Griffith UNIVERSITY
Queensland, Australia

CLIMATE ACTION SURVEY 2022

TECHNICAL REPORT

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EXECUTIVE SUMMARY

Griffith University's Climate Action Beacon conducted the second of five planned *Climate Action Surveys* in September-December, 2022. The survey aimed to discover what Australians think, feel, and do about climate change and related environmental and climatic events, conditions, and issues. This report gives details of the background to the survey, as well as its methods, major findings, and potential implications. Comparisons are made with findings from the corresponding 2021 survey and with other recent survey research.

In 2022, the survey was conducted in two stages. First, to obtain longitudinal data and monitor within-person changes in responses, all available members of the sample of 3,915 people who completed the survey questionnaire in 2021 were invited to participate again in 2022. Usable responses were obtained from 1,263 members (32.3%) of this cohort (51.9% female, M_{age} = 54.2 years). Second, to boost the total sample size to the target of N = 4,000, and to permit estimations of nationwide trends over time, a quota sample of Australian resident adults, stratified by gender, age, and state of Australia (in proportion to the representation of these categories in the national population), was recruited. Data collection closed when usable questionnaires had been received from 2,767 people (50.2% female, M_{age} = 47.3 years). Therefore, the 2022 sample comprised 4,030 Australian adults (50.7% female, M_{age} = 49.4 years).

Two versions of the online questionnaire were used in 2022 - one for the repeat respondents, and one for the new respondents. The latter questionnaire closely resembled that used in 2021. For the repeat respondents, questions that did not warrant asking a second time in two years were replaced by questions tapping new topics. Both questionnaires comprised almost 200 single items/questions, approximately 30 multi-item composite scales, and several open-ended questions. Each could be completed in approximately 30 minutes.

The survey content pertained to the extent and distribution of different views about climate change; feelings/concerns about the threat and reality of climate change; knowledge of climate change and information sources used to obtain this knowledge; experiences of extreme weather events, natural disasters (including the 2022 Australian floods), and climate change impacts; pro-environmental behaviours and lifestyles; barriers to engaging in these behaviours and lifestyles; and self-views, worldviews and socio-political opinions. Demographic data enabled the identification of group differences in the climate change variables.

As was the case in 2021, the survey demonstrates the high prevalence of beliefs in, and concerns about, climate change, and the overwhelming support for government policies that facilitate mitigation of the rate and extent of climate change. Findings have implications for climate change interventions, government policy, future research, and theory development.

At the time of writing, more detailed analyses of the quantitative and qualitative data, and deeper consideration of the implications of the findings, are ongoing.

Planning has commenced to conduct a third iteration of the survey in the second half of 2023.

RESEARCH HIGHLIGHTS:
UPDATING THE 2021 SURVEY FINDINGS

The 2022 Climate Action Survey gathered data from two overlapping populations of adult Australians: 1,263 people who had participated in the 2021 survey ('repeat' respondents); and 2,767 previously unsurveyed people ('new' respondents). The sample of new respondents was recruited in a manner that ensured it was demographically representative of the Australian population. In contrast, the repeat respondents were, on average, considerably older than both the national population and the remainder of the 2021 survey respondents. In 2021, these repeat respondents reported less environmentally- and climate-friendly attitudes and behaviours than did the 2021 sample as a whole.

Most of the 2022 survey questions were the same as used the previous year, and findings pertaining to these questions can now be updated in light of responses to the 2022 survey. Important 2022 findings from this common set of questions include:

- Respondents did not share a common understanding of the term *climate change*. Preferred definitions differed in scope (e.g., whether the term is narrowed to just 'warming' or broadened to include all climatic changes) and locus of causation (e.g., whether the term refers to all climatic changes or just those that are anthropogenic).

- Belief in, or acceptance of, climate change was measured in multiple ways. Using responses to these measures, an estimated 2-3% of the 2022 respondents were categorised as climate change *deniers*, 5-6% as climate change *sceptics*, 17-19% as *unconvinced* about climate change, and the remainder – the vast majority (around 74%) - as firm *believers* in the reality of climate change.

- Scores on an objective test of climate change causes, impacts, and responses were similar to those obtained in 2021, with fewer than half of the 2022 new respondents correctly answering several of the multiple-choice questions.

- As in 2021, respondents reported using many sources for information about climate change. They placed most trust in scientists and scientific publications, the Bureau of Meteorology, expert panels and advisory groups, specialist government information providers, environmental organisations, and their own observations and experiences. Politicians and social media (Facebook, Tik Tok) were least trusted.

- Fifteen percent of respondents believed climate change is an 'extremely serious' problem right now (the corresponding percentage in 2021 was 22%), whereas 30-31% believed it will be so in 2050 (compared to 45% of 2021 respondents).

- 67% of repeat respondents and 71% of new respondents reported feeling either 'fairly' or 'very' concerned about the effects of climate change. These percentages are slightly lower than those found in 2021 (72%), but considerably higher than the 35% obtained when similar surveys were conducted in 2010/2011.

- 37% of new respondents (up from 31% in 2021) reported having personally and directly experienced at least one extreme weather or natural disaster event in the preceding year, and 47% had done so prior to the past year. Altogether, 55% of the 2022 new respondents (up from 52% in 2021) had experienced such an event at some point in their life. As also found in 2021, respondents who had personally experienced one or more of these events were far more likely than those who lacked such experience to report high levels of climate change awareness, concern, and action.

- 2022 respondents were also more likely than the 2021 respondents to report having experienced the impacts of climate change. Most (33% of repeat and 38% of new) respondents indicated that they had directly experienced such an event or circumstance in the past twelve months. The corresponding percentage in the 2021 survey was 24%. More than one-third (36%) of 2022 new respondents had such an experience prior to the preceding twelve months. Altogether, 44% of new respondents (up from 35% in 2021) claimed to have experienced such an event at some point.

- Most (63% of repeat and 66% of new) respondents thought that they/their families had been harmed to some extent by circumstances or events that they believed were related to climate change. (In the 2021 survey, the corresponding figure was 68%).

- The reasons most commonly cited by 2022 new respondents for not engaging in pro-environmental behaviours included insufficient time and/or money, entrenched routines/habits, doubts regarding the efficacy of these behaviours, and lack of knowledge of actions to take. Similar barriers to climate action were noted in 2021.

- Support for numerous 'pro-environment' government policies remained high in 2022, albeit 3% - 9% lower than in the 2021 survey.

- Most homeowners reported that they had modified their home in some way in the preceding five years to make it better adapted to extreme weather and natural disasters.

- Demographic sub-groups that showed relatively high levels of climate change understanding, concern, and action included respondents aged 35 years or under, students, inner urban residents, respondents educated to university level, and those intending to vote for a left-leaning political party. (For economy, we refer to members of a plurality of these groups as climate change "progressive" respondents). In contrast, climate change denial, disregard, and inaction were more common among the older, religious, less highly-educated, and more politically conservative members of the sample. (We refer to these as "conservative" respondents). Women reported stronger beliefs and greater climate change concerns than did men. These findings mirrored those obtained in the 2021 survey.

RESEARCH HIGHLIGHTS:
SURVEY FINDINGS NEW TO 2022

Many of the survey findings highlighted above confirm and reinforce those obtained in the 2021 survey. Some vary or qualify that which was previously found. Other 2022 findings break entirely new ground. They include:

- Expressions of hope in addressing climate change were more often expressed by conservative respondents, including those who self-identified as religious, those intending to vote for a right-leaning political party, those who were parents, those who were not a member of a marginalised or minority group, and those who rated their health as *OK*, *good*, or *very good*.

- 18% of repeat respondents, and 31% of new respondents (that is, 27% of all 4,030 2022 respondents), reported having been directly exposed to flooding in in Australia in 2022. In general, those directly exposed reported greater environmental/climate change awareness, concern, and responsiveness. More critically, compared to their peers who were not flood-exposed, repeat respondent exposure to the floods in 2022 was associated with greater *changes* from 2021 to 2022 in a range of climate change variables. Nearly all these changes were toward stronger beliefs, deeper concern, and greater readiness for climate action.

- Substantial minorities of both samples reported that the 2022 floods had impacted them, the people close to them, and/or their property. Specific impacts include: property damage/loss (reported by 32% of flood-exposed repeat respondents and 30% of flood-exposed new respondents), loss of the capacity to perform usual work in the usual way (29% and 31%), financial loss (28% in both samples), being physically cut off or trapped (27% and 30%), and psychological distress or trauma (22% and 24%, respectively).

- Compared to their own 2021 responses, the 2022 repeat respondents reported more frequent pro-environmental behaviour, stronger normative beliefs and personal norms (obligations) to engage in pro-environmental behaviour, greater felt personal responsibility for contributing to climate change, greater willingness to engage in pro-climate actions, and superior psychological adaptation to the threat and impacts of climate change. However, they showed less interest in engaging in climate actions in the future, regarded the climate change issue as less important, and felt less personally and collectively efficacious in acting against climate change.

- Following or during hot weather, many respondents reported that they experience sleeping problems, fatigue, dehydration, headache, loss of balance/feelings of dizziness/faintness, and anxiety. Almost one-sixth of respondents experienced none of the 15 symptoms listed.

- Relationships between climate change attitudes and behaviours and the personality of the repeat respondents were investigated. Of the five personality traits measured, the

one with the closest associations was ‘openness’, which was positively correlated with nearly all the climate change variables. Individuals who scored high in openness tended to report pro-environmental attitudes and behaviours. Of the many climate change-related variables, the one with the highest correlations with the five personality traits was connection to nature.

- Changes in the climate change variables varied with respondents’ intended party political voting preferences. For example, self-rated increases over the preceding year in concern about climate change were more common among intending Labor Party voters than all other respondents combined. In the repeat respondent sample, 2021-to-2022 changes in normative beliefs, and in the frequency with which respondents engage in pro-environmental behaviours, also varied with voting intentions.

- The strength of the correlations between several climate change variables differed between samples and sub-samples, In particular, correlations between policy support and the other variables were significantly higher when the repeat respondents completed the 2022 survey than when they completed the 2021 survey.

- Comparison of responses to the climate change variables given by the full 2021 sample (N = 3,915) and the full 2022 sample (N = 4,030) revealed several significant differences. However, these were not all in a single direction. Thus, for example, the 2022 respondents accepted greater responsibility for causing climate change, reported greater normative pressure towards acting in pro-environmental ways, and displayed superior psychological adaptation to climate change. However, they also reported weaker beliefs in climate change and judged the issue to be less important.

- Numerous hypotheses are proposed to help explain the apparent inconsistencies and contradictions in the responses given either within particular sub-samples or between sub-samples and/or survey years. These explanations draw on ideas from the academic literature including the notions of a *single-action bias*, a *finite pool of worry*, and a *whatever-doesn’t-kill-you* effect. Future iterations of the survey can seek to test the veracity of these and other hypothesised explanations of the complexities evident in the current set of findings.

CONTENTS

1.0 GRIFFITH UNIVERSITY'S CLIMATE ACTION BEACON

Griffith University's Climate Action Beacon (CAB) is a multidisciplinary research and education facility established in 2020, and initially funded for five years, to support climate action in the transition towards a climate resilient future.

The CAB seeks to develop knowledge, leadership, capacity, and responses to enable effective and just action throughout society, focusing on interdisciplinary research and cross-sectoral practice collaborations as catalysts for change. A key difference from other facilities is that the CAB's interdisciplinary and partnership approach enables research disciplines and communities-of-practice to collaboratively define, research, implement, and evaluate solutions for climate action.

The Beacon's research focuses on three themes:

- **Theme 1: Motivation for Climate Action** – building the case for and enabling the practice of climate action among individuals, and collectively in communities, organisations and government.
- **Theme 2: Future Climate Transitions** – supporting progress towards climate-resilient development and net zero carbon emissions.
- **Theme 3: Climate Justice** – ensuring that climate actions are fair, equitable and just, contributing toward broader sustainable development goals.

Under these themes, the Beacon supports a range of short- and long-term research projects. The survey described in this report, **the Climate Action Survey**, is a core part of the work conducted under Theme 1. This theme seeks to motivate action on climate change in just and empowering ways, prioritising the health and wellbeing of human and non-human ecologies to thrive and prosper. The primary research question investigated under this theme is: *How could we communicate climate change in ways that will motivate and empower individuals, households, communities, industries, and institutions with the knowledge and understanding required to prioritise action on climate change?*

As elaborated in the next section, the Climate Action Survey provides quantitative and qualitative data on the status of, and impediments to, Australian climate action. The first Climate Action Survey was conducted in 2021, and is reported in Bradley (2022) and Bradley et al. (2022). The 2022 survey is the second of five annual surveys planned. From 2022 onwards, the survey comprises both longitudinal and annual replacement samples. The survey feeds into other CAB activities, providing data to support existing projects and assist in identifying research gaps and opportunities. The survey data is also geared to industry and government needs and thus seeks to attract external interest and research partnerships. Regional case studies will draw on the survey and enable deeper dives into the context and nuance of Australian communities.

2.0 AIMS AND SCOPE OF THE CLIMATE ACTION SURVEY

2.1 Survey Aims

The Climate Action Survey is designed to provide detailed information regarding what adult Australians think, feel, and do in response to climate change and related environmental and climatic events and conditions. The 2022 survey **aims** to capture and document Australians' knowledge, beliefs, attitudes, and actions as they stood in late 2022, and to compare these with the knowledge, beliefs, attitudes, and actions reported at other times and by other populations.

More specifically, the survey had several, partially-overlapping objectives:

1. To build and test theory, to enhance theoretical understandings of climate change-related phenomena;
2. To contribute to knowledge derived from research; to fill gaps in this research and resolve inconsistencies/controversies raised by research; and to provide a basis for comparison with findings from past studies and a baseline of evidence for use in monitoring changes over time in climate change-related variables;
3. To inform the design of inter-disciplinary interventions and the formulation of policy in relation to climate change issues, and thereby meet relevant government and industry needs for up-to-date and authoritative information;
4. To inform individuals and communities, and stimulate public debate about climate change-related matters; and
5. To meet various objectives of the Climate Action Beacon, inform and complement other Beacon projects, satisfy diverse Beacon member interests, and further establish the Beacon as a national and international leader in climate change research, policy, and practice.

The fifth of these aims links the survey with various other CAB projects such as the Big Data analytics project; Facilitating Health System Transition - Climate Resilient and Sustainable Health Care; Warming up: Building Capacity of Community Radio to Communicate Climate Change; the ETHOs Heat-Health 75+ project; and the Quit Carbon Youth Initiative.

Questionnaire-based survey methods have many known strengths (e.g., the capacity to collect information – including information that is subjective and/or pertaining to unobservable phenomena – from large, potentially representative samples, and to do so efficiently in terms of both time and money) and limitations (e.g., its susceptibility to response biases and memory lapses, and the often superficial nature of the information collected). These strengths and limitations are acknowledged, but not further elaborated in this report. The contribution of the current survey should be evaluated in the context of it being one of several studies investigating aspects of climate change conducted in parallel and supported by the Beacon. These methodologically-diverse studies serve complementary roles, with the limitations of some compensated by the strengths of others.

2.2 Survey Scope

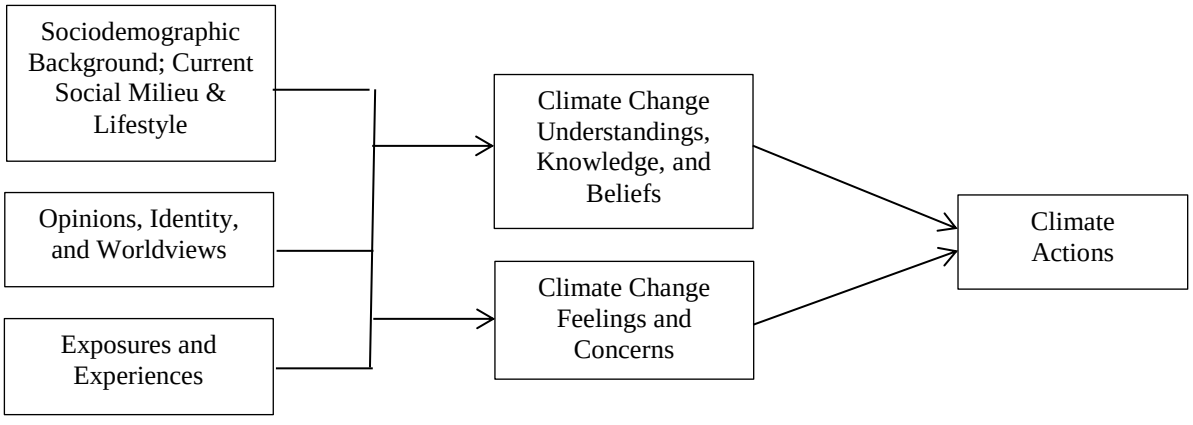
The scope of the Climate Action Survey is broad. It encompassed the following:

- A large sample of Australian adults, stratified by gender, age, and state of Australia.
- A longitudinal design: the 2022 survey is the second of five annual survey waves. It sought to (1) re-survey individuals who responded in the 2021 survey, thereby maintaining a multi-wave longitudinal sample, and (2) complement this longitudinal sample with replacement for those respondents who were not willing and able to continue to participate.
- A sizeable budget: one that recognises and balances the multiple factors that affect survey costs including questionnaire length, types of items/questions, sample size, and number and type of stratification variables.
- A generous time allocation for planning and pilot-testing, with planning enabling the questionnaire to be well researched, critically considered, pretested, refined, and agreed to by many stakeholders, such that it was of sufficiently high quality to warrant re-use multiple times over subsequent years.
- An extensive range of content, as befits a multi-wave, multi-disciplinary project. Specifically, the survey content encompassed six major content categories: respondents' (1) socio-demographic and lifestyle characteristics (including the respondent's demographic characteristics, residential circumstances, and aspects of their social milieu); (2) opinions, self-identity, and worldviews; (3) exposure and experience factors (including exposure to/experience of natural disasters, extreme weather and other possible climate change events and conditions, and impacts of these); (4) knowledge, understandings and belief factors (including their knowledge, perceptions, beliefs, etc., about climate change and its causes and consequences, as well as the sources of these understandings); (5) feelings and concerns about climate change and its impacts; and (6) actions (including past, current, and possible future pro-and anti-environmental acts, including both mitigation and adaptation behaviours, plus their reasons for not acting).

Appendix A provides definitions and examples of key concepts and terms used in this report.

Oversimplifying, the six content categories comprise a rough causal sequence from structural and pre-existing factors, through current internalised/psychological states, to overt action.

Figure 1: *Simplified Conceptual Model Underlying the Climate Action Survey*



3.0 BACKGROUND TO THE SURVEY

3.1 Sources of Questionnaire Content

The 2022 Climate Action Survey (CAS) comprises two different, but overlapping, data collection activities: a survey of those individuals who participated in the survey in 2021 and a survey of a sample of newly-selected respondents. Both surveys required participants to complete an online questionnaire. The questionnaires were similar, but not identical, with. both designed to meet the aims specified in Section 2.0 above. Both were based on the questionnaire used in 2021.

Content for the 2021 questionnaire (and hence for both the 2022 questionnaires) was obtained from four main sources:

1. Questionnaires used in the authors' previous national survey research. Foremost among this research is the pair of Australian national surveys conducted in 2010 and 2011 by Griffith University researchers (Reser et al., 2012a, 2012b), and a more recent survey of French citizens (Babutzide et al., 2018).

2. Questionnaires from recent Australian and international surveys, and available in online reports. Examples of recent Australian studies include surveys by:
   - The Australia Institute (available, for example, at: https://australiainstitute.org.au/wp-content/uploads/2020/12/Climate-of-the-Nation-2019-WEB.pdf, and https://australiainstitute.org.au/wp-content/uploads/2020/12/Polling-January-2020-Climate-change-concern-and-attitude-Web.pdf);
   - the CSIRO, 2014 (available, for example, at http://images.smh.com.au/file/2014/02/07/5139061/CSIROCC4.pdf):
   - the Edelman Trust Barometer, 2020 (available, for example, at: https://www.edelman.com.au/research/edelman-trust-barometer-2020);
   - the Essential Report, 2020 (available at: https://essentialvision.com.au/climate-change-policy-proposals)
   - the Lowy Institute, 2018 (available at: https://www.lowyinstitute.org/publications/2018-lowy-institute-poll);
   - Roy Morgan (available at: http://www.roymorgan.com/findings/8145-global-warming-australia-september-2019-201909230719);
   - Sustainability Victoria (2017, 2019) (available at: https://www.sustainability.vic.gov.au/research-data-and-insights/research/climate-change/victorians-perceptions-of-climate-change).

   International surveys consulted include those conducted by:
   - Ipsos (available at: https://www.ipsos.com/ipsos-mori/en-uk/climate-change-increases-importance-citizens-around-world)
   - the Yale Program on Climate Change Communication (available at, for example: climatecommunication.yale.edu/publications/climate-activism-a-six-americas-analysis-december-2020/
   - the European Commission, Special Eurobarometer 513, Climate change, July, 2021. (available at: https://europa.eu/eurobarometer/surveys/detail/2273)

- the European Social Survey (for example, European attitudes to climate change and energy: ESS Topline Results Series, available at: https://www.europeansocialsurvey.org/docs/findings/ESS8_toplines_issue_9_climatechange.pdf)

3. Academic research literature published nationally and internationally, mostly in the years 1990 to 2022. Hundreds of papers were consulted. Important examples include: Abrahamese and Steg (2013), Bamberg and Moser (2007), Berquist et al. (2022), Bradley et al. (2020), Clayton et al. (2015), Hart and Nisbet (2012), Hines et al. (1986-1987), Hornsey et al. (2016), Milfont (2012), Patrick et al. (2021), Poortinga et al. (2019), and Wolf and Moser (2011).

4. Theoretical and discursive literature. Some examples of work consulted are: Ajzen (1991), Bandura (1997), Gifford (2011), Gifford et al. (2011), Gifford and Nillson (2014), Klockner (2013), Kollmuss and Agyeman. (2002), Reser et al. (2014), Reser and Bradley (2020), Schwartz (1977, 1994), Steg and Vleck (2009), Stern (1992, 2000), van der Linden (2015), Weber and Stern (2011), and Witte (1992).

Input was sought and obtained from academics of various disciplinary backgrounds including psychology, economics, marketing, journalism, communication and media studies, law, linguistics, policy studies, engineering, environmental sciences, public health, and the arts. In this way, a broad range of interests and agenda were represented.

3.2 Criteria Used to Select Questionnaire Content

Decisions were made regarding two aspects of questionnaire content: (1) the constructs and variables to investigate, and (2) how to measure these constructs and variables.

3.2.1 What to Measure?

The selection of content for inclusion in the 2021, and, indirectly, the 2022, questionnaires was based on the following criteria.

Theoretical Importance. Variables were preferred to the extent that they are represented in contemporary theories pertaining to climate change, climate action, and the like (e.g., the theories of Ajzen, 1991; Klockner, 2013; Schwartz, 1977; Stern, 2000). Many of these theories place importance on values, past experiences, attitudes to behaviour and the environment, subjective norms, personal norms, beliefs regarding impacts, beliefs regarding responsibility for action, beliefs about capacity to act or exercise 'behavioural control', and behavioural intentions.

Practical Implications. Variables were targeted for inclusion in this survey to the extent that their inclusion may be useful in formulating policy and/or framing effective communication and behaviour change strategies. Examples of content with practical applications and implications include experience-based learning, purchasing and using insurance, trust in information sources, and responses to heat stress.

Continuity with the Past. Given that one aim of the survey is to monitor changes in experiences, beliefs, behaviours, etc., over time, variables were selected for inclusion to the

extent that they have been measured in well-conducted prior research, such that meaningful comparisons can be made and trends identified. To do this well, it is important to measure variables using the same items each time the survey is conducted. To this end, where possible, questions/items/scales were favoured to the extent that they are well established, with a preference to re-use those that were included in surveys previously conducted by the author (Babutsidze et al, 2018; Reser et al., 2012a, 2012b; see also Bradley et al., 2020).

Breaking New Ground. Notwithstanding the desirability of being able to embed the current survey into a larger theoretical and empirical context, the selection of survey content was guided by a need to identify and explore new questions, issues, and solutions. Contemporary and local relevance was thus an important consideration. Variables were selected to the extent that they capture the "here and now" of Australia (and the world) in the 2020s. Variables such as social media use and impacts of the 2022 Australian floods meet this criterion, whereas content that is outdated, obscure, foreign, over-researched, etc. does not.

Spread and Balance of Content. Consideration was also given to the need to investigate diverse aspects of the broad climate change issue. This criterion is particularly important given the multiple disciplinary backgrounds of the CAB membership, and the likelihood that different sub-issues will interest these members.

In addition, there was a need to include variables that (1) allowed both climate change 'believers' and climate change 'deniers' to express their views, and (2) both pro-environmental and anti-environmental behaviour to be reported. Furthermore, the questionnaire needed to measure variables that can act as barriers to climate action (e.g., inadequate income/wealth, time limitations, service unavailability, geographical impediments, lack of knowledge, lack of self-/response-/collective-efficacy, anti-environmental normative pressures), as well as variables that potentially facilitate climate action (e.g., prior direct experience of extreme weather and natural disasters, a green identity, personal norms, issue engagement, and psychological adaptation).

In sum, there was considerable 'competition for space' in the questionnaire. As detailed in Section 3.3, initial lengthy versions of the questionnaire required considerable trimming before being of a length suitable for use.

3.2.2 How to Measure this Content?

Several criteria guided the selection of specific items/questions/scales to measure the chosen variables. Satisfying some of these criteria was incompatible with satisfying others, so compromises and trade-offs were required. The criteria included the following:

- **Brevity**. Short items/questions/scales were preferred over longer alternatives.

- **Ease of Understanding**. Items/questions/scales worded in plain language were selected where possible Avoided were those that contain obscure words, technical terms, acronyms, complex constructions, etc. that may not be understood by many respondents. Examples include terms such as "carbon footprint", "CO_2" (unless defined), "GHG", "COP27", "mitigation", "trip chaining", "low-rolling" tyres, etc.

- **Reliability**. Items/questions/scales were selected so as to ensure adequate internal consistency and temporal stability. Application of this and the next criterion often worked against adherence to the brevity criterion.

- **Content Validity**. Items were selected so as to cover all facets of the relevant content, without excessive overlap, so that measurement was not biased towards or away from particular aspects of the target variable. In applying this criterion, it was recognised that many variables are simple and can be measured using a single item. In contrast, more complex, multi-faceted constructs are better measured using multi-item scales.

- **Unidimensionality**. Notwithstanding the previous criterion, items/questions/scales with a single focus were selected. Double-barrelled and confounded items/questions/scales were avoided.

- **Minimal Susceptibility to Gaps in Knowledge and to Recall Biases and Lapses**. Avoided were items/questions requiring knowledge that respondents did not possess, or that depended greatly on willingness and ability to recall minor and distant events.

- **Minimal Susceptibility to Response Biases** (such as social desirability, extremity, and acquiescence biases). 'Leading' questions were avoided, with the wording of all items/questions intended to be as neutral as possible.

- **Construct Validity**. Perhaps subsuming most of the previous criteria, attempts were made to ensure that selected items/questions/scales actually measure what they claim to measure. This criterion was at least partly satisfied by selecting items and scales that are well established, that have been extensively used in past research, and for which there exists empirical evidence as to their (concurrent/predictive/criterion, and convergent/divergent) validity. Thus, items/questions/scales used successfully in past research were selected, and where possible, their wording was unchanged.

- **Discriminability.** Items/questions/scales likely to be affected by range restriction and/or answered identically by all respondents were avoided.

3.3 Development and Refinement of the 2021 Questionnaire

The 2021 questionnaire was developed and refined iteratively over 16 months. In brief, the steps involved:

- To begin, the relevant research and theoretical literatures were searched. Existing survey instruments were audited, and an initial list was made of items, questions, and scales potentially worthy of inclusion in the questionnaire. Draft versions of the questionnaire were constructed, and feedback was sought from CAB members and experts external to the CAB on each version before the next draft.

- Three pilot studies were conducted between November 2020 and July 2021. The questionnaire was progressively modified on the basis of data collected and feedback obtained in each pilot survey.

- Tenders then went out for scripting the questionnaire, recruiting participants, conducting two further pilot studies, and subsequently implementing the survey each year from 2021 to 2025. To select an organisation to carry out these tasks, four survey provider firms were invited to answer a series of questions about the service they provide. A copy of the questions asked of the four firms is given in Appendix C of the 2021 survey technical report (Bradley, 2022). After receiving written responses and discussing the proposals via emails, online conversations, and phone calls, one of the four firms, Dynata, was contracted to partner the Griffith University team in carrying out this survey over the anticipated five-year period.

- In August-September 2021, Dynata ran two 'soft launches' of the survey. After some minor revisions to the questionnaire, Dynata implemented the entire survey in September-October 2021.

Further details of the 2021 scale development process are given in Appendix B of the 2021 technical report (Bradley, 2022).

3.4 Modification of the 2021 Questionnaire for Use in 2022

The 2021 Climate Action Survey questionnaire provided the basis for two questionnaires to be used in 2022. One 2022 questionnaire was to be completed by individuals who participated in the survey in 2021 (hereinafter referred to as the "repeat respondent questionnaire"); the other 2022 was to be completed by members of the 'replacement' sample, that is, individuals who did not participated in the survey in 2021 (hereinafter referred to as the "new respondent questionnaire").

To enable fair comparisons between responses obtained in the 2021 and 2022 Climate Action Surveys, as far as possible and reasonable, the 2021 survey content, including its closed-ended and open-ended questions, and its multi-item scales, was retained for use in 2022. The changes made from the 2021 questionnaire for the 2022 *new* respondent questionnaire were fewer than for the 2022 *repeat* respondent questionnaire. This was because much of the data collected in 2021 from the repeat respondents was unlikely to have changed much in a single year, and therefore did not need to be collected again in 2022.

Criteria to be used in deciding items to be omitted from, and added to, the 2022 questionnaires include:

- Centrality to the climate action issue
- 'Significance'/importance of relevant 2021 findings
- Usefulness/relevance to other CAB projects
- Temporal stability/dynamism of the information
- Likelihood of being the subject of academic papers (or other publications)
- Novelty/originality (not over-researched/'saturated' by other climate change surveys)
- Continuity/connectivity with the broader climate change literature
- Other criteria discussed above in Section 3.2 (theoretical importance, practical relevance, content balance, etc.).

Based on these criteria, in preparing the 2022 questionnaires, content was **deleted** from the 2021 questionnaire for three main reasons:

- **Information that was already available**. As noted above, some questionnaire items used in 2021 were not included in the 2022 repeat respondent questionnaire because they pertained to content that was unlikely to have changed greatly in the year since the 2021 survey. Examples are items asking about participants' country of birth, community involvement, trust in information sources including climate scientists, and 'deeper' environmental values.
- **Information that was dated/less relevant in 2022**. Some questionnaire items used in 2021 were not included in the 2022 questionnaires because they pertained to content deemed less relevant/topical in 2022 than it was in the preceding year. Examples are items about COVID-19 and political identification (leading up to the May 2022 federal Australian election).
- **Information collected in 2021 but found to be of limited use or interest.** Some items in the 2021 questionnaire were not included in 2022 because they had not generated great interest from CAB members or external stakeholders and had not led to significant or surprising findings in 2021. Although these items have some value, they were deemed less valuable than others, given the competition for space in the 2022 questionnaires. A prime example is the scale assessing place attachment.

Similarly, content absent from the 2021 questionnaire was **added** to one or both 2022 questionnaires for three main reasons:

- **Information requested by CAB members for use in related projects**. Some questionnaire items were added to the 2022 questionnaires (especially to the repeat respondent questionnaire) because they pertained to content that was central to other projects and would thus help meet the survey objective of complementing other CAB work. Examples are items asking about heat exposure and heat-related symptoms and responses; employment as a "tradie"; religion and spirituality; and climate activity-related challenges faced by residents of rural and remote areas. The first two of these examples feed directly into ongoing CAB research projects, while CAB-affiliated PhD students requested the latter two. Several sources of information about climate change were reconfigured: for example, "medical practitioners and/or health professionals" was added as an option, and the single 2021 response option "social media feeds" was revised to provide separate options for Facebook, Twitter, Tik Tok, and Instagram, with the latter change potentially enabling closer links with the CAB's "Big Data" project.
- **Information that became more relevant in 2022**. Some items not used in 2021 were included in the 2022 questionnaires because they pertained to content that had become more relevant/salient in 2022 than in the preceding year. The main example is the set of new items asking about experiences of the floods that occurred in Australia in 2022 and the impacts of these flood experiences. In addition, the response options for the item asking about political party voting intentions were expanded to include United Australia Party and a "teal" independent candidate (because both these options attracted substantial numbers of voters in the May 2022 federal election).
- **Other information of interest.** Some additional content areas were included in the 2022 repeat respondent questionnaire (where more space was available than in the new respondent questionnaire) in response to interest expressed by CAB members and/or recent attention in the published research. Content in this category had

typically been considered for inclusion and had been pilot-tested in 2021 but had been omitted from the final questionnaire due to space/time limitations. Examples include a question about climate activity behavioural intentions, an item asking about the frequency of experiencing each of several kinds of natural disasters/extreme weather events, a 6-item scale measuring connection to nature, and a 4-item scale measuring climate change hope.

In addition to the above, minor wording changes were made to a small number of items that were considered, in retrospect, to be potentially unclear or ambiguous. Examples include two items (B3.1 and B3.6) measuring support for pro-environmental policies, and one (F7.3) measuring psychological adaptation.

Appendix B provides a detailed comparison of the questionnaires used in 2021 and 2022.

4.0 SURVEY METHOD

4.1 Target Sample

4.1.1 Characteristics of the Target Sample

The sample targeted for this survey comprised 4,000 adults (18 years +) who currently reside (either as citizens or not) across all states of Australia. Ideally, this sample was to include as many of the 3,915 participants as possible, so that the size of the ongoing longitudinal sample was maximised. The survey firm, Dynata, provided an additional financial incentive to encourage the 2021 respondents to participate again in 2022.

The remainder of the sample was supplemented with new respondents. As agreed with Dynata, this sub-sample was to be stratified by gender (at least 48% females and at least 48% males), age (approximately 50% below 40 years of age and approximately 50% aged 40 years and above), and state of Australia (with sample proportions approximately equal to those in the national population). These three stratification variables were required to be inter-locked, thereby ensuring nationally proportionate numbers of each gender, in each age group, and in each state.

4.1.2 Estimated Accuracy of the Survey Findings Given N = 4,000

The accuracy of survey findings is usually expressed in terms of *confidence intervals*, that is, a range of scores on either side of a particular survey finding (the 'sample statistic') within which there is confidence that the finding would lie if the survey included all members of the relevant population (rather than just a sample or subset of these people). Colloquially, a confidence interval is like a safety margin. Most commonly, survey researchers report 95% confidence intervals, that is, the range of scores (given certain assumptions) within which there is a 95% probability that the true population figure lies.

The confidence with which the findings obtained in a survey of 4,000 people can be generalised to the Australian adult population (of approximately 20 million adults) depends on numerous factors. To simplify, if it can be assumed that the sample was obtained through simple random sampling from an accurate list of all members of the population, and that the variable of interest has two levels (e.g., percent in favour of a policy vs. percent opposed), then the size of the 95% confidence interval (CI) would vary as follows:

- if the survey found that 50% of respondents were in favour and 50% were opposed, the 95% CI would be $\pm$ 1.55%
- if it found that 70% were in favour and 30% opposed, the 95% CI would be $\pm$ 1.42%
- if it found that 90% were in favour and 10% opposed, the 95% CI would be $\pm$ 0.93%.

To illustrate the application of these confidence intervals, in the worst possible case (that is, a 50/50 split in the sample), application of the 95% confidence interval means that we can be 95% confident that in the broader population the percentage of people in favour (or opposed) would be 50% $\pm$ 1.55%, or between approximately 48.45% and 51.55%.

Although the above estimates provide a useful guide to interpreting findings obtained from the targeted sample of approximately 4,000 people, they over-estimate the likely accuracy of estimates obtained from smaller sub-groups within the sample. More specifically, under the same set of assumptions as detailed above, for a sub-sample of approximately 2,000 people (e.g., when seeking to estimate the accuracy of data obtained from just the men or just the women in the sample), the 95% confidence interval (CI) would vary as follows:

- if 50% of the sample were in favour and 50% opposed, the 95% CI would be ± 2.20%
- if 70% were in favour and 30% opposed, the 95% CI would be ± 2.01%
- if 90% were in favour and 10% opposed, the 95% CI would be ± 1.32%

Similarly, if the sub-sample comprises only 1,000 people, the 95% confidence interval (CI) would vary as follows:

- if 50% of the sample were in favour and 50% opposed, the 95% CI would be ± 3.10%
- if 70% were in favour and 30% opposed, the 95% CI would be ± 2.84%
- if 90% were in favour and 10% opposed, the 95% CI would be ± 1.87%.

4.2 Details of the Questionnaire

The repeat respondent questionnaire comprised five open-ended items/questions, 188 items that formed a part of a multi-item scale, and 167 other closed-ended questions. The new respondent questionnaire comprised five open-ended items/questions, 179 items that formed a part of a multi-item scale, and 185 other closed-ended questions. The complete questionnaires are reproduced in **Appendix D.2** (repeat respondents) and **Appendix E.2** (new respondents).

Table 1 overviews the two questionnaires, and provides brief details of the constructs and variables measured in each. To assist with understanding the meaning of these constructs/variables, one or more sample items/questions, plus their response options, are given for each. Appendix A elaborates on the meaning and source of the key constructs measured in the questionnaires and/or discussed in this report.

Table 1

Overview of the 2022 Climate Action Survey Questionnaires and Constructs/Variables Measured
(This table presents the content in the same order as in the questionnaire. The wording of some items has been shortened. For the exact wording of all items, questions, and response options, see Appendix D2 (repeat respondents) and Appendix E2 (new respondents).

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
PRELIMINARY: Eligibility Check questions				
Age	(Checks that the respondent is aged 18 years or more)	(Open-ended)	X	X
Current Home Postcode	(Checks that the respondent currently resides in Australia)	(Open-ended)	X	X
SECTION A: How You Live Your Life (Lifestyle)				
Community Involvement	To what extent, if at all, are you currently engaged in community groups or clubs of each of the following eight kinds? • Sporting group/club; Environmental group; etc.	Not at all → Leadership role		X
Engagement in Pro-environmental Behaviour	Which of the following (16) actions are you currently taking? • Washing clothes in cold water • Using public transport • Eating fewer than two serves of red meat per fortnight • Attending pro-environmental rallies	No, because no opportunity to do so → Yes, at least partly because of environmental concerns	X	X
Comparative Rating of Level of Engagement in Pro-environmental Behaviours	Compared to the average Australian's engagement in pro-environmental behaviours, I think I am	A lot less involved → A lot more involved		X
Reasons for not Engaging in Pro-environmental Behaviour	Which of the following limit your involvement in pro-environmental actions? What are the reasons for you? • Too expensive; Not interested; Don't know what to do; etc.	Click Yes or No for each		X
Pro-environmental Intentions (next twelve months)	In the next 12 months, to what extent do you intend to engage in these and/or similar behaviours?	Much less than I do now → Much more than I do now	X	

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Interest in Future Pro-environmental Behaviours	Thinking ahead to the next five years, we'd like to know if you are interested in doing each of the following. • Buying an e-car; Installing solar energy battery storage system; etc.	Not at all interested → Very Interested	X	X
SECTION B: Self-Perceptions and Attitudes/Opinions Regarding Social, Political, and Environmental Issues				
Green Identity	To what extent do you agree or disagree with each of the following (3) statements? • Being environmentally friendly is an important part of who I am	Strongly Disagree → Strongly Agree	X	X
Personality traits: • Agreeableness • Emotional stability • Conscientiousness • Openness to experience	I am critical, quarrelsome I am anxious, easily upset I am dependable, self-disciplined I am open to new experiences, complex	Strongly Disagree → Strongly Agree	X	
Personality trait: Narcissism	I tend to want others to admire me	Strongly Disagree → Strongly Agree	X	
'New Ecological Paradigm'	Here are some statements regarding the world's environment. Please give your opinion in relation to each of them. • The balance of nature is very delicate and easily upset • Humans are severely abusing the environment	Strongly Disagree → Strongly Agree		X
Support for Climate-related Policies	To what extent would you support or oppose the following initiatives if the government proposed them as policies? • Phase out over ten years the mining of fossil fuels (coal, oil, gas) • Require all new vehicles to be electric by 2040	Strongly Oppose → Strongly Support	X	X
Support for Government Policy to Reduce Carbon Emissions	Which one of the following statements best reflects your view of the Australian federal parliament legislation to reduce Australia's greenhouse gas emissions by 43% by 2030 ?	5 options: About right/ Too low/ Too high/ No target needed/No opinion	X	X
Reason for Supporting (or not) Policy to Reduce Carbon Emissions	Would you like to comment further on the emissions target mentioned in the previous question?	Open-ended	X	
Voting Intention	For which political party would you vote if there was an election tomorrow for the lower house of the federal parliament?	(List of political parties)	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Connection to Nature	I often feel that I am a part of nature	Strongly Disagree → Strongly Agree	X	
SECTION C: Experiences of Extreme Weather Events and Natural Disasters				
Frequency of Recent Natural Disaster Experiences	• How often, if at all, have you personally and directly experienced each of the following types of events in the past twelve months?	Never/ Once/ Two or more times	X	
Most Serious Disaster Event Recently and Directly Experienced	• Of the events you directly experienced in the past twelve months, which was the most serious for you?	Heatwave, Cyclone, etc.	X	
Direct Experience of Extreme Weather Events/ Natural Disasters	• Have you personally directly experienced an extreme weather or a natural disaster event in the past twelve months? / prior to the past twelve months?	Yes/No (x 2)		X
Aspects of the Most Recent Event Directly Experienced	• Were you injured in the most recent of these events? • Did you suffer financially because of this event? • How much property damage did you experience?	Yes/No Yes/No No damage → Extreme amount		X
Exposure to the 2022 Floods	• Were you, or the people close to you, or your property, directly exposed to the 2022 floods, or the consequences of these floods?	Yes/No	X	X
Impacts of Flooding	Due to this flooding, did you • Experience any property damage? • Experience any financial loss?	Yes/No	X	X
Functional Impairment (due to 2022 floods)	To what extent did your experiences during or soon after the floods contribute to you having • Difficulties in focusing or concentrating • Difficulties having fun with family and/or friends	Never/ not at all → Most of the time/ Very much	X	
Assistance Sought for Flooding Impacts	• Did you apply for government relief funding to help you with the impacts of the flooding?	Yes/No	X	X
Insurance Status and Consequences of Recent Event	• After your flooding experiences (repeat respondents) / most recent extreme weather or a natural disaster event (new respondents), did you make a claim on your insurance for the damage you incurred? • If so, was your insurance claim successful? • Did you make any of these changes to your insurance cover?	Yes/No Yes/No (5 options)	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Impact of Hot Weather	Have you ever been affected by extremely hot weather?	Not affected at all → Badly affected	X	
Heat-related Symptoms Experienced	Have you ever experienced the following during extremely hot weather? • Anxiety • Headache	Yes/No	X	
Indirect Experiences of Extreme Weather / Natural Disasters	Has a geographically distant event ever impacted you?	Yes/No	X	X
SECTION D: Experiences and Views About Climate Change				
Definition of Climate Change	Which of the following definitions best captures your understanding of the meaning of the term "climate change"?	(5 options)	X	X
Perceived Causes of Climate Change	Thinking about the causes of climate change, which of the following best describes your opinion?	(6 options including: natural causes/ human activity)	X	X
Belief in/Acceptance of Climate Change	As far as you know, do you personally think that the world's climate is changing?	Yes/No/Don't know	X	X
Climate Change Risk Perception	Climate change will have a noticeably negative impact on my health (over the next 25 years)	Strongly Disagree → Strongly Agree	X	X
Influences on Climate Change Beliefs	Has any particular event/s or experience/s altered your views about the seriousness of climate change? (*Repeat respondents only*) If yes, please briefly state what that event/s or experience/s was/were.	Yes/No (Open-ended)	X	X
Direct Experience of Manifestations of Climate Change?	Have you directly experienced any environmental or climatic changes, circumstances, or events that you think might be due to climate change? - In the past twelve months? - (*New respondents only*) Prior to the past twelve months? If yes, please give brief details of these events or circumstances? (What happened? When? With what consequences?)	 Yes/No Yes/No (Open-ended response)	X	X
Impacts of Climate Change-related Experiences	How much have you or your family been personally harmed by circumstances or events that you believe are related to climate change?	Not at all → A great deal	X	X
Priority for Government	Should climate change be a low or a high priority for the Australian government?	Extremely Low → Extremely High	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Ascription of Personal Responsibility for CC to Self	Climate change is partly due to the way I choose to live my life	Strongly Disagree → Strongly Agree	X	X
Temporal Distance of Climate Change Impacts	When, if at all, do you think Australia will start feeling the effects of climate change?	We are already feeling the effects → Never	X	X
Issue Importance	How important is the issue of climate change to you personally? How serious a problem do you think climate change is right now? How serious a problem do you think climate change will be in 2050? To what extent do you agree or disagree with this statement? • Climate change is an issue that requires urgent action NOW.	Not at all → Extremely Not at all Serious → Extremely Serious Strongly Disagree → Strongly Agree	X	X
Perceived Impact of Climate Change on Natural Disasters	Overall, how much do you think climate change is influencing the frequency and intensity of extreme weather events like heatwaves, cyclones and droughts, and disasters like bushfires and floods?	Not at All → A Great Deal		X
Perceived Residential Vulnerability	How vulnerable do you think the region where you live is to the impacts of climate change?	Not at all Vulnerable → Extremely Vulnerable	X	X
Spatial Distance of Climate Change Impacts	Climate change will mostly affect areas that are far away from here	Strongly Disagree → Strongly Agree	X	X
Psychological Reactance	I feel others are trying to force their opinions on me about climate change	Strongly Disagree → Strongly Agree	X	X
Self-efficacy Beliefs	There are things I can do to try to reduce the impact of climate change	Strongly Disagree → Strongly Agree	X	X
Response-efficacy Beliefs	I believe my actions have an influence on climate change	Strongly Disagree → Strongly Agree	X	X
Trust in Climate Scientists	To what extent do you think climate scientists … • agree about the danger of climate change? • are knowledgeable about the risks?	Strongly Disagree → Strongly Agree		X
Collective Efficacy Beliefs	If we act collectively, we will be able to minimise the consequences of climate change	Strongly Disagree → Strongly Agree	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
SECTION E: Feelings about Climate Change				
Climate Change Concern	How concerned, if at all, are you about climate change? Considering any potential effects of climate change that there might be on society in general, how concerned are you about climate change?	Not at All → Very Concerned Very concerned → Not at All Concerned	X	X
Change in Level of Climate Change Concern	Has your level of concern about climate change increased, decreased, or remained the same over the past year (i.e., since September 2021 (repeat respondents) / i.e., since November-December 2021 (new respondents))?	Decreased substantially → Increased substantially	X	X
Concerns regarding Various Climate Change-related and Non-Climate Change-related Problems	How concerned are you that each of the following threats might directly affect you, your family, or your local environment in the future? • Bushfires? • Unemployment? • Climate Change, generally?	Not at All → Very Concerned (to each)	X	X
Biggest Climate Change Concern	What is/are your biggest concern(s) about climate change?	(Open-ended)		X
Climate Change-induced Distress	The more I learn about the threat of climate change, the more anxious I become I feel distressed when I see or read media coverage of the likely impacts of climate change.	Strongly Disagree → Strongly Agree	X	X
Climate Change Hope	When you consider your ability to address climate change, to what extent do you feel? • Hopeful • Confident	Definitely do not feel this → Definitely feel this	X	
SECTION F: Responses to Climate Change				
Recent Behaviour Changes due to Desire to Reduce Contribution to Climate Change	Which of the following aspects of your lifestyle, if any, have you changed over the past year primarily because you wanted to reduce your impact on climate change? • Driven my car less? • Recycled more?	(Click all that apply)	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Personal Norm	I feel a strong personal obligation to do whatever I can to prevent climate change	Strongly Disagree → Strongly Agree	X	X
Descriptive Norm	Most people in my social network do many of these pro-environmental behaviours	Strongly Disagree → Strongly Agree		X
Likelihood of Being Influenced to Engage in Direct Climate Change Activism	How likely are you to do each of the following things if a person you like and respect asked you to? • Join a campaign to convince elected officials to take action to reduce climate change?	Definitely Would Not → Definitely Would	X	X
Willingness to Behave in More Environmentally-Friendly Ways	I want to change my lifestyle in ways that help to address climate change. To help reduce climate change, I am prepared to pay higher taxes.	Strongly Disagree → Strongly Agree	X	X
Psychological Adaptation to Climate Change	I am increasingly aware of how my daily activities might be affecting the natural environment and worsening the problem of climate change. I seem to spend more time these days trying to come to grips with the likely effects of climate change.	Strongly Disagree → Strongly Agree	X	X
Home Resources Available to Reduce Effects of Heat	Which of the following do you have at your home to reduce the effects of hot weather? • Air conditioning • Ceiling insulation	Yes/ No/ Note sure/ Not applicable	X	
Actions Taken to Maintain Comfortable Temperatures	On a very hot day, how often do you use the following to maintain comfortable temperatures? • Turn on air-conditioning • Avoid physical activity	Never → Every time (plus: Not applicable)	X	
SECTION G: Knowledge of Climate Change				
Objective Knowledge of Climate Change	Climate change will increase the risk of waterborne diseases. Climate change is mainly caused by the hole in the ozone layer.	True/ False/ Don't Know		X
Self-Rated Knowledge of Climate Change	Overall, how much do you feel you know about climate change?	Nothing at All → Just about Everything	X	X
Sources of Information about Climate Change	Where do you go to get your information about climate change? • Australian commercial media? • Social media feeds	Never/ Sometimes/ Often	X	X

Construct/Variable	Sample Item/Question	Response Options	Repeat	New
Trust in Sources of Information about Climate Change	How much do you trust this source to give you quality information about climate change? • Australian commercial media? • Facebook?	Do Not Trust at All → Trust Completely (Plus: Do not know)		X
SECTION H: Demographics				
Single items asking about: gender, citizenship status, health status, place of residence, proximity to public transport, duration of residing in Australia/current location, religiosity, educational attainment, current studies, employment status, hours worked if not full-time, employed as a "tradie", employed in farming or agriculture, household and personal income, parental status, identification as a member of CALD community/ATSI/living with a disability/LGBTQI+ community/homeless (and challenges faced in taking climate action associated with this identity/community membership), home ownership, language spoken at home, living arrangements, household composition, type/adequacy of accommodation, climate-related changes made to the home, and willingness to move if one's residence is deemed uninsurable.			X	X
Single items asking about: country of birth, spirituality, religious denomination, and belief in climate change as part of a "greater plan"			X	
Aspects of Rural/Remote Living that Influence Climate Actions Taken	What aspects of your rural/remote location help or hinder you from engaging in pro-environmental behaviours?	(Open-ended)	X	
Perceived Residential Exposure to Extreme weather events/Natural Disasters	How close do you live to areas that have, over the past 10 years, been affected by extreme weather events or natural disasters (e.g., cyclones, flooding, bushfires, drought)?	0 – 25 kilometres → Over 250 kilometres	X	X
Subjective Norms	People important to me would approve if I helped to increase public awareness of climate change	Strongly Disagree → Strongly Agree	X	X
Vehicle Ownership	How many of the following types of vehicles are solely or jointly owned by you? • Electric or hybrid • 4-cylinder petrol or diesel • 6-cylinder or larger petrol or diesel	(Number of each)	X	X
Other Views about Climate change or Natural Disasters	Is there anything else you would like to say about your views on climate change or natural disasters?	(Open-ended)	X	X

Key features of the 2022 questionnaires were similar to those reported in 2021. They include:

- **Breadth of content coverage.** Considerable theory and research has examined the determinants of individuals' environmental- and climate change-related behaviours. For example, Van Valkengoed et al. (2022) identified 13 such behavioural determinants. The current questionnaires were constructed to capture as many of these as possible. Van Valkengoed et al.'s determinants, and the items measuring each of them in the current questionnaires, are: (1) climate change knowledge (item G1); (2) risk perception (D4), (3) negative affect/concern (E1 - E5, E7), (4) problem awareness (D15-D17, D29, and F7.1), (5) ascription of personal responsibility (D13), (6) personal norms (F4.1 to F4.4), (7) self-focused emotions such as guilt and pride (somewhat in items E7.3 and F7), (8) attitudes towards environmentally-significant behaviours (somewhat in items A8 and A9, and F5 and F6), (9) descriptive norms (A7, F4.5 to F4.9), (10) injunctive norms (H30), (11) self-efficacy (D24), (12), outcome efficacy (D25), and (13) environmental self-identity (B1).

- **A mix of single-item measures and multi-item scales**, with the choice between these options being made based on such criteria as the complexity and dimensionality of the construct being measured, the importance of the construct to the survey aims, the desired precision, the desired reliability and validity of measurement, the availability of established single-item and multi-item measures, and the burden placed on participants and time taken by participants to respond. For details of all multi-item scales used, see Appendix D.3 (repeat respondents) and E.3 (new respondents).

- **Measurement of multiple aspects of pro-environmentally-significant and climate change-relevant behaviour.** The questionnaire contained items/questions and scales measuring levels of engagement in climate change mitigation (and, to a lesser extent, adaptation) behaviours of several kinds. In a rough temporal sequence, participants were asked about their: *previous* performance of climate-relevant behaviours, *willingness* to perform these behaviours, *intention* to perform these behaviours, *current* performance of these behaviours, *changes over time* in performance of these behaviours, and *interest* in performing these behaviours in the future.

- **Measurement of other variables in multiple ways**. Other variables measured in one or both of the 2022 questionnaires in multiple ways included social norms (with separate scales measuring descriptive norms, normative beliefs, and personal norms), climate change efficacy (with separate scales measuring self-efficacy, response efficacy, and collective efficacy), and knowledge of climate change (which was measured via an objective test in the new respondent questionnaire, and by a self-rating in both questionnaires).

- **Identification and exclusion of inattentive and careless respondents.** To detect, and potentially remove from the sample, respondents who answered with undue haste and/or insufficient care, both questionnaires included three items (items A4, D13.6, and F4.6) that checked on respondent attentiveness, and potentially served to restore their attention if it had waned.

4.3 Survey Administration

Ethical clearance to conduct the survey was sought and obtained from the Griffith University Human Research Ethics Committee (ref: 2020/806) on 26th August, 2021. A variation to this clearance was sought in 2022, and was approved on 19th August, 2022.

Dynata invited all but forty of the 3,915 respondents to the 2021 survey to participate again in 2022. (The reason for forty 2021 respondents not being re-contacted is that the provider that recruited these respondents in 2021 would not do so again in 2022 at a reasonable cost). Those repeat respondents who were willing to do so completed the survey, online, sometime between September 9th to November 1st, 2022, a period that closely matches the timing of their survey completion one year earlier (September 15th to October 31st, 2021). The new respondent survey was administered online to Dynata survey panellists in the period November 15th, 2022 to December 28th, 2022.

Before commencing, potential respondents were requested to read a detailed information page that described the study including its risks and benefits, and then indicate their informed consent to participate. A copy of these information pages is given in Appendix D.1 (repeat respondents) and E.1 (new respondents).

All items/questions in both questionnaires required a response. Thus, there was no missing data. The median time to complete the questionnaire was 35.6 minutes for the repeat respondents who were retained in the final sample, and 33.6 minutes for the sample of new respondents. Duration of questionnaire completion ranged from 11 minutes 32 seconds (repeat respondents), and 9 minutes 18 seconds (new respondents), to several hours, with those who took more than 60 minutes presumably completing the survey over more than one session.

Repeat respondents received payment of up to $8.75 for questionnaire completion; new respondents received $2 less, up to $6.75, for completion. The identity of all respondents is known to Dynata, but is unknown to the Griffith researchers. A unique code was assigned to all participants to permit matching of questionnaires completed by each respondent each year.

4.4 Survey Context

Responses to all surveys may be affected by social, political, economic, and environmental events and circumstances surrounding survey implementation. Events and circumstances leading up to or during the 2022 periods of data collection that might have affected responses and/or response rates include:

- A federal election was held in May 2022, resulting in the resounding defeat of the (more) conservative Liberal-National Party coalition and its replacement by the (more) left-leaning Australian Labor Party. In addition, new representatives of the Australian Greens party were elected (especially in Brisbane), and several pro-environmental, "Teal" candidates were elected in other states. Compared to its predecessor, the new Labor government more explicitly recognised the reality and threat of climate change. In August 2022, it passed legislation enshrining a target to reduce Australia's greenhouse gas emissions by 43% by 2030, as compared to 2005 emission levels. (The corresponding target under the previous government was 26-

28%). In addition to a range of (mostly modest) initiatives taken at the federal level, many state governments introduced measures to assist with climate change mitigation and/or adaption. Several examples are reported in Cleary and Fumei (2022).

- Much of Australia (especially along its east coast from the Sunshine Coast in Queensland to Melbourne in Victoria) was subjected to massive and repeated flooding during 2022. (Very late in the year, mostly after data collection had been completed, flooding was still occurring in mid-western NSW and along the Murray River into South Australia). Some lives were lost, many homes and businesses were destroyed, and billions of dollars of property damage was inflicted. For details, see: https://www.abc.net.au/news/2022-12-31/australian-weather-rain-2022-records-broken-flooding/101789262. Recovery and repair from this damage was often perceived to be poorly handled. Numerous public sources linked the scale and frequency of this flooding to climate change. Compounding the potential impact of this flooding, Australians paying attention to the international news learned that devastating flooding had also occurred elsewhere in the world including in Pakistan, Japan, and Italy.

- Following the widely publicised COP26 meeting in Glasgow in 2021, COP27 was held in Egypt in November 2022. Although this was a lower-key event than was COP26, it attracted media and public attention, particularly among climate-concerned Australians. The Prime Minister did not attend, but Chris Bowen, Minister for Industry, Energy and Emissions Reduction, did. Many Australian commentators viewed the meeting as a success at least in helping to re-establish Australia's credentials as a willing partner in the global fight against climate change. One significant meeting outcome was an acknowledgement by richer/developed nations of the need to provide compensation to developing nations for loss and damages due to climate change.

- COVID-19, particularly its Omicron strains, was a continuing threat throughout 2022. Death rates, particularly among the elderly, were higher than in either 2020 or 2021. Average daily incidence rates also remained high, although severity was less than in previous years, at least partly due to widespread vaccination. All states abandoned policies of mandatory indoor mask-wearing and full or partial 'lock-downs' and 'lock outs'. Schools remained open. On 21 February 2022, border restrictions were removed for all vaccinated people, including non-citizens such as tourists and new immigrants, effectively re-opening Australia up to the world. (See https://www.bbc.com/news/world-australia-60457735). In April, further restrictions on international travel that had been imposed under the Biosecurity Act were removed, allowing cruise ships to operate in Australia for the first time in more than two years (although only in states where the state government was willing to allow cruise ships, such as NSW, Queensland and Victoria). (See: https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/australias-biosecurity-emergency-pandemic-measures-to-end See also: https://www.australia.gov.au/international-travel). Many people re-commenced interstate and international travel thereafter. Nonetheless, COVID continued to influence Australians' lifestyles (e.g., many people worked from home, thereby reducing their daily commute) and community attitudes and perceptions of safety.

- Concerns about the rising cost of living were prominent in public and private discourse thoughout the year. The Reserve Bank of Australia increased interest rates in eight consecutive months from May to December (to a cash rate of 3.1%, the highest in a decade), thereby greatly increasing mortgage repayments for many households. Inflation rose steadily to 7.2% in December. Factors contributing to the rapid price increases included Russia's war against Ukraine which had been raging since February 2022, the extensive flood damage, ongoing supply problems associated with COVID, and a range of other economic, political, and climatic factors. Consequently, many people may have shifted their priorities from environmental to economic concerns in 2022.

5.0 SURVEY RESPONDENTS

5.1 Selection of the Survey Respondents

Data collection for the survey began with Dynata inviting all but 40 of the individuals who completed a usable questionnaire in 2021 to do so again in 2022. The number of these people who were not contactable for any reason (e.g., withdrawal from the Dynata panel, changed email address, death) is unknown, so exact response rates cannot be determined. Dynata screened all returned questionnaires for evidence of unsatisfactory questionnaire completion as evidenced by unrealistically short completion durations, nonsensical responses to open-ended questions, and miscellaneous other quality criteria. In total, Dynata's quality screening resulted in their acceptance of 1,380 submitted questionnaires. Data from these questionnaires were provided to the Griffith team. Griffith's inspection of this data set revealed 75 cases that "failed" either two or three of the survey attention check items, and a further 14 cases that could not be matched with a corresponding 2021 respondent. Removal of these 89 cases resulted in an interim sample of 1,291 cases.

Prior to finalising the sample, and in accordance with the practice adopted in 2021, thirteen data quality checks were applied by the Griffith researchers to the questionnaires submitted by the 1,291 respondents. Each quality check refers to a response practice possibly indicative of untrustworthy (inattentive, indiscriminate, careless, or dishonest) responding. As these practices were considered to be suggestive, rather than necessarily *proof*, of untrustworthy responding, some leniency was applied to their presence. Nonetheless, examination of the data led to a decision to remove from the sample 28 cases (2.2% of 1,291) who were deemed to have not met data quality criteria because they displayed three or more of these practices. The final number of usable repeat respondents was thus 1,263 (32.3% of the 3,915 people who participated in 2021). Full details of the 13 data quality checks, how they were applied, and the number of survey participants who engaged in each, are given in **Appendix C.**

Given that the final repeat respondent sample comprised 1,263 cases and a total sample of approximately 4,000 cases was sought, Dynata was assigned the task in early November 2022 of obtaining usable completed questionnaires from approximately 2,740 new respondents. Although the sub-sample quotas specified in Section 4.1.1 were to be applied when accepting respondents into this sample, the Griffith team was aware that the repeat respondent sample was a demographically non-representative subset of the full 2021 sample in that it included disproportionately large numbers of women and older people. Thus, this repeat sample did not match, in terms of gender and age distribution, the quotas targeted in the full sample. For this reason, the quota requirements were somewhat relaxed for the new respondent sample, with the aim of ensuring that the full 2022 sample would be more demographically representative of the national Australian population (that is, younger and containing more men) than did the repeat sample.

The number of new Dynata panellists who accessed the survey information and possibly considered participating is unknown. Similarly unknown are the number of potential participants screened out by Dynata because either (a) they did meet the survey eligibility criteria (e.g., they were not aged 18 years or over, and/ or did not reside in Australia), (b) they did not complete all items in the questionnaire, or (c) they failed Dynata's initial set of quality controls (as described above), and/or "failed" two or more of the three attention

checks. In total, Dynata provided the Griffith team, in five instalments, with data from 2,917 new respondents. Applying 13 data quality criteria similar to those used for the repeat respondents (as above, see Appendix C for details) led to the identification of 150 (5.1% of the 2,917) cases who failed three or more of these criteria. With these cases removed, the final new respondent sample comprised 2,767 cases.

5.2 Details of the Repeat Respondent Sample

Table 2 presents the distribution of the final sample of 1,263 repeat respondents by gender, age group, and state of Australia. The distribution by gender (51.86% female; 47.98% male; 0.16% non-binary/undisclosed) non-significantly over-represents the proportion of females in the Australian national population (50.2% female). The age distribution of the sample that was desired (i.e., approximately 50% above and below 40 years) was not achieved, with 314 (24.9%) respondents aged less than or equal to 40 years and 949 (75.1%) older than 40 years, χ^2 (1, N = 1,263) = 25.20, p < .001. The sample median age was 54.0 years. The mean age of 54.23 years (SD = 16.95) is almost nine years higher than the adult Australian population mean age, calculated from Australian Bureau of Statistics data to be 45.4 years. The spread of respondents by state of Australia closely matches that in the national population, χ^2 (7, N = 1,263) = 0.27, p = .999, but the sample over-represents rural residents (21% versus 14%).

Table 2
Number (and %) of Repeat Respondents by Gender, Age Group, and State of Australia

States of Australia	Women		Men		Non-binary/ No response		Sample Totals (and %s) by state	**State %s (Australian Bureau of Statistics, 2022)**
	< 40 years	≥40 years	< 40 years	≥40 years	< 40 years	≥40 years		
Australian Capital Territory (ACT)	2	10	2	11	0	0	25 **2.5%**	**1.8%**
New South Wales	55	132	35	135	0	0	357 **30.9%**	**31.4%**
Northern Territory	0	3	2	5	0	0	10 **1.0%**	**1.0%**
Queensland	28	105	31	106	0	0	270 **19.2%**	**20.5%**
South Australia	15	42	15	39	1	0	112 **7.5%**	**7.0%**
Tasmania	5	9	3	12	0	0	29 **2.9%**	**2.2%**
Victoria	33	141	44	102	0	0	320 **25.4%**	**25.5%**
Western Australia	18	57	24	40	1	0	140 **10.8%**	**10.7%**
Total (and %) by gender and age	156 **12.3%**	499 **39.5%**	156 **12.3%**	450 **35.6%**	2 **0.2%**	0 **0%**	1,263 **(100%)**[a]	
Total (and %) by gender only	655 **51.9%**		606 **48.0%**		2 **0.2%**		1,263 **(100%)**[a]	**25,891000 (100%)**[a]

[a] May not sum to 100% due to rounding errors.

Repeat respondents' responses to the questionnaire demographic items are given in **Appendix D2**. In brief:

- 76% of the members of the sample were born in Australia, and 95% are Australian citizens
- 1.5% identify as Aboriginal and/or Torres Strait Islander (ATSI)
- English is the main language spoken in the homes of 95% of respondents
- 79% live in urban locations, and 21% live in rural or remote locations
- 64% are parents
- educational attainment levels vary widely, with 28% educated to school level only, 33% possessing technical, trade or college qualifications (hereinafter referred to as *trade*), and 39% university-educated
- approximately half of the sample work either full-time (32%) or part-time/casually (21%)
- 46% report annual household (before-tax) incomes of $60,000 or less
- 41% are religious or identify with a religious faith; 37% describe themselves as a "spiritual" person
- most own their own home (37%) or are buying it with a mortgage or loan (27%), and most (87%) solely or jointly own one or more petrol/diesel motor vehicles.

As elaborated in Section 6.9.1, this repeat respondent sample is not a demographically representative cross-section of the full 2021 sample, being older, more likely to be a parent and own their own home, and less likely to be a student, employed full-time, a high-income earner, or identify as ATSI than those 2021 respondents who did not participate in the 2022 survey.

5.3 Details of the New Respondent Sample

Table 3 presents the distribution of the final sample of 2,767 new respondents by gender, age group, and state of Australia. The distribution by gender (50.23% female; 49.44% male; 0.33% non-binary/undisclosed) almost precisely matches the corresponding percentages in the Australian national population (which also comprises 50.2% female). The age distribution of the sample also matches the target (i.e., 50% above and below 40 years), with 1,445 respondents (52.2% of the sample) less than or equal to 40 years old and 1,322 (47.8%) older than 40 years, χ^2 (1, N = 2,767) = 0.19, p = .656.). The sample median age was 40.0 years, exactly as targeted. However, the mean age of 47.26 years (SD = 19.33) is almost two years higher than the adult Australian population mean age, 45.4 years. The distribution of new respondents by state of Australia closely matches the distribution in the national population, χ^2 (7, N = 2,767) = 0.59, p = .999. The sample includes a higher proportion of rural residents (22%) than is the case in the Australian population (14%, according to World Bank, 2018, data), and a lower proportion identifying as Aboriginal and/or Torres Strait Islander (ATSI) (2.9%) than in the national population (3.8%, according to 2021ABS national census data).

Table 3
Number (and %) of New Respondents by Gender, Age Group, and State of Australia

States of Australia	Women		Men		Non-binary/ No response		Sample Totals (and %s) by state	**State %s (Australian Bureau of Statistics, 2022)**
	< 40 years	≥40 years	< 40 years	≥40 years	< 40 years	≥40 years		
Australian Capital Territory (ACT)	14	11	15	5	0	0	45 **1.6%**	**1.8%**
New South Wales	239	211	211	223	2	0	886 **32.0%**	**31.4%**
Northern Territory	7	5	7	7	0	0	26 **0.9%**	**1.0%**
Queensland	149	127	146	135	1	0	558 **20.2%**	**20.5%**
South Australia	51	52	51	53	1	0	208 **7.5%**	**7.0%**
Tasmania	16	13	12	13	0	0	54 **2.0%**	**2.2%**
Victoria	190	165	181	166	2	2	706 **25.5%**	**25.5%**
Western Australia	74	66	75	68	1	0	284 **10.3%**	**10.7%**
Total (and %) by gender and age	740 **26.7%**	650 **23.5%**	698 **25.2%**	670 **24.2%**	7 **0.3%**	2 **0.1%**	2,767 **(100%)**[a]	
Total (and %) by gender only	1,390 **50.2%**		1,368 **49.4%**		9 **0.3%**		2,767 **(100%)**[a]	**25,891,000 (100%)**[a]

[a] May not sum to 100% due to rounding errors.

New respondents' responses to the questionnaire demographic items are given in **Appendix E.2**. In brief:

- 78% of new respondents were born in Australia, and 92% are Australian citizens
- English is the main language spoken in the homes of 95% of respondents
- 78% live in urban locations, and 22% live in rural or remote locations
- 59% are parents
- educational attainment levels vary widely, with 32% educated to school level only, 31% possessing technical, trade or college qualifications (hereinafter referred to as *trade*), and 38% university-educated
- more than half of the sample work either full time (37%) or part-time/casually (19%)
- 41% report annual household (before-tax) incomes of $60,000 or less
- 38% are religious or identify with a religious faith
- most own their own home (30%) or are buying it with a mortgage or loan (27%), and most (85%) solely or jointly own one or more petrol/diesel motor vehicles.

Section 6.9.1 provides a more detailed comparison of the demographic composition of the repeat and new samples, as well as the breakdown of the entire 2022 sample of 4,030 respondents.

6.0 SURVEY FINDINGS

This chapter presents major findings from the survey/s. These findings are based on data that has not been adjusted or weighted to reflect any biases in the sample nor transformed to correct for non-normal distributions. More extensive analyses of both the quantitative and qualitative data will be conducted over the forthcoming months.

6.1 Overview of the Presentation of the Findings

In sections 6.2 to 6.8 of this chapter, survey findings are presented. The order of presentation differs slightly from that used in the questionnaires. Sections 6.2 to 6.5 report findings pertaining to the climate change variables, whereas sections 6.6 to 6.8 report findings pertaining to a broader range of contextual, experiential, and attitudinal variables.

In each section, findings from the repeat respondent survey and the new respondent survey are reported separately, rather than combined. Section 6.9 compares findings from the two 2022 sub-samples, both with each other and with the full 2021 sample (and the sub-samples thereof). Section 6.9 also reports key findings from the combined 2022 sample of 4,030 respondents.

The appendices to this report contain additional details of the survey findings, as follows:

- **Appendix D** presents findings from the repeat respondent survey. This includes:
  - the 'frequency data', that is, the number of times each response was given to the closed-ended items and questions in the questionnaire (Appendix D2)
  - details of, and descriptive statistics for, all composite (multi-item) scales. These details include the source, length, and structure of the scales, plus the mean scores, standard deviations, skewness, and internal consistency for each scale (Appendix D3)
  - comparisons of the scale mean scores for demographic sub-groups of the repeat respondent sample (Appendix D4)
  - bivariate correlations between the composite scale scores for this sample (Appendices D5 and D6)
  - an illustrative selection of responses to the open-ended survey questions (Appendix D7).

- **Appendix E** presents similar information from the new respondent survey.

- **Appendix F** provides between-sample comparisons of the correlations between key climate change variables.

The questionnaire included many items/questions that asked participants to report their climate change-related beliefs, feelings, and behaviours. Typically, we grouped these responses into multi-item scales, and scale mean scores are reported. Appendices D4 and E4 compare these scale means across demographic sub-groups (e.g., by sex, age, educational attainment, etc.) within the two samples.

The pattern of between-group differences in relation to many of the climate change variables was similar to that found in the 2021 survey. This recurring pattern took the form of some sub-groups (especially women, younger respondents, students, the more highly educated, (inner) urban residents, and politically left-leaning voters) giving more environmentally- and climate change-aware and concerned responses, whereas the contrasting groups (especially men, older respondents, the religious, the less highly educated, rural residents, and politically right-leaning voters) responded in ways that indicated a lack of environmental- and climate change-awareness, concern, and responsiveness. Because this pattern of responses recurred with such frequency, where it was present, rather than listing all these groups multiple times, for economy of reporting, the two groups are hereafter referred to as "**progressive**" and "**conservative**" respondents, respectively.

6.2 Views and Beliefs about Climate Change

Major findings in relation to climate change views and beliefs were:

- A fundamental question addressed in the Climate Action Surveys relates to the meaning people attach to the term 'climate change'. Respondents were asked: 'Which of the following definitions best captures **your understanding of the meaning of the term "climate change"?**' (Item D1). The five options, and the percentage of respondents who endorsed each option, in the 2021 and 2022 full samples, and sub-samples thereof, are given in Table 4. As can be seen, not all respondents interpreted the term the same way, with preferred definitions differing in scope (e.g., all climatic changes versus just temperature increases) and locus of causation (i.e., natural causes versus human causes versus all causes). The most frequently preferred definition in all samples and sub-samples was the fourth one (i.e., all changes in the world's climate regardless of the cause), with this definition slightly more frequently preferred in 2022 than in 2021.

Table 4

Percentages of Respondents Who Defined Climate Change in Five Different Ways in the 2021 and 2022 Samples

Survey Question D1: Which of the following definitions best captures your understanding of the meaning of the term "climate change?**"**	**2021 Survey**			**2022 Survey**		
	Full Sample	Did not respond in 2022	Responded again in 2022	Repeat Respondents	New Respondents	Full Sample
increases in the world's temperature (i.e., "global warming")	26%	26%	24%	22%	23%	23%
all changes in the world's climate that occur naturally	10%	10%	11%	11%	12%	11%
all changes in the world's climate that are due to human activity	29%	30%	27%	25%	29%	28%
all changes in the world's climate, regardless of the cause	33%	32%	35%	38%	33%	35%
something that does not really exist	3%	3%	3%	4%	4%	4%
Sample size (N)	3,915	2,652	1,263	1,263	2,767	4,030

- A second fundamental question examined in all waves of the Climate Action Survey is: **do Australian adults believe in the existence of climate change**? To address this question, in the 2021 questionnaire and again in the 2022 new respondents questionnaire, six items (items A8, B7, D1, D2, D3, and D14), located in different sections of the questionnaire, assessed belief in and acceptance of climate change. Only five of these items were included in the 2022 repeat respondent questionnaire (item A8 was omitted). Participants were grouped into four categories based on their responses to these six (or five) items:

    - *deniers* (i.e., those who answered all five (if asked 5) questions, or either five or six (if asked 6) questions, in a manner reflecting disbelief in climate change;
    - *sceptics* (i.e., those who answered either three or four of these items in a manner reflecting disbelief in, or doubts about, the existence of climate change);
    - *unconvinced* (i.e., those who answered either one or two of the items in a manner reflecting disbelief in, or doubts about, climate change); and
    - true *believers* (i.e., those who responded to all five, or all six, questions asked of them in a manner that demonstrated acceptance of the reality of climate change).

    Findings are presented in Tables 5a (for samples that responded to six "belief" questions) and 5b (for samples that responded to five "belief" questions). Major findings are (a) regardless of whether categorisation is based on responses to five or six questions, approximately three-quarters of the members of all samples were categorised as *believers* and fewer than 3% were classed as *deniers*; (b) as shown in Table 5a, comparing the distribution of respondents in the 2021 full sample and the 2022 new respondent sample, slightly more 2022 than 2021 participants were deniers and sceptics, and slightly fewer were placed in the unconvinced and believer categories; and (c) as shown in Table 5b, the repeat respondents displayed slightly less belief in climate change in 2022 than they did one year earlier.

Table 5a

Percentages of Respondents Categorised into Each of Four Climate Change Believer Categories in the 2021 and 2022 Samples Based on Responses to Six Questions

Believer Category	2021 Survey			2022 Survey
	Full Sample	Did not respond in 2022	Responded again in 2022	New Respondents
Deniers	1.9%	1.7%	2.4%	2.7%
Sceptics	5.1%	4.5%	6.3%	6.3%
Unconvinced	16.1%	16.3%	15.7%	17.1%
Believers	76.9%	77.5%	75.7%	73.9%
Sample size (N)	3,915	2,652	1,263	2,767

Table 5b

Percentages of Respondents Categorised into Each of the Four Climate Change Believer Categories in the 2021 and 2022 Samples Based on Responses to Five Questions

Believer Category	2021 Survey			2022 Survey		
	Full Sample	Did not respond in 2022	Responded again in 2022	Repeat Respondents	New Respondents	Full Sample
Deniers	1.1%	1.1%	1.0%	1.7%	1.8%	1.8%
Sceptics	4.3%	4.0%	5.2%	5.8%	5.0%	5.2%
Unconvinced	17.2%	17.0%	17.7%	17.8%	18.9%	18.6%
Believers	77.3%	78.0%	76.0%	74.7%	74.3%	74.4%
Sample size (N)	3,915	2,652	1,263	1,263	2,767	4,030

- Members of both the repeat and new samples who **denied or doubted the existence of climate change** tended to have the characteristics referred to above as "conservative" respondents: that is, they tended to be males, older, rather than younger; intending to vote for a right-leaning political party; less highly educated; religious, or identifying with a particular religious faith; and residing in a rural (vs. urban) location. They were also less likely to report having directly experienced natural disasters and extreme weather events. Not surprisingly, the prevalence of strong climate change beliefs was most pronounced among those who reported having experienced an event or condition that they attributed to climate change. Also showing firm beliefs in climate change were various groups of "progressive" respondents, including students and those who intended to vote either for the Australian Greens or the Australian Labor Party (hereinafter, shortened to 'Greens' and 'Labor'). (Readers are reminded that these and other details of between-group differences in the climate change variables are given in Appendices D.4 and E.4).

- Most (62% of repeat, 57% of new) respondents **believed that Australia has *already* started to feel the effects of climate change**, 6% and 8%, respectively, believed that the effects will be felt within the next ten years, and a further 9% and 13%, respectively, believed that the effects will be felt within the next 50 years (item D14). Climate change risk perceptions (item D4) were generally high, especially among progressive members of the samples. Most new respondents (74%) agreed that climate change is at least moderately influencing the frequency and intensity of extreme weather events like heatwaves, cyclones and droughts, and disasters like bushfires and floods (D17). (The question was not asked of the repeat respondents). A small minority (7% of repeat respondents and 6% of new respondents) believed Australia will *never* feel the effects of climate change.

- Approximately one-fifth of the samples (16% - 23%) either *slightly agreed, agreed,* or *strongly agreed* that **climate change mostly affects regions that are at a geographical distance** from their place of residence (item D21.1, D21.2).

- Approximately fifteen percent of members of both samples believed that **climate change is an *extremely serious* problem right <u>now</u>** (item D15), whereas 30-31%% believed it will be an *extremely serious* problem <u>in 2050</u> (Item D16). When the benchmark was not set at an *extremely serious* problem, but rather at *at least a moderately serious* problem, the corresponding percentages were 64% (repeat sample) and 67% (new sample) as a problem now, and 76% (repeat sample) and 77% (new sample) as a problem in 2050.

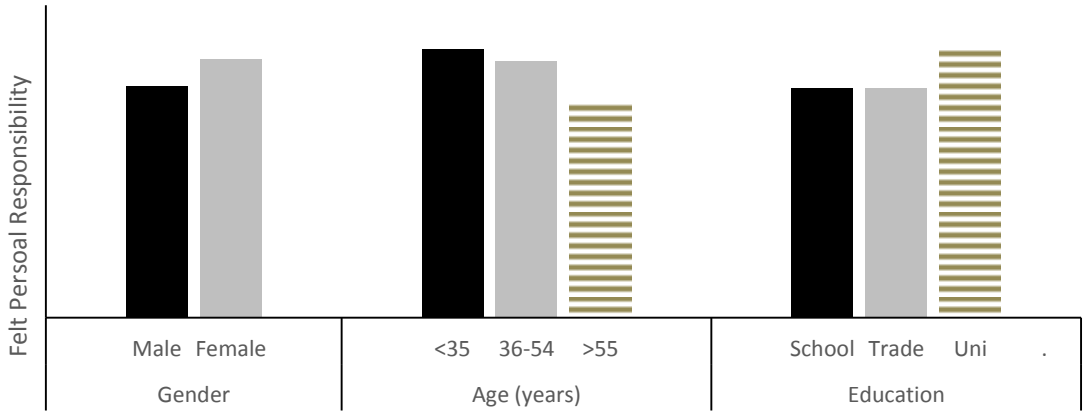
- Approximately half the respondents (49% in the repeat sample and 53% in the new sample) rated climate change as either an ***important, very important,* or *extremely important* issue** for them personally (item D5). These percentages are lower than the 60% reported in the 2021 survey. Most 2022 respondents (56% of repeat respondents and 61% of new respondents) believed that climate change **should be either a *high, very high,* or *extremely high* priority for the Australian government** (item D12). The corresponding figure in 2021 was 67%.

- As expected, scores on the 5-item **climate change 'issue importance'** scale (comprising items D5, D15, D16, and D29, and, in the new respondents sample, item

D17) were higher among progressive respondents than among conservative respondents. They were also higher in the new respondents sample among those whose main language spoken at home was not English.

- The tendency to **accept personal responsibility for causing climate change** (item D13) was generally higher among members of the progressive (compared to the conservative) sub-groups of the sample. See Figure 2 for differences in mean scores on this variable by gender, age group, and educational attainment. In both samples, acceptance of responsibility was also higher among those who reported having directly experienced a natural disaster, an extreme weather event, or an event or condition that they attributed to climate change. In the new respondent sample, greater personal responsibility was accepted by non-parents (than parents) and by non-home owners (than by home owners).

Figure 2: *New Respondents' Felt Personal Responsibility for Climate Change by Gender, Age Group, and Educational Attainment*



- Three types of **climate change efficacy**, or empowerment, beliefs (self-efficacy, response efficacy, and collective efficacy) were assessed in the survey (items D24, D25, and D26, respectively; see Appendix A for definitions). Responses suggested generally high levels of efficacy, especially among members of the progressive sub-groups of the samples, and among those who reported having directly experienced a natural disaster, an extreme weather event, or an event or condition that they attributed to climate change. Higher-income earners tended to report greater efficacy than low-income earners.

- In the new respondent sample, views about (or trust in) **climate change scientists** were generally favourable, especially among progressive respondents (item D26). Trust was also higher among non-parents, non-home owners, non-vehicle owners, respondents who were employed full-time, members of minority/marginalised groups (see Appendix D.3 or E.3 for details of the operationalisation of this variable), and those who had directly experienced a natural disaster, extreme weather event, or manifestation of climate change. (This variable was not measured in the repeat respondent sample).

- Beliefs about what most other people in their social network do (i.e., local **descriptive norms**; items F4.6 to F4.9) were also measured in the new respondent sample only.

Responses showed the expected relationships with other climate change-related beliefs, concerns, and behaviours. Scores tended to be higher among the more highly educated, those who were religious, those intending to vote for a left-leaning political party, those who were employed full-time, those who reported being in better than *OK* physical health, and those who reported having directly experienced a natural disaster, extreme weather event, or manifestation of climate change.

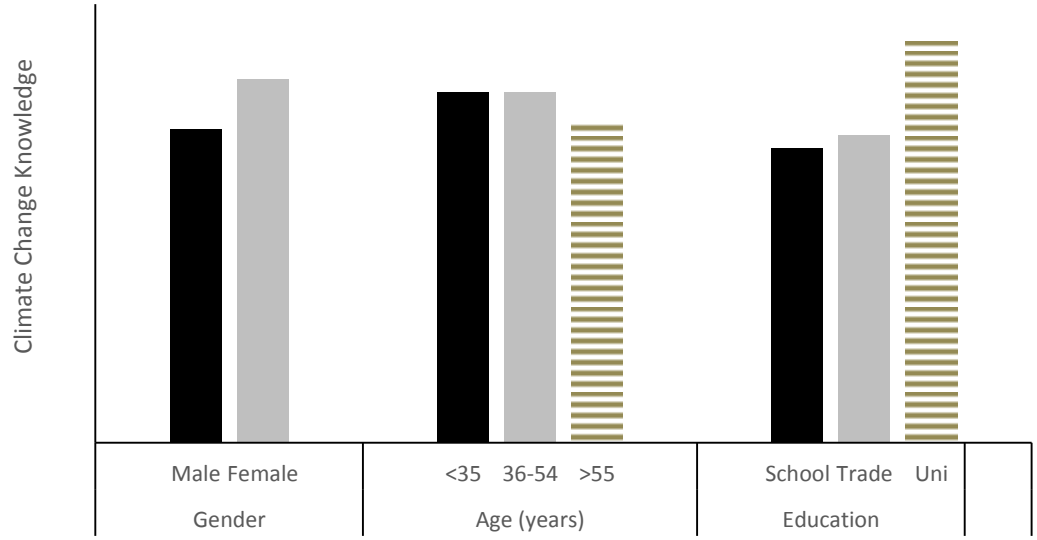
- A scale measuring **normative beliefs** (i.e., beliefs about what significant other people would want us to do; item H31) was included in both questionnaires. Scores on this scale were positively correlated with scores on scales measuring other climate change-related beliefs, concerns, and pro-environmental behaviours. Progressive respondents scored higher than conservative respondents (although gender differences were non-significant in both samples). Also reporting strong pro-environmental normative beliefs in both samples were higher income earners, full-time employed respondents, and those with prior natural disaster, extreme weather event, or manifestation of climate change experiences. Respondents living in the Australian Capital Territory also reported strong normative beliefs.

- Both questionnaires included a scale measuring **psychological reactance**, that is, the tendency to feel under pressure to adopt particular (unspecified) views about climate change. Responses suggest that about one-third of the repeat respondents, and a slightly higher proportion of the new respondents, feel this way. Groups of respondents in both samples that had relatively high mean scores on this scale were males, those who describe themselves as religious or as identifying with a particular religious faith, and those intending to vote for one of the conservative political parties.

6.3 Knowledge and Information about Climate Change

- New respondents completed a 13-item objectively-scored test of their **knowledge of the causes, impacts, and effective responses to climate change** (item G1). (This scale was not included in the repeat respondent questionnaire). After granting a point for correct answers, and subtracting a point for incorrect ones, the average test score out of 13 was 5.4. (In the 2021 survey, the mean score for the same test was 5.6). On six items, less than half of the respondents answered correctly. As was the case in the 2021 survey, the sub-group of the sample that scored highest on objective knowledge was those who claimed to have personally experienced a change, circumstance, or event that they attributed to climate change. Relatively high levels of climate change knowledge were more evident among the progressive, than among the conservative, respondents (although age differences were not significant). Also scoring relatively well were respondents born outside of Australia, those whose main language spoken at home was not English, and those who had directly experienced a natural disaster or extreme weather event. See Figure 3 for differences in mean knowledge test scores by gender, age group, and educational attainment in the new respondent sample.

Figure 3: *New Respondents' Climate Change Knowledge by Gender, Age Group, and Educational Attainment*



- Both questionnaires asked respondents to rate their level of knowledge of climate change. The mean self-rating on a 6-point scale was 3.5 for the repeat respondents and 3.4 for the new respondents (item G4). In both samples, the modal response to the question 'how much do you feel you know' was *a little* (rather than, for example, *virtually nothing* or *quite a lo*t). In the new respondent sample, **self-rated knowledge** was modestly, but positively, correlated (r = .21) with objectively-assessed knowledge of climate change (item G1). Men rated their knowledge higher than did women, but women scored higher on the objectively-scored test. Groups of respondents who tended to rate their knowledge as high included those whose main language spoken at home was not English, those who were university-educated, those intending to vote for the Greens or Labor, inner-urban residents, students, those born overseas, and those who claimed to have directly experienced a climate change event or condition.

- Presented with 31 possible **sources of information about climate change**, plus "other" and "don't know" response options (item G5), the sources that *repeat* respondents reported most often accessing at least "sometimes" or "often" for this information were (in order from the source accessed by most respondents): commercial media (e.g., Channel 9), public broadcasters such as the ABC, own observations and experiences, the Bureau of Meteorology, scientists and scientific publications, the Federal government, State governments, and colleagues/family/friends. This order is almost identical to that reported by the respondents in the 2021 survey. Least commonly used were Tik Tok, church and religious leaders, First Nations media, Twitter, and Instagram. The sources most often used by the *new* respondents were similar to the above, although own observations and experiences were cited more often than any other source. Least often used by the new respondents were (in order): church and religious leaders, First Nations media, Twitter, theatre and creative arts events, Tik Tok, and Twitter.

- New respondents were also asked to indicate the extent to which they **trust the sources of information about climate change** they use. Most often trusted

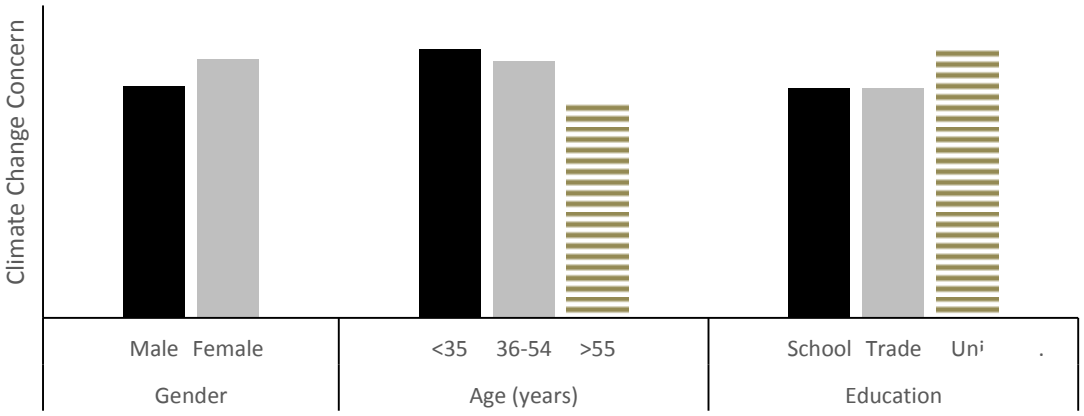
completely by those who use them were (from most trustworthy, in descending order): scientists and scientific publications, the Bureau of Meteorology, specialist government bodies, expert panels/advisory groups (e.g., the Great Barrier Reef Expert Committee), other specialist government providers such as the Climate Council, environmental organisations (e.g., Greenpeace, World Wildlife Fund), their own observations and experiences, medical and health professionals, and lectures/formal education. Most often not trusted at all by those who use them were: politicians, Facebook, and Tik Tok (item G6).

6.4 Feelings about Climate Change

- Most repeat respondents reported being either *fairly* (35%) or *very* (31%) **concerned about climate change** (item E1). The corresponding percentages in the new respondent sample were 40% and 31%, respectively.

- **Climate change concern** was higher among progressive respondents than conservative respondents, although there were some exceptions. Most notably, in the *repeat* respondent sample only, levels of concern did not differ significantly by age group or student status. In the *new* respondent sample, concern did not differ with religiosity, while it was relatively high among non-parents, the full-time employed, higher income earners, respondents who resided in a home in which English was not the main language spoken, and those who self-identified as belonging to one or more of five 'minority/marginalised' groups detailed in Appendices D.4 and E.4. In both samples, concern was higher among those who reported having had one or more natural disaster, extreme weather, or climate change-impact experiences. See Figure 4 for examples of sub-group differences evident in the new respondent sample.

Figure 4: *New Respondents' Climate Change Concern by Gender, Age Group, and Educational Attainment*



- Asked about the extent to which, and direction in which, their **concern about climate change had changed** in the preceding year, 58% of repeat respondents answered that their level of concern had remained the same, and 38% indicated it had increased (item E2). The corresponding percentages in the new respondent sample were 47% and 50%, respectively.

- Participants were presented with a list of 15 (repeat respondents) or 12 (new respondents) **natural or human-made phenomena that could give rise to concern** (item E5). The phenomena rated as most concerning by *repeat* respondents were (from the source of greatest concern, in descending order): food insecurity, biodiversity loss, war and international conflicts, heatwaves, and droughts/water shortages. The average level of concern associated with the 'impacts of climate change, generally' was 4.31 (on a 7-point scale), which placed it sixth most concerning in this list of 15, ahead of air and water pollution, bushfires, floods, cyclones, sea level rise, terrorism, unemployment, environment-induced health threats, and COVID-19. Compared to these respondents' ratings in 2021, less concern was expressed in 2022 in relation to all the listed phenomena, including climate change. The smallest reductions in concern over the year were in relation to war/international conflicts and food insecurity. The 2022 *new* respondents ordered these concerns in a similar way to the repeat respondents: rated highest was food insecurity, then heatwaves, biodiversity loss, and climate change generally.

- New (but not repeat) respondents were asked in an open-ended question to name their **biggest concern about climate change** (item E6). Common responses ranged from natural disasters and extreme weather events (e.g., heatwaves, bushfires, floods, droughts, sea level rise), through public apathy and government inaction, to human and social problems (e.g., impacts on developing nations, food shortages, financial impacts), impacts on ecosystems/flora/fauna, and possible destruction of the planet. A minority of responses pertained to perceived problems associated with excessive climate activism. See Appendix E.6 for illustrative verbatim responses to this question.

- Approximately one-third of repeat respondents (between 33% and 36%) agreed with each of the four items about feeling *guilty*, *upset*, *anxious*, or *overwhelmed* due to climate change. Higher proportions agreed with items about being *distressed* (43%) and *worried* (62%). The percentages of new respondents that acknowledged having these same feelings were 5-10% higher than those of the repeat respondents: *guilty* (39%), *upset* (46%), *anxious* (46%), *overwhelmed* (47%), *distressed* (52%), and *worried* (67%). Responses to these six items were combined to form a composite climate change distress scale. With a few exceptions (e.g., student status and educational attainment in the repeat sample; religiosity in the new respondent sample), scores on this scale were higher in all groups characterising progressive respondents than in groups characterising conservative respondents. In addition, in both samples, reported **distress** was high among respondents who self-identified as belonging to one or more of the five 'minority/marginalised' groups, and (unsurprisingly) among those who reported having had natural disaster, extreme weather, or climate change-impact experiences.

- Repeat (but not new) respondents completed a 4-item scale measuring the extent to which they **felt hopeful when considering their ability to address climate change**. Most respondents, and most groups of respondents, expressed moderate levels of hope, with scores relatively high among those who self-identified as religious, those intending to vote for a right-leaning political party, parents, those who were not a member of a marginalised or minority group, and those who rated their health as *good*, or *very good*. Thus, on balance, expressions of hope in addressing climate change were more often expressed by conservative than by progressive respondents.

6.5 Responses to Climate Change

- Repeat (but not new) respondents were asked to specify the features of their home that are installed to **reduce the effects of hot weather** (item F10). The most common responses were: blinds and awnings (possessed by 89% of the repeat respondents), air-conditioning (82%), fans (81%), and outdoor areas like verandas, decks or patios (78%). Relatively few respondents had tinted windows (21%) or a light-coloured roof (37%). In a related question (item F11), repeat respondents indicated the frequency with which they adopted each in a list of 18 strategies to maintain comfortable temperatures. Most commonly adopted were: increasing fluid intake (adopted by 92% of respondents), wearing lighter/looser-fitting clothing (89%), closing windows (81%), staying inside (77%), and closing blinds and curtains (75%). Few respondents reported visiting friends who live in cooler places (6%), visiting green areas (14%), reducing alcohol intake (22%), and turning on air-conditioning (36%).

- Item F3 asked: "Which of the following aspects of your lifestyle, if any, have you changed over the past year primarily because you wanted to reduce your impact upon climate change?" The most frequently endorsed **lifestyle changes** (of 14 listed) were: recycled more (cited by 63% of repeat respondents and 65% of new respondents), reduced use of plastic items (56% and 52%), reduced food waste (47% in both samples), consumed power (electricity, gas) from the grid/power companies more efficiently (42% and 43%), consumed water more efficiently (42% and 41%), and avoided unnecessary purchases (43% and 37%). Only 21% of repeat respondents and 19% of new respondents indicated that they had changed no aspects of their lifestyle over the past year due to concerns about climate change.

- A 4-item scale (items F4.1 to F4.4) assessed the strength of respondents' **personal norms** (i.e., their felt moral obligation to take action against climate change; see Appendix A for a full definition). As was the case with most other climate change variables, in both samples, progressive respondents reported stronger pro-environmental personal norms than did conservative respondents. Other groups that had relatively high mean scores on this measure were those employed full-time, those whose salary exceeded $60,000 per annum, those who had prior direct experiences of one or more natural disaster, extreme weather, and/or climate change impact events, and, in the new respondent sample only, non-parents and those who mainly spoke at home a language that was not English.

- When new respondents were asked about the likelihood that they would engage in six different types of **climate change activism** if a liked and respected friend asked them to do so (item F5), between 23% and 43% of these respondents indicated they either *would* or *definitely would* do so. Again, it was the progressive respondents rather than the conservative respondents who most often reported that they would engage in these activities, as did several other groups: those employed full-time, those whose household income exceeded $60,000 per annum, those who had prior direct experiences of one or more natural disaster, extreme weather, and/or climate change impact event/s, non-parents, non-homeowners, those who self-identified with a minority/marginalised group, and those who mainly spoke at home a language that was not English.

- A 10-item **behavioural willingness** scale (item F6) assessed the extent to which respondents in both samples were prepared to make lifestyle changes and financial commitments to support climate action. Among the *repeat* respondents, willingness varied from 22%, who agreed that they would be prepared to pay more for fuel to help reduce climate change, to 66%, who indicated that they would be willing to have renewable energy infrastructure such as a solar farm located in their area. On several items, fewer *new* respondents reported being willing to accept these lifestyle changes: for example, only 19-20% were willing to pay higher personal taxes, pay more for electricity, and pay more for fuel. In general, progressive respondents (plus the full-time employed, the higher income earners, and those with prior experiences of natural disaster, extreme weather, and/or climate change impact event/s) reported greater willingness to take these actions than did conservative respondents. In the new respondent sample only, also scoring significantly higher on this variable than the contrasting groups were respondents born outside of Australia, those who mainly spoke at home a language other than English, non-parents, non-vehicle owners, and those who reported being in relatively good health.

- Faced with the threat of climate change, people must **adapt psychologically** (i.e., make cognitive, emotional, and behavioural changes to accommodate this reality: see Appendix A for a more detailed definition). The genders did not differ on psychological adaptation. However, other than that, the sub-groups of both samples tended to differ on this variable along the same lines as for the behavioural willingness scale, with the progressive respondents again more likely than conservative respondents to indicate that they were psychologically adapting to climate change in positive ways (item F7).

6.6 Lifestyle and Social Milieu

- Most respondents in both samples (86% - 87%) reported that **their health** was either *OK*, *good* or *very good* (item A3). This suggests that most respondents had sufficient supply of an important resource – their physical health - that helps with taking climate action.

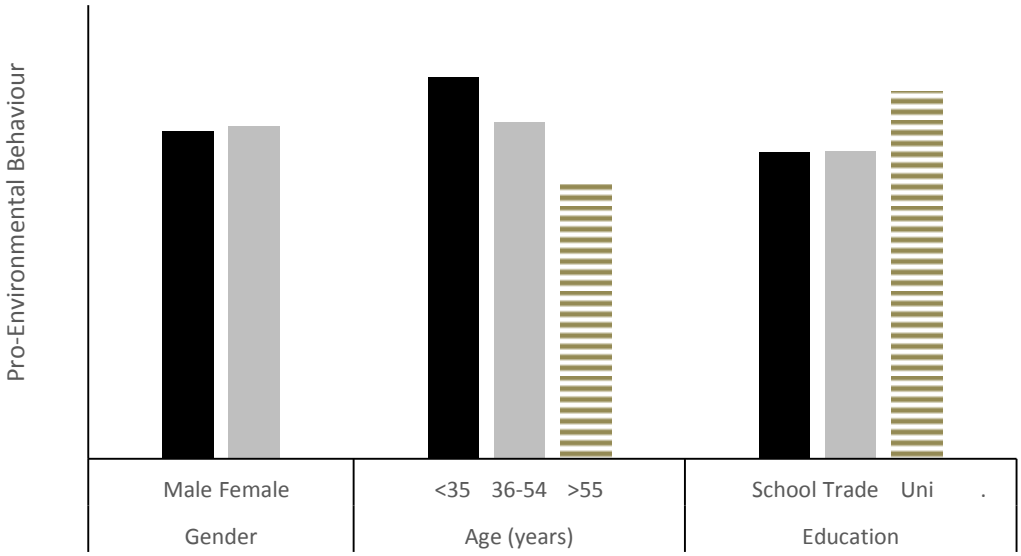
- The new respondents reported varying levels of **involvement in their local community** groups or clubs (item A1; this item was not included in the repeat respondent questionnaire). Those with higher community involvement tended to be male, aged 35 years or under, from a home where a language other than English is mainly spoken, religious, university-educated, currently studying or full-time employed, residing in an inner urban area, having a higher than average household income, having had prior experiences of a natural disaster, extreme weather, and/or climate change impact event, and/or be in good health. Greater community involvement tended to be moderately, but positively, correlated with self-reports of a pro-environmental lifestyle.

- Respondents claimed that they engage in an average of 5.3 (repeat respondents) and 5.8 (new respondents) of **16 pro-environmental behaviours** listed in item A6 (e.g., using public transport, carrying re-usable drink containers, signing environmental petitions). On average, 3.0 (repeat respondents) and 3.1 (new respondents) of these 16

behaviours were reportedly performed at least partly because of environmental concerns (with the remaining 2.3/2.7 (on average) performed for other reasons).

- Compared to relevant other groups, higher **numbers of these pro-environmental behaviours** were reportedly performed by progressive, than by conservative, respondents (although gender differences were modest), and by respondents who had prior experiences of one or more natural disaster, extreme weather, and/or climate change impact event. See Figure 5. As shown in Appendices D.5 and E.5, performing many of these behaviours was positively correlated with most other measures of climate change belief, concern, and action.

Figure 5: *New Respondents' Engagement in Pro-Environmental Behaviours by Gender, Age Group, and Educational Attainment*



- New respondents (but not repeat respondents) were asked to indicate all **factors/reasons contributing to their non-engagement** in the 16 listed environmentally-friendly behaviours (item A8). The most frequently cited reasons were (from the most common, in descending order):

    - I am too busy/I do not have enough time (cited, as one factor influencing their inaction, by 26% of respondents)
    - I have my own routines, habits, and ways of doing things that are different from these (25%)
    - These actions are too expensive (25%)
    - These actions are not going to stop or solve environmental problems (20%)
    - I do not know what to do (16%)
    - These actions are too inconvenient/too much effort (15%)
    - I do not trust the authorities that give out information about environmental issues (12%)
    - I can't do these things because of my age, ill health, or disability (12%)
    - These actions are not a high priority, so I never seem to get around to them (11%)

- I do not know whom to talk to, contact, or engage with on environmental issues (10%)
- I am not particularly interested in environmental issues (10%).

Thus, all these reasons for climate *inaction* (or barriers to climate action) were cited by at least 10% of the sample. In 2021, ten of the same eleven reasons were endorsed by at least 10% of the sample.

- Repeat respondents were asked to indicate how their level of **engagement in pro-environmental behaviours will likely change** in the forthcoming twelve months. In response, 71% indicated that they intended to engage in these behaviours "about the same" as they currently do, 3% intended to engage less, and 26% intended to increase their level of engagement over the following year. New respondents were asked to indicate how they think their level of engagement in pro-environmental behaviours **compares to that of the average Australian**. In response, 47% thought that their level of engagement was about the same as that of the average Australian; 35% believed that their level of engagement was *below* the national average, and only 18% believed that they were *above* the average (item A7). (This distribution of responses is almost identical to that obtained in 2021). These percentages suggest that the 2022 new respondent sample was not overly-represented by individuals who self-identify as environmentalists ('greenies').

- Substantial proportions of respondents in both 2022 samples expressed **interest in adopting five environmentally-friendly actions in the future** (item A9). For example, of those who gave a substantive response and had not already implemented the action, 65% of repeat respondents and 64% of new respondents expressed future interest in installing a home solar battery system (compared to 73% in the full 2021 sample), and 53% of repeat respondents and 63% of new respondents were interested in getting an electric or hybrid vehicle (compared to 55% in 2021). Those most interested in taking these actions tended to be progressive respondents. There was, however, no gender difference in interest in these actions, while respondents who showed interest tended to be those who reported high household incomes, who were employed full-time, who had prior experiences of natural disaster, extreme weather, and/or climate change impact events, and, in the new respondent sample only, who were non-parents, with above average health, and residing in a home in which English was not the main language spoken.

- **Motor vehicle ownership** (item H30) was modestly associated with climate change beliefs, concerns, and actions. For example, the percentage of repeat respondents who reported being *fairly* or *very* concerned about climate change varied from 84% for those who own at least one electric or hybrid vehicle, to 73% who own no vehicles, 65% for those who own at least one 4-cylinder petrol or diesel vehicle, and 66% for those who own at least one 6-cylinder or larger petrol or diesel vehicles. The corresponding percentages in the new respondent sample were 85%, 77%, 71%, and 62%.

- Many *repeat* respondent homeowners (50% of the 808 members of the sample who either owned their own home or were buying it with a loan/mortgage) reported that they had **modified their home** in the preceding five years to make it better adapted to extreme weather and natural disasters. One-eighth (12.5%) of these homeowners

claimed to have made three or more of the eight possible home modifications listed. The corresponding figures in the *new* respondent sample were higher: 66% of 1,559 homeowners had modified their home in at least one listed way, and 28% had made three or more of the possible adaptations (item H25).

6.7 Experiences of Extreme Weather, Natural Disasters, and Perceived Manifestations of Climate Change

- Repeat (but not new) respondents were asked to indicate **how often they experienced each of five (plus an "other") types of natural disasters or extreme weather events** in the preceding twelve months (item C5). As detailed in Appendix D.2, most respondents (63%) reported having experienced a heatwave, with 36% having done so more than once. Somewhat less commonly experienced in the preceding year were floods (26%), drought (23%), bushfire/s (18%), and cyclones (7%). When the 897 repeat respondents (71% of the sample) who had experienced at least one of these events were asked to name the type of event that was most serious for them (item C6), 60% nominated heatwave/s, a much greater percentage than for floods (21%), bushfire/s (8%), drought (6%), and cyclone/s (1%).

- In accordance with the questions used in the 2021 survey, new respondents were asked about their **experiences of natural disaster or extreme weather events**, but were not asked to give details of the events experienced. Thirty-seven percent of new respondents had personally and directly experienced at least one extreme weather or natural disaster event in the preceding twelve months (item C1), and 47% had done so prior to the preceding year (item C2). The percentage pertaining to the last year was up from 31% in 2021, but considerably lower than that for the repeat respondents, where essentially the same information was obtained through a differently-worded question. Taken together, 55% of the 2022 new respondents (up from 52% in 2021) had experienced such an event at some point in their life. Of the 1,516 new respondents who had ever experienced such an event, 1.6% had been injured (C3a) and 28% had suffered financially (C3b), in their most recent of these experiences. Fourteen percent had suffered *considerable*, *major*, or *an extreme amount* of property damage due to such an event (item C3c).

- *Repeat* respondents who had, during the preceding year, directly experienced at least one natural disaster or extreme weather event, and those who had not experienced any such events, differed significantly ($p < .001$) on 24 of 29 climate change variables. The five exceptions were: proportion of the 16 pro-environmental behaviours engaged in out of concern for the environment, functional impairment due to exposure to the 2022 floods, psychological reactance, hopefulness in addressing climate change, and self-rated knowledge of climate change. *New* respondents who had some direct lifetime experience of at least one natural disaster or extreme weather event, and those who had not experienced any such events, differed significantly ($p < .001$) on all but one of 31 climate change variables: psychological reactance was the single exception. These differences were in a consistent, 'pro-environmental' direction: for example, respondents with natural disaster experience expressed greater concern and distress about climate change, they were more likely to support government action to combat climate change, and they were more likely to engage in pro-environmental actions. Particularly large differences between those with and without the experience were

evident in respect of perceived residential exposure to these events. In the new respondent sample, the between-group differences were evident regardless of whether the experience/s of extreme weather and natural disasters occurred more or less than one year before survey completion.

- A substantial minority (30% of repeat respondents and 44% of new respondents) agreed that some **geographically 'distant' natural disaster or extreme weather events** had had an impact on them, even though these events were not directly experienced by them (item C4).

- Twenty-four percent of repeat respondents, and 33% of new respondents, answered in the affirmative the question '**Has any particular event/s or experience/s altered your views about the seriousness of climate change?**' (item D6). When repeat respondents were invited in an open-ended question to elaborate (D6a), the most common type of response referred to the rain and flooding in Australia in 2022. In addition, respondents cited bushfires, droughts, and other natural disasters, or anthropogenic events such as the bleaching of the Great Barrier Reef. Media (e.g., television) coverage of these events was also commonly cited, especially when these events occurred in countries (the U.K., Pakistan, Hong Kong, Philippines, etc.) other than Australia. References were also made to more subtle and gradual changes, for example, to the flowering of plants or birds' migration habits. (See Appendix D.7 for illustrative responses).

- Both questionnaires included a question asking whether, in the past twelve months, respondents had "**directly experienced any environmental or climatic changes, circumstances, or events that [they] think might be due to climate change**" (item D7). Thirty-three percent of repeat respondents, and 38% of new respondents, answered in the affirmative. (The corresponding percentage in the 2021 survey was 24%). New respondents were also asked whether they had ever had such an experience prior to the preceding twelve months (item D8), with 36% answering affirmatively. Taken together, 44% of new respondents (N = 1,220, up from 35% in 2021) claimed to have experienced such an event at some point in their life. When asked for brief details of their experiences (item D9), responses were dominated by references to the 2022 flooding in Eastern Australia. Also frequently mentioned were heatwaves, bushfires, cyclones, rain/storms, drought, food and other shortages, climatic variability/inconsistency, more subtle seasonal changes, and many others. (See Appendix D.7 and E.6 for a selection of verbatim responses). *Repeat* respondents who had experienced changes, events, or circumstances in the preceding year that they attribute to climate change scored significantly ($p < .001$) higher on all climate change variables except climate change-related hope, impacts of flooding, and flooding-induced functional impairment. They scored significantly lower on perceptions of the spatial distance of climate change and psychological reactance, with this direction of differences implying greater (rather than less) climate change concern. *New* respondents who believed they had experienced climate change-related changes, events, or circumstances, either in the preceding year or over their lifetime, scored higher on all climate change variables except spatial distance of climate change and psychological reactance.

- Item D10 asked respondents whether they thought they, or their family, had been **harmed by circumstances or events they believed were related to climate change**.

Most (63% of repeat respondents and 66% of new respondents) thought reported that they/their family had been harmed to some extent, with only 37% and 34%, respectively, indicating that they/their family had not been harmed *at all*. (In the 2021 survey, 68% of respondents reported that they/their families had been harmed to some extent).

- In the past year, 24% of *repeat* sample respondents had not directly experienced either (1) an extreme weather event/natural disaster or (2) an event or circumstance that they attributed to climate change in the past year; 29% had experience both these types of events; 44% had experienced an extreme weather /natural disaster event but not a climate change impact event; and 3% had experienced an event or circumstance attributed to climate change, but not an extreme weather/natural disaster event. The corresponding percentages in the *new* respondents sample were: 49% (neither), 24% (both), 13% (extreme weather/natural disaster only), and 14% (climate change impact only). The between-sample differences in these percentages are noteworthy (and not readily explained). (In 2021, the percentages were 41%, 28%, 24%, and 7%, respectively, that is, closer to the 2022 new sample than to the 2022 repeat sample).

- Perceived vulnerability of their place of residence to the adverse effects of extreme weather, natural disasters, and/or climate change impacts (items D18, D20, H29) was especially strong among those who had previously experienced such events. Also reporting high levels of **perceived residential vulnerability** were rural residents, respondents aged 35 years or less, students, members of minority/marginalised groups, intending left-leaning voters, and residents of Queensland.

- Respondents in both samples read the following: "Large parts of eastern Australia experienced unusually heavy rainfall and considerable flooding during 2022", and were asked "Were you, or the people close to you, or your property, directly exposed to the 2022 floods, or the consequences of these floods, in any way?" (item C8). In total, 18% of repeat respondents and 31% of new respondents answered in the affirmative (that is, 27% of all 4,030 2022 respondents). Repeat respondents who reported **direct exposure to the flooding** also reported greater environmental/climate change awareness, concern, and responsiveness on 16 multi-item scales. The corresponding figures in the new respondent sample were 27 out of 30 scales. In the *repeat* sample, the strongest (positive) associations with flooding exposure were (in descending order): perceived residential exposure to natural disaster and climate change risks, frequency of prior natural disaster/extreme weather event experiences, frequency of engaging in pro-environmental behaviours (PEB34), psychological adaptation, and frequency of engaging in pro-environmental behaviours due to concerns with the environment (PEB4). See Appendix D.4. In the *new* respondent sample, the strongest positive associations were with (in descending order): perceived residential exposure to natural disaster and climate change risks, likelihood of participating in climate change activism, frequency of engaging in pro-environmental behaviours because of concerns for the environment (PEB4), and psychological adaptation. See Appendix E.4. Flooding exposure was not associated with normative beliefs or psychological reactance in either sample.

- Respondents in both questionnaires who reported they had been directly exposed to the 2022 floods answered questions pertaining to the (lifestyle) **impacts of their flooding experience/s** (item C9). (Those not exposed skipped this item). In both

samples, the most common impacts were of a vicarious kind: observing damage to other people's property (experienced by 68% of flood-exposed repeat respondents and 66% of flood-exposed new respondents), witnessing other people directly impacted by the flooding (59% and 66%), and having a family member or close friend impacted by the flooding (51% and 56%). In addition, substantial minorities of both samples were personally and directly impacted. For example, of the repeat respondents:

- 32% experienced property damage/loss
- 29% lost the capacity to perform their usual work in the usual way
- 28% experienced financial loss
- 27% were physically cut off or trapped, and
- 22% experienced psychological distress or trauma.

The corresponding percentages in the new respondent sample were similar: 30%, 31%, 28%, 30%, and 24%, respectively. Approximately 28% of those in each sample who were directly exposed assisted with cleaning up after the floods, and 5% (repeat sample) and 11% (new sample) were involved in flood-related rescue work.

- The 13 types of flood impacts were summed, with higher scores indicating greater **adverse impacts of the floods**. Relatively high scores on this scale were observed in both samples among students and among respondents who had experienced manifestations of climate change, and, in the *repeat* respondent sample, among inner urban and rural residents (i.e., not suburban residents), middle-income earners, and members of minority/marginalised groups. In contrast, in the *new* respondent sample, relatively high scores were observed among those aged 35 years or less, those employed full-time, and those who reported having experienced one or more natural disasters, either in their lifetime and/or in the preceding year. New respondents residing in the Australian Capital Territory and Queensland reported high flooding impacts, while scores were particularly low among residents of Tasmania.

- The 228 repeat respondents who had been directly exposed to the 2022 floods were asked to indicate the frequency/extent to which their functioning in everyday activities was adversely affected by their flooding experience/s (item C12). Between 23% and 29% of respondents indicated they were at least *sometimes/somewhat* functionally impaired in each of nine of the ten ways listed. Most commonly experienced were sleeping problems (sometimes/somewhat experienced by 29% of respondents); least common was problems in keeping up an acceptable appearance (13%). Relatively high levels of flooding-related **functional impairment** were reported by students, inner urban residents, and respondents who were in poor health.

- Repeat (but not new) respondents were asked about their **experiences of extremely hot weather** (item C13). In response, 23% indicated they were not affected at all by this weather, 42% were a little affected, 30% were somewhat affected, and 5.5% were badly affected. When asked in item C14 to indicate the symptoms they have ever experienced following or during hot weather, the most common responses were: loss of sleep/trouble with sleeping (experienced by 51% of repeat respondents), fatigue (48%), dehydration (44%), headache (40%), loss of balance/feelings of dizziness/faintness (24%), and anxiety (18%). Almost one-sixth (16%) experienced none of the 15 symptoms listed.

- Several questionnaire items (C3d, C3e, C3f, H26) probed the effects of climatic and disaster events on respondents' use of **insurance**. For example, among the repeat respondents who incurred property damage due to the 2022 floods, only 22% made a claim on their insurance (item C3d), with 81% of claims successful (item C3e). Only 12.5% of those affected knew if and how they had changed their insurance coverage as a consequence (item C3f). Similar questions were asked of the new respondents, although, as per the 2021 survey, these questions pertained to the respondent's most recently experienced event. Here, the percentages differed: 25% made a claim on their insurance, with 92% of claims successful, and 22% of those affected were aware of if and how they had changed their insurance cover as a consequence. In a different section of the questionnaire, 40% (repeat respondents) and 62% (new respondents) indicated that they would be at least moderately willing to move their home if their current residence was deemed to be uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters (item H26). Thus, more than half of the full sample of 4,030 respondents were prepared to remain in an uninsurable home.

6.8 Views of Self, the World, and Social, Political, and Environmental Issues

- Both questionnaires contained a 3-item scale measuring the extent to which people think of themselves as having a '**green' identity** (item B1). Unsurprisingly, intending left-leaning (Greens, Labor) voters, and respondents who had experienced natural disasters and/or impacts of climate change, scored relatively highly on this scale. And, as expected, in both samples, acceptance of this identity was positively correlated with stronger belief in climate change, greater concern for its impacts, and living a more pro-environmental lifestyle.

- Repeat (but not new) respondents completed short scales measuring five **personality traits**: conscientiousness, agreeableness, emotional stability, openness to experience, and narcissism (item B8). (The first four of these are four of the so-called "Big Five" personality traits: McCrae & Costa, 1999). As shown in Appendix D.6, the traits were significantly ($p < .001$) correlated with between 17 (conscientiousness and emotional stability) and all 29 (openness) of 29 climate change variables. Most notably, a high score on:

    - Conscientiousness was positively associated with high levels of connection to nature and self-rated climate change knowledge, and low levels of impacts of flooding.
    - Agreeableness was positively associated with connection to nature, hopefulness in addressing climate change, behaviours changed due to climate change, and green identity.
    - Emotional stability was positively associated with self-rated climate change knowledge and climate change-related hope, and negatively correlated with climate change distress and flood exposure-induced functional impairment.
    - Openness was positively associated with nearly all the climate change variables, especially with connection to nature, engagement in pro-environmental behaviours (PEB34 and PEB4), green identity, interest in future pro-environmental behaviours, personal norm, and psychological adaptation.

  - Narcissism was positively associated with interest in future pro-environmental behaviours, current engagement in pro-environmental behaviours (PEB34), psychological adaptation, and hopefulness in addressing climate change.

Of all the personality traits, openness was the most strongly correlated with the climate change variables; its association with connection to nature (r = .33) was the highest single correlation.

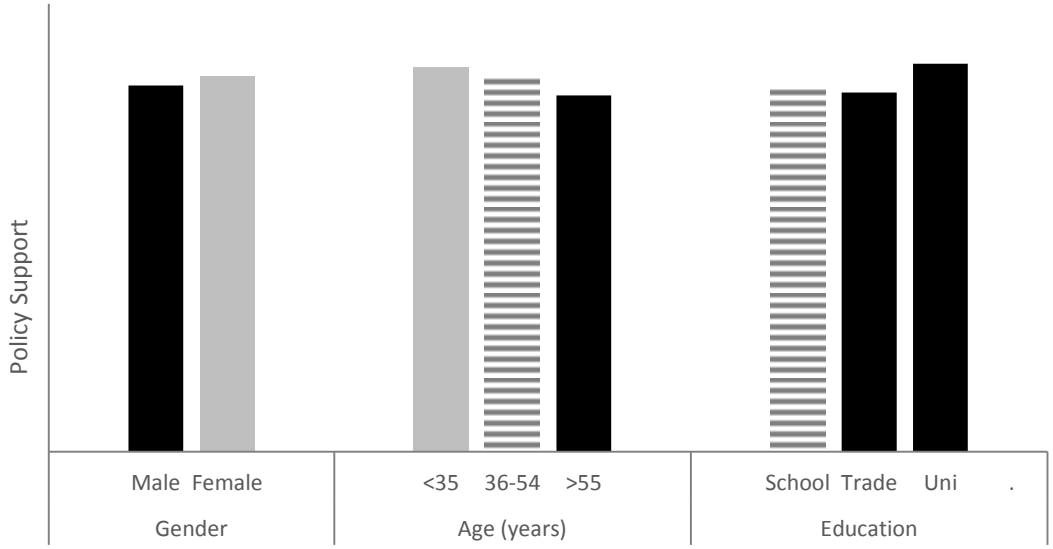
- New (but not repeat) respondents completed a shortened 6-item scale assessing the extent to which they supported the '**New Ecological Paradigm'** (item B2), a view of the world that acknowledges the need for humans to live in harmony with nature. (See Appendix A for elaboration). This worldview was more strongly endorsed by progressive, than by conservative, respondents. Non-parents, non-home owners, members of a 'minority' or 'marginalised' group, and respondents who had experienced natural disasters and/or impacts of climate change also scored relatively highly on this scale. As indicated by the pattern of correlations shown in Appendix E.5, respondents who held this worldview tended to: report strong beliefs in climate change, be very concerned about climate change, regard the issue as highly important, and report strong support for pro-environmental policies (see next entry).

- **Support for ten pro-climate action government policies** was strong. For example, 76% of *repeat* respondents expressed some or strong support for setting a national zero-carbon emission target by 2050 at the latest; 63% supported putting a tax on carbon emissions, with the money raised being invested in clean, renewable energy; 59% supported phasing out over ten years the mining of fossil fuels (coal, oil and gas); and 49% supported requiring all new vehicles to be electric by 2040. These percentages were 3% - 9% lower than for the full sample in the 2021 survey. Percentages supporting these same policies in the 2022 *new* respondent sample were 75%, 66%, 62%, and 52%, that is, slightly higher on average than for the repeat respondents. In contrast to this broad support for pro-environmental policies, sizeable minorities favoured policies that could be described as environmentally 'unfriendly': for example, 38% of repeat respondents and 42% of new respondents supported building new coal-fired power stations as old ones are retired, and 41% of repeat respondents and 44% of new respondents supported minimising Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions.

- **Support for pro-environment policies** was stronger among progressive respondents than conservative respondents (although the gender difference was not significant in the repeat respondent sample). See Figure 6. This support was also relatively high, in both samples, among those who did not own a motor vehicle, those who were not parents, and those who had experienced one or more natural disasters, extreme weather events, or climate change impacts. Also, support was high among new respondents who were employed full-time, those with a relatively high household income, those who did not own their home, and those residing in the Australian Capital Territory. As shown in Appendices D.5 and E.5, consistent with their support for climate-friendly policies, these respondents also reported high levels of climate change belief, concern, perceptions of risk, issue importance, personal norms, efficacy, willingness to take climate action, and similar climate change attitudes and behaviours. Of note, findings from the repeat respondent sample related to pro-

environmental policy support illustrate the *in*creasing polarisation of Australians, with left-leaning voters' support increasing over the 2021-2022 year by 1.65 scale points, whilst that of right-leaning voters *de*creased over the same period by 2.31 points, a difference in change score that was significant at the $p < .001$ level.

Figure 6: *New Respondents' Policy Support by Gender, Age Group, and Educational Attainment*



- Both questionnaires included an item about the recently-legislated **Australian federal government target of a 43% reduction in greenhouse gas emissions by 2030**. Substantial proportions of both samples (38% of repeat respondents and 37% of new respondents) believed the target was "about right", with 23% of repeat respondents and 24% of new respondents thinking it is "too low", and 12.5% and 10%, respectively, thinking it is "too high". Fifteen percent of repeat respondents and 14% of new respondents indicated they think there should be no target at all, and 12% and 14%, respectively, replied that they had no opinion on the issue. Repeat respondents were invited to comment further on their views about the emission target. Many comments were strongly worded, with most of these coming from people who wanted a higher target, a lower target, or no target at all (i.e., not from those who thought the 43% target was about right). Illustrative responses are given in Appendix D.7

- All **political parties** were represented in the sample. Beliefs in, concerns about, and responsiveness to climate change tended to vary in predictable ways with political affiliation, from supporters of the Australian Greens (who had the strongest beliefs and greatest concerns), through supporters of "teal' independents, Labor, Liberal/National, and United Australia/One Nation parties. For example, in the repeat respondent sample, the prevalence of being *fairly* or *very* concerned (combined) about climate change was higher among intending Greens (95%), "teal" independent (87%), and Labor Party (81%) voters than among intending Liberal (45%), National Party (37%), United Australia Party (33%), and One Nation (32%) voters. In the new respondent sample, the corresponding percentages were: 92% (Greens), 82% (teal), 84% (Labor), 54% (Liberal), 36% (National Party), 36% (United Australia), and 23% (One Nation). Of note, in the repeat respondent sample, the prevalence of self-rated *increases* over the preceding year in levels of concern about climate change (item E2)

was higher among intending Labor Party voters (48%) compared to all other respondents combined (32%). This difference was also present in the new respondent sample: 57% of Labor voters versus 46% of all other respondents reported recent increases in climate change concern.

- A final question in the survey (item H32) asked: Is there anything else you would like to say about your views on climate change or natural disasters?" Responses varied widely: see Appendices D.7 and E.6 for examples.

6.9 Comparisons of Responses in the 2021 and 2022 Samples and Sub-samples.

6.9.1 Demographic Composition of the Samples and Sub-Samples

An important objective of this project was to identify similarities and differences between the 2021 and 2022 samples and sub-samples, as well as changes (and stabilities) in the sub-sample of people who participated in both years of the survey. Prior to reporting and comparing mean scores on the critical climate change variables, Table 6 presents the demographic characteristics of the full 2021 and 2022 samples, as well as the two sub-samples of each. This information is important because differences in scores on the climate change variables may be at least partly due to differences in the demographic composition of the samples. For example, as reported above, and in detail in Appendices D.4 and E.4, reported concerns about, and responsiveness to, climate change tend to decrease with age. Hence, if one (sub-)sample is, on average, considerably younger than another, then between-sample differences in climate concerns and actions may be attributable to this difference in mean age rather than, for example, reflecting true population differences or changes over time.

Several pairs of columns in Table 6 are especially worthy of comparison. To begin, comparing the **full 2021 sample** (column 1) and the **full 2022 sample** (column 6), it can be seen that the 2022 sample is (a) on average, almost three years older, (b) more likely to vote for a left-wing political party, be a parent, have directly experienced a natural disaster, and have directly experienced an event or condition that they attribute to climate change, and (c) less likely to be a student or report being in poor health. Differences in relation to the other demographic variables are relatively small. Taken together, these demographic differences are likely to have a modest impact on responses to the various climate change attitudinal and behavioural variables: on the one hand, the 2022 sample's older age and non-student status would be expected to be associated with relatively low levels of climate concern and activity, but the 2022 sample's political leanings and greater experience of disaster and climatic events would be expected to influence their responses in the other direction.

When comparing the **2021 respondents who did not participate in the 2022 survey** (column 2) and those who **did respond in 2022** (column 3), it is clear that the latter - the repeat respondents - are not a representative cross-section of the full 2021 sample. Most notably, compared to those who did not participate in 2022, the repeat respondents were (a) on average, almost ten years older, (b) more likely to be a parent and own their own home, and (c) less likely to be employed on a full-time basis, be a high-income earner, be a student, self-identify as a member of a minority or marginalised group, and have directly experienced an event or condition that they attribute to climate change. Smaller, but nonetheless noteworthy, differences between the sub-samples are evident in several other demographic

variables including gender, voting intentions, educational attainment, and Australian state/territory of residence. Queenslanders and South Australians were slightly over-represented among the repeat responders, while people from the ACT, NSW, and Tasmania were under-represented. Given these large sub-sample differences, and some of the smaller ones, and drawing on the general trends reported in Sections 6.2- 6.8, and Appendices D.4 and E.4, the repeat respondents would be expected to be a relatively climate unconcerned and climate *in*active subset of the larger 2021 sample.

Columns 3 and 4 of Table 6 represent responses given by **the same group of people** (i.e., the repeat respondents) one year apart. Demographically, they should be almost identical, and indeed they are in respect of many variables (country of birth, educational attainment, home ownership, rural residency, state residency, etc.). On average, they are 0.95 of a year older in 2022 than in 2021. Two (of the 1,263) people reported in 2022 that their sex is different from that reported in 2021, a finding that might indicate a deliberate attempt to obscure their identity, carelessness in answering the question, or gender re-assignment during the intervening year. Importantly, there were some substantial differences between the responses given in 2021 and 2022 to several of the less strictly "demographic" items. For example, compared to the preceding year, 5.6% fewer 2022 respondents rated their health as extremely poor, poor, or okay. In 2022, five percent more repeat respondents indicated an intention to vote for a left-leaning political party.

Next, the demographic make-up of **two 2022 subsamples - repeat respondents** (column 4) **and new respondents** (column 5) - can be compared. As shown, relative to the repeat respondents, the new respondents were (a) on average, seven years younger, (b) less likely to be a parent or home owner, and (c) more likely to be employed on a full-time basis, be a student, vote for a left-leaning political party, reside in NSW, and have directly experienced an event or condition that they attribute to climate change. Women outnumbered men in all samples and sub-samples, although the numerical advantage of women was least marked in the sample of 2022 new respondents. Given their younger age, student status, voting preferences, and willingness to attribute events and conditions to climate change, the 2022 new respondents were expected to be more climate-concerned and -active than the 2022 repeat respondents.

Finally, the composition of the **2021 full sample** can be compared with that of the **2022 new sample.** The rationale for this comparison is that both these samples comprise "new" respondents, in that these individuals have not previously completed a Climate Action Survey. Thus, their responses cannot be biased ('contaminated') by prior exposure to the questions or by how they previously responded. Demographically, these samples differ in three main ways: compared to the 2021 full sample, the 2022 new respondent sample contains a higher proportion of people who reported that (a) they intend to vote for a left-leaning political party at the next federal election, (b) they have directly experienced an event or condition that they believe is due to climate change, and (c) they were in extremely poor, poor, or OK (rather than good or very good) health. The first two of these differences are likely to be associated with greater climate change concern and activity.

Table 6

Comparison of the Demographic Composition of the 2021 and 2022 Samples

Variable	2021 Survey			2022 Survey		
	1. Full Sample	2. Did not respond in 2022	3. Responded again in 2022	4. Repeat Respondents	5. New Respondents	6. Full Sample
Sample size	3,915	2,652	1,263	1,263	2,767	4,030
Male/Female	48.6% / 51.1%	48.9% / 50.6%	47.8%/52.1%	48.0% / 51.9%	49.4% / 50.2%	49.0% / 50.7%
Age (years)	Mean = 46.56 *(sd =17.41)*	Mean = 43.37 *(sd = 16.73)*	Mean = 53.25 *(sd = 16.93)*	Mean = 54.20 *(sd = 16.95)*	Mean = 47.26 *(sd = 19.33)*	Mean = 49.44 *(sd = 18.89)*
Born in Australia?	76.7%	77.0%	76.1%	76.1%	77.6%	77.1%
Language spoken at home is English	93.8%	93.1%	95.2%	95.2%	94.5%	94.7%
Religious?	40.5%	39.9%	41.7%	41.2%	38.1%	39.1%
University-educated	40.5%	41.6%	39.0%	39.0%	38.1%	38.3%
Left-leaning voter	41.7%	42.3%	40.5%	45.8%	49.9%	48.7%
Parent?	56.3%	53.2%	62.9%	63.7%	58.9%	60.4%
Employed full-time	36.9%	40.0%	30.6%	31.7%	37.6%	35.0%
Income > $100k p.a.	32.2%	34.0%	28.6%	30.0%	32.0%	31.4%
Currently a student	12.8%	15.6%	6.8%	5.9%	10.6%	9.1%
Home owner	56.3%	52.8%	63.9%	64.0%	56.3%	58.7%
Member of a minority or marginalised group	29.9%	31.7%	27.3%	28.5%	27.7%	28.0%
Reside in rural/remote area	20.3%	20.2%	20.5%	21.1%	22.3%	21.9%
Ever directly experienced a ND	52.4%	54.5%	48.1%	73.2% [a]	54.8%	
Ever directly experienced CC	35.5%	38.0%	30.0%	32.6%	44.1%	40.5%
In poor or just OK health	55.6%	56.6%	53.7%	48.1%	48.4%	48.3%
Petrol/diesel vehicle owner	82.9%	82.7%	83.6%	87.3%	84.9%	85.7%
Australian state of residence						
Australian Capital Territory	2.5%	2.6%	2.1%	2.1%	1.6%	1.8%
New South Wales	30.9%	31.9%	28.7%	28.7%	32.0%	31.0%

Northern Territory	1.0%	1.1%	0.8%	0.8%	0.9%	0.9%
Queensland	19.2%	18.1%	21.3%	21.3%	20.2%	20.5%
South Australia	7.5%	6.9%	8.7%	8.7%	7.5%	7.9%
Tasmania	2.9%	3.2%	2.3%	2.3%	2.0%	2.1%
Victoria	25.4%	25.4%	25.3%	25.3%	25.5%	25.5%
Western Australia	10.8%	10.7%	10.8%	10.8%	10.3%	10.4%

Note. *sd* = standard deviation. ND = natural disaster. CC = climate change.

[a] The survey questions used to derive this percentage differed from those used in the other questionnaires. Hence, direct comparisons involving this percentage are not recommended, and reporting a weighted average of the repeat respondent and new respondent percentages would be misleading.

6.9.2 Climate Change Scale Means Scores for the Samples and Sub-Samples

With these demographic differences and similarities in mind, the mean scores achieved by the different samples and sub-samples on each of the climate change scales can be compared. Reporting of these comparisons follows the same sequence as used when comparing the samples' demographic compositions.

As shown in Table 7, the **2021 full sample** (column 1) differed significantly at the $p < .001$ level from the **2022 full sample** (column 6) on 11 of the 24 scales for which data from both samples were available in both years. Specifically, on average, the 2022 sample scored higher than the 2021 sample on normative beliefs, felt personal responsibility for contributing to climate change, psychological reactance, response efficacy, and psychological adaptation. In contrast, the mean score of the 2022 sample was lower than that of the 2021 sample on interest in taking pro-environmental actions in the future, perceived residential exposure to natural disasters and manifestations of climate change, belief in/acceptance of climate change, climate change concern, perceived importance of the climate change issue, and self-efficacy in acting against climate change. Less pronounced differences ($p < .01$) were evident in relation to personal norms (higher in 2022), and policy support (higher in 2021). The samples did not differ in respect of climate change distress or risk perception. Overall, this suggests that neither survey year elicited a pattern of responses that reflected greater climate change-consciousness, or -complacency, than the other.

As reported above, the 2022 full sample was (three years) older than the 2021 sample. Because, in general, age is negatively correlated with climate concern and activity, the significance of the difference between each of the above sample means was re-evaluated with participant age statistically controlled. Gender and educational attainment - two other commonly observed correlates of climate change-related attitudes and behaviours - were also controlled. This strategy helps remove the bias introduced by the different demographic compositions of the two samples. With these statistical controls in place, as before, the 2022 sample scored significantly ($p < .001$) higher than the 2021 sample on five climate change variables: normative beliefs, felt personal responsibility for contributing to climate change, psychological reactance, response efficacy, and psychological adaptation. The difference on personal norms was also significant at the $p < .001$ level, with higher scores in 2022 than 2021. Conversely, the mean score of the 2022 sample was significantly ($p < .001$) lower than that of the 2021 sample on perceived residential exposure, climate change concern, self-efficacy in acting against climate change, and perceived importance of the climate change issue. It was also significantly ($p < .01$) lower on interest in taking pro-environmental actions in the future, and marginally ($p < .05$) lower on belief in climate change. The difference in policy support was not significant. Thus, after controlling for three demographic variables, differences on the climate change variables were still evident and still in both directions. In purely numerical terms, the 2022 sample displayed greater ($p < .001$) climate change awareness and activity on five variables (psychological reactance is not included), compared to four for the 2021 sample.

In contrast to the mixed results found in the full samples, clear trends were evident when comparing the **2021 respondents who did not participate in 2022** (column 2) with the **2021 respondents who did participate again in 2022** (column 3). In total, these two sub-samples differed significantly ($p < .001$) on fourteen of the 33 variables for which data were available, differed significantly ($p < .01$) on six additional variables, and differed marginally ($p < .05$) on two other variables. Importantly, the repeat respondents displayed a less climate change-

concerned and -active responses on 20 of these 22 variables (psychological reactance (which is negatively related to climate action) and knowledge were the exceptions). Thus, compared to those respondents who discontinued, those who continued reported engaging in fewer pro-environmental behaviours, perceived climate change as a less serious risk, were less distressed about climate change, were less likely to engage in direct climate action, and so on.

Comparing the **2021 mean scores** (column 3) and the **2022 mean scores** (column 4) **of the repeat responders** provides an opportunity to examine whether within-person changes in attitudes and behaviours had occurred during the intervening year. In total, the mean scores for the two years differed significantly ($p < .001$) on twelve of the 24 variables for which data were available, differed significantly ($p < .01$) on three variables, and differed marginally ($p < .05$) on two others. However, the direction of these differences was not consistent. Thus, compared to their 2021 responses, the 2022 repeat respondents reported more frequent pro-environmental behaviour, stronger normative beliefs and personal norms (obligations) to engage in pro-environmental behaviour, greater felt personal responsibility for contributing to climate change, greater willingness to engage in pro-climate actions, and superior psychological adaptation to the threat and impacts of climate change. However, they showed less interest in engaging in climate actions in the future, regarded the climate change issue as less important, and felt less personally and collectively efficacious in acting against climate change. They also expressed less concern about climate change in 2022 than in 2021, and (unexpectedly), in 2022, reported believing that their residential area was less exposed to natural disasters and climate change manifestations.

A further comparison (not shown in Table 7) relates to **changes** that occurred between the 2021 and 2022 surveys in the repeat respondents who were directly exposed to the Australian floods in 2022 versus repeat respondents not exposed to these floods. In the preceding paragraph, when comparing repeat respondents' 2021 and 2022 mean levels on the climate change variables, we noted that the differences between the two years were <u>not</u> in a consistent direction, with repeat respondents displaying more climate change awareness, concern and responsiveness on some variables, but less so on others. In Section 6.7, we reported that repeat respondents who were exposed to the floods were <u>consistently</u> more climate change aware, concerned, and responsive than were repeat respondents not flood-exposed. Before concluding that these consistent between-group differences were caused by flood exposure, the possibility that these differences pre-dated the 2022 survey must be recognised, that is, rather than being caused by the flooding, these differences may have 'always' existed.

To examine these rival possibilities, we computed a set of new scores by subtracting repeat respondents' 2021 scale scores from their 2022 score on the same scale. Inspection of these new scores revealed a clear pattern: on 21 of the 23 multi-item climate change scales, respondents exposed to the 2022 flooding shifted towards climate change awareness, concern, and responsiveness more than did those not exposed to the flooding. This is not to say that flooding-exposed respondents always became *more* climate change aware, concerned, and responsive than they were one year earlier while non-exposed respondents became *less* so: rather, on some variables such as climate change concern, between the 2021 and the 2022 surveys, both groups became *less* concerned, but the reduction in concern was smaller in the exposed group than in the non-exposed group. Using a one-tailed test, the difference between the two groups was statistically significant for six of the 23 variables: specifically, compared to their peers who were not exposed, those repeat respondents who were exposed to the 2002 floods showed greater gains in (a) pro-environmental behaviours (PEB34), (b) perceived residential exposure to natural disasters and climate change impacts

(both differences significant at the $p < .001$ level), (c) psychological adaptation to climate change ($p < .01$ level), (d) climate change self-efficacy, (e) perceived spatial proximity of natural disasters and climate change impacts (i.e., these were perceived to be closer, geographically), and (f) behavioural change in the preceding year due to climate change (all three significant at the $p < .05$ level). Together, the differences between these two groups over the year send a strong message about the impact of exposure to the 2022 floods.

These change scores differed between groups defined by other than 2022 flood exposure. For example, over the year 2021-2022, frequency of engaging in pro-environmental behaviours (PEB34) increased significantly ($p < .05$) more among left-leaning voters than among right-leaning voters. Similarly, 2021-2022 changes in normative beliefs (i.e., beliefs that significant others want us to have pro-environmental attitudes and engage in pro-environmental behaviours) increased albeit marginally in people intending to vote for all political parties, but decreased among intending National Party voters. As a further example, the 2021-to-2022 changes in climate change variables differed by state or territory of Australia. The three most significant variations were in relation to: perceived residential exposure to natural disasters and climate change impacts (scores on this variable increased over the year among residents of Queensland and decreased among all other respondents); normative beliefs (scores increased most in Queensland and South Australian residents, increased to a lesser extent among residents of all other states, except for ACT where the mean score was lower than in 2021); and support for pro-environmental policies (where support declined in Queensland and New South Wales, and increased elsewhere, especially in Tasmania). This pattern of changes to some extent reflects the location of the worst of the 2022 flooding, and, in the case of policy support, the location of large coal mining towns that might be affected by policies threatening mine closures.

Next, the responses from the **two 2022 subsamples - repeat respondents** (column 4) **and new respondents** (column 5) - are compared. In total, these two sub-samples differed significantly ($p < .001$) on eight of the 24 variables for which data were available and differed marginally ($p < .05$) on two other variables. In general, the responses of the new respondents reflected greater climate change consciousness than those of the repeat respondents. Specifically, compared to the repeaters, the new respondents reported greater interest in taking pro-environmental actions in the future, perceived the risks associated with climate change to be greater, reported greater climate change distress, and displayed superior psychological adaptation to climate change. In contrast, the repeat respondents rated their climate change knowledge as greater.

Finally, the responses of what are, effectively, two "new" respondent samples - the **2021 full sample** (column 1) and the **2022 new sample** (column 5) **-** are compared**.** These two samples differed at the $p < .001$ level on more than half the variables (16 of the 31) measured in both groups. Consistent with its greater representation of left-leaning voters and individuals who reported having experienced manifestations of climate change, the 2022 new respondents reported more pro-environmental behaviours, greater exposure to pro-environmental descriptive norms and subjective norms, a stronger sense of personal responsibility for contributing to climate change, greater response efficacy, greater climate change-related distress, and superior psychological adaptation to climate change. Also consistent with this set of changes was a difference at the $p < .01$ level in personal norms (felt obligations) to take climate action. Perhaps surprisingly, the 2022 new respondents also reported greater ($p < .01$) psychological reactance in response to climate change messages. However, many differences between the two groups went against this trend. Specifically, the 2021 full sample reported

stronger beliefs in climate change, greater climate change concerns, greater residential exposure to natural disasters and effects of climate change, stronger endorsement of the New Ecological Paradigm, greater perceived importance of the climate change issue, and greater self-efficacy. They also reported greater ($p < .001$) trust in climate scientists and stronger ($p < .01$) support for pro-environmental policies.

Table 7

Comparison of Mean Scores on the Climate Change Scales for the 2021 and 2022 Samples

Variable	2021 Survey			2022 Survey		
	1. Full Sample	2. Did not respond in 2022	3. Responded again in 2022	4. Repeat Respondents	5. New Respondents	6. Full Sample
Sample size	3,915	2,652	1,263	1,263	2,767	4,030
			Lifestyle & Social Milieu			
Community Involvement [b]	10.82	11.13	10.16 ###	-	10.86	
PEB34	5.53 +++	5.74	5.09 ###	5.26**	5.82 ^^^	5.64
PEB4	3.03	3.13	2.82 ##	2.99**	3.07	3.04
Proportion_PEB4	0.29	0.29	0.27	0.32***	0.28 ^^^	0.29
Interest in Future PEBs	13.87 +	14.05	13.48 ###	13.09***	13.69 ^^^	13.50@@@
Perceived Residential Exposure	13.59 +++	13.76	13.24 ###	12.56***	12.86	12.76 @@@
Place Attachment	22.74	22.64	22.96	-	-	
Descriptive Norms	16.05 +++	16.08	15.99	-	16.79	
Normative Beliefs	16.23 +++	16.36	15.97 #	16.41***	16.71	16.61 @@@
			Self and Worldviews			
Conscientiousness	-	-	-	11.67	-	
Agreeableness	-	-	-	10.35	-	
Emotional Stability	-	-	-	9.60	-	
Openness to Experience	-	-	-	9.18	-	
Narcissism	-	-	-	10.46	-	
Green Identity	10.04	10.10	9.93	9.99	9.94	9.96
Connection to Nature	-	-	-	29.10	-	
New Ecological Paradigm [c]	21.68 +++	21.62	21.81	-	21.15	
Policy Support [a]	37.72 ++	38.07	36.99 ###	37.18	37.29	37.25@@
			ND and CC Experiences and Beliefs			
Number of ND Experiences	-	-	-	2.11	-	
Impacts of Flood Experiences	-	-	-	3.69	3.94	3.89

Variable	2021			2022		
	Full Sample	Did not Respond in 2022	Responded again in 2022	Repeat Respondents	New Respondents	Full sample
Functional Impairment	-	-		17.79	-	
CC Belief/Acceptance	22.60 $^{+++}$	22.72	22.35 #	22.17	22.11	22.13$^{@@@}$
CC Risk Perception	23.46	23.92	22.49 ###	22.79*	23.65 $^{\wedge\wedge\wedge}$	23.38
Personal Responsibility for CC	15.01 $^{+++}$	15.27	14.46 ###	15.35***	15.66	15.56$^{@@@}$
Spatial Distance of CC	6.29	6.43	6.00 ###	6.11	6.35 $^{\wedge}$	6.28
Importance of CC Issue - 5 items	25.37 $^{+++}$	25.65	24.79 ##	-	23.71	
Importance of CC Issue - 4 items [c]	20.21 $^{+++}$	20.44	19.74 ##	18.62***	18.93	18.83$^{@@@}$
Psychological Reactance	10.57 $^{+++}$	10.72	10.25 ##	10.60**	11.23 $^{\wedge\wedge\wedge}$	11.04$^{@@@}$
CC Self-efficacy	14.80 $^{+++}$	14.86	14.66	14.11***	14.27	14.22$^{@@@}$
CC Response Efficacy	12.67 $^{+++}$	12.84	12.28 ###	13.02***	13.30	13.22$^{@@@}$
CC Collective Efficacy	20.48 $^{+}$	20.49	20.45	20.22*	20.17	20.19$^{@}$
Trust in Climate Scientists	15.17 $^{+++}$	15.18	15.13	-	14.10	
Feelings about Climate Change						
CC Concern	23.84 $^{+++}$	24.08	23.32 ##	22.40***	23.05 $^{\wedge}$	22.85$^{@@@}$
CC Distress	24.38 $^{+++}$	24.84	23.43 ###	23.27	25.36 $^{\wedge\wedge\wedge}$	24.71
CC Hope	-	-	-	11.24	-	
Responses to Climate Change						
Behaviour Change due to CC	4.45	4.45	4.45	4.36	4.35	4.35
Personal Norm	17.02 $^{++}$	17.25	16.53 ###	17.28***	17.51	17.44$^{@@}$
Likelihood of Climate Activism	12.90 $^{+}$	13.20	12.27 ###	-	12.64	
Behavioural Willingness - 9 items [b]	33.61 $^{+}$	34.27	32.24 ###	33.03***	32.94	32.97$^{@}$
Behavioural Willingness-10 items [b]				37.22	37.22	37.22
Psychological Adaptation [a]	37.24 $^{+++}$	38.03	35.56 ###	37.17***	39.15 $^{\wedge\wedge\wedge}$	38.53$^{@@@}$
Understandings of Climate Change						
CC Knowledge - objectively tested	5.59	5.45	5.89 ##	-	5.40	
CC Knowledge -self-rated, 3 items	10.16	10.19	10.08	-	-	
CC Knowledge -self-rated, 1 item [d]	-	-	-	3.52	3.38 $^{\wedge\wedge\wedge}$	3.42

Notes pertaining to Table 7:
PEB = pro-environmental behaviour. ND = natural disaster. CC = climate change.
Dashes (-) in cells indicate that the scale was not included in this sample's questionnaire.
When comparing the mean responses of the full 2021 sample (N = 3,915 respondents) and the full 2022 sample (N = 4,030 respondents), $^{@}$ $p <$ .05. $^{@@}$ $p < .01$. $^{@@@}$ $p < .001$. (two-sided).
When comparing the 2021 sample of 2,652 respondents who participated in 2021 but not in 2022, with the 1,263 respondents who participated in both the 2021 and 2022 surveys, $^{\#}$ $p < .05$. $^{\#\#}$ $p < .01$. $^{\#\#\#}$ $p < .001$. (two-sided)
When comparing the 2021 and 2022 mean responses of the 1,263 respondents who participated in both surveys, * $p < .05$. ** $p < .01$. *** $p <$ .001. (two-sided).
When comparing the mean responses of the 1,263 repeat 2022 respondents and the 2,767 new 2022 respondents, $^{\wedge}$ $p < .05$. $^{\wedge\wedge}$ $p < .01$. $^{\wedge\wedge\wedge}$ $p <$ .001. (two-sided).
When comparing the mean responses of the 3,915 members of the 2021 full sample with the 2,767 new 2022 respondents, $^{+}$ $p < .05$. $^{++}$ $p < .01$. $^{+++}$ $p < .001$. (two-sided).

[a] For the 2022 surveys, minor wording changes were made to one or more items in the previously- (2021) used version of this scale.
[b] Mean scores for 2022 have been recalculated using just those items used in the 2021 survey. So, 2021 and 2022 mean scores can be directly compared.
[c] Mean scores for 2021 have been recalculated using just those items used in the 2022 survey. So, 2021 and 2022 mean scores can be directly compared.
[d] The 2021 mean score for this variable was based on the sum of three items. In 2022, a single item was used to measure this variable. Thus, mean scores on this variable are not directly comparable between years.

6.9.3 Correlations between the Climate Change Variables in the Samples and Sub-Samples

Comparisons were also made between two of the pairs of samples in relation to the correlations between climate change composite variables. The first of these compared the correlations in the N = 1,263 **repeat respondent sample in 2021 versus the same sample in 2022**. These correlations are given in Appendix F, Table F.1. As shown, significant differences in size were observed in 14 of the 506 correlations at the $p < .001$ level, a further 13 at $p < .01$, and ten more at the $p < .05$ level (two-tailed). Thus, in total, the strength of the relationships between about 7% of the pairs of these variables differed between years. Most remarkably, correlations between policy support and 18 of the other 22 variables were significantly higher in 2022 than in 2021. For some unknown reason/s, it seems that, over the year leading up to the 2022 survey, respondents' positions in relation to these climate change-related policies became more closely aligned with their other climate change views. Correlations between the proportion of pro-environmental behaviours responded to with a '4' (indicating that the behaviour was performed at least partly out of environmental concerns) and seven other variables were significantly higher in 2021 than in 2022.

The second set of correlation comparisons was between the two 2022 sub-samples - the **repeat respondent sample and the new respondent sample**. These correlations are given in Appendix F, Table F.2. As shown, ten of the 600 correlations between pairs of variables were significantly different at the $p < .001$ level, a further 19 were different at $p < .01$, and 25 more were different at the $p < .05$ level (two-tailed). Thus, in total, the strength of the relationships between 7% of the pairs of these variables differed between samples. The majority of these changes involved two climate change variables. First, correlations between spatial distance of climate change (i.e., how geographically distant it is perceived to be) and 14 other variables were significantly higher in the repeat sample than in the new sample. Second, correlations between the proportion of PEBs responded to with a '4' and nine other variables were significantly higher in the new sample than in the repeat sample. Although the reason/s for these different relations cannot be known for certain, one possible contributing factor is the existence (repeat respondents) versus non-existence (new respondents) of prior experience in completing the climate action survey: completing this survey may not only have measured respondents' attitudes and behaviours, but also functioned to modify these attitudes and behaviours. The demographic differences between the two samples also may have played a role. For example, the older and more 'settled' (in the sense of more often being parents and home-owners) repeat respondent sample may have been more conscious of the need to respond in ways consistent with their residential location.

7.0 DISCUSSION

7.1 Study Overview

Like the first Climate Action Survey conducted in 2021, this second survey sheds light on Australians' understandings of and responses to climate change. The surveys are distinctive in several ways: for example, compared to most past climate change and similar surveys:

- The current surveys measure many constructs that are of theoretical significance;
- Many variables, especially those that are complex and multi-faceted, are measured by validated multi-item scales;
- Climate actions/behaviours of many kinds are examined;
- Sources of information about climate change are probed;
- Emphasis is placed on possible barriers to, and drivers of, climate action including: objective knowledge, normative beliefs, different types of (in)efficacy, (dis)trust in sources of information, and psychological adaptation;
- Data relevant to climate justice for members of marginalised groups are obtained;
- The effect of contextual factors, such as COVID-19 in 2021 and the widespread flooding of Eastern Australia in 2022, on climate action are examined; and
- Longitudinal data are collected.

The 2022 survey gathered data from two overlapping populations of adult Australians: 1,263 people who had participated in the 2021 survey ('repeat' respondents) and 2,767 previously unsurveyed people ('new' respondents). The sample of new respondents was recruited in a manner that ensured it was demographically representative of the Australian population. For this reason, it is possible to cautiously generalise the findings obtained in this sample to the wider Australian population in respect of gender, age, and Australian state/territory. Below, the term "**historic trends**" refers to differences between the 2021 sample and the 2002 new respondent sample, both of which were reasonably representative subsets of the national population.

The repeat respondents were, on average, considerably older than both the national population and those 2021 survey respondents who did not participate again in 2022. They were also more 'settled', in the sense of being parents and home-owners, than is probably true of the nation's population. (Of course, a larger and more representative sample of repeat respondents was desired, but, despite being offered a financial incentive to participate in 2022, most 2021 respondents chose not to do so). Examination of the 2021 data revealed that the repeat respondents reported attitudes and behaviours that were, on average, less environmentally- and climate-friendly than did the 2021 sample as a whole. The 2022 findings from the repeat respondents thus do not provide a sound foundation upon which to base claims about climate change attitudes and behaviours in the Australian national population. Findings from this sample are, nonetheless, of great value in that they shed light on changes that occurred within individuals over time. They not only identify what changes occurred between September-October 2021 and September-October 2022, but also reveal the size and direction of such changes, and they suggest possible reasons for the changes. Hereafter, the term "**within-person changes**" refers to shifts in the attitudes and behaviours reported by the 2022 repeat respondents compared to their 2021 responses.

In total, the 2022 surveys involved the collection of nearly 400 bits of information from each of the 4,030 respondents. Unsurprisingly, with more than 1.5 million data points available, the number of analyses that can be performed, and the number of findings that could have been included, are enormous. This report presents a modest selection of these findings and foreshadows the likely future publication of many more. Even with only a subset of findings now available, there is a risk that major 'take away' points may not be fully appreciated.

In this context, three important conclusions from the 2021 survey are worth reiterating, after only minor updating and revision in light of the 2022 survey findings.

1. A clear majority of 2022 new respondents – and, by extension, the majority of adult Australians – accept that climate change is real, are concerned about the harm it is causing, are in favour of government action to mitigate the threat it poses, and are taking action themselves to tackle the problem. Notwithstanding the size of this majority group, a minority (around 7-8%) voiced disbelief in, or doubts about, the existence of, and threat posed by, anthropogenic climate change. The percentages of climate change believers and climate change deniers are slightly higher in 2022 than in 2021.

2. In general, the (approximately) 30 climate change variables measured in both the 2022 surveys were positively inter-correlated, typically at greater than $r = .30$. That is, people tended to respond in consistently 'positive' or consistently 'negative' ways to questions about climate change knowledge, beliefs, norms, concerns, efficacy, and indices of climate action. The major exceptions to this generalisation were in respect of (a) climate change-related hope, (b) perceived spatial distance of climate change, and (c) natural disaster- and flood-related experiences and impacts, where associations with the other constructs were typically weaker (less than $r = .20$).

3. Across this range of climate change variables, a distinct profile emerged of the most climate change-concerned and climate change-active respondents. We refer to these people as "progressive" respondents. Typically, they were characterised by a plurality of the following: aged 35 years or under, university-educated, currently studying, inner-urban residents, intending to vote for left-leaning political parties, and with prior direct experiences of extreme weather, natural disasters, and/or perceived manifestations of climate change. Often they were also: women, full-time employed, higher income earners, non-parents, and/or residing in homes in which English is not the main language spoken. We distinguish these people from "conservative" respondents who tended to be more climate change sceptical, unconcerned, and inactive. Typically, these respondents were older, living in rural regions, religious, and/or school only-educated.

As was the case in 2021, overall, the picture to emerge from the 2022 surveys is of a nation that is divided along age, education, party-political, and other demographic lines in its views of and responses to climate change, with an increasing majority motivated to take climate action of many types, and a persistent minority reluctant to accept and act on the realities evident in everyday observation and increasingly revealed by climate science.

To the above three conclusions may be added a further three drawn from the 2022 surveys:

4. Historic trends in the climate change variables (i.e., differences between the 2021 full sample - all of whom were 'new' respondents - and the 2022 new respondents) occurred in both directions. Thus, compared to 2021, scores were higher in 2022 on some variables (e.g., pro-environmental behaviours, descriptive norms, subjective norms, personal responsibility for contributing to climate change, response efficacy, distress, and psychological adaptation to climate change), but lower on others (e.g., climate change belief, perceived importance, concern, self-efficacy, residential exposure to natural disasters and climate change impacts, and endorsement of the New Ecological Paradigm). This set of seemingly contradictory findings is difficult to reconcile. Perhaps the findings suggest a changing normative context in which people act in more environmentally responsible ways without necessarily believing any more strongly in the threat posed by climate change. Whether these changes are replicated, and whether they represent genuine shifts in Australians' attitudes and behaviours, must await further iterations of the survey (and evidence from other sources).

5. Within-person changes in the climate change variables (i.e., differences between the repeat respondents' data when they participated in the 2021 survey and their data when they participated again in 2022) also occurred in both directions. Thus, compared to their 2021 responses, the 2022 repeat respondents reported engaging more frequently in pro-environmental behaviours, stronger normative beliefs and personal norms, greater felt personal responsibility for contributing to climate change, greater willingness to engage in pro-climate actions, and superior psychological adaptation. However, in 2022, they showed less interest in engaging in future climate actions, regarded the climate change issue as less important, and felt less personally and collectively efficacious in acting against climate change. They also expressed less concern about climate change and fewer feelings of residential vulnerability in 2022 than in 2021. At the risk of over-simplification, it seems that, compared to 2021, in 2022 these respondents reported heightened climate-related activity but no greater climate concerns.

6. Within-person changes in the climate change variables did not occur uniformly. For example, findings from the repeat respondent sample highlighted important roles played by exposure to natural disasters (specifically, the 2022 eastern Australian floods) and political leanings (as measured by federal government voting intentions). In these cases, changes from 2021 to 2022 toward stronger climate change beliefs, concerns, and actions were more evident among flooding-exposed and left-leaning respondents than among the contrasting sub-groups of the sample. Changes over the year also varied by Australian state/territory.

Table 8 summarises the historic trends and within-person changes in each climate change variable. As shown, an approximately equal number of variables differed in each direction when examining the historic trends, and an approximately equal number moved in each direction when identifying within-person changes. The table highlights in green those variables that differed/changed in a pro-environmental direction, both historically and within-person; it highlights in blue those that differed/changed in an anti-environmental direction, both historically and within-person. Of note, no variable differed/shifted in one direction historically and the other direction within-individuals. Overall, in the year between surveys, current behaviours and behavioural norms tended to shift in a pro-environmental direction, whereas future behaviours and concerns tended to shift in the other direction.

Table 8
Summary of Historic Trends and Within-Person Changes in Climate Change Variables

Climate Change Variable	Historic Trends [a]				Within-Person Changes [b]		
	Higher in 2022	No Significant Difference	Lower in 2022		Increased	No Significant Change	Decreased
Community Involvement (8)[c]		-					
PEB34	***				**		
PEB4		-			**		
Proportion_PEB4		-				-	
Interest in Future PEBs			*				***
Residential Exposure			***				***
Descriptive Norms	***						
Normative Beliefs	***				***		
Green Identity		-				-	
New Ecological Paradigm (6)[c]			***				
Policy Support			**			-	
CC Belief/Acceptance			***			-	
CC Risk Perception		-			**		
Personal Responsibility	***				***		
Spatial Distance of CC		-				-	
Importance of Issue (4/5)[c]			***				***
Psychological Reactance	***				***		
CC Self-efficacy			***				***
CC Response Efficacy	***				***		
CC Collective Efficacy		-					**
Trust in Climate Scientists			***				
CC Concern			***				***
CC Distress	***					-	
Behaviours Changed		-				-	
Personal Norm	**				***		
Likely Climate Activism			*				
Behavioural Willingness (9)[c]			*				***
Psychological Adaptation	***				***		
Knowledge (objective test)		-					

Note. CC = climate change. PEB = pro-environmental behaviour.
Dashes (-) in cells indicate that this difference or change was not significant.
The absence of a mark in all three cells comprising the Within-Person Change columns indicates this scale was not included in both years, so a 'change score' cannot be computed.
[a] Historic Trends refer to comparisons between the mean scores of the 2021 respondents (i.e., N = 3,915) and the 2022 new respondents (N = 2,767).
[b] Within-person Changes refer to comparisons between the mean scores of the repeat respondents in 2021 and those of the same respondents in 2022. (Ns = 1,263).
[c] Numbers after variable names refer to the number of items in the scale used to evaluate these differences/changes.
*** This difference or change was significant at the $p < .001$ level.
** This difference or change was significant at the $p < .01$ level.
* This difference or change was significant at the $p < .05$ level.

7.2 Comparisons with Past Survey Findings

Findings from the current surveys can be compared with those obtained in similar past studies. Such comparisons provide evidence as to the reliability and accuracy of the 2022 findings. They also provide benchmarks against which the current findings can be evaluated, and they shed light on historic trends and geographical differences in climate change-related understandings and responses.

The research that is most directly comparable with the present is the 2021 Climate Action Survey. Comparisons between the current project and the corresponding 2021 survey have been made throughout this report, especially in Section 6.9, and will not be repeated here.

Aside from this, the most directly comparable surveys are those completed in 2010 and 2011 by **Reser et al.** (2012a, 2012b). Like the current study, these researchers used an online questionnaire of more than 3,000 Australians, all drawn from the panels of a reputable survey provider firm. The questionnaire length, format, and content were similar to the present survey instrument. Some items were identical in both questionnaires, and these provide a clear indication of changes occurring over a little more than a decade (2010/2011 to 2022) in Australians' views, feelings, and actions regarding climate change. To give two examples:

- In response to the question, 'Do you think the world's climate is changing?' (item B7), answers in the affirmative were given by 79% (repeat respondents) and 80% (new respondents) in the current study, compared to 74% in Reser et al.'s 2011 study.
- In response to the question, 'How concerned, if at all, are you about climate change?' (item E1), after adjusting for slight differences between surveys in the available response options, 67% of 2022 repeat respondents and 71% of new respondents indicated they were *fairly* or *very* concerned, compared to about 35% in Reser et al.'s 2011 sample.

In general (and especially when combined with findings from the 2021 Climate Action Survey), these comparisons show that Australians are currently more accepting of and concerned about climate change than they were a decade earlier.

The current findings can also be interpreted in light of many other surveys. Some examples are:

- The 2016-2017 **Sustainability Victoria** survey of more than 3,000 Victorians aged 15 and over contained several items that permit comparisons with responses to the current questionnaires. For example, 73% of the current repeat respondent sample and 64% of the new respondent sample either *slightly agreed*, *agreed*, or *strongly agreed* that climate change is an issue that requires urgent action now (item D29). This can be compared with the 79% of the Sustainability Victoria sample who agreed or strongly agreed with a similar statement. Approximately 42% of repeat respondents and 45% of new respondents believed climate change is caused *mainly* or *entirely* by human activity (item D2), compared to 47% in the Victorian sample. In addition, 41% and 39% (current samples), versus 39% (Sustainability Victoria sample), believed climate change is caused partly by natural processes and partly by human activity. Although many of the percentages obtained in the current study are slightly below those obtained in the Victorian research, the gaps narrow when analyses of the current

data are restricted to just those respondents who reside in Victoria (e.g., 79% of Victorian repeat respondents and 75% of Victorian new respondents believe climate change is an issue that requires urgent action now).

- Like the present survey, the August 2021 **Australia Institute** survey of 2,626 Australian adults included an item pertaining to concerns arising from the potential effects of climate change on society as a whole (item E4). Members of the current repeat and new samples, and members of the Australia Institute sample, respectively, responded as follows: *very concerned* (25% and 25% vs. 40%), *fairly concerned* (40% and 42% vs. 35%), *not very concerned* (19% and 16% vs. 14%), *not at all concerned* (12% and 12% vs. 8%), and *don't know/not sure* (3.5% and 5% vs. 2%). Thus, most members of all samples expressed concern about climate change's societal impacts, but the proportion reporting concern was highest in the Australia Institute study. Given that mean levels of climate change concern were somewhat higher in the 2021 Climate Action Survey than in the corresponding 2022 survey, it seems reasonable to conclude that, on average, Australians were less concerned about climate change in 2022 than they were one year earlier (c.f. Neumann et al., 2022).

- In the same Australia Institute survey, 81% of respondents believed that climate change is occurring, 9% believed it is not, and 10% were unsure; the corresponding percentages in the current samples (item B7) were very similar: 79%-80%, 12%-14%, and 9%-7%. Hence, the incidence of climate change denial, as measured by this single item, was 2-4% higher in the current samples than in the Australia Institute study.

- The survey company, **Resolve Strategic**, polled 2,011 Australians in August 2022. Respondents were asked whether they supported or opposed the federal government legislated target of reducing carbon emissions by 43% by 2030. In response, 61% supported the policy, 18% opposed it, and the remainder were undecided or neutral (reported in the *Sydney Morning Herald*, August 27th 2020). The 2022 Climate Action Survey asked about the same issue, with 37-38% of respondents thinking the target is about right, 23-24% thinking it is too low, 10-12.5% thinking it is too high, 14-15% not wanting a target at all, and 12-14% undecided. Thus, the sum of the percentages thinking the target is about right or too low in the current study almost exactly matches the percentage supporting the policy in the Resolve Strategic poll.

- In August-September 2020, **Neumann et al. (2022)** used responses to just four survey questions pertaining to climate change importance, concerns, and perceived harm to segment 5,104 Australians into six groups. Approximately 7% of their respondents were categorised as climate change "dismissive", a figure that matches the present study's estimate for *deniers* and *sceptics* combined. 14% of Neumann et al.'s sample were categorised as "doubtful" compared to the 8% *unconvinced* in the present study. Moreover, whereas the present study categorised 83-84% of the present samples as climate change *believers*, Neumann et al.'s categories of "alarmed", "concerned", and "cautious", combined, included 85.5% of their sample.

- **Babutsidze et al.**'s (2018) online survey of 3,480 French citizens found that 93% of respondents believed that climate change was at least partly due to human activity (compared to 83% and 84% in the current surveys); 84% were *fairly* or *very* concerned about climate change (65% and 67% in the current surveys), and 55% believed that they had directly experienced environmental changes, circumstances, or

events that were due to climate change (44% of the current new respondent sample). The mean score for Kellstedt et al.'s (2008) risk perception scale (item D4) was 23.9 in France, compared to 22.8 (repeat respondents) and 23.7 (new respondents) in the current surveys. These and other findings suggest that levels of climate change perceived exposure and concern are (or, at least, were five years ago) somewhat higher in France than in Australia.

- The 2016-2017 **European Social Survey**, Round 8 (available at: https://www.europeansocialsurvey.org/docs/findings/ESS8_toplines_issue_9_climate change.pdf) surveyed more than 44,000 residents from 23 European nations. Responses varied by nation, with between 82% and 98% of the residents of different nations believing that the climate is changing (compared to 79% - 80% in the current surveys), and between 83% and 96% believing that climate change is at least partly caused by human activity (83% - 84% in the current surveys). These comparisons, although not based on identical questions or response options, suggest that the current samples of Australians are less certain about anthropogenic climate change than were residents of most European nations 5 or 6 years earlier.

- The current survey included items assessing willingness to participate in climate change activism (F5). These items were taken from an interview-based survey of 1,036 U.S. adults conducted in December 2020 by the **Yale Program on Climate Change Communication** (Leiserowitz et al., 2021). The items required respondents to indicate on a 4-point scale whether they would, if a liked and respected person asked them, partake in each of six acts (e.g., donate money to an organisation working on climate change; support an organisation engaging in non-violent civil disobedience against corporate or government activities that make climate change worse). A minority of the current new respondent sample (23% to 44%) indicated that they *would* or *definitely would* engage in these actions. Slightly smaller percentages, between 19% and 39% of those members of the U.S. sample who gave a substantive response (i.e., excluding responses such as *don't know*), indicated that they *probably would or definitely would* participate in the same acts.

- The **July-August 2022 International Monetary Fund (IMF) survey** of 30,000 people from 28 countries, (Dabla-Norris et al., 2023) found that 67% of the 1,009 Australian respondents included in this survey believed that climate change was already affecting other people, while 8% said it never would. These percentages can be compared with the current findings of 62% (repeat respondents) and 57% (new respondents) who believe Australia is already feeling the effects of climate change, and 7% (repeat respondents) and 6% (new respondents) who believe Australia never will. Australian respondents' concerns about the imminence of climate change effects were lower than those expressed by respondents from most Asian and European countries. Like the present surveys, this IMF study found that climate concerns were relatively high among women, younger respondents, and the more highly educated.

- **Yale's *International Public Opinion on Climate Change, 2022*** (Leiserowitz et al., 2022), an international survey of 108,946 active Facebook users found that 10% of the 1,012 Australians surveyed believed climate change is not happening. In the current study, the percentages depend on the manner and context in which the question is asked, with the proportion of 'denial' responses varying from 3% in

response to item D2 to 12% - 14% in response to item B7. Half (50%) of the Yale respondents believed that climate change is mostly caused by human activities; the corresponding percentages in the current surveys were 42% (repeat respondents) and 45% (new respondents). Thirty-four percent of the Yale respondents were *very worried* about climate change, compared to 31% who reported being *very concerned* in both the current samples. Any discrepancies between the Yale and current surveys are likely partly due to the different populations (i.e., Facebook users vs. members of survey panels) sampled.

- The **Yale Group's December 2022 survey,** *Climate change in the American mind: Beliefs and attitudes* (Leiserowitz et al., 2022), is similar to the current study in canvassing opinions on a wide range of climate change-related issues and doing so at approximately the same point in time. Although the questions and response options differed, Table 9 compares the findings from the two surveys. As shown, the American sample displayed more pro-environmental, or "progressive", responses to some questions, and the Australian sample did likewise to others.

Table 9

Comparison of Findings from the 2022 Yale 'American Mind' Survey and the 2022 Griffith University Climate Action Survey

Findings from the 2022 Yale 'American Mind' Survey	**Findings from the 2022 Climate Action Survey [a]**
Sample = 1,085 American adults (50% female, 48% male, 2% another)	*Sample = 4,030 Australian adults (50% female, 49% male, < 1% another)*
70% think climate change is happening; 16% think it is not happening.	79% think climate change is happening; 13% think it is not happening (item B7).
51% are *very* or *extremely* sure climate change is happening; 10% are *very* or *extremely* sure climate change is not happening.	79% *tend to agree, agree* or *strongly agree* with a statement that they are certain climate change is really happening; 11% *tend to disagree, disagree,* or *strongly disagree* with this statement (item D3).
58% think climate change is mostly human-caused; 27% believe it is mostly due to natural environmental changes.	44% think climate change is mostly human-caused; 11% believe it is mostly due to natural environmental changes (40% think it is caused by both) (item D2).
47% say they have personally experienced the effects of global change.	44% say they have directly experienced climate change impacts during their lifetime; 36% say they did so in the past year (items D7, D8).
64% are at least somewhat worried about climate change; 27% are very worried.	69% are at least fairly concerned about climate change; 31% are very concerned (item E1).
32% feel anxious when thinking about climate change.	42% agree that the more they learn about climate change, the more anxious they become (item E7.5).
27% try not to think about climate change.	26% agree that they try not to think about climate change these days (item F7.3).
67% say that climate change is either *somewhat, very,* or *extremely* important to them personally; 33% say it is *not too* or *not at all* important.	52% say climate change is either *important, highly important,* or *extremely* important to them personally; 33% say it is *not at all, of low importance,* or *slightly important* (item D5).
41% think it is at least *moderately* important to their family and friends that they engage in climate action.	32% either *slightly agree, agree,* or *strongly agree* that the people most important in their life think they should take action against climate change (item H31.4).
79% think climate change is affecting extreme heat, drought, and wildfires.	59% think that climate change is influencing the frequency and intensity of extreme weather events like heatwaves, cyclones & droughts, and disasters like bushfires and floods (item D17).

[a] For simplicity, findings from the Climate Action Survey reported in this table have been averaged across the repeat and new respondent samples, where available.

In sum, this selection of comparisons suggests that the 2022 Climate Action Survey findings generally align with those obtained in other recent Australian surveys. The comparisons also indicate that Australians have become more climate change concerned and responsive since a decade ago. Their responses are, on average, broadly similar to those expressed in recent U.S surveys, although some differences in each direction are evident. Finally, the comparisons suggest that Australians tend not to be as emotionally or behaviourally engaged in the issue as citizens of many European nations.

7.3 Implications and Applications of the Survey Findings

Two major aims of surveys such as the present are (1) to assess the extent to which and ways in which individuals engage in climate-relevant and environmentally-significant behaviours, and (2) to identify factors that are correlated with these behaviours, especially those correlates that may causally contribute to the behaviours' occurrence. As noted in Section 4.3, and in accord with the work of van Valkengoed et al. (2022), the 2002 Climate Action Survey obtained information regarding (at least) 13 possible determinants of climate-relevant and environmentally-significant behaviours (i.e., knowledge, concern, self-efficacy, descriptive norms, etc.). Information about these potential determinants is of more than theoretical interest because it provides the basis for interventions aimed at increasing pro-environmental behaviours and/or decreasing anti-environmental ones. To be useful in this way, surveys such as the present should include information as to (1) the strength of the associations (correlations) between behaviours and their putative determinants (see Appendices D.5 and E.5), preferably with some indication as to the temporal sequencing of these correlated variables, and (2) the mean values of the determinants (Appendices D.3 and E.3), especially those means that are 'low' and therefore possibly capable of being 'lifted' or 'improved' through well designed and implemented interventions.

In addition to showing sample-wide associations and mean deficiencies of these kinds, survey data should be able to identify demographic and other sub-group differences in both the correlations and the mean values. A start to this endeavour is provided in Appendices D.4 and E.4. Further analyses can help pinpoint in which segments of the samples the climate change variables have both high correlations with target behaviours and low current mean values.

Given that the current survey provides information regarding variables suitable for targeted intervention, attention can turn to the types of interventions that should be designed and implemented, that is, those most likely to be efficacious, feasible, ethical, and affordable. Climate action interventions can take many forms: they can, for example, aim to change regulatory (policy/legal/coercive) frameworks, change physical structures and context, change economic (financial incentive/deterrent) conditions, and/or change perceptions of the social or normative context (Grilli & Curtis, 2020; van Valkengoed et al., 2022). Findings from this survey can potentially inform interventions of several of these types.

At a policy level, for example, the findings show that there is support from most respondents for government policies regarding future energy sources (e.g., restricting the construction of new coal-fired power stations), imposing a price on carbon, facilitating the uptake of electrical vehicles, and assisting those whose livelihood is threatened by the shift away from fossil fuels. The survey helps identify sub-groups of the population in which this support is strongest (e.g., students, people living in a home in which English is not the main language spoken) and weakest (e.g., people over 55 years, rural residents). The survey also helps

identify policies for which there is less strong support: for example, whereas many of the pro-environmental policies put to the current sample attracted support from 70- 80% of respondents, a policy requiring all new vehicles to be electric by 2040, and a proposal to construct concrete walls to prevent coastal erosion from sea-level rise (even if such walls are costly and detract from beach usage), were supported by close to 50% of the samples. This knowledge can be used to make decisions regarding how and when these and other policies are introduced.

In addition to contributing to policy reform, the findings can be used to strengthen other types of interventions. For example, past researchers have sought to change attitudes and behaviours in a pro-environmental direction using social influence strategies (for a review, see Abrahamese & Steg, 2013; Steg, 2023). These interventions can take many forms. They could, for example, involve the presentation of social norm information, they could draw attention to the actions of community leaders who act as models of environmentally-friendly behaviour, and/or they could provide individuals, households or neighbourhoods with feedback as to their progress over time towards sustainable environmental goals. As was the case in 2021, the current survey of new respondents found that, although both normative beliefs (i.e., beliefs about what significant other people would want us to do) and descriptive norms (i.e., beliefs regarding what other people in our social network are actually doing) are correlated with self-reports of climate action, the former is more so. The strength and consistency of this finding across multiple measures of climate action in both years' surveys suggest that social influence interventions may be more effective if they target normative beliefs rather than beliefs about descriptive norms.

As another example of how the survey findings may inform climate action interventions, items from the questionnaire (e.g., F6) offer insights into the likely efficacy of interventions that use financial incentives and deterrents. Findings suggest the possibility of segmenting the population based on willingness to make financial contributions to environmental sustainability. Those willing to do so include the more highly educated and those who are high-income earners; these people can be asked, or required, to make greater financial contributions (e.g., through higher levies on premium fuels). Those unwilling (or unable) to do so may need to be approached using other strategies.

To be effective, these and other interventions require using well-targeted communication strategies. The surveys found that approximately one-third of respondents reported medium-to-high levels of psychological reactance (i.e., the sense that their freedom to hold and express their views about climate change is being constrained). Mean scores on this variable were higher in 2022 than in 2021. Similarly, when responding to open-ended questions, some respondents were critical of the 'forceful' tactics used by environmental groups and advocates (see Appendices D.7 and E.6 for examples). These findings provide a timely warning about the possibility that well-intentioned climate change communication may back-fire. More optimistically, the survey identified variables (e.g., green identity, personal norms, normative beliefs, climate change concern/distress, perceived personal contribution to causing climate change) that were highly correlated with the indices of climate action, ones that could thus be the focus of both mass and more targeted climate change messaging. Finally, the survey revealed the sources of information that are most often used and most often trusted. It identified commonly used, but seldom trusted information sources (e.g., politicians, social media), and seldom used, but highly trusted sources (e.g., first nations media). To achieve maximum reach and considerable impact, the survey findings suggest climate change communication should use sources that are both frequently used and well-

trusted such as the Bureau of Meteorology, scientists and scientific publications, and other specialist providers of climate change information such as the Climate Council.

To be effective, interventions must minimise individual barriers to behaviour change. Item A8 (new respondent questionnaire only) identified that the most commonly cited reason for not engaging in climate change behaviours was a perception of being too busy. Clearly, intervention success may be improved by introducing people to more time-efficient ways of being environment-friendly. A similar point relates to two other frequently cited behavioural barriers: the additional expense and effort involved in pro-environmental actions. As far as possible, intervention agents need to offer behavioural alternatives that are (perceived to be) reasonably-priced and convenient. Some tailoring of these solutions is likely to help: financially-challenged people may be offered inexpensive alternatives while their time-poor peers are offered greater convenience.

The second most often cited reason for inaction (i.e., "I have my own routines, habits, and ways of doing things") poses considerable challenges for those seeking to change environmental behaviours. Research (e.g., Verplanken, 2011) shows that habits are difficult to break without changes to the physical or social context. Hence, one group of people that may be sensibly targeted when attempting to shift habits is those who will soon, or have recently, shifted residence (items H38 or H5). Moving house often requires some revision of established routines, and thus provides opportunities for re-thinking environmentally-significant behaviours. Finally, it is worth keeping in mind that environmental education and awareness interventions tend to be most effective when individuals are motivated to change their behaviour (Grilli & Curtis, 2021). More than 10% of new respondents cited as barriers to climate action, not a lack of motivation but a lack of knowledge about what to do, and/or whom to talk to, contact, or engage with on environmental issues. These respondents may have felt constrained by a sense of helplessness or inefficacy. Environmental education and social support interventions can help fill these gaps.

As indicated above, in addition to informing decisions regarding the variables to target in climate change interventions, and informing the selection of types of interventions to be implemented, the survey provides insights into the population segments that might be most efficaciously targeted. Approximately 2% of both samples responded to the survey by consistently denying the existence of anthropogenic climate change, and another approximately 5% expressed highly sceptical views. Responses from some members of these two groups to the open-ended questions suggested considerable antagonism to the issue and its advocates. Investing resources into persuading members of these groups as to the seriousness of the climate change threat may be met with little success. Instead, efforts may be better directed at the approximately 8% of the sample who are seemingly not totally convinced about climate change, but nonetheless appear open to listening to arguments and responding to changes to their physical, economic, and social environment. This subset of the sample may include many individuals who are simply climate change-*complacent*. The survey shows that this group is overrepresented by respondents who are school-only educated, aged over 55 years, parents, religious, and residing in rural areas (especially in regional Queensland and Tasmania). Given this demographic profile, they are unlikely to respond favourably to complex state-of-the-art scientific evidence. However, they may be more readily persuaded by arguments couched in conservative and traditional values such as those associated with family, God, and country. These people are also likely to be disproportionately represented in particular social and residential settings (e.g., aged care

facilities, churches, Country Women's Associations), and these settings may provide suitable venues for presenting pro-environmental messages.

Finally, the theoretical implications of the survey warrant brief comment. As with the 2021 survey, the findings strongly support propositions advanced by most contemporary environmental behaviour theories. To cite three examples:

- Consistent with Ajzen's (1991) Theory of Planned Behaviour, attitudes to (interest in) pro-environmental behaviours, normative beliefs regarding these behaviours, and perceived behavioural control ('self-efficacy' and 'response efficacy' in this survey) were each highly correlated with the indices of climate action
- Consistent with Witte's (1992) Extended Parallel Processing Model (EPPM), threat appraisal ('risk perception' in this survey), self-efficacy, and response efficacy were positively correlated with the climate action variables
- Consistent with Stern's (1992, 2000; Stern et al., 1999) Value-Belief-Norm (VBN) model, measures of the New Ecological Paradigm, perceived adverse consequences (AC; 'risk perception' in this survey), ascription of responsibility plus perceived ability to reduce threat (AR; 'personal responsibility for climate change action', plus 'self-efficacy' and 'response efficacy', in this survey), and pro-environmental personal norms, were all positively correlated with the climate action indices.

The survey findings offer similar support for theories proposed by Schwartz (1977), Klockner (2013), and others. Moreover, the findings suggest possible ways in which existing theories may be tested, expanded, and even possibly improved. For example, according to the EPPM, individuals may engage in self-defensive acts of denial, avoidance, and reactance when attempting to control the fear generated by acknowledging an existential threat such as climate change. The survey contains (proxy) measures of each these three defensive strategies. Most importantly, perhaps, the theory could be extended to include the concept of psychological adaptation, and the proposition that tendencies towards psychological adaptation increase as risk perceptions and personal efficacy beliefs jointly increase. Conversely, high-risk perception and low personal efficacy beliefs lead to an unwillingness to confront the threat (i.e., a failure to psychologically adapt to it) which, in turn, leads to cognitive and emotional avoidance and greater reluctance to engage in climate action.

7.4 Future Research Directions

7.4.1 Additional Analyses of the Current Data

As already noted, analyses of the current data set are ongoing. Planned future analyses are of several types, including:

- **More fine-grained quantitative examination** of several variables and relationships between variables. For example, many of the analyses herein reported were based on grouping diverse peoples (e.g., all people born in a country, all members of different minority/marginalised groups, and all residents of each Australian state and territory) into single omnibus categories. Future analyses can break these larger categories into more narrowly defined and homogenous groups, thereby potentially revealing important between-group differences.

- **Multivariate quantitative analyses**. To date, all reported analyses have involved either a single variable or the relationship between a pair of variables. These univariate and bivariate analyses are important, but they are also limited. Future multivariate analyses can explore more complex relationships between variables, and test the veracity of sophisticated predictive and explanatory models. Analyses can also statistically control for the effects of extraneous variables while assessing bivariate relationships between key variables. This will help identify whether, for example, both age and student status, both country of birth and language spoken at home, and both education and income are uniquely important for understanding levels of the climate change variables, or whether one member of each of these pairs is largely redundant.

- **Other, more highly targeted analyses probing specific issues**. Many unresolved questions arose from the 2022 surveys. The most perplexing are the inconsistencies in the direction of the differences in the responses obtained in 2021 and 2022 and/or in the responses from different respondent (sub-)samples. For example:

    - Why did the 2022 repeat respondents report engaging in more pro-environmental behaviours than in 2021, but were less interested in future pro-environmental action than they were one year earlier?
    - Why, after so much of Australia was exposed to extensive flooding in 2022, did the 2022 CAS repeat respondents report *lower* perceived vulnerability of their place of residence than they did one year earlier?
    - Why were concerns about climate change lower, on average, in 2022 than in 2021, especially given evidence from other studies (e.g., Neumann et al., 2022) that Australians' levels of climate change concern are rising?
    - Why did their ratings of self-efficacy versus response efficacy change over the year in opposite directions? Why did their scores on climate change distress and risk perception, on the one hand, and climate change concern, on the other, also tend to change in opposite directions?

  The academic literature can assist in explaining some of these apparent inconsistencies and contradictions. For example, the finding that 2022 repeat respondents reported increasing their engagement in pro-environmental behaviours, but decreasing their interest in future pro-environmental action may be partly explained by Weber's (2006) notion of a *single action bias*, that is, people often take one action to reduce a risk that they encounter and worry about, but then become less likely to take additional steps even if these provide incremental protection or risk reduction. Put simply, the respondents may not be interested in future actions because they feel they have already "done enough". Similarly, the finding that 2022 CAS repeat respondents reported *lower* perceptions of residential vulnerability in 2022 than in 2021, despite the extensive 2022 flooding, may be partly attributable to what Seery et al. (2010) refer to as the "whatever does not kill us" phenomenon. Thus, perceptions of residential exposure to the flooding threat may have declined because most residences were either not directly flood-affected or survived the encounter if directly exposed. In other words, flooding events may have fostered community complacency if not exposed, or resilience if exposed, rather than community fears.

  Several things may have contributed to the seeming decline in Australians' climate change concern over the year 2021 to 2022. One possible contributing factor is a

shared perception that the new federal (Labor) government was taking more effective action to mitigate the climate threat than did the previous government. In other words, the problem may have been perceived as now relatively "under control". Another possible explanation is the notion that people are capable of worrying simultaneously about only a limited number of things. In 2022, climate change concerns may have competed for Australians' emotional resources with such other events as the spiralling cost of living, the war in Ukraine, the devastating floods, the lingering effects of COVID_19, and other factors. Thus, respondents' "finite pool of worry" (Weber, 2006) was spread more thinly in 2022 than in 2021.

Further analyses of the 2022 data can shed light on these possible explanations of unexpected and apparently contradictory findings. A first step might be to search for distinguishing characteristics of members of the repeat sample who changed in unexpected/opposite directions across multiple variables, as opposed to those who changed in expected/consistent directions.

- **Analyses of qualitative survey responses**. Both 2022 questionnaires contained numerous open-ended questions, as well as closed-ended questions with a response option of *Other - please specify*. Responses to these questions provide a potentially rich source of information about respondents' thoughts, feelings, and actions. They call for detailed qualitative analysis. Such analyses may also reveal deeper insights into the reasons for the unexpected findings listed above.

7.4.2 Future Iterations of the Climate Action Survey

As already noted, a Climate Action Survey is to be conducted each year until 2025. The 2022 questionnaire, like that used in 2021, was *extensive*, but, due to constraints in budget and respondent time availability, it was not *exhaustive* of all possible topics of relevance and interest. Future researchers could add variables, questions, and topics to those investigated in 2022, and/or replace some of those used with others not currently included. A list of candidate variables for possible future inclusion is given in Table 10. All entries in this table refer to variables that have been included in other climate change surveys and are potentially worthy of further investigation.

Table 10

Examples of Variables and Topics <u>not</u> Included in the 2022 Climate Action Survey

Section & Category	Variable/Topic not Included in the 2022 Climate Action Survey
A. Lifestyle and Social Milieu	• Time use • Leisure pursuits • Dietary habits/preferences • Various aspects of motor vehicle usage • Habits and habit strength • Expenditure on power/water/fuel • Type of energy sources used • Expenditure on power/water/fuel • Numerous additional pro- and anti-environmental behaviours • Lifestyle exposure to/immersion in nature/natural environments

	• Social media use details (e.g., frequency of use, platforms used, type of usage, etc.) • Deeper probing into aspects of sub-cultural context • Perceived community/neighbourhood descriptive norms • Social support for climate action and for coping with climate distress
B. Views of Self, and of Social, Political and Environmental Issues	• Other personality variables (e.g., locus of control, time orientation, moral development, legacy motivation, resilience) • Personal goals • Life satisfaction • Core values (e.g., biospheric, altruistic, and egocentric values) • Attitudes to specific pro-/anti-environmental behaviours • Attitudes to other environmental/ecological issues (e.g., attitudes to alternative energy sources) • Perceived government efficacy to combat climate change • Perceptions of the most serious problem facing the world today • The perceived current condition of the natural environment
C. Experiences of Extreme Weather and Natural Disasters	• Cumulative effects of prior disaster experience • Reasons for not being impacted by prior indirect/distant experience of extreme weather and natural disasters
D. Experiences of, and Views about, Climate Change	• Perceived climate change collective control • Perceived role of various agencies in causing climate change • Perceived own responsibility to mitigate climate • Perceived responsibility of other agencies for mitigating climate • Pessimism (fatalistic beliefs) regarding control of climate change
E. Feelings about Climate change	• Specific emotions felt in response to climate change (e.g., fear, anger, guilt, sadness, pride) • Strategies use to cope with climate change emotions/distress • Concerns regarding additional national and global issues • Broader ecological stress/trauma
F. Responses to Climate Change	• Climate adaptation responses, e.g., having a home emergency kit • Impaired personal functioning due to climate change impacts or concerns
G. Knowledge of Climate Change	• Certainty of climate change knowledge • Additional specific sources of climate change information
H. Demographic Details	• Ethnicity • Marital/relationship status • Age of children • Grandparental status • Mental health • Social capital • Number of people co-residing • Proximity of residence to the coastline/rivers/other bodies of water • Types of current home and contents insurance cover • Prior completion of a similar survey.

For the 2022 survey, different questionnaires were used for the repeat and new respondents. This practice will likely continue in future years, with some items, questions and scales included every second year (or less frequently), rather than every year. This minimises redundancy in the information obtained and enables a broader range of content to be examined over the full five-year period. For the 2022 survey, variables considered likely to change little from the preceding year were excluded from the repeat respondent questionnaire. The finding that the 2022 mean score on 17 of the 23 multi-item variables retained in the survey differed from the mean score on the same variable one year earlier suggests that the decision to retain these variables was a good one.

A dilemma potentially exists in relation to the 2023 (and subsequent) surveys. Presumably, 2023 respondents participating for the first time in the survey will complete a questionnaire similar to that used in 2021 and used with the 2022 new respondents. But decisions will need to be made regarding the questionnaire content for three other groups: (a) 2021 respondents who did not participate in 2022, (b) 2022 repeat respondents, and (c) 2022 new respondents. All these groups will have participated previously; one group will have participated on two previous occasions. Will all three groups be given the same questionnaire in 2023, will different questionnaires be compiled for each group, or will the questionnaire be different only for the 2022 repeat respondents? To give three concrete examples, which questionnaire(s), if any, will include the connection to nature scale (previously completed only by the 2022 repeat respondents), the place attachment scale (previously completed only by the 2021 respondents), and the shortened 6-tem NEP scale (previously completed only by the 2022 new respondents)?

Worldwide, few surveys are as comprehensive as the current one, and even fewer that have been repeated in multiple years. Most past surveys use a cross-sectional design, that is, they measure all variables at a single point in time. Such a design is of limited use in sorting out 'what leads to what?'. For example, if a cross-sectional study reveals a positive correlation between belief in climate change and experiences of the perceived effects of climate change, it is almost impossible to determine whether the experiences led to a strengthening of these beliefs, whether strong pre-existing beliefs led to a great propensity to look for, and find, evidence of climate change effects, or both, or neither (see Reser et al., 2014; Reser & Bradley, 2020).

In contrast, the longitudinal nature of Griffith's Climate Action Surveys has the potential to discover much that is new and important. Of particular interest is the capacity of these surveys to shed light on the temporal relations between critical variables. Over the next few years, as longitudinal data are collected, this project will increasingly be able to answer the question of whether pre-existing phenomena (e.g., a prior direct experience of a natural disaster) are predictive of subsequent *changes* over time in other variables (e.g., stronger beliefs in climate change, increased climate change concerns, greater commitment to a pro-environmental lifestyle, etc.). A valuable start in this endeavour was made by the 2022 survey: as reported and discussed above, greater change over the 2021-2022 year in numerous climate change-related variables was evident in those repeat respondents directly exposed to the 2022 eastern Australian floods than in those not exposed. Compared to the non-exposed group, not only did flood-exposed respondents display greater increases in their perceptions of the vulnerability of their place of residence and in their perceptions of the geographical proximity of the threat of climate change, but they also reported greater

increases in their engagement in pro-environmental behaviours and in their psychological adaptation to climate change.

7.4.3 Beyond the Climate Action Surveys

As previously noted, the 2021-2025 Climate Action Surveys (CASs) complement other Griffith University CAB research. One such project is the Extreme Heat and Older Persons (ETHOs) project which includes a Queensland-wide survey investigating the heat and health risk knowledge, heat coping strategies, and accessibility to and use of digital tools among older Queenslanders. As part of that project a set of items pertaining to heat stress was written for the 2022 CAS. Including these items in the current questionnaires simultaneously bolstered the coverage of the topics of heat exposure, symptoms, and responses in the CAS, and provided relevant data for the ETHOs project not only from older Queenslanders but also from younger and older people residing in other Australian states, thereby providing a basis for age comparisons and regional contextualisation of heat-related stresses.

A second example of where synergies exist with the current surveys is the CAB's Big Data project. This project aims to gather information about Australians' use of social media (e.g., Twitter) to communicate about climate change and related issues. Usage patterns can be tracked over time and across geographical locations. Information from this project can then be cross-referenced with data obtained from the Climate Action Surveys. Both projects can, for example, independently assess the emotions, or 'sentiments', Australians express concerning news of bushfires or the introduction of climate-relevant policies. Where findings from the two projects converge, confidence in the knowledge obtained is greatly enhanced. This triangulation of findings from methodologically-diverse studies will, over time, help to build a robust body of knowledge about the 'human side' of climate change.

An important long-term goal of research in this field is to answer questions pertaining to levels of climate change understanding and responses, the antecedents to or causes of these phenomena, and factors that can be leveraged to effect change in them. Full or partial replication of the Climate Action Surveys in other nations and cultural settings provides opportunities to learn about factors that enhance and factors that undermine participants' understandings and responses to climate change. Inter-nation similarities and differences in survey respondent reports of climate change variables can be viewed as 'outcome' variables, the antecedents to which can be identified from several sources: responses to other survey questions, data obtained in related research projects, and/or documents describing historical, cultural, climatic, socioeconomic, political, and other characteristics of the populations being surveyed. From such multi-nation research, questions such as the following may be addressed: Why are levels of climate change consciousness and concern different/similar between nations/cultural settings? Why are rates and directions of change in these variables also different/similar? Where change in the climate variables has occurred, what has produced such change, and can knowledge of the precipitating factors be used in interventions to promote climate change mitigation and adaptation?

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APPENDIX A

Notes Regarding Constructs and Variables

This research was conducted, and this report has been written, from a social science/social psychological perspective. The language used reflects this perspective, and may be unfamiliar to many readers. This appendix has been written to facilitate interdisciplinary understanding, communication, and collaboration. It contains a selective, rather than exhaustive, set of notes on the origin/s, conceptualisation/s, and operationalisation/s of important constructs and variables measured in this survey and discussed in this report. It seeks to explain, clarify, and/or elaborate on the terminology used and the meanings intended, including similarities and differences between key terms and underlying constructs.

Adaptation. The construct of adaptation is core to many disciplines. In the climate change context, it refers to processes, practices, structures, or outcomes designed to reduce, better manage, and/or adjust to the impacts of climate change (or exploit possible beneficial outcomes). Adaptation might be achieved through individual, political, economic, engineering, community, and other initiatives. A small number of items in the 2022 Climate Action questionnaires assess the extent to which respondents engage, or have in the past engaged in, climate change adaptation: examples include actions taken to weatherise one's home (item H25) and to take out insurance, or modify one's insurance cover (C3d-f).

Belief. Beliefs are mental representations of reality. Belief in (or acceptance of) the reality of climate change has many possible components and meanings. People can believe (or not) in the existence of climate change, in its causes, severity, impacts, temporal and geographical distance, and so on. People can (dis) believe these things to varying degrees, so some authors (e.g., Spence et al., 2010) use the term, *certainty of belief*. The different types of belief are positively correlated, but not perfectly so. In the current questionnires, several of these types of belief were assessed through individual items (e.g., B7, D2, D3, D14-16), and four of these items were combined to reflect a composite 'Belief in Climate Change' scale. The questionnaires also included items measuring beliefs pertaining to (1) the importance of the climate change issue (D5, D15-D17), (2) personal contributions to causing climate change (D13), and (3) the trustworthiness of climate scientists (D26).

Climate Change. Most past surveys about climate change do not provide their respondents with a definition of this core term. Instead, they seemingly assume that the researchers and all respondents share a common understanding of its meaning. However, the term, *climate change*, can be defined and understood in many ways. In IPCC current usage, climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that is in addition to natural climate variability observed over comparable time periods (IPCC, 2012). In item D1 of the current surveys, respondents were presented with four possible meanings of climate change (plus an option specifying that climate change does not exist), and were asked to indicate which of these options best captures their understanding of the term. Respondents were then informed that, in responding to this questionnaire, they should have in mind the following definition (a simplified version of the 2012 IPCC definition): "Climate change refers to changes in the world's climate that

are due directly or indirectly to human activity and are in addition to natural climate cycles or variability".

Collective Efficacy. Perceived collective efficacy refers to a group's shared belief in its joint capability to organise and execute desired courses of action (Bandura, 1997). Climate change collective efficacy thus refers to a group's (or other collective's) beliefs in its ability to deal effectively with the threat and reality of climate change. This concept was measured by an item (D27) in both the current questionnaires.

Concern. Climate change concern relates to feelings of preoccupation and worry in response to the perceived threat and reality of climate change. Concern is a less severe and more 'cognitive' response than is climate change distress. One or more aspects of climate change concern are measured in most surveys. Items in the current surveys examined concern from several angles: from a personal perspective (item E3), from a societal perspective (E4), in comparison with other threats (E5), and in comparison with the preceding year (E2)

Connectedness to Nature: Connection to nature refers to a personal emotional bond with the natural environment (APA, 2009; Mackay & Schmitt, 2019). A measure of this variable (item B6) was included in the 2022 repeat respondent questionnaire, but not in the 2021 or the 2022 new respondent questionnaires due to space constraints. See Section 7.4.2 for a list of other potentially important variables not directly examined in the current research.

"Conservative" respondents. This is a term coined for economical reporting of the current survey findings**.** It refers to that subset of the survey participants who typically respond to questions in ways that indicate low levels of awareness, concern, and responsiveness to climate change and other threats to the environment. More often than not, these respondents are members of the following demographic groups: men, aged over 55 years, neither students nor university educated, residents of rural areas, religious, and right-leaning in their voting intentions. They are contrasted with "progressive" respondents.

Correlation. Correlation refers to the strength of the association between two (or more) variables. When assessed statistically, correlations vary between -1 and +1 (inclusive), with correlations closer to either of these poles reflecting stronger associations, correlations below zero indicating that larger values on one variable are associated with *smaller* values on the other, and correlations above zero indicating that larger values on one variable are associated with *larger* values on the other. Correlation does not mean causation: two variables may be associated without one causing the other. Appendices D.5, D.6, and E.5 report the correlations between key variables investigated in this survey.

Distancing, discounting: These two terms refer to the tendency to reduce the importance of a threat or outcome by perceiving it as 'distant', either temporally, socially, spatially/geographically, and/or probabilistically (APA, 2009). The current surveys included items assessing the perceived temporal distance of climate change (D14) and the perceived spatial/geographical distance of climate change (D21). To the extent that respondents perceive climate change to be psychologically distant in either or both of these ways, they are likely to discount it as a threat.

Distress. Climate change distress refers to feelings of anxiety, stress, and guilt resulting from directly or indirectly experiencing the threat and projected consequences of climate change, and feelings of helplessness associated with these experiences. Distress is a more severe and

more ‘emotional’ response to climate change than is concern. (c.f. Reser et al., 2012). Consistent with its measurement in other studies, the item measuring distress in the current questionnaires (E7) referred to a diverse range of negative emotions.

Environmentally Significant Behaviour (ESBs): Environmentally significant behaviours are those that can make a substantive difference to the current or future state of the environment. These behaviours (or *climate actions*) vary in many ways, for example, in intent, actor (individual vs. collective), extent of impact, direction of impact (pro-vs. anti-environmental), impact mechanisms (e.g., direct vs. indirect), performance setting (private vs. public sphere), frequency (e.g., one-off purchase behaviours vs. continual/habitual patterns of consumption), etc.

Extreme Weather Events and Natural Disasters. Extreme weather events are intense but relatively uncommon meteorological, hydrological, climatological, and related incidents. Examples include extreme cold spells, heat waves, droughts, tsunamis, hail storms, dust storms, tropical cyclones, hurricanes, and tornadoes. When these incidents cause extensive damage, in terms of human lives, property damage, or both, they are referred to as natural disasters (although disasters such as floods and bushfires often also have an anthropogenic component). Section C of the current questionnaires contained several items assessing respondents’ direct (and indirect) exposure to and experience of extreme weather events and natural disasters, as well as the impacts of and responses to these events.

Functional Impairment. This term denotes a reduced capacity to perform normal activities of daily living including eating, sleeping, managing money, concentrating, and keeping up an acceptable appearance. In the 2022 repeat respondent questionnaire, the items (C12) measuring this variable refer explicitly to impairment associated with the 2022 Australian floods. Clayton and Karazia (2020) identified functional impairment as one of five factors comprising climate anxiety. However, the current scale is intended to measure a stand-alone variable, one that is correlated with, but distinctive from, such variables as climate distress/anxiety and flood impacts.

Green Identity. Self- and social-identity variables are being increasingly investigated in climate change research. These identity variables relate to how one sees or defines oneself, as an individual and/or as member of a social group. As assessed in the current questionnaires (item B1), perceived green self-identify refers to the extent to which respondents align themselves with pro-environmental values, behaviours, and social groups.

Historic Trends. This term refers to (estimated) population changes from one point in time to a later time. In the current context, the term refers to differences in the mean scores of the 2021 respondents and the mean scores on the same variables of the 2022 new respondents. Positive scores indicate gains, or increases, over time; negative scores indicate losses, or decreases, over time.

Knowledge. Knowledge of climate change relates to information that is stored within, and is retrievable from, one’s ‘head’ regarding the science of climate change. It is to be distinguished from having access to the same information via, for example, other people, the internet, or a library. This knowledge of the ‘facts’ about climate change also differs from more subjective ‘understandings’, or personal cognitive constructions of, climate change. Some research (e.g., Shi et al., 2015: Xie et al., 2019) draws distinctions between types of knowledge, for example, knowledge of the climate change-affected state of the planet,

knowledge of the causes of climate change, knowledge of the current and likely future consequences of climate change, knowledge of ways in which to mitigate or adapt to the effects of climate change, and so on. Many past surveys assess climate change knowledge simply by asking respondents to rate their own level of knowledge. In the current survey, the new respondent questionnaire tested knowledge of climate change causes, impacts, and effective responses through 13 True/False/Don't know items (G1). In addition, the repeat and new respondent questionnaires included a single item (G10) requesting a self-rating of climate change knowledge.

Mitigation: With regard to climate change, mitigation refers to actions that slow the pace or otherwise alter the course of climate change, typically either by reducing the sources of or enhancing the sinks of greenhouse gases. Emissions can be decreased by various means such as lowering energy demands, making existing energy systems more efficient, increasing the contribution of renewable forms of energy production, and afforestation or stopping deforestation (APA, 2009; Reser et al., 2012b). Most of the pro-environmental behaviours measured in the current surveys (e.g., items A6 and A9) relate to climate change mitigation rather than adaptation.

New Ecological Paradigm (NEP). In 1978, Dunlap and Van Liere developed the concept of the New Ecological Paradigm to distinguish a modern pro-environmental worldview from what they saw as the anti-environmental thrust of the then dominant social paradigm. The NEP focuses on "beliefs about humanity's ability to upset the balance of nature, the existence of limitations to growth for human societies, and humanity's right to rule over the rest of nature" (Dunlap et al., 2000, p. 427). Stern's (2000) Value-Belief-Norm (VBN) theory of environmentalism treats acceptance of the NEP as an outcome of individuals' basic values and as an input to their beliefs about consequences and personal norms pertaining to environmental threats. Other research treats acceptance of the NEP as a proxy for environmental concern. Item B2 in the 2022 new respondent questionnaire is a shortened (6-item) revised NEP scale (Dunlap et al., 2000) used to measure the extent to which respondents accept the NEP. A NEP scale was not included in the repeat respondent questionnaire because these respondents' NEP beliefs were assessed in 2021 and are unlikely to have changed radically in the twelve months since then.

Norms. At its core, a norm is anything (a way of thinking, a pattern of behaviour, a mode of dress, etc.) that is 'normal', typical, or representative of a group or society. However, the term is often used more broadly to refer to several different types of norms. The current questionnaires included measures of three theoretically-grounded types of 'norms'. Item H31 measured 'normative beliefs'. This term, as per Ajzen's (1991) Theory of Planned Behaviour, means beliefs that important (referent) others think that one should (or should not) think, feel or behave in particular ways. Items F4.1 to F4.4 measure 'personal norms', a term used in theories such as Stern's (2000) Value-Belief-Norm (VBN) theory to refer to a felt sense of (moral) obligation to think, feel or behave in particular ways, for example, to take pro-environmental actions. Finally, items F4.6 to F4.9 in the new respondent questionnaire measure 'descriptive norms', that is, perceptions of how others in one's social network typically behave in relation to the environment. (The descriptive norms variable was not measured in the repeat respondent questionnaire).

Policy Support. Government and institutional policies that affect the environment and potentially alter the course, pace, and/or impacts of climate change are numerous and diverse. Research (e.g., Swim et al., 2021) suggests that the endorsement of environmental and

climate change policies varies with such attributes as whether the policy encourages pro- or anti-environmental behaviour, offers incentives or imposes penalties, and increases demand for or increases supply of energy. Item B3 in both 2022 questionnaires assesses respondent support for, or opposition to, policies of these different kinds.

Place Attachment. Place attachment refers to a usually positive emotional connection of an individual or group to a physical and social place, often acquired through long and rewarding experience in that place (Devine-Wright, 2013). This close connection and sense of belonging to a place manifests in caring attitudes and behaviours towards that place. Item H19 in the current questionnaire measures the strength of respondents' attachment to their self-selected 'place' (town, suburb, city, region, or area). Place attachment was measured in 2021, but not in the 2022 questionnaires.

Pro-Environmental Behaviours (PEBs). Pro-environmental behaviours are actions, mostly taken at the individual or household level, that benefit the environment or at least harm it as little as possible (Steg & Vlek, 2009). The current questionnaires examine this central construct from many contextual and temporal vantage points. Importantly, they contain items assessing: 1. *interest* in performing specified behaviours in the future (A9); 2. w*illingness* to perform the behaviours (i.e., when circumstances allow/are right) (F5, F6, H26); 3. *current performance* of the behaviours, either once-off or habitually (A6, F7); and 5. p*ast performance* of the behaviour (A6, H25, H30), including recent changes in behaviour (F3). The survey can also provide scores for different subgroups of PEBs, for example, those that are performed in private vs. public contexts, and those performed due at least in part out of concerns for the environment vs. those performed for other reasons. In addition, the new respondent questionnaire includes an item (A8) asking respondents to specify the reason(s) why they do not engage in PEBs.

"Progressive" respondents. This is a term is used for economical reporting of the current survey findings**.** It refers to that subset of the survey participants who typically respond to questions in ways that indicate high levels of awareness, concern, and responsiveness to climate change and other threats to the environment. More often than not, these respondents are members of the following demographic groups: women, under the age of 35 years, students or university educated, (inner) urban dwelling, not religious, and left-leaning in their voting intentions. They are contrasted with "conservative" respondents.

Psychological Adaptation. The construct of psychological adaptation captures a suite of interacting within-person cognitive, affective, and motivational adjustments that involve becoming more attentive to the climate change issue, realising its reality and implications, adopting a problem-solving attitude, and shifting to a more "pro-environmental" attitudinal and behavioural position. (Reser et al., 2012). It is a process of sensitisation, (re-)focusing, or (re-)orientation; it implies a willingness to take constructive action. Central to the concept of psychological adaptation is a process of re-thinking one's stance and one's responses in relation to climate change. It involves adopting of what van der Linden (2017, p. 26) calls "a general orienting intention to help curb climate change". The statements that comprise item F7 in the current questionnaires measure three aspects of psychological adaptation: cognitive, emotional, and behavioural/communicative.

Psychological Reactance. Stemming from the work of Brehm (1966), psychological reactance refers to a defensive or oppositional response brought on by a perception that others are limiting or threatening one's freedom. In the climate change context, this could take the

form of people stubbornly opposing or resisting messages that they see as forcing a particular view on them. This concept was measured by an item (D23) in both 2022 questionnaires.

Risk Perception. A risk is something that has an uncertain outcome in relation to a thing of value. Often, the outcome is a negative or harmful one. Risk perception involves discerning and interpreting signals from diverse sources regarding uncertain events, and forming a judgement as to the probability and severity of current or future harm associated with these events (Grothmann & Patt, 2005; Slovic, 2016; Wachinger et al., 2013). Risk perceptions are thus the outcomes of this process; they are subjective beliefs (whether rational or irrational) held by an individual, group, or society about the chance of occurrence of a risk or the extent, timing, or consequences of its effects (APA, 2009). In both the current surveys, respondents' perceptions of the risk were assessed using a 6-item scale (item D4) that tapped perceptions of personal risks and societal risks associated with climate change in three domains: health, financial wellbeing, and the environment.

Response Efficacy. Response efficacy (also known as perceived instrumentality) refers to a belief that one's actions will have known (and usually desirable) outcomes. Climate change response-efficacy thus refers to a belief that one's actions will facilitate climate change mitigation and/or adaptation. Colloquially, that one's actions will have the desired effect. (Spence et al., 2010). Theories such as Witte's (1992) Extended Parallel Processing Model (EPPM) specify that motivation to take action against a threat (like climate change) is determined by the actor's "perceived efficacy", a concept that includes both self-efficacy and response efficacy. Refer: item D25 in both surveys.

Self-Efficacy. Derived from Social Cognitive Theory within psychology (e.g., Bandura, 1997), (perceived) self-efficacy refers to beliefs in one's capacity to perform required or desired actions. Climate change self-efficacy thus refers to a belief that one has the capability to organise and execute actions that are intended to contribute to the mitigation of, and/or adaptation to, climate change. Refer to item D24 in both surveys.

Within-Person Changes. This refers to changes that occur in the same person between one point in time and a later point in time. In the current context, these changes occurred within repeat respondents in the approximate one-year period marked by their completion of the 2021 survey and their completion of the 2022 survey.

Worldview. Clayton and Myers (2009, p. 212) define a worldview as "an integrated set of beliefs about what is real, what is knowable, what is valuable, and what it means to be human, typically learned as part of a cultural socialization." Dunlap et al.'s (2000) New Ecological Paradigm (NEP) scale assesses the extent to which respondents endorse a particular worldview that pertains (especially) to the relationship between humans and their natural environment.

Appendix B

Comparison of the Composite Scales Used in the 2021 and 2022 Climate Action Surveys

Variable Measured	Scale Used in the 2021 Survey	Scale Used in the 2022 Repeat Respondent Survey	Scale Used in the 2022 New Respondent Survey
A1. Community Involvement	8 items, 4 response options	--	One item (A1.9) added to the 2021 scale.
A6. Pro-environmental Behaviour	16 items, 4 response options	As for 2021	As for 2021*
A9. Interest in Future Pro-environmental Behaviours	5 items, 6 response options	As for 2021	As for 2021*
B1. Green Identity	3 items, 7 response options	As for 2021	As for 2021*
B2. New Ecological Paradigm	15 items, 5 response options	--	Only 6 of the 15 items, 5 response options
B3. Policy Support	13 items, 5 response options	As for 2021, except for minor wording changes to B3.1 and B3.6	As for 2021, except for minor wording changes to B3.1 and B3.6*
B6. Connection to Nature	--	6 items, 7 response options	--
B8. Personality traits: Agreeableness, Emotional stability, Conscientiousness, Openness to experience	--	2 items per personality trait, 7 response options	--
B8. Narcissism	--	4 items, 7 response options	--
B7, D2, D3, D14. Belief in CC	4 items with varying numbers of response options	As for 2021	As for 2021*
C5. Frequency of Recent Natural Disaster Experiences		6 items, 3 response options	

Variable Measured	Scale Used in the 2021 Survey	Scale Used in the 2022 Repeat Respondent Survey	Scale Used in the 2022 New Respondent Survey
C9. Impact of Flooding	--	13 items, Yes/No responses	13 items, Yes/No responses*
C12. Functional Impairment	--	10 items, 5 response options	--
C14. Heat-related Symptoms	--	14 items, Yes/No responses	--
D4. CC Risk Perception	6 items, 6 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
D13. Ascription of Personal Responsibility for CC to Self	4 items, 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
D18, D20, H29. Perceived Residential Exposure.	3 items, 5 or 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
D23. Psychological Reactance	3 items, 7 response options	As for 2021	As for 2021*
D24. CC Self-efficacy	3 items, 7 response options	As for 2021	As for 2021*
D25. CC Response Efficacy	3 items, 7 response options	As for 2021, except the wording of D25.1 is changed and all response options are labelled	As for 2021, except the wording of D25.1 is changed and all response options are labelled*
D26. Trust in Climate Scientists	4 items, 7 response options	--	As for 2021, except all response options are labelled
D27. Collective Efficacy	4 items, 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
E1, E2, E3, E4, E5.19. CC Concern	5 items with varying numbers of response options	As for 2021	As for 2021*
E7. CC Distress	6 items, 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
E8. CC Hopefulness	--	4 items, 5 response options	--

Variable Measured	Scale Used in the 2021 Survey	Scale Used in the 2022 Repeat Respondent Survey	Scale Used in the 2022 New Respondent Survey
E8. CC Hopefulness	--	4 items, 5 response options	--
F3. Behaviour Change due to CC	14 items, Yes/No response options	As for 2021	As for 2021*
F4. Personal Norm	4 items, 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*
F4 Descriptive Norms	4 items, 7 response options	--	As for 2021, except all response options are labelled
F5. Likelihood of Climate Activism	6 items, 4 response options	As for 2021	As for 2021*
F6. Behavioural Willingness	9 items, 7 response options	As for 2021, except all response options are labelled, and the format is simplified	As for 2021, except all response options are labelled, and the format is simplified*
F7. Psychological Adaptation	10 items, 7 response options	As for 2021, except minor wording change to F7.3, and all response options are labelled	As for 2021, except minor wording change to F7.3, and all response options are labelled*
G1. CC Knowledge -objectively tested	13 questions, 3 response options	--	As for 2021
G2, G3, G4. CC Knowledge - self-rated	3 items, 6 response options	A single item with 6 response options	A single item with 6 response options *
H19. Place Attachment	5 items, 7 response options	--	--
H31. Normative Beliefs	4 items, 7 response options	As for 2021, except all response options are labelled	As for 2021, except all response options are labelled*

Note: Dashes (--) in cells indicate that the scale was not included in this questionnaire.
* The 2022 repeat and new respondent versions of this scale were identical
CC = climate change.

APPENDIX C

Criteria for Assessing Data Quality and Removing Aberrant Cases

Following the practice adopted in the 2021 Climate Action Survey, thirteen data quality checks were applied to both 2022 samples. Eleven of the 13 criteria used in the 2021 survey were re-used to assess the quality of the 2022 new respondent dataset. The introduction of new questionnaire content in 2022 necessitated the replacement of two of the 2021 criteria. Furthermore, two additional criteria were used for the 2022 repeat respondent sample because of slight differences between the two 2022 questionnaires. The data quality criteria, and the number of participants "failing" each, in each of the 2022 samples, are presented in the following table. The criteria that were new in 2022 are asterisked.

Data Quality Checks Applied to Both the Repeat Respondent Sample and the New Respondent Sample	**No. of Participants "Failing" Each Criterion**	
	Repeat Sample	**New Sample**
1. Completed the questionnaire in fewer than 20 minutes	115	390
2. Answered one of the three attention check items incorrectly. (Note: respondents who answered either two, or all three, of the attention check items had already been removed from the sample prior to this data quality check)	127	535
3. For item A6, gave any one of the following three responses: 1 ("*no opportunity to do so*"), 3 ("*yes, but not because of environmental concerns*") and 4 ("*yes, partly because of environmental concerns*") for more than 12 of the 16 behaviours, or gave a response of 2 ("*no, for some other reason*") for more than 14 of the 16 behaviours	38	194
4. Responded to the pair of very different items, B3.4 and B3.6, in identical, extreme ways (i.e., *strongly oppose* or *strongly support* both)	171	473
*5. Answered that they *strongly oppose* setting a national net zero-carbon emission target by 2050 in B3.1 and reported that an emission target of 43% was too low in B9a, **OR** answered that they *strongly support* setting a national net zero-carbon emission target by 2050 in B3.1 and reported that an emission target of 43% was too high in B9a.	25	46
6. Responded to the pair of similar items, B7 and D3, in very different ways (i.e., either a response of *Yes* to B7 and a response of *strongly disagree* to D3, or a response of *No* to B7 and a response of *strongly agree* to D3), or a response of *Don't know* to B7 and a response of either *strongly disagree* or *strongly agree* to D3	6	38
7. Responded to the pair of similar items, E1 and E5.19, in very different ways (i.e., responded with *very concerned* to one item and *not all concerned* to the other)	0	1

	No. of Participants "Failing" Each Criterion	
	Repeat Sample	**New Sample**
8. Claimed to have changed, in the past year, out of concern for their climate change impact, more than ten of the 15 behaviours listed in F3	36	107
9. Responded to the pair of opposite-worded items, F7.3 and F7.6, in identical, extreme ways (i.e., *strongly agree* or *strongly disagree* for both)	34	100
*10. Answered *Yes* to 10 or more of the 13 items in C9	9	46
11. Responded to H3 (repeat respondent sample), or responded to either item H3 or H5 (new respondent sample), with a number that exceeds their age, as reported in item 1	4	9
Data Quality Checks Applied to the Repeat Respondent Sample Only		
*12. Responded in identical extreme ways (i.e., both items answered with 1 or 2, or both with a 6 or 7) to <u>any</u> of the following pairs of items: B8.1 and B8.5, **OR** B8.2 and B8.8, **OR** B8.3 and B8.6, **OR** B8.4 and B8.7	131	n.a.
*13. Answered *Yes* to 10 or more of the 14 items in C14.	37	n.a.
Data Quality Checks Applied to the New Respondent Sample Only		
12. Gave a response of 1 ("*no, because of opportunity to do so*") or 2 ("*no, for some other reason*") to <u>more than 4</u> of the 16 behaviours in item A6, <u>and</u> indicated that <u>none of the reasons in item A8</u> explained their lack of pro-environmental behaviours.	n.a.	403
13. Responded both that they reside in an inner urban location (item H27) and that their closest public transport stop is more than 5 kilometres from their residence (item H28), <u>or</u> both that that that they reside in a suburban/outer urban location (item H27) and that their closest public transport stop is more than 10 kilometres from their residence (item H28).	n.a.	58

As was the case in 2021, several considerations underpinned the selection of these practices as criteria to be used for the identification and exclusion of respondents who completed the questionnaire in untrustworthy ways. For example, it was important that the selected criteria captured different types of, or reasons for, untrustworthiness, and that they tapped responses given at different points in completing the questionnaire. Thus, the criteria variously sought to identify 'speeders', (i.e., individuals who proceed through the questionnaire so quickly that they are unlikely to have had sufficient time to read and respond to the questions carefully), inattentiveness, response inconsistency (again possibly due to rushing), patterned responding (or 'flat-lining'), the operation of social desirability bias, and possible intentional dishonesty.

As noted in Chapter 5 of this report, <u>for the repeat sample</u>, Dynata first screened the data set for unsatisfactory questionnaire completion, before providing the Griffith team with a data set comprising 1,380 cases. Inspection of this data set revealed 75 respondents who "failed"

either two or three of the questionnaire attention checks, and 29 respondents could not be matched with the corresponding 2021 case. Fifteen of the unmatchable cases were among the inattentive 75 respondents. Thus, removing these 75, plus the 14 additional unmatchable cases, resulted in a sample of 1,291 cases. The Griffith team then applied the above 13 data quality checks to the responses given by these 1,291 people. This process revealed 752 participants (58.2% of the sample) who failed none of the data quality criteria, 389 (30.1%) who failed one criterion, 122 (9.5%) who failed two, 20 (1.5%) who failed three, seven (0.5%) who failed four, and one (0.08) who failed five criteria. Removal of the 28 respondents (2.2% of the sample) who failed three or more of the data quality criteria resulted in a final repeat respondent sample of 1,263 cases.

Removal of all 117 cases (to reduce the repeat respondent sample from 1,380 to 1,263) resulted in disproportionately high losses of men and young respondents. Specifically, 68.4% of those excluded were males, versus 48.0% of those retained, $p < 001$. Similarly, the mean ages of the retained and excluded repeat respondent were 54.2 and 40.1 years, respectively, $p < 001$.

For the new respondent sample, Dynata checked questionnaire completion adequacy, and removed all cases that "failed" two or three of the questionnaire attention checks. Information as to the number of cases excluded at this initial stage by Dynata is not available. In total, Dyanata provided the Griffith team, in five instalments, with data from 2,927 cases. Ten of these were duplicates, leaving 2,917 unique cases. Application of the above quality criteria indicated that 1,384 of the 2,917 respondents (47.4% of the sample) displayed none of the "dodgy" response practices, 962 (30.0%) displayed just one, 421 (14.4%) displayed two, 116 (4.0%) displayed three, 29 (1.0%) displayed four, and five (0.2%) displayed five of the practices. Removal of the 150 respondents who failed three or more of the data quality criteria resulted in a final new respondent sample of 2,767 cases. In total, application of the 13 quality criteria resulted in the exclusion of 5.2% of the new respondents provided by Dyanta. This percentage is slightly less than the 6.3% of new respondents excluded in 2021.

Removing the 150 cases to reduce the new respondent sample from 2,917 to 2,767 resulted in a disproportionately high loss of young respondents (mean ages of the retained and excluded new participants were 47.3 and 41.1 years, respectively, $p < 001$). The difference in the gender composition of the retained and excluded participants was less marked: 46.0% of those excluded were males versus 49.4% of those retained.

APPENDIX D: Repeat Respondent Sample Questionnaire and Findings

Appendix D.1:
Repeat Respondent Participant Information Page

Climate Change, the Environment, and Quality of Life Survey

GU ref no: 2020/806

Research Team

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Purpose of the research

This survey is part of a longitudinal study being conducted by researchers from Griffith University into Australians' understanding of and responses to climate change, and related environmental and lifestyle issues. Findings from the study will inform discussion and policy decisions regarding environmental issues.

What you will be asked to do

You participated in this study last year. Thank you for that. We are now inviting you to do so again. Like last year, this is an anonymous online questionnaire pertaining to your knowledge and beliefs about climate change; your past exposure/experience of extreme weather events, natural disasters and other possible signals of climate change; your feelings and responses to climate change; your lifestyle/residential circumstances/social group membership and influences; and your demographic characteristics. You will find some of the questions asked are the same as last year, but many are different. Completion of the questionnaire is likely to take 30 minutes.

The basis by which participants are selected

Anyone 18 years and older is eligible to participate in this study. You are invited to participate having been randomly selected from Dynata's online survey panel.

The expected benefits of the research
This project seeks to discover what Australians think and do about climate change, and why they think and do these things. This enables governments and other interested bodies to understand residents' thinking and actions, and formulate policies on the basis of this information. By participating, you will be compensated with rewards as per Dynata policy.

Risks to you
The foreseeable risks to most participants from completing this questionnaire are negligible. However, answering questions about past experiences of extreme weather and/or natural disasters may raise anxieties in some participants. If you experience any distress due to participation in the study, you should consider contacting a counselling service such as Lifeline: 131114, or Beyond Blue ph. 1300 224636.

Your confidentiality
The conduct of this research involves the collection, access, storage and/or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes, including publishing openly (e.g., in an open access repository). However, your anonymity will at all times be safeguarded. For further information consult the University's Privacy Plan at http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan.

Your participation is voluntary and you are free to withdraw from this study, without penalty and without giving an explanation, at any time prior to submitting your questionnaire online.

Questions / further information
For additional information about the project, please contact A/Professor Graham Bradley using the email address provided above.

The ethical conduct of this research
Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research* (2007). Should you have any concerns or complaints about the ethical conduct of the research project, please contact the Manager, Research Ethics on 3735 4375 or research-ethics@griffith.edu.au. This research has received ethics approval from Griffith University's Human research Ethics Committee (GU ref: 220/806)

Feedback to you
No individual feedback will be provided to participants because we will not be able to identify individual answers. However, if you would like a summary of the findings from this research once it has been completed, please contact Graham Bradley using the email address above.

Expressing consent
You are welcome to print this page and retain it for your later reference.

COMPLETION AND SUBMISSION OF THE QUESTIONNAIRE WILL BE TAKEN AS YOUR INFORMED CONSENT TO PARTICIPATE IN THIS STUDY.

Appendix D.2:
Repeat Respondent Questionnaire (and Responses) [a]

Climate Change, the Environment, and Quality of Life Survey

GENERAL INSTRUCTIONS

Please click this link to read detailed information about this survey – its aims, scope, risks and benefits.

Please click *Yes* below to indicate that you have received sufficient information about this survey and agree to participate.

Yes, I agree to participate
No, I do not agree to participate

To ensure that you are eligible to participate in this survey, please answer these first two questions:

1. **What is your age (in years)?** **Mean = 54.23 years (SD = 17.00)**

2. **What is your current home postcode?** **[Hundreds cited]**

Please answer all questions with complete honesty. We are interested in your true opinions and experiences, rather than ones that are 'made up' in an effort to look good.

Please read all questions carefully because no two questions are identical. Sometimes two questions may seem similar, but this is essential for reliability purposes.

[a] Responses to some questions do not sum to 100% due to rounding errors.

SECTION A: How You Live Your Life

This first main section asks about your lifestyle, life situation, and everyday behaviours – especially those that might have an impact on the environment.

A6. Below are listed a number of actions that people might take. You may, or may not, engage in these actions. Please indicate whether you are taking each action by responding in one of the following four ways:

- **Select 1 if you do <u>not</u>, or did <u>not</u>, engage in this action because you have had no opportunity to do so.**
- **Select 2 if you could possibly engage in this behaviour, but do <u>not</u> or did <u>not</u> do so, for some other reason (e.g., lack of time, too expensive, too much effort, do not know how to)**
- **Select 3 if you engage or have engaged in this behaviour, but your reasons for doing so have nothing to do with concerns about the environment**
- **Select 4 if you engage or have engaged in this behaviour at least partly because of concerns about the environment.**

Please select one response for each type of behaviour.

Behaviour	**No,** I do not engage/have not engaged in this behaviour		**Yes**, I engage/have engaged in this behaviour	
	1. No, because no opportunity to do so	2. No, for some other reason	3. Yes, but not because of environmental concerns	4. Yes, partly because of environmental concerns
Do you <u>always</u> or nearly always:				
wash your clothes in cold (rather than hot) water?	**2.1%**	**19.6%**	**39.5%**	**38.7%**
turn off 'at the wall' appliances like TVs and computers when not in use?	**6.7%**	**32.1%**	**28.7%**	**32.5%**
carry your own re-usable drink container?	**8.3%**	**20%**	**27.5%**	**44.2%**
refuse to use non-biodegradable plastic products (e.g., bags, containers, straws, utensils)?	**12.6%**	**31%**	**12.6%**	**43.8%**
Have you in the <u>last two weeks</u>:				
used public transport?	**39.4%**	**26.3%**	**23.8%**	**10.5%**
eaten fewer than two serves of red meat?	**8.8%**	**45.5%**	**32.9%**	**12.7%**
pointed out to other people that their behaviour is harming the environment?	**38.1%**	**47.3%**	**2.8%**	**11.9%**
Have you in the <u>last three years</u> ever:				
signed a petition, written a letter, posted on social media, or similar, in support of an environmental issue?	**32.9%**	**40.9%**	**6.3%**	**19.9%**
donated money to a group that aims to protect the environment?	**26.5%**	**55.2%**	**3.7%**	**14.6%**
attended a pro-environmental rally, meeting, march, or protest?	**36.4%**	**60.6%**	**1.0%**	**2%**
participated in a litter clean-up, beach clean-up, land-care project, or similar?	**37.1%**	**52.7%**	**2.6%**	**7.5%**
voted in an election for a candidate or party because of its/their pro-environmental policies?	**16.9%**	**47.3%**	**9%**	**26.7%**
taken any of your money/savings/ superannuation funds out of institutions that invest in industries that are bad for the environment (e.g., coal, gas and oil companies) ?	**33.3%**	**61.6%**	**1.8%**	**3.3%**

contacted a government member about an environmental or climate change issue?	30.2%	64.3%	1.4%	4.0%
Do you currently				
grow some of your own fruit, vegetables, and/or herbs?	23.8%	22.8%	32.1%	21.3%
belong to an 'environmental' group (e.g., Friends of the Earth, World Wildlife Fund, Greenpeace)?	26.7%	66.7%	1.2%	5.4%

A11. Think about pro-environmental behaviours such as those listed in the previous question. In the next 12 months, to what extent do you intend to engage in these and/or similar behaviours?
Much less than I do now – **1.9%**
A little less than I do now - **1.3%**
About the same as I do now - **71.2%**
A little more than I do now - **22.2%**
Much more than I do now - **3.4%**

A4. To show you are reading the questions, please click 'Strongly Disagree' for this question.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
96.5%	0.2%	2.5%	0.2%	0.0%	0.0%	0.6%

A9. Thinking ahead to the next three years, we would like to know how interested you are in doing each of the following. If you are not sure about any of them, please say so.
What is your level of interest in each of these actions in the next three years?

	Already doing this	Not at all interested	Not very interested	Somewhat interested	Very interested	Not applicable/ Not sure/ Prefer not to say
Purchasing more of your household's energy through a green power supplier	8.1%	11.6%	16.2%	37.6%	13.5%	13.1%
Generating your own energy to meet your household's needs, and feeding excess energy back into the network/grid	16.2%	11.5%	11.1%	23.8%	17.9%	19.6%
Getting an electric car or a hybrid engine car	1.8%	26.5%	16.2%	28.1%	14.2%	13.2%
Installing solar energy battery storage systems for your home	8.9%	15.0%	9.7%	27%	19.9%	19.4%
Participating in local community projects relating to renewable energy	1.0%	26.0%	24.7%	25.8%	7.2%	15.3%

SECTION B: How You See Yourself, and How You See Various Social, Political, and Environmental Issues

B1. To what extent do you agree or disagree with each of the following statements?

	Strongly Disagree	Tend To Disagree	Neither Agree Nor Disagree	Tend To Agree	Strongly Agree	No Opinion	Don't Know
I think of myself as someone who is very concerned with environmental issues	5.3%	11.5%	23.2%	42%	17%	0.7%	0.3%
Being environmentally friendly is an important part of who I am	5.9%	13.8%	23.3%	38.9%	17.1%	0.8%	0.3%

I identify with the aims of environmental groups such as Greenpeace and Friends of the Earth	15.2%	16.1%	29%	22.9%	10.8%	3.9%	2.2%

B8. Here are some characteristics that may or may not apply to you. Please indicate the extent to which you agree or disagree with each statement. For the first eight items, a pair of characteristics is listed. When responding to these eight items, please rate the extent to which the pair of characteristics together applies to you, even if one applies more strongly than the other.

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
I am dependable, self-disciplined	0.4%	0.7%	2.9%	5.6%	23.0%	37.8%	29.6%
I am critical, quarrelsome	21.8%	18.3%	16.5%	19.3%	16.9%	5.1%	2.1%
I am anxious, easily upset	18.9%	17.1%	14.0%	15.4%	21.0%	8.2%	5.4%
I am open to new experiences, complex	1.7%	3.1%	6.5%	18.7%	37.2%	22.8%	10.1%
I am disorganised, careless	44.1%	24.8%	14.4%	8.2%	6.3%	1.8%	0.3%
I am calm, emotionally stable	1.7%	2.9%	7.6%	18.1%	27.3%	26.7%	15.7%
I am conventional, uncreative.	9.8%	12.6%	18.8%	25.7%	19.1%	10.1%	4.0%
I am sympathetic, warm	0.6%	1.1%	4.4%	10.6%	29.6%	31.6%	22.0%
I tend to want others to admire me	21.1%	15.4%	16.6%	26.0%	13.9%	5.4%	1.7%
I tend to want others to pay attention to me	27.7%	16.7%	16.9%	20.3%	12.8%	4.1%	1.3%
I tend to seek prestige or status	42.5%	19.2%	15.0%	13.1%	6.5%	2.7%	1.0%
I tend to expect special favours from others	49.6%	21.4%	13.1%	11.2%	3.3%	0.9%	0.4%

B3. To what extent would you support or oppose the following initiatives if/when proposed by the government as policies?

	Strongly Oppose	Somewhat Oppose	Somewhat Support	Strongly Support	Do not Know/ Do not Understand
Set a target of national net zero-carbon emission by 2050 at the latest	8.7%	7.9%	31.9%	43.9%	7.6%
Put a tax on carbon emissions, with the money raised being invested in clean, renewable energy	13.8%	14.2%	31.1%	31.4%	9.6%
Stimulate public/private investment in a national clean energy power system to replace all coal power	8.0%	9.3%	35.2%	37.1%	10.5%
Phase out over ten years the mining of fossil fuels (coal, oil and gas)	13.1%	16.9%	29.6%	29.5%	10.8%
Increase taxpayer-funded financial	9.0%	10.5%	33.6%	36.2%	10.7%

grants/subsidies for private solar panels and batteries					
Provide taxpayer-funded financial grants/subsidies to the fossil fuel industry	**27.1%**	**21.9%**	**22.7%**	**11.5%**	**16.9%**
Require all new vehicles to be electric by 2040	**23.9%**	**20.0%**	**27.6%**	**21.1%**	**7.4%**
Build new coal-fired power stations as old ones are retired	**27.6%**	**20.8%**	**21%**	**16.5%**	**14.1%**
Provide government financial grants/subsidies for citizens to cyclone- or bushfire-proof their homes	**4.3%**	**13.0%**	**41.5%**	**33.9%**	**7.4%**
Construct concrete walls to prevent coastal erosion from sea-level rise, even if such walls are costly and detract from beach usage	**10.1%**	**21.5%**	**33.2%**	**19.1%**	**16.2%**
Use post-COVID government stimulus funding to kick-start the transition to a low carbon and climate-resilient national future	**9.2%**	**10.8%**	**37.8%**	**26.0%**	**16.3%**
Minimise Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions	**21.9%**	**20.7%**	**23.4%**	**17.7%**	**16.2%**
Assist communities that are currently reliant on coal mining for their livelihood	**2.0%**	**6.0%**	**46.4%**	**33.9%**	**11.7%**

B9a. In August 2022, the Australian federal parliament passed legislation to reduce Australia's greenhouse gas emissions by 43% by 2030, as compared to 2005 emission levels. Which one of the following statements best reflects your view of this target of 43% emissions reduction?
I support the target: 43% emissions reduction by 2030 is about right **- 37.8%**
The target is too low: we should reduce emissions by more than 43% by 2030 **- 23.1%**
The target is too high: we should reduce emissions by less than 43% by 2030 **- 12.5%**
I do not think we should have a target at all **- 14.9%**
No opinion **- 11.7%**

B9b. Would you like to comment further on the emissions target mentioned in the previous question?
_____ [Many cited: see Appendix D.7 for illustrative examples of responses]

B4. For which political party would you vote if there was an election tomorrow for the lower house of the federal parliament?
Liberal Party of Australia **- 22.9%**
Australian Labor Party **- 35.6%**
National Party **- 2.1%**
Australian Greens **- 10.1%**
One Nation Party **- 4.7%**
United Australia Party **- 1.2%**
A "teal" independent **- 1.8%**
Another independent **- 4.2%**
Other *(please specify)* (Examples of responses: Animal Rights Party; Animal Justice Party; Informed Medical Opinions Party; Katter's Australian Party; Victorian Socialists **- 1.8%)**
Don't know **- 13.8%**
I am not eligible to vote **- 1.9%**

B6. Please answer each of these questions in terms of the way you generally feel when being in or thinking about the natural environment.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
I often feel that I am a part of nature	**3.1%**	**8.9%**	**8.9%**	**27.2%**	**25.1%**	**18.4%**	**8.4%**
I often feel close to the natural world around me	**2.5%**	**5.8%**	**8.2%**	**21.7%**	**30.6%**	**21.4%**	**9.8%**
I often feel a personal bond with	**3.5%**	**7.3%**	**10.4%**	**20.7%**	**26.1%**	**21.1%**	**10.9%**

things in my natural surroundings, like trees, wildlife or the view on the horizon							
I often feel connected to nature	**3.2%**	**5.5%**	**8.9%**	**20.8%**	**29.6%**	**21.1%**	**10.7%**
My own welfare is linked to the welfare of the natural world	**3.4%**	**5.1%**	**7.0%**	**23.2%**	**24.2%**	**21.9%**	**15.2%**
I recognise and appreciate the intelligence of other living things	**0.6%**	**1.3%**	**1.8%**	**12.0%**	**27.2%**	**34.2%**	**22.8%**

B7. As far as you know, do you personally think that the world's climate is changing?
Yes - **79.1%**
No - **12.3%**
Do not know - **8.6%**

SECTION C: Your Experiences of Extreme Weather and Natural Disasters

C5. How often, if at all, have you personally and directly experienced each of the following types of events in the past twelve months?

	Never	Once	Two or more times
Heatwave (i.e., 3 or more consecutive days of unusually high minimum and maximum temperatures)	**37.5%**	**26.2%**	**36.3%**
Cyclone	**93.2%**	**4.5%**	**2.3%**
Drought	**77.1%**	**11.3%**	**11.6%**
Bushfire	**82.0%**	**11.1%**	**6.9%**
Flood	**74.0%**	**15.8%**	**10.2%**
Some other extreme weather event (*Please specify*_____) (Examples of responses: earthquake; La Nina; torrential rain - N= 365) – **28.9%**	**85.2%**	**5.5%**	**9.3%**

(Ask C6, only if one or more responses to C5 is "once" or "Two or more times")
C6. Of the events you directly experienced in the past twelve months, which one of the following was the most serious for you? (N = 897)
Heatwave (i.e., 3 or more consecutive days of unusually high minimum and maximum temperatures) - **59.7%**
Cyclone - **1.1%**
Drought - **6.1%**
Bushfire - **8.0%**
Flood - **21.2%**
Another type of extreme weather event (*Please specify*) - **3.9%**

[All participants resume answering]
C8. Large parts of eastern Australia experienced unusually heavy rainfall and considerable flooding during 2022. Were you, or the people close to you, or your property, directly exposed to the 2022 floods, or the consequences of these floods, in any way?
Yes – **18.1%**
No – **81.9%**

(Ask C9, C10, C11, and C12 only if the answer to C8 is "Yes")
C9. Due to this flooding, did you: (N = 219)

	Yes	No
experience any property damage/loss?	**31.6%**	**68.4%**
experience any financial loss?	**28.1%**	**71.9%**
suffer any physical injury?	**1.3%**	**98.7%**
experience psychological distress or trauma?	**22.4%**	**77.6%**
get physically 'cut-off' or 'trapped' in some place?	**26.8%**	**73.2%**
lose the capacity to perform your usual work in your usual way?	**29.4%**	**70.6%**
need to spend one or more nights somewhere other than you home?	**8.3%**	**91.7%**

witness other people directly impacted by the flooding?	**59.2%**	**40.8%**
observe damage to other people's property?	**67.5%**	**32.5%**
have a family member or close friend impacted by the flooding?	**51.3%**	**48.7%**
have another person/s needing to become dependent on you?	**9.2%**	**90.8%**
get involved in rescue work associated with the flooding?	**5.3%**	**94.7%**
help clean up after the flooding?	**28.5%**	**71.5%**

C10. Did you apply for government relief funding to help you with the impacts of the flooding? **(N = 219)**
Yes - **17.5%**
No – **69.3%**
Not applicable - **13.2%**

(Ask C11 only if the answer to C10 is "Yes")
C11. Was your application for relief funding successful? **(N = 38)**
Yes - **87.5%**
No - **12.5%**

[Ask C3d, only if the first item in C9 is "Yes"]
C3d. Did you make a claim on your insurance for the property damage/loss you incurred from the flood? **(N = 66)**
Yes - **22.2%**
No – **66.7%**
Did not have insurance cover - **11.1%**

[Ask C3e, only if C3d. is answered with "Yes"]
C3e. Was your insurance claim successful? **(N = 14)**
Yes – **81.3%**
No – **18.8%**

[Ask C3f, only if the first item in C9 is answered as "Yes"]
C3f. After this event, did you make any of the following changes to your insurance cover? **(N = 66)**
Added or increased my house and contents insurance – **9.7%**
Added or increased my contents insurance only - **1.4%**
Added or increased my house insurance only - **1.4%**
Changed neither my house nor contents insurance – **70.8%**
Do not know – **16.7%**

C12. We are interested in your general health and mental wellbeing following your experiences with the 2022 floods. To what extent did your experiences during or soon after the floods contribute to you having the problems listed below? **(N = 219)**

	Never/ Not at all	Rarely / A little	Sometimes/ Somewhat	Often / Much of the time	Most of the time / Very much
Difficulties in focusing or concentrating	**54.8%**	**21.5%**	**15.8%**	**6.6%**	**1.3%**
Difficulties having fun with family and/or friends	**49.1%**	**23.7%**	**19.3%**	**6.6%**	**1.3%**
Problems keeping up with your work and/or household chores	**53.5%**	**19.3%**	**17.1%**	**7.0%**	**3.1%**
Problems managing money	**58.3%**	**18.4%**	**15.8%**	**5.3%**	**2.2%**
Problems with eating well	**59.6%**	**16.7%**	**17.1%**	**4.4%**	**2.2%**
Problems keeping an acceptable appearance	**67.5%**	**19.3%**	**8.8%**	**3.9%**	**0.4%**
Problems leaving the house	**56.6%**	**19.7%**	**15.4%**	**4.8%**	**3.5%**
Problems with sleeping	**50.0%**	**20.6%**	**14.5%**	**10.5%**	**4.4%**
Problems with sex or intimate relationships	**71.5%**	**10.1%**	**9.6%**	**4.8%**	**3.9%**
Lethargy; problems getting motivated	**50%**	**21.9%**	**18%**	**6.1%**	**3.9%**

C13. Have you ever been affected by extremely hot weather?
Not affected at all – **23%**

A little affected - **41.5%**
Somewhat affected – **30.0%**
Badly affected - **5.5%**

(Ask C14 only if C13 is answered other than "Not affected at all")
C14. Have you ever experienced any of the following or during extremely hot weather? (N = 944)
(Click all that apply)
Anxiety - **18.1%**
Loss of balance/feeling dizzy or faint - **24.1%**
Headache – **39.9%**
Nausea/vomiting - **9.4%**
Shortness of breath - **12.4%**
Irregular heartbeat/ Rapid pulse - **6.6%**
Skin issue - **10.7%**
Dehydration - **43.9%**
Muscle cramps - **9.8%**
Fatigue - **47.9%**
Decreased frequency of urination - **9.9%**
Loss of appetite - **16.2%**
General weakness – **16.2%**
Lack of sleep/trouble sleeping/sleeping disturbance - **50.6%**
Other, please specify____ - **1.4%**
I have been doing well and experienced none of the above – **15.9%**

C4. Even if you have <u>not been directly</u> impacted by an extreme weather event or natural disaster, in the past twelve months, has a geographically <u>distant</u> event had an impact upon you?
Yes - **30.2%**
No - **69.8%**

SECTION D: Your Experiences and Views about Climate Change

D1. Which of the following definitions best captures your understanding of the meaning of the term "climate change"?
Clim*ate change refers to:*
- increases in the world's temperature (i.e., "global warming") - **22.4%**
- all changes in the world's climate that occur naturally - **10.9%**
- all changes in the world's climate that are due to human activity - **25.3%**
- all changes in the world's climate, regardless of the cause – **37.8%**
- something that does not really exist - **3.6%**

To make sure that we are all referring to the same thing, please have in mind <u>this definition</u> of climate change when answering all remaining questions in this survey:
Climate change refers to changes in the world's climate that are due directly or indirectly to human activity and are in addition to natural climate cycles or variability.

D2. Thinking about the causes of climate change, which of the following best describes your opinion?
Climate change is entirely caused by natural processes - **4.1%**
Climate change is mainly caused by natural processes - **7.7%**
Climate change is partly caused by natural processes and partly caused by human activity - **41.1%**
Climate change is mainly caused by human activity - **31.7%**
Climate change is entirely caused by human activity - **9.8%**
I think there is no such thing as climate change – **3.0%**
Do not know - **1.5%**
No opinion - **1.1%**

D3. Using this definition, to what extent do you agree or disagree with this statement?

	Strongly Disagree	Disagree	Tend To Disagree	Neither Agree Nor Disagree	Tend To Agree	Agree	Strongly Agree
I am certain that climate change is really happening	**4.7%**	**2.5%**	**4.4%**	**9.4%**	**21.4%**	**19.8%**	**37.8%**

D4. Please indicate the extent to which you agree or disagree with each of these statements.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Climate change will have a noticeably negative impact on my health (over the next 25 years)	**8.9%**	**11.6%**	**17.0%**	**32.8%**	**20.3%**	**9.4%**
Climate change will have a noticeably negative impact on my economic and financial situation (over the next 25 years)	**7.2%**	**11.1%**	**18.1%**	**32.5%**	**20.3%**	**10.8%**
Climate change will have a noticeably negative impact on the environment in which my family and I live	**6.7%**	**8.7%**	**11.8%**	**30.7%**	**24.7%**	**17.3%**
	Low risk	Slight low risk	Moderate low risk	Slight high risk	Moderate high risk	High risk
In your opinion, what is the risk of climate change exerting a significant impact on public health in your state?	**10.9%**	**12.8%**	**23.7%**	**13.5%**	**24.3%**	**14.7%**
In your opinion, what is the risk of climate change exerting a significant impact on economic development in your state?	**9.4%**	**10.8%**	**23.2%**	**13.7%**	**27.2%**	**15.7%**
In your opinion, what is the risk of climate change exerting a significant impact on the environment in your state?	**9.7%**	**9.1%**	**21.9%**	**13.3%**	**25.9%**	**20.1%**

D5. How important is the issue of climate change to you personally?

Not At All Important	Low importance	Slightly important	Moderately important	Important	High importance	Extremely Important
9.1%	**12.9%**	**13.9%**	**15.1%**	**17.4%**	**16.9%**	**14.6%**

D6. Has any particular event/s or experience/s within the past year altered your views about the seriousness of climate change? (This event/s might have been to do with the weather, the natural environment, what you saw or read, whom you spoke to, etc.).
Yes - **24.4%**
No – **70.0%**
Do not know - **5.6%**

[Ask D6a only if the answer to D6 was "Yes"]
D6a. Please briefly state what that event/s or experience/s was/were.
_____ **[Many cited: see Appendix D.7 for illustrative examples of responses]**

D7. In the past twelve months, have you directly experienced any environmental or climatic changes, circumstances, or events which you think might be due to climate change?
Yes - **32.6%**
No - **67.4%**

[Ask D9 only if the answer to either D7 was "Yes"]

D9. Please give brief details of these events or circumstances. (What happened? When? With what consequences?)

_____ **[Many cited: see Appendix D.7 for illustrative examples of responses]**

D10. Overall, how much have you or your family been personally harmed by circumstances or events that you believe are related to climate change?

Not at All	Very little	A little	A moderate amount	More than moderately	Quite a lot	A great deal
37.3%	**28.6%**	**18.4%**	**10.3%**	**3.3%**	**1.4%**	**0.6%**

D12. Should climate change be a low or a high priority for the Australian government?

Extremely Low	Very Low	Low	Moderate	High	Very High	Extremely High
6.7%	**4.2%**	**8.4%**	**24.4%**	**19.8%**	**13.4%**	**23.2%**

D13. To what extent do you agree or disagree with each of these statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change is partly due to the way I choose to live my life	**12.2%**	**13.8%**	**10.8%**	**23.7%**	**25.9%**	**11.2%**	**2.5%**
I feel partly responsible for contributing to the exhaustion of non-renewable energy resources	**13.9%**	**13.2%**	**11.6%**	**18.1%**	**28.0%**	**12.3%**	**3.0%**
If you are reading this carefully, select Strongly Disagree	**98.3%**	**0.2%**	**0.2%**	**0.2%**	**0.4%**	**0.2%**	**0.6%**
I feel partly responsible for climate change	**16.9%**	**13.1%**	**8.5%**	**18.1%**	**30.0%**	**10.4%**	**3.1%**
I feel a sense of urgency to change my behaviour to help to reduce climate change	**14.3%**	**10.9%**	**8.6%**	**22.6%**	**22.2%**	**14.9%**	**6.3%**

D14. When, if at all, do you think Australia will start feeling the effects of climate change?

We are already feeling the effects **- 61.8%**
In the next 10 years **- 6.2%**
In the next 25 years **– 5%**
In the next 50 years **- 3.8%**
In the next 100 years **- 1.2%**
Beyond the next 100 years **- 2.1%**
Never **– 7%**
Don't know/No opinion **- 12.9%**

D15. How serious a problem do you think climate change is right now?

Not At All Serious	Low seriousness	Slightly serious	Moderately serious	Serious	High Seriousness	Extremely Serious
8.7%	**12.4%**	**15.4%**	**16.5%**	**19.2%**	**12.7%**	**15.1%**

D16. How serious a problem do you think climate change will be in 2050?

Not At All Serious	Low seriousness	Slightly serious	Moderately serious	Serious	High Seriousness	Extremely Serious
7.5%	**8.6%**	**7.8%**	**14.4%**	**14.6%**	**17.3%**	**29.7%**

D18. How vulnerable do you think the region where you live is to one or more natural disasters (e.g., floods, droughts, cyclones & bushfires)?

Not At All Vulnerable	Low vulnerable	Slightly vulnerable	Moderately vulnerable	Vulnerable	Highly vulnerable	Extremely Vulnerable
10.1%	19.4%	18.1%	16.0%	16.5%	12.0%	8.0%

D20. How vulnerable do you think the region where you live is to the impacts of climate change?

Not At All Vulnerable	Low vulnerable	Slightly vulnerable	Moderately vulnerable	Vulnerable	Highly vulnerable	Extremely Vulnerable
9.3%	18.2%	15.8%	17.9%	18.8%	12.5%	7.5%

D21. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change will mostly affect areas that are far away from here	16.5%	23.4%	13.7%	23.6%	15.4%	5.9%	1.6%
Climate change will mostly affect other countries	23.6%	25.4%	13.2%	21.8%	9.2%	5.5%	1.3%
Climate change means I will have to compromise on what I wanted to do with my life	9.3%	11.7%	10.8%	31.3%	20.2%	12.3%	4.4%

D23. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I have felt pressure to think a certain way about climate change	14.8%	21.5%	11.1%	20.5%	17.5%	9.3%	5.4%
I feel others are trying to force their opinions on me about climate change	17.5%	20.4%	10.4%	12.9%	14.5%	12.6%	11.7%
I am being manipulated to form a certain view on climate change	22.1%	22.3%	9.9%	16.3%	10.9%	9.8%	8.6%
Concerns about climate change are exaggerated	29.9%	18.2%	11.9%	15.4%	8%	6.8%	9.8%

D24. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I can personally try to reduce climate change by changing my behaviour	7.0%	6.6%	4.8%	16.2%	33.6%	21.7%	10.1%
There are things I can do to try to reduce the impact of climate change	7.0%	5.1%	4.4%	12.9%	35.0%	24.3%	11.2%
I can readily change things in my everyday life to address the challenges of climate change	7.0%	5.7%	6.7%	19.5%	31.5%	20.0%	9.6%

D25. Please click the response that best indicates your level of agreement with each statement below.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I believe my actions can reduce the pace or negative effects of climate change	**8.9%**	**9.5%**	**9.1%**	**19.1%**	**33.7%**	**14.5%**	**5.2%**
My actions have a positive influence on how I am feeling and thinking about climate change and environmental problems generally	**6.3%**	**5.4%**	**3.6%**	**25.0%**	**35%**	**18.9%**	**5.8%**
I feel that I can make a difference with regard to climate change	**9.7%**	**9.8%**	**8.2%**	**20.4%**	**31.5%**	**14.2%**	**6.2%**

D27. To what extent do you agree or disagree with each of the following statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
If we collaborate, we will be able to minimise the consequences of climate change	**5.1%**	**4.1%**	**2.8%**	**13.6%**	**25.7%**	**31.9%**	**16.8%**
By working together, we can make a difference to climate change	**5.3%**	**4.2%**	**3.5%**	**11.6%**	**22.3%**	**33.3%**	**19.7%**
There is little point in me taking action against climate change because many others will not	**18.3%**	**18.8%**	**15.7%**	**20.6%**	**13.5%**	**7.8%**	**5.3%**
If people all pull together, we can reduce the impacts of climate change	**5.2%**	**3.5%**	**3.2%**	**11.9%**	**22.6%**	**32.4%**	**21.2%**

D29. To what extent do you agree or disagree with this statement:

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change is an issue that requires urgent action NOW.	**9.3%**	**5.0%**	**2.9%**	**10.2%**	**16.3%**	**24.4%**	**31.8%**

SECTION E: Your Feelings about Climate Change

E1. How concerned, if at all, are you about climate change?
Not At All Concerned - **12.4%**
Not Very Concerned - **20.7%**
Fairly Concerned - **35.4%**
Very Concerned - **31.4%**

E2. Has your level of concern about climate change increased, decreased, or remained the same over the past year (i.e., since September 2021)?

Decreased Substantially	Decreased moderately	Decreased slightly	Remained the same	Increased slightly	Increased moderately	Increased Substantially
2.1%	**0.9%**	**1.4%**	**58.0%**	**20.3%**	**10.5%**	**6.8%**

E3. Considering any potential effects of climate change that might affect <u>you</u> <u>personally</u>, how concerned, if at all, are you about climate change?
Very concerned – **18.2%**

Fairly concerned – **39.0%**
Not very concerned – **24%**
Not at all concerned - **14.6%**
Don't know - **2.9%**
No opinion - **1.3%**

E4. Considering any potential effects of climate change that there might be on <u>society</u> <u>in</u> <u>general</u>, how concerned are you about climate change?
Very concerned - **25.3%**
Fairly concerned - **39.7%**
Not very concerned - **19.3%**
Not at all concerned - **12.3%**
Do not know - **1.9%**
No opinion - **1.6%**

E5. How concerned are you that each of the following threats might directly affect you, your family, or your local environment in the foreseeable future?

	Not At All concerned	Less concerned	Slightly concerned	Moderately concerned	Concerned	Greatly Concerned	Very Concerned
Bushfires	**16.3%**	**13.9%**	**20.3%**	**11.9%**	**16.5%**	**9.9%**	**11.2%**
Cyclones	**31.3%**	**26.1%**	**14.7%**	**9.2%**	**10.3%**	**4.4%**	**4%**
Floods (coastal &/or inland)	**17%**	**17.8%**	**17.7%**	**13.4%**	**16.8%**	**8.9%**	**8.5%**
Unemployment	**21.3%**	**15.4%**	**17.1%**	**12.6%**	**15.5%**	**9.7%**	**8.3%**
Air and water pollution	**8.6%**	**11.5%**	**18.1%**	**16.3%**	**21.4%**	**12.5%**	**11.6%**
Sea level rise	**18.1%**	**16.1%**	**16.7%**	**13.2%**	**15.4%**	**10.4%**	**10.1%**
Droughts/Water shortages	**7.2%**	**8.9%**	**17.0%**	**16.4%**	**20.3%**	**14.6%**	**15.5%**
Heatwaves	**7.8%**	**8.1%**	**15.4%**	**14.6%**	**19.5%**	**17.8%**	**16.7%**
War/International conflicts	**7.0%**	**8.2%**	**13.1%**	**14.0%**	**20.3%**	**16.1%**	**21.4%**
Health threats relating to environmental changes or conditions	**10.8%**	**12.4%**	**17.0%**	**17.3%**	**19.0%**	**12.7%**	**10.8%**
Biodiversity loss (e.g., species extinction, habitat loss)	**6.5%**	**7.1%**	**14.2%**	**15.8%**	**18.8%**	**17.7%**	**19.9%**
Food insecurity (e.g., crop failures, food shortages, declining agriculture)	**4.1%**	**6.3%**	**13.4%**	**15.2%**	**23.3%**	**18.1%**	**19.6%**
Terrorism	**11.8%**	**15.8%**	**16.9%**	**16.2%**	**16.5%**	**10.1%**	**12.7%**
COVID-19	**14.6%**	**18.1%**	**16.2%**	**16.5%**	**16.5%**	**8.6%**	**9.4%**
Impacts of climate change, generally	**10.8%**	**9.7%**	**15.0%**	**15.1%**	**18.2%**	**13.4%**	**17.7%**

E7. Some people may feel that climate change is distressing. It may or may not be like this for you. Please indicate the extent to which each of the following statements reflects your own feelings about the threat of climate change.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I feel distressed when I see or read media coverage of the	**10.3%**	**14.6%**	**9.5%**	**22.0%**	**22.8%**	**15.4%**	**5.3%**

likely impacts of climate change							
At times, I worry about what the world will be like in future because of climate change	**10.4%**	**10%**	**5.5%**	**11.9%**	**26.4%**	**22.2%**	**13.5%**
I feel guilty when I think of how the lifestyle of my family and friends contributes to climate change	**14.6%**	**17.4%**	**13.8%**	**22.2%**	**18.3%**	**10.1%**	**3.6%**
It upsets me when I think that there is so little I can do about climate change and other environmental problems	**12.1%**	**13.9%**	**10.7%**	**26.9%**	**19.9%**	**11.6%**	**4.9%**
The more I learn about the threat of climate change, the more anxious I become	**16.1%**	**13.6%**	**12.3%**	**23.7%**	**18.3%**	**11.1%**	**5.0%**
At times, I feel overwhelmed when thinking about the future impact of climate change	**16.9%**	**15.4%**	**11.8%**	**20.8%**	**17.9%**	**11.1%**	**6.1%**

E8. When you consider your ability to address climate change, to what extent do you feel?

	Definitely do NOT feel this	Probably do NOT feel this	Not sure if I do or do not feel this	Probably feel this	Definitely feel this
hopeful	**11.0%**	**17.3%**	**34.7%**	**31.9%**	**5.1%**
nervous	**20.0%**	**22.8%**	**25.3%**	**25.4%**	**6.5%**
confident	**13.3%**	**24.0%**	**38.3%**	**20.3%**	**4.0%**
lacking control	**12.9%**	**14.6%**	**28.2%**	**31.7%**	**12.6%**
assured	**16.5%**	**26.1%**	**41.3%**	**13.3%**	**2.8%**

SECTION F: Your Responses to Climate Change

F3. Some people change aspects of their lifestyle to reduce their contribution to climate change. Other people do not. Which of the following aspects of your lifestyle, if any, have you changed over the past year <u>primarily</u> <u>because you wanted to reduce your impact upon climate change?</u>
(Click all that apply to you. Please do not click changes in your lifestyle that were made for other reasons, e.g., financial necessity or Covid-19 restrictions)

Driven my car less – **27.0%**
Carpooled more often - **4.4%**
Recycled more - **62.9%**
Consumed less red meat – **28.1%**
Reduced the amount of food I throw out – **47.0%**
Become more efficient in my consumption of power (electricity, gas) from the grid/power companies - **42.3%**
Changed to 'green' (e.g., solar) power - **16.2%**
Changed my electricity supplier - **5.4%**
Become more efficient in my water consumption - **41.7%**
Reduced my use of plastic items - **55.6%**
Switched to products that are more environmentally friendly - **28.4%**
Purchased a bicycle - **3.2%**
Purchased more things that are locally (rather than remotely) made/grown - **30.3%**
Avoided making unnecessary purchases - **43.7%**
I have changed none of these aspects of my lifestyle over the past year due to concerns about climate change - **21.1%**

F4. To what extent do you agree with the following statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree	Slightly Agree	Agree	Strongly Agree

				Nor Disagree			
I feel a strong personal obligation to do whatever I can to prevent climate change	8.2%	6.9%	6.0%	19.0%	26.5%	22.6%	10.8%
I feel obliged to bear the environment and nature in mind in my daily behaviour	7.0%	6.5%	5.7%	19.1%	28.9%	22.9%	10.0%
I feel morally obliged to use green instead of regular electricity	11.9%	10.9%	10.1%	26.7%	19.3%	13.5%	7.7%
If you are reading this carefully, answer strongly disagree to this question	96.4%	0.7%	0.3%	1.5%	0.7%	0.2%	0.2%
I would be a better person if I behaved in more pro-environmental ways	12.0%	10.4%	7.6%	31.4%	18.4%	13.2%	7.0%

F6. To what extent do you agree or disagree with the following statements?
To help reduce climate change, I am willing to:

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
change my lifestyle	8.2%	7.1%	4.6%	21.4%	29.7%	20.8%	8.2%
greatly reduce my energy (e.g., electricity) use	8.6%	9.0%	7.5%	19.0%	29.1%	18.7%	8.1%
pay higher personal taxes	31.2%	14.4%	13.4%	17.3%	12.7%	7.5%	3.4%
pay more for electricity	32.1%	16.3%	14.7%	14.4%	13.1%	6.8%	2.6%
pay more for fuel (petrol, diesel, etc.)	33.0%	15.5%	13.8%	15.6%	12.4%	6.7%	2.9%
pay significantly more for energy-efficient products	27.4%	14.1%	12.4%	15.7%	18.4%	9.2%	2.8%
accept cuts in my standard of living.	23.3%	13.9%	13.6%	21.1%	18.1%	7.1%	2.9%
take part in a community-wide climate change movement	16.9%	9.6%	7.2%	27.3%	21.5%	12.2%	5.3%
have renewable energy infrastructure such as a solar farm in my local area	9.1%	4.8%	2.8%	17.3%	21%	24.9%	20.0%
work with my local community to find ways to adapt to living with climate change	11.2%	6.3%	5.5%	32.7%	23.3%	15.4%	5.6%

F7. Please indicate the extent to which each of the following statements describes your response to the threat of climate change.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I am increasingly aware of how my daily activities might be affecting the natural environment and worsening the problem of climate change	8.6%	8.2%	8.2%	26.3%	29.1%	15.5%	4.3%
Over the past year, I have seriously thought about alternative places to live because of the increasingly evident	35.9%	24.4%	11.1%	13.9%	8.2%	4.7%	1.9%

impacts of climate change							
These days, I am trying NOT to think about climate change	**10.1%**	**17.3%**	**15.3%**	**33.1%**	**11.8%**	**7.5%**	**4.9%**
During the last year, I have thought more about what my family and I might do to reduce our impact on the environment	**11.8%**	**11.2%**	**10.5%**	**24.7%**	**25.7%**	**11.9%**	**4.2%**
I try to directly address the feelings I have about climate change	**12.1%**	**10.0%**	**10.0%**	**38.1%**	**17.0%**	**9.3%**	**3.6%**
In recent times, I have tried to recognise and accept the emotions I feel about climate change	**12.4%**	**10.8%**	**7.7%**	**39.0%**	**17.4%**	**9.7%**	**2.9%**
I seem to spend more time these days trying to come to grips with the likely effects of climate change	**17.8%**	**15.4%**	**13.6%**	**30.8%**	**14.3%**	**6.2%**	**1.8%**
I have often discussed my thoughts and feelings about climate change with others over the past year	**15.0%**	**15.0%**	**11.1%**	**19.3%**	**20.7%**	**13.1%**	**5.9%**
I keep up with media reports on a daily basis to inform my views about climate change	**15.9%**	**15.8%**	**10.2%**	**21.8%**	**19.2%**	**12.8%**	**4.2%**
Compared to a year ago, I am much more likely nowadays to tune into discussions and debate about climate change	**15.6%**	**13.1%**	**11.1%**	**27.9%**	**18.4%**	**9.2%**	**4.8%**

F10. Which of the following do you have at your home to reduce the effects of hot weather?
(Select all that apply)

	Yes	No	Not sure	Not applicable
Air conditioning	**82.3%**	**15.0%**	**0.3%**	**2.3%**
Fans	**81.3%**	**17.3%**	**0.3%**	**1.1%**
Blinds and awnings	**88.7%**	**9.4%**	**0.6%**	**1.3%**
Tinted windows	**20.9%**	**75.6%**	**1.1%**	**2.4%**
Large windows and doors (without insect and/or security screens)	**20.6%**	**75.5%**	**1.3%**	**2.5%**
Large windows and doors (with insect and/or security screens)	**77.6%**	**20.2%**	**1.0%**	**1.2%**
Outdoor living areas like veranda(s), deck(s) or patio(s)	**78.3%**	**18.4%**	**0.6%**	**2.6%**
Ceiling insulation	**70.0%**	**16.2%**	**10.8%**	**3.1%**
Wall insulation	**44.2%**	**35.9%**	**16.8%**	**3.1%**
Light-coloured roof	**36.5%**	**50.3%**	**8.6%**	**4.6%**
Roof overhang/wide eaves	**53.4%**	**35.4%**	**7.2%**	**4.0%**
Shady plants	**56.3%**	**37.1%**	**2.2%**	**4.4%**
Other (*please specify)* (Examples of responses: double glazed windows; heavy drapes; insulation under floor; rainwater tank; real grass in front garden not concrete or synthetic turf; swimming pool - N= 133)				

F11. On a very hot day, how often do you use the following to maintain comfortable temperatures?

	Never	Hardly ever	Sometimes	Frequently	Every time	Not applicable
Turn on the air conditioner	**6.3%**	**16.5%**	**31.9%**	**23.5%**	**12.7%**	**9.1%**
Turn on fans	**4.8%**	**6.3%**	**25.3%**	**31.8%**	**21.1%**	**10.7%**
Stay inside your home during the warmest times of the day	**0.6%**	**2.5%**	**19.5%**	**51.9%**	**25.3%**	**0.4%**

Keep windows closed when the outdoor temperature is higher than indoor	2.2%	3.8%	12.6%	27.9%	53.1%	0.3%
Open doors and windows	12.3%	14.5%	35.3%	24.4%	13.1%	0.4%
Close blinds and curtains	2.3%	2.8%	18.8%	38.1%	37.2%	0.9%
Adjust your clothing (light materials, light colours, less clothing, loose clothing)	1.2%	1.7%	8.2%	27.2%	61.4%	0.2%
Increase intake of fluids (water/soft drinks)	0.1%	0.9%	6.8%	35.2%	56.7%	0.4%
Cool your body by taking showers or swimming	5.2%	16.3%	39.5%	23.9%	13.9%	1.1%
Use a wet cloth (on neck or face)	16.2%	24.7%	34.0%	17.1%	7.4%	0.6%
Reduce alcohol intake	8.3%	10.1%	20.3%	12.0%	9.6%	39.7%
Change the type of food I eat	13.1%	13.8%	37.5%	23.4%	8.0%	4.2%
Avoid physical activity	4.0%	8.1%	36.3%	33.1%	16.1%	2.5%
Avoid outdoors	3.2%	6.5%	34.0%	39.0%	16.8%	0.6%
Go outdoors at home where there is shade/veranda	5.5%	12.4%	43.1%	24.5%	8.3%	6.2%
Visit green areas (forests, parks)	15.1%	28.7%	38.6%	11.4%	2.9%	3.4%
Visit public places with air-conditioning (e.g., shopping centre, cinema, library)	8.2%	21.8%	47.8%	16.9%	4.2%	1.1%
Visit friends who live in cooler places	28.0%	33.7%	25.3%	4.5%	1.2%	7.2%

SECTION G: Your Understanding of Climate Change

G10. Overall, how much do you feel you know about climate change?

Nothing at all	Virtually nothing	A little	Quite a lot	A great amount	Just about everything
1.6%	5.7%	46.5%	33.3%	11.8%	1.2%

G5. Where do you go to get your information about climate change? (N = 1117)
(In this question, you are asked whether you go to various sources to obtain information about climate change. Please respond to all items on this list. Please select one response per row.)

	Never	Some times	Often
Australian commercial media: TV, radio, or online news and current affairs (Channel 7, 9, 10, Sky; online sites for these outlets; including A Current Affair, Today Show, Sunrise, etc.)	21.5%	52.1%	26.4%
Australian public broadcasting: TV, radio, or online news and current affairs (ABC, SBS, ABC Online, SBS Online, etc.)	23.4%	50.4%	26.2%
The Sydney Morning Herald, The Age, The Financial Review, and/or their online outlets	71.6%	22.2%	6.2%
Other mainstream Australian newspapers (e.g., *The Australian*), magazines, and/or other print media, and their online outlets (e.g.: News.com.au)	58.3%	33.5%	8.2%
Local and/or community news media (e.g., community radio, local news publications)	52.1%	41.6%	6.4%
Alternative and/or independent media (e.g., *The Monthly, The Conversation, Crikey, Saturday Paper, The Guardian*)	74.8%	20.0%	5.2%
First Nation's media (e.g., NITV, Koori Mail, First Nations radio)	90.2%	8.6%	1.2%
Mainstream international newspapers and news sites, such as: *New York Times, BBC, Washington Post, Wall Street Journal*	75.0%	22.5%	2.4%
Facebook	63.4%	31.3%	5.3%
Twitter	89.4%	8.3%	2.3%
Instagram	87.4%	11.3%	1.3%
TikTok	94.4%	4.6%	1%

YouTube channels	**72.7%**	**22.9%**	**4.5%**
Specific online sources such as social media sites or blogs	**77.6%**	**20.4%**	**2.0%**
Books (fiction or non-fiction), theatre, and creative arts events	**69.4%**	**27.9%**	**2.7%**
Lectures, formal education	**79.4%**	**18.1%**	**2.5%**
Films and documentaries seen other than on TV and online (e.g., in cinemas, in class, at meetings)	**51.7%**	**42.4%**	**5.9%**
The Australian federal government	**30.3%**	**61.1%**	**8.6%**
Your state or territory government	**31.2%**	**61.1%**	**7.7%**
Your local government	**42.9%**	**51.4%**	**5.8%**
Politicians	**50.8%**	**46.0%**	**3.1%**
Scientists, scientific organisations, and scientific research publications (including reports from the CSIRO or the Intergovernmental Panel on Climate Change: IPCC)	**26.6%**	**52.9%**	**20.5%**
Medical practitioners and/or health professionals	**68.8%**	**27.0%**	**4.2%**
Church and/or religious leaders	**93.1%**	**6.0%**	**0.9%**
Business leaders/representatives	**82.5%**	**16.9%**	**0.5%**
Bureau of Meteorology/ meteorologists	**24.8%**	**49.9%**	**25.3%**
Other specialist providers of climate change information (e.g., the Climate Council)	**58.3%**	**34.4%**	**7.2%**
Expert panels/advisory groups, such as the Great Barrier Reef Expert Committee, etc.)	**58.6%**	**35.5%**	**5.9%**
Environmental organisations (e.g., Greenpeace, World Wildlife Fund, Australian Marine Conservation Society)	**52.8%**	**39.7%**	**7.5%**
Your own observations and experiences of the weather, the climate, and/or the environment	**24.1%**	**48.4%**	**27.5%**
Your colleagues, family and/or friends	**32.3%**	**60.3%**	**7.3%**
Other - *please specify* (Examples of responses: common sense; media outlets in other countries; work; our geological history over millions of years; N = 104)	**80.6%**	**7.1%**	**12.2%**
I do not know		**1.7%**	
I do not follow or pay attention to climate change news or information		**7.7%**	

SECTION H: About You

This final section asks about your demographic background

H1. What is your gender?
Male – **48%**
Female - **51.9%**
Other/Non-binary - **0.2%**

H4. Which of the following best describes you?
I am an Australian citizen - **94.5%**
I have permanent residency in Australia but I am not an Australian citizen - **4.4%**
I am a refugee: I reside in Australia but do not have permanent residency - **0.0%**
I reside in Australia, but do not have permanent residency because I am here for work or study - **0.7%**
Other: *please specify* - **0.4%**

A3. How would you describe your physical health over the past year?
Extremely poor - **2.1%**
Poor - **12.3%**
Okay - **33.8%**
Good - **40.2%**
Very good - **11.6%**

H33. Would you describe yourself as a 'spiritual' person?
Yes - **36.8%**
No - **55.3%**

Don't know - **7.8%**

H6. Are you religious, or do you identify with a particular religious faith?
Yes, either I am religious, or I identify with a particular religious faith - **41.2%**
No, I neither am religious nor do I identify with a particular religious faith – **58.8%**

(H34 is asked only if H6 is answered in the affirmative)
H34. What religious faith do you identify with? (N = 506)
Catholic - **32.5%**
Anglican (Church of England) – **21.7%**
Uniting Church - **8.7%**
Evangelical, or similar Christian denomination – **5.0%**
Other Christian denomination – **16.7%**
Judaism - **1.3%**
Buddhism – **1.9%**
Islam - **3.7%**
Hinduism - **2.3%**
Other religion (*please specify*) _____ (Examples of responses: Biblitarian; Catholic and Baptist; Eclectic; Jedi; Spiritualism - N= 5) – **3.7%**
Prefer not to say - **2.5%**

(All respondents resume answering)
H35. Do you believe that climate change is a part of a greater plan? (For example: Climate change is part of God's will)
Yes – **7.1%**
No – **75.9%**
Don't know - **16.9%**

H7. Please indicate the highest level of education you have <u>already completed</u>:
Year 10 or less – **11.2%**
Year 11 - **2.8%**
Year 12 - **14.1%**
College Certificate or Diploma – **19.8%**
Trade Qualification/Apprenticeship - **12.7%**
Undergraduate Degree - **24.2%**
Postgraduate Degree/Diploma – **14.6%**
Other: *please specify* - **0.6%**

H8. Are you currently undertaking studies?
Yes – **5.9%**
No - **94.1%**

H9. What is your current employment status?
Working – Full-time (35+ hours per week) – **31.7%**
Working – Part-time - **14.6%**
Working on a casual basis - **5.9%**
Unemployed – seeking work - **2.7%**
Retired - **30.2%**
Unpaid work - looking after house/children/dependants - **6.4%**
Not in paid employment due to a disability – **5.1%**
Not in paid employment due to COVID-19 - **0.0%**
Student - not in paid employment - **1.3%**
Other - *please specify* (Examples of responses: freelancer; not working due to chronic migraine; operate a small business; self-employed; student with casual job; volunteer in community;- N= 24) – **2.1%**

(Ask H36 only if the response to H9 was "Working - Part-time" or "Working on a casual basis")
H36. If working for pay either part-time or casually, how many hours do you work in the average week? (N = 253)

Fewer than 15 hours per week - **29.6%**
15 or more hours per week - **70.4%**

H37. Are you employed as a tradesperson ("tradie") in the construction industry?
Yes - **2.4%**
No, I never have been – **93.0%**
No, but I previously was - **4.6%**

H13. Are you employed in farming or agriculture?
Yes – **1%**
No, I never have been - **92.9%**
No, but I previously was - **6.1%**

H14. Please indicate your approximate <u>combined household income</u> (from all sources, before tax) during the 2021-2022 financial year:
$40,000 or less – **26.4%**
$40 001-$60,000 - **19.4%**
$60,001-$80,000 – **12%**
$80,001-$100,000 - **12.2%**
$100,001-$150,000 - **17.5%**
$150,001-$200,000 - **7.8%**
Greater than $200,000 - **4.7%**

H15. Please indicate your approximate <u>personal income</u> (from all sources, before tax) during the 2021-2022 financial year:
$40,000 or less - **48.4%**
$40,001-$60,000 - **16.5%**
$60,001-$80,000 – **12%**
$80,001-$100,000 - **11.4%**
$100,001-$150,000 – **7.9%**
$150,001-$200,000 - **2.8%**
Greater than $200,000 – **1.0%**

H16. How would you describe your current financial situation?
I am struggling financially – **18.4%**
I am doing okay - **49.3%**
I am comfortable – **28.7%**
I am well off financially - **3.5%**

H17. Do you have any children?
Yes - **63.7%**
No - **36.3%**

H17c. Do you identify as a person living with a disability?
Yes - **17.8%**
No - **82.2%**

H17d. Do you identify as a member of the LGBTQI+ community?
Yes - **5.1%**
No - **93.9%**
Prefer not to say – **1.0%**

H17e. Do you identify as a homeless person?
Yes - **0.2%**
No - **99.4%**
Prefer not to say - **0.5%**

H5. How many years have you lived in the suburb, town, or regional area in which you are now living?
_____ **Mean = 19.4 years (SD = 17.2)**

H21. What is the main language spoken in your household?
English - **95.2%**
Other: *please specify* - **4.6%**
Do not know/Not applicable - **0.2%**

H23. What are your current residential arrangements?
Own my home outright - **37.5%**
Buying my home with mortgage/loan - **26.5%**
Part rent/part mortgage in private accommodation - **2.5%**
Renting or boarding in private accommodation - **21.5%**
Living in public accommodation – **5.0%**
Living with parents/friends/others rent-free - **5.9%**
Homeless - **0.0%**
Other - *please specify* (Examples of responses: live with mother but pay her rent to pay her mortgage; Mission Australia housing; own home, rent land; Retirement Village; share house - N= 12) – 1%

H24. How adequate do you regard the heating and cooling systems in your current residence?
Not at all adequate - **3.6%**
Not adequate - **4.8%**
Barely adequate - **12.4%**
Adequate - **54.2%**
Entirely adequate – **25.0%**

[Ask H25a through to H25h, and H26, only if the answer given to H23 is "Own my home outright" or "Buying my home with mortgage/loan"]
In the past year, have you: (N = 793)

- **H25a.Installed roof-top solar panels?**
  Yes - **10.9%**
  No - **61.4%**
  Already have solar panels - **27.7%**

- **H25b. Modified your home in any other way that increases your use of renewable energy (e.g., installed a solar hot water service)?**
  Yes - **4.7%**
  No - **83.2%**
  Already have solar hot water service - **12.1%**

- **H25c. Modified your home in a way that reduces your total household energy usage (e.g., installed insulation, ventilation, window tinting, awnings, draft-proofing, or heavy drapes)?**
  Yes - **19.3%**
  No - **60.8%**
  Already have a highly energy-efficient home – **19.9%**

- **H25d. Installed a rainwater tank or a grey water recycling system on your property?**
  Yes - **6.6%**
  No – **68.9%**
  Already have rainwater tank or a grey water recycling system - **24.6%**

- **H25e. Modified your home in any way that reduces damage from floods (e.g., elevate the home, apply water-resistant building materials, elevate electricity and utility installations, make walls impermeable to water, install pump and drainage system)?**
  Yes - **5.1%**
  No - **94.9%**

- **H25f. Modified your home in any way that reduces damage from wind (e.g., anchor roof, install window protection such as shutters)?**
  Yes – **7.0%**
  No – **93.0%**

- **H25g. Modified your property in any way that reduces damage from bushfire (e.g., remove trees and vegetation around the house, apply noncombustible building materials, have heat- or fire-resistant windows)?**
  Yes - **15.7%**
  No - **84.3%**

- **H25i. Modified your home in any way to reduce the impact of extreme heat (e.g., installed cooling devices, planted trees for shading, added outdoor spaces, tinting of windows, installed insulation)?**
  Yes – **28.9%**
  No – **71.1%**

- **H25h. Do you have a household disaster plan in place (e.g., for bushfires, floods, or cyclones)?**
  Yes - **24.5%**
  No - **75.5%**

(All respondents resume answering)
H26. To what extent would you be willing to move home if your current residence was deemed to be uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters?

Not at all Willing	Slightly willing	Moderately willing	Strongly willing	Very Willing
10.8%	**12.8%**	**17.3%**	**12.2%**	**10.8%**

H38. Have you changed residence ('moved house') in the past year?
Yes - **7.2%**
No - **92.8%**

(Ask H18 and H28 only if the answer to H38 is "Yes")
H18. What is the name of the suburb, town, or regional area in which you live? _____

H28. How far from your home is the closest public transport stop/station (bus, tram, train)? (in kilometres) (*If unsure, please estimate*) **(N = 89)**

[All participants resume answering]
H27. How would you describe the location of your current residence?
Inner urban - **13.3%**
Suburban/ Outer urban - **65.6%**
Country town/city – **16.0%**
Rural property - **4.8%**
Remote - **0.3%**

(Ask H39 only if the answer to H27 is "Rural property" or "Remote")
H39. What aspects of your rural/remote location help or hinder you from engaging in pro-environmental behaviours? (These behaviours might be private activities (e.g., recycling, using public transport), collective activities (e.g., petitions, protests), and/or other environmental/climate change actions). (N = 64) _____ [Many cited: see Appendix D.7 for illustrative examples of responses]

(All respondents now resume answering)
H29. How close do you live to areas that have, in the past ten years, been affected by extreme weather events or natural disasters (e.g., cyclones, flooding, bushfires, drought)?
0 – 25 kms – **38.5%**
26 – 50 kms - **21.2%**
51 – 100 kms - **16.7%**
101 – 250 kms - **10.8%**
over 250 kms – **12.7%**

H30. How many of the following vehicles are solely or jointly owned by you? (*Please answer with a number for each row).*

	Zero	One	Two	3 or more
Electric or hybrid (i.e., petrol-electric) vehicles	**96.0%**	**3.6%**	**0.2%**	**0.2%**
4-cylinder petrol or diesel vehicles	**28.7%**	**54.9%**	**14.3%**	**2.1%**

6-cylinder, or larger, petrol or diesel engine vehicles	**77.1%**	**20.0%**	**2.4%**	**0.6%**

H31. The next few statements relate to how your views on climate change compare to the views of other people you are close to (e.g., partner, family, friends). Please indicate the extent to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
People important to me would approve if I helped to increase public awareness of climate change	**4.4%**	**4.1%**	**3.2%**	**40.5%**	**20.6%**	**19.6%**	**7.6%**
My friends expect me to take positive steps to reduce my contributions to climate change	**8.9%**	**10.5%**	**10.2%**	**39.9%**	**15.4%**	**10.8%**	**4.3%**
People who are close to me (e.g., partner, friends) do not care whether or not I behave in environmentally-friendly ways	**7.4%**	**12.9%**	**13.4%**	**32.0%**	**15.9%**	**13.2%**	**5.2%**
The people who are most important in my life think that I should take action against climate change	**9.3%**	**10.3%**	**10.6%**	**41.2%**	**13.3%**	**11.9%**	**3.4%**

H32. Is there anything else you would like to say about your views on climate change or natural disasters?
_____ [Many cited: see Appendix D.7 for illustrative examples of responses]

END OF QUESTIONNAIRE
THANK YOU FOR YOUR TIME
Griffith University's Climate Action Beacon is conducting this research.
For details of the work of this group, see: https://www.griffith.edu.au/research/climate-action

Appendix D.3: Details of the Repeat Respondent Composite Variables

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Stdd Skew	Cronbach Alpha (stdd.)
Lifestyle & Social Milieu									
PEB34	Adapted from, e.g., Brick & Lewis, 2016; Kaiser et al., 2003; Leviston et al., 2015; Markle, 2013; Reser et al., 2012a 2012b.	16	A.6.1 – A.6.16	0 - 16	0 - 16	5.26	2.58	11.62	-
PEB4		16	A.6.1 – A.6.16	0 - 16	0 - 14	2.99	2.76	14.26	-
Proportion_PEB4		16	A.6.1 – A.6.16	0.0 - 1.0	0.0 - 1.0	0.32	0.27	8.13	-
Interest in Future PEBs	Sustainability Victoria, 2017	5	A.9.1 – A.9.5 [c]	5 - 20	5 - 20	13.09	3.59	-13.2	.74
Perceived Residential Vulnerability	Reser et al., 2012a, 2012b	3	D18, D20, H29[b]	3 - 21	3 - 21	12.56	4.46	-5.20	.71
Normative Beliefs	Adapted from Reser et al., 2012a, 2012b. Similar to Tikir & Lehmann, 2011	4	H31.1 – H31.4	4 - 28	4 - 28	16.41	4.74	-1.00	.81
Self and Worldviews									
Green Identity	Adapted from Spence et al., 2010; Whitmarsh & O'Neil, 2010.	3	B1.1 – B1.3 [c]	3 - 15	3 - 15	9.99	2.99	-6.45	.87
Connection to Nature	Based on Mayer & Frantz, 2004, as adapted by Gosling & Williams, 2010, and Reser et al., 2012a	6	B6.1 – B6.6	6 - 42	6 - 42	29.10	7.32	-5.57	.92
Policy Support	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	13	B3.1 – B3.13[c]	13 - 52	15 - 52	37.18	7.51	-6.43	.86
Conscientiousness	Gosling et al. , 2003	2	B8.1 & B8.5	2 - 14	2 - 14	11.67	2.09	-14.59	.63
Agreeableness	Gosling et al. , 2003	2	B8.2 & B8.8	2 - 14	2 - 14	10.35	2.30	-3.59	.46
Emotional Stability	Gosling et al. , 2003	2	B8.3 & B8.6	2 - 14	2 - 14	9.60	2.87	-4.41	.75
Openness to Experience	Gosling et al. , 2003	2	B8.4 & B8.7	2 - 14	2 - 14	9.18	2.33	-1.87	.49
Narcissism	Jonason & Webster, 2010	4	B8.9 – B8.12	4 - 28	4 - 28	10.46	4.97	6.52	.85
Natural Disaster and CC Experiences and Beliefs									
Number of ND Experiences	Similar to many others: e.g., Reser et al., 2012a	6	C5.1 – C5.6	0 - 12	0 - 10	2.11	2.13	18.45	--
Impacts of Flood Experiences	Adapted from Elal & Slade, 2005, and Reser et al., 20212b, plus original items	13	C9.1 – C9.13	0 - 13	0 - 10	3.69	2.39	2.29	-
Functional Impairment	Adapted mainly from Clayton & Karazsia, 2020, and Weiss, 2018	10	C12.1 – C12.10	10 - 50	10 - 42	17.79	8.58	6.30	.94
CC Belief/Acceptance	Reser et al., 2012a, 2012b; Spence et al., 2010	4	B7 [b], D2 [b], D3, D14	4 - 28	4 - 28	22.17	6.00	-22.28	.89
CC Risk Perception	Kellsted et al., 2008.	6	D4.1 – D4.6	6 - 36	6 - 36	22.79	7.71	-4.29	.94

Personal Responsibility for CC	Many sources, e.g., Steg et al, 2005	4	D13.1, D13.2, D13.4, D13.5	4 - 28	4 - 28	15.35	6.30	-4.35	.94
Spatial Distance of CC	Adapted from Reser et al., 2012a, 2012b.	2	D21.1 – D21.2	2 - 14	2 - 14	6.11	2.90	3.29	.82
Importance of the CC Issue	Original scale, based on Reser et al., 2012a, 2012b; Leviston et al, 2015	4	D5, D15, D16, D29	4 - 28	4 - 28	18.62	7.17	-7.57	.96
Psychological Reactance	Ma et al., 2019.	3	D23.1 – D23.3	3 - 21	3 – 21	10.60	5.06	3.22	.85
CC Self-efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D24.1 – D24.4	3 - 21	3 – 21	14.11	4.60	-12.01	.96
CC Response Efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D25.1 – D25.3	3 - 21	3 – 21	13.02	4.43	-8.09	.93
CC Collective Efficacy	Adapted from Leviston et al., 2015; Reser et al., 2012a, 2012b.	4	D27.1 – D27.4	4 - 28	4 – 28	20.22	5.55	-11.58	.88
Feelings about Climate Change									
CC Concern	Adapted from Reser et al., 2012a, 2012b; Spence et al., 2010	5	E1, E2, E3, E4, E5.15	5 - 35	5 – 35	22.40	7.94	-13.2	.93
CC Distress	Adapted from Reser et al., 2012a, 2012b.	6	E7.1 – E7.6	6 - 42	6 – 42	23.27	9.23	-3.88	.94
CC Hope	Geiger et al., 2021	4	E8.1, E8.3–E8.5	4 - 20	4 - 20	11.24	3.17	0.67	.73
Responses to Climate Change									
Behaviour Change due to CC	Adapted from Tranter, 2014.	14	F3.1 – F3.15	0 - 14	0 – 13	4.36	3.34	3.04	.81
Personal Norm	Adapted from Reser et al., 2012a, 2012b; Stern et al., 1999	4	F4.1 – F4.3, F4.5	4 - 28	4 – 28	17.28	5.92	-7.38	.90
Behavioural Willingness	Original scale, based on, e.g., Reser et al., 2012a, 2012b; Stern et al., 1999; Sustainability Victoria (2017); Xie et al. 2019	10	F6.1 – F6.10	10 - 70	10 - 70	37.22	14.08	-1.12	.94
Psychological Adaptation	Adapted from Reser et al., 2012a, 2012b.	10	F7.1 – F7.10	10 - 70	10 – 70	37.17	12.25	1.99	.91

Note 1. SD = standard deviation. Stdd = standardised. CC = climate change. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to the behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to the behaviours listed in item A6. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those there was an opportunity to perform. ND = natural disaster.

Note 2. The above represents the intended allocation of items to scales. Future psychometric analyses may lead to the above being varied in two main ways: (1) Responses to some items may not be highly correlated with the total score on the intended scale, and therefore may not be included in that scale. (2) Some scales may not demonstrate adequate validity or empirical distinctiveness, and therefore, in future academic work, may be combined with other scales or not used at all.

[a] The above questionnaire item numbers refer to the numbers assigned to the items in the dataset. These numbers did not appear on the e-questionnaire completed by respondents. For three of the scales (Self-Efficacy, Response Efficacy, and Behaviour Change due to Climate Change), there is an apparent inconsistency between the number of items comprising the scale and the range of questionnaire items listed. This is because the range of items listed for these scales includes items that were (a) in the version of the questionnaire that was ‘soft launched’ in 2021 (and thus these items were assigned a number) but (b) deleted prior to the main 2021 data collection phase.

[b] These four items were re-scaled to range from 1 to 7, so as to be weighted equally with all other items comprising the relevant scales.

[c] These items include response options of “Don’t Know”, “No Opinion”, “Not Applicable”, or similar. Few survey participants endorsed these options. So, to preserve the full sample size, when computing composite scale scores, these responses were recoded as the scale mid-point (e.g., “Neither Agree nor Disagree”). In computing the composite score for the Interest in Future PEBs scale, the “Already doing this” response was re-coded as “Very Interested”.

Appendix D.4:
Mean Scores for Repeat Respondent Demographic Sub-Groups

Climate Change Variables	Sex		Age (years)			Born in Australia?		English at Home?	
	M	F	≤35	36-54	≥55	Yes	No	Yes	No
N ≤	606	655	196	459	608	961	302	1202	61
Lifestyle & Social Milieu									
PEB34	5.05	5.45	5.97	5.49	4.86*[a]	5.23	5.36	5.26	5.30
PEB4	2.61	3.33*	3.50	3.17	2.69*[b]	2.92	3.20	3.00	2.75
Proportion_PEB4	0.28	0.36*	0.36	0.34	0.30[b]	0.32	0.34	0.32	0.28
Interest in Future PEBs	13.1	13.1	14.0	13.6	12.4*[a]	13.0	13.5	13.1	13.3
Perceived Residential Vulnerability	12.3	12.8	13.5	13.2	11.8*[a]	12.5	12.7	12.6	12.2
Normative Beliefs	16.2	16.6	17.0	16.7	16.0	16.2	17.2	16.3	17.7
Self and Worldviews									
Green Identity	9.62	10.3*	9.95	10.2	9.86	9.85	10.5	9.99	10.0
Connection to Nature	28.3	29.8*	27.5[b]	29.7	29.2	28.7	30.3*	29.0	30.9
Policy Support	36.6	37.7	38.5	37.8	36.3*[a]	36.9	38.0	37.2	37.2
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.00	2.22	2.11	2.24	2.00	2.04	2.31	2.10	2.11
Impacts of Flood Experiences	3.73	3.70	3.88	3.72	3.48	3.64	3.84	3.66	4.18
Functional Impairment	17.6	17.9	18.1	18.5	16.1	17.5	18.6	17.9	15.4
CC Belief/Acceptance	21.7	22.6	23.3	22.8	21.4*[a]	21.9	22.9	22.1	23.1
CC Risk Perception	22.1	23.4	24.8	24.1	21.2*[a]	22.5	23.8	22.8	23.6
Personal Responsibility for CC	14.8	15.8	17.0	16.1	14.2*[a]	15.2	16.0	15.3	17.0
Spatial Distance of CC	6.39	5.86	6.57	6.05	6.01	6.10	6.15	6.09	6.57
Importance of CC Issue	18.0	19.2	20.1	19.5	17.5*[a]	18.4	19.4	18.6	19.1
Psychological Reactance	11.2	10.0*	9.87[b]	10.2	11.1	10.7	10.4	10.6	10.6
CC Self-efficacy	13.5	14.6*	15.1	14.9	13.2*[a]	14.0	14.6	14.1	14.9
CC Response Efficacy	12.4	13.6*	13.7	13.7	12.3*[a]	12.8	13.7	13.0	14.3
CC Collective Efficacy	19.6	20.8*	21.0	21.0	19.4*[a]	20.0	20.8	20.2	21.3
Feelings about Climate Change									
CC Concern	21.4	23.3*	23.3	23.1	21.5[a]	22.0	23.6	22.4	23.0
CC Distress	21.8	24.6*	25.1	24.3	21.9*[a]	22.9	24.5	23.2	23.8
CC Hope	11.3	11.2	11.1	11.0	11.5	11.2	11.4	11.2	12.1
Responses to Climate Change									
Behaviour Change due to CC	3.84	4.83*	3.93	4.29	4.55	4.24	4.80	4.36	4.44
Personal Norm	16.4	18.0*	17.9	18.0	16.5*[a]	17.0	18.1	17.2	18.2
Behavioural Willingness	36.0	38.3	40.1	38.8	35.1*[a]	36.7	38.7	37.1	39.0
Psychological Adaptation	36.3	37.9	39.4	38.1	35.8*[a]	36.6	39.0	37.0	40.0
Understandings of Climate Change									
Self-rated CC Knowledge	3.63	3.41*	3.41	3.53	3.53	3.48	3.62	3.52	3.48

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform. CC = climate change. ND = natural disaster.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

Appendix D.4 (Continued)
Mean Scores for Repeat Respondent Demographic Sub-Groups

Climate Change Variables	Religious?		Highest Educational Attainment			Voting Intention		Parent?	
	Yes	No	Schl	Trade	Uni	Right	Left	Yes	No
$N \leq$	520	743	355	416	492	394	579	805	458
Lifestyle & Social Milieu									
PEB34	5.10	5.37	4.66[a]	5.23	5.72*	4.48	5.92*	5.14	5.47
PEB4	2.82	3.11	2.45[b]	2.95	3.41*	1.94	3.78*	2.93	3.09
Proportion_PEB4	0.31	0.33	0.27[b]	0.32	0.36*	0.23	0.39*	0.32	0.33
Interest in Future PEBs	12.8	13.3	12.4	12.9	13.7*[a]	11.8	14.0*	13.0	13.2
Perceived Residential Vulnerability	12.0	13.0*	12.2	12.7	12.8	10.7	13.8*	12.4	12.8
Normative Beliefs	16.0	16.7	15.5	16.1	17.3*[a]	14.5	17.9*	16.4	16.5
Self and Worldviews									
Green Identity	9.76	10.2	9.78	9.86	10.3	8.62	11.1*	9.94	10.1
Connection to Nature	29.3	28.9	28.7	29.4	29.2	28.0	30.2*	29.3	28.8
Policy Support	35.7	38.2*	36.5	36.4	38.3*[a]	31.9	40.8*	36.6	38.2*
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.18	2.05	2.12	2.24	1.98	1.91	2.21	2.16	2.02
Impacts of Flood Experiences	3.95	3.53	3.66	3.63	3.75	3.53	3.93	3.87	3.37
Functional Impairment	19.2	17.0	18.0	18.4	17.2	16.8	18.6	17.8	17.8
CC Belief/Acceptance	21.1	22.9*	21.2	21.9	23.2*[a]	18.8	24.4*	21.8	22.8
CC Risk Perception	21.5	23.7*	21.6	22.2	24.1*[a]	18.3	26.0*	22.2	23.9*
Personal Responsibility for CC	14.5	16.0*	14.7	14.7	16.4*[a]	12.0	17.9*	15.1	15.7
Spatial Distance of CC	6.32	5.97	6.20	5.89	6.24	6.89	5.68*	6.02	6.27
Importance of CC Issue	17.3	19.6*	17.8	18.1	19.7*[a]	14.0	21.8*	18.1	19.5*
Psychological Reactance	11.6	9.90*	10.8	10.7	10.4	13.1	9.00*	10.8	10.3
CC Self-efficacy	13.6	14.4	13.6[b]	13.9	14.6	12.1	15.6*	13.9	14.4
CC Response Efficacy	12.8	13.2	12.4	12.8	13.7*[a]	11.2	14.5*	13.0	13.1
CC Collective Efficacy	19.5	20.7*	19.5	19.9	21.0*[a]	17.3	22.3*	20.0	20.6
Feelings about Climate Change									
CC Concern	21.2	23.2*	21.6	21.8	23.5*[a]	17.7	25.7*	22.0	23.1
CC Distress	22.1	24.1*	22.5	22.7	24.3	18.5	26.8*	22.9	24.0
CC Hope	11.8	10.8*	11.3	11.3	11.2	11.8	11.0*	11.5	10.9*
Responses to Climate Change									
Behaviour Change due to CC	4.36	4.36	3.94	4.46	4.57	3.53	5.12*	4.57	4.00
Personal Norm	16.7	17.7	16.54	16.76	18.24*[a]	14.5	19.4*	17.2	17.5
Behavioural Willingness	35.5	38.4*	34.6	36.0	40.2*[a]	29.9	43.2*	36.5	38.5
Psychological Adaptation	36.2	37.8	35.3	36.6	39.1*[a]	32.0	41.6*	37.0	37.6
Understandings of Climate Change									
Self-rated CC Knowledge	3.53	3.50	3.36[b]	3.52	3.63*	3.42	3.63*	3.51	3.52

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform. CC = climate change. ND = natural disaster. Schl = school only. Uni = university. Right= right-leaning political party. Left = left-leaning political party.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

Appendix D.4 (Continued)
Mean Scores for Repeat Respondent Demographic Sub-Groups

Climate Change Variables	Full-time Employed?		Income (household $000)			Currently Studying?		Own Home? [c]	
	Yes	No	< 60	60-100	>100	Yes	No	Yes	No
N ≤	400	863	578	306	379	74	1189	808	454
Lifestyle & Social Milieu									
PEB34	5.67	5.07*	4.98[b]	5.36	5.60	6.15	5.20	5.18	5.40
PEB4	3.20	2.89	2.72[b]	3.13	3.28	3.81	2.94	2.92	3.11
Proportion_PEB4	0.33	0.32	0.30[b]	0.33	0.35	0.40	0.32	0.32	0.32
Interest in Future PEBs	13.8	12.8*	12.5[a]	13.3	13.8*	14.7	13.0*	13.2	12.9
Perceived Residential Vulnerability	12.9	12.4	12.4	12.3	13.0	13.7	12.5	12.2	13.2*
Normative Beliefs	17.3	16.0*	15.8	16.3	17.5*[a]	17.5	16.3	16.4	16.4
Self and Worldviews									
Green Identity	10.1	10.0	10.0	9.89	10.1	10.4	9.97	9.87	10.2
Connection to Nature	29.1	29.1	29.2	29.1	29.0	29.2	29.1	28.9	29.5
Policy Support	37.8	36.9	36.8	36.8	38.1	39.9	37.0*	36.7	38.1
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.15	2.09	2.11	2.14	2.07	2.18	2.10	2.01	2.28
Impacts of Flood Experiences	3.58	3.76	3.61	4.06	3.54	4.14	3.64	3.50	3.91
Functional Impairment	16.6	18.6	17.6	18.7	17.4	21.0	17.5	16.3	19.5
CC Belief/Acceptance	22.8	21.9	21.7	22.4	22.7	23.8	22.1	22.1	22.4
CC Risk Perception	23.7	22.4	22.1[b]	23.0	23.7	25.4	22.6*	22.2	23.8*
Personal Responsibility for CC	16.5	14.8*	14.6[b]	15.6	16.3*	17.2	15.2	15.3	15.5
Spatial Distance of CC	6.34	6.01	6.16	6.13	6.04	5.97	6.12	6.15	6.04
Importance of CC Issue	19.5	18.2	18.0[b]	18.7	19.5	20.8	18.5	18.3	19.3
Psychological Reactance	10.4	10.7	10.7	10.8	10.3	9.62	10.7	10.8	10.2
CC Self-efficacy	14.8	13.8*	13.6[b]	14.3	14.8*	15.6	14.0*	14.0	14.2
CC Response Efficacy	13.8	12.7*	12.4[b]	13.2	13.8*	13.8	13.0	13.0	13.1
CC Collective Efficacy	20.9	19.9	19.6[b]	20.3	21.1*	21.4	20.1	20.0	20.6
Feelings about Climate Change									
CC Concern	23.2	22.0	21.8	22.3	23.3	23.9	22.3	22.1	22.9
CC Distress	23.9	23.0	22.7	23.1	24.2	26.1	23.1	23.0	23.7
CC Hope	11.3	11.2	11.2	11.4	11.2	11.2	11.2	11.3	11.1
Responses to Climate Change									
Behaviour Change due to CC	4.37	4.36	4.26	4.50	4.40	4.42	4.36	4.48	4.14
Personal Norm	18.2	16.9*	16.6[b]	17.4	18.2*	18.7	17.2	17.2	17.4
Behavioural Willingness	39.5	36.2*	35.3[b]	37.7	39.8*	40.9	37.0	37.0	37.7
Psychological Adaptation	39.3	36.2*	35.8[b]	37.5	38.9*	38.7	37.1	37.1	37.3
Understandings of Climate Change									
Self-rated CC Knowledge	3.54	3.50	3.45[b]	3.50	3.63	3.43	3.52	3.53	3.50

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform. CC = climate change. ND = natural disaster.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

[c] own their home outright or paying a loan/mortgage on it.

Appendix D.4 (Continued)
Mean Scores for Repeat Respondent Demographic Sub-Groups

Climate Change Variables	Minor/Marg. Group? [d]		Residential Location [e]			Experienced ND past year [f]		Experienced CC past year [g]	
	Yes	No	Inner Urban	Suburb	Rural	Yes	No	Yes	No
N ≤	342	909	168	829	266	925	338	412	851
Lifestyle & Social Milieu									
PEB34	5.53	5.15	5.86	5.20	5.07[b]	5.48	4.66*	6.26	4.78*
PEB4	3.29	2.87	3.55	2.91	2.88	3.20	2.44*	4.09	2.46*
Proportion_PEB4	0.34	0.32	0.35	0.32	0.31	0.34	0.28	0.41	0.28*
Interest in Future PEBs	13.3	13.0	13.3	13.1	12.9	13.4	12.3*	14.4	12.5*
Perceived Residentl Vulnerability	13.1	12.4	12.5	12.2	13.8*[a]	13.3	10.6*	15.3	11.3*
Normative Beliefs	16.7	16.3	17.6[a]	16.3	15.9*	16.8	15.3*	18.1	15.6*
Self and Worldviews									
Green Identity	10.5	9.80*	10.5	9.92	9.89	10.2	9.45*	11.4	9.33*
Connection to Nature	30.2	28.7	29.8	28.7	29.9	29.7	27.5*	31.4	28.0*
Policy Support	38.5	36.6*	38.7	37.2	36.1[b]	37.8	35.4*	40.9	35.4*
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.19	2.07	2.13	2.02	2.36	2.87	0.00*	3.01	1.67*
Impacts of Flood Experiences	4.02	3.57	4.29	3.36	4.14	3.89	1.77*	4.09	3.18
Functional Impairment	18.0	17.7	20.0	17.4	17.2	18.1	14.7	19.1	16.1
CC Belief/Acceptance	22.7	21.9	23.7[a]	22.2	21.2*	22.8	20.6*	25.4	20.6*
CC Risk Perception	24.1	22.3*	24.4	22.6	22.3	23.8	20.0*	27.2	20.7*
Personal Responsibility for CC	16.2	15.0	16.7	15.4	14.3*[b]	15.9	13.8*	18.3	13.9*
Spatial Distance of CC	5.87	6.21	6.04	6.21	5.88	5.92	6.65*	5.08	6.61*
Importance of CC Issue	19.5	18.3	20.4[a]	18.5	17.8*	19.3	16.7*	23.0	16.5*
Psychological Reactance	10.3	10.7	9.80[b]	10.5	11.4	10.4	11.1	9.10	11.3*
CC Self-efficacy	14.6	13.9	14.8	14.1	13.7	14.5	13.0*	16.1	13.1*
CC Response Efficacy	13.3	12.9	13.9	13.0	12.6	13.3	12.2*	14.7	12.2*
CC Collective Efficacy	20.8	20.0	21.4[a]	20.2	19.5	20.6	19.2*	22.7	19.0*
Feelings about Climate Change									
CC Concern	23.5	22.0	24.1[a]	22.2	21.8	23.3	20.0*	27.3	20.0*
CC Distress	25.0	22.6*	25.7[a]	23.0	22.7*	24.3	20.4*	27.8	21.1*
CC Hope	10.7	11.5*	11.1	11.2	11.4	11.3	11.2	11.0	11.4
Responses to Climate Change									
Behaviour Change due to CC	4.88	4.15*	4.32	4.35	4.41	4.66	3.55*	5.74	3.69*
Personal Norm	17.9	17.0	18.5	17.2	16.7[b]	17.8	15.8*	20.1	15.9*
Behavioural Willingness	38.9	36.6	40.9[a]	37.1	35.3*	38.3	34.3*	43.9	34.0*
Psychological Adaptation	38.9	36.5	40.0[a]	36.9	36.4	38.4	33.7*	43.2	34.3*
Understandings of Climate Change									
Self-rated CC Knowledge	3.58	3.49	3.60	3.50	3.51	3.55	3.41	3.80	3.38*

Note. PEB = pro-environmental behaviour. EWE = extreme weather event. ND = natural disaster.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

[d] Minor/Marg. (Minority/Marginalised) Group: Yes = identifies as either CALD, ATSI, living with a disability, LGBTIQ, and/or homeless; No = does not identify as a member of any of these groups.

[e] Rural = rural, including country town, rural property, and remote locations.

[f] Has directly experienced, during the past year,, extreme weather event/s or natural disaster/s.

[g] Has directly experienced, during the past year, environmental or climatic change/s, circumstance/s, or event/s that is/are thought to be attributed to climate change.

Appendix D.4 (Continued)
Mean Scores for Repeat Respondent Demographic Sub-Groups

	Experienced 2022 Floods		Health Status [h]		Owns Vehicle? [i]	
	Yes	No	Low	High	Yes	No
$N \leq$	228	1035	608	655	1103	160
Lifestyle & Social Milieu						
PEB34	6.17	5.06*	5.07	5.43	5.20	5.66
PEB4	3.68	2.84*	2.74	3.22	2.94	3.36
Proportion_PEB4	0.38	0.31*	0.30	0.34	0.32	0.34
Interest in Future PEBs	13.8	12.9*	12.8	13.3	13.2	12.7
Perceived Residential Vulnerability	15.2	12.0*	12.8	12.4	12.5	13.0
Normative Beliefs	17.2	16.2	16.0	16.8	16.4	16.6
Self and Worldviews						
Green Identity	10.5	9.89	9.91	10.1	9.91	10.6
Connection to Nature	31.0	28.7*	28.6	29.6	29.0	29.9
Policy Support	37.9	37.0	37.0	37.3	36.9	39.4*
ND and CC Experiences and Beliefs						
Number of ND Experiences	3.29	1.84*	2.21	2.01	2.13	1.95
Impacts of Flood Experiences [j]	3.69	[j]	3.88	3.51	3.77	3.28
Functional Impairment [j]	17.8	[j]	20.1	15.7*	17.4	19.5
CC Belief/Acceptance	23.1	22.0	22.1	22.3	22.0	23.2
CC Risk Perception	24.7	22.4*	23.0	22.6	22.6	24.3
Personal Responsibility for CC	16.6	15.1*	15.2	15.5	15.3	15.8
Spatial Distance of CC	5.56	6.24*	6.13	6.10	6.08	6.33
Importance of CC Issue	19.7	18.4	18.5	18.7	18.4	20.5*
Psychological Reactance	10.9	10.5	10.8	10.4	10.8	9.57
CC Self-efficacy	15.3	13.9*	13.9	14.3	14.1	14.5
CC Response Efficacy	13.9	12.8*	12.7	13.3	13.0	13.3
CC Collective Efficacy	21.2	20.0*	20.1	20.3	20.1	21.0
Feelings about Climate Change						
CC Concern	23.9	22.1	22.4	22.4	22.2	24.2
CC Distress	25.2	22.8*	23.9	22.7	23.0	25.2
CC Hope	11.1	11.3	10.8	11.7*	11.3	10.6
Responses to Climate Change						
Behaviour Change due to CC	4.78	4.27	4.25	4.46	4.41	4.01
Personal Norm	18.4	17.0*	17.0	17.6	17.2	17.7
Behavioural Willingness	39.5	36.7	36.2	38.2	36.9	39.6
Psychological Adaptation	40.4	36.5*	36.8	37.5	37.0	38.2
Understandings of Climate Change						
Self-rated CC Knowledge	3.57	3.50	3.44	3.59	3.52	3.51

* the effect of group is significant at the $p < .001$ level.

[h] Health Status: Low = Extremely poor, Poor, or Okay; High = Good or Very good.

[i] Solely or jointly owns one or more petrol or diesel motor vehicles.

[j] These scales were completed only by respondents who indicated that they had experienced the floods.

APPENDIX D.5: Correlations Between Repeat Respondent Climate Change Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. PEB34														
2. PEB4	.79													
3. Proportion_PEB4	.54	.82												
4. Interest in Future PEBs	.49	.51	.40											
5. Perceived Residential Vulnerability	.31	.34	.31	.34										
6. Normative Beliefs	.44	.51	.39	.49	.39									
7. Green Identity	.54	.61	.48	.55	.39	.62								
8. Connection to Nature	.44	.44	.35	.33	.28	.37	.54							
9. Policy Support	.40	.49	.40	.53	.42	.58	.63	.29						
10. Number of ND Experiences	.19	.13	.07	.14	.33	.12	.16	.16	.10					
11. Impacts of Flood Experiences	.25	.17	.14	.25	.20	.09	.12	.19	.09	.36				
12. Functional Impairment	.20	.14	.13	.18	.14	.06	.11	.01	.10	.27	.46			
13. CC Belief/Acceptance	.28	.38	.35	.39	.47	.51	.51	.22	.68	.12	.07	.09		
14. CC Risk Perception	.39	.47	.39	.46	.57	.58	.56	.31	.69	.22	.19	.25	.72	
15. Personal Responsibility for CC	.38	.47	.42	.49	.45	.62	.58	.33	.66	.12	.14	.14	.65	.70
16. Spatial Distance of CC	-.15	-.17	-.17	-.11	-.34	-.18	-.19	-.13	-.21	-.17	-.12	.02	-.16	-.25
17. Importance of CC Issue	.41	.51	.43	.49	.55	.62	.67	.33	.80	.15	.08	.08	.83	.83
18. Psychological Reactance	-.17	-.27	-.22	-.23	-.22	-.40	-.36	-.08	-.54	.01	.12	.10	-.49	-.43
19. CC Self-efficacy	.41	.49	.42	.50	.43	.61	.59	.35	.64	.13	.12	.15	.64	.65
20. CC Response Efficacy	.41	.48	.40	.49	.40	.63	.62	.40	.60	.12	.12	.20	.60	.62
21. Collective Efficacy	.36	.47	.42	.47	.42	.62	.59	.33	.72	.08	.09	.10	.72	.66
22. CC Concern	.42	.52	.42	.50	.56	.63	.68	.37	.77	.19	.12	.12	.77	.80
23. CC Distress	.41	.48	.39	.48	.49	.59	.62	.35	.65	.18	.19	.23	.64	.73
24. CC Hope	.09	.04	-.01	.05	-.11	.07	.09	.17	-.06	.04	.13	.08	-.10	-.10
25. Behaviour Change due to CC	.44	.50	.39	.45	.32	.48	.54	.39	.43	.20	.26	.18	.41	.46
26. Personal Norm	.48	.57	.46	.57	.45	.69	.75	.47	.70	.15	.25	.19	.64	.70
27. Behavioural Willingness	.53	.60	.46	.58	.45	.69	.69	.40	.73	.12	.16	.19	.63	.68
28. Psychological Adaptation	.53	.58	.44	.54	.44	.69	.69	.46	.60	.19	.23	.23	.57	.63
29. Self-rated CC Knowledge	.27	.28	.19	.20	.20	.23	.35	.28	.20	.11	.16	.03	.20	.23

Note. Approximate critical values for Pearson's r : $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$ (two-tailed).
CC = climate change. ND = natural disaster.

Appendix D.5 (Cont.): Correlations Between Repeat Respondent Climate Change Variables

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. PEB34														
2. PEB4														
3. Proportion_PEB4														
4. Interest in Future PEBs														
5. Perceived Residentl Vulnerability														
6. Normative Beliefs														
7. Green Identity														
8. Connection to Nature														
9. Policy Support														
10. Number of ND Experiences														
11. Impacts of Flood Experiences														
12. Functional Impairment														
13. CC Belief/Acceptance														
14. CC Risk Perception														
15. Personal Responsibility for CC														
16. Spatial Distance of CC	-.18													
17. Importance of CC Issue	.75	-.26												
18. Psychological Reactance	-.41	.23	-.55											
19. CC Self-efficacy	.73	-.15	.72	-.42										
20. CC Response Efficacy	.73	-.15	.69	-.40	.85									
21. CC Collective Efficacy	.71	-.18	.80	-.51	.79	.78								
22. CC Concern	.75	-.27	.93	-.50	.72	.70	.77							
23. CC Distress	.74	-.17	.77	-.34	.63	.63	.63	.80						
24. CC Hope	-.01	.08	-.09	.05	.12	.22	.06	-.06	-.15					
25. Behaviour Change due to CC	.46	-.18	.49	-.27	.54	.53	.51	.54	.47	.10				
26. Personal Norm	.74	-.16	.77	-.40	.74	.77	.73	.79	.76	.06	.61			
27. Behavioural Willingness	.75	-.17	.76	-.44	.71	.72	.70	.77	.74	.05	.56	.83		
28. Psychological Adaptation	.70	-.15	.69	-.32	.68	.73	.63	.73	.73	.10	.58	.80	.79	
29. Self-rated CC Knowledge	.18	-.17	.28	-.08	.15	.18	.17	.29	.18	.04	.23	.23	.25	.31

Note. Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (two-tailed).
CC = climate change. ND = natural disaster.

APPENDIX D.6: Correlations between Repeat Respondent Climate Change and Personality Variables

Climate Change Variables	Personality Variables				
	Conscient-iousness	Agreeable-ness	Emotional Stability	Openness	Narcissism
PEB34	.06	.05	-.00	.29	.14
PEB4	.08	.09	-.01	.26	.08
Proportion_PEB4	.07	.06	-.03	.20	.04
Interest in Future PEBs	.02	.05	-.00	.24	.16
Percvd Residentl Vulnerability	-.06	-.01	-.13	.16	.04
Normative Beliefs	.02	.11	.00	.21	.14
Green Identity	.03	.14	.00	.25	.08
Connection to Nature	.15	.21	.10	.33	.06
Policy Support	.01	.05	-.05	.16	.05
Number of ND Experiences	.01	.02	-.02	.09	-.00
Impacts of Flood Experiences	.07	.11	.07	.22	.10
Functional Impairment	-.16	.05	-.17	.11	.08
CC Belief/Acceptance	-.01	.02	-.07	.14	-.01
CC Risk Perception	-.05	.01	-.13	.20	.07
Personal Responsibility for CC	-.08	.01	-.10	.14	.13
Spatial Distance of CC	-.07	-.08	.02	-.09	.13
Importance of CC Issue	.01	.05	-.08	.19	.03
Psychological Reactance	-.07	-.07	.02	-.09	.08
CC Self-efficacy	.02	.07	-.06	.20	.09
CC Response Efficacy	.06	.10	-.03	.21	.12
CC Collective Efficacy	.05	.07	-.05	.17	.02
CC Concern	.01	.07	-.09	.20	.03
CC Distress	-.11	.01	-.22	.15	.15
CC Hope	.12	.18	.26	.10	.04
Behaviour Change due to CC	.12	.18	.03	.20	-.04
Personal Norm	.02	.10	-.05	.24	.13
Behavioural Willingness	-.01	.10	-.03	.21	.13
Psychological Adaptation	.04	.09	-.02	.24	.16
Self-rated CC Knowledge	.15	.07	.16	.22	.00

Note. Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (2-tailed)

APPENDIX D.7
Illustrative Repeat Respondent Responses to the Open-Ended Questions

B9a. In August 2022, the Australian federal parliament passed legislation to reduce Australia's greenhouse gas emissions by 43% by 2030, as compared to 2005 emission levels. Which one of the following statements best reflects your view of this target of 43% emissions reduction?
B9b. Would you like to comment further on the emissions target mentioned in the previous question?

"It is totally unrealistic for Australia to commit to such a target as we have not got any reliable alternative for coal or gas."

"do not have enough knowledge on this to make any comment"

"It wouldn't be possible to do it"

"Still heavily reliant on coal, should be much more gradual process of change with subsidies on coal industry to keep consumer costs down"

"We have to do more faster than we currently are"

"the reduction would increase cost of living"

"need to ensure that we still have stable gas and electricity or energy supplies, that any reduction in targets is not to the detriment of households business and the economy"

"I think the target is reasonable and obtainable"

"I can't see it ever working, we will continue to run out of power, jobs lost, gov should see what has happened to other countries which have cancelled coal, cost of power bill there have skyrocketed."

"It is not even the bare minimum required"

"no, i think the government has at least locked in a target and it is not unreasonable"

"i think it should go at a rate that does not need to send a lot of peop[e into finanacle stress in to much of a rush"

"It will destroy our us, Australia only emits 1.7% of global emissions. This target will destroy our economy and our life style."

"I think that this target is achievable but maybe only jut that's why I wouldn't like to see it any higher"

"I do not believe that we need to reduce emissions at all."

"I believe that we will exceed the target, so a higher one should have been set at 50% by 2030."

“It is all rather useless unless big emitters like China are similarly committed to a major reduction in their carbon emissions”

“we should aim for a somewhat higher target”

“No good our reducing emissions drastically when other countries are making no or very little effort”

“I believe in reducing emissions but I also think that it is going to be a slow and very expensive exercise and will take a lot of time and money”

“if it is possible, we should aim higher, provided we can adjust for the economic and other impacts.”

“The current indicators of changes in weather patterns due to climate change are much worse than initially forecasted at the time most of these targets were suggested, we need stronger and bolder commitments to avoid catastrophic climate change effects”

“The world has been going for thousands of years & will keep going for thousands more so just be as it is”

“No as it is confusing to a lay person”

“World situation is constantly changing and from my point of view no reason at all to have any target. For example now we have other situation with gas and oil in the world and have to forget any target on clean energy”

“I would love it to be higher but I think this is a realistic target”

“I think we are aiming MUCH TOO HIGH. We are a very small country on the big stage and trying to appear big. We can't as a country afford the targets the Government is aiming for.”

“Climate Change is just BS as is Religion - Day time temperatures are higher than night time, summer is hotter than winter, etc. The planet started as a molten mass, then came the Ice Age, and now it is warming up again and will eventually blow up which will create another asteroid between Venus and Mars.”

“It's better than nothing, but that target doesn't seem to take into account population growth (therefore even further emissions) and how quickly we're heading down a dangerous path”

“There should be no target and Australia should stop trying to do things like this because, compared to the rest of the world and compared to what emissions we put out compared to countries like China, America etc, what we do will do nothing to help the supposed climate change problem because we don't put out enough to make a difference. So everything the government want to do will do nothing but hurt our country and put us in more stupid amounts of debt.”

“I don't think anything we do will make any difference”

“no, I just don't care”

“THOSE TARGETS ARE UNREALISTIC AND UNACHIEVABLE IN TODAYS WORLD. tHE ONLY WAY EMISSIONS WILL EFFECTIVELY REDUCE IS BY REDUCING THE HUMAN POPULATION OF THE PLANET. gRANTS SHOULD BE GIVEN TO COUPLES WHO DON'T HAVE KIDS OR JUST ONE AND COUPLES WITH 2 OR MORE KIDS SHOULD BE TAXED MORE.”

D6. Has any particular event/s or experience/s within the past year altered your views about the seriousness of climate change?
D6a. Please briefly state what that event/s or experience/s was/were.

"Australia having more extreme weather events, such as more floods and more droughts. Also, around the world, such as drought in the USA and bushfires in California, USA."

"Plenty of articles to read confirming that scientists are very concerned as we continue towards a tipping point for our planet"

"News reports on the state of the Barrier reef is actually in good health, Some activists publicly admitting they have over exaggerated the situation."

"The melting of the icecaps in Greenland."

"Obvious changes in climate in recent years - hotter summers and colder, wetter winters."

"The increasing out of season flooding in a number of countries, including Australia, and the extreme heatwaves and drought in Europe and North America"

"The floods and fires in Europe, Australia, Pakistan, and other parts of the world."

"the flooding in queensland and NSW"

"I come from Philippines and they always get typhoons. Some mild and others severe"

"Lots of rain and storms caused flooding, keep on occurring, heat wave in summer, sea level is rising, Great barrier leaf is shrinking…."

"World wide floods, high temperatures, bushfires, famine, melting of icebergs"

"the way some people become unhinged and totally unable to think straight - bodes ill for the world"

"New reports and photos of drought, floods, fires and storms, Including news interviews with people affected (through loss and damage) by these events. Also being shown the impact these events had on the environment, including private property, crops and livestock"

"Increased prices for vegies and fruits due to flood , Tired from constant rains"

"The temperatures in the UK exceeding 40 degrees"

"Extreme tempratures in Europe; melting of the Thwaites glacier/ice shelf; reduced water flows in major rivers in Europe and Asia"

"basically weather patterns changing, such as el nino & la nina & the frequencies"

"Seeing the beach erosion at Byron bay when I returned after the pandemic in 2022"

"Just watching on the news all those people affected by severe weather has broken my heart. People's properties and personal affects have been ruined in floods/bushfires, people have become homeless due to floods/bushfires."

"the continual floods and typhoons and hurricanes and bushfires around the world. And earthquakes"

“I am reviewing data I have received recently. My opinion is slightly shifting from man made climate change to cyclic change. I really dont know who to believe as both sides of the issue have vested interests”

“The floods of 2022 in Australia and Pakistan”

“Torrential rain in the eastern states”

“Reading IPCC reports, ongoing coverage of waves of bushfires and flooding around the world. Increasing intensity of storms, cyclones, and other extreme weather events. Ongoing rearguard action by arseholes in the fossil fuel industries. Failures by individuals to curtail their personal emissions. There is very little good news in the space of stuff I pay attention to wrt to climate change. And unfortunately, my scientific background is deep enough for me to have read up on the fundamentals, which has left me extremely scared and depressed (still acting, but not happy about where the world is and where it is trending to).”

“ISLAND NATIONS GOING UNDER THE OCEAN. LAND SLIDES DEMOLISHING HOMES. GLASSIERS MELTING.”

“I am concern about the increase of electric powered vehicles we need to use more power to run them than petrol cars ,the cost is higher to produce electricity than petrol”

“I don't have a washing machine or clothes dryer. I hand wash all clothing in cold water. But there were not enough hot days in my city last summer for me to dry my clothing outside. My main concern about the constant rain is that it is damaging the roof and gutters of my house and causing damage to internal ceilings and walls. Recent hail smashed some external doors and broke part of a window frame. I don't have a job or regular income and therefore don't have money to fix the roof.”

“Big business knew about climate change and choose profit over the welfare of the planet and now we are paying for it”

“Birds and other wildlife are changing their habits in nesting migration patterns. Plants and trees arre fliwering6early or later”

“The coldest winter this year experienced personally in all the years i have lived in Queensland, and the constant rain weeks after weeks.”

“reading how this has all happened many times before,just happening faster because of us”

“I watched the latest documentary from David Attenborough- A life on our planet The numerous floods and fires happening snow where theres not meant to be snow all the ice melting”

“While I have not been directly impacted by bushfire or flood, I have certainly been impacted by bushfire SMOKE and also the constant rain has impacted my garden & local parklands (constantly sodden ground, treasured plants dying, proliferation of weeds, particularly noxious and/or invasive species).”

“Seeing more and more sinkholes”

“Extreme weather I saw on the news, increase in grocery and utility costs”

“experiencing the same temperature reading as being hotter than the same reading 3 to 5 years ago”

“I have read reports by a lot of scientists and there seems to be a big difference in opinion and science-based facts between them. It depends on what evidence you believe is more compelling”

D7. In the past twelve months, have you directly experienced any environmental or climatic changes, circumstances, or events which you think might be due to climate change?
D9. Please give brief details of these events or circumstances. (What happened? When? With what consequences?)

"hotter than usual and a lot more rain"

"Weather continues to be unpredictable and as a result prices of food also are affected"

"heavier rainfall & more wind"

"Periods of extreme head, strong winds and very heavy rain"

"Living in a regional, rural, remote area of Australia you experience the effects of climate change and what it does to the land. We are getting longer periods of hotter and dryer weather over summer and than major erosion causing flood events."

"Erratic weather patterns, heat waves, unseasonal rainfall"

"Bushfires during summer months"

"the Brisbane floods - they were really bad and I think due to climate change"

"Our seasonal weather patterns are changing over the years"

"the floods over nsw & the damage to peoples homes"

"Extremely high temperatures"

"BUSHFIRES LOSS OF HOUSES EXTREME HEAT"

"bushfires around here, as well as near-flooding and a lot more rain than usualy. Seems to me to by atypical enough that it can be attributed to climate change."

"Ongoing very bad weather , extreme cold , severe storms and flooding"

"the bushfires and floods"

"england heatwave"

"Extreme heat for many days in a row across the country, excessive flooding on East side of Australia"

"the rain we have had over the past 12 months is the most intense I have ever seen it. we werent directly impacted by flooding ourselves, but ive never seen such intense rain"

"We have lived in the same street for 12 years and this is the first time we have had flooding"

"Not as cold and stormy in winter anymore and summer definitely at least 12° hotter summers than 25 years ago"

"Last Summer the ocean temperature was consistently around 25 degrees at my local beach for about 6 weeks, which is unheard of and most certainly as a result of climate change"

"first ever recorded tornado in my area"

“Increasing rainfall affecting things like food availability, transport and cost. Temperature variations has affected sleep and efforts to plan activities.”

“severe thunder storms hail and flooding”

“Extreme weather events are becoming more frequent and more powerful.”

“It all changes over time. There are plenty of examples of whole civilization collapsing to to climate change over the last 5000 years. eg the Mayans, the Romans, the Old Egyptian kingdom. It is called nature”

“Hotter summer, much colder, wetter and longer winter”

“The Australia wide bushfires were catastrophic. So much wildlife killed. It's unforgivable. Then the floods, not once, but twice.”

“The wind storms have gotten much worse and are causing more damage to trees etc”

“More La Nina, much colder weather”

“The floods in the eastern states. Nsw and qld”

“heat waves and excessively humid weather which is not charactistic of where I live”

“Went to a flood affected area in South Africa. Had movements in certain areas restricted. assume these events will increase over time.”

“Just the excessive rain and snap temperature drops. No real summer and autumn. Food in supermarkets being affected by flood and weather so prices going up or sometimes no stock, eg lettuce”

“the amount of rain in areas that usually dont get alot of rain”

“increased frequency and severity of damaging storms”

“The storms in the Dandenongs over the past year have been particularly fierce with unprecedented strong winds After the terrible bushfires of early 2020, the past 2 years have been incredibly wet, with more rain, flooding and cold weather than usual”

“A lot more rain lasting for an extended period of time over the last 6 months.”

“the 43 degree C heat wave in december 2021”

“Our area was significantly flooded, main highways were cut off and we were isolated for a week”

“For the past 2 summers we have had very wet summers rather than dry hot summer.”

“Period of long drought replaced by significant and high rainfalls. Both the weather and climate are changing.”

“With the shortage of fresh farm food, the cost at the shops has been passed onto the customer.”

“To me it seems like that the seasons are changing spring still feels like it is autum etc”

“The rain just would not stop. We had bushfires and flooding in the same year”

H39. What aspects of your rural/remote location help or hinder you from engaging in pro-environmental behaviours? (These behaviours might be private activities (e.g., recycling, using public transport), collective activities (e.g., petitions, protests), and/or other environmental/climate change actions).
(This question was asked only if the answer to H27 was "Rural property" or "Remote")

"Doesn't help or hinder. They have a great environmental project in town here for teaching youth to recycle and gardening"

"None"

"A good recycling organisation"

"We live a very happy simple life on the land, we do not use a clothes dryer, air conditiong etc. We drive petrol cars but not in an unnecessary fashion. We care for struggling wildlife during major events. But do get frustrated by the out of touch city dwellers and there sometimes woke attitude to climate change while continuing to enjoy a life of luxury."

"There is nothing that helps or hinders. I do what I can. I only wish some of my neighbours did the same!"

"I can have a garden to grow food and large rainwater tanks as there is no town water here. I have to have a car as there is no public transport and the nearest major town and shopping centre is 30 km away."

"The distance to any kind of protest or rally is too far"

"none"

"No public transport, no recycling bins. Home is elevated already, ground is cleared"

"No money"

"nothing really"

"Too far away from major towns"

"In a shared property, it's not possible to control every aspect."

"I have no roadside rubbish collection"

"Only remoteness from any organisation that promotes same - in reality, I have all services and utilities to my house except that I an not allowed to export excess solar generated power to the grid. Limited public transport - regional train service only. Recycling is limited: some materials are not collected by my LGA."

"no public transport"

"money and distance"

"small rural community"

"public transport / collective activities"

“Not sure”

“no public transport or access to petitions or protests”

“we keep to ourselves, no protests ,no public transport, no petitions, no collectives actiities, we just get on with living the best ay we can!!!!!!!!!!!!!”

“No public transport am a community service worker and have multiple worksites in one day”

“Public transport is very intermittent”

“Norhing, I do everything which is available here in regards to saving energy”

“does not hinder we recycle everything”

“Nothing, our behaviours are already quite pro-environmental: we compost food, grow our own, look after nature, don't use gas, we only buy what we need, we buy secondhand, barter, swap. The only thing is that being a bit out of hand we are reliant on our own car to get to places as there is limited public transport.”

“Distance”

“Nothing stops me doing anything regarding the environment, I recycle everything I can, we have lots of water tanks to store water to help but this doesn't matter because climate change has nothing to do with human issues, it is actually going back to what it used to be back in time, like 50-100 years ago. People need to do research and compare what is happening now to then.”

“There is no public transport nearby, so we have to use the car. We are expert recyclers and have very little rubbish. We have planted hundreds of trees over time. Every leaf and every drop of water that falls on the property stays on the property. We compost, grow vegetables and do not waste any food. We are too busy to attend protests or rallies. We cannot afford solar power at the moment.”

“nothing prevents me, it is not a prioity at the moment with other factors way more important.”

“small community share table excess fruit & veg”

H32. Is there anything else you would like to say about your views on climate change or natural disasters?

"This whole survey is based on the premise that climate change exists China and India are taking no action to reduce emissions all the European countries aka Germany are now stuffed because of stupid green policies"

"Climate change is happening now and the world should unite together to help reduce or stop climate change impacts."

"It is only nature at work"

"No other than that corporations are too greedy to make any real changes unless forced"

"Veganism is the way for sure, and second hand purchases. We need DEGROWTH in this country."

"it takes every one to make a difference"

"There is not climate change"

"I mainly think its part of the earths natural system. which has changed dramatically over the centuries, humans need to go with the flow, prior to civilisation people and animals migrated and evolved in line with the earths changes, not tried to control it."

"It's happening but there are still too many people in denial as the truth is too inconvenient for them."

"good survey on climate"

"All have been covered - in some cases numerous times in an unnecessary long and repititious survey. Wasn't able to answer questions on one page though due to the website malfunctioning."

"natural changes have been occurring since the ice age and before that"

"it is important for us all to do something however big or small"

"People have been manipulated into the widespread belief that responsibility largely rests on the individual, when in fact the biggest polluters by far are large corporations. We need to aggressively turn the tables because it is way past time that corporations shoulder their fair share of responsibility for tackling climate change."

"I'm worried about climate change but I'm not sure what else I can do …."

"No, everything has been more than covered in this survey"

"God is going to set the world on fire if people don't change their evil behaviour"

"Of course the climate is changing, it always has. And as such we need to change and adapt with it. But (1) human contribution is insignificant, and (2) the sky is not falling. Thus spending huge sums of money to achieve nothing is just plain stupid."

"WE NEED TO ACT NOW BEFORE IT IS TOO LATE FOR FUTURE GENERATIONS"

"There is climate change. Some effects will be advantageous: plants growing in some areas, growth rates etc. (Also a theory that as ice poles melt, this will decrease sea levels as ice below the surface is

more dense than water itself). (another theory is that water coming of the land has been greater than rainfall for many, many years)"

"With 8 billion people in the world it is ridiculous to talk about if we all do this or that to help the climate. It is wealthy countries that make all of the fuss but never think of what they would be imposing on poor nations. There is no better example than fossil fuels. It would be catastrophic for many countries if fossil fuels were banned. Change can only be made gradually and the more activists push for greater action the more they endanger those in poor nations."

"I try to be climate friendly because we are leaving a mess for our children and grandchildren to deal with."

"I am a conservationist but do not believe in man made climate charge, there is cyclic natural climate change"

"We and the government both state and federal need to act now and not just talk about it"

"I think we need to wholistic approach that everyone participates in without it being a punishment,"

"Nothing."

"I believe masks have been the single biggest cause of environmental pollution over the past two years. Money wasted on masks and testing should have gone towards environmental upgrades."

"Thank you for this survey. It challenged me to think more about what else I can do."

"I did not like your definition of climate change . The climate is always changing, it is the frequesncy that is increasing"

"Climate change policy with affect Australia extremely badly NOT because of any change in climate but because our socialist government are so stupid and unintelligent they will institute so many policies that will cripple our nation economically that we will become vulnerable to others such as China. Maybe thats what they want but for me they can all go to socialist hell in Beijing and leave ordinary people alone!"

"You're asking questions based on climate change being fact . Maybe you should be asking the government about WHY they seed clouds or shoot lasers across the sky in order to make it flood or why they drop firebombs from the sky to start bushfires; why they're so hell-bent on destroying towns in order to create smart cities . Maybe you should be questioning who is at the top of the food chain with regard to your funding and what their personal/political agenda is."

"Considering that one volcanic eruption can undo 10 years of mans efforts to reduce climate change I wonder if it is worth the effort. We all know that climate change is a natural cycle due to variation in the inclination of Earth on its axis, can our efforts make enough difference ?"

"I will never be a big polluter like the 1% that fly around in private jets or like the mining companies that pillage the earth yet I'm supposed to feel bad and change my behaviour to satisfy the supposed climate change agenda. I engage in green behaviours because I want to and actually like too. To be clean and minimalist."

"WHY WAS NUCLEAR POWER NOT DISCUSSED IN THIS SURVEY? IT IS RELIABLE AND HAS NIL CARBON EMISSIONS"

"Honestly it's to late what's done is done very hard to come back from this the world is way over populated way to many people that's the real problem to much going on"

“I think we have much to learn from the way in which the Aboriginal cultures cared for the natural environment in terms of preventing widespread bushfires and not building in known flood prone areas. I think some of the recent natural disasters in our country were preventable, certainly at least in part.”

“ONCE AGAIN, THE ONLY SOLUTION IS REDUCING HUMAN POPULATION AND STOP OVERCROWDING THE PLANET AND AFFECTING ALL OTHER SPECIES.”

“I'm heartened by the fact that Australia as a whole voted for government representatives with a strong Climate Change ethos.”

“I still think it is a beat up topic based on too few facts over too short a period”

“We should all work to reduce climate or natural disaters in this world we live in”

APPENDIX E: New Respondent Sample Questionnaire and Findings

Appendix E.1:
New Respondent Participant Information Page

Climate Change, the Environment, and Quality of Life Survey

GU ref no: 2020/806

Research Team

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Purpose of the research

This survey is part of a longitudinal study being conducted by researchers from Griffith University into Australians' understanding of and responses to climate change, and related environmental and lifestyle issues. Findings from the study will inform discussion and policy decisions regarding environmental issues.

What you will be asked to do

We invite you to complete this anonymous online questionnaire pertaining to your knowledge and beliefs about climate change; your past exposure/experience of extreme weather events, natural disasters and other possible signals of climate change; your feelings and responses to climate change; your lifestyle/residential circumstances/social group membership and influences; and your demographic characteristics. Completion of the questionnaire is likely to take 30 minutes.

The basis by which participants are selected

Anyone 18 years and older is eligible to participate in this study. You are invited to participate having been randomly selected from Dynata's online survey panel.

The expected benefits of the research
This project seeks to discover what Australians think and do about climate change, and why they think and do these things. This enables governments and other interested bodies to understand residents' thinking and actions, and formulate policies on the basis of this information. By participating, you will be compensated with rewards as per Dynata policy.

Risks to you
The foreseeable risks to most participants from completing this questionnaire are negligible. However, answering questions about past experiences of extreme weather and/or natural disasters may raise anxieties in some participants. If you experience any distress due to participation in the study, you should consider contacting a counselling service such as Lifeline: 131114, or Beyond Blue ph. 1300 224636.

Your confidentiality
The conduct of this research involves the collection, access, storage and/or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes, including publishing openly (e.g., in an open access repository). However, your anonymity will at all times be safeguarded. For further information consult the University's Privacy Plan at http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan.

Your participation is voluntary and you are free to withdraw from this study, without penalty and without giving an explanation, at any time prior to submitting your questionnaire online.

Questions / further information
For additional information about the project, please contact A/Professor Graham Bradley using the email address provided above.

The ethical conduct of this research
Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research* (2007). Should you have any concerns or complaints about the ethical conduct of the research project, please contact the Manager, Research Ethics on 3735 4375 or research-ethics@griffith.edu.au. This research has received ethics approval from Griffith University's Human research Ethics Committee (GU ref: 220/806)

Feedback to you
No individual feedback will be provided to participants because we will not be able to identify individual answers. However, if you would like a summary of the findings from this research once it has been completed, please contact Graham Bradley using the email address above.

Expressing consent
You are welcome to print this page and retain it for your later reference.

COMPLETION AND SUBMISSION OF THE QUESTIONNAIRE WILL BE TAKEN AS YOUR INFORMED CONSENT TO PARTICIPATE IN THIS STUDY.

Appendix E.2:
New Respondent Questionnaire (and Responses) [a]

Climate Change, the Environment, and Quality of Life Survey

GENERAL INSTRUCTIONS

Please click this link to read detailed information about this survey – its aims, scope, risks and benefits.

Please click Yes below to indicate that you have received sufficient information about this survey and agree to participate.

Yes, I agree to participate
No, I do not agree to participate

To ensure that you are eligible to participate in this survey, please answer these first two questions:

3. **What is your age (in years)?** **Mean = 47.26 years (SD = 19.33)**
4. **What is your current home postcode?** **[Hundreds cited]**

Please answer all questions with complete honesty. We are interested in your true opinions and experiences, rather than ones that are 'made up' in an effort to look good.

Please read all questions carefully because no two questions are identical. Sometimes two questions may seem similar, but this is essential for reliability purposes.

We encourage all participants to complete the survey in one sitting as we believe this better reflects your core thoughts and opinions. We appreciate your cooperation.

[a] Responses to some questions do not sum to 100% due to rounding errors.

SECTION A: How You Live Your Life

This first main section asks about your lifestyle, life situation, and everyday behaviours – especially those that might have an impact on the environment.

A1. To what extent, if at all, are you currently engaged in community groups or clubs of each of the following kinds?

	I am not involved at all	I am an occasional or 'fringe' participant	I am an active/frequent participant	I play a leadership role (e.g., as an office-bearer)
Sporting group/club	**68.7%**	**14.5%**	**15.0%**	**1.9%**
Hobby/Interest group/club	**64.7%**	**18.2%**	**14.6%**	**2.5%**
Religious group/organisation	**77.5%**	**11.5%**	**9.4%**	**1.6%**
Charity group/organisation	**73.0%**	**17.6%**	**8.0%**	**1.4%**
Ethnic or cultural group	**87.1%**	**8.0%**	**4.2%**	**0.7%**
Neighbourhood group	**73.7%**	**17.4%**	**7.8%**	**1.1%**
Environmental group	**83.5%**	**11.2%**	**4.4%**	**0.9%**
Service club (e.g., Rotary)	**88.0%**	**7.3%**	**4.1%**	**0.7%**
Other volunteer group/club	**79.5%**	**11.5%**	**7.4%**	**1.7%**

A6. Below are listed a number of actions that people might take. You may, or may not, engage in these actions. Please indicate whether you are taking each action by responding in one of the following four ways:

- **Select 1 if you do <u>not</u>, or did <u>not</u>, engage in this action because you have had no opportunity to do so.**
- **Select 2 if you could possibly engage in this behaviour, but do <u>not</u> or did <u>not</u> do so, for some other reason (e.g., lack of time, too expensive, too much effort, do not know how to)**
- **Select 3 if you engage or have engaged in this behaviour, but your reasons for doing so have nothing to do with concerns about the environment**
- **Select 4 if you engage or have engaged in this behaviour at least partly because of concerns about the environment.**

Please select one response for each type of behaviour.

Behaviour	**No,** I do not engage/have not engaged in this behaviour		**Yes**, I engage/have engaged in this behaviour	
	1. No, because no opportunity to do so	2. No, for some other reason	3. Yes, but not because of environmental concerns	4. Yes, partly because of environmental concerns
Do you <u>always</u> or nearly always:				
wash your clothes in cold (rather than hot) water?	**2.9%**	**17.6%**	**43.0%**	**36.5%**
turn off 'at the wall' appliances like TVs and computers when not in use?	**7.2%**	**28.9%**	**30.6%**	**33.3%**
carry your own re-usable drink container?	**7.1%**	**17.9%**	**32.5%**	**42.5%**
refuse to use non-biodegradable plastic products (e.g., bags, containers, straws, utensils)?	**13.0%**	**31.9%**	**15.8%**	**39.2%**
Have you in the <u>last two weeks</u>:				
used public transport?	**35.5%**	**26.4%**	**27.6%**	**10.5%**
eaten fewer than two serves of red meat?	**12.3%**	**43.0%**	**31.8%**	**12.9%**
pointed out to other people that their behaviour is harming the environment?	**35.4%**	**44.8%**	**6.9%**	**12.9%**

Behaviour	**No,** I do not engage/have not engaged in this behaviour		**Yes,** I engage/have engaged in this behaviour	
	1. No, because no opportunity to do so	2. No, for some other reason	3. Yes, but not because of environmental concerns	4. Yes, partly because of environmental concerns
Have you in the last three years ever:				
signed a petition, written a letter, posted on social media, or similar, in support of an environmental issue?	**32.9%**	**36.3%**	**9.6%**	**21.1%**
donated money to a group that aims to protect the environment?	**28.3%**	**46.2%**	**8.0%**	**17.6%**
attended a pro-environmental rally, meeting, march, or protest?	**38.5%**	**52.3%**	**3.6%**	**5.5%**
participated in a litter clean-up, beach clean-up, land-care project, or similar?	**36.4%**	**46.7%**	**6.3%**	**10.5%**
voted in an election for a candidate or party because of its/their pro-environmental policies?	**22.7%**	**39.2%**	**13.1%**	**24.9%**
taken any of your money/savings/ superannuation funds out of institutions that invest in industries that are bad for the environment (e.g., coal, gas and oil companies)?	**36.6%**	**53.4%**	**4.9%**	**5.1%**
contacted a government member about an environmental or climate change issue?	**35.3%**	**55.3%**	**3.9%**	**5.5%**
Do you currently				
grow some of your own fruit, vegetables, and/or herbs?	**21.9%**	**23.6%**	**32.6%**	**21.9%**
belong to an 'environmental' group (e.g., Friends of the Earth, World Wildlife Fund, Greenpeace)?	**33.2%**	**55.8%**	**4.2%**	**6.9%**

A7. Compared to the average Australian's engagement in pro-environmental behaviours like those listed in the previous question, I think I am:
A lot less involved **16.8%**
A little less involved **18.3%**
About the same as other people **47.0%**
A little more involved **16.0%**
A lot more involved **1.8%**

A8. Arguably, almost all of us can do a bit more to maintain the quality of our environment. Which of the following limit your involvement in pro-environmental actions? What are the reasons for you? *(Please click all those that apply for you)*

These actions are not going to stop or solve environmental problems **19.6%**
I don't think we are currently facing environmental problems worth addressing **6.1%**
I am not particularly interested in environmental issues **10.8%**
I am too busy/I do not have enough time **25.6%**
I have my own routines, habits, and ways of doing things that are different from these **24.6%**
I have health concerns/reasons, or believe these behaviours are not suitable for my health **9.7%**
These actions are too expensive **24.5%**
These actions are too inconvenient/too much effort **14.8%**
These actions are not a high priority, so I never seem to get around to them **11.2%**
Environmental problems are too great for me/for one individual to have any impact **9.1%**
I did not cause any environmental problems, so I have no responsibility to fix them **3.4%**
I do not know what to do **15.6%**
I do not know whom to talk to, contact, or engage with on environmental issues **10.0%**
The environmentally-friendly product or service is not available **7.8%**

The environmentally-friendly product or service that is available is not of satisfactory quality **7.6%**
I am not aware of the benefits of these behaviours for the environment **4.6%**
I can't do these things because of my age, ill health, or disability **12.0%**
These behaviours do not benefit me **4.6%**
These behaviours do not suit the lifestyle of my family or friends – that's not the way we do things **5.3%**
I do not trust the authorities that give out information about environmental issues **12.4%**
I do not believe climate change is happening **7.3%**
Other reason/s - *please specify:* **[4.8% - 132 Many cited: see Appendix E.6 for illustrative examples of responses]**
None of the above **13.9%**

A4. To show you are reading the questions, please click 'Strongly Disagree' for this question.

Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
95.2%	**0.1%**	**2.0%**	**0.3%**	**0.1%**	**0.2%**	**2.0%**

A9. Thinking ahead to the next three years, we would like to know how interested you are in doing each of the following. If you are not sure about any of them, please say so.
What is your level of interest in each of these actions in the next three years?

	Already doing this	Not at all interested	Not very interested	Somewhat interested	Very interested	Not applicable/ Not sure/ Prefer not to say
Purchasing more of your household's energy through a green power supplier	**9.8%**	**10.5%**	**13.6%**	**34.3%**	**19.1%**	**12.8%**
Generating your own energy to meet your household's needs, and feeding excess energy back into the network/grid	**14.3%**	**9.8%**	**10.3%**	**27.0%**	**22.4%**	**16.2%**
Getting an electric car or a hybrid engine car	**2.6%**	**23.5%**	**14.7%**	**27.7%**	**20.1%**	**11.3%**
Installing solar energy battery storage systems for your home	**7.8%**	**11.6%**	**9.6%**	**29.4%**	**25.5%**	**16.1%**
Participating in local community projects relating to renewable energy	**1.2%**	**22.6%**	**24.0%**	**29.9%**	**9.0%**	**13.4%**

SECTION B: How You See Yourself, and How You See Various Social, Political, and Environmental Issues

B1. To what extent do you agree or disagree with each of the following statements?

	Strongly Disagree	Tend To Disagree	Neither Agree Nor Disagree	Tend To Agree	Strongly Agree	No Opinion	Don't Know
I think of myself as someone who is very concerned with environmental issues	**6.0%**	**13.5%**	**21.8%**	**39.2%**	**17.3%**	**1.7%**	**0.5%**
Being environmentally friendly is an important part of who I am	**6.8%**	**13.5%**	**25.3%**	**34.6%**	**17.5%**	**1.7%**	**0.6%**
I identify with the aims of environmental groups such as Greenpeace and Friends of the	**14.3%**	**15.4%**	**27.3%**	**22.9%**	**12.1%**	**4.0%**	**4.0%**

Earth							

B2. Here are some statements regarding the world's environment. Please give your opinion in relation to each of them. There are no right or wrong answers.

	Strongly Disagree	Mildly Disagree	Unsure	Mildly Agree	Strongly Agree
Human ingenuity will ensure that we do NOT make the earth unliveable	8.1%	13.4%	38.7%	29.0%	10.8%
Humans are severely abusing the environment	3.9%	7.1%	9.4%	35.2%	44.5%
The balance of nature is strong enough to cope with the impacts of modern industrial nations	26.4%	26.2%	24.3%	16.7%	6.5%
The balance of nature is very delicate and easily upset	3.5%	8.0%	15.7%	40.8%	32.1%
Humans will eventually learn enough about how nature works to be able to control it	15.9%	19.3%	32.3%	25.8%	6.7%
If things continue on their present course, we will soon experience a major ecological catastrophe.	7.9%	6.3%	21.2%	31.6%	33.0%

B3. To what extent would you support or oppose the following initiatives if/when proposed by the government as policies?

	Strongly Oppose	Somewhat Oppose	Somewhat Support	Strongly Support	Do not Know/ Do not Understand
Set a target of national net zero-carbon emissions by 2050 at the latest	8.5%	5.4%	30.9%	44.5%	10.7%
Put a tax on carbon emissions, with the money raised being invested in clean, renewable energy	12.5%	11.3%	31.6%	34.5%	10.1%
Stimulate public/private investment in a national clean energy power system to replace all coal power	7.6%	7.8%	33.3%	39.8%	11.5%
Phase out over ten years the mining of fossil fuels (coal, oil and gas)	12.8%	13.7%	28.8%	32.9%	11.9%
Increase taxpayer-funded financial grants/subsidies for private solar panels and batteries	7.8%	10.2%	31.8%	39.3%	10.9%
Provide taxpayer-funded financial grants/subsidies to the fossil fuel industry	22.0%	18.1%	25.7%	15.5%	18.7%
Require all new vehicles to be electric by 2040	22.4%	17.5%	28.9%	23.4%	7.8%
Build new coal-fired power stations as old ones are retired	23.4%	17.6%	23.4%	18.8%	16.7%
Provide government financial grants/subsidies for citizens to cyclone- or bushfire-proof their homes	3.8%	8.3%	40.9%	37.0%	10.0%
Construct concrete walls to prevent coastal erosion from sea-level rise, even if such walls are costly and detract from beach usage	9.9%	19.4%	33.3%	20.5%	16.9%
Use post-COVID government stimulus funding to kick-start the transition to a low carbon and climate-resilient national future	8.3%	10.3%	36.5%	27.8%	17.1%
Minimise Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions	20.0%	16.8%	24.7%	19.7%	18.8%
Assist communities that are currently reliant on coal mining for their livelihood	2.7%	5.6%	42.4%	35.3%	14.0%

B9a. In August 2022, the Australian federal parliament passed legislation to reduce Australia's greenhouse gas emissions by 43% by 2030, as compared to 2005 emission levels. Which one of the following statements best reflects your view of this target of 43% emissions reduction?
I support the target: 43% emissions reduction by 2030 is about right **37.3%**
The target is too low: we should reduce emissions by more than 43% by 2030 **24.3%**
The target is too high: we should reduce emissions by less than 43% by 2030 **10.1%**
I do not think we should have a target at all **14.3%**
No opinion/ Don't know **14.1%**

B4. For which political party would you vote if there was an election tomorrow for the lower house of the federal parliament?
Liberal Party of Australia **21.5%**
Australian Labor Party **34.9%**
National Party **3.5%**
Australian Greens **14.9%**
One Nation Party **4.2%**
United Australia Party **0.8%**
A "teal" independent **1.6%**
Another independent **2.6%**
Other *(please specify)* **1.5%**
Don't know **11.6%**
I am not eligible to vote **2.9%**

B7. As far as you know, do you personally think that the world's climate is changing?
Yes **79.7%**
No **13.7%**
Do not know **6.6%**

SECTION C: Your Experiences of Extreme Weather and Natural Disasters

C1. Have you personally and directly experienced an extreme weather or a natural disaster event (e.g., an extreme heatwave, a cyclone, bushfire, drought, flood) in the past twelve months?
Yes **37.1%**
No **62.9%**

C2. Have you personally and directly experienced an extreme weather or a natural disaster event at any time in your life prior to the past twelve months?
Yes **46.7%**
No **53.3%**

[Ask none of C3a to C3f, if the answers to both C1 and C2 are "No"]
C3a. Were you injured in the most recent of these events? (N = 1516)
Yes **1.6%**
No **98.4%**

C3b. Did you suffer financially because of this event? (N = 1516)
Yes **27.6%**
No **72.4%**

C3c. How much property damage did you experience because of this event? (N = 1516)

No Damage at All	Very minor	Minor	Considerable	Major	Extreme Amount
38.1%	**22.6%**	**25.9%**	**10.6%**	**2.0%**	**0.9%**

[Ask C3d, only if C3c is answered with other than "No damage at all"]
C3d. Did you make a claim on your insurance for the damage you incurred? (N = 939)
Yes **25.3%**

No **59.0%**
Did not have insurance cover **15.7%**

[Ask C3e, only if C3d. is answered with "Yes"]
C3e. Was your insurance claim successful? (N = 238)
Yes **91.6%**
No **8.4%**

[Ask C3f, only if C3c is answered with other than "No damage at all"]
C3f. After this event, did you make any of the following changes to your insurance cover? (N = 939)
Added or increased my house and contents insurance **12.6%**
Added or increased my contents insurance only **6.0%**
Added or increased my house insurance only **3.3%**
Changed neither my house nor contents insurance **59.6%**
Do not know **18.5%**

C4. Even if you have not been directly impacted by an extreme weather event or natural disaster, has a geographically distant event ever had an impact upon you?
Yes **44.1%**
No **55.9%**

C8. Large parts of eastern Australia experienced unusually heavy rainfall and considerable flooding during 2022. Were you, or the people close to you, or your property, directly exposed to these floods, or the consequences of these floods, in any way?
Yes **31.8%**
No **68.2%**

(Ask C9, C10, and C11 only if the answer to C8 is "Yes")
C9. Due to this flooding, did you: (N = 880)

	Yes	No
experience any property damage/loss?	**30.0%**	**70.0%**
experience any financial loss?	**28.3%**	**71.7%**
suffer any physical injury?	**2.7%**	**97.3%**
experience psychological distress or trauma?	**23.9%**	**76.1%**
get physically 'cut-off' or 'trapped' in some place?	**29.5%**	**70.5%**
lose the capacity to perform your usual work in your usual way?	**30.5%**	**69.5%**
need to spend one or more nights somewhere other than your home?	**13.9%**	**86.1%**
witness other people directly impacted by the flooding?	**65.7%**	**34.3%**
observe damage to other people's property?	**66.0%**	**34.0%**
have a family member or close friend impacted by the flooding?	**56.4%**	**43.6%**
have any other person/s needing to become dependent on you?	**9.4%**	**90.6%**
get involved in rescue work associated with the flooding?	**10.9%**	**89.1%**
help clean up after the flooding?	**27.2%**	**72.8%**

C10. Did you apply for government relief funding to help you with the impacts of the flooding? (N = 880)
Yes **20.5%**
No **64.5%**
Not applicable **15.0%**

(Ask C11 only if the answer to C10 is "Yes")
C11. Was your application for relief funding successful? (N = 880)
Yes **85.0%**
No **15.0%**

SECTION D: Your Experiences and Views about Climate Change

D1. Which of the following definitions best captures your understanding of the meaning of the term "climate change"?
Clim*ate change refers to:*

- increases in the world's temperature (i.e., "global warming") **22.6%**
- all changes in the world's climate that occur naturally **11.5%**
- all changes in the world's climate that are due to human activity **28.8%**
- all changes in the world's climate, regardless of the cause **33.1%**
- something that does not really exist. **4.0%**

To make sure that we are all referring to the same thing, please have in mind <u>this definition</u> of climate change when answering all remaining questions in this survey:
Climate change refers to changes in the world's climate that are due directly or indirectly to human activity and are in addition to natural climate cycles or variability.

D2. Thinking about the causes of climate change, which of the following best describes your opinion?
Climate change is entirely caused by natural processes **4.6%**
Climate change is mainly caused by natural processes **6.5%**
Climate change is partly caused by natural processes and partly caused by human activity **38.6%**
Climate change is mainly caused by human activity **32.9%**
Climate change is entirely caused by human activity **11.6%**
I think there is no such thing as climate change **3.0%**
Do not know **1.7%**
No opinion **1.0%**

D3. Using this definition, to what extent do you agree or disagree with this statement?

	Strongly Disagree	Disagree	Tend To Disagree	Neither Agree Nor Disagree	Tend To Agree	Agree	Strongly Agree
I am <u>certain</u> that climate change is really happening	**4.8%**	**2.3%**	**3.7%**	**10.6%**	**22.0%**	**20.0%**	**36.7%**

D4. Please indicate the extent to which you agree or disagree with each of these statements.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Climate change will have a noticeably negative impact on my health (over the next 25 years)	**9.3%**	**10.1%**	**14.4%**	**34.3%**	**20.7%**	**11.2%**
Climate change will have a noticeably negative impact on my economic and financial situation (over the next 25 years)	**8.0%**	**8.5%**	**14.0%**	**33.6%**	**23.1%**	**12.8%**
Climate change will have a noticeably negative impact on the environment in which my family and I live	**7.1%**	**6.4%**	**10.5%**	**29.0%**	**26.6%**	**20.4%**
	Low risk	Moderate low risk	Slightly low risk	Slightly high risk	Moderate high risk	High risk
In your opinion, what is the risk of climate change exerting a significant impact on public health in your state or territory?	**11.5%**	**6.3%**	**20.7%**	**28.7%**	**20.1%**	**12.8%**
In your opinion, what is the risk of climate change exerting a significant impact on economic development in your state or territory?	**10.0%**	**6.1%**	**18.4%**	**29.6%**	**20.2%**	**15.7%**
In your opinion, what is the risk of climate change exerting a significant impact on the environment in your state	**10.0%**	**6.5%**	**16.6%**	**27.3%**	**20.2%**	**19.4%**

or territory?						

D5. How important is the issue of climate change to you personally?

Not At All Important	Low importance	Slightly important	Moderately important	Important	High importance	Extremely Important
9.2%	**10.8%**	**11.7%**	**15.6%**	**22.3%**	**16.3%**	**14.1%**

D6. Has any particular event/s or experience/s altered your views about the seriousness of climate change? (This event/s might have been to do with the weather, the natural environment, what you saw or read, whom you spoke to, etc.).
Yes **32.6%**
No **59.6%**
Do not know **7.8%**

D7. <u>In the past twelve months,</u> have you directly experienced any environmental or climatic changes, circumstances, or events which you think might be due to climate change?
Yes **37.9%**
No **62.1%**

D8. <u>Prior to</u> the past twelve months, have you directly experienced any environmental or climatic changes, circumstances, or events that you think might be due to climate change?
Yes **36.2%**
No **63.8%**

[Ask D9 only if the answer to either D7 or D8 was "Yes"]
D9. Please give brief details of these events or circumstances. (What happened? When? With what consequences?)
_____ **[Many cited: see Appendix E.6 for illustrative examples of responses]**

D10. Overall, how much have you or your family been personally harmed by circumstances or events that you believe are related to climate change?

Not at All	Very little	A little	A moderate amount	More than moderately	Quite a lot	A great deal
34.4%	**26.4%**	**18.5%**	**13.2%**	**4.7%**	**2.0%**	**0.8%**

D12. Should climate change be a low or a high priority for the Australian government?

Extremely Low	Very Low	Low	Moderate	High	Very High	Extremely High
7.1%	**4.0%**	**6.8%**	**21.5%**	**21.1%**	**16.5%**	**23.1%**

D13. To what extent do you agree or disagree with each of these statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change is partly due to the way I choose to live my life	**13.3%**	**12.5%**	**9.0%**	**24.6%**	**26.2%**	**10.7%**	**3.6%**
I feel partly responsible for contributing to the exhaustion of non-renewable energy resources	**14.5%**	**11.4%**	**9.4%**	**20.5%**	**29.1%**	**11.1%**	**4.2%**
If you are reading this carefully, select Strongly Disagree	**96.6%**	**0.3%**	**0.9%**	**0.6%**	**0.4%**	**0.1%**	**1.2%**
I feel partly responsible for climate change	**16.2%**	**10.8%**	**8.2%**	**21.2%**	**28.9%**	**10.8%**	**3.9%**
I feel a sense of urgency to change my behaviour to help to reduce climate change	**14.1%**	**9.4%**	**7.9%**	**20.7%**	**25.0%**	**15.5%**	**7.5%**

D14. When, if at all, do you think Australia will start feeling the effects of climate change?
We are already feeling the effects **56.9%**
In the next 10 years **8.0%**
In the next 25 years **8.0%**
In the next 50 years **4.5%**
In the next 100 years **1.8%**
Beyond the next 100 years **3.0%**
Never **6.3%**
Don't know/No opinion **11.4%**

D15. How serious a problem do you think climate change is right now?

Not At All Serious	Low seriousness	Slightly serious	Moderately serious	Serious	High Seriousness	Extremely Serious
8.9%	**11.0%**	**13.4%**	**17.9%**	**19.3%**	**14.6%**	**14.9%**

D16. How serious a problem do you think climate change will be in 2050?

Not At All Serious	Low seriousness	Slightly serious	Moderately serious	Serious	High Seriousness	Extremely Serious
8.3%	**6.9%**	**7.4%**	**12.1%**	**16.4%**	**18.2%**	**30.7%**

D17. Overall, how much do you think climate change is influencing the frequency and intensity of extreme weather events like heatwaves, cyclones and droughts, and disasters like bushfires and floods?

Not At All	Very little	A little	A moderate amount	More than moderately	Quite a lot	A Great Deal
8.1%	**7.2%**	**10.6%**	**15.7%**	**14.0%**	**19.8%**	**24.7%**

D18. How vulnerable do you think the region where you live is to one or more natural disasters (e.g., floods, droughts, cyclones & bushfires)?

Not At All Vulnerable	A little vulnerable	Slightly vulnerable	Moderately vulnerable	Vulnerable	Highly vulnerable	Extremely Vulnerable
12.5%	**16.5%**	**15.0%**	**17.7%**	**18.0%**	**12.0%**	**8.3%**

D20. How vulnerable do you think the region where you live is to the impacts of climate change?

Not At All Vulnerable	A little vulnerable	Slightly vulnerable	Moderately vulnerable	Vulnerable	Highly vulnerable	Extremely Vulnerable
13.2%	**14.7%**	**14.4%**	**17.5%**	**19.4%**	**13.2%**	**7.5%**

D21. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change will mostly affect areas that are far away from here	**17.2%**	**19.5%**	**13.7%**	**26.5%**	**14.1%**	**6.5%**	**2.6%**
Climate change will mostly affect other countries	**23.3%**	**21.1%**	**12.8%**	**24.9%**	**9.1%**	**6.1%**	**2.6%**
Climate change means I will have to compromise on what I wanted to do with my life.	**9.7%**	**10.0%**	**9.2%**	**30.6%**	**22.3%**	**12.7%**	**5.5%**

D23. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor	Slightly Agree	Agree	Strongly Agree

				Disagree			
I have felt pressure to think a certain way about climate change	12.6%	15.6%	9.3%	23.7%	20.7%	11.4%	6.6%
I feel others are trying to force their opinions on me about climate change	15.3%	16.3%	9.9%	18.8%	15.9%	11.2%	12.6%
I am being manipulated to form a certain view on climate change	19.8%	18.8%	10.7%	20.1%	12.4%	8.9%	9.4%
Concerns about climate change are exaggerated	26.6%	18.9%	12.1%	16.0%	9.1%	7.4%	9.9%

D24. To what extent do you agree or disagree with each of the following statements about climate change?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I can personally try to reduce climate change by changing my behaviour	7.3%	5.8%	4.6%	16.9%	32.4%	21.4%	11.6%
There are things I can do to try to reduce the impact of climate change	6.6%	4.6%	3.7%	14.6%	33.7%	23.6%	13.2%
I can readily change things in my everyday life to address the challenges of climate change.	7.3%	5.2%	5.4%	19.7%	31.2%	20.3%	11.0%

D25. Please click the response that best indicates your level of agreement with each statement below.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I believe my actions can reduce the pace or negative effects of climate change	9.3%	7.2%	7.8%	20.6%	31.8%	15.8%	7.6%
My actions have a positive influence on how I am feeling and thinking about climate change and environmental problems generally	6.3%	4.1%	4.5%	27.2%	30.9%	18.8%	8.1%
I feel that I can make a difference with regard to climate change	9.4%	7.4%	8.8%	19.8%	32.1%	14.7%	7.7%

D26. To what extent do you think climate scientists…

	Not at all	A little	A moderate amount	More than moderately	A great deal
agree about the danger of climate change	10.2%	12.9%	23.9%	24.1%	28.9%
feel a responsibility to provide accurate information	8.3%	12.4%	21.1%	25.8%	32.3%
are knowledgeable about the risks	7.2%	14.0%	22.8%	26.4%	29.6%
are concerned about public welfare	10.0%	14.4%	24.6%	24.8%	26.2%

D27. To what extent do you agree or disagree with each of the following statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree	Slightly Agree	Agree	Strongly Agree

				Nor Disagree			
If we collaborate, we will be able to minimise the consequences of climate change	5.7%	3.3%	2.9%	13.7%	24.4%	30.1%	19.8%
By working together, we can make a difference to climate change	6.1%	3.1%	2.6%	10.3%	22.6%	30.9%	24.4%
There is little point in me taking action against climate change because many others will not	15.1%	18.5%	14.7%	19.4%	16.2%	9.1%	7.0%
If people all pull together, we can reduce the impacts of climate change	6.2%	3.0%	2.3%	11.6%	23.4%	29.2%	24.4%

D29. To what extent do you agree or disagree with this statement:

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
Climate change is an issue that requires urgent action NOW.	9.0%	4.4%	3.0%	9.8%	16.8%	22.7%	34.3%

SECTION E: Your Feelings about Climate Change

E1. How concerned, if at all, are you about climate change?
Not At All Concerned **12.0%**
Not Very Concerned **17.4%**
Fairly Concerned **39.8%**
Very Concerned **30.9%**

E2. Has your level of concern about climate change increased, decreased, or remained the same over the past year (i.e., since November-December 2021)?

Decreased Substantially	Decreased moderately	Decreased slightly	Remained the same	Increased slightly	Increased moderately	Increased Substantially
2.2%	0.5%	1.2%	46.8%	23.1%	15.4%	11.0%

E3. Considering any potential effects of climate change that might affect <u>you</u> <u>personally</u>, how concerned, if at all, are you about climate change?
Very concerned **19.2%**
Fairly concerned **41.8%**
Not very concerned **20.1%**
Not at all concerned **13.8%**
Don't know **3.0%**
No opinion **2.1%**

E4. Considering any potential effects of climate change that there might be on <u>society</u> <u>in</u> <u>general</u>, how concerned are you about climate change?
Very concerned **25.4%**
Fairly concerned **41.5%**
Not very concerned **16.3%**
Not at all concerned **11.9%**
Do not know **2.9%**
No opinion **2.0%**

E5. How concerned are you that each of the following threats might directly affect you, your family, or your local environment in the foreseeable future?

	Not At All Concerned	A little concerned	Slightly concerned	Moderately concerned	Concerned	Greatly concerned	Very Concerned
Bushfires	16.4%	14.2%	13.4%	13.0%	17.2%	11.3%	14.3%
Cyclones	36.0%	16.8%	11.7%	12.2%	10.7%	6.1%	6.4%
Floods (coastal &/or inland)	18.8%	14.2%	12.1%	13.0%	16.0%	12.0%	13.8%
Air and water pollution	14.1%	13.6%	12.0%	14.1%	18.5%	14.1%	13.5%
Sea level rise	25.5%	14.2%	12.0%	11.0%	15.1%	10.8%	11.4%
Droughts/Water shortages	9.3%	12.6%	12.6%	14.5%	17.6%	15.4%	18.1%
Heatwaves	9.6%	10.1%	8.9%	14.9%	16.3%	17.6%	22.6%
War/International conflicts	11.1%	10.4%	11.0%	15.5%	17.2%	14.7%	20.0%
Health threats relating to environmental changes or conditions	14.7%	11.8%	12.1%	15.3%	18.3%	13.2%	14.8%
Biodiversity loss (e.g., species extinction, habitat loss)	9.7%	10.0%	11.3%	14.2%	18.6%	14.2%	21.9%
Food insecurity (e.g., crop failures, food shortages, declining agriculture)	7.6%	8.7%	10.2%	14.6%	19.4%	17.7%	21.7%
Impacts of climate change, generally	13.6%	8.2%	9.9%	13.3%	19.3%	14.9%	20.8%

E6. What is/are your biggest concern(s) about climate change? _____
[Many cited: see Appendix E.6 for illustrative examples of responses]

E7. Some people may feel that climate change is distressing. It may or may not be like this for you. Please indicate the extent to which each of the following statements reflects your own feelings about the threat of climate change

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I feel distressed when I see or read media coverage of the likely impacts of climate change	10.2%	9.2%	7.6%	21.3%	25.5%	18.0%	8.3%
At times, I worry about what the world will be like in the future because of climate change	9.8%	6.8%	4.8%	11.8%	25.0%	23.3%	18.5%
I feel guilty when I think of how the lifestyle of my family and friends contributes to climate change	13.8%	11.2%	11.4%	24.4%	20.7%	13.0%	5.5%
It upsets me when I think that there is so little I can do	12.3%	8.3%	8.5%	24.4%	22.1%	16.0%	8.3%

about climate change and other environmental problems							
The more I learn about the threat of climate change, the more anxious I become	**13.0%**	**9.5%**	**9.3%**	**22.4%**	**21.5%**	**14.7%**	**9.5%**
At times, I feel overwhelmed when thinking about the future impact of climate change	**13.9%**	**10.0%**	**9.7%**	**19.6%**	**21.6%**	**15.4%**	**9.7%**

SECTION F: Your Responses to Climate Change

F3. Some people change aspects of their lifestyle to reduce their contribution to climate change. Other people do not. Which of the following aspects of your lifestyle, if any, have you changed over the past year <u>primarily</u> <u>because you wanted to reduce your impact upon climate change?</u>
(Click all that apply to you. Please do not click changes in your lifestyle that were made for other reasons, e.g., financial necessity or Covid-19 restrictions)

Driven my car less **28.6%**
Carpooled more often **6.0%**
Recycled more **65.1%**
Consumed less red meat **27.5%**
Reduced the amount of food I throw out **47.3%**
Become more efficient in my consumption of power (electricity, gas) from the grid/power companies **43.1%**
Changed to 'green' (e.g., solar) power **18.2%**
Changed my electricity supplier **7.1%**
Become more efficient in my water consumption **40.5%**
Reduced my use of plastic items **52.0%**
Switched to products that are more environmentally friendly **27.7%**
Purchased a bicycle **6.2%**
Purchased more things that are locally (rather than remotely) made/grown **27.6%**
Avoided making unnecessary purchases **37.7%**
I have changed none of these aspects of my lifestyle over the past year due to concerns about climate change **18.6%**

F4. To what extent do you agree with the following statements?

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I feel a strong personal obligation to do whatever I can to prevent climate change	**9.0%**	**6.7%**	**5.8%**	**17.8%**	**28.3%**	**22.2%**	**10.3%**
I feel obliged to bear the environment and nature in mind in my daily behaviour	**7.6%**	**6.1%**	**6.8%**	**19.8%**	**27.2%**	**22.3%**	**10.2%**
I feel morally obliged to use green instead of regular electricity	**11.3%**	**7.7%**	**9.3%**	**27.3%**	**20.5%**	**15.6%**	**8.3%**
I would be a better person if I behaved in more pro-environmental ways	**12.9%**	**7.7%**	**7.4%**	**28.0%**	**19.8%**	**15.7%**	**8.5%**
If you are reading this carefully, answer strongly disagree to this question	**92.3%**	**0.8%**	**0.7%**	**2.5%**	**2.1%**	**0.8%**	**0.9%**
Most people in my social network behave in ways that	**6.2%**	**8.0%**	**10.9%**	**35.4%**	**23.2%**	**12.7%**	**3.7%**

minimise damage to the environment							
Most members of my family behave in ways that minimise damage to the environment	5.9%	7.2%	10.7%	27.9%	26.5%	16.8%	5.0%
Most of my friends behave in ways that minimise damage to the environment	5.6%	7.5%	9.4%	33.1%	26.1%	14.5%	3.9%
Most members of my neighbourhood/local community behave in ways that minimise damage to the environment	6.0%	7.6%	10.9%	40.3%	22.3%	9.9%	3.1%

F5. How likely are you to do each of the following things if a person you like and respect asked you to?

	Definitely Would Not	Would Not	Would	Definitely Would
Join a campaign to convince elected officials to take action to reduce climate change?	27.5%	37.9%	29.0%	5.7%
Volunteer your time to an organisation working in climate change?	25.7%	37.4%	30.8%	6.1%
Donate money to an organisation working on climate change?	25.0%	31.6%	36.0%	7.4%
Write letters, email or phone government officials about climate change?	29.6%	41.5%	22.6%	6.3%
Support an organisation engaging in non-violent civil disobedience against corporate or government activities that make climate change worse?	30.9%	33.6%	29.1%	6.4%
Personally engage in non-violent civil disobedience against corporate or government activities that make climate change worse?	36.4%	40.4%	18.5%	4.7%

F6. To what extent do you agree or disagree with the following statements?
To help reduce climate change, I am willing to:

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
change my lifestyle	9.7%	6.1%	5.2%	16.7%	32.0%	22.6%	7.7%
greatly reduce my energy (e.g., electricity) use	7.4%	4.9%	4.7%	12.6%	33.4%	25.6%	11.4%
pay higher personal taxes	31.7%	15.2%	14.7%	19.7%	10.1%	6.5%	2.2%
pay more for electricity	32.9%	16.0%	15.3%	16.2%	11.8%	6.2%	1.8%
pay more for fuel (petrol, diesel, etc.)	33.8%	16.5%	14.2%	15.8%	11.8%	5.7%	2.3%
pay significantly more for energy-efficient products	28.0%	13.8%	11.2%	17.9%	17.6%	8.6%	2.8%
accept cuts in my standard of living.	22.7%	12.3%	13.0%	21.1%	18.1%	9.6%	3.3%
take part in a community-wide climate change movement	20.5%	10.2%	9.4%	23.9%	18.8%	11.3%	5.9%
have renewable energy infrastructure such as a solar farm in my local area	11.3%	4.3%	3.6%	17.8%	23.1%	23.0%	16.9%
work with my local community to find ways to adapt to living with climate change	12.8%	6.3%	5.5%	25.4%	23.8%	17.9%	8.3%

F7. Please indicate the extent to which each of the following statements describes your response to the threat of climate change.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I am increasingly aware of how my daily activities might be affecting the natural environment and worsening the problem of climate change	**8.1%**	**7.1%**	**6.2%**	**24.4%**	**29.8%**	**18.5%**	**5.9%**
Over the past year, I have seriously thought about alternative places to live because of the increasingly evident impacts of climate change	**27.1%**	**19.4%**	**10.8%**	**18.0%**	**12.8%**	**7.7%**	**4.2%**
These days, I am trying NOT to think about climate change	**10.0%**	**15.6%**	**16.9%**	**30.9%**	**12.2%**	**8.4%**	**5.9%**
During the last year, I have thought more about what my family and I might do to reduce our impact on the environment	**10.8%**	**8.6%**	**8.9%**	**23.8%**	**28.4%**	**14.2%**	**5.3%**
I try to directly address the feelings I have about climate change	**11.3%**	**8.6%**	**9.1%**	**36.4%**	**20.5%**	**10.6%**	**3.7%**
In recent times, I have tried to recognise and accept the emotions I feel about climate change	**11.3%**	**8.2%**	**8.0%**	**36.5%**	**20.6%**	**11.5%**	**3.8%**
I seem to spend more time these days trying to come to grips with the likely effects of climate change	**14.8%**	**12.0%**	**11.7%**	**31.8%**	**17.2%**	**9.4%**	**3.1%**
I have often discussed my thoughts and feelings about climate change with others over the past year.	**12.9%**	**10.8%**	**11.6%**	**21.9%**	**23.6%**	**12.9%**	**6.3%**
I keep up with media reports on a daily basis to inform my views about climate change	**14.1%**	**13.7%**	**11.6%**	**23.1%**	**21.3%**	**11.7%**	**4.7%**
Compared to a year ago, I am much more likely nowadays to tune into discussions and debate about climate change	**13.4%**	**10.4%**	**9.3%**	**28.7%**	**21.0%**	**11.5%**	**5.6%**

SECTION G: Your Understanding of Climate Change

G1. Please indicate whether you think the following statements are <u>true</u> or <u>false</u>. If you do not know, just click on "Do not know", rather than asking someone else or looking up the answers online.

	True	Do not know	False
Climate change will increase the risk of waterborne diseases	**40.7%**	**48.8%**	**10.4%**
Climate change is caused by the build-up of greenhouse gases (e.g., carbon dioxide, methane) in the atmosphere	**69.3%**	**20.9%**	**9.8%**
Climate change can be slowed down if more trees were planted	**67.3%**	**23.1%**	**9.7%**

Climate change is mainly caused by the hole in the ozone layer	**25.9%**	**37.7%**	**36.4%**
Food waste is one of the three biggest global contributors to carbon dioxide (CO2) emissions	**44.8%**	**41.2%**	**14.0%**
Those who are most socially and economically disadvantaged (e.g., poorer nations/communities) experience the greatest impacts of climate change	**53.1%**	**32.2%**	**14.7%**
When the ocean absorbs increasing levels of carbon dioxide (CO2), it becomes more acidic, damaging shellfish	**45.2%**	**46.2%**	**8.6%**
We can reduce the rate of climate change by using more air conditioning in summer	**8.2%**	**16.5%**	**75.3%**
Climatic extremes are increasing, and are causing food shortages and food insecurity globally	**65.1%**	**24.0%**	**10.9%**
Solar (or 'photovoltaic') panels are now a cheaper source of new-build electricity generation than are coal and gas	**45.0%**	**39.6%**	**15.4%**
Plastic is produced from fossil fuels and therefore contributes to climate change	**56.8%**	**31.8%**	**11.5%**
The economic consequences of climate change are greater than the economic consequences of moving away from fossil fuels	**43.4%**	**41.7%**	**14.8%**
People can help reduce the rate of climate change by consuming more meat and dairy products	**11.3%**	**26.1%**	**62.6%**

G10. Overall, how much do you feel you know about climate change?

Nothing at all	Virtually nothing	A little	Quite a lot	A great amount	Just about everything
2.8%	**7.6%**	**52.1%**	**25.1%**	**11.0%**	**1.5%**

G5. Where do you go to get your information about climate change? (N = 2461)
(In this question, you are asked whether you go to various sources to obtain information about climate change. Please respond to all items on this list. For those sources that you use, you will then be asked how much trust you place in that source.)
Please select one response per row.

	Never	Some times	Often
Australian commercial media: TV, radio, or online news and current affairs (Channel 7, 9, 10, Sky; online sites for these outlets; including A Current Affair, Today Show, Sunrise, etc.)	**22.4%**	**48.7%**	**17.8%**
Australian public broadcasting: TV, radio, or online news and current affairs (ABC, SBS, ABC Online, SBS Online, 7.30 Report, Four Corners, etc.)	**23.5%**	**45.8%**	**19.6%**
The Sydney Morning Herald, *The Age*, *The Financial Review*, and/or their online outlets	**60.3%**	**22.7%**	**6.0%**
Other mainstream Australian newspapers (e.g., *The Australian*), magazines, and/or other print media, and their online outlets (e.g.: News.com.au)	**50.9%**	**31.9%**	**6.2%**
Local and/or community news media (e.g., community radio, local news publications)	**45.9%**	**36.0%**	**7.0%**
Alternative and/or independent media (e.g., *The Monthly, The Conversation, Crikey, Saturday Paper, The Guardian*)	**62.4%**	**20.1%**	**6.5%**
First Nation's media (e.g., NITV, Koori Mail, First Nations radio)	**74.0%**	**12.5%**	**2.5%**
Mainstream international newspapers and news sites, such as: *New York Times, BBC, Washington Post, Wall Street Journal*	**59.7%**	**25.2%**	**4.0%**
Facebook	**47.5%**	**33.0%**	**8.5%**
Twitter	**71.1%**	**13.2%**	**4.7%**
Instagram	**64.5%**	**18.9%**	**5.5%**
TikTok	**72.2%**	**12.0%**	**4.7%**
YouTube channels	**55.3%**	**25.8%**	**7.8%**
Specific online sources such as social media sites or blogs	**61.8%**	**22.3%**	**4.8%**
Books (fiction or non-fiction)	**59.5%**	**25.0%**	**4.5%**
Lectures, formal education	**62.8%**	**20.3%**	**5.9%**
Films and documentaries seen other than on TV and online (e.g., in cinemas, in class, at meetings)	**41.1%**	**38.7%**	**9.2%**

Theatre and creative arts events	**74.3%**	**12.2%**	**2.4%**
The Australian federal government	**25.8%**	**52.3%**	**10.8%**
Your state or territory government	**26.2%**	**52.1%**	**10.6%**
Your local government	**34.6%**	**46.2%**	**8.2%**
Politicians	**40.9%**	**42.6%**	**5.4%**
Scientists, scientific organisations, and scientific research publications (including reports from the CSIRO or the Intergovernmental Panel on Climate Change: IPCC)	**22.8%**	**45.6%**	**20.5%**
Medical and health professionals	**47.3%**	**32.9%**	**8.7%**
Church and/or religious leaders	**77.1%**	**9.7%**	**2.1%**
Business leaders/representatives	**67.1%**	**19.7%**	**2.2%**
Bureau of Meteorology/ meteorologists	**25.6%**	**44.5%**	**18.8%**
Other specialist providers of climate change information (e.g., the Climate Council)	**48.0%**	**30.9%**	**10.0%**
Expert panels/advisory groups, such as the Great Barrier Reef Expert Committee, etc.)	**46.2%**	**33.8%**	**8.9%**
Environmental organisations (e.g., Greenpeace, World Wildlife Fund, Australian Marine Conservation Society)	**38.7%**	**39.4%**	**10.9%**
Your own observations and experiences of the weather, the climate, and/or the environment	**20.7%**	**44.2%**	**24.0%**
Your colleagues, family and/or friends	**26.5%**	**52.5%**	**9.9%**
Other - *please specify* _____ **(Examples of responses:** Teacher; My local gym club; Conference; factual findings and history **- N= 450)** _____	**14.4%**	**1.1%**	**0.8%**
I do not know	**3.4% (N = 95)**		
I do not follow or pay attention to climate change news or information	**7.6% (N = 211)**		

G6. How much do you trust this source to give you quality information about climate change?
(Ask each of the items in this list only if the respondent indicated in Item G5 that he/she uses the corresponding source of information "sometimes" or "often". Ns differ between items*)*
Please select one response per row.

	Do not know	Do Not Trust At All	Trust very little	Trust a moderate amount	Trust more than moderately	Trust Completely
Australian commercial media: TV, radio, or online news and current affairs (Channel 7, 9, 10, Sky; online sites for these outlets; including A Current Affair, Today Show, Sunrise, etc.)	**2.2%**	**6.3%**	**33.5%**	**44.8%**	**10.5%**	**2.7%**
Australian public broadcasting: TV, radio, or online news and current affairs (ABC, SBS, ABC Online, SBS Online, 7.30 Report, Four Corners, etc.)	**1.8%**	**5.5%**	**20.6%**	**44.8%**	**21.8%**	**5.6%**
The Sydney Morning Herald, *The Age*, *The Financial Review*, and/or their online outlets	**2.9%**	**5.0%**	**24.6%**	**45.3%**	**18.4%**	**3.8%**
Other mainstream Australian newspapers (e.g., *The Australian*), magazines, and/or other print media, and their online outlets (e.g.: News.com.au)	**2.5%**	**8.0%**	**29.7%**	**46.3%**	**10.7%**	**2.8%**
Local and/or community news media (e.g., community radio, local news publications)	**2.9%**	**4.5%**	**26.4%**	**50.6%**	**12.6%**	**2.9%**
Alternative and/or independent media (e.g., *The Monthly*, *The Conversation*, *Crikey*, *Saturday Paper*, *The Guardian*)	**3.0%**	**5.4%**	**22.6%**	**42.9%**	**22.2%**	**3.9%**
First Nation's media (e.g., NITV, Koori Mail, First Nations radio)	**3.1%**	**3.9%**	**21.3%**	**42.0%**	**23.9%**	**5.8%**
Mainstream international newspapers and news sites, such as: *New York Times*, *BBC*,	**2.1%**	**5.6%**	**23.0%**	**47.2%**	**19.1%**	**3.1%**

Washington Post, Wall Street Journal						
Facebook	**2.6%**	**15.8%**	**47.4%**	**27.7%**	**5.2%**	**1.3%**
Twitter	**3.2%**	**11.1%**	**36.8%**	**34.3%**	**11.7%**	**2.8%**
Instagram	**1.9%**	**11.1%**	**44.7%**	**31.5%**	**6.8%**	**4.0%**
TikTok	**4.1%**	**13.2%**	**37.0%**	**31.4%**	**11.7%**	**2.6%**
YouTube channels	**2.8%**	**6.1%**	**30.1%**	**44.2%**	**14.1%**	**2.7%**
Specific online sources such as social media sites or blogs	**3.9%**	**8.4%**	**25.8%**	**45.0%**	**12.6%**	**4.3%**
Books (fiction or non-fiction)	**3.3%**	**2.2%**	**19.1%**	**48.5%**	**21.3%**	**5.5%**
Lectures, formal education	**1.7%**	**2.2%**	**10.9%**	**35.6%**	**37.4%**	**12.2%**
Films and documentaries seen other than on TV and online (e.g., in cinemas, in class, at meetings)	**2.8%**	**2.6%**	**18.6%**	**48.5%**	**23.0%**	**4.5%**
Theatre and creative arts events	**4.7%**	**7.9%**	**26.7%**	**40.8%**	**14.9%**	**5.0%**
The Australian federal government	**1.7%**	**7.1%**	**24.9%**	**41.5%**	**19.7%**	**5.2%**
Your state or territory government	**1.8%**	**6.6%**	**24.0%**	**42.7%**	**20.1%**	**4.7%**
Your local government	**2.0%**	**5.9%**	**24.9%**	**44.1%**	**18.3%**	**4.9%**
Politicians	**2.6%**	**17.9%**	**38.3%**	**32.4%**	**7.2%**	**1.7%**
Scientists, scientific organisations, and scientific research publications (including reports from the CSIRO or the Intergovernmental Panel on Climate Change: IPCC)	**1.1%**	**2.2%**	**9.7%**	**27.6%**	**36.9%**	**22.5%**
Medical and health professionals	**2.3%**	**1.7%**	**9.2%**	**36.9%**	**35.4%**	**14.5%**
Church and/or religious leaders	**4.3%**	**8.2%**	**20.4%**	**38.1%**	**21.3%**	**7.6%**
Business leaders/representatives	**2.8%**	**5.3%**	**30.3%**	**44.2%**	**13.9%**	**3.5%**
Bureau of Meteorology/ meteorologists	**1.3%**	**1.6%**	**7.7%**	**30.1%**	**37.4%**	**22.0%**
Other specialist government providers of climate change information (e.g., the Climate Council)	**1.4%**	**2.7%**	**9.4%**	**32.7%**	**34.7%**	**19.0%**
Expert panels/advisory groups, such as the Great Barrier Reef Expert Committee, etc.)	**1.4%**	**2.3%**	**8.3%**	**31.9%**	**36.7%**	**19.5%**
Environmental organisations (e.g., Greenpeace, World Wildlife Fund, Australian Marine Conservation Society)	**1.1%**	**2.2%**	**9.6%**	**34.8%**	**35.2%**	**17.2%**
Your own observations and experiences of the weather, the climate, and/or the environment	**2.0%**	**1.1%**	**11.9%**	**39.8%**	**29.3%**	**16.0%**
Your colleagues, family and/or friends	**2.0%**	**1.4%**	**19.6%**	**53.5%**	**18.6%**	**4.9%**
Other *please specify:* **(Examples of responses: Children; Community; Eminent scientists; Examining plants; History; Online chat; Personal research; TV; Voluntary organisations… N= 58)**	**3.9%**	**0.0%**	**11.8%**	**19.6%**	**31.4%**	**33.3%**

SECTION H: About You

This final section asks about your demographic background

H1. What is your gender?
Male **49.4%**
Female **50.2%**
Other/Non-binary **0.3%**

H2. Where were you born?
Australia **77.6%**
New Zealand **2.7%**

Indonesia **0.2%**
(Other) Pacific Island **0.1%**
United Kingdom **6.5%**
Europe **3.3%**
Middle East **0.5%**
Asia **4.9%**
Indian sub-continent **1.8%**
North America **0.7%**
South America **0.4%**
Africa **0.7%**
Other **0.6%**

[Ask H3 only if the response to H2 is other than "Australia"]
H3. If born outside of Australia, for how many years have you lived in Australia? (N = 619)
_____ **Range = 0 to 76 years; Mean = 29.9 years (SD = 21.4)**

H4. Which of the following best describes you?
I am an Australian citizen **91.9%**
I have permanent residency in Australia but I am not an Australian citizen **5.7%**
I am a refugee: I reside in Australia but do not have permanent residency **0.0%**
I reside in Australia, but do not have permanent residency because I am here for work or study **2.0%**
Other: *please specify* **(Examples of responses:** Working holiday visas; I am on a spouse visa; Waiting for permanent residency; Waiting for PR; On temporary resident visa **- N= 12) 0.4%**

H5. How many years have you lived in the suburb, town, or regional area in which you are now living?
_____ **Range = 0 to 86 years; Mean = 18.16 years (*SD* = 16.33)**

H6. Are you religious, or do you identify with a particular religious faith?
Yes, either I am religious, or I identify with a particular religious faith **38.1%**
No, I neither am religious, nor do I identify with a particular religious faith **61.9%**

A3. How would you describe your physical health over the past year?
Extremely poor **1.6%**
Poor **11.9%**
Okay **35.0%**
Good **40.0%**
Very good **11.5%**

H7. Please indicate the highest level of education you have <u>already completed</u>:
Year 10 or less **11.0%**
Year 11 **3.2%**
Year 12 **17.3%**
College Certificate or Diploma **17.9%**
Trade Qualification/Apprenticeship **12.6%**
Undergraduate Degree **25.4%**
Postgraduate Degree/Diploma **12.6%**
Other: *please specify* **0%**

H8. Are you currently undertaking studies?
Yes **10.6%**
No **89.4%**

H9. What is your current employment status?
Working – Full-time (35+ hours per week) **36.6%**
Working – Part-time **13.4%**
Working on a Casual Basis **5.6%**
Unemployed – seeking work **3.6%**
Retired **26.8%**
Unpaid work - looking after house/children/dependants **6.5%**
Not in paid employment due to a disability **3.8%**

Not in paid employment due to COVID-19 **0.1%**
Student – not in paid employment **2.7%**
Other - *please specify* **(Examples of responses:** Employed but on maternity leave; Voluntary work; Freelance Artist; Self-employed; Carer**) 0.9% (N= 25)**

[Ask H36 only if the response to H9 is "Working – Part-time" or "Working on a Casual Basis"]
H36. If working for pay either part-time or casually, how many hours do you work in the average week? (N= 526)
Fewer than 15 hours per week **30.4%**
15 or more hours per week **69.6%**

H37. Are you employed as a tradesperson ("tradie")) in the construction industry?
Yes **3.7%**
No, I never have **90.5%**
No, but I previously was **5.8%**

H13. Are you employed in farming or agriculture?
Yes **1.0%**
No, I never have been **93.2%**
No, but I previously was **5.8%**

H14. Please indicate your approximate <u>combined household income</u> (from all sources, before tax) during the 2021-2022 financial year:
$40,000 or less **23.9%**
$40 001-$60,000 **17.5%**
$60,001-$80,000 **14.5%**
$80,001-$100,000 **12.1%**
$100,001-$150,000 **18.7%**
$150,001-$200,000 **8.9%**
Greater than $200,000 **4.4%**

H15. Please indicate your approximate <u>personal income</u> (from all sources, before tax) during the 2021-2022 financial year:
$40,000 or less **45.0%**
$40,001-$60,000 **16.7%**
$60,001-$80,000 **14.4%**
$80,001-$100,000 **10.7%**
$100,001-$150,000 **9.7%**
$150,001-$200,000 **2.5%**
Greater than $200,000 **1.0%**

H16. How would you describe your current financial situation?
I am struggling financially **22.6%**
I am doing okay **49.3%**
I am comfortable **25.0%**
I am well off financially **3.2%**

H17. Do you have any children?
Yes **58.9%**
No **41.1%**

H17a. Do you identify as (that is, see yourself as) a member of a culturally and linguistic diverse (CALD) community?
Yes **7.6%**
No **92.4%**

H17b. Do you identify as an Aboriginal and/or a Torres Strait Islander (ATSI)?
Yes **2.9%**
No **97.1%**

H17c. Do you identify as a person living with a disability?
Yes **15.1%**
No **84.9%**

H17d. Do you identify as a member of the LGBTQI+ community?
Yes **6.7%**
No **91.4%**
Prefer not to say **1.9%**

H17e. Do you identify as a homeless person?
Yes **0.4%**
No **99.3%**
Prefer not to say **0.4%**

[Ask H17f only if the answer given to one or more of H1a through to H17e is "Yes"]
H17f. Do you, and/or the community with which you have identified yourself in the preceding questions, face any particular challenges to taking action against climate change?
_____ [Many cited: see Appendix E.6 for illustrative examples of responses]

H18. What is the name of the suburb, town, or regional area in which you live? _____ Many cited

H20. How many people living in your household are currently in paid employment? _____
Zero persons - 23.1%; 1 person - N = 28.7%: 2 people - N = 33.2%: 3 people - N = 7.5%: 4 people - N = 4.8%: 5 people - N = 1.7%: More than 5 people - N = 0.7%. Mean =1.93 people (*SD* = 19.08)

H21. What is the main language spoken in your household?
English **94.5%**
Other: *please specify* **(Examples of responses:** Nepali; Tagalog; Vietnamese; German/English; Arabic; Hindi; Bengali **- N= 150) 5.4%**
Do not know/Not applicable **0.1%**

H22. Which of the following best describes the composition of your household?
Couple with no children at home **31.7%**
Couple with children at home (includes children aged 18 years and older) **27.5%**
Single parent with children at home (includes children aged 18 years and older) **6.5%**
Group/shared household, with or without children **9.2%**
One-person household **19.7%**
Something else **4.0%**
Do not know/Prefer not to say **1.4%**

H23. What are your current residential arrangements?
Own my home outright **29.5%**
Buying my home with mortgage/loan **26.8%**
Part rent/part mortgage in private accommodation **3.8%**
Renting or boarding in private accommodation **27.5%**
Living in public accommodation **3.0%**
Living with parents/friends/others rent-free **8.3%**
Homeless **0.1%**
Other - *please specify* **(Examples of responses:** Live with partner with another couple. Have two children don't live here; Boarding with adult son; Reverse mortgage; Loan licence agreement **- N= 27) 1.0%**

H24. How adequate do you regard the heating and cooling systems in your current residence?
Not at all adequate **3.8%**
Not adequate **5.6%**
Barely adequate **13.1%**
Adequate **52.9%**
Entirely adequate **24.6%**

[Ask H25a through to H25h, and H26, only if the answer given to H23 is "Own my home outright" or "Buying my home with mortgage/loan"] **(N = 1519)**

In the past five years, have you:

- **H25a.Installed roof-top solar panels?**
  Yes **27.4%**
  No **58.5%**
  Already have solar panels **14.1%**

- **H25b. Modified your home in any other way that increases your use of renewable energy (e.g., installed a solar hot water service)?**
  Yes **12.3%**
  No **80.2%**
  Already have solar hot water service **7.4%**

- **H25c. Modified your home in a way that reduces your total household energy usage (e.g., installed insulation, ventilation, window tinting, awnings, draft-proofing, or heavy drapes)?**
  Yes **33.7%**
  No **54.7%**
  Already have a highly energy-efficient home **11.6%**

- **H25d. Installed a rainwater tank or a grey water recycling system on your property?**
  Yes **15.9%**
  No **68.1%**
  Already have rainwater tank or a grey water recycling system **16.0%**

- **H25e. Modified your home in any way that reduces damage from floods (e.g., elevate the home, apply water-resistant building materials, elevate electricity and utility installations, make walls impermeable to water, install pump and drainage system)?**
  Yes **9.0%**
  No **91.0%**

- **H25f. Modified your home in any way that reduces damage from wind (e.g., anchor roof, install window protection such as shutters)?**
  Yes **13.5%**
  No **86.5%**

- **H25g. Modified your property in any way that reduces damage from bushfire (e.g., remove trees and vegetation around the house, apply noncombustible building materials, have heat- or fire-resistant windows)?**
  Yes **19.1%**
  No **80.9%**

- **H25i. Modified your home in any way to reduce the impact of extreme heat (e.g., installed cooling devices, planted trees for shading, added outdoor spaces, tinting of windows, installed insulation)?**
  Yes **40.0%**
  No **60.0%**

- **H25h. Do you have a household disaster plan in place (e.g., for bushfires, floods, or cyclones)?**
  Yes **26.2%**
  No **73.8%**

H26. To what extent would you be willing to move home if your current residence was deemed to be uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters? **(N = 1519)**

Not at all Willing	Slightly willing	Moderately willing	Strongly willing	Very Willing

19.9%	**17.6%**	**27.8%**	**18.0%**	**16.6%**

[All participants resume answering]

H27. How would you describe the location of your current residence?

Inner urban **14.5%**
Suburban/ Outer urban **63.2%**
Country town/city **15.7%**
Rural property **6.0%**
Remote **0.6%**

H28. How far is your home from the closest public transport stop/station (bus, tram, train)? (in kilometres) (*If unsure, please estimate*) _____**Mean = 4.63 km**

H29. How close do you live to areas that have, in the past ten years, been affected by extreme weather events or natural disasters (e.g., cyclones, flooding, bushfires, drought)?

0 – 25 kms **43.9%**
26 – 50 kms **21.1%**
51 – 100 kms **16.0%**
101 – 250 kms **8.2%**
over 250 kms **10.7%**

H30. How many of the following vehicles are solely or jointly owned by you?

Please answer with a number for each type of vehicle

	Zero	One	Two	3 or more
Electric or hybrid (i.e., petrol-electric) vehicles	**94.1%**	**5.3%**	**0.5%**	**0.1%**
4-cylinder petrol or diesel vehicles	**27.4%**	**54.3%**	**16.3%**	**2.0%**
6-cylinder, or larger, petrol or diesel engine vehicles	**77.5%**	**18.8%**	**3.0%**	**0.7%**

H31. The next few statements relate to how your views on climate change compare to the views of other people you are close to (e.g., partner, family, friends). Please indicate the extent to which you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
People important to me would approve if I helped to increase public awareness of climate change	**4.3%**	**4.1%**	**3.2%**	**34.3%**	**22.1%**	**22.7%**	**9.3%**
My friends expect me to take positive steps to reduce my contributions to climate change	**8.2%**	**9.3%**	**8.5%**	**38.1%**	**18.4%**	**12.8%**	**4.8%**
People who are close to me (e.g., partner, friends) do not care whether or not I behave in environmentally-friendly ways	**6.9%**	**10.2%**	**13.7%**	**32.1%**	**17.5%**	**13.7%**	**6.0%**
The people who are most important in my life think that I should take action against climate change	**8.4%**	**9.3%**	**8.4%**	**41.5%**	**15.9%**	**12.4%**	**4.0%**

H32. Is there anything else you would like to say about your views on climate change or natural disasters?
_____ **[Many cited: see Appendix E.6 for illustrative examples of responses]**

END OF QUESTIONNAIRE
THANK YOU FOR YOUR TIME

Griffith University's Climate Action Beacon is conducting this research.
For details of the work of this group, see: https://www.griffith.edu.au/research/climate-action

Appendix E.3: Details of the New Respondent Composite Variables

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Stdd Skew	Cronbach Alpha (stdd)
Lifestyle & Social Milieu									
Community Involvement	Original scale	9	A1.1 - A.1.9	9 - 36	9 - 36	12.04	3.91	43.6	.83
PEB34	Adapted from, e.g., Brick & Lewis, 2016; Kaiser et al., 2003; Leviston et al., 2015; Markle, 2013; Reser et al., 2012a 2012b.	16	A.6.1 – A.6.16	0 - 16	0 - 16	5.82	3.15	20.2	-
PEB4		16	A.6.1 – A.6.16	0 - 16	0 - 16	3.07	3.05	23.8	-
Proportion_PEB4		16	A.6.1 – A.6.16	0.0 - 1.0	0.0 - 1.0	0.28	0.28	18.7	-
Interest in Future PEBs	Sustainability Victoria (2017)	5	A.9.1 – A.9.5[c]	5 - 20	5 - 20	13.69	3.63	-10.4	.81
Perceived Residential Vulnerability	Reser et al., 2012a, 2012b	3	D18, D20, H29[b]	3 - 21	3 - 21	12.86	4.46	-3.00	.70
Descriptive Norms	Original scale, based on Leviston et al., 2015; Reser et al., 2021b; van der Linden, 2015	4	F4.6 – F4.9	4 - 28	4 - 28	16.79	5.08	-10.7	.91
Normative Beliefs	Adapted from Reser et al., 2012a, 2012b. Similar to items used in Tikir & Lehmann, 2011	4	H31.1 – H31.4	4 - 28	4 - 28	16.71	4.64	-6.2	.78
Self and Worldviews									
Green Identity	Adapted from Spence et al., 2010; Whitmarsh & O'Neil, 2010.	3	B1.1 – B1.3[c]	3 - 15	3 - 15	9.94	3.05	-9.09	.87
New Ecological Paradigm	Dunlap et al., 2000.	6	B2.4, B2.5, B2.8, B2-13-B2.15	6 - 30	6 - 30	21.15	4.58	-6.62	.76
Policy Support	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	13	B3.1 – B3.13[c]	13 - 52	16 - 52	37.29	7.19	-11.4	.85
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences	Adapted from Elal & Slade, 2005, and Reser et al., 20212b, plus original items	13	C9.1 - C9.13	0 - 13	0 - 13	3.94	2.75	-13.3	-
CC Belief/Acceptance	Reser et al., 2012a, 2012b; Spence et al., 2010	4	B7[b], D2[b], D3, D14	4 - 28	4 - 28	22.11	5.96	-32.5	.88
CC Risk Perception	Kellsted et al., 2008.	6	D4.1 – D4.6	6 - 36	6 - 36	23.65	7.75	-11.9	.95
Personal Responsibility for CC	Many sources	4	D13.1, D13.2, D13.4, D13.5	4 - 28	4 - 28	15.66	6.36	-8.49	.94
Spatial Distance of CC	Adapted from Reser et al., 2012a, 2012b.	2	D21.1 – D21.2	2 - 14	2 - 14	6.35	3.03	4.47	.84
Importance of the CC Issue	Original scale, based on Reser et al.,	5	D5, D15, D16,	5 - 35	5 - 35	23.71	8.79	-13.6	.96

	2012a, 2012b; Leviston et al, 2015		D17, D29						
Climate Change Variables	**Source(s)**	**No. of Items**	**Questionnaire Items Nos. [a]**	**Possible Range**	**Observed Range**	**Mean**	**SD**	**Stdd Skew**	**Cronbach Alpha (stdd)**
Psychological Reactance	Ma et al., 2019.	3	D23.1 – D23.3	3 - 21	3 – 21	11.23	4.97	1.51	.85
CC Self-efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D24.1, D24.3, D24.4	3 - 21	3 – 21	14.27	4.60	-18.0	.95
CC Response Efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D25.1, D25.2, D25.4	3 - 21	3 – 21	13.30	4.45	-12.4	.92
CC Collective Efficacy	Adapted from Leviston et al., 2015; Reser et al., 2012a, 2012b.	4	D27.1 – D27.4	4 - 28	4 – 28	20.17	5.51	-19.0	.86
Trust in Climate Scientists	Adapted from Reser et al., 2012a; Leviston et al., 2015	4	D26.1 – D26.3, D26.5	4 - 20	4 – 20	14.10	4.65	-9.87	.93
Feelings about Climate Change									
CC Concern	Adapted from Reser et al., 2012a, 2012b; Spence et al., 2010	5	E1, E2, E3, E4, E5.17	5 - 35	5 – 35	23.05	8.05	-9.21	.94
CC Distress	Adapted from Reser et al., 2012a, 2012b.	6	E7.1 – E7.6	6 - 42	6 – 42	25.36	9.64	-10.8	.95
Responses to Climate Change									
Behaviours Changed due to CC	Adapted from Tranter, 2014.	14	F3.1 – F3.15	0 - 14	0 – 14	4.35	3.26	7.42	.80
Personal Norms	Adapted from Reser et al., 2012a, 2012b; Stern et al., 1999	4	F4.1 – F4.4	4 - 28	4 – 28	17.51	6.15	-12.3	.92
Likelihood of CC Activism	Leiserowitz et al., 2021	6	F5.1 – F5.6	6 - 24	6 – 24	12.64	4.55	2.77	.93
Behavioural Willingness	Original scale, based on, e.g., Reser et al., 2012a, 2012b; Stern et al., 1999; Sustainability Victoria (2017); Xie et al. 2019	10	F6.1, F6.3 – F6.11	10-70	10 – 70	37.22	13.92	-4.02	.94
Psychological Adaptation	Adapted from Reser et al., 2012a, 2012b.	10	F7.1 – F7.10	10 - 70	10 – 70	39.15	12.60	-6.04	.92
Understandings of Climate Change									
Objective CC Knowledge[d]	Adapted from Reser et al., 2012a, 2012b; Shi et al., 2015; Sundblad et al., 2007.	13	G1.1 – G1. 13	-13 to + 13	-10 to +13	5.40	4.62	-17.0	-
Self-rated CC Knowledge	Original item (collapsing three more specific items used in 2021)	1	G10	1-6	1 - 6	3.38	0.93	4.72	-

Note 1. SD = standard deviation. Stdd = standardised. ND = natural disaster. CC = climate change. PEB = pro-environmental behaviour. PEB34 = the number of times (out of 16) a response of 3 or 4 was given to the behaviours listed in item A6. PEB4 = the number of times a response of 4 was given to the behaviours listed in item A6. Proportion PEB4 = the number of times a response of 4 was given to behaviours listed in item A6, as a proportion of those there was an opportunity to perform.

Note 2. The above represents the intended allocation of items to scales. Future psychometric analyses may lead to the above being varied in two main ways: (1) Responses to some items may not be highly correlated with the total score on the intended scale, and therefore may not be included in that scale. (2) Some scales may not demonstrate adequate validity or empirical distinctiveness, and therefore, in future academic work, may be combined with other scales or not used at all.

[a] The above questionnaire item numbers refer to the numbers assigned to the items in the dataset. These numbers did not appear on the e-questionnaire completed by respondents. For three of the scales (Self-Efficacy, Response Efficacy, and Behaviour Change due to Climate Change), there is an apparent inconsistency between the number of items comprising the scale and the range of questionnaire items listed. This is because the range of items listed for these scales includes items that were (a) in the version of the questionnaire that was 'soft launched' in 2021 (and thus these items were assigned a number) but (b) deleted prior to the main 2021 data collection phase.

[b] These four items were re-scaled to range from 1 to 7, so as to be weighted equally with all other items comprising the relevant scales.

[c] These items include response options of "Don't Know", "No Opinion", "Not Applicable", or similar. Few survey participants endorsed these options. So, to preserve the full sample size, when computing composite scale scores, these responses were recoded as the scale mid-point (e.g., "Neither Agree nor Disagree"). In computing the composite score for the Interest in Future PEBs scale, the "Already doing this" response was re-coded as "Very Interested".

[d] Responses to the 13 items comprising the Objective Knowledge scale were scored as +1 for a correct answer, 0 for a "Don't Know" response, and -1 for an incorrect answer. Item scores were summed to yield a total score that ranged between -13 and + 13.

APPENDIX E.4

Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Sex		Age (years)			Born in Australia?		English at Home?	
	M	F	≤35	36-54	≥55	Yes	No	Yes	No
N ≤	1368	1390	1052	640	1075	2148	619	2615	152
Lifestyle & Social Milieu									
Community Involvement	12.5	11.6*	13.2[a]	11.8[a]	11.1*[a]	12.0	12.2	12.0	13.5*
PEB34	5.77	5.86	6.73[a]	5.94[a]	4.84*[a]	5.79	5.90	5.73	7.22*
PEB4	2.71	3.41*	3.67[a]	3.12[a]	2.45*[a]	3.03	3.22	3.02	3.86
Proportion_PEB4	0.24	0.32*	0.30	0.29	0.25*[a]	0.27	0.29	0.27	0.34
Interest in Future PEBs	13.7	13.7	14.6	14.2	12.5*[a]	13.6	14.0	13.6	15.1*
Perceived Residential Vulnerability	12.4	13.3*	13.8	13.2	11.7*[a]	12.9	12.6	12.8	13.0
Descriptive Norms	16.6	17.0	16.7	16.9	16.8	16.7	17.2	16.7	18.0
Normative Beliefs	16.5	16.9	17.3	16.9	16.0*[a]	16.6	17.2	16.6	18.2*
Self and Worldviews									
Green Identity	9.72	10.1*	10.2	10.0	9.61*[b]	9.86	10.2	9.89	10.7*
New Ecological Paradigm	20.4	21.8*	21.5	21.5	20.5*[a]	21.1	21.3	21.2	21.0
Policy Support	36.8	37.7*	38.6[a]	37.6[a]	35.8*[a]	37.1	37.8	37.2	38.5
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences	4.18	3.74	4.39	4.00	2.85*[a]	4.01	3.57	3.99	2.86
CC Belief/Acceptance	21.4	22.8*	23.2	22.6	20.8*[a]	22.0	22.6	22.0	23.3
CC Risk Perception	22.6	24.6*	25.7[a]	24.5[a]	21.2*[a]	23.5	24.1	23.5	26.2*
Personal Responsibility for CC	14.8	16.5*	17.2	16.4	13.7*[a]	15.5	16.1	15.5	18.4*
Spatial Distance of CC	6.65	6.06*	6.79[a]	6.19	6.01*	6.31	6.47	6.29	7.28*
Importance of CC Issue	22.5	24.8*	25.4	24.3	21.7*[a]	23.5	24.4	23.6	26.3*
Psychological Reactance	11.9	10.6*	11.3	11.1	11.3	11.3	11.2	11.2	11.5
CC Self-efficacy	13.5	15.0*	15.2	14.7	13.1*[a]	14.2	14.4	14.2	15.3
CC Response Efficacy	12.7	13.9*	14.1	13.7	12.3*[a]	13.2	13.7	13.2	14.9*
CC Collective Efficacy	19.4	20.9*	21.1	20.5	19.1*[a]	20.1	20.3	20.1	21.2
Trust in Climate Scientists	13.7	14.5*	15.0[a]	14.3[a]	13.0*[a]	14.0	14.3	14.0	15.2
Feelings about Climate Change									
CC Concern	21.9	24.2*	24.4	23.5	21.4*[a]	22.8	23.9	22.9	25.3*
CC Distress	23.6	27.1*	28.2[a]	26.0[a]	22.2*[a]	25.1	26.2	25.1	29.1*
Responses to Climate Change									
Behaviours Changed due to CC	3.94	4.74*	4.27	4.28	4.46	4.24	4.70	4.31	4.87
Personal Norms	16.7	18.3*	18.6	18.0	16.2*[a]	17.3	18.2	17.4	19.8*
Likelihood of CC Activism	12.3	13.0*	14.0[a]	12.8[a]	11.2*[a]	12.5	13.2	12.5	15.0*
Behavioural Willingness	36.2	38.1*	40.5[a]	38.1[a]	33.5*[a]	36.7	38.9*	36.9	42.4*
Psychological Adaptation	38.4	39.9	41.9[a]	40.0[a]	36.0*[a]	38.8	40.3	38.9	44.0*
Understandings of Climate Change									
Objective CC Knowledge	4.98	5.80*	5.59	5.61	5.08	5.23	5.97*	5.37	5.94
Self-rated CC Knowledge	3.49	3.27*	3.38	3.42	3.36	3.33	3.56*	3.36	3.73*

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. CC = climate change. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

Appendix E.4 (Continued)

Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Religious?		Highest Educational Attainment			Voting Intention		Parent?	
	Yes	No	Schl	Trade	Uni	Right	Left	Yes	No
$N \leq$	1055	1712	871	843	1053	842	1382	1629	1138
Lifestyle & Social Milieu									
Community Involvement	13.2	11.4*	11.3	11.4	13.2*[a]	12.3	12.1	11.9	12.3
PEB34	5.93	5.75	5.40	5.42	6.47*[a]	4.88	6.56*	5.46	6.33*
PEB4	3.03	3.09	2.57	2.74	3.75*[a]	2.01	3.84*	2.79	3.47*
Proportion_PEB4	0.28	0.28	0.24	0.26	0.32*[a]	0.19	0.34*	0.26	0.30*
Interest in Future PEBs	13.7	13.7	13.1	13.3	14.5*[a]	12.2	14.6*	13.5	14.0*
Perceived Residential Vulnerability	12.6	13.0	12.4	12.6	13.4*[a]	11.0	14.0*	12.5	13.4*
Descriptive Norms	17.2	16.5*	16.4	16.4	17.4*[a]	15.9	17.5*	17.0	16.5
Normative Beliefs	16.8	16.7	16.0	16.2	17.7*[a]	14.8	18.0*	16.6	16.9
Self and Worldviews									
Green Identity	10.1	9.89	9.56	9.75	10.4*[a]	8.87	10.9*	9.79	10.1
New Ecological Paradigm	20.4	21.6*	20.7[b]	21.1	21.6*	18.7	22.4*	20.9	21.6*
Policy Support	36.4	37.9*	36.4	36.1	39.0*[a]	32.6	40.4*	36.5	38.5*
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences	4.12	3.85	3.97	3.87	3.99	3.78	4.16	3.83	4.07
CC Belief/Acceptance	21.3	22.6*	21.3	21.5	23.3*[a]	18.6	24.2*	21.6	22.8*
CC Risk Perception	22.9	24.1*	22.4	22.8	25.3*[a]	19.1	26.5*	22.8	24.9*
Personal Responsibility for CC	15.5	15.8	14.7	14.7	17.2*[a]	12.3	17.8*	15.2	16.3*
Spatial Distance of CC	6.57	6.21	6.51	6.18	6.35	6.78	6.05*	6.28	6.45
Importance of CC Issue	22.8	24.3*	22.5	22.7	25.5*[a]	18.1	27.3*	22.8	25.0*
Psychological Reactance	12.0	10.8*	11.1	11.7	11.0[b]	13.5	9.97*	11.4	10.9
CC Self-efficacy	14.2	14.3	13.8	13.8	15.1*[a]	12.0	15.7*	14.0	14.6
CC Response Efficacy	13.4	13.3	12.8	12.7	14.1*[a]	11.4	14.6*	13.1	13.5
CC Collective Efficacy	19.8	20.4	19.5	19.4	21.3*[a]	17.1	22.1*	19.8	20.7*
Trust in Climate Scientists	13.8	14.3	13.6	13.5	15.0*[a]	11.7	15.9*	13.6	14.8*
Feelings about Climate Change									
CC Concern	22.6	23.4	22.0	22.0	24.8*[a]	18.5	26.1*	22.5	23.8*
CC Distress	24.7	25.8	24.3	24.0	27.3*[a]	20.2	28.9*	24.7	26.3*
Responses to Climate Change									
Behaviours Changed due to CC	4.42	4.30	3.87[a]	4.34	4.74*	3.29	5.08*	4.49	4.14
Personal Norms	17.5	17.5	16.8	16.7	18.8*[a]	14.4	19.6*	17.2	18.0*
Likelihood of CC Activism	12.7	12.6	12.1	12.0	13.6*[a]	10.6	14.2*	12.2	13.3*
Behavioural Willingness	37.0	37.4	34.7	35.1	41.0*[a]	29.9	42.5*	35.8	39.2*
Psychological Adaptation	39.3	39.1	37.2	37.8	41.8*[a]	33.6	43.3*	38.3	40.3*
Understandings of Climate Change									
Objective CC Knowledge	4.95	5.67*	4.68	4.88	6.40*[a]	3.13	6.85*	5.19	5.69
Self-rated CC Knowledge	3.50	3.31*	3.21	3.32	3.57*[a]	3.32	3.50*	3.35	3.43

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. CC = climate change. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform.

. CC = climate change. Schl = school only. Uni = university. Right= right-leaning political party. Left = left-leaning political party.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

Appendix E.4 (Continued)
Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Full-time Employed?		Income (household $000)			Currently Studying?		Own Home? [c]	
	Yes	No	< 60	60-100	> 100	Yes	No	Yes	No
N ≤	1012	1755	1146	736	885	292	2475	1559	1208
Lifestyle & Social Milieu									
Community Involvement	13.2	11.4*	11.5[a]	12.3	12.6*	13.4	11.9*	12.0	12.0
PEB34	6.55	5.39*	5.48[a]	5.94	6.14*	6.88	5.69*	5.57	6.13*
PEB4	3.34	2.91*	2.75[a]	3.21	3.37*	4.18	2.94*	2.97	3.20*
Proportion_PEB4	0.28	0.27	0.26	0.29	0.29	0.36	0.27*	0.27	0.28
Interest in Future PEBs	14.5	13.2*	13.0[a]	13.8[a]	14.6*[a]	15.2	13.5*	13.7	13.6
Perceived Residential Vulnerability	13.4	12.5*	12.4[b]	13.0	13.3*	14.3	12.7*	12.5	13.3*
Descriptive Norms	17.2	16.5*	16.6	16.7	17.2	16.5	16.8	17.0	16.6
Normative Beliefs	17.4	16.3*	16.1	16.7	17.6*[a]	17.6	16.6*	16.6	16.8
Self and Worldviews									
Green Identity	10.1	9.81	9.86	9.83	10.1	10.8	9.84*	9.86	10.0
New Ecological Paradigm	21.2	21.1	21.0	21.0	21.4	22.1	21.0*	20.9	21.5*
Policy Support	38.1	36.8*	36.7	37.0	38.3*[a]	39.6	37.0*	36.7	38.0*
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences	4.38	3.57*	3.79	4.02	4.02	4.52	3.83	3.66	4.20
CC Belief/Acceptance	22.6	21.8*	21.5	22.0	23.1*[a]	24.0	21.9*	21.6	22.7*
CC Risk Perception	24.9	22.9*	22.7[b]	23.7	24.8*	26.5	23.3*	22.8	24.8*
Personal Responsibility for CC	16.9	15.0*	14.6	15.5	17.1*[a]	17.9	15.4*	15.3	16.1*
Spatial Distance of CC	6.54	6.24	6.19	6,58	6.35	6.77	6.30	6.18	6.56*
Importance of CC Issue	24.5	23.2*	22.7	23.6	25.0*[a]	26.7	23.4*	23.0	24.7*
Psychological Reactance	11.5	11.1	11.0	11.6	11.2	11.2	11.2	11.3	11.1
CC Self-efficacy	14.9	13.9*	13.6[a]	14.3[a]	15.2*[a]	15.4	14.1*	14.0	14.6*
CC Response Efficacy	14.0	12.9*	12.7	13.3	14.1*[a]	14.5	13.2*	13.1	13.6
CC Collective Efficacy	20.7	19.9*	19.5	20.2	21.1*[a]	21.6	20.0*	19.9	20.5
Trust in Climate Scientists	14.6	13.8*	13.6	14.0	14.8*[a]	15.7	13.9*	13.7	14.7*
Feelings about Climate Change									
CC Concern	23.7	22.7*	22.3	22.9	24.1*[a]	25.6	22.8*	22.5	23.8*
CC Distress	26.7	24.6*	24.0	25.4	27.1*[a]	28.8	25.0*	24.4	26.6*
Responses to Climate Change									
Behaviours Changed due to CC	4.30	4.37	4.24	4.39	4.44	4.66	4.31	4.56	4.07*
Personal Norms	18.3	17.1*	16.8	17.4	18.4*[a]	19.4	17.3*	17.3	17.8
Likelihood of CC Activism	13.5	12.2*	12.0[a]	12.8	13.3*	14.6	12.4*	12.2	13.3*
Behavioural Willingness	39.6	35.8*	35.3	37.0	39.9*[a]	42.8	36.6*	36.2	38.5*
Psychological Adaptation	41.4	37.8*	37.7	39.1	41.4*[a]	43.1	38.7*	38.4	40.1*
Understandings of Climate Change									
Objective CC Knowledge	5.54	5.32	5.13[b]	5.27	5.84	6.32	5.29*	5.31	5.50
Self-rated CC Knowledge	3.46	3.34	3.34	3.39	3.42	3.49	3.37	3.40	3.35

Note. PEB = pro-environmental behaviour. PEB34 = no. of times (out of 16) a response of 3 or 4 was given to behaviours listed in item A6. PEB4 = no. of times a response of 4 was given to behaviours listed in item A6. CC = climate change. Proportion PEB4 = no. of times a response of 4 was given to behaviours listed in item A6, as a proportion of those that there was an opportunity to perform.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups (Games-Howell)

[b] this group mean is significantly different ($p < .01$) from the highest group mean (Games-Howell).

[c] own their home outright or are paying a loan/mortgage on it.

Appendix E.4 (Continued)
Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Minor/Marg. Group? [d]		Residential Location [e]			Experienced ND Past Year [f]		Experienced ND Ever [g]	
	Yes	No	Inner Urban	Suburb	Rural	Yes	No	Yes	No
N ≤	767	2000	401	1749	617	1026	1741	1516	1251
Lifestyle & Social Milieu									
Community Involvement	12.0	12.1	13.0[a]	11.9	11.7*	13.0	11.5*	12.6	11.4*
PEB34	6.00	5.74	12.0[a]	6.55	5.77*	6.84	5.21*	6.37	5.15*
PEB4	3.30	2.98	3.48	3.08	2.77[b]	3.81	2.63*	3.52	2.52*
Proportion_PEB4	0.29	0.27	0.30	0.28	0.26	0.32	0.25*	0.30	0.25*
Interest in Future PEBs	13.7	13.7	14.3[a]	13.6	13.4*	14.8	13.0*	14.4	12.8*
Perceived Residentl Vulnerability	13.7	12.5*	13.0	12.4	13.9*[a]	15.3	11.4*	14.4	11.0*
Descriptive Norms	16.9	16.8	17.5	16.8	16.3[b]	17.4	16.4*	17.1	16.4*
Normative Beliefs	16.9	16.6	17.8[a]	16.6	16.2*	17.7	16.1*	17.3	16.0*
Self and Worldviews									
Green Identity	10.2	9.85	10.5[a]	9.86	9.79*	10.7	9.46*	10.5	9.31*
New Ecological Paradigm	21.8	20.9*	21.2	21.1	21.3	22.1	20.6*	21.9	20.2*
Policy Support	38.1	37.0*	38.6[a]	37.3[a]	36.3*[a]	39.2	36.2*	38.3	36.0*
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences	4.12	3.86	4.41	3.78	4.02	4.68	2.43*	4.34	2.26*
CC Belief/Acceptance	22.7	21.9	23.2[a]	22.2[a]	21.2*[a]	23.9	21.1*	23.2	20.8*
CC Risk Perception	25.0	23.1*	25.3[a]	23.5	22.9*	26.3	22.1*	25.2	21.8*
Personal Responsibility for CC	15.9	15.6	16.7	15.8	14.7*[a]	17.5	14.6*	16.6	14.5*
Spatial Distance of CC	6.19	6.41	6.58	6.48	5.82*[a]	6.09	6.50*	6.08	6.68*
Importance of CC Issue	24.9	23.3*	25.3[a]	23.7	22.6*	26.6	22.0*	25.4	21.6*
Psychological Reactance	11.0	11.3	10.9	11.3	11.4	11.0	11.4	11.2	11.3
CC Self-efficacy	14.4	14.2	14.9	14.3	13.8*[b]	15.5	13.5*	15.0	13.4*
CC Response Efficacy	13.4	13.3	14.1[a]	13.3	12.9*	14.5	12.6*	13.9	12.5*
CC Collective Efficacy	20.5	20.0	21.0	20.2	19.5*[b]	21.5	19.4*	21.0	19.2*
Trust in Climate Scientists	14.6	13.9*	15.1[a]	14.1	13.6*	15.2	13.4*	14.8	13.3*
Feelings about Climate Change									
CC Concern	23.9	22.7*	24.6[a]	23.0	22.1*	25.8	21.4*	24.7	21.1*
CC Distress	26.4	24.9*	27.1[a]	25.4	24.1*	28.6	23.4*	27.1	23.2*
Responses to Climate Change									
Behaviours Changed due to CC	4.66	4.22	4.51	4.34	4.25	5.13	3.88*	4.83	3.76*
Personal Norms	17.9	17.4	18.8[a]	17.5[a]	16.6*[a]	19.2	16.5*	18.4	16.4*
Likelihood of CC Activism	13.2	12.4*	13.6[a]	12.6	12.3*	14.2	11.7*	13.5	11.6*
Behavioural Willingness	38.1	36.9	40.3[a]	37.2[a]	35.2*[a]	41.2	34.8*	39.5	34.5*
Psychological Adaptation	40.2	38.8	41.3[a]	39.1	38.0*	43.4	36.6*	41.4	36.4*
Understandings of Climate Change									
Objective CC Knowledge	5.79	5.25	6.11	5.46	4.75*[a]	6.38	4.82*	6.07	4.58*
Self-rated CC Knowledge	3.48	3.35	3.53[a]	3.37	3.31	3.56	3.27*	3.51	3.23*

Note. PEB = pro-environmental behaviour. ND = natural disaster.

* the effect of group is significant at the $p < .001$ level.

[a] this group mean is significantly different ($p < .01$) from the other two groups

[b] this group mean is significantly different ($p < .01$) from the highest group mean.

[d] Minor/Marg. (Minority/Marginalised) Group: Yes = identifies as either CALD, ATSI, living with a disability, LGBTIQ, and/or homeless; No = does not identify as a member of any of these groups.

[e] Rural = rural, including country town, rural property, and remote locations.

[f] Has directly experienced, during the most recent year, extreme weather event/s or natural disaster/s.

[g] Has directly experienced, during whole lifetime, extreme weather event/s or natural disaster/s

Appendix E.4 (Continued)
Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Expd 2022 Floods		State/Territory of Australia [@]						
	Yes	No	ACT	NSW	Qld	S.A.	Tas	Vic	W.A.
N ≤	873	1868	45	886	558	208	54	706	284
Lifestyle & Social Milieu									
Community Involvement	13.0	11.6*	12.9	12.3 [a]	1.8	11.6	11.0 [a]	12.1	11.8#
PEB34	6.71	5.40*	6.31	6.02	5.76	5.75	5.19	5.76	5.54
PEB4	3.87	2.69*	3.82	3.10	3.10	3.18	2.78	3.05	2.91
Proportion_PEB4	0.33	0.25*	0.34	0.28	0.27	0.31 [a]	0.20 [a]	0.28	0.27
Interest in Future PEBs	14.5	13.3*	14.6	13.4	13.8	14.0	13.5	13.7	14.0^
Perceived Residential Vulnerability	15.0	11.8*	13.1	13.3 [b, c, d]	13.8 [e, f, g, h]	11.7 [b, e]	11.5 [f]	12.3 [c, g]	12.0* [d, h]
Descriptive Norms	17.1	16.6	17.9	16.9	16.4	16.3	16.6	16.9	17.2
Normative Beliefs	17.3	16.4*	18.6 [b, c]	16.9 [d]	15.9 [b, d, e]	16.5 [c]	16.4	17.0 [e]	16.8*
Self and Worldviews									
Green Identity	10.6	9.64*	10.1	9.97	9.77	10.3	9.76	9.92	9.98
New Ecological Paradigm	21.9	20.8*	21.4	20.9	21.0	21.5	21.8	21.2	21.6
Policy Support	38.5	36.7*	40.5 [b, c]	36.9 [b]	36.4 [c, d, e]	37.5	37.7	37.8 [d]	38.1* [e]
ND and CC Experiences and Beliefs									
Impacts of Flooding Experiences [g]	(not applicable)		4.67	4.03	4.47 [a]	3.19	2.70	3.46 [a]	3.26*
CC Belief/Acceptance	23.2	21.6*	23.3	21.9	21.7	22.4	22.3	22.2	22.9
CC Risk Perception	25.5	22.8*	25.5	23.7	23.0	23.1	23.5	2.0	24.2
Personal Responsibility for CC	17.0	15.0*	16.7	15.8	15.0	15.5	15.4	15.9	16.1
Spatial Distance of CC	6.10	6.47	7.02	6.31	6.10	6.55	6.43	6.47	6.43
Importance of CC Issue	25.5	22.8*	25.9	23.6	22.8	23.7	24.1	24.0	24.6^
Psychological Reactance	11.3	11.2	10.7	11.4	11.5	11.0	9.8	11.1	11.1
CC Self-efficacy	15.1	13.9*	15.5	14.2	13.7	14.6	14.2	14.5	14.6^
CC Response Efficacy	14.1	12.9*	14.2	13.4	12.9	13.3	13.1	13.5	13.3
CC Collective Efficacy	21.1	19.7*	21.4	20.1	19.7	20.4	20.4	20.4	20.3
Trust in Climate Scientists	14.9	13.7*	15.2	14.1	13.6	14.2	14.2	14.2	14.1
Feelings about Climate Change									
CC Concern	24.9	22.2*	25.0	23.0	22.5	23.2	23.5	23.2	23.7
CC Distress	27.7	24.3*	26.5	25.4	24.7	25.2	26.9	25.6	25.7
Responses to Climate Change									
Behaviours Changed due to CC	4.97	4.06*	4.33	4.26	4.32	4.62	4.19	4.37	4.44
Personal Norms	18.7	16.9*	18.5	17.5	16.9	17.4	18.1	17.7	17.8
Likelihood of CC Activism	13.9	12.0*	13.1	12.9	12.3	12.5	12.3	12.7	12.5
Behavioural Willingness	40.3	35.8*	41.8	37.5	36.0	37.6	37.1	37.5	37.0
Psychological Adaptation	42.1	37.8*	41.8	39.8	37.7	38.4	38.3	39.6	39.3^
Understandings of Climate Change									
Objective CC Knowledge	5.93 [a]	5.14*	7.07	5.21	4.92 [a]	5.62	5.83	5.64	5.78#
Self-rated CC Knowledge	3.47	3.34*	3.53	3.41	3.38	3.32	3.13	3.79	3.38

Note. PEB = pro-environmental behaviour. ND = natural disaster.
ACT = Australian Capital Territory. NSW = New South Wales. Qld = Queensland. S.A. = South Australia.
Tas = Tasmania. Vic = Victoria. W.A. = Western Australia
^ the effect of group is significant at the $p < .05$ level. # the effect of group is significant at the $p < .01$ level.
* the effect of group is significant at the $p < .001$ level.
[@] Northern Territory is not included due to insufficient samples size (N = 10).
[b, c, d, e, f, g] two group means that share the same superscript are significantly different ($p < .05$, Games-Howell).
[g] State/Territory Ns for this variable are low, ranging from to 10 (Tasmania) to 332 (NSW).

Appendix E.4 (Continued)
Mean Scores for New Respondent Demographic Sub-Groups

Climate Change Variables	Experienced CC Past Year [h]		Experienced CC Ever [i]		Health Status [j]		Owns Vehicle [k]	
	Yes	No	Yes	No	Low	High	Yes	No
$N \leq$	1050	1717	1220	1547	1340	1427	2349	418
Lifestyle & Social Milieu								
Community Involvement	12.8	11.6*	12.7	11.5*	11.4	12.7*	12.1	12.0
PEB34	6.92	5.14*	6.83	5.02*	5.49	6.12*	5.75	6.19
PEB4	4.31	2.31*	4.24	2.15*	2.80	3.33*	3.02	3.32
Proportion_PEB4	0.37	0.22*	0.37	0.21*	0.26	0.29	0.27	0.30
Interest in Future PEBs	15.2	12.7*	15.1	12.5*	13.3	14.1*	13.7	13.5
Perceived Residentl Vulnerability	15.4	11.3*	15.1	11.1*	12.9	12.8	12.9	12.7
Descriptive Norms	18.0	16.0*	17.9	15.9*	16.4	17.1*	16.8	17.0
Normative Beliefs	18.4	15.7*	18.3	15.4*	16.4	17.0*	16.6	17.1
Self and Worldviews								
Green Identity	11.2	9.13*	11.2	9.85*	9.72	10.1*	9.89	10.2
New Ecological Paradigm	23.1	19.9*	23.0	19.7*	21.4	20.9	21.1	21.6
Policy Support	40.7	35.2*	40.6	34.7*	37.0	37.5	37.1	38.6*
ND and CC Experiences and Beliefs								
Impacts of Flooding Experiences	4.56	3.01*	4.46	2.95*	3.98	3.91	3.96	3.86
CC Belief/Acceptance	25.3	20.2*	25.2	19.7*	22.2	22.1	22.0	23.0*
CC Risk Perception	28.0	21.0*	27.7	20.5*	23.9	23.4	23.4	24.9*
Personal Responsibility for CC	18.6	13.8*	18.5	13.4*	15.4	15.9	15.6	15.9
Spatial Distance of CC	5.70	6.74*	5.72	6.85*	6.17	6.52	6.28	6.71
Importance of CC Issue	29.0	20.5*	28.7	19.8*	23.7	23.7	23.5	25.1*
Psychological Reactance	9.91	12.0*	9.98	12.2*	11.2	11.2	11.3	10.6
CC Self-efficacy	16.3	13.0*	16.2	12.8*	14.1	14.4	14.2	14.4
CC Response Efficacy	15.2	12.1*	15.1	11.9*	13.1	13.5	13.3	13.6
CC Collective Efficacy	22.7	18.6*	22.6	18.2*	20.0	20.3	20.1	20.7
Trust in Climate Scientists	16.3	12.8*	16.2	12.5*	14.0	14.2	14.0	14.8*
Feelings about Climate Change								
CC Concern	27.9	20.1*	27.6	19.4*	23.0	23.1	22.9	24.1
CC Distress	30.2	22.4*	30.0	21.7*	25.5	25.2	25.1	26.7
Responses to Climate Change								
Behaviours Changed due to CC	5.65	3.55*	5.60	3.36*	4.28	4.40	4.37	4.19
Personal Norms	20.4	15.7*	20.3	15.3*	17.2	17.8	17.4	18.1
Likelihood of CC Activism	14.8	11.3*	14.7	11.0*	12.4	12.8	12.5	13.5*
Behavioural Willingness	43.8	33.2*	43.5	32.3*	36.1	38.2*	36.8	39.3*
Psychological Adaptation	45.3	35.4*	44.8	34.7*	38.5	39.8	38.9	40.3
Understandings of Climate Change								
Objective CC Knowledge	7.49	4.12*	7.47	3.76*	5.37	5.42	5.35	5.68
Self-rated CC Knowledge	3.66	3.21*	3.64	3.18*	3.32	3.44*	3.37	3.44

* the effect of group is significant at the $p < .001$ level.

[h] Has directly experienced, during the most recent year, environmental or climatic change/s, circumstance/s, or event/s that is/are thought to be attributed to climate change

[i] Has directly experienced, during their whole lifetime, environmental or climatic change/s, circumstance/s, or event/s that is/are thought to be attributed to climate change

[j] Health Status: Low = Extremely poor, Poor, or Okay; High = Good or Very good.

[k] Solely or jointly owns one or more petrol or diesel motor vehicles

APPENDIX E.5: Correlations Between the New Respondent Climate Change Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Community Involvement	--														
2. PEB34	.49	--													
3. PEB4	.31	.73	--												
4. Proportion_PEB4	.19	.53	.87	--											
5. Interest in Future PEBs	.28	.46	.49	.43	--										
6. Perceived Residentl Vulnerability	.14	.31	.35	.31	.40	--									
7. Descriptive Norms	.17	.29	.30	.29	.32	.22	--								
8. Normative Beliefs	.19	.40	.46	.42	.49	.38	.54	--							
9. Green Identity	.25	.53	.57	.53	.58	.42	.46	.60	--						
10. New Ecological Paradigm	-.07	.21	.36	.35	.36	.42	.16	.40	.43	--					
11. Policy Support	.09	.38	.48	.45	.58	.46	.33	.57	.59	.60	--				
12. Impacts of Flooding Experiences	.30	.27	.18	.11	.17	.28	.09	.09	.16	.04	.09	--			
13. CC Belief/Acceptance	.03	.28	.39	.37	.48	.51	.34	.53	.51	.62	.69	.10	--		
14. CC Risk Perception	.12	.39	.48	.45	.53	.60	.36	.57	.57	.62	.70	.19	.76	--	
15. Personal Responsibility for CC	.18	.41	.47	.43	.54	.49	.38	.60	.57	.50	.65	.17	.66	.72	--
16. Spatial Distance of CC	.12	-.01	-.13	-.14	-.07	-.26	.06	-.08	-.08	-.29	-.16	.02	-.11	-.15	-.09
17. Importance of CC Issue	.09	.39	.51	.49	.56	.61	.39	.63	.63	.68	.77	.17	.85	.85	.75
18. Psychological Reactance	.11	-.10	-.24	-.25	-.23	-.24	-.09	-.33	-.32	-.46	-.50	.03	-.44	-.39	-.33
19. CC Self-efficacy	.12	.39	.46	.44	.54	.45	.44	.60	.57	.49	.63	.13	.66	.67	.76
20. CC Response Efficacy	.17	.42	.47	.45	.53	.44	.48	.63	.60	.41	.60	.14	.61	.65	.74
21. Collective Efficacy	.05	.32	.44	.44	.52	.47	.36	.59	.54	.58	.73	.07	.73	.69	.70
22. Trust in Climate Scientists	.10	.33	.41	.38	.46	.45	.32	.50	.49	.52	.67	.11	.66	.65	.62
23. CC Concern	.12	.41	.51	.49	.57	.60	.43	.63	.66	.64	.74	.19	.79	.82	.74
24. CC Distress	.14	.41	.48	.45	.53	.52	.42	.60	.60	.54	.65	.20	.69	.76	.73
25. Behaviour Change due to CC	.12	.38	.48	.47	.47	.34	.36	.47	.53	.38	.47	.16	.45	.48	.47
26. Personal Norms	.18	.47	.55	.53	.61	.49	.55	.69	.71	.52	.69	.14	.67	.73	.76
27. Likelihood of CC Activism	.33	.57	.56	.47	.58	.45	.39	.57	.64	.37	.58	.25	.52	.61	.62
28. Behavioural Willingness	.24	.51	.56	.50	.62	.46	.45	.66	.66	.46	.70	.15	.63	.69	.73
29. Psychological Adaptation	.26	.51	.54	.50	.59	.48	.53	.68	.68	.42	.61	.22	.60	.68	.70
30. Objective CC Knowledge	.00	.24	.38	.37	.45	.41	.31	.50	.46	.57	.69	.05	.71	.64	.56
31. Self-rated CC Knowledge	.22	.31	.31	.27	.27	.23	.23	.27	.37	.15	.23	.15	.21	.26	.22

Note. Approximate critical values for Pearson's r : $p < .05$ if $r \geq .04$. $p < .01$ if $r \geq .05$. $p < .001$ if $r > .06$ (two-tailed).
CC = climate change. ND = natural disaster.

Appendix E.5 (Cont.): Correlations Between the New Respondent Climate Change Variables

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. Community Involvement															
2. PEB34															
3. PEB4															
4. Proportion_PEB4															
5. Interest in Future PEBs															
6. Perceived Residentl Vulnerability															
7. Descriptive Norms															
8. Normative Beliefs															
9. Green Identity															
10. New Ecological Paradigm															
11. Policy Support															
12. Impacts of Flooding Experiences															
13. CC Belief/Acceptance															
14. CC Risk Perception															
15. Personal Responsibility for CC															
16. Spatial Distance of CC	--														
17. Importance of CC Issue	-.20	--													
18. Psychological Reactance	.28	-.49	--												
19. CC Self-efficacy	-.10	.73	-.33	--											
20. CC Response Efficacy	-.07	.70	-.31	.86	--										
21. Collective Efficacy	-.17	.80	-.47	.78	.76	--									
22. Trust in Climate Scientists	-.15	.76	-.43	.61	.57	.68	--								
23. CC Concern	-.20	.92	-.45	.72	.71	.77	.72	--							
24. CC Distress	-.08	.79	-.30	.67	.66	.67	.61	.82	--						
25. Behaviour Change due to CC	-.18	.53	-.24	.53	.52	.50	.41	.56	.51	--					
26. Personal Norms	-.09	.78	-.35	.76	.77	.73	.62	.80	.80	.59	--				
27. Likelihood of CC Activism	-.05	.63	-.26	.58	.60	.54	.53	.67	.67	.47	.70	--			
28. Behavioural Willingness	-.05	.73	-.34	.69	.69	.67	.61	.74	.72	.54	.79	.75	--		
29. Psychological Adaptation	-.06	.72	-.26	.69	.72	.62	.55	.76	.76	.56	.82	.72	.77	--	
30. Objective CC Knowledge	-.14	.71	-.40	.60	.53	.67	.60	.67	.59	.49	.60	.46	.59	.53	--
31. Self-rated CC Knowledge	-.04	.31	-.03	.20	.23	.18	.26	.33	.25	.26	.30	.33	.31	.35	.21

Note. Approximate critical values for Pearson's r : $p < .05$ if $r \geq .04$. $p < .01$ if $r \geq .05$. $p < .001$ if $r > .06$ (two-tailed).
CC = climate change. ND = natural disaster.

APPENDIX E.6
Illustrative New Respondent Responses to the Open-Ended Questions

A8. Arguably, almost all of us can do a bit more to maintain the quality of our environment. Which of the following limit your involvement in pro-environmental actions? What are the reasons for you?

OTHER REASONS (A8_98):

I can often get discouraged because the impact I'm making seems so little when much larger corporations or governments are making such big impacts on the environment and continue to choose profit over the environment

Governments wont force the biggest polluters aka big business aka their biggest donors to pull their weight

I'm waiting for every human to pledge their support for climate change action.

Putting the onus onto the average person when we contribute minimally is unrealistic, large corporations make the majority emissions and have a lot more responsibility and culpability to address these issues but refuse to

RedCycle have stopped taking soft plastics

personal responsibility for climate change is a way for corporations to pass the blame onto everyday people when they are killing us

Sustainable products/services are more expensive

I just find it difficult to do more to help. Like I can't eat less meat because I get home at 9 at night and the only leftovers involve meat.

Social anxiety limiting attending events/joining orgs

dislike of lying greenies

I'm not sure if climate change is happening or not. I'm more concerned of how much rubbish we dump in the ocean. Dome of it never breaks down and kills alot of sea animals

Financial reasons

Because paper straws taste yuck and they dissolve in your mouth

whats the point? the sooner the human race dies out the better then the earth can start to recover maybe the next spiecies can do it better

i think sometimes its hard to see how actions will benefit the envirnment when larger compnaies etc arent making changes

I have severe anxiety and don't handle being around other people.

I do try ano act in environmentally friendly ways but there is so much more I could be doing.

i compost, recycle etc, do what I can

Many environmentalists are zealots

Laziness and covid isolating from others

I don’t know how to get involved and am socially awkward so don’t know if I would dare going alone

Time poor and little knowledge. Busy with career and family

sometimes it's hard to know where to even start, or who to trust. It feels like brands use it as a marketing strategy which makes it hard to know whether they are truly environmentally friendly or not
Climate hoax

It's all pointless without meaningful action from government and shutting down fossil fuel industries
The damage of climate change is exaggerated

Have chronic back and nerve pain, limits my actiivty in my life

Local Council WILL NOT permit Solar on my roof !

I am renting, so cannot modify my home to make it more environmentally friendly., My super is invested in managed funds and my financial advisor claims it is not possible to know whether their investments are sustainable. I switch most appliance off at the power point but am annoyed that my internet/landline require two modems and a wireless phone charger to be switchedon at all times, with 10 indicator lights on.

I'm old and live in the country with no one around.

Gods kingdom is the only hope that all things will be fixed and rid the all that are ruining the earth

climate is not caused by mankind

In many cases they are just too expensive

I have 3 small children so I have to do what works in Pur routines

I like to preserve natural environment amd deplore the idea of windmills etc desicrating the countryside.I do not believe the emission of co2 is anything other than beneficial to the natural environment including plant and crop growth

an individual taking action is great but not if it encourages the incorrect narrative that it is *only* up to individuals. it has to start with business and government otherwise kinda pointless

D9. Please give brief details of these [environmental or climatic] events or circumstances [that you think might be due to climate change]. (What happened? When? With what consequences?)

The city that I live in being blanketed with bushfire smoke for several weeks, making the city one of the worst in the world for air quality

In Tasmania, because of continuous heavy rain, many places were flooded even Launceston.

Increase in temperature, causing more frequent heatwaves and increase the duration of droughts.

I didn't care about climate change until the 2019 bushfires, which really opened my eyes to the situation. Also during November, Victoria started getting a lot of rain. For a whole month, the Barwon river and all the wetlands were constantly flooded.

Flood in QLD where people lost their houses and farms

I think for the first time we are experiencing a cold summer, or at least a cooler one.

I lived in Fiji during the recent cyclones and saw the damage caused, particularly to homes and villages with weaker structures.

Antartica ice Bergs are melting

Strange weather patterns and flooding

CONSTANT FLOODS IN nsw. WEATHER IS SO UNPREDICTABLE

My family farm home in the country side was totally ruined by flood and caused 75% damages to the whole property of 125 acres.

Floods 2022. While the homes of my family and friends were not affected, I could see the damage done on the news. We were lucky because we chose to live in areas that weren't all likely to be affected by the floods.

Major bushfires due to severe drought

Big storms, flooding and drought

Record heatwave in Perth (6 consecutive days over 40 degrees). I live in a home without air conditioning and this was extremely uncomfortable and led to my partner and I have to seek out environments with air conditioning (e.g public library or shopping centre) to avoid heat stress.

Shortage of produce being available. Documentaries showing the earths forests are reducing year on year. Weather seems to be more erratic and less stable through each season.

The weather in Australia over the past few years has been getting more and more unpredictable. There are unseasonal rains and thunderstorms, the temperatures in summer soar so high that there have been devastating bushfires every year, there has been flooding in many parts of Victoria. The weather in all parts of the world is changing fast. When I visited India for holidays, I personally felt the change in weather and the fluctuations in temperature. It is unbearable to be outdoors in summer and winters are harsh.

Temperature variation all around the world. Example Canada hot and looking summer and a long delay to winter, Australia long and cold winter and slow start to summer

Floods 2022, Mid-2000s Drought

Shifts in rainfall patterns, temperature variations, average conditions being differents (i.e. monthly rainfall or temperatures)

The change of the patterns in the seasons over the past 10 years are significantly different to how I remember as a child. The extremes of nature have become far more intense

Flooding, drought, bushfires and evacuation warnings multiple times each year, coastal erosion, disruption of fauna habitat and deforestation

Last winter extreme torrential rains (water damage to ceiling). Last summer several extreme heatwaves - high energy cost due to aircon use, high water use to save my garden. Before that, repeated extreme unusual events including shift in snow period, temperature extremes, average temperature. Additionally, I studied ocean acidification and marine heatwave effects and are familiar with effects of climate change due to my own results, talks with collegues and reading and publishing peer-reviewed scientific publications.

Visiting the solomon islands and the amount of land that is visibly under water is frightening. All due to temperatures rising.

The bushfires of 2019. It got out of control so quickly due to the dryness of the trees and grass. And it started so suddenly. Further, La Niña occurring in both 2021 and 2022.

The climate has been on the fritz for years. We no longer get seasons weather goes from one extreme to another. Heat waves one week, cyclone level winds the next. And nothing but inaction and denial from government/business

Excessive amount of rain Extended drought Unpredictable winds

Much more rain than usual thoughout 2022 after having experienced drought up until 2020. The level of destruction I saw through news reports was far more often and much more frequent (around the world) than in my entire life

I HAVE EXPERIENCED SEVERE DEHYDRATION, HEAT EXHAUSTION AND VERY SEVERE SUNBURN ALL OF WHICH REQUIRED HOSPITALISATION.

I see many pollution in the air and it's affecting crops from growing m. Harvesting seasons aren't as exciting as they were with most farmers suffering due to drought

The Australia wide bushfires, the 2021/22 floods, the 2011 floods

We seem to be getting pmuch longer Wet periods than before, for the past few years summer type weather seems to be starting later whilst the winter has been lasting longer

Sudden floods and then heatwave. Last year. Too many natural resources like vegetables has been destroyed

the 3 major floods happening throughout the year in the east coast of Australia, also the copious amounts ms of rain we got due to la nina

Inconsistency in the weather pattern.

Me and my family got affected by cyclone. There was power outage for days. Shortage of food. Passed through difficult times after the cyclone.

Our summer temperatures are getting higher our bird life are not around so much any more and our fish have ulcers on some of them when you catch them owing to the sea temperature being hot

The weather patterns are changing and weather events are becoming more extreme in their nature. There have also been more fires around.

Floods ruining crops paying more for food cause of shortages

The intense heat in summer causing bushfires and smoke in cities.

Excessive swings in weather, 30 degree days in winter, 10 degree days in summer, constant rainfall

E6. What is/are your biggest concern(s) about climate change? _____

Im not that concerned about climate change. Im more concerned about the negative consequences of policies implemented to combat climate change.

My biggest concern is more for those living abroad in places like India, China and UK where they are experiencing climate change much worse due to manmade pollution.

We're going to see continued devastating loss of biodiversity and movement of human beings that will result in genocide in order to support the continuation of a capitalist world order.

The biggest concern is how long it has taken to become aware of it and also how even now there seems to be little concern globally about preserving future generations from hardship.

Temperature increases and the increased likelihood of bush fires destroying peoples homes.

My biggest concern is frequency and intensity of natural disasters. Also, the disruption to the food chain and housing system that comes along with that.

The flow on effects to society - food insecurity, increased need for government support directing funding and attention from other issues eg health, education etc

My biggest concerns about climate change are that the world will heat up so much that every ice cap will melt, causing the seas to rise and more floods to occur when it does rain

Long term effects on the internation community, food and water shortages locally and internationally, displacement of people and climate refugees causing conflicts.

Im worried we will experience food shortages and droughts, im worried about more floods and the health and safety of my family.

Just that we are destroying a beautiful planet and it's disgusting the behaviour of most people and countries

Natural disasters such as cyclones, floods and droughts. Impacting food supply and clean water usage.

There will be an increase in bushfires and floods affecting homes and livelihoods, this also affects grocery prices as crops are wiped out

Sea level rising, heat waves and issue with crops and food production.

We are potentially doing irreversible damage to the earth. There is uncertainty with our future and the future for our children and grandchildren

Heatwaves, lack of rainfall, environmental degredation.

Flooding, bushfires, drought

That the knowledge being perpetuated is coming from people being paid to present their findings/ scientific research and I do not trust that it isn’t the natural order of the weather to go through periods of change. However in recent years I have seen the weather change significantly.

Climate change affecting the various activities that I take part in such as cycling, snowboarding and generally being outdoors

The world eventually becoming inhabitable, my children or their children not having a world to live in. I live in an agricultural area and my fiancé works in this industry - the thought of it declining is worrying. My family don't believe in climate change so I feel like it's something I have had to learn myself and try to change on my

own. Even today they will still deny it - this can have a pretty big impact on people who are already not confident/not knowledgable about it. I worry about the extreme weather events such as bushfires and droughts.

That people are it taking seriously and things going to get worse!

It is unaffordable for a lot of people including me, to take appropriate actions such as investing in solar panels, using only electric appliances not gas, and changing over to a hybrid or fully electric vehicle. Until the Government makes changes attainable for all Australians, many people will be unable to do their part to the full extent they would like to.

The future and my child. I'm worried the planet will be ruined by the time he's an adult

water and food shortages

The huge effect on the World's economy,but more so on our eco-systems, our geographical landmarks- our animals will suffer greatly and there may be signs of extinction. For humans, it's the huge effect on the economy...food may become scarce, prices will rise, and it will place great strain on our everyday lives.

climate change is happening but we can't stop it but we need to learn to live with it by heat proofing our homes, schools and businesses and having enough water to prevent water restrictions during droughts, keep everything green when it's dry again because it's a cycle

my biggest concern is that the ratbag greenie minority will bugger up the rest of the world to make a name for themselves. the world population hit 8 billion the other day, how about reducing that number by 50% urgently. then I may get interested!

I am concerned about our overall welfare as if temperatures continue to go up and sea levels continue to rise, great areas of where we currently live will be destroyed or hugely compromised. Also crops will be destroyed which can have a huge impact on our food supplies.

Its gobal effect, & gov'ts doing little or nothing to act against it.

Events like draught, tornadoes, and extreme heat can be deadly and concerning.

That we are going to experience more severe weather events such as severe storms, bushfires,floods, heatwaves and that it will affect our wildlife and biodiversity as well as human life and our quality of life

the financial impact that it can have when cost of living is already bad enough.

Global warming or cooling affecting the agricultural industry, in turn farmers losing valuable crops and hence inflation of goods.

That if we carry on and not only undividuals but governments dont put a stop or introduce restrictions then the damage we cause will be irreversable and welll scientists have been warning us of the terrible state of the planets future and its scary!! There are already parts of this world that used to be habitable but are now uninhabitable as the temp is to hot. A sientist said hes afraid of our near future.

The biggest issue for me is what legacy I am leaving for my children and my grandchildren. They will have to deal with the mistakes and the ruin we have inflicted on the planet. they are the ones that are going to face the full brunt of climate change and have to work it all out.

At the moment it's not climate change itself, but peoples lack of agreeing that it's happening and attempting to help improve our situation regarding climate change.

What sort of planet we are leaving for our children

H17f. Do you, and/or the community with which you have identified yourself in the preceding questions, face any particular challenges to taking action against climate change?

Those who are trying to prevent or actions of wanting change for the climate.

Lack of effective publicity

Not that I am aware of

It's a struggle for every human on this earth to be completely honest

Being dealt with all the heavy lifting but big corporations aren't doing anything whatsoever

I think cost of living is a major aspect

I am a transplant patient, not physically fit and immune comprimised

As a person living with a disability and lower economic status than some, I feel as though the effects and potential impacts of climate change will hit me harder than some other people I know unless I can change my socioeconomic status

Generally I struggle and people around me struggle to afford cleaner ways of living and movin to a different way of living after having a normal way for so long

Yes lack of access, discrimination, bias, sometimes rejection from the groups we're trying to support as well as an increased likelihood of violence from general society and law enforcement

I cannot physically engage with protests or other activities due to mobility issues and severe C-PTSD. I was very involved in wildlife rescue and care during the Black Summer fires and it took such a toll, from which I never really recovered, that I don't think I can get involved to that extent in future. And I am ashamed of that.

Mostly financial restrictions as many actions against climate change would stretch further our already limited financial budgets

I feel myself and my community are really set in their ways and some members simply do not care. We need to change the attitudes within our community and that will be a challenge as people in our community don't pick up their dog droppings and continue to litter.

No we are fine, as long we focuse on reduce waste and think about our action before acting. Working preventative!

Not interested in taking action against something that is non existant and a waste of tax payers money

Scientific research indicates we are overdue for an ice-age. A mini ice-age occurred in medieval times. There was no industry, high population or other factors then that are being claimed now as the cause of the climate changing.

Yes, it’s extremely hard to initiate action in a small town that doesn’t concern themselves of climate change whatsoever

Being on the disability support pension means I can’t afford to make purchase choices that are better for the environment if they are more expensive than other choices. Also wouldn’t be able to afford to buy an electric car.

yes I'm surrounded by redneck climate change deniers

H32. Is there anything else you would like to say about your views on climate change or natural disasters?

i would like to be more informed and would like to support more if I had the money to financially do so.

It is changing but there is a lot of scare tactics and fear mongering occurring and it is difficult to know who to trust

Climate change has already effected millions of lives. It is the problem I believe we must pay most attention to.

if we all work together we can make a change

Corporations are the issue. What people can do is a drop in the bucket compared to what corporations could do if they cared about anything other than money.

EDUCATING PEOPLE REGARDING HOW TO REDUCE THE CARBON FOOT PRINTS BY AN INDIVIDUAL, LEADS TO GREAT EFFECT ON SAVING ENVIRONMENT. THAT CAN BE DONE BY ORGANIZING STREET DRAMA ACTING OR AT COMMUNITY HALLS.

Nothing... Climate change is just a rich lazy elite white woke religion ... only people who are worried are old white ladies

I read an article this morning that said that climate change is not happening, that the sea level is not rising, etc. Climate change is not happening, I believe that the talk about climate change is all about making the people of the world afraid, and it is working.

There is no such thing as climate change. There are natural disasters, never caused by climate change which does not exist.

with less than 1% of the worlds CO2 emissions coming from australia, why do we have to shoulder a large share of the so called blame for climate change, this is a crock of shit

Climate change will happen anyway and we must all learn to live with it.

I BELIEVE THESE EVENTS ARE MOTHER NATURE IN ACTION! HOW CAN PEOPLE QUOTE RECORDS FROM TIME FRAMES WHEN NOTHING WAS EVER RECORDED, THIS IS A NATURAL OCCURANCE

you have covered it all

I want to make a positive change, but am skeptical in the sense that I believe that true change can only occur if governments take action. Responsibility should not be on the taxpayer to bear the burden of change.

I think it is urgent there is a plan in place for the future to prevent climate change getting worse, especially for future generations

Doing this survey has made me realise how I feel about climate change...I would like to do more on my part.

It’s time that politicians get censored for providing false information about issues surrounding climate change and for claiming that it isn’t real.

I don't think we can stop it . Too late

Climate change is the greatest global con job ever seen. It is being used to bilk the wealthy nations & gullible nations like Australia into handing over money & close down industries that help this country.

Appendix F
Comparisons of the Correlations between the Climate Change Variables

Table F.1

Correlations in the Repeat Respondent Sample in 2021 and 2022.

	1	2	3	4	5	6	7	8	9	10	11
1. PEB34											
2. PEB4	.76/.79										
3. Proportion_PEB4	.59/.54	**.86/.82**									
4. Interest in Future PEBs	.46/.49	.49/.51	.44/.40								
5. Perceived Resident Vulnerability	.31/.31	.34/.34	.29/.31	.37/.34							
6. Normative Beliefs	.40/.44	.47/.51	.45/.39	.46/.49	.40/.39						
7. Green Identity	.53/.54	.58/.61	**.54/.48**	.57/.55	.42/.39	.57/.62					
8. Policy Support	**.32/.40**	**.37/.49**	.38/.40	.48/.53	.38/.42	**.47/.58**	**.51/.63**				
9. CC Belief/Acceptance	.31/.28	.39/.38	.36/.35	**.46/.39**	.48/.47	.51/.51	.53/.51	**.55/.68**			
10. CC Risk Perception	.37/.39	.46/.47	.42/.39	.50/.46	.57/.57	.54/.58	.57/.56	**.58/.69**	.71/.72		
11. Personal Responsibility for CC	.39/.38	.47/.47	.42/.42	.52/.49	.48/.45	**.56/.62**	.54/.58	**.53/.66**	.63/.65	.70/.70	
12. Spatial Distance of CC	-.13/-.15	-.17/-.17	-.15/-.17	-.13/-.11	-.35/-.34	-.16/-.18	-.17/-.19	**-.07/-.21**	-.19/-.16	-.28/-.25	-.24/-.18
13. Importance of CC Issue	.39/.41	.50/.51	.46/.43	.52/.49	.58/.55	.61/.62	.66/.67	**.63/.80**	.85/.83	.82/.83	.74/.75
14. Psychological Reactance	-.14/-.17	-.27/-.27	-.26/-.22	-.26/-.23	-.24/.22	**-.30/-.40**	-.31/-.36	**-.33/-.54**	-.45/-.49	-.39/-.43	**-.33/-.41**
15. CC Self-efficacy	.37/.41	.47/.49	.44/.42	.53/.50	.46/.43	.59/.61	.59/.59	**.56/.64**	.67/.64	.65/.65	.73/.73
16. CC Response Efficacy	.38/.41	.47/.48	.44/.40	.52/.49	**.47/.40**	.59/.63	.58/.62	.55/.60	.62/.60	.65/.62	**.78/.73**
17. Collective Efficacy	.31/.36	.42/.47	.40/.42	.50/.47	.46/.42	.57/.62	.56/.59	**.57/.72**	.75/.72	.68/.66	.67/.71
18. CC Concern	.43/.42	.52/.52	**.49/.42**	.53/.50	.57/.56	.63/.63	.69/.68	**.62/.77**	.80/.77	.80/.80	.74/.75
19. CC Distress	.41/.41	.48/.48	.45/.39	.50/.48	.54/.49	.60/.59	.61/.62	**.59/.65**	.66/.64	.76/.73	.73/.74
20. Behaviour Change due to CC	.42/.44	.49/.50	**.47/.39**	.45/.45	.32/.32	.46/.48	.52/.54	**.35/.43**	.41/.41	.46/.46	.44/.46
21. Personal Norm	.46/.48	.55/.57	**.53/.46**	.60/.57	**.53/.45**	.68/.69	**.71/.75**	**.60/.70**	.65/.64	.72/.70	.75/.74
22. Behavioural Willingness	.51/.53	.58/.60	**.52/.46**	.61/.58	.50/.45	.66/.69	.65/.69	**.60/.73**	.63/.63	.69/.68	.74/.75
23. Psychological Adaptation	.51/.53	.56/.58	**.51/.44**	.54/.54	.49/.44	.69/.69	.67/.69	.57/.60	.58/.57	**.68/.63**	.70/.70

Note. Correlation coefficients before the slash (/) are from 2021; those after the slash are from 2022. Differences between the correlations that are significant at the $p < .05$ level are in bold; differences that are significant at the $p < .01$ level are in green; differences that are significant at the $p < .001$ level are in red. Approximate critical values for Pearson's r: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (two-tailed). CC = climate change. ND = natural disaster.

Table F.1 (continued)

Correlations in the Repeat Respondent Sample in 2021 and 2022.

	12	13	14	15	16	17	18	19	20	21	22
1. PEB34											
2. PEB4											
3. Proportion_PEB4											
4. Interest in Future PEBs											
5. Perceived Resident Vulnerability											
6. Normative Beliefs											
7. Green Identity											
8. Policy Support											
9. CC Belief/Acceptance											
10. CC Risk Perception											
11. Personal Responsibility for CC											
12. Spatial Distance of CC											
13. Importance of CC Issue	-.23/-.26										
14. Psychological Reactance	.18/.23	-.51/-.55									
15. CC Self-efficacy	-.20/-.15	.74/.72	-.39/-.42								
16. CC Response Efficacy	-.21/-.15	**.73/.69**	-.37/-.40	.81/.85							
17. Collective Efficacy	**-.30/-.18**	.81/.80	-.48/-.51	.76/.79	**.73/.78**						
18. CC Concern	-.30/-.27	.92/.93	-.46/-.50	.73/.72	.73/.70	.77/.77					
19. CC Distress	-.22/-.17	**.81/.77**	-.32/-.34	.65/.63	.66/.63	.66/.63	.82/.80				
20. Behaviour Change due to CC	-.17/-.18	.48/.49	-.21/-.27	.52/.54	.49/.53	.47/.51	.53/.54	.49/.47			
21. Personal Norm	-.22/-.16	.80/.77	-.36/-.40	.76/.74	.78/.77	.73/.73	.82/.79	**.81/.76**	.59/.61		
22. Behavioural Willingness	-.23/-.17	.76/.76	**-.37/-.44**	.70/.71	.72/.72	.68/.70	.76/.77	.74/.74	.53/.56	.82/.83	
23. Psychological Adaptation	-.21/-.15	.73/.69	-.30/-.32	.66/.68	.74/.73	.63/.63	.77/.73	.77/.73	.57/.58	.82/.80	.80/.79

Note. Correlation coefficients before the slash (/) are from 2021; those after the slash are from 2022. Differences between the correlations that are significant at the $p < .05$ level are in bold; differences that are significant at the $p < .01$ level are in green; differences that are significant at the $p < .001$ level are in red. Approximate critical values for Pearson's r: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (two-tailed). CC = climate change. ND = natural disaster.

Table F.2

Correlations in the 2022 Repeat and New Respondent Samples.

	1	2	3	4	5	6	7	8	9	10	11	12
1. PEB34												
2. PEB4	**.79/.73**											
3. Proportion_PEB4	.54/.53	**.82/.87**										
4. Interest in Future PEBs	.49/.46	.51/.49	.40/.43									
5. Perceived Residentl Vulnerability	.31/.31	.34/.35	.31/.31	**.34/.40**								
6. Normative Beliefs	.44/.40	.51/.46	.39/.42	.49/.49	.39/.38							
7. Green Identity	.54/.53	.61/.57	.48/.53	.55/.58	.39/.42	.62/.60						
8. Policy Support	.40/.38	.49/.48	.40/.45	.53/.58	.42/.46	.58/.57	.63/.59					
9. Impacts of Flood Experiences	.25/.27	.17/.18	.14/.11	**.25/.17**	**.20/.28**	.09/.09	.12/.16	.09/.09				
10. CC Belief/Acceptance	.28/.28	.38/.39	.35/.37	**.39/.48**	.47/.51	.51/.53	.51/.51	.68/.69	.07/.10			
11. CC Risk Perception	.39/.39	.47/.48	**.39/.45**	**.46/.53**	.57/.60	.58/.57	.56/.57	.69/.70	.19/.19	**.72/.76**		
12. Personal Responsibility for CC	.38/.41	.47/.47	.42/.43	**.49/.54**	.45/.49	.62/.60	.58/.57	.66/.65	.14/.17	.65/.66	.70/.72	
13. Spatial Distance of CC	**-.15/-.01**	-.17/-.13	-.17/-.14	-.11/-.07	**-.34/-.26**	**-.18/-.08**	**-.19/-.08**	-.21/-.16	**-.12/.02**	-.16/-.11	**-.25/-.15**	**-.18/-.09**
14. Importance of CC Issue	.41/.39	.51/.51	**.43/.49**	**.49/.56**	**.55/.61**	.62/.63	**.67/.63**	.80/.77	**.08/.17**	.83/.85	.83/.85	.75/.75
15. Psychological Reactance	**-.17/-.10**	**-.27/-.24**	-.22/-.25	-.23/-.23	-.22/-.24	**-.40/-.33**	-.36/-.32	-.54/-.50	**.12/.03**	-.49/-.44	-.43/-.39	**-.41/-.33**
16. CC Self-efficacy	.41/.39	.49/.46	.42/.44	.50/.54	.43/.45	.61/.60	.59/.57	.64/.63	.12/.13	.64/.66	.65/.67	.73/.76
17. CC Response Efficacy	.41/.42	.48/.47	.40/.45	.49/.53	.40/.44	.63/.63	.62/.60	.60/.60	.12/.14	.60/.61	.62/.65	.73/.74
18. Collective Efficacy	.36/.32	.47/.44	.42/.44	.47/.52	.42/.47	.62/.59	**.59/.54**	.72/.73	.09/.07	.72/.73	.66/.69	.71/.70
19. CC Concern	.42/.41	.52/.51	**.42/.49**	**.50/.57**	.56/.60	.63/.63	.68/.66	.77/.74	**.12/.19**	.77/.79	.80/.82	.75/.74
20. CC Distress	.41/.41	.48/.48	**.39/.45**	.48/.53	.49/.52	.59/.60	.62/.60	.65/.65	.19/.20	.64/.69	.73/.76	.74/.73
21. Behaviour Change due to CC	**.44/.38**	.50/.48	**.39/.47**	.45/.47	.32/.34	.48/.47	.54/.53	.43/.47	**.26/.16**	.41/.45	.46/.48	.46/.47
22. Personal Norm	.48/.47	.57/.55	**.46/.53**	.57/.61	.45/.49	.69/.69	**.75/.71**	.70/.69	**.25/.14**	.64/.67	.70/.73	.74/.76
23. Behavioural Willingness	.53/.51	.60/.56	.46/.50	.58/.62	.45/.46	.69/.66	.69/.66	.73/.70	.16/.15	.63/.63	.68/.69	.75/.73
24. Psychological Adaptation	.53/.51	.58/.54	**.44/.50**	.54/.59	.44/.48	.69/.68	.69/.68	.60/.61	.23/.22	.57/.60	.63/.68	.70/.70
25.Self-rated CC Knowledge	.27/.31	.28/.31	**.19/.27**	**.20/.27**	.20/.23	.23/.27	.35/.37	.20/.23	.16/.15	.20/.21	.23/.26	.18/.22

Note. Correlation coefficients before the slash (/) are from the Repeat Respondent sample; those after the slash are from the New Respondent sample. Differences between the correlations that are significant at the $p < .05$ level are in bold; differences that are significant at the $p < .01$ level are in green; differences that are significant at the $p < .001$ level are in red.

Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (two-tailed). CC = climate change. ND = natural disaster.

Table F.2 (continued)
Correlations in the 2022 Repeat and New Respondent Samples.

	13	14	15	16	17	18	19	20	21	22	23	24
1. PEB34												
2. PEB4												
3. Proportion_PEB4												
4. Interest in Future PEBs												
5. Perceived Residentl Vulnerability												
6. Normative Beliefs												
7. Green Identity												
8. Policy Support												
9. Impacts of Flood Experiences												
10. CC Belief/Acceptance												
11. CC Risk Perception												
12. Personal Responsibility for CC												
13. Spatial Distance of CC												
14. Importance of CC Issue	-.26/-.20											
15. Psychological Reactance	.23/.28	**-.55/-.49**										
16. CC Self-efficacy	-.15/-.10	.72/.73	**-.42/-.33**									
17. CC Response Efficacy	**-.15/-.07**	.69/.70	**-.40/-.31**	.85/.86								
18. Collective Efficacy	-.18/-.17	.80/.80	-.51/-.47	.79/.78	.78/.76							
19. CC Concern	**-.27/-.20**	.93/.92	-.50/-.45	.72/.72	.70/.71	.77/.77						
20. CC Distress	**-.17/-.08**	.77/.79	-.34/-.30	.63/.67	.63/.66	.63/.67	.80/.82					
21. Behaviour Change due to CC	-.18/-.18	.49/.53	-.27/-.24	.54/.53	.53/.52	.51/.50	.54/.56	.47/.51				
22. Personal Norm	**-.16/-.09**	.77/.78	-.40/-.35	.74/.76	.77/.77	.73/.73	.79/.80	.76/.80	.61/.59			
23. Behavioural Willingness	**-.17/-.05**	.76/.73	**-.44/-.34**	.71/.69	.72/.69	.70/.67	.77/.74	.74/.72	.56/.54	.83/.79		
24. Psychological Adaptation	**-.15/-.06**	.69/.72	-.32/-.26	.68/.69	.73/.72	.63/.62	.73/.76	.73/.76	.58/.56	.80/.82	.79/.77	
25.Self-rated CC Knowledge	**-.17/-.04**	.28/.31	-.08/-.03	.15/.20	.18/.23	.17/.18	.29/.33	**.18/.25**	.23/.26	**.23/.30**	.25/.31	.31/.35

Note. Correlation coefficients before the slash (/) are from the Repeat Respondent sample; those after the slash are from the New Respondent sample. Differences between the correlations that are significant at the $p < .05$ level are in bold; differences that are significant at the $p < .01$ level are in green; differences that are significant at the $p < .001$ level are in red.
Approximate critical values for Pearson's r: $p < .05$ if $r \geq .03$. $p < .01$ if $r \geq .04$. $p < .001$ if $r > .05$. (two-tailed). CC = climate change. ND = natural disaster.


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