

Carlton Plain Time Series 1985 – 2023, indicating vegetation density and weed coverage.

Note: Approved (Revised) Stage 1 Clearing Boundary in white; freehold property boundary in yellow.

Images sources: Google Earth (Figures 1-8), Satamap (Figure 9-10)



Figure 1: 31 December 1985



Figure 2: 4 May 2004



Figure 3: 29 April 2010



Figure 4: 21 September 2013



Figure 5: 28 November 2015



Figure 6: 6 July 2018



Figure 7: 23 May 2022 (left) / 22 June 2018 (right)



Figure 8: 15 October 2023 (left) / 4 January 2023 (right)

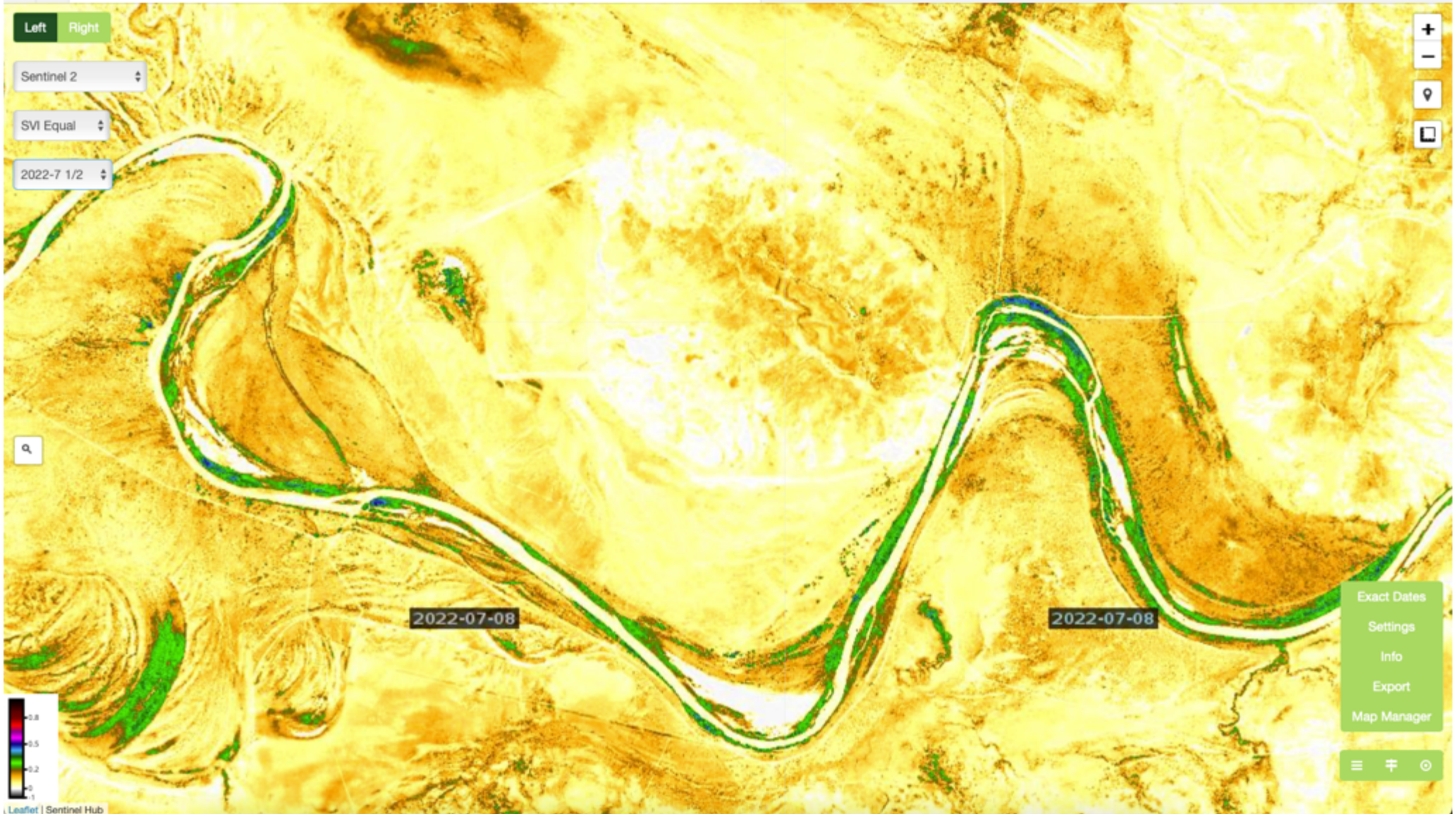


Figure 9: Vegetation density – 8 July 2022 (mid-season) – with all vegetation indexed equally

Refer to note at end – Figure 18 – for explanation

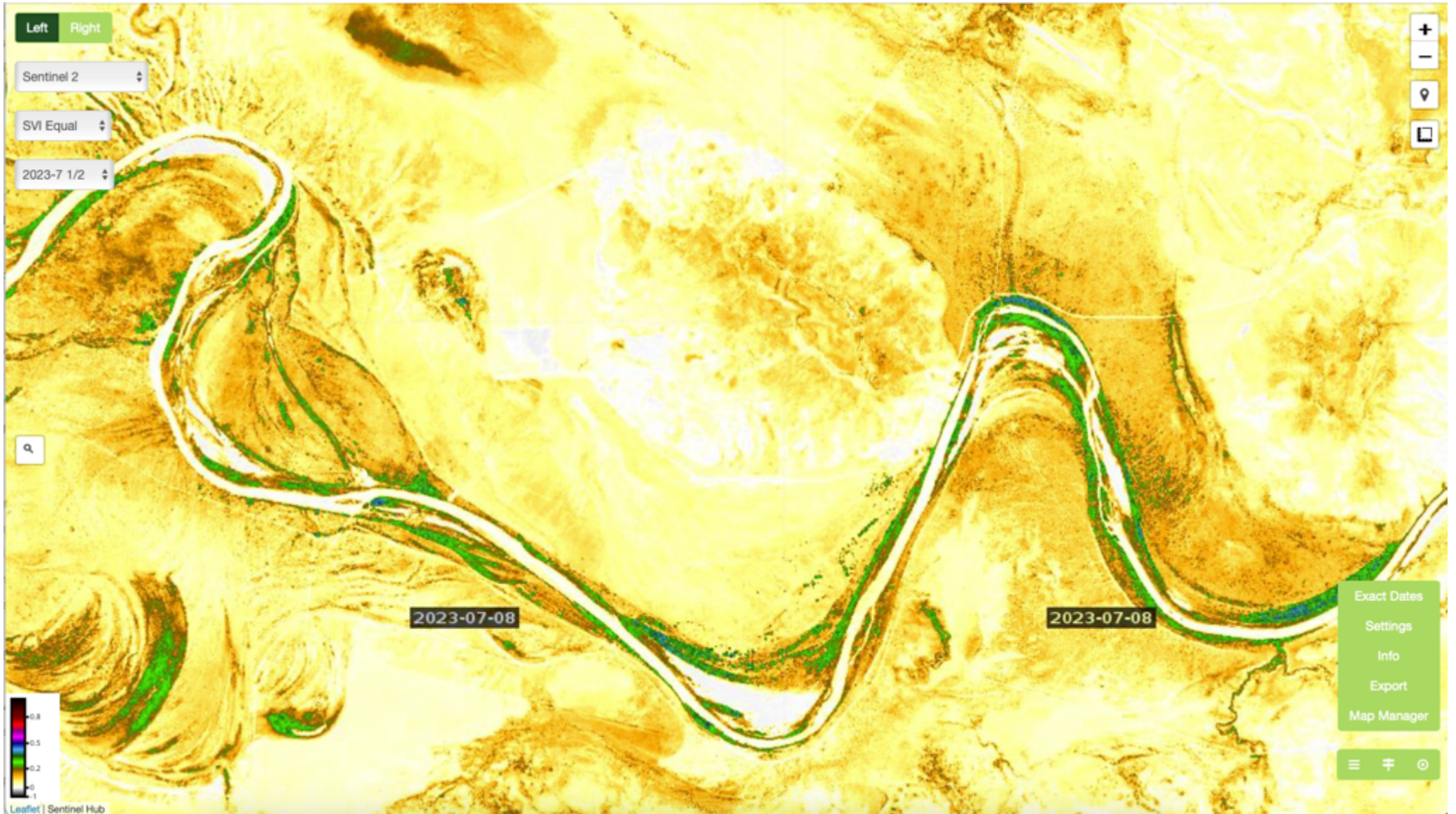


Figure 10: Vegetation density – 8 July 2023 (mid-season) - with all vegetation indexed equally (see note at end)

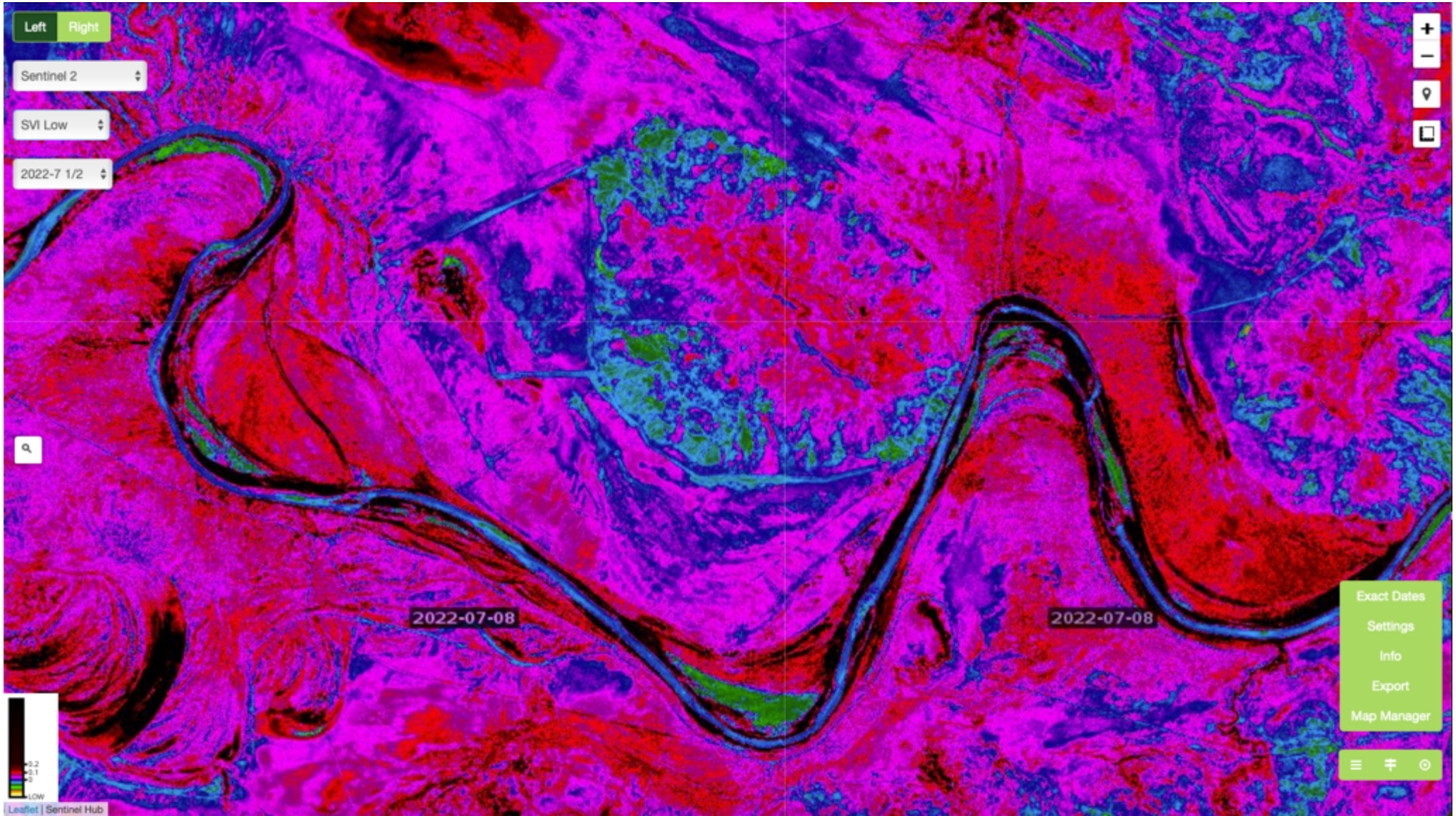


Figure 11: Vegetation density 8 July 2022, with preference to low density vegetation. Dark areas indicate very thick vegetative matter

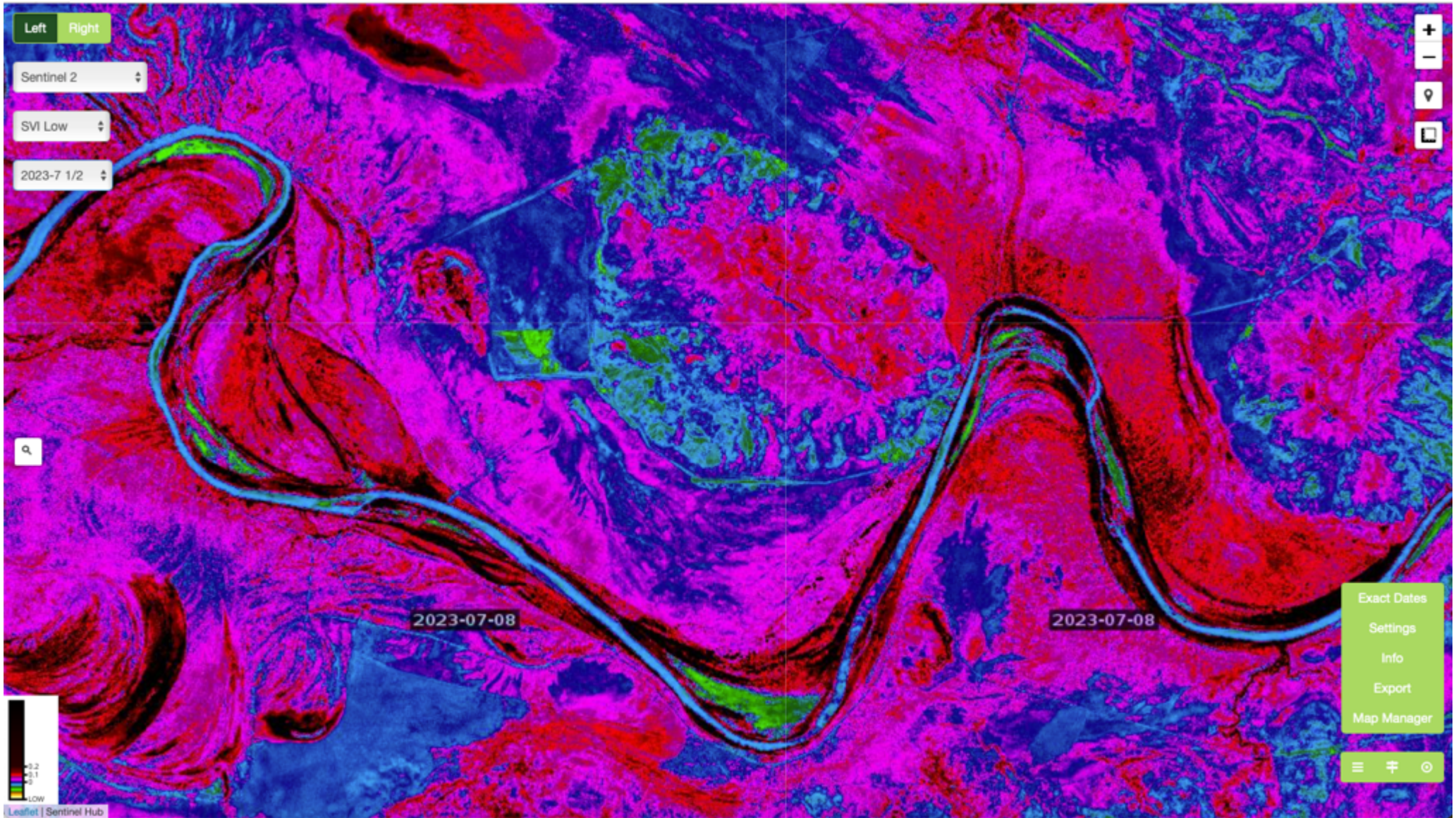


Figure 12: Vegetation density 8 July 2023, with preference to low density / low biomass vegetation. Dark areas indicate very thick vegetative matter

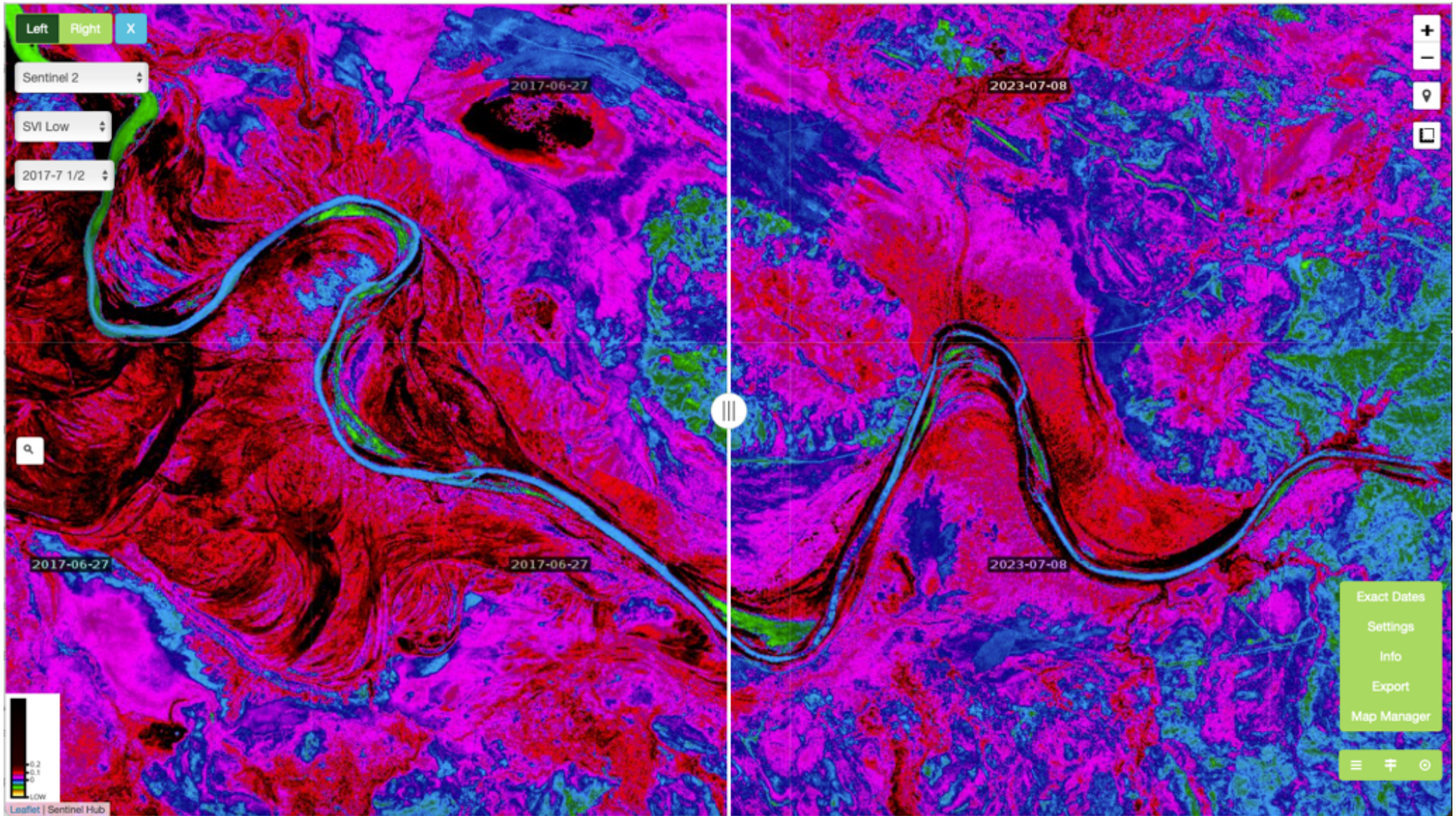


Figure 13: Vegetation density comparison – mid dry season 2017 (left) to mid dry season 2023 (right)

Refer to figures 14-17 for explanatory comments and figure 18 for indexing legend.

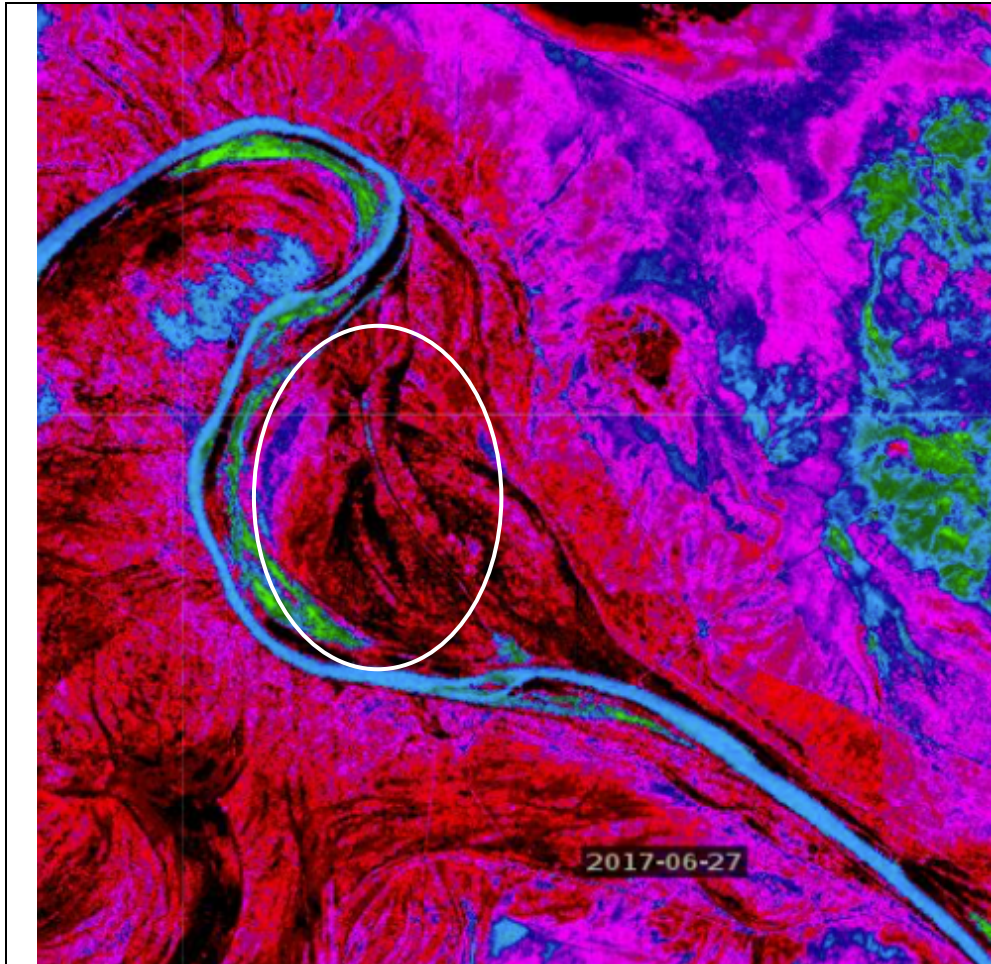


Figure 14: Vegetation density (with preference to low biomass vegetation) 27 June 2017. West side of Carlton Stage 1.



Figure 15: Comparative Vegetation density 8 July 2023 (West side).

Figures 14 (2017 – baseline) and 15 (2023) indicate reduced biomass / vegetation density in the vegetation retention area circled over the 2017-2023 time period. It is noted that the baseline weed assessment (Woodman, 2017) identified weed coverage as 20-50% weeds (approximately half of the circled area) or 50-80% weeds (remaining half of the circled area). This area has not been cleared. Weed density may have reduced in this time, but remains thick, particularly in the understorey with *Hyptis suaveolens*. Noogoora burr (*Xanthium strumarium*) is also present in patches. These maps should be viewed in conjunction with site inspection notes from 1 August 2023.

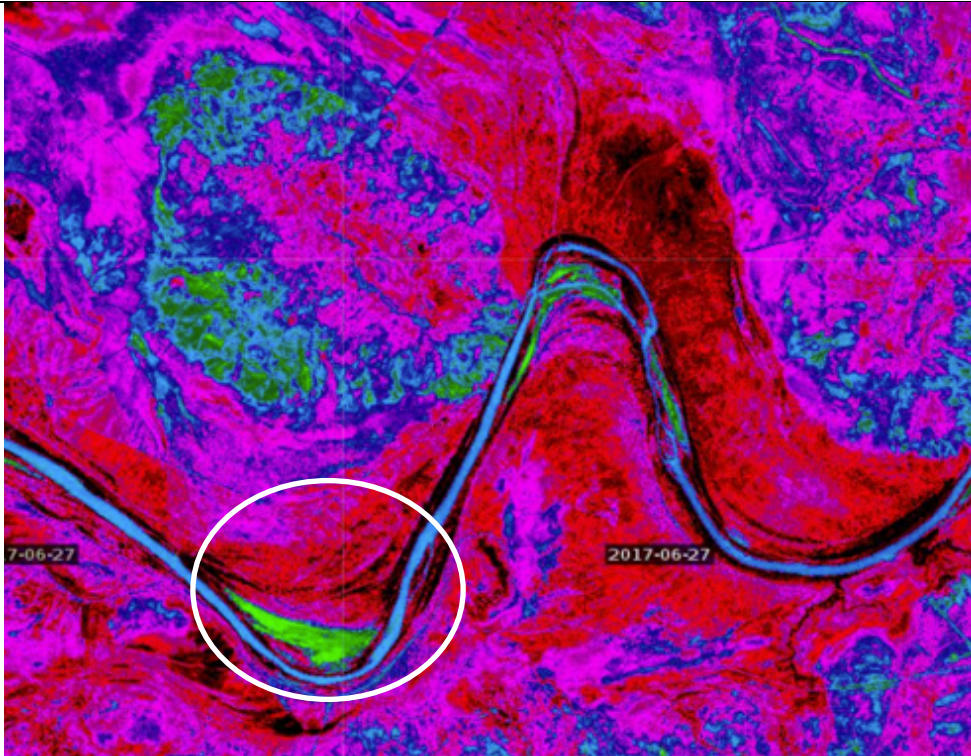


Figure 16: Vegetation density (with preference to low biomass vegetation) 27 June 2017. East side of Carlton Stage 1.

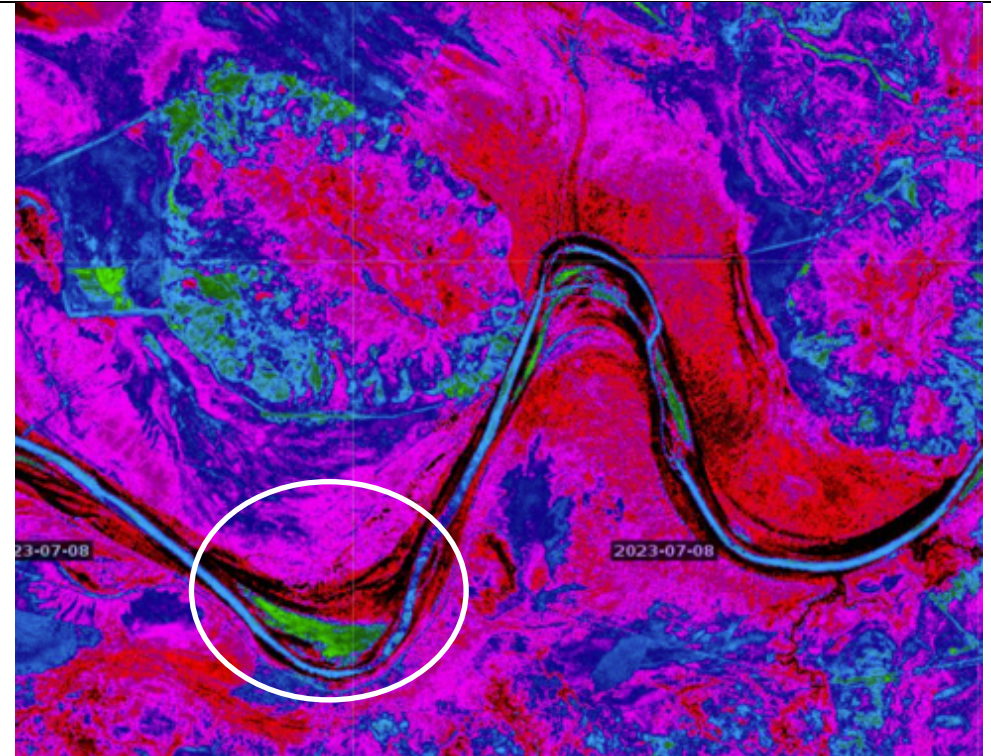


Figure 17: Comparative Vegetation density 8 July 2023 (East side).

Figures 16 and 17 indicate increased density of (weed) vegetation in the Vegetation Retention Area located within the circled areas. *Hyptis suaveolens* and *Calotropis procera* predominate the understorey weed infestation, with bellyache bush (*Jatropha gossypifolia*) and billygoat weed (*Agratum conyzoides*) also present. Neem (*Azadirachta indica*) and raintree dominate the non-native upper storey vegetation along the riparian reserve. The increasing density of weeds in this area indicates weed control should be undertaken. It is noted that the baseline (2017) weed surveys did not assess the condition of the riparian reserve, outside of the Carlton freehold area and approved development area. Nevertheless, the weed density should be noted as problematic and weed control options considered.

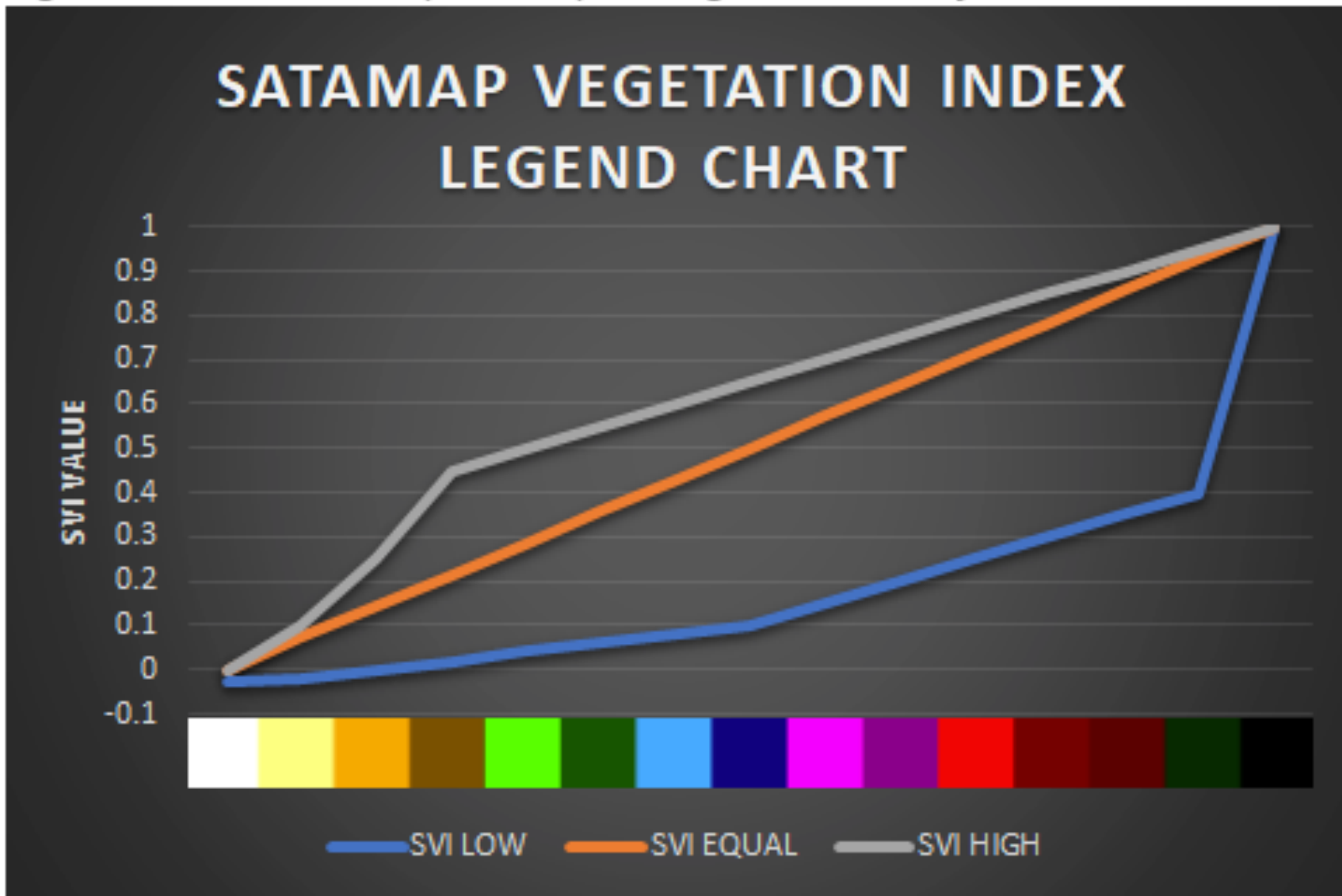


Figure 18: Satamap vegetation density index

Figures 9 and 10 show spectral imaging where 'all vegetation is equal'. This provides for less than optimal assessment of vegetation cover change in pastoral regions. Figures 11-17 adopt indexing where low biomass vegetation is assigned higher values for visual differentiation purposes, per Figure 18, above, from www.satamap.com.au