



# Roots & Shoots Resource Box for Schools Program 2020

Research Report

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## INTRODUCTION

The Roots and Shoots Resource Box for Schools survey was developed in partnership with the University of Adelaide and Resilient Youth Australia, and accompanied the Roots and Shoots Resource Box for Schools program developed by the Jane Goodall Institute Australia. All schools registering to take part on the program had the opportunity for their students and involved staff to complete a survey on receipt of the program resources, and at 3 months follow-up time point. The surveying period ran from February until June 2020.

The student survey measured demographic information, as well as student wellbeing, life satisfaction, learning engagement and sense of hope, as well as time spent outdoors, connection to nature and attitudes and actions towards nature. Teachers provided information on the school environment, nature-based activities that students participate in, feedback on the resources provided, and a measure of their own connection to nature.

The survey was completed online, and each school was given unique codes to allow school-based administration of separate surveys for lower primary (entry level to grade 3) and upper primary (grades 4 to 6) students, as well as teachers. The codes allowed the possibility for data to be clustered by school but for individual responses to remain completely anonymous.

For the 2020 program, 368 students from across 146 different schools and home school sites completed the survey, with completed teacher surveys received from 70 teachers. Follow-up surveys were completed by 85 students.

## Report Snapshot

- 368 students and 70 teachers completed the survey.
- The survey covered all states and territories except for the ACT.
- Children report regular time spent outdoors at home and school.
- Children have a strong connection to nature.
- However, only around half of children regularly participate in pro-environmental behaviours. Around 1 in 10 children never do.
- More time outdoors is associated with greater nature connectedness, more pro-environmental behaviour and greater school engagement.
- After the program, improvements in feelings of nature connectedness, pro-environmental behaviour, and regularity of time outdoors, were evident.
- Around 40% of children report sometimes feeling sad or worried, however very few children report always feeling this way.
- Children like and value playing outside in nature, particularly when with other people or pets.
- However, children are worried about the impact of environmental decline on animals, plants and themselves.

*“To say that the resources were fantastic would be a huge understatement. I have never used a resource more! They are absolutely amazing!!!”*

*~Class teacher*

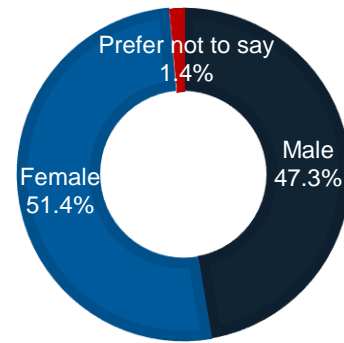
## CHILD CHARACTERISTICS

### Age & Gender

The survey was administered to children in primary school (or equivalent alternative education). The ages of respondents ranged between 4 and 14 years, with the average age being 7.8 years. Over half of all respondents (54.6%) were 6, 7 or 8 years of age.

Figure 1 shows that the sample was evenly divided between males (47.3%) and females (51.4%), with 5 children (1.4%) indicating they preferred not to report their gender.

Figure 1: Student Gender



### Region and Socioeconomic conditions

Responding children represented all Australian states and territories, with the exception of the ACT. However, the pattern of responses did not follow the population trends of the various regions. Figure 2 shows the largest group of respondents came from South Australia (47.8%) followed by similar numbers from Queensland (15.5%), Victoria (13.9%) and New South Wales (13.3%).

Socio-economic conditions of respondents was measured using the Australian Bureau of Statistics (ABS, 2016) Socio-Economic Indexes for Areas report. School postcode was used to determine their corresponding Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) score. Decile rankings of IRSAD scores were used (i.e. ranging from 1-10) where a lower decile indicates greater socio-economic disadvantage, and a higher decile indicates greater advantage.

Figure 3 shows that all levels of socio-economic conditions were represented, with a particular predominance of respondents from the 7<sup>th</sup> decile – indicative of slightly above the average socio-economic conditions found nationally.

Figure 2: Student Location

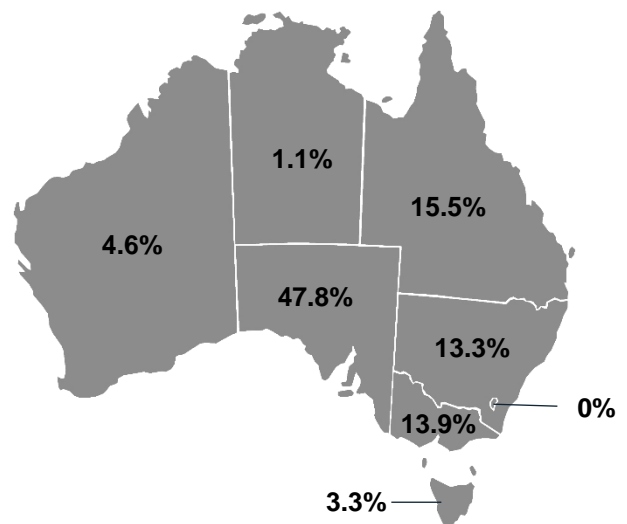
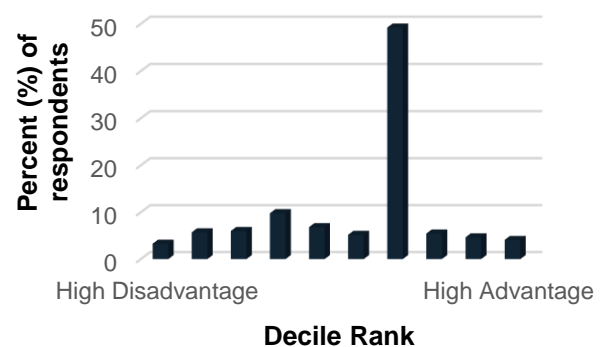


Figure 3: Student socioeconomic conditions



## TEACHER CHARACTERISTICS

### About the teachers

Responses from 70 class teachers in education sites receiving the Roots and Shoots Resource Box for Schools were received. Figure 4 shows over 1/3 of teachers were from NSW, with all states and territories represented except ACT.

Teachers were predominantly between the ages of 35-54 years, female, and with a greater proportion of longer experience (10+ years of teaching). No teachers were younger than 25 years. Figure 5a-c shows the proportions of teachers in each of the gender, age and years' experience categories.

Figure 4: Teacher Location

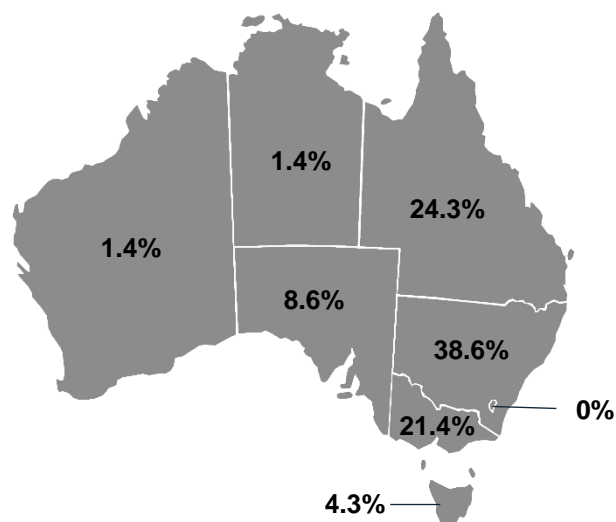


Figure 5: Teacher characteristics

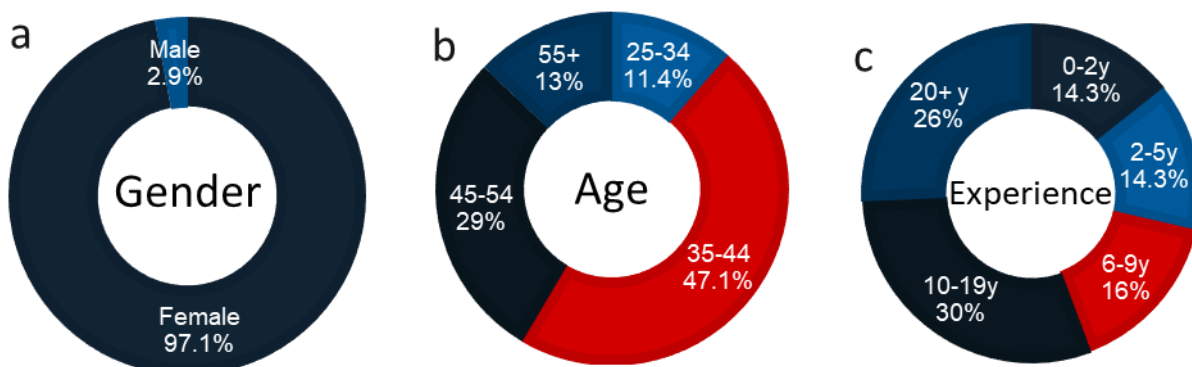
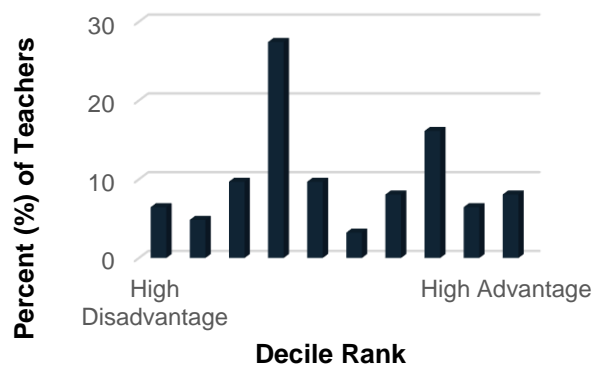


Figure 6 shows the distribution of school socioeconomic conditions in which responding teachers were located. The distribution shows a bi-modal pattern, with one group centred around a moderately advantaged rank, and a slightly larger group centred around a moderately disadvantaged rank. All levels of socioeconomic conditions were represented.

To assess attitudes towards nature, teachers completed the Connectedness to Nature Scale (Mayer & Frantz, 2004). In this 1-5 scale, the average of 3.0 (range = 2.4-3.9) indicated teacher's neither agreed nor disagreed with statements about nature overall, showing a high degree of ambivalence.

Figure 6: Teacher socioeconomic conditions



*“I like to play on the playground with my friends. I also like looking at plants and nature. I like to watch the birds and hear them sing because I think it is beautiful.”*

*~Grade 5 student*



# KEY FINDINGS

## School Engagement

Overall, children from participating schools report moderate to high total school engagement. For example 25-32% of children report sometimes trying hard at school, enjoying learning new things and having fun at school, whereas 69-72% of children report always experiencing these things.

## Wellbeing

For total psychological wellbeing, half to almost ¾ of children report never feeling sad or depressed, worried and anxious, or disinterested in doing things. Concerning however was that 37% and 3.5% of children report feeling sad sometimes or often respectively, and 42% and 8.7% of children report feeling worried sometimes or often respectively.

## Time Outdoors

Most children spent a considerable amount of time outdoors both at home and at school. At home, 56.5% of children report spending time outdoors often, 37% sometimes, and 6.5% never. Even more time was spent outdoors at school, with 76.6% of children spending school time outdoors often, 21.5% sometimes, and less than 2% never. 71.7% reported always enjoying class time spent outdoors, compared to 9.5% who reported never enjoying outdoor class time.

## Nature Connection

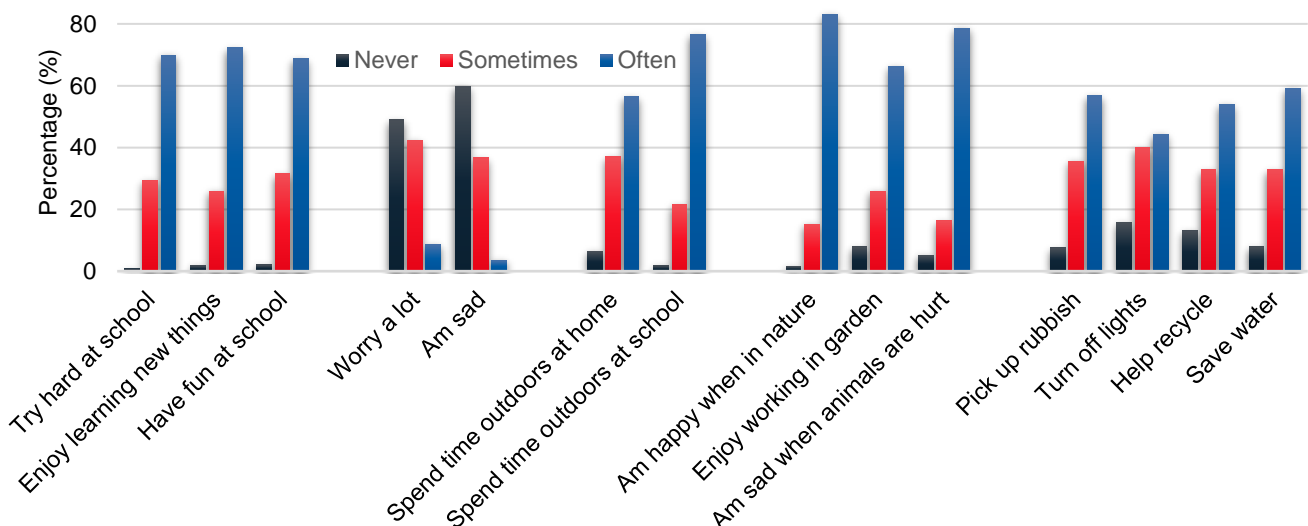
A high level of overall nature connectedness was reported. For example, 83.2% of children reported feeling happy when outdoors compared to less than 2% who never felt happy when outdoors. Two thirds of children always enjoyed playing or working in the garden, compared to 25% who enjoyed this sometimes and 8% who never enjoyed being in the garden. Almost 80% of children report feeling sad when animals are hurt, compared to 16% who feel this way sometimes, and 5% who report never feeling this way.

## Pro-environmental Behaviour

Reports of pro-environmental behaviour was less consistent in children. For example, between 44 and 59% of children report often picking up rubbish, turning off lights when not needed, helping with the recycling and trying not to waste water. In comparison between 33-40% of children report doing these things some of the time, and between 8-16% report never.

Results from this page are also presented in figure 7 below.

**Figure 7: Child responses to selected survey items**

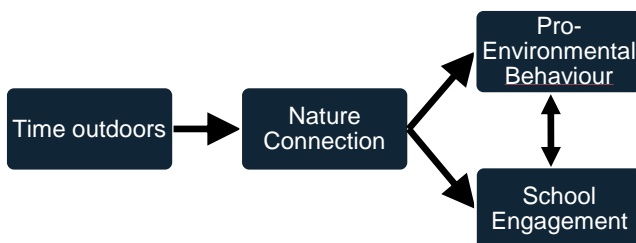


### Relationships between factors

When considering the relationship between school engagement, wellbeing, time outdoors, nature connectedness and pro-environmental behaviour, the following associations were of particular note (see also Figure 8):

- More time outdoors was predictive of greater nature connectedness, explaining 27% of the change.
- Nature connectedness predicted both pro-environmental behaviour and school engagement (explaining 21% and 15% of the effect respectively).
- None of these factors appeared to have a significant impact on wellbeing.
- Socioeconomic conditions was not a strong predictor of any of the above factors, however time spent outdoors was mildly related to child age, accounting for 8% of the change - as the child got older they reported spending less time outdoors.

**Figure 8: Association between factors**



### Children's comments

Children from upper primary had the opportunity to respond using free text to two separate questions. Of the 162 responses to the question, "What do you like doing most when outside?" common themes included:

- playing with friends, pets and siblings
- playing sports and other activities involving equipment such as a trampoline, bike or swimming pool
- exploring areas such as the yard, bush, beach or general natural environment

- undertaking everyday activities such as walking or watching things in nature.

The more common words from responses to this question are shown in a word cloud in figure 9.

**Figure 9: "What do you like doing most when outside?"**

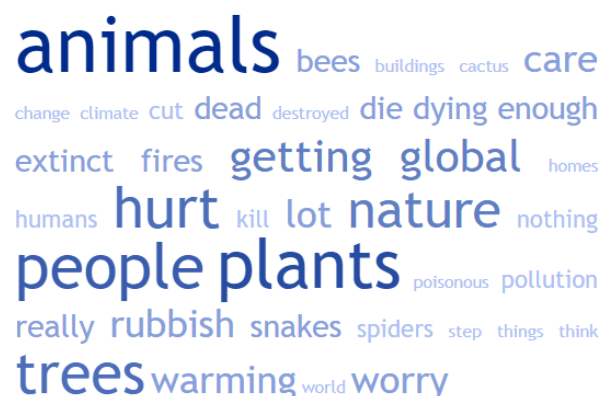


Of the 111 responses to the question, "What is something about nature that worries you?" common themes included:

- being hurt by animals (e.g. stung by a bee)
- animals getting hurt or becoming extinct, often as a consequence of human action
- impact of global warming on their wellbeing
- pollution and environmental damage
- the loss of habitat and loss of plants and trees more generally.

The more common words from responses to this question are shown in a word cloud in figure 10.

**Figure 10: "What is something about nature that worries you?"**

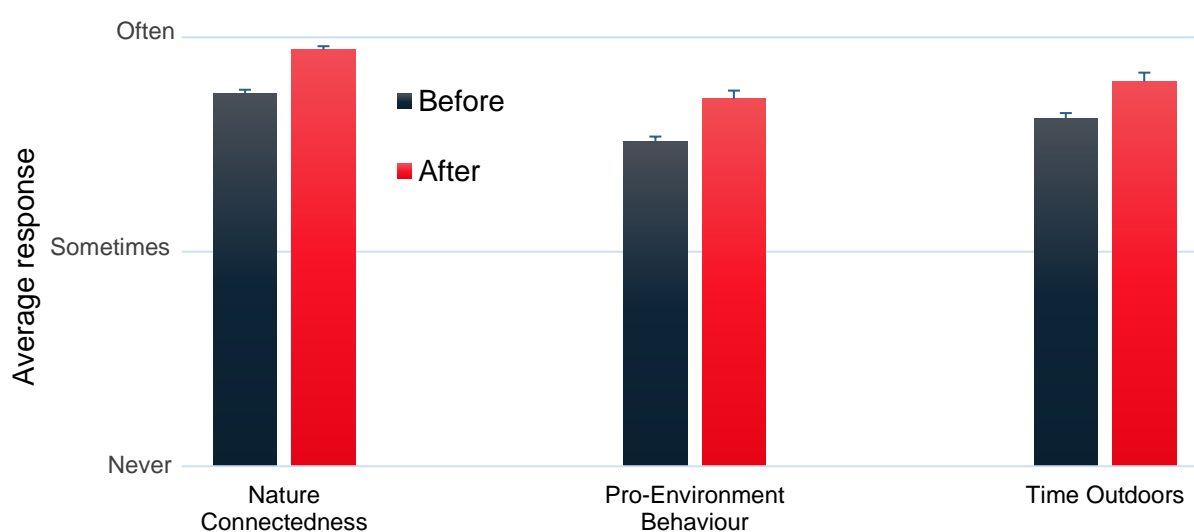


## Follow-up survey results

Eighty-five of the children that initially responded completed the survey again after they had undertaken the teacher-led program at school. These children were on average 7 years of age (range = 4 to 14), with 46% male, 53% female, and 1 student preferring not to say. Treating groups as independent, comparisons of school engagement, wellbeing, nature connectedness, pro-environmental behaviour and time spent outdoors between pre-program (before) time point and post-program (after) time point showed a statistically significant improvement in nature connectedness (7.4% improvement), pro-environmental behaviour (7.9% improvement), and time spent outdoors (6.5% improvement), (see figure 11).

No change was seen for school engagement and wellbeing, which is expected given the high scores for these factors at baseline, and as children represent a typical (i.e. relatively healthy) child population.

**Figure 11: Changes between before and after the program**



## Conclusions

The results from this survey, accompanying the Roots and Shoots Resource Box for Schools program in 2020, demonstrated a relatively representative child sample at baseline, but limited teacher responses and follow-up child responses. Key findings include that Australian children report a high level of time spent outdoors, with this being more regular at school compared to home. Children also report a high sense of connection to nature. Despite this, only around half of children report regularly engaging in pro-environmental behaviours, with a further third of children reporting sometimes undertaking such behaviour, with around 1 in 10 children never behaving this way.

A relatively large number of children report sometimes feeling sad or worried, however very few children report always feeling this way, and such feelings seem unrelated to outdoor engagement and feelings and behaviours related to nature. Importantly, more time outdoors was associated with greater nature connectedness, which was associated with both increased pro-environmental behaviour and greater school engagement. From responses after the program, improvements in feelings of nature connectedness, pro-environmental behaviour frequency, and regularity of time outdoors, were evident.

Children's narrative reports showed playing outside was a highly liked and valued activity, particularly when with others (including friends, siblings and pets). In contrast, children were worried about the impact of environmental damage and decline on firstly animals, but also plants and themselves.

## FUTURE DIRECTIONS

The Roots and Shoots Resource Box for Schools program was well received by teachers and students, and demonstrated a feasible approach for data gathering in future iterations of the program. In addition, the initial survey provides preliminary support for the program's impact. We hope this information will drive further end-user engagement and help attract funding to ensure the continuation of the program.

We also aim to learn from this initial survey implementation regarding maximising responses for subsequent iterations, as well as refining the survey content itself. This will enable the production of world-class and world-first evidence towards both the critical importance of nature engagement for children, the role schools can play, and the impact of school-based education programs to this end.

**For information about the next Roots and Shoots Resource Box for Schools program available from 2022, and to register your school, please visit:**

<https://rootsandshoots.org.au/resourcebox2021/>

*“When it is quiet I like to lie down on the grass and watch nature”*

*~10 year old*

*“I like walking through the bush and learning about wild plants. Being around animals. Swimming in the river or creek”*

*~12 year old*

*“There are too many buildings being built and trees being cut down. There will be no nature left if they keep going”*

*~year 6 student*



**make  
history.**