

**Arid
Lands
Environment
Centre**

Office: 90 Gap Road Alice Springs NT
Mail: PO Box 2796 Alice Springs 0870 NT
Web: www.alec.org.au
Phone: 08 89522497
Email: policy@alec.org.au

19th December 2022

Draft Georgina Wiso Water Allocation Plan submission

The Arid Lands Environment Centre (ALEC) is Central Australia's peak community environmental organisation that has been advocating for the protection of nature and growing sustainable communities in the arid lands since 1980.

Water is fundamental to the work ALEC is engaged in. This is unsurprising as water underpins everything: it dictates where people live, where biodiversity thrives and how culture is maintained. Water is life; everything comes back to water. In Central Australia, ephemeral rivers traverse landscapes tracking million year old paths, permanent waterholes sustain life and act as critical refugia in climatically stressed environments and ancient groundwater systems store water which connects and sustains life on the surface.

ALEC is deeply concerned with the Draft Georgina Wiso Water Allocation Plan (Draft WAP). It is a dangerous plan that if finalised in its current form has far reaching implications for the management of water resources across the Territory. The direct risks to the water resources impacted by this plan are serious and may include irreversible harm to key ecosystems and cultural values, including ecosystems on the Roper and Flora rivers. It is also expected to lead to chaotic, contested and sub-optimal water resources use and extraction licence decisions which are not in the public interest.

ALEC has identified that: relevant community sectors are not aware of the plan; the information is unsuitable for community feedback; and the Department's attempts to facilitate informed consent are absent or wholly inadequate.

Despite the lack of complete information, failure to analyse and report the impacts of the proposed level of extraction and failure to involve the community in the WAP's development, this is not a precautionary plan. It doubles the contingent allocation rules that normally applies under the Northern Territory Water Allocation Planning Framework, using a highly optimistic estimation of annual recharge. Furthermore it includes no safeguards to direct water extraction away from sensitive areas nor establish thresholds against which extraction licences are to be assessed and the water resources managed.

The above is unacceptable given the important values at stake and the immense commercial value of the (disputed) allocation to consumptive use. In ALEC's view the plan area is likely to be the target of extremely large applications for groundwater during the term of the plan. In this context the failure of this plan to arrive at a genuinely sustainable ESY, optimise the public interest; safeguard environmental and cultural values and garner social licence during this consultation process is alarming and must be reversed.

Many of the issues ALEC raises have also been outlined in letters to the Chief Minister Natasha Fyles and Minister for Environment and Water Security Lauren Moss on November 1 and in another letter to the Chief Minister and Minister Moss on November 24. Both these are attached. Consistent with these letters and the seriousness of the shortcomings with this plan, ALEC is firmly of the view that this plan needs to be withdrawn and must be redrafted in a more suitable form, with the involvement of a water advisory committee.

Recommendation 1: ALEC reiterates its request that the Draft Georgina Wiso Water Allocation Plan be withdrawn and redrafted using the accepted water allocation plan format, with the advice of a Water Advisory Committee.

Structure of submission

ALEC's concerns are organised under the following themes:

1. Communication and engagement
 - a. Consultation does not meet the code of ethics of the International Association for Public Participation (IAPP)
 - b. Consultation has been prepared without a water advisory committee
2. The format of the plan
 - a. The three document WAP template is fundamentally flawed
 - b. Key elements of a WAP expected under the NWI are missing
 - c. The Draft plan threatens to put the Government above the law
 - d. The statutory plan lacks necessary information and plan rules for effective and predictable management
 - e. The new plan template puts at risk the decades of carefully developed guidance in the many other water allocation plans across the Territory
3. Ecosystems and cultural values
 - a. Plan must include objectives to ensure environmental and cultural values supported by groundwater are protected
 - b. The requirements for groundwater discharges from the Georgina and Wiso plan to meet environmental and cultural water requirements in the Mataranka and Flora WAP's respectively need to be established prior to this plan being formulated and thresholds established to assure these are satisfied
4. Water resources
 - a. Recharge is overstated
 - b. The assertion that storage is increasing in the draft technical report appears to be misleading and irrelevant as storage appears to have been stable over the last decade.
 - c. The approach of setting an ESY based upon 40% of recharge is fundamentally flawed
 - d. Contested assumptions about the water resource
 - e. Too large and unjustified ESY
5. Water resources management
 - a. Groundwater management zones are too large to be effective or meaningful
 - b. Key elements of water resources management (as described under the NWI) are missing from the statutory WAP
 - c. Relevant information is not available for the Wiso Basin and the ESY does not take into account approved use from the same resource outside of the plan area.

- d. The expectations for groundwater discharges to the Georgina and Wiso plan areas need to be established for the Mataranka and Flora WAP's respectively and thresholds established to assure these are satisfied
6. Other
- a. Shortcomings in the scientific basis identified in the Pepper inquiry are unresolved
 - b. The plan is being released to meet the timelines of the fracking industry.

ALEC's expectations for transparency in responding to submissions

There has been widespread criticism of the plan from those sectors who have been engaged in this process, including an extraordinary letter from eminent Australian water experts¹ and widespread critical media coverage. These concerns are well founded and should not be dismissed, especially as the plan "goes it alone" by straying from the National Water Initiative guidance.

The Department should prepare a report on Communications and Engagement using the same template as for all other recent water allocation plans (e.g. Western Davenport, Ti Tree and Ooloo) to provide transparency that the concerns raised have been considered and adequately responded to.

Recommendation 2: A comprehensive report on communications and engagement should be prepared prior to any water allocation plan being released. This should follow the format of previous reports on communications and engagement for other water allocation plans², including a description of engagement activities and thorough description and proposed response to any submissions received.

1. COMMUNICATION AND ENGAGEMENT

Statement by Dianne Seri Stokes

The draft Georgina Wiso Water Allocation Plan is for two very important water resources. It needs strong rules to protect the valuable water, which is needed for people and country.

I was not aware of the plan.

STOP. WAIT. LISTEN. *We must talk to our people first.*

We need time to talk to the whole Barkly Shire region.

With enough time and good information we will come up with a plan that is fair, sustainable and safe for our young generations.

We need time to do this. I will help facilitate this.

Dianne Seri Stokes, Barkly Regional Council Councillor, 14 December 2022

Dianne Seri Stokes as a councillor with known interests and should have been consulted on this draft

⁴https://assets.nationbuilder.com/ecnt/pages/749/attachments/original/1669261046/Chief_Minister_Letter_Water_Planning_23_November_2022.pdf?1669261046

² For example see reports on communication and engagement

https://depws.nt.gov.au/__data/assets/pdf_file/0006/625047/WDWAP-Comm-Engagmt-Rpt-20122018.pdf

plan. ALEC has been concerned that Dianne’s story of not being aware of the draft plan was regularly repeated by people we spoke to in Tennant Creek, with an interest in water management and community development.

The failure to properly consult during the development of this draft is particularly disappointing as the department initiated consultation with Traditional Owners in August 2020, at which there was considerable interest in participating in the plan development and the expectation created that there would be opportunities to participate.

Consultation does not meet the code of ethics of the International Association for Public Participation (IAPP)

Principle	Position of IAPP	Issue
Openness	We will encourage the disclosure of all information relevant to the public’s understanding and evaluation of a decision.	<ul style="list-style-type: none"> • The information provided is scant in detail. • The water requirements and impacts on dependent values are not described. • Reports are cited which are in draft form, or still in preparation and not publicly available³.
Access to the process	We will ensure that stakeholders have fair and equal access to the public participation process and the opportunity to influence decisions.	<ul style="list-style-type: none"> • The plan was announced on a Friday afternoon, six weeks prior to Christmas. • The department does not appear to have actively enabled public engagement during draft development, or during consultation on the draft. It is clear that most people in the plan area are unaware of the plan’s existence. • Information is not presented in a range of formats suitable for engagement with all stakeholders.
Respect for communities	We will avoid strategies that risk polarising community interests or that appear to “divide and conquer.”	<ul style="list-style-type: none"> • Failure to establish a water advisory committee, which could help produce a consensus. • The large ESY, which we argue is not supported by evidence, is highly divisive • Announcing the plan on the ABC Country Hour appears to be aimed

³ Maggu, J., Waugh, P. and Schult, J. (2022, in progress). *Water resources of the Wiso Basin Water Allocation Plan area, Technical Report 6/2022*. Department of Environment, Parks and Water Security (Water Resources Division). Northern Territory Government. Palmerston, Northern Territory.

Maggu, J., Waugh, P., Smith, I. and Schult, J. (2022). *Water resources of the Georgina Basin Water Allocation Plan area, Technical Report 10/2022*. Department of Environment, Parks and Water Security (Water Resources Division). Northern Territory Government. Palmerston, Northern Territory.

Principle	Position of IAPP	Issue
		currying support for the plan from the audience most likely to be favourably disposed to large allocations for consumptive use and influence.
Advocacy	We will advocate for the public participation process and will not advocate for interest, party, or project outcome.	<ul style="list-style-type: none"> It is concerning that the Department of Environment, Parks and Water Security reports under a separate program that it is pursuing development opportunities for irrigated agriculture. Refer section 6.5.1 of the technical report. It states a notional estimate of 170,000 ML/year is needed to within the life of the plan. The Department's impartiality appears compromised by identifying areas as suitable for land activities which need very large amounts of groundwater.

Consultation has been prepared without a water advisory committee

The Draft Plan has been developed without a water advisory committee which means Traditional Owners, affected communities and key stakeholders have had no input into or oversight of how the plan was developed. The draft plan states that a water advisory committee will be established 'where appropriate'.⁴ This is poor practice, unconventional and goes against the National Water Initiative which states that water plans are

'developed in consultation with all relevant stakeholders on the basis of best scientific and socio-economic assessment, to provide secure ecological outcomes and resource security for users' (see Schedule B(i)).

It is particularly problematic as where a similar kind of plan had been proposed for the Western Davenport Water Allocation Plan, the Western Davenport Ti Tree Water Advisory Committee (WDTTWAC) opposed the plan and refused to endorse it.⁵ This plan remains unreleased.

The CEO of the Central Land Council, Les Turner has publicly called for the Government to 'pull back the plan and conduct genuine stakeholder consultations'.⁶ The lack of consultation and engagement has also been criticised by 18 water experts from 11 universities across the nation.⁷ They identified the flow on impacts of not conducting any consultation or engagement with key stakeholders.

⁴ Draft Georgina Wiso Water Allocation Plan 2022 - 2030, p.14

⁵ Jonscher, S, 2022. 'NT government at odds with water planning committee overseeing Fortune Agribusiness licence, leaked letter shows'. ABC

⁶ Jonscher, S, 2022. 'Northern Territory government under mounting pressure over water plans for area the size of Cambodia' ABC

⁷ Jackson et al., 2022. 'Letter to the Chief Minister - Poor practice water planning in the Northern Territory'

‘No water advisory committee was put in place, compounding the problem of absent environmental or cultural requirements for water or trigger rules for assessing unacceptable impacts. Potential impacts to groundwater dependent ecosystems are completely overlooked.’⁸

Key information is excluded when the Government fails to include other stakeholders around water resource management decisions.

No attempt to engage with stakeholders regarding a highly contentious water plan is poor and unreasonable. It threatens to undermine the Northern Territory Government's water reform agenda. This is an agenda that proposes to ‘engage Territorians in water management and decisions to build confidence and foster a shared understanding’.⁹ Minister Moss has also stated that the Government ‘will continue to be guided by the consultation and science, not misinformation and mistruths’¹⁰. It is apparent then that a failure to consult destroys trusts and creates conflict. This is exactly what the Draft WAP has done.

Recommendation 3: A water advisory committee should be established and involved in preparation of a revised draft water allocation plan

2. FORMAT OF THE PLAN

The three document WAP template is fundamentally flawed

The Draft Georgina Wiso Water Allocation Plan adopts a new plan template breaking the plan into three documents, the:

- Draft Georgina Wiso Water Allocation Plan 2022-2030 (Statutory WAP);
- Draft Georgina Wiso 2022-2030 Background Report (Report);
- Draft Georgina Wiso 2022-2030 Implementation Actions (Actions).

ALEC is deeply concerned that:

- Key elements of a WAP expected under the NWI are missing;
- The minimal content in the statutory document threatens to put the Government above the law;
- Lacks the necessary guidance for management and certainty;
- Loss of hard fought regulations;
- The only water advisory committee to consider this template was deeply opposed to it¹¹.

⁸ Jackson et al., 2022. ‘Letter to the Chief Minister - Poor practice water planning in the Northern Territory’

⁹ Territory Water Plan, p.13.

¹⁰ Moss, L, 2022. ‘Next chapter of water story will be bright’. NT News.

¹¹ https://depws.nt.gov.au/_data/assets/pdf_file/0020/1165124/western-davenport-ti-tree-wac-meeting6-3october2022-.pd
(refer pages 2-3)

It risks catastrophic outcomes, as the Controller of Water Resources in making water licensing decisions does not need to consider the Report or Actions, and these may be varied from time to time.

Key elements of a WAP expected under the NWI are missing

In 2004 the Northern Territory Government signed up to the National Water Initiative. The NWI is:

‘Australia's blueprint for national water reform, created in 2004 and agreed by all states and territories. This shared commitment by all Australian governments provides a framework and principles to underpin the sustainable management of our water resources. It aims to increase the efficiency of Australia’s water use, provide investment confidence and greater certainty for the environment, and improve water security for rural and urban communities.’¹²

The Territory has repeatedly been a laggard in meeting the commitments of the NWI, but the Draft Plan is a dramatic escalation.¹³ The Draft Plan sets a dire precedent across the Northern Territory where it breaks away from key and fundamental components of the NWI. This includes the decision to:

- Not consult e.g. with a Water Advisory Committee;
- Remove an objective for ecological values out of the statutory WAP;
- Remove an objective for cultural values out of the statutory WAP;
- Remove considerations of risk and uncertainty out of the statutory WAP;
- Remove the implementation and monitoring plans (including performance monitoring) from the statutory WAP;
- Remove the adaptive management framework out of the statutory WAP.

It comes at a time where nationally there is a move to strengthen water management and conduct comprehensive reform. The Albanese Government through Minister for Water Tanya Plibersek has committed to renewing the National Water Initiative. This follows the Productivity Commission’s final report on National Water Reform which laid out a framework for priorities for a renewed NWI.

Instead of strengthening the NT’s water laws, this Draft Plan further weakens the management of water in the Northern Territory. In doing so, the Northern Territory puts itself under more pressure and scrutiny, where it is increasingly known nationally as underperforming and making reckless decisions around water resource management.

The Draft plan threatens to put the Government above the law

The plan attempts to put the government above the law as it seeks to prevent decisions around water from being taken to court.

It does this through major structural changes of what constitutes a water allocation plan. The Draft WAP erodes the rigour of WAPs where it deliberately sidesteps accountability mechanisms established under the *Water Act* 1992 through s. 22B(1), s. 22B(4) and s. 90(1)(ab).

¹² DCCEEW, 2022. ‘National Water Initiative’ page. Accessed 9 December.

¹³ See the Productivity Commission’s National Water Reform 2020 Final Report.

This threatens to put the government above the law as the *Water Act* 1992 only applies to the Statutory WAP, however this has been gutted of any meaningful content. So what accountability mechanisms have been removed or sidestepped?

S. 22B(1) states that:

‘The Minister may, by notice in the Gazette, declare a water allocation plan in respect of a water control district.’

S 22B(4) states that:

‘Water resource management in a water control district is to be in accordance with the water allocation plan declared in respect of the district’

S. 90(1) states that:

‘In deciding whether to grant, amend or modify a permit, licence or consent under section 36, 41, 57, 63, 65, 67, 74 or 93(1), or in making a water extraction licence decision, the Controller must take into account any of the following factors that are relevant to the decision:

(ab) any water allocation plan applying to the area in question.’

In short, a water allocation plan is to be gazetted within a water control district to take legal effect under the *Water Act*. These water allocation plans need to be considered by the Controller of Water Resources when granting water licence decisions and decisions need to be made in accordance with a water allocation plan that is declared within a particular water control district.

This plan seeks to bypass the Water Act by removing information that is relevant to the granting of water licences and water resource management. This is not an allegation by ALEC, this is something that is being communicated by the Department of Environment, Parks and Water Security. We have been told several times, as have other stakeholders, that these changes are occurring due to the litigious environment. It has also been captured in the minutes of the Western Davenport Ti Tr tee Water Advisory Committee meeting 6 minutes, where it states that:

‘the current format majority of committee do not endorse and do not want their name against it saying they endorse it as a committee, although noting structure is not for endorsement as it is a result of legislative responsibilities and to prevent future opportunity for litigation’ and goes on further stating that due in part to the ‘litigation environment’ the Department is constrained in changing the structure.¹⁴

Muzzling scrutiny is a very serious escalation by the Northern Territory Government. It is ever more astounding in contexts where no consultation has even occurred such in the development of this WAP. It is remarkable and frightening that this is being communicated so openly and honestly by the Department. ALEC emphasises that the attempt to silence scrutiny in the Draft Plan is absolutely unacceptable. The draft plan is rightfully being condemned widely by water experts, land council and environmental experts.

This attempt to suppress public scrutiny runs counter to the recent review of the *Environment Protection and Biodiversity Conservation Act* 1999 by Professor Samuels, and the subsequent reforms

¹⁴ https://depws.nt.gov.au/_data/assets/pdf_file/0020/1165124/western-davenport-ti-tree-wac-meeting6-3october2022-.pdf (bullet point 5, p6)

proposed by Commonwealth Minister for Environment, Tanya Plibersek. These include, maintaining legal standing for judicial review of Minister and EPA decisions¹⁵, establishing an independent Environment Protection Authority, legislating national environmental standards, and establishing a data division who will expand state of the environment reporting as well as other regular interim reporting. These measures clearly demonstrate the importance of public interest litigation and access to the courts in the form of judicial review proceedings. This contradicts arguments around ‘lawfare’.

Recommendation 4: Abandon the proposed three document structure that attempts to sidestep key accountability mechanisms under the Water Act .

Plan lacks necessary information and plan rules for effective and predictable management

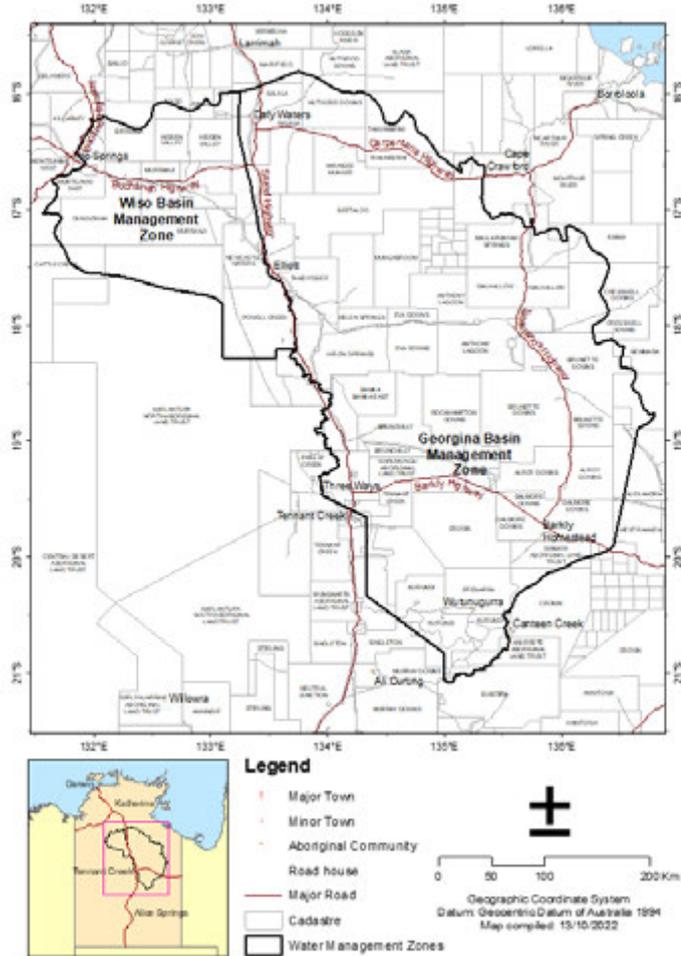
The plan is extremely light on detail and provides no guidance for management. The management zones are extraordinarily large across 155,000km² (Figure 1)

It appears the NTG is indifferent as to where water within the largest WAP volume in Northern Territory history is taken across a 600 km stretch of land. The draft Plan also removes any limits whatsoever as to the circumstances under which groundwater can be taken.

As the plan gives no guidance on where and how water can be taken, it cannot meaningfully predict the consequences of taking this amount of water on receiving environments.

The Implementation Plan makes it abundantly clear that the Government has not even identified how key ecological and cultural values in the region will be impacted by extraction.¹⁶ Further, this will not be known for several years. We explore the potential impacts to iconic ecological values in section 3 and the inadequacy of the management zones in section 5.

Schedule C: Map of water management zones



The new plan template puts at risk the decades of carefully developed guidance in the many other water allocation plans across the Territory

ALEC has participated on numerous water advisory committees and supported the implementation of

¹⁵ Samuels Review went further in advocating for limited merits review. This was not adopted by the Albanese Government.
¹⁶ See implementation actions p.9-14.

numerous plans. If this new template could become standardised leading to the loss of hard fought provisions in the existing WAPs, which have been crucial to social licence; have provided certainty around water resources management outcomes and optimised the level of protection and water available for consumptive use.

For example in the Ti Tree water allocation plan the estimated sustainable yield was set, based on there being a GDE protection area and rules to protect GDEs. Similarly the Ooloo Water allocation plan establishes “groundwater discharge protection areas” which provide direction on where to avoid extraction so as to minimise the risk to environmental and cultural values supported by groundwater and maximise the volume of groundwater that can be safely extracted.

We note that the same plan template was proposed to the Western Davenport Ti Tree WAC in October. The WDTTWAC opposed the plan format. Its concerns are documented in its Minutes¹⁷.

3. FAILURE TO PROTECT WATER DEPENDENT ECOSYSTEMS AND CULTURAL VALUES

Plan must include objectives to ensure environmental and cultural values supported by groundwater are protected

ALEC is deeply concerned that the statutory plan sets no objectives to protect the environmental and cultural values supported by groundwater. This appears odd and to be avoiding a key responsibility as the plan makes allocations water to the beneficial use Environment and S22B (6) makes clear the expectation that environment is to be considered.

Furthermore the Productivity Commission Review of the NWI (p79)¹⁸ states:

(Best practice can be captured in five key principles:)

...• environmental objectives and outcomes are clearly specified

The same review also needs of Aboriginal and Torres Strait Islander people are better recognised

The need for objectives appears to be tacitly acknowledged by numerous implementation actions being described to defined environmental and cultural values.

Recommendation 5 the amended draft water allocation plan should include objectives to ensure environmental and cultural values supported by groundwater within and outside of the plan area are protected

Plan must describe, define environmental water requirements and protect water dependent ecosystems and cultural values, including those beyond the plan area that depend on discharges from the Georgina and Wiso Basins and ensure these are met

¹⁷https://depws.nt.gov.au/data/assets/pdf_file/0020/1165142/western-davenport-ti-tree-wac-meeting-out-of-session-1-12october2022.pdf

¹⁸ <https://www.pc.gov.au/inquiries/completed/water-reform-2020/report/water-reform-2020.pdf>

ALEC is deeply concerned that water allocations which will substantially change aquifer levels and flows are being implemented before the environmental and cultural water requirements in Mataranka and the Flora rivers have been determined. The risks and inadequate information are acknowledged as the following implementation actions relating to environmental water requirements of key environmental values are defined:

- In 2025, to ‘identify key environmental values associated with surface and groundwater’
- In 2026, ‘ground truthing of region scale probability mapping for the entire district using spatial analysis to define the likely extend of groundwater dependent ecosystems’
- Communicating how environmental values will be managed 3-4 years after the plan has been developed.
- In 2026, refine and revise minimum flows to maintain groundwater contributions of downstream aquifers that support Mataranka and the Flora River.
- In 2023-24, undertake ‘further bore drilling to inform water quality and quantity definitions informed by SREBA’

Implementation actions related to key Aboriginal and other cultural values associated with water are equally shocking. As are the actions for public water supply. It is unacceptable to accelerate extraction in the region when basic cultural and environmental values have not even been identified, and will not be for several years. It is atrocious.

Due to the failure to complete scientific studies and integrate these studies into the management of water resources, and due to the absence of guidance for management, aquatic ecosystems of ecological and cultural significance are at risk.

The significant ecosystems which could be impacted are described by Currell and Ndehedehe in ‘The Cambrian Limestone Aquifer, Northern Territory: Review of the Hydrogeology and Management Rules to Ensure Protection of Groundwater Dependent Values’ (Currell Report) provides detailed analysis of environmental water requirements within the Cambrian Limestone Aquifer (CLA).

The Environmental and cultural values/dependencies of the CLA are well summarised by ECNT. These are restated in Appendix 2. The plan must demonstrate that these values’ environmental water requirements can be sustained by ensuring groundwater thresholds and flows values are maintained by this plan.

Recommendations

Recommendation 6: The scientific studies should be finalised, the model recalibrated with SREBA data and additional studies conducted outside of the Beetaloo Basin BEFORE the WAP is declared

Recommendation 7: The water requirements for significant ecosystems which could be impacted (see Appendix 2) must be provisioned with adaptive management thresholds in place

Protection Areas (or additional groundwater management zones) are needed to delineate areas with significant environmental values, cultural sites and drinking water supplies that could be vulnerable to inappropriate consumptive use of water and special considerations apply.

The draft plan fails to identify areas with significant environmental values, cultural sites or drinking water supplies where limits on water extraction licences may be needed to protect these values. This differs from the approach in other water allocation plan areas where protection areas have been defined (e.g Groundwater Discharge Protection Area in the Ooloo Dolostone WAP defines areas where groundwater extraction and water quality risks are inappropriate.)

Significant ecosystems occur within the plan area including Lake Sylvester, Eva Downs Swamp, Tarrabool Lake and Lake Woods, which are all identified as sites of international conservation significance. Lake de Burgh and Corella Lake are also listed in the Directory of Important Wetlands. There are also important waterways such as but not limited to Newcastle Creek. There may also be significant groundwater dependent ecosystems depending upon perched groundwater or surface water runoff.

Hydrofracturing would not be appropriate in proximity to any of the above and therefore water extraction should not be permitted for Petroleum activity in these areas.

Similarly, irrigated agricultural use should be directed well away from any listed Important Wetlands or significant waterways. We recommend that an Environmental Protection Area be shown in the statutory plan to make clear where extraction for some consumptive beneficial uses is inappropriate or additional considerations apply.

Recommendation 8: Environmental Protection Areas should be established in the statutory plan to show where any additional restrictions on taking water for certain consumptive beneficial uses apply. (Alternatively this could be enacted via an additional groundwater management zones)

4. WATER RESOURCES

Recharge is overstated

ALEC is very concerned about the method of estimating the ESY and estimation of the parameters upon which it has been based not reliable and overstate the amount of water which could be available

The 50 year data record cherry picks the recharge record by including an exceptionally large recharge year in 1974 which skews the data record but does not include the preceding very dry period.

This is identified in the Currell and Ndehedehe report which states:

‘The recently released draft Georgina Wiso WAP estimates recharge rates to the Georgina and Wiso Basins to be approximately 660 GL/year; i.e., significantly higher than the previous model-based estimates outlined in Table 3. The 660 GL/year value is based on updated coupled surface water-groundwater modelling - the same model reported in Knapton, (2020). The estimate is however nearly double the recharge reported for the Georgina Basin in the previously documented modelling. This is likely due to the use of the most recent 50 year-period of data (1970 to 2020, a relatively wet period), as opposed to the full length of available climate records – Knapton, (2020) used the longer period of 1900 to 2019 climate data. Notably, the majority (two thirds) of the recharge contributing to the overall total over

the revised modelled conducted for the draft WAP occurred during 1974, an extremely wet year which saw an estimated 21,280 GL of recharge. There is very little data to indicate the mechanism or geographic extent of this large, episodic recharge event, nor any indication as to how frequently such events may recur. As such, the estimation of average recharge in the draft WAP, is very heavily dependent on a single recharge event nearly fifty years ago, for which data are mostly lacking. This is critically important when assessing whether extracting a fraction of the averaged recharge rate derived using the model – e.g., 40%, as proposed in the plan – can be considered appropriate as a sustainable yield (see further discussion in section 2 and 3 below).¹⁹

We note that Brouwer and Tickell 2017 (updated 2019)²⁰ based upon a chloride mass balance also arrived at very different recharge rates.

Table 12 Recharge volumes

Recharge zone*	Area (km ²)	Recharge rate (mm/year)	Recharge (GL/year)	Aquifer
Western	1,075	1.9 – 8.0	2 - 9	Gum Ridge Fm.
Southern	6,596	0.9 – 8.0	6 - 53	Gum Ridge Fm.
North-eastern	9,600	1.2 – 12.2	12 - 117	Gum Ridge Fm.
Anthony Lagoon	26,980	1.9	51	Anthony Lagoon Fm.

To ensure the historic climate record that is adopted is properly situated within the set of rainfall, we suggest stochastic rainfall data set should be used, at least to provide a comparison with the recharge which is statistically likely.

Recommendation 9: a conservative estimate of recharge should be adopted and its inherent uncertainty acknowledged

The assertion that storage is increasing in the draft technical report appears to be misleading and irrelevant given storage appears to have been stable over the last decade.

The draft technical report states: “Under the recent climate regime (1970-present), CLA groundwater storage within the Georgina Basin is increasing at an average rate of approximately 607,000 ML/year (modelled)”.

We note also that Knapton 2020²¹ presents numerous hydrographs from across the plan area which consistently show groundwater levels have been relatively stable since about 2011.

¹⁹ p.15

²⁰ <https://territorystories.nt.gov.au/10070/361119>

²¹ <https://territorystories.nt.gov.au/10070/827500>

We believe that this statement should be removed on grounds of irrelevance seeing as it does not appear to be the case anymore and climate change and aquifer levels are significantly changed. Any statement of expected changes in storage should be based on current aquifer levels not starting from the close to historically low levels in 1974.

Recommendation 10. The assertion of increasing storage should be removed and changed to reflect the current situation. Projected changes to storage should not be calculated from a starting point from close to historically low storage and just prior to an exceptionally large recharge year and give consideration to climate change.

The approach of setting an ESY based upon 40% of recharge is fundamentally flawed

The Currell and Ndehedehe report goes into detail about the ways in an estimated sustainable yield should be calculated:

‘Aquifers should not be described in terms of their total storage when considering sustainable yields or ‘safe’ extraction rates (this topic is covered in detail in Sections 2 and 3 of this report). It is the water flows to and from an aquifer sustaining other aspects of the water cycle and dependent values (e.g., groundwater flows to streams, springs and other aquifers), that is the most important factor in assessing the sustainable yield from an aquifer (not storage volume) (Theis, 1940; Alley et al., 1999; Ponce, 2007). These flows are normally very small in comparison to the total water in an aquifer’s storage; extracting even small proportions of overall storage can have significant water cycle consequences (e.g., reduced baseflows and/or loss of groundwater dependent ecosystems). Viewing the aquifer as a single connected ‘bucket’ of stored water that can be extracted without impacting the broader watercycle, risks serious harm to water users and the environment (Alley et al., 2002; Bierkens and Wada, 2019).²²

Concluding that:

‘Volumetric extraction rate limits which in the long-term ensure:

A) groundwater flows and levels do not decline in such a way as to compromise the health of the groundwater dependent ecosystems, water quality and aquifer integrity. This requires careful analysis of recharge and discharge flux rates, environmental dependencies on these flows, and the extent of ‘capture’ and drawdown caused by pumping at different rates.

B) the renewability of groundwater resources, ensuring prevention of long-term storage depletion and/or detrimental capture of surface flows - recognising the value of the Roper River, Mataranka springs and other GDEs supported by the CLA. 2)

Clearly defined and well monitored groundwater level thresholds, determined to be the elevations required to sustain environmental and cultural values of groundwater dependent sites and ecosystems – including through the maintenance of throughflows between the CLA basins. When these levels are approached or crossed, reductions in groundwater pumping should be triggered, in line with level-based management approaches adopted in other parts

²² Currell, M & Ndehedehe, C, 2022, .p.12. The Cambrian Limestone Aquifer, Northern Territory: Review of the Hydrogeology and Management Rules to Ensure Protection of Groundwater Dependent Values

of Australia and internationally. Trigger levels must be set at appropriate distances from environmental assets seeking to be protected to account for time-lags.²³

Recommendation 11: *The above conclusion by Currell and Ndehedehe (shown in italics above) should be adopted as the requirements for volumetric extraction rate limits and groundwater level thresholds in setting the ESY.*

5. WATER RESOURCES MANAGEMENT

Groundwater management zones are too large to be effective

ALEC twice asked Director Water Planning and engagement for information on the impact of extracting the proposed ESY on groundwater fluxes leaving the plan area, but this information was not provided and does not appear to be available.

The size of the groundwater management zones and absence of any additional guidance in the draft plan as to where groundwater can be taken makes it difficult to supply the above basic information. The plan does not allow certainty that a development scenario used in a pumping input file reflects a likely development scenario and hence that the predicted impacts on fluxes from the plan are reliable. Additional groundwater management zones could limit this uncertainty.

In addition a greater number of groundwater management zones is warranted for:

Sound environmental management. Specifying allocations in smaller groundwater management zones could limit the risk of groundwater being taken close to the plan boundaries, limiting impacts on ecosystem and cultural values in the Mataranka WAP area, and similarly for the Flora plan area.

Protect areas where it is inappropriate to take large volumes of groundwater because of risks to water resources associated with that use - e.g. sites of international conservation significance including Lake Sylvester, Eva Downs Swamp, Tarrabool Lake and Lake Woods and other Directory of Important Wetlands including Lake de Burgh and Corella Lake areas close important waterways such as but not limited to Newcastle Creek and perched aquifers groundwater dependent ecosystems

Equity - water users across the plan area are entitled to their fair share of the water that is available

Maximising public benefit - These are valuable water resources and should not be gifted to the first bidder.

Minimising risk

A “mosaic” approach could be considered precautionary by reducing risk of localised water quality problems and

Recommendation 12. *The Wiso and Georgina basins are far too large to be a single groundwater management zone they should be broken into multiple groundwater management zones*

²³ p.4

Relevant information is not available for the Wiso Basin and the ESY does not take into account approved use from the same resource outside of the plan area.

It appears that extraction from upgradient of the Wiso Basin may essentially be drawing from the same water resource. The significant extraction that is already occurring between the Wiso management zone and the Flora River should be considered in setting the ESY for the Wiso management zone

Recommendation 13 *The significant extraction that is already occurring between the Wiso management zone and the Flora River should be considered in setting the ESY for the Wiso management zone*

The requirements for groundwater discharges from the Georgina and Wiso plan to meet environmental and cultural water requirements in the Mataranka and Flora WAP's respectively need to be established prior to this plan being formulated and thresholds established to assure these are satisfied

Mataranka plan receives groundwater inflow from the Georgina plan area (Currell and Ndehedehe report indicates this is between 2-16GL/yr). Which could be expected to buffer for Larrimah in dry times. Because the draft Georgina Plan plan allows up 243GL from the Georgina and the plan has no rules stopping much of this water being taken north of Daly Waters causing a lowering the water table in this area it would be expected to reduce flow towards or pull water from Larrimah. Any reduced flow or egress from Larrimah toward Georgina, as well as impacts on ecosystems results in a direct reduction in water availability in Larrimah. These changes should be known and publicly available described

Best case this reduces the amount of water available in Larrimah and worst case it means environmental flows to Elsey Creek aren't met. No information is provided to know what the effect is. The Mataranka WAC was not consulted

The same considerations apply to ensuring the water requirements to meet level, discharge and quality requirements for provisioning water to the Flora WAP area.

In the case of the Flora, these issues are potentially exacerbated because:

- Less information is available and the Flora's environmental water requirements are not well defined
- Reports on the Wiso water resources are incomplete and not publicly available
- There may be not be as pronounced transition between plans as the Georgina/Daly Basin boundary
- There is significant extraction occurring between the Wiso management zone and the Flora River which appears to be drawing upon the same water resource.
- There is no oversight of management from the Flora by a water advisory committee

Recommendations

Recommendation 14: Environmental and cultural water requirements should be established Mataranka and Flora plans, before locking in major extraction plans for the Georgina and Wiso Basins.

Recommendation 15: Clearly defined and well monitored groundwater level thresholds need to be defined for groundwater flows and levels in the Georgina Wiso WAP area can ensure that the environmental and cultural water requirements in the Mataranka and Flora WAP areas are met.

Key elements of water resources management (as described under the NWI) are missing from the statutory WAP

The following elements are all essential parts of a water allocation plan and absent from the draft plan

- Risk management table
- Adaptive management framework specifies thresholds
- “Protection Areas” where particular considerations apply
- Rules for taking water (limits to change)
- Implementation and monitoring plans (including performance monitoring) from the statutory WAP.

As the above all provide necessary information to give certainty that water resources are managed in a sound way they should all be reinstated into the draft WAP

Recommendation 16: Reinstate: risk management table; adaptive management framework including adaptive management thresholds; “Protection Areas” where particular considerations apply; rules for taking water (limits to change); and implementation and monitoring plans (including performance monitoring) into the statutory WAP.

6. OTHER

Shortcomings in the scientific basis identified in the Pepper inquiry have not been resolved

There is poor existing understanding of the hydrogeology of the region as highlighted through the Pepper Inquiry. This is stated in the Background Report that:

‘The need for robust baseline data was identified in the Inquiry. Prior to the SREBA it was acknowledged that there is generally poor spatial coverage of data on surface and groundwater characteristics and aquatic and terrestrial biodiversity in the regions of the Territory most likely to be affected by an onshore gas industry.’²⁴

The Pepper Inquiry made clear the deficiency of existing knowledge on the water resource and its dependent aquatic values, stating:

²⁴ p.20.

‘Specifically, the aquatic biodiversity of the NT is not well known, the distributions of its species is uncertain, even for fish, and the locations of key refugia, sensitive assemblages, and isolated populations are poorly documented. The Panel finds that, without detailed baseline data, it is not possible to understand the key sensitivities in any region proposed for any onshore shale gas industry. Planning to manage possible impacts on aquatic ecosystems must therefore be guided by the application of the precautionary principle... Accordingly, it is essential that any SREBA is designed to include multiple-year sampling of aquatic ecosystems. As a general rule in the Top End two to five years of baseline data will be required to achieve adequate coverage of inter-annual variability,³⁵ while in drier zones a longer timeframe is required.’²⁵

The Inquiry emphasised the need for groundwater extraction in this region to protect aquatic ecosystems. The types of aquatic ecosystems that were considered included:

- Rivers and their tributaries;
- Wetlands;
- Springs;
- Lakes;
- Stygofauna and other subterranean aquatic ecosystems
- Terrestrial groundwater dependent ecosystems

In response to the lack of baselines and outstanding uncertainty to protect aquatic ecosystems, the Pepper provided the following recommendations to better understand and protect water resources within the region, these include:

Recommendation 7.3 That the Australian Government amends the EPBC Act to apply the ‘water trigger’ to onshore shale gas development.

Recommendation 7.5: That before any further production approvals are granted, a regional water assessment be conducted as part of a SREBA for any prospective shale gas basin, commencing with the Beetaloo Sub-basin. The regional assessment should focus on surface and groundwater quality and quantity (recharge and flow), characterisation of surface and groundwater-dependent ecosystems, and the development of a regional groundwater model to assess the effects of proposed water extraction of the onshore shale gas industry on the dynamics and yield of the regional aquifer system.

Recommendation 7.7 That in relation to the Beetaloo Sub-basin:

- the Daly-Roper WCD be extended south to include all of the Beetaloo Sub-basin;
- that WAPs be developed for each of the northern and southern regions of the Beetaloo Sub-basin;
- the new northern Sub-basin WAP provides for a water allocation rule that restricts the consumptive use to less than that which can be sustainably extracted without having adverse impacts on other users and the environment; and

²⁵ Scientific Inquiry into hydraulic fracturing in the Northern Territory Final Report, 2017, p.446-447.

- the southern Sub-basin WAP prohibits water extraction for any onshore shale gas production until the nature and extent of the groundwater resource and recharge rates in that area are quantified.

That in relation to other shale gas basins with similar or greater rainfall than the Beetaloo Sub-basin, WCDs be declared and WAPs be developed to specify sustainable groundwater extraction rates for shale gas production activities that will not have adverse impacts on existing users and the environment.

That in relation to other potential shale gas basins in semi-arid and arid regions, all groundwater extraction for any shale gas production activities be prohibited until there is sufficient information to demonstrate that it will have no adverse impacts on existing users and the environment.

Recommendation 7.8: That the following measures be mandated to ensure that any onshore shale gas development does not cause unacceptable local drawdown of aquifers: that relevant WAPs include provisions that adequately control both the rate and volume of water extraction by the gas companies;

Recommendation 7.16: Recommendation 7.16 That appropriate modelling of the local and regional groundwater system must be undertaken before any production approvals are granted to ensure that there are no unacceptable impacts on groundwater quality and quantity. This modelling should be undertaken as part of a SREBA.

Recommendation 7.19: That the SREBA undertaken for the Beetaloo Sub-basin must take into account groundwater-dependent ecosystems in the Roper River region, including identification and characterisation of aquatic ecosystems, and provide measures to ensure the protection of these ecosystems.

Recommendation 7.20 - That the Beetaloo Sub-basin SREBA must identify and characterise all subterranean aquatic ecosystems, with particular emphasis on the Roper River region.

The Pepper Inquiry rightfully provided extensive recommendations to greatly improve the Government's understanding of the water resource and its dependent aquatic ecosystems.

Regarding implementation of recommendations of the Pepper Inquiry, the background report concedes that scientific baseline studies are not yet complete:

The SREBA is expected to be completed by the end of 2022. The information will be collated and prepared into a final report and database. Any recommendations from final reports will be used to inform the implementation of this plan.

Failure to have the studies finalised means that there is significant uncertainty around key parameters of a water allocation plan, such as groundwater flows and recharge processes.²⁶ For the regional Gum Ridge Formation and Montejinni Limestone Formation local indirect recharge is 'likely to be a dominant source providing recharge to the underlying CLA but this is poorly understood in terms of

²⁶ p.19

recharge rates and volume'.²⁷ Since the estimated sustainable yield in the Draft Plan is based on recharge, it is damning that there is such poor understanding of the processes and volumes for recharge in the regional aquifers of the Cambrian limestone aquifer (CLA).

Further, the Background Report states that the groundwater model will not be upgraded until 2024, where information from the SREBA will then be integrated.²⁸ Therefore it will not be until 2024 that there will be an improved understanding and confidence in the model, where the existing model is understood as poor and missing key data. The model will not be able to predict impacts, until data is integrated and the model recalibrated.

In addition the implementation report highlights outstanding knowledge gaps. These are incredibly basic areas that will not be known for years. This process is unbelievably backward and unworkable.

The Draft Plan takes a reckless approach, putting the politics of gas extraction ahead of the scientific studies around water. The science has not been finalised, it has not been evaluated and it has not been integrated into key processes that shape a more sustainable approach to water resource management.

It is apparent that the science does not support the Draft Plan. It is problematic for the WAP to be declared before scientific studies investigating fundamentals of hydrogeology and its impact on ecological and cultural values have been finalised.

Recommendation 17: Shortcomings in the scientific basis identified in the Pepper inquiry should be resolved prior to the draft Georgina Wiso plan being progressed.

The plan is being released to meet the timelines of the fracking industry

The Northern Territory Government has committed to arbitrary deadlines to complete all 135 recommendations of the Pepper Inquiry by the end of 2022. Completion of these recommendations as they were intended under this timeline is impossible. The quality and substance of the Draft Plan provides evidence of that.

The arbitrary rush to finish these recommendations and subsequently to declare a water allocation plan for the region by the end of 2022, goes some of the way in explaining why:

- No Water advisory committee was established;
- No other form of consultation or engagement occurred;
- The scientific studies have not been finished;
- The plan provides no guidance for management;
- The plan does not protect ecological or cultural values;
- The plan undermines and weakens water allocation planning.

It is highly problematic that the demands of the oil and gas industry is resulting in the complete erosion of governance and management of water resources across the Georgina/ Wiso basin. This will have ramifications across the Territory. The consequences of this are obviously fraught.

²⁷ P.15.

²⁸ p.17.

Until all recommendations of the Pepper inquiry are implemented, water for the beneficial use of fracking within the water control district should not be allowed

Recommendations

Recommendation 18: the draft Georgina Wiso WAP is for an extremely important and valuable water resource that needs to be sustainably managed - it should not be hurried to meet an external deadline unrelated to water resources management

Recommendation 19: Beneficial use of petroleum is excluded from the Draft Plan until all 135 recommendations of the Pepper Inquiry are implemented.

Conclusion

We trust that the seriousness of the concerns with this plan have been conveyed. Thank you for considering ALEC's submission

Kind regards,

Alex Vaughan

Policy Officer

Adrian Tomlinson

Chief Executive Officer

Appendix 1. Letters to Minister Moss (separate attachments)

Appendix 2. Selected Hydrographs Knapton 2020

Appendix 3. Environmental and cultural values/dependencies of the CLA as reported by Environment Centre NT and endorsed by ALEC

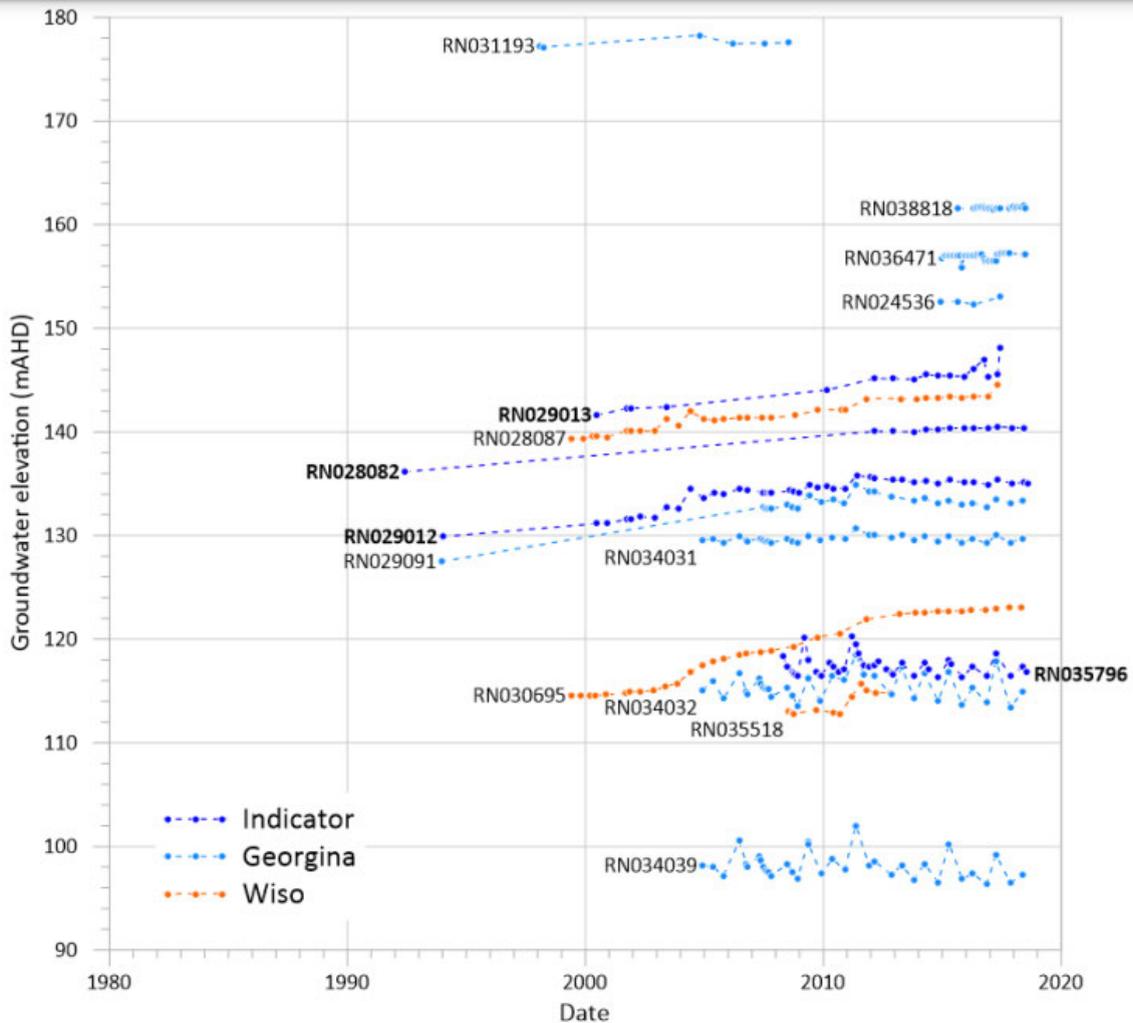


Figure 3-17 Timeseries groundwater levels in the southern portion of the model domain (Wisio and Georgina Basins). Locations are presented above in Figure 3-16.

Appendix 3 Environmental and cultural values/dependencies of the CLA as reported by Environment Centre NT

The Currell Report discloses the following significant environmental and cultural values/dependencies of the CLA, including a number of aquatic ecosystems which are dependent on groundwater from the CLA:

- (a) The upper catchment of the Roper River: discharge of water from the Tindall Limestone to the Roper River is a significant proportion of the river’s flow in the upper catchment. There is diffuse discharge to the river channel along a significant length within the upper catchment. Per the Currell Report, “these groundwater flows sustain the river and its tributaries through dry periods – ie the river is fully dependent on groundwater following periods of low rainfall”;
- (b) Elsey Creek;
- (c) Mataranka Thermal Pools: per the Currell Report, “discharge from the CLA is the predominant source of water sustaining the Mataranka Springs, which flow to the Roper River in its headwaters.”

(d) Waterhouse River and Roper Creek: Karp (2008) states:

The springs in the Roper start from the upstream junction of the Waterhouse River and Roper Creek (which join to become the Roper River) and extend east to the edge of the limestone basin. This region is the most significant in terms of groundwater and surface water interactions with the Mataranka Basin providing much of the base-flow in the Roper River.”

(e) Swamps and wetlands, such as Red Lily Lagoon and 57 Mile Waterhole (see also Karp (2008); (f) Downstream reaches of the Roper River; Karp (2008):

Analyses of data collected during a comprehensive survey in October 1980 show only small change in water quality in the non-tidal sections of the Roper River extending some 200 kilometres from the junction of Roper Creek and Waterhouse River to Roper Bar ... This suggests that during the dry season, the limestone aquifers in the Mataranka basin provide the main supply of water flow in the Roper River. Thus, the management of the groundwater resources in the Mataranka Basin is crucial to the viability of the downstream reaches of the Roper River.

(g) Wetlands and spring pools located within Elsey National Park;

(h) Warloch Pond Spring (Lamontagne et al, 2021);

(i) Longreach waterhole;

(j) Springs along the Flora River on the western side of the Daly Basin;

(k) (possibly) Top Springs on the western side of the Wiso Basin, although further research is needed to ascertain this;

(l) Red Lily Wetlands: Barber and Jackson (2012) document the importance of Red Lily Lagoons (20km downstream of Salt Creek and the eastern extent of Elsey National Park;

(m) Barlyurra sacred site complex, which straddles the Roper River in the vicinity of Red Lily Lagoon and upstream;

(n) *Livistonia rigida* (palms) dependent on groundwater flows to the Roper River, its tributaries and springs, which require shallow steady water tables (less than 2 metres below the surface) before they become stressed and vulnerable to fire;

(o) Flying Fox Creek, Mainoru River and Wilston River (Knapton (2009));

(p) Large (particularly riparian trees): per Jackson and Barber (2013), Indigenous peoples of the Roper believe that large trees – often located near important water sites – embody individuals from current or recently deceased generations;

(q) Stygofauna communities are a groundwater dependent ecosystem. Stygofauna have been identified in the CLA dominated by crustaceans, including the blind shrimp *Parisia unguis* (Rees et al (2020 and Oberprier et al (2021).