



Enhancing climate resilience as a NACP Climate Mate

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Abstract

The Northern Australia Climate Program (NACP) is improving the capacity of the red meat industry to manage drought and climate risk across northern Australia. NACP runs an extension and adoption service that enables producers to better understand the main climate and weather influences in their region, interpret forecast information from days to seasons ahead, and make better informed decisions on property, particularly in the management of pastures for production (Lavender et al. 2022).

Undertaken by regionally located extension officers called Climate Mates, the NACP extension and adoption service includes one-on-one property visits, field day talks, newsletters, workshops, webinars and monthly mailouts. Climate Mates come into the role with existing community networks, and a sound knowledge of local industries. However, most have limited knowledge of weather and climate to begin with, and so with help from peers and researchers at the Bureau of Meteorology, Climate Mates quickly develop an understanding of concepts such as tropical convection, climate drivers, and seasonal variability.

Introduction

Climate Mates are part-time outreach advisers also known as extension officers or agents, who bridge the gap between researchers and pastoral producers by delivering tailored climate and weather information that is accessible and relevant to the needs of northern Australia. The NACP's use of Climate Mates as extension advisers is crucial for improving the uptake of climate information and enhancing the resilience of pastoral industries in northern Australia (Cobon et al. 2021). The program's success depends on the clear communication of complex climate data (observations and forecasts) in ways that are practical and understandable for local producers.

Climate Mates are employed to service one or several pastoral districts of northern Australia from their state or Territory. The focus of this paper is to highlight the experiences from the role of Climate Mates, and how satisfying and successful the work has proven to be.



Figure 1 The NACP extension team, NACP conference, Darwin NT, November 2021.

Methods

On employment, the Climate Mates are not expected to have qualifications in climate science, with employment criteria focussing on the ability to exchange information clearly, as well as having existing connections to the pastoral industry. This ensured that those employed in the roles were active stakeholders of the industry and held a vested interest in the program benefiting their industry. Many of the Climate Mates are beef producers, or work in affiliated industries, such as cattle transport, carbon mitigation, animal nutrition, pasture production, and natural resource management.

Most Climate Mates are located in agricultural communities. Climate Mates are employed on a part-time basis, which could be considered a hindrance to the employment of potential candidates seeking full time work, however this provides benefits to those employed in the pastoral industry to complement their existing work. This local knowledge of pastoral production systems and the beef supply chain, along with established industry networks in their regions, make them trusted intermediaries between researchers and pastoralists. Unfortunately for many of the Climate Mates, their employment began during COVID in 2020-2021, resulting in the climate literacy training being delivered online. Delivery of content was via videos and power point presentations from colleagues at the University of Southern Queensland's Centre for Applied Climate Science (UniSQ CACS), and program researchers employed by the Australian Bureau of Meteorology. The Climate Mates found benefit in being able to watch training content over again to gain understanding but felt disadvantaged in being unable to ask questions amongst new colleagues that they had yet to establish working relationships with. "I didn't want to appear stupid or be the only person asking the question" pers comms. N. Pilcher, September 2021.

Results

The initial intake of Climate Mates in 2018, completed their climate literacy training in-person, onsite at the University of Queensland's Toowoomba campus, during 20-21 August 2018.

These sessions were delivered by a team of senior climate researchers to the newly appointed Climate Mates. According to Climate Mate, A. Huey, the training was poorly designed, "the climate mates were a group of practical, no nonsense, mostly extroverts, who had been plucked straight out of northern Australia and into the

middle of a southern winter, presented complex graphs, and an onslaught of acronyms over a short time”. Several of the climate mates present at that initial training agreed that the “training content and delivery was unrelatable, and high level” and it was suggested that one of the newly recruited Climate Mates was so overwhelmed with the content and quantity of information presented, that they left the program as a result. While a disappointing outcome, ironically, this outlines the exact need for extension services at the core of NACP, to ensure clear communication and education of complex climate and weather information to primary producers and land managers, in a practical and relatable way.

The Climate Mates employed in the program, regardless of their initial training design have all now gained a solid understanding of influential climate and weather systems, as it relates to their regions. This has been achieved through regular group updates, mentoring, conference attendances, workshops, roadshows with Bureau of Meteorology research staff, online meetings, self development and their own research. According to Climate Mate V. Mayne, the improved understanding can be attributed to the relationship between the Climate Mates and the researchers employed in the NACP from the Bureau of Meteorology and the UK Met Office. V. Mayne says “having access to experts over the phone and in person” provides valuable knowledge and explanations of the climate systems, and forecasting models that Climate Mates can then provide in their conversations with producers. “It gave us a lot of confidence in what we were delivering, gave our producers a chance to ask tricky questions that we didn’t have an answer for, and gave the Bureau of Meteorology a face and a person to relate to” (V. Mayne, pers. comms.). At workshops or property visits, V. Mayne says that “having the Bureau there was great. It was a two-way relationship. Producers would get firsthand explanations of the forecasts, and our research team would learn about beef production and really get an understanding of the lives of our producers”.

Several of the NACP climate researchers have participated in climate road shows. These are multi week trips through the remote pastoral districts of northern Australia accompanied by the local Climate Mate and/or natural resource management officer to visit cattle stations to deliver climate literacy workshops. Long distances, heat and cold, flies, roadhouse food, station accommodation or swags under the stars, these trips have been exhausting at times but highly rewarding for all involved. These researchers can now include pregnancy testing amongst their skill sets, along with the knowledge of cattle breeds, cattle genetics, pasture production, bottle feeding calves, weighing cattle, changing flat tyres, and a valuable early lesson that running cattle in a distant paddock are not going to attack you. NACP researchers have stated that these trips are some of the highlights of their careers, “being able to demonstrate your research work, and to see it being used and appreciated, and how it applies in their world, it’s just so satisfying”, pers comms T. Cowan October 2024.

Personal interactions with producers allow the Climate Mates to provide insights to NACP researchers, highlighting information gaps and possible tools that could be used by agricultural land managers, one example is the development of the Bureau of Meteorology’s Chance of three-day totals forecast maps. These maps, show the chance of receiving at least a particular rainfall total, over three consecutive days in the forecast period. This was particularly important for agriculture to plan work activities such as windows for crop planting, expectations around pasture response and grazing times, and consider access issues to paddocks and infrastructure. After the development of this tool, many of NACP’s engaged producers, have used it to plan the preparation of paddocks and the date of cotton planting, organised fuel and food delivery to the station before road access becomes an issue, and in understanding the likely response of pasture growth. An important, but less discussed value of our extension service, is in the trust and confidence that land managers gain from their involvement. With increased understanding of the forecast products, producers make informed decisions about grazing management, removing some of the risk of land degradation, economical hardship, and emotional stress. Climate mate A.Huey, says that one of the highlights of her role is “the value of giving people the info and skills to filter out all the white noise and media hype that can cause a lot of undue stress if you just read a headline”. This was recorded in a producer interaction from central Australia, where a station manager Z. Groves, attended a NACP climate literacy workshop in 2021, after two years earlier, experiencing drought and hardship in the 2018-2019 season. She shared in group

feedback discussion, that if she had known this information prior to this time, that it would have “saved a lot of stress”. She recalls that they were “hoping for rain”, rather than following trusted information with confidence. She said “it wouldn’t have changed the drought but it would have meant there were no surprises, and that they were better prepared”. As Climate mate J. McLaughlin states, “considering climate has an influence on every part of life in the bush, to be able to review what the climate is likely to do in the months ahead is pretty powerful. The return on investment is huge”.



Figure 2 (L) Climate literacy roadshows” Taking BoM to the bush”, Central Australia, July 2023

Figure 3 (R) More than just a workshop, Climate Scientist and NACP researcher Dr Andrew Marshall changing a flat tyre, July 2023.

Discussion

A legacy of the extension and adoption service is the production of Rain Gauge, a Profitable Grazing Systems (PGS) training course through Meat and Livestock Australia. This course embeds climate literacy into grazing production systems across Australia. This contextualised knowledge will be available nationally to producers for future use. It also offers the Climate Mates of NACP, continuity in delivering tailored climate and weather information after finalisation of NACP. Since its commencement in 2018, NACP has engaged with over ten thousand red meat producers, extension officers, government agency staff and industry stakeholders, across northern Australia (Cobon.D. 2024).

From personal experience, the rewards of delivering climate extension services across northern Australia are many. From being able to visit and explore the vast rangeland landscapes of the NT and showing graziers the tools to use to interpret the forecasts, through to utilisation of these tools in decision making. I am convinced that the information and education I provide, is helping people to make decisions that will benefit the rangelands environment. We forewarn of drier or wetter than normal conditions, and promote herd management decisions, such as reducing grazing numbers, or spelling paddocks. Other benefits are the personal relationships formed through continued extension and contact, I count many of the producers I have engaged with as friends now, and I’m always rewarded at a visit with a station meal and beef to take home. Once just an avid rain radar watcher, and appreciator of intense tropical storms, four years into the role, I now understand and speak confidently about the seasonal drivers and influences of northern Australia’s climate.



Figure 4 Climate Mate Emily Hinds bottle feeding a calf, Mount Sanford station, NT, August 2023

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References

- Lavender, S. L., and Coauthors, 2022: The Northern Australia Climate Program: Overview and Selected Highlights. *Bull. Amer. Meteor. Soc.*, **103**, E2492–E2505, <https://doi.org/10.1175/BAMS-D-21-0309.1>.
- Cobon David, Jarvis Chelsea, Reardon-Smith Kate, Guillory Laura, Pudmenzky Christa, Nguyen-Huy Thong, Mushtaq Shahbaz, Stone Roger (2021) Northern Australia Climate Program: supporting adaptation in rangeland grazing systems through more targeted climate forecasts, improved drought information and an innovative extension program. *The Rangeland Journal* **43**, 87-100. <https://doi.org/10.1071/RJ20074>
- Cobon, David., 2024. Northern Australia Climate Program, Milestone Report 7, Meat & Livestock Australia.