

# Climate change and community psychology: exploring environmental and wider social challenges

Miles Thompson<sup>\*</sup>, Yalina Blumer<sup>\*\*</sup>, Sophie Gee<sup>\*\*</sup>, Laura Waugh<sup>\*\*</sup>,  
Zoe Weaver<sup>\*\*</sup>

*[Ricevuto il 13 marzo 2023  
Accettato per la stampa il 3 maggio 2023]*

## Abstract

Climate and ecological emergencies are already adversely affecting individuals and communities globally. In this UK based study, both academics and young people contributed examples of environmental and wider social challenges. The final lists capture many varied examples reflecting both climate change (e.g., changing weather patterns) and wider ecological emergencies (e.g., biodiversity loss; pollution). The wider social challenges list captures other important issues (e.g., poverty, inequality). The paper reminds us both that the climate and ecological emergencies contain more than just climate change alone and that individuals and communities face pressing wider social challenges that may limit their ability to focus on climate change. The discussion highlights the potential role of critical consciousness and the importance of focusing at macro levels of change.

**Keywords:** climate change, ecological emergencies, environmental challenges, wider social challenges, community psychology.

\* Psychological Sciences Research Group (PSRG). School of Social Sciences. UWE Bristol (University of the West of England), Frenchay Campus, Coldharbour Lane, Bristol, BS16 1QY, miles2.thompson@uwe.ac.uk

\*\* School of Social Sciences. UWE Bristol, Frenchay Campus, Coldharbour Lane, Bristol, BS16 1QY, yblumer08@gmail.com, sophiegee15@googlemail.com, ljswaugh06@gmail.com, zoemweaver@gmail.com

*Psicologia di Comunità (ISSN 1827-5249, ISSN e 1971-842X), 1, 2023*  
DOI: 10.3280/PSC2023-001002

## **Riassunto. *Cambiamento climatico e psicologia di comunità: esplorare le sfide ambientali e sociali più ampie***

Le emergenze climatiche ed ecologiche stanno già influenzando negativamente gli individui e le comunità a livello globale. A questo studio realizzato nel Regno Unito hanno contribuito sia accademici che giovani con esempi di sfide ambientali e sfide sociali più ampie. Le liste finali catturano molti esempi diversi che riflettono sia il cambiamento climatico (ad esempio il cambiamento dei modelli meteorologici) che la più ampia emergenza ecologica (ad esempio perdita di biodiversità; inquinamento). La lista delle sfide sociali più ampie cattura altre questioni importanti (ad esempio povertà, austerità). La ricerca ci ricorda sia che l'emergenza climatica ed ecologica vanno oltre il mero cambiamento climatico, sia che gli individui e le comunità affrontano pressanti sfide sociali più ampie che possono limitare la loro capacità di concentrarsi sui cambiamenti climatici. La discussione evidenzia il ruolo potenziale della coscienza critica e l'importanza di concentrarsi a livelli macro di cambiamento.

**Parole chiave:** cambiamento climatico, emergenza ecologica, sfide ambientali, sfide sociali, psicologia di comunità.

### **1. Introduction**

The warnings could not be clearer: «we are now at ‘code red’ on planet Earth» (Ripple *et al.*, 2022, p. 1149). The World Meteorological Organization (WMO) suggests there is an even chance the planet will experience a temperature rise of 1.5°C above preindustrial levels in the next five years (WMO, 2022). Temperature rises above this point could trigger multiple dangerous tipping points (Armstrong McKay *et al.*, 2022; Lenton, 2021). Avoiding such temperature rises requires us to take: « (...) rapid and far-reaching transitions» in the way we live our lives (IPCC, 2018, p. 15). Underlying the speed and urgency of the response still needed, a recent UN report was titled *The closing window* (United Nations Environment Programme, 2022).

Alongside climate change, other human activity such as overconsumption and the unchecked exploitation of other natural resources represent wider threats to the environment and sustainability of life on Earth (Oskamp, 2000; WWF, 2022). And yet, despite the data and warnings knowledge is not translating into behaviour change (Knutti, 2019). This presents both a challenge and role for social psychology and community psychology.

In their chapter on environmental degradation and sustainability in the APA handbook on community psychology, Riemer and Harré (2017) notes that the above areas have not been prevalent issues for community psychology (p. 441). In one of the early special issues in this area, the editors noted global climate change had received «little attention», «peripheral status» and «relative silence» within community psychology (Riemer & Reich, 2011, pp.

349-350). More recently, a special issue noted our contributions have been «relatively sparse» (Fernandes-Jesus *et al.*, 2020, p. 3).

At the same time, work has been taking place. In the US, the Society for Community Research and Action has had an Environment and Justice Interest Group since 2009. And, as noted, chapters and special issues have been published (e.g., Fernandes-Jesus *et al.*, 2020; Riemer & Reich, 2011). They consistently note the potential importance of this topic. For example, how climate change will impact us all, but will impact the poorest and most vulnerable most of all (Fernandes-Jesus *et al.*, 2020; Riemer & Harré, 2017).

The recent APA chapter usefully summarises examples of community psychology work under the headings: i. collaborations with local government and alternative models of living; ii. the impact of environmental degradation on individuals and communities; iii. international politics, power and empowerment (Riemer & Harré, 2017, pp. 443-444). In one example of community psychology research, Quimby and Angelique (2011) explored barriers and catalysts to pro-environmental behaviour in participants engaged in the environmental movement. Barriers included: time, cost, lack of social support and low efficacy. Catalysts included: changing social norms and institutional support. Even earlier, Rich *et al.* (1995) explored the ability of communities to respond to environmental hazards.

Existing research from within community psychology has started to explore the degree to which individuals and communities are able to mobilise action and the reasons for this. This includes noting that time and cost are possible barriers to individual action. And, at the same time, researchers acknowledge that community psychology has so far made limited inroads into this important area.

Wider research, outside of community psychology, has suggested that additional obstacles to individual environmental behaviour change may include external factors such as: institutional, economic, social and cultural barriers (Kollmuss & Agyeman, 2002); financial reasons and structural conditions (Zsóka *et al.*, 2013); lack of action by politicians, business and industry, as well as wider social norms (Lorenzoni *et al.*, 2007). All of these may negatively impact pro-environmental behaviour and may also be relevant issues for community psychologists looking to increase individual and community action.

In parallel, climate scientists have called for the closing of the gap between knowledge and action in terms of climate change (Knutti, 2019). Other wider research has investigated the role and importance of knowledge in terms of pro-environmental behaviour (Frick *et al.*, 2004; Maurer & Bogner, 2020; Otto & Pensini, 2017; Vicente-Molina *et al.*, 2013). Knowledge raising, awareness raising, consciousness raising (Angelique & Kyle, 2002) are

all potentially part of any growing contribution from community psychology. And yet, what is degree to which knowledge alone is holding back action compared to the external pressures described in the earlier paragraph? While no one study can definitively answer this question, at a time where community psychology wishes to make a greater contribution to this area, it seems potentially useful to step back, take stock and explore these issues in the hope of continuing to move forward in positive direction.

As such, this study surveys the range of different challenges, both environmental and wider social, that individuals and communities currently face. It seeks to map out participants views of environmental challenges on the one hand, and wider social challenges on the other. It may be, in part, that some of the wider social challenges limit the ability of individuals and communities to focus more attention and action on environmental issues. Indeed, it may be that some of the wider social challenges reflect the more traditional focus of community psychology practitioners.

The survey will be completed, in parallel, by two different groups of participants: experts and non-experts. This may help explore the extent to which there exists a knowledge gap to be closed between experts and the public at large. Potential knowledge gaps may be indicated by the number of challenges produced, or in relation to their content. Overall, it is hoped that the results of this study may provide shared information about the: i. current environmental and wider social challenges we face, ii. the interactions between these sets of challenges and iii. a renewed focus for community psychology in helping address both sets of challenges.

## **2. Method**

This study gathered data from academics and young people on possible environmental and wider social challenges. Academic professionals with subject expertise related to environmental and wider social challenges responded to two separate surveys. Young people were asked to respond to both surveys in a randomized order. The main question asked participants to provide examples of “major challenges faced by environments, ecosystems and natural resources in the world today” (environmental) and/or “major challenges faced by individuals, communities and wider populations in the Western world today” (wider social). Of course, environmental challenges also fit under the remit of wider social challenges. In each survey participants were encouraged to list examples in ten separate text boxes. An eleventh larger, response box allowed for additional examples to be entered.

It should be noted that the term “challenges” and phrase “major challenges faced” is deliberately used in the survey to be freely interpreted by participants allowing them to provide a wide range of views. It does not imply the creation of a new psychological concept to sit alongside, beliefs, attitudes and social representations. It is merely a form to words used to gather the views of participants.

The study was granted ethical approval by the psychology ethics committee at the host institution. All data was collected via the online survey platform Qualtrics. Participants were provided with an information sheet and gave online consent before participating.

## *2.1 Participants*

Academics with expertise related to environmental issues and wider social challenges were recruited via purposive sampling. Public staff directories from 66 UK universities were used to obtain 1,090 email addresses of academics specialising in disciplines related to environmental challenges (e.g., physical geography, environmental science). Similarly, public staff directories from 79 UK universities were used to obtain 1,839 email addresses of academic professionals specialising in disciplines related to wider social challenges (e.g., sociology, anthropology).

Young people were recruited via opportunity sampling. This included posting the questionnaire on the participant pool of the psychology department of the host institution, and recruiting through researcher social contacts (e.g., social media). For this study, an age range of 18-25 years was chosen in order to balance the overlap in terms of levels of knowledge gained through life experience.

One hundred and forty-six academics specializing in environmental disciplines clicked on the environmental survey. Of these, 98 completed the survey. The mean age was 46.18 (SD = 10.09). One hundred and seventy-seven academics specializing in disciplines related to wider social challenges clicked on the wider social survey. Of these, 100 completed the survey. The mean age was 44.63 (SD = 10.59). One hundred and forty-two young people clicked on the survey. Of these, 92 responded to the survey questions. The mean age was 21.32 (SD = 1.60). Further demographic details of the participants can be found in Appendix 1 (Tab. A1).

### 3. Results

The desired end point for the collected raw data was two lists of challenges (environmental and wider social), from each group of participants (academics and young people). Regarding the raw data, in terms of academics suggesting environmental challenges, participants provided a mean of 8.48 (SD = 2.35) examples. Excluding the further examples box which permitted multiple entries, the mean character length was 44.10 (SD = 39.37). In terms of academics suggesting wider social challenges, a mean of 7.90 (SD = 2.50) examples were provided. The mean character length, excluding further examples, was 33.94 (SD = 35.45). In terms of young people, the mean number of examples per participant were: 7.29 (SD = 2.35) environmental, and 6.98 (SD = 2.42) wider social. Mean character length, excluding further examples: 30.31 (SD = 32.04) environmental; 25.48 (SD = 35.02) wider social.

The descriptive data above makes clear that the participants raw data is both short and thin. Thompson *et al.* (2022) describe a method for organising qualitative material of this nature into a final list of statements and was used to guide this process. Their work draws upon an abbreviated form of the 6 steps of Thematic Analysis (TA; Braun & Clarke, 2006) to code, condense, and summarise the raw data. However, it is important to note, that this method concludes with a list of statements, not a higher-level thematic representation of the data more normally associated with TA.

The data for both groups of participants was coded separately by the same group of researchers. As coding continued, identical challenge labels were used across groups of participants only if it reflected the original data. In three cases slightly different challenge labels were used to more accurately reflect the underlying data. In the final tables below, these challenges have been brought together (see: environmental 26 and wider social 8 and 19).

The results section focuses on two tables. They list the environmental and wider social challenges produced by academics and young people. They list the challenges in order of the number of times they were mentioned by academics and provide both count information (the number of times a challenge is mentioned) and rank information for both groups. In the text below, we highlight the top ten challenges and the challenges which are mentioned more than 10 times. Choosing to focus at these levels is somewhat arbitrary, but challenges mentioned more than 10 times represent a topic that has been raised by near to 10% of the academic participants (environmental n=98; wider social, n=100; young people, n=92).

The far column of the table also highlights whether the item was only mentioned by academics (OA) or only young people (OY), and whether there is a large difference (\*) between the number of academic and young people

mentions. Again, the threshold of what constitutes a large difference is arbitrary – we chose equal to or greater than 20. Large differences can exist where both groups mentioned the challenge. Large differences can also exist if one group mentions a challenge 20 or more times and the other does not mention it at all. It is acknowledged that different numbers of participants were in the academics and young people groups.

The results below explore the environmental challenges, then the wider social challenges, before exploring if statistical differences exist.

### *3.1 Environmental challenges*

Above the 10-mention threshold (Tab. 1), academics noted 29 challenges, young people 21 (difference 8). For all mentions, academics 44, young people 24, (difference 20). Seven of the top 10 challenges are shared by both groups and reflect both climate change (e.g., changing weather patterns; increase of emissions into the atmosphere; rising sea levels) and the wider ecological emergency (biodiversity loss; general forms of pollution; exploitation of animal species).

Although all of the above challenges appear in the top 10 of both groups of participants, academic participants mentioned “Changing weather patterns” (ranking 1<sup>st</sup> for academics, 2<sup>nd</sup> for young people) and “Biodiversity loss” (ranking 2<sup>nd</sup> for academics, 9<sup>th</sup> for young people) a large amount more ( $\geq 20$ ) than young people. Whereas young people mentioned “General forms of pollution” more than academics (ranking: 4<sup>th</sup> for academics, 3<sup>rd</sup> for young people).

It is also worth noting that the most mentioned topic by young people “Deforestation”, was ranked only 20th in terms of academic mentions. Similarly, “Natural habitat loss and degradation” and “Oceans becoming more acidic and damaging coral reefs” was within in the top 10 of academic mentions but ranked only 18th and 19th for young people. Of course, one of the major ways that a wood or forest habitat is lost or degraded is through deforestation. However, there does seem to be a large gap in mentions around ocean acidification (ranking 9<sup>th</sup> academics, 18<sup>th</sup> young people).

Further down the list but above the 10 threshold, “Invasive Species”, “Wider land use changes” and “Eutrophication” all had large gaps ( $\geq 20$ ), with academics mentioning them, while young people did not. “Lack of pro-environmental behaviour”, “Human waste disposal” and “Deforestation” were mentioned more by young people than academics – the first two challenges only being mentioned by young people. Outside the top 10 but above the threshold of 10 mentions a further 8 different challenges were mentioned

Tab. 1 – Environmental challenges

| N  | Environmental challenge  | Academics |     | Young ppl |     |     |
|----|--|-----------|-----|-----------|-----|-----|
|    |  | Men       | Rk. | Men       | Rk. |     |
| 1  | Changing weather patterns and events (e.g., rising temperatures, flooding, drought)                  | 98        | 1   | 67        | 2   | *   |
| 2  | Biodiversity loss (e.g., the decline of certain species such as bees)                                | 53        | 2   | 29        | 9   | *   |
| 3  | Unsustainable consumption and exploitation of natural resources (e.g., oil and other fossil fuels)   | 53        | 3   | 36        | 6   |     |
| 4  | General forms of pollution (e.g., land, air and water)   | 44        | 4   | 66        | 3   | *   |
| 5  | Natural habitat loss and degradation   | 44        | 5   | 13        | 19  | *   |
| 6  | Increase of emissions into the atmosphere (e.g., carbon dioxide, methane)                            | 42        | 6   | 41        | 4   |     |
| 7  | Rising sea levels due to melting polar ice and glaciers  | 42        | 7   | 38        | 5   |     |
| 8  | Human population growth (i.e., overpopulation)   | 34        | 8   | 20        | 13  |     |
| 9  | Oceans becoming more acidic and damaging coral reefs   | 34        | 9   | 13        | 18  | *   |
| 10 | Exploitation of animal species (e.g., overfishing, hunting)  | 32        | 10  | 27        | 10  |     |
| 11 | Invasive species (i.e., the introduction of non-native plants and animals to new habitats)           | 31        | 11  | -         | -   | OA* |
| 12 | Lack of pro-environmental behaviour change (e.g., laziness to recycle, lack of public transport use) | -         | -   | 27        | 11  | OY* |
| 13 | The overuse of plastic and its associated waste and pollution  | 30        | 12  | 32        | 7   |     |
| 14 | Human waste disposal and physical pollution (e.g., food, littering)                                  | -         | -   | 25        | 12  | OY* |
| 15 | Maintaining food and water security (i.e., access to available and affordable food and water)        | 27        | 13  | 16        | 15  |     |
| 16 | Chemical pollution (e.g., pesticides, oil spills in oceans, toxic waste)                             | 26        | 14  | 15        | 16  |     |
| 17 | Issues around political will and funding to bring about environmental change                         | 23        | 15  | 12        | 20  |     |
| 18 | Wider land use changes (e.g., converting natural habitats to food production)                        | 23        | 16  | -         | -   | OA* |
| 19 | Increased enrichment of rivers and oceans due to human activity (i.e., eutrophication)               | 22        | 17  | -         | -   | OA* |
| 20 | The expansion of the built environment (e.g., more towns, roads, industry)                           | 22        | 18  | 14        | 17  |     |
| 21 | Wider human challenges preventing a more environmental focus (e.g., poverty, inequality)             | 22        | 19  | 19        | 14  |     |
| 22 | Deforestation (i.e., cutting down trees)   | 19        | 20  | 68        | 1   | *   |
| 23 | Increased water extraction and use for human purposes  | 18        | 21  | -         | -   | OA  |



(segue tab. 1)

| N  | Environmental challenge  | Academics  |            | Young ppl  |            |    |
|----|--|------------|------------|------------|------------|----|
|    |  | Men        | Rk.        | Men        | Rk.        |    |
| 24 | Lack of connection with nature and understanding of environmental issues amongst the public  | <i>Men</i> | <i>Rk.</i> | <i>Men</i> | <i>Rk.</i> |    |
| 25 | Increased fragmentation of natural habitats into isolated patches  | 16         | 23         | -          | -          | OA |
| 26 | Intensification of agriculture (e.g., industrial production, over-grazing, pollution) / [YP The impact of agriculture (e.g., cattle farming, crop production)] | 13         | 24         | 31         | 8          |    |
| 27 | Increased risk and spread of disease amongst plants, animals and humans  | 11         | 25         | -          | -          | OA |
| 28 | Increased soil erosion and loss of soil quality as a result of deforestation or agriculture  | 11         | 26         | -          | -          | OA |
| 29 | Species adapting and migrating as a result of climate change (e.g., range shifts)  | 11         | 27         | -          | -          | OA |
| 30 | The impact of contemporary capitalism and consumerism on the environment   | 11         | 28         | -          | -          | OA |
| 31 | Issues around effective policy implementation (e.g., conservation laws, resource protection)   | 10         | 29         | -          | -          | OA |
| 32 | <i>Accumulation of human waste (e.g., due to poor waste management)</i>  | 7          | 30         | -          | -          |    |
| 33 | <i>Unsustainable use of non-renewable resources (e.g., fracking for oil and gas)</i>   | -          | -          | 8          | 22         |    |
| 34 | <i>Reduction in air quality and its impact (e.g., amongst living organisms)</i>  | 7          | 31         | -          | -          |    |
| 35 | <i>Antibiotic resistance</i>   | 6          | 32         | -          | -          |    |
| 36 | <i>Changes to plant and animal and species (e.g., through hormones in the ecosystem, genetic modification)</i>   | 6          | 33         | -          | -          |    |
| 37 | Natural disasters (e.g., earthquakes, tsunamis)  | 5          | 34         | 10         | 21         |    |
| 38 | <i>Excess of nitrogen, phosphorus and potassium in earth's air and water</i>   | 4          | 35         | -          | -          |    |
| 39 | <i>The impact of war (e.g., from nuclear weapons)</i>  | 4          | 36         | -          | -          |    |
| 40 | <i>Abandonment of land and buildings</i>   | 3          | 37         | -          | -          |    |
| 41 | <i>Denying or minimising environmental problems</i>  | 3          | 38         | -          | -          |    |
| 42 | <i>Impact of climate change on agriculture (e.g., crop production, spread of disease etc.)</i>   | 3          | 39         | -          | -          |    |
| 43 | <i>Increase of carbon dioxide in oceans</i>  | 3          | 40         | -          | -          |    |
| 44 | <i>Light/noise pollution</i>   | 3          | 41         | -          | -          |    |
| 45 | <i>Need for technological advancements</i>   | 3          | 42         | -          | -          |    |
| 46 | <i>Ozone depletion</i>   | 3          | 43         | 5          | 23         |    |
| 47 | <i>Changes to ocean currents</i>   | 2          | 44         | -          | -          |    |
| 48 | <i>Climate change scepticism (i.e., people who don't believe in climate change)</i>  | -          | -          | 3          | 24         |    |

Notes. Men = mentions, Rk = rank, \* = large difference ( $\geq 20$ ), OA = only academics, OY = only young people, italics = less than 10 mentions for both groups.

only by academics. They concerned aspects of: the water cycle (water extraction); change to and the implications of species behaviour change (adaptation to change, disease spread); habitat change (fragmentation and soil erosion) and human behaviour (lack of connection / understanding; consumerism / capitalism and policy deficit).

### *3.2 Wider social challenges*

Overall, academics recorded 30 challenges and young people 28 above the 10-mention threshold (difference 2) (Tab. 2), with a similar pattern for all mentions (academics 36, young people 38, difference 2). In terms of the wider social challenges, environmental challenges were at the very top of the list for both groups in one form or another (climate change: academics 1st, young people 2nd; environmental loss and damage academics 11th; young people 1st). It is worth noting that environmental loss and damage was mentioned by more ( $\geq 20$ ) young people than by academics.

Five of the top 10 challenges were shared by both groups of participants (climate change; poverty; racial, ethnic and religious intolerance; public health issues; the impact of technology). Still within the top 10, there was a large gap ( $\geq 20$ ) for the number of times “Inequality” was mentioned (ranking 3rd for academics, 15th for young people) and “Capitalism/neoliberalism” (ranked 8th for academics, 29th for young people). “Austerity” policies were ranked 4th for academics, but was not mentioned by young people. While “Human population growth” was 8th for young people, but not highlighted by academics.

Just outside of the academics top 10, only the already highlighted item on “Environmental loss” had a large gap ( $\geq 20$ ), and was mentioned more by young people than academics. Outside of the top 10, but above the threshold of 10 mentions only 5 items were mentioned by only one group. Three for young people (homelessness; pressures to conform; alcohol and drug use) and two for academics (individualism, selfishness, community cohesion; people feeling disempowered, displaced).

Tab. 2 – Wider social challenges

| N  | Wider social challenges  | Academics |    | Young ppl |    |     |
|----|--|-----------|----|-----------|----|-----|
|    |  | Men       | Rk | Men.      | Rk |     |
| 1  | Climate change and its impacts   | 61        | 1  | 45        | 2  |     |
| 2  | Poverty and the impact of living with it   | 48        | 2  | 30        | 7  |     |
| 3  | Inequality within society in general (e.g., income inequality, social inequality)  | 48        | 3  | 15        | 15 | *   |
| 4  | Government policies leading to austerity and cuts to the welfare state   | 43        | 4  | -         | -  | OA* |
| 5  | Racial, ethnic and religious intolerance   | 39        | 5  | 35        | 4  |     |
| 6  | Issues related to public health (e.g., obesity, antibiotic resistance)   | 36        | 6  | 35        | 5  |     |
| 7  | Technology and its impact on human behaviour (e.g., social media, privacy, automation)   | 32        | 7  | 34        | 6  |     |
| 8  | Forms of capitalism that favour finance, corporations and elites (e.g., neoliberalism) / [YP Capitalism and its effects including more and more competition] | 31        | 8  | 7         | 29 | *   |
| 9  | Human population growth (i.e., overpopulation)   | -         | -  | 23        | 8  | OY* |
| 10 | Household financial issues (e.g., debt, the rising cost of living, economic insecurity)  | 28        | 9  | 14        | 17 |     |
| 11 | Discrimination, intolerance and prejudice generally  | 28        | 10 | 7         | 30 | *   |
| 12 | Environmental loss and damage (e.g., deforestation, threats to animals and plants)   | 27        | 11 | 47        | 1  | *   |
| 13 | Mental health and well-being issues (e.g., increases in depression, anxiety)   | 27        | 12 | 38        | 3  |     |
| 14 | Dissatisfaction and distrust in the current political system   | 26        | 13 | 21        | 9  |     |
| 15 | An increase in populism and far-right political views  | 25        | 14 | 10        | 27 |     |
| 16 | Issues around homelessness   | -         | -  | 16        | 14 | OY  |
| 17 | The challenge of living sustainably (e.g., reducing consumption, energy sources and use)   | 21        | 15 | 10        | 26 |     |
| 18 | Employment issues (e.g., finding any work, finding secure work)  | 20        | 16 | 19        | 13 |     |
| 19 | Increased pressure in the workplace (e.g., stress, work-life balance) [YP – Poor working environments (e.g., long working hours, exploitation of employees)] | 20        | 17 | 3         | 37 |     |
| 20 | Loneliness and social isolation  | 19        | 18 | 5         | 35 |     |
| 21 | Pressures to conform (e.g., appearance, owning an iPhone)  | -         | -  | 14        | 18 | OY  |
| 22 | The effects of various forms of pollution (e.g., air, water, plastic)  | 18        | 19 | 20        | 11 |     |
| 23 | Lack of affordable housing   | 18        | 20 | 12        | 21 |     |
| 24 | An increase in individualism, selfishness and a decrease in community cohesion   | 18        | 21 | -         | -  | OA  |

(segue tab. 2)

| N  | Wider social challenges  | Academics |    | Young ppl |    |    |
|----|--|-----------|----|-----------|----|----|
|    |  | Men       | Rk | Men.      | Rk |    |
| 25 | Access to health and care (e.g., reduced funding, long waiting times)                    | 18        | 22 | 12        | 23 |    |
| 26 | The threat of war and other conflicts (e.g., civil, global, nuclear)                     | 18        | 23 | 19        | 12 |    |
| 27 | Inequality related to gender (e.g., sexism, misogyny)                                    | 17        | 24 | 15        | 16 |    |
| 28 | Fear of violence (e.g., violent crime, sexual assault)                                   | 16        | 25 | 13        | 20 |    |
| 29 | Problematic alcohol and drug use   | -         | -  | 12        | 25 | OY |
| 30 | Brexit and its implications  | 16        | 26 | 21        | 10 |    |
| 31 | Educational inequality (e.g., access, quality, fees)                                     | 15        | 27 | 10        | 28 |    |
| 32 | Issues related to an aging population (e.g., health, care, retirement costs)             | 13        | 28 | 12        | 24 |    |
| 33 | Issues of human migration and immigration  | 13        | 29 | 12        | 22 |    |
| 34 | People feeling disempowered, displaced and powerless                                     | 11        | 30 | -         | -  | OA |
| 35 | <i>Donald Trump</i>  | -         | -  | 6         | 31 |    |
| 36 | <i>Family-related issues</i>   | 9         | 31 | -         | -  |    |
| 37 | <i>International relations with controversial political leaders (e.g., Trump, Putin)</i> | 6         | 32 | -         | -  |    |
| 38 | <i>Personality attributes (e.g., stubborn mindsets, lack of empathy etc.)</i>            | -         | -  | 5         | 32 |    |
| 39 | <i>Lack of a sense of community and collective efficacy</i>                              | -         | -  | 5         | 33 |    |
| 40 | <i>Conflicting attitudes and values</i>  | 4         | 33 | -         | -  |    |
| 41 | <i>Natural disasters (e.g., earthquakes and tsunamis)</i>                                | -         | -  | 5         | 34 |    |
| 42 | Terrorism  | 4         | 34 | 13        | 19 |    |
| 43 | <i>Non-violent crime</i>   | 3         | 35 | -         | -  |    |
| 44 | <i>Crime generally</i>   | -         | -  | 4         | 36 |    |
| 45 | <i>Famine</i>  | 3         | 36 | -         | -  |    |
| 46 | <i>Poor working environments (e.g., long working hours, exploitation of employees)</i>   | -         | -  | 3         | 37 |    |

Notes. Men = mentions, Rk = rank, \* = large difference ( $\geq 20$ ), OA = only academics, OY = only young people, italics = less than 10 mentions for both groups.

### 3.3 Statistical comparison

This study set out to explore environmental and wider social challenges generated by participants and how these vary across two different groups of participants. One way a difference might be demonstrated is through quantitative data: the number of different challenges different groups suggested. However, using Chi-square, there was no significant association between the

number of challenges mentioned 10 times or more and the type of participants (environmental vs. wider social / academic vs. young people; [cells 29, 21, 30, 28]  $\chi^2(1) = .427, p = .56$ , two tailed). Nor was there any significant association between the number of challenges mentioned at least 10 times by only one group, across challenge type (again, environmental vs. wider social / academic vs. young people). As 3 cells, included values of less than 5 (i.e., 1, 2, 3, 4), Fishers Exact test was used with a final *p value* of .12 (two tailed; Fishers Exact test has no test statistic to report). A more qualitative consideration of any differences in the content rather than the number of the challenges will be highlighted in the discussion.

#### 4. Discussion

In the context of both climate and ecological emergencies and the growing contributions of community psychology, this study sought to gather perceptions of environmental and wider social challenges generated by academics and young people. Focusing first on the environmental challenges list, it is notable that: i. it contained more than climate change alone and ii. the extent to which the environmental challenges are interconnected. So many relate to unchecked human consumption, human damage and a willingness to unsustainably exploit the planet on which we live. Given its potential existential threat (Huggel *et al.*, 2022; Ripple *et al.*, 2022), our understandable focus on climate change generally or carbon emissions in particular, might risk separating this vital issue from other wider environmental challenges. This separation might allow us to think that climate change is something quickly ameliorable to an innovation or technical solution (McLaren & Markusson, 2020). Seeing climate change as an urgent challenge sharing many features of other environmental challenges – often described in the table using the words: increase, overuse, consumption, unsustainable, degradation, damage, loss, exploitation – may help remind us of the unrestrained human and corporate behaviour at the root of many of these environmental crises.

Another environmental challenge highlighted in the top 20 of both groups of participants was: “Wider human challenges preventing a more environmental focus”. The challenge taps into the heart of this study and connects the lack of action on environmental challenges directly to the wider social challenges faced by many. The presence of these wider social challenges may limit the ability of individuals, communities and even community psychology to address the climate and ecological emergencies. This finding might be a useful counterweight to some psychological explanations of the

lack of pro-environmental behaviour that might prioritise internal psychological constructs rather than the wider social challenges individuals and communities face. Moreover, arguably in their quest for social justice, many community psychologists have so far focused their attention on the non-environmental challenges in wider social challenges list. What seems clear today, is that not also focusing on environmental challenges will have consequences for both social as well as environmental justice.

Across both groups of participants, 35 wider social challenges were mentioned 10 or more times by one or more groups. In the top 10, 5 were shared across both groups (i.e., climate change; poverty; racial, ethnic and religious intolerance; public health issues; the impact of technology). Beyond climate change, each wider social challenge provides a potential reason why individuals and communities might be limited in their ability to focus fully on climate and environmental issues. Despite the undoubted importance of climate change (Ripple *et al.*, 2022), the list of wider social challenges may – in day-to-day life – appear more present and pressing for individuals and communities. They may also occupy the focus of community psychologists.

A parallel way of looking at the potential weight of the wider social challenges is simply the relative inability of environmental issues to cross-fertilise the wider social challenges list. Although both lists were topped by environmental concerns, it does seem of interest, that while academics and young people produced 32 environmental challenges which were mentioned 10 or more times, only 4 environmental challenges made the wider social challenge list (climate change [1]; environmental loss and damage [12]; challenge of living sustainably [17]; pollution [22]). Just 4 of the 35 wider social challenges.

Comparing across lists and participants statistically, there was no significant difference between the total numbers of challenges mentioned across challenge type nor groups of participants. However, looking more closely at areas where large gaps occurred ( $\geq 20$ ) perhaps a more subtle story can be told. It seems that some of the examples offered by young people, perhaps lacked the breadth, depth and nuance seen in the academic list. At some level, this may not be surprising. We may expect some difference between asking experts and the public. However, such differences may be important and potentially useful in terms of future action.

For example, in terms of environmental challenges, academics mentioned, oceans becoming more acidic, invasive species, wider land use changes and increased enrichment of rivers (eutrophication) more than young people ( $\geq 20$ ). Perhaps it suggests these damaging, but less communicated aspects of the climate and ecological emergency are not, as yet, in

young people's awareness. Indeed, it does suggest a knowledge gap. Furthermore, the challenges that were more mentioned by young people than academics (deforestation, lack of pro-environmental behaviour, human waste disposal and physical pollution, general forms of pollution) seem to reflect more visible challenges which have already long had public attention drawn to them.

Moreover, in terms of the large gaps found on wider social challenges list, academic answers drew more attention to inequality, austerity and capitalism / neoliberalism. This again perhaps highlights, more subtle, less talked about, but arguably more pernicious wider social challenges. Another possible knowledge gap.

Wider systemic reasons why both sets of challenges persist were also captured in the lists. For example, in the environmental list, young people highlighted the factually correct but relatively individualistic: "Lack of pro-environmental behaviour change" more than academics ( $\geq 20$ ). Both groups highlighted: "Issues around political will and funding to bring about environmental change". But academics also highlighted 3 deeper issues 10 or more times, which young people did not. Specifically: i. "Lack of connection with nature and understanding of environmental issues amongst the public"; ii. "The impact of contemporary capitalism and consumerism on the environment", and iii. "Issues around effective policy implementation (e.g., conservation laws, resource protection)".

While it is not unexpected that the academic understandings of why the environmental situation is not shifting was perhaps more nuanced and at a deeper level than young people it could be important. It suggests that not only might there be knowledge gaps in terms of awareness of issues themselves, but also possible knowledge gaps in terms of the root causes of these issues and possible pathways to action. If true, this suggests a clear role both for community psychology and critical education.

Community psychologists have already highlighted the possible limitations of mainstream psychological research tending to focus their attention in terms of climate and environmental issues on «consumption choices and individual lifestyles» avoiding structural issues and power relations (Fernandes-Jesus *et al.*, 2020, p. 3). Similarly, when talking about ways to move towards sustainability, Riemer and Harré, note a range of activity from technical solutions with some aspects of behaviour change to radical economic and social transformation (2017, p. 442). Perhaps the differences between the groups of participants across both sets of lists remind us of the importance of educating about and addressing the broader context at both the macro level and at scale.

Looked at in terms of their wider political, social and economic context

there appears to be many connections between and across both challenges lists, highlighting the interconnection of different crises (see Francescato, 2020, p. 140; Kagan *et al.*, 2022). Echoing, Fernandes-Jesus *et al.* (2020), there is a continued need to focus on social and environmental justice and power. Indeed, as Riemer and Harré note: «capitalistic economic structures need to be rethought and neoliberal policies abandoned at the socio-political level» (2017, p. 449). But how do we move beyond suggesting this and become part of implementing real world solutions?

The introduction highlighted the possible role of knowledge gaps (Knutti, 2019). At the same time, our data suggests a lot of shared understanding of challenges between groups of participants. Importantly though, it suggests possible gaps at systemic and critical levels. And perhaps differences in awareness of potential root causes, which may hinder action towards solutions. Community psychology has potential tools to address such gaps – especially in critical community (Evans *et al.*, 2017; Kagan *et al.*, 2019) and liberation psychology (Martín-Baró, 1996; Montero *et al.*, 2017) where there is a history of critical consciousness work (Freire, 1996). Indeed, Riemer and Harré (2017) talk about the need for transformative learning about the «systematic roots causes» of these crises (p. 450). Moreover, there is precedent for critical consciousness work in the climate and environmental area. In 2013, Dittmer and Riemer developed critical consciousness workshops for young people within a community based environmental organisation. Their qualitative results described an increase in critical thinking and action. Their focus was on working intensively with a small number of critically engaged youths with the strategy that the young people would help create more social change agents. The issue of scaling up work such as this and how to ensure impact seems important. In a recent article calling for a planetary sense of community, Francescato (2020) concludes by suggesting community psychologists become more activist. Not just activists, but «teachers, researchers, professionals, and activists» (p. 160). Other psychologists have called for peaceful civil disobedience by scientists (Capstick *et al.*, 2022). As community psychologists, we pride ourselves with being rooted in our local communities and participatory in our methods. At the same time, the scale of the challenges, and the urgency of the crises – especially climate change – suggest the need to also work broadly with other organisations in the wider movement of movements (Cox & Nilsen, 2007): locally, nationally, and internationally. Connections and synergies have already been made, for example between critical community psychology and the degrowth movement (Natale *et al.*, 2016) – but much more work is needed to turn these potential matches to praxis at the scale needed to address the challenges we face.



## *4.1 Limitations*

The challenges generated by the participants in this study do not represent a definitive list, only a snapshot in time. They reflect the participants' views at the time of asking, in their location, in response to the questions asked. Challenges change over time. It should be noted that data collection took place before the recent war in Ukraine. It should also be noted that a different team adopting a different set of techniques might have condensed and organised the original data into a differently phrased final list of challenges.

It is worth restating that young people contributed to both lists, in a random presentation order. As such, they may have been more inclined to place their environmental concerns in that specific list alone. Moreover, academics contributing to the wider social list were picked because of their wider social expertise, not environmental knowledge.

It may also be worth clarifying that participants commented on environmental issues globally («...in the world today») and wider social challenges regionally («...in the Western world today»). This was a deliberate choice as this specific study was interested in wider social challenges relatively locally, not issues affecting some in the majority world, like basic sanitation, health care, food and water insecurity. Of course, issues related to global justice are vitally important, but not the focus of this study.

Finally, the research team made choices to collect and compare data from two different groups, experts and non-experts. In this case: academics and young people. Other groups of participants may have been chosen. For example, academics and workers of a similar age to the academics; or young students and age equivalent young adults who are not students. Future research may choose to explore different recruitment pathways.

## *4.2 Conclusion*

Participants in this study generated examples of environmental and wider social challenges. Although, of course, climate change must occupy our attention and focus: the important context provided by other environmental challenges draws our attention to the many things being done by us and to us, often by those with power, often at an industrial scale for profit. The complex, interwoven web of environmental challenges did not seem to cross-fertilize with the list of wider social issues as much as their importance reflects. And, at the same time, the wider social challenges remind us of the multiple, interlocking, issues facing individuals, communities and even community psychology which may have limited our time and ability to focus on climate change and the wider ecological emergencies until now.

Both sets of challenges remind us of the importance of looking at issues broadly, systemically, and structurally – things community psychologists routinely do. Of factoring in, not filtering out power, political and economic issues. The discussion draws attention to the potential important contribution of critical consciousness, of promoting critical awareness and vitality of pathways to critical action especially at macro levels and at scale. Collaborations within and outside of our disciplinary boundaries and outside of academia seems vital considering the range and urgency of challenges we face. Community psychology has always placed social justice as its heart. To meet our original social justice goals, we may now need to focus on both social and environmental justice equally.

## Appendix

Tab. A1 – Demographic characteristics of participants

| Characteristic                               | Academics<br>(Environmental) |      | Academics<br>(Wider social) |      | Young People |      |
|--|------------------------------|------|-----------------------------|------|--------------|------|
|  | <i>n</i>                     | %    | <i>n</i>                    | %    | <i>n</i>     | %    |
| <b>Gender</b>                                |                              |      |                             |      |              |      |
| Female                                       | 29                           | 29.6 | 53                          | 53.0 | 50           | 54.3 |
| Male   | 68                           | 69.4 | 46                          | 46.0 | 42           | 45.7 |
| Not specified                                | 1                            | 1.0  | 1                           | 1.0  | -            | -    |
| <b>Normal living location</b>                |                              |      |                             |      |              |      |
| United Kingdom                               | 97                           | 99.0 | 98                          | 98.0 | 87           | 94.6 |
| <b>Ethnicity</b>                             |                              |      |                             |      |              |      |
| White  | 89                           | 90.8 | 84                          | 84.0 | 76           | 82.6 |
| Mixed  | -                            | -    | 5                           | 5.0  | 7            | 7.6  |
| Other  | -                            | -    | 5                           | 5.0  | -            | -    |
| <b>Highest Education Level</b>               |                              |      |                             |      |              |      |
| Secondary / tertiary level                   | -                            | -    | -                           | -    | 73           | 79.4 |
| Undergraduate                                | -                            | -    | -                           | -    | 12           | 13.0 |
| Postgraduate / graduate                      | -                            | -    | 5                           | 5.0  | -            | -    |
| PhD / other doctorate                        | 95                           | 96.9 | 95                          | 95.0 | -            | -    |
| <b>Area of Teaching/Research<sup>a</sup></b> |                              |      |                             |      |              |      |
| Life sciences                                | 37                           | 37.8 | -                           | -    | -            | -    |
| Physical sciences and maths                  | 20                           | 20.4 | -                           | -    | -            | -    |
| Environmental sciences                       | 13                           | 13.3 | -                           | -    | -            | -    |
| Geography                                    | 10                           | 10.2 | -                           | -    | -            | -    |
| Social and behavioural sciences              | 7                            | 7.1  | 87                          | 87.0 | -            | -    |
| Arts and humanities                          | -                            | -    | 5                           | 5.0  | -            | -    |

Notes: Regarding demographic data beyond gender, categories are only included if more than 5% of participants occupy that category. <sup>a</sup> As participants could tick more than one box, numbers/percentages can add up to more than the total number of participants.

## References

- Angelique, H., & Kyle, K. (2002). Monterey declaration of critical community psychology. *The Community Psychologist*, 35(1), 35-36.
- Armstrong McKay, D. I., Staal, A., Abrams, J. F., Winkelmann, R., Sakschewski, B., Loriani, S., Fetzer, I., Cornell, S. E., Rockström, J., & Lenton, T. M. (2022). Exceeding 1.5°C global warming could trigger multiple climate tipping points. *Science*, 377(6611), eabn7950.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi: 10.1191/1478088706qp063oa
- Capstick, S., Thierry, A., Cox, E., Berglund, O., Westlake, S., & Steinberger, J. K. (2022). Civil disobedience by scientists helps press for urgent climate action. *Nature Climate Change, Nature*, 12(9), 773-774. doi: 10.1038/s41558-022-01461-y
- Cox, L., & Nilsen, A. G. (2007). Social Movements Research and the 'Movement of Movements': Studying Resistance to Neoliberal Globalisation. *Sociology Compass*, 1(2), 424-442. doi: 10.1111/J.1751-9020.2007.00051.X
- Dittmer, L., & Riemer, M. (2013). Fostering Critical Thinking about Climate Change: Applying Community Psychology to an Environmental Education Project with Youth. *Global Journal of Community Psychology Practice*, 4(1), 2-12. doi: 10.7728/0401201302
- Evans, S. D., Duckett, P., Lawthom, R., & Kivell, N. (2017). Positioning the critical in community psychology. In *APA Handbook of Community Psychology: Theoretical foundations, core concepts, and emerging challenges* (Vol. 1, pp. 107-127). American Psychological Association.
- Fernandes-Jesus, M., Barnes, B., & Diniz, R. F. (2020). Communities reclaiming power and social justice in the face of climate change. *Community Psychology in Global Perspective*, 6(2/2), 1-21. doi: 10.1285/I24212113V6I2-2P1
- Francescato, D. (2020). Why we need to build a planetary sense of community. *Community Psychology in Global Perspective*, 6(2/2), 140-164. doi: 10.1285/i24212113v6i2-2p140
- Freire, P. (1996). *Pedagogy of the Oppressed*. London: Penguin Books.
- Frick, J., Kaiser, F. G., & Wilson, M. (2004). Environmental knowledge and conservation behavior: Exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, 37(8), 1597-1613. doi: 10.1016/j.paid.2004.02.015
- Huggel, C., Bouwer, L. M., Juhola, S., Mechler, R., Muccione, V., Orlove, B., & Wallimann-Helmer, I. (2022). The existential risk space of climate change. *Climatic Change*, 174(1), 8. doi: 10.1007/s10584-022-03430-y
- IPCC (2018). *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, ... & T. Waterfield (Eds.)]. Cambridge, UK and New York: Cambridge University Press.

- Kagan, C., Akhurst, J., Alfaro, J., Lawthom, R., Richards, M., & Zambrano, A. (Eds.) (2022). *The Routledge International Handbook of Community Psychology: Facing Global Crises with Hope*. London: Routledge.
- Kagan, C., Burton, M., Duckett, P., Lawthom, R., & Siddiquee, A. (2019). *Critical Community Psychology: Critical Action and Social Change* (2nd ed.). London: Routledge.
- Knutti, R. (2019). Closing the Knowledge-Action Gap in Climate Change. *One Earth*, 1(1), 21-23. doi: 10.1016/j.oneear.2019.09.001
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239-260. doi: 10.1080/13504620220145401
- Lenton, T. M. (2021). Tipping points in the climate system. *Weather*, 76(10), 325-326. doi: 10.1002/wea.4058
- Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change*, 17(3), 445-459. doi: 10.1016/j.gloenvcha.2007.01.004
- Martín-Baró, I. (1996). *Writings for a liberation psychology*. Harvard: Harvard University Press.
- Maurer, M., & Bogner, F. X. (2020). Modelling environmental literacy with environmental knowledge, values and (reported) behaviour. *Studies in Educational Evaluation*, 65, doi: 10.1016/j.stueduc.2020.100863.
- McLaren, D., & Markusson, N. (2020). The co-evolution of technological promises, modelling, policies and climate change targets. *Nature Climate Change*, 10(5), 392-397. doi: 10.1038/s41558-020-0740-1
- Montero, M., Sonn, C. C., & Burton, M. (2017). Community psychology and liberation psychology: A creative synergy for an ethical and transformative praxis. In *APA Handbook of Community Psychology: Theoretical foundations, core concepts, and emerging challenges* (Vol. 1, pp. 149-167). American Psychological Association.
- Natale, A., Di Martino, S., Procentese, F., & Arcidiacono, C. (2016). De-growth and critical community psychology: Contributions towards individual and social well-being. *Futures*, 78-79, 47-56. doi: 10.1016/j.futures.2016.03.020
- Oskamp, S. (2000). A sustainable future for humanity? How can psychology help? *American Psychologist*, 55, 496-508. doi: 10.1037/0003-066X.55.5.496
- Otto, S., & Pensini, P. (2017). Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behaviour. *Global Environmental Change*, 47, 88-94. doi: 10.1016/j.gloenvcha.2017.09.009
- Quimby, C. C., & Angelique, H. (2011). Identifying Barriers and Catalysts to Fostering Pro-Environmental Behavior: Opportunities and Challenges for Community Psychology. *American Journal of Community Psychology*, 47(3), 388-396. doi: 10.1007/s10464-010-9389-7
- Rich, R. C., Edelman, M., Hallman, W. K., & Wandersman, A. H. (1995). Citizen

- participation and empowerment: The case of local environmental hazards. *American Journal of Community Psychology*, 23, 657-676. doi: 10.1007/BF02506986
- Riemer, M., & Harré, N. (2017). Environmental degradation and sustainability: A community psychology perspective. In *APA Handbook of Community Psychology: Methods for community research and action for diverse groups and issues* (Vol. 2, pp. 441-455). American Psychological Association.
- Riemer, M., & Reich, S. M. (2011). Community Psychology and Global Climate Change: Introduction to the Special Section. *American Journal of Community Psychology*, 47(3), 349-353. doi: 10.1007/s10464-010-9397-7
- Ripple, W. J., Wolf, C., Gregg, J. W., Levin, K., Rockström, J., Newsome, T. M., Betts, M. G., Huq, S., Law, B. E., Kemp, L., Kalmus, P., & Lenton, T. M. (2022). World Scientists' Warning of a Climate Emergency 2022. *BioScience*, 72(12), 1149-1155. doi: 10.1093/biosci/biab079
- Thompson, M., Pawson, C., Delfino, A., Saunders, A., & Parker, H. (2022). Student mental health in higher education: The contextual influence of “cuts, competition & comparison”. *British Journal of Educational Psychology*, 92(2), 367-393. doi: 10.1111/bjep.12461
- United Nations Environment Programme. (2022). *Emissions Gap Report 2022: The Closing Window—Climate crisis calls for rapid transformation of societies*. United Nations Environment Programme.
- Vicente-Molina, M. A., Fernández-Sáinz, A., & Izagirre-Olaizola, J. (2013). Environmental knowledge and other variables affecting pro-environmental behaviour: comparison of university students from emerging and advanced countries. *Journal of Cleaner Production*, 61, 130-138. doi: 10.1016/j.jclepro.2013.05.015
- World Meteorological Organization (2022). *Global Annual to Decadal Climate Update*. World Meteorological Organization.
- WWF (2022). *Living Planet Report 2022 - Building a nature-positive society*. Almond, R.E.A., Grooten, M., Juffe Bignoli, D. & Petersen, T. (Eds). WWF. Gland, Switzerland.
- Zsóka, Á., Szerényi, Z. M., Széchy, A., & Kocsis, T. (2013). Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production*, 48, 126-138. doi: 10.1016/j.jclepro.2012.11.030