Suston

SUSTAINABLE OUTDOOR NEWS

Learn about Eco Cotton, Recycled Polyester, PFCs and more!

SUSTAINABLE MATERIALS GUIDE

HIGG INDEX FOR THE PEOPLE

The consumer facing product Sustainability Profile is released.

THE JACKET [R]EVOLUTION

A look backwards and forwards on material sustainability innovations.

GREENER CHOICES

Northern Europe's largest retailers take sustainability labeling into their own hands.

#9

Fall/Winter 2021–2022

RIDE PROTECT & SHARE

Ride, Protect & Share, these three words represent the essence of who we are: a snowboard, ski, surf, and outdoor clothing brand who, while not taking ourselves too seriously, still want to effect change.

At a time when the textile industry is responsible for 7%* of the world's greenhouse gas emissions and where the climate crisis has reached its peak, we all have our role to play to make a difference. Since Picture started in 2008, we have always sought to push one step further to minimize our impact on the environment. Our commitment to a sustainable, ethical, and environmentally-responsible approach covers every aspect of our business, from the supply chain, to manufacturing, to shipping.

To reduce the consequences doing business has on both the climate and people, we need to wipe out our dependence on fossil fuels. Curbing our impact on the environment and limiting growth, changing conventional production models, and promoting reasonable consumption are all key pillars of this evolution.

Okay, great, but alone we are just a drop in the bucket. This is where B-Corp certification has meaning: using business and our influence as a force for good. We need to galvanize as many people as possible from our community – partners, and stakeholders in the outdoor and apparel industries - to participate in the energy transition and in removing carbon from the global economy.

Fighting climate change through our passion for boardsports and great outdoors, this is our mission.

PICTURE

www.picture-organic-clothing.com

@pictureorganicclothing

*(Quantis, 2018 & Fashion On Climate, 2020)

David Malacrida

FOLLOW
THE BLUE WAY

It started in 2000, with an idea for a responsible textile industry. The idea became the Bluesign mission: to provide service-based solutions that help the industry minimize impact on people and the environment. THE BLUE WAY is a mindset that paves the road for sustainable textiles through responsible production, responsible use of resources, and responsible use of chemistry. As global society begins to catch up, we are taking our momentum to reduce impact into the next 20 years.

We look forward to walking the walk together with you.
bluesign.com/business

bluesign®

DACHCOM

managing inputs.
responsible actions.

PHOTO: STEPHANE ROBIN

We need to know more

Traceability – I can still find it hard to understand that this word is used in the marketing of more sustainable outdoor products. That's because it implies that the opposite is the norm: to not be able to trace products through the supply chain. How the raw material was grown, where the oil was drilled, or whether the working conditions were fair and safe. But let's face it: we rarely know the circumstances behind most products we buy, whether they be cell phones, bathtubs, or a pair of binoculars. So instead, we put our hopes in legislation and self-regulation – after all, companies do face serious risks if they're caught acting irresponsibly.

But since traceability is so rare and difficult in the complex, global supply chains, I believe the often criticized eco labels and certifications deserve more praise. Some of them may tread closer to greenwashing, but others are the best tools we have if we want assurances that the materials and products we use do not excessively harm humans and the environment. So today, companies that offer traceability actually are pioneers, while we must strive for this to become the normal way of doing business.

Gabriel Arthur,
Editor-in-chief

ILLUSTRATION: KICKI FJELL

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"The last 50 years of Greenpeace is the story of ordinary people doing extraordinary things, but we were never a lone hero, we have always been part of a movement of people willing to combine their dream of a better future with action. We find that same hope when we trace our roots back to the peace, environment, youth, anti-war, civil rights, and women's rights movements."

Jennifer Morgan, Executive Director of Greenpeace International.

Wool Reborn

THE NORWEGIAN WOOL specialist brand Aclima has implemented a new and innovative way to reprocess waste from its own production, where by using left-over but otherwise first-class merino wool it is able to spin and manufacture new products. The first of these is the new LeisureWool ReBorn shirt.

"We are proud to have developed a product with all the fantastic advantages of merino wool in a quality that outdoor people connect with Aclima, while taking yet another step towards an even more sustainable production," says product head Kari Høgemo and textile engineer Trude Blekastad.

SUSTAINABILITY CONFERENCE
On November 5th – 9th, the Textile Exchange will again host its annual Textile Sustainability Conference to explore emerging trends in sustainability - this time in collaboration with the Sustainable Apparel Coalition. This is the first time the event is hosted live since the pandemic began, and will welcome attendees to Dublin, Ireland, as well as virtually for those unable to travel.

THE MICROFIBER 2030 ROADMAP
Since 2019, The Microfiber Consortium (TMC) has been busy systematically identifying sources of microfiber pollution, quantifying them and creating methodologies for testing. TMC has now released its plan for how to mitigate the textile industry's contribution to microfiber pollution: The Microfiber 2030 Commitment and Roadmap. 69 participating brands will now commit to testing and implementing mitigation action.

PHOTO: NORDA

WORLD'S STRONGEST FIBER GOES BIO

DSM'S DYNEEMA, dubbed "the world's strongest fiber," has been the go-to for applications requiring high performance and protection for years. With the introduction of Bio-based Dyneema, it has attracted sustainable footwear brand Norda for its improved sustainability profile. Using renewable bio-based feedstocks, Bio-based Dyneema has a carbon footprint that is 90% less than equivalent fibers, with the same performance as regular Dyneema.

UTE GRABOWSKY

Green Button 2.0

SINCE 2019, the German government-run textile certification Green Button has undergone a trial run to test its ability to protect people and the environment with a consumer-facing label to help encourage responsible buying decisions. Now, two years later and following two public consultation rounds and internal evaluation, the German Federal Ministry for Economic Cooperation and Development (BMZ) announces a new and more ambitious version of the label that deals with risks along the entire supply chain will be introduced in Germany at the end of 2021, the Green Button 2.0.

PHOTO: LORPEN

Recycled socks

TECHNICAL OUTDOOR sock brand Lorpen has introduced a series of lower impact products using recycled materials that are claimed to not sacrifice on performance. Models using Coolmax Ecomade, for example, are made entirely with recycled PET bottles, while other models use Unifi's EcoTherm made using 50% Sorbtek polyester and 50% Repreve (also made from recycled PET). Models featuring nylon threads are also now sourced from recycled fishing nets. All models using recycled threads are designated with Lorpen's own "Ecoengineered" seal.

PHOTO: PERTEX

MONO-MATERIALS FOR CIRCULARITY

PERTEX, A LEADER in lightweight technical fabrics, has announced its latest step towards circularity. Pertex Shield Revolve fabrics are mono-material laminates where each layer of the fabric is made from a single polymer, in this case, 100% recycled polyester. The mono-material composition makes Pertex Shield Revolve fabrics much easier to be recycled at the end of a garment's life, thereby minimizing the waste of resources and reducing the overall environmental impact of the fabric.

NEW TEXTILE AWARD
At the international conference Next Textile in Borås, Sweden on October 12, the new Fabric of Life Award will be presented. Founded by the fashion entrepreneur Paul Frankenius, the ambition is to establish a prize for the textile industry comparable to the Polar Music Prize of the music Industry.

PRESERVING ANCIENT FORESTS
To keep the world's forests standing, Canopy, a non-profit environmental organization, has developed the CanopyStyle initiatve that helps brands ensure trees from the world's most vital ecosystems are not used for viscose and rayon production and paper packaging. The participating 15 leading fashion and apparel companies now commit their supply chains will be free of ancient and endangered forests, will maximize recycled fibers, and will use FSC certified wood if needed.

TIME FOR CHANGE – TOGETHER

When we look at sustainable innovations and solutions within our industry, we sometimes forget that change is expensive. Circularity, for instance, demands huge investments, among material suppliers, manufacturing, logistics etc. It's not an add on to the regular business model, it requires strategic shifts and financial resources.

There used to be a gap between the CSR departments and the top management level. Where the former saw possibilities – or necessities – the latter saw costs and challenges. Top management was more accustomed to paying attention to the sales departments.

Today, this has changed within the outdoor industry. CEO's are realizing the need to act, and the sustainability professionals definitely have their attention.

On a strategic level, the timing can be difficult. What are competitors doing? Is it better to wait and see what works best, or become a pioneer and be able to communicate your efforts and achievements before the rest?

There are also risks in being slow. Looking back, we see many brands that never thought phasing out harmful PFC's would be needed – let alone legislated.

These are difficult waters to navigate. Therefore, the more we can collaborate withing the industry, the better. Sustainability professionals and CEO's. Suppliers, brands and retailers – and competitors.

The good news is that among most members of the European Outdoor Group, the readiness is there.

Arne Strate
General Secretary, EOG

VERITY HARDY
Sustainability Project Manager, European Outdoor Group

CAN NON-EXPERTS UNDERSTAND?
Your expertise has been instrumental in preparing this Sustainable Materials Guide. Do you think non-experts can understand such complex issues and make better buying choices?

"This is a challenging conundrum! On the one hand, yes, they can be understood if they are broken down into communicable topics, such as fair pay, working conditions and environmental management etc. But textile materials are more complex than people believe and there are many different parameters which contribute to the sustainability profile. So, it's also important for brands and retailers to do their due diligence and encourage transparency in this."

Recycled Stainless Steel

THE DRINKWARE and food solutions brand Klean Kanteen has announced its plans to make its stainless steel products using third-party certified 90% post-consumer recycled steel starting in 2022. In so doing, Klean Kanteen continues its mission to reduce consumer dependence on single use plastic water bottles while extending the life of raw materials.

This will also reduce the environmental impact of Klean Kanteen's products dramatically, including a 40% reduction in greenhouse gas emissions, 30% reduction in energy demand and 60-80% reduction in ecosystem impacts.

Products made using certified recycled steel will be phased in, beginning with TKWide and Straw lines early in the year, and Klean Kanteen's popular Classic and Vaccuum Insulated Classic collections will be available by summer.

If all goes according to plan, 95% of Klean Kanteen's products will have undergone the transition to recycled steel by 2023.

Building on climate committment

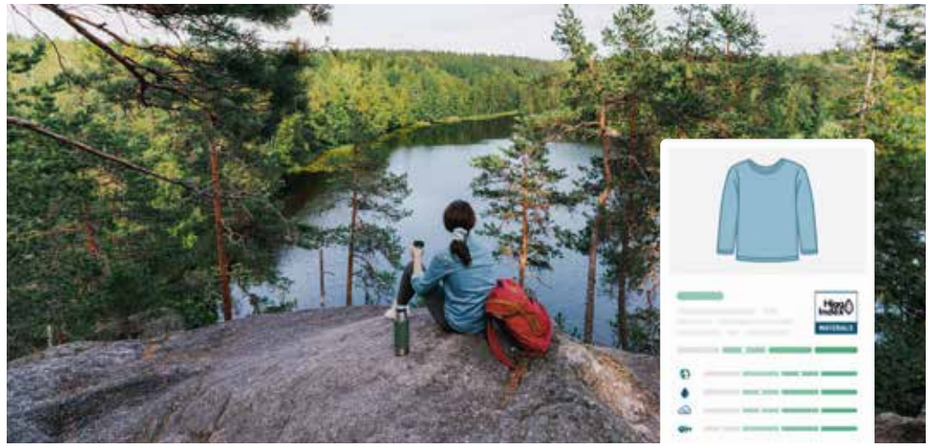
To ensure recycled content claims are accurate, Klean Kanteen has worked with Intertek and its Verified Recycled Program. With their help, Klean Kanteen is confident this is the biggest lever it can pull for impact reduction:

"Since our inception, we have made climate action a priority," said Jeff Cresswell, co-owner and co-CEO of Klean Kanteen, pointing to among other things its work with Climate Neutral and B Corporation certifications.

"We've proven it's possible to use business as a force for good. Evolving to use Intertek certified recycled steel was the most impactful next step we could take – it wasn't easy, but the results are worth it."

70 **PERCENT** is the total increase in the amount of Swedish wool that is now used since 2016, in part after brands like Fjällräven began using domestic wool.

748 **IS THE NUMBER** of kilos of climbing rope Mammut's "Close the Loop" project collected. The rope was then recycled to produce t-shirts.



A **Sustainable** Scorecard?

It's easy to claim one product is more sustainable than another. The latest public-facing transparency program from the Higg Index could help brands prove it.

THE HIGG INDEX moved beyond supply chains to points-of-sale earlier this year when it launched a new public-facing transparency program. The first element of the program is the Higg Index Sustainability Profile, which shows how a product's materials compare with conventional material baselines in terms of global warming, fossil fuels, water use, and water pollution. A brand or retailer can then present these profiles at their various points of sale.

Products that truly excel, meanwhile, can additionally be designated with the second element of the program: The Higg Index Materials seal. Only those products that can demonstrate at least a 12.5 percent impact reduction over conventional equivalents can use the Higg Index Materials seal.

Does this go far enough?

At present, the program focuses solely on environmental impacts related to producing a product's materials – or from "cradle to gate" - leaving what some have called a very large gap in its goal of unifying environmental impact communication across the industry.

"The Higg Index has rightly received a lot of criticism," shares Charles Ross, sustainability consultant and university lecturer.

Charles Ross points to the fact that there are many other systems to choose from, and that many even do a better job with one parameter or another than the Higg Index.

"But they also all add to the muddied waters surrounding sustainability, not to mention audit fatigue and consumer audit confusion – a situation that serves nobody well."

Still just the beginning

Within two years, Higg Index aims to broaden its scope to include more stages that these other systems address, namely product design, manufacturing, and corporate responsibility. If the industry continues to show support for this "all-in-one" approach, Charles Ross is optimistic Higg may yet achieve its unifying goals:

"In spite of its current limitations, the Higg Index has my vote of confidence. It has buy-in from a greater number of participants than any other system and covers more territory. Making the system better is achievable."

BRAD BOREN
Director of Innovation and Sustainability, Norrøna

FIRST TO USE SCORECARD
Norwegian outdoor brand Norrøna became the first to use the Higg Sustainability Profile. Director of Innovation and Sustainability Brad Boren shares why they took this first step:

"The Higg Index's greatest impact is for the consumer, regardless of the size of the company. Being a brand with a history of building technical and sustainably minded products, Norrøna wants to show how the Higg Index can be scaled from the largest companies to smaller locally owned businesses. With the Higg Index scorecard, it is our ambition to give consumers transparent environmental and social impact data on a standardized scale so they can be confident in making purchasing decisions."

TRADE SHOWS

The Return of the Get-togethers

Before the pandemic, the international trade shows were becoming changemakers for a more sustainable outdoor industry. Can they regain their momentum?

BY **GABRIEL ARTHUR**

ARNE STRATE
General Secretary, EOG.

JEANETTE FRIEDRICH
Head of ISPO Group.

LENA WEIMER
Senior Marketing Manager, Performance Days.

In January 2020, the Sustainability Hub at ISPO Munich and the Ranger Station at Outdoor Retailer in Denver were the "place to be" for many at these trade shows. In previous years, the seminars and panel discussions had gathered mainly sustainability professionals from the industry. Now, CEO's, marketing managers and representatives from influential NGO's like Protect Our Winters flocked here. Similarly, the curated trend center Performance Forum – only featuring sustainable materials – at Performance Days in Munich, in December 2019, was the hot spot for visiting designers and product developers.

It was clear: the international trade shows had become arenas where sustainability was gaining attention and leverage.

And then we all know what happened.

The digital formats of shows and conferences during 2020 and 2021 kept these arenas afloat. Now, when the financially challenged trade shows are restarting – will they aim to regain the position as changemakers within sustainability?

"First, I must say that the general concept for trade shows is changing," says Arne Strate, General Secretary of the European Outdoor Group, the organization behind OutDoor by ISPO in Munich.

The very condensed version of Outdoor by ISPO in October will be more of a conference. But for the summer show in 2022, Arne Strate foresees a mix of old and new formats.

"The traditional shows had products as their foundation. And while that's important, there are more important things that need to happen on top of products at events where the whole sector gets together."

"Sharing insights, starting up collaborations, bringing up pre-competitive issues on the agenda must play a bigger role. And here, we actually have a good benchmark: the Sustainability Hubs from the last trade shows."

A New Experience Hall

Jeanette Friedrich is the Head of ISPO Group, and assures that when visitors come to the first regular trade show, ISPO Munich in January 2022, they will feel that sustainability is one of the major themes, if not the major theme.

"Our plan is to create a new Experience Hall, where we will gather topics that we see as most important for outdoor and other industries, like sustainability, digitalization and more. Besides this new location for the Sustainability Hub, this topic will be seen and included in all parts of the trade show, also at exhibitors that want to tell more about their sustainability efforts."

"One thing of great potential for our trade shows is the power to create one voice of the outdoor industry – which is essential when it comes to highlighting and addressing political decision makers."

The Trade Show as Facilitator

Performance Days in December 2021 will be a "hybrid-event" that picks the best parts of the regular shows and combines with the new digital formats, explains Lena Weimer, Senior Marketing Manager.

"We made a commitment some years ago, that we not only want to showcase sustainable textile innovations etc. – we also want to facilitate positive change. Since then, we have given the topic much more attention than what our visitors and partners might have expected. For instance, our curated trend area Performance Forum only accepts materials that fulfil different sustainability criteria. And we clearly see that our more active approach has been very appreciated," says Lena Weimer, before she continues:

"Even though our digital formats, like our conference "Sustain & Innovate" last year, have been successful, I can't wait to meet people here in Munich again. We need the positive energies from when likeminded people connect, to create change together."

At Performance Days, the Performance Forum is dedicated to sustainable materials.

Presentation at The Ranger Station at Outdoor Retailer.

Retailers in the Forefront

The market leaders in Northern Europe share a common system for evaluating outdoor products from a sustainability perspective – and guiding the consumers to the better alternatives.

BY **GABRIEL ARTHUR**

FABIAN NENDZA
Senior Sustainability Manager at Frilufts Retail.

SILKE SORGALLA
CSR Manager Globetrotter A&P

They sound slightly different in German, Swedish, Danish and Finish – Eine grünere Wahl, Ett grönare val, Et grønnere val and Vihreämpi Valenta – but they all mean the same: A Greener Choice. That it communicates "Greener" and not "Green" is a strategic decision, explains Fabian Nendza, Senior Sustainability Manager at Frilufts Retail, the mother company of Globetrotter in Germany, Naturkompaniet in Sweden, Friluftsland in Denmark, and Partioaitta in Finland, all four the largest retailer chains on their respective markets.

"It is commonly accepted that you should avoid stating that a product is 'environmentally friendly' or 'sustainable'. Rather, you can share how a product might be better than another. The bar is generally high within our group when it comes to all products, especially clothing. So, our products marked with 'A Greener Choice' are more sustainable than other comparable alternatives we offer. They are the ones that 'walk the extra mile'."

In the idea of "greener," there is also a forward motion, says Fabian Nendza. Step by step, the assortment should become better, from different sustainability aspects.

"We want to drive development, in collaboration with our suppliers, where the ambitions and goals are gradually raised over time."

This is the reason why the long-term goal is not to have an assortment of 100 percent products labeled with "A Greener Choice" at Globetrotter and the other companies within Frilufts Retail.

"We will instead raise the bar by making our different criteria tougher. Our 2025 goal is, for example, that 100 percent of the assortment from our companies should be investigated, and 25 percent be qualified."

A Swedish heritage

The system was first conceived by Sweden's Naturkompaniet. The company had an early start in promoting more sustainable products towards the end consumers, where in the mid-nineties Naturkompaniet was already promoting products made from eco-cotton and recycled polyester in their catalogues.

When A Greener Choice was launched in 2008, it was still an internal system for evaluating products, that was not shared outside the company. One reason for this was that sustainability standards, certifications and tools like the Higg Index were not in place at the time, making evaluating brands and products much more difficult.

Since then, the outdoor industry – or at least the textile parts of it – has gone through a rapid development in terms of sustainability. For several years now, there is a common understanding of most parts of an outdoor product's life cycle - from materials sourcing to how circularity could better be implemented at the product's end-of-life.

At Frilufts Retail, it was easy to see the potential for saving time and resources for both suppliers and the different retailers by implementing the same system in all its markets.

Fabian Nendza says that the company's sustainability department learned much when they themselves performed life cycle assessments for the product range from Globetrotter's in-house brand Frilufts.

Learning by doing

In the beginning of 2018, Globetrotter went public with the score system behind Eine grünere Wahl, where it listed ten crucial criteria (see fact box). Products that fulfilled at least four of these would be designated with the label. In 2019, Frilufts Retail took one step further and added ten "no go's" (see fact box).

"If only one of these 'no-goes' are present, it is impossible to belong to the Greener Choice-assortment. It doesn't matter how many of the positive criteria that are met – the door is still closed," explains Fabian Nendza.

Globetrotter alone offers 35,000 different products. With ten "no go's" and ten positive criteria, evaluating the huge range of products that the retailers from Frilufts Retail offers is a full-time job. Literally.

"It's a one woman show – it covers most of my time," says Silke Sorgalla, CSR Manager Globetrotter A&P, who oversees the Greener Choice evaluations.

Evaluating each season

For Silke Sorgalla, the year is divided in two halves, each with a similar rhythm. One for the fall/winter season, and one for spring/summer. When we talk, she is just about to start the research for spring/summer 22.

"In September, I start sending out our templates to our suppliers who are interested in taking partin the assessment for the upcoming season. These days, most of them are already familiar with what we are asking for. But there are always some new brands that I might need to explain how the system and the evaluation process works."

The carry-over products that are already labelled with A Greener Choice are of course easy to check, if they are produced in the same way. When it comes to evaluating new products, however, Silke Sorgalla admits these can present a challenge.

"It's still very much a hands-on job, with a lot of dialogue and researching. They can't just fill in a form; I usually need to dig deeper and ask questions and track down documentation."

"Certifications definitely make my life easier. And if I could ask for one thing, it would be that

A GREENER CHOICE

The eco-label A Greener Choice was launched by the Swedish retailer Naturkompaniet in 2008. Today, Naturkompaniet is a part of Frilufts Retail, with the sister companies Partioaitta (Finland), Globetrotter (Germany) and Friluftsland (Denmark).
This autumn, Naturkompaniet also opens a branch in Norway.
Since 2018, the retailers within Frilufts Retail use the same system and label for evaluating products from a sustainability perspective, and to guide consumers towards more sustainable choices.

more sustainability information was part of the regular product sheets at more suppliers."

An ongoing process

After all the research is complete, the evaluation process begins. For fall/winter 21-22, Silke Sorgalla processed roughly 55 percent of Globetrotter's assortment, where a total of 17 percent was labelled with A Greener Choice. If the same products are sold by Naturkompaniet in Sweden, for instance, they also are designated with the label in that market.

One flaw in the system at this point is that the other chains from Frilufts Retail offer brands that are not found at Globetrotter and are therefore not evaluated – even though their products might fulfill the requirements. Frilufts Retail members can, however, nominate brands of their choice. Also, smaller eco-minded brands might not have enough resources to document their production, materials etc. to satisfy the requirements.

While it remains the most comprehensive system for evaluating outdoor products on the European market, it is still a work in progress, says Fabian Nendza.

"After every season, we gather feedback from our suppliers and Silke and discuss how we can make it better. Because it's easy to see: customer demand for more sustainable products and transparency is growing continuously."

10 CRITERIA FOR "A GREENER CHOICE"

- Preferred natural material.
- Recycled material.
- Sustainable chemicals management.
- Transparency and traceability.
- Repairability and/or recyclability.
- Improved ecological footprint.
- Social responsibility.
- Made in Europe.
- Analysis of ecological and/or social performance.
- Social responsibility and / or compensation.

10 "NO-GO" CRITERIA

- Cotton from Uzbekistan.
- PFC use.
- Product contains bisphenol A (BPA).
- Component of tritium in luminous color for digital color.
- Sunscreen and other cosmetics with an oxybene zone.
- Flame retardants.
- Manufacture in so-called "risk countries."
- Wool that is not mulesing-free.
- Disposable items.
- Biocides.

The products must fulfil at least four of the positive criteria. One or more of the "no-go's" disqualifies the product for the label.

"I rarely get critical questions from customers"

Can smaller retailers have a systematic approach to sustainability evaluations and guidance? After three years on the market, Oskar Knubbe from Vindpinad says a firm yes.

BY **GABRIEL ARTHUR**

THE CAREER SHIFT might seem large. In the summer of 2018, Oskar Knubbe left as Sales Manager within KPMG Sweden to start an e-commerce site within outdoor. It was named Vindpinad and Oskar Knubbe aimed at a new niche in the Swedish market: to only offer products that maintain a high level of environmental and social sustainability.

"As a person, I have a passion for both outdoor activities and the environment. In the past, when I was looking around for clothes and equipment, I had a hard time making informed and sustainable choices. All the shimmering green messages on the market made it difficult to find the right products."

"When I tested the idea of a store that only offers such products on people in my network they replied 'I would shop there!'."

An insight from the time at KPMG, was the need for a clear, solid business model. Idealism alone does not go far enough in such a competitive market.

"I needed to develop a solid system for evaluating both brands and their products. And also to present this system in ways so that my target group would understand and trust it.

"Today, it feels like I managed to find the right balance between complexity and accessibility. I rarely get critical questions from customers, and my suppliers are positive. The suppliers often say 'you are the only one who asks these questions'."

Products receive sustainability scores

The first version of the online store Vindpinad was launched in March 2019, with a smaller selection of products primarily stemming from Swedish brands such as Houdini, Klättermusen and Woolpower. At present, Vindpinad has almost thirty brands in the range, and around 1000 products.

Each product has a "sustainability score," where five categories are evaluated: the brand as a whole, design, material, production and "other." Defining the categories and the aspects within each involved a great deal of research work, where several sustainability experts in the textile industry were consulted, says Oskar Knubbe.

"The maximum number is 100 points. In total, the product must reach up to over 50 points, for me to buy it. And some aspects disqualify, such as conventionally grown cotton and traditional fleece."

Oskar Knubbe has chosen to be transparent with the system, despite the risk that large retailers on the market will copy it.

"The system is one thing - what takes time is the evaluation process. All time spent affects the prices you must charge to customers. If you are a large player that competes with price in the first place, then the probability is quite small that you will want to spend time and resources on this."

At the beginning of 2020, Vindpinad also opened a physical store south of Gothenburg. But to date, it's still Oskar Knubbe who does all the work himself - from evaluating the products to unpacking them on the shelves in the store.

"I underestimated how long it takes to build up a sufficiently large range from the customers' point of view. But in the last six months, sales have increased sharply. I hope to be able to hire one or two colleagues soon – preferably someone who is good at repair services."

OSKAR KNUBBE
Founder & CEO at the outdoor retailer Vindpinad in Sweden.

The (R)evolution of Jackets

From innovations to standard to new innovations. We asked the sustainability and innovations expert Joel Svedlund to explain how outdoor jackets have evolved over the last decades – and may continue to evolve looking forward.

BY **JOEL SVEDLUND** ILLUSTRATIONS **NADIA NÖRBOM**

JOEL SVEDLUND. Sustainability specialist with a background in product development, focusing on sports and outdoor. He is founding partner of Peak 63 Outdoor Lab, based in Östersund, Sweden, supporting industry organizations and brands with strategy and product-related solutions, and is a part of the EOG Sustainability Council.

If we go back to 2005, with the exception of a few purpose-driven companies, the consideration the outdoor industry gave to sustainability was very low. All focus was on functionality and performance. Similarly, innovation circled around these two themes when it came to jackets.

A few years later in 2010, however, there was a shift in mindset caused by an increased media focus on sustainability, such as PFOA-based water repellents, and increasingly conscious customers. Since then, the evolution has been virtually exponential.

While innovative solutions were already to be found in single products a decade ago, it has taken ten more years to make many of these available and technically feasible for larger-scale use. But what were once yesterday's most progressive innovations have often become the standard of today.

Three types of jackets

There are many categories and sub-categories of jackets for outdoor use. In this innovation overview we look at three types:

The light insulated jacket.
The all-weather hiking jacket/anorak.
The high-performance waterproof shell jacket.

These categories each take different development routes, but there are overarching trends behind the following four themes:

Circularity: Using recycled materials, making recyclable materials and products, and setting up recycling and take-back systems to close the loops.

Green chemistry: First getting rid of the most toxic chemicals, then moving from fossil-based chemistry towards biobased as well as biodegradable substances.

Biobased materials: Switching from fossil feedstock to plant-based raw materials for synthetics and finding new ways to functionalize and improve natural fibers for outdoor use.

Biodegradability: Ensuring that materials and substances that will not be recycled can be re-introduced to ecosystems without harm, ideally contributing positively to the environment.

What comes next?

The interaction between industry and ecosystems will increasingly be in focus with gained knowledge, traceability systems and auditing. Innovations that mitigate harmful impacts will influence all types of material development. For instance, companies that have adopted the waterless dyeing process for polyesters and polypropylenes have already made a big reduction in reduced greenhouse gases, water consumption and chemicals use.

Peering into the future, there are exciting possibilities on the horizon with chemistry being substitued with tailored materials and structures, synthetic materials produced from sequestered airborne CO_2 to become carbon sinks, and new biobased materials compete with synthetics in many functional areas.

The suggested 2025 jacket concepts in this article are certainly not safe bets – but many of the proposed solutions are already in research and development today.

FROM VIRGIN PE TO RE-WOOL
INSULATED JACKETS

DOPE DYING
The colorants (dyestuff) are mixed into the polymer directly before it is drawn and spun into a synthetic fiber (instead of dyeing a raw yarn/weave after textile production).

DWR
Durable Water Repellant, a coating that makes the textile water-resistant.

PFOS/PFOA (C8)
Two highly fluorinated substances that are today restricted for use in EU and many other countries. Before restriction it was commonly used in membrane and DWR production.

COROZO
A bio-based material from the seeds of the corozo palm, commonly used in shirt buttons.

DURABLE TEXTILES IN NEW WAYS
ALL-WEATHER JACKETS

2005 (PREHISTORY)
Main fabric: Virgin poly-cotton.
DWR: PFOS/PFOA (C8).

2008–2010
Main fabric: Organic cotton.
DWR: PFAS-free, from fossil sources.
Reinforcements: Recycled polyester.

2014–2016
Main fabric: Wool.
DWR: PFAS-free, from fossil sources.
Reinforcements: Hemp.

2020–2021
Main fabric: No chem cellulose & organic cotton blend.
DWR: PFAS-free wax (fossil free).

2025(?)
Main fabric: Liquid re-wool.
DWR: Lanolin based, biodegradable.
Reinforcements: Mycelium (vegan) leather.

NO CHEM
Removing the chemistry totally from a process step, often replacing it with mechanical or thermal processes.

LIQUID RE-WOOL
An experimental process that dissolves wool and spins a fiber from the dissolved fluid. This opens possibilities to use current low-grade wool and recycled wool in new ways.

WOOD/LIGNIN
It is possible to mold scrap wood with a binder, such as the wood by-product lignin. There are several research studies on the use of lignin for different purposes.

LANOLIN
Lanolin is a highly water repellent wool fat that is washed out of the wool before textile processing. Whether it can be the base for an industrial DWR is (to our knowledge) not yet researched.

PERFORMANCE WITH A NEW MINDSET
SHELL JACKETS

2005 (PREHISTORY)
Main fabric: Virgin polyester.
DWR: PFOS/PFOA (C8).
Membrane: ePTFE.

2008–2010
Main fabric: Recycled polyester.
DWR: PFC (C6).
Membrane: Polyester.
Extra feature: Mono-material.

2015–2017
Main fabric: Dope-dyed recycled polyester.
DWR: PFAS-free, from fossil sources.
Membrane: Recycled polyester.
Extra feature: Mono-material.

2020
Main fabric: Dope-dyed polypropylene.
DWR: No coating, only a combination of material and structure.
Membrane: Polypropylene.
Extra feature: Mono-material.

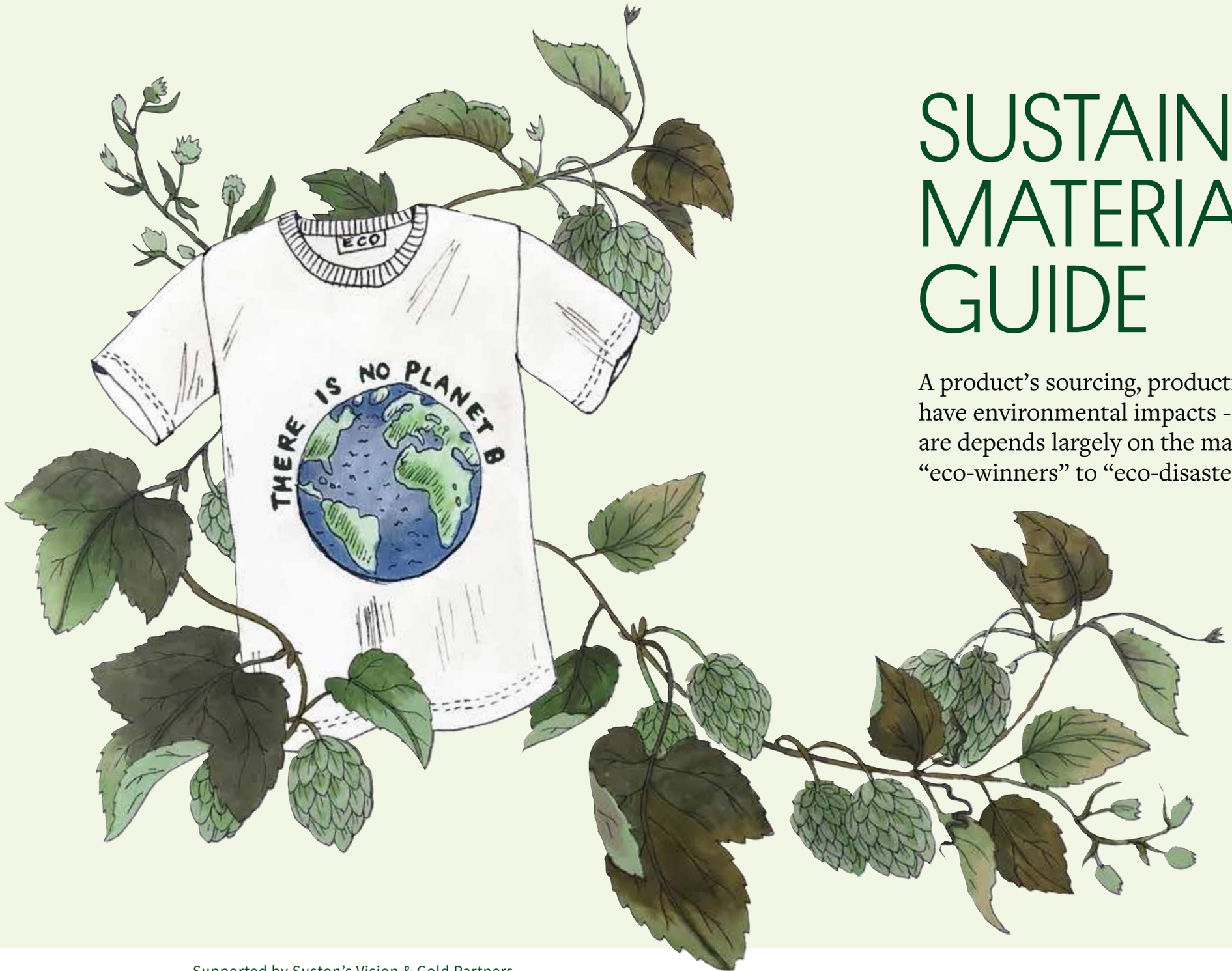
2025(?)
Main fabric: Dope-dyed CO2 reclaimed polypropylene.
DWR: no coating, only a a combination of material and structure.
Membrane: CO2 reclaimed polypropylene.
Extra feature: Mono-material, circular system.

MYCELIUM (VEGAN) LEATHER
There has been a few attempts to date to develop leather-like materials from fruit fiber and fungi.

ePTFE
The traditional high-performance hydrophobic membrane material for three-layer shells.

PFC (C6)
Highly fluorinated substances used in DWR's, with shorter chain length than the C8 chemistry. Not restricted in use today but on watchlists for future regulations in the EU and elsewhere.

CO2 RECLAIMED POLYPROPYLENE
A theoretical application of an actual technique that captures airborne carbon and methane to use as "building blocks" for new polymers, potentially acting as carbon syncs.



SUSTAINABLE MATERIALS GUIDE

ONLINE AT: sustonmagazine.com/material-guide

A product's sourcing, production, use and disposal all have environmental impacts - just how significant these are depends largely on the materials being used. From "eco-winners" to "eco-disaster" – find out more here!

ILLUSTRATIONS BY KIKI FJELL

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Cotton & **Organic Cotton**

Natural, renewable, recyclable – cotton has the potential to be an excellent choice for sustainable apparel. But conventional cotton's chemical inputs are enormous relative to other fibers, meaning its potential is only realized with organic practices.

What is cotton and where is it grown?
Cotton is a natural fiber that grows protectively around the seeds of the cotton plant. It is primarily sourced from countries with warm climates, such as India, China, USA and Brazil. Nearly half of all global textiles are made of cotton, and it is the most widespread non-food crop in the world.

What are cotton's production impacts?
Conventional cotton production is land, water and chemical intensive. Global cotton production uses nearly 35 million hectares of land – the equivalent land area of Germany – usually in the form of large scale monoculture farms. It takes up to 2700 liters of water to produce the cotton needed for one t-shirt, and many cotton regions have strained water supplies.

When it comes to chemical use, conventional cotton production has the highest impacts of any commonly used fiber. Most cotton requires extremely high pesticide and insecticides inputs (18% and 25% of total global consumption respectively), as well as fertilizers and other chemicals to keep the crop productive and costs low. These practices reduce soil quality, contaminate water sources and present significant health risks to humans and biodiversity.

Can cotton be recycled at end of life?
When unblended with other fibers (such as polyester), cotton can be recycled and the resulting fiber will have much lower environmental impacts than virgin cotton. Sorting by color can additionally save on impacts associated with dyeing. But the recycled fiber is slightly degraded and will therefore usually be mixed with virgin cotton to increase yarn strength and improve its quality. Cotton can also be downcycled (another word for recycled to a lower-value product) as insulation, filler, mop heads, rags etc.

How much better is Organic Cotton?
While there are many standards in place with varying criteria, all organic cotton is strictly non-GMO and must be grown without the use of synthetic herbicides, pesticides and fertilizers. As such, it bypasses conventional cotton production's greatest relative impact: chemicals use. Organic cotton also uses far less fresh water and energy overall (approx. 90 % and 60 % reductions respectively).

On the other hand, organic crops have lower yields per plant and as such require more land than conventional crops. Due to the added diligence and production costs of organic standards, organic cotton also tends to be more expensive.

Are there other aspects to keep in mind?
Cotton is also biodegradable, but various treatments may affect this such as waterproofing or easy care finishes. Treated cotton fibers can therefore lead to microfiber pollution in marine and land environments.
It is also important to remember that fiber production only accounts for a fraction of the impact, whereby yarn and textile formation, dyeing and finishes all contribute to the material's overall impact. For this reason, additional certifications that ensure adequate chemicals management, climate mitigation, and biodiversity protection throughout the product's production are preferable.

THE ORGANIC CONTENT STANDARD (OCS)
The OCS is a chain of custody standard developed by the non-profit Textile Exchange. Essentially, the OCS works at the farm level with approved national certification authorities to verify that a final product contains mostly organically grown and harvested plants.

THE GLOBAL ORGANIC TEXTILE STANDARD (GOTS)
As the world's leading processing standard for textiles, the GOTS ensures organic textile production meets both environmental *and* social criteria. The standard oversees every step in the supply chain from farm to finished product. All this is guaranteed to be done under fair, safe and transparent working conditions.

Biosynthetics

All the benefits of conventional synthetics without the dependency on fossil fuels? Or, all the impacts of natural fibers without many of their sustainability benefits? Too early to say.

What are biosynthetics?
The terms bioplastics, biopolymers and bio-based plastics are often used interchangeably with biosynthetics, and include several different types of synthetic materials. But biosynthetics are essentially materials that are manufactured, either partially or entirely, using renewable biological sources like plant biomass (corn, sugar cane, beetroot, plant oils, straw and wood chips etc.).

These raw materials then undergo a chemical process that break them down into polymers (chains of large molecules). The polymers are then spun and woven or knitted into fabric.

Finished biosynthetic fibers are also often mixed with fossil fuel-based synthetics to attain desired characteristics like strength and flexibility within the finished fabric.

What are the sustainability benefits of biosynthetics?
Generally speaking, they have the benefit of being partly or fully derived from renewable resources. This helps bypass the textile industry's heavy reliance on fossil fuels in producing synthetic fibers, such as polyester and nylon.

With regard to recyclability, the only biosynthetic that is currently recycled on a larger scale is bio polyethylene (bio PE), which is primarily used in packaging. Most aren't recyclable within existing municipal recycling centers, let alone compostable unless in industrial composters that maintain high temperatures for weeks at a time.

But as they haven't been around long, whether a material is recyclable and how scalable infrastructure for recycling could be developed is as of yet an unresolved issue. Similarly, ecological and economic evaluations on biosynthetics remain limited.

What are the potential impacts of biosynthetics on the environment?
Here there is no all-encompassing answer, as each raw material must first undergo its own life-cycle analysis to understand the full impacts. For example: if rainforest in Brazil is first cut down for an agroindustrial monoculture sugar cane field, which is then refined into ethanol and bio-based polyethylene in facilities run on coal power, and the materials are then transported to China to manufacture products that are transported to Europe or North America, the comparative negative environmental impact can be very large. Additionally, the land required for biosynthetics' raw material source may compete with food production and contribute to higher food scarcity and costs.

The upshot is that new technologies are being developed for commercial use that are aimed at repurposing industrial waste products and non-food resources like agriculture residue and algae into textiles. With these advancements, the future of biosynthetics looks promising – but it's not there yet.

BIOSYNTHETICS ROUND TABLE
Launched in 2016, the Textile Exchange's BRT aims to develop a framework to assess biosynthetics and to define the preferred bionsynthetics to help the industry make informed decisions.

The initiative hosts the aboutbiosynthetics.org microsite and a Quick Guide about Biosynthetics.

TextileExchange
Creating Material Change

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
Due to its relative newness, widespread standards relating to biobased are largely still in the works.One of the most inclusive and extensive standardization bodies for biobased is currently the ISO's.

International Organization for Standardization
ISO

MATERIAL GUIDE

Cellulosics

Viscose, Rayon, Lyocell - there's many names for these semi-synthetic plant-based fibers, and many more methods to manufacture them. This makes impact generalizations difficult.

What are cellulosics and where do they come from?
Cellulosic fibers are a range of semi-synthetic materials commonly made from fast-growing trees like eucalyptus, beech, pine and other plants like bamboo, soy and sugar cane.

To make most types of cellulosics, the plant pulp is chemically dissolved into a sludge before being reformed into fiber. Thus, even though cellulosic fibers may be plant-derived, they still require significant processing to attain a wearable state.

What are the impacts of cellulosics?
Each type of fiber's sourcing, production and finishing impacts are very different, making generalizations difficult. While it is true that cellulosics are derived from natural, renewable sources, this doesn't necessarily make them more sustainable.

Wood pulp production's impacts on ecosystems and biodiversity are also of concern. More than 150 million trees are logged each year to make viscose, many of which come from carbon and species rich forests.

Furthermore, many cellulosics must often undergo heavy, and often dangerous, chemical treatments. This means that substances - such as the highly toxic carbon disulfide - have to be carefully recovered. Mishandling these chemicals may also mean releasing sulfur fumes into the air and into waterways. Not only is this bad for the environment, but it puts workers at high risk for poisoning.

Here, closed loop production is absolutely critical to ensure efficient use of these chemicals and that they do not end up in the environment. Successful chemical recovery largely depends on where production facilities are located and how stringent worker safety laws are.

Are there more sustainable alternatives?
Firstly, cellulosics are technically renewable, recyclable, biodegradable (albeit slowly) and serve as a form of carbon sequestration, meaning they already have a strong potential in terms of sustainability. Also, growing the raw materials that later form cellulosics requires far less inputs when compared to many fully-natural fibers. Eucalyptus trees, for example, grow rapidly and require very little inputs in terms of water, pesticides and fertilizer.

And not all sourcing is problematic, whereby several organizations are working with the forest industry's biggest customers to reduce the textile industry's impact on ancient and endangered forests. There's also innovative work being done to develop alternative fibers made from waste such as recycled fabrics and agricultural residues, as well as chemicals-free production.

That leaves fiber production's chemicals impacts. Here too, better control technologies can help reduce chemical impacts. Some familiar proprietary brands that are worth looking out for include Spinnova, Modal, Tencel and Lenzing Lyocell which utilize mechanical separation as well as "closed loop" processes that allow for a near total recovery and reuse of chemical inputs, making for a more environmental process overall.

FSC
The Forest Stewardship Council (FSC) is an international non-profit organization for the responsible management of the world's forests. It hosts a global program of market-based forest certifications.

FSC

PEFC
The Programme for the Endorsement of Forest Certification (PEFC) has standards for sustainable forest management and traceability.

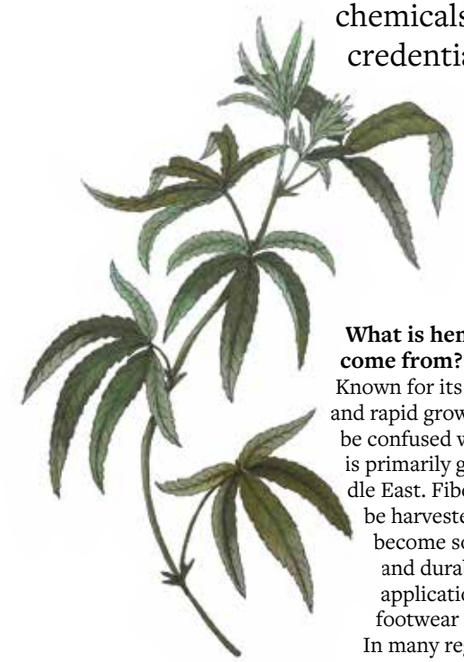
PEFC

EU ECOLABEL
The EU Ecolabel is a voluntary scheme for product certification including cellulose fibers, and is managed by the European Commission.

EU Ecolabel
www.ecolabel.eu

Hemp

When compared to other natural fibres in terms of water and chemicals inputs as well as durability, hemp's sustainability credentials are unmatched – but can it prove it?



What is hemp and where does it come from?
Known for its tensile strength, versatility and rapid growth, the hemp plant (not to be confused with marijuana, see inset), is primarily grown in Asia and the Middle East. Fibers from hemp's stalks can be harvested and processed to either become soft and lightweight or tough and durable, and finds many useful applications such as in apparel and footwear and more.

In many regions, hemp growing goes back for generations, like in Narlisaray in the Black Sea region of Turkey where farmers rely on manual labor, from planting to harvesting the hemp plants.

What are the sustainability benefits of hemp?
Often considered a weed, hemp grows easily in many regions and can become up to eight meters tall. It is naturally resistant to pests, fungi and diseases, which means that it requires minimal – if any - herbicides or pesticides to fend off the various enemies that many other natural fibers face. It also consumes minimal water (one third that of cotton) and essentially requires no fertilizers to grow.

Like other natural fibers, hemp additionally acts as a form of carbon sequestration, but combined with its durability and potential for a long lifespan this can result in a significantly lower total climate impact.

Sounds great! Why isn't everything made of hemp?
For starters, there remain challenges in the production phase. The fiber's strength, for example, can also pose its own challenges, whereby the strong fiber is difficult to process. This is especially true when grown for textiles that require long fibers. Here, many producers still rely on cumbersome manual separation methods or water retting to separate the bast fiber from its core.

There are innovative and efficient means of overcoming these challenges, but perhaps the real issue facing hemp has been achieving scale. This is largely due to hemp's similar appearance to its near cousin cannabis, which had for years made the plant illegal in many major markets.

Hemp has since become legalized in most of the world, and as demand increases so too does its market share.

Nevertheless, these misconceptions have kept hemp production at very small scales globally, and it is often produced on family-run farms. This also means that while in principle hemp is sustainable, it is currently difficult to sufficiently trace its supply chains, and small producers may find it difficult to afford expensive certification regimes to verify it is organic, fair trade etc.

NOT MARIJUANA
Technically speaking, hemp is not a distinct species from marijuana - they are two types of cannabis in the Cannabaceae family. Legally speaking, the difference lies in their respective content of the psychoactive drug THC. Simply put, marijuana contains amounts of THC that can cause intoxication, while hemp does not.

Polycotton

A blend of polyester and cotton - a match made in heaven say some as the two fibers can have complimentary sustainability profiles. End-of-life recycling? Not quite yet.

What exactly is polycotton?
Polycotton refers to hybrid fabrics that mix polyester and cotton fibers. By adjusting the relative ratios of each fiber, the material can combine and fine-tune the breathability and natural "feel" of cotton with the durability and cost-savings of polyester.

Is polycotton sustainable?
To understand the environmental impact of polycotton, the life cycles of cotton and polyester need to be considered both separately and combined [see page 30 for Polyester and page 24 for Cotton]. In short, conventional polyester is derived from non-renewable fossil fuels, while conventional cotton requires relatively high inputs and land to produce.

But as polyester requires comparatively little energy, water, and land inputs and as cotton has the desirable advantage of being natural, some argue that the two sustainability profiles complement one another: A lower-impact and partially renewable material with the potential for longevity.

Are there better alternatives?
The respective fibers can additionally be more sustainably sourced – such as from recycled or organic cotton producers and recycled polyester – further reducing polycotton's total impacts. Many brands have already begun replacing regular collections with polycotton certified in this manner.

Polycotton's end-of-life scenario, however, remains the primary focal point of the current sustainability conversation.

How easy is it to reycle polycotton?
In their pure form, both cotton and polyester can easily be recycled. Indeed, this is even widespread and has substantial investments in infrastructure in place.

Combined polycotton, however, remains a challenge to recycle and it is not currently available on a broad level.

This means that until such solutions come to market, polycotton is far more likely to end up in landfills or incinerators than non-blended materials.

Furthermore, the polyester component also makes polycotton fabrics not biodegradable, meaning they will contribute to marine microfiber pollution.

While there are several promising pilot programs, such as those that are able to chemically dissolve polycotton down to its molecular levels and then reconstitute these into new polyester and viscose fibers, creating an economically viable solution that can be implemented at the scale required has yet to be found.

POLYCOTTON STANDARDS
While no sustainability standard focusing particularly on polycotton has gained widespread use, brands often will seek blends with certified components.

See Organic Cotton on page 24, and Recycled Polyester on page 30 for more information.

Recycled **Polyester**

With virtually no land, water, animal, or agrochemical impacts, polyester has always been a low-impact material. Recycled polyester takes this a step further – but still has its challenges.

What is recycled polyester and where does it come from?
Polyester is a fiber made from petrochemicals. As a raw material, it is a clear, strong and flexible plastic known for its shape retention, durability and hydrophobic properties. Unlike natural fibers, it does not biodegrade but can be 100 percent recycled either by mechanical or chemical processes.

The recycled polyester used for textiles most commonly comes from clear PET drinking water bottles, but it can also be made from fabric off cuts and unusable second-quality fabrics. The resulting recycled material then retains much the same properties as virgin polyester.

What are the sustainability benefits of recycled polyester?
When compared to many natural fibers that require far greater land, energy, water and chemicals inputs, virgin polyester already has a strong sustainability profile. But recycled polyester takes this to the next level.

By turning a waste product into a valuable resource, for example, demand for recycled polyester helps ensure that this waste doesn't end up in landfills, incinerators or worse, the environment. And as long as the apparel is not incinerated, it continues to act as a form of carbon sequestration, keeping the carbon it contains out of the atmosphere.

Additionally, by recycling existing materials, recycled polyester reduces the demand for crude oil extraction and virgin material production. Compared to virgin polyester, recycled polyester can reduce energy consumption by 30-50 % and CO_2 emissions by nearly 60 %, as well as reduce impacts on land, air and water.

Furthermore, polyester can be recycled without significantly degrading its quality, theoretically indefinitely (depending on the method of recycling: mechanical or chemical). This means that when coupled with an effective collection and recycling system, polyester has perhaps the greatest potential to create a closed loop production, providing enormous waste reductions and energy savings in the process.

Sounds too good to be true?
Many of these benefits remain just that, theoretical. Collection of PET bottles is limited worldwide, for example, and demand for polyester derived from these is increasing. Efforts to source polyester from textile waste also face challenges with collection infrastructure as well as the increased difficulty of recycling fabric blends (e.g. mixed with cotton) and non-recyclable items like zippers and buttons.

Finally, given the threat polyester microfiber pollution poses to marine environments, not to mention its origins in the petrochemicals industry, not everybody is convinced that widespread use of polyester is defensible given these current realities.

But many see these problems as surmountable, and that recycled polyester's current sustainability credentials and future potential far exceed its risks.

RECYCLED POLYESTER STANDARDS

The Recycled Claim Standard and The Global Recycled Standard both verify the recycled input material and track it all the way to the final product. The latter also ensures responsible social, environmental practices and chemical use throughout production.

RECYCLED 100 claim standard

Global Recycled Standard

Nylon

The oldest synthetic fiber and one of the most durable, properly sourced Nylon fiber's sustainability potential is promising - if recycling becomes widespread.

What exactly is Nylon and where does it come from?
As the very first synthetic fiber ever to be made in a lab, nylon was initially marketed in the 1930s for its "stronger than steel abilities." Indeed, it maintains its reputation for durability even today in everything from swimwear to technical materials.

Nylon is essentially a plastic manufactured from crude oil, which then undergoes a chemical process and spinning that results in a strong and elastic fiber.

It is primarily produced in China and currently accounts for roughly 12% of global textile production.

What are Nylon's key environmental and health impacts?
Aside from conventional Nylon's dependence on the fossil fuels industry and contribution to its negative impacts on climate, air, and water pollution and more, Nylon production itself requires large quantities of both energy and water. It also generates nitrous oxide – the third most hazardous greenhouse gas after carbon and methane - as a by-product.

Another key impact results from the fact that nylon is not biodegradable, and therefore contributes to marine microfiber pollution (see page 32-33).

Are there more sustainable options available on the market?
As with other synthetic fibers, the textiles industry has begun to look towards more sustainable modes of nylon production. One approach, for example, takes aim at nylon's origins using bio-based sources such as castor oil to bypass the petroleum industry.

Nylon is also recyclable, so another approach uses recycled pre- or post-consumer waste materials like fishing nets or plastic bottles to reduce energy use and carbon dioxide emissions by up to 50% when compared to virgin nylon.

However, nylon recycling is relatively difficult and expensive to implement, and collection infrastructure remains limited. If the loop is not closed, the recycled nylon product is very likely to end up in the landfill or incinerated at end-of-life. The aforementioned microfiber pollution also remains an issue for recycled nylon, of course.

RECYCLED NYLON STANDARDS
The Recycled Claim Standard and The Global Recycled Standard both verify the recycled input material and track it all the way to the final product. The latter also ensures responsible social, environmental practices and chemical use throughout production.

RECYCLED 100 claim standard

Global Recycled Standard

Vegan Leather

Materials with dramatically lower impacts than leather and no animal welfare issues, vegan leathers are in demand. But can they match leather's durability?

What is Vegan Leather?
Vegan leather, or "Faux leather," is any synthetic material that aims to imitate or substitute actual leather. In addition to having the same "look" as leather often at a fraction of the cost, vegan leather is also attractive to those seeking to avoid animal products due to climate or animal welfare concerns.

What is vegan leather's impacts on the environment and health?
There are many different materials used for vegan leather, each with their own production impacts. As it stands, much of faux leather commonly found in products is petroleum-based and as such contributes to the petroleum industry's impacts on climate change, sea and air pollution.

Moreover, vegan leather often contains polyvinyl chloride (PVC), a plastic that is highly corrosive and is essentially non-degradable. This means that it can persist in the environment for a very long time, causing adverse health impacts all along the food chain – including in humans.

Finally, while significant gains have been made in improving the durability of vegan leathers, few can match actual leather in terms of potential for longevity and ability to look and feel better the older it gets. This means that most products using vegan leathers must be replaced more often.

Are more sustainable alternatives on the market?
Not all vegan leather entails plastics derived from the fossil fuels industry, however. Some can be made from organic material, such as cork or pineapple leaves, which have been bioengineered to look and feel like leather. Biosynthetics that convert agricultural biomass into usable materials, are another option. But these have their own set of environmental concerns (see page 26).

In short, while more sustainable vegan leathers are out there that bypass both the livestock and fossil fuels industry, those hoping to sidestep the ills of traditional leather should be aware that vegan leather can have a few ethical hurdles of its own.

VEGAN LEATHER STANDARDS
No standards exist exclusively for vegan leather, but various certifications otherwise used in the food industry to designate vegan products can be found on some apparel and footwear. Otherwise, common industry certifications for recycled content, biosynthetics and more can be used.

Wool

A natural fiber with characteristics synthetics still can't match, properly sourced wool's sustainability credentials can make it a true wonder material – if it can reduce its climate impacts.

What is wool and where exactly does it come from?
Wool is a textile fiber typically made from an animal's fur, or fleece. This animal is most often sheep, though it may come from several others including goats (cashmere and mohair), alpaca, llama, yak, buffalo and even common cattle.

After shearing the wool from the animal, the fleece undergoes a cleaning process, is spun into yarn and then is treated with various finishes and dyes.

Wool primarily comes from sheep in Australia, China, the US, and New Zealand.

What are wool's sustainability benefits?
Wool is a natural fiber that has properties that synthetics still struggle to emulate. Fabric woven from wool yarn is, for example, elastic and has exceptional thermal properties that can both retain heat and cool. It is durable and its natural antibacterial properties also mean fewer washes which, together with proper care, can lead to a long lifespan.

It is additionally a rapidly renewable fiber that can be produced using organic animal husbandry practices and it is easy to recycle - and is currently done so on a large scale.

Finally, depending on finishing treatments, wool is biodegradable and does not contribute to long-lasting microfiber pollution.

What are wool's impacts on the environment and animal welfare?
Animal rights organizations have repeatedly raised concerns regarding wool's impacts on animal welfare. In Australia, the global leader in wool production, the practice of mulesing sheep is particularly controversial whereby strips of flesh are cut from live animals to prevent "flystrike," a common parasitic infection. Shearing, otherwise necessary to the welfare of the sheep, can stress the animal and lead to injuries if performed incorrectly.

Conventional sheep farms also contribute to greenhouse gas emissions through the emission of methane. Methane is a digestive by-product of the sheep with a global warming potential 28 times higher than CO_2 on a 100-year time scale.

Finally, the land use per kilogram of wool produced is large compared to other fibers, and any land deliberately cleared of trees for grazing further adds to wool's climate impact and also leads to increased soil salinity and erosion as well as a decrease in biodiversity.

Can these impacts be lessened?
In terms of land use and climate impact, recent research offers evidence that properly managed grazing lands using regenerative practices can have positive land use impacts through improved soil health and drainage and can even mitigate greenhouse gas emissions through carbon sequestration to become net carbon negative.

When compared to other fibers, standards with strong auditing and inspection procedures carried out by independent third-party certification bodies are particularly important for wool. By supporting traceability, best land management practices, and animal wellbeing, such standards can promote practices that are better for people, sheep and ecosystems.

THE RESPONSIBLE WOOL STANDARD

The Responsible Wool Standard (RWS) is a voluntary global standard that addresses the welfare of sheep and of the land they graze on. The RWS prohibits mulesing and takes a holistic approach to animal welfare. Progressive methods of land management are practiced on RWS farms, protecting soil health, biodiversity and native species. The standard also addresses the use of pesticides and fertilizers. Throughout production, certification ensures that wool for certified farms is properly identified and tracked.

Down

A natural, recyclable and biodegradable material with incredible thermal and compression values, down is almost too good to be true - were it not for animal welfare issues.

What is down and where exactly does it come from?
Down is the fine, insulating layer of feathers found underneath the coarser exterior feathers of waterfowl – primarily domestic ducks and geese – and is normally sourced as a byproduct from the meat industry.

China is by far the largest producer, providing approximately three quarters of global down supply.

What are its sustainability benefits?
Down has become pervasive within the outdoor industry in cold-weather applications, and not without good reason: down's insulation, weight and compaction characteristics make for a material that alternatives have yet to match. It is all-natural, renewable, easily recyclable and completely biodegradable and, if cared for properly, down can maintain high thermal value over a very long lifespan.

Depending on where the down is sourced, some life cycle analyses have found that it can have a significantly lower environmental impact than polyester filling material.

What are down's impacts on the environment and animal welfare?
As with all animal husbandry, there are primary impacts on water and the natural environment that must be addressed – such as the clearance of land which can lead to reduced biodiversity and the energy and water resources required for meat production. The environmental impacts of down fill material come mainly from energy use at the feather processing facilities, and the use of detergents to clean the materials.

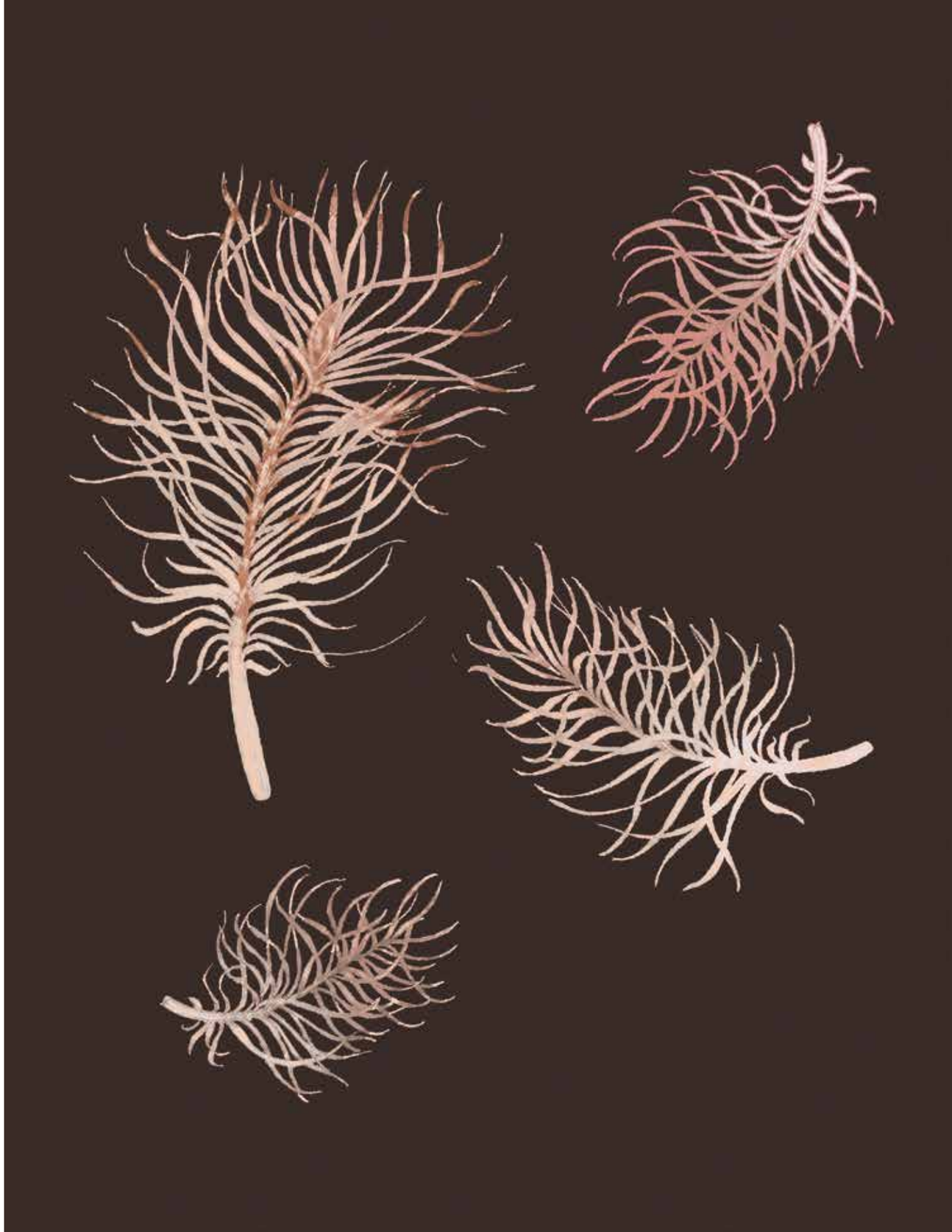
But sustainability impacts aside, animal welfare is the topic that repeatedly raises most concern. Many of these animal welfare issues stem from the fact that much of down comes from the food industry as a by-product. While to some degree this can add to its overall sustainability scorecard, the food industry has its own practices with geese and ducks that many find hard to stomach. Foremost among these is the practice of "forced feeding," whereby a funnel is inserted down the geese's throat to help stuff down food and thereby enlarge its liver for foie gras. Another particularly cruel practice in the down industry has been "live plucking," whereby the down will be plucked from a living goose or duck, so that it can then be regrown and plucked several times over per animal.

What can be done to mitigate these animal welfare issues?
The majority of down found on the market today is not coming from sources that practice humane animal treatment, and many conscientious consumers will therefore choose synthetic alternatives.

But the fact that down involves animals in captivity and their eventual slaughter notwithstanding, geese and ducks intended for the down industry needn't suffer the cruelties mentioned above while alive. Here, independent third-party standards that enable traceability and best-practices are crucial in ensuring the animals live the best possible lives.

THE RESPONSIBLE DOWN STANDARD (RDS)
The RDS is an independent global standard that was developed with the input of animal welfare groups and industry actors. Down is only RDS certified if its entire supply chain passes a third-party audit that ensures a holistic respect for animal welfare has been maintained from hatching to slaughter – including no live-plucking or forced feeding.

THE GLOBAL TRACEABLE DOWN STANDARD (GTDS)
The GTDS essentially shares the same animal welfare standards as the RDS above, but has far fewer participating brands on account of its slightly stricter approach to down's "Parent Farm." Here, the GTDS requires certification of farms that produce the eggs, whether down is produced here or not. As of 2020, this is also mandatory for RDS.



Leather

The incredible durability and repairability of leather results in a lifespan measured in decades. When properly sourced, it can also be humane and have a low environmental impact.

What is leather and where exactly does it come from?
Leather is made from various "hides," or animal skins, which once cleaned undergoes a tanning process that essentially mummifies the skin into a usable form that resists rotting. Once tanned, the leather is dried, lubricated, and dyed before being shaped into the desired form.

Generally, hide is retrieved as a by-product of the meat industry, primarily from cattle in China, Brazil and Italy.

What are leather's benefits?
Leather is one of the most durable and repairable materials available, resulting in a product with an unparalleled lifespan when properly cared for. In contrast to most other materials, the fact that hides for leather are primarily sourced as a by-product of the meat industry means that additional land and resources are not required for its cultivation.

What are leather's impacts on the environment, animals, and human health?
In terms of consumer health, research surrounding the long-term effects of exposure to finished leather remain inconclusive. Nevertheless, it is often harmful to the people making it. Most contemporary tanners are made from chromium salts, which are a combination of chromium (a mineral) and other highly toxic chemicals. It, along with other hazardous compounds, makes tanner especially difficult to recycle or reuse, and poses a significant problem in terms of waste collection and proper disposal in many parts of the world where leather is produced.

Furthermore, the leather industry relies on factory farming, whose business model depends on the leather industry – decoupling the effects of each industry from one another is therefore impossible. This means that the skin isn't mere waste but is often the most profitable part of the animal. Industrial farming is particularly controversial from an animal rights perspective, where animals often live in deplorable conditions. Their runoff poses a direct threat to water and soil health through antibiotic exposure, acidification and other processes. Furthermore, the global livestock industry accounts for an estimated 14 percent of total greenhouse gas emissions.

How can these impacts be reduced?
Given the amount of waste generated, managing pollutants is a challenge – though not an insurmountable one. Leather supply chains based in Europe and the US employ strict environmental regulations to ensure little to no toxic waste is emitted. Chrome-free and vegetable-based tanners are available, and leather can also be sourced from ecological and regenerative farms.

Small-scale livestock farming also plays an integral role to sustainable food systems by grazing on otherwise marginal land, and responsible livestock husbandry would involve using all of the animals' parts.

For those who are ethically opposed to using animal products, avoiding leather is only natural. For those still sitting on the fence, however, the key takeaway is that it largely depends on where hide is sourced and how it is then treated to become leather. Though not widely in use, standards are being developed to help guide brands and consumers to traceable and humanely produced leather.

LEATHER WORKING GROUP
The Leather Working Group (LWG) is a multi-stakeholder group which has developed assessment protocols, like the LWG Environmental Audit Protocol. Their commitment to environmental stewardship endeavours to create sustainable and traceable best practice for all involved.

LEATHER WORKING GROUP

RESPONSIBLE LEATHER ROUND TABLE
The Textile Exchange's Responsible Leather Round Table (RLRT) is a tool to drive forward the development of the global Responsible Leather Assessment (RLA). Aimed towards becoming the future gold standard of the industry, the RLA will assess environmental and social impact, as well as animal welfare, for more ethical leather.

TextileExchange
Creating Material Change

ILLUSTRATION NADIA NÖRBOM

Beware of the Flourocarbons?

PFCs, PFOAs, PFOs and now PTFEs - what exactly do all these acronyms mean, and why have they been getting so much attention?

What are fluorocarbons?
Flourocarbons are a group consisting of roughly 4,000 long-lasting and often environmentally hazardous substances. The most widely known chemical among these is perhaps PFCs (perfluorocarbons), as well as PFOA (perfluorooctanoic acid) and PFOS (perfluoroocatane sulfonate).

Flourocarbons are used to make products resistant to stains, grease, soil and water. These characteristics are highly sought-after by outdoor enthusiasts, who are often subject to tough environments with a lot of cold, dirt and moisture. PFCs are extremely durable, surviving substantial wear and tear and temperature ranges, thus requiring less reapplication to maintain these repelling properties.

But this is also where the problems begin to arise.

What are the environmental and health impacts of fluorocarbons?
Fluorocarbon emissions can occur at every stage of a PFC-containing product's lifecycle: during production itself, during use and washing, and when the clothing is thrown away or recycled. And because they are extraordinarily chemically stable, highly fluorinated substances break down extremely slowly in nature. Thus, they tend to accumulate and get spread across the environment by wind and water, eventually finding their way into food chains – including our own.

Several of the compounds are suspected of being carcinogenic, and studies on animals have also shown that elevated levels can cause liver damage and affect both the immune system and the ability to reproduce.

While there is still a lot of uncertainty regarding exactly how dangerous these substances are for humans, it is clear that they are accumulating in all living organisms across the globe. Relatively high levels have been measured in polar bears in the Arctic, for example, and traces have been found in humans on all continents.

What can be done to mitigate these impacts?
For one: Regulation. Some of the most toxic fluorocarbons, such as PFOS and PFOA are now widely restricted or are in the midst of being phased out. Manufacturers in many industries are working to produce fluorocarbon-free alternatives with similar properties.

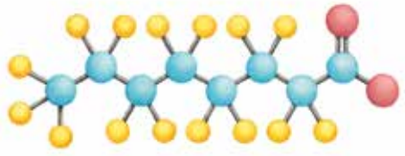
But as these substances are found in so many products, often imported from countries with lax regulation, phasing them out completely is proving to be much more difficult.Moreover, parts of the chemicals industry are trying to be one step ahead of regulators in developing new compounds of PFCs that are not yet fully assessed for their potential hazards. Thus legislation – and the consumer – are constantly left one step behind.

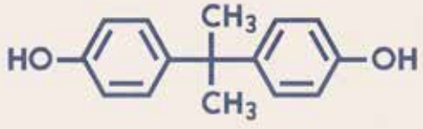
Are there sustainable alternatives?
With these challenges in mind, there are large differences between manufacturers when it comes to their chemical management, and good choices are ideed available.

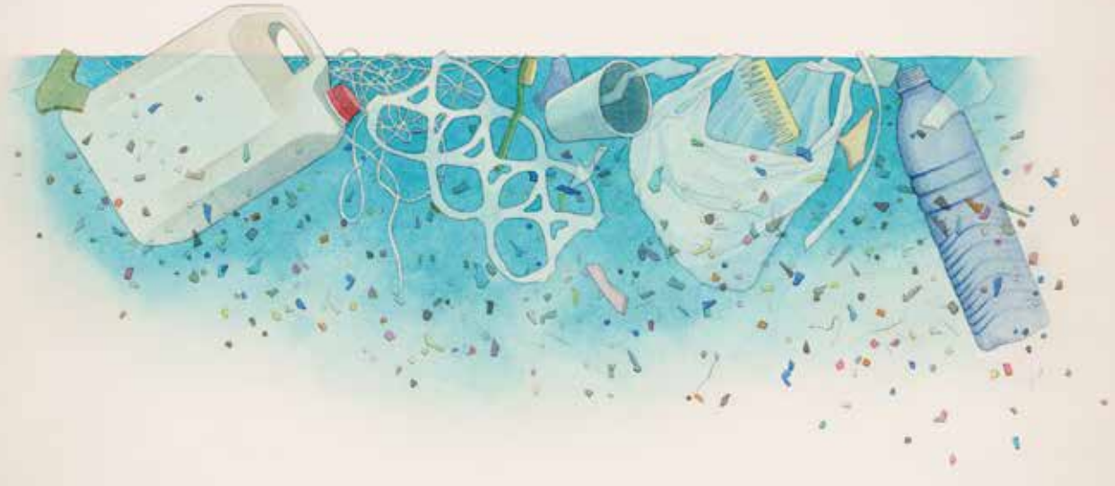
In outdoor products, fluorocarbons have primarily been used in two areas: Partly in textile impregnations (often called durable water repellents, or DWR) to resist moisture, grease, and dirt, and partly in the production of membranes that help clothing ventilate moisture and excess heat while keeping moisture out.

The breathable membranes are often made of polytetrafluoroethylene (PTFE). This is a fluorinated polymer made up of fluorine and carbon. Greenpeace, that has for years protested against the usage of PFCs under the campaign Detox Outdoor, agrees that PTFE itself is not a PFC of Environmental Concern or a Hazardous PFC. The organization still raises questions, however, about release of toxic substances at the end of the product life cycle, dependig on how it is disposed.

Today, there are a number of fluorocarbon free options to choose from both with DWR and membranes. Many brands have already phased out fluorocarbons completely, and several of the larger retail chains are working continuously to minimize the supply of waterproof clothing that is impregnated with fluorocarbons.







Microplastic & Microfiber Pollution

In less than a century, the versatility and affordability of plastic has found applications just about everywhere we look today. Unfortunately, it is also everywhere we would rather not find it.

What is microplastic and microfiber pollution and where does it come from?
Microplastic pollution refers to tiny fragments of plastic that find their way into natural environments and organisms, with undesirable consequences. They can be formed unintentionally, such as when plastic bottles or synthetic apparel begin to wear and shed particles, or when such materials are not recycled and end up in landfills or in nature.

When talking about plastic pollution, fragments that are smaller than 1 mm are called microfibers. Microfibers can come from many items that are subjected to wear, including in industries, homes, and automotive textiles.

These fibers can also technically be either natural or synthetic. But more and more research shows that a primary source of persistent microfibers in nature is synthetic clothing (polyester, nylon, rayon and more), whereby long-lasting and sometimes toxic microfibers can be shed from clothing during production, consumer use or at its end-of-life.

To a large extet, this problem arises because microplastics and microfibers are so small, they pass through sewage treatment plants and eventually end up in the sea.

Indeed, research shows that the bulk of all plastic in the world's oceans comes from less affluent countries where the rivers are often used as garbage dumps. But richer countries, too, contribute significant amounts of plastic pollution, with nearly 13,000 tons of microfibers entering the marine environment annually from Europe alone.

What are the impacts of microplastic pollution?
Here, it is important to differentiate between different plastics and different additives, whereby not all microplastics are equally harmful to health. The real problem is instead the substances that are added to the plastic to give it certain characteristics (such as plastic softeners), which later leach out of the plastic and harm the environment and its inhabitats.

We already know that additives such as bisphenol can disrupt human and animal hormone production, as do certain types of phthalates.

While more research on the long-term impacts of this type of pollution is needed, microplastic and microfiber pollution is already found across all continents and oceans of the world and in many of its food chains.

What is the industry doing to tackle these problems?
The scale of the microfiber pollution crisis alone has led to more than one apparel brand's commitment to phase out plastic synthetics in favor of natural materials, or at least to do so until a suitable solution is found.

Others, meanwhile still consider plastic as the ultimate closed-loop, low impact material, and are optimistic that these unfortunate emissions into the natural environment can soon be solved.

While much media attention has been busy blaming one source or another, much has been premature as little in fact has been known about this problem.

This seems to be changing. Actors within the textiles industry, such as The Microfiber Consortium (see page 10), have been quantifying, assessing and creating test methodologies to determine which types of fabrics are most problematic, and how these sources of microfiber shedding can be reduced with its latest Roadmap.

ILLUSTRATION NADIA NÖRBOM

WHAT CAN CUSTOMERS DO TO REDUCE EMISSIONS OF MICROPLASTIC POLLUTION?

Wash their synthetic garments less often—air them out instead. When they do wash, use low temperatures, full loads, and hang dry afterwards. Dispose of lint in the garbage bin, not down the drain. Laundry bags like Guppy Friend, Lint LuvR, PlanetCare filter or Cora Ball can help prevent microplastics getting into the rinse water. Avoid cheaply made "fast fashion" garments. Otherwise, reduce their use of plastic in their daily life and recycle the plastic they do use.

NEXT TEXTILE Conference

Borås, Sweden 2021

Giving all parts of the textile industry guidance to strategy and future decision-making.

TUESDAY, OCTOBER 12

10:00
Welcome, by Pierre Rosengren, Tex!
Introduction by Charles Ross, Moderator.

10:00
Full-on-digital + supply chain agility = sustainable growth.
Speaker: Niklas Hedin, Centiro AB.

10:35
Climate commitments and the supply chain.
Speaker: Elaine Gardiner, Haglöfs.

11:00
"Just in Time." Within supply chain management, some took it for granted. What happens and what will the future look like? Who knows …
Speaker: Fredrik Hemansson, Greencarrier Liner Agency.

11:25
Regenerative principles for the textile industry.
Speaker: Jo Dawson, HD® Wool Apparel Insulation.

11:50
Panel discussion and summary.
Speakers: Dr Pamela Ravasio and Louise Klarsten.

12:15
Lunch mingle presented by Polygiene.

13:15
Afternoon session introduction.
Moderator: Charles Ross.

13:20
Tomorrow's World: How is the consumer and the world changing, why the future hasn't been cancelled, and what this means for the supply chain.
Speaker: Mark Shayler, This is ape.

13:45
New solutions for handling color globally in a sustainable and digital way.
Speaker: Carola Seybold, Pantone LCC.

14:10
The impact of dyeing in a conventional textile supply chain and good examples of what to do instead (featuring Gina Tricot).
Speakers: Andreas Andrén, We Are Spindye + Emma Garotte, Gina Tricot.

14:35
Energy boost.

15:00
Fabric of Life Award.

15:30
Panel discussion and summary.
Speakers: Dr Pamela Ravasio, Rudrajeet Pal.

15:45–17:00
Smart Textiles Showroom open.
Afterwork & mingle, hosted by Rudholm & Haak.

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NEXT TEXTILE

The annual Next Textile conference was launched in 2014. It takes place in Borås, the textile capital of Sweden. Join on-site or online to hear the latest views and engaging dialogues regarding the future of the Supply Chain from international experts.
For further info about program, speakers and registrations: **texsweden.se/nexttextile/**

For Every Cause, There's an Effect. We call it The KEEN Effect.

Shoe: KEEN Howser Harvest.

Shoe: KEEN Elsa Harvest

Keen Launches **Upcycling Certification Program**

The first upcycling certification program to reduce industrial waste, the Harvest Certification creates a platform for transparency to make it easier for consumers to both identify and make environmental choices.

The global footwear brand that's on a mission to make the outside inclusive and accessible to all announces it will expand its Detox the Planet Initiative with the debut of the KEEN Harvest Certified Program, a tiered program designed to reduce industrial waste by upcycling it into shoes. The initiative builds on KEEN's growing Harvest offering, which now provides transparency into how much industrial waste is upcycled into its shoes. The goal is ultimately to relieve pressure on global landfills and minimize the use of virgin materials, while emitting less greenhouse gas emissions. While the program has already begun, KEEN intends to share the details of this process at the beginning of 2022.

"We first launched Harvest products 15 years ago using industrial waste from the rice industry," said Erik Burbank, vice president of The KEEN Effect. "Harvest is about upcycling industrial waste that would otherwise go to landfills, instead creating something new and useful, while lowering the demand for new material in the production process. We're certifying Harvest products to both provide transparency to fans and to demystify and encourage other brands to help attack the industrial waste problem."

It is widely estimated that 97% of waste comes from industrial sources versus approximately 3% from post-consumer sources. Much of the world's solid waste goes directly to landfills, a leading source of man-made methane, an incredibly potent greenhouse gas.

"Less waste in landfills, less virgin materials sourced, less greenhouse gasses emitted - it's a trifecta of benefits for the planet," continued Burbank. "We're continuing our research on new Harvest materials, refining the overall model, and plan to open-source the program in early 2022. This isn't about creating a competitive advantage for KEEN. We hope to see other brands adopt and even improve on what we're doing and, in turn, share their learnings with others. We need to work collectively if we want to create real change."

A three-tiered system

Specifically, the KEEN Harvest Certification Program features three levels of certification: Gold (greater than 50% upcycled materials); Silver (greater than 25%); and Bronze (greater than 10%). The ratings provide greater transparency with respect to the percentage of waste upcycled into shoes. The first shoe with this certification is set for launch this November 2021. The model, Howser Harvest, is Gold certified using upcycled car seat leather in 80% of the upper.

Expansion in the works

For spring '22, The Harvest Collection will expand with several new members like the Howser Harvest Sandal for men and women, the Elsa sneakers for women, and additional Howser Harvest slip-on and lace-up styles for men and women. Select new models will additionally feature upcycled waste coffee grounds, helping to keep coffee grounds out of landfills where they create methane emissions, a greenhouse gas known to be more harmful than carbon dioxide, another greenhouse gas that contributes to climate change.

ABOUT DETOX THE PLANET INITIATIVE

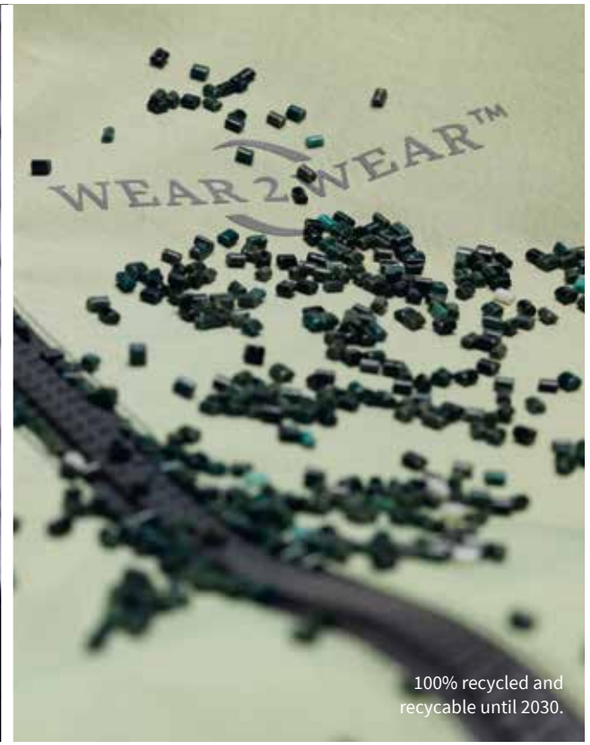
KEEN's Detox the Planet Initiative was established in 2012 to take proactive action to identify and remove harmful chemicals in its supply chain and replace them with safe and effective alternatives.

Committed to eliminating everything that shouldn't be in KEEN products and discovering eco-friendly alternatives, the manufacturing process is PFC free, uses an anti-microbial free odor control approach and they only partner with environmentally preferred Leather Working Group certified tanneries. They are also increasing the use of upcycled and recycled materials for a more circular product life cycle, along with other processes to lessen the impact on the planet.

keenfootwear.com/the-keen-effect/

PHOTO: SANDRA STEH

Sustainable Community Manager Kim Scholze.



100% recycled and recycable until 2030.

A Second Life for the Second Skin

Sympatex is one of the worldwide leading producers of sustainable functional textiles. To reach its next ambitious goal – becoming 100 percent circular by 2030 – the company is pushing for collaboration within the textile industry.

In more than thirty years, the Sympatex membrane has protected outdoor enthusiasts like a second skin. 100 percent windproof and waterproof, at the same time elastic and breathable, it has been the perfect material for physically demanding activities in harsh conditions.

The membrane's ability to "breathe" dynamically is outstanding: The more you move and sweat, the more effectively it absorbs water vapor and removes it through the clothing to the exterior. Another strength is that it can easily be formed or tailored for specific purposes and laminated on a wide range of other materials like woven fabrics, knitwear, fleece or leather to evolve them into high-performance outdoor textiles.

With all the highly functional qualities in place, it's the sustainability performance that sets the membrane apart from the rest: PTFE-free and PFC-free, bluesign and "Öko-Tex-Standard 100" certified, Sympatex advanced to become one of the leading sustainable textile technologies on the market. A true pioneer, Sympatex became climate-neutral already in 2017, supplies 25 percent of the membrane's raw materials from bio-based sources and now has set a new trend-setting goal for the near future: To become 100 percent circular by 2030.

Close the ecological loop

"As a mono material consisting of pure polyester, Sympatex is fully recyclable. At the same time, technologies to gain new synthetic yarn from recycled polyester are already on a very advanced industrial level," explains Kim Scholze, Sustainable Community Manager for the Munich-based company.

"We have the best chances to close the ecological loop under this decade if we succeed in building and scaling up an efficient recycling system for polyester inside the textile industry."

Sympatex' ambition is to source half of the raw material from this circular textile supply chain in five years, to then step up to 100 percent by 2030. This strategy depends on many companies – especially the big players – choosing the same circular path and being willing to collaborate.

"We need common solutions for infrastructure, collecting points and recyclers, but also a clear commitment on pure polyester as the predominant synthetic raw material for functional textiles," says Kim Scholze. Her challenging job is to gather what Sympatex CEO Dr. Rüdiger Fox calls the "coalition of the brave and willing" – a network of textile companies that work together on a sustainable future.

"No one can take this step alone," states Kim, who also points out that circular concepts may soon even become a legal issue. By 2025, the EU is expected to make consistent sustainability a mandatory program for the whole textile industry.

"At that point, we will be ready to provide our partner companies with adequate solutions."

The first circular generation

In February 2021, Sympatex launched a new brand claim that boldly brings the company's mission to the fore: "We are the first generation," addresses both the industry and the end consumer and calls for voluntary action for a consistently more sustainable textile business. The inclusive statement implies that our generation can be the first in which circularity becomes "the new normal." That would leave the fossil-dependent industrial era behind and create an economy without ecological side-effects or costs for futer generations.

"We want each Sympatex membrane to one day return into the circle to be reborn as a new second skin for adventures in the great outdoors," says Kim Scholze. "The more that join our movement today, the sooner this vision will come true."

Committed to Sustainability

Ternua takes abandoned fishing nets, plastic sea garbage, walnut shells and wool waste from sheep native to the Basque Country and transforms them into technical and sustainable outdoor clothing.

A lot of people recognize the brand by its symbol, the whale tail. It's a nod to the Basque adventurers who would go to Newfoundland (Ternua in Basque) to hunt whales and live off what those animals gave them. The brand, however, has turned that history on its head in defense of the sea mammals, making sustainability and respect for nature part of its core values. Since then, Ternua dresses and equips adventurers who have a special feeling for the environment with clothing that protects them in their outdoor pursuits, while simultaneously protecting nature by using environmentally friendly materials and treatments.

Ternua was a worldwide pioneer in using recycled feathers (ISPO AWARD Gold Winner 2016 for their Terranova and South River jackets with recycled feather filling). And it was one of the first European brands to eliminate toxic PFCs from its water repellent treatments in 2016. Currently, it uses numerous recycled materials in its clothing: cotton, feathers, coffee grounds, fishing nets, PET plastic, plastic sea waste, walnut shells, wool, train carpeting or discarded textiles.

Redcycle and upcycle

Since 2015, Ternua has also been promoting unique initiatives and circular economy projects with a positive impact on the local environment that aim to be a call to action for local companies and other companies in the industry. Redcycle was the first.

Along with the cooperation of Basque fishing associations, Ternua recovered 12 tons of abandoned fishing nets from the Cantabrian sea and in collaboration with Aquafil converted them into Econyl thread. The brand has used that thread to make urban clothing like the Ride On pants (Outdoor Industry Award 2017) and highly technical garments like the skimo Blackcomb competition ski suit (ISPO Award Gold Winner 2019).

Three years later came the Nutcycle project, where it collected 500 kg of walnut shells from cider houses in Guipuzcoa. A waste product up until then, the brand transformed the shells into natural ink for their clothing with cooperation from Archroma.

Ternua presented Seacycle in 2019, where it found a way to use plastic waste collected by three fishing boats along the Basque coast to make cloth for t-shirts.

The latest project is Artileshell (2020), which aims to make use of a natural local resource, Latxa sheep's wool. The material was considered waste, but Ternua has found a new use for it as a sustainable and ecological thermal insulation.

DANIEL BLOM

Swedish Pine Trees, Reinvented

As part of its efforts to phase out fossil materials, Fjällräven uses a wood-based fabric for the new Tree-Kånken collection.

Fjällräven has a proud tradition of making its classic products from recycled materials. But after collections such as Samlaren, Re-Kånken and Kånken Re-Wool, another trail is now being explored. Tree-Kånken is an reinterpretation of the original Kånken backpack from 1978, but with a new raw material – namely Swedish wood.

"At Fjällräven, we have an ongoing innovation process to phase out non-renewable materials. Using wood for textiles is nothing new, but it has previously been difficult to get full traceability. With Tree-Kånken we were able to obtain volume-based traceability which is a step in the right direction," says Christiane Dolva, Global Sustainability Director at Fjällräven.

The main fabric and lining of Tree-Kånken is called Pine Weave. This wood-based fabric, exclusively developed by Fjällräven, is made using filament fibers and is optimized for extra strength and functionality. The production process was improved and modified to ensure Pine Weave is robust, hard-wearing, and water repellent. Johanna Mollberg, Product Developer at Fjällräven, briefly explains:

"In very short, wood chips are boiled down to a cellulose mass. The mass then goes into the lyocell process, which is a sort of solvent-spinning technique. The dissolved cellulose pulp is pushed through spinnerets. It is finally washed, dried and spun into yarns. The yarn is then woven into a plain weave and coated with a mixture of PU and wax to prolong the lifetime of the fabric. Together this creates a hard-wearing material that is perfect for the use in backpacks and more durable than most lyocell fabrics on the market."

Certified forest sourcing

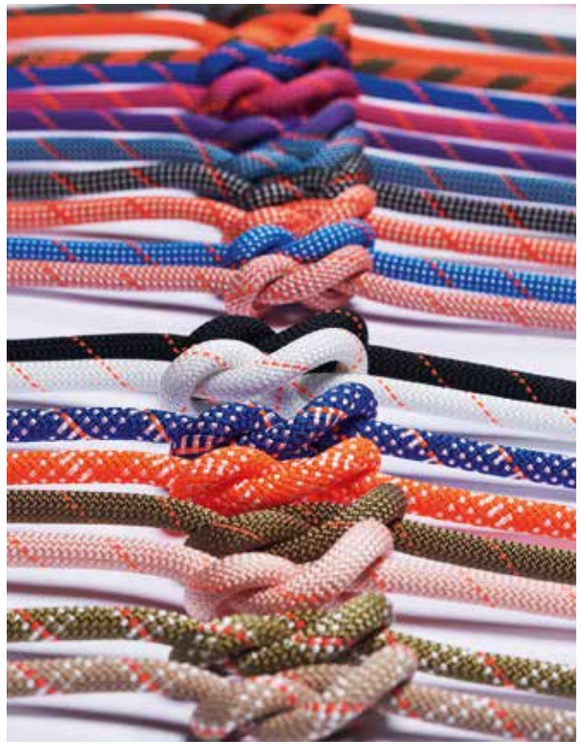
The raw wood material sourced by Fjällräven comes from a cultivated and certified forest just outside Fjällräven's hometown of Örnsköldsvik in Sweden.

The industrial processes that turn wood into cellulose today are not able to keep certified, traceable wood separate from other sources of wood. So the pulp used in Pine Weave is mixed up with the total amount of wood going into the pulp-making process. This is referred to as a "mass-balance" approach. So although traceability from backpack to tree in a closed system is not possible, this still means that Fjällräven is contributing to a demand for more traceable, certified wood in those industrial processes.

For Fjällräven, the Kånken backpack is the perfect innovation tester for new materials – it has proven for decades that it can withstand the test of time in terms of design and quality.

"Our next step might be a Kånken made of recycled bio-based materials. Material innovation is really a 'never ending story'," says Christiane Dolva.

STEPHAN WEISER



CHRISTIAN AMMANN

In July 2021, Mammut received the “German Sustainability Project Award 2021” for the “Close the Loop”–project, in the category ”Process – Recycling”.

THOMAS SENF

Recycling Ropes, **Reducing CO2**

Mammut and Protect Our Winters Switzerland are helping to make mountain sports even more sustainable. With the project “Close the Loop” they give climbing ropes a new life.

Ropes are firmly anchored in Mammut’s DNA – and account for 13% of Mammut’s global carbon footprint. A climbing rope is usually used for about five years and then thrown away. This realization triggered a fundamental rethink within the company and the project “Close the Loop” was born. The goal was clear – to find out how the polyamide that makes up the ropes could be reused again and again.

In June 2020, Mammut began collecting used ropes, in collaboration with the climate NGO Protect Our Winters (POW) Switzerland. Climbers had the option to donate their used ropes at nine collection points around Switzerland, as well as the option to use a free shipping service. “Close the Loop” was well received by the climbing community. What began as nine collection points at the start of the project, grew to a total of fifty.

Regenerated nylon from waste

In three months, 748 kilograms of rope were collected. They were then delivered to Aquafil, a company which produces man-made fibers and is specialized in sustainable production models. Aquafil developed a system to convert nylon waste, from items such as ropes, fishing nets and fabric scraps into their Econyl® regenerated nylon.

Through a chemical process, the nylon contained in the waste is processed into recycled nylon – with identical properties as the yarn made from fossil fuels.

European production

Mammut’s designers then developed a T-shirt made of 100 percent regenerated nylon.

To minimize CO_2 emissions during the production process, Mammut put emphasis on establishing a European supply chain. Aquafil regenerates the ropes, together with other nylon waste, in Slovenia. Then, in Lithuania, the textile company Utenos Trikotažas, processes the Econyl® regenerated nylon into a functional T-shirt.

The route is completed in Switzerland using HeiQ Pure technology, which prevents the build-up of odor. Thanks to this technology, the consumer can wash the T-shirt less often and save water.

“Together with Mammut, we were able to show that concepts for a circular economy can also be implemented in the outdoor industry. This is urgently needed to strive for a net zero society,” says Nicholas Bornstein, Head of POW Switzerland.

Evaluated all the way

The non-profit foundation Myclimate conducted a comprehensive life cycle assessment to determine if and how CO_2 emissions are reduced through the “Close the Loop” project. It evaluated the entire production process, from the collection point of the ropes in Switzerland, to T-shirts at the hands of the end consumer. The analysis included water and energy consumption, as well as land use. The study was carried out according to current scientific standards and was checked by an independent third-party company.

The result: during the whole production Mammut was able to save 67 percent of CO_2 emissions per T-Shirt, compared to the traditional production with raw materials from oil. The 748 kg of collected ropes were mixed with other nylon waste to create the regenerated nylon yarn.

“By disposing our collected ropes with Aquafil and producing 1’000 T-shirts the pilot project saved a total of 5.41 tons of CO_2 emissions compared to traditional production. For comparison: this is equivalent to the average CO_2 emissions of a car in one year,” says Alice Martin, Corporate Responsibility Manager and Project Lead of ”Close the Loop,” and continues:

“This project is an important step on our path to become carbon neutral by 2050.”

With the upcoming global roll-out of “Close the loop,” Mammut is committed to pioneering far-reaching changes within the outdoor industry.

HELP SAVE THE T-SHIRT

The T-shirt needs help. Because the cotton crop it's made from absorbs thousands of litres of water. WWF is helping farmers grow thirsty crops, like cotton, rice and sugarcane, more sustainably with less water. This takes the pressure off freshwater ecosystems, benefiting people and nature. We also help businesses understand the amount of water in their raw materials and final products, so they can be more efficient, and look after nature as well as their bottom line. Help us look after the world where you live at **panda.org/50**

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01–02, 2021
Munich

In December, Performance Days is opening up the first physical show since 2019 – in a hybrid format. Exhibitors will showcase the latest innovations with a focus on sustainable materials for the functional textile industry. The Performance Forum is the core of the fair, where all materials are 100 % preferred sustainable fibers. Suston reached out to four of the experts that will attend the show in Munich.

KIM SCHOLZE, CHIEF SUSTAINABLE COMMUNITY MANAGER, SYMPATEX

Sympatex has a long history at Performance Days. Will you have any special message that you want to reach out with to the industry?

We all need to work on solutions together for recycling and a circular economy. The Performance Days are the optimal platform for this as the entire textile industry will need to work shoulder to shoulder. This will require finding active and committed partners who will follow this change making path. We're ready to act as sparring partners to show what's possible today.

RENÉ BETHMAN, INNOVATION MANAGER MATERIALS AND MANUFACTURING, VAUDE

Nylon will be this year's Focus Topic. Why is this material relevant from a sustainability perspective and how will Vaude contribute to the topic?

Nylon is after Polyester the predominant material in sportswear. In a novel biobased form, it can offer both new performance attributes and a lower environmental footprint. Vaude has implemented this material and uses innovative recycling technologies to demonstrate the highest quality output from waste that could not be recycled before, like tires, carpets or fishing nets.

ANDREAS GÜRTLER, SR. BUSINESS DEVELOPMENT MGR. FUNCTIONAL WEAR, LENZING

Cellulosic fibers have gained a lot of interest the last years. What will Lenzing and Tencel present around this at Performance Days?

Climate change remains one of our greatest threats, and as the first cellulosic fiber producer committed to Science Based Targets Initiative (SBTi), Lenzing wants to push for a decarbonization within the textile industry. Therefore, the Tencel True Carbon Zero branded lyocell and modal fibers have been introduced this year, designed to set a new benchmark for sustainability.

ANNA RODEWALD, GREENROOM VOICE

You have been a speaker and moderator at Performance Days for several years, with a focus on sustainabilty. What will you highlight this year?

This year I will lead two panel discussions on the topic of "Nylon Sustainability," which taps directly into the question of raw material sources and end of use options for products. The two panels will focus on contextualizing systemic aspects of both parts of the material value chain, their interconnection to each other and their influence on "new" partners in the material cycle.

OutDoor by ISPO

October
05–07, 2021
Munich

Thought leaders, ambassadors, pioneers, and innovators - for three days in Munich, the leading minds of the sports and outdoor industry will come together to exchange ideas, learn and network. The Global Summit Edition of OutDoor by ISPO will be the first time in two years when the European outdoor industry meets in person. The summit can also be followed online.

KAI LANDWEHR, HEAD OF MARKETING, MYCLIMATE

You will talk about the European Green Deal at OutDoor by ISPO – how is this EU initiative relevant for the outdoor industry?

This initiative can become a new, international moonshot to transform the economy and society. It now must face the challenge of negotiating with all EU member state's governments, but the solid and bold political answer and framework are there now. I will address the interfaces and dependencies between politics and industry and possible business opportunities.

EVA KARLSSON, CEO HOUDINI SPORTSWEAR

You will be part of the panel talk "Ecocide and the impact on business." Why is this topic extra relevant for outdoor brands?

Long term international regulatory frameworks that level the playing field can be beneficial for business. Ecocide law, based on the precautionary principle, would have a positive impact for the outdoor sector in particular, as we more than any other business sector depend on healthy, resilient and beautiful natural environments. It's after all the foundation for our existence.

GABRIEL ARHUR, EDITOR-IN-CHIEF, SUSTON MAGAZINE

You will host a workshop with the theme "Guiding the consumer towards sustainability." Why is this important?

When more and more companies are communicating and marketing around sustainability, it is even more important to stick to facts, be transparent, but to also inspire and guide consumers towards the better alternatives. I will share insights from over ten years of sustainability communication, so that pioneering outdoor companies can make positive change happen faster.

LENA HAUSHOFER, COMMUNITY MANAGER OUTDOOR, ISPO MUNICH & OUTDOOR BY ISPO

You are the new Community Manager Outdoor at Messe München. Will sustainability be a major theme at ISPO 2022 as well – and if so, why?

Absolutely. Outdoor and nature belong together, so the topic is a matter close to the heart of the industry. We face global challenges such as the effects of global warming and species extinction, so sustainability, ecological and social responsibility will play big roles at ISPO Munich 2022.


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