

PANGAIA

Pangaia

Geese and duck feathers have been used as insulative materials for millennia, but in recent years new cruelty-free and low-impact alternatives have been coming to market and some are especially interesting.

PANGAIA is a materials science company with a goal to create an earth positive business. They research and develop new materials and bring their responsible fashion creations direct to consumers, as well as industry-wide through their b2b offer. As part of their earth positive ambition, PANGAIA pioneers innovative textiles processes that support their mission to safeguard our environment.

The company has garnered widespread attention across the textiles industry for the development of their FLWRDWN™ material – a sustainable, plant-based alternative to down. In this case study, we spoke with the PANGAIA collective, to learn more about their next-generation material.



“ Natural, animal-free alternatives are a viable option. ”

— PANGAIA

FOUR PAWS: PANGAIA is more than just a fashion brand or company. Can you tell us a little bit about who you are and what you're aiming to achieve through your work in textiles?

PANGAIA: First and foremost, PANGAIA is a materials science company. We started three years ago as a collective of scientists, designers, technologists, and creatives to build this new kind of business – one that operates in harmony with nature and works to safeguard a future for generations to come. We report on our progress towards our goal on an annual basis through publication of our Impact Report, and you can find our latest Impact Report on our [website](#).

FOUR PAWS: You've developed an amazing innovative material in FLWRDWN™. Can you explain what this is?

PANGAIA: FLWRDWN™ is our patented plant-based alternative to animal and synthetic down materials. FLWRDWN™ was created as an innovative material solution that has the ability to replace goose down and synthetic polymer alternatives traditionally used for insulation purposes. FLWRDWN™ is a down-fill material made using a combination of wildflowers, a biopolymer and aerogel. This warm, breathable, and cruelty-free innovation is the first of its kind, used in our outerwear jackets, vests and accessories.

Our latest iteration FLWRDWN™ 1.2 demonstrates that natural, animal-free alternatives are a viable option and that with greater adoption, we can push the apparel industry towards a more responsible, kinder future. As we continue to innovate, our latest FLWRDWN™ jackets are made with 83% higher fill power for greater insulating efficiency.

The wildflowers.

We use wildflowers that directly support habitat conservation and are managed by a non-governmental organisation (NGO). They are also grown without any pesticides or artificial irrigation – preventing pollution and saving water.

Our biopolymers.

Our biopolymer is made from maize (corn). The wildflowers have a down-like microstructure, so when we combine them with our biopolymer it brings out the thermal-warming properties.

Our patented Aerogel.

The first of its kind, our aerogel took our scientists over 10 years to develop. It gives strength to our FLWRDWN™ products, increasing their performance and durability.

FOUR PAWS: We value sustainable animal-free alternatives to down, such as FLWRDWN™, as important drivers for addressing the environmental impacts of fashion while also reducing suffering to the millions of animals who end up in down supply chains. How important is animal welfare to your company's ethos, and how do you view its relationship to environmental sustainability?

PANGAIA: As a business, we consider the use of animal fibres very carefully and therefore prioritise the use of recycled inputs (recycled cashmere and wool), alongside our patented technology FLWRDWN™. We also recognise animals as sentient beings and therefore want to ensure that we prioritise the welfare of animals, the quality of the husbandry, as well as its broader environmental, ecological and biodiversity implications.



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FOUR PAWS: Animal-free alternatives to down have existed on the market for many years. Why did you feel it was important to create another option amongst the alternatives to animal-derived down?

PANGAIA: Before FLWRDWN™, there were only two options for lightweight, thermal-insulating outerwear: animal feather and synthetic down. We didn't want to use animal feathers because the process can be cruel, and the alternative synthetic fill (usually polyester) is made using finite petrochemical (fossil fuel) resources. We believe that there are Earth-positive alternatives that minimise impact and capitalise on new, nature-inspired technology, and it's our mission to make them available to everyone.

FOUR PAWS: How important is it to bring innovative and disruptive next-gen materials directly to consumers, as PANGAIA does?

PANGAIA: PANGAIA was born with a vision of innovation and science. Our team of scientists and partner laboratories around the world are researching breakthrough Innovative Materials and Systems that empower our Earth Positive ambition. Diversifying material options by introducing new and lower impact alternatives to the textile industry is crucial to limiting global warming not to mention protecting biodiversity. We are constantly working to integrate materials sourced from regenerative systems into our supply chains, whilst exploring the full potential of circular systems to deliver impact for PANGAIA.

FOUR PAWS: To fashion companies who might be unsure about the future of next-gen materials or how such materials will fit into their future, can you share some words about what brands could do to become more familiar with embracing the integral role of science and technology in the materials space?

PANGAIA: We believe that no single organisation can solve the challenges our society is currently facing alone. PANGAIA is rooted in collaboration, and we welcome others to join us on this mission. We invite all brands, institutions, academics, innovators, and educators to talk to us about these challenges and join us in amplifying and scaling solutions.

For more information on certified and next-gen materials and what to consider in your animal welfare policy, please refer to the [FOUR PAWS Policy Guidelines for Fashion Brands and Retailers](#).

As part of our Wear it Kind campaign, we identify the 3 R's needed for brands to secure an animal-friendly fashion future:

- **Refine** the use of animal-derived down by utilising certified supply chains such as the Responsible Down Standard and work with your supply chains to also ensure parent farms are included within scope of their chosen certification.
- **Reduce** the use of animal-derived down by utilising sustainable animal-free alternatives.
- **Replace** the use of animal-derived down with sustainable, animal-free alternatives by investing in the development of 'next-gen materials' or seeking impactful collaborations that will help to achieve this outcome.

But what are next-gen materials and how do they differ from other animal-free alternatives currently on the market? In the report [Brand Engagement with Next-Gen Materials: 2022 Landscape](#), the Material Innovation Initiative (MII) defines "next-gen materials" as livestock-free direct replacements for conventional animal-based leather, silk, wool, down, fur, and exotic skins. Next-gen materials use a variety of biomimicry approaches to replicate the aesthetics and performance of their animal-based counterparts and are high performance, animal-free, and more sustainable.

In the report, MII identifies three reasons for brands to include next-gen materials in their product lines: 1) increased consumer demand for more sustainable and animal-free products, 2) next-gen materials' environmental impact, and 3) concerns about animal cruelty in industries where animals are commodities.

To put it simply, brands are using next-gen materials to increase their revenue by exemplifying their positive effect on the environment and animals.

– FOUR PAWS

The FOUR PAWS Case Study series are designed to shine a spotlight on brands that have overcome particular challenges and to share their learnings with other brands. The inclusion of a brand as a case study subject does not mean FOUR PAWS endorses the overall performance of the brand in relation to animal welfare.