



HOW CLIMATE CHANGE THREATENS CYCLING AS WE KNOW IT

A note from POW UK Chair

HERE AT POW UK WE LOVE ALL FORMS OF OUTDOOR SPORT.

CYCLING IS ONE OF THOSE PRECIOUS PASS TIMES WHERE WE LOVE HANGING OUT WITH FRIENDS AND GETTING TO BE IN, AND ENJOY,

NATURE. HOWEVER THE SPORT THAT WE LOVE TO DO, AND COMPETE IN, IS UNDER THREAT.

Instinctively I know it is probably not a great picture, as highlighted by the fact Glentress Masterplan trails weren't able to open this season until after the championships, but what does it actually look like and more importantly what can we collectively do to prevent that picture becoming our new reality?

With that in mind I am delighted that this report from POW UK shines a light on what the impact of climate change could be on the future of UK Cycling. The UCI World Championships 2023 are about to begin in Scotland as this report is released, and it's an exciting opportunity to come together and celebrate the best of this amazing sport. However it is also a moment to reflect on the sport we love and understand the threats it faces.

Not only does this report look at the impact of us being able to enjoy our sport, it also draws out the potential economic impact of climate change on the cycling industry and the impacts of rider safety. If you, like me, are a passionate cyclist, be it road, mountain bike, BMX or just riding your bike, then this is a must read for you to be informed and know how to take action to protect the sport we love.

SIMON DAWES, POW UK CHAIR

Executive Summary

EXECUTIVE SUMMARY

THIS REPORT, WRITTEN BY CLIMATE ACTION CHARITY PROTECT OUR WINTERS UK, EXAMINES THE CURRENT AND PREDICTED IMPACTS OF

CLIMATE CHANGE ON CYCLING, AND SHOWS THE CRITICAL ROLE THE CYCLING COMMUNITY CAN PLAY IN ADDRESSING THESE CHALLENGES.

Cycling communities are witnessing the impacts of climate change first hand, often experiencing them earlier than others. Top athletes and industry professionals are now speaking out - with many providing quotes within this report, further demonstrated in British Downhill World Champion Manon Carpenter's film 'Winds of Change', Danny MacAskill's 'Taking To The Skies For Climate Change', and Shift Cycling's 'Cracked Earth'. We can all be a part of the solution - we need to act now to prevent this deterioration as much as possible.



3

Source: <u>carboncopy.eco</u>

Executive Summary

THE REPORT IDENTIFIES THREE KEY AREAS WHERE CLIMATE CHANGE IS IMPACTING **CYCLING:**

1. Threats to access due to increasingly intense and frequent extreme weather.

To achieve 'Net Zero' as close as possible to 2040 in the UK. To get there, we believe the world must embrace renewable energy, electric transportation, green finance, and a managed decline of fossil fuel extraction.

The economic imperative:

The cycling industry plays an important role in contributing to the British economy. Access to cycling also supports public fitness and health, reducing pressure on the NHS. The following were "minimum estimates" for value at 2018:

- 5.4 billion a year total contribution to the UK economy
- £4.1bn, coming from wider impacts, particularly reductions in loss of life, and reduced pollution and congestion.

2. Threats to riders' health and safety.

This includes risks from heat, increasing pestborne diseases, injuries, air pollution, and from reduced sport participation.For Example: Heat hinders decision making making the sport riskier. It also directly impacts athletic performance and increases health risks such as heart problems. Cyclists have died due to heat already. Air pollution exacerbates extreme heat health risks, between them doubling the risk of a fatal heart attack, and wildfire smoke can spread 1,000 miles - the entire length of Britain.

3. Threats to experience and events.

This includes risks to events including UCI

- £0.7bn from products associated with the cycling industry
- £0.5bn from tourism attributable to cycling
- 64,000 FTE jobs in the UK including jobs in tourism, sales and repair, cycle delivery, manufacturing, and cycle infrastructure.

Less access, more health threats and reduced experience levels all stand to radically damage this £5bn+ a year industry unless we act fast.

Beyond cycling:

Storms, floods, and extreme heat don't just affect the cycling community. Climate change disproportionately affects the lives of those in the Global South. To protect the most vulnerable, as well as the people and places we love, we need collective action.

What we can do:

Educate ourselves and share knowledge: Raise

competitions, participation, local economies, shifted timings for riding, rider crowding, and nature. For Example: As forest fires increase (themselves a threat to access), areas become less enjoyable due to damage to the location, to nature, and from smoke. This can close iconic mountain biking destinations - as seen when Canadian MTB destination 'The Farm' burned down in a wildfire in 2021 - and increased crowding at less affected locations.

awareness of climate change and its impact on cycling. Engage in training & conversations to encourage broader action.

• Vote, with climate in mind: Actively participate in campaigns and support policies that prioritise climate action.

• Send It For Climate: Join Protect Our Winters UK's campaign to push forward climate change solutions at government level. Details can be found at <u>https://protectourwinters.uk/send-it</u>

Contents

CLIMATE IMPACTS ON OUTDOORS CYCLING		
Threats to Access - Extreme Weather, Storms	8	
Threats to Access - Drier, Hotter Summers	11	
Threats to Access - Wildfires	14	
Threats to Access - Wetter Windier Winters	16	
Threats to Access - Flooding & Sea-Level Rise	20	
Threats to Access - Erosion & Landslides	21	
Threats to Health - Temperature	23	
Threats to Health - Air Quality	24	
Threats to Health - Vector-borne Disease Spread	26	
Threats to Health - Participation, Physical & Mental Health Benefits	28	
Threats to Experience - Events, Shifted Timing, Crowding	29	
Other Threats	31	
WHAT'S AT STAKE	32	
Participation - Currently & Growth	34	
Access Supports Communities, Lifestyles, and Economies	35	
THE PATH FORWARD	36	
What Brands Can Do	38	
What Governing Bodies Can Do	39	
What Individuals Can Do	43	
It's All To Play For	44	
CONCLUSION	45	
About POW UK	46	
Methods and Authors	47	

References

48

5





NATURE IS CENTRAL TO OFF ROAD CYCLING AND MOUNTAIN BIKING.

SOME MAY THINK CLIMATE CHANGE MEANS EVERYTHING IS SLIGHTLY 'WARMER' BUT IT'S CHANGING THE FUNDAMENTAL SYSTEMS THAT

SUPPORT LIFE, WITH INCREASING UNPREDICTABILITY AND EXTREMES.

We'll look where possible at what's already changed, what's predicted to change, and impacts on the cycling community in the UK. Whilst climate impacts all types of cycling outdoors and we cover impacts widely where possible, mountain biking has the most detail, as the impacts are at times either more direct or better covered.

Through this, we can see a marked difference between what will happen in a high-emissions future and a future in which we cut our emissions significantly. Protecting these sports is a privilege, but a powerful motivator to those that love them.

The three overriding types of threat to cycling are:

THREATS TO ACCESS	THREATS TO HEALTH	THREATS TO EXPERIENCE
As temperatures continue to rise, extreme weather, hotter summers, wildfires, wetter	Cyclists are affected by rising temperatures, decreased air quality, vector borne disease	Not only will climatic changes shift when and where we may be able to safely partake in cycling

winters, flooding and sea level rise, erosion and landslides all threaten the ability for bikers to access the trails they love. spread as well as potential effects on mental health and well-being from more limited access to these sports. events, a changing landscape threatens our overall enjoyment on two wheels and makes events more difficult to run.

7

Photo Credit : <u>Jim Cossey</u>

Key facts

MORE POWERFUL AND FREQUENT STORMS

100'S OF MILES OF TRAILS CLOSED BY STORM ARWEN

RED BULL HARDLINE CANCELLED IN 2023 DUE TO EXTREME WEATHER

THREATS TO ACCESS EXTREME WEATHER, STORMS

ACCORDING TO THE MET OFFICE, CLIMATE CHANGE WILL RESULT IN MORE STORMS IN

THE UK. More storms, including disproportionately more severe storms, are projected to cross the UK in winter. Convective summer storm activity is also projected to increase, and ex-tropical storms are expected to become more of a risk, and more frequent in autumn.¹

There's also predicted to be an increase in winter wind speeds overall across the UK in the second half of the century.

On November 29th 2021, Storm Arwen hit the UK causing widespread devastation, particularly to forests across Scotland. Trails were severely

"Many forests remain closed to mountain bikers... Some may be lost forever, leaving the raconteurs to wax lyrical of days gone by. All, however, is not lost."³ - DMBinS

Forest Research shows over 12,000 hectares across Great Britain were affected by these storms.⁴

In Scotland alone, Storm Arwen single-handedly caused:

- Damage to around 8,000 hectares of Scottish forests (larger than Dundee)
- About 1 million m³ of fallen trees (roughly 1/3 of what we would fell in a given year nationally,

affected, with windblown trees strewn across several key destinations. According to DMBinS:

"There was a severe risk to mountain bikers as many trees were left either 'hanging' or unstable, leading to a risk of further trees falling on people."²

Operations to alleviate the impact of the storms continue 18 months on.

and about 400 Olympic-sized swimming pools full of timber)

 Hundreds of miles of trails closed for inspection and repair⁵

8

Threats to Access - Extreme Weather, Storms

THE EFFECTS WERE PARTICULARLY **PRONOUNCED IN ABERDEENSHIRE:**

"Of the 23 listed riding spots in Aberdeenshire I estimate 13 of them were affected in terms of access or trail loss by the storms - some of these almost all of the trails were closed due to damage. There were around 500km natural trails and perhaps three quarters of that was closed following. Some were cleared by the EnviroCentre/Aberdeenshire Trail Association storm recovery project, some opened by volunteers, but some including within Pitfichie, Corrennie and Scolty are still closed or lost."



- Doug Blease (MTBer and ecologist, EnviroCentre)

Storm Arwen also had a heavy impact in Northumberland, leading to a 7 day water and power outage and the Naughty Northumbrian to be cancelled.⁶

It proved to be a direct health risk with some people needing to be rescued.⁷ Some trails in the area are still closed today,⁸ including several trails in Grizedale Forest.⁹

In the above instance we are thankful to great work from many volunteer groups such as Aberdeenshire Trail Association, and Forestry Land Scotland & Forestry England, DMBinS, EnviroCentre, and others in supporting the rebuilding. We hope that adaptation, such as less monocrop trees, will allow less damage as storms become more intense and frequent.



Photo Credit : Samantha Saskia Dugon



"IVE BECOME INCREASINGLY AWARE OF THE IMPACT EXTREME WEATHER IS HAVING ON THE ENVIRONMENTS WE DEPEND ON FOR MOUNTAIN

BIKING Drought, high temperatures and forest fires are affecting trails or riders directly. These are events happening now, let alone into the future where we can expect increasing severity and unpredictability of these events."

MANON CARPENTER, 2014 DOWNHILL WORLD CHAMPION

Photo Credit : Samantha Saskia Dugon

Key facts

COULD BE 4 - 7°C HOTTER - AVERAGE HOTTEST SUMMER DAY

30% REDUCTION IN TRAIL LIFESPAN WHEN TOO HOT/DRY

THREATS TO ACCESS DRIER, HOTTER SUMMERS

SCOTLAND'S ANNUAL AVERAGE TEMPERATURE IS NOW AROUND 0.5°C WARMER THAN IT WAS AROUND 30 YEARS AGO (AN AVERAGE OF THE 1981 - 2000 PERIOD) AND SCOTLAND'S 10 WARMEST YEARS ON RECORD HAVE ALL

Compared to the climate in 1990, the Met Office predicts for the UK:

- Summers between 1 and 6°C warmer
- Summers up to 60% drier, depending on the region
- The average hottest summer day is between 4 and 7°C hotter
- The chance of exceeding 30°C for two days or more is sixteen times more likely in the south
- The chance of exceeding 40°C is similar to the chance of exceeding 32°C in 1990

Scotland will experience hotter, drier summers, with greater extremes. By 2050 under a low emissions scenario, average summers are projected to be around 1.2 degrees hotter expected to be 7% drier, but for rain to fall in



heavier, more extreme downpours. By 2080, under a high emissions scenario average summers are projected to be around 3 degrees warmer and 18% drier.¹¹



Source: Adaptation Scotland

Above: Maximum and average (mean) annual temperatures for all of Scotland have increased by more than 0.7 degrees C compared to 1961-1990 average on a 31 year trend line, with many recent years more than a degree hotter. Maximum and mean temperatures for East Scotland in August, have shown very similar trend increases. **Threats to Access - Drier, Hotter Summers**

WE'VE ALREADY SEEN SIGNIFICANT **INFRASTRUCTURE DISRUPTION** WITH ROADS, AND EVEN RUNWAYS, MELTING IN THE UK AND TRAIN TRACKS WARPING, **PREVENTING RAIL TRAVEL.**

Direct deaths are also likely to increase, as The fact that rain will fall more intensely when it experienced last summer when "record-breaking" does rain in summer makes it more likely to be a temperatures brought unprecedented numbers of problem for events - this is already seen as with heat-related deaths."¹² HARDLINE 2023 HAVING TO BE CANCELLED

The 2023 CCC report notes it was "the sixth driest on record... The lack of rainfall with the summer heat meant soils were very dry, stressing ecosystems and agriculture."¹³

Prolonged drought deteriorates the quality of trails, especially with sand-rich soils, resulting in more trail closures to prevent irreversible damage.

Trail building and maintenance is becoming increasingly difficult as long dry summers have meant trails have degraded faster than normal. A lack of water available is also already causing usage restrictions such as hosepipe bans, which could impact availability for trail building, making it harder for trail crews to make repairs. In extreme cases, newly built trails haven't been able to open as it's been too dry.

Due to the lack of rainfall this year, Glentress have

UNDER "EXTREME WEATHER CONDITIONS".¹⁵

Adaptation to this hotter weather can itself threaten trails, as Chris Maoney, Chair of Peak District MTB explained:

"In the Peak District National Park, plans are currently underway to expand one of reservoirs in the area to guard against dryer summers and a growing population. This is likely to destroy some of our best trails and compromise our already limited access. In coalition with other user groups, Peak District MTB represented the mountain biking community in opposition. The collective voice was successful in lobbying to oppose these plans"

(Chris Maloney, Chair of Peak District MTB)

delayed opening of their Masterplan trails until after the August 2023 UCI World Championships to ensure the proper degree of compaction. They reported the lifespan of trails is being reduced by as much as 30%.¹⁴

Rainfall is then short lived and intense, causing more harm.



"HERE IN NORTH WALES, THE EFFECTS OF CLIMATE CHANGE ARE ALL TOO CLEAR.

We are getting heavier bursts of rain, coupled with never-before-seen long, hot, dry spells too.

Put this within a context of more felling and thinning of the forests and the erosion and loss of top soil this has a considerable impact on the trails we ride. The official NRW trails are becoming rockier, looser and more difficult to maintain and some have changed in character and level of difficulty entirely e.g. Dwsin Drwg (Gwydir Mawr).

For us in TCNW, we are seeing more damage to the hand-crafted trails and the wear and tear rate seems to be increasing. For these trails to be sustainable through the extremes of weather, work on better drainage is needed and measures to counter increased rider use in both wet and super-dry and dusty conditions. This all puts significant pressure on our small group of dedicated volunteers."

KATH GOODEY, TRAIL COLLECTIVE NORTH WALES

Key facts

HUGE INCREASE IN THE UK OF 'VERY HIGH RISK' DAYS PREDICTED IF WE CONTINUE WITH HIGH EMISSIONS

ALREADY A BIG PROBLEM INTERNATIONALLY E.G. IN CANADA

MTB SITE 'THE FARM' HAS BURNED DOWN IN B.C.

THREATS TO ACCESS WILDFIRES

HOTTER SUMMERS DRY OUT VEGETATION, INCREASING THE RISK OF WILDFIRES. RECORD-BREAKING TEMPERATURES EXPERIENCED ACROSS THE UK IN SUMMER 2022 BROUGHT "UNPRECEDENTED NUMBERS OF ... WILDFIRE INCIDENTS".¹⁶

By mid-June 2023 Scotland had already declared its 4th week at 'extreme' risk of wildfires.¹⁷

In Scotland, wildfires burn for a long time due to peaty ground. These peaty wildfires can be particularly bad in terms of greenhouse gas emissions caused. A 2019 wildfire released 700,000 tonnes of CO₂, doubling Scotland's emissions whilst they burned, according to WWF Scotland. These events create a vicious circle of global warming making further fires more likely.¹⁸ Wildfire risk is increasing in the UK. These graphs show the very high risk days per year rising fast on the Met Office's Fire Severity Index especially in a high emissions scenario (red lines), compared to significantly reduced increases with low emissions (green lines).¹⁹



Source: Reference 19

Threats to Access - Wildfires

THERE ARE HUGE WILDFIRE THREATS ACROSS EUROPE AND THE WORLD IN 2023.

IN PARTICULAR THERE HAS BEEN A SIGNIFICANT RISE IN THE NUMBER OF LARGE FIRES AND AREAS BURNED ACROSS CANADA,²⁰ with the fire season now starting approximately one week earlier and ending one week later. In 2023, the effects of these changes became even more prominent when a state of emergency was declared in Alberta, Canada. By mid May more than 350 wildfires had broken out burning 350,000 hectares (twice the size of London, one fifth of Wales).²¹

THE FIRES IN CANADA ARE WELL COVERED IN TERMS OF DIRECT IMPACT ON MOUNTAIN BIKERS.

Months of suffocating smoke are changing riding patterns across the country, and concentrating the

Not only do wildfires cause direct damage to trails, they can hamper future access and threaten the safety of riders, and increase climate change¹⁸. Wildfires pose further threats through air pollution - discussed in the Air Quality section.

traffic of the world's most visited riding destination in increasingly stressed locations.²²

Wildfires destroyed 'The Farm', an iconic property in Kamloops, B.C, which features in numerous mountain bike films with many of the best riders from around the world using its massive, immaculately constructed jump lines.

Key facts

10% WETTER UK WINTERS IN THE 2030s

HEAVY RAINFALL AND STRONGER WINDS PREDICTED TO DAMAGE TRAILS AND CANCEL EVENTS

THREATS TO ACCESS WETTER WINDIER WINTERS

THERE HAS BEEN INCREASED RAINFALL OVER SCOTLAND IN THE PAST FEW DECADES.



The annual average rainfall 2010-19 was 9% wetter than the 1961-90 average.²³ The most recent winters have been 4.5% wetter than the 1981-00 average, with an increasing proportion of precipitation coming from heavy rainfall events..²⁴

The Met Office says winters will be up to 30% wetter in 2070 compared to 1990 and intensity of rain increases by up to 25%. By that year, the intensity of summer rain could also increase by up to 20% and days when rainfall exceeds 30mm per hour could happen twice as often.²⁵



Source: Adaptation Scotland

The Met Office can predict changes in very specific locations. For the 25km square around Innerleithen, as an example (given the UCI World Championship event nearby), high future greenhouse gas emissions show noticeably different conditions by 2030 compared to the lower emission pathways. Autumn rainfall rates could be just 1% higher by the 2030s with low emissions, but 4% higher already with high emissions. These effects become more pronounced as time goes on.

Winters are projected to be around 10% wetter by the 2030s; by the 2090s this is projected to be higher, but still close to 10% wetter in a low emissions scenario.²⁶

1961-1990 average	1991-2020 average	2012-2021 average	2021
1084	1163	1191	1104
820	870	908	876
1379	1465	1516	1490
1444	1573	1579	1390
	1961-1990 average 1084 820 1379 1444	1961-1990 1991-2020 average average 1084 1163 820 870 1379 1465 1444 1573	1961-1990 1991-2020 2012-2021 average average average 1084 1163 1191 820 870 908 1379 1465 1516 1444 1573 1579

Source: State of the UK Climate 2021, Royal Meteorological Society According to the Met Office, "Winter wind speeds are projected to increase in the second half of the 21st century, accompanied by an increase in the frequency of winter storms." There is however set to still be a lot of year to year variability. ²⁷

In other locations such as the Maritime Alps, "the main hydrological changes projected... consist of an increase of most intense wet spell precipitation" during autumn and winter.²⁸



"We'VE BUILT A BERM AND IT'S RIDING LOVELY, AND THEN IT'S LIKE 'OH S**T WE NEED A DRAIN!' SO, THEN YOU LOOK AT IT AND IT'S LIKE 'RIGHT DO WE SPEND A DAY RIPPING THAT BERM OUT' AND IT NEVER SETTLES? FOR THIS REASON I NEVER STOP THINKING ABOUT THE WATER. IT GIVES ME NIGHTMARES!"

TRAIL BUILDER

Threats to Access - Wetter Windier Winters

WETTER WINTERS ARE INCREASING THE NUMBER OF LANDSLIDES DEVASTATING SOME CYCLING ROUTES²⁹ AND FLOODS, FURTHER COVERED IN THE NEXT SECTIONS.

It's likely that the difficulties of maintaining rideable, purpose-built, trails is going to increase as storms become more frequent and the amount of rain increases.

"Unpredictable seasons make planning for trail days difficult. More frequent storms brings down trees and leave trails exposed to the elements and the intensity of these storms have greater capacity to erode. High winds also make it less safe for volunteers to work on trails which leads to the cancellation of trail maintenance days" (Henry Norman, Ride Sheffield)

Research shows that that while water can help to create technical features on the trails, it's also a potential hazard, eroding surfaces, washing away trail features, and increasing the amount of time they need to dedicate to trail upkeep and maintenance.³⁰

More broadly across the UK, "action to adapt to critical impacts such as wetter winters and rising sea levels has stalled, posing risks to people, infrastructure and business".³¹ In England alone, an estimated three million properties are at risk from surface water flooding³² which could include venues, homes of employees and the community.

"The biggest thing we have learnt is how to manage water, which is impossible, but you have to try.

You start at the top (of the trail) and you'll put a drain in, you go a bit further down and there's a puddle, so you put a drain in. So, what we tend to do is move the water about until we get it so that we're not riding through it."



"IN THE LAST FEW YEARS HIGH PROFILE EVENTS HAVE CANCELLED DUE TO HEAVY FLOODING WASHING AWAY TRAILS AND DESTROYING INFRASTRUCTURE, AS WELL AS FOLLOWING STORM ARWEN WHERE RACE TRACKS WERE BURIED BY STORM DAMAGE"

MANON CARPENTER, 2014 DOWNHILL WORLD CHAMPION

Photo Credit : <u>Samantha Saskia Dugon</u>

THREATS TO ACCESS FLOODING & SEA-LEVEL RISE

THE LAST FEW YEARS HAVE SEEN NUMEROUS WIDESPREAD AND SIGNIFICANT FLOOD

In summer, even though overall rainfall is predicted to fall it'll be in heavier rainfall events.³⁵ Alongside hotter temperatures this is likely to cause more flash floods.

EVENTS IN SCOTLAND:

- High river flow runoff has increased >20%, or 45% winter river runoff, in the last 4 decade
- Analysis in Scotland shows even the modest increase in sea level so far has resulted in more frequent flooding

Increasing extreme rain events on parched land will lead to greater risk of runoff and flash flooding. Studies have shown that during extreme rainfall events in the UK the intensity of downpours could increase by 5-15% per °C of regional warming.³³

In future, extreme rainfall events (that can produce serious damage through flash floods) could be many times more frequent in 2080 compared to the 1980s:



In winter, we're at risk of more "extensive and significant river and surface water flooding" due to the increased and more intense rainfall according to Adaptation Scotland.³⁶

In high emissions scenarios, peak river flows in some river catchments could increase by over 50% by the 2080s.³⁷

Seaside flooding is increasing due to sea level rise. Areas such as Happisburgh in Norfolk are being abandoned due to flood defences being unviable.

These are felt first-hand by cyclists, with cycling events Ard Rock Enduro and the Malverns Classic cancelled due to flash flooding 2019.³⁸

The risk of coastal flooding (or erosion increased due to flooding) is also affecting mountain bike trails and cycle paths including Dalbeattie, Highland Wildcat Trails, Golspie, and the Fife and Moray Coastal Paths.

MORE FREQUENT IN NORTHWEST SCOTLAND

BX IN EAST SCOTLAND

6X IN WEST SCOTLAND³⁴

20

THREATS TO ACCESS EROSION & LANDSLIDES

LANDSLIDES AND MUDSLIDES ARE INCREASED BY HEAVY RAINFALL. THE FREQUENCY OF



DEBRIS FLOWS ARE ALSO EXPECTED TO GROW AS WILDFIRES INCREASE.³⁹

Landslides can reduce trail accessibility by damaging cycling routes directly, as well as damaging the roads and paths used to get to these locations, or trapping users from getting out.

Erosion can loosen trail surfaces, lead to soil displacement, and the creation of secondary, usercreated trails. This could potentially reduce accessibility for mountain bikers as areas close for safety reasons or to reduce the erosion rate.

According to the Transport Scotland, **"the country's high mountains and steep valleys are prone to landslides under sustained, heavy rainfall. Landslides can have adverse affects on Scotland's trunk roads".**⁴⁰

Examples in Scotland include the A83 at Rest and Be Thankful which was closed twice in 6 weeks in Landslides infamously brought stage 19 of the 2019 Tour De France to a stop, and stage 20 was cut short, following torrential rain and hail on previously dry ground.⁴²

The second stage of Challenge Mallorca⁴³ also had to be rerouted due to landslides in the same year.

Mountain biking can however help areas recover from these sorts of impacts. Following an unusually wet winter, a devastating mudslide took place just outside of Darrington, WA, USA in March 2014. A section of an unstable hill collapsed, releasing approximately 18 million tonnes of debris covering an area of about 1 square mile (2.6 km^2), engulfing a rural neighbourhood, and causing 43 deaths. To address the damage of the landslide, the community formed a non-profit providing opportunities for youth and young adults to reconnect with the natural landscape. It's had a significant role in rebuilding mountain bike trails through the site of the mudslide. These trails have had a profound impact on the economic revival and fostering a sense of healing within the community.44

2020 causing a 59 mile diversion. After an initial 10,000 tonne landslide closing the area for 5 weeks, 75mm of rain fell in 24 hours causing it to shut again.⁴¹ More recently, several landslides closed the BB63 in early 2023.



21



"LAST SUMMER THERE WAS A MASSIVE ROCKSLIDE IN OUR AREA. A friend of ours was almost hit by a massive boulder. We know things like that can happen in the Alps, of course, but you don't expect it right in your area and with your friend involved. It occurs more often, I would say, with the permafrost going away. It was quite shocking.

The weather in the Alps is changing over the

years. It's becoming more extreme. It's getting hotter and drier in summer. And on the other hand in winter it would maybe snow one day, quite a lot of snow, and then rain the day after. It's quite unpredictable. It changes a lot."

ANITA GEHRIG, PRO ENDURO RACER

Key facts

CYCLISTS HAVE DIED CYCLING IN HOT CONDITIONS

THREATS TO HEALTH

TEMPERATURE

WE HAVE SEEN THAT TEMPERATURES ARE RISING IN THE SECTION 'DRIER HOTTER SUMMERS'.

We get hotter when we exercise due to waste heat energy from metabolism. We need to keep our temperature from getting too high or we get heat illness and even cardiac events.

The body has mechanisms to keep cool such as sweating, but this can be made less effective by the environmental conditions - hot environments, particularly when also humid, limit evaporative potential, placing greater challenges on the body. Necessary protective equipment such as helmets reduce cooling further.

"As we experience climate change and subsequent extreme weather events, such as unseasonably hot weather, there will be an increased frequency of thermal environments that will not permit effective heat loss. In the future, mountain bikers will have to make some decisions regarding their exercise capability." - Dr Alan Ruddock, Sheffield Hallam University. This could mean riding less far, flatter routes, or not being able to ride at certain times. It also makes dehydration a bigger problem. The 2022 Tour de France saw riders cycling in 40 degree heat leading to questions of whether the event is tenable to continue in July, **with rider Alexis Vuillermoz taken to hospital to treat heat related illness after collapsing at the end of stage 9.**⁴⁶

Various functions of the body are impeded by hot temperatures, which includes rapid decision making.⁴⁷ Heart attack risks are doubled with extreme heat and air pollution⁴⁸ and there is increased disparity, nausea, and heat stroke.⁴⁹

Studies show heat can also lead to more aggressive behaviour.⁵⁰ This could mean more injuries from accidents. If so, there would likely be more head injuries too - a big topic in sport including within cycling, with many riders having to take time off recently due to these. Sports bodies are not sharing sufficient data about injuries with temperature, which researchers are interested to review.⁵¹

People have died whilst cycling in hot conditions, including French cyclists in 2019.⁴⁵

THREATS TO HEALTH AIR QUALITY

CLIMATE CHANGE IS DRIVING AN INCREASE IN THE WEATHER CONDITIONS THAT CAN STOKE WILDFIRES⁵² AS DISCUSSED EARLIER IN

Key facts

339,000 DEATHS PER YEAR GLOBALLY FROM AIR POLLUTION FROM WILDFIRES

28,000-36,000 DEATHS IN THE UK EACH YEAR FROM MAN MADE AIR POLLUTION

WILDFIRE SMOKE CAN TRAVEL 1000 MILES

THIS REPORT.

Wildfire smoke threatens human health, mainly from respiratory issues. This could threaten to overwhelm the health services in bad cases - during fires in NSW, Australia local hospital admissions due to breathing problems spiked by 34%. It also has long term consequences, being carcinogenic. The harm of smoke can spread as far as 1,000 miles away - the entire length of the UK.⁵³

It's estimated there are 339,000 deaths per year globally from air pollution from wildfires.⁵³ and 28,000-36,000 deaths in the UK each year from man made air pollution.⁵⁴

In 2023, the UK has already seen hundreds of grass fires including one of the largest the UK has ever seen, burning near Cannich in Scotland over June.⁵⁵

Clare Nattress - mountain biker and performance artist - provides first-hand accounts of how air pollution can affect our experience of cycling in off-road environments.⁵⁶ During a twelve-month mountain biking trip around the world, Clare recorded pollution levels with scientific monitors as well as personal impacts. The trip raised significant questions about local air conditions in different countries and the global problem of climate change.

Some urban areas were particularly bad, with dust that blanketed the

bicycle's components and the body, stained clothing, layered on hair, seeped into the skin and ears, irritated the eyes and nostrils, and thickened on the surgical mask. Particulate matter was also found in environments we'd deem wild or remote. Despite cycling through urban areas such as Lancaster and York, the highest level of PM10 recorded on Nattress's trip was in a location surrounded by fields in the Yorkshire Dales. This may threaten wildlife, and also impact the staging of future events and competitions. **Threats to Health - Air Quality**

CYCLISTS EXPOSED TO POOR AIR QUALITY MAY EXPERIENCE RESPIRATORY ISSUES.

Breathing in polluted air can lead to irritation of the airways, coughing, wheezing, and shortness of breath. Long-term exposure to air pollution can increase the risk of developing respiratory diseases such as asthma, bronchitis, and other chronic respiratory conditions. Climate change could also lead to longer pollen seasons affecting hay fever sufferers.⁵⁷



In future UCI events, poor air quality may negatively affect cyclists' performances, as polluted air decreases the amount of oxygen available to the body.

As well as respiratory issues, poor air quality can also reduce visibility due to smog or haze, leading to accidents as athletes are less able to spot dangerous obstacles and features. It may also impact the spectator experience, making it difficult to see riders travelling at high speeds, and impacting the picturesque views associated with natural locations such as Fort William.

Fossil fuel pollution from transport and power plants is an even bigger health risk globally, with more than 8 million people dying from related causes in 2018.⁵⁸

Key facts

INCREASE IN TICKS AND MOSQUITOS CARRYING DISEASES

THREATS TO HEALTH VECTOR-BORNE DISEASE SPREAD



CLIMATE CHANGE WILL INCREASE THE RISK FROM SOME PESTS AND INFECTIOUS DISEASES.

Ticks and mosquitoes specifically are likely to increase in the UK as conditions get more suitable for them.⁵⁹ Ticks carry lyme disease, as well as encephalitis - vaccination for which may become more necessary as we have seen in Austria.⁶⁰

TICK BITES AND LYME DISEASE ARE ALREADY AFFECTING MOUNTAIN BIKERS IN THE UK.

More info singletrackworld.com

mbr.co.uk

Mosquitoes thrive in warm environments so a rise in the temperature could make mosquitos more common in the UK. This could see an increase in three diseases – malaria, dengue fever and chikungunya (a viral infection with symptoms similar to malaria) – in the UK by as early as 2030.⁶¹



"THE BIKE HAS TAKEN ME ACROSS OVER 100 COUNTRIES, AROUND THE WORLD TWICE AS WELL AS THE LENGTH OF THE AMERICAS AND AFRICA.

This freedom to explore landscapes and cultures has fundamentally shaped the way I see the planet. I have seen first-hand over the last 20 years the effects of our changing climate, from desertification, rising sea levels, human migration

and more. Witnessing such global issues first hand informs what I spend my time doing now, to ensure our planet remains a green and pleasant land to explore by bicycle for generations to come."

MARK BEAUMONT, BRITISH LONG-DISTANCE CYCLIST, BROADCASTER AND AUTHOR

Key facts

95% OF THE RIDERS WOULD FIND IT DEPRESSING IF THEY COULD NO LONGER RIDE

THREATS TO HEALTH PARTICIPATION, PHYSICAL & MENTAL HEALTH BENEFITS

AS RIDERS, WE KNOW HOW IMPORTANT ACCESS TO NATURE AND EXERCISE ARE.

The World Health Organization⁶² estimates that globally, one in four people will be affected by a mental health disorder at some point in their lives. The COVID-19 pandemic significantly exacerbated existing mental health conditions, as well as creating new ones, and led to increased stress, fear, social isolation, economic uncertainty, and disrupted access to mental health services - further contributing to the overall burden of mental health issues.

Mountain biking has been linked with numerous positive mental health and well-being outcomes, including improved mood, decreased stress and anxiety, increased self-esteem, and a sense of community. In a recent study, approximately one in three participants said they used mountain biking as a coping strategy for common mental health problems, using it to de-stress and deal with negative thoughts and everyday worries.⁶³

Nearly 95% of the total participants stated they would find it depressing if they could no longer ride due to illness or injury. Threats to access highlighted in the report may limit the accessibility of mountain biking, reducing physical and mental health. This is especially problematic when mountain biking already has an 'accessibility problem' preventing minority groups such as women, people of colour, and the disabled from participating in mountain biking as frequently as they would like.⁶⁴

Given climate change will impact our access to mountain biking, we must protect this access among people from excluded groups and continue to support the most vulnerable to thrive in increasingly unpredictable environments.

Key facts

MORE CROWDING AT LESS AFFECTED VENUES WHEN OTHERS ARE DAMAGED

EVENTS CAN BE MORE DIFFICULT TO MANAGE

THREATS TO EXPERIENCE EVENTS, SHIFTED TIMING, CROWDING



DUE TO INCREASED HEAT, RIDERS MIGHT NOT BE ABLE TO RIDE AS FAR, OR MAY HAVE TO AVOID HOTTER DAYS AND TIMES, ACCORDING TO DR ALAN RUDDOCK, EXERCISE SCIENCES & SENIOR LECTURER OF THE PHYSIOLOGY OF SPORT AND EXERCISE, SHU.

It's going to put a strain on ensuring relative fairness for competing riders throughout an event or a day as weather and summer temperatures become more extreme where high heats have a measurable negative impact on athletic performance.⁶⁵

Traditional calendars and timings for events may need to be shifted or rethought to better accommodate events in a climate changed world.⁶⁶ Major League Soccer in the United States already has policies in place for the use of wet bulb globe temperature to delay start times of matches in extreme heat conditions.⁶⁷ Shifted timing and experience is likely to have a big impact on locations such as mountain resorts. As accessibility to ride in areas damaged by wildfires, droughts, and wetter winters becomes limited, other locations are likely to become overburdened. A Recent study from Australia showed a rapid increase in the number of routes posted to Trailforks during the COVID-19 pandemic. Protected areas close to urban areas had 22 times more use than more remote protected areas.⁶⁹

This suggests when time and space are limited, riders gravitate towards the most accessible and convenient locations. During extreme events associated with the changing climate, this could put extra pressure on green infrastructure whilst further disrupting natural habitats and environments.

Major cycling events such as the Tour de France may no longer be able to be held in July, and "need larger structural changes... if climate change continues apace" as could the Paris 2024 Olympic Games.⁶⁸ Conflict is already arising between commercial operators & demand - including different tour operators & guides with clients, and arguments about space for parking & trailers. This has been seen recently in both Tweed Valley & Feshie.



"AT HOME AND AROUND THE UK IT'S AWFUL TO SEE THE FORESTS WE ARE LOSING. The storms last winter flattened woodlands and increasing temperatures

The storms last winter flattened woodlands and increasing temperatures are allowing tree diseases to spread through others. As a mountain biker the thought of these places not being there to enjoy is scary."

ELLA CONOLLY, PRO ENDURO RACER

30

OTHER THREATS

THE APPEARANCE OR AESTHETICS OF THE PLACES WE RIDE ARE UNDER THREAT TOO. CYCLISTS VALUE DIFFERENT THINGS -

DAMAGE TO: AESTHETICS WILDLIFE WOODLAND

31

COUNTRYSIDE RIDES, ROAD CYCLING, DOWNHILL - BUT FEW WANT TO SEE A DAMAGED LANDSCAPE.

Biodiversity loss, caused by CO₂ emissions and nitrogen deposition, is having a direct impact on the experiences of those riders who seek escape in nature:

"While being out on a mountain bike, you witness that some areas landscapes have changed a lot. Grasses, brambles and nettles grow rapidly on nitrogen-rich soils and crowd out other vegetation. In other areas, the number of birds that you normally witness during rides has decreased because their natural habitat has been altered".

(Mark Torsius, General Manager, International Mountain Bicycling Association Europe)

Local wildlife suffers, as seen during wildfires in Farnham, Surrey "where once there was rich heathland, home to rare species, including sand lizards, there is now desolation".⁷⁰

There can be support for wildlife that goes under the radar as part of trail building, visible through the work Trash Free Trails are doing on single-use pollution.

Trees can be more vulnerable to infection when suffering drought stress, so disease may become more prevalent with hotter drier summers.⁷¹

This can have a negative impact on trails, demonstrated with the closure of Revolution Bike Park during felling of diseased larch trees and while re-planting and re-establishing of the forest takes place.⁷²

This all shows the vulnerability of sports facilities which rely on a healthy and intact natural environment to climate change.



What's August 2015





"I KNOW I'M NOT ALONE IN NOTICING THE CHANGE; UNPREDICTABLE AND EXTREME WEATHER CYCLES WITH STORMS LIKE 'WE'VE NEVER SEEN BEFORE' HAVE AFFECTED

OUR NETWORK OF TRAILS. Climate change is real, it's overwhelming and if we take where we ride for granted then it might be different for the next generation of shredders."

SCOTTY LAUGHLAND, MOUNTAIN BIKE ATHLETE

Photo Credit : <u>Johny Cook</u> - from '<u>Showcase Series</u>'

What's At Stake - Participation - Currently & Growth



SO HOW MANY PEOPLE DOES THIS AFFECT?

WHAT WOULD BE THE OTHER IMPLICATIONS AND DAMAGES TO OUR COMMUNITIES AND ECONOMIES?

In the UK the cycling industry is valued at over £5.4bn supporting 64,000 jobs.⁷⁵

In Scotland 8% of people report cycling in the previous week for leisure. In England 10% of all people cycle for leisure each month giving an estimated combined 5 million people who cycle for leisure. In England of all cycle rides 46% are for leisure.⁷⁴

34

What's At Stake

ACCESS SUPPORTS COMMUNITIES, LIFESTYLES, AND ECONOMIES

CYCLING CREATES MASSIVE BENEFITS TO BOTH CYCLISTS THEMSELVES, AND TO THE WIDER COMMUNITY, BOTH CULTURAL, AND ECONOMIC

THROUGH INDUSTRY AND TOURISM.

The global market for bicycles was estimated at about USD \$54 billion, and expected to reach USD \$78 billion by 2026.⁷⁵

In 2018 it was estimated the total economic contribution of cycling just to Scotland in 2015 was £596-774 million, with an estimated Gross Value Added of £321-367 mn, with the majority from cycle tourism activities and retail sales of bikes.⁷⁶

An estimate of the cycling sector value to the British economy in 2018 said "minimum estimates" were:

- Cycling contributes around £5.4 billion a year to the UK economy
- The larger share of this, £4.1b, coming from wider impacts, particularly reductions in loss of life, and reduced pollution and congestion.
- Products associated with the cycling industry contribute £0.7b
- Tourism attributable to cycling contributes, at least, a further £0.5b.
- Cycling generates around 64,000 FTE jobs in the UK including jobs in tourism, sales and repair, cycle delivery, manufacturing, and cycle infrastructure."

In the UK: 3mn bikes sold, worth £2.3bn, with 40% being mountain bikes by

value, according to a report for 2020 by DMBinS. Mountain bikes represented 26% of total mechanical bike sales by volume in 2022, according to the Bicycle Association.

We can't ignore the potential economic impacts on the cycling industry from climate change. The closing of Glentress Masterplan trails, for example, doesn't just impact riders keen to ride the trails, it has adversely affected the local economy, small businesses and service providers.⁷⁸





TSSHOWNTHAT REACHING NET ZERO

(where greenhouse emissions are balanced in and out of the atmosphere) is necessary to stop

climate change from getting any worse, avoiding the worst of the impacts. At least as long as we make it before any significant feedback loops start happening.⁷⁹

Yet Scotland and the UK are both repeatedly missing their climate targets - and they aren't the only ones!

Mountain biking can help...

Mountain bikers develop a connection to nature trail builders even develop a physical attachment to the dirt they work with (Cherrington (2021b)) alerting them to the complexities of environmental change and increasing an appreciation and willingness to protect it.80

Sport facilities themselves are sites of environmental and social resilience.81

"Over the years, I've seen increasing changes and more extreme events in the weather and climate. It is now directly impacting the outdoor sports I am passionate about - first skiing, but now mountain biking is being affected also. Warmer temperatures and extreme weather are no longer one-off events, they are something we are all having to adjust to, navigate, and come to terms with. Whether it is prolonged extreme heat, trails affected by storm damage, fires, flash flooding and other extreme weather.

It is increasingly affecting how we spend our time outdoors, The mountain bike trails cannot sustain what the elements are throwing at them, and the local communities and trail builders will increasingly struggle to keep on top of environmental damage and keep trails safe. We are the first generation of mountain bikers to face these challenges, and with that, there is a huge level of responsibility to act. We must do what we can as individuals and communities, no matter how big or small. We owe that to the planet and the generations to come."

Nature connection is important in asking people to protect our environment and riding taking place in areas lacking beauty risks this. The recommendation to help build nature connection is to look at the 5 Pathways to Nature Connection (Contact, Beauty, Meaning, Emotion, Compassion).⁸²

HANNAH BARNES, RACING CYCLIST



WHAT BRANDS CAN DO

CYCLING CAN BE EFFECTIVE LOW CARBON TRANSPORT, BUT CREATION OF BIKES AND CYCLING FOR RECREATION CAN HAVE A NEGATIVE ENVIRONMENTAL IMPACT THROUGH USE OF LAND, AND THE INDUSTRY OF CREATING BIKES AND ASSOCIATED ACCESSORIES.⁸³

Sports have a climate impact which we should reduce where possible.⁸⁴ But where there's harm, there's opportunity to reduce it!



"[Mountain bikers] need to find the stories where individuals, communities are causing a positive impact and share those stories. When you learn to love sport and the outdoors, you naturally become an advocate for those spaces."⁸⁶

There's some progress from cycling brands on sustainability. In 2021, Trek Bikes released its first ever <u>sustainability report</u>, the first from a major bike manufacturer,85 sharing a ten point blueprint for reducing its impact on the planet. They also supported the Swiss Climate Law in this year's POW Switzerland campaign.

Other brands are now reporting their carbon footprint too, including Rapha who have set a net zero target. Rapha join Specialized, SRAM, Schwalbe, Brompton and many others in committing to reporting and 55% emissions reductions by 2030 under the <u>Shift Cycling</u> <u>Culture's Cycling Industry Climate Commitment</u>.

Brands are funding local organisations, events, and programs that are geared towards creating opportunities for people to build and ride local, sustainable trails, including Specialized's <u>Soil</u> <u>Searching</u> and Santa Cruz's <u>PayDirt</u> But, we need to see more progress from the cycling industry, both on reporting and action around recycled materials and on avoiding fossil fuels and influencing governments. You can't sell bikes in a civilisation that's broken down.

POW UK is doing what it can to support companies through free guidance and training and the community can support the companies leading the way, to help transform the industry.

Electric bikes are now outselling traditional bikes in countries such as Germany, Belgium and the Netherlands (Shimano, 2022). However, questions remain regarding their role in promoting sustainability, since perishable components, such as brake pads and chains, need to be frequently replaced, and used batteries are sent to landfill -

Patagonia has a net zero target and are supporting trail organisations as well as Protect Our Winters chapters.

Patagonia's Vanessa Rueber also gave a powerful presentation at the International Mountain Bicycling Association (IMBA) Summit stating, often in third world countries - where they leach toxic chemicals into the ground and water.

Long term environmental benefits can however arise from:

- Nature connection
- Better health & wellbeing reducing healthcare impacts
- Getting into cycling and active travel as a mode of transportation

WHAT GOVERNING BODIES CAN DO

SPORTS THEMSELVES HAVE A CLIMATE IMPACT WHICH WE SHOULD REDUCE WHERE POSSIBLE.⁸⁷



Governing bodies have a key role in this and, if they recognize their own vulnerabilities to climate change, may have the capacity for adaptation.88 Given their stature, governing bodies can create strategy around climate and dictate policies requiring or encouraging compliance from their own sport. Let's look at what key bodies including National Governing Bodies are, and should be doing about these impacts.

To start, governing bodies should understand their carbon footprint while developing plans to cut emissions.

THE GOAL OF NET ZERO EMISSIONS IS IMPORTANT AS IS MITIGATION OF THEIR SPORT'S INDIRECT EMISSIONS.

The community are bought into this and want real effort, as seen with the backlash to the International Ski Federation (FIS) which included an open letter with the participation of over 500 athletes.⁸⁹

As part of efforts to cut emissions, governing bodies may need to create comprehensive measurement systems of their environmental impact that accounts for the impacts of their sport,⁹⁰ their events,⁹¹ and the venues themselves.⁹²

In addition to cutting emissions and other harmful impacts of sport, governing bodies need to prepare their sport for a climate changed world.⁹³

With some impacts of climate change already being felt - and differing vulnerabilities based on region, time of year, and participation - adaptations are necessary to accommodate sport for the climate to come, rather than the climate that was.



What Governing Bodies Can Do

CLIMATE STRATEGY / PLANS

UCI

The UCI is taking an active role in climate mitigation - the UCI is a signatory of the UN Sports for Climate Action Framework, it has

BRITISH CYCLING

British Cycling is understood to be working on its first sustainability report. Protect Our Winters UK is asking British Cycling to take a Carbon Literacy

Sustainability Guidelines for all stakeholders, and a sustainability policy providing a framework for their overall strategy. They also have a Climate Action Charter set up for organisations such as teams, which includes a commitment to report on and cut their greenhouse gas emissions on a science-based trajectory. We would like to see the terminology updated to show Net Zero as the explicit long term aim given this is the necessary long term goal now with organisational standards distinct from carbon neutrality. We also want to see as many organisations as possible commit to these. One signatory commitment is reporting on all 3 Scopes of greenhouse emissions. The UCI itself has committed to delivering this by 2024 we want to see this include spectator travel for events, which is a large cause of event emissions and yet missing in some other sports governing body reporting. Major events can aim to achieve ISO 20121.

UK SPORT

UK Sport published its new <u>Environmental</u> <u>Sustainability Strategy</u> in March. This includes a "roll out" of Carbon Literacy Training (a one day course also provided by Protect Our Winters UK) "across the sector". Training course, and has offered to run it for free.

SCOTTISH MOUNTAIN BIKING

SMB is aware protecting the environment and sustainable trail development are important but has not a huge amount of specifics that we could find publicly in their strategy documents. <u>The</u> <u>Strategy for Scottish Mountain Biking, 2019–2025</u> <u>Progress Report 2022</u>.



They have committed to the UN Sports for Climate Action Framework,

"which commits us to halving our carbon emissions by 2030 and achieving net-zero by 2040. Our own target exceeds this and we are aiming to achieve net zero by 2030."

Photo Credit : <u>Jim Cossey</u>

40

What Governing Bodies Can Do

SUPPORTING ADAPTATION

TRAILS ADAPTATION SUPPORT

Advocacy group <u>International Mountain Bike Association (IMBA)</u> supports sustainable trail construction that better integrates the trail itself into the ecology of the surrounding landscape.⁹⁴

We would like to see all relevant European cycling bodies coordinating and working with IMBA Europe, and the DIRTT Project:

"The DIRTT project is dedicated to providing a Europe-wide framework for trail building teaching and training. The project's main goal is to increase the quality and capacity within the sector, to meet expectations of future

generations of riders – under deteriorating environmental conditions." Lars Wraae Jensen, project leader of the Developing Intereuropean Resources for Trail building Training project (DIRTT)

CLIMATE ADAPTATION

UCI has an <u>extreme weather protocol</u> that will assist in preventing athletes from competing in weather extremes.

Governing bodies should consider a blanket ban on racing at lower levels when wet bulb globe temperatures exceed 33 °C⁹⁴ and limitations on exercise and competition at temperatures above 27°C.

There's also the wider influence of these bodies. Some sports groups such as BMC, OIA have long been lobbying for support in active travel and outdoor access for health and connection.

We must also be aware of a darker side with the industry, with sponsorship deals providing ways for companies to greenwash or sportswash⁹⁶ their actions.

Recent examples include:

• British Cycling's partnership with Shell, announced in 2022⁹⁷ was

- widely seen as problematic and a case of "brazen sportswashing.⁹⁷ POW UK sent an open letter objecting to the partnership.
- The 2019 Tour de France, disrupted by hailstorms, landslides and 40C temperatures, was won by Ineos Grenadiers, a team bankrolled by a petrochemical giant.
- Bush fires consumed Australia in 2020 as the Tour Down Under was due to start - a cycling event sponsored by oil and gas giant, Santos, and Singapore Airlines.⁹⁸



"THE DEMAND FOR ACTION TO ADDRESS THE CLIMATE CRISIS IS GETTING LOUDER, AND THE WORK DONE BY PROTECT OUR WINTERS IS SO IMPORTANT IN DEFENDING THESE

ENVIRONMENTS and engaging more and more outdoor users, inspiring us to get involved and call for action. Every action counts and we need as much help as we can get, as soon as we can get it."

MANON CARPENTER, 2014 DOWNHILL WORLD CHAMPION

Photo Credit : <u>Samantha Saskia Dugon</u>

WHAT INDIVIDUALS CAN DO

THE CYCLING COMMUNITY IN THE UK IS VAST -SPREAD ACROSS DIFFERENT REGIONS, FROM DIFFERENT BACKGROUNDS, AND FACING DIFFERENT CLIMATE THREATS. Given its size, level of commitment, and it's motivation to protect the environment¹⁰⁰ the cycling community - with proper tools and support - has huge influence and opportunity: from helping reduce our reliance on fossil fuels to accelerating the transition to clean energy, creating green jobs, and putting pressure on the government to act now. As cyclists, we have the potential to be change makers - both nationally and globally - if we work together.

Are there options more locally that might provide an adventure? You can also support or join your local mountain bike association such as The Tweed Valley Trails Association (TVTA), Peak District MTB and many others, who play a vital role in supporting and educating mountain bikers, whilst protecting trails and environments. More direct options are shared by <u>Shift Cycling</u>.

"Mountain bikers haven't caused climate crises or outdated access laws, but we can start to help change that perception and help mitigate the climate events that are hurtling towards us. In fact, by doing the latter we can help the former."¹⁰¹

The relationship between mountain biking and climate change is complex, and there are no easy answers. However, we offer two suggestions for how mountain bikers might engage in positive forms of change, which we divide into personal and collective actions: These steps are important to local areas and helping us feel confident in asking for further change. But that won't get us to Net Zero. For example, public transport and EV charging networks aren't yet strong enough to persuade the wider community to use them as much as we would want to see. This requires government action, who have the levers to create the change we need at the rate and scale we need it.



Firstly, it can help to engage in personal forms of change. This may involve protecting your riding locations directly as locations get harder to maintain: is it a good idea to ride on a busy trail or bridleway after a period of significant rain? It can be taking steps to reduce your carbon footprint: how frequently do you travel to mountain bike parks in another country?

I HIS IS WHERE POW COMES IN.

TSALL TO PLAY FOR.

TOGETHER, WE CAN PROTECT THE THINGS WE ALL LOVE FROM CLIMATE CHANGE - FOR



EVERYONE. THESE ARE SOME ACTIONABLE STEPS THAT YOU CAN TAKE RIGHT NOW:

EDUCATE YOURSELF

An informed community is better positioned to influence decision-makers! So learn about climate change by keeping up with the news, listening to podcasts, and reading the latest blogs or books or getting Carbon Literacy Training from POW UK.

SPEAK OUT

Share your knowledge and grasp the opportunity to ignite action! Talking about climate change can be tough, whether it's with close friends, family or colleagues, but these people trust what you have to say. Use that education to be confident in having conversations about the impacts.

SHOW UP

Support our campaigns and increase our impacts. Our latest campaign, Send It For Climate needs your support now: <u>https://protectourwinters.uk/send-it</u>

ALWAYS VOTE

Your vote matters, now more than ever. So when the time comes, whether at a local or general election, vote with climate in mind.







CLIMATE CHANGE IS ALREADY CHANGING MOUNTAIN BIKING, CYCLING, AND THE OUTDOORS WE LOVE.

WE'VE SEEN THE MANY THREATS TO THE FUTURE OF THE SPORT. MORE TRAILS WILL BE LOST TO STORM DAMAGE AND EROSION, TEMPERATURES WILL CONTINUE TO RISE, AND YOUR HEALTH COULD BE PUT AT RISK WHILE ENJOYING THE SPORT YOU LOVE.

Just getting outdoors and on the trails could become less easy than it has been in the past. But the threats aren't just on our doorstep and they're not just threatening our lifestyles - they're felt even more greatly by communities across the Global South. How bad these impacts will become depends on how much climate change is caused.

The cycling community needs to protect its playground if it wants to continue to play. It's not a community that sits passively on the sidelines, it's a community that turns passion into purpose. We can take action now to protect the lifestyles we love, while helping billions of people across the globe affected by climate change.

This is an invitation to join us and help prevent the worsening long-term effects of climate

change.

Photo Credit : <u>Jim Cossey</u>





PROTECT OUR WINTERS UK HELPS PASSIONATE OUTDOOR PEOPLE BECOME EFFECTIVE CLIMATE ADVOCATES.

To achieve systemic solutions to climate change, protecting our world today and for future generations.

OUR VISION

To achieve 'Net Zero' as close as possible to 2040 in the UK. To get there, we believe the world must embrace renewable energy, electric transportation, green finance, and a managed decline of fossil fuel extraction.





WHAT WE DO

We deliver community education and engagement programmes, organisational climate action support, and campaign for systemic policy solutions.



WHY WE DO IT

We're in a climate emergency and time to act is running out. Together, outdoors people can be an added force for positive change

Photo Credit : from top to bottom - <u>Daniel Wildey</u>, <u>Rupert Shanks</u>, <u>Jim Cossey</u>



Methods, Authors and Thanks

THIS IS NOT INTENDED AS A COMPREHENSIVE METASTUDY.

We started with research done by the POW UK staff over time for presentations. We asked 2 volunteers to search widely for relevant information using keywords. We asked several experts - Madeleine Orr, Walker Ross, and Tom Campbell to highlight any gaps from this starting point.We focused on more official and trusted sources such as CCC, Met Office, Adaptation Scotland where possible e.g. for general climate impact information.

We also looked where possible for published journals searching for keywords on mountain biking, cycling, climate impacts, climate change, and naming specific impacts such as wild fires, floods, winters, flooding. Where there wasn't a report available we asked trusted local participants or athletes to comment and quote them directly.

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50



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