we hate, so we can buy sh*t we don't need..." If the world is to continue to be habitable and ultimately investable, humanity needs to assign a significantly higher value to ecosystem services relative to consumer goods.

To Grow or Not to Grow?

With current consumption and production methods (extraction to landfill, simply put), increased growth correlates to increased stress on ecosystem services, pushing against or past safe, sustainable levels in relation to planetary boundaries. The current consensus view of a nation's economic health is measured by its growth of gross domestic product (GDP). GDP is appealing due to its simplicity, but it is this very simplicity that masks critical issues concerning how that growth is achieved. For example, if a country's GDP (essentially, income) is high/increasing, yet the cost of this increase is the degradation of that same country's natural environment and resources, that country's future prosperity and ability to generate wealth is at risk, a danger hidden by the relatively myopic view of GDP. A key tenet of neo-classical economics, GDP disregards biophysical dynamics,[5] such that the planet's physical limitations are not considered and growth is considered de-facto infinite without environmental consequences. The following image demonstrates the neo-classical economic view versus the ecological economic view: the neo-classical view and the laws of nature are seemingly at odds.

The "future prosperity" idea, while easy to understand on an intellectual level, is the most difficult to truly grasp with urgency because the impact in the near term can appear non-existent to negligible. Among other reasons, short-termism, careerist political aspirations, and greed (coupled with relatively short human lifespans) result in elected officials and shorter-sighted, solely profit-focused companies doing very little to change the status quo. The UN Climate Change Conference of Parties has held 28 annual sessions thus far, but little has been achieved; the amount of atmospheric carbon dioxide has steadily increased over that timeframe.[7] This proverbial kicking of the can down the road will only worsen the situation; the expected negative climate impacts of 2100 may arrive much sooner than anticipated due to accelerating feedback loops and the un-grasped complexities of the Earth's climate system, which are not fully accounted for across climate models.



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Flood et al. (2020)

How Should We Value Natural Capital?

According to the World Economic Forum, $44 trillion in GDP, which is greater than half the world's GDP, is at risk due to our reliance (reflecting high or moderate exposure) on nature and ecosystem services.[8] Ecosystem services provide everything needed for life, yet the private and public sectors typically do little to incorporate their intrinsic value into their decision making; however, market-based and non-market-based methods used to approximate the monetary value of such services do exist. A market-based approach would include a way to assess direct market prices. For example, the value of food dependent on honeybees and other pollinators is estimated to be as much as $577 billion annually,[9] which could be considered a direct market price. Other market-based valuation methods include "Net Factor Income" and "Production Function Methods"; for these measures, the ecosystem is a key input in determining the production parameters of certain marketed goods, such as a habitat that sustains a fishery.

The Taskforce on Nature Financial Disclosure (TNFD), the Taskforce on Climate Financial Disclosure (TCFD), and Science Based Targets for Nature (SBTN) are just a few of the initiatives that were created to provide guidance and frameworks to help investors better understand the risks and opportunities of nature-related issues, with the overarching goal of directing capital to more nature-positive outcomes, or at least away from nature-negative outcomes. While the initiatives align in fostering advantageous natural outcomes, they focus on different issues:

- The TCFD has developed recommended financial disclosures to better inform investors, shareholders, and society about a company's climate-related financial risks.
- The TNFD was modeled after the TCFD, using the same structure and language but with a focus on nature-related risk management and disclosures. Its framework considers businesses' impact on environmental assets and ecosystem services to better inform companies of relevant issues and opportunities.
- The SBTN helps businesses set transparent science-based targets to ensure they are doing enough to minimize their impact and dependencies on nature, with the end goal of transforming their business models to become more sustainable and competitive.

Other methodologies and initiatives also exist and their numbers are growing; while all have their benefits and deficiencies, the primary objective of each is to support policymakers and companies to provide better tools, resources, and governance in managing crucial nature-based systems able to support all life on Earth.

> **"NOWADAYS PEOPLE KNOW THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING"**
>
> OSCAR WILDE, THE PICTURE OF DORIAN GRAY

The Path Forward?

No one solution can fix all of humanity's detrimental natural impact. Green growth, degrowth, technological innovation, natural restoration, a circular economy, and a different consumption mindset (once again, que up Tyler Durden) are all forms of decarbonization that can be utilized to restore the natural balance and reverse some of the damage inflicted on Earth's planetary boundaries.

Green growth or a transition to renewables is needed to reduce and eventually eliminate our reliance on fossil fuels; however, this comes with significantly greater mineral extraction, which has its own adverse environmental effects. Additionally, a significant amount of raw materials are needed to support weaning us from our fossil-fuel addiction given the current state of solar, wind, and battery technologies. This is not to say that we shouldn't continue to develop and deploy such technologies, but such efforts should be integrated alongside nuclear and geothermal options, and importantly, all of this should be done alongside the continued restoration of natural ecosystems. Furthermore, technology in this area is changing at a rapid pace, such that nuclear fusion, more efficient solar, green hydrogen technologies, and vastly improved batteries are within reach to help transform the energy sector.

Notwithstanding, a key question remains: Can humans, especially in the developed world, continue to live like we do now? As mentioned earlier, GDP is a flawed indicator; it does not consider the negative externalities of our current methods of production. Our natural resources are not infinite; therefore, neither is GDP growth. While the idea of "degrowth" (i.e., living within the boundaries provided by our sole Earth) may seem unpalatable and at odds with the prevalent "more is more" mindset (i.e., more money, more profits, bigger this, supersize that, more stuff), it may be fundamentally necessary to remain sustainably within our planetary boundaries to maintain civilization in large part as we know it. Degrowth's impact as a policy on markets and asset prices is a major unknown. However, considering the very real possibility that a continued disregard of natural limits would lead to a more hostile and less habitable planet with a far higher probability of severe societal and market breakdowns, perhaps it is time to explore the benefits of degrowth. One possible criticism is that a de-growth model may weaken a nation's global competitiveness, as other countries that continue to pursue traditional growth models may outpace them economically. A new approach would necessarily require a fostering of admittedly hitherto unprecedented international cooperation, emphasizing the importance of redistributing wealth more equitably within and between nations to promote a more balanced global economy. The inherent benefits of sustainability, such as reduced environmental degradation and enhanced social well-being, would need to be understood as fundamentally of greater importance than existing conventional measures of economic competitiveness. How this would look in practice is unknown, but much of this unknowability relates to a lack of exploration of its possibility.

Climate science is a difficult-to-navigate field and better education needs to be provided to investors on the topic. While carbon dioxide is the climate crisis's main culprit, methane[10] (measured as 25x more potent than CO2 over a 20-year period[11]) and other gases/pollutants can also cause serious harm in shorter amounts of time. Ultimately, understanding the facts and scientific processes underlying them while increasing disclosure, engagement, and adherence to common goals are the key ingredients for positive change.

To begin this journey, we must know where to start, what to look for, and set goals that are measurable to facilitate actionable accountability. The TNFD initiative, for example, provides such a framework. The list below is not complete but highlights some of the cornerstones.[12]

- **Deepen our collective understanding of the fundamentals of nature:** The various components of nature (e.g., ecosystem services, biomes, and environmental assets), biodiversity, and the conceptual basis of nature-related dependencies and their related risks and opportunities are critical to understand so that better choices can be made.

- **Make the business case for nature:** The long-term viability of any business model should be grounded in its relationship with nature. Therefore, determining the economic and financial value of nature—the risks and opportunities—is crucial to motivate relevant parties.

- **Encourage collective progress through engagement:** Value chains are interconnected such that the engagement of relative stakeholders would increase pressure throughout the broader chain to encourage nature-positive outcomes and more transparent disclosure of nature-related issues.

Systemic overhauls are always difficult to achieve, but in this case they are necessary to ensure a planet that continues to be habitable and investable. The transition to a more sustainable and nature-positive economy will present investors with a vast range of risks and opportunities. The meeting of inertia (the tendency to do nothing or to remain unchanged) and the second law of thermodynamics (entropy or increased disorder in the system) captures the current impasse between humanity and nature, respectively. However, our future will depend on resisting these powerful forces to bring about much needed change and restoration. The climate crisis and natural capital are inextricably linked—restoring natural capital improves the climate's and humanity's future potential, while destroying such capital (i.e., continuing business as usual) will only worsen and narrow the future's possibilities.

There's no resetting the clock on too late. At Crewcial, we're committed to helping our clients navigate these difficult currents while creating a future that subsequent generations will want to inherit. For the many non-profits organizations with a mandate to operate in perpetuity that rely on scaling local resources and community solidarity, the concerns above are not abstract.

Core to our investment process is an assessment of risk related to sustainability based on relevant sector-specific factors to account for the longer-term financial feasibility and operational viability of investment options from an environmental perspective, regardless of a manager's underlying ESG objectives. This allows all clients to transparently calibrate in which ways such concerns affect their shareholders, missions, and overall portfolio orientation, and to mitigate or reverse the negative impact of environmental degradation on affected communities based on subsequent investment decisions.

Our efforts also extend to generally leveraging our assets under management to encourage managers to think beyond financial risk and reward—to also consider how portfolio companies contribute to positive and negative externalities. In public markets, we want to understand how managers are encouraging portfolio companies to be more sustainable and aligning their objectives with meaningful environmental goals. In private markets, we are examining how disruptive innovations can either limit or remove carbon dioxide from the atmosphere and restore ecosystems. We will also continue to provide education to clients who require or request it as we scale our own knowledge and expertise. In an ever-evolving space, continual learning at the vanguard is key.

This is a challenging subject, and we acknowledge that many perspectives compete on the specifics. However, at the end of the day, a healthier world is a world better able to support biodiversity, and therefore broader human interests indefinitely. Being a good steward of capital means being a responsible steward of capital. In line with our dedication to advancing human dignity and inclusion, championing a sustainable environment for all provides a foundational element underpinning our philosophy: We all live here; let's build a brighter way forward together.

> **"CAN HUMANS, ESPECIALLY IN THE DEVELOPED WORLD, CONTINUE TO LIVE LIKE WE DO NOW?"**

Endnotes

[1] Scottish Wildlife Trust, "50 for the Future—Natural Capital." 50 for the Future - Natural Capital | Scottish Wildlife Trust

[2] National Park Service, Web of Life - Web of Life (Teacher's Guide/Ecology) - Teachers (U.S. National Park Service) (nps.gov)

[3] The limits to the impact of human activities on the Earth before irreparable damage to environmental self- regulation.

[4] HM Treasury, Final Report - The Economics of Biodiversity: The Dasgupta Review - GOV.UK (www.gov.uk)

[5] Getting Straight on Decoupling – Both Brains Required

[6] Getting Straight on Decoupling – Both Brains Required

[7] Climate Change: Atmospheric Carbon Dioxide | NOAA Climate.gov

[8] WEF_New_Nature_Economy_Report_2020.pdf (weforum.org)

[9] Pollinators: first global risk index for species declines and effects on humanity (cam.ac.uk)

[10] https://climate.mit.edu/ask-mit/what-makes-methane-more-potent-greenhouse-gas-carbon-dioxide

[11] Yale researchers investigate methane emissions by rivers, streams - Yale Daily News

[12] Getting_started_TNFD_v1.pdf


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