

# Triassic Galilee Springs Group

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Hydrogeology and ecology

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Front Cover: Edgbaston Springs and a spring (imaginatively) called "New Big". There is Spinifex in the foreground, free water in the mid-ground, with some scalding in front and the far right rear. Photo: Queensland Herbarium.

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## Overview

A small group of outcrop springs (Table 1) associated with the Triassic units in the Galilee Basin are geologically distinct from the Permian Galilee group. They are all small, have been extensively modified, and have no apparent biological conservation values. The southernmost is Hunter Springs, consisting of two small vents in a sandstone amphitheatre, further north are the Greentree Springs that are now inactive, and northernmost are the Hector Springs consisting of three main vents (all excavated) and several smaller weeping vents (Figure 1).

**Table 1. Summary of the status of the springs in the Galilee Triassic springs at the complex, wetland and vent scale.**

	Complex			Wetland		Vent	
	Active	Partially active	Inactive	Active	Inactive	Active	Inactive
Outcrop	2	0	1	11	1	11	1
Discharge	0	0	0	0	0	0	0

## Hydrogeology

### Geological setting

The Triassic units in the Galilee Basin consist of the Rewan Formation overlain by the Dunda Beds and the Clematis Sandstone.

### Hydrology of the springs

All of these three spring clusters are interpreted as gravity-fed outcrop springs within the Dunda Beds, although Hector Springs occur about 2 km to the east of the mapped outcropping of the Dunda Beds (Figure 98). The vicinity of the Hector Springs to the Dunda Beds and the insufficient hydraulic head from the nearby aquifer in the Colinlea Sandstone suggests a gravity-fed origin from the Dunda Beds. The description of Hector Spring as a 'well' on the 1929 4 mile map suggests that these springs always had modest flows. For Hunter Springs there are large areas of higher elevation outcropping Dunda Beds to provide a permanent water source (Figure 1), given the modest flows at these springs. The Greentree Springs were described as 'fine springs', but ceased to flow in the 19<sup>th</sup> century. Whatever their original discharging volume, there are large areas of outcropping Dunda Beds at higher elevation to these springs to have provided substantial discharge (Figure 1).

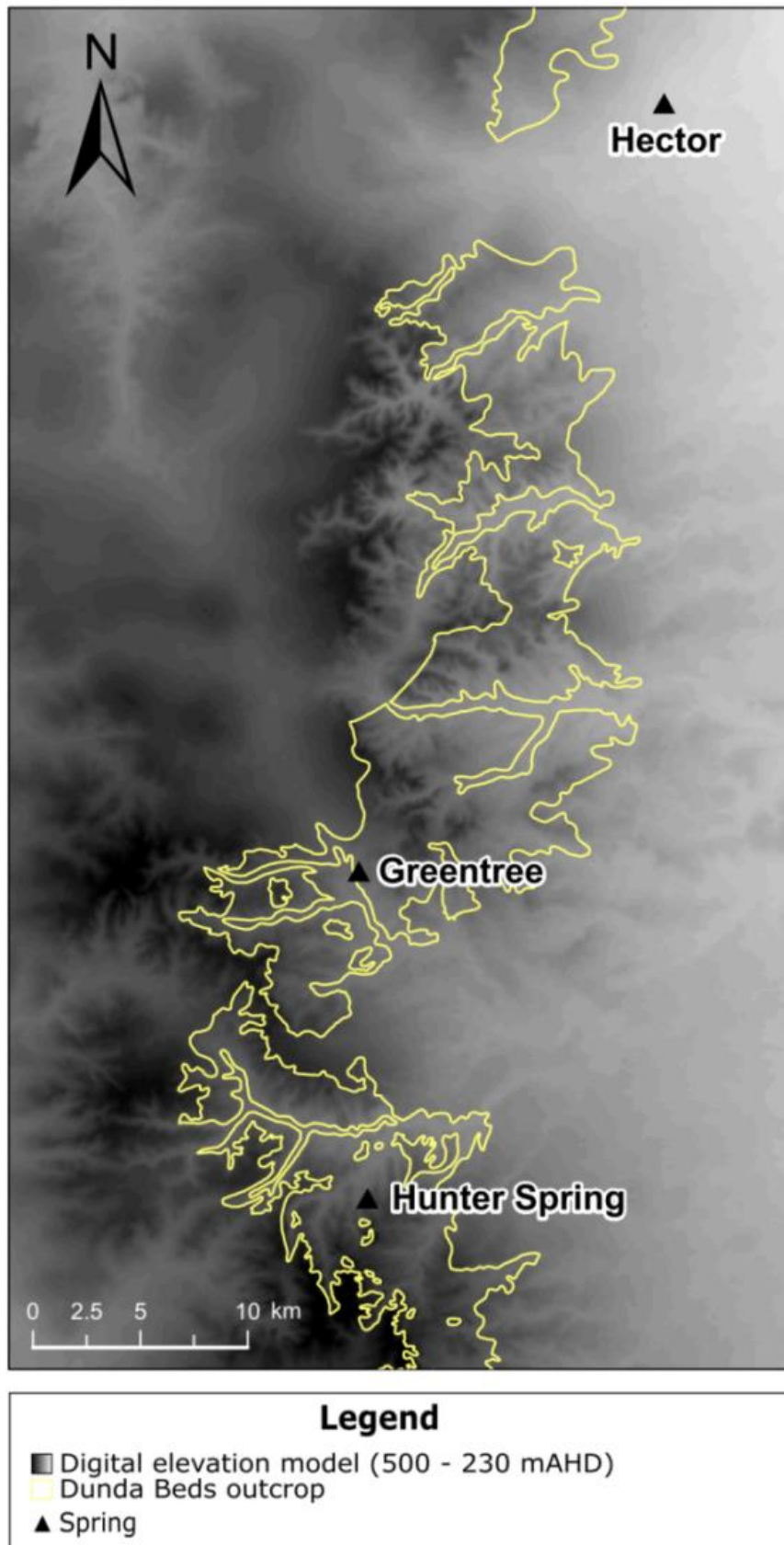


Figure 1. Location of the Galilee Triassic springs indicating their position in relation to the Dunda Beds; dark shading indicates large areas of higher elevation terrain to serve as a recharge area to supply these 'outcrop' springs. Greentree Spring is at -23.104, 146.249, 56 km NNE of Jericho.

## Biological values

All of the plant and invertebrate species recorded from these springs are cosmopolitan wetland species. In general outcrop springs have much lower incidence of endemic species than discharge springs (Fensham et al., 2011) and it is likely that endemic species were never associated with these outcrop springs.

## References

Fensham, R.J., Silcock, J.L., Kerezy, A. & Ponder, W. (2011) Four desert waters: Setting arid zone wetland conservation priorities through understanding patterns of endemism. *Biological Conservation*, 144, 2459-2467.