

RANGELANDS POLICY DIALOGUE

KEY ISSUES THAT THE DIALOGUE SHOULD ADDRESS

A work in progress by Geoff Edwards

PURPOSE AND STATUS OF THIS PAPER

The Rangelands Policy Dialogue, from the launch of the discussion paper [*From Red to Green to Black*](#) in May 2018 to the present, has been at an information-sharing and insights-sharing stage. The Steering Committee agreed late in October 2020 to sharpen the focus of the deliberations and start moving towards a structured “policy package”, later called a ‘Rangelands Roadmap”, a formal submission to the authorities and other stakeholders on how to transition the Queensland Rangelands to sustainability.

The online format since July 2019 (the Discussion Group rangelands-dialogue@groups.io) has generated a large volume of contributions with a wide range of orientations. This Issues Paper has been compiled primarily from these contributions and volume 127 [*A Rangelands Dialogue: Towards a Sustainable Future*](#), along with nine responses to a survey on whether transformative or incremental change should be our aim.

These views are those of participants, summarised by the author; *they are not the views of the three co-hosts* of the Dialogue: The Royal Society of Queensland, AgForce and NRM Regions Queensland. Responsibility for all content is taken by the author.

Responses invited

Participants in the Rangelands Discussion Group and other members of The Royal Society of Queensland were warmly invited to insert responses under the headings below, or to suggest headings that should be added.

Respondents were encouraged (but not required) to include their name and email address to allow follow-up discussion. Authors will not be publicly identified without their permission.

Name: **Date:**

Email address:

Four responses were received and they are inserted here, edited only for grammar and to remove personal references. The low number of responses does not reflect lack of interest in the Dialogue; there were nine responses to an earlier survey and 26 papers in volume 127 of the Society’s Proceedings *A Rangelands Dialogue*; and more than 100 participants remained registered until the Discussion Group was paused late in October 2020.

OVERARCHING PROCEDURAL QUESTIONS

1. **What can this modest Discussion Group achieve that far better-resourced organisations cannot?**

Rationale: Many highly competent and knowledgeable organisations such as the Australian Rangelands Society and the Remote Area Planning and Development Board have been publishing knowledge about Queensland’s Rangelands and advocating policy solutions for years. Is there any point pursuing a new initiative by a new group? The city-based policy elite that controls the economy does not have the practical knowledge or the scientific knowledge to guide the transitions ahead. The Dialogue has access to knowledge, which has been a currency of power and influence throughout history. However, the issues are daunting in their complexity and may be too great for our group to steer to a desired objective.

Three major concerns about the process have emerged:

That there is no end in sight. But: The end "policy package" is in sight. Progress is slow because the Dialogue has not received the expected funding that would allow it to resource the consultations and analysis.

That there are not enough industry participants. But: The Dialogue is open to anyone with an interest in the Rangelands. Participants are welcome to invite others from their industry networks to join in. The Dialogue is offering a platform free of traditional agri-politics to pastoralists. This forum is additional to all the other ones available to them.

Response: Maybe there should be a deliberate effort to broaden the Dialogue maybe through a brief newsletter format attaching the links to papers and material of note developed since the last newsletter? Once this is established then the RSQ website could take over the function. This has the advantage of bringing to notice other material on the website.

That there is too much philosophical discussion. But: If the Dialogue is to rise above incremental improvements to existing programs, it will need to come to grips with the driving forces behind the present distress, socio-economic and biophysical. Necessarily, this will require some abstract reasoning and enquiry into cause-and-effect, historical trends and the worldviews that animate different stakeholders. This would seem to be a unique capacity of our three-way collaboration. Incremental improvements can be left to the transactional politicians who don't have time to envisage what an alternative reality might look like and how it can be achieved.

Response: The benefit of this Dialogue/blog is that it does trawl widely and bring up innovative models that can contribute to the analysis of a way forward for Australian Rangelands management policy.

Response: Support the "But" responses made to the three concerns above. The Dialogue is attempting to contribute to an already contested and vexed arena and will necessarily encounter difficulties.

2. What constitutional form might the proposed Rangelands Consultative Council take?

Rationale: Assuming an affirmative answer to the previous question; and given the commitment in the Rangelands Declaration to establishing an RCC, it is necessary to address basic questions that will arise on how it might be constituted, with what legal status and answerable to whom.

Response: A good start has been made on this and if the 21 December meeting endorses the model of an RCC then it should be set up formally asap. It provides a forum for the way ahead to become legitimised as a cross cutting/cross disciplinary/cross organisational entity in some way.

Response: No real idea except to urge that the mistakes of previous committees/councils/forums not be repeated. This is an area where substantial transformative thinking is required. Many landholders are weary of all their efforts in, for example, Landcare, catchment committees, regional groups, economic forums, being short-term and insufficient.

3. How will the continuation of the Rangelands Policy Dialogue be funded?

Rationale: To date the Dialogue has been largely run by volunteers, with the following much-appreciated exceptions:

- \$9500 by the Queensland Government's Land Restoration Fund and
- \$2000 by AgForce for the July 2019 event;

- \$20,000 by NRM Regions Queensland for the proposed Regional Workshops;
- an anonymous donation to cover the costs of printing the statutory copies of volume 127 of the *Proceedings of The Royal Society Of Queensland*, “A Rangelands Dialogue: Towards a Sustainable Future”.

Hundreds of millions of dollars are being handed out for drought aid, carbon projects and regional development projects, but apart from the above, the leaders of the Dialogue have been unable to gain funds for the policy analysis that might help to ensure that project money is wisely targeted. To give the Dialogue momentum and to allow a Rangelands Consultative Council to be established, executive capacity will be necessary – \$150,000+ per annum. In a post-COVID-19 economy it will be difficult to extract significant funding for an intangible project with no definable practical result. The Dialogue will need to establish its “Compelling Value Proposition”. By their very nature, the many issues will intersect political divides meaning that it is difficult to identify any single champion. Those of us collectively interested in the Outback need to tell a simple, positive narrative to gain the attention of mainstream policy and resources. In today’s economic rationalist world, what narrative other than a wistful nostalgia for a lost pioneering era is compelling?

Response: The economic model of new industries based on renewable energy and new models of ag production and land stewardship and climate change mitigation should be sufficient tags to engage a wide range of parties. The Ross Garnaut paper to the RAPAD and WQAC (Western Queensland Alliance of Councils) is likely to provide support for this model.

Response: Funding remains a vexed issue. It would seem reasonable that modest contributions from a number of sources could be forthcoming: NRM groups; State Government; universities; etc. In some respects it would be good to have an independent source of funding to avoid political pressures and particular viewpoints. Are there any possibilities of crowd funding or other alternative means of independent funding?

OVERARCHING STRATEGIC QUESTION

4. Should the Dialogue aim for transformative or incremental change?

Rationale: A straw poll of participants in August 2020 observed that a fundamental restructure of ‘Business as Usual’ is required, by a notional margin of 9 to 1. “Transformation” can be defined as the capacity to fundamentally transform a socio-ecological system in response to change. Transformation means that not only the management changes but also the overall purpose of the system (while maintaining and enhancing the generation of ecosystem services). A *transformative* restructure might, for example, contemplate overhaul of property rights and tenure, use of sovereign debt to finance Outback revitalisation, re-distribution of powers between Commonwealth, State and local governments, a new NRM Act dedicated to the concept of stewardship, a walk-back from free trade agreements or restoration of price support and collective marketing.

However, *incremental* change is much easier to secure. It would require modest improvements, within the conceptual limits of Business as Usual, such as better advice to existing institutions, a new (apolitical) process for evidence-driven policy advice of the nature of Land and Water Australia, or re-energising regionalised NRM organisations to act as disinterested surveyors, assessors, and conflict resolution hubs.

Response: Some input to incremental change might establish the RCC credentials but transformative change is the only way any substantive difference to BAU will be made. I think the renewable energy production scenario will be the way a break-through in transformative change as the way to go will be the hook for the other changes the Dialogue has canvassed.

Response: Fully support transformative change, but the success of such change will depend on the process of engaging communities involved. Incremental change is also useful but only in support of transformative change. In proposing transformative change the factors needed for successful change must be carefully addressed

SPECIFIC QUESTIONS

These are not in any order of seriousness or priority.

5. How serious is alleged loss of land condition and regional ecosystems at the regional scale?

Rationale: Many generalised statements about land degradation are made, but very few definitive conclusions are available as to the area and location of land degradation, the extent of economic consequences and degree of reversibility. Issues include areas of low ground cover, erosion gully networks and scalds, soil carbon loss, ecological transition to unfavourable pasture species (*more productive, livestock-preferred species to less productive, less attractive e.g. tussock grasses to prostrate couches, black spear grass to wire grass, Mitchell Grass to Flinders Grass*), woodland thickening, scrub/bush invasion, noxious weeds, fire regimes and biodiversity loss.

Without a confident description, the Dialogue could be addressing issues that in some parts of the region are non-issues.

The definitive work in this field is still Tohill, J.C.; Gillies, C. *The Pasture Lands of Northern Australia: their Condition, Productivity and Sustainability*. 1992. Tropical Grassland Society of Australia Occasional Publication. **1992!** Almost 30 years ago! This work should be repeated using a range of modern methods, including opinion surveys and ground truthing as well as remote sensing. Is the capacity still within the public service to produce works of this stature? If not, why not?

Response: A survey of current condition and hot spots of environmental degradation is required to feed into the stewardship model. Major infrastructure works urgently required and inputs to rehab need to be documented and costed in terms of labour, cost etc. First list and prioritise.

Response: Strongly agree with need for comprehensive and ongoing condition assessment. No, the capacity does not exist in current public service nor is there the will there to fund and resource it adequately. GSQ (Geological Survey Queensland) is the only agency within the Queensland public service which has maintained serious expertise and government support, because of the links to mineral & resource development¹. Other science expertise has been sorely challenged and many scientists with sufficient "ticker" to run the course have left. It requires a dedicated team and a clear independent mandate. It would be good for an independent group within say, the university system, to be tasked with regular and ongoing work to assess, monitor and evaluate regional land systems and environmental assets.

Response: DAF's mothballed QGRAZE network ought to be reinvigorated and funded with monitoring at least every 5 years at each site. It is almost a syndrome that long-term ecological baseline research is defunded after enthusiastic starts – a funding source for raiding in budget austerity sweeps. Knowledge of long-term ecological change over decades is the item of value not a once only snap-shot. Imagine a situation if we had no rainfall record at all – it would be unthinkable.

¹ Another respondent has pointed out that Queensland Herbarium has maintained scientific expertise. Its establishment in 1855 pre-dates the GSQ in 1868.

A broad-scale "Tothill and Gillies" style survey of Queensland rangelands (and our other grazing lands) should be undertaken each decade.

Satellites can provide broadscale measurements of pasture ground cover and tree cover. Much data have been collected as calibration and validation for the development of ground cover proxies from the Landsat satellite (TERN and DES Science Division). However, collection campaigns are sporadic depending on funding. The recently improved European Sentinel series satellites with improved resolution and spectral quality are under-represented in support by field sampling (for ground truthing). A modest annual background data collection of field data would considerably increase the calibration/validation data available. DAF and DES collaboration? Again, such programs tend to fall through the cracks and without commitment, dissipate over time.

6. Is there now an adequate test of land condition at the property scale?

Rationale: Discussion over the Monitoring, Evaluation, Reporting and Information framework adopted by NRM bodies has stretched over a couple of decades. Is there yet a handy kit that landholders and their advisers can adopt to reliably assess the condition of individual properties and paddocks and use it for reporting?

Without such a field-friendly kit, there can be no justification for quantifying stewardship payments. Any assessment of a property as a precursor to a public payment cannot be left solely to the judgement of individual assessors without reasonably objective and quantifiable criteria, as that would place the assessors under undue personal pressure.

Response: The more landholder/community engagement in this process the better as buy-in is essential for the work to be properly costed and paid for and value for investment obtained. Models exist on how to do this in US, UK, EU.

Response: There have been a number of attempts and there have been good examples of local scale kits, e.g. "Your Farm's Future. How to measure its sustainability", NSW Agriculture Home Study Program. However, one size does not fit all and so again, serious efforts need to be applied to develop and continue to develop condition and trend frameworks which will be adopted in different bioregions by the existing land managers. Trained and dedicated personnel are required to collate and report in a way that does not alienate land managers. In addition, individual property and paddock reporting needs to be integrated into catchment and regional reporting.

Response: DNRME (now DAF as custodian) has developed a quality in-field Land Condition Assessment Tool (LCAT) after many years of rangeland research. LCAT is based on 100m x 100m patch observations and measurements. However, properties are spatially heterogeneous and so wider spatial views from satellites and UAV drones as well as point, patch and transect measures are also needed and should be seen as complementary. Some aspects of land condition such as fractional ground cover has come from leading satellite research by DES Science Division's Remote Sensing Centre. An issue with LCAT is the quality and experience of the operator: consistency between sites is needed.

7. Can the insights of First Nations Peoples be built into a model of stewardship that is applied within a market economy?

Rationale: There is a growing appetite for engagement with First Nations Peoples and growing recognition of their skills in accommodating to the exigencies of inland Queensland, especially in relation to fire management. However, there are disjunctions between Indigenous methods of communication of these values including storytelling, and mainstream methods of assembling knowledge, administering land and conducting commercial markets. Can the silos be bridged by our Dialogue? How can the Dialogue access Indigenous knowledge that is authoritative and who is competent to conduct the translation?

Response: By fostering models of engagement that work. This will be an incremental experience that feeds into an operational model e.g. YACHATDAC and Gracevale

<https://www.ilsc.gov.au/home/project-profiles/gracevale-station/>. Editor's note: see [paper by Sharon Brown and Suzanne Thompson](#) in volume 128 of the Proceedings of The Royal Society Of Queensland about the YACHATDAC and Gracevale experience.

Response: A long road but a very necessary one to start down. My belief is that until First Nations Peoples are included in management and policy development we will never get to sustainable management of rangelands. However, there is a long road to travel and it is not smooth.

8. How financially profitable is broadacre pastoralism?

Rationale: One of the primary justifications for the Rangelands Policy Dialogue has been that broadacre pastoralism is not reliably profitable and that the stewards of our Queensland landscape deserve better remuneration. But financial viability is a rubbery concept and statistics on the degree of distress are closely held by landholders and their financial institutions. One indicator is rising rural debt; but this message is offset by evidence of rising farm management deposits. Also, statistics of rural conditions aggregated at the national or state level are too coarse as a guide to profitability of pastoralism in the separate bioregions in Queensland. What process should the Dialogue adopt to gain a better understanding of the financial landscape? Is the case for a new rural reconstruction authority or Development Bank justified and if so, what economic principles can be articulated to guide it in a public interest direction?

Response: Are banks worried about debt levels or do they just regard it as cost of doing business, to hell with the social consequences of defaults and sell-ups? Is there info on property size and location to guide policy and direct consequent activity to the most affected areas? Obtaining a dialogue with the banks would seem to be a priority, and the establishment of the RCC might give enough clout for the banks to listen to the request. Otherwise articles in such outlets as The Conversation and The Australia Institute and The Guardian and Fairfax Press might initiate an opening. The idea of a Rural Reconstruction and Development Bank is worth pursuing.

Response: A really difficult question. There are many who claim rural poverty but do nothing to change it. There are many who are in poverty but hide it. There are some free-riders who simply want a quiet life in the country. And then there are some very profitable enterprises (certainly if ABARE is to be believed). I am not convinced that broad acre pastoralism ought to be practised everywhere - why should it be if the externalities are a cost to the general community? But where there are perverse restrictions to its profitability, then these ought to be removed.

9. Related question: Can broadacre pastoralism ever be profitable enough to pay for asset regeneration?

Rationale: Much regeneration of the natural resource base will inevitably be labour-intensive. Even if pastoralism can cover its direct costs of production, it is difficult to conceive of its ever paying the full cost of asset regeneration including establishment of corridors, fencing of watercourses, opening of stock routes and elimination of pest plants and animals.

One discussant has arguedⁱ that the economic incentive is strongly weighted towards overgrazing and ultimately degrading the landscape. If so, what counter incentives can be realistically implemented to prevent this perverse outcome?

Response: A community-based dialogue on PES (payment for environmental services) as undertaken in the US, EU, UK to elicit/direct external finance would be a good start. Is this where NRMQ has its forte? Or Landcare current iteration?

Response: If asset deterioration is so bad as a result of any enterprise then some alternative enterprise is required. Identifying perverse incentives and their impacts, coupled with a cogent discussion on alternatives (delivering ecosystem services for a region; tourism; or whatever) is something within the Dialogue's ambit. (There are examples of places which have been able to back off their "primary" broadacre enterprise because they now receive payments for CSG wells on their places.)

10. Related question: Is it time for landholders to transition from being pastoralists to being stewards of a multi-functional landscape with grazing being just one of various sources of income?

Rationale: An undue focus on the economics of the pastoral industry is stifling debate on broader questions. The Rangelands needs greater economic diversification and greater leverage of the many place-based advantages (such as bore water, sunlight, wide open spaces, clear nights, diverse heritage and cultural values). Improved profitability of pastoralism risks more firmly entrenching reliance on a single industry. Vibrant, resilient, Rangelands communities are no longer possible through pastoralism alone. The real prospect of carbon payments and stewardship incentives suggests that landholders should perceive themselves not as cattlemen or women but as managers of a tract of landscape, with animal husbandry being just one source of income. Can such a transition be facilitated externally; or is it best left to individual landholders to adjust?

Response: How to obtain the stewardship payments for carbon capture and biodiversity protection needs detailed and continuing research on how to tap into existing national/state schemes as well as developing international credits. But credibility of the stewardship product for sale needs research work to establish now and continuing, especially new research on assessment, monitoring and measurement of carbon and ecological condition. And yes how to change the mindset of the pastoralists?? Again this should be the subject of ongoing research and investment by government in locally based staff to support this process.

Response: Yes, yes and yes again. It is time! For forward-thinking land managers the transition will happen if there are opportunities. It would be wonderful if this concept were accepted across the Rangelands and used to facilitate multi-objective enterprises.

11. Related question: Who is going to pay for weed and vermin control?

Rationale: Groups of landholders are apparently finding it profitable to fence against wild dogs and kangaroos. But there are many other pests that are either beyond practical control or will require expenditure that will be beyond any reasonable return upon investment. Examples: Hymenachne, Indian Couch, wild pigs in some localities, Prickly Acacia, Parthenium Weed, Lippia... Where an unpalatable weed gains a foothold, even extended spelling or fire may not give the native species a competitive edge.

Response: This needs an ongoing awareness of the issue program and an advertising of successful interventions or potential for such e.g. fungal pellet or herbicide injection into weedy woody species such as Parkinsonia and Acacia nilotica and mesquite. Prioritising where pest control funds should go needs a dialogue with local communities, landholders and government agents. Keep on top of approaches to control weeds such as Parthenium by biological control to see if it can be meaningfully expanded. This is a specialist area that needs an ongoing government commitment to keep on top of the possibilities. But first to convince government that expanding the public service is the way to go for so many of society's ills.

Response: Depends on scale of problem. Large-scale problems or problems with that potential should be supported by external funds from the public purse. E.g. Fire Ants. But the interventions need to be serious, determined and long-term.

12. Is there a social licence for any additional interventions?

Rationale: An urban majority is increasingly interested in regional biodiversity, clean and green products and animal welfare. Does industry have a social licence to operate? More “grey nomads” than ever are observing land condition over vast areas of rangeland roads and tracks; their opinions and observations are now appearing in the press. Industry posts outback billboard defending mulga clearing to passers-by. <https://www.abc.net.au/news/rural/2018-01-03/large-sign-educates-tourists-about-mulga-land-clearing/9301222?nw=0> is an example of the seriousness of lobbying perceived necessary. McDonalds have a beef sustainability initiative: <https://corporate.mcdonalds.com/corpmcd/scale-for-good/beef-sustainability.html> What’s the value proposition of asking for millions of dollars for rangelands if urban majority opinions are of degraded, flogged landscapes, biodiversity loss and tree clearing (whether these statements are “true” or not)?

Response: Establish a process to give “permission” to clear tree thickening. But this should be linked to satellite images of condition over time. And assess if the carbon in the tree and soil along with associated pasture contribution is worth more than the fodder value? Can controlled burning keep the tree population in balance with cattle production? Needs on the ground examples of process with measurement as well as anecdotal stories.

Response: Yes, there is a social licence for additional interventions where the current impacts are deleterious. That licence needs to be predicated on correct understanding and not knee-jerk reactions. The urban majority is Australian and is justifiably concerned about much that is happening in rural Australia. But the urban majority has a responsibility to be well-informed.

13. Related question: How can public investment in sustainable management of landscapes be justified when those landscapes are managed by private commercial businesses?

Rationale: One of the major reasons for reluctance of Treasuries to fund Landcare properly, and the willingness of departments to run down agricultural extension, has been the view that private businesses can purchase their own professional advice if and when they think it’s necessary. In other words, the public interest justification for handing over money to private businesses has not been convincingly established. Can a formula for differentiating public from private interest be devised by the Dialogue? If the formula relies upon differentiating interventions that are within the “duty of care” from those that are beyond it, can the Dialogue define duty of care?

Response: Very much a space for the Dialogue to pursue.

Response: Hard one, but a question well worth pursuing. The answer will certainly rely on an adequate definition of duty of care and I support the Dialogue’s pursuing such a definition. Does the notion of community service obligation provide any direction for defining environmental obligations and therefore allowing the costs associated with them to be identified?

14. Can markets for commodities be stabilised?

Rationale: Under current export-orientated trade policy, market volatility, closures, trade bans and currency fluctuations can be as hazardous to resource sustainability as droughts. When stock prices are low, pastoralists are tempted to retain too many animals and not sell.ⁱⁱ Recent China and USA geopolitics has again illustrated our beef market’s exposure to the whims of superpowers. An emerging disease-free South America (Brazil and Argentina) produces a major competitive challenge to our markets and alternatives to our trading partners. What about other developing alliances – will they provide any benefits e.g. “The Quad” (Australia, USA, Japan, India) or CANZUK (Canada, New Zealand, Australia, UK) or UK post-Brexit? Is marketing a commercial issue that can be left to pastoralists and their representative bodies without

involvement of our Dialogue? Not really, if the live export disruption is any indicator of the vulnerability of the industry.

Response: External prices will affect profitability and require deft product identification marketing to overcome; i.e. a more focused industry with a defined product from Australia and from that Rangelands location. This might best be done through cooperatives to build a marketing group the size and geographic diversity (drought hedging) of ACC and AACo and North Star.

The prices that pastoralists receive in markets, especially international ones, are determined partly by the relative values of currencies, which are set in financial markets completely disconnected from the cost of production. Even under stable currency conversion ratios, prices are set by agents and governments who do not necessarily have the interests of Queensland producers at heart. Is there a case for reinstating commodity marketing boards to restore pricing power to the industry? **YES!!**

Many beef producers would argue that a small number of processing plants in Australia – dominated by foreign investment (! how did we allow that to happen !) – dictate the price of beef. The processors would argue that the prices they can pay at auction are governed by their own costs of production and export demand; and they cannot set prices, as they bid in an open market. *Coops that integrate the producers with their processing might be the way to go.*

The assumption that graziers depend upon export for their profitability, that 70% of Australian agricultural production is exported, is contested and probably falseⁱⁱⁱ. This statistic is pivotal to any economic strategy for the industry, such as the hundred-billion-dollar NFF roadmap. Should the Dialogue commission research to confirm or otherwise, and contend with NFF?

Response: Yes and dialogue with Garnaut and Quiggin amongst other cognoscenti about the way forward to do this and who might be available. Might be a project for the Australia Institute.

Response: Maybe it might be easier for the Dialogue to aim for World Peace!!!! I suspect these issues are somewhat outside of the Dialogue's remit. However, I support the idea of commissioning research that provides evidence or otherwise for currently accepted statistics such as those used by the NFF. I also think there ought to be far more emphasis on better vertical integration within and between industries, and much greater ownership of processing and marketing of products. Much greater diversity of enterprises in the Rangelands would allow more independence and allow landholders to ride out price wars etc in individual enterprises.

15. Related question: How can a reborn agricultural policy for the Rangelands navigate between the need for extensive investment in regeneration of the natural asset base and the disciplines of the World Trade Organisation?

Rationale: Australia has willingly signed up to the WTO; its Agreement on Agriculture limits the extent to which public or government funds can be injected to subsidise production of agricultural commodities. Stewardship payments and natural disaster relief disconnected from quantum of production can be permissible, but some of the landscape restoration that is going to be necessary might not be covered by the exemptions.

Response: The WTO is not against funding for land stewardship but I guess the case needs to be properly advanced and put to them. After all the UK, EU and US manage. Maybe the WTO is becoming a paper tiger also. But this puts one in the free trade negotiation space and the need to get politicians to understand the realities. Need an Ag Minister who "understands" or is prepared to listen. Do they have the attention span to do this??

Response: Would deliberations regarding duty of care assist here?

16. Related question: How can the Dialogue gain traction for a reborn agricultural policy that does not conform to orthodox neoliberal economic policy?

Rationale: Although the writing team and other contributors have no illusions about the shortcomings of neoliberal economic policy, that mindset is deeply entrenched in the central agencies in Canberra and Brisbane. To gain a hearing, the Dialogue will need one or more of a high-profile and vocal champion, a significant publicity/public commentary drive, a direct line of communication to senior ministers in both jurisdictions, or some friends in the media. Simply having a coherent and defensible analysis will not be sufficient: neoliberal economics has inbuilt vaccination against critiques.

Response: Yes it needs to be set up as a campaign. There are farmer groups that would likely buy in. A role for a subcommittee of the RCC to initiate??

Response: This is, to say the least, challenging. I have no suggestions to offer except support for starting the conversation.

17. Can a formula be devised to offset drought distress without perverse consequences?

Rationale: Drought aid has been paid seemingly without end since the 1990s. The current State and Commonwealth drought support policies seem to be based on “property preparedness” which places upon individual landholders the onus of coping with conditions that are not just year-by-year variance but systemic vulnerabilities. ‘Preparedness’ blames the victim being the individual property holder who is unable to make ends meet under severe, repeated and cascading conditions.

Is drought aid an essential support in a world where the playing field is not level anyway (e.g. North American and European Union agricultural protection)? Is it essential for national food security or is it an inefficient economic subsidy that unavoidably rewards suboptimal land management?

Response: is not a better way to go to channel the funds into stewardship programs?

Response: Drought aid will be largely overcome by the impacts of the looming climate disaster on primary production. Before too much longer the State and federal governments will need a COVID like response that listens to the science and has to intervene. Is there room for discussing a mandatory “Social Wage” for drought-affected land managers separate from the drought preparedness or otherwise of their properties.

18. Can land prices ever be connected to productivity?

Rationale: The productive capacity of the rangelands depends on climate, the natural resources and property development (e.g. watering points, fencing). However, this resource is finite regardless of any property prices. Concern has been expressed about low interest rates and recent record property prices. Industry sentiment is that country has value simply because “there is no more being made”...ergo it has an increasingly important value of rarity. The market value of land in the more easterly portion of western Queensland exceeded productive value/ability to repay debt in about the mid-1990s. The far west followed suit in the better seasons of 2009-2011. What business plan underpins these land prices? Given the underlying wet and dry cycles can these loans be serviced in terms of adequate production (without flogging) to ensure resource sustainability? “We paid x for this country, and now the banks are sending us broke – we have to find ways to increase production...”.

If property markets are inflating land values beyond serviceable debt at present, how can they ever be capped if landholders receive a guaranteed flow of stewardship payments? If governments or banks introduce measures to moderate property prices, how can (or should) the destruction of existing equity be avoided?

Response: All the more reason to get banks involved in the solution. The use of stewardship funds to maintain equity/property values is a very vexed question. Over to you Mark McGovern!

Response: This question does my head in. If the tight adherence to neo-liberal economic policy can be broken, will this address this question?

Response: Queensland's wet and dry periods can be well described in the DES Long Paddock website poster <https://data.longpaddock.qld.gov.au/static/products/pdf/WetDryDroughtPoster2020.pdf>. The science behind the poster is being developed as a keystone paper (in edit) for Australian Rangelands Journal. Important part of background here especially multi-year droughts. Provides a rational basis for the reality of the production environment. Palaeoclimate studies on Australian megadroughts and climate change would further support a conservative position and an environment with severe episodic limits. DES Science Division could comment.

19. How can the Dialogue assist the industry to prepare for carbon boycotts?

Rationale: Although industry and its political spokespeople proudly proclaim that Australia's agricultural produce is clean and green, this cannot be yet demonstrated through widespread supply chain certification based upon ESG (environmental, social and governance) ethics. Exhibit 1: The Murray-Darling basin and the failure of water resource management. Exhibit 2: The lack of a credible national strategy to reduce carbon emissions. Is the industry prepared for widespread closure of markets especially European markets because of the obstinate refusal of the national government to incentivise carbon reductions? (Direct-Action is too flawed and doesn't count).

Response: Keep working on politicians to clean up these "anomalies" such as Murray Darling Basin and build cred on local carbon accumulation/sequestration efforts to counter "bad" publicity of exporting carbon and replace with a carbon reduction strategy that has some legs. Motherhood statement I realise!

Response: If a move can be made towards multi-function management of the Rangelands with greater diversity of enterprises, then carbon boycotts will have less impact. It is the single-enterprise, export-driven nature of rural production that presents the biggest threat.

20. What can the Dialogue do to improve public service capacity?

Rationale: Small-government and fiscal-discipline rhetoric pursued relentlessly by the conservative press has driven cutbacks in public service expenditure and staff numbers for three decades. Budget cutbacks at a time of increasing demand for services and expanding population means continual departmental restructures which sap energy and consume the time of managers. The loss of security of tenure and the shift to casual rather than "permanent" career employment is corrosive of the capacity of the public service to act as a source of independent evidence-based advice. Policy then becomes politicised.

The keenly felt loss of agricultural extension and land officers based in country towns has been a recurrent theme of the Dialogue. Arguably, antagonism over vegetation management has been made inevitable by the loss of local agricultural extension and land officers who could have brokered consultation with landholders and negotiated district-specific guidelines. Top-down

regulation is the fallback position when more time-consuming methods of achieving a policy intent are unfunded.

It is difficult for the Dialogue to gain authoritative knowledge of conditions behind the veil of public service anonymity. How can the Dialogue gain traction on this vitally important issue? How can the Dialogue persuade the electorate that the small-government rhetoric of their political representatives, dismissive of the importance of an independent public service, is and has been immensely contrary to rural privatised it by interests?

Response: First increase the understanding in the Rangelands community of the value of public service support for them by pointing out how this worked in their favour in the past. It's actually money the city folk are contributing to the pastoralists' wellbeing. Drip wearing away stone maybe the only option in the beginning. But community dialogue (by Zoom??) may be an enabler and then distributed carefully-prepared material to read distributed via email and online.

Response: Call it out. Refuse to accept incompetent input. Lobby politicians.

21. Should the Dialogue advocate for lateral property integration aided by open stock routes?

Rationale: A feature of the current climatic profile, let alone the unknown future one, is that pastoral firms with the ability to shift cattle long distances to take advantage of seasonal conditions elsewhere are more capable of managing according to the seasons. Should the Dialogue encourage geographic (lateral) consolidation or collaboration between enterprises, perhaps through graziers' cooperatives?

Around the turn of the century 1890s-1910s, broadacre pastoralism transitioned to family ownership under a range of government schemes. Vestiges of restrictions on corporate ownership of land in favour of family ownership have survived in the Land Act to this day. Are the challenges facing pastoralism now too great for the average family to accommodate? If the stewardship ethic held by family farmers is superior to the pressure on corporations to demonstrate return on assets, then family versus corporate ownership is very much an issue for the Dialogue.

Keeping the stock route network free of cross fences and privatisation (static agistment) is essential to any such strategy. Governments have lacked the courage to keep the stock routes open and have even incentivised local governments to collect agistment fees. How actively should the Dialogue campaign to open up the stock routes to improve the capacity of individual landholders to collaborate with partners geographically removed?

Response: Stock route management is key to so many aspects of the Rangelands management story and needs to be lobbied for. The way government manages the leasehold land is key also. Can the recent changes incentivising larger corporate ownership be reversed or modified?? Some corporates appear to be doing a good job at land management. Maybe the way to go would be to "call out" those that are not?

Response: Yes, yes and yes to lateral property integration and open stock routes.

22. How can we repopulate the Rangelands communities?

Rationale: It is common ground between parties with widely divergent interests in the Rangelands that the landscape needs more labour and the townships need more population. How can we establish a motivated, competent workforce willing to make Rangelands Queensland its home? It is not sufficient to assume that employees will follow offers of paid employment if a flow of funds is directed towards the region; there are questions over willingness of families to relocate, rising summer temperatures, whether some township infrastructure has crumbled

beyond the point of practical return, the complexity of modern property management and corresponding need to train workers, the decline of agricultural education and the absence of any entity willing to offer job security, even the public service.

Should the Dialogue advocate for the [reinvigoration of agricultural education](#)? Why has this not happened under market forces? Why did Rangelands Australia, our only rangelands post-graduate training institution, not survive? What skills are required of the next generation of landscape managers? Who will supply them and insert a need for good quality educational materials that infuse traditional agricultural extension materials with modern considerations of timed grazing, carbon management, climate change and stewardship ethics?

Yes this is worth proper consideration. Use James Ruse and Tamworth Ag Schools and well-managed school gardens as models of how to manage education around agricultural matters in schools and then onto tertiary models that work. UQ had one I reckon for the extension training that went out the window as the departments phased out extension.

Commentary on the decline of rural towns emphasises the decline of the pastoral industry, transition from cattle to sheep and the potential perverse effects of carbon farming. *Does this need to be so??*

Has any input-output analysis been done of cash flows in rural communities to identify the major sources of leakage and therefore the major avenues for improving self-reliance? Large sums of money are remitted to rural towns in the form of Centrelink payments, but they are offset by large sums leaving to pay for food, timber, fuel and capital held by super funds and banks. Should the Dialogue commission or initiate a study of financial flows of sample regions?

Response: Again worthy of finding funds or someone to do the research. A good industry linkage grant to fund post grad students as well as collaboration with the university and ag industry groups and producers or see if there is an existing CRC onto which this could be added.

Response: Yes to the reinvigoration of "agricultural" education, but should include landscape management etc etc, not just animals and crops. Yes to study of financial flows of sample regions.

The repopulation question is a vexed one. In my experience, some of the leakage in regional towns is because the locals no longer support local businesses. Instead of the local butcher, baker, car dealer being supported, the good folk use their new cars and petrol on better roads to drive to bigger towns to get provisions and for entertainment.

23. Related question: Should the Dialogue advocate for incentives to decentralise population?

Rationale: After the neoliberal policy package arrived in the 1980s with its antipathy towards "government intervention", support for active incentives to decentralise population growth faded. Given the cost to ratepayers and taxpayers of adding serviced allotments to the perimeter of Brisbane, should the advantages of regional and remote Queensland be publicised? What incentives might encourage people to make their home in the region?

There are many successful case studies of regional enterprise. What preconditions must be put in place to scale up isolated cases to Rangelands-wide invigoration of residential and business activity?^{iv} Should current policy development aimed at improving security of Australia's supply chains of food and manufactures be parsed to localise intra-regional supply chains? Should the Dialogue argue forcefully for the restoration of public service positions in rural towns? **YES AND REGULATE FLY IN FLYOUT to demand level of local residence of workers as a precondition to approval for the mining activity.**

Some discussants have argued that the future will feature a small year-round resident population, complemented in its core of skills and local knowledge by nomadic workers who spend time in the Rangelands, but live elsewhere for other times of the year. Is this model worth advocating? *May work for medical interventions of specialists along with setting up more localised hospital and medical and allied health support services rather than the ill-advised corporate model seeming to be imposed. I.e. a large hospital in a more remote larger town is the way to go!!*

Should the Dialogue advocate for a career service among the NRM bodies to overcome short-termism and improve their professionalism? **YES**

Response: Absolutely - COVID provides some incentive. Also refugees. But need to have work for the newcomers, e.g. goat processing at Charleville; tourism-related work.

24. Related question: How can the Dialogue ease tension between city and the region?

Rationale: The locally-resident Rangelands community is vexed by its inability to drive its own political and economic future. Even on this Dialogue, which aims to provide a congenial platform for respectful sharing of opinions, antipathy towards outside experts and non-producers surfaces from time to time. Yet many of the scientists, policy-makers, influencers and other professionals domiciled in urban centres who are involved in decision-making have lived experience of the Rangelands and have a strong empathy for the region and its people.

The Dialogue is tabling many values-laden topics. Practitioners and professional experts need each other. The solid theoretical foundation that is essential if the policy package is to endure must be derived from both practical experience and scholarship. Without scholarship, local affairs can motor along blithely ignorant of trends that are looming over the horizon such as fuel security, climate change and foreign affairs – not all of which are soundly embedded within practitioners' knowledge sets. On the other hand, hands-on knowledge is also essential to policy formulation. Many comments on the Dialogue lament the sparsity of comments from active pastoralists. But an open invitation is there; what can the Dialogue do to encourage a new generation of policy-literate and science-literate spokespeople for agriculture?

Response: Needs an expanded tertiary ag training sector and hope that this ameliorates the mistrust. Having extension officers a known entity also helps. But how for these new appointees to gain the required experience and gravitas? Maybe an apprenticeship working on farm over several holdings might "blood" them. And this should start during their tertiary training. Reinstating extension methods training is a good start!! With a small dose of sociology and psychology and ethics and an understanding of the way different counselling methods work i.e. a rounded education. Maybe a post grad year paid for by scholarship might work also.

Response: A mystery to me as a person who grew up in the Rangelands. Is there scope for facilitating better connections? Grey nomads are starting to break some of this down. The 'them and us' mentality is counter-productive to better support and interconnections.

25. Related question: What is the source of the perceived disenfranchisement of Rangelands residents?

Rationale: Rangelands people resent their own perceived lack of influence over their affairs and the perceived sway over policy exercised by urban environmentalists. Yet the political faction that purports to represent the rural sector has been in national government for some 18 of the past 24 years. Why has its policy capacity not been capable of addressing the issues? Rural industry even has its own weekly mainstream newspaper. No environmental group can match the sympathetic exposure. The claim that the rural sector lacks influence in the city may at heart be referring to the non-importance of farming to the economic policy elite, but that problem is under the command of the ruling government.

On the other “side”, urban environmentalists are dismayed at their lack of influence over policy, at the continuing deterioration of environmental quality and the deafness of the major parties to scientific evidence of breakdown of ecological systems. How can there be such dissonance and what can the Dialogue do to remedy it? Rural people naturally resent being “blamed” for land degradation, but assigning “moral blame” towards landholders is not a feature of the environmental literature. Can the Dialogue assist the rural community to accept the legitimacy of environmental claims based upon scientific evidence?

Comes back to the role of the well-respected “locally” based public servant that they know and provides services they want but also tutors the audience in these matters.

There are a considerable number of farmers including practising farmers in the federal government, but hardly any natural scientists. What if anything should the Dialogue do to improve the scientific literacy – and in Queensland the agricultural literacy – of parliamentarians or candidates for political office?

Response: For a start re-establish meet and greet of polities and academics and Rangelands management-concerned people for a regular lunch several times a year with a discussion about particular topical issues. I.e. get to know each other personally.

Response: The current political system bears a lot of blame. Politicians such as Barnaby Joyce, Matt Canavan, Pauline Hanson constantly misrepresent the facts and stir up enmity between city and country. They refuse to be educated. Perhaps there is room for targeting wannabes; perhaps targeted forums might be worth it; perhaps there are opportunities to lobby parliamentarians collectively with enlightened landholders and the scientific community.

26. Should the Dialogue aim to provide a comprehensive platform for Rangelands knowledge?

Rationale: The rangelands world is shifting and discussion needs to analyse the changes that are occurring with emerging crucial theoretical frameworks. Knowledge is accumulating in:

- *The Rangeland Journal*
- Range Management Newsletter articles (Australian Rangelands Society)
- publications of the Ecological Society of Australia
- *Journal of Arid Environments*
- annual reports of Desert Channels Queensland, Southern Queensland Catchments, Southern Gulf NRM, Northern Gulf NRM, Bush Heritage Australia, AgForce, SWRED, RAPAD, NW Regional Organisations of Councils
- Regional Development Australia south-west, central and north regional strategic plans
- the [Long Paddock website](#)...

to mention only a sample of the repositories. Is a service that aggregates and interprets this knowledge necessary? Who would benefit? Those who are naturally readers are drowning in material to read; those who don't read much don't need more to read.

However, there are readers and readers. Most policy analysts who are economists or not specialists in agriculture won't read *The Rangeland Journal* or other scholarly journals and even scientists and policy officers usually don't have time to read the journals. How can the collective experience of practitioners and the knowledge of scholars be translated into forms that policy analysts can digest; who should do this work and how can it be validated?

This needs to be a recognised academic pursuit, funded to do so and to contribute to the tertiary teaching in agriculture. Maybe requires establishment of a position established through philanthropy. It would feed into a subject on Rangelands management. After all Rangelands are one of the major land forms in the world.

ABS and ABARES data are inconsistent and often very out of date for the Rangelands. It is difficult to obtain sound information at local government, or in many cases, regional scales. Even all rainfall data is less available and from fewer official rain gauges across the Rangelands than 20-30 years ago. We have to increasingly rely on extrapolated datasets to fill temporal and spatial gaps in most measures of importance such as population trends, livestock numbers, regional net worth/productivity and education levels. This makes it difficult to reliably report on trends in key socioeconomic indicators. One discussant has commented that frequent data collection at a scale relevant for planning resilience (shires and towns) should be the top priority issue for the Dialogue to pursue. It is very difficult to argue a case for investment when the data for Rangelands regions is not as comprehensive as it is for urban areas.

Response: An established academic position along with revival of ACRIS the Australian Collaborative Rangelands Information System.

Response: There is so much information - maybe a targeted brokering role for those who wish to follow a particular course of action.

Response: In terms of formal repositories of ecological knowledge the Terrestrial Ecosystem Research Network (TERN) funded by the National Collaborative Research Infrastructure Strategy (NCRIS) is a national repository for the collection, cataloguing, storing and sharing of long-term ecological research. TERN's leading node is based at the University of Queensland. TERN already has significant rangeland related data in AusPlots, species data, remote sensing of ground cover and downscaled grids of meteorological data from climate change simulations.

On the aspect of data availability DES's Long Paddock web site (SILO climate data repository) shows the decline in rainfall reporting stations across Queensland and the general paucity of reporting across the rangelands. <https://longpaddock.qld.gov.au/silo/about/climate-stations/> Evaporation and wind information have reached desperate levels of reporting. Radiation measurement has always been inadequate. Wind and radiation can be used to produce Penman-Monteith estimates of net evapotranspiration rather than run problematic water-filled evaporimeter tanks. Rainfall and evaporation are critical data for understanding pasture production and mapping drought frequency and severity.

DAF's Drought and Climate Adaptation Program (DCAP) is funding DES Science Division to develop an inexpensive, solar-powered, rainfall gauge that reports daily via satellite data modem Sub \$2000 field-installed for a tipping bucket pluviometer gauge. Field trials are underway. If successful a proposition (that needs support) might be to deploy 200 of these gauges across the Queensland rangelands. Such a network installed in small animal-proof enclosures might cost around \$600,000. A further 50 full meteorological stations (recording rainfall, temperature, vapour pressure, wind run and radiation) would also be suggested for another \$600,000. These prices are notional.

27. Is carbon farming a (or the) solution, or a false dawn?

Rationale: Carbon credits/payments have been touted as a method of drawing external money from climate-sensitive investors into land management, with the extensive co-benefits that carbon-rich soils bequeath to both pastoralism and land conservation. No model for achieving these parallel benefits simultaneously on an enduring basis is known to exist. Issues include longevity and price stability guarantee of carbon contracts (trees and/or soils) over long periods; lack of official recognition of the profound difference between carbon flows that energise a landscape and carbon stocks that are measurable; carbon debt from losses accumulated from climate change; increased droughts and wildfires; increases in ferals and weeds without active managers of large tracts of unoccupied land; decline of small towns where there is no expenditure on properties and no population; the risk that increased soil temperatures from global warming will enhance microbial activity and remove soil carbon faster than it can be sequestered; the lack of tools for measuring soil carbon in rangelands over wide areas.

The Land Restoration Fund is some three years old and the Dialogue is the beneficiary of a grant to run the July 2019 event. However, expenditure of the promised multiple millions on landscape regeneration has not happened. Funds have not been made available for policy analysis by civil society that could steer carbon markets into a beneficial direction.

The Commonwealth's Direct-Action Program is alleged to be paying for sequestration actions that would have happened anyway and to be compensating polluters. Can the trust deficit be overcome? Can the program's largesse be applied to landscape regeneration?

Response: As the LRF struggles to find meaning for its existence, maybe the recognition of the issues above may lead to the realisation that the real benefit is to be gained from supporting land stewardship (or land management as AgForce prefer) that will sequester carbon as part of the overall attention paid to the land i.e. the response to government incentives for such processes. As the Rangelands Dialogue I think is arguing.

Along with the trust deficit the upcoming meme appears to be that some kind of regenerative agriculture approach to large-scale operators of ruminant production can make a killing from carbon credit sales because of the very large tracts of land under management. That is a small increment and value over a large area makes money for very little input apart from managing the small water cycle and maybe seeding legumes into the pastures and not knocking over all the trees. This is not to be knocked as despite the difficulty of attaining the secure measurement goal, the path to build carbon is generally speaking one which reduces environmental degradation. How temperature will affect the long-term prospects of building or even maintaining soil organic moisture as you posit is a conundrum and even vexed question still.

Response: Neither a solution nor a false dawn. No one response will be the silver bullet. Rangelands are complicated and it will be a sophisticated and tailored response that is needed which will vary from place to place.

28. Can the Dialogue mediate a settled position on vegetation management?

Rationale: Some 20 years have passed since the Queensland Government introduced extensive restrictions on clearing native vegetation, but the issue remains a festering sore. Can the Dialogue reconcile the protagonists? Can the grievances over process, such as lack of consultation, be separated from the scientific aspects of lack of confidence in the mapping, the broad-brush nature of some of the restrictions and whether the regional ecosystems logic is adequate as a basis for the restrictions? Some landholders claim that the Regional Vegetation Mapping Program that developed Regional Vegetation Management Codes was the last time consensus was reached and good, fair outcomes developed with landscape planning in mind; and should be adopted in whole again.

Response: I think the only way to resolve this is a person-to-person approach to work on acceptable and agreed management plans that are guided by the intention of the Vegetation Management Act for each holding as advocated by Philippa England and this will involve an expansion of the relevant department's personnel to be able to deploy people skilled in personal negotiations (i.e. extension skills) who are trusted as having the good will of all parties as their imprimatur of honesty. The imaging and mapping capacity of the departments is awesome and needs to be demonstrated to the individual landholder. This is an approach for which the NRM and AgForce (and QFF) could be trusted advocates.

And a deliberate and concerted effort to expose agriculture students to the ideas and approach and develop the skills required for them to be advocates is also required. Such training should involve on farm experience (as used to be a degree-awarding requirement) to enable a better

understanding of the issues. The universities seem to be slow in recognising the major issues that graduates will confront in future and preparing the students accordingly.

Response: A poisoned chalice? There is always room for well-resourced assessment and mapping to support necessary community level discussions and consultation. There is no short-cut.

29. Related question: Should the Dialogue advocate for a public repository of property data, better public mapping and comprehensive ground truthing?

Rationale: A [stoush](#) between the Queensland Government and AgForce over custodianship of data in 2019 highlighted the absence of a data repository in which all parties have confidence. Should the Dialogue establish a publicly accessible repository under control of civil society jointly with landholders? Satellite mapping is continually improving in its precision and accuracy. However, satellite mapping may not differentiate regrowth and recruitment which are pivotal to understanding dynamic systems and to estimating carbon sequestration. Agriculture should be worried about any method that considers only mature trees and not the whole system - especially if environmental conditions such as drought, hail, windstorms and plagues of kangaroos are not matched to canopy data.

Response: Absolutely agree that this is the nub of the problem. But can it be solved by the approach of on-farm dialogue as outlined above, using the latest maps to help arrive at a consensus about land management that accepts the spirit of the Act but is also accepting of the dynamic nature of the vegetation especially in relation to climate change and weather cycles. Such a dialogue should involve much more than just development of an awareness of the power of satellite imaging but also deal with vegetation management in general (i.e. assessment of pasture condition and ways to maintain (or develop) in good condition by stocking management (cell grazing?, more water points, fences, legume introduction, controlling regrowth in an agreed manner, controlled burning, management of ferals) and even introduction to ways to “best use” the Long Paddock website.

Response: Should be part of the resource condition and trend monitoring and monitoring, reporting and evaluation frameworks. Data should always be publicly available. The data repository really ought to rest with government BUT be properly managed and properly maintained. There has to be some step forward in landholder attitudes to depositing data that has been publicly funded. Governments should be ashamed of how they have facilitated these issues. There will be no forward progress in land management without ongoing data collection and interpretation.

30. Related question: Is there an appetite to push for a new land-use planning committee/authority?

Rationale: Most payments made by state and federal government – drought aid, Landcare, welfare, carbon credits, purchases of land for national parks – are disbursed on a property-by-property basis. Regional land use planning was more-or-less abandoned in 2012 – it was specifically targeted during cutbacks to the public service. Yes, the acquisition of properties for the protected area estate is guided by established principles based upon biodiversity. But most of the other decisions lack any kind of strategic land use framework that could steer remedial payments into the most “advantageous” locations. Some properties are worn out and have a bleak future as ongoing pastoral stations under family ownership. Should identification of such properties be left to behind-the-scenes negotiation or can they be guided by public, consultative, well-informed land resource assessment and land-use planning? Who is doing a land-use capability analysis to update, for example, WARLUS, in the light of modern conditions?

Response: Agreed and this goes along with the call for more extension-style officers. Much better in the open as a community exercise in consensus building so that people do not feel that they

are being taken advantage of but rather are being helped to live a better and less stressful life. Again NRM and AgForce could step up to the plate in supporting this endeavour.

Response: Fully support the need for an organisation guided by “public, consultative, well-informed land resource assessment and land-use planning” to advise on regional planning and related issues including drought aid etc. Question needs to be asked why the Regional NRM Bodies are not fulfilling this role?

31. Related question: How should the Dialogue represent widespread scientific concerns about loss of biodiversity?

Rationale: The term “biodiversity” has connotations of vegetation management and so raises antagonisms amongst some landholders. But strips, patches and spots of biodiversity are the threads that hold the landscape together. And now *even the eucalypts are dying*. Should the Dialogue promote the extensive scientific work on biodiversity condition? The Rangelands bioregions are chronically under-represented in the protected area estate and there is always the risk that available funding gets diverted to well represented bioregions, such as on Cape York Peninsula or Simpson Desert where limited funds can purchase greater acreages, or to the scenic coastal parts. Should purchases for national parks be accompanied by budget commitments for maintenance and for locally based employment?

If eucalypts are dying, what security can there be for payments for carbon sequestration?

Response: If land purchases or changes in leases or even just recognition of the caveats in the lease contract, are made for the expansion of protected area estate in order to manage (restore or maintain) biodiversity, then this should come with agreed funds for maintenance and employment. Is this something LRF could support? The ongoing support will make it a lot easier to gain consensus on the way forward in the community.

Response: Biodiversity loss is of fundamental importance and needs to be front and centre in any argument around sustainable landscape management. I fully support the Dialogue’s promoting extensive scientific work on biodiversity condition. And yes, national parks should have ongoing budget commitments for maintenance and local employment. It is a thorn in the side of many landholders that national parks are not necessarily managed as well as they might be. Well-managed national parks also provide opportunities for demonstrating to surrounding landholders the benefits of biodiversity.

32. Should the Dialogue promote soft catchment treatment rather than grand irrigation projects?

Rationale: Advocates of managing properties to retain water high in the catchment (e.g. Peter Andrews) through soft engineering and conservative grazing practice have gained wide exposure in farming circles but this approach has gained no traction in political circles, which keep referring to drought proofing the continent through large dams. What kind of evidence might the Dialogue collect to support a program that encourages water retention and infiltration upstream, such as in the Murray Darling uplands? Should the Dialogue become involved in the strategic land use assessment of the Bradfield scheme or agriculture in the Flinders-Gilbert catchments? Should the Dialogue become involved the Murray Darling debacle (the Darling River ran dry for 1000 km between Walgett and the Murray in 2019)?

Response: Regenerative agriculture is the catchword that seems to be gaining fairly rapid traction in the community. The cost effectiveness of dams and Bradfield type schemes need to be continually brought out into the open with reminders about the Ord Scheme return on investment c.f. other ways to use the finance involved. It is legitimate and necessary for the Rangelands Dialogue to be aware of the contrary arguments for such schemes and to advocate

for transparent management according to the law in the Murray Darling Basin. Such a process should be a collaborative affair with organisations such as the “think tanks” such as the Wentworth Group, Grattan Institute and Australia Institute. Is there an equivalent recognisably “conservative” group, although much of what the nominated organisations do is advocate for a conservative approach to issues which at times is seen to be radical!

Response: Absolutely, soft catchment treatment should be supported and promoted. Given vested political interests I am at a loss to suggest how the Dialogue might intervene in wicked problems such as the Murray Darling debacle beyond advocating and promoting alternatives

33. What can the Dialogue do to reduce the vulnerability of Rangelands communities to fuel shortages?

Rationale: Broadacre pastoralism is heavily dependent upon petroleum fuels. Australia depends for its petroleum fuels upon vulnerable shipping routes from Middle Eastern countries, with some of which we have been at war. The peak of global production of petroleum has probably passed (although it is a bumpy plateau rather than a peak); about half of the easily accessible resources have been consumed. Australia has about a month’s supply of fuel in storage. A major increase in the price of fuel would seriously affect the profitability of broadacre pastoralism.

Response: This feeds into the argument for “making Australia great again” post-COVID and disputes with China, to rebuild more self-sufficiency through precautionary measures while pushing ahead to electrify transport through renewable energy. A quid pro quo the Government could insist on is support from any renewable energy hub development, for such a transition.

Response: I think it is maybe time for some rethinking about fuel in country areas. Many of my country “cousins” consume more fuel travelling for provisions and so on than on their properties. Question should be about the equity of fuel costs across the Rangelands not just for broadacre pastoralism. And certainly, Australia needs to address its stance on fuel reserves in the light of current global issues

34. Do pastoralists have enough information to prepare for climate change?

Preliminary statement: The Dialogue should not provide a forum for re-playing the unproductive climate denial debate. The leaders of the Dialogue have no basis for disputing the scientific consensus that global weather patterns are threatened by warming or that average temperature in Australia is already more than 1° above the pre-industrial average.

Comment about climate tends to focus on drought and likely future rainfall patterns. The most recent research is ambivalent about the likelihood of wetter or drier conditions. However, it is irrefutable that temperatures and evaporation are increasing and these are existential threats to the vegetation systems.

The precautionary principle (NSES 1992) is a sufficient basis for the Dialogue as a body (and pastoralists individually) to take respective precautionary action in anticipation that climate change is inevitable. The science is far from settled – science is never settled – but the international consensus is sufficiently strong to justify extensive precautionary action by governments and industry.

1. Is the current a method of occupying the landscape and remunerating graziers effective in the light of the variability of the climate and weather?

Rationale: Knowledge of weather and climate affects all scales of operation by grazer business, land managers and policy makers. Time scales extend from daily and weekly through seasonal, inter-annual, quasi-decadal, multi-decadal and centennial.

International science has made a cogent case for significant planet-wide climate change to occur in the future from global warming caused by the anthropogenic emissions of greenhouse gases. Changes to the severity and frequency of heatwaves, droughts and floods have been predicted/anticipated for some regions, with consequent changes including fundamental shifts in ecosystem structure, seasonal phenology and species viability.

Queensland has one of the most variable climates in the world, meaning that pasture volume and quality varies widely according to the seasons. Therefore, the matching of livestock numbers to the available pasture resource requires continual observation and fine-tuning of herbivore density and requires a long-term view of “normality”. Drought and flood are inevitable, not just “bad luck”. Family-centred pastoralism within fixed boundaries has a significant problem in adapting to variability even without any reference to climate change. Can the Dialogue develop a model of land tenure and economic reward that matches the geographic and seasonal variability across the region?

Yes the thinking around cooperatives as a model for hedging against climate change events seems to be gaining traction. Insurance is a major issue that Governments need to address as I do not think traditional insurance is going to come to the party. The US has a government model that might be useful to interrogate as well as the new UK Agriculture Act. Areas prone to weather events could be returned to the “natural” park, protected area estate.

2. *Is the information available from governments adequate?*

Rationale: The 130 years or so of the existing records of instrumental meteorology are probably not long enough to capture multi-decadal and centennial aspects of the climate risk profile. This is a new research topic and also a subject of contention on the Dialogue.

The nature of Queensland’s wet and dry cycles found in both the instrumental climate and recent palaeoclimate record show multi-year droughts and clusters of wet seasons. This information is relevant to operational graziers, enterprise risk analysis, government drought policy and state infrastructure business planning (e.g. water storage, flood proofing). The real background climate risk to Queensland rangelands is a critical consideration for conducting business in these environments.

All analyses of climate cycles and seasonal climate forecasts have core dependency on the number and quality of state-wide weather stations which may report rainfall, temperature and vapour pressure deficit. Nowadays fewer stations report wind, radiation and evaporation. The number of reporting stations is declining overall and evaporation data sites are now critically few.

High-quality rainfall mapping is also a critical process for assessing whether drought aid should be offered if the level of drought severity qualifies as extreme enough. Drought declaration maps produced by sparse data can be a source of contention. Should the Dialogue make the case for additional resourcing by governments?

The most detailed evaluation of how climate change will impact Queensland’s rangeland climate has been undertaken using an ensemble of general circulation models downscaled with a regional climate model. Much research needs to be still undertaken to understand the spatial heterogeneity in differences between model outputs for many meteorological variables (especially rainfall) and also the problematic range of future rainfall between drier and wetter values (how does a grazer meaningfully adapt to wetter and/or drier?). The Long Paddock web site has a climate dashboard with a spatial overview of the effects of global warming on temperature, rainfall, heat waves and drought and flood extremes.

<https://longpaddock.qld.gov.au/qld-future-climate/dashboard/>. Is this adequate? Should the Dialogue make a case for expansion of this research?

Response: This makes the case for more rather than less involvement of government agencies in data gathering and research and populating the Long Paddock with the knowledge derived from more measures and models in readily digestible/understandable language. Information which of course could be conveyed to individuals or communities through well informed (regularly updated) department staff who we posit should now be strategically posted in larger numbers across the Rangelands.

Response: Climate change will be the over-riding issue in rangeland management if it isn't already. The Dialogue should by all means advocate for the most comprehensive research possible and the best possible mapping and assessment, similar in urgency to the effort being now devoted to the search for a COVID vaccine. (This ought to include research and education on long-term stocking rates on grazing lands.) And yes, to the extent possible, the Dialogue should discuss and debate alternative models of land tenure and economic reward that will suit what will be the climate future of the Rangelands.

Response: On issues of climate change, the instrumental record, and palaeoclimate considerations perhaps DES Science Division could be contracted to write a formal statement of the state-of-the-art knowledge of these issues for the Queensland rangelands (perhaps involving CSIRO and BoM). Current climate change descriptions tend to be fairly general and problematic – both wetter and drier future possibilities.
<https://longpaddock.qld.gov.au/qld-future-climate/>.

3. *Can a general guideline be devised to guide landholders both in estimating long-term stocking rate and making tactical adjustments to stocking rate, driven by climate variation?*

Rationale: Sustainable management of extensive grazing lands requires appropriate long-term stocking rates but also tactical seasonal adjustment of herd numbers, especially destocking in the face of drought. Will the complexity of making these decisions overwhelm the resilience of landholders?

Response: DAF'S DCAP program has funded DES Science Division to make a first-cut approach on sustainable stocking rate issues including drought destocking. Despite one might say valiant efforts, the modest numbers of modelling staff and high-end industry communicators are a limit on progress for such a complex issue. Suggest review current progress and products in production.
<https://longpaddock.qld.gov.au/forage/>.

A related issue is the substantial commitment to seasonal climate forecasting. While such forecasts come with mathematical descriptions of skill and probabilities, they lack hindcast analysis of how such forecasts would impact real farm productivity with inter-annual animal herd considerations and variable product prices. The benefits and also hazards of such forecasts are not as well described as they ought to be. Graziers tend to be wary of forecasts which may have much to offer in terms of early destocking in drought.

It should be remembered that assessment of the pasture resource today is still most of the skill in prediction of future seasonal grazing capacity. That means assessment of pasture biomass and quality.

Obviously further research support is needed to bring the early promise to fruition and high industry adoption such as DES Science Division's DCAP funded program.

35. How can outputs from the foregoing be synthesised into an actionable strategy?

Rationale: Completing a policy manifesto with a series of recommendations for action by others such as governments will not necessarily lead to any action at all. Also necessary is an "implementation strategy" that itemises a slate of actions that the Dialogue participants need to

pursue in the respective forums, together with a procedure for calibrating progress from time to time.

Response: The argument for direct and regular dialogue with departmental policy makers and managers link through a Consultative Council becomes even more necessary if policy is to be progressed to actions that make a difference. This should be ongoing and broadened out to involve a broader group as the need arises. But the advantage of the Dialogue Group is that the interested parties are already involved and willing to contribute their expertise/experience in a way that the departments are unlikely to be able to access otherwise.

The key issues cover a very broad range and take a considerable time to reflect on and craft a response but a very worthwhile exercise notwithstanding. Very happy to keep this dialogue going in any way deemed fruitful.

Response: The foregoing is wide-ranging and somewhat overwhelming. It ranges from on-ground resource assessment to changing the prevailing economic logic driving governments and corporations. All that has been discussed is relevant and necessary. It would seem a level of agreement will need to be reached with the NRM Regions Collective and AgForce to distil what and where they are prepared to act. The Royal Society is certainly well-placed to broker the science and science-related issues. I have no brilliant suggestions having been somewhat battle-weary at different times regarding NRM issues in Queensland and the failure of various governance arrangements to achieve viable outcomes. I find that I mostly entirely agree with the direction and sentiments expressed in the paper.

Response: I appreciated your paraphrasing all the known discussion points in the Rangelands Dialogue "knowledge compendium". It is indeed a Gordian Knot of a problem, - so many facets - so much expertise to consider. I begin to think we need to break the politico-policy mould that is forcing such stasis upon us.

We need to discuss this in the light of Theatre-in-the-round. We need to host little acted out plays or vignettes, along with a deliberative "hypotheticals" master play. We need to present this reflection of a societal dilemma, in the manner that Shakespeare does so well. We need a medium that blunts the defensive venom and causes us to look and laugh at the predicament(s).

We need to team up with The Brisbane Dialogues. The Brisbane Dialogues is a wholly independent, non-aligned, intergenerational, all-volunteer project to stimulate better discussions about big ideas and issues. "He who knows only his own side of the case, knows little of that." J.S. Mill

Let's have a "mock-up" of what/ how a Citizens Assembly could work in Australia. It does in Ireland!!! Invite their Chairman!

Geoff Edwards
On behalf of The Royal Society of Queensland's Rangelands Working Group
25 October 2020
Four responses incorporated 3 January 2021.

All responses were sent to issues-survey@rangelandsqld.org.au.

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- ⁱⁱ McKeon, G, Hall, W, Henry, B, Stone, G & Watson, I (eds) (2004). '[Pasture Degradation and Recovery in Australia's Rangelands: Learning from History](#)'. Department of Natural Resources Mines & Industry, Queensland Government.
- ⁱⁱⁱ McGovern, M. 1999. "[On the unimportance of export to Australian agriculture](#)." *Australasian Journal of Regional Studies*. Vol. 5(2): 229-252.
- ^{iv} Edwards, G. 2013. "REGIONS AND INNOVATION – A REFLECTION". In *Regional Advantage and Innovation: Achieving Australia's National Outcomes*. Susan Kinnear, Kate Charters, Peter Vitartas, editors. Heidelberg; New York: Physica-Verlag.