

## Office of Water Science

### Phase 1 Bioregional Assessment Supplementary Report

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## Executive Summary

This study, supplementary work to the first phase, is primarily aimed at better understanding the likely impacts identified in the initial report on some of the key assets identified in the initial assessment. These sites within the region, namely the spring complexes are both biological and ecological hotspots which, given their regional importance have surprisingly little information.

The budget for this additional work was relatively small and so sites were ranked and the supplementary work was aimed at confirming the source of water supplies which in turn confirms both the classification and the vulnerability level allocated in the initial work.

Concern was raised during the initial investigation that data sets used in the initial desk top analysis often had conflicting or missing information. There was a risk therefore that these sites were incorrectly labelled which may in turn affect future decision making processes.

A second aim was to gather additional data related to both European and Aboriginal cultural information which the initial report highlighted was largely absent with Desert Channels Queensland only able to make general inferences.

Of the 20 sites evaluated as part of the re-assessment only two required a change in vulnerability classification however all sites provided additional information on past and present use.

Of concern was that almost all of the sites are in a poor to highly degraded condition with the majority used as unfenced stock water supplies. While important water assets, in need of protection, there is a need for more informed management of the sites.

The supplementary work has reconfirmed the need for careful management of water supplies from aquifers adjoining the GAB formations as these appear to represent the source aquifer of the discharge springs.



## Spring Assessment

This report describes the process carried out by Desert Channels Queensland (DCQ) to assess key sites for water assets considered likely to be vulnerable to coal seam gas exploration and extraction and coal mining. The project also re-assessed the assigned vulnerability rating to the identified assets.

The supplementary work was carried out within the Galilee basin of the DCQ region and targeted springs along the Koorarra Trench and its margins but did include outliers in the western part of the basin.

This focus has occurred through consultation with industry which is developing coal mines on the eastern margins and who are centering CSG and Shale Gas exploration principally in the Koorarra Trench. Figure 1 indicates the location of the spring complexes re-assessed and table 1 gives the site information.

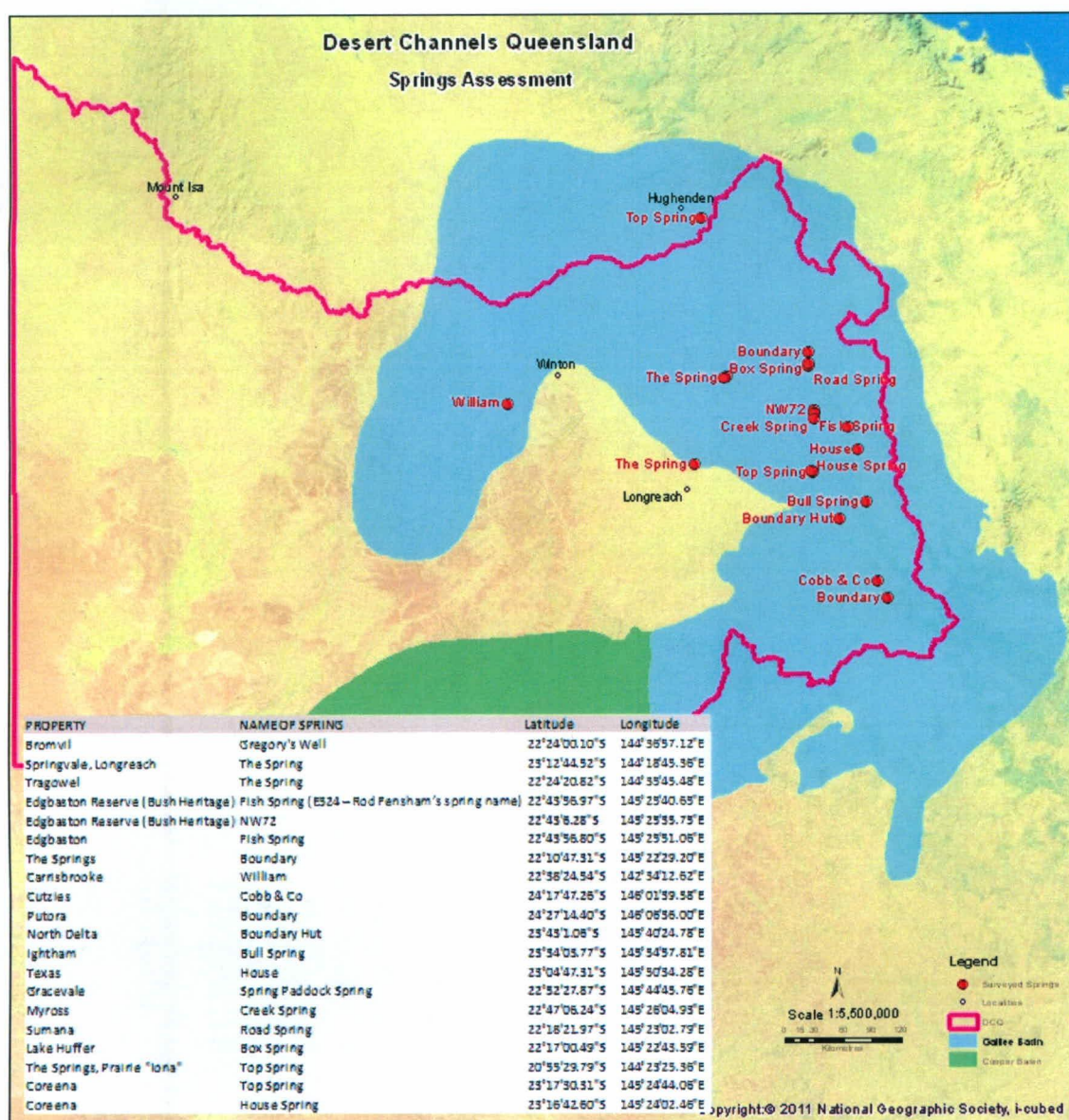


Figure 1 – Spring Complexes re-assessed



DCQ therefore undertook site inspections aided by the local landholders and managers.

Site inspections had four purposes;

1. Confirm the GIS location of the springs;
2. Confirm the classification of the spring based on biophysical and geological information gathered at the site to determine source aquifers;
3. Gather site and anecdotal information about the past and current use of the springs;
4. Review the vulnerability rating assigned.

Site inspections were conducted during June and July 2013 when alternative surface water sources had been exhausted, animal and vegetation clusters were centred on the springs and access to the sites was easiest.

This early inspection also gave the opportunity for additional follow-up where it was required.

Information gathered was then analysed by hydro-geologists working with DCQ for this project. A review was then conducted of the information in the water asset data base and the vulnerability rating provided in the initial work. This report was then prepared.

## **Spring Assessment Results**

### **Past and Present Use**

With the exception of the spring complexes at Edgbaston and Coreena there was very little published information relating to bio-physical information from the springs. DCQ has, through the site visits collected this information, catalogued this information and made it available to the relevant agencies with the appropriate metadata.

Edgbaston with its iconic endangered species and Coreena with its active mound springs are the information exceptions. These two sites have been well studied and represent the information benchmarks for the collection of information by DCQ at the other spring sites.

Cultural information is largely absent from the written records and information collected from land managers was used to confirm information supplied in the initial part of the project.

There is evidence of European cultural use at almost all of the sites largely in association with stock watering. Some of the springs have been artificially modified and some have had significant earthworks which has removed in-situ artefacts. This modification is to be expected given their strategic value in an arid landscape but the result has been to largely remove evidence of pre-European use. One site, the location of a previous Cobb and Co staging and watering point, has been well preserved by the landholder but the majority have lost physical evidence of any aboriginal usage.

Land managers supplied information where they were aware of the history however there were many examples where the known property knowledge base has declined through property amalgamation and loss of the "family farm" with its generational knowledge store.

The majority of the sites were found to be in poor biophysical condition with records of invasive flora and fauna at almost all sites. Land managers had taken some rudimentary steps to protect these sites and exclude species such as Cane Toads but these efforts appear to be largely unsuccessful.

While the springs assessed support a unique community, and in some cases species otherwise excluded from the broader landscape in almost all cases stock have unfettered access to the springs

and this has led to water fouling, increases in turbidity siltation bank erosion and loss of ground cover.

Of the springs visited, only two required re-classification due to incorrect initial labelling. This low level of amendment suggests that the remaining data related to the classification is robust and can be relied on for future planning and decision making processes.

The degraded nature of the springs however suggests that the greatest threat to the springs may not be from industry but land managers.

## Spring Location Conformation

**Table 2 – Location information for springs re-assessed**

PROPERTY	NAME OF SPRING	Latitude	Longitude
Bromvil	Gregory's Well	22°24'00.10"S	144°36'57.12"E
Springvale, Longreach	The Spring	23°12'44.52"S	144°18'45.36"E
Tragowel	The Spring	22°24'20.82"S	144°35'45.48"E
Edgbaston Reserve (Bush Heritage)	Fish Spring (E524 – Rod Fensham's spring name)	22°43'56.97"S	145°25'40.65"E
Edgbaston Reserve (Bush Heritage)	NW72	22°43'6.28"S	145°25'35.75"E
Edgbaston	Fish Spring	22°43'56.80"S	145°25'51.06"E
The Springs	Boundary	22°10'47.31"S	145°22'29.20"E
Carrisbrooke	William	22°38'24.54"S	142°34'12.62"E
Cutzies	Cobb & Co	24°17'47.26"S	146°01'39.58"E
Putora	Boundary	24°27'14.40"S	146°06'36.00"E
North Delta	Boundary Hut	23°43'1.06"S	145°40'24.78"E
Ightham	Bull Spring	23°34'03.77"S	145°54'57.81"E
Texas	House	23°04'47.31"S	145°50'34.28"E
Gracevale	Spring Paddock Spring	22°52'27.87"S	145°44'45.76"E
Myross	Creek Spring	22°47'06.24"S	145°26'04.93"E
Sumana	Road Spring	22°18'21.97"S	145°23'02.79"E
Lake Huffer	Box Spring	22°17'00.49"S	145°22'43.59"E

**Table 3 cont. – Location information for springs re-assessed**

PROPERTY	NAME OF SPRING	Latitude	Longitude
The Springs, Prairie "Iona"	Top Spring	20°55'29.79"S	144°23'25.36"E
Coreena	Top Spring	23°17'30.31"S	145°24'44.06"E
Coreena	House Spring	23°16'42.60"S	145°24'02.46"E

### **Spring Classification and Vulnerability Rating**

As mentioned previously all but two of the springs were correctly classified. The two springs with classification changes changed from discharge springs to recharge springs, reflective of their fractured rock source aquifer, rather than formations linked to the GAB. This in-turn has lowered their vulnerability rating.



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Appendix 2: Metadata.

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