

Biodiversity and ecosystem services in corporate natural capital accounting

Synthesis report



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A world leader in apparel and accessories, Kering develops an ensemble of powerful Luxury and Sport & Lifestyle brands: Gucci, Bottega Veneta, Saint Laurent, Alexander McQueen, Balenciaga, Brioni, Christopher Kane, McQ, Stella McCartney, Tomas Maier, Boucheron, Dodo, Girard-Perregaux, JeanRichard, Pomellato, Qeelin, Ulysse Nardin, Puma, Volcom and Cobra. By 'empowering imagination' in the fullest sense, Kering encourages its brands to reach their potential in the most sustainable manner.

Present in more than 120 countries, the Group generated revenue of more than €11.5 billion in 2015 and had more than 38,000 employees at year end. The Kering (previously PPR) share is listed on Euronext Paris (FR 0000121485, KER.PA, KER.FP)

Natural Capital Project

The Natural Capital Project is a team of optimistic and committed academics, software engineers, and practitioners from Stanford University, the University of Minnesota, The Nature Conservancy and World Wildlife Fund, working for over a decade to integrate the value nature provides to society into all major decisions. We harness world-class research capacity and pair it with the latest technology and practical, local know-how.

We engage in real decisions, advance the frontiers of science, convene leaders, and are building the Natural Capital Science & Technology Platform, which makes using natural capital understanding faster and easier.

Publication details

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1 Introduction

There is a growing interest in managing costs, reducing exposure to risk and creating commercial opportunities through strategies that enhance natural capital.

Businesses are increasingly aware of their dependencies upon nature's goods (also known as natural capital) and the flow of services they provide. However, this has tended to focus on impacts on aspects such as water usage and carbon emissions, often neglecting the other critical aspects of natural capital such as ecosystems and biodiversity.

Biodiversity represents the variety of all life on Earth: it is vital to the functioning of our ecosystems and provides a wealth of benefits such as regulating water flows, increasing soil fertility and providing pollination. Biodiversity underpins the benefits that businesses derive from natural capital and supports the key ecosystem functions that ensure the delivery of business operations and productivity.

There is growing understanding across sectors of the dependency upon the natural environment and biodiversity for productivity and resilience in production systems. Progressive companies recognise the tangible link between biodiversity and production of their raw materials – eg leather, cotton, cocoa and coffee. While there is a recognition of this dependency, there is still a dearth of practical approaches for business to measure their impacts in such a way that they underpin strategies to enhance, restore and protect natural capital.

Kering has pioneered the development of corporate natural capital accounting through its Environmental Profit & Loss (EP&L) account. This has proved to be an effective and powerful tool to help the company understand the environmental impacts of its business and supply chains. Importantly, it has enabled the design and implementation of new business models that support natural capital. Kering is currently mainstreaming the EP&L as an internal decision-making tool across its brands. Kering is now seeking to improve the EP&L representation of biodiversity and ecosystem services as well as improve the underlying data used to predict ecosystem impacts.

The methodology to measure corporate impacts on biodiversity and ecosystem services in the context of natural capital accounting was explored during a two-day workshop hosted by the University of Cambridge Institute for Sustainability Leadership (CISL) and Kering. Experts from conservation, academia and industry came together to explore how improved metrics and methodology can be developed, tested and then disseminated more broadly for use in investment and corporate sectors.

“Kering is committed to continuously improving the EP&L methodology and to open source it to catalyse broader industry uptake.”

Marie-Claire Daveu
Chief Sustainability Officer and Head of
international institutional affairs, Kering



2 Setting the challenge

Kering developed an Environmental Profit & Loss (EP&L) account to measure and value the environmental impacts borne by society as a result of Kering's business activities.

This has helped Kering understand and ultimately manage its impact on natural capital across their supply chains. Kering has helped recognise that this will better ensure security of supply of resources, lower its risks and ultimately create business value.

The EP&L demonstrated that approximately 50 per cent of Kering's impacts are associated with raw material production for its products and that a large proportion of this impact (24 per cent) was due to 'land use change'. This impact is measured by the loss in ecosystem

services associated with land use for raw material production (Figure 1). This highlights the importance of ensuring that this land use change indicator is as accurate as possible not only for the measure of 'impact' but also for tracking improvement over time as new business approaches to sourcing are implemented. It was also recognised that the current methodology does not capture all the impacts related to biodiversity.

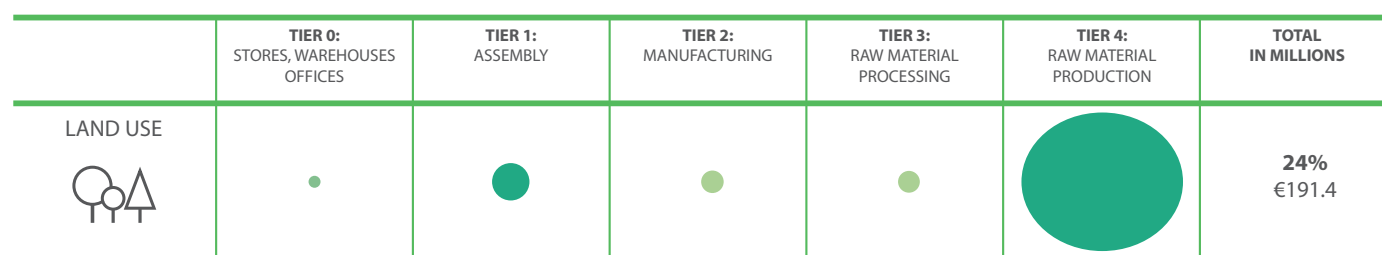


Figure 1: The 2015 EP&L concludes that Kering's largest impacts around land use occur in its Tier 4 suppliers

In line with Kering's commitment to the continuous improvement of the EP&L and to make it available for broader use, Kering supported a collaborative effort to explore how to better represent impacts on biodiversity and ecosystem services at the base of the supply chain where raw materials are sourced. The workshop at the University of Cambridge in June 2016 was a forum for experts from academia, conservation and business to tackle this challenge.

The Kering EP&L methodology provided a framework for the two-day workshop but the focus was not constrained to the EP&L context. Discussion centred around how to improve the measurement of

impacts on biodiversity and ecosystem services so that it can incorporate the latest science, real-time updating and pragmatic approaches and interfaces. The ideas and recommendations were directed both at how to improve the EP&L but also how to present metrics on measuring impacts for biodiversity and ecosystems more broadly to the investment community, for example.

A working paper with full details can be [found here](#).

3 Progress to date

The University of Cambridge and Stanford scholars outlined the way that the current EP&L methodology measures impact on ecosystems and biodiversity and highlighted potential areas for improvement.

Impacts on ecosystem services are primarily captured through the land use change indicator (Figure 1). This takes into consideration the areas that have been converted into different production systems and the associated reduction in 'value' of the ecosystem services. While a good attempt to measure a complex issue, there are significant limitations in this approach. These limitations include: data being based on 'static' datasets (e.g. a global database of ecosystem service value) that do not model future scenarios; key ecosystem services not being captured; spatially explicit ecosystem processes not being fully considered; and impacts on specific components of biodiversity such as endangered or keystone species not being considered.

There are two critical areas of improvement that can address these limitations (Figures 2a & 2b). Firstly, the use of real-time remote sensing and spatial modelling can improve how ecosystem impacts are captured. This does not require any significant change to the data collected by companies but will substitute existing, often limited, case studies and static datasets with data modelled with open-source tools and globally available remotely sensed datasets. There are also opportunities to incorporate data on new ecosystem services (beyond what is currently captured in the EP&L). The second area for improvement addresses parts of biodiversity that are currently missing in the EP&L, with a recommendation to include an additional indicator for biodiversity that can sit alongside the EP&L.

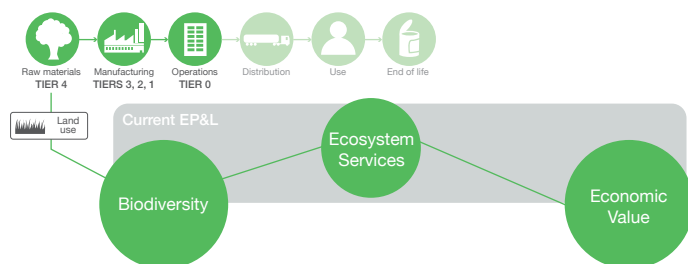


Figure 2a: The current EP&L. This uses information on historic land-use change and species richness to derive estimates of reductions in ecosystem services and calculates economic value per hectare based on benefits-transfer databases.

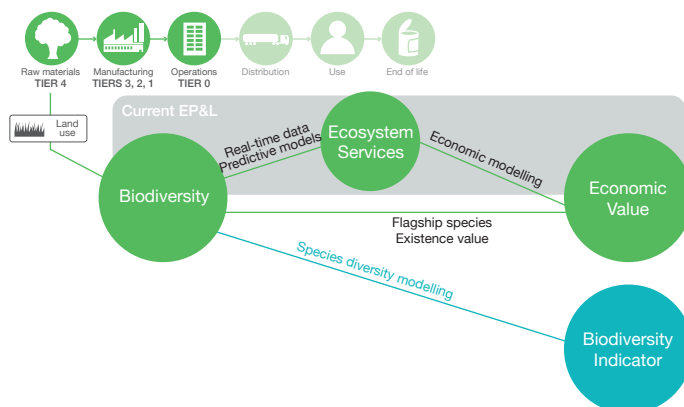


Figure 2b: Suggested improvements to the existing EP&L. These include 1) enhancements to the way that ecosystem services are estimated to include 'real-time' data from predictive spatially explicit models for ecosystem service provision and economic valuation; 2) incorporation of values for new ecosystem services; 3) adoption of a separate indicator that accounts more directly for the impacts on biodiversity.

3.1 EP&L improvements on ecosystem services

Fundamentally, the EP&L account is designed to help Kering develop more sustainable business approaches and to drive changes in the way raw materials are sourced and processed. This goal helps the business define what needs to be improved in the measurement of land-use change and impacts on ecosystems.

The EP&L currently captures the value associated with the change in ecosystem services caused by a change in land use from pristine to current condition. The data for types (and value) of ecosystems is taken from static databases (eg TEEB, WWF Wildfinder). The estimate of change in ecosystems over time is made through measuring change in proxies (again from 'static' datasets) and assumes a linear relationship between ecosystem services and these proxies. This approach can be replaced with a more flexible system.

This system could use current and globally available remote-sensing data and open-source tools to show reductions in ecosystem services more accurately.

Specifically, the proposed enhancements discussed at the workshop use predictive models for ecosystem services and the most recent remote-sensing data from InVEST (Integrated Valuation of Ecosystem Services and Trade-offs). A 'proof of concept' to compare the InVEST approach with that of the existing EP&L focused on the Mongolian Gobi Desert region. The preliminary results suggest that the current EP&L may be underestimating the impacts on ecosystem services from cashmere production in this particular region by two-five times. This is primarily because spatial dynamics are not represented in the assessment of ecosystem services (Figure 3).

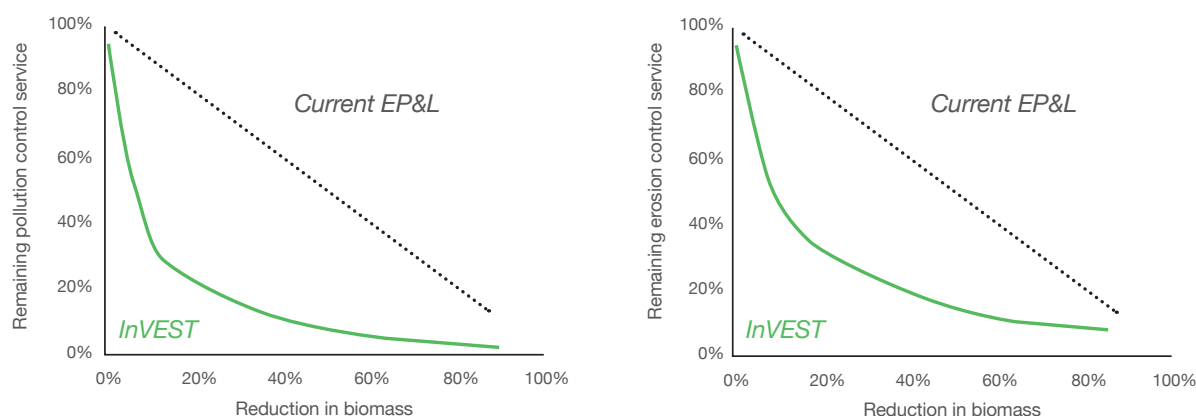


Figure 3: Results of proof of concept comparing estimates of change in two ecosystem services from InVEST and the EP&L, showing the non-linear decline in pollution control and erosion control resulting from reduction in biomass in Mongolian grasslands compared to the linear relationship assumed in the EP&L

The group of experts and business practitioners at the workshop discussed the next steps for integrating into the EP&L improved estimates of ecosystem services changes through modelling. The group agreed on four underlying principles to guide this future work and to underpin the approach in the end use change estimates of the EP&L:

- **Systems-focused** with adequate representation of spatially and temporally explicit processes for the ecological and economic modelling;
- **Sensitive to land-use changes** and able to reflect the impacts from the changes in production systems that business could promote;
- **Nested in complexity** to allow different levels of detail for different types of decisions but with a practical, user-friendly interface; and
- **Practical and scalable**, using globally available data at least at the lowest tier of complexity, with the ability to substitute better information when it is available.

3 Progress to date *continued*

3.2 Biodiversity metric

It was clear that even with the proposed improvements in ecosystem service modelling, the EP&L would not be able to fully represent impacts on biodiversity. Additionally, it was recognised that biodiversity cannot be completely 'valued' as a utility for people and that there is an value of biodiversity beyond that which can be satisfactorily incorporated into ecosystem service models.

The EP&L is constructed such that all impacts are valued in economic terms based on costs to society. This 'valuation' approach is useful for providing a framework to present the importance of different types of environmental impacts to a range of stakeholders and creating an 'equivalency' in comparing different impacts. However, given that it is not appropriate or possible to place an economic value on all aspects of biodiversity it was proposed that a separate **biodiversity indicator** be developed to sit alongside and complement the EP&L. While the EP&L can capture the impacts on biodiversity where it is linked to provision of services, the biodiversity indicator could capture less tangible biodiversity benefits such as the cultural or aesthetic value of, for example, a forest.

It was agreed that a biodiversity indicator would provide the following:

- Augment current valuation methods and highlight the importance of biodiversity;
- Ensure that stakeholders recognise the importance of preserving a 'portfolio' of biodiversity that helps confer 'resilience' to the ecosystem;
- Contribute to new business models that integrate biodiversity considerations; and
- Ensure that biodiversity is conserved both for its own sake, and for the benefits that it provides to humans.

The metric used would need to encompass impacts on the biophysical units of biodiversity themselves - ecosystems, species and genes.

While recognising the inherent complexity of biodiversity there was enthusiasm amongst the business practitioners for a simplified biodiversity indicator to represent the impact of business on biodiversity. It was agreed that this indicator would have to be based on rigorous and complex data but it should be simple enough that it can be used to build awareness of the importance of biodiversity and inform business decisions.

Discussion around the structure of the biodiversity indicator highlighted that three important elements that need to be considered:

- biodiversity status;
- threats to biodiversity; and
- business responses to biodiversity threats.

These three elements would enable flexibility so that different time scales can be critically assessed and businesses can use the analysis to make informed decisions (Figure 4). It was also suggested that three different indices/scores from each of these elements could be used to represent impacts on biodiversity and these could potentially be aggregated into one overarching biodiversity indicator.



Figure 4: Possible conceptual framework for a biodiversity indicator that captures elements not included in an EP&L

4 Conclusions

Corporate sustainability and, in particular, corporate natural capital accounting, is a rapidly evolving field. There is now awareness from many in business of the materiality of the biodiversity that underpins the ecosystem services upon which we all rely.

In a world with increasing risk and volatility, it is clear that a focus on integrating resilience into business is a necessity and this demands a new focus on restoring and protecting natural capital.

The EP&L is a means of communicating internally and externally a company's impacts on the natural environment and ultimately on society. It contextualises environmental issues for people who work across corporate teams and who may not be familiar with the links between nature and business. It also provides a basis for informed decision-making that will underpin the success of a sustainable business.

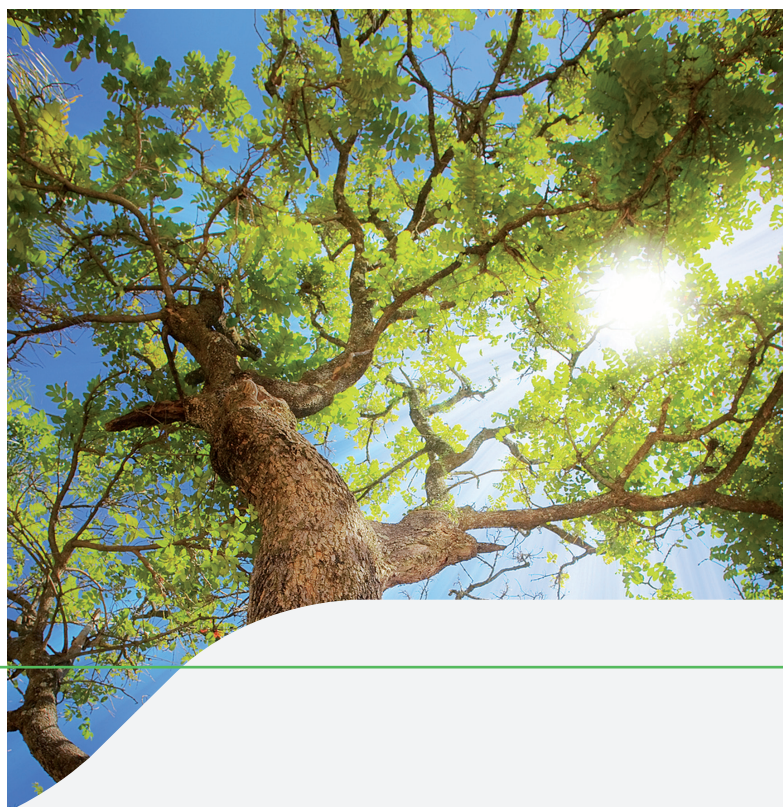
However, the current methodology has some limitations and it is important to improve the data and methodology for the approach to work as it is intended. The limitations are particularly acute around the estimations of business impacts (both positive and negative) on biodiversity, ecosystems and land-use change. Significantly, science-based pragmatic application of measures of impacts on natural systems are needed not only for the corporate natural accounting but also for many other applications including investment 'scoring' for sustainability (eg Sustainable Apparel Coalition's Higg Index).

There is an opportunity to enhance the EP&L and use this as a way of providing new approaches to a broader audience. Enhancements can be made by using real time data and predictive models that are already available. Additionally, the impacts upon biodiversity, or key aspects of biodiversity, can be captured through a new metric that could 'stand alone' or 'sit alongside' an EP&L.

Finally, the need was recognised for a broader indicator that includes aspects such as soil and water as well as biodiversity, which can be used to demonstrate the full environmental performance of a company. CISL and Kering are developing this new phase of work by engaging with their corporate stakeholders.

Key conclusions

- **The EP&L can be improved to incorporate more dynamic, real-time and accurate analysis of ecosystem services which allow flexible outputs**
- **A methodology for a biodiversity index is needed: one that is simple, pragmatic and grounded in delivering clear business goals**



5 Next steps

The workshop represented an important forum for an impressive range of experts to catalyse new thinking around measurement of biodiversity and it provided a critical ‘launching pad’ for future work.

The collaborative and entrepreneurial atmosphere at the workshop enabled significant progress on this complex and multifaceted topic. There will need to be more such ‘gathering of the minds’ in the future to develop and mature the proposed approaches. The workshop agreed the following tangible next steps:

- Continued work on evaluating the different ways that changes in ecosystem services can be integrated into an EP&L and other forms of assessment of impacts on ecosystems. This includes:
 - evaluating the available data and modelling;
 - determining which ecosystem services should be considered in different contexts and developing some guidance around this;
 - identifying how to use data from the modelled ecosystem services and the valuation of these services to the ongoing EP&L calculations; and
 - field testing the new approaches in real supply chain/sourcing scenarios with a particular focus on testing whether the new methodologies are able to show changes in impacts associated with changing production systems.
- Continued work on development of the **biodiversity indicator** that includes:
 - proposing different structures of the indicator and testing these with available data and datasets;
 - ‘ground truthing’ the indicator in real supply chain/sourcing scenarios; and
 - exploring a wider indicator set so all aspects of natural capital are considered.
- Exploring how the new approaches can be integrated into or contribute to initiatives around responsible investing, sustainability rating and accounting.

“Only by consistently measuring and managing the suite of natural capital impacts can business continue to grow sustainably.”

Dr Gemma Cranston
Acting Director, Natural Resource Security Portfolio, CISL



Delegate list

Organisation	Name	Organisation	Name
Anglian Water	Kylie Jones	Scottish Wildlife Trust	Jonathan Hughes
BirdLife International	Stuart Butchart	Stanford University	Becky Chaplin-Kramer
Burberry Group	Grace Ter Haar	Stanford University	Mary Ruckelshaus
Coca-Cola Enterprises Inc	Paul Smith	Stella McCartney	Claire Bergkamp
Dragonfly Initiative	Assheton Stewart Carter	Stockholm Environment Institute	Jonathan Green
Estelle Levin	Andrew Cooke	Stuart Anstee & Associates	Stuart Anstee
Fauna & Flora International	Vanessa Evans	The B Team	Holly Dublin
Fauna & Flora International	Pippa Howard	The B Team	Keith Tuffley
Hugo Boss	Heinz Zeller	The Biodiversity Consultancy	Eugenie Regan
i Care & consult	Benjamin Lévêque	The Biodiversity Consultancy	Robin Mitchell
Independent Consultant	Michelle Lapinski	The Nature Conservancy	Jen Molnar
IUCN	Nathalie Olsen	UNEP-WCMC	Annelisa Grigg
IUCN	Frank Hawkins	University College London	Tim Newbold
Kering	Emilie Rognon	University of Cambridge	Bhaskar Vira
Kering	Helen Crowley	University of Cambridge	Lynn Dicks
Kering	Michael Beutler	University of Oxford	Prue Addison
Kering	Baptiste Cassan-Barnel	WBCSD	Violaine Berger
Marks & Spencer	Phil Townsend	Wildlife Conservation Society	Hugo Rainey
Mars Incorporated	Adrian Greet	Wildlife Friendly Enterprise Network	Julie Stein
Natural Capital Partners	Simon Brown	WWF US	Robin Naidoo
PwC	Quiller Brooke	CISL	Gemma Cranston
PwC	Laura Plant	CISL	John Pharoah
Royal Dutch Shell	Mikkel Kallesoe	CISL	Hannah Tranter
RSPB	Katharine Bolt	CISL	Clarisse Simonek
Savory	Chris Kerston	CISL	Justin DeKoszmovsky

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