



Environmental Impact Report 2022



Marvellous Maps and the Environment

Marvellous Maps is an independent British business, founded in 2014, whose fun, comprehensively-researched paper maps entertain and inspire people to discover and enjoy Britain's best bits. We strive to be a 'good' business by considering the impact of our activities on people and the planet (not just on profit), with a particular focus on minimising our environmental impact.

Summary

This report covers the period July 2021 - June 2022. We've always aimed to be an environmentally responsible business, and in order to live up to that claim, we believe the first requirement for any business is to measure and disclose its complete environmental impact. Our environmental policy is available on our website alongside this and our previous impact reports.

We strive to be completely transparent and honest in our impact report. That should not need stating, but even some 'better' businesses out there omit information that might make them look bad. We also try to keep our reporting short and sweet, but with such complex subject-matter that can be a challenge! If you feel like something is missing, if you have any questions or if you have any suggestions for how we can improve the report or for future initiatives, please don't hesitate to get in touch at hello@marvellousmaps.com.

Version Control

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Next report due: Autumn 2023



Marvellous Maps in 2021 / 22

The major achievement for us in 2021 / 22 was (finally!) becoming a certified B Corporation in November 2021.

What is a B Corp and what does it mean?

The [B Corp](#) badge is a top globally recognised certification for 'good' business practices, based on meeting a whole heap of stringent social, ethical and environmental standards, against which you get externally assessed. It's a decent achievement to become a B Corp, and we might even dine out on it for a short while, but it's also important to know that it doesn't mean we've reached some kind of sustainability nirvana (no such thing as a sustainable business!)

So, just some greenwashing-drivel-nonsense, then?

At Marvellous Maps, it's true that we love a bit of nonsense... but greenwashing really gets our goat. [There's a bit of scepticism](#) about B Corps, and quite right - we should all be sceptical about a lot of things! With that in mind, as we embarked on this project 3 years ago, we researched the subject like we research our maps, with near-forensic levels of fastidiousness of course.

We talked to existing B Corps who'd been through the certification process, spoke to the heads of sustainability at various companies, had a good look around at other relevant standards and certifications, temporarily considered doing nothing at all, and had several arguments with sellers of dubious-sounding carbon offsetting 'solutions' and other silly schemes. In short, being very sceptical ourselves, we did our homework... and concluded becoming a B Corp would be A GOOD THING. Hundreds of hours of effort went into completing the assessment, learning about what being a good business really looks like and putting in place the practices that ultimately got us certified. There was then an 11-month wait between submitting our application and getting certified. Put another way, there are probably easier and quicker badges to get, if that's what you want.

But who cares?

Most of us, as it happens. Of course, as a small business we shouldn't get too carried away, but every survey on the topic published in recent years shows an increasingly large majority of people in Britain and around the world want businesses to be much more environmentally and socially responsible. The B Corp certification is a great way for businesses who are meeting high environmental and social standards to demonstrate that to customers, suppliers, partners, team members, new recruits... and anyone else who'll listen! Hey, there's even a score and everything ([here's ours](#)).

Aside from the B Corp thing, we continued to support our 3 excellent charity partners and continued to remove our full lifetime / full value chain greenhouse gas emissions.

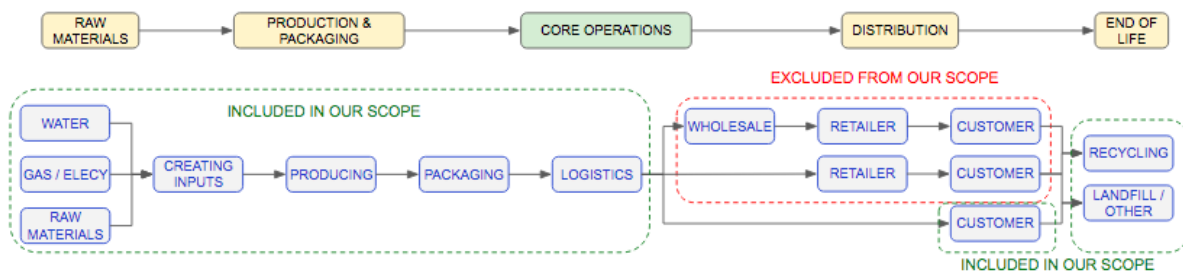
Approach - General

We're a small, remote-working (no office) business that outsources production and logistics. Our products have a relatively low environmental impact, using environmentally-certified (FSC) paper, being produced and (mostly) sold locally within Britain, and being recyclable. Nonetheless, we take responsibility for understanding, disclosing and minimising our environmental impact. To achieve that, we look at our full environmental impact, covering:

1. **Inputs** - all resources used by, or as a result of, our business.
2. **Outputs** - all the bad things put into the environment by, or as a result of, our business.
3. **Positive impact** - anything we do to deliver benefits for the environment.

Approach - Carbon Footprint Calculation & Mitigation

Our carbon footprint calculations include the entire value chain of our products, as shown in the image below. The inputs include everything from raw materials to energy, water and gas used in the production and packaging process, logistics, storage, core business operations and end-of-life processes. The outputs include waste created in the production process, and the carbon emissions associated with all activities previously described. You'll notice that emissions relating to distribution to wholesale / retailer channels (basically any downstream steps involving other businesses, rather than individual customers) are excluded from our scope, reflecting standard practice - the other businesses involved in effect are responsible for the emissions arising from their transport, storage, etc.



Reports like this rely on estimates, so we take a conservative approach in calculating our environmental impact. We do that by using the latest available benchmarks, multipliers and other guidance from the UK government, our consultants and other sources, and then adding buffers to counter the potential effect of any inaccuracy or oversight. Our external consultants have validated our carbon footprint calculations, as part of an annual review process to ensure we're using the most reasonable and conservative methodology, minimising the risk of understating our carbon footprint. Any changes to our methodology (including to conversion factors) from the previous year are set out in the appendix.

On offsetting, it's important to note that offsets are a last resort after reducing emissions as much as possible (and even high-quality, verified, long-term offsets like the ones we've purchased are not permanent). We believe we have reduced our emissions as much as possible within the constraints of the markets we operate in and products we sell, but we also accept that in the long term, true minimisation of emissions requires smart, bold thinking on all fronts including product strategy. We're not there yet. Furthermore, we describe ourselves as 'carbon-neutral' as it's pretty much the best we can currently be without closing down the business.



Our Environmental Impact - Key Figures

See appendix below for an explanation of scope and key terms. Figures cover the period July 2021 - June 2022. CO2 equivalent (or CO2e) is a consistent unit of measure for all greenhouse gases, including carbon dioxide.

1. INPUTS		
Measure	2021 / 22 Figures	2020 / 21 Figures
% of all items produced that are from recycled or environmentally certified raw materials	<p>Everything we had made: Over 95.3% of our products / marketing materials came from environmentally certified (FSC) materials.</p> <p>Everything else we bought: 89.14% of our packaging came from recycled materials</p>	<p>Everything we had made: Over 98% of our products / marketing materials came from environmentally certified (FSC) materials.</p> <p>Everything else we bought: 88% of our packaging came from recycled materials</p>
% of all items produced that are sourced locally	100% of all items purchased are sourced from within the UK. The majority of raw materials used by our suppliers come from abroad, almost exclusively from Europe.	100% of all items purchased are sourced from within the UK. The majority of raw materials used by our suppliers come from abroad, almost exclusively from Europe.
Energy use ('total operational')	385.25 gigajoules	298.11 gigajoules
Energy use - renewable ('total operational')	33.47 gigajoules	20.22 gigajoules
Raw materials	An estimated 133 trees were used in the production of our maps and packaging this year. Other raw material use is minimal, including small batches of our mugs as well as some (currently unavoidable) plastic used in <5% of our packaging by value	An estimated 163 trees were used in the production of our maps and packaging this year. Other raw material use is minimal, including small batches of our mugs as well as some (currently unavoidable) plastic used in <5% of our packaging by value.
Water	136.74 cubic metres	93.70 cubic metres



2. OUTPUTS

Measure	2021 / 22 Figures	2020 / 21 Figures
Carbon footprint: greenhouse gas emissions (all scopes)	196.18 tonnes CO ₂ e	249.96 tonnes CO ₂ e
Carbon footprint: greenhouse gas emissions ('total operational')	18.77 tonnes CO ₂ e	14.99 tonnes CO ₂ e
Carbon intensity: carbon footprint / team member ('total operational')	1.95 tonnes CO ₂ e / team member	2.11 tonnes CO ₂ e / team member
Carbon intensity: carbon footprint / map	0.92 Kg CO ₂ e / map	0.92 Kg CO ₂ e / map
Waste - recycled	13.5 tonnes	13.5 tonnes
Waste - to landfill	1.5 tonnes	1.9 tonnes
Waste - water	59 cubic metres	36 cubic metres
Product 'end of life' impact - % of all items produced that are recyclable	Over 90% by volume or by value	Over 90% by volume or by value

3. POSITIVE IMPACT

100 tonnes CO₂e offset with verified carbon credits purchased from [Carbon Neutral](#). Full explanation and details of the project (Yarra Yarra Biodiversity Corridor, Western Australia) in the [appendix](#).

Donations made to our 3 fantastic British environmental charity partners: [Surfers Against Sewage](#) ('250 Club' membership), [John Muir Trust](#) ('Gold' partner) and [Trees for Life](#) ('Silver' partner).



APPENDIX

Scope, Key Terms & Methodology

Our full environmental impact isn't just the result of the resources / activities we own. It covers both owned and third-party resources / activities across the entire 'value chain', from raw materials to delivering our products to customers, through 'end of life' disposal / recycling. We don't own the printing facilities that produce our finished maps or the warehouses and delivery vehicles that get our maps to our customers, but these resources and activities all have an environmental impact, and we've made every effort to ensure they are fully included in the assessment of our impact.

Definition of Scopes

The table below sets out some terms typically found in reports like this and what they mean (and where opportunities for misunderstanding or not quite telling the full truth arise). Note that Scopes 1, 2 and 3 are generally used in relation to energy use / greenhouse gas emissions, but the concept of scope is relevant across all areas of environmental impact.

Owned resources / activities		Third-party resources / activities	
Total Operational			Scope 3 "Everything else"
Direct / Scope 1	Indirect / Scope 2	Scope 3 "Operational"	
Activities involving assets owned / controlled by the business, e.g. combustion of fuels in owned / controlled factories, fleets and office buildings.	Generation of electricity purchased for owned / controlled factories and office buildings.	Team remote working & business travel.	All other activities across the entire value chain, covering suppliers and the products / services we buy from them and getting our products to our customers and end-of-life product disposal.

As a remote-working (no office) business that outsources production and logistics, Marvellous Maps has virtually no 'owned' environmental impact.

Methodology updates:

Methodology Updates	
GHG Conversion Factor	The GHG conversion factors were updated for 21-22, based on the UK government's Greenhouse gas reporting (see here)



Lifetime Carbon Footprint

Here we show our estimated CO₂e emissions over the lifetime of the business, based on previous years' revenue figures multiplied by our CO₂e intensity from 2021 / 22's calculations (the most accurate and conservative methodology we've used, and externally validated). The 'rolling bank' of CO₂e reflects total emissions, including interest (see assumptions below), minus total reductions. The figure of -29.7 tonnes means we have removed more than the total of our lifetime CO₂e emissions.

Year	CO ₂ EMISSIONS		CO ₂ REMOVALS		Rolling CO ₂ Bank (total emitted + interest - removed)
	Tonnes CO ₂ emitted in year	Total tonnes CO ₂ e emitted life to date	CO ₂ removed in year	Total CO ₂ removed life to date	
2014-15	11.2	11.2	0.00	0.00	11.7
2015-16	3.2	14.4	0.00	0.00	15.7
2016-17	12.1	26.5	0.00	0.00	29.1
2017-18	7.9	34.4	0.00	0.00	38.9
2018-19	17.7	52.0	0.00	0.00	59.4
2019-20	58.8	110.8	0.00	0.00	124.1
2020-21	250.0	360.8	500.00	500.00	-125.9
2021-22	196.2	557.0	100.00	600.00	-29.7

Assumptions:

- We charge ourselves annual 'interest' for CO₂e emissions not yet removed (for every year those emissions are not removed from the atmosphere) at 5% per year, to reflect the greater warming impact of greenhouse gases the longer they've been in the atmosphere. So 1 tonne of CO₂e emitted last year would equate to 1.05 tonnes in the current year if not removed in the year of emission. There is no scientific basis for the actual % chosen, but this is a more conservative approach than the GHG Protocol's methodology, which does not include any 'interest' for older emissions.
- Offsets are counted only if they are long-term removals. For example, an 'emissions reduction' offset of 40 tonnes CO₂e that we purchased in 2019 / 20 did not remove greenhouse gas from the atmosphere, so although it was included in our 2019 / 20 impact report, it is not reflected in our latest figures in this report.



Carbon Removals - A Plain-English Explanation

Marvellous Maps' Carbon Neutral Claim

Marvellous Maps (trading name of Squeaky Wheels Limited), purchased 100 verified units (tonnes) of CO2 removal from [Carbon Neutral](#) (an Australia-based for-profit business) on 13th of July 2021, adding to previous purchases of the same units.

A word on such claims... while there are a variety of certifications for 'carbon neutrality' and its ilk, we have decided against claiming one. In our view, backed up by our expert advisors, the current standards are low and, at best, serve to confuse. At worst, they serve to greenwash. 'Carbon neutral' and similar certifications may give consumers the false impression that their purchase created no emissions, which is simply never true.

CO2 Offsetting vs Removals

CO2 removals are one form of CO2 offsetting. For an overview of the different types of offsetting, and their relative merits, please refer to the [Oxford Offsetting Principles](#). The only form of offsetting that we wish to engage in involves removing CO2 from the atmosphere, and in consultation with our independent advisors, we feel the best available option for removing CO2 from the atmosphere is through forestry projects (afforestation or reforestation).

The Project

The units we have purchased are part of a reforestation project in Western Australia. The project, the [Yarra Yarra Biodiversity Corridor](#), was developed and is managed by Carbon Neutral and consists of planting native tree and shrub species indigenous to the region on degraded, semi-arid agricultural land that no longer supports viable farming practices. This supplier and project were selected following a shortlisting process involving suppliers and projects in the UK and abroad, and validated in consultation with our independent advisors. Although our preference would be to support projects in the UK, comparable units are in very short supply and currently much more expensive in the UK than abroad.

Assurance

All this means that as of 13th July 2021, Marvellous Maps can correctly claim to be carbon-neutral by removing 100 tonnes of CO2 from the atmosphere, against our 'rolling bank' of [lifetime carbon emissions](#), and this removal is proven as being:

- Real (the stated amount of CO2 has actually been removed from the atmosphere),
- Ours to claim (not double-counted or claimed by other parties),
- Additional (the CO2 would otherwise not have been removed had the project not happened),
- Long-lasting* (the locking away of CO2 is guaranteed for 100 years, under the [100 Year Carbon Covenant](#), an 'encumbrance on title' enshrined in Western Australia state law), and
- At very low risk of CO2 removals / storage being reversed or not happening (there is sufficient recourse / insurance in place**).

Notes

* It's important to note that for CO2 removals to be effective and allow a business to claim carbon neutrality, ideally they'd need to be permanent, otherwise the CO2 just goes back into the atmosphere at a later date. Permanent CO2 removal technology is not yet a readily available solution, so the validity of reforestation projects like this one is based on the assumption that by the time the project timeline expires, feasible permanent CO2 removal technology will be in place at sufficient scale. For



the avoidance of doubt, this means the best solutions available today may not actually be solutions, merely a bridging mechanism to a longer-term solution that is as yet non-existent and not paid for. Because of this rather important fact, it is vital that businesses focus on reducing their emissions in parallel with seeking to remove their emissions in the 'most permanent' way possible. Following consultation with specialists, we believe that long-lasting forestry projects are currently among the best options for CO2 removal.

** Trees could potentially be damaged and the CO2 released back into the atmosphere, or for some other reason the expected CO2 might not be removed, which is why recourse in the form of insurance is in place. Insurance for tree loss covers defined events (fire, lightning, hail, malicious damage, windstorm) but not disease. The likelihood of disease in a natural forest is extremely low and would be mitigated by geographic diversity. Fire risk is additionally mitigated by geographic diversification and fire management planning. As a last resort, there is mitigation for damage in the form of the [20% buffer required by Gold Standard](#).

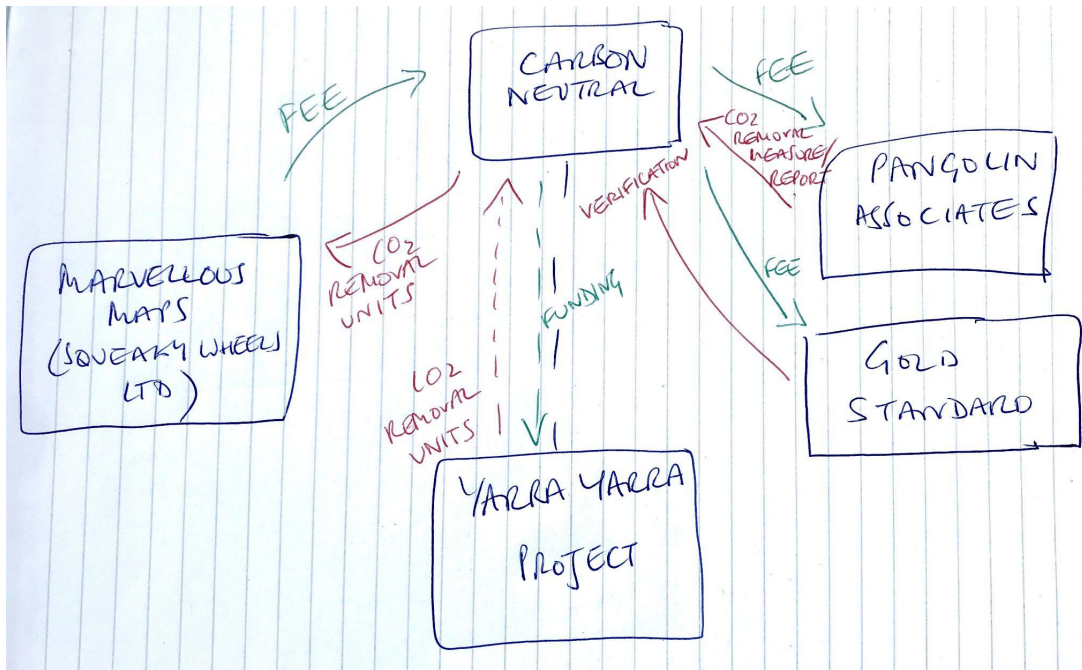
Independent Verification

The project is independently verified as meeting the [Gold Standard](#) (published and administered by the Gold Standard Foundation, a non-profit foundation based in Switzerland). Gold Standard is one of two leading independent standards / standard-setting organisations in relation to the voluntary carbon market (the other being VCS, published and administered by Verra). It's important to note that 'best practice' is still evolving and there may still be some risk associated with this purchase of CO2 removal units, even with such verification in place. A third-party auditor, [Pangolin Associates](#) (appointed by Gold Standard), measures the project's CO2 sequestration at various intervals, which the Gold Standard Foundation then verifies. If the sequestration measurements and growth projections satisfy Gold Standard's verification criteria, they are "issued" to Carbon Neutral as verified units, which are then sold to us and other emitters. Further audits take place at least every 5 years to issue more units and to confirm the expected CO2 sequestration of the existing units actually occurred, or variances reported and addressed.

Documentation

Gold Standard verification is proven via documentation and entries on Gold Standard's registry, where the 100 units, alongside any previous units we've purchased, are shown as "retired":

- Project documentation [Australian Yarra Yarra Biodiversity Project \(GS3039\)](#)
- The reference numbers for all units we've purchased, including this year's, are:
 - [GS1-1-AU-GS3039-21-2017-6153-4417-4419](#) (3 units)
 - [GS1-1-AU-GS3039-21-2017-4982-29461-29957](#) (497 units)
 - [GS1-1-AU-GS3039-21-2017-4982-1825-1924](#) (100 units)



Offsetting Certificate



This is to certify that

Marvellous Maps

has permanently surrendered

500 tonnes

of

Australian Native Reforestation - Gold Standard VERs
from the *Yarra Yarra Biodiversity Corridor*

Thank you for choosing to make a difference by
combating climate change

Ray Wilson | Chief Executive Officer



Encouraging positive social, environmental
and economic change with solutions that help
overcome the effects of the climate crisis.

Carbon Neutral Pty Ltd is regulated by the Australian
Securities and Investments Commission and holds
Australian Financial Services Licence Number 451004

Issue Date: 8 July 2021

|

Period: 2014 - 2022 (estimated)



This is to certify that

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100 tonnes

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Australian Native Reforestation - Gold Standard VERs
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Issue Date: 27 July 2022 | **Period:** 2021 - 2022