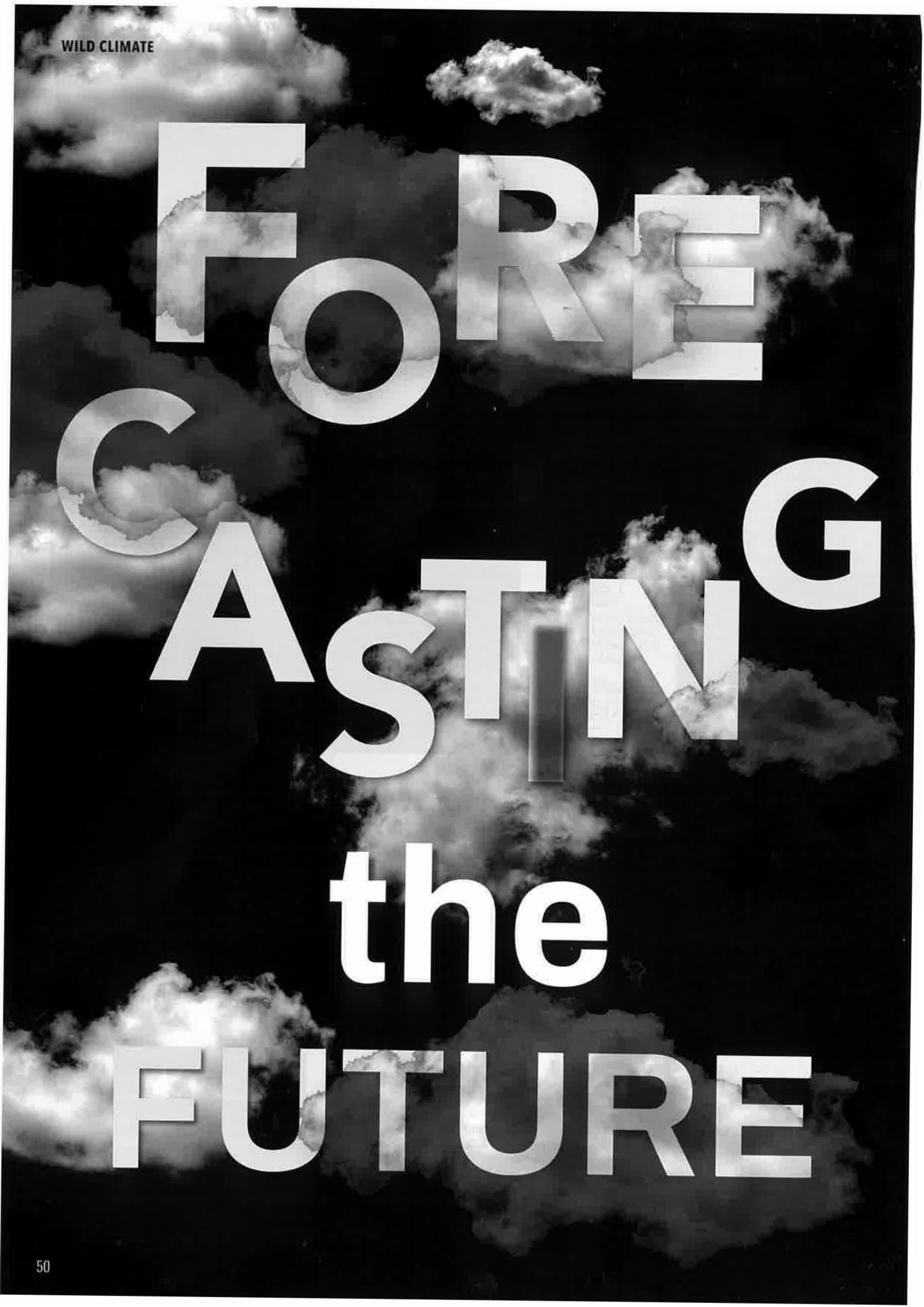

FORE
CASTING
the
FUTURE

***Over the coming decades, large storms will become more frequent and cause costly damage to New Zealand's tracks, huts and forests. These weather events, fuelled by climate change, will change how trampers access the backcountry.***

by KATE EVANS

**When the landslide** struck Howden Hut, rousing Kristin Vella from sleep, she thought the building had been ripped from its foundations and washed away in a torrent of water – the way Dorothy's house was whipped up by a tornado in the Wizard of Oz.

The reality was almost as scary. It was February 2020 and Vella, an Australian living in Auckland, was walking the Routeburn Track with family members. Rain was forecast, but that was normal for New Zealand, she thought – especially for Fiordland. The family had warm and waterproof clothes and plenty of food and spent their first night in Howden Hut, near the southern end of the track.

Next morning the weather had taken a turn for the worse. "It was really, really wet. The kind of rain I've never seen before – insane rain, diabolical rain," Vella says. The hut warden advised the family to stay put, and they happily obliged. "We had whisky, we were playing games … But out of the gloom, out of this apocalypse, people just kept coming." By evening there were 31 people in the 28-bed hut, and the rain was still falling.

At 1.30am a landslide roared down the slope above Howden Hut with a noise like a train. It obliterated the toilet block and smashed into the side of the hut, shunting mud and gravel into the bunkroom and slamming a massive tree through the wall.

Kristin Vella described the storm that caused the landslide at Howden Hut as 'insane rain, diabolical rain'

Miraculously, no-one was seriously injured. If the slip had shifted course by just a few metres, things would have been very different. Vella and her family began packing their gear to leave, then realised it was better to stay where they were.

Morning revealed a river of rubble and a rising Lake Howden – the brown, debris-choked water was lapping just below the hut. At last a helicopter arrived to carry everyone out. "The pilot said he'd been flying in Fiordland for 40 years and he'd never seen that much rain," says Vella.

The summer 2020 storm in Fiordland and Mount Aspiring National Parks was extreme. On February 3 Milford Sound received 566mm of rain – a typical month's worth in a day. A tenth of Fiordland's annual rainfall fell during the three-day event.

Howden Hut was not the only casualty. Around 440km of walking tracks and 32 bridges were damaged by erosion and flooding, especially on the Milford and Routeburn tracks. In the May Budget that year, the government committed $13.7 million to repair the damage.

There were human losses, too. Twenty-four hours after the rain had stopped, two university students attempted to cross the swollen Makarora River on the Gillespie Pass circuit and were swept to their deaths.

MARK SECOMB

Howden Hut was destroyed by a landslide and never rebuilt

## Expect the unexpected

According to the National Institute of Water and Atmospheric Science (NIWA), under current climate settings, 566mm of rain in a day is a one-in-86-year event.

But under NIWA's future projections, by 2040 rainfall of this severity is predicted to occur once every 55 years and, by 2090, to be a one-in-27-year event. In other words, while extreme storms have always been a feature of New Zealand's weather, a hotter planet makes the big ones more frequent, and worse. That has two major implications for outdoor recreation, says the NZ Mountain Safety Council's Bevan Smith.

First, expect the unexpected. Climate change means more extreme and unprecedented weather events, and potentially more danger from the likes of washed out tracks and flooded rivers.

Trampers therefore need to plan extra carefully, says Smith. "You've got to be sensible, and you've got to be prepared for any eventuality – there may be some damage, and maybe problems to solve when you're out there." Take extra food and an emergency shelter, he advises, and make a back-up plan.

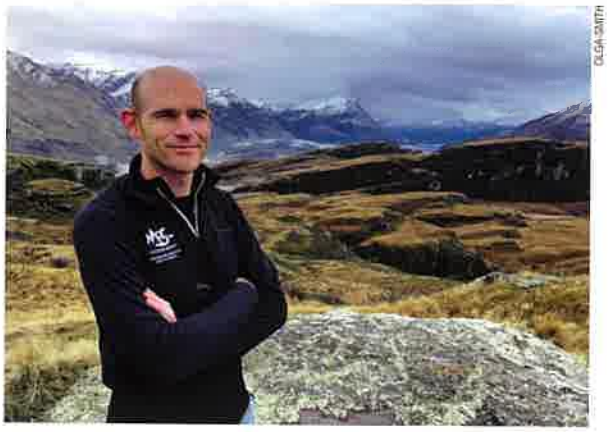
"Then, if it all goes pear-shaped, you're prepared to wait for that river to drop … you can find a good place to set up shelter, make a nice brew, open that emergency chocolate bar – and enjoy it."

The second implication is that more frequent and intense storms may mean reduced access to the backcountry and fewer facilities when we get there. "There may be places where we used to go that will no longer be easy to reach," says Smith. "If we still want to go, we may need to be prepared to do things differently, such as navigating off track, or maintaining that track ourselves. We need a bit of a reset in our thinking about what recreational opportunities will look like in the future."

Most of New Zealand's track and hut network was developed over a century or so, Smith points out, the result of hunters following their noses into the backcountry, and later through development by the NZ Forest Service. It means many trails and buildings are not necessarily located in the safest or most resilient places, especially for the climate of the future.

Damaging storms, floods and slips that occur two or three times as often will have serious financial implications for the "stretched" Department of Conservation. DOC manages a third of the country's land area and 15,000km of track with less than one per cent of the government's budget. The department has said its storm damage repair bill has quadrupled in the past five years, to $5.5 million.

"It always comes back to money, because these are expensive things to build and maintain," says Sam Parsons. Now a climate change specialist at consultancy Boffa Miskell, Parsons was DOC's climate change adaptation programme manager from 2019 to 2022 – part of a pivot in the department to plan more strategically for a warmer future.



OLGA SMITH

In the age of climate change, Mountain Safety Council's Bevan Smith says trampers will need to plan carefully

The 2020 storm provided a chance to put this approach into practice, Parsons says. Rather than using history as a guide, the engineers of the new huts, bridges and tracks referred to NIWA's future climate projections. "We want to ensure that every cent spent on a track surface, a bridge or a hut lasts a full financial life cycle. We need to build for the climate of 2080, not 2020." Failure to do so risks assets being damaged whenever the next big storm comes along, he says.

"It's not good business, and it's not safe for people either. With a conservation agency that's always underfunded, we need to be as clever as possible. If we lose a track once, we can replace it. If we lose it again after year four, it won't be rebuilt. I think we'll begin to whittle down the visitor experiences that we have here." Without sufficient funding, DOC is forced into deferring maintenance, he says, making it more likely we'll lose tracks and huts for good.

> ***"We need a bit of a reset in our thinking about what recreational opportunities will look like in the future.***

Cat Wilson, DOC's director of heritage and visitors, said in a statement that the department has already assessed the vulnerability to sea-level rise of every visitor asset in the coastal inundation zone; teams are now working to understand the risks of drought, wildfires and inland flooding.

DOC decided not to rebuild Howden Hut after it was damaged in the 2020 landslide, partly because it wasn't an essential stop on the Routeburn Track Great Walk. Tracks ruined in the same storm were realigned further from rivers, Parsons says – perhaps not as scenic, but less likely to flood.

That's a trade-off DOC faces elsewhere, too. In Abel Tasman National Park, for instance, decision-makers might choose to resite bridges and huts on higher ground while keeping tracks close to the water's edge – accepting the need for more frequent maintenance and repair but retaining the picturesque essence of the coastal track.

In other national parks there are more options, as long as decision-makers recognise climate change and rebuild damaged assets smarter. "The conservation estate is so expansive that it isn't hard to find a resilient line. It isn't like adapting in a residential setting where you've got your pocket of property, and if you're at risk, you're a bit buggered because you don't own the spot next door."

Parsons thinks there might be a shift from the almost road-like gravel paths of the Great Walks to less-engineered, water-smart tracks that cost less, are more resilient and are arguably closer to nature. "We can work a lot more dynamically and a lot more passively with the environment. If it's done well, you shouldn't notice much difference."

Of course, tramping in New Zealand goes far beyond the Great Walks. In the backcountry, climate change looks set to be one factor that may lead to some tracks being lost altogether.

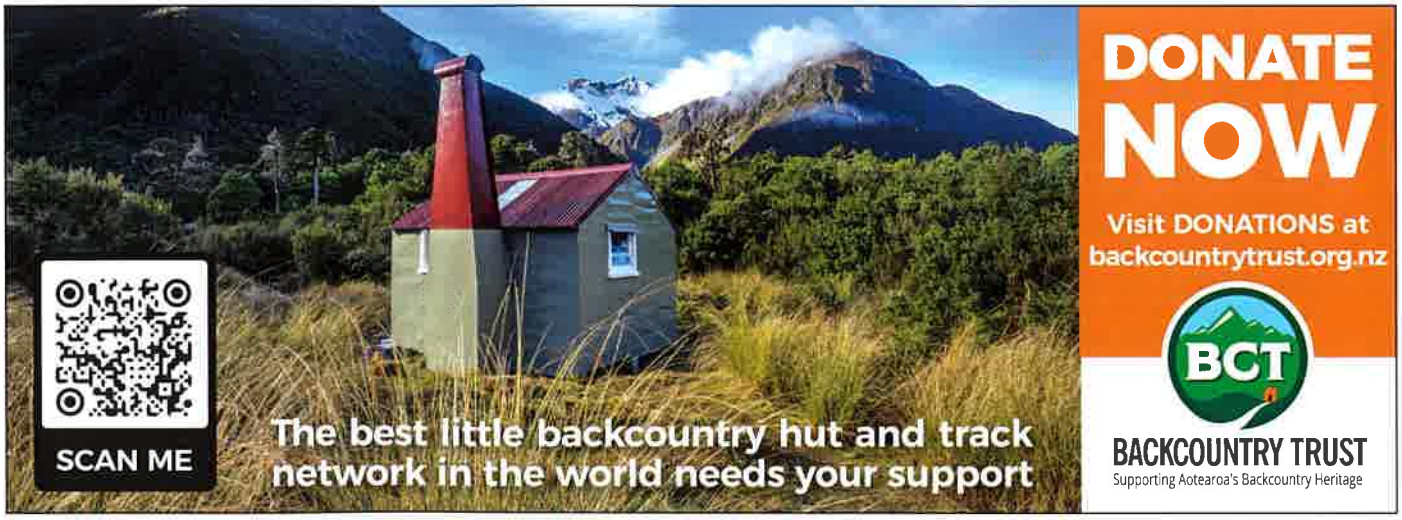
Climate change specialist Sam Parsons says, 'We need to build for the climate of 2080, not 2020.'

## *Double whammy*

Three years after Fiordland's extreme storm, it was the North Island's turn. At the end of January 2023, heavy rainfall caused widespread catastrophic flooding in the upper North Island, especially in Auckland. At the airport, 280mm fell in 24 hours, "an entire summer of rain in a single day," as NIWA meteorologist Ben Noll said at the time. Around 10–20 per cent of the deluge was attributed to climate change due to record high atmospheric and ocean temperatures. According to NIWA, January 2023 was Auckland's wettest month since records began, and the storm was a once-in-200-year event.

Just two weeks later the records toppled again as Cyclone Gabrielle, New Zealand's worst storm in a century, smashed into the north and east of the country with devastating force. The resulting floods, slips, winds and surging seas killed 11 people, demolished homes and left the country with a $14 billion cleanup bill.

The cyclone also destroyed walking tracks from the east coast to Northland. One high-profile casualty was the beloved Cathedral Cove Track on the Coromandel Peninsula, which was closed due to a vast slip. The track was eventually reopened on December 1, 2024, in time for summer and an anticipated 250,000 visitors.



DEPARTMENT OF CONSERVATION

Among other damage, Cyclone Gabrielle's torrential rain caused a vast slip at Cathedral Cove. The track reopened, but many others may not

A helicopter pilot colleague sent a video of the scarred coastline from Muriwai to Piha, and Mackenzie, the director of track engineering consultancy reNature, was overwhelmed by the scale of the destruction. All of the hundreds of track projects he'd worked on for Auckland Council over the previous 15 years had been damaged in some way. "I would say we've lost around 80 per cent of the longer walks in Auckland."

Mackenzie had spent the five years prior to Gabrielle upgrading track infrastructure in the Waitākere and Hunua regional parks to better guard against kauri dieback. The twin storms ruined many of those new tracks. Repairing them all is likely to take at least five years more, Mackenzie says. There are slow procurement processes, contractors with existing work programmes and tight budgets. "We can't just call up Joe who lives down the road and go, hey, can you jump on the tractor and fix this track whatever it costs." Recreational tracks fall well behind roads, sewerage and stormwater repair on the council's post-storm priority lists.

"We could spend all of Auckland Council's budget on one track and it would be perfect, completely resilient – but we'd only have one track open." One track won't cut it: Mackenzie is passionate about Aucklanders having easy access to forests wherever they live.

Not every track is suitable for everyone, but nature is for everyone, he says. Urban bush walks are "gateway tracks", potentially leading to an interest in longer walks, Great Walks, backcountry tracks, and the joys of outdoor recreation in all its forms.

He sees two possible futures: one where councils and governments decide it's too hard to maintain the tracks and the bridges and close them for good, "which would be really, really, really sad." The second scenario – the one he hopes for – is for outdoor recreation to be prioritised, the money spent, and cities and parks to be more thoughtfully designed to guard against storm damage.

Sam Parsons hopes for the same commitment for Aotearoa's wider conservation estate.

"Tracks and huts are extremely important infrastructure for New Zealand," he says. "They provide access to amazing places, ones you can't see anywhere else. We need to be cognisant of climate change and use the best available data to inform decision-making.

"And we need to change the way we build and where we build to ensure that when these extreme events do happen, we can live with the water a bit more comfortably."

DOC's Cat Wilson says some storm-damaged tracks may never reopen

Other, less popular tracks may never reopen. DOC is currently discussing options with iwi, hapū and local communities across the cyclone-affected zone. "At this stage, we cannot say which tracks or how many will be lost," Wilson said.

"We need to consider the sustainability of rebuilding damaged assets and their future resilience to the effects of climate change and natural hazards, and we need to take time to work through options to achieve enduring solutions. There will be tough choices to make about where we continue to repair and maintain."

Mountain Safety Council's Bevan Smith says as storms get worse and budgets tighten it will increasingly fall to recreational track users to maintain some tracks themselves. "Essentially, it's back to the future. This is how many of these tracks evolved over 100 years ago – by volunteers getting in there and forging a path through; that may be the future for the backcountry."

Inevitably, he says, bush will creep back to cover some of the more remote tracks. "Off-track navigation skills and knowing how to bush bash are going to become more crucial for people entering those places."

## *Nature is for everyone*

For many New Zealanders, outdoor recreation happens not in the wildest reaches of the backcountry but on the edge of the city, in the walking tracks and bike paths that wind through regional and urban parks and reserves.

In the early days after Cyclone Gabrielle, when all of Auckland's Waitākere Ranges Regional Park was off limits to the public, track designer Andrew Mackenzie assessed the damage from the back-to-back storms. There were slips everywhere and entire sections of track were completely gone. Bridges were ripped from their foundations, the timber splintered from the bolts.

*This story was funded by NZ Mountain Safety Council and published exclusively by Wilderness.*