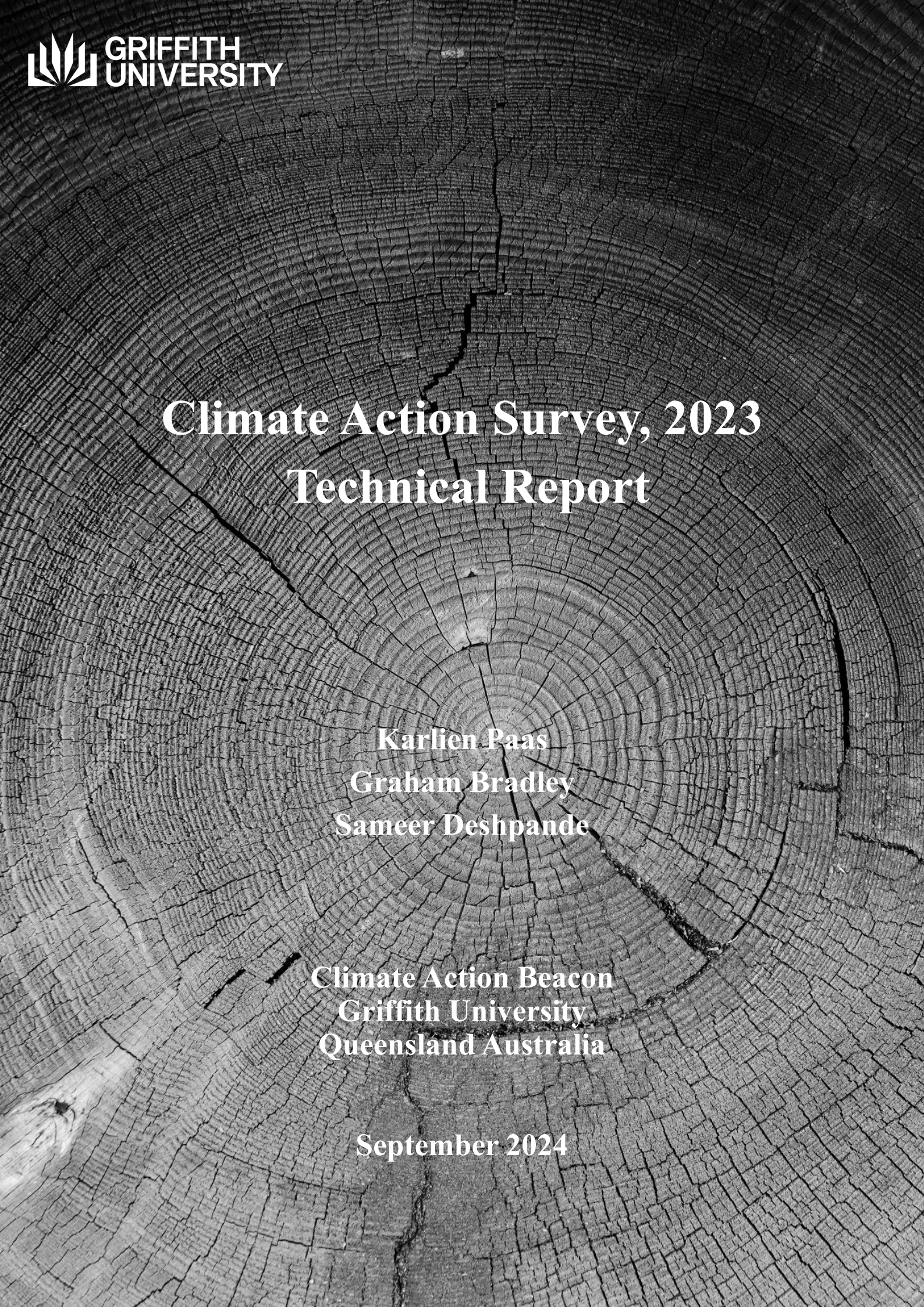

Climate Action Survey, 2023
Technical Report

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Many of the ideas for the survey content and methodology, and for this report, came from work completed by Joseph Reser and colleagues in surveys conducted in 2010 and 2011. Their contribution to the current work is substantial and is gratefully acknowledged.

EXECUTIVE SUMMARY

Griffith University's Climate Action Beacon conducted the third of five planned *Climate Action Surveys* in September-December 2023. 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 and 2022 surveys and with other recent survey research.

In 2023, 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 6,350 people who completed the survey questionnaire in 2021 and/or 2022 were invited to participate again in 2023. Usable responses were obtained from 1,184 members (18.6%) of this cohort (51.6% female, M_{age} = 56.03 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 was closed when usable questionnaires were received from 2,874 people (49.8% female, M_{age} = 46.43 years). Therefore, the total 2023 sample comprised 4,058 Australian adults (50.3% female, M_{age} = 49.2 years).

Two versions of the online questionnaire were used in 2023 - one for the repeat respondents, and one for the new respondents. The latter questionnaire closely resembled that used in the 2021 and 2022 new respondents' sample. For the repeat respondents, questions that did not warrant asking another time in two (or three) years were replaced by questions tapping new topics. Both questionnaires comprised almost 100 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, 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. Participants' recycling behaviours, experience/knowledge of extreme weather warnings, and views about the Great Barrier Reef were additional and new topics investigated in 2023. Demographic data enabled the identification of group differences in climate change and related variables.

As was the case in 2021 and 2022, the survey demonstrates the high prevalence of beliefs in, and concerns about, climate change, and 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, especially in the longitudinal data, are ongoing.

Planning has commenced for a fourth iteration of the survey in the final quarter of 2024.

RESEARCH HIGHLIGHTS:

UPDATING THE 2021 AND 2022 SURVEY FINDINGS

The 2023 Climate Action Survey gathered data from two populations of adult Australians: 1,184 people who had participated in the 2021 and/or one of the 2022 surveys ('repeat' respondents); and 2,874 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 on age, gender, and state. In contrast, the repeat respondents were self-selected, and were, on average, considerably older than both the national population and the remainder of the survey respondents but were relatively representative of the national population in terms of gender and state.

Most of the 2023 survey questions for the new respondents were the same as used the previous years, and findings pertaining to these questions can now be updated in light of responses to the 2023 survey. Important 2023 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 1-2% of the 2023 respondents were categorised as climate change *deniers*, 4-5% were climate change *sceptics*, 18% were *unconvinced*, and the vast majority (around 76%) were firm climate change *believers*. These numbers are similar to those obtained in the 2021 and 2022 surveys.

- Scores on an objective test of climate change causes, impacts, and responses were similar to those obtained in 2021 and 2022, with people who had personally experienced a change, circumstance or event that they attributed to climate change (either in the last year, or prior to the last year) scoring highest.

- Seventeen percent of *repeat* respondents, and fifteen percent of the *new* respondents believed climate change is an 'extremely serious' problem right now, whereas respectively 32% and 34% think it will be in 2050. Previously, the corresponding percentages for the threat of climate change right now were 22% (in 2021) and 15% (in 2022, for both the repeat and new respondents), and for 2050, 45% (in 2021) and 30-31% (in 2022, for both the repeat and new respondents).

- Fifty-eight percent of repeat respondents, and 63% of new respondents, reported feeling either 'fairly' or 'very' concerned that climate change might affect them personally, whereas 65% and 68%, respectively, reported these levels of concern about the effects of climate change on society in general. These numbers are slightly

lower than in 2021, and similar to 2022, but considerably higher than the 35% obtained from similar Australian surveys conducted in 2010/2011.

- The reasons most commonly cited by 2023 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 and 2022.

- Most homeowners reported that they had modified their homes in some way in the preceding five years to better adapt 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 and 2022 surveys.

- As in 2022, hope in addressing climate change was 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*.

- As in 2022, relationships between climate change attitudes and behaviours, and (repeat) participants' personality traits were investigated. Of the six personality traits measured, the one with the closest association with climate change variables was 'openness to experience'. This was positively correlated with almost all climate change variables, with individuals high in openness tending to report pro-environmental behaviours. As in 2022, the highest correlation between a personality trait and climate change variables was, between openness and connection to nature.

RESEARCH HIGHLIGHTS:

SURVEY FINDINGS NEW TO 2023

Many of the survey findings highlighted above confirm and reinforce those obtained in the 2021 and/or 2022 surveys. Some vary or qualify that which was previously found. Other 2023 findings break entirely new ground. They include:

- Most respondents in both samples reported more favourable attitudes to clean energy sources than to nuclear power, which, in turn, was rated slightly more positively than high emission sources.

- Progressive respondents reported more favourable attitudes towards clean energy sources than did conservative respondents. In contrast, conservative respondents reported relatively favourable attitudes to both high emission and nuclear energy sources.

- A vast majority (96%) of Australians have an idea of what the Great Barrier Reef (GBR) is, and almost half of these have visited the GBR at one point in their life. Over two-thirds (68%) of Australians, across both samples, feel that climate change is a threat to the GBR and requires immediate action.

- Approximately half of Australians feel that the GBR is part of their Australian identity, and that it is their responsibility to protect the GBR.

- High levels of recycling were reported by respondents who were older, parents, not employed full-time, not currently studying, and those who own their own home and/or own a motor vehicle. Thus, claims of recycling were more in evidence in sub-groups of the sample that we categorised as conservative rather than progressive. In the new respondent sample only, relatively high levels of recycling were reported by women, low-income respondents, and those who mainly speak English at home.

- Approximately half of Australians have heard or seen an extreme weather warning in the last 12 months. In both samples, almost two-thirds of these experienced a warning about heavy rainfall / thunderstorm / severe storm, and approximately half experienced a warning about a heatwave.

- Most respondents in both samples reported more favourable attitudes to clean energy sources than to nuclear power, which, in turn, was rated slightly more positively than high emission sources.

CONTENTS

1 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. It focuses 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 several 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 well-being 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), whereas the second survey (conducted in 2022) is reported in Bradley et al. (2023). The 2023 survey is the third of five annual surveys planned. From 2022 onwards, the survey comprises both longitudinal (i.e., repeat respondents) and annual replacement (i.e., repeat respondents) 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 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 2023 survey **aims** to capture and document Australians' knowledge, beliefs, attitudes, and actions as they stood in late 2023, 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

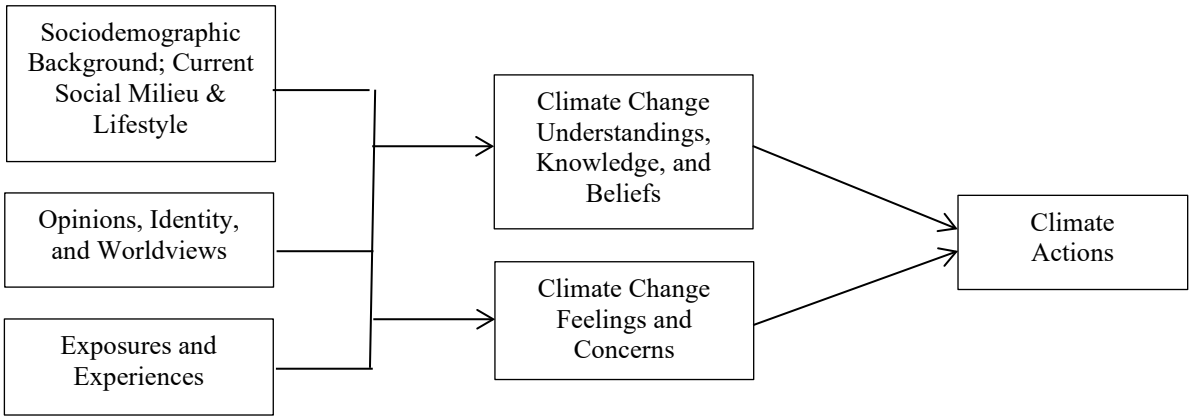
The Climate Action Survey stands out for its comprehensive approach. It includes:

- A large sample of Australian adults, stratified by gender, age, and state of Australia.
- A longitudinal design: the 2023 survey is the third of five annual survey waves. It sought to (1) re-survey individuals who responded in the 2021 and/or 2022 surveys, 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 was carefully allocated to recognize and balance the multiple factors that affect survey costs, including questionnaire length, types of items/questions, sample size, and number and type of stratification variables. This meticulous budgeting strategy was implemented to ensure the survey's financial management and sustainability, instilling confidence in the stakeholders.
- The Climate Action Survey was meticulously planned and pilot-tested, ensuring a high-quality questionnaire that could be reused 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 BACKGROUND TO THE SURVEY

3.1 Sources of Questionnaire Content

The 2023 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/or 2022 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 above. Both were based on the original questionnaire used in 2021.

Content for the 2021 questionnaire (and hence for both the 2022 and 2023 questionnaires) was obtained from four main sources:

1. Questionnaires used in the authors' previous national survey research. Foremost among this research is the 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).
   - Social and Economic Long-Term Monitoring Program (SELTMP) / CSIRO: Questions on the Great Barrier Reef

   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 and 2023, 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 emphasise 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 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, measuring variables using the same items each time the survey is conducted is important. 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 outdated, obscure, foreign, over-researched content 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 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 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.

Appendix B of the 2021 technical report (Bradley, 2022) provides further details of the 2021 scale development process.

3.4 Modification of the 2021 and 2022 Questionnaire for Use in 2023

The 2021 Climate Action Survey, and subsequently the two versions of the questionnaire used in 2022 (described in Bradley et al., 2023), provided the basis for two questionnaires to be used in 2023. One 2023 questionnaire was to be completed by individuals who participated in the survey in 2021 and/or 2022 (hereinafter referred to as the "*repeat* respondent questionnaire"); the other 2023 questionnaire was to be completed by members of the 'replacement' sample, that is, individuals who did not participate in any of the previous surveys (hereinafter referred to as the "*new* respondent questionnaire").

To enable fair comparisons between responses obtained in the 2021, 2022, and 2023 Climate Action Surveys, as far as possible and reasonable, the 2021/2022 survey content, including its closed-ended and open-ended questions, and its multi-item scales, was retained for use in 2023. The 2023 *new* respondent questionnaire was substantially overlapping with the 2021 and 2022 *new* respondents' questionnaire, whereas the 2023 *repeat* respondents' questionnaire was mainly overlapping with the 2022 *repeat* respondent questionnaire. This was because much of the data collected in 2021 and/or the 2022 *new* respondents' questionnaire, was unlikely to have changed much in a one- or two-year timeframe, and therefore did not need to be collected again in 2023.

Criteria to be used in deciding items to be omitted from, and added to, the 2023 questionnaires are similar to those criteria used in 2022:

- Centrality to the climate action issue
- 'Significance'/importance of relevant 2021/2022 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 2023 questionnaires, content was **deleted** from the previous questionnaire for three main reasons:

- **Information that was already available**. As noted above, some questionnaire items used in 2021 or 2022 new respondents survey were not included in the 2023 repeat respondent questionnaire because they pertained to content that was unlikely to have changed greatly in the preceding one to two years. 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 2023**. Some questionnaire items used in 2021/2022 were not included in the 2023 questionnaires because they pertained to content deemed less relevant/topical in 2023 than it was in the preceding years. Examples are items about COVID-19 and political identification (leading up to the May 2022 federal Australian election) from the 2021 survey, or the impact of flooding questions from the 2022 survey.
- **Information collected in 2021/2022 but found to be of limited use or interest.** Some items in the 2021/2022 questionnaire were not included in 2023 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 2023 questionnaires. A prime example is the scale assessing place attachment (2021), functional impairment due to climate change, and heat-related symptoms questions (2022).

Similarly, content absent from the 2021/2022 questionnaire was **added** to one or both 2023 questionnaires for three main reasons:

- **Information requested by CAB members for use in related projects**. Some questionnaire items were added to the 2023 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 the items asking about extreme weather warnings.
- **Information that became more relevant in 2023**. Some items not used in 2021 and/or 2022 were included in the 2023 questionnaires because they pertained to content that had become more relevant/salient in 2023 than in the preceding years. An additional content area were the added recycling questions.
- **External collaborations / Other information of interest.** Section I in both questionnaires was added to the 2023 survey to ask questions about the Great Barrier Reef Marine Park. These questions were adapted from the Social and Economic Long-Term Monitoring Program (SELTMP) / CSIRO questions that were asked to QLD residents only, and there was an interest to find out the views from Australians.

In addition to the above, minor formatting or wording changes were made to a small number of items that were considered, in retrospect, to be potentially unclear or ambiguous.

Appendix B, a crucial component of this report, provides a detailed comparison of the composite scores used in 2021, 2022, and 2023. This comparison serves to highlight the consistency and reliability of the scoring methodology over the years.

4 SURVEY METHOD

4.1 Target Sample

4.1.1 Characteristics of the Target Sample

This year, 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 existing 6,350 unique participants from the previous years as possible (i.e., the 3,915 2021 participants and the 2,435 2022 new respondents), to maximize the size of the ongoing longitudinal sample. The survey firm, Dynata, even provided an additional financial incentive to encourage 2021 and 2022 respondents to participate again in 2023, showcasing the dedication to maintaining a consistent and reliable sample.

After exhausting the existing participant pool, the remainder of the sample was supplemented with new respondents. This sub-sample, as agreed with Dynata, was of utmost importance to be representative of the Australian population. It was therefore 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 interlocked, thereby ensuring nationally proportionate numbers of each gender, age group, and state, underlining the significance of a representative sub-sample in the survey method.

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%

Again, 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 would be 50% ± 2.20%, or between approximately 47.80% and 52.20%.

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%.

Again, 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 would be 50% ± 3.10%, or between approximately 46.90% and 53.10%.

This clearly shows that the smaller the sub-sample, the less certain we are about the actual percentage of people in favour in that sub-population.

4.2 Details of the Questionnaire

The repeat respondent questionnaire comprised three open-ended items/questions, 203 items that formed a part of a multi-item scale, and 86 other closed-ended questions. The new respondent questionnaire comprised four open-ended items/questions, 232 items that formed a part of a multi-item scale, and 81 other closed-ended questions. The complete questionnaires are reproduced in **Appendix D.2** (repeat respondents) and **Appendix E.2** (new respondents), with **Appendix D.3** (repeat respondents) and **Appendix E.3** (new respondents) displaying the details of the composite scales in both samples (e.g., mean scores, standard deviations, and reliability)

Table 1 overviews the two questionnaires and briefly details of the constructs and variables measured in each. To understand 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 2023 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 <u>intend</u> to engage in these and/or similar behaviours?	Much less than I do now → Much more than I do now	X	
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.	Not at all interested → Very Interested	X	X

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
	• Buying an e-car; Installing solar energy battery storage system; etc.			
Recycling	In the past year, how often have you recycled: • paper, cardboard, soft plastics, metal containers, etc	Never because of no opportunity to do so →All the time	X	X
Recycling (continued)	When recycling bottles and cans, how often do you participate in a container refund scheme?	Never → always; no response	X	
Travel - carbon offset		Very unimportant →Very important	X	
Group joining	In the past year, have you joined a group to help make a difference to climate change?	(forced choice) yes vs no	X	
Next car	When you next buy a car / other motor vehicle, what do you want to buy?	petrol/diesel, hybrid, electric, don't know, will not buy new vehicle	X	
Fashion	What describes you best?	(forced choice) High quality fashion vs cheap fashion	X	
New cooker/ stove top	If/when you need to buy a new cooker / stove top, what will you buy?	Very unimportant → Very important	X	
Sustainability	Overall, how important is it to you to try to live sustainably and in a way that minimises your environmental impact?	Very unimportant →Very important	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
Personality traits: • Agreeableness • Emotional stability • Conscientiousness • Openness to experience • Extraversion	 I am critical, quarrelsome I am anxious, easily upset I am dependable, self-disciplined I am open to new experiences, complex I am extraverted, enthusiastic	Strongly Disagree→Strongly Agree	X	

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
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
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
Connection to Nature	E.g., I often feel that I am a part of nature	Strongly Disagree → Strongly Agree	X	
Change in World's climate?		(forced choice) yes vs no (do not know)	X	X
Energy Sources – high emissions	How favourable or unfavourable are your overall opinions of impressions of the following energy sources for producing electricity currently? E.g., biomass	Very favourable → Very unfavourable	X	
Energy Sources – clean	How favourable or unfavourable are your overall opinions of impressions of the following energy sources for producing electricity currently? E.g., sun/solar power	Very favourable → Very unfavourable	X	
Energy Sources – nuclear	How favourable or unfavourable are your overall opinions of impressions of the following energy sources for producing electricity currently? E.g., nuclear power	Very favourable → Very unfavourable	X	
Nuclear power (continued)	Which statement most closely reflects your opinion on nuclear power?	(List of options)	X	
SECTION C: Experiences of Extreme Weather Events and Natural Disasters				

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
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
Impacts of extreme weather / natural disaster	Due to this extreme weather / natural disaster, did you • Experience any property damage? • Experience any financial loss?	Yes/No	X	X
Insurance Status and Consequences of Recent Event	After your 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
Indirect Experiences of Extreme Weather / Natural Disasters	Has a geographically distant event ever impacted you?	Yes/No	X	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
Extreme Weather Warnings	Have you heard or seen an extreme weather warning in last 12 months.	Yes/No	X	X
	What was warning about?	(6 options, including flood, cyclone, heatwave)	X	X
	Behaviour change after most recent warning?	yes/no, please specify	X	X

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
	What was the most recent warning about?	(6 options, including flood, cyclone, heatwave)	X	X
	Source of warning(s)?	(12 options, including newspaper, tv, radio, app, other, can not recall)	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
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

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
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 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	Included in which Questionnaire?	
			Repeat	New
Global Warming	Impact of Global Warming on future generations of Australia	Not at all → A great deal; Don't know	X	X
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
Main Reason for Climate Change Concern	What is your main reason for climate change concern	(Multiple Answers. Including reduced quality of life, impact on future generations)	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 2022 (repeat respondents) / i.e., since November 2022 (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
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?	(Click all that apply)		X

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
	• Driven my car less? • Recycled more?			
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
Willingness to Behave in More Environmentally-Friendly Ways	To help reduce climate change, I am willing to: • change my lifestyle • pay higher personal 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
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
SECTION I: The Great Barrier Reef (GBR)				
<u>Single items</u> asking about: knowledge of GBR, visiting of GBR, beliefs about climate change and GBR,			X	X
Negative Feelings about GBR	When/if you hear about climate-related damage to the Great Barrier Reef (e.g., from cyclones, mass coral bleaching, warming waters, ocean acidification), to what extent does it make you feel… • Sad, angry, confused, etc	Not at All → A Great Deal	X	X

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
Positive Views about GBR	To what extent do you agree or disagree with each of the following statements about the Great Barrier Reef (GBR)? • I feel proud that the GBR is a World Heritage Area, • I feel confident that the GBR is well managed	Very Strongly Disagree → Very Strongly Agree (Plus: Do not know)	X	X
Threats to GBR	Please rate the extent to which you think each of these issues represents a threat to the Great Barrier Reef? • Illegal fishing, Land-clearing, Population growth, etc	Does not represent a threat at all → An extremely serious threat (Plus: Do not know/No opinion)	X	X
Single item: Do you have any further comments about the Great Barrier Reef and climate change?		(open ended)	X	X
SECTION H: Demographics				
Single items asking about: gender, citizenship status, health status, place of residence, proximity to public transport, duration of residing at current location, religiosity, educational attainment, current studies, employment status, hours worked if not full-time, employed as a "tradie", household and personal income, financial situation, parental status, identification as living with a disability/LGBTQI+ community/homeless, home ownership, language spoken at home, living arrangements, type/adequacy of accommodation, willingness to move if one's residence is deemed uninsurable.			X	X
Single items asking about: religious denomination, moved house in past two years			X	
Single items asking about: Country of birth, duration of residing in Australia, identification as a member of CALD community/ATSI (and challenges faced in taking climate action associated with this identity/community membership), Number of people in household in paid employment, household composition, climate-related changes made to the home.				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	(Number of each)	X	X

Construct/Variable	Sample Item/Question	Response Options	Included in which Questionnaire?	
			Repeat	New
	• 6-cylinder or larger petrol or diesel			
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 2023 questionnaires were similar to those reported in 2021 and 2022. 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 2023 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 26 August 2021. A variation to this clearance was sought in 2023, and was approved on 21 September 2023 (repeat respondents survey), and 24 October 2023 (new respondents survey).

Dynata invited most of the 3,915 respondents to the 2021 survey and of the 2,435 new respondents[1] from the 2022 repeat survey, to participate again in 2023. The reason for not contacting some of the 2021 and/or 2022 respondents was that the provider of forty 2021 respondents would not recruit participants again in 2022/2023 at a reasonable cost. Those repeat respondents of 2021 and/or 2022 who were willing to do so completed the survey, online, sometime between October 10th to December 11th, 2023, a period that is similar to, but slightly later than, the timing of their survey completion in 2021 (September 15th to October 31st, 2021) or 2022 (September 9th to November 1st, 2022). The new respondent survey was administered online to Dynata survey panellists in the period November 18th, 2023, to December 23rd, 2023. This was similar to the period of the new respondents in 2022 (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 36:57 minutes for the repeat respondents retained in the final sample, and 39:56 minutes for the sample of new respondents. Duration of questionnaire completion ranged from 13 minutes 43 seconds (repeat respondents), and 12 minutes 1 second (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. Dynata knows the identity of all respondents; however, the Griffith researchers do not. A unique participant identification number is assigned to all participants to permit matching of questionnaires completed by each respondent each year.

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[1] *subsequent to the publication of the 2022 data, and just in time for the collection of the 2023 data, Dynata provided us with unique ID numbers for the 2022 new respondents sample. Analyses of this data and comparing it with the 2021 and 2022 repeat sample led to the finding that of the previously classed 2767 new respondents, 277 participated in both 2021 and 2022 repeat sample, and another 55 respondents already participated in the 2021 round of data collection. After careful consideration, we decided to delete these 322 participants from the 2022 new respondent sample, and from the 2022 full data set, leaving respectively 2435 in the repeat sample, and 3698 in the full sample. This has led to slight discrepancies between the findings reported in Bradley et al. (2023), and Deshpande et al. (2023), and those reported here.*

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 2023 periods of data collection that might have affected responses and/or response rates include:

- **Concerns about the rising cost of living** were prominent in public and private discourse throughout the year. The Reserve Bank of Australia increased interest rates in eleven consecutive months from February to December 2023 (to a cash rate of 4.35%, the highest in a decade, up from 3.10% in December 2022, and 0.1% in December 2021), thereby greatly increasing mortgage repayments for many households. Inflation was at 4.1% in December. Factors contributing to the rapid price increases included Russia's war against Ukraine which had been raging since February 2022, ongoing supply problems associated with COVID-19, domestic supply issues due to poor weather, and a range of other economic, political, and climatic factors. Consequently, many people may have shifted their priorities from environmental to economic concerns in 2023.

- **Domestic Economic Situation.** In 2023, a probably significant influence on Australians' climate change beliefs, attitudes and behaviours was an ongoing "cost of living crisis". During the year, interest rates were raised on five occasions by a total of 1.25%, inflation remained high, and the Low- and Middle-Income Tax Offset (LMITO) was withdrawn for the 2023-2024 financial year. Both national (e.g., a blowout in the cost of the National Disability Insurance Scheme) and international (e.g., the ongoing war in Ukraine) events may have contributed to this 'crisis' situation. Although employment levels remained high, many people struggled to meet mortgage and/or rent payments and maintain their standard of living, or worried that they may not be able to do so. These here-and-now, bread-and-butter economic concerns are likely to have distracted attention and concern from the more "abstract" threat of global climate change.

- **Weather.** Research (e.g., Joireman et al., 2010; Li et al., 2011; Zaval et al., 2014) shows that people are more likely to believe in, and be concerned about, climate change when the weather is hot. The year 2023 was warmer than average in Australia. Indeed, the nation had its equal eighth hottest year on record, with the mean temperature 0.98 °C warmer than the 1961–1990 average. Both the mean annual maximum and minimum temperatures were above average in all states and in the Northern Territory. The winter months and into September – just prior to the start of data collection - were some of the hottest on record. Nationally, rainfall was close to average, although some regions (especially in northern parts of the country) had high rainfall (and floods), while other regions (especially in Western Australia and eastern New South Wales) experienced drought conditions. Nationally, September was very dry.
  Globally, 2023 was the hottest year ever recorded – almost 1.5°C warmer than the pre-industrial average. Ocean temperatures were also extremely high, and sea ice in polar regions was extremely low. Many countries experienced unprecedented heat, while others (including New Zealand) had very high rainfall. These global weather conditions, and the extreme weather events described in the next section, attracted

considerable media coverage in Australia, and may have influenced people's beliefs and attitudes about climate change.

- **Extreme Weather Events and Natural Disasters.** Extreme weather events and natural disasters, especially those that occur locally, have the potential to direct attention to and raise concerns about climate change. As is the case every year, many such events occurred across Australia. Examples include tropical cyclone Ilsa, which hit northern Western Australia in April; tropical cyclone Jasper, which caused associated flooding in northern Queensland in December; bushfires near Tara in southern Queensland in October; and bushfires south of Western Australia in December. The latter three events occurred during the survey data collection period. (Other extreme weather events, such as wild storms and cyclonic activity in Queensland, happened just as data collection concluded). Although concerning and damaging, the frequency and severity of these Australian disaster events were not as great as in many previous years.

  Many natural disasters occurred elsewhere in the world in 2023. Participants in our survey may have seen or read media coverage of severe earthquakes (e.g., in Turkey, Morrocco, and Afghanistan), hurricanes/typhoons/cyclones (e.g., in China and Libya), record-breaking precipitation (e.g., in Korea, South Africa and China), flooding (in western Europe, Mexico, Eastern Africa, and Hong Kong), droughts (including in the Amazon rainforest), bushfires (e.g., in Greece, Canada, and Hawaii and elsewhere in the U.S.), and other events. Survey participants who have family and friends in these countries may have been particularly sensitised to the role of climate change in contributing to these disasters.

- **Domestic Political Situation.** In terms of governance and politics, 2023 was a relatively uneventful year. No federal election was held. Only one state election was held: in March, the Labor party won the New South Wales state election, ousting the previous (minority conservative) government. Three (Labor) state premiers resigned during the year. Perhaps the most significant national event was the (failed) referendum on an Aboriginal Voice to Parliament, held in October. Debate associated with this referendum was intense and polarised, and this may have triggered public engagement in related issues, including climate change.

  The federal government introduced several initiatives relevant to climate change. For example:
  - a strengthened safeguard mechanism, announced in March 2023, that placed a legislated cap on the total industrial emissions of Australia's 215 largest polluters. The mechanism incentivised these companies to reduce their emissions below specified baselines, and increased the chances that some proposed new coal and gas projects would not proceed.
  - a National Electric Vehicle Strategy, announced in April, aimed to increase electric vehicle availability, appeal, and uptake.
  - a Net Zero Authority, announced in May, with the stated aim of reducing national greenhouse gas emissions and helping industry, communities and workers manage the shift to a low-carbon economy.
  - increased Australian government support for small Pacific Island nations' responses to climate change. Most noteworthy was an offer to resettle Tuvalu residents facing displacement due to climate change in Australia.

It is unknown to what extent the Australian people noticed these initiatives and to what extent they affected citizens' climate change-related beliefs, attitudes, and behaviours.
Meanwhile, the federal opposition coalition party advocated alternative energy sources (including nuclear and 'green' hydrogen) over solar and wind power. At the same time,the Australian Greens Party members and the 'Teal 'independents criticised the government for its limited stand against greenhouse gas emissions and its continued support of the fossil fuel industry (including new coal and gas projects). At a local community level, there were protests against the construction of new windfarms, including off-shore wind farms.

- **Other International Events:**
    - During 2023, many developed nations reduced their greenhouse gas emissions, and expanded their clean energy production and electric vehicle uptake. These trends may have affected some Australians' views about and responses to climate change.
    - On October 7th, 2023, Hamas fighters surged into southern Israel from Gaza, killing more than 1,100 people and holding captive approximately 240 more. Throughout the remainder of 2023, Israel carried out an extensive retaliatory response, killing as many as 20,000 residents of Gaza. This major international event attracted the attention of many, if not most, Australians. Public demonstrations by groups aligned to one or both of the parties to this conflict took place in major Australian cities. For an unknown number of Australians, this event may have overshadowed climate change-related concerns and commitments.
    - The 28th annual United Nations Climate Conference of the Parties (COP28) took place in November-December 2023 in Dubai, UAE. Representatives of the governments from nearly 200 countries attended and came to support a resolution to "transition away" from fossil fuels. However, this resolution (and its caveats) fell short of the hopes and expectations of the many attendees who wanted the meeting to agree to the "phasing out" of fossil fuels in response to the world's continued high levels of greenhouse gas emissions.

In Sum

In sum, many economic, climatic, and political events and circumstances may have affected how participants responded to the 2023 Climate Action Survey. Quite possibly, the hot weather experienced during the year most likely increased respondents' concerns about climate change, while the cost of living "crisis" might have most distracted attention from climate change concerns.

5 SURVEY RESPONDENTS

5.1 Selection of the Survey Respondents

Data collection for the survey began with Dynata inviting most of the 6,350 individuals who completed a usable questionnaire in 2021 (3915 participants) and/or 2022 (2435 new respondents, and 1263 repeat respondents) to do so again in 2023. 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, using their own set of requirements, for evidence of unsatisfactory questionnaire completion as evidenced by unrealistically short completion durations, nonsensical responses to open-ended questions, and miscellaneous other quality criteria. Furthermore, they checked the attention checks that Griffith provided them. In total, Dynata's quality screening resulted in their acceptance of 1,187 submitted questionnaires from repeat respondents. Data from these respondents were provided to the Griffith team.

Prior to finalising the sample, and in accordance with the practice adopted in 2021 and 2022, thirteen data quality checks were applied by the Griffith researchers to the questionnaires submitted by the 1,187 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 2 cases (0.1% of 1,187) who were deemed to have not met data quality criteria because they displayed three or more of these practices. One more participant was deleted because they responded twice to this questionnaire: in this case we deemed the first response the most reliable. The final number of usable repeat respondents was thus 1,184 (18.6% of the 6,350 people who participated in 2021/2022). 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 1,184 cases and a total sample of approximately 4,000 cases was sought, Dynata was assigned the task in early November 2023 of obtaining usable completed questionnaires from approximately 2,816 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 sample of Australians, that included disproportionately large numbers of older people. Thus, this repeat sample did not match, in terms of gender and age distribution, the quotas targeted in the full sample. However, for the new respondents sample, quota requirements were aimed to be demographically representative of the national Australian population.

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 four instalments, with data from 2,934

new respondents. Applying 13 data quality criteria identical to those used for the repeat respondents (as above, see Appendix C for details) led to the identification of 54 (1.8% of the 2,934) cases who failed three or more of these criteria. A further check revealed that 8 (0.2% of the 2,934) cases were not actually new respondents. They participated either in 2021 and/or 2022. With these cases removed, the final new respondent sample comprised 2,874 cases.

This means, that we now have a total of 9,224 unique respondents, and the breakdown of these participants is provided in Tables 2a and 2b.

Table 2a
Number of Participants from 2021 – 2023 for Each of the Surveys

Number of Participants	Climate Action Surveys participated
3915	2021
1263	2022 repeat sample
2435	2022 new sample
1184	2023 repeat sample
2874	2023 new sample

Table 2b
Breakdown of Participants from 2021 – 2023, and Which Questionnaires They Completed

Number of Participants	Climate Action Surveys Completed
2587	2021 only
775	2021, and 2022 repeat
488	2021, 2022 repeat, and 2023 repeat
65	2021 and 2023 repeat
1804	2022 new only
631	2022 new, and 2023 repeat
2874	2023 new only

In essence, there are 7 different groups of participants in our Climate Action Surveys 2021-2023 (See Table 2b). This means comparisons could be drawn between a variety of different samples, however, in this technical report we focus mainly on comparing the two subsamples of the 2023 sample with each other, or comparisons between 2021 full sample, 2022 combined sample, and 2023 combined sample. Or comparisons between in essence the "new" samples only (i.e., 2021, 2022new, and 2023new), and we have ignored the within person changes here.

5.2 Details of the Repeat Respondent Sample

Table 3 presents the distribution of the final sample of 1,184 repeat respondents by gender, age group, and state of Australia. The distribution by gender (% female; % male; % 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 315 (26.6%) respondents aged less than or equal to 40 years and 869 (73.4%) older than 40 years, χ^2 (1, N = 1,184) = 259.20, p < .001. The sample median age was 58.0 years. The mean age of 56.03 years (SD = 17.42) is over ten 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 = 1,184) = 9.36, p = .228, but the sample over-represents rural residents (23% versus 14%).

Table 3
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, 2023)
	< 40 years	≥40 years	< 40 years	≥40 years	< 40 years	≥40 years		
Australian Capital Territory (ACT)	4	9	5	7	0	0	**25** **2.1%**	**1.8%**
New South Wales	54	124	35	135	0	0	**348** **29.4%**	**31.3%**
Northern Territory	1	2	2	6	0	0	**11** **0.9%**	**0.9%**
Queensland	37	94	26	95	0	0	**252** **21.3%**	**20.5%**
South Australia	13	35	10	46	1	0	**105** **8.9%**	**7.0%**
Tasmania	1	10	3	11	0	0	**25** **2.1%**	**2.2%**
Victoria	50	108	34	108	1	0	**301** **25.4%**	**25.6%**
Western Australia	25	44	13	35	0	0	**117** **9.9%**	**10.8%**
Total (**and %**) by gender and age	**185** **15.6%**	**426** **36.0%**	**128** **10.8%**	**443** **37.4%**	**2** **0.2%**	**0** **0.0%**	1,184 **100%**[a]	
Total (**and %**) by gender only	**611** **51.6%**		**571** **48.2%**		**2** **0.2%**		1,184 **100%**[a]	**26,638,544** **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:

- 95% are Australian citizens
- English is the main language spoken in the homes of 95% of respondents
- 77% live in urban locations, 17% in a country town/city and 6% live in rural or remote locations
- 67% are parents
- educational attainment levels vary widely, with 28% educated to school level only, 32% possessing technical, trade or college qualifications (hereinafter referred to as *trade*), and 39% university-educated
- almost half of the sample work either full-time (29%) or part-time/casually (18%)
- 65% report annual personal income (before-tax) of $60,000 or less, 45% report annual household (before-tax) incomes of $60,000 or less, and 23% report to struggle financially
- 41% are religious or identify with a religious faith

- most own their own home (40%) or are buying it with a mortgage or loan (27%), and most (86%) solely or jointly own one or more petrol/diesel motor vehicles

As elaborated in Section 6.12.1, this repeat respondent sample is not a demographically representative cross-section of the Australian population. They are 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 the average Australian.

5.3 Details of the New Respondent Sample

Table 4 presents the distribution of the final sample of 2,874 new respondents by gender, age group, and state of Australia. The distribution by gender (% female; % male; % non-binary/undisclosed) almost precisely matches the corresponding percentages in the Australian national population (which also comprises % female). The age distribution of the sample also matches the target (i.e., 50% above and below 40 years), with 1,457 respondents (50.7% of the sample) less than or equal to 40 years old and 1,417 (49.3%) older than 40 years, χ^2 (1, N = 2,874) = 0.56, p = .456.). The sample median age was 40.0 years, exactly as targeted. However, the mean age of 46.23 years (SD = 18.56) 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 = 2,874) = 1.00, p = .995. 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 slightly lower proportion identifying as Aboriginal and/or Torres Strait Islander (ATSI) (3.4%) than in the national population (3.8%, according to 2021 ABS national census data).

Table 4
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)	13	12	14	13	1	0	53 **1.8%**	**1.8%**
New South Wales	233	218	222	223	2	0	898 **31.2%**	**31.3%**
Northern Territory	7	7	8	7	0	0	29 **1.0%**	**0.9%**
Queensland	148	144	145	145	3	0	585 **20.4%**	**20.5%**
South Australia	51	49	58	52	0	0	210 **7.3%**	**7.0%**
Tasmania	17	17	16	15	0	0	65 **2.3%**	**2.2%**
Victoria	182	181	180	180	5	0	728 **25.3%**	**25.6%**
Western Australia	75	78	75	76	2	0	306 **10.6%**	**10.8%**
Total (**and %**) by gender and age	726 **26.7%**	706 **23.5%**	718 **25.2%**	711 **24.2%**	13 **0.3%**	0 **0.1%**	2,874 **100%**[a]	
Total (**and %**) by gender only	1,432 **50.2%**		1,429 **49.4%**		13 **0.3%**		2,874 **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:

- 75% of new respondents were born in Australia, and 90% are Australian citizens
- English is the main language spoken in the homes of 94% of respondents
- 77% live in urban locations, and 23% live in rural or remote locations
- 60% are parents
- educational attainment levels vary widely, with 25% educated to school level only, 30% possessing technical, trade or college qualifications (hereinafter referred to as *trade*), and 45% university-educated
- more than half of the sample work either full time (41%) or part-time/casually (21%)
- 51% report to have a personal (before-tax) income of $60,000 or less, 42% report annual household (before-tax) incomes of $60,000 or less, and 27% reports to struggle financially
- 35% are religious or identify with a religious faith
- most own their own home (30%) or are buying it with a mortgage or loan (30%), and most (85%) solely or jointly own one or more petrol/diesel motor vehicles

Section 6.12.1 provides a more detailed comparison of the demographic composition of the repeat and new samples, as well as the breakdown of the entire 2023 sample of 4,058 respondents.

6 SURVEY FINDINGS

This chapter presents major findings from the survey/s. 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. 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 6.11 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. Sections 6.9-6.11 pertain findings to the new topics added to this year's surveys (i.e., Recycling, Energy Sources, and the Great Barrier Reef).

In each section, findings from the repeat respondent survey and the new respondent survey are reported separately, rather than combined. Section 6.12.2 compares findings from the two 2023 sub-samples, both with each other and with the full 2021/2022 sample (and the sub-samples thereof). Section 6.12 also reports key findings from the combined 2023 sample of 4,058 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 D.2)
  - 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 D.3)
  - comparisons of the scale mean scores for demographic sub-groups of the repeat respondent sample (Appendix D.4)
  - bivariate correlations between the composite scale scores for this sample (Appendices D.5, D.6, and D.7)
  - an illustrative selection of responses to the open-ended survey questions (Appendix D.8).

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

The pattern of between-group differences in relation to many of the climate change variables was similar to that found in the 2021 and 2022 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 mostly 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 2021,2022, and 2023 total samples, as well as the sub-samples of 2022 and 2023, are given in Table 5. 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 that climate change encompasses all changes in the world's climate regardless of the cause, with this definition slightly more frequently preferred in 2023 compared to 2022 and 2021. Another noteworthy comment is that repeat respondents opted more for this answer in 2022 and 2023 than the new respondents of these respective years.

Table 5

Percentages of Respondents Who Defined Climate Change in Five Different Ways in the 2021, 2022, and 2023 Samples

Survey Question D1:	**2021 Survey**	**2022 Survey**			**2023 Survey**		
Which of the following definitions best captures your understanding of the meaning of the term "climate change?"	Full Sample	Repeat Respondents	New Respondents	Full Sample	Repeat Respondents	New Respondents	Full Sample
increases in the world's temperature (i.e., "global warming")	26%	22%	23%	23%	19%	24%	22%
all changes in the world's climate that occur naturally	10%	11%	12%	12%	12%	10%	10%
all changes in the world's climate that are due to human activity	29%	25%	29%	28%	26%	29%	28%
all changes in the world's climate, regardless of the cause	33%	38%	33%	34%	39%	34%	36%
something that does not really exist	3%	4%	4%	4%	4%	3%	3%
Sample size (N)	3,915	1,263	2,435	3,698	1,184	2,874	4,058

- 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 and 2023 new respondents' questionnaire, six items (items A8, B7, D1, D2, D3, and D14, see appendix E.1), 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 and 2023 repeat respondent questionnaire (item A8 was omitted, see appendix D.1). 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 6a (for samples that responded to six "belief" questions) and 6b (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 6a, comparing the distribution of respondents in the 2023 new respondent sample with the 2021 full sample and the 2022 new respondent sample, there were slightly less sceptics as in the previous years, and slightly more unconvinced, and the percentage of people that are deniers and believers is more in line with the 2021 sample rather than the 2022 new respondent sample; and (c) as shown in Table 6b, the repeat respondents displayed similar beliefs in climate change compared to the 2022 samples, and slightly less belief compared with the 2021 sample.

Table 6a

Percentages of Respondents Categorised into Each of Four Climate Change Believer Categories in the 2021, 2022, and 2023 Samples Based on Responses to Six Questions

Believer Category	2021 Survey	2022 Survey	2023 Survey
	Full Sample	New Respondents	New Respondents
Deniers	1.9%	2.5%	1.8%
Sceptics	5.1%	5.9%	4.8%
Unconvinced	16.1%	17.5%	18.0%
Believers	76.9%	74.4%	75.3%
Sample size (N)	3,915	2,435	2,874

Table 6b

Percentages of Respondents Categorised into Each of the Four Climate Change Believer Categories in the 2021, 2022, and 2023 Samples Based on Responses to Five Questions

Believer Category	2021 Survey	2022 Survey			2023 Survey		
	Full Sample	Repeat Respondents	New Respondents	Full Sample	Repeat Respondents	New Respondents	Full Sample
Deniers	1.1%	1.7%	1.6%	1.6%	1.6%	0.9%	1.1%
Sceptics	4.3%	5.8%	4.9%	5.2%	5.2%	4.2%	4.5%
Unconvinced	17.2%	17.8%	19.1%	18.7%	18.1%	18.8%	18.6%
Believers	77.3%	74.7%	74.4%	74.5%	75.1%	76.1%	75.8%
Sample size (N)	3,915	1,263	2,435	3,698	1,184	2,874	4,058

- 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 solid 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, 59% of new) respondents **believed that Australia has *already* started to feel the effects of climate change**, 7% and 9%, respectively, thought that the impact would be felt within the next ten years, and a further 9% and 14%, respectively, believed that the effects would 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 A small minority (6% of repeat respondents and 5% of new respondents) believed Australia would *never* feel the effects of climate change.

- Approximately one-fifth of the samples (16% - 24%) 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 sixteen percent of members of both samples believed that **climate change is an *extremely serious* problem right <u>now</u>** (item D15), whereas 32%-34% 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 68% (new sample) as a problem now, and 75% (repeat sample) and 80% (new sample) as a problem in 2050.

- Approximately half the respondents (51% in the repeat sample and 52% 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, but similar to the 2022 data (respectively 49% and 53%). Most 2023 respondents (58% of repeat respondents and 62% of new respondents) believed that climate change **should be a *high*, *very high*, or *extremely high* priority for the Australian government** (item D12). The corresponding figure in 2021 was 67%, and in 2022 they were 56% (repeat sample) and 61% (new sample).

- 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 conservative respondents.

They were also higher in the new respondents sample among those whose primary 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. 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.

- 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-homeowners, non-vehicle owners, respondents who were employed full-time, members of minority/marginalised groups (see Appendix 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. (Note: 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 only measured in the new respondent sample. Responses showed the expected relationships with other climate change-related beliefs, concerns, and behaviours. Scores tended to be higher among females, the more highly educated, those intending to vote for a left-leaning political party, those who lived in an inner-urban area, 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 manifestations of climate change experiences.

- 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, those intending to vote for one of the conservative political parties, and those who (partially or solely) own at least one petrol or diesel vehicle.

6.3 Knowledge and Information about Climate Change

- As in previous years, 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 5.8. Comparatively, in 2021, the mean score for the same test was 5.6, and in 2022, for new respondents, it was 5.3). On six items, less than half of the respondents answered correctly. As was the case in the 2021 survey and the 2022 new respondent 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 conservative respondents (although age and gender differences were not significant). Also scoring relatively well were respondents born outside of Australia, those whose main language spoken at home was not English, non-parents, those that are a member of a minority or marginalised group, those that do not own a petrol or diesel vehicle, and those who had directly experienced a natural disaster or extreme weather event.

- Both 2023 questionnaires asked how much people felt they knew about climate change (item G10). The mean self-rating on a 6-point scale was 3.6 for the repeat respondents and 3.4 for the new respondents (respectively 3.5 and 3.4 for 2022). More specifically, the modal response was "a little" (rather than, for example *quite a lot, virtually nothing*, or *nothing at all).* In the new respondent sample, **self-rated knowledge** was modestly, but positively, correlated (r = .20) with objectively assessed knowledge of climate change (item G1). In both samples, 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 (in both samples) 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.

6.4 Feelings about Climate Change

- Most repeat respondents reported being either *fairly* (39%) or *very* (28%) **concerned about climate change** (item E1). The corresponding percentages in the new respondent sample were 44% and 30%, respectively. These numbers are fairly similar to 2022.

- **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 religiosity, or residential location. In the *new* respondent sample, concern was relatively high among non-parents, the full-time employed, 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 higher income earners, those who reported having had one or more natural disaster, extreme weather, or climate change-impact experiences.

- 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 39% indicated it had increased (item E2). The corresponding percentages in the new respondent sample were 49% and 46%, respectively.

- Participants were presented with a list of 15 (repeat respondents) or 13 (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): cost of living, food insecurity, war/international conflicts, heatwaves, droughts/water shortages**.** The average level of concern associated with the **'impacts of climate change, generally'** was 4.43 (on a 7-point scale), which placed it seventh most concerning in this list of 15, ahead of health threats relating to environmental changes or conditions, air and water pollution, terrorism, bushfires, sea level rise, floods, unemployment, and cyclones. The 2022 *new* respondents ordered these concerns in a similar way to the repeat respondents: rated highest was cost of living, heatwaves, food insecurity, climate change in general, biodiversity loss and droughts/ water shortages, war/international conflicts, air and water pollution, health threats relating to environmental changes or conditions, bushfires, floods, sea level rises, and cyclones. For our respondents, the costs of living are a very high threat: an average score of 5.51 (on a 7-point scale) for repeat respondents and 5.84 (on a 7-point scale) for new respondents. For comparison, the next highest concern is scoring 4.63 (repeat respondents) or 4.95 (new respondents), respectively.

- Approximately one-third of repeat respondents (between 33% and 39%) 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* (45%) and *worried* (62%). The percentages of new respondents who acknowledged having these same feelings were 5-10% higher than those of the repeat respondents: *guilty* (40%), *upset* (49%), *anxious* (46%), *overwhelmed* (47%), *distressed* (51%), and *worried* (67%). Responses to these six items were combined to form a composite climate change distress scale. With a few exceptions (e.g., religiosity and residential location in the repeat 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 are working full-time, higher income earners, 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 are relatively older (55+ years), self-identified as religious, those intending to vote for a right-leaning political party, those who are not university educated, parents, 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

- Item F3 asked new respondents: "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 (63%), reduced use of plastic items (52%), reduced food waste (50%), consumed power (electricity, gas) from the grid/power companies more efficiently (44%), consumed water more efficiently (41%), and avoided unnecessary purchases (40%). Only 16% 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 F4.3 and F4.5 in the repeat respondents' questionnaire, and F4.1 to F4.4 in the new respondents' questionnaire) 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 with most other climate change variables, in general, progressive respondents reported stronger pro-environmental personal norms in both samples than conservative respondents. Other groups that had relatively high mean scores on this measure were those employed full-time, those whose salary exceeded $100,000 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, those who were not born in Australia, and mainly spoke a language at home 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 22% and 42% 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 $100,000 per annum, those who do not own their own home, 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 not born in Australia and who mainly spoke a language at home that was not English.

- A 10-item (new respondents) or 11-item (repeat respondents) **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 17%, who agreed that they would be prepared to pay higher personal taxes to help reduce climate change, to 67%, who indicated that they would be willing to have renewable energy infrastructure such as a solar farm located in their area. New respondents' willingness varied from 17%, who agreed to pay more for fuel, to 72%, who were willing to reduce significantly their energy (e.g. electricity use). New respondents were more willing than repeat respondents to participate in a community-wide climate change movement, change their lifestyle, greatly reduce their energy use, or accept cuts in their standard of living. In general, progressive respondents (plus the full-time employed, the higher income earners, and those with prior experiences of natural disasters, extreme weather, and/or climate change impact event/s) reported greater willingness to take these actions than conservative respondents. In the new respondent sample only, also scoring significantly higher on this variable than the contrasting group were respondents 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 and people's religiosity-status did not differ in 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). Furthermore, those who belong to a minority group score higher on psychological adaptation.

6.6 Lifestyle and Social Milieu

- Most respondents in both samples (86% - 87%) reported that **their health** was either *okay, 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, likelihood of green identity, climate change activism, behavioural willingness and psychological adaptation.

- Respondents claimed that they engage in an average of 5.1 (repeat respondents) and 6.0 (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, 2.9 (repeat respondents) and 3.4 (new respondents) of these 16 behaviours were reportedly performed at least partly because of environmental concerns (with the remaining 2.2/2.6 (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, and by respondents who had prior experiences of one or more natural disaster, extreme weather, and/or climate change impact event. 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.

- 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 32% of respondents)
    - These actions are too expensive (28%)
    - I have my own routines, habits, and ways of doing things that are different from these (27%)
    - These actions are not going to stop or solve environmental problems (24%)
    - These actions are too inconvenient/too much effort (19%)
    - I do not know what to do (14%)
    - I do not trust the authorities that give out information about environmental issues (14%)
    - Environmental problems are too great for me/for one individual to have any impact (14%)
    - These actions are not a high priority, so I never seem to get around to them (13%)
    - I do not know whom to talk to, contact, or engage with on environmental issues (13%)
    - I can't do these things because of my age, ill health, or disability (11%)
    - The environmentally friendly product or service that is available is not of satisfactory quality (11%)
    - I am not particularly interested in environmental issues (10%).
      I have health concerns/reasons, or believe these behaviours are not suitable for my health (10%)

    Thus, all these reasons for climate *inaction* (or barriers to climate action) were cited by at least 10% of the sample. In 2021 and 2022, at least 10% of the sample endorsed most of the same reasons.

- 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, 74% stated that they intended to engage in these behaviours "about the same" as they currently do, 2% intended to engage less, and 24% intended to increase

their level of engagement over the following year. Contrastingly, 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, 42% thought their level of engagement was about the same as that of the average Australian; 39% believed their level of engagement was *below* the national average, and only 19% believed they were *above* the average (item A7). (This distribution of responses is very similar to that obtained in 2021 and 2022). These percentages suggest that the 2023 new respondent sample was not overly represented by individuals who self-identify as environmentalists ('greenies').

- Substantial proportions of respondents in the 2023 new respondents' sample expressed **interest in adopting five environmentally friendly actions in the future** (item A9; this question was not asked in the repeat respondents sample). For example, of those who gave a substantive response and had not already implemented the action, 75% of new respondents expressed future interest in installing a home solar battery system (compared to 73% in 2021, 65% in the 2022 repeat respondents sample, and 73% 2022 new respondents sample), and 56% of new respondents were interested in getting an electric or hybrid vehicle (compared to 55% in 2021, and 53% in the 2022 repeat respondents sample, and 57% 2022 new respondents sample). Those most interested in taking these actions tended to be progressive respondents. There was, however, no gender or religiosity difference in interest in these actions. In contrast, respondents who showed more interest tended to be those who reported high household incomes, who were employed full-time, who were studying, who had prior experiences of natural disaster, extreme weather, and/or climate change impact events, with above average health, and those not born in Australia 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.

- About one-third (35% of 1,700) of the *new* respondent homeowners (those who either owned their own home or were buying it with a loan/mortgage) reported that they had not modified their home in the preceding five years to make it better adapted to extreme weather and natural disasters, 65% reported they had modified their home in at least one listed way (65% out of 1,7000 homeowners), and 27% 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 (71%) reported having experienced at least one heatwave, with 43% having done so more than once. Somewhat less commonly experienced in the preceding year were drought (26%), floods (21%), bushfire/s (20%), and cyclones (7%). When the 911 repeat respondents (77% 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), 71% nominated heatwave/s, a much greater percentage than for flood/s (11%), drought (8%), bushfire/s (7%), and cyclone/s (2%).

- In accordance with the questions used in the 2021 and 2022 survey, new respondents were asked about their **experiences of natural disaster or extreme weather events.** However, the respondents were not required to provide specific details about their experiences. Notably, 38% of the new respondents had directly encountered at least one extreme weather or natural disaster event in the twelve months prior (item C1), a significant increase from 31% in 2021. Furthermore, 54% had experienced such events before the previous year (item C2), similar to the 37% in 2022. Though lower than those for repeat respondents who were asked a differently worded question, these percentages are still substantial. In total 60 of the 2023 new respondents (up from 55% of the 2022 new respondents and 52% in 2021) had experienced such an event at some point in their lives. Of the 1,734 new respondents who had ever experienced such an event, 1.2% had been injured (C3a) and 14% had suffered financially (C3b), in their most recent of these experiences. Eleven 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 27 of 34 climate change variables. The exceptions were their recycling habits, connection to nature, favourability of clean energy sources, spatial distance of climate change, psychological reactance, hopefulness in addressing climate change, and self-rated climate change knowledge. *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 four of 38 climate change variables: descriptive norms, recycling habits, favourability of clean energy sources, and psychological reactance were the exceptions. 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. Substantial differences between those with and without the experience were evident regarding perceived residential exposure to these events. In the new respondent sample, the between-group differences were apparent 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 (33% of repeat respondents and 47% of new respondents) agreed that some **geographically 'distant' natural disaster or extreme weather events** had had an impact on them, even though they did not directly experience these events (item C4).

- Twenty-two percent of repeat respondents, and 29% of new respondents, answered affirmative to the question '**Has any particular event/s or experience/s altered your views about the seriousness of climate change?**' (item D6).

- 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. (These numbers are almost identical to the 2022 percentages, respectively 37% and 39%, and up from the 24% in the 2021 survey). New respondents were also asked whether they had ever had such an experience prior to the preceding twelve months (item D8), with 41% answering affirmatively. Taken together, 46% of new respondents (N = 1,426, up from 35% in 2021, and 37% in 2022 new respondents) claimed to have experienced such an event at some point in their life. When asked for brief details of their experiences (item D9), 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 E.7 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 recycling, and climate change-related hope. They scored significantly lower on psychological reactance, with this direction implying greater (rather than less) climate change concerns. *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 recycling tendencies (no significant difference), favourability of clean energy sources, 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 (60% of repeat respondents and 68% of new respondents) reported that they/their family had been harmed to some extent, with only 40% and 32%, respectively, indicating that they/their family had not been harmed *at all*. (In the 2022 survey, respectively 63 and 67% of respondents reported that they/their families had been harmed to some extent, whereas in the 2021 survey this number was 68%).

- In the past year, 21% 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 (item D7); 30% had experience both these types of events; 47% had experienced an extreme weather /natural disaster event but not a climate change impact event; and 2% had experienced an event or circumstance attributed to climate change, but not an extreme weather/natural disaster event. The corresponding percentages in the *new* respondent's sample were: 49% (neither), 25% (both), 13% (extreme weather/natural disaster only), and 13% (climate change impact only). The between-sample differences in these percentages are noteworthy (and not readily explained), but very similar to the 2022 data (repeats 24%, 29%, 44%, and 3%, and new 48%, 25%, 13%, and 13% respectively). In 2021, the percentages were 41%, 28%, 24%, and 7%, respectively, that is, closer to the 2022 and 2023 new sample than to the 2022 and 2023 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 (in both samples). Also reporting high levels of perceived residential vulnerability were rural residents, females, respondents aged 54 years or less, students, members of minority/marginalised groups, full-time employed, intending left-leaning voters, and

in the new respondents' sample: non-religious people, university educated, students, and higher income earners, and residents of Queensland and Northern Territory.

- 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, 17% of repeat and 31% of new respondents answered in the affirmative (that is, 27% of all 4,058 2023 respondents). Repeat respondents who reported **direct exposure to the flooding** also reported greater environmental/climate change awareness, concern, and responsiveness on 10 out of 33 multi-item scales. The corresponding figures in the new respondent sample were 31 out of 38 scales. In the *repeat* sample, the strongest (positive) associations with flooding exposure were (in descending order): frequency of prior natural disaster/extreme weather event experiences, perceived residential exposure to natural disaster and climate change risks, frequency of engaging in pro-environmental behaviours (PEB34), interest in using pro-environmental behaviours in the future, negative feelings about the Great Barrier Reef, climate change self-efficacy, and frequency of engaging in pro-environmental behaviours due to concerns with the environment (PEB4). In the *new* respondent sample, the strongest positive associations were with (in descending order): perceived residential exposure to natural disaster and climate change risks, frequency of engaging in pro-environmental behaviours (PEB34), climate change risk perception, frequency of engaging in pro-environmental behaviours because of concerns for the environment (PEB4), community involvement, and likelihood of participating in climate change activism. Flooding exposure was not associated with psychological reactance or subjective knowledge about climate change in either sample.

- For repeat respondents, the questionnaire delved into their experiences of extremely hot weather. The responses revealed that a significant portion of Australians was indeed affected by this weather, with 36% indicating no impact, 43% a little impact, 19% some effect, and 2.7% severe impact. These numbers underscore the relevance of our research, as extreme weather events are a part of Australians' daily lives.

- Several questions in both questionnaires asked about participants' experience of **hearing or seeing extreme weather warnings**. Approximately half of Australians (47% of repeat, 57% of new respondents) have listened to or seen one in the last 12 months (item C15). In both samples, almost two-thirds of the sample experienced a warning about heavy rainfall/thunderstorm / severe storm (63% vs 65%, respectively). Other warnings were about a heatwave (49% and 49% respectively), bushfires (31% vs 35%), floods (23% vs 38%), and a small group of people experienced a warning about cyclones (3% vs 8%), or another event (5% vs 2%). Around 46-45% of Australians said the most recent warning (item C17b) was about heavy rainfall/thunderstorm / severe storm.
  The most cited sources of the warnings were TV (51% repeat vs 42% new), radio (31% vs 29%), and mobile phone app notifications (26% vs 37%), while the least cited sources were newspapers (7% vs 8%) and email (3% vs 4%).

- Several questionnaire items (C3d, C3e, C3f, H26) probed the effects of climatic and disaster events on *new* respondents' use of **insurance**. As per the 2021 and 2022 new respondents survey, these questions pertained to the respondent's most recently experienced event (contrastingly, the 2022 repeat respondents answered these questions about the 2022 floods). Respondents indicated that, when they experienced property damage (no matter the extent) for the most recent of the events: 29% made a claim on their insurance, with 88% of these claims successful. Twenty-three percent of those affected with property damage were aware of if and how they had changed their insurance cover as a consequence. In a different section of the questionnaire, 61% 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). Of the *repeat* respondents, also 61% were at least moderately willing to move house in this instance. This is similar to 2022, when these numbers were respectively 62% (new) and 63% (repeat), but higher than in 2021 (52%).

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

- New (but not repeat) respondents answered three items 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. As expected, acceptance of this identity was positively correlated with a stronger belief in climate change, greater concern for its impacts, and living a more pro-environmental lifestyle, as well as feeling more climate change distress, willingness to take constructive action and psychological adaptation to climate change.

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

    - Conscientiousness was positively associated with high levels of recycling, connection to nature and self-rated climate change knowledge, and hopefulness in addressing climate change
    - Agreeableness was positively associated with recycling, connection to nature, normative beliefs, hopefulness in addressing climate change, behaviours changed due to climate change, and green identity.
    - Emotional stability was positively associated with recycling, self-rated climate change knowledge and climate change-related hope, and negatively correlated with climate change distress and concern, and perceived residential vulnerability due to climate change.
    - 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.

- Extraversion was positively associated with connection to nature, climate change hope, engagement in pro-environmental behaviours (PEB34 and PEB4), and normative beliefs.
- Narcissism was positively associated with interest in future pro-environmental behaviours, current engagement in pro-environmental behaviours (PEB34), normative beliefs, feeling some personal responsibility for climate change, feeling climate change distress, psychological adaptation, and willingness to change some behaviours.

Among all the personality traits, the significance of the openness trait's correlation with the climate change variables cannot be overstated. Its association with connection to nature (r = .31) was the highest single correlation, underscoring its pivotal role in shaping climate change attitudes.

- 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-homeowners, members of a 'minority' or 'marginalised' group, respondents who had experienced natural disasters and/or impacts of climate change, and those with relatively poorer health 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).

- As in previous years**, support for pro-climate action government policies** was measured. This year, support for 20 policies was measured. The list of policies contained 12 of the 13 policies surveyed in 2021 and 2022 (only discarding a covid-19 related policy), and another eight new policies. **Support for fourteen pro-climate action government policies** was strong. For example, 73% of *repeat* and 76% of *new* respondents expressed some or strong support for setting a national zero-carbon emission target by 2050 at the latest; 60% of *repeat* and 66% of *new* respondents supported putting a tax on carbon emissions, with the money raised being invested in clean, renewable energy; 56% of *repeat* and 62% of *new* respondents supported phasing out over ten years the mining of fossil fuels (coal, oil and gas). In contrast to this broad support for pro-environmental policies, sizeable minorities favoured policies that could be described as environmentally 'unfriendly': For example, 36% of repeat and new respondents supported building new coal-fired power stations as old ones are retired, and 41% of repeat respondents and 40% of new respondents supported minimising Australia's commitments to international climate agreements regarding reducing greenhouse gas emissions. Despite this seeming relatively high, more respondents opposed these ideas than supported them (respectively 51% and 42% for repeat respondents and 50% and 42% for new respondents). These percentages are relatively similar to the 2022 samples (0-3% difference) but were mainly lower than the 2021 total sample (between 3-10%).
  Of the eight new policies added to both questionnaires this year, support for five of these eight policies was high, with two-thirds or more of Australians supporting them. For example, around 87% of Australians support a reduction of the total waste

generated in Australia by 10% per person in 2030; around 80% are in favour of permanently protecting all high conservation value forests and bushlands through stronger regulations, regardless of the difficulty and costs involved in enforcing these regulations, and around 78% supporting a boost of public funding for the national landcare network to restore and connect wildlife habitat, even if this requires some loss of land that could be used for industry, farming, or residential use. Support for maintaining the existing ban on using nuclear power for domestic and industry use seems relatively low in both samples (47% *repeat* and 51% *new* respondents). However, there was a relatively high percentage of people that were unsure or did not understand the policy (respectively 16% and 15%).

- **Support for pro-environment policies** (both the 12 policies that are comparable to 2021 and 2022 data, as well as all 20 policies) was stronger in both samples among progressive respondents than conservative respondents (although the gender difference was not significant in the repeat respondent sample for the 12 policies). This support was also relatively high, in both samples, among those who did not own a motor vehicle, those who were not parents, those with a relatively high household income, and those who had experienced one or more natural disasters, extreme weather events, or climate change impacts. Also, support was high for the twelve policies among *repeat* respondents who were employed full-time, those who did not own their own home, and among *new* respondents those who did not own their home. 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, distress, perceptions of risk, issue importance, personal norms, efficacy, willingness to take climate action, and similar climate change attitudes and behaviours

- 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 (33% of repeat respondents and 36% of new respondents) believed the target was "about right", with 23% of repeat respondents and 25% of new respondents thinking it is "too low", and 16% and 13%, respectively, considering it is "too high". Fifteen percent of repeat respondents and 12% of new respondents indicated they think there should be no target at all, and 13% and 14%, respectively, replied that they had no opinion on the issue.

- All **political parties** were represented in the sample. Beliefs in, concerns about, and responsiveness to climate chang**e** 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 "teal" independent (100%), Greens (94%), and Labor Party (84%) voters than among intending Liberal (49%), United Australia Party (46%), National Party (32%), and One Nation (26%) voters. In the new respondent sample, the corresponding percentages were: 94% (Greens), 88% (teal), 85% (Labor), 54% (Liberal), 47% (National Party), 33% (United Australia), and 39% (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 (49%) compared to all other

respondents combined (34%). This difference was also present in the new respondent sample: 51% of Labor voters versus 44% 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.8 and E.7 for examples.

6.9 Recycling

This year, questions were added to repeat and new respondent questionnaires on the frequency with which participants recycle twelve household products (e.g., paper, cardboard, e-waste).

- Mean scores on the 12-item recycling scale were similar in the two samples (54.5 in the repeat respondent sample and 52.1 in the new respondent sample). On average, respondents indicated that they recycled the products "often", but this average masks large differences between objects (e.g., cardboard, paper, glass bottles) that were reportedly recycled all the time or nearly all the time by most respondents, and those recycled by few respondents (e.g., building materials, tyres) mainly because of a lack of opportunity to do so.

- Older respondents, parents, those not employed full-time, not currently studying, and those who own their own home and/or a motor vehicle reported high recycling levels. Arguably, members of these groups have a greater opportunity to recycle than members of the relevant comparison groups. In the new respondent sample, relatively high levels of recycling were reported by women, low-income respondents, and those who mainly speak English at home.

- Correlations with the other climate change variables were generally low. The highest links found were in the *repeat* respondent sample with connection to nature (r = .26), pro-environmental behaviours (PEB4 [r = .26], and proportion PEB4 [r = .25]), and having positive views towards the GBR (r = .25), while in the *new* respondent sample the highest links were with having positive views towards the GBR (r = .26) and showing some behaviour change due to climate change (r = .25).

6.10 Views on Energy Sources

This year questions were added to both repeat and new respondent questionnaires on opinions of different sources for energy production (e.g., biomass, coal, nuclear power). Three different energy sources were distinguished: those that entail high emissions of greenhouse gasses (i.e., biomass, coal, gas, oil), those that are relatively "clean" (i.e., hydroelectric, solar, wind), and nuclear. After recoding these energy source items in a way to be in line with the other climate items, higher scores mean more favourable of the types of energy sources.

- Most respondents in both samples reported more favourable attitudes to clean energy sources than to nuclear power and high emissions sources.

- Progressive respondents (especially those who were university educated and/or intending to vote for a left-leaning political party) reported more favourable attitudes to clean energy sources than did conservative respondents. In contrast, conservative respondents (especially those who were older, less highly educated, right-leaning, religious, parents, and home/vehicle owners) reported relatively favourable attitudes to both high emission and nuclear energy sources. Respondents who had prior experiences of natural disasters and/or climate change impacts tended to rate clean sources more favourably, and high emission and nuclear sources less favourably, than did respondents who had not had these experiences. In both samples, women reported less favourable attitudes to nuclear energy than did their male counterparts.

- Appendices D.7 (*repeat)* and E.6 (*new*) show that opinions regarding all three energy sources were significantly correlated with nearly all of the climate change variables. However, there were some exceptions.
  Most notably, in the new respondent sample, community involvement was only very minimal related to attitudes towards high emissions energy source, meaning higher community involvement was linked to more positive views on high emissions, and not at all to clean or nuclear energy sources. Recycling habits were unrelated to attitudes to nuclear and high-emissions power sources, and spatial distance of climate change and psychological reactance show inverted relations with all types of energy sources. This means that their patterns are the opposite of the other climate change variables. For example, higher distance of climate change issues from the home was linked to less favourable attitudes to clean energy sources, and more favourable attitudes to high emissions and nuclear energy uses. Higher psychological reactance (i.e., the sense that their freedom to hold and express their views about climate change is being constrained) was also linked to less favourable attitudes to clean energy uses, and more favourable attitudes towards high emission sources and nuclear energy uses.

6.11 Views on the Great Barrier Reef

This year, the questionnaires for both repeat and new respondents were expanded to include inquiries about visiting the Great Barrier Reef (GBR), beliefs about climate change impacts on the GBR, and feelings and attitudes towards the Reef and its threats. Unless otherwise stated, the responses listed here are across both samples (these numbers are not reported together in the appendices but separately for repeats in Appendix D.2 and new in E.2).

- Ninety-six percent of Australians have an idea of what the GBR is, and almost 50% of these have visited the GBR, the majority (63% of them) in the last decade.

- Over two-thirds (68%) of Australians, across both samples, feel that climate change is a threat to the GBR, requiring immediate action, 14% need more evidence to form an opinion about how climate change may threaten the GBR, 6% think it is a threat, but not requiring immediate action, 4% do not think CC is a threat to the GBR, 5% do not have an opinion, and 3% don't believe in climate change at all.

- When Australians hear about climate-related damage to the GBR, over two-thirds of them indicate it makes them feel at least *a little bit* sad (91%), disappointed (86%), helpless (79%), angry (77%), and afraid (67%).

- Half of Australians strongly agree that the GBR is part of their Australian identity, and only 14% state strongly that it is not their responsibility to protect the GBR.

- Participants were asked to indicate on a 10-point scale their level of agreement with statements about the GBR. When responses of 8, 9, or 10 on this scale are taken as showing agreement, almost 8 out of 10 Australians feel very proud that the GBR is a World Heritage area, 7 out of 10 find protection of the GBR a responsibility for all Australians, and 6 out or 10 feel that the GBR should be on the World Heritage in danger list.

- Only 30% of Australians were optimistic about the future of the GBR, and 26% were afraid when hearing about climate-related damage to the GBR.

- According to our survey, almost 70% said Climate Change is a serious / extreme threat to the GBR (this corresponds to the earlier reported finding of 68%). Also high on the list of threats to the Reef are land-based run-off (67%), and deep-sea mining and marine debris/beach littering (both 63%).

- Forty per cent of Australians believe the governance of GBR is a serious or extreme threat to the GBR, and only 24% feel confident the GBR is well managed.

- In both questionnaires, items were included to measure experiencing negative feelings about the GBR (Question I5, 6 items), having positive views about the GBR (Question I7, 9 items), and rating potential threats to the GBR (Question I9, 20 items). Responses to the items within each of these questions were combined to form multi-item scales. In the appendices, the findings are reported in more detail for *repeats* in appendix D.4 and *new* in E.4, but not for the combined sample together. Across samples, it was found that men have significantly lower negative feelings and significantly lower positive views about the GBR than women. Furthermore, they list fewer threats towards the GBR than women. Across both samples, younger people (aged 35 years or less) experience more negative feelings and less positive views than middle aged (36-54 years) and older people (55+ years). Middle aged people also feel more negative feelings and less positive feelings compared to older people. There were no significant differences between the different age categories regarding issues that pose a threat to the GBR. However, for *repeat* respondents, older people have more negative feelings than both other groups, and younger people have more positive views than those aged 55+ years.

- People who intended to vote for right-leaning parties reported fewer negative feelings about the GBR, fewer positive views about the GBR, and saw fewer threats to the GBR compared to those intending to vote for left-leaning parties.

- Levels of GBR negative feelings, positive views, and perceived threats tended to be positively correlated with all the climate change variables except spatial distance of climate change and psychological reactance (and climate change hope, in the repeat respondent sample), as well as (favourable) attitudes to high emission sources and nuclear power sources of power.

6.12 Comparisons of Responses in the 2021, 2022 and 2023 Samples.

6.12.1 Demographic Composition of the Samples and Sub-Samples

An important objective of this project was to identify similarities and differences between 2021, 2022, and 2023 samples and sub-samples, as well as changes (and stabilities) in the sub-sample of people who participated in multiple years of the survey. Before reporting and comparing mean scores on the critical climate change variables, Table 7 presents the demographic characteristics of the 2021, 2022, and 2023 samples and the two sub-samples in the 2022 and 2023 datasets (i.e., repeat and new respondents). 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, noted concerns about, and responsiveness to, climate change tends 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 actual population differences or changes over time.

The comparison of the 2022 data (column 4) with only the 2021 data (column 1) can be found extensively in Bradley et al. (2023). However, since we deleted 332 participants from the 2022 *new* respondent dataset and the 2022 *full* dataset, the numbers in Table 6 are not entirely consistent with those presented in the report of the 2022 survey. Nonetheless, the overall conclusions remain relatively similar. In the current report, we do not repeat the comparison of the 2022 data (column 4) with the 2021 data (column 1) only, nor the comparison of the 2022 repeat sample (column 2) and new sample (column 3).

Several pairs of columns in Table 7 are especially worthy of comparison. To begin, comparing the **2021 sample** (column 1) and the **entire 2022** (column 4) and the **total 2023 sample** (column 7), it can be seen that the 2023 sample is (a) on average, almost three years older than the 2021 sample, but similar in age to the 2022 sample, (b) more likely to vote for a left-wing political party, be a parent, university educated, employed full time, and a home-owner compared to both other years, and (c) less likely to be 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 2023 sample's older age (compared to 2021) would be expected to be associated with relatively low levels of climate concern and activity, but the 2023 sample's political leanings and higher education levels would be expected to influence their responses in the other direction.

Next, the demographic make-up of **two 2023 subsamples - repeat respondents** (column 5) **and new respondents** (column 6) - can be compared. As shown, relative to the repeat respondents, the new respondents were (a) on average, ten years younger, (b) less likely to be religious, a parent or homeowner, and (c) more likely to be university educated, employed on a full-time basis, with a higher income, be a student, and vote for a left-leaning political party. Women outnumbered men in all samples and sub-samples, although the numerical advantage of women was least marked in the sample of 2023 new respondents. Given their younger age, higher education level, student status, and voting preferences, the 2023 new respondents were expected to be more climate-concerned and -active than the 2023 repeat respondents.

Finally, we can also compare the **full 2021 sample** (column 1), with the **new respondents' samples of 2022** (column 3) **and 2023** (column 6). The rationale for this comparison is that all three of 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 six main ways: compared to the 2021 and 2022 samples, the 2023 new respondent sample contains a higher proportion of people who reported that they (a) intend to vote for a left-leaning political party at the next federal election, (b) are full time employed, (c) earn more than $100K per annum, (d) are a homeowner, (e) are not religious, and (f) are in better health (albeit more so compared to 2021 than 2022). The first of these differences is especially likely to be associated with greater concern about climate change and activity.

Table 7
Comparison of the Demographic Composition of the 2021, 2022, and 2023 Samples

Variable	2021 Survey	2022 Survey			2023 Survey		
	1. Total Sample	2. Repeat Respondents (responded in 2021)	3. New Respondents	4. Total Sample	5. Repeat Respondents (responded in 2021 and/or 2022)	6. New Respondents	7. Total Sample
Sample size	3,915	1,263	2,435	3,698	1,184	2,874	4,058
Male	48.6%	48.0%	49.6%	49.1%	48.2%	49.7%	49.3%
Female	51.1%	51.9%	50.0%	50.6%	51.6%	49.8%	50.3%
Age (years)	Mean = 46.56 *(sd =17.41)*	Mean = 54.20 *(sd = 16.95)*	Mean = 46.05 *(sd = 19.46)*	Mean = 48.83 *(sd = 19.03)*	Mean = 56.03 *(sd = 17.42)*	Mean = 46.43 *(sd = 18.56)*	Mean = 49.23 *(sd = 18.75)*
Born in Australia?	76.7%	76.1%	78.4%	77.6%	77.4%	74.9%	75.6%
Language spoken at home is English	93.8%	95.2%	94.3%	94.6%	95.4%	93.6%	94.1%
is religious	40.5%	41.2%	38.0%	39.1%	40.5%	35.4%	36.9%
University-educated	40.5%	39.0%	38.4%	38.6%	39.6%	45.1%	43.5%
Left-leaning voter	41.7%	45.8%	50.2%	48.7%	51.8%	58.0%	56.2%
is a parent	56.3%	63.7%	57.7%	59.7%	66.6%	60.0%	61.9%
Employed full-time	36.9%	31.7%	37.9%	35.7%	28.7%	41.4%	37.7%
Income > $100k p.a.	32.2%	30.0%	32.8%	31.9%	31.4%	41.0%	38.2%
Currently a student	12.8%	5.9%	11.7%	9.7%	5.4%	11.7%	9.9%
Homeowner	56.3%	64.0%	54.8%	58.0%	67.1%	59.2%	61.5%

Variable	2021 Survey	2022 Survey			2023 Survey		
	1. Total Sample	2. Repeat Respondents (responded in 2021)	3. New Respondents	4. Total Sample	5. Repeat Respondents (responded in 2021 and/or 2022)	6. New Respondents	7. Total Sample
Member of a minority or marginalised group	29.9%	28.5%	27.6%	27.9%	28.0%	27.9%	27.9%
Reside in rural/remote area	20.3%	21.1%	22.3%	21.9%	23.5%	23.0%	23.1%
Ever directly experienced a ND	52.4%	73.2% [a]	56.1%		76.9% [a]	60.3%	
Ever directly experienced CC	35.5%	32.6% [a]	45.1%		32.7%[a]	46.1%	
In poor or just OK health	55.6%	48.1%	48.5%	48.4%	45.2%	47.4%	46.8%
Petrol/diesel vehicle owner	82.9%	85.0%	84.6%	84.8%	85.8%	84.9%	85.2%
Australian state/territory of residence							
Australian Capital Territory	2.5%	2.1%	1.7%	1.8%	2.1%	1.8%	1.9%
New South Wales	30.9%	28.7%	33.1%	30.4%	29.4%	31.2%	30.7%
Northern Territory	1.0%	0.8%	1.0%	0.9%	0.9%	1.0%	1.0%
Queensland	19.2%	21.3%	20.8%	21.0%	21.3%	20.4%	20.6%
South Australia	7.5%	8.7%	7.6%	8.0%	8.9%	7.3%	7.8%
Tasmania	2.9%	2.3%	2.0%	2.1%	2.1%	2.3%	2.2%
Victoria	25.4%	25.3%	25.3%	25.3%	25.4%	25.3%	25.4%
Western Australia	10.8%	10.8%	10.3%	10.5%	9.9%	10.6%	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.

6.12.2 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 climate change scale can be compared. Reporting these comparisons follow the same sequence used when comparing the samples' demographic compositions.

As shown in Table 8, comparison of the **complete datasets of 2021** (column 1), **2022** (column 4), **and 2023** (column 7) showed that there are some differences between the three years. In 2023, compared to 2021, people were more interested in using pro-environmental behaviours (PEB34 and PEB4), have higher normative beliefs, feel higher personal responsibility for climate change, have higher psychological reactance, response efficacy, climate change distress, personal norm, and willingness to change their behaviours. However, the 2023 respondents also have lower climate change self-efficacy, climate change concern, and perceived residential exposure and have lower levels of importance of climate change issues compared to the 2021 respondents. Furthermore 2023, compared to 2022, they also show higher pro-environmental behaviours (PEB4), interest in future use of PEBs, and lower willingness to change their behaviours. All three samples had no clear trends or significant differences, with an apparent increase or decline since 2021.

Next, the responses from **the two 2023 subsamples – repeat respondents** (column 5) **and new respondents** (column 6) – are compared. In total, these two sub-samples differed significantly ($p < .001$) on nine of the 25 variables for which data were available and differed marginally ($p<.05$) on another seven variables. It was found that the repeat sample scored higher on recycling and self-rated climate change knowledge compared to the new respondents sample but lower on pro-environmental behaviours (PEB34, PEB4, proportion PEB4, and interest in future use of PEBs), perceived residential exposure, policy support, climate change beliefs/ acceptance, climate change risk perception, personal responsibility of climate change, climate change importance, spatial distance to climate change, psychological reactance, psychological adaptation, climate change efficacy (self-, and response), climate change concern and distress.

When comparing these within-year differences with the within-year differences in 2022 (i.e., the 2022 repeat and new sample; columns 2 and 3), it is clear that there are more differences in the two 2023 subsamples than in the 2022 subsamples. The exact reason for this has not been explored, but it could be due to differences in the demographic composition of these samples, and further statistical tests should be done to confirm this.

Finally, the responses of what are effectively 'new' samples – **the 2021 total sample** (column 1), the **2022 *new* sample** (column 3), and the **2023 *new* sample** (column 6) are compared. In total, these three samples differed significantly ($p < .001$) on 17 of the 25 variables for which data were available and differed marginally ($p<.05$) on another five variables. The 2023 new respondents, compared to 2021 respondents, reported more community involvement, pro-environmental behaviours (PEB34 and PEB4), lower perceived residential exposure, descriptive norms, and normative beliefs, higher green identity, risk perception, personal responsibility for climate change, collective efficacy, climate change distress, personal norm, and higher psychological adaptation. They also score lower on perceived residential exposure, importance of climate change issues, self-efficacy, trust in climate scientists, likelihood of climate activism, and willingness.

Compared with the 2022 new respondents, the 2023 new respondents scored higher on PEB (only a proportion of PEB4s), the New Ecological Paradigm, climate change belief/acceptance, and objectively tested climate change knowledge. They also scored lower on green identity.

Again, as with comparing the total samples, there was no significant increase or decline each year since 2021.

Table 8
Comparison of Mean Scores on the Climate Change Scales for the 2021, 2022, and 2023 Samples

Variable	2021 Survey	2022 Survey			2023 Survey		
	1. Total Sample	2. Repeat Respondents (responded in 2021)	3. New Respondents	4. Total Sample	5. Repeat Respondents (responded in 2021 and/or 2022)	6. New Respondents	7. Total Sample
Sample size	3,915	1,263	2,435	3,698	1,184	2,874	4,058
			Lifestyle & Social Milieu				
Community Involvement [b]	10.82	-	10.95	--	-	11.18^^^ 13	--
PEB34	5.53	5.26###	5.88	5.67	5.12###	5.95 ^^^ 12,13	5.71*13
PEB4	3.03	2.99	3.07	3.04	2.87###	3.39 ^^^13,23	3.24**13,23
Proportion_PEB4	0.29	0.32###	0.27	0.29	0.25###	0.29	0.28
Interest in Future PEBs	13.87	13.09###	13.80	13.56	13.40###	13.95	13.79***12
Perceived Residential Exposure	13.59	12.56##	12.98	12.83	12.71#	13.04 ^^^12,13	12.94***12,13
Descriptive Norms	16.05	-	16.75	--	-	17.02 ^^^12,13	--
Normative Beliefs	16.23	16.41	16.67	16.58	16.48	16.66 ^^^12,13	16.61***12,13
Recycling	-	-	-	--	54.49###	52.10	52.80
			Self and Worldviews				
Conscientiousness	-	11.67	-	--	11.75	-	--
Agreeableness	-	10.35	-	--	10.38	-	--
Emotional Stability	-	9.60	-	--	9.71	-	--
Openness to Experience	-	9.18	-	--	9.19	-	--
Extraversion	-	-	-	--	6.70	-	--
Narcissism	-	10.46	-	--	9.91	-	--
Green Identity	10.04	9.99###	10.39	10.52	-	10.16 ^^^13,23	--
Connection to Nature	-	29.10	-	--	29.64	-	--
New Ecological Paradigm [c]	21.68	-	21.09	--	-	21.58 ^^^12,23	--
Policy Support - 13 items [a]	37.72	37.18	37.37	37.31	-	-	--
Policy Support - 12 items [e]	34.66	34.29	34.44	34.39	34.11	34.56	34.43
Policy Support - 20 items	-	-	-	-	57.79#	58.5	58.30
			ND and CC Experiences and Beliefs				
Number of ND Experiences	-	2.11	-	--	2.25	-	--
CC Belief/Acceptance	22.60	22.17	22.16	22.16	22.25	22.53 ^^12,23	22.45**12
CC Risk Perception	23.46	22.79###	23.77	23.44	23.22##	24.05 ^^13	23.81

Variable	2021 Survey	2022 Survey			2023 Survey		
	1. Total Sample	2. Repeat Respondents (responded in 2021)	3. New Respondents	4. Total Sample	5. Repeat Respondents (responded in 2021 and/or 2022)	6. New Respondents	7. Total Sample
Sample size	3,915	1,263	2,435	3,698	1,184	2,874	4,058
Personal Responsibility for CC	15.01	15.35	15.76	15.62	15.12$^{\#\#}$	15.79 $^{\wedge\wedge\wedge}$ ^{12,13}	15.59*** ^{12,13}
Spatial Distance of CC	6.29	6.11$^{\#}$	6.38	6.29	6.03$^{\#\#}$	6.34	6.25
Importance of CC Issue - 4 items [c]	20.21	18.62	18.98	18.86	18.69$^{\#}$	19.29 $^{\wedge\wedge\wedge}$ ^{12,13}	19.12*** ^{12,13}
Psychological Reactance	10.57	10.60$^{\#\#\#}$	11.36	11.10	10.71$^{\#\#}$	11.22 $^{\wedge\wedge\wedge}$ ^{12,13}	11.07***^{12,13}
CC Self-efficacy	14.80	14.11	14.30	14.23	14.04$^{\#}$	14.41 $^{\wedge\wedge\wedge}$ ^{12,13}	14.30***^{12,13}
CC Response Efficacy	12.67	13.02$^{\#}$	13.36	13.24	12.97$^{\#}$	13.32 $^{\wedge\wedge\wedge}$ ^{12,13}	13.22***^{12,13}
CC Collective Efficacy	20.48	20.22	20.20	20.21	20.18	20.54	20.43
Trust in Climate Scientists	15.17	-	14.11	--	-	14.31 $^{\wedge\wedge\wedge}$ ^{12,13}	--
Feelings about Climate Change							
CC Concern	23.84	22.40$^{\#\#}$	23.14	22.89	22.50$^{\#\#\#}$	23.45 $^{\wedge\wedge}$ ^{12}	23.17***^{12,13}
CC Distress	24.38	23.27$^{\#\#\#}$	25.55	24.77	23.65$^{\#\#\#}$	25.54 $^{\wedge\wedge\wedge}$ ^{12,13}	24.99*^{13}
CC Hope	-	11.24	-	--	10.89	-	--
Responses to Climate Change							
Behaviour Change due to CC	4.45	4.36	4.33	4.34	-	4.43	--
Personal Norm	17.02	17.28	17.54	17.45	17.34	17.48 $^{\wedge\wedge\wedge}$ ^{12,13}	17.44**^{12,13}
Likelihood of Climate Activism	12.9	-	12.73	--	-	12.57 $^{\wedge}$ ^{13}	--
Behavioural Willingness - 9 items [b]	33.61	33.03	33.05	33.05	31.86	32.36 $^{\wedge\wedge\wedge}$ ^{13}	32.21***^{13,23}
Behavioural Willingness-10 items [b]	-	37.22	37.36	37.31	36.16	36.72	36.55
Psychological Adaptation [a]	37.24	37.17$^{\#\#\#}$	39.23	38.53	36.50$^{\#\#\#}$	38.79 $^{\wedge\wedge\wedge}$ ^{12,13}	38.12***^{12,13}
Understandings of Climate Change							
CC Knowledge - objectively tested	5.59	-	5.34	--	-	5.79 $^{\wedge\wedge}$ ^{23}	--
CC Knowledge - self-rated, 3 items [d]	10.16	-	-	--	-	-	--
CC Knowledge - self-rated, 1 item [d]	-	3.52$^{\#\#\#}$	3.38	3.42	3.55$^{\#\#\#}$	3.39	3.44

Notes:
PEB = pro-environmental behaviour. ND = natural disaster. CC = climate change.
Single dashes (-) in cells indicate that the scale was not included in this sample's questionnaire.
Double dashes (--) in cells indicate that we can't provide the scale for the total sample in any given year as it was not measured in all participants.
[a] For the 2022 and 2023 versions of this scale, minor wording changes were made to one or more items in the 2021 used version of this scale.
[b] Mean scores for 2022 and 2023 have been recalculated using just those items in the 2021 survey. Therefore, scores of all three years can be directly compared.
[c] Mean scores for 2021 have been recalculated using just those items in the 2022 and 2023 survey. Therefore, scores of all three years can be directly compared.

[d] The 2021 mean score for this variable was based on the sum of three items. From 2022 onwards, a single item was used to measure this variable. Thus, mean scores on this variable are not directly comparable between 2021 and other years.
[e] Mean scores for 2021 and 2022 have been recalculated using just those items in the 2023 survey. Therefore, scores of all three years can be directly compared.

[#] p <.05, [##] p <.01, [###] p < .001 (two sided) when comparing the mean responses of the 2022 new and 2022 repeat samples OR comparing the 2023 repeat sample with the 2023 new sample
^ p <.05 ^^ p <.01 ^^^ p <.001 for ANOVA comparing 2021 full, 2022 repeat, and 2023 repeat samples,
* p <.05 ** p <.01 *** p <.001 for ANOVA comparing 2021, 2022, and 2023 full samples,
[12] group means between 2021 and 2022 are significantly different (p < .01) from one another (Games-Howell),
[13] group means between 2021 and 2023 are significantly different (p < .01) from one another (Games-Howell),
[23] group means between 2022 and 2023 are significantly different (p < .01) from one another (Games-Howell)

7 DISCUSSION

7.1 Study Overview

Like the first and second Climate Action Surveys conducted in 2021 and 2022, this third survey sheds light on Australians' understandings of and responses to climate change. The surveys are distinctive in several ways when compared to other surveys. 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, the widespread flooding of Eastern Australia in 2022, and threats to the Great Barrier Reef in 2023, on climate action are examined; and
- Longitudinal data are collected.

The 2023 (like the 2022) survey gathered data from two overlapping populations of adult Australians: 1,184 people who had participated in the 2021 and/or 2022 survey ('repeat' respondents) and 2,874 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 broader Australian population regarding gender, age, and Australian state/territory.

The repeat respondents were, on average, considerably older than the national population and the new respondent sample. 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 2023, most 2021 and 2022 respondents chose not to do so). Although it is possible to compare the responses of the 2023 repeat sample with their previous responses and thus track the people over time, in this technical report we chose not to do so.
In this report, we have mainly compared the 2023 repeat respondent data directly with the 2023 new respondent data. In some instances, we have compared the 2023 data with the 2022 respondent data and the 2021 sample. However, looking at the breakdown of the 9,224 unique respondents, there are many other comparisons possible, including tracking individual participants over the course of 2 or 3 years, with sample sizes ranging from 65 (participants completing 2021 and 2023 repeat survey) to 775 (participants completing 2021 and 2022 repeat survey) (see Table 2a and Table 2b, in section 5.1 above for full details).

In total, the 2023 surveys involved the collection of approximately 400 bits of information from each of the 4,058 respondents. Unsurprisingly, with more than 1.5 million data points, Given the vast amount of data 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 'takeaway' points, such as the increase in climate change believers and the shift in political affiliations among climate change activists, may not be fully appreciated.

In this context, three important conclusions from the 2021 and 2022 survey are worth reiterating, after only minor updating and revision in light of the 2023 survey findings.

1. A clear majority of 2023 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 voiced disbelief in, or doubts about, the existence of, and threat posed by, anthropogenic climate change. The 2023 percentages of climate change believers and climate change deniers are slightly lower than in 2022, and slightly higher than in 2021.

2. In general, the (approximately) 30 climate change variables measured in both the 2023 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.

3. Across this range of climate change variables, a comprehensive and detailed 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-educated. This comprehensive and detailed data provides a nuanced understanding of the different attitudes and behaviours towards climate change in Australia.

As was the case in 2021 and 2022, overall, the picture to emerge from the 2023 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 four drawn from the 2023 surveys:

1. The average scores of the 30-odd climate change variables did not increase or decrease continuously, to a statistically significant level, over the course of 2021 to 2023. Nonetheless, non-significant three-year trends were evident in the new respondent data for three of the variables: the mean scores for self-reported pro-environmental behaviours, climate change descriptive norms, and climate change risk perception all increased slightly from 2021 to 2022, and again from 2022 to 2023. The 2024 Climate Action Survey will provide an opportunity to observe whether these historical trends continue.

2. While there were no significant three-year trends in the new or repeat samples, there were some significant differences between the 2023 new respondent data and one of the preceding years. Of particular note are (a) a set of variables that displayed higher mean scores in 2023 than in 2022 (climate change belief/acceptance, New Ecological Paradigm, perceived importance of the climate change issue, and objective knowledge of climate change are prime examples), and (b) a set of variables that displayed higher mean scores in 2022 than in 2021, and maintained that advantage over the 2021 scores in 2023 (normative beliefs, personal responsibility for climate change, climate change response efficacy, and climate change distress are prime examples). Future iterations of the Climate Action Survey will reveal whether these differences and stabilities are genuine shifts, rather than temporary blips, in Australians' climate change attitudes and behaviours.

3. High levels of recycling were reported by respondents who were older, parents, not employed full-time, not currently studying, and those who own their own home and/or own a motor vehicle. In the new respondent sample only, relatively high levels of recycling were reported by women, low-income respondents, and those who mainly speak English at home. Thus, the demographic differences in this recycling variable did not follow the same pattern evident in the majority of climate change variables.

4. A vast majority (96%) of Australians have an idea of what the Great Barrier Reef (GBR) is, and almost half of these have visited the GBR at one point in their life. Over two-thirds (68%) of Australians, across both samples, feel that climate change is a threat to the GBR and requiring immediate action. Levels of GBR negative feelings, positive views, and perceived threats tended to be positively correlated with most of the climate change cognitive, affective, and behavioural variables.

5. Most respondents in both samples reported more favourable attitudes to clean energy sources than to nuclear power, which, in turn, was rated slightly more positively than high emission sources. More progressive respondents reported more favourable attitudes towards clean energy sources than conservative respondents. In contrast, more conservative respondents reported relatively favourable attitudes to both high emissions and nuclear energy sources.

7.2 Subgroup trends

The findings of the 2023 surveys revealed striking differences between the sub-groups of respondents who showed the strongest interest and willingness to engage in climate action and activism, and the groups that reported the highest levels of recycling. As shown in blue in Table 9, two groups (women, and respondents who were employed full-time) displayed

higher than average levels of both climate action readiness and recycling behaviours. But this commonality was the exception: as shown in red in Table 9, the groups that tended to report the highest level of climate interest/willingness were the exact opposite of those that showed the highest levels of recycling, and vice versa. In addition, analyses revealed several groups (shown in orange in Table 9) that reported high climate action tendencies but not recycling behaviours. While some of the differences can possibly be explained by differences in opportunity (e.g., homeowners have more recycling opportunities, but do not have more climate action opportunities, than non-home-owners), questions remain regarding the different pattern of responses given by other groups. In particular, why was the "progressive" respondents' readiness to take climate action not matched by correspondingly high levels of recycling? If respondents with Green political party affiliations are motivated by this social identity to display their climate action proclivities, why don't the same political leanings also encourage respondents to "talk up" their recycling credentials? And, if social desirability can be offered as a partial explanation for the high levels of recycling reported by some groups, why did the same considerations not lead to correspondingly high levels of climate action readiness?

Table 9

Subgroups Tending to Report High Levels of Interest, and Willingness to Engage, in Climate Action and/or Climate Activism	**Subgroups Tending to Report High Levels of Recycling Behaviour**
• Women	• Women
• Employed full-time	• Employed full-time
• Younger	• Older
• Students	• Non-students
• Non-parent	• Parents
• Non-home owners[?]	• Home owners
• Non-car owners	• Car owners
• English not the main language at home	• English the main language at home
• Prior experience of a natural disaster	• No prior experience of a natural disaster
• Prior experience of a climate change impact/s	
• Not born in Australia	
• University educated	
• Intending to vote for a left-leaning political party	
• Inner urban residents	
• Members of a minority/ marginalized group[?]	
• In better health[?]	

Note: blue = groups that show higher than average levels of climate action readinesss and behaviours, red = groups that show highest levels of interest/willingess are opposites of the subgroups that show higher levels of recycling behaviours, orange = groups that show higher levels of interest, but no recycling behaviours evident (nor for their opposites).

[?] = the evidence for including these subgroups was less strong than it was for other groups.

7.3 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 2023 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 and 2022 Climate Action Survey. Comparisons between the current project and these prior surveys have been made throughout this report, especially in Section 6.12, 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 2023) 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). In the current study, 81% (repeat respondents) and 83% (new respondents) answered in the affirmative, 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 2023 repeat respondents and 74% 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 and 2022 Climate Action Survey), these comparisons show that Australians are currently more accepting of and concerned about climate change than they were 13-14 years earlier.

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

- The **2023 Sustainability Victoria (SV)** survey of 2,510 Victorians aged 16 and over, contained some items that permit comparison with responses to the current Climate Action Surveys. For example, since 2010, according to the SV sample, the number of Victorians who identify as climate change *sceptics* or *deniers* has been stable around 7-8%. In our samples, this number is 7.6% (*repeat*) and 5.4% (*new*). Furthermore, according to SV, 4% of Victorians feel climate change is entirely caused by natural processes (respectively 5% and 3% in our samples), and 4% say there is no such thing as climate change (respectively 3% and 2% in our samples). According to SV, 67% of Victorians believe climate change requires urgent action now (74% for 16-34 years, and 53% for 55+). In comparison 74% of the *repeat* and 78% of our *new* sample slightly agree, agree, or strongly agree to the statement that climate change requires action now (item D29). In our samples, we also found that younger Victorians (35 years or less) are more likely to want action now compared to older Victorians (55+ years). In addition, 3% of SV-Victorians have a fully electric car, whereas 5% have a

hybrid car; this compares to 5.4% and 6.7% of Victorians in our samples (repeat vs new respectively) either owning or partially owning a hybrid or fully electric vehicle. According to SV, compared to older respondents, younger people (24 years or less) feel stronger negative emotions such as guilt, fear, outrage, and powerlessness, in relation to climate change. In our samples, compared to older Victorians (55+ years), the younger (35 years or younger) and middle-aged (35-54 years) Victorians are feeling more climate change distress.
This means that both surveys are quite similar in their findings about the climate change views of Victorians.

- Like the present survey, the **annual Climate of the Nation** report of the **Australia Institute** surveys Australian adults' attitudes towards climate change. They sampled 2,089 Australians aged 18 and over. This survey indicated that climate change concern remained high, with 71% being at least fairly concerned (being just shy of their recorded levels of 75% in 2021 and 2022). We can compare this with the answers on item E4 in our survey, asking about concerns arising from the potential effects of climate change on society as a whole. Members of the current repeat and new samples, and members of the Australia Institute sample, respectively, responded as follows: *very concerned* (25% and 26% vs. 34%), and *fairly concerned* (40% and 42% vs. 37%). 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 and 2023 survey, as well as higher in the 2021 / 2022 Australia Institute survey (compared to its 2023 survey), it seems reasonable to conclude that, on average, Australians were less concerned about climate change in 2023 than they were one or two years earlier (c.f. Neumann et al., 2022). As indicated by the Australia Institute, this might have to do with the high cost of living, but this explanation remains speculative as a question pertaining to this issue was not asked in the years before.

- In the same Australia Institute survey, 77% of respondents believed that climate change is occurring (down from 81% in 2021), 12% believed it is not, and 11% were unsure; the responding percentages in the current samples (item B7) were : 81%-87% believe it is occurring, 12%-11% it is not, and 7%-7% is unsure. Hence, the incidence of climate change denial, as measured by this single item, was 4-10% higher in the current CAS 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 2022). The 2023 Climate Action Survey asked about the same issue, with 33-36% of respondents thinking the target is about right, 23-25% thinking it is too low, 16-13% thinking it is too high, 15-12% not wanting a target at all, and 13-14% 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.

- More recently, **Resolve Strategic**, polled 4,728 adult Australians from 22 September - 4 October 2023. In this polling, they asked a series of questions about **nuclear power**.

According to this survey, 33% support the use of nuclear power in Australia, 24% are opposed, 29% don't have a strong view, and 14% are undecided. In comparison, our survey indicated that 37-36% were supportive of (i.e., *mainly* or *very* favourable) use of nuclear power, 36-38% were against (i.e., *mainly* or *very* unfavourable) the use of nuclear power, and 26-24% were undecided (i.e., neither favourable/unfavourable). This means that our samples contain higher proportions of respondents who are undecided about this than the Resolve Strategic sample.

- In the same survey, Resolve Strategic asked if Australia should *rethink its moratorium (ban) on nuclear power* to give it more flexibility to choose in the future. The responses were: 20% strongly agree, 28% agree, 33% unsure, 11 disagree, and 7% disagree strongly. In our survey, we asked whether we should *maintain the existing ban on using nuclear power* for domestic and industry use. Our Climate Action Survey repeat and new samples answered as follows: 29-31% strongly support, 19-21% somewhat support, 16-15% are unsure / do not understand, 16-16% somewhat oppose, and 21-18% strongly oppose. Although not asking exactly the same question, they do tap into the same topic of the current ban on nuclear power in Australia. Combining the findings from the two surveys, it seems, that while many people are undecided, approximately half want the ban "re-thought" and approximately half want it "maintained". (Of course, some individuals might hold both these views).

- 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 of 6.6% who were *deniers* and *sceptics* combined. 14% of Neumann et al.'s sample were categorised as "doubtful" compared to the 18-19% *unconvinced* in the present study. Moreover, whereas the present study categorised 75-76% 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 82% and 85% in the current surveys); 84% were *fairly* or *very* concerned about climate change (67% and 74% in the current surveys), and 55% believed that they had directly experienced environmental changes, circumstances, or events that were due to climate change (41% of the current new respondent sample). These and other findings suggest that levels of climate change perceived exposure are (or, at least, were five years ago) somewhat higher in France than in Australia. The mean score for Kellstedt et al.'s (2008) risk perception scale (item D4) was 23.9 in France, compared to 23.2 (repeat respondents) and 24.1 (new respondents) in the current surveys. Hence, perceptions of climate change risk are similar in the two nations.

- 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 country, with between 82% and 98% of the residents of different nations believing that the climate is changing (compared to 81% - 82% in the current surveys), and between 83% and 96% believing that climate change is at least partly

caused by human activity (82% - 85% 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 6 or 7 years earlier.

- The current survey included items assessing willingness to participate in climate change activism (F5). These items were taken from an interview-based study 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 (21% to 42%) 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 59% (new respondents) who believe Australia is already feeling the effects of climate change, and 6% (repeat respondents) and 5% (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% - 2% in response to item D2 to 13% - 11% in response to item B7. Half (50%) of the Yale respondents believed that human activities mainly cause climate change; the corresponding percentages in the current surveys were 42% (repeat respondents) and 46% (new respondents). Thirty-four percent of the Yale respondents were *very worried* about climate change, compared to 28-31% 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 2023 survey,** *Climate change in the American mind: Beliefs and attitudes* (Leiserowitz et al., 2023), 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 10 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 10

Comparison of Findings from the 2023 Yale 'American Mind' Survey and the 2023 Griffith University Climate Action Survey

Findings from the 2023 Yale 'American Mind' Survey	Findings from the 2023 Climate Action Survey [a]
Sample = 1,033 American adults (51% female, 49% male)	*Sample = 4,058 Australian adults (50% female, 49% male, < 1% another)*
72% think climate change is happening; 15% think it is not happening.	82% think climate change is happening; 11% think it is not happening (item B7).
49% are *very* or *extremely* sure climate change is happening; 8% are *very* or *extremely* sure climate change is not happening.	80% *tend to agree, agree* or *strongly agree* with a statement that they are certain climate change is really happening; 10% *tend to disagree, disagree,* or *strongly disagree* with this statement (item D3).
58% think climate change is primarily human-caused; 29% believe it is mostly due to natural environmental changes.	44% think climate change is primarily human-caused; 11% believe it is mostly due to natural environmental changes (40% think both cause it) (item D2).
43% say they have personally experienced the effects of global change.	36% say they have directly experienced climate change impacts during the last year (items D7)
65% are at least somewhat worried about climate change; 29% are apprehensive.	72% are at least reasonably concerned about climate change; 30% are very concerned (item E1).
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, significant,* or *extremely* important to them personally; 32% say it is *not at all, of low importance,* or *slightly important* (item D5).
40% think it is at least *moderately* important to their family and friends that they engage in climate action.	31% either *slightly agree, agree*, or *strongly agree* that the people most important in their lives think they should act against climate change (item H31.4).
More than two-thirds think global warming is affecting extreme heat (75%), drought (71%), and wildfires (70%).	76% believe that climate change is at least more than moderately 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 2023 Climate Action Survey findings generally align with those obtained in other recent Australian surveys. The comparisons also indicate that Australians have become more concerned about and responsive to climate change 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.

7.4 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 2023 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 40-50% 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 and the 2022 new respondents surveys, 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 all three 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., question 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 2023 than in 2021 (but not significantly different from 2022). Similarly, when responding to open-ended questions, some respondents were critical of the 'forceful' tactics used by environmental groups and advocates (see Appendices D.8 and E.7 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.

Effective interventions 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 (second most cited reason) and effort (fifth most cited reason) involved in pro-environmental actions. As far as possible, interventions 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 third and fourth most often cited reasons for inaction (i.e., "I have my own routines, habits, and ways of doing things", "these actions are not going to stop or solve environmental problems") pose 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). Approximately one in seven 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 1% 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 19% 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. 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.

Finally, the theoretical implications of the survey warrant brief comment. As with the 2021 and 2022 surveys, 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 support similar theories proposed by Schwartz (1977) and Klockner (2013). 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 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 adapt to it psychologically), leading to cognitive and emotional avoidance and greater reluctance to engage in climate action.

7.4.1 Evidence of Impact

Since our Climate Action Survey 2021, we are gaining more interest in and public awareness of our surveys. This is mainly evidenced by one published paper (Bradley et al., 2024), two conference presentations (Parida et al., 2024a, 2024b), and several papers in preparation and collaboration with researchers from different departments within Griffith University, as well as outside of Griffith University. Collaborations in the form of regular exchanges of questionnaire items, survey findings, and practical and theoretical insights have been established with organisations such as Sustainability Victoria that conduct their own climate change surveys. Furthermore, there has been considerable interest from colleagues from different backgrounds (e.g., marketing, journalism, communication, linguistics, geography) to include the Climate Action Survey and its results in teaching. Post-graduate students have used our survey observations in their theses, and we currently have several honours and masters students working on the Climate Action Survey data. The survey and some of its findings have been displayed at a variety of events (e.g., Climate Ready Australia National Summit, Climate Action Doctoral Training Program Symposium, Social Science Community of the Great Barrier Reef Symposium 2024). Furthermore, findings from the survey have been cited in various media (e.g., *The Guardian*), and have been used by at least one federal parliamentarian to further the case for climate action.

7.5 Future Research Directions

7.5.1 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. An example would be analyses of the responses to questions about the Great Barrier Reef from respondents who reside in proximity to the Reef (versus those who reside elsewhere in Queensland and in other Australian states).

- **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. An example of a predictive model that could be developed and tested is one that proposes mediation paths from the personality variables, through the climate change cognitive and affective variables, to one or more of the climate action variables. 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**. The 2023 surveys gathered data on many specific issues that warrant further exploration. One issue studied for the first time was recycling, where it was found that, contrary to the general pattern of results found in relation to the climate change variables, recycling was more commonly reported by "conservative" respondents (i.e., parents, non-students, home-owners, vehicle owners, and older respondents). Future analyses can delve into the data to determine the extent to which these findings reflect different levels of opportunity to recycle, rather than different levels of belief in the importance of recycling.

  Many other unresolved questions arose from the 2023 surveys. The most perplexing are the inconsistencies in the direction of the differences in the responses obtained across the three years of the survey and/or in the responses from different respondent (sub-)samples.

  Further analyses of the 2023 data can shed light on 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 2023 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.

- **Longitudinal data of repeat participants**. To date, 9224 unique respondents have participated over the three years of Climate Action Survey data collection. Of these participants, 488 have participated in all 3 years, 1471 have participated in two of the three years, and the remaining 7265 have participated only in one year. This means 21% of unique respondents (N = 1959) have longitudinal data. This gives opportunities to track within-person changes over time, and should be done accordingly, and these analyses might reveal deeper understanding of found relationships.

7.5.2 Future Iterations of the Climate Action Survey

As already noted, a Climate Action Survey is to be conducted each year until 2025. The 2023 questionnaire, like that used in 2021 and 2022, 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 2023, 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 11. 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 11

Examples of Variables and Topics <u>not</u> Included in the 2023 Climate Action Survey

Section & Category	Variable/Topic not Included in the 2023 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 • 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., honesty-humility, cooperativeness, 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

	• Perceived government efficacy to combat climate change • Perceptions of the most serious problem facing the world today • 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	• Specific 'green' consumption behaviours • 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 2023 survey, like 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 2023 survey, variables considered likely to change little from the preceding year were excluded from the repeat respondent questionnaire.

A dilemma potentially exists in relation to the 2024 (and subsequent) surveys. Presumably, 2024 respondents participating for the first time in the survey will complete a questionnaire similar to that used in 2021 and used with the 2022 and 2023 new respondents. In 2023 it was

decided that all people who had done the survey before (irrespective of the year they participated) would get the same repeat survey. Decisions will need to be made again whether we repeat this practice in 2024 and/or 2025. Future iterations of this survey will need to consider which questions warrant asking again.

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 answering questions regarding '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.).

7.5.3 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. For 2023 we included items on the new warning systems that have been introduced. Including these items in the 2022 or 2023 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.

In 2023, in consultation with CSIRO scientists, the survey introduced questions concerning visits to the GBR, beliefs regarding climate change impacts on the GBR, and sentiments and attitudes towards the Reef and its challenges. Given the GBR's status as a nature superstar and lately a harbinger of climate impacts, we were interested in exploring nationwide responses to its current predicament, rather than only sample residents of the GBR catchment areas.

In 2023, we also included items that can contribute to public debate regarding energy production issues. Specifically, we sought Australians' opinions on three categories of energy production: those that entail high emissions of greenhouse gases (e.g., biomass, coal, gas, oil), those that are relatively "clean" (e.g., hydroelectric, solar, wind), and nuclear.

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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APPENDICES

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 2023 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 questionnaires, 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 and 2023 repeat respondent questionnaire, but not in the 2021 or the 2022 and 2023 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.

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.

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 and 2023 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).

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 or 2023 questionnaires.

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.

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 2023 questionnaires.

Recycling. Adopted from the work of Lui and Yang (2022) and Onel and Mukerjee (2017), recycling refers to separating and re-using used materials or waste products from general rubbish/non-recyclable waste. Commonly recycled items include paper, glass, metals, and certain plastics. The goal is to reduce the consumption of raw resources, minimize waste, and lessen environmental impact.

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.

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.

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, 2022, and 2023 Climate Action Surveys

Variable Measured	Scale Used in Which Survey?				
	2021 Sample	**2022 Repeat Sample**	**2022 New Sample**	**2023 Repeat Sample**	**2023 New Sample**
A1. Community Involvement	8 items, 4 response options	--	One item (A1.9) added to the 2021 scale.	--	As for 2022
A6. Pro-environmental Behaviour	16 items, 4 response options	As for 2021	As for 2021*	As for 2021/2022	As for 2021/2022 #
A9. Interest in Future Pro-environmental Behaviours	5 items, 6 response options	As for 2021	As for 2021*	As for 2022	As for 2021/2022 #
A12. Recycling	--	--	--	12 items, 7 response options	12 items, 7 response options #
B1. Green Identity	3 items, 7 response options	As for 2021	As for 2021*	--	As for 2021/2022
B2. New Ecological Paradigm	15 items, 5 response options	--	Only 6 of the 15 items, 5 response options	--	As for 2022
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*	As for 2022, but with one item removed, and 8 items added #	As for 2022, but with one item removed, and 8 items added #
B6. Connection to Nature	--	6 items, 7 response options	--	As for 2022 #	--
B8. Personality traits: Agreeableness, Emotional stability, Conscientiousness, Openness to experience	--	2 items per personality trait, 7 response options	--	As for 2022, but also added items on Extraversion #	As for 2022, but also added items on Extraversion #

Variable Measured	Scale Used in Which Survey?				
	2021 Sample	2022 Repeat Sample	2022 New Sample	2023 Repeat Sample	2023 New Sample
B8. Narcissism	--	4 items, 7 response options	--	As for 2022	As for 2022 #
B7, D2, D3, D14. Belief in CC	4 items with varying numbers of response options	As for 2021	As for 2021*	As for 2021 & 2022	As for 2021 & 2022 #
C5. Frequency of Recent Natural Disaster Experiences	--	6 items, 3 response options	--	As for 2022 Repeat	--
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*	As for 2022	As for 2022 #
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*	As for 2022	As for 2022 #
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*	As for 2022	As for 2022 #
D5, D15, D16, D17, D29 Importance of CC Issue	5 items, 7 response options	4 items (excluded D17), all response options are labelled	5 items, except all response options are labelled	As for 2022	As for 2022
D23. Psychological Reactance	3 items, 7 response options	As for 2021	As for 2021*	As for 2021 / 2022	As for 2021 / 2022 #
D24. CC Self-efficacy	3 items, 7 response options	As for 2021	As for 2021*	As for 2021 / 2022	As for 2021 / 2022 #

Variable Measured	Scale Used in Which Survey?				
	2021 Sample	2022 Repeat Sample	2022 New Sample	2023 Repeat Sample	2023 New Sample
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*	As for 2022	As for 2022 #
D26. Trust in Climate Scientists	4 items, 7 response options	--	As for 2021, except all response options are labelled	--	As for 2022
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*	As for 2022	As for 2022 #
E1, E2, E3, E4, E5.19. CC Concern	5 items with varying numbers of response options	As for 2021	As for 2021*	As for 2022	As for 2022 #
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*	As for 2022	As for 2022 #
E8. CC Hopefulness	--	4 items, 5 response options	--	As for 2022 #	--
F3. Behaviour Change due to CC	14 items, Yes/No response options	As for 2021	As for 2021*	--	As for 2022 #
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*	As for 2022	As for 2022 #
F4 Descriptive Norms	4 items, 7 response options	--	As for 2021, except all response options are labelled	--	As for 2022

Variable Measured	Scale Used in Which Survey?				
	2021 Sample	2022 Repeat Sample	2022 New Sample	2023 Repeat Sample	2023 New Sample
F5. Likelihood of Climate Activism	6 items, 4 response options	--	As for 2021	--	As for 2021/2022
F6. Behavioural Willingness	9 items, 7 response options	As for 2021, except all response options are labelled, and the format is simplified. One item added, total of 10 items.	As for 2021, except all response options are labelled, and the format is simplified. One item added, total of 10 items. *	As for 2022. One item added, total of 11 items.	As for 2022 #
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*	As for 2022	As for 2022 #
G1. CC Knowledge - objectively tested	13 questions, 3 response options	--	As for 2021	--	As for 2021/2022
G2, G3, G4 (replaced by G10). CC Knowledge -self-rated	3 items, 6 response options	A single item with 6 response options	A single item with 6 response options *	As for 2022	As for 2022 #
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*	As for 2022	As for 2022 #
I5. GBR Negative Feelings	--	--	--	7 items, 5 response options	7 items, 5 response options
I7. GBR Positive Views	--	--	--	9 items, 5 response options	9 items, 5 response options

Variable Measured	Scale Used in Which Survey?				
	2021 Sample	2022 Repeat Sample	2022 New Sample	2023 Repeat Sample	2023 New Sample
I9. GBR Threats	--	--	--	20 items, 5 response options	20 items, 5 response options

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
# The 2023 repeat and new respondent versions of this scale were identical
CC = climate change, GBR = Great Barrier Reef.

APPENDIX C
Criteria for Assessing Data Quality and Removing Aberrant Cases

Following the practice adopted in the 2021 and 2022 Climate Action Survey, thirteen data quality checks were applied to both 2023 samples. Nine of the 11 criteria used in both of the 2022 surveys were re-used to assess the quality of the 2023 new respondent dataset, and one of the criteria used only in the 2022 New Respondent sample, was used for both samples in 2023. The introduction of new questionnaire content in 2023 necessitated the replacement of three of the 2022 criteria. The data quality criteria, and the number of participants "failing" each, in each of the 2023 samples, are presented in the following table. The criteria that were new in 2023 are asterisked (*).

Data Quality Checks	**No. of Participants "Failing" Each Criterion**	
	Repeat Sample (n=1184)	**New Sample (n=2874)**
1. Completed the questionnaire in fewer than 20 minutes	49	128
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	465
3. For item A6, gave any one of the following response patterns: • 1 ("no opportunity to do so") for more than 12 of the 16 behaviours, • 3 ("yes, but not because of environmental concerns") for more than 12 of the 16 behaviours • 4 ("yes, partly because of environmental concerns") for more than 12 of the 16 behaviours, • 2 ("no, for some other reason") for more than 14 of the 16 behaviours	36	78
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)	98	280
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.	16	47
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	8	46

Data Quality Checks	**No. of Participants "Failing" Each Criterion**	
	Repeat Sample	**New Sample**
7. Responded to the pair of similar items, E1 (*How concerned, if at all, are you about climate change?*) and the last item of E5 (*Impacts of climate change, generally*), in very different ways (i.e., very concerned to one item and not all concerned to the other)	0	16
8. Responded to the pair of opposite-worded items, F7.3 (*These days, I am trying NOT to think about climate change*) and F7.6 (*In recent times, I have tried to recognise and accept the emotions I feel about climate change*), in identical, extreme ways (i.e., strongly agree or strongly disagree for both)	33	66
9. Responded to H5 with a number that exceeds their age, as reported in item 1	2	2
10. Responded both that 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), or 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).	1	23
* 11. For item A12, gave the response "Never because of no opportunity to do so" for 10 or more of the 12 behaviours.	7	21
* 12. Responded to the pair of similar items, B10.5 and B11, in very different ways (i.e., either responded with "Very favourable" or "mainly favourable" to item B10.5 (1 or 2) and "The risks of nuclear power slightly outweigh the benefits" or "The risks of nuclear power far outweigh the benefits" to item B11 (4 or 5), OR responded with "mainly unfavourable" or "very unfavourable" to item B10.5 (4 or 5) and "The benefits of nuclear power far outweigh the risks" or "The benefits of nuclear power slightly outweigh the risks" to item B11 (1 or 2).	26	128
* 13. Responded to the pair of similar items, I9.3 and I4, in very different ways (i.e., I4 is answered with "Climate change is a threat to the GBR, requiring immediate action" and I9.3 answered with "does not represent a threat at all", OR I9.3 answered with "an extremely serious threat" and I4 is answered with "Climate change is not a threat to the GBR").	2	5

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, for both samples, Dynata checked questionnaire completion adequacy, and removed all cases that did not meet their quality criteria, and those that "failed" two or all three of the questionnaire attention checks (items A4, D13.3, and F4.4). After receiving the data, the Griffith team checked for duplicates before applying the above 13 data quality checks to the responses given by these people.

The *repeat* respondent sample was provided in 7 weekly instalments to the Griffith team, and they provided a total of 1,194 cases. Inspection of these datasets meant deleting 1 entry as one person participated twice, and 9 entries because they failed 3 (n=7) or 4 (n=2) data quality checks. The remaining 1,184 participants (=99.9% of cases provided by Dynata) failed fewer than three of the criteria, with the distribution of these failures distributed as listed above.

The *new* respondent sample was provided in 4 weekly instalments to the Griffith team, and it provided a total of 2,936 cases. Inspection of these datasets meant deleting 8 cases as they were not new respondents, and already participated in 2021 or 2022. A further 50 cases were deleted because they failed 3 data quality checks, and 4 were deleted as they failed 4 data quality checks, leaving a total of 2,874 cases in the new respondent dataset (=97.9% of cases provided by Dynata). The remaining participants failed fewer than three of the criteria, with the distribution of these failures distributed as listed above.

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 in 2021 and/or 2022. Thank you very much for that. We are now inviting you to do so again. Like in other years, 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 Dr Karlien Paas 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 Karlien Paas 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)

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 = 57.58 years (SD = 10.00)**

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.

Please note: 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 not, or did not, 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 not or did not 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 always or nearly always:				
wash your clothes in cold (rather than hot) water?	**1.6%**	**19.7%**	**40.4%**	**38.3%**
turn off 'at the wall' appliances like TVs and computers when not in use?	**8.1%**	**36.7%**	**25.3%**	**29.9%**
carry your own re-usable drink container?	**6.6%**	**22.2%**	**27.6%**	**43.6%**
refuse to use non-biodegradable plastic products (e.g., bags, containers, straws, utensils)?	**11.1%**	**34.5%**	**13.9%**	**40.6%**
Have you in the last two weeks:				
used public transport?	**40.8%**	**24.3%**	**26.3%**	**8.6%**
eaten fewer than two serves of red meat?	**7.6%**	**47.0%**	**33.7%**	**11.7%**
pointed out to other people that their behaviour is harming the environment?	**35.9%**	**49.2%**	**2.6%**	**12.2%**
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?	**34.1%**	**41.0%**	**4.1%**	**20.8%**
donated money to a group that aims to protect the environment?	**24.1%**	**59.0%**	**3.3%**	**13.7%**
attended a pro-environmental rally, meeting, march, or protest?	**33.2%**	**63.3%**	**0.9%**	**2.6%**
participated in a litter clean-up, beach clean-up, land-care project, or similar?	**36.2%**	**53.1%**	**2.6%**	**8.0%**
voted in an election for a candidate or party because of its/their pro-environmental policies?	**16.8%**	**52.4%**	**7.5%**	**23.2%**
taken any of your money/savings/ superannuation funds out of institutions that invest in industries that are bad for the	**29.0%**	**63.9%**	**2.3%**	**4.8%**

environment (e.g., coal, gas and oil companies)?				
contacted a government member about an environmental or climate change issue?	26.7%	66.1%	1.1%	6.1%
Do you currently				
grow some of your own fruit, vegetables, and/or herbs?	24.7%	24.2%	32.2%	18.9%
belong to an 'environmental' group (e.g., Friends of the Earth, World Wildlife Fund, Greenpeace)?	22.8%	71.7%	1.3%	4.2%

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 – 1.4%
A little less than I do now – .8%
About the same as I do now – 74.2%
A little more than I do now – 20.0%
Much more than I do now – 3.5%

A12. In the past year (i.e., since September-October 2022), how often have you recycled:

	Never, because of no opportunity to do so	Never, despite opportunity to do so	Rarely	About half of the time	Often	Nearly all the time	All the time
Paper, (including newspapers, magazines, etc.)	2.4%	.8%	1.6%	2.4%	8.6%	25.0%	59.1%
Cardboard	1.2%	.9%	1.2%	1.5%	6.4%	22.6%	66.1%
Soft plastics (e.g., plastic bags, bottles)	11.9%	1.3%	3.0%	4.7%	9.5%	23.4%	46.3%
Metal containers (e.g., tins/cans)	2.3%	1.2%	2.4%	3.8%	7.9%	20.2%	62.2%
Other metals (e.g., steel)	26.7%	2.2%	7.3%	4.1%	7.3%	15.9%	36.6%
Glass bottles (e.g., wine bottles)	4.6%	1.0%	1.2%	1.6%	6.7%	16.5%	68.4%
Batteries	20.4%	5.9%	12.6%	7.1%	7.3%	11.4%	35.4%
E-waste (e.g., electrical appliances, computers)	36.6%	4.6%	9.9%	5.7%	5.9%	10.8%	26.5%
Textiles (e.g., clothing, blankets, bedding)	25.1%	4.4%	11.1%	9.4%	11.2%	15.0%	23.8%
Furniture	46.3%	3.8%	11.0%	6.2%	8.2%	10.6%	14.0%
Tyres	67.9%	3.4%	6.4%	1.7%	2.8%	4.2%	13.6%
Building materials (e.g., timber,	64.4%	3.7%	7.0%	4.6%	4.3%	6.3%	9.7%

pipes, plaster board)"							

*Ask this question, if the answer to items 3 (soft plastics), 4 (metal containers), AND 6 (glass bottles) in question A12 was other than "*Never, because of no opportunity to do so" *or "*Never, despite opportunity to do so"

A15X1. To the extent that you recycle bottles and aluminium cans, how often do you participate in a container refund scheme?
Never – **28.3%**
Rarely – **6.2%**
Often – **11.4%**
Always – **34.5%**
No response – **19.7%**

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
95.9%	**0%**	**3.5%**	**0%**	**0.1%**	**0%**	**0.6%**

A13. When travelling by airplane, how often do you pay for carbon offsets?

Never	Rarely	About half of the time	Often	Nearly all the time	All the time	Not applicable
43.2%	**9.5%**	**3.2%**	**2.2%**	**2.9%**	**3.1%**	**35.8%**

A14. Over the past year, have you joined a group to help make a difference to climate change?
Yes – **3.5%**
No – **96.5%**

A15. When you next buy a car/other motor vehicle, do you want to buy
A petrol/diesel vehicle – **24.4%**
A hybrid (electric + petrol/diesel) vehicle – **27.7%**
An electric vehicle – **13.3%**
Don't know/ I have no idea – **23.9%**
I will never buy a(nother) vehicle/car – **10.7%**

A16. Which of the following statements is a better description of you?
I like to buy high quality clothes and make them last – **68.4%**
I like to buy inexpensive clothes that I wear for a little while and then replace them, so as to "freshen up" my wardrobe – **31.6%**

A17. If/when you need to buy a new cooker/stove top, will you
Definitely buy a gas stove-top – **11.5%**
Probably buy a gas stove-top – **10.8%**
Probably buy an electric stove-top – **16.0%**
Definitely buy an electric stove-top – **35.1%**
Don't know/ I have no idea – **26.6%**

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	**9.3%**	**13.5%**	**14.5%**	**31.7%**	**13.0%**	**18.0%**

Generating your own energy to meet your household's needs, and feeding excess energy back into the network/grid	18.5%	11.0%	7.7%	18.7%	21.5%	22.7%
Getting an electric car or a hybrid engine car	2.1%	21.8%	10.4%	26.6%	21.5%	17.6%
Installing solar energy battery storage systems for your home	8.4%	13.5%	9.3%	24.9%	22.7%	21.1%
Participating in local community projects relating to renewable energy	1.0%	26.5%	23.4%	23.3%	7.8%	18.0%

A10. Overall, how important is it to you to try to live sustainably and in a way that minimises your environmental impact?

Very unimportant	Unimportant	Neither important nor unimportant	Important	Very important
2.4%	4.6%	22.2%	48.6%	22.2%

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

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 ten items, a pair of characteristics is listed. When responding to these ten 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	.3%	1.2%	2.2%	4.1%	19.2%	37.2%	35.7%
I am critical, quarrelsome	20.9%	21.9%	12.5%	17.2%	18.0%	7.3%	2.4%
I am anxious, easily upset	20.1%	17.7%	11.2%	16.9%	19.3%	9.8%	5.0%
I am open to new experiences, complex	1.2%	3.3%	7.3%	18.2%	33.5%	27.2%	9.3%
I am extraverted, enthusiastic	13.5%	16.1%	18.3%	20.4%	17.3%	10.3%	4.1%
I am disorganised, careless	43.7%	23.5%	15.4%	7.6%	7.0%	2.0%	.8%
I am calm, emotionally stable	1.0%	3.2%	6.6%	18.3%	25.3%	28.0%	17.6%
I am conventional, uncreative.	8.8%	14.4%	19.8%	22.4%	18.5%	12.2%	3.9%
I am sympathetic, warm	.4%	1.0%	2.9%	10.5%	28.0%	34.4%	22.8%
I am reserved, quiet	3.9%	5.7%	9.5%	15.0%	26.5%	23.4%	16.0%
I tend to want others to admire me	26.0%	20.3%	13.4%	19.7%	14.5%	4.7%	1.4%
I tend to want others to pay attention to me	32.7%	17.9%	15.6%	15.7%	13.5%	3.4%	1.2%
I tend to seek prestige or status	46.7%	18.3%	14.1%	10.9%	6.5%	2.3%	1.2%

I tend to expect special favours from others	54.6%	17.7%	11.7%	9.8%	5.1%	.8%	.3%

B10. How favourable or unfavourable are your overall opinions or impressions of the following energy sources for producing electricity currently?

	Very favourable	Mainly favourable	Neither favourable nor unfavourable	Mainly unfavourable	Very unfavourable	Never heard of it
Biomass (e.g., wood, energy crops, human and animal waste)	7.7%	25.2%	35.4%	7.8%	2.7%	21.3%
Coal	8.9%	16.0%	25.5%	21.4%	28.0%	0.3%
Gas	11.1%	28.2%	28.0%	20.9%	11.7%	0.1%
Hydroelectric power	29.8%	44.2%	19.5%	2.1%	0.9%	3.5%
Nuclear power	18.6%	18.6%	26.0%	13.4%	22.6%	0.8%
Oil	6.8%	14.9%	33.4%	22.4%	21.8%	0.7%
Sun/Solar power	58.8%	28.8%	7.3%	2.7%	2.2%	0.3%
Wind power	47.6%	31.1%	9.7%	5.1%	6.3%	0.2%

B11. From what you know about <u>using nuclear power for generating electricity in Australia</u>, on balance, which of these statements, if any, most closely reflects your opinion?
(Select one only)
The benefits of nuclear power far outweigh the risks – **24.5%**
The benefits of nuclear power slightly outweigh the risks – **15.3%**
The benefits and risks of nuclear power are about the same – **10.8%**
The risks of nuclear power slightly outweigh the benefits – **9.3%**
The risks of nuclear power far outweigh the benefits – **21.9%**
Don't know – **18.2%**

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	10.1%	8.6%	31.9%	40.8%	8.5%
Put a tax on carbon emissions, with the money raised being invested in clean, renewable energy	15.3%	16.0%	31.0%	28.4%	9.4%
Stimulate public/private investment in a national clean energy power system to replace all coal power	8.5%	9.0%	33.1%	38.5%	10.8%
Phase out over ten years the mining of fossil fuels (coal, oil, and gas)	16.0%	19.7%	27.8%	28.5%	8.0%
Increase taxpayer-funded financial grants/subsidies for private solar panels and batteries	10.4%	12.2%	32.8%	36.5%	8.1%
Provide taxpayer-funded financial grants/subsidies to the fossil fuel industry	33.0%	23.8%	19.6%	8.0%	15.5%
Require all new vehicles to be electric by 2040	28.1%	22.6%	25.2%	17.7%	6.4%

Build new coal-fired power stations as old ones are retired	**29.3%**	**22.1%**	**18.5%**	**17.0%**	**13.1%**
Provide government financial grants/subsidies for citizens to cyclone- or bushfire-proof their homes	**4.9%**	**12.3%**	**37.5%**	**37.9%**	**7.3%**
Construct concrete walls to prevent coastal erosion from sea-level rise, even if such walls are costly and detract from beach usage	**11.2%**	**24.2%**	**33.0%**	**16.1%**	**15.5%**
Minimise Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions	**22.8%**	**19.4%**	**23.3%**	**17.4%**	**17.1%**
Assist communities that are currently reliant on coal mining for their livelihood	**1.5%**	**6.7%**	**48.4%**	**34.9%**	**8.5%**
Reduce the total waste generated in Australia by 10% per person by 2030	**1.9%**	**5.0%**	**35.3%**	**51.5%**	**6.3%**
Invest taxpayer money in technology solutions (like human-made shade for coral reefs) to keep corals like those on the Great Barrier Reef cool in warming oceans	**6.8%**	**12.8%**	**39.2%**	**27.6%**	**13.6%**
From 2024, require all new homes, residential divisions and public buildings to be powered by electricity, thereby phasing out gas appliances and heating	**16.1%**	**18.8%**	**30.5%**	**24.0%**	**10.6%**
Immediately ban single-use plastics such as heavy weight plastic shopping bags, plastic cotton bud sticks, and polystyrene cups, trays, and packing beads	**6.9%**	**10.1%**	**29.9%**	**49.4%**	**3.6%**
Instead of aiming to generate at least 80% of Australia's power through renewable sources by 2030, we should set a lower target	**16.6%**	**15.5%**	**31.3%**	**22.7%**	**13.8%**
Maintain the existing Australian ban on using nuclear power for domestic and industry use	**20.9%**	**15.5%**	**18.5%**	**28.8%**	**16.2%**
Permanently protect all high conservation value forests and bushlands through stronger regulations, regardless of the difficulty and costs involved in enforcing these regulations	**2.8%**	**7.4%**	**34.0%**	**45.6%**	**10.2%**
Boost public funding for the national landcare network to restore and connect wildlife habitat, even if this requires some loss of land that could be used for industry, farming, or residential use	**2.8%**	**8.5%**	**38.2%**	**39.2%**	**11.3%**

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 – **32.9%**
The target is too low: we should reduce emissions by more than 43% by 2030 – **23.4%**
The target is too high: we should reduce emissions by less than 43% by 2030 – **15.9%**
I do not think we should have a target at all – **14.9%**
No opinion – **12.9%**

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 – **26.7%**
Australian Labor Party – **28.0%**

National Party – **3.7%**
Australian Greens – **10.9%**
One Nation Party **4.6%**
United Australia Party - **.9%**
A "teal" independent – **2.3%**
Another independent – **4.6%**
Other, *please specify* _____ - **1.9%**
Don't know – **14.8%**
I am not eligible to vote **1.7%**

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%**	**7.9%**	**8.5%**	**23.7%**	**27.1%**	**20.7%**	**9.0%**
I often feel close to the natural world around me	**2.4%**	**4.9%**	**8.8%**	**19.3%**	**29.9%**	**25.2%**	**9.5%**
I often feel a personal bond with things in my natural surroundings, like trees, wildlife or the view on the horizon	**4.1%**	**6.5%**	**9.0%**	**19.8%**	**27.1%**	**22.0%**	**11.6%**
I often feel connected to nature	**3.1%**	**5.2%**	**9.0%**	**19.9%**	**27.9%**	**24.5%**	**10.4%**
My own welfare is linked to the welfare of the natural world	**2.8%**	**4.9%**	**6.3%**	**20.9%**	**23.4%**	**24.0%**	**17.7%**
I recognise and appreciate the intelligence of other living things	**.6%**	**1.3%**	**1.2%**	**10.1%**	**25.5%**	**36.3%**	**25.0%**

B7. As far as you know, do you personally think that the world's climate is changing?
Yes – **80.8%**
No – **12.3%**
Do not know – **6.8%**

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 <u>in the past twelve months?</u>

	Never	Once	Two or more times
Heatwave (i.e., 3 or more consecutive days of unusually high minimum and maximum temperatures)	**28.6%**	**28.3%**	**43.1%**
Cyclone	**92.7%**	**4.4%**	**3.0%**
Drought	**73.9%**	**14.3%**	**11.8%**
Bushfire	**80.3%**	**11.6%**	**8.1%**
Flood	**78.9%**	**13.6%**	**7.5%**
Some other extreme weather event (*Please specify*) **(N = 360)**	**88.1%**	**3.6%**	**8.3%**

(Ask C6, only if one or more responses to C5 is "once" or "Two or more times")
C6. Of the events you directly experienced <u>in the past twelve months, which one of the following was the most serious for you?</u>
(N = 911)
Heatwave (i.e., 3 or more consecutive days of unusually high minimum and maximum temperatures) – **70.7%**
Cyclone – **1.8%**
Drought – **7.6%**
Bushfire – **7.1%**

Flood – **10.6%**
Another type of extreme weather event (*Please specify* _____) – **2.2%**

[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 – **17.1 %**
No – **82.9%**

[All participants resume answering]
C13. Have you been affected by extremely hot weather in the last year (since September-October2022)?
Not affected at all – **35.7%**
A little affected – **42.5%**
Somewhat affected – **19.1%**
Badly affected – **2.7%**

C4. Even if you have not been directly impacted by an extreme weather event or natural disaster, in the past twelve months, has a geographically distant event had an impact upon you?
Yes – **32.7%**
No – **67.3%**

C15. Have you heard or seen an extreme weather warning relevant to your local area in the last 12 months?
Yes – **47.9%**
No – **52.1%**

(Ask C16 - C18 only if C15 is answered as "Yes")
C16. What was/were the warning(s) about? *(Select all that apply)*
(N = 567)
Flood - **22.4%**
Cyclone - **2.6%**
Heatwave - **49.4%**
Heavy rainfall /thunderstorm /severe storm - **62.8%**
Bushfire - **30.9%**
Other, please specify___ - **4.9%**

C17a. Did your behaviour change in response to the most recent warning?
(N = 567)
Yes, please specify how _____ - **43.6%**
No, please specify why not_____ - **56.4%**

C17b. What was the most recent warning about?
(N = 567)
Flood – **6.9%**
Cyclone – **1.1%**
Heatwave – **25.2%**
Heavy rainfall / thunderstorm / severe storm – **45.9%**
Bushfire – **17.3%**
Other, please specify___ - **3.7%**

C18. What was/were the source(s) of the warning(s)? *(Select all that apply)*
(N = 567)
Newspaper - **7.1%**
Mobile phone App notifications - **26.1%**
Mobile phone text messages (including SMS) - **15.3%**
E-mail - **2.5%**
TV - **51.0%**

Radio - **30.7%**
Online news - **20.8%**
Other website, please specify _____ - **7.9%**
Social media - **18.1%**
Friends and family - **14.6%**
Other, please specify _____ - **2.8%**
Cannot recall - **2.5%**

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") – **19.3%**
- all changes in the world's climate that occur naturally – **11.7%**
- all changes in the world's climate that are due to human activity – **26.1%**
- all changes in the world's climate, regardless of the cause – **39.1%**
- something that does not really exist – **3.8%**

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 – **7.8%**
Climate change is partly caused by natural processes and partly caused by human activity – **40.3%**
Climate change is mainly caused by human activity – **31.3%**
Climate change is entirely caused by human activity – **10.6%**
I think there is no such thing as climate change – **3.0%**
Do not know – **1.6%**
No opinion - **.9%**

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	**4.6%**	**2.8%**	**3.3%**	**10.3%**	**22.1%**	**20.9%**	**36.0%**

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

Climate change will have a noticeably negative impact on …	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
… my health (over the next 25 years)	**9.0%**	**14.9%**	**13.9%**	**32.8%**	**20.6%**	**9.0%**
… my economic and financial situation (over the next 25 years)	**7.8%**	**12.9%**	**13.0%**	**32.6%**	**23.0%**	**10.7%**
… the environment in which my family and I live	**5.7%**	**7.9%**	**7.9%**	**29.3%**	**28.0%**	**21.3%**
In your opinion, what is the risk of climate change exerting a significant impact on …	Low risk	Slight low risk	Moderate low risk	Slight high risk	Moderate high risk	High risk
… public health in your state?	**11.6%**	**13.0%**	**18.8%**	**23.7%**	**20.6%**	**12.2%**
… economic development in your state?	**10.6%**	**11.5%**	**20.1%**	**24.2%**	**20.4%**	**13.3%**

… the environment in your state?	9.4%	8.8%	16.4%	21.5%	21.6%	22.3%

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

Not at all important	Low importance	Slight importance	Moderate importance	Important	High importance	Extremely important
9.8%	12.1%	13.4%	13.6%	20.8%	14.9%	15.5%

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
1.5%	5.7%	44.9%	33.1%	13.8%	1.0%

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 – **22.2%**
No – **70.9%**
Do not know – **6.0%**

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 – **32.7%**
No – **67.3%**

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
39.9%	26.7%	18.8%	9.5%	2.6%	2.1%	.5%

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
6.4%	4.0%	9.8%	22.1%	20.3%	16.3%	21.1%

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	14.5%	14.2%	9.6%	20.1%	27.2%	11.8%	2.5%
I feel partly responsible for contributing to the exhaustion of non-renewable energy resources	16.4%	14.6%	8.9%	17.3%	26.8%	12.6%	3.5%
If you are reading this carefully, select Strongly disagree	98.1%	.5%	.6%	.3%	.1%	0	.4
I feel partly responsible for climate change	18.8%	12.2%	8.5%	18.7%	27.4%	11.5%	3.0%
I feel a sense of urgency to change my behaviour to help to reduce climate change	15.2%	12.7%	7.9%	21.2%	23.5%	13.3%	6.3%
I feel I can inspire others to make a	16.5%	14.9%	10.3%	27.3%	18.4%	9.6%	3.0%

difference to climate change							

D14. When, if at all, do you think Australia will start feeling the effects of climate change?
We are already feeling the effects – **62.0%**
In the next 10 years – **6.8%**
In the next 25 years – **4.9%**
In the next 50 years – **3.5%**
In the next 100 years – **2.4%**
Beyond the next 100 years – **1.8%**
Never – **6.3%**
Don't know/No opinion – **12.4%**

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%	**13.1%**	**14.3%**	**15.9%**	**17.2%**	**13.6%**	**17.1%**

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%	**8.8%**	**8.5%**	**12.5%**	**13.1%**	**17.6%**	**32.0%**

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
9.8%	**20.8%**	**18.2%**	**14.8%**	**18.1%**	**11.9%**	**6.4%**

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
9.0%	**16.6%**	**18.8%**	**17.2%**	**19.1%**	**12.3%**	**6.9%**

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	**17.1%**	**26.3%**	**11.5%**	**24.4.%**	**13.9%**	**5.2%**	**1.8%**
Climate change will mostly affect other countries	**25.3%**	**24.9%**	**10.8%**	**23.2%**	**8.4%**	**5.2%**	**2.2%**
Climate change means I will have to compromise on what I wanted to do with my life	**9.8%**	**13.8%**	**8.7%**	**28.0%**	**23.2%**	**12.8%**	**3.7%**

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	**16.5%**	**18.7%**	**9.6%**	**20.3%**	**18.7%**	**9.8%**	**6.5%**

I feel others are trying to force their opinions on me about climate change	18.6%	18.9%	9.3%	13.8%	15.4%	10.9%	13.2%
I am being manipulated to form a certain view on climate change	24.0%	19.2%	10.5%	16.5%	11.7%	9.5%	8.6%
Concerns about climate change are exaggerated	30.8%	17.6%	10.4%	15.5%	9.4%	7.1%	9.3%

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	7.9%	6.3%	5.1%	16.0%	32.9%	21.3%	10.6%
There are things I can do to try to reduce the impact of climate change	6.8%	5.7%	3.8%	13.9%	35.0%	23.2%	11.6%
I can readily change things in my everyday life to address the challenges of climate change	7.5%	6.3%	6.3%	18.0%	34.1%	17.7%	10.1%

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	10.2%	8.4%	9.4%	20.8%	31.4%	14.3%	5.6%
My actions have a positive influence on how I am feeling and thinking about climate change and environmental problems generally	5.9%	5.1%	4.6%	26.8%	30.7%	20.0%	6.9%
I feel that I can make a difference with regard to climate change	10.2%	9.2%	10.5%	19.1%	30.6%	14.3%	6.2%
Australia should be a world leader in finding solutions to climate change	9.2%	4.5%	4.2%	18.2%	18.2%	21.7%	24.0%

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	4.6%	4.5%	3.5%	13.9%	26.9%	29.2%	17.5%
By working together, we can make a difference to climate change	4.8%	4.2%	3.0%	12.9%	24.0%	29.1%	22.0%
There is little point in me taking action against climate	18.5%	19.5%	14.3%	18.5%	14.6%	8.4%	6.2%

change because many others will not							
If people all pull together, we can reduce the impacts of climate change	**4.6%**	**4.1%**	**1.8%**	**14.1%**	**24.7%**	**27.6%**	**23.0%**

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%**	**5.5%**	**4.4%**	**9.6%**	**16.8%**	**21.5%**	**32.9%**

D30. How much do you think global warming will harm future generations of Australians?
Not at all – **8.4%**
Only a little – **10.2%**
A moderate amount – **23.6%**
A great deal – **51.5%**
Don't know – **6.3%**

SECTION E: Your Feelings about Climate Change

E1. How concerned, if at all, are you about climate change?
Not At All Concerned – **12.8%**
Not Very concerned – **20.3%**
Fairly Concerned – **39.0%**
Very Concerned – **28.0%**

(Ask E9 only if E1 is answered other than "not at all concerned")
E9. What is your main reason for concern about climate change? (*Please select one answer*)
(N = 1033)
Reduced quality of life – **4.5%**
More extreme weather events – **26.1%**
Impact on future generations – **17.7%**
The state of the planet – **16.3%**
Health impacts – **2.7%**
Loss of plants and animals / biodiversity – **10.6%**
A negative impact on the economy / job loss – **1.2%**
Increases in the cost of living – **6.4%**
Displacement of people (e.g., climate refugees) and poverty – **3.8%**
Reduced food / crop supply – **4.5%**
Something else (please specify, _____) – **2.5%**
Not sure - **3.6%**

E2. Has your level of concern about climate change increased, decreased, or remained the same over the past year (i.e., since September-October 2022)?

Decreased substantially	Decreased moderately	Decreased slightly	Remained the same	Increased slightly	Increased moderately	Increased substantially
1.5%	**.8%**	**1.2%**	**58.0%**	**20.4%**	**11.6%**	**6.5%**

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 – **19.0%**
Fairly concerned – **39.2%**
Not very concerned – **23.2%**
Not at all concerned – **15.0%**

Don't know – **1.9%**
No opinion – **1.7%**

E4. Considering any potential effects of climate change that there might be on society in general, how concerned are you about climate change?
Very concerned – **25.0%**
Fairly concerned – **39.9%**
Not very concerned – **18.4%**
Not at all concerned – **12.8%**
Do not know – **2.0%**
No opinion – **1.9%**

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	**17.0%**	**17.1%**	**13.3%**	**12.1%**	**17.2%**	**11.9%**	**11.4%**
Cyclones	**42.2%**	**17.3%**	**12.3%**	**9.1%**	**10.8%**	**4.4%**	**3.8%**
Floods (coastal and/or inland)	**24.3%**	**18.0%**	**13.3%**	**12.0%**	**15.3%**	**9.5%**	**7.6%**
Unemployment	**28.8%**	**13.7%**	**12.4%**	**13.6%**	**16.9%**	**8.4%**	**6.3%**
Air and water pollution	**10.2%**	**16.3%**	**13.5%**	**17.6%**	**19.1%**	**12.6%**	**10.7%**
Sea level rise	**26.6%**	**13.3%**	**12.4%**	**11.8%**	**15.5%**	**11.8%**	**8.4%**
Droughts/Water shortages	**6.8%**	**13.3%**	**12.0%**	**13.9%**	**21.9%**	**14.9%**	**17.1%**
Heatwaves	**8.3%**	**11.0%**	**10.6%**	**12.3%**	**21.1%**	**17.8%**	**18.9%**
War/International conflicts	**9.6%**	**10.3%**	**8.8%**	**14.6%**	**19.6%**	**15.4%**	**21.7%**
Health threats relating to environmental changes or conditions	**15.4%**	**12.2%**	**11.4%**	**15.1%**	**20.2%**	**14.9%**	**10.9%**
Biodiversity loss (e.g., species extinction, habitat loss)	**7.3%**	**12.1%**	**11.6%**	**13.7%**	**19.7%**	**15.9%**	**19.8%**
Food insecurity (e.g., crop failures, food shortages, declining agriculture)	**6.6%**	**10.0%**	**12.0%**	**13.9%**	**19.7%**	**18.1%**	**19.8%**
Terrorism	**16.0%**	**14.6%**	**12.8%**	**15.1%**	**17.1%**	**12.0%**	**12.3%**
Cost of living	**1.9%**	**4.1%**	**5.8%**	**10.4%**	**19.0%**	**24.9%**	**33.9%**
Impacts of climate change, generally	**12.1%**	**9.8%**	**10.1%**	**13.8%**	**17.8%**	**17.7%**	**18.8%**

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	**10.8%**	**13.5%**	**7.9%**	**22.4%**	**22.1%**	**16.4%**	**6.9%**

likely impacts of climate change							
At times, I worry about what the world will be like in future because of climate change	10.7%	9.8%	5.0%	12.5%	24.8%	22.4%	14.8%
I feel guilty when I think of how the lifestyle of my family and friends contributes to climate change	16.6%	16.0%	10.9%	23.8%	18.0%	10.5%	4.1%
It upsets me when I think that there is so little I can do about climate change and other environmental problems	13.4%	11.7%	10.3%	26.1%	19.8%	12.8%	6.0%
The more I learn about the threat of climate change, the more anxious I become	16.7%	11.9%	10.7%	23.2%	18.0%	13.0%	6.4%
At times, I feel overwhelmed when thinking about the future impact of climate change	18.0%	12.9%	11.2%	21.5%	15.9%	12.8%	7.7%

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	11.4%	19.3%	34.9%	29.1%	5.3%
Nervous	19.2%	20.5%	25.5%	26.8%	8.0%
Confident	14.9%	28.0%	35.6%	18.2%	3.2%
Lacking control	12.7%	13.9%	25.3%	32.5%	15.5%
Assured	18.2%	29.6%	38.5%	12.2%	1.5%

SECTION F: Your Responses to Climate Change

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	8.3%	8.6%	5.2%	17.6%	28.5%	21.3%	10.5%
I feel obliged to bear the environment and nature in mind in my daily behaviour	6.2%	6.0%	5.5%	17.0%	29.4%	23.9%	12.1%
I feel morally obliged to use green instead of regular electricity	13.1%	9.8%	9.0%	24.7%	20.4%	14.9%	8.2%
If you are reading this carefully, answer strongly disagree to this question	95.3%	.8%	.4%	1.9%	.9%	.5%	.3%
I would be a better person if I behaved in more pro-environmental ways	12.7%	12.2%	6.8%	29.4%	19.6%	14.1%	5.2%

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	8.6%	9.1%	6.2%	17.3%	33.6%	18.5%	6.7%
Greatly reduce my energy (e.g., electricity) use	6.9%	8.4%	5.9%	12.8%	31.3%	24.1%	10.7%
Pay higher personal taxes	35.8%	16.6%	11.3%	19.2%	10.9%	4.0%	2.2%
Pay more for electricity	37.8%	16.5%	13.9%	14.6%	11.1%	4.0%	2.3%
Pay more for fuel (petrol, diesel, etc.)	37.2%	16.5%	13.9%	14.8%	10.8%	4.6%	2.2%
Pay significantly more for energy-efficient products	32.2%	14.7%	12.0%	15.8%	15.3%	7.1%	3.0%
Accept cuts in my standard of living	23.5%	15.1%	14.4%	21.2%	16.6%	6.1%	3.1%
Take part in a community-wide climate change movement	21.0%	11.8%	8.6%	27.4%	16.4%	9.4%	5.3%
Have renewable energy infrastructure such as a solar farm in my local area	10.1%	4.6%	2.5%	15.9%	22.3%	23.3%	21.3%
Work with my local community to find ways to adapt to living with climate change	11.5%	6.5%	4.7%	27.5%	25.7%	15.6%	8.4%
Have renewable energy infrastructure such as wind turbines in my local area	13.6%	4.7%	4.6%	16.4%	19.7%	23.2%	17.7%

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	8.8%	10.2%	7.7%	24.8%	27.4%	15.8%	5.3%
Over the past year, I have seriously thought about alternative places to live because of the increasingly evident impacts of climate change	37.5%	24.4%	9.6%	12.2%	8.4%	5.3%	2.4%
These days, I am trying NOT to think about climate change	9.5%	14.7%	16.6%	31.8%	13.3%	9.1%	4.8%
During the last year, I have thought more about what my family and I might do to reduce our impact on the environment	12.6%	11.8%	11.1%	24.7%	22.6%	11.7%	5.4%
I try to directly address the feelings I have about climate change	13.3%	9.9%	10.6%	34.7%	18.1%	9.8%	3.6%
In recent times, I have tried to recognise and accept the emotions I feel about climate change	12.8%	11.6%	8.9%	36.0%	17.7%	10.0%	3.1%
I seem to spend more time these days trying to come to grips with	19.5%	16.3%	12.6%	28.4%	14.9%	5.7%	2.5%

the likely effects of climate change							
I have often discussed my thoughts and feelings about climate change with others over the past year	**17.1%**	**16.1%**	**12.3%**	**17.8%**	**19.8%**	**11.3%**	**5.5%**
I keep up with media reports on a daily basis to inform my views about climate change	**18.3%**	**16.3%**	**11.1%**	**22.4%**	**16.7%**	**11.4%**	**3.8%**
Compared to a year ago, I am much more likely nowadays to tune into discussions and debate about climate change	**18.9%**	**12.2%**	**10.1%**	**28.5%**	**17.6%**	**9.0%**	**3.7%**

SECTION I: The Great Barrier Reef

I1. Do you have an idea of what the Great Barrier Reef is?
Yes – **96.5%**
No – **3.5%**

(If I1 Is "no", skip remainder of section I)
STATEMENT:
"For the purpose of this questionnaire, when we refer to the **Great Barrier Reef** (or "GBR"), we refer to the coral reefs, as well as all land and water from the beaches on the coast, the bays and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs, located off the coast of North-East Queensland."

I2. Have you ever visited the Great Barrier Reef?
(N = 1143)
Yes – **50.4%**
No – **49.6%**

(Ask I3, only if I2 is answered "yes")

I3. My last visit to the Great Barrier Reef was:
(N = 576)
In the last 2 months – **2.8%**
2-6 months ago – **4.2%**
6-12 months ago – **5.7%**
1-5 years ago – **20.3%**
5 – 10 years ago – **24.1%**
More than 10 years ago – **42.9%**

(all continue)
I4. Which of the following statements best describes your beliefs about climate change and the Great Barrier Reef (GBR)?
(N = 1143)
Climate change is a threat to the GBR, requiring immediate action – **63.3%**
Climate change is a threat to the GBR, but does not require immediate action – **6.1%**
I need more evidence to form an opinion about how climate change may threaten the GBR – **16.5%**
Climate change is not a threat to the GBR – **5.5%**
I do not have a view on how climate change relates to the GBR – **5.1%**
I do not believe in climate change – **3.4%**

I5. When/if you hear about climate-related damage to the Great Barrier Reef (e.g., from cyclones, mass coral bleaching, warming waters, ocean acidification), to what extent does it make you feel…
(N = 1143)

	Not at all	A little bit	Somewhat	Quite a bit	A great deal
…sad	**10.9%**	**18.2%**	**18.7%**	**25.2%**	**26.9%**

…angry	29.5%	17.0%	19.5%	17.7%	16.4%
…afraid	38.6%	20.4%	19.8%	12.2%	9.0%
…helpless	23.7%	20.1%	20.8%	18.5%	16.9%
…disappointed	17.4%	17.3%	18.3%	24.6%	22.4%
…confused	56.0%	20.5%	13.8%	5.6%	4.1%
…determined	39.6%	24.1%	22.7%	7.8%	5.8%

I7. To what extent do you agree or disagree with each of the following statements about the Great Barrier Reef (GBR)?
(N = 1143)

	Disagree					Agree					
	1 Very strongly disagree	2	3	4	5	6	7	8	9	10 Very strongly agree	I don't know
I feel proud that the GBR is a World Heritage Area	0.6%	0.2%	0.3%	.3%	3.6%	5.7%	6.2%	18.0%	15.0%	48.0%	2.0%
It is the responsibility of all Australians to protect the GBR	1.0%	0.4%	1.3%	0.7%	4.6%	6.8%	8.3%	16.5%	15.1%	43.0%	2.0%
The GBR is part of my Australian identity	4.4%	2.2%	3.6%	3.2%	9.2%	10.8%	8.6%	13.6%	10.7%	30.1%	3.6%
I feel optimistic about the future of the GBR	5.4%	2.8%	6.9%	6.5%	13.8%	13.9%	9.9%	15.6%	8.5%	12.1%	4.6%
I would not be personally affected if the health of the GBR declined	13.2%	6.0%	11.3%	8.4%	13.0%	11.3%	6.4%	11.4%	5.3%	6.0%	7.6%
I feel confident that the GBR is well managed	6.0%	4.7%	6.7%	6.1%	12.9%	14.2%	12.1%	12.7%	8.7%	8.6%	7.3%
It is not my responsibility to protect the GBR	13.8%	7.8%	11.7%	11.3%	16.0%	11.3%	6.1%	6.4%	4.6%	4.8%	6.1%
The GBR should be on the World Heritage in danger list	4.4%	1.6%	1.9%	2.1%	6.2%	6.7%	8.3%	13.6%	13.8%	32.9%	8.5%

The expansion of coal mining is more important than conservation of the GBR.	42.8%	8.6%	10.1%	5.4%	10.4%	4.4%	2.5%	3.1%	1.0%	1.9%	9.8%

I9. Please rate the extent to which you think each of these issues represents a threat to the Great Barrier Reef?
(N = 1143)

	Does not represent a threat at all	A minor threat	A moderately serious threat	A serious threat	An extremely serious threat	I don't know / no opinion
Illegal fishing practices (e.g., poaching in "no-take" zones)	2.0%	14.0%	22.2%	28.1%	21.8%	11.9%
Land-based runoff (containing sediment, fertiliser, pesticides, etc.)	1.5%	6.8%	18.4%	26.8%	39.3%	7.3%
Climate change	8.3%	9.4%	12.1%	22.7%	42.7%	4.8%
Tourism	6.8%	26.2%	30.8%	19.9%	11.2%	5.1%
Coastal development	3.7%	12.9%	26.2%	29.5%	20.6%	7.3%
Land clearing	4.6%	12.0%	21.3%	26.9%	23.9%	11.3%
Shipping	4.1%	15.8%	22.6%	24.9%	21.5%	11.0%
New Shipping ports & port expansions	4.3%	12.9%	21.5%	23.7%	26.0%	11.6%
Land-based mining	7.9%	15.9%	20.1%	21.6%	21.3%	13.2%
Deep sea mining	3.9%	7.6%	14.3%	24.8%	38.9%	10.4%
Population growth	5.9%	15.1%	24.7%	25.5%	17.8%	10.9%
Governance (i.e., management of the Great Barrier Reef)	8.7%	13.6%	22.7%	19.5%	18.0%	17.6%
Marine debris and beach littering	1.6%	11.5%	19.8%	29.2%	34.2%	3.7%
Cyclones and tropical storms	3.8%	12.9%	22.5%	29.0%	24.8%	6.8%
Floods	6.6%	17.4%	22.5%	23.6%	17.5%	12.3%
Crown of Thorns starfish	2.1%	5.0%	12.4%	21.3%	33.9%	25.3%
Tourism activities	3.8%	20.5%	30.7%	23.1%	15.7%	6.2%
Politics and/or Politicians	5.6%	11.0%	18.7%	20.9%	25.6%	18.1%
Emissions from fossil fuels	6.6%	12.1%	17.3%	23.4%	29.2%	11.4%
Other, please specify **(N = 92)**	16.3%	2.2%	5.4%	9.8%	19.6%	46.7%

I11. Do you have any further comments about the Great Barrier Reef and climate change?

_____

(N = 863)

SECTION H: About You

This final section asks about your demographic background

H1. What is your gender?
Male – **48.2%**
Female – **51.6%**
Other/Non-binary - **0.2%**

H4. Which of the following best describes you?
I am an Australian citizen – **94.6%**
I have permanent residency in Australia but I am not an Australian citizen – **4.9%**
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 – **0.2%**
Other, *please specify* _____ - **0.3%**

A3. How would you describe your physical health over the past year?
Extremely poor – **2.1%**
Poor – **12.2%**
Okay – **30.8%**
Good – **42.2%**
Very good – **12.6%**

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 – **40.5%**
No, I neither am religious nor do I identify with a particular religious faith – **59.5%**

(H34 is asked only if H6 is answered in the affirmative)
H34. What religious faith do you identify with?
(N = 480)
Catholic – **31.9%**
Anglican (Church of England) – **22.3%**
Uniting Church – **7.3%**
Evangelical, or similar Christian denomination – **4.8%**
Other Christian denomination – **18.1%**
Judaism - **0.6%**
Buddhism – **2.5%**
Islam – **4.4%**
Hinduism – **2.1%**
Other religion (*please specify,* _____) – **2.5%**
Prefer not to say – **3.5%**

H7. Please indicate the highest level of education you have <u>already completed</u>:
Year 10 or less – **11.4%**
Year 11 – **3.3%**
Year 12 – **13.6%**
College Certificate or Diploma - **19.7%**
Trade Qualification/Apprenticeship – **11.9%**
Undergraduate Degree – **23.6%**
Postgraduate Degree/Diploma – **15.5%**
Other, *please specify* _____ **0.9%**

H8. Are you currently undertaking studies?
Yes – **5.4%**
No – **94.6%**

H9. What is your current employment status?
Working – Full-time (35+ hours per week) – **28.7%**
Working – Part-time – **13.3%**
Working on a casual basis – **4.7%**
Unemployed – seeking work – **2.3%**
Retired – **39.2%**
Unpaid work - looking after house/children/dependants – **4.9%**

Not in paid employment due to a disability – **3.8%**
Student - not in paid employment – **1.2%**
Other, *please specify* _____ - **1.9%**

(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 = 214)
Fewer than 15 hours per week - **29.9%**
15 or more hours per week - **70.1%**

H37. Are you employed as a tradesperson ("tradie") in the construction industry?
Yes – **2.0%**
No, I never have been – **93.2%**
No, but I previously was – **4.7%**

H14. Please indicate your approximate combined household income (from all sources, before tax) during the 2022-2023 financial year:
$40,000 or less – **25.0%**
$40 001-$60,000 – **19.5%**
$60,001-$80,000 – **13.1%**
$80,001-$100,000 – **11.0%**
$100,001-$150,000 – **17.2%**
$150,001-$200,000 – **8.1%**
Greater than $200,000 – **6.1%**

H15. Please indicate your approximate personal income (from all sources, before tax) during the 2022-2023 financial year:
$40,000 or less – **48.8%**
$40,001-$60,000 – **15.8%**
$60,001-$80,000 - **13.2%**
$80,001-$100,000 – **8.7%**
$100,001-$150,000 – **9.0%**
$150,001-$200,000 – **3.2%**
Greater than $200,000 – **1.3%**

H16. How would you describe your current financial situation?
I am struggling financially – **22.5%**
I am doing okay – **49.5%**
I am comfortable **– 24.3%**
I am well off financially – **3.7%**

H17. How many children do you have? (*Please indicate in numbers)*

___

Number of children	0	1	2	3	4+
%	33.4 %	13.8 %	28.6 %	16.3 %	7.9 %

Mean = 1.54 (SD = 1.39)

H17c. Do you identify as a person living with a disability?
Yes – **16.9%**
No – **83.1%**

H17d. Do you identify as a member of the LGBTQI+ community?
Yes – **6.3%**
No – **93.1%**
Prefer not to say - **.7%**

H17e. Do you identify as a homeless person?
Yes – **0.3%**
No – **99.5%**

Prefer not to say – **0.2%**

H5. How many years have you lived in the suburb, town, or regional area in which you are now living?
_____ **Mean = 19.88 years (SD = 17.11), range 0-87 years**

H21. What is the main language spoken in your household?
English – **95.4%**
Other, *please specify* _____ - **4.6%**

H23. What are your current residential arrangements?
Own my home outright – **39.8%**
Buying my home with mortgage/loan – **27.3%**
Part rent/part mortgage in private accommodation **1.9%**
Renting or boarding in private accommodation – **20.0%**
Living in public accommodation – **3.9%**
Living with parents/friends/others rent-free – **5.9%**
Homeless - **0.2%**
Other, *please specify* _____ - **1.1%**

H40. Which of the following best describes the type of house you live in?
(*Please select one answer)*
Separate house – **72.2%**
Semi-detached, row or terrace house, duplex, or townhouse – **10.7%**
Flat, unit or apartment in an apartment block – **16.0%**
Other, *please specify* _____ **0.8%**
Not sure – **0.3%**

H24. How adequate do you regard the heating and cooling systems in your current residence?
Not at all adequate – **3.7%**
Not adequate – **4.8%**
Barely adequate – **11.3%**
Adequate – **53.0%**
Entirely adequate – **27.1%**

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
21.4%	**18.1%**	**27.4%**	**16.6%**	**16.6%**

H38. Have you changed residence ('moved house') in the past two years?
Yes – **13.7%**
No – **86.3%**

(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 = 162)**
Mean = 4.86, SD = 31.66, range = 0-400

[All participants resume answering]
H27. How would you describe the location of your current residence?
Inner urban – **12.2%**
Suburban/ Outer urban – **64.4%**
Country town/city – **17.4%**
Rural property – **5.8%**
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 = 72) [Many cited: see Appendix D.8 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 – **41.2%**
26 – 50 kms – **22.9%**
51 – 100 kms – **16.4%**
101 – 250 kms – **9.5%**
over 250 kms – **10.1%**

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	**94.5%**	**5.2%**	**0.3%**	**0.1%**
4-cylinder petrol or diesel vehicles	**26.3%**	**57.3%**	**14.9%**	**1.7%**
6-cylinder, or larger, petrol or diesel engine vehicles	**79.6%**	**18.0%**	**1.7%**	**0.8%**

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	**4.1%**	**6.3%**	**2.3%**	**38.2%**	**18.0%**	**20.6%**	**10.6%**
My friends expect me to take positive steps to reduce my contributions to climate change	**9.5%**	**11.5%**	**9.1%**	**40.2%**	**13.9%**	**11.4%**	**4.4%**
People who are close to me (e.g., partner, friends) do not care whether or not I behave in environmentally-friendly ways	**9.3%**	**12.2%**	**12.8%**	**30.5%**	**18.0%**	**12.8%**	**4.5%**
The people who are most important in my life think that I should take action against climate change	**11.5%**	**10.3%**	**8.5%**	**40.5%**	**12.9%**	**10.7%**	**5.5%**

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

(N = 816) [Many cited: see Appendix D.8 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	Z_{skew} (skew/ SEskew)	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 - 15	5.12	2.61	10.96	-
PEB4		16	A.6.1 – A.6.16	0 - 16	0 - 14	2.87	2.83	16.79	-
Proportion_PEB4		16	A.6.1 – A.6.16	0.0 - 1.0	0 - .99	0.25	0.24	13.07	-
Interest in Future PEBs	Sustainability Victoria, 2017	5	A.9.1 – A.9.5 [c]	5 - 20	5 – 20	13.40	3.60	-5.61	.791
Perceived Residential Vulnerability	Reser et al., 2012a, 2012b	3	D18, D20, H29[b]	3 - 21	3 - 21	12.71	4.32	-0.34	.693
Normative Beliefs	Adapted from Reser et al., 2012a, 2012b. Similar to Tikir & Lehmann, 2011	4	H31.1 – H31.4	4 - 28	4 – 28	16.48	4.98	-0.80	.812
Recycling	Adapted from Lui & Yang, 2022; Onel & Mukerjee, 2017	12	A12.1 – A12.12 [c]	12 - 72	12 – 72	54.49	9.60	-9.90	.874
Self and Worldviews									
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	29.64	7.31	-7.18	.924
Policy Support_12	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	12	B3.1 – B3.13[c] *excl B1.11*	12 - 48	15 - 48	34.11	7.16	-5.44	.861
Policy Support_20	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	20	B3.1 – B3.21[c] *excl B1.11*	20 - 80	27 - 80	57.79	10.38	-5.70	.885
Energy Sources – high emissions [e]	Adapted from Reser et al., 2012a; Spence et al., 2010	4	B10.1 B10.2 B10.3 B10.6	4 - 20	4 - 20	11.53	3.44	2.89	..758
Energy Sources – clean [e]	Adapted from Reser et al., 2012a; Spence et al., 2010	3	B10.4 B10.7 B10.8	3 - 15	3 - 15	12.47	2.25	-15.90	.652
Energy Sources – nuclear [e]	Adapted from Reser et al., 2012a; Spence et al., 2010	1	B10.5	1 – 5	1 – 5	2.97	1.40	-0.51	-
Conscientiousness	Gosling et al., 2003	2	B8.1 & B8.5	2 - 14	2 – 14	11.75	2.16	-16.39	.627
Agreeableness	Gosling et al., 2003	2	B8.2 & B8.8	2 - 14	2 – 14	10.38	2.31	-3.65	.420
Emotional Stability	Gosling et al., 2003	2	B8.3 & B8.6	2 - 14	2 – 14	9.71	2.89	-4.38	.744
Openness to Experience	Gosling et al., 2003	2	B8.4 & B8.7	2 - 14	2 – 14	9.19	2.31	-3.48	.446
Extraversion	Gosling et al., 2003	2	B8.13 & B8.14	2 - 14	2 – 14	6.70	2.83	5.27	.663
Narcissism	Jonason & Webster, 2010	4	B8.9 – B8.12	4 - 28	4 - 27	9.91	5.12	9.39	.863
Natural Disaster and CC Experiences and Beliefs									

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Z_{skew} (skew/ SEskew)	Cronbach Alpha (stdd.)
Number of ND Experiences	Similar to many others: e.g., Reser et al., 2012a	6	C5.1 – C5.6	0 - 12	0 - 12	2.25	2.20	19.37	-
CC Belief/Acceptance	Reser et al., 2012a, 2012b; Spence et al., 2010	4	B7 [b], D2 [b], D3, D14	4 - 28	4 - 28	22.25	5.91	-21.48	.880
CC Risk Perception	Kellsted et al., 2008.	6	D4.1 – D4.6	6 - 36	6 – 36	23.22	7.84	-6.18	.946
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	15.12	6.46	-3.97	.933
Spatial Distance of CC	Adapted from Reser et al., 2012a, 2012b.	2	D21.1 – D21.2	2 - 14	2 - 14	6.03	2.97	4.97	.838
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	18.70	7.28	-7.23	.959
Psychological Reactance	Ma et al., 2019.	3	D23.1 – D23.3	3 - 21	3 - 21	10.71	5.20	2.42	.863
CC Self-efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D24.1 – D24.4	3 - 21	3 - 21	14.04	4.66	-11.37	.955
CC Response Efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D25.1 – D25.3	3 - 21	3 - 21	12.97	4.41	-7.17	.908
CC Collective Efficacy	Adapted from Leviston et al., 2015; Reser et al., 2012a, 2012b.	4	D27.1 – D27.4	4 - 28	4 - 28	20.18	5.72	-10.85	.899
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	22.50	6.22	-4.69	.932
CC Distress	Adapted from Reser et al., 2012a, 2012b.	6	E7.1 – E7.6	6 - 42	6 - 42	23.65	9.59	-4.13	.944
CC Hope	Geiger et al., 2021	4	E8.1, E8.3–E8.5	4 - 20	4 – 20	10.89	3.21	0.39	.722
Responses to Climate Change									
Personal Norm	Adapted from Reser et al., 2012a, 2012b; Stern et al., 1999	4	F4.1 – F4.3, F4.5	4 - 28	4 – 28	17.34	5.89	-7.55	.886
Behavioural Willingness	Original scale, based on, e.g., Reser et al., 2012a, 2012b; Stern et al., 1999; Sustainability Victoria (2017); Xie et al. 2019	11	F6.1 – F6.11	11 – 77	11 – 77	40.80	14.93	-1.76	.934
Psychological Adaptation	Adapted from Reser et al., 2012a, 2012b.	10	F7.1 – F7.10	10 - 70	10 - 69	36.50	12.51	-0.21	.912
Understandings of Climate Change									
Self-rated CC Knowledge	Original item (collapsing three more specific items (G2-G4) used in 2021)	1	G10	1-6	1 – 6	3.55	.89	1.24	-
Great Barrier Reef									
GBR_Negative Feelings		6	I5.1 – I5.6	6 - 30	6 – 30	16.29	6.53	1.44	.893

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Z_{skew} (skew/ SEskew)	Cronbach Alpha (stdd.)
GBR_Positive Views	Adapted from Social and Economic Long-Term Monitoring Program (SELTMP) / Commonwealth Scientific and Industrial Research Organisation (CSIRO), 2023	9	I7.1 – I7.9	9 - 90	22.5 - 90	64.25	10.66	-4.79	.622
GBR_Threats		20	I9.1 – I9.20	19 - 100	19 - 100	67.21	14.90	-4.57	.935

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, GBR = Great Barrier Reef.
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.
[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", "Never heard of it", 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". In computing, the recycling score, a response of "Never, because of no opportunity to do so" was re-coded as 3.5 (i.e., the scale mid-point). In computing, the recycling score, a response of "Never, because of no opportunity to do so" was re-coded as 3.5 (i.e., the scale mid-point).
[e] Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire, and reporting correlations after reverse-scoring
[1] This column was misleadingly named Stdd Skew in the Technical Reports from 2021 and 2022. However, in all technical reports the same computation was used. Any value > $\pm$1.96 is significant at the $p < .05$ level

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 ≤	571	611	192	339	653	916	268	1129	55
Lifestyle & Social Milieu									
PEB34	4.86	5.36	6.11	5.42	4.68*[a]	5.10	5.21	5.11	5.35
PEB4	2.49	3.22*	3.73	3.11	2.50*[a]	2.82	3.06	2.87	2.91
Proportion PEB4	0.21	0.28*	0.30	0.26	0.23*[b]	0.24	0.27	0.24	0.25
Interest in Future PEBs	13.2	13.5	14.7	14.1	12.6 *[a]	13.3	13.7	13.4	14.0
Perceived Residential Vulnerability	12.3	13.1*	13.9	13.5	12.0*[a]	12.7	12.7	12.7	12.6
Normative Beliefs	16.3	16.6	17.5	17.0	15.9*[a]	16.4	16.7	16.4	17.8
Recycling	54.5	54.5	50.2[a]	52.6[a]	56.7*[a]	54.4	54.9	54.6	52.7
Self and Worldviews									
Connection to Nature	29.2	30.1	29.4	29.9	29.6	29.4	30.4	29.6	30.5
Policy Support – 12	33.4	34.8	36.1	34.8	33.2*[a]	33.9	34.9	34.1	35.2
Policy Support – 20	56.4	59.1*	60.5	58.9	56.4*[a]	57.5	58.9	57.7	59.2
Energy Sources – high emissions ^	11.8	11.3	10.6[b]	11.3	11.9*	11.6	11.3	11.5	12.0
Energy Sources – clean ^	12.6	12.4	12.8	12.6	12.3	12.4	12.7	12.5	12.7
Energy Sources – nuclear ^	3.36	2.61*	2.58	2.74	3.20*[a]	2.97	2.97	2.97	3.05
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.13	2.36	2.67	2.27	2.12	2.26	2.22	2.24	2.42
CC Belief/Acceptance	21.7	22.8	24.0	23.0	21.3*[a]	22.1	22.9	22.2	23.1
CC Risk Perception	22.0	24.4*	26.3	24.7	21.5*[a]	22.9	24.3	23.1	26.3
Personal Responsibility for CC	14.1	16.1*	16.8	16.5	13.9*[a]	14.9	15.8	15.9	17.1
Spatial Distance of CC	6.21	5.87	6.29	6.04	5.95	6.07	5.91	6.01	6.55
Importance of CC Issue	17.6	19.7*	20.6	19.9	17.5*[a]	18.5	19.4	18.6	20.2
Psychological Reactance	11.4	10.0*	10.3	10.3	11.0	10.7	10.7	10.7	10.4
CC Self-efficacy	13.2	14.9*	14.8	15.2	13.2*[a]	14.0	14.2	14.0	15.0
CC Response Efficacy	12.3	13.6*	13.7	13.7	12.4*[a]	13.0	13.0	12.9	14.7*
CC Collective Efficacy	19.3	21.0*	21.3	21.2	19.3*[a]	20.1	20.5	20.1	21.4
Feelings about Climate Change									
CC Concern	21.1	23.8*	24.6	23.7	21.2*[a]	22.3	23.3	22.4	24.5
CC Distress	21.6	25.5*	27.3	25.4	21.7*[a]	23.4	24.6	23.5	25.9
CC Hope	11.1	10.7	10.2	10.6	11.3*[a]	10.9	10.8	10.9	11.7
Responses to Climate Change									
Personal Norm	16.5	18.2*	18.4	18.5	16.4*[a]	17.2	17.8	17.3	18.7
Behavioural Willingness	39.3	42.2*	46.0	43.3	38.0*[a]	40.4	42.3	40.6	45.5
Psychological Adaptation	35.5	37.5	39.3	38.7	34.6*[a]	36.2	37.7	36.4	38.8
Understandings of Climate Change									
Self-rated CC Knowledge	3.63	3.48	3.46	3.55	3.58	3.52	3.65	3.54	3.67
GBR									
N ≤	544	597	180	323	640	888	255	1096	47
GBR Negative Feelings	14.8	17.7*	18.3	17.5	15.1*[a]	16.3	16.4	16.3	17.0
GBR Positive Views	62.8	65.6*	62.4[b]	64.4	64.7	64.4	63.8	64.2	64.8
GBR Threats	63.8	70.3*	67.4	67.6	67.0	66.9	66.3	67.2	67.7

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

* 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)

Climate Change Variables	Religious?		Highest Educational Attainment			Voting Intention		Parent?	
	Yes	No	Schl	Trade	Uni	Right	Left	Yes	No
$N \leq$	480	704	337	377	468	430	462	788	396
Lifestyle & Social Milieu									
PEB34	4.91	5.27	4.63	4.89	5.67*[a]	4.34	5.94*	4.97	5.43
PEB4	2.60	3.06	2.30	2.63	3.48*[a]	1.90	3.85*	3.15	2.73
Proportion PEB4	0.24	0.26	0.23	0.23	0.25*[a]	0.18	0.33*	0.24	0.26
Interest in Future PEBs	13.1	13.6	12.6	13.2	14.1*[a]	12.1	14.4*	13.3	13.5
Perceived Residential Vulnerability	12.3	13.0	12.3	12.7	12.9	11.1	13.9*	12.6	13.0
Normative Beliefs	16.3	16.6	15.9	15.9	17.4*[a]	14.8	18.4*	16.3	16.8
Recycling	54.9	54.2	54.9	55.0	53.8	54.4	54.6	55.5	52.5*
Self and Worldviews									
Connection to Nature	29.9	29.5	29.8	29.4	29.7	28.8	30.5*	29.7	29.6
Policy Support – 12	32.7	35.0*	32.9	33.2	35.7*[a]	29.8	38.0*	33.5	35.3*
Policy Support – 20	55.8	59.2*	56.1	56.6	59.9*[a]	51.7	63.4*	56.9	59.5*
Energy Sources – high emissions ^	12.4	10.9*	11.8	12.0	11.0*[a]	13.5	10.0*	10.7	11.9*
Energy Sources – clean ^	12.4	12.6	12.2	12.3	12.8*[a]	11.7	13.2*	12.5	12.4
Energy Sources - nuclear ^	3.21	2.81*	2.97	3.06	2.90	3.60	2.53*	2.69	3.11*
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.30	2.22	2.23	2.30	2.22	2.04	2.38	2.26	2.23
CC Belief/Acceptance	21.4	22.8*	21.3	21.8	23.3*[a]	19.1	25.1*	21.9	22.9
CC Risk Perception	22.2	23.9*	21.9[b]	23.1	24.3*	19.1	26.8*	22.5	24.6*
Personal Responsibility for CC	14.4	15.6	14.1	14.5	16.4*[a]	12.1	17.9*	14.8	15.7
Spatial Distance of CC	6.16	5.95	6.25	5.91	5.98	6.72	5.51*	6.04	6.03
Importance of CC Issue	17.7	19.4*	17.7	18.0	20.0*[a]	14.4	22.5*	18.1	19.8*
Psychological Reactance	11.7	10.1*	11.0	11.1	10.2	12.7	8.86*	11.0	10.1
CC Self-efficacy	13.7	14.3	13.6[b]	13.8	14.5	12.2	15.7*	13.9	14.4
CC Response Efficacy	13.0	12.9	12.5[b]	12.8	13.4	11.6	14.4*	12.9	13.1
CC Collective Efficacy	19.6	20.5	19.5	19.8	21.0*[a]	17.6	22.5*	19.8	20.9
Feelings about Climate Change									
CC Concern	21.6	23.1	7.96	8.08	7.77*[a]	18.3	26.3*	22.0	23.4
CC Distress	22.9	24.2	22.6	22.8	25.1*[a]	19.3	27.9*	23.0	25.0*
CC Hope	11.5	10.5*	11.3	11.1	10.4*[a]	11.5	10.5*	11.3	10.2*
Responses to Climate Change									
Personal Norm	16.9	17.6	16.7[b]	17.0	18.0	14.8	19.7*	17.1	17.7
Behavioural Willingness	38.8	42.2*	37.6	39.5	44.2*[a]	33.8	47.5*	39.8	42.7
Psychological Adaptation	36.1	36.8	34.8[b]	36.1	38.1*	32.1	41.5*	36.0	37.5
Understandings of Climate Change									
Self-rated CC Knowledge	3.61	3.51	3.39	3.49	3.71*[a]	3.43	3.74*	3.50	3.65
GBR									
$N \leq$	464	679	327	364	450	419	442	761	382
GBR Negative Feelings	15.6	16.7	16.4	15.5[b]	16.9	14.0	18.8*	16.0	16.9
GBR Positive Views	64.9	63.8	64.6	63.8	64.4	63.4	66.2*	64.8	63.1
GBR Threats	65.7	68.2	67.7	66.9	67.1	61.5	71.6*	67.1	67.4

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.
Schl = school only. Uni = university. Right= right-leaning political party. Left = left-leaning political party.
^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

* 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)

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 ≤	340	844	527	285	372	64	1120	794	390
Lifestyle & Social Milieu									
PEB34	5.66	4.91*	4.88[b]	5.14	5.46	6.06	5.07	5.07	5.23
PEB4	3.40	2.66*	2.57 [b]	2.75	3.40*	3.86	2.82	2.88	2.85
Proportion PEB4	0.28	0.24	0.22[b]	0.25	0.29*	0.30	0.25	0.25	0.24
Interest in Future PEBs	14.5	12.9*	12.7	13.2	14.4*[a]	14.9	13.3*	13.5	13.1
Perceived Residential Vulnerability	13.5	12.4*	12.4	12.6	13.2	14.0	12.6	12.5	13.2
Normative Beliefs	17.6	16.0*	15.8 [b]	16.4	17.5*	17.5	16.4	16.4	16.7
Recycling	52.6	55.2*	55.4	54.0	53.6	49.8	54.8*	55.7	52.1*
Self and Worldviews									
Connection to Nature	30.0	29.5	30.1	29.4	29.1	29.9	29.6	29.6	29.7
Policy Support – 12	35.2	33.7*	33.7	33.3	35.3*[a]	37.2	33.9*	33.6	35.1*
Policy Support – 20	59.1	57.3	57.5	56.4[b]	59.3	62.0	57.5*	57.2	59.1
Energy Sources – high emissions ^	11.3	11.6	11.7	11.8	11.1	10.5	11.6	11.7	11.1
Energy Sources – clean ^	12.8	12.3*	12.3	12.4	12.8	13.0	12.5	12.4	12.6
Energy Sources - nuclear ^	2.96	2.98	2.97	3.10	2.87	2.80	2.98	3.07	2.77*
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.30	2.23	2.31	2.16	2.23	2.95	2.21	2.18	2.39
CC Belief/Acceptance	23.2	21.9*	21.6	21.9	23.5*[a]	24.3	22.1*	21.9	23.0
CC Risk Perception	24.8	22.6*	22.6	22.1	24.9*[a]	26.3	23.0*	22.6	24.5*
Personal Responsibility for CC	16.5	14.5*	14.2	14.7	16.8*[a]	17.9	15.0*	15.0	15.3
Spatial Distance of CC	5.95	6.07	6.06	6.09	5.94	6.56	6.00	5.96	6.18
Importance of CC Issue	19.8	18.2*	18.2	17.9	20.0*[a]	21.3	18.5*	18.2	19.6
Psychological Reactance	10.3	10.9	10.6	11.4	10.3	11.2	10.7	10.9	10.3
CC Self-efficacy	15.1	13.6*	13.4	13.8	15.1*[a]	15.3	14.0	14.1	14.0
CC Response Efficacy	13.8	12.6*	12.4	12.8	13.9*[a]	13.9	12.9	13.0	13.0
CC Collective Efficacy	21.4	19.7*	19.6	19.6	21.4*[a]	21.9	20.1*	19.9	20.8
Feelings about Climate Change									
CC Concern	23.7	22.0*	22.0	21.8	23.8*[a]	25.2	22.3*	22.1	23.3
CC Distress	25.3	23.0*	22.5	23.1	25.7*[a]	26.9	23.5	23.2	24.6
CC Hope	10.8	10.9	11.0	11.0	10.7	10.9	10.9	11.1	10.6
Responses to Climate Change									
Personal Norm	18.3	17.0*	16.8	16.9	18.4*[a]	18.7	17.3	17.3	17.4
Behavioural Willingness	43.9	39.6*	38.7	39.6	44.7*[a]	47.9	40.4*	40.4	41.5
Psychological Adaptation	38.9	35.5*	35.2	35.8	38.8*[a]	40.5	36.3	36.4	36.7
Understandings of Climate Change									
Self-rated CC Knowledge	3.58	3.54	3.59	3.46	3.56	3.64	3.54	3.56	3.53
GBR									
N ≤	320	823	509	276	358	61	1082	771	372
GBR Negative Feelings	17.2	15.9	15.8[b]	16.0	17.2	18.0	16.2	16.0	16.8
GBR Positive Views	64.7	64.1	64.1	63.6	64.9	64.5	64.2	64.8	63.1
GBR Threats	67.5	67.1	68.1	66.0	66.9	67.6	67.2	66.8	68.0

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

* 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)

Climate Change Variables	Minor/Marg. Group? [d]		Residential Location [c]			Experienced ND past year [f]		Experienced CC past year [g]	
	Yes	No	Inner Urban	Suburb	Rural	Yes	No	Yes	No
N ≤	332	852	144	762	278	911	273	387	797
Lifestyle & Social Milieu									
PEB34	5.30	5.06	5.71	5.08	4.95	5.43	4.11*	6.19	4.61*
PEB4	3.09	2.79	3.31	2.86	2.68	3.15	1.94*	4.01	2.32*
Proportion_PEB4	0.27	0.24	0.27	0.25	0.23	0.27	0.18*	0.33	0.21*
Interest in Future PEBs	13.6	13.3	13.8	13.5	13.0	13.7	12.2*	14.8	12.7*
Perceived Residential Vulnerability	13.7	12.3*	12.4	12.4[b]	13.6*	13.3	10.8*	15.2	11.5*
Normative Beliefs	16.8	16.3	17.9[a]	16.5	15.6*	17.0	14.8*	18.6	15.5*
Recycling	54.7	53.8	53.4	54.6	54.8	54.6	54.1	55.7	53.9
Self and Worldviews									
Connection to Nature	30.8	29.2*	30.0	29.2	30.7	30.0	28.3	31.4	28.8*
Policy Support – 12	35.2	33.7	35.8	34.2	32.9*[b]	34.8	31.9*	37.6	32.4*
Policy Support – 20	59.3	57.2	60.2	57.9	56.2*[b]	58.8	54.3*	63.1	55.2*
Energy Sources – high emissions ^	11.6	11.2	11.0	11.4	12.1	11.3	12.4*	10.1	12.2*
Energy Sources – clean ^	12.4	12.6	12.6	12.5	12.3	12.6	12.0*	13.1	12.2*
Energy Sources - nuclear ^	2.81	3.03	2.83	2.92	3.19	2.88	3.27*	2.58	3.16*
ND and CC Experiences and Beliefs									
Number of ND Experiences	2.57	2.13	2.13	2.17	2.55	2.93	0*	3.13	1.82*
CC Belief/Acceptance	22.9	22.0	23.6	22.5	21.0*[a]	23.0	19.9*	25.4	20.7*
CC Risk Perception	25.2	22.5*	24.6	23.2	22.5	24.5	19.1*	28.0	20.9*
Personal Responsibility for CC	15.5	15.0	16.3	15.3	14.1[b]	15.8	12.8*	18.5	13.5*
Spatial Distance of CC	5.89	6.09	6.51	6.06	5.70	5.90	6.49	4.92	6.57*
Importance of CC Issue	19.9	18.2*	20.3	18.9	17.4*[b]	19.7	15.3*	23.1	16.5*
Psychological Reactance	10.4	10.8	10.1	10.5[b]	11.6	10.5	11.5	9.12	11.5*
CC Self-efficacy	14.3	13.9	14.9	14.1	13.5	14.7	12.0*	16.2	13.0*
CC Response Efficacy	13.2	12.9	13.8	13.0	12.5	13.5	11.2*	14.9	12.0*
CC Collective Efficacy	20.6	20.0	21.3	20.3	19.3[b]	20.9	17.9*	23.0	18.8*
Feelings about Climate Change									
CC Concern	23.7	22.0	23.7	22.6	21.5	23.6	18.7*	27.5	20.1*
CC Distress	25.3	23.0*	25.6	23.7	22.5[b]	25.0	19.0*	28.9	21.1*
CC Hope	10.5	11.0	10.7	10.9	11.0	10.9	10.9	10.5	11.1
Responses to Climate Change									
Personal Norm	18.0	17.1	18.6	17.5	16.3*[b]	18.1	14.8*	20.1	16.0*
Behavioural Willingness	41.9	40.4	44.0	41.2	38.2*[b]	42.6	34.9*	48.2	37.2*
Psychological Adaptation	38.5	35.7*	38.9	36.6	35.0[b]	38.1	31.1*	43.0	33.3*
Understandings of Climate Change									
Self-rated CC Knowledge	3.71	3.49*	3.74	3.55	3.54[b]	3.59	3.41	3.83	3.41*
GBR									
N ≤	322	821	134	736	270	881	262	379	764
GBR Negative Feelings	17.1	16.0	18.0	16.2	15.6[b]	17.1	13.5*	19.2	14.9*
GBR Positive Views	63.7	64.5	66.3	64.0	63.9	65.0	61.7*	66.7	63.0*
GBR Threats	69.6	66.3*	69.1	67.1	66.6	68.9	61.7*	73.4	64.1*

Note. PEB = pro-environmental behaviour. CC= Climate Change. ND = natural disaster. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

* 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 with a disability, LGBTIQ, and/or homeless; No = does not identify as a member of any of these groups.

[c] 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)

	Experienced 2022 Floods		Health Status [h]		Owns Vehicle? [i]	
	Yes	No	Low	High	Yes	No
$N \leq$	203	981	535	649	1016	168
Lifestyle & Social Milieu						
PEB34	5.92	4.96*	4.84	5.36*	5.05	5.60
PEB4	3.55	2.73*	2.59	3.10	2.81	3.27
Proportion_PEB4	0.30	0.24	0.23	0.27	0.25	0.27
Interest in Future PEBs	14.4	13.2*	13.0	13.7	13.4	13.4
Perceived Residential Vulnerability	15.2	12.2*	13.0	12.5	12.7	12.8
Normative Beliefs	17.4	16.3	16.2	16.7	16.3	17.4
Recycling	53.6	54.7	53.7	55.2	54.9	52.2*
Self and Worldviews						
Connection to Nature	30.7	29.4	28.8	30.4*	29.6	30.0
Policy Support – 12	34.7	34.0	33.6	34.5	33.8	36.1*
Policy Support – 20	58.7	57.6	57.0	58.4	57.3	60.7*
Energy Sources – high emissions ^	11.4	11.5	11.5	11.5	11.7	10.6*
Energy Sources – clean ^	12.6	12.4	12.3	12.6	12.4	12.7
Energy Sources - nuclear ^	2.76	3.01	2.96	2.98	3.04	2.53*
ND and CC Experiences and Beliefs						
Number of ND Experiences	3.63	1.97*	2.42	2.12	2.29	2.05
CC Belief/Acceptance	23.1	22.1	22.1	22.3	22.1	23.4
CC Risk Perception	25.1	22.8*	23.6	22.9	23.0	24.7
Personal Responsibility for CC	16.5	14.8*	14.6	15.5	14.9	16.5
Spatial Distance of CC	5.89	6.06	6.04	6.03	5.99	6.29
Importance of CC Issue	19.8	18.5	18.5	18.9	18.4	20.7*
Psychological Reactance	10.8	10.7	11.0	10.5	11.0	9.24*
CC Self-efficacy	15.2	13.8*	13.7	14.4	14.0	14.5
CC Response Efficacy	13.9	12.8	12.6	13.2	12.9	13.6
CC Collective Efficacy	21.2	20.0	19.8	20.5	20.0	21.5*
Feelings about Climate Change						
CC Concern	24.1	22.2	22.5	22.5	22.2	24.5*
CC Distress	25.8	23.2*	24.0	23.4	23.3	25.9*
CC Hope	10.8	10.9	10.5	11.2*	11.0	10.3
Responses to Climate Change						
Personal Norm	18.3	17.1	17.0	17.6	17.2	18.2
Behavioural Willingness	43.7	40.2	39.2	42.1*	40.1	45.0*
Psychological Adaptation	38.7	36.0	36.0	37.0	36.2	38.4
Understandings of Climate Change						
Self-rated CC Knowledge	3.61	3.54	3.50	3.59	3.54	3.60
GBR						
$N \leq$	195	948	515	628	986	157
GBR Negative Feelings	18.1	15.9*	16.2	16.3	16.1	17.3
GBR Positive Views	65.2	64.1	63.0	65.3*	64.3	63.8
GBR Threats	68.3	67.0	67.2	67.2	67.2	67.2

Note. PEB = pro-environmental behaviour. CC= Climate Change. ND = natural disaster. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

* 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.

Appendix D.4 (Continued)

	State							
	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
N ≤	25	348	11	252	105	25	301	117
Lifestyle & Social Milieu								
PEB34	4.28	5.06	6.27	5.05	5.63	4.72	5.18	5.01
PEB4	2.80	2.89	4.45	2.66	3.39	2.80	2.92	2.56
Proportion PEB4	0.26	0.25	0.36	0.23	0.30	0.25	0.25	0.23
Interest in Future PEBs	14.0	13.0	15.2	13.2	14.1	13.7	13.3	14.0
Perceived Residential Vulnerability	14.5	12.9 [a]	15.0	13.8 [b,c]	12.5	12.4	11.9 [a,b]	11.6* [c]
Normative Beliefs	16.4	16.4	17.1	15.7	17.5	16.77	16.6	16.9
Recycling	57.2	54.9	50.4	53.0	55.5	54.4	54.6	55.1
Self and Worldviews								
Connection to Nature	27.9	29.7	31.5	29.4	29.4	30.6	29.9	29.5
Policy Support – 12	35.6	333.6	36.5	32.9	36.0	35.3	34.6	34.4
Policy Support – 20	60.1	57.1	60.0	56.1	60.5	58.9	58.6	58.1
Energy Sources – high emissions ^	10.2	11.9	10.7	11.9	10.9	9.68	11.3	11.3*
Energy Sources – clean ^	13.1	12.2	12.1	12.3	13.0	13.5	12.5	12.8
Energy Sources - nuclear ^	3.08	3.06	3.27	3.09	2.94	3.12	2.80	2.82
ND and CC Experiences and Beliefs								
Number of ND Experiences	1.84	2.34	4.45	2.74 [a]	1.96	1.80	1.76 [a]	2.43*
CC Belief/Acceptance	25.0	22.1	22.4	21.5	23.5	22.1	22.3	22.8
CC Risk Perception	26.6	23.2	24.4	22.3	24.1	23.0	23.5	23.1
Personal Responsibility for CC	15	15.3	16	14.0	16.1	15.0	15.4	15.5
Spatial Distance of CC	4.80	6.02	5.91	5.90	6.02	6.16	6.35	5.79
Importance of CC Issue	21.8	18.6	19.9	17.4	20.5	19.0	18.9	18.7
Psychological Reactance	10.6	11.0	9.73	10.7	9.43	10.3	11.0	10.6
CC Self-efficacy	14.2	14.0	15.7	13.4	14.9	13.9	14.3	14.0
CC Response Efficacy	12.3	13.1	12.9	12.3	13.6	12.6	13.3	12.9
CC Collective Efficacy	21.5	20.1	21.5	19.2	21.2	19.3	20.6	20.3
Feelings about Climate Change								
CC Concern	25.0	22.3	23.8	21.3	24.0	22.4	22.9	22.4
CC Distress	27.9	23.9	21.6	22.5	25.2	23.8	23.8	22.9
CC Hope	9.52	11.1	12.3	10.7	11.1	9.80	11.0	10.8
Responses to Climate Change								
Personal Norm	17.8	17.4	19.1	16.5	18.3	17.7	17.6	17.4
Behavioural Willingness	45.2	40.6	44.2	38.8	43.2	42.7	441.1	41.3
Psychological Adaptation	40.4	36.4	39.7	35.3	38.8	38.6	36.4	36.1
Understandings of Climate Change								
Self-rated CC Knowledge	3.72	3.49	3.82	3.55	3.69	3.52	3.51	3.64
GBR								
N ≤	24	329	11	248	103	25	291	112
GBR Negative Feelings	18.2	16.3	13.9	15.5	17.6	15.3	16.5	16.3
GBR Positive Views	64.6	64.3	65.2	64.7	65.4	61.3	64.3	62.4
GBR Threats	69.6	66.8	68.5	65.2	71.0	66.5	67.6	67.8

Note. PEB = pro-environmental behaviour. CC= Climate Change. ND = natural disaster. GBR = Great Barrier Reef. ACT = Australian Capital Territory. NSW = New South Wales. NT = Northern Territory. Qld = Queensland. S.A. = South Australia. Tas = Tasmania. Vic = Victoria. W.A. = Western Australia

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

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

[a, b, c] two group means that share the same superscript are significantly different ($p < .05$, Games-Howell).

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	.81	--												
3. Proportion_PEB4	.67	.90	--											
4. Interest in Future PEBs	.49	.52	.50	--										
5. Perceived Residential Vulnerability	.32	.35	.30	.40	--									
6. Normative Beliefs	.47	.51	.50	.52	.38	--								
7. Recycling	.21	.26	.25	.16	.05	.18	--							
8. Connection to Nature	.41	.43	.40	.29	.25	.35	.26	--						
9. Policy Support – 12 items	.42	.51	.47	.57	.46	.57	.15	.26	--					
10. Policy Support – 20 items	.45	.53	.50	.57	.46	.57	.18	.30	.97	--				
11. Number of ND Experiences	.21	.13	.12	.17	.29	.15	.00	.12	.07	.08	--			
12. CC Belief/Acceptance	.35	.41	.39	.48	.49	.51	.11	.19	.69	.69	.14	--		
13. CC Risk Perception	.41	.45	.41	.50	.60	.53	.07	.26	.65	.66	.22	.70	--	
14. Personal Responsibility for CC	.42	.50	.47	.53	.48	.60	.10	.30	.67	.67	.11	.66	.70	--
15. Spatial Distance of CC	-.15	-.19	-.15	-.19	-.38	-.19	-.09	-.10	-.27	-.28	-.07	-.28	-.29	-.24
16. Importance of CC Issue	.46	.52	.49	.54	.58	.62	.16	.28	.79	.80	16	.85	.81	.75
17. Psychological Reactance	-.23	-.28	-.22	-.26	-.25	-.32	-.08	-.05	-.50	-.51	.01	-.46	-.39	-.39
18. CC Self-efficacy	.44	.47	.45	.54	.46	.60	.17	.34	.62	.63	.16	.63	.63	.76
19. CC Response Efficacy	.43	.48	.47	.52	.43	.65	.18	.40	.57	.58	.16	.57	.60	.72
20. Collective Efficacy	.41	.47	.45	.52	.47	.62	.16	.30	.72	.72	.11	.70	.67	.70
21. CC Concern	.50	.54	.52	.56	.58	.64	.17	.33	.74	.76	.21	.79	.82	.79
22. CC Distress	.46	.51	.47	.51	.51	.61	.12	.32	.65	.66	.19	.66	.74	.73
23. CC Hope	-.01	-.08	-.03	.01	-.16	.05	.09	.12	-.14	-.14	.05	-.15	-.17	-.07
24. Personal Norm	.50	.57	.54	.60	.47	.71	.19	.42	.69	.70	.17	.63	.69	.76
25. Behavioural Willingness	.54	.60	.57	.64	.48	.68	.16	.34	.75	.74	.15	.64	.65	.74
26. Psychological Adaptation	.53	.56	.53	.58	.46	.69	.17	.43	.60	.60	.22	.57	.64	.67
27. Self-rated CC Knowledge	.32	.30	.25	.22	.20	.28	.19	.27	.25	.25	.09	.21	.25	.23
28. GBR Negative Feelings	.42	.45	.42	.44	.45	.49	.15	.31	.55	.59	.20	.55	.62	.56
29. GBR Positive Views	.32	.34	.34	.32	.21	.43	.25	.41	.37	.42	.12	.29	.31	.38
30. GBR Threats	.34	.36	.37	.34	.41	.40	.24	.29	.51	.56	.19	.48	.56	.45

Note. Approximate critical values for Pearson's r : $p < .05$ if $r \geq .06$. $p < .01$ if $r \geq .07$. $p < .001$ if $r > .09$ (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	29
1. PEB34															
2. PEB4															
3. Proportion_PEB4															
4. Interest in Future PEBs															
5. Perceived Residential Vulnerability															
6. Normative Beliefs															
7. Recycling															
8. Connection to Nature															
9. Policy Support – 12 items															
10. Policy Support – 20 items															
11. Number of ND Experiences															
12. CC Belief/Acceptance															
13. CC Risk Perception															
14. Personal Responsibility for CC															
15. Spatial Distance of CC															
16. Importance of CC Issue	-.35														
17. Psychological Reactance	.27	-.52													
18. CC Self-efficacy	.21	.70	-.36												
19. CC Response Efficacy	-.18	.66	-.32	-.85											
20. Collective Efficacy	-.27	.79	-.48	.78	.76										
21. CC Concern	-.34	.92	-.48	.70	.68	.77									
22. CC Distress	-.20	.78	-.34	.65	.63	.66	.82								
23. CC Hope	.11	-.16	.06	.07	.19	.00	-.15	-.21							
24. Personal Norm	-.21	.76	-.38	.78	.78	.75	.79	.77	.04						
25. Behavioural Willingness	-.22	.74	-.42	.71	.68	.71	.75	.72	-.06	.80					
26. Psychological Adaptation	-.19	.68	-.28	.67	.70	.62	.74	.75	.03	.80	.74				
27. Self-rated CC Knowledge	-.17	.31	-.10	.15	.19	.19	.31	.23	-.05	.25	.28	.35			
28. GBR Negative Feelings	-.19	.68	-.31	.53	.50	.56	.71	.71	-.24	.64	.58	.60	.21		
29. GBR Positive Views	-.17	.39	-.22	.45	.50	.46	.42	.36	.17	.49	.39	.44	.12	.46	
30. GBR Threats	-.20	.62	-.30	.48	.44	.51	.61	.53	-.10	.52	.46	.48	.19	.62	.43

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. GBR = Great Barrier Reef.
^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

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

Climate Change Variables	Personality Variables					
	Conscient-iousness	Agreeable-ness	Emotional Stability	Openness	Extra-version	Narcissism
PEB34	.01	.05	-.02	.30	.13	.11
PEB4	.03	.07	-.02	.29	.11	.09
Proportion_PEB4	.06	.11	.02	.26	.10	.06
Interest in Future PEBs	-.04	.02	-.02	.28	.09	.17
Perceived Residential Vulnerability	-.11	-.02	-.16	.16	.03	.05
Normative Beliefs	.07	.10	.03	.23	.13	.15
Recycling	.28	.21	.18	.13	.08	-.14
Connection to Nature	.11	.19	.08	.31	.16	.02
Policy Support – 12 items	-.04	.04	-.07	.20	.03	.10
Policy Support - 20 items	-.03	.07	-.07	.21	.04	.08
Number of ND Experiences	-.07	-.02	-.07	.09	.08	.08
CC Belief/Acceptance	-.04	.04	-.10	.14	.04	.09
CC Risk Perception	-.09	.00	-.18	.18	.04	.11
Personal Responsibility for CC	-.04	.00	-.12	.17	.08	.19
Spatial Distance of CC	-.02	-.05	.04	-.08	.01	.10
Importance of CC Issue	-.03	.04	-.12	.20	.06	.07
Psychological Reactance	-.04	-.13	-.02	-.09	-.04	.05
CC Self-efficacy	.00	.04	-.07	.23	.12	.14
CC Response Efficacy	.03	.09	-.03	.21	.16	.16
Collective Efficacy	.01	.05	-.06	.19	.10	.08
CC Concern	-.02	.06	-.13	.22	.08	.09
CC Distress	-.09	-.01	-.24	.18	.08	.22
CC Hope	.12	.15	.26	.04	.15	.02
Personal Norm	.00	.09	-.08	.23	.11	.16
Behavioural Willingness	-.05	.06	-.05	.22	.07	.15
Psychological Adaptation	.02	.04	-.06	.25	.15	.21
Self-rated knowledge	.08	.006	.09	.16	.10	.03
GBR Negative Feelings	-.05	.05	-.17	.17	.08	.15
GBR Positive Views	.13	.26	.09	.20	.17	-.01
GBR Threats	.02	.07	-.08	.13	.05	-.03
Clean Energy Sources^	.00	.05	.05	.10	.05	.06
High Emissions Energy^ Sources	.08	.05	.10	-.13	-.01	-.03
Nuclear Power^	-.07	.00	-.16	.14	.02	.00

Note. Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .06$. $p < .01$ if $r \geq .07$. $p < .001$ if $r > .09$. (2-tailed)

PEB = Pro-environmental Behaviour. CC = climate change. ND = natural disaster. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

APPENDIX D.7: Correlations between Repeat Respondent Climate Change Variables and Favourability of Use of Energy Sources

Climate Change Variables	Energy sources^		
	Clean (e.g., Hydroelectric, Sun/Solar, Wind)	High emissions (e.g., Biomass, Coal, Gas, Oil)	Nuclear
PEB34	.25	-.34	-.21
PEB4	.30	-.41	-.25
Proportion PEB4	.30	-.37	-.21
Interest in Future PEBs	.43	-.45	-.23
Perceived Residential Vulnerability	.26	-.39	-.28
Normative Beliefs	.38	-.43	-.24
Recycling	.12	-.07	**.05**
Connection to Nature	.19	-.16	-.06
Policy Support – 12 items	.55	-.74	-.41
Policy Support - 20 items	.54	-.733	-.46
Number of ND Experiences	**.05**	**-.05**	**-.02**
CC Belief/Acceptance	.13	-.57	-.32
CC Risk Perception	.36	-.87	-.38
Personal Responsibility for CC	.38	-.53	-.35
Spatial Distance of CC	-.16	.24	.12
Importance of CC Issue	.47	-.65	-.40
Psychological Reactance	-.29	.42	.28
CC Self-efficacy	.42	-.44	-.31
CC Response Efficacy	.67	-.38	-.28
Collective Efficacy	.44	-.54	-.36
CC Concern	.44	-.61	-.39
CC Distress	.36	-.52	-.36
CC Hope	**-.00**	.23	.15
Personal Norm	.41	-.52	-.34
Behavioural Willingness	.50	-.58	-.32
Psychological Adaptation	.36	-.45	-.27
Self-rated knowledge	.15	-.21	-.07
GBR Negative Feelings	.31	-.45	-.36
GBR Positive Views	.25	-.17	-.14
GBR Threats	.31	-.40	-.34

Note. Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .06$. $p < .01$ if $r \geq .07$. $p < .001$ if $r > .09$. (2-tailed)

PEB = Pro-environmental Behaviour. CC = climate change. ND = natural disaster. GBR = Great Barrier Reef.

^ Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire. After reverse-scoring, high scores indicate more favourable attitudes to each energy source.

APPENDIX D.8
Illustrative Repeat Respondent Responses to the Open-Ended Questions

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")

Distance from locations, where such activities are taking place.

Cannot rely on public transport, very intermittent.

Guess its easier to burn off leaves, branches etc rather than load them into the ute and take them to the greenwaste 18 kms away. Other than that, most people out here naturally respect nature as we should. We have recycling bins like the city. I think its probably easier to be environmentally responsible when you live in nature, because your actions immediately affect your surroundings. But in the city, you never see the immediate affects of bad environmental behaviours.

I am conscious of many aspects of my lifestyle and how it affects my small town of 1000 residents. I do recycle and other issues to assist the town to maintain a healthy outlook and continual enjoyment of lifestyle. Many residents are elderly, but continue to do the right thing, although many are anti global warming.

No one appears to be interested, our council doesn't even offer recycling.

There's no public transport and there's no recycling stations for us on farms to take our recycling to. I have to ask my friends if I can put it in their bins all the time.

We get nothing in the way of outside help. No garbage service, crap roads that need 4WD, no transport options

I like to re-use many containers and glass jars. There is a nice amount of space here, so we grow some of our own food in our vegetable garden.

I am about 30 minutes from the closest town, recycling and other activities can be made much more difficult.

I do what I can with carbon offset.

Having to use tank water in a low rainfall area hinders our ability to grow much of our own food. Also cannot use public transport and rely on wood heating as electric heating is too dear. However, we have planted hundreds of trees, recycle everything we can and send very little rubbish to landfill.

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

Both federal & state governments need to do far more to limit climate change: EG immediately stop expansion of / giving permission for new fossil fuel mining, increased financial support for solar & wind farms, stop subsidising & apply disincentivising taxes to fossil fuel mining companies.

Climate change is cyclical, and natural, but the clearing of forests for housing is causing problems.

Concern is for my children and grandchildren. The world I leave for them is not the world that was left to me.

For me it is important for individuals, communities, businesses, and governments to collectively take action to address climate change and work towards a more sustainable future. This includes raising awareness, supporting renewable energy initiatives, promoting energy conservation, advocating for responsible policies, and making environmentally conscious choices in our daily lives.

From what I've seen in the research, it is probably more likely to just be natural changes that have been taking place for thousands of years.

God is only one that can reverse all the damage that has been done to the earth.

I am not entirely convinced there does not appear to be enough evidence that this is just nothing more than natural events.

I believe climate change is a combination of human behaviour on the planet and natural weather patterns and cycles. We all just need to do our best to look after the environment better, re-use and recycle things and have better preparations to reduce and minimize any negative impact from a natural disaster.

I don't believe in anthropogenic climate effects. Any change to climate is a purely natural phenonium over millennia.

I feel as humans we won’t do anything about climate change until it is very severe.

I think it is unstoppable now and will just feed upon itself like a self perpetuating monster. The growth in world population and the destruction of the natural environment is increasing and will not stop. We are heading for a major disaster that will be unstoppable.

I think that changes to help minimise climate change have to not come at the expense of the average Australian, who is already struggling financially. Most people I have spoken to about climate change feel that the government is implementing changes and charging it back to us (increased taxes, more expensive electricity, more expensive petrol / airfares, etc.). Currently it is very hard to balance the desire to help the environment and survive financially.

I wish everybody would wake up and not be so complacent about Climate Change.

I would like to see more exposure to discussions with experts on climate studies.

It’s a left wing political movement to bring down the western democracies. The whole thing is skewed from truth and its about time the bloody lies stopped.

There is more than enough emphasis placed on pressuring ordinary people to change their behaviour. What will truly effect real change is to pressure large corporations and governments to take action, since they are the ones most to blame for climate change.

We need to do our bit to look after our planet.

While it's important as individuals to take action, no real impact will be felt until major corporations are forced to change behaviour.

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 Dr. Karlien Paas 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 Karlien Paas 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:

1. **What is your age (in years)?** **Mean = 46.43 years (SD = 18.56)**

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.

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.

Please note: 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	60.6%	18.2%	18.3%	2.9%
Hobby/Interest group/club	58.2%	21.5%	17.6%	2.7%
Religious group/organisation	77.9%	12.0%	8.4%	1.7%
Charity group/organisation	71.4%	19.1%	7.7%	1.8%
Ethnic or cultural group	85.8%	9.5%	4.2%	0.5%
Neighbourhood group	70.2%	21.5%	7.4%	1.0%
Environmental group	80.8%	14.0%	4.5%	0.7%
Service club (e.g., Rotary)	87.7%	8.1%	3.2%	1.0%
Other volunteer group/club	77.2%	13.5%	7.7%	1.6%

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 not, or did not, 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 not or did not 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 always or nearly always:				
wash your clothes in cold (rather than hot) water?	3.2%	17.7%	44.0%	35.0%
turn off 'at the wall' appliances like TVs and computers when not in use?	7.4%	33.9%	26.0%	32.8%
carry your own re-usable drink container?	5.8%	14.7%	30.5%	49.0%
refuse to use non-biodegradable plastic products (e.g., bags, containers, straws, utensils)?	12.9%	32.0%	13.7%	41.4%
Have you in the last two weeks:				
used public transport?	35.5%	22.6%	30.7%	11.2%
eaten fewer than two serves of red meat?	8.8%	42.0%	37.5%	11.7%
pointed out to other people that their behaviour is harming the environment?	33.4%	46.2%	4.2%	16.1%
Behaviour	**No,**		**Yes,** I engage/have engaged in	

	I do not engage/have not engaged in this behaviour		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?	**30.4%**	**32.8%**	**6.8%**	**30.0%**
donated money to a group that aims to protect the environment?	**25.4%**	**49.2%**	**4.9%**	**20.4%**
attended a pro-environmental rally, meeting, march, or protest?	**35.5%**	**57.3%**	**1.9%**	**5.3%**
participated in a litter clean-up, beach clean-up, land-care project, or similar?	**34.8%**	**46.2%**	**4.6%**	**14.4%**
voted in an election for a candidate or party because of its/their pro-environmental policies?	**18.6%**	**42.5%**	**8.7%**	**30.2%**
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)?	**31.8%**	**58.2%**	**3.7%**	**6.3%**
contacted a government member about an environmental or climate change issue?	**30.1%**	**61.5%**	**2.8%**	**5.6%**
Do you currently				
grow some of your own fruit, vegetables, and/or herbs?	**23.8%**	**20.0%**	**33.3%**	**22.9%**
belong to an 'environmental' group (e.g., Friends of the Earth, World Wildlife Fund, Greenpeace)?	**27.5%**	**63.1%**	**2.7%**	**6.7%**

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 – **18.8%**
A little less involved – **19.9%**
About the same as other people – **42.1%**
A little more involved – **17.1%**
A lot more involved – **2.1%**

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 - **24.0%**
I don't think we are currently facing environmental problems worth addressing - **5.7%**
I am not particularly interested in environmental issues - **10.2%**
I am too busy/I do not have enough time - **32.3%**
I have my own routines, habits, and ways of doing things that are different from these - **26.5%**
I have health concerns/reasons, or believe these behaviours are not suitable for my health - **10.0%**
These actions are too expensive - **27.5%**
These actions are too inconvenient/too much effort - **18.6%**
These actions are not a high priority, so I never seem to get around to them - **13.4%**
Environmental problems are too great for me/for one individual to have any impact - **13.8%**
I did not cause any environmental problems, so I have no responsibility to fix them - **2.4%**
I do not know what to do - **14.2%**
I do not know whom to talk to, contact, or engage with on environmental issues - **13.4%**
The environmentally friendly product or service is not available - **8.2%**
The environmentally friendly product or service that is available is not of satisfactory quality - **10.8%**

I am not aware of the benefits of these behaviours for the environment - **5.5%**
I can't do these things because of my age, ill health, or disability - **11.0%**
These behaviours do not benefit me - **4.5%**
These behaviours do not suit the lifestyle of my family or friends – that's not the way we do things - **6.1%**
I do not trust the authorities that give out information about environmental issues - **14.2%**
I do not believe climate change is happening - **5.9%**
Other reason/s - *please specify:* - **5.4%** **N= 154 [many cited: see Appendix E.7 for illustrative examples of responses]**
None of the above - **9.8%**

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
94.3%	**0.1%**	**2.7%**	**0.2%**	**0.1%**	**0.1%**	**2.4%**

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	**11.0%**	**8.9%**	**12.0%**	**40.0%**	**19.8%**	**8.4%**
Generating your own energy to meet your household's needs, and feeding excess energy back into the network/grid	**16.0%**	**9.0%**	**9.7%**	**25.6%**	**26.3%**	**13.4%**
Getting an electric car or a hybrid engine car	**3.2%**	**24.0%**	**14.1%**	**27.6%**	**21.9%**	**9.2%**
Installing solar energy battery storage systems for your home	**9.3%**	**9.9%**	**8.9%**	**29.5%**	**28.3%**	**14.1%**
Participating in local community projects relating to renewable energy	**1.0%**	**24.9%**	**25.0%**	**29.7%**	**9.5%**	**9.8%**

A12. In the past year (i.e., since November-December 2022), how often have you recycled:

	Never, because of no opportunity to do so	Never, despite opportunity to do so	Rarely	About half of the time	Often	Nearly all the time	All the time
Paper (including newspapers, magazines, etc.)	**3.0%**	**0.6%**	**3.0%**	**5.0%**	**14.8%**	**26.5%**	**47.2%**
Cardboard	**1.5%**	**0.4%**	**2.3%**	**4.4%**	**11.8%**	**25.0%**	**54.6%**
Soft plastics (e.g., plastic bags, bottles)	**8.0%**	**1.2%**	**4.9%**	**6.0%**	**15.3%**	**24.5%**	**39.2%**
Metal containers (e.g., tins/cans)	**3.4%**	**1.6%**	**5.0%**	**5.8%**	**12.9%**	**22.8%**	**48.5%**

Other metals (e.g., steel)	24.0%	2.0%	10.7%	6.4%	11.6%	16.3%	28.9%
Glass bottles (e.g., wine bottles)	3.5%	1.1%	3.1%	3.5%	11.4%	21.2%	56.1%
Batteries	20.0%	5.6%	17.8%	8.4%	10.9%	12.1%	25.1%
E-waste (e.g., electrical appliances, computers)	30.0%	5.1%	14.4%	8.2%	9.3%	10.8%	21.3%
Textiles (e.g., clothing, blankets, bedding)	21.0%	4.6%	15.1%	11.3%	15.0%	13.2%	19.8%
Furniture	35.8%	4.2%	14.5%	10.0%	11.1%	10.1%	14.3%
Tyres	57.3%	5.0%	9.5%	3.9%	4.6%	5.1%	14.5%
Building materials (e.g., timber, pipes, plaster board)"	55.9%	5.1%	10.8%	5.6%	6.4%	5.7%	10.5%

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	4.9%	11.9%	20.9%	40.3%	20.3%	1.4%	0.3%
Being environmentally friendly is an important part of who I am	5.9%	14.1%	23.7%	34.9%	19.9%	1.2%	0.4%
I identify with the aims of environmental groups such as Greenpeace and Friends of the Earth	13.9%	15.1%	26.5%	25.7%	12.6%	3.3%	2.9%

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	7.8%	15.2%	37.9%	28.1%	11.0%
Humans are severely abusing the environment	2.9%	5.7%	7.3%	37.3%	46.7%
The balance of nature is strong enough to cope with the impacts of modern industrial nations	28.2%	28.6%	23.1%	15.1%	5.0%
The balance of nature is very delicate and easily upset	2.6%	7.4%	13.8%	41.5%	34.6%
Humans will eventually learn enough about how nature works to be able to control it	17.8%	21.1%	30.0%	25.2%	5.9%
If things continue on their present course, we will soon experience a major ecological catastrophe.	6.9%	7.2%	19.8%	31.0%	35.1%

B10. How favourable or unfavourable are your overall opinions or impressions of the following energy sources for producing electricity currently?

	Very favourable	Mainly favourable	Neither favourable nor unfavourable	Mainly unfavourable	Very unfavourable	Never heard of it
Biomass (e.g., wood, energy crops, human and animal waste)	9.4%	26.6%	34.3%	8.9%	3.7%	17.4%
Coal	7.0%	14.9%	24.8%	24.7%	28.1%	0.5%
Gas	9.5%	23.9%	29.1%	23.5%	13.8%	0.2%
Hydroelectric power	28.5%	42.2%	20.0%	3.9%	1.8%	3.5%
Nuclear power	18.3%	18.1%	24.3%	14.0%	24.1%	1.3%
Oil	6.1%	12.7%	28.9%	25.9%	25.8%	0.7%
Sun/Solar power	61.2%	26.7%	6.7%	2.7%	2.6%	0.1%
Wind power	51.5%	28.7%	9.8%	4.5%	5.2%	0.3%

B11. From what you know about <u>using nuclear power for generating electricity in Australia</u>, on balance, which of these statements, if any, most closely reflects your opinion?
(Select one only)
The benefits of nuclear power far outweigh the risks – **24.6%**
The benefits of nuclear power slightly outweigh the risks – **14.5%**
The benefits and risks of nuclear power are about the same – **12.3%**
The risks of nuclear power slightly outweigh the benefits – **11.4%**
The risks of nuclear power far outweigh the benefits – **19.9%**
Don't know – **17.3%**

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	7.9%	8.0%	31.8%	44.0%	8.3%
Put a tax on carbon emissions, with the money raised being invested in clean, renewable energy	13.1%	14.0%	32.0%	33.9%	7.1%
Stimulate public/private investment in a national clean energy power system to replace all coal power	6.1%	7.8%	35.2%	41.9%	8.9%
Phase out over ten years the mining of fossil fuels (coal, oil and gas)	11.5%	17.7%	28.9%	33.4%	8.5%
Increase taxpayer-funded financial grants/subsidies for private solar panels and batteries	8.3%	12.2%	30.4%	41.4%	7.7%
Provide taxpayer-funded financial grants/subsidies to the fossil fuel industry	26.6%	22.1%	22.6%	13.1%	15.6%
Require all new vehicles to be electric by 2040	26.0%	21.1%	27.9%	19.4%	5.6%
Build new coal-fired power stations as old ones are retired	27.6%	22.2%	22.0%	13.9%	14.4%
Provide government financial grants/subsidies for citizens to cyclone- or bushfire-proof their homes	3.4%	10.3%	41.5%	37.6%	7.1%

Construct concrete walls to prevent coastal erosion from sea-level rise, even if such walls are costly and detract from beach usage	**11.2%**	**23.5%**	**33.1%**	**16.0%**	**16.3%**
	Strongly oppose	Somewhat oppose	Somewhat support	Strongly support	Do not know/ Do not understand
Minimise Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions	**22.6%**	**19.5%**	**22.6%**	**17.9%**	**17.4%**
Assist communities that are currently reliant on coal mining for their livelihood	**2.4%**	**7.1%**	**45.5%**	**34.4%**	**10.7%**
Reduce the total waste generated in Australia by 10% per person by 2030	**1.7%**	**4.5%**	**34.6%**	**53.3%**	**5.8%**
Invest taxpayer money in technology solutions (like human-made shade for coral reefs) to keep corals like those on the Great Barrier Reef cool in warming oceans	**4.8%**	**10.2%**	**39.5%**	**32.1%**	**13.5%**
From 2024, require all new homes, residential divisions and public buildings to be powered by electricity, thereby phasing out gas appliances and heating	**12.9%**	**18.3%**	**31.5%**	**27.8%**	**9.5%**
Immediately ban single-use plastics such as heavy weight plastic shopping bags, plastic cotton bud sticks, and polystyrene cups, trays, and packing beads	**5.4%**	**12.2%**	**31.5%**	**46.0%**	**4.8%**
Set a target for 2030 that is lower than the current target of at least 80% of Australia's power coming from renewable sources	**13.8%**	**15.1%**	**31.9%**	**26.6%**	**12.6%**
Maintain the existing Australian ban on using nuclear power for domestic and industry use	**17.5%**	**16.0%**	**20.6%**	**30.6%**	**15.2%**
Permanently protect all high conservation value forests and bushlands through stronger regulations, regardless of the difficulty and costs involved in enforcing these regulations	**2.4%**	**7.6%**	**32.4%**	**47.6%**	**10.1%**
Boost public funding for the national landcare network to restore and connect wildlife habitat, even if this requires some loss of land that could be used for industry, farming, or residential use	**3.1%**	**7.9%**	**36.5%**	**41.9%**	**10.7%**

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 – **35.7%**
The target is too low: we should reduce emissions by more than 43% by 2030 – **25.4%**
The target is too high: we should reduce emissions by less than 43% by 2030 – **13.7%**
I do not think we should have a target at all – **11.5%**
No opinion/ Don't know – **13.7%**
I don't really understand emission targets

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 **23.6%**
Australian Labor Party **28.1%**
National Party **2.8%**
Australian Greens **15.7%**

One Nation Party **4.5%**
United Australia Party **0.7%**
A "teal" independent **1.4%**
Another independent **3.1%**
Other *(please specify)* **1.2%**
Don't know **15.4%**
I am not eligible to vote **3.5%**

B7. As far as you know, do you personally think that the world's climate is changing?
Yes – **82.2%**
No – **10.7%**
Do not know – **7.1%**

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 - **37.9%**
No – **62.1%**

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 - **53.8%**
No – **46.2%**

[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 = 1734)
Yes – **2.0%**
No – **98.0%**

C3b. Did you suffer financially because of this event?
(N = 1734)
Yes – **22.0%**
No – **77.2%**

C3c. How much property damage did you experience because of this event?
(N = 1734)

No damage at all	Very minor	Minor	Considerable	Major	Extreme amount
43.5%	**21.5%**	**23.6%**	**9.2%**	**1.7%**	**0.6%**

[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 = 980)
Yes - **29.1%**
No – **57.8%**
Did not have insurance cover – **13.2%**

[Ask C3e, only if C3d. is answered with "Yes"]
C3e. Was your insurance claim successful?
(N = 285)
Yes - **88.1%**
No – **11.9%**

[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 = 980)
Added or increased my house and contents insurance – **10.6%**
Added or increased my contents insurance only – **7.4%**
Added or increased my house insurance only – **5.4%**

Changed neither my house nor contents insurance – **60.4%**
Do not know – **16.1%**

C4. Even if you have <u>not been directly</u> impacted by an extreme weather event or natural disaster, has a geographically <u>distant</u> event ever had an impact upon you?
Yes – **47.4%**
No – **52.3%**

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, <u>directly</u> exposed to these floods, or the consequences of these floods, in any way?
Yes – **30.9%**
No - **69.1%**

C15. Have you heard or seen an extreme weather warning relevant to your local area in the last 12 months?
Yes - **57.4%**
No - **42.6%**

(Ask C16 - C18 only if C15 is answered as "Yes")
C16. What was/were the extreme weather warning(s) about? *(Select all that apply)*
(N = 1649)
Flood – **37.7%**
Cyclone – **7.5%**
Heatwave – **48.5%**
Heavy rainfall /thunderstorm /severe storm – **65.4%**
Bushfire – **35.0%**
Other, please specify___ – **1.5%**

C17a. Did your behaviour change in response to the <u>most recent</u> extreme weather warning?
(N = 1649)
Yes, please specify how _____ - **44.6%**
No, please specify why not_____ - **55.4%**

C17b. What was the <u>most recent</u> extreme weather warning about?
(N = 1649)
Flood – **9.8%**
Cyclone - **3.7%**
Heatwave – **28.0%**
Heavy rainfall / thunderstorm / severe storm - **45.3%**
Bushfire – **12.3%**
Other, please specify___ - **0.8%**

C18. What was/were the source(s) of the warning(s)? *(Select all that apply)*
(N = 1649)
Newspaper - **8.7%**
Mobile phone App notifications - **36.8%**
Mobile phone text messages (including SMS) - **18.4%**
E-mail - **4.1%**
TV - **42.0%**
Radio - **29.4%**
Online news - **30.4%**
Other website, please specify _____ - **6.8%**
Social media - **32.6%**
Friends and family - **20.0%**
Other, please specify _____ - **2.4%**
Cannot recall - **1.0%**

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") – **25.3%**
- all changes in the world's climate that occur naturally – **9.8%**
- all changes in the world's climate that are due to human activity – **29.3%**
- all changes in the world's climate, regardless of the cause - **34.2%**
- something that does not really exist. – **3.2%**

To make sure that we are all referring to the same thing, please have in mind this definition 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 – **4.3%**
Climate change is mainly caused by natural processes - **6.3%**
Climate change is partly caused by natural processes and partly caused by human activity – **39.2%**
Climate change is mainly caused by human activity - **33.2%**
Climate change is entirely caused by human activity - **12.6%**
I think there is no such thing as climate change - **2.1%**
Do not know – **1.3%**
No opinion - **1.1%**

D3. Using the above 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	**4.1%**	**2.8%**	**3.2%**	**9.1%**	**22.4%**	**21.7%**	**36.7%**

D4x1. Please indicate the extent to which you agree or disagree with each of these statements.
Climate change will have a noticeably negative impact on …

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
… my health (over the next 25 years)	**7.6%**	**12.1%**	**13.7%**	**33.4%**	**23.8%**	**9.4%**
… my economic and financial situation (over the next 25 years)	**5.9%**	**9.5%**	**12.7%**	**33.2%**	**25.6%**	**13.1%**
… the environment in which my family and I live	**5.1%**	**7.1%**	**7.1%**	**25.4%**	**30.0%**	**25.2%**

D4x2. In your opinion, what is the risk of climate change exerting a significant impact on …

	Low risk	Slight low risk	Moderate low risk	Slight high risk	Moderate high risk	High risk
… public health in your state?	**10.5%**	**10.3%**	**19.9%**	**25.6%**	**20.7%**	**13.0%**
… economic development in your state?	**8.8%**	**9.3%**	**18.6%**	**28.1%**	**21.1%**	**14.1%**
… the environment in your state?	**8.1%**	**7.8%**	**13.9%**	**23.4%**	**22.4%**	**24.4%**

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
7.1%	**10.1%**	**13.8%**	**17.3%**	**21.5%**	**17.2%**	**13.0%**

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 – **28.7%**
No – **63.5%**
Do not know – **7.8%**

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 - **37.8%**
No – **62.2%**

D8. Prior to 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 – **41.1%**
No – **58.9%**

[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?)
____ N=1326 [Many cited: see Appendix E.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
31.8%	**29.3%**	**19.3%**	**12.3%**	**4.1%**	**2.4%**	**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
5.0%	**3.2%**	**7.1%**	**22.4%**	**22.7%**	**17.2%**	**22.2%**

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	**11.2%**	**13.9%**	**10.3%**	**22.4%**	**28.5%**	**10.8%**	**3.0%**
I feel partly responsible for contributing to the exhaustion of non-renewable energy resources	**12.6%**	**12.7%**	**9.8%**	**18.9%**	**30.1%**	**12.5%**	**3.5%**
If you are reading this carefully, select Strongly Disagree	**96.5%**	**0.0%**	**0.8%**	**0.5%**	**0.1%**	**0.2%**	**1.9%**
I feel partly responsible for climate change	**13.6%**	**12.6%**	**9.9%**	**18.9%**	**30.4%**	**11.3%**	**3.3%**
I feel a sense of urgency to change my behaviour to help to reduce climate change	**11.1%**	**10.9%**	**9.2%**	**20.9%**	**25.9%**	**15.9%**	**6.2%**

D14. When, if at all, do you think Australia will start feeling the effects of climate change?
We are already feeling the effects – **58.7%**
In the next 10 years – **8.9%**
In the next 25 years – **8.5%**

In the next 50 years – **5.0%**
In the next 100 years - **2.3%**
Beyond the next 100 years – **2.8%**
Never – **4.5%**
Don't know/No opinion – **9.4%**

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
6.4%	**10.7%**	**14.9%**	**18.2%**	**20.5%**	**14.4%**	**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
5.4%	**6.4%**	**8.2%**	**13.3%**	**14.8%**	**18.1%**	**33.7%**

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
5.4%	**7.7%**	**10.5%**	**17.1%**	**15.1%**	**21.4%**	**22.8%**

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
9.5%	**16.3%**	**15.9%**	**18.1%**	**19.8%**	**12.1**	**8.4%**

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
9.4%	**16.2%**	**15.7%**	**17.4%**	**19.8%**	**13.4%**	**8.1%**

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	**16.7%**	**22.5%**	**11.9%**	**24.5%**	**15.1%**	**7.3%**	**1.9%**
Climate change will mostly affect other countries	**22.1%**	**24.2%**	**12.1%**	**21.7%**	**10.6%**	**6.1%**	**3.2%**
Climate change means I will have to compromise on what I wanted to do with my life.	**8.5%**	**11.0%**	**11.4%**	**27.8%**	**22.7%**	**13.8%**	**4.9%**

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	**12.5%**	**15.3%**	**9.3%**	**21.7%**	**23.2%**	**11.8%**	**6.2%**

I feel others are trying to force their opinions on me about climate change	13.4%	18.6%	10.5%	16.3%	18.1%	12.2%	10.8%
I am being manipulated to form a certain view on climate change	19.1%	20.3%	11.6%	18.1%	13.3%	10.0%	7.7%
Concerns about climate change are exaggerated	27.2%	19.7%	11.6%	16.7%	10.3%	6.6%	7.9%

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	6.2%	5.7%	5.0%	14.9%	34.5%	23.3%	10.4%
There are things I can do to try to reduce the impact of climate change	5.6%	4.4%	4.1%	12.5%	34.7%	26.8%	11.9%
I can readily change things in my everyday life to address the challenges of climate change.	5.9%	5.6%	6.9%	18.3%	31.4%	22.6%	9.4%

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	8.1%	8.6%	8.8%	19.4%	31.3%	17.1%	6.7%
My actions have a positive influence on how I am feeling and thinking about climate change and environmental problems generally	4.8%	5.1%	5.0%	24.8%	31.8%	21.4%	7.1%
I feel that I can make a difference with regard to climate change	8.3%	8.8%	9.8%	20.1%	29.5%	17.0%	6.4%
Australia should be a world leader in finding solutions to climate change	7.5%	4.7%	3.8%	15.9%	19.5%	23.1%	25.5%

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	8.2%	13.7%	24.2%	24.7%	29.2%
feel a responsibility to provide accurate information	7.2%	11.4%	22.2%	25.7%	33.4%
are knowledgeable about the risks	4.9%	14.1%	22.4%	27.1%	31.5%
are concerned about public welfare	8.7%	15.4%	25.1%	23.7%	27.1%

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	**4.0%**	**3.5%**	**2.9%**	**12.2%**	**25.3%**	**30.9%**	**21.2%**
By working together, we can make a difference to climate change	**4.1%**	**3.4%**	**2.0%**	**9.2%**	**22.5%**	**31.6%**	**27.2%**
There is little point in me taking action against climate change because many others will not	**14.7%**	**16.6%**	**15.3%**	**19.5%**	**17.5%**	**10.3%**	**6.0%**
If people all pull together, we can reduce the impacts of climate change	**4.0%**	**3.2%**	**2.3%**	**10.3%**	**23.3%**	**30.8%**	**26.1%**

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.	**7.0%**	**4.8%**	**4.0%**	**7.8%**	**17.5%**	**24.1%**	**34.9%**

D30. How much do you think global warming will harm future generations of Australians?
Not at all – **6.1%**
Only a little – **10.5%**
A moderate amount – **21.4%**
A great deal – **57.7%**
Don't know – **4.3%**

SECTION E: Your Feelings about Climate Change

E1. How concerned, if at all, are you about climate change?
Not At All Concerned – **9.2%**
Not Very Concerned – **17.2%**
Fairly Concerned – **43.5%**
Very Concerned – **30.1%**

E2. Has your level of concern about climate change increased, decreased, or remained the same over the past year (i.e., since November-December 2022)?

Decreased substantially	Decreased moderately	Decreased slightly	Remained the same	Increased slightly	Increased moderately	Increased substantially
1.6%	**0.8%**	**2.1%**	**49.3%**	**23.0%**	**14.9%**	**8.4%**

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 – **18.0%**
Fairly concerned – **44.6%**
Not very concerned – **21.5%**
Not at all concerned – **11.4%**
Don't know – **2.9%**
No opinion – **1.7%**

E4. Considering any potential effects of climate change that there might be on society in general, how concerned are you about climate change?
Very concerned – **25.8%**
Fairly concerned – **42.0%**
Not very concerned – **18.1%**
Not at all concerned – **9.7%**
Do not know – **2.6%**
No opinion – **1.8%**

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	Extremely concerned
Bushfires	**11.2%**	**14.2%**	**12.5%**	**12.7%**	**19.5%**	**16.3%**	**13.6%**
Cyclones	**34.8%**	**17.5%**	**12.0%**	**11.2%**	**12.0%**	**7.6%**	**4.9%**
Floods (coastal &/or inland)	**15.2%**	**16.4%**	**12.3%**	**13.7%**	**18.3%**	**14.0%**	**10.2%**
Air and water pollution	**9.6%**	**13.0%**	**13.3%**	**14.1%**	**20.1%**	**15.9%**	**14.0%**
Sea level rise	**23.3%**	**14.7%**	**11.4%**	**11.8%**	**16.5%**	**12.3%**	**10.1%**
Droughts/Water shortages	**6.2%**	**11.2%**	**10.4%**	**12.5%**	**20.8%**	**20.1%**	**18.8%**
Heatwaves	**5.7%**	**8.5%**	**8.5%**	**11.6%**	**18.7%**	**21.6%**	**25.4%**
War/International conflicts	**10.2%**	**11.7%**	**10.4%**	**13.6%**	**17.7%**	**16.4%**	**20.0%**
Health threats relating to environmental changes or conditions	**11.3%**	**11.8%**	**11.4%**	**14.7%**	**21.1%**	**16.0%**	**13.6%**
Biodiversity loss (e.g., species extinction, habitat loss)	**8.1%**	**9.9%**	**10.4%**	**12.9%**	**18.3%**	**18.9%**	**21.4%**
Food insecurity (e.g., crop failures, food shortages, declining agriculture)	**6.0%**	**8.5%**	**10.6%**	**12.8%**	**21.3%**	**19.8%**	**21.0%**
Cost of living	**1.1%**	**2.6%**	**4.5%**	**7.6%**	**16.1%**	**23.2%**	**45.0%**
Impacts of climate change, generally	**8.7%**	**8.2%**	**9.0%**	**13.4%**	**20.1%**	**18.6%**	**21.9%**

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	**8.6%**	**11.3%**	**7.9%**	**21.3%**	**24.8%**	**17.7%**	**8.4%**
At times, I worry about what the world will be like in the	**8.3%**	**7.4%**	**5.0%**	**12.1%**	**24.6%**	**25.3%**	**17.2%**

future because of climate change							
I feel guilty when I think of how the lifestyle of my family and friends contributes to climate change	**12.4%**	**13.2%**	**11.9%**	**22.2%**	**21.1%**	**12.6%**	**6.6%**
It upsets me when I think that there is so little I can do about climate change and other environmental problems	**9.2%**	**9.7%**	**9.1%**	**23.5%**	**23.4%**	**16.6%**	**8.6%**
The more I learn about the threat of climate change, the more anxious I become	**11.9%**	**11.4%**	**9.7%**	**21.4%**	**21.3%**	**15.3%**	**9.1%**
At times, I feel overwhelmed when thinking about the future impact of climate change	**12.9%**	**11.3%**	**8.6%**	**20.2%**	**20.6%**	**15.7%**	**10.7%**

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 primarily because you wanted to reduce your impact upon climate change?
(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 – **6.5%**
Recycled more – **65.3%**
Consumed less red meat – **26.7%**
Reduced the amount of food I throw out – **50.2%**
Become more efficient in my consumption of power (electricity, gas) from the grid/power companies – **44.2%**
Changed to 'green' (e.g., solar) power – **18.7%**
Changed my electricity supplier – **10.8%**
Become more efficient in my water consumption – **41.2%**
Reduced my use of plastic items – **52.3%**
Switched to products that are more environmentally friendly – **28.9%**
Purchased a bicycle – **5.9%**
Purchased more things that are locally (rather than remotely) made/grown – **25.9%**
Avoided making unnecessary purchases – **39.9%**
I have changed none of these aspects of my lifestyle over the past year due to concerns about climate change – **16.0%**

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	**7.4%**	**8.2%**	**6.5%**	**18.3%**	**28.5%**	**21.9%**	**9.2%**
I feel obliged to bear the environment and nature in mind in my daily behaviour	**6.5%**	**7.3%**	**6.8%**	**18.6%**	**29.5%**	**21.3%**	**9.9%**
I feel morally obliged to use green instead of regular electricity	**9.4%**	**10.5%**	**10.1%**	**23.3%**	**22.4%**	**17.3%**	**7.0%**

I would be a better person if I behaved in more pro-environmental ways	10.6%	10.5%	9.0%	25.3%	21.3%	15.7%	7.7%
If you are reading this carefully, answer strongly disagree to this question	93.1%	0.8%	0.5%	1.7%	1.6%	1.2%	1.0%
Most people in my social network behave in ways that minimise damage to the environment	4.3%	9.3%	12.6%	33.4%	23.4%	13.6%	3.4%
Most members of my family behave in ways that minimise damage to the environment	4.9%	7.6%	11.0%	25.6%	27.8%	18.2%	4.9%
Most of my friends behave in ways that minimise damage to the environment	3.7%	8.1%	10.4%	30.2%	27.4%	16.3%	3.8%
Most members of my neighbourhood/local community behave in ways that minimise damage to the environment	4.6%	8.2%	11.3%	38.4%	23.3%	11.3%	3.0%

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?	27.2%	37.0%	30.5%	5.3%
Volunteer your time to an organisation working in climate change?	24.5%	38.7%	31.6%	5.1%
Donate money to an organisation working on climate change?	24.6%	33.3%	36.4%	5.7%
Write letters, email or phone government officials about climate change?	29.9%	40.2%	25.0%	4.9%
Support an organisation engaging in non-violent civil disobedience against corporate or government activities that make climate change worse?	30.5%	34.3%	29.3%	5.8%
Personally engage in non-violent civil disobedience against corporate or government activities that make climate change worse?	38.0%	40.5%	17.8%	3.7%

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	7.8%	6.8%	4.9%	15.0%	34.0%	24.1%	7.3%
greatly reduce my energy (e.g., electricity) use	6.3%	5.4%	4.8%	12.0%	34.3%	27.2%	10.1%
pay higher personal taxes	34.7%	18.0%	14.1%	15.0%	10.7%	5.9%	1.6%
pay more for electricity	35.7%	18.6%	15.3%	12.2%	12.0%	5.0%	1.3%
pay more for fuel (petrol, diesel, etc.)	37.1%	18.4%	14.5%	13.2%	9.7%	5.2%	1.9%
pay significantly more for energy-efficient products	29.7%	16.5%	12.4%	16.5%	15.7%	7.1%	2.1%
accept cuts in my standard of living.	24.1%	16.3%	13.8%	18.3%	17.2%	7.7%	2.7%
take part in a community-wide climate change movement	20.6%	12.1%	8.6%	19.4%	20.3%	14.1%	4.9%

have renewable energy infrastructure such as a solar farm in my local area	8.4%	4.9%	3.6%	15.3%	22.1%	26.2%	19.4%
work with my local community to find ways to adapt to living with climate change	10.6%	7.5%	5.4%	25.0%	23.6%	19.4%	8.5%

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	6.7%	7.9%	7.1%	22.5%	30.0%	20.3%	5.6%
Over the past year, I have seriously thought about alternative places to live because of the increasingly evident impacts of climate change	26.2%	21.1%	10.6%	15.9%	12.9%	9.6%	3.7%
These days, I am trying NOT to think about climate change	8.9%	15.7%	16.4%	30.4%	14.0%	9.3%	5.2%
During the last year, I have thought more about what my family and I might do to reduce our impact on the environment	8.9%	10.2%	9.6%	23.8%	27.4%	15.2%	4.8%
I try to directly address the feelings I have about climate change	9.6%	11.8%	9.4%	34.8%	19.0%	12.1%	3.4%
In recent times, I have tried to recognise and accept the emotions I feel about climate change	10.8%	10.3%	8.2%	34.1%	20.2%	12.5%	3.9%
I seem to spend more time these days trying to come to grips with the likely effects of climate change	15.4%	13.7%	11.9%	29.0%	17.4%	9.6%	3.0%
I have often discussed my thoughts and feelings about climate change with others over the past year.	14.3%	14.6%	11.9%	20.4%	19.9%	13.8%	5.0%
I keep up with media reports on a daily basis to inform my views about climate change	14.0%	15.0%	12.1%	21.8%	20.5%	12.2%	4.4%
Compared to a year ago, I am much more likely nowadays to tune into discussions and debate about climate change	13.3%	12.9%	10.2%	26.8%	20.8%	11.6%	4.3%

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	40.2%	49.7%	10.1%

Climate change is caused by the build-up of greenhouse gases (e.g., carbon dioxide, methane) in the atmosphere	72.9%	18.1%	9.0%
Climate change can be slowed down if more trees were planted	70.0%	21.5%	8.5%
Climate change is mainly caused by the hole in the ozone layer	26.0%	32.5%	41.5%
Food waste is one of the three biggest global contributors to carbon dioxide (CO2) emissions	45.4%	41.5%	13.0%
Those who are most socially and economically disadvantaged (e.g., poorer nations/communities) experience the greatest impacts of climate change	57.6%	27.9%	14.5%
When the ocean absorbs increasing levels of carbon dioxide (CO2), it becomes more acidic, damaging shellfish	46.1%	46.5%	7.4%
We can reduce the rate of climate change by using more air conditioning in summer	7.6%	13.5%	78.9%
Climatic extremes are increasing, and are causing food shortages and food insecurity globally	66.1%	23.8%	10.1%
Solar (or 'photovoltaic') panels are now a cheaper source of new-build electricity generation than are coal and gas	46.8%	38.2%	15.0%
Plastic is produced from fossil fuels and therefore contributes to climate change	59.7%	30.5%	9.8%
The economic consequences of climate change are greater than the economic consequences of moving away from fossil fuels	43.4%	43.2%	13.4%
People can help reduce the rate of climate change by consuming more meat and dairy products	11.7%	21.9%	66.4%

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
1.5%	7.8%	52.4%	27.4%	9.8%	1.1%

SECTION I: The Great Barrier Reef

I1. Do you have an idea of what the Great Barrier Reef is?
Yes – **95.8%**
No – **4.2%**

(If I1 Is "no", skip remainder of section I, and continue with H1)

STATEMENT:
"For the purpose of this questionnaire, when we refer to the **Great Barrier Reef** (or "GBR"), we refer to all land and water from the beaches on the coast, the bays and creeks, the islands, the shoals and seafloor, the open waters, and of course the coral reefs, located off the coast of Queensland."

I2. Have you ever visited the Great Barrier Reef?
(N = 2752)
Yes – **48.5%**
No – **51.5%**

(Ask I3, only if I2 is answered "yes")
I3. My last visit to the Great Barrier Reef was:
(N = 1335)
In the last 2 months – **3.1%**
2-6 months ago – **3.2%**
6-12 months ago – **8.6%**
1-5 years ago – **27.9%**
5 – 10 years ago – **23.2%**
More than 10 years ago – **34.0%**

(All continue)

I4. Which of the following statements best describes your beliefs about climate change and the Great Barrier Reef (GBR)?
(N = 2752)
Climate change is a threat to the GBR, requiring immediate action – **70.5%**
Climate change is a threat to the GBR, but does not require immediate action – **5.9%**
I need more evidence to form an opinion about how climate change may threaten the GBR – **13.2%**
Climate change is not a threat to the GBR – **2.9%**
I do not have a view on how climate change relates to the GBR – **4.7%**
I do not believe in climate change – **2.9%**

I5. When/if you hear about climate-related damage to the Great Barrier Reef (e.g., from cyclones, mass coral bleaching, warming waters, ocean acidification), to what extent does it make you feel…
(N = 2752)

	Not at all	A little bit	Somewhat	Quite a bit	A great deal
…sad	**7.7%**	**16.1%**	**19.3%**	**29.1%**	**27.8%**
…angry	**20.7%**	**16.4%**	**22.9%**	**20.9%**	**19.1%**
…afraid	**30.0%**	**18.4%**	**23.3%**	**16.8%**	**11.5%**
…helpless	**20.0%**	**19.3%**	**21.8%**	**20.9%**	**18.0%**
…disappointed	**12.1%**	**15.6%**	**21.1%**	**24.8%**	**26.3%**
…confused	**46.3%**	**21.1%**	**19.9%**	**7.8%**	**4.9%**
…determined	**34.1%**	**23.2%**	**25.4%**	**11.3%**	**6.0%**

I7. To what extent do you agree or disagree with each of the following statements about the Great Barrier Reef (GBR)?
(N = 2752)

	Disagree					Agree					
	1 Very strongly disagree	2	3	4	5	6	7	8	9	10 Very strongly agree	I don't know
I feel proud that the GBR is a World Heritage Area	**0.8%**	**0.2%**	**0.8%**	**0.6%**	**2.5%**	**7.2%**	**6.9%**	**17.5%**	**14.1%**	**47.7%**	**1.6%**
It is the responsibility of all Australians to protect the GBR	**1.1%**	**0.3%**	**1.2%**	**1.4%**	**4.0%**	**9.3%**	**9.2%**	**16.5%**	**12.6%**	**43.1%**	**1.2%**
The GBR is part of my Australian identity	**4.0%**	**2.1%**	**4.1%**	**4.5%**	**8.9%**	**12.0%**	**9.1%**	**13.1%**	**10.7%**	**28.7%**	**2.9%**
I feel optimistic about the future of the GBR	**5.9%**	**4.2%**	**8.9%**	**9.7%**	**13.6%**	**14.1%**	**11.6%**	**11.4%**	**6.9%**	**9.2%**	**4.4%**
I would not be personally affected if the health of the GBR declined	**12.5%**	**6.8%**	**11.0%**	**10.3%**	**14.4%**	**12.2%**	**7.4%**	**9.2%**	**5.2%**	**5.4%**	**5.7%**
I feel confident that the GBR is well managed	**5.8%**	**4.7%**	**10.2%**	**10.5%**	**15.4%**	**16.0%**	**9.4%**	**11.2%**	**5.5%**	**5.0%**	**6.4%**
It is not my responsibility to protect the GBR	**15.3%**	**8.6%**	**12.0%**	**10.9%**	**18.6%**	**12.3%**	**6.0%**	**5.3%**	**3.5%**	**4.1%**	**3.5%**

The GBR should be on the World Heritage in danger list	3.2%	1.5%	1.9%	1.7%	5.5%	9.1%	9.4%	14.1 %	12.5 %	33.8 %	7.5%
The expansion of coal mining is more important than conservation of the GBR	42.2 %	8.5%	9.9%	7.5%	10.4 %	3.9%	2.8%	2.4%	1.6%	2.4%	8.4%

I9. Please rate the extent to which you think each of these issues represents a threat to the Great Barrier Reef?
(N = 2752)

	Does not represent a threat at all	A minor threat	A moderately serious threat	A serious threat	An extremely serious threat	I don't know / no opinion
Illegal fishing practices (e.g., poaching in "no-take" zones)	2.5%	15.4%	20.9%	30.0%	19.8%	11.4%
Land-based runoff (containing sediment, fertiliser, pesticides, etc.)	0.9%	6.7%	17.7%	31.5%	35.9%	7.3%
Climate change	6.0%	7.1%	12.3%	24.7%	46.3%	3.6%
Tourism	5.3%	24.8%	30.4%	23.2%	10.9%	5.3%
Coastal development	2.9%	12.6%	26.3%	30.3%	19.1%	8.6%
Land clearing	4.4%	12.4%	19.6%	28.6%	22.9%	12.1%
Shipping	3.2%	14.1%	23.2%	29.0%	19.5%	11.0%
New shipping ports & port expansions	2.9%	11.6%	20.8%	29.5%	23.3%	11.9%
Land-based mining	6.8%	13.9%	19.8%	24.1%	20.1%	15.3%
Deep sea mining	2.4%	8.4%	15.2%	27.0%	36.3%	10.9%
Population growth	5.4%	14.9%	23.5%	26.7%	18.8%	10.6%
Governance (i.e., management of the Great Barrier Reef)	8.4%	13.0%	22.6%	23.9%	17.2%	15.0%
Marine debris and beach littering	1.6%	10.3%	20.1%	30.5%	32.8%	4.7%
Cyclones and tropical storms	2.9%	12.6%	23.4%	29.6%	23.1%	8.4%
Floods	6.7%	16.0%	22.3%	25.0%	17.3%	12.7%
Crown of Thorns starfish	3.1%	7.2%	12.7%	20.3%	24.6%	32.1%
Tourism activities	3.7%	21.1%	27.1%	24.8%	15.5%	7.8%
Politics and/or Politicians	5.3%	12.1%	19.9%	22.5%	22.9%	17.3%
Emissions from fossil fuels	4.7%	9.7%	16.6%	25.6%	31.1%	12.2%
Other, please specify N = 506	9.7%	3.0%	5.5%	6.5%	14.4%	60.9%

I11. Do you have any further comments about the Great Barrier Reef and climate change?

N= 1911

SECTION H: About You

This final section asks about your demographic background

H1. What is your gender?
Male – **49.7%**
Female – **49.8%**
Other/Non-binary – **0.5%**

H2. Where were you born?
Australia – **74.9%**
New Zealand – **3.5%**
Indonesia – **0.3%**
(Other) Pacific Island - **0.2%**
United Kingdom – **6.5%**
Europe – **3.5%**
Middle East – **0.4%**
Asia – **5.8%**
Indian sub-continent - **1.4%**
North America – **0.7%**
South America – **0.6%**
Africa – **1.0%**
Other – **1.1%**

[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? _____
Range = 0 to 77 years; Mean = 27.0 years (SD = 21.1)
H4. Which of the following best describes you?
I am an Australian citizen – **89.8%**
I have permanent residency in Australia but I am not an Australian citizen – **7.1%**
I am a refugee: I reside in Australia but do not have permanent residency – **0.1%**
I reside in Australia, but do not have permanent residency because I am here for work or study – **2.8%**
Other: *please specify* – **0.2%**

H5. How many years have you lived in the suburb, town, or regional area in which you are now living?

_____
Mean = 18.34, SD=16.47

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 – **35.4%**
No, I neither am religious, nor do I identify with a particular religious faith – **64.6%**

A3. How would you describe your physical health over the past year?
Extremely poor – **1.5%**
Poor – **11.9%**
Okay – **33.9%**
Good – **39.5%**
Very good – **13.1%**

H7. Please indicate the highest level of education you have <u>already completed</u>:
Year 10 or less – **8.2%**
Year 11 – **2.4%**
Year 12 – **14.5%**
College Certificate or Diploma – **19.1%**
Trade Qualification/Apprenticeship – **10.6%**
Undergraduate Degree – **25.3%**
Postgraduate Degree/Diploma – **19.9%**
Other: *please specify*

H8. Are you currently undertaking studies?

Yes – **11.7%**
No – **88.3%**

H9. What is your current employment status?
Working – Full-time (35+ hours per week) – **41.4%**
Working – Part-time – **15.0%**
Working on a Casual Basis – **5.9%**
Unemployed – seeking work – **4.3%**
Retired – **23.3%**
Unpaid work - looking after house/children/dependants – **4.7%**
Not in paid employment due to a disability – **2.4%**
Student - not in paid employment – **1.7%**
Other - *please specify* – **1.3%**

[Ask H36 only if the response to H9 is option 2 or 3]

H36. If working for pay either part-time or casually, how many hours do you work in the average week? (N = 599)
Fewer than 15 hours per week – **31.4%**

15 or more hours per week – **68.6%**

H37. Are you employed as a tradesperson ("tradie") in the construction industry?
Yes – **3.5%**
No, I never have – **90.6%**
No, but I previously was – **5.9%**

H14. Please indicate your approximate combined household income (from all sources, before tax) during the 2022-2023 financial year:
$40,000 or less – **17.5%**
$40 001-$60,000 – **14.6%**
$60,001-$80,000 – **14.2%**
$80,001-$100,000 – **12.7%**
$100,001-$150,000 – **21.2%**
$150,001-$200,000 – **11.2%**
Greater than $200,000 – **8.6%**

H15. Please indicate your approximate personal income (from all sources, before tax) during the 2022-2023 financial year:
$40,000 or less – **35.1%**
$40,001-$60,000 – **16.0%**
$60,001-$80,000 – **16.3%**
$80,001-$100,000 – **13.1%**
$100,001-$150,000 – **12.9%**
$150,001-$200,000 – **4.0%**
Greater than $200,000 – **2.6%**

H16. How would you describe your current financial situation?
I am struggling financially – **26.9%**
I am doing okay – **48.4%**
I am comfortable – **22.0%**
I am well off financially – **2.8%**

H17. How many children do you have? (*Please indicate in numbers)* ____

no children, 40.0%
one child, 15.9%
two children, 25.2%
three children, 12.1%

four+ children, 6.8%

H17a. Do you identify as (that is, see yourself as) a member of a culturally and linguistic diverse (CALD) community?
Yes – **9.5%**
No – **90.5%**

H17b. Do you identify as an Aboriginal and/or a Torres Strait Islander (ATSI)?
Yes – **3.4%**
No – **96.6%**

H17c. Do you identify as a person living with a disability?
Yes – **12.4%**
No – **87.6%**

H17d. Do you identify as a member of the LGBTQI+ community?
Yes – **6.4%**
No – **92.4%**
Prefer not to say – **1.2%**

H17e. Do you identify as a homeless person?
Yes – **0.2%**
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? _____

N = 649 [Many cited, see appendix E.7 for examples]

[All continue]
H18. What is the name of the suburb, town, or regional area in which you live? _____
[Hundreds cited]

H20. How many people living in your household are currently in paid employment? _____

No one, 21.8%
one person, 27.3%
two persons, 37.3%
three persons, 8.1%
four+ persons, 5.5%

H21. What is the main language spoken in your household?
English – **93.6%**
Other, *please specify* _____ – **6.2%**
Do not know/Not applicable – **0.2%**

H22. Which of the following best describes the composition of your household?
Couple with no children at home – **32.0%**
Couple with children at home (includes children aged 18 years and older) – **31.0%**
Single parent with children at home (includes children aged 18 years and older) – **6.1%**
Group/shared household, with or without children – **8.6%**
One-person household – **17.2%**
Something else – **4.2%**
Do not know/Prefer not to say – **1.0%**

H23. What are your current residential arrangements?
Own my home outright – **29.6%**

Buying my home with mortgage/loan – **29.5%**
Part rent/part mortgage in private accommodation – **3.7%**
Renting or boarding in private accommodation – **26.7%**
Living in public accommodation – **2.0%**
Living with parents/friends/others rent-free – **7.2%**
Homeless – **0.1%**
Other, *please specify* _____– **1.2%**

H40. Which of the following best describes the type of house you live in?
(*Please select one answer)*
Separate house – **68.4%**
Semi-detached, row or terrace house, duplex, or townhouse – **10.9%**
Flat, unit or apartment in an apartment block – **19.4%**
Other, *please specify* _____ – **1.2%**
Not sure – **0.2%**

H24. How adequate do you regard the heating and cooling systems in your current residence?
Not at all adequate – **4.1%**
Not adequate – **5.4%**
Barely adequate – **12.8%**
Adequate – **54.1%**
Entirely adequate – **23.6%**

[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 = 1700)
In the past five years, have you:

- **H25a.Installed roof-top solar panels?**
  Yes – **29.1%**
  No – **55.1%**
  Already have solar panels – **15.8%**

- **H25b. Modified your home in any other way that increases your use of renewable energy (e.g., installed a solar hot water service)?**
  Yes – **13.6%**
  No – **78.3%**
  Already have solar hot water service – **8.1%**

- **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 – **32.8%**
  No – **57.7%**
  Already have a highly energy-efficient home – **9.5%**

- **H25d. Installed a rainwater tank or a grey water recycling system on your property?**
  Yes – **14.4%**
  No – **68.5%**
  Already have rainwater tank or a grey water recycling system – **17.1%**

- **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 – **9.5%**
  No – **90.5%**

- **H25f. Modified your home in any way that reduces damage from wind (e.g., anchor roof, install window protection such as shutters)?**
  Yes – **11.2%**
  No – **88.8%**

- **H25g. Modified your property in any way that reduces damage from bushfire (e.g., remove trees and vegetation around the house, apply non-combustible building materials, have heat- or fire-resistant windows)?**
  Yes – **18.2%**
  No – **81.8%**

- **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 – **35.0%**
  No – **65.0%**

- **H25h. Do you have a household disaster plan in place (e.g., for bushfires, floods, or cyclones)?**
  Yes – **25.5%**
  No – **74.5%**

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	Very willing	Extremely willing
20.2%	**18.5%**	**29.0%**	**18.8%**	**13.4%**

[All participants resume answering]

H27. How would you describe the location of your current residence?
Inner urban – **18.2%**
Suburban/ Outer urban – **58.8%**
Country town/city – **16.6%**
Rural property – **5.8%**
Remote – **0.5%**

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

N=1743, mean= 275.9, sd= 244.39, range 0-1000m
N=1281, mean=10.31 sd=45.85, range 0-912km

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 – **43.1%**
26 – 50 kms – **21.2%**
51 – 100 kms – **16.7%**
101 – 250 kms – **8.7%**
over 250 kms – **10.4%**

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	92.3%	6.9%	0.7%	0.1%
4-cylinder petrol or diesel vehicles	26.3%	53.0%	18.6%	2.1%
6-cylinder, or larger, petrol or diesel engine vehicles	76.9%	19.2%	3.2%	0.9%

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	4.5%	3.9%	3.8%	31.6%	21.4%	25.3%	9.4%
My friends expect me to take positive steps to reduce my contributions to climate change	7.0%	11.3%	9.9%	35.5%	18.8%	13.2%	4.3%
People who are close to me (e.g., partner, friends) do not care whether or not I behave in environmentally friendly ways	6.2%	11.8%	14.0%	28.9%	19.5%	13.6%	6.0%
The people who are most important in my life think that I should take action against climate change	8.5%	10.5%	9.7%	40.1%	15.5%	11.7%	4.0%

H32. Is there anything else you would like to say about your views on climate change or natural disasters?
_____N=1793 [many cited, see appendix E.7 for examples]

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	Z_{skew} (Skew/ SE_{Skew})	Cronbach Alpha (stdd)
Lifestyle & Social Milieu									
Community Involvement	Original scale	9	A1.1 - A.1.9	9 - 36	9 - 36	12.37	3.70	41.46	
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	5.95	2.89	14.57	-
PEB4		16	A.6.1 – A.6.16	0 - 16	0 - 15	3.39	3.02	18.59	-
Proportion_PEB4		16	A.6.1 – A.6.16	0.0 - 1.0	0 - 0.99	0.29	0.25	15.50	-
Interest in Future PEBs	Sustainability Victoria (2017)	5	A.9.1 – A.9.5 [c]	5 - 20	5 - 20	13.95	3.52	-12.13	.775
Perceived Residential Vulnerability	Reser et al., 2012a, 2012b	3	D18, D20, H29[b]	3 - 21	3 - 21	13.04	4.40	-3.11	.699
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	17.02	4.86	-10.22	.893
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	16.66	4.56	-6.37	.751
Recycling	Adapted from Lui & Yang, 2022; Onel & Mukerjee, 2017	12	A12.1 – A12.12 [c]	12 - 72	12 – 72	52.10	10.42	-4.61	.888
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	10.16	3.04	-9.63	.815
New Ecological Paradigm	Dunlap et al., 2000.	6	B2.4, B2.5, B2.8, B2-13-B2.15	6 - 30	6 - 30	21.58	4.35	-7.17	.733
Policy Support_12	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	12	B3.1 – B3.13[c] *excl B1.11*	12 - 48	12 - 48	34.56	6.44	-8.78	.817
Policy Support_20	Adapted from, e.g., Tranter, 2020; Tranter & Lester, 2017.	20	B3.1 – B3.21[c] *excl B1.11*	20 - 80	20 - 80	58.51	9.52	-9.98	.861
Energy Sources – high emissions [e]	Adapted from Reser et al., 2012a; Spence et al., 2010	3	B10.1 B10.2 B10.3 B10.6	4 – 20	4 - 20	11.22	3.42	6.34	.715
Energy Sources – clean [e]		4	B10.4 B107 B10_8	3 – 15	3 – 15	12.54	2.34	-27.94	.704
Energy Sources – nuclear [e]		1	B10_5	1 – 5	1 - 5	2.92	1.43	0.28	-
ND and CC Experiences and Beliefs									

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Z_{skew} (Skew/ SE_{Skew})	Cronbach Alpha (stdd)
CC Belief/Acceptance	Reser et al., 2012a, 2012b; Spence et al., 2010	4	B7 [b], D2 [b], D3, D14	4 - 28	4 - 28	22.53	5.44	-35.46	.842
CC Risk Perception	Kellsted et al., 2008.	6	D4X1.1 – D4X2.6	6 - 36	6 - 36	24.05	7.51	-12.48	.938
Personal Responsibility for CC	Many sources	4	D13.2, D13.3, D13.4, D13.5	4 - 28	4 - 28	15.79	6.05	-8.59	.921
Spatial Distance of CC	Adapted from Reser et al., 2012a, 2012b.	2	D21.1 – D21.2	2 - 14	2 - 14	6.34	3.04	5.59	.821
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	19.29	6.65	-14.70	.943
		5	D5, D15, D16, D17, D29	5 - 35	5 - 35	24.13	8.28	-14.37	.955
Psychological Reactance	Ma et al., 2019.	3	D23.1 – D23.3	3 - 21	3 - 21	11.22	4.77	0.83	.818
CC Self-efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D24.1, D24.3, D24.4	3 - 21	3 - 21	14.41	4.38	-19.70	.937
CC Response Efficacy	Adapted from Reser et al., 2012a, 2012b.	3	D25.1, D25.2, D25.4	3 - 21	3 - 21	13.32	4.33	-12.41	.910
CC Collective Efficacy	Adapted from Leviston et al., 2015; Reser et al., 2012a, 2012b.	4	D27.1 – D27.4	4 - 28	4 - 28	20.54	5.23	-20.17	.843
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	14.31	4.47	-9.80	.919
Feelings about Climate Change									
CC Concern	Adapted from Reser et al., 2012a, 2012b; Spence et al., 2010	5	E1, E2, E3, E4, E5.19	5 - 35	5 - 35	23.45	7.48	-10.89	.923
CC Distress	Adapted from Reser et al., 2012a, 2012b.	6	E7.1 – E7.6	6 - 42	6 - 42	25.54	9.35	-10.65	.941
Responses to Climate Change									
Behaviours Changed due to CC	Adapted from Tranter, 2014.	14	F3.1 – F3.15 Excl F3.13	0 - 14	0 - 14	4.43	3.20	6.93	.802
Personal Norms	Adapted from Reser et al., 2012a, 2012b; Stern et al., 1999	4	F4.1 – F4.4	4 - 28	4 - 28	17.48	5.92	-11.65	.783
Likelihood of CC Activism	Leiserowitz et al., 2021	6	F5.1 – F5.6	6 - 24	6 - 24	12.57	4.32	0.28	.907
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	36.72	12.99	-2.96	.918

Climate Change Variables	Source(s)	No. of Items	Questionnaire Items Nos.[a]	Possible Range	Observed Range	Mean	SD	Z_{skew} (Skew/ SE_{Skew})	Cronbach Alpha (stdd)
Psychological Adaptation	Adapted from Reser et al., 2012a, 2012b.	10	F7.1 – F7.10	10 - 70	10 - 70	38.79	12.30	-4.37	.909
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 - +13	5.79	4.37	-16.80	-
Self-rated CC Knowledge	Original item (collapsing three more specific items (G2-G4) used in 2021)	1	G10	1-6	1 – 6	3.39	.86	7.17	-
Great Barrier Reef									
GBR_Negative Feelings	Adapted from Social and Economic Long-Term Monitoring Program (SELTMP) / Commonwealth Scientific and Industrial Research Organisation (CSIRO), 2023	6	I5.1 – I5.6	6 - 30	6 – 30	17.55	6.42	-1.21	.893
GBR_Positive Views		9	I7.1 – I7.9	9 - 90	14 – 90	63.49	10.22	-6.47	.596
GBR_Threats		20	I9.1 – I9.20	19 - 100	19-100	67.78	13.78	-7.94	.919

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.
[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", "Never heard of it", 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". In computing, the recycling score, a response of "Never, because of no opportunity to do so" was re-coded as 3.5 (i.e., the scale mid-point).
[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.
[e] Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire, and reporting correlations after reverse-scoring.

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 ≤	1429	1432	1110	763	1001	2153	721	2690	184
Lifestyle & Social Milieu									
Community Involvement	12.7	12.0*	13.0	12.6	11.5*[a]	12.2	12.7	12.3	13.4*
PEB34	5.73	6.16*	6.66[a]	6.03[a]	5.10*[a]	5.91	6.09	5.92	6.35
PEB4	2.99	3.77*	4.00[a]	3.48[a]	2.66*[a]	3.36	3.48	3.38	3.52
Proportion PEB4	0.25	0.32*	0.32	0.30	0.24*[a]	0.28	0.30	0.29	0.31
Interest in Future PEBs	13.8	14.0	14.6	14.4	12.9*[a]	13.8	14.4*	13.9	15.1*
Perceived Residential Vulnerability	12.5	13.5*	13.7	13.5	12.0*[a]	13.1	12.8	13.1	12.5
Descriptive Norms	16.6	17.4*	16.8	17.1	17.2	16.9	17.4	17.0	17.6
Normative Beliefs	16.6	16.7	17.0	16.8	16.1*[a]	16.5	17.3*	16.6	17.6
Recycling	50.9	53.3*	48.2[a]	51.7[a]	56.7*[a]	52.0	52.4	52.3	48.9*
Self and Worldviews									
Green Identity	9.98	10.3	10.2	10.4	9.98	9.99	10.7*	10.1	10.6
New Ecological Paradigm	21.0	22.1*	21.9	21.7	21.1*[b]	21.5	21.9	21.6	21.1
Policy Support – 12	34.1	35.0*	35.6[a]	34.8[a]	33.2*[a]	34.3	35.3*	34.5	34.5
Policy Support – 20	57.4	59.5*	59.9	59.0	56.6*[a]	58.1	59.6*	58.4	59.5
Energy Sources – high emissions	11.4	11.0	10.8	11.12	11.8*[a]	11.3	11	11.2	11.4
Energy Sources – clean	12.6	12.5	12.6	12.6	12.5	12.4	12.8*	12.5	12.9
Energy Sources – nuclear	3.36	2.48*	2.75	2.72	3.26*[a]	2.93	2.91	2.93	2.78
ND and CC Experiences and Beliefs									
CC Belief/Acceptance	22.0	23.1*	23.6[a]	22.7[a]	21.2*[a]	22.3	23.2*	22.5	23.5
CC Risk Perception	23.1	25.0*	25.8[a]	24.9[a]	21.5*[a]	23.8	24.8	23.9	26.0*
Personal Responsibility for CC	14.9	16.6*	16.8	16.7	13.9*[a]	15.6	16.4	15.7	17.6*
Spatial Distance of CC	6.63	6.07*	6.64	6.29	6.04*[b]	6.35	6.32	6.28	7.27*
Importance of CC Issue	23.0	25.1*	25.8[a]	24.3[a]	22.2*[a]	23.8	25.0	24.1	25.3
Psychological Reactance	11.8	10.7*	11.0	11.3	11.4	11.3	10.8	11.2	11.4
CC Self-efficacy	13.6	15.2*	14.8	15.0	13.5*[a]	14.3	14.8	14.4	15.0
CC Response Efficacy	12.6	14.0*	13.6	14.0	12.6*[a]	13.1	13.9*	13.3	14.1
CC Collective Efficacy	19.7	21.4*	21.3	20.9	19.5*[a]	20.4	20.8	20.5	21.1
Trust in Climate Scientists	14.0	14.6*	15.2[a]	14.3[a]	13.3*[a]	14.2	14.7	14.3	14.9
Feelings about Climate Change									
CC Concern	22.4	24.4*	24.7	23.7	21.9*	23.1	24.4*	23.3	25.3*
CC Distress	23.8	27.2*	27.9[a]	26.0[a]	22.6*[a]	25.4	26.0	25.4	27.3
Responses to Climate Change									
Behaviours Changed due to CC	4.07	4.79*	4.40	4.38	4.51	4.33	4.74	4.41	4.87
Personal Norms	16.7	18.2*	18.2	17.9	16.4*[a]	17.3	18.1*	17.4	18.9*
Likelihood of CC Activism	12.3	12.8*	13.6[a]	12.7[a]	11.3*[a]	12.4	13.2*	12.5	14.1*
Behavioural Willingness	35.8	37.5*	39.4[a]	37.4[a]	33.2*[a]	36.3	37.9	36.5	39.5*
Psychological Adaptation	38.1	39.4	40.7	39.4	36.2*[a]	38.4	40.1	38.6	41.8*
Understandings of Climate Change									
Objective CC Knowledge	5.56	5.99	5.98	5.75	5.61	5.62	6.29*	5.77	6.10
Self-rated CC Knowledge	3.50	3.28*	3.36	3.38	3.45	3.35	3.54*	3.38	3.63*
GBR									
N ≤	1366	1373	1040	718	994	2078	674	2562	160
GBR Negative Feelings	16.2	18.8*	18.8	17.9	15.9*[a]	17.5	17.8	17.5	18.3
GBR Positive Views	62.4	64.5*	62.1	63.5	65.0*[a]	63.3	64.0	63.5	63.8
GBR Threats	65.3	70.2*	67.3	68.8	67.5	67.6	68.4	67.8	66.9

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.

* 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)

Climate Change Variables	Religious?		Highest Educational Attainment			Voting Intention		Parent?	
	Yes	No	Schl	Trade	Uni	Right	Left	Yes	No
$N \leq$	1017	1857	722	855	1297	915	1262	1723	1151
Lifestyle & Social Milieu									
Community Involvement	13.0	12.0*	11.4[a]	11.9[a]	13.3*[a]	12.6	12.3	12.4	12.4
PEB34	5.77	6.05	5.20[a]	5.66[a]	6.56*[a]	5.08	6.64*	5.71	6.32*
PEB4	3.03	3.59*	2.63[a]	3.15[a]	3.98*[a]	2.34	4.21*	3.15	3.75*
Proportion PEB4	0.26	0.30*	0.24[a]	0.27[a]	0.33*[a]	0.21	0.35*	0.27	0.31*
Interest in Future PEBs	13.8	14.0	13.1	13.5	14.7*[a]	12.9	14.7*	13.9	14.1
Perceived Residential Vulnerability	12.5	13.3*	12.5[b]	12.9	13.4*	11.6	14.0*	12.8	13.4*
Descriptive Norms	17.3	16.9	16.6	16.6	17.5*[a]	16.3	17.6*	17.1	16.9
Normative Beliefs	16.4	16.8	15.9	16.1	17.5*[a]	15.0	17.9*	16.5	16.9
Recycling	52.8	51.7	52.1	52.9	51.6	53.0	51.7	53.4	50.2*
Self and Worldviews									
Green Identity	10.1	10.2	9.65	9.89	10.6*[a]	9.12	10.9*	10.1	10.3
New Ecological Paradigm	20.8	22.0*	21.0[b]	21.4	22.0*	19.5	22.8*	21.2	22.1*
Policy Support – 12	33.0	35.4*	33.4	33.4	36.0*[a]	30.6	37.6*	33.9	35.5*
Policy Support – 20	56.2	59.8*	57.0	56.8	60.5*[a]	52.6	62.8*	57.6	59.8*
Energy Sources – high emissions	12.0	10.8*	11.6	11.6	10.8*[a]	13.0	10.0*	11.5	10.8*
Energy Sources – clean	12.4	12.6	12.2	12.4	12.8*[a]	12.0	13.1*	12.5	12.6
Energy Sources - nuclear	3.11	2.82*	2.90	2.99	2.89	3.54	2.58*	2.99	2.83#
ND and CC Experiences and Beliefs									
CC Belief/Acceptance	21.5	23.1*	21.5	21.9	23.5*[a]	19.4	24.6*	22.0	23.4*
CC Risk Perception	23.1	24.6*	22.4	22.9	25.7*[a]	20.0	26.6*	23.3	25.2*
Personal Responsibility for CC	15.1	16.2*	14.7	14.7	17.1*[a]	13.0	17.5*	15.5	16.2
Spatial Distance of CC	6.47	6.27	6.52	6.13	6.38	6.84	5.96*	6.28	6.43
Importance of CC Issue	22.8	24.9*	22.7	22.9	25.8*[a]	19.0	27.7*	23.1	25.6*
Psychological Reactance	12.0	10.8*	11.2	11.5	11.1	13.3	9.72*	11.5	10.9
CC Self-efficacy	14.1	14.6	13.8	14.0	15.0*[a]	12.8	15.6*	14.3	14.5
CC Response Efficacy	13.2	13.4	12.8	12.8	13.9*[a]	11.8	14.3*	13.3	13.3
CC Collective Efficacy	19.9	20.9*	19.8	20.0	21.3*[a]	17.9	22.3*	20.2	21.0*
Trust in Climate Scientists	13.5	14.8*	13.7	13.5	15.2*[a]	12.0	16.1*	13.8	15.0*
Feelings about Climate Change									
CC Concern	22.6	23.9*	22.2	22.3	24.9*[a]	19.3	26.3*	22.9	24.3*
CC Distress	24.3	26.2*	24.3	24.2	27.1*[a]	20.8	28.5*	24.7	26.7*
Responses to Climate Change									
Behaviours Changed due to CC	4.43	4.44	4.12[b]	4.35	4.67*	3.64	4.99*	4.45	4.41
Personal Norms	17.0	17.7	16.6	16.5	18.6*[a]	14.7	19.4*	17.2	17.9
Likelihood of CC Activism	12.2	12.8	12.0	11.9	13.4*[a]	10.7	13.9*	12.2	13.1*
Behavioural Willingness	34.9	37.7*	33.7	34.4	39.9*[a]	30.7	41.1*	35.7	38.3*
Psychological Adaptation	37.9	39.3	36.6	37.1	41.1*[a]	33.9	42.3*	38.2	39.7
Understandings of Climate Change									
Objective CC Knowledge	5.10	6.16*	5.09	5.23	6.54*[a]	3.84	7.26*	5.53	6.18*
Self-rated CC Knowledge	3.45	3.36	3.27	3.25	3.56*[a]	3.31	3.52*	3.36	3.44
GBR									
$N \leq$	964	1788	704	838	1210	880	1233	1645	1107
GBR Negative Feelings	17.0	17.9*	16.8	16.8	18.5*[a]	14.7	19.3*	17.0	18.3*
GBR Positive Views	64.2	63.1	63.1	63.6	63.6	62.2	64.6*	64.2	62.4*
GBR Threats	67.0	68.2	67.2	67.1	68.6	62.8	70.8*	68.2	67.5

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.
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)

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 ≤	1190	1684	921	774	1179	337	2537	1700	1174
Lifestyle & Social Milieu									
Community Involvement	13.1	11.8*	11.8[a]	12.5	12.8*	13.5	12.2*	12.5	12.2
PEB34	6.47	5.59*	5.56[b]	5.96	6.26*	7.07	5.80*	5.77	6.22*
PEB4	3.72	3.16*	2.91[a]	3.38	3.78*	4.39	3.26*	3.22	3.64*
Proportion PEB4	0.30	0.28	0.26[b]	0.28	0.31*	0.35	0.28*	0.27	0.31*
Interest in Future PEBs	14.6	13.5*	13.1[a]	13.8[a]	14.7*[a]	15.1	13.8*	14.1	13.7
Perceived Residential Vulnerability	13.4	12.8*	12.5[b]	12.9	13.5*	14.2	12.9*	12.7	13.6*
Descriptive Norms	17.0	17.0	17.0	17.0	17.0	17.1	17.0	17.2	16.8
Normative Beliefs	17.0	16.4*	16.1	16.5	17.2*[a]	17.3	16.6	16.6	16.8
Recycling	49.9	53.7*	53.7[a]	52.2[a]	50.8*[a]	48.9	52.5*	53.7	49.8*
Self and Worldviews									
Green Identity	10.3	10.1	10.2	10.0	10.2	10.8	10.1*	10.1	10.3
New Ecological Paradigm	21.5	21.6	21.5	21.2[b]	21.8	22.0	21.5	21.3	21.9*
Policy Support – 12	35.0	34.2	33.8	34.0	35.5*[a]	35.9	34.4*	34.1	35.3*
Policy Support – 20	59.1	58.1	57.5	57.6	59.9*[a]	60.5	58.2*	57.8	59.5*
Energy Sources – high emissions	11.1	11.3	11.5	11.4	10.8*[a]	10.8	11.3	11.5	10.9*
Energy Sources – clean	12.6	12.5	12.4	12.5	12.7	12.7	12.5	12.6	12.5
Energy Sources - nuclear	2.87	2.96	2.91	3.04	2.86^	2.85	2.93	3.03	2.77*
ND and CC Experiences and Beliefs									
CC Belief/Acceptance	22.9	22.3	21.9	22.0	23.4*[a]	23.7	22.4*	22.2	23.1*
CC Risk Perception	25.1	23.3*	22.9	23.6	25.3*[a]	26.3	23.8*	23.4	24.9*
Personal Responsibility for CC	16.5	15.3*	14.8	15.3	16.9*[a]	17.5	15.6*	15.5	16.1
Spatial Distance of CC	6.42	6.29	6.31	6.36	6.35	6.58	6.31	6.31	6.38
Importance of CC Issue	24.6	23.8	23.4	23.5	25.1*[a]	26.5	23.8*	23.4	25.3*
Psychological Reactance	11.4	11.1	11.1	11.6	11.0	11.4	11.2	11.5	10.9
CC Self-efficacy	14.8	14.1*	13.9	14.0	15.0*[a]	15.0	14.3	14.4	14.5
CC Response Efficacy	13.6	13.1	13.0	13.0	13.7*[a]	14.0	13.2*	13.4	13.2
CC Collective Efficacy	20.8	20.3	20.0	20.0	21.3*[a]	21.8	20.4*	20.3	20.8
Trust in Climate Scientists	14.6	14.1*	13.6	14.1	14.9*[a]	15.3	14.2*	14.0	14.8*
Feelings about Climate Change									
CC Concern	23.9	23.2	22.9	22.9	24.3*[a]	25.3	23.2*	23.0	24.2*
CC Distress	26.4	24.9*	24.5	25.0	26.7*[a]	28.5	25.1*	24.7	26.7*
Responses to Climate Change									
Behaviours Changed due to CC	4.28	4.55	4.44	4.25	4.55	4.90	4.37	4.51	4.33
Personal Norms	17.9	17.2*	17.1	17.0	18.1*[a]	18.7	17.3*	17.3	17.7
Likelihood of CC Activism	12.9	12.3*	12.2[b]	12.5	12.9*	14.3	12.3*	12.1	13.2*
Behavioural Willingness	38.2	35.7*	34.7	35.8	38.9*[a]	40.7	36.2*	36.2	37.4
Psychological Adaptation	39.9	38.0*	37.5	38.3	40.1*[a]	42.7	38.3*	38.4	39.4
Understandings of Climate Change									
Objective CC Knowledge	5.76	5.81	5.47	5.55	6.20*[a]	6.39	5.71*	5.72	5.89
Self-rated CC Knowledge	3.38	3.41	3.41	3.45	3.34	3.50	3.38	3.38	3.42
GBR									
N ≤	1116	1636	887	741	1124	308	2444	1638	1114
GBR Negative Feelings	18.1	17.2*	16.8[b]	17.5	18.2*	19.1	17.4*	17.1	18.2*
GBR Positive Views	62.7	64.0*	64.2	63.0	63.3	63.8	63.4	63.9	62.9
GBR Threats	67.4	68.0	68.0	67.3	67.9	69.1	67.6	67.5	68.3

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.

* 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)

Climate Change Variables	Minor/Marg. Group? [d]		Residential Location [e]			Experienced ND Past Year [f]		Experienced ND prior to last year [g]	
	Yes	No	Inner Urban	Suburb	Rural	Yes	No	Yes	No
N ≤	802	2072	523	1691	660	1089	1785	1734	1140
Lifestyle & Social Milieu									
Community Involvement	12.7	12.3	13.3[a]	12.2	12.0*	13.1	11.9*	12.7	11.9*
PEB34	6.45	5.76*	6.94[a]	5.81	5.52*	6.74	5.47*	6.36	5.33*
PEB4	3.77	3.25*	4.13[a]	3.28	3.08*	4.07	2.97*	3.79	2.78*
Proportion PEB4	0.31	0.28*	0.34[a]	0.28	0.27*	0.34	0.26*	0.31	0.25*
Interest in Future PEBs	14.2	13.9	14.6[a]	13.9	13.7*	14.8	13.4*	14.4	13.3*
Perceived Residential Vulnerability	13.5	12.8*	12.6	12.8	14.1*[a]	15.0	11.8*	14.3	11.1*
Descriptive Norms	17.4	16.9	17.9[a]	16.9	16.8*	17.4	16.8	17.1	16.8
Normative Beliefs	17.0	16.5	17.7[a]	16.6[a]	15.9*[a]	17.3	16.3*	17.0	16.2*
Recycling	52.0	52.1	50.7[a]	52.3	52.6	51.2	52.6*	52.0	52.3
Self and Worldviews									
Green Identity	10.5	10.0*	10.7[a]	10.1	9.87*	10.8	9.79*	10.5	9.69*
New Ecological Paradigm	22.2	21.3*	21.9	21.6	21.4	22.3	21.1*	22.1	20.7*
Policy Support – 12	35.5	34.2*	36.0[a]	34.6[a]	33.5*[a]	35.7	33.9*	35.2	33.6*
Policy Support – 20	59.8	58.0*	60.6[a]	58.5[a]	57.0*[a]	60.3	57.4*	59.5	57.0*
Energy Sources – high emissions	10.9	11.4*	10.9[a]	11.2	11.5	10.6	11.6*	10.8	11.9*
Energy Sources – clean	12.7	12.5	12.8	12.6	12.4	12.8	12.4*	12.7	12.4*
Energy Sources - nuclear	2.78	2.98#	2.95	2.92	2.91	2.68	3.07*	2.84	3.06*
ND and CC Experiences and Beliefs									
CC Belief/Acceptance	23.1	22.2*	23.4[a]	22.5	21.8*	23.7	21.8*	23.2	21.5*
CC Risk Perception	25.6	23.5*	25.5[a]	23.9	23.2*	26.3	22.6*	25.2	22.4*
Personal Responsibility for CC	16.3	15.6	17.0[a]	15.8[a]	14.8*[a]	17.1	15.0*	16.4	14.9*
Spatial Distance of CC	6.32	6.35	6.93[a]	6.39[a]	5.76*[a]	5.96	6.57*	6.00	6.85*
Importance of CC Issue	25.3	23.7*	25.5[a]	24.2[a]	22.9*[a]	26.4	22.8*	25.3	22.5*
Psychological Reactance	10.9	11.3	10.9	11.2	11.5	11.2	11.2	11.2	11.2
CC Self-efficacy	14.9	14.2*	15.0	14.4	13.9*[b]	15.3	13.9*	14.8	13.9*
CC Response Efficacy	13.7	13.2	13.9	13.3	12.8*[b]	14.0	12.9*	13.6	12.8*
CC Collective Efficacy	21.3	20.2*	21.2	20.6	19.8*[a]	21.4	20.0*	21.0	19.9*
Trust in Climate Scientists	14.8	14.1*	15.2[a]	14.4[a]	13.4*[a]	15.1	13.8*	14.7	13.7*
Feelings about Climate Change									
CC Concern	24.8	22.9*	24.8[a]	23.3	22.7*	25.6	22.2*	24.5	21.9*
CC Distress	27.1	24.9*	27.4[a]	25.4	24.4*	28.2	23.9*	26.8	23.6*
Responses to Climate Change									
Behaviours Changed due to CC	4.82	4.29*	4.50	4.43	4.39	5.12	4.01*	4.78	3.91*
Personal Norms	18.4	17.1*	18.8[a]	17.4	16.7*	18.9	16.6*	18.0	16.6*
Likelihood of CC Activism	13.2	12.3*	13.6[a]	12.4	12.1*	13.8	11.8*	13.1	11.7*
Behavioural Willingness	38.0	36.2	40.9[a]	36.2	34.7*	39.5	35.0*	38.0	34.7*
Psychological Adaptation	40.8	38.0*	41.7[a]	38.4	37.4*	42.0	36.8*	40.3	36.5*
Understandings of Climate Change									
Objective CC Knowledge	6.25	5.61*	6.09	5.84	5.41	6.35	5.45*	6.19	5.17*
Self-rated CC Knowledge	3.51	3.35*	3.49	3.41	3.28*[a]	3.48	3.34*	3.45	3.31*
GBR									
N ≤	762	1990	468	1640	644	1051	1701	1688	1064
GBR Negative Feelings	18.3	17.3*	18.7[a]	17.5	16.8*	19.1	16.6	18.2	16.5*
GBR Positive Views	64.2	63.2	62.8	63.7	63.5	64.5	62.8	64.1	62.5*
GBR Threats	69.3	67.2*	68.7	67.7	67.4	70.5	65.9	69.0	65.8*

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. ND = natural disaster. CC = climate change. GBR = Great Barrier Reef.

* 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, prior to the past year, extreme weather event/s or natural disaster/s

Appendix E.4 (Continued)

Climate Change Variables	Expd 2022 Floods		State/Territory of Australia							
	Yes	No	ACT	NSW	NT	Qld	S.A.	Tas	Vic	W.A.
N ≤	889	1985	53	898	29	585	210	65	728	306
Lifestyle & Social Milieu										
Community Involvement	13.2	12.0*	12.0	12.4	13.9	12.2	12.2	11.8	12.4	12.4
PEB34	6.71	5.61*	6.08	5.97	7.24	5.79	6.02	5.52	6.08	5.81
PEB4	4.10	3.08*	3.98	3.28	4.41	3.22	3.65	3.52	3.52	3.52
Proportion PEB4	0.33	0.27*	0.32	0.29	0.34	0.27	0.31	0.29	0.29	0.28
Interest in Future PEBs	14.7	13.6*	14.4	13.8	15.4	13.7	14.4	14.0	13.9	14.4
Perceived Residential Vulnerability	15.0	12.2*	13.1	13.2[a b]	14.9[cdi]	14.2[aefg h]	12.4[ce]	11.9[fi]	12.0[b dgj]	13.1* [hj]
Descriptive Norms	17.4	16.9#	17.4	17.1	17.4	16.8	16.9	16.7	17.1	16.8
Normative Beliefs	17.1	16.4*	16.9	16.6	17.4	16.4	16.7	16.6	17.0	16.4
Recycling	51.3	52.4#	52.6	52.1	50.1	51.7	53.1	49.9	52.9	51.1
Self and Worldviews										
Green Identity	10.5	9.98*	10.3	10.0	11.7	10.0	10.3	9.88	10.3	10.2
New Ecological Paradigm	22.2	21.3*	21.3	21.4	22.0	21.6	22.1	21.6	21.7	21.4
Policy Support – 12	35.4	34.2*	36.4	34.0[a]	36.7	34.0[b]	34.8	35.1	35.2[a b]	35.1*
Policy Support – 20	59.8	57.9*	61.6	57.7[a]	61.0	58.0	58.6	59.5	59.2[a]	59.1#
Energy Sources – high emissions	10.7	11.5*	10.6	11.5[a]	9.96	11.5[b]	10.8	11.4	10.9 [ab]	11.3#
Energy Sources – clean	12.7	12.5	12.8	12.3[a b]	12.0	12.5	12.8	12.7	12.7 [a]	12.8# [b]
Energy Sources - nuclear	2.73	3.01*	2.92	3.02	2.59	2.95	3.01	2.61	2.83	2.83^
ND and CC Experiences and Beliefs										
CC Belief/Acceptance	23.4	22.2*	23.6	22.4	23.9	22.0[a]	22.9	22.7	23.0[a]	22.5^
CC Risk Perception	25.8	23.3*	24.5	24.0	25.6	23.5	24.5	22.6	24.6	23.8
Personal Responsibility for CC	16.9	15.3*	16.9	15.7	18.0	15.1[a]	16.2	15.5	16.1[a]	15.9^
Spatial Distance of CC	6.09	6.45#	6.75	6.30	6.41	6.15	6.50	7.26	6.43	6.21
Importance of CC Issue	25.7	23.4*	25.6	23.8	25.8	23.2[a]	24.9	24.1	24.8[a]	24.4#
Psychological Reactance	11.2	11.2	11.1	11.4	11.0	11.6	10.8	10.5	10.8	11.6^
CC Self-efficacy	15.0	14.1*	15.0	14.2	15.3	13.9[a]	14.8	14.4	14.7[a]	14.7^
CC Response Efficacy	13.7	13.1*	13.8	13.2	14.8	12.9	13.5	13.6	13.6	13.6^
CC Collective Efficacy	21.2	20.3*	21.7	20.3	21.5	20.0[a]	20.9	21.0	20.9[a]	20.7^
Trust in Climate Scientists	14.9	14.0*	14.8	14.1[a]	15.2	13.8[b]	14.3	14.8	14.9[ab]	14.4*
Feelings about Climate Change										
CC Concern	24.9	22.8*	24.3	23.3	25.9	22.7	24.1	23.2	23.8	23.7^
CC Distress	27.6	24.6*	25.7	25.3	28.1	24.6[a]	25.9	25.0	26.2[a]	26.0^
Responses to Climate Change										
Behaviours Changed due to CC	4.97	4.20*	4.45	4.37	5.24	4.29	4.69	4.31	4.57	4.35
Personal Norms	18.3	17.1*	18.6	17.3	18.6	17.0	17.8	17.7	17.7	17.7
Likelihood of CC Activism	13.5	12.1*	12.5	12.4[a]	15.2[ab]	12.1[b]	13.1	12.3	12.8	12.8*
Behavioural Willingness	38.9	35.8*	39.4	36.4[a]	44.1[ab]	35.5[b]	37.1	36.6	37.5	36.6#
Psychological Adaptation	41.0	37.8*	38.6	38.7	43.3	37.6	39.5	38.4	39.3	39.3
Understandings of Climate Change										
Objective CC Knowledge	6.23	5.59*	6.64	5.61	5.69	5.56	5.97	5.77	6.09	5.78
Self-rated CC Knowledge	3.43	3.38	3.66[a]	3.38	3.55	3.40	3.42	3.15[a]	3.39	3.40
GBR										
N ≤	853	1899	51	844	27	571	200	65	706	288
GBR Negative Feelings	18.9	17.0*	17.4	17.4	19.3	17.2	17.7	18.4	17.9	17.5
GBR Positive Views	63.6	63.4	62.7	63.8	64.7	63.8	63.5	65.5	63.2	62.3
GBR Threats	69.6	67.0*	68.4	67.4	72.0	66.7	68.5	66.8	68.4	68.6

Note. PEB = pro-environmental behaviour. CC = climate change. GBR = Great Barrier Reef.
ACT = Australian Capital Territory. NSW = New South Wales. NT = Northern Territory. 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.
[a, b, c, d, e, f, g] two group means that share the same superscript are significantly different ($p < .05$, Games-Howell).

Appendix E.4 (Continued)

Climate Change Variables	Experienced CC Past Year [h]		Experienced CC prior to last year [i]		Health Status [j]		Owns Vehicle [k]	
	Yes	No	Yes	No	Low	High	Yes	No
$N \leq$	1085	1789	1326	1548	1361	1513	2441	433
Lifestyle & Social Milieu								
Community Involvement	13.0	12.0*	13.0	11.8*	11.9	12.8*	12.3	12.6
PEB34	7.05	5.28*	6.97	5.08*	5.76	6.13*	5.85	6.55*
PEB4	4.64	2.64*	4.54	2.41*	3.18	3.59*	3.30	3.88*
Proportion PEB4	0.38	0.23*	0.37	0.21*	0.28	0.30	0.28	0.33*
Interest in Future PEBs	15.3	13.1*	15.2	12.9*	13.7	14.2*	13.9	14.3
Perceived Residential Vulnerability	15.3	11.7*	15.1	11.2*	13.2	12.9	13.0	13.0
Descriptive Norms	17.9	16.5*	17.8	16.3*	16.7	17.3*	16.9	17.5
Normative Beliefs	18.2	15.7*	18.1	15.4*	16.3	17.0*	16.5	17.4*
Recycling	51.9	52.2	52.1	52.1	52.0	52.1	52.4	50.6*
Self and Worldviews								
Green Identity	11.6	9.79*	11.5	9.58*	10.3	10.6	10.3	11.2*
New Ecological Paradigm	23.2	20.6*	23.1	20.2*	21.9	21.3*	21.5	22.2
Policy Support – 12	37.5	32.8*	37.4	32.2*	34.4	34.7	34.2	36.5*
Policy Support – 20	62.9	55.9*	62.6	55.0*	58.2	58.8	58.1	61.0*
Energy Sources – high emissions	9.96	12.0*	10.0	12.3*	11.1	11.3	10.6	11.3*
Energy Sources – clean	13.1	12.2*	13.1	12.1*	12.5	12.6	12.8	12.5
Energy Sources - nuclear	2.56	3.15*	2.62	3.18*	2.88	2.96	2.94	2.85
ND and CC Experiences and Beliefs								
CC Belief/Acceptance	25.3	20.9*	25.2	20.3*	22.6	22.5	22.3	23.7*
CC Risk Perception	28.2	21.5*	27.9	20.7*	24.3	23.8	23.8	25.3*
Personal Responsibility for CC	18.5	14.2*	18.2	13.7*	15.5	16.0	15.6	16.7*
Spatial Distance of CC	5.65	6.76*	5.72	6.87*	6.14	6.52*	6.28	6.68
Importance of CC Issue	29.1	21.1*	28.8	20.2*	24.1	24.1	23.8	26.0*
Psychological Reactance	10.1	11.9*	10.2	12.1*	11.3	11.2	11.4	10.3*
CC Self-efficacy	16.1	13.4*	16.0	13.1*	14.1	14.7*	14.3	14.8
CC Response Efficacy	14.8	12.4*	14.6	12.2*	13.0	13.6*	13.2	13.8
CC Collective Efficacy	22.7	19.2*	22.5	18.9*	20.4	20.7	20.4	21.3*
Trust in Climate Scientists	16.2	13.1*	16.2	12.7*	14.1	14.5	14.2	15.2*
Feelings about Climate Change								
CC Concern	27.8	20.8*	27.5	20.0*	23.5	23.4	23.2	25.0*
CC Distress	30.3	22.6*	29.9	21.8*	25.7	25.4	25.2	27.6*
Responses to Climate Change								
Behaviours Changed due to CC	5.79	3.61*	5.62	3.42*	4.39	4.48	4.43	4.47
Personal Norms	20.2	15.8*	19.9	15.4*	17.2	17.7	17.3	18.6*
Likelihood of CC Activism	14.6	11.1*	14.4	11.0*	12.4	12.7	12.3	13.9*
Behavioural Willingness	42.6	33.2*	42.2	32.0*	35.6	37.7*	36.2	39.9*
Psychological Adaptation	44.6	35.3*	44.1	34.3*	38.2	39.3	38.4	41.1*
Understandings of Climate Change								
Objective CC Knowledge	7.48	4.77*	7.46	4.36*	5.83	5.76	5.67	6.43*
Self-rated CC Knowledge	3.61	3.26*	3.59	3.23*	3.34	3.44	3.36	3.59*
GBR								
$N \leq$	1056	1696	1289	1463	1313	1439	2355	397
GBR Negative Feelings	20.3	15.8*	20.1	15.3*	17.5	17.6	17.4	18.3
GBR Positive Views	65.6	62.2*	65.2	61.9*	63.1	63.8	63.5	63.2
GBR Threats	72.7	64.7*	72.3	63.8*	68.2	67.4	67.5	69.3

* 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, prior to the past year, 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	16	2017
1. Community Involvement	--																
2. PEB34	.49	--															
3. PEB4	.31	.78	--														
4. Proportion_PEB4	.24	.65	.91	--													
5. Interest in Future PEBs	.28	.48	.51	.47	--												
6. Perceived Residential Vulnerability	.08	.28	.33	.30	.34	--											
7. Descriptive Norms	.19	.31	.28	.28	.28	.19	--										
8. Normative Beliefs	.20	.44	.47	.46	.47	.32	.51	--									
9. Recycling	-.05	.11	.17	.18	.09	.04	.16	.12	--								
10. Green Identity	.25	.54	.57	.56	.53	.33	.40	.57	.21	--							
11. New Ecological Paradigm	-.07	.26	.37	.34	.32	.40	.13	.35	.11	.40	--						
12. Policy Support – 12 items	.05	.38	.48	.44	.53	.38	.24	.53	.08	.52	.55	--					
13. Policy Support – 20 items	.05	.41	.51	.47	.53	.40	.26	.54	.10	.55	.58	.96	--				
14. CC Belief/Acceptance	.07	.32	.40	.37	.43	.46	.29	.50	.04	.46	.59	.66	.66	--			
15. CC Risk Perception	.13	.41	.47	.44	.50	.54	.30	.52	.06	.49	.57	.63	.63	.71	--		
16. Personal Responsibility for CC	.18	.40	.45	.42	.50	.41	.29	.53	.04	.51	.44	.58	.58	.61	.65	--	
17. Spatial Distance of CC	.13	.00	-.11	-.11	-.07	-.30	.04	-.06	-.14	-.09	-.28	-.18	-.19	-.15	-.18	-.08	--
18. Importance of CC Issue	.09	.43	.53	.51	.52	.56	.33	.59	.11	.60	.64	.74	.75	.82	.81	.70	-.22
19. Psychological Reactance	.11	-.14	-.24	-.25	-.19	-.18	-.06	-.27	-.07	-.29	-.40	-.46	-.46	-.39	-.30	-.27	.24
20. CC Self-efficacy	.14	.38	.44	.43	.48	.38	.38	.55	.13	.52	.41	.55	.57	.59	.60	.71	-.08
21. CC Response Efficacy	.19	.40	.43	.43	.47	.33	.41	.56	.12	.53	.31	.50	.52	.51	.54	.68	-.04
22. Collective Efficacy	.05	.35	.44	.43	.48	.40	.31	.55	.13	.50	.50	.66	.68	.68	.63	.64	-.18
23. Trust in Climate Scientists	.07	.32	.40	.38	.40	.39	.28	.49	.06	.44	.47	.63	.63	.63	.61	.55	-.14
24. CC Concern	.12	.45	.53	.51	.53	.54	.36	.60	.12	.61	.59	.70	.71	.77	.78	.69	-.2-
25. CC Distress	.15	.46	.50	.49	.49	.47	.36	.56	.05	.57	.50	.60	.62	.64	.69	.69	-.09
26. Behaviour Change due to CC	.11	.40	.49	.47	.45	.30	.31	.43	.25	.47	.35	.41	.44	.40	.45	.43	-.15
27. Personal Norms	.18	.51	.56	.55	.58	.42	.48	.66	.14	.68	.46	.63	.66	.61	.65	.72	-.07
28. Likelihood of CC Activism	.33	.59	.57	.52	.54	.38	.37	.57	.04	.61	.34	.53	.54	.50	.55	.57	-.06
29. Behavioural Willingness	.26	.53	.55	.51	.58	.39	.41	.62	.07	.61	.41	.67	.68	.60	.61	.69	-.07
30. Psychological Adaptation	.29	.54	.56	.53	.55	.40	.47	.66	.11	.65	.35	.54	.56	.54	.62	.65	-.04
31. Objective CC Knowledge	-.02	.28	.39	.36	.38	.38	.24	.47	.12	.43	.53	.65	.65	.68	.59	.52	-.17
32. Self-rated CC Knowledge	.19	.28	.28	.26	.22	.17	.22	.26	.10	.33	.11	.20	.19	.19	.22	.18	-.06
33. GBR Negative Feelings	.12	.41	.47	.45	.43	.43	.29	.46	.12	.51	.45	.48	.52	.50	.60	.54	-.13
34. GBR Positive Views	.04	.24	.30	.33	.29	.22	.28	.38	.26	.39	.23	.34	.39	.29	.31	.33	-.13
35. GBR Threats	.08	.34	.37	.37	.34	.40	.26	.38	.20	.45	.47	.43	.48	.47	.53	.44	-.15

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).
PEB = Pro-Environmental Behaviour. CC = climate change. GBR = Great Barrier Reef.

Appendix E.5 (Cont.): Correlations Between the New Respondent Climate Change Variables

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1. Community Involvement																	
2. PEB34																	
3. PEB4																	
4. Proportion_PEB4																	
5. Interest in Future PEBs																	
6. Perceived Residential Vulnerability																	
7. Descriptive Norms																	
8. Normative Beliefs																	
9. Recycling																	
10. Green Identity																	
11. New Ecological Paradigm																	
12. Policy Support – 12 items																	
13. Policy Support – 20 items																	
14. CC Belief/Acceptance																	
15. CC Risk Perception																	
16. Personal Responsibility for CC																	
17. Spatial Distance of CC																	
18. Importance of CC Issue	--																
19. Psychological Reactance	-.44	--															
20. CC Self-efficacy	.67	-.29	--														
21. CC Response Efficacy	.59	-.24	.82	--													
22. Collective Efficacy	.75	-.42	.75	.70	--												
23. Trust in Climate Scientists	.72	-.38	.54	.48	.63	--											
24. CC Concern	.91	-.41	.67	.61	.73	.69	--										
25. CC Distress	.77	-.27	.62	.58	.61	.56	.79	--									
26. Behaviour Change due to CC	.50	-.20	.49	.47	.47	.38	.53	.47	--								
27. Personal Norms	.75	-.32	.72	.71	.67	.57	.77	.78	.56	--							
28. Likelihood of CC Activism	.63	-.25	.52	.54	.51	.49	.64	.64	.43	.68	--						
29. Behavioural Willingness	.71	-.31	.64	.63	.64	.57	.71	.68	.46	.76	.72	--					
30. Psychological Adaptation	.67	-.23	.63	.66	.57	.52	.72	.74	.53	.79	.71	.74	--				
31. Objective CC Knowledge	.67	-.34	.52	.44	.63	.57	.63	.52	.42	.54	.42	.54	.45	--			
32. Self-rated CC Knowledge	.29	-.06	.17	.19	.15	.23	.31	.21	.23	.28	.30	.28	.36	.20	--		
33. GBR Negative Feelings	.65	-.24	.52	.47	.51	.50	.67	.71	.45	.64	.54	.54	.60	.43	.21	--	
34. GBR Positive Views	.38	-.18	.41	.42	.43	.32	.42	.35	.39	.45	.32	.34	.40	.34	.15	.46	--
35. GBR Threats	.59	-.21	.48	.45	.47	.43	.59	.52	.43	.53	.41	.41	.47	.46	.18	.58	.42

Note. Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire, and reporting correlations after reverse-scoring.
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).
PEB = Pro-Environmental Behaviour. CC = climate change. GBR = Great Barrier Reef.

APPENDIX E.6: Correlations between New Respondent Climate Change Variables and Favourability of Use of Energy Sources

Climate Change Variables	Energy sources		
	Clean (e.g., Hydroelectric, Sun/Solar, Wind)	High emissions (e.g., Biomass, Coal, Gas, Oil)	Nuclear
Community Involvement	**.01**	.06	**.03**
PEB34	.16	-.21	-.16
PEB4	.25	-.32	-.22
Proportion_PEB4	.24	-.29	-.21
Interest in Future PEBs	.32	-.35	-.18
Perceived Residential Vulnerability	.17	-.31	-.21
Descriptive Norms	.18	-.11	-.07
Normative Beliefs	.29	-.38	-.19
Recycling	.11	**-.02**	**.01**
Green Identity	.26	-.35	-.21
New Ecological Paradigm	.30	-.47	-.30
Policy Support – 12	.44	-.64	-.32
Policy Support – 20	.44	-.63	-.38
CC Belief/Acceptance	.36	-.52	-.29
CC Risk Perception	-.30	-.48	-.30
Personal Responsibility for CC	.27	-.42	-.29
Spatial Distance of CC	-.11	.17	.09
Importance of CC Issue	.37	-.57	-.33
Psychological Reactance	-.23	.35	.22
CC Self-efficacy	.30	-.39	-.30
CC Response Efficacy	.27	-.32	-.28
CC Collective Efficacy	.37	-.48	-.30
Trust in Climate Scientists	.33	-.47	-.24
CC Concern	.35	-.52	-.32
CC Distress	.28	-.46	-.32
Behaviours Changed due to CC	.25	-.28	-.17
Personal Norms	.33	-.44	-.29
Likelihood of CC Activism	.22	-.36	-.24
Behavioural Willingness	.30	-.46	-.25
Psychological Adaptation	.24	-.36	-.22
Objective CC Knowledge	.41	-.49	-.20
Self-rated CC Knowledge	.12	-.13	**.03**
GBR Negative Feelings	.23	-.41	-.30
GBR Positive Views	.24	-.19	-.13
GBR Threats	.21	-.36	-.26

Note. PEB = Pro-Environmental Behaviour. CC = climate change. GBR = Great Barrier Reef

Responses to the three energy source scales were reverse-scored for consistency with other scales in the questionnaire, and reporting correlations after reverse-scoring.

Items bolded are not significant.

Approximate critical values for Pearson's *r*: $p < .05$ if $r \geq .04$. $p < .01$ if $r \geq .05$. $p < .001$ if $r > .06$. (2-tailed)

APPENDIX E.7
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?

Certain environmental behaviours are too complicated (e.g. separate places to recycle blister packs, soft plastics, batteries, clothing etc.) Companies intentionally make things difficult/complicated.

Climate Change is the greatest civilisation destroying HOAX/SCAM/FRAUD ever pulled on mankind.

Cost of environmental products.

Other environmentally friendly products are costly than their counterparts

Government not taking enough action.

I am not convinced about climate change being effected by what we are doing.

I believe it is the responsibility of the companies that are causing climate change to do more to fix it not the general population.

I do not believe it should be the responsibility of the individual to solve climate change when it's caused by big business and a failure of successive governments.

I do what I can.

I have never taken the time to really understand the impacts and therefore have never taken action,

I think we're too far gone and most humans wouldn't be willing to sacrifice their lifestyles in order to improve things. I've done my bit by not creating any first world humans. Not a fan of the hypocrisy of many environmental lobbyists who engage in environmentally unfriendly behaviours.

I'm lazy.

Media also don't provide truthful information so people don't really understand.

Sometimes gets overwhelming.

Transport/ no current licence to attend.

We have already damaged the environment.

Climate change is a naturally occurring phenomenon which is beyond human control.

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?)

2020 bushfires caused us to be stuck on our property with bad air for 4 weeks. Flooding in 2022 caused us to lose a vehicle.

A lot more extreme events. Flooding in the area, fires and two earthquakes. I've never experienced them in my life and now 2 in about 6 months!

Alot of rain that was not usual for the time of the year and floods where a family member lost a home in a area that did not normally have floods.

Beach erosion.

Bush fires and extreme heat waves

Change in the seasons cycle, that is, seasons starting or finishing earlier than normal. For example, warm weather starting earlier than normal has resulted in fruit and vegetables maturing earlier than normal. So, as a gardener I've had to change planting and harvesting routines.

Cyclones reaching high category's and reaching further south an inland then ever before seen, higher numbers of bushfires in the area and flooding. Severe weather extremes seasonally.

Excess flooding.

Extreme heat, increase in overall temperature

Flood, bushfire, extreme heatwave, giant hail, - it all happened in proximity and has some impact on my life. Giant hail damaged my roof

Growing up in Qld the great Barrier Reef was absolutely stunning I used to go out every few months... How I've seen a big difference in over 20 yrs. it's bleaching & decreasing, quite sad. Also just watching the Antarctic melt away...leaving a lot of animals that depend on ice burgs stranded.

Heatwaves that broke all records.

Heavy rainfall for significant periods in 2022, erratic temperatures (unusually warm in Winter, cool in Summer).

I do notice that records continue to be broken in precipitation and temperature variation in the last few years, although Australia's history is full of extreme weather patterns, but perhaps moving interstate tended to reduce this observation due to some expectation that weather would be different, although it does seem more temperamental. However, I have not been subject to any personal disaster.

Recent thunderstorms, thunder and lightning like I have never experienced. The sky sounds angry! Then we experience heat waves in the following days. I cannot remember the past having such extreme changes so quickly.

Sea levels rising on beaches that I have visited over my life. Wild bushfires across the eastern states in Australia.

Severe snow storm in Ireland in Spring not winter.

Significant coastal erosion due to rising water levels washing away sand dunes.

The consecutive extreme weather events one after the other. Suddenly it's non-stop bushfires and then once in a century floods and then extreme colds. How many more extremes can there possibly be?

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?

As a person with a disability, attending protests can be physically difficult, especially on days with more extreme weather. The disabled community at large would all face different difficulties with different aspects (eg some people require bendable straws to drink, so getting rid of all plastic bendy straws isn't possible for them unless a non-plastic version is made freely available available).

Being homeless means it's difficult to focus on other things other than surviving, I can't afford to worry about things beyond me and even if it sounds selfish, that's the reality of my situation.

Cost of living crisis. It is hard to invest in things that are environmentally sustainable when my $ cannot afford it.

Demographically I would say it is not of high priority to my area because of the cultural diversity and community beliefs.

Do not know.

Financial challenges.

Government commitment.

I am concerned the Gold Coast council could be doing a lot more to protect some of their natural areas. I live near a wetland area that is seriously overgrown with weeds and people regularly throw in their litter. I also am concerned when I see the helicopters regularly spray the mosquitoes (is the spray safe) and also the local council the way they spray the weeds (do they use a safe spray). We could be doing more here.

I have a couple of chronic illnesses that mean comfort is important. They also mean I spend about $200-300 a month on medications and medical appointments at a minimum, which doesn't leave much for contributing to causes beyond keeping myself functioning. I don't think the price of things should go up, it's hard enough as it is. Government need to break up with the oil and gas industry but they're too codependent.

I have an emotionally demanding job, which hinders my ability to participate in events that promote combatting climate change. For this reason, I am more inclined to partake in low-effort initiatives. Examples include donating to charities and keeping myself informed by reading articles surrounding climate change.

I have complex mental health issues around PTSD, anxiety and comp[lex depression. I wish I could engage more on this issue and other systemic social issues facing society but I struggle to manage my mental health.

It is difficult to convince my parents to change their mind about the climate change and act accordingly.

Solar panels on majority of homes, which is nice to see. People do seem to adhere to water restrictions when in place. Majority seem to recycle well. Eg the use of all bins (sorting) green

waste, recycling and general waste. Seems that more homes have the smaller red bins which shows an effort in reducing waste and more recycling and green waste being implemented.

The desire to take action is limited by things like: rental status (and therefore accessibility of green energy is dependent on our landlords), lack of education of CALD groups in relation to the necessity of recycling, the limitations of council recycling programs (e.g. no readily available soft plastics recycling or council compost throughout most of Australia, though curby is very good!), no public soft plastic recycling (e.g. for takeaway plastic coffee cups!)

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

Climate Change conflicts with our economy, the changes must be in increments along with Government implicated policies. It is very complex, and it is up to the Government, Scientist and Economics to come up with a plan. I think people generally are turned off Climate Activist have been protesting and are considered radicals. It's not up to Climate Activist to speak on the effect of Climate Change and figure out suitable and economic replacements, it is up to Economist and Government. It's very complex situation but blocking traffic and will cause issues with the public to dismiss their claims out of spite.

Climate change has been happening since the planet has existed and it is very naive & uneducated to believe that the climate, weather, continents and all life on this planet would now or ever remain the same for any extended period of time just through the natural cycle of planetary changes. and the biggest factor for climate change is how the surface of the sun behaves which we neither have any effect on or ability to control.

Climate change is a natural cycle of events. Otherwise how did long range weather forecaster Lenox Walker, back in the 1950's predict a 10 year drought at the turn of the century.

Climate change is happening, and we have to do something about it. We can see now its effects all over the world, like heatwaves, cyclones, earthquakes, etc.

Climate change is natural mostly. We just need to stop polluting the environment.

Climate change is weather, and you can't control weather. Renewable energy is expensive and unreliable and completely unnecessary.

Everyone in the whole world should come together & talk about what to do next.

God gave us earth to look after it we should.

How negative this survey is. I am 77 years old. The climate is forever changing - for the good and bad. We are a family of engineers. No one believes in climate change. It's causing stress on our children/grandchildren by those who other agenda - mostly, to make money for themselves.

I am sure we will overcome it.

I think we all need to be aware of it, it is a serious issue that will continue and we need to influence the next generation and educate our children.

I'm terrified. I'm scared to have children. We're all going to have a rough future.

It appears to be a sufficiently important issue that requires universal attention and seems to be an issue that will affect future generations in a negative way if changes are not implemented very soon.

It is being pushed onto people, the children at school are brain washed. \

It seems that industry needs to do more than consumers.

Let’s help stop it together.

Natural disasters happen and are part of the Australian landscape, and have always been this way. Climate change is a hoax propagated by international elites who wish to rule the world and strip the nations of all of their wealth and freedom.

The government should be doing more to address it.

This is such a confusing topic. I need more evidence to assess impact, but most of all I think doing anything to help personally won’t have positive impact. If it is an urgent issue, the world needs to work together on the really big causes like fossil fuels, industry, cows etc. if fossil fuels were banned I would for sure drive an electric car for example.

To be honest we are more concerned about cost of living than climate change and are just trying to stay afloat.

Yes I believe that other countries such as China and India who contribute to the majority of the world's pollution should be taken to task rather than focusing on Australia that only produces .04% of the worlds Green House gasses. In my lifetime I have witnessed many floods, fires, droughts and other natural weather patterns which I do not believe are caused by anything other than regular weather patterns over time. .