ELLEN MACARTHUR FOUNDATION

THE NATURE IMPERATIVE

How the circular economy tackles biodiversity loss

SECTOR DEEP-DIVE

Fashion

Biodiversity loss is widely recognised as a systemic risk that threatens not only our prosperity but our very future as a species. To halt and reverse this loss, a transformative change to its main underlying cause – our extractive, wasteful and polluting economy – is urgently needed. The circular economy is being rapidly recognised as a powerful framework to achieve this fundamental shift as it creates value in ways that rebuild biodiversity and provide other society-wide benefits.

Our 'take-make-waste' economy is increasingly recognised as the main underlying cause of the biodiversity crisis. Biodiversity has risen to the top of the global agenda as the planet faces its sixth mass extinction, with projections of the loss of more than a million species in the coming decade. More than 90% of this biodiversity loss is due to the extractive, polluting, and wasteful way we use resources in the economy.

To halt and reverse biodiversity loss, we need to fundamentally transform our production and consumption systems, and the circular economy offers an actionable framework for such transformative change. By decoupling economic prosperity from resource consumption and environmental degradation, the circular economy presents opportunities for new and better growth that not only help safeguard and rebuild biodiversity, but also provide other society-wide benefits, such as helping tackle climate change, improving air and water quality, and reducing the cost of accessing goods and services.

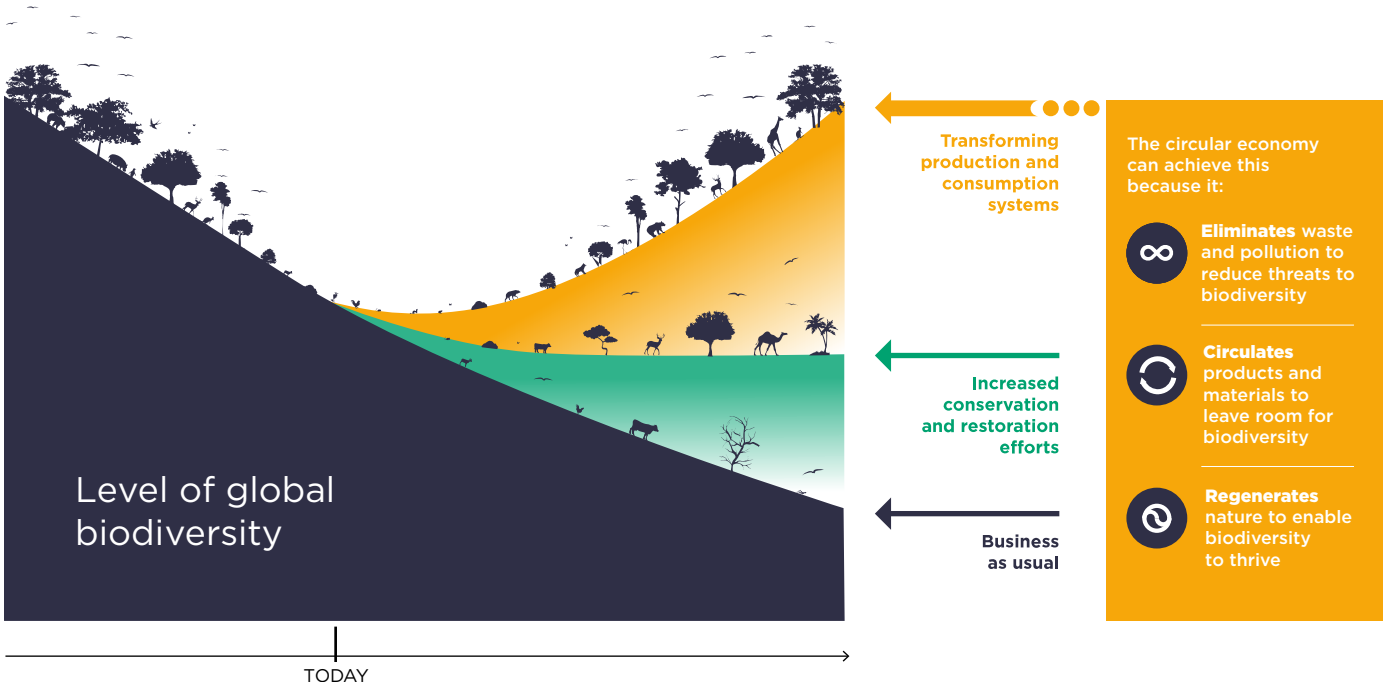
It is by applying the three principles of the circular economy together, that the root causes of biodiversity loss can be tackled:

- **Eliminating waste and pollution – to reduce threats to biodiversity.** Designing out problems from the start is crucial to reducing biodiversity loss. For example, eliminating unnecessary plastics and re-designing plastic products for reuse, recycling or composting allows them to circulate in the economy without being wasted and polluting the environment.

- **Circulating products and materials – to leave room for biodiversity.** Reducing demand for natural resources reduces biodiversity loss. In fashion, for example, business models that keep cotton clothing in use for longer will, all things being equal, reduce the amount of land needed to grow cotton. This leaves more space for other uses including the preservation of wilderness areas, which are crucial to the health of wildlife populations. In electronics, using recycled metals in devices means fewer mines need to be dug, leaving room for biodiversity, and avoiding emissions of greenhouse gases and other pollutants.

- **Regenerating nature – to enable biodiversity to thrive.** Economic activity can, and needs to, actively rebuild biodiversity. Regenerative agricultural approaches such as agroecology, agroforestry, and managed grazing sequester carbon in the soil and improve its health, increase biodiversity in surrounding ecosystems, and enable agricultural lands to remain productive instead of degrading over time, thereby reducing the need for land expansion..

FIGURE 1 **THE CIRCULAR ECONOMY PLAYS A CRUCIAL ROLE IN BENDING THE CURVE ON BIODIVERSITY LOSS** [I]



I This image is an adaptation of that presented by the Secretariat of the Convention on Biological Diversity's report Global Biodiversity Outlook 5 (2020) and the Nature article Bending the curve of terrestrial biodiversity needs an integrated approach (2020). It does not intend to accurately represent the impact of potential scenarios.

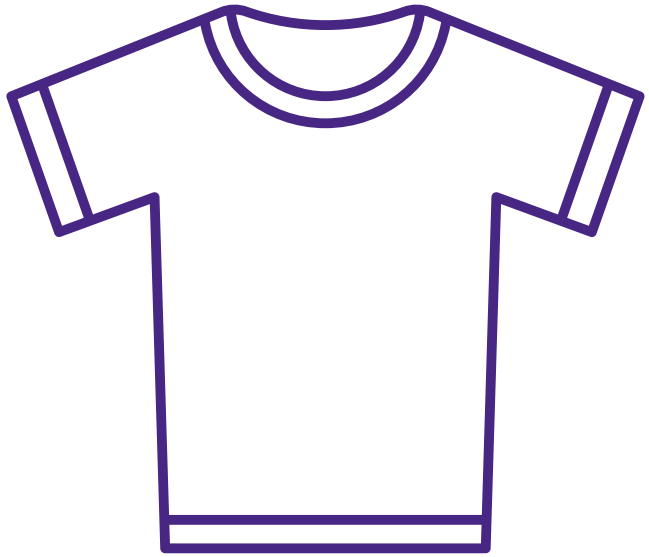
To effectively halt and reverse biodiversity loss, multiple stakeholders will need to be engaged. Businesses can join the dots between their biodiversity ambitions and circular economy plans, by assessing their biodiversity impacts and dependencies and setting targets, identifying circular economy opportunities that help meet those targets, and collaborating across value chains to develop innovative solutions. Meanwhile, policymakers can play an instrumental role in developing a conducive policy context for this transformative change by adopting a circular economy approach based on five universal policy goals.

To learn more about how the circular economy can be harnessed to halt and reverse global biodiversity loss, and get a deeper understanding of what this looks like across the Fashion, Plastic Packaging, and Built Environment sectors, visit the Ellen MacArthur Foundation page for the full paper The Nature Imperative: How the circular economy can help tackle biodiversity loss, or one of the other individual sector deep-dives, or explore our library of case examples.

Fashion

SAFEGUARDING BIODIVERSITY BY CIRCULATING CLOTHES, ELIMINATING POLLUTION, AND GROWING NATURAL FIBRES REGENERATIVELY

The linear way in which today's fashion industry operates puts significant pressure on the biodiversity on which it depends. A circular economy for fashion offers a comprehensive system-level approach to transform the way we produce and use clothing in order to create opportunities for better growth while helping to halt and reverse global biodiversity loss. Keeping clothes and the materials they are made from in use displaces the need for new production, and therefore reduces the negative impacts on biodiversity associated with virgin fibre production, processing, and disposal. By shifting to safe chemistry and designing out microfibre release, the industry can design out environmental pollution and promote safe material cycles. Finally, by producing materials regeneratively the sector can actively rebuild biodiversity and safeguard the health of ecosystems.



The textiles system operates in an almost completely linear way that puts a heavy burden on biodiversity. Currently, large amounts of non-renewable resources are extracted to produce clothes that are often used for only a short time, after which 99% of materials are sent to landfill, incinerated, downcycled, or leak into the environment as microfibres.[16] As a result of this extractive and wasteful model, the fashion industry contributes to global biodiversity loss through the degradation of natural habitats; pollution of air, water, and soil; and contribution to climate change.

The circular economy offers an approach to fundamentally rethink the fashion industry to evolve from a model that degrades natural systems to one that protects and rebuilds biodiversity. A circular economy for fashion ensures that products are used more, are made to be made again, and are made from safe and recycled or renewable inputs produced in regenerative ways.[17] In doing so, the sector can not only reduce the demand for virgin materials and eliminate waste and pollution, but also improve soil health, sequester carbon, and actively rebuild biodiversity. Alongside the benefits to biodiversity, a circular economy for fashion can address the USD 500 billions of value lost annually due to clothing underutilisation and the lack of recycling, while supporting the creation of safe, healthy conditions for textile workers and users.[18]

In the fashion sector, three especially effective circular economy opportunities to tackle the main direct drivers of biodiversity loss emerge:

A **Keeping clothes and fibres in use**

B **Shifting to safe chemistry and designing out microfibre release**

C **Producing materials regeneratively**

THE IMPORTANCE OF BIODIVERSITY TO THE FASHION INDUSTRY

Cotton, viscose, wool, and other renewable materials derived from nature account for over 36% of all fibres used in the textiles industry.[19] The agricultural and forestry systems where these materials are produced are directly dependent on biodiversity for soil fertility, organism health, and water availability.[20] Biodiversity also helps to enhance the ability of agroecosystems to adapt and increases their resilience to external shocks such as floods or droughts, thereby mitigating risks to business operations.[21]

Image: Unsplash

THE IMPACT OF THE FASHION SECTOR ON THE FIVE DIRECT DRIVERS OF GLOBAL BIODIVERSITY LOSS[22]

Land-use change

- At the current pace, by 2030 the fashion industry is projected to use 35% more land for cotton cultivation, forest for cellulosic fibres, and grassland for livestock[23]

Overexploitation

- Over 4% of global freshwater withdrawal is linked to the textiles industry, with consumption expected to double by 2030[24]
- Conventional cotton cultivation – the most water-intensive fibre production process – is often located in already water-stressed regions[25]

Pollution

- Despite accounting for approximately 3% of total arable land, the production of cotton is estimated to use as much as 16% of all insecticides, 6% of all pesticides, and 4% of all synthetic fertilisers globally, which can degrade soil health, pollute waterways, and endanger biodiversity[26]
- Out of 2,450 textile-related chemicals studied by the Swedish Chemical Agency, 5% were of high potential concern for the environment due to their capacity to spread globally and bioaccumulate, causing diseases and allergic reactions, and increasing cancer risk[27]
- An estimated 35% of microplastics in the ocean originate from synthetic microfibre release[28]

Climate change

- The fashion industry was estimated to account for 4% of global emissions in 2018 – approximately as much as France, Germany, and the UK combined[29]
- At the current pace, the sector's emissions would nearly double the maximum required to stay on the 1.5ºC pathway[30]

Invasive alien species

- Long-range transport of raw materials and fashion products facilitates the spread of invasive alien species, which can have serious negative consequences for their new environment[31]

A KEEPING CLOTHES AND FIBRES IN USE

Extending the life of garments through circular business models is one of the most effective ways to reduce the fashion industry's impact on biodiversity. By leveraging circular business models that keep products in use for longer, such as resale or rental, the negative impacts on biodiversity associated with the extraction of natural resources, production, processing, and disposal are avoided (assuming new garments are displaced). In fact, compared to buying new, a pre-owned purchase is estimated to save on average 1kg of waste, 3,040 litres of water, and 22kg of CO_2.[32] Studies have shown that 65% of second-hand clothing purchases in the US and UK, and 41% in China, successfully prevented the purchase of a new item.[33] By 2030, with proactive industry action, circular business models that keep clothing in use for longer could grow to represent 20% of the market (up from 3.5% today)[34] – representing a USD 700 billion opportunity globally and helping to gradually decouple the sector's growth from its impacts on biodiversity.[35] In addition, such a scale-up of circular business models will assist the fashion industry in staying on track for a 1.5ºC pathway by delivering a third of the emissions reduction needed.[36] The second-hand market in particular is expected to drive growth of the sector, with studies estimating that resale will become twice as big as fast fashion by 2030.[37]

Once clothes can no longer be used, recycling them into new garments avoids the negative impacts on biodiversity associated with virgin material extraction, landfilling, and incineration. Capturing the material value of clothes that can no longer be worn minimises the need for new materials to be grown or extracted, meaning that land can be left for other uses, including food production or conservation. Recycling materials with particularly high biodiversity impacts at the fibre growing stage, like cashmere, is especially beneficial. After stopping the use of virgin cashmere in 2016 and moving to recycled inputs, Stella McCartney estimated an instant 92% reduction in their cashmere-related environmental impact, which had accounted for 28% of the firm's total environmental impact despite making up only 0.1% of their material usage.[38] Innovators across the world are developing new technologies to divert textile waste from landfill and achieve environmental, social, and economic benefits. For example, the Green Machine, developed through a partnership between the Hong Kong Research Institute of Textiles and Apparel (HKRITA) and the H&M Foundation, uses a closed loop system of only water, heat, and green chemicals to fully separate and recycle cotton and polyester blends into new fibres.[39] Overall, textile-to-textile recycling can tap into an annual material value loss worth more than USD 100 billion.[40]

Design will play a key role in ensuring clothes and materials are kept in use. To ensure that a circular economy for fashion is successful, garments need to be designed for physical and emotional durability in alignment with their intended business model. Physical durability maximises product use by considering garment construction and component reinforcement to create products that can resist damage and wear. Emotional durability refers to the product's ability to stay relevant and desirable to the user, or multiple users, over time. For example, in resale models, it is important to consider the ability to clean and repair the products, while leveraging their history and 'uniqueness' to new users. Simultaneously, encouraging optimal recyclability through product design can be achieved by selecting components, materials, and specific designs that can be easily recycled when necessary. For example, for their Circular Series of jackets, Napapijri has greatly simplified the design so that the entire jacket – fabric, filling, and trimmings – is manufactured using one material: Nylon 6, leading to a high-performance, durable product that is also easily recyclable.[41]

KEEPING CLOTHING IN USE

Reducing demand for natural resources to leave room for biodiversity

thredUP (USA)

thredUP is a managed resale marketplace that makes it easier for people to sell unwanted clothes in order to keep garments in use for longer. By facilitating this increase in utilisation rates, the company is starting to decouple its business model from the extraction of natural resources, while preventing incineration and landfilling. Ultimately, this will allow it to avoid the negative impacts on biodiversity associated with the manufacturing and disposal of garments. Customers send in their clothes for free, and the company sorts, selects, and lists them for sale on its e-commerce platform. The platform inventory includes more than 35,000 brands that are sold at a fraction of their original price.[42] In 2021, thredUP reached a valuation of above USD 1 billion.[43]

Biodiversity benefits

Until now, thredUP has processed 125 million unique secondhand items, avoiding the emission of about 500,000 tonnes of CO_2e, saving over 16 billion litres of water,[II] and reducing other pressures on biodiversity associated with the manufacturing and disposal of garments.

Image: Sarah Brown on Unsplash

II Assuming that there is 1:1 switching from buying brand new apparel to buying second-hand apparel from thredUP, and that the second-hand clothing sold by thredUP has 70% of its useful life still left. For more information, see GreenStory, Comparative Life Cycle Assessment (LCA) of second-hand vs new clothing (2019).

B SHIFTING TO SAFE CHEMISTRY AND DESIGNING OUT MICROFIBRE RELEASE

Shifting to safe chemistry in the fashion industry's value chain protects the health of ecosystems and people. Toxic and persistent chemicals, such as water repellents or dyes currently used in textile processing for performance or aesthetic purposes, can have severe impacts on biodiversity and human health.[44] Schemes like the Zero Discharge of Hazardous Chemicals' Manufacturing Restricted Substances List (ZDHC MRSL) have proven successful at preventing toxic substances from entering the value chain in the first place.[45] Simultaneously, innovators are developing alternatives to conventional chemicals and processes that do not have harmful environmental effects. For example, Archroma's Earthcolors dyeing agents are made out of agricultural by-products and offer an alternative to hazardous, conventional dyes.[46] When it is unavoidable to use toxic substances, it is essential to control their usage. To reduce toxicity risk, closed-loop systems like those implemented by TENCEL™ for Lyocell fibres, are able to recycle process water and reuse the solvent at a recovery rate of more than 99%, leaving no trace of the chemical in the final garment.[47] In addition to designing out potential impacts to biodiversity and human health, shifting to safe chemistry processes will allow for safe and healthy material cycles to be either reused or returned to the biosphere.

Fibre design and innovation will play an essential role in ensuring that microfibres are not released into natural environments. Once in the environment, microfibres can be taken up by organisms and enter the food chain.[48] Microfibres that carry toxic substances on their surface or within their materials can bioaccumulate and threaten the health of humans and wildlife.[49] To tackle this issue, focus needs to be placed on the design and production stages in order to avoid fibre fragmentation and, therefore, the potential for microfibre release in the first place. This could be achieved by increasing fabric resistance to shedding or finding alternative materials that can safely biodegrade if they leak into the environment.[50] The Houdini outdoor brand provides one example of this in the use of Polartec's Power Air fabric in their Houdi jackets[51] – this fabric has encapsulated fibres that reduce fragmentation and shedding, therefore minimising the potential for microfibre release into the environment.

A SAFE, BIO-BASED DYEING PROCESS

Eliminating hazardous chemicals to reduce threats to biodiversity

Colorifix (UK)

Colorifix, a UK-based biotech company, aims to eliminate the negative impacts on biodiversity and human health caused by conventional textile dyeing. The Colorifix dyeing process moves away from toxic petrochemicals and other harmful substances. Instead, they have developed an entirely biology-based process to produce, deposit, and fix pigments onto textiles.[52] Via online DNA sequencing, they can identify and replicate the colour information found in a living organism such as an animal, plant or microbe. They then insert that information into a non-pathogenic microbe. Using renewable feedstocks such as sugars, yeasts, and plant by-products, they grow these microorganisms that can not only produce the desired colour but also transfer it onto clothing with zero harmful substances and a fraction of the water and energy necessary in conventional dyeing.

Their solution has already received the support of big players in the sector, like Fashion for Good. The first collection using their technology was launched by H&M in early 2021.[53]

Biodiversity benefits

Compared to conventional dyeing, Colorifix says its process requires up to 90% less water and 70% less energy, as well as eliminating the use of hazardous chemicals, therefore reducing the potential harm to natural environments.

Image: Engin Akyurt on Unsplash

C PRODUCING MATERIALS REGENERATIVELY

Producing fibres and materials regeneratively establishes healthy agroecosystems, reverses land degradation, and minimises greenhouse gas emissions and pollution. Practices that lead to regenerative outcomes can improve on-farm biodiversity and ensure that soils remain healthy, reducing pressure to expand into natural habitats when conventional practices degrade land. Working with conservation charity Rare and Soil & More Impact consultancy, Jintian farm in China started implementing composting and cover cropping, and reducing tillage in their cotton fields in 2018. After just one year, they achieved similar yields to conventional farming while increasing organic matter by 15% and observing three times more beneficial insects than neighbouring conventional operations.[54] By improving soil health, regenerative approaches also increase the soil's water retention capacity, reducing demand for finite sources and improving resilience to natural shocks like droughts while also increasing yields.[55] Furthermore, practices aimed at improving soil health go hand in hand with increasing the ability of soils to sequester carbon. Research from Fibershed suggests that regenerative sheep husbandry for wool production can sequester up to 37kg of CO_2 per garment, in contrast to the high emissions produced using conventional practices.[56] Similarly, a study from Wrangler suggests that adopting a combination of regenerative approaches in 1 acre of a cotton field can sequester and store as much carbon as 0.75 acres of forest.[57] Furthermore, implementing regenerative approaches reduces reliance on synthetic inputs like fertilisers and pesticides, which are linked not only to pollution and eutrophication, but also account for around 70% of emissions in conventional cotton cultivation.[58] Improved farming practices and reduced synthetic inputs in cotton cultivation are estimated to cut around 50% of greenhouse gas emissions and increase net revenue for farmers.[59]

Regenerative production of raw materials for the fashion industry builds soil health and carbon content, increases water quality and biodiversity, and improves the resilience of ecosystems. In order to achieve such goals, cultivation practices are adapted to the local conditions and can include managed grazing, intercropping, agroforestry, minimal or no-tillage, cover crops, and compost applications.

EXAMPLES OF COMPANIES ADOPTING PRACTICES FOR REGENERATIVE OUTCOMES

- **Kering** has, through their Biodiversity Strategy, committed to converting 1 million hectares of farms and rangelands in its supply chain landscape into regenerative agriculture by 2025.[60] In order to achieve this, the fashion group has partnered with Conservation International to launch the Regenerative Fund for Nature, which will assist producers explore and transition to practices with regenerative outcomes[61]

- **Timberland** is working with other organisations like the Savory Institute's Minnesota Hub, Other Half Processing, and Thousand Hills Lifetime Grazed regenerative ranches, to build a more responsible leather supply chain. For their recently launched collection of hiking boots, they have used regenerative leather production practices, such as encouraging animal grazing in natural patterns and planting diverse species of cover crops[62]

- **Patagonia** is piloting Regenerative Organic Certified™ programmes with over 800 cotton farmers in India. Their aim is to rehabilitate soil, respect animal welfare, and improve the lives of farmers[63]

- **VF Corp-owned** brands Icebreaker and Smartwool, together with Allbirds have announced a partnership with the New Zealand Merino Company to create ZQRX. The ZQRX index will be applied to 167 sheep growers in New Zealand, representing 2.4 million acres of land, with the goal of sequestering carbon and improving the natural landscapes they operate in[64]

- **Eileen Fisher** has introduced Regenerative Wool – a fibre they claim helps restore grasslands in Patagonia and fight climate change. They work with local farmers to implement holistic management for sheep, whose grazing helps to aerate the soil and add nutrients back into it[65]

- Under its Natural Climate Solutions Portfolio, **Gucci** is promoting regenerative agriculture by identifying projects in its supply chain with the aim to source regenerative raw materials for its products, as well as supporting farmers' transition to regenerative agriculture through carbon farming. As an example, Gucci has partnered with Native to help scale its regenerative wool and leather project to 32,000 hectares of land managed with regenerative practices with the goal of sequestering over 200,000 tons of CO_2 (~181,000 tonnes) while promoting soil health, water quality, increased biodiversity, animal welfare and carbon sequestration. [66]

- **Stella McCartney**, who primarily use organic cotton, recognises that there can be a net-negative environmental impact even when fibres are grown organically. The brand is working with scientists and their cotton suppliers in Turkey to test a suite of regenerative farming practices that rebuild soil health, increase soil organic carbon, improve water-holding capacity, enhance biodiversity, and increase productivity and yields[67]

- **Organic Basics**, together with **WWF**, are supporting farmers in Turkey to transition 62,500 m^2 of conventional cotton field into regenerative cotton field. They promote the planting of cover crops, no deep tilling, and developing compost systems, among other practices[68]

- **In Brazil,** a partnership between **FarFarm** and **Renature** is regeneratively producing food and fibres, including materials like cotton and jute, for the footwear brand Veja. By implementing agroforestry in a potential area of up to 635 hectares, their model aims to reverse the deforestation of the Amazon, absorb 1,440 tons of CO_2 (~1,306 tonnes) per hectare per year, and improve the livelihoods of 1,600 community members[69]

CIRCULAR ECONOMY ACTIONS FASHION BUSINESSES CAN TAKE TODAY TO ACHIEVE THEIR BIODIVERSITY AMBITIONS

The table below highlights three key steps that businesses can take to help kick-start their journey:

1 Assess impacts and dependencies on biodiversity

Measure impacts and dependencies on biodiversity to help identify priority areas and help deliver biodiversity-positive outcomes

- Measurement approaches such as the IUCN Species Threat Abatement and Restoration (STAR) metric, the Natural Capital Protocol, Biodiversity Impact Metric, and the Global Biodiversity Score offer companies useful methods and resources to help assess, act, and report on progress towards meeting biodiversity targets[70]
- The Biodiversity Benchmark from the Textile Exchange's Corporate Fiber & Materials Benchmark (CFMB) Program enables the textile industry to understand its impacts and dependencies on nature in regards to materials sourcing strategies. Using this information, they can chart a pathway to delivering positive biodiversity outcomes and benchmark progress

Set biodiversity targets that are aligned with the best available science

- Set targets for biodiversity: For example, the Science-Based Targets (SBT) for Nature has recently developed an initial guidance for companies looking to set biodiversity targets that are aligned with globally agreed goals

2 Identify circular economy opportunities that help meet biodiversity ambitions

Assess the circular economy potential by searching for best practices and identifying circular economy strengths and opportunities for innovation that can help businesses preserve biodiversity [III]

- Throughout this chapter, examples have been provided of how the circular economy framework can help tackle the key drivers of biodiversity loss most impacted by the fashion industry, for deeper insights on the circular economy vision for fashion see Make Fashion Circular
- The Biodiversity Case Study library showcases circular economy business examples in the fashion industry that help safeguard and rebuild biodiversity Identify circular economy strengths and opportunities for innovation that can have a positive impact on biodiversity:
- Circulytics is one of the most comprehensive circularity measurement tools available for companies. Going well beyond assessing products and material flows, it informs businesses on their circularity level across their entire operations

Shape a circular economy action plan to help tackle a company's most urgent impacts and dependencies on nature, with the circular economy acting as a key delivery mechanism

Examples of circular economy and biodiversity commitments:

- Timberland commits to a net-positive impact on nature by 2030, setting goals aiming for 100% of products to be designed for circularity, and 100% of natural materials used in its products to be sourced through regenerative agriculture by 2030
- Kering commits to a net-positive impact on biodiversity by 2025, publishes biodiversity strategy, and launches a regenerative agriculture fund for 1 million hectares of land
- H&M commits to becoming 100% circular and climate positive by 2040, while protecting and restoring biodiversity and natural ecosystems, in line with the best scientific guidance

III The circular economy directly aligns with the SBTN's Action framework – Avoid; Reduce; Regenerate and Restore; Transform – in helping to deliver on biodiversity targets.

Design for the circular economy
to ensure products are designed, accessed, and used in ways that eliminate waste, pollution, and environmental degradation

- The circular design learning pathway, toolkit, and guide highlight how and why design sits at the heart of the circular economy, and what steps businesses can take to help rethink their products or services
- The circular toolbox is a step-by-step guide for apparel brands to design and launch a rental or resale pilot in 10 months
- The Jeans Redesign Guidelines present the minimum requirements for the durability, material health, recyclability, and traceability of denim jeans (as collaborated on with over 80 denim experts). In doing so, they ensure positive impacts for the environment, society, and the health of those people working in the jeans industry
- The Circular Design for Fashion book (launched in November 2021)
- The Square your Circle guidebook, co-developed by the World Resources Institute (WRI) and the Waste & Resources Action Programme (WRAP), aims to help fashion companies successfully transition to reuse business models in a way that increases clothing utilisation, decreases clothing impact, and decouples their business success from resource use

3 Stimulate collaboration to find solutions that can deliver transformative change

Stimulate collaboration by identifying key stakeholders within and outside value chains to collaborate and innovate with, and find circular solutions that help tackle biodiversity loss

- Fashion Pact is an example of a global coalition of companies in the fashion and textile industry committed to stopping global warming, restoring biodiversity, and protecting the oceans. A biodiversity strategy is being shaped in the next year that aligns with the SBT for Nature
- The Ellen MacArthur Foundation's Make Fashion Circular brings together industry leaders from across the fashion industry to stimulate the level of collaboration and innovation necessary to create a new textiles economy. It aligns with the principles of the circular economy to help tackle the root causes of global challenges like biodiversity loss, climate change, and pollution
- PVH is collaborating by participating in two pilots focused on traceability in the fashion industry: the Organic Cotton Traceability Pilot, the first digitised project of its kind to track the organic cotton journey from farm to retail garment; and the Connect Fashion Initiative, which tests the use of EON's CircularID, which has been designed to promote circularity by creating a new standard for communicating information about fashion products

GLOSSARY

Agroecosystems
Natural ecosystems that have been modified for the production of food or of materials such as fibres.[1] They include managed forests, plantations and orchards, pastures, rangelands, and croplands, and the organisms, including cultivated ones, living in them.[2]

Biodiversity
The variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes which they are part of. It includes diversity within species, between species, and of ecosystems.[3]

Direct drivers
Drivers (natural and anthropogenic) that unequivocally influence biodiversity and ecosystem processes (also referred to as 'pressures').[4] The five direct drivers with the greatest global impact on biodiversity are: land-use change, climate change, pollution, natural resource use and exploitation, and invasive species.[5]

Indirect drivers
Drivers that do not impact nature directly, but rather affect the level, direction, or rate of direct drivers and are also referred to as 'underlying causes'.[6] Indirect drivers can also influence each other. Examples include socioeconomic and demographic trends, technological innovation, governance, and culture.[7]

Ecosystem
A dynamic complex of plant, animal, and microorganism communities and their non-living environment interacting as a functional unit.[8]

Ecosystem services
The benefits people obtain from ecosystems. These include: provisioning services such as food and water; regulating services such as flood and disease control; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious, and other non-material benefits.[9]

Invasive alien species
Animals and plants that are introduced accidentally or deliberately into a natural environment where they are not normally found, with serious negative consequences for their new environment.[10]

Land use
The human use of a specific area for a certain purpose (such as residential, agriculture, recreation, industrial, etc.). It is influenced by, but not synonymous with, land cover.[11]

Land-use change
A change in the use or management of land by humans.[12] For example, clearing a natural forest area and converting it into an agricultural field.

Nature-positive
Nature-positive means halting and reversing nature loss by 2030, measured from a baseline of 2020. This Global Goal for Nature calls for no net loss of nature from 2020, a net-positive state of nature by 2030, and full recovery of nature by 2050.[13] It has become a movement, with leaders from governments, businesses, and civil society committing to action.[14]

Overexploitation
The harvesting of species and extraction of natural resources at rates faster than natural replenishing cycles.[15]

Regenerative production
An approach to managing agroecosystems that provides food and materials – be it through agriculture, aquaculture, or forestry – in ways that create positive outcomes for nature. These outcomes include, but are not limited to, healthy and stable soils, improved local biodiversity, improved water and air quality, and higher levels of carbon sequestration. They can be achieved through a variety of context-dependent practices and can together help regenerate degraded ecosystems and build resilience on farms and in surrounding landscapes. Farmers may draw on several different schools of thought –such as regenerative agriculture, restorative aquaculture, agroecology, agroforestry, and conservation agriculture – to help them apply the most appropriate set of practices to drive regenerative outcomes in their agroecosystems.

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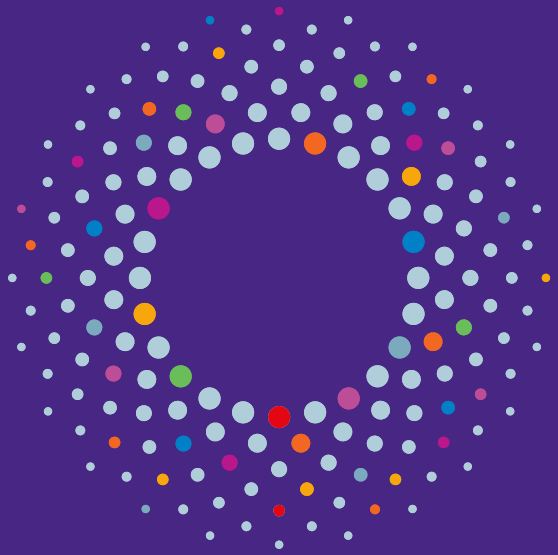

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