

# Susannah Brook

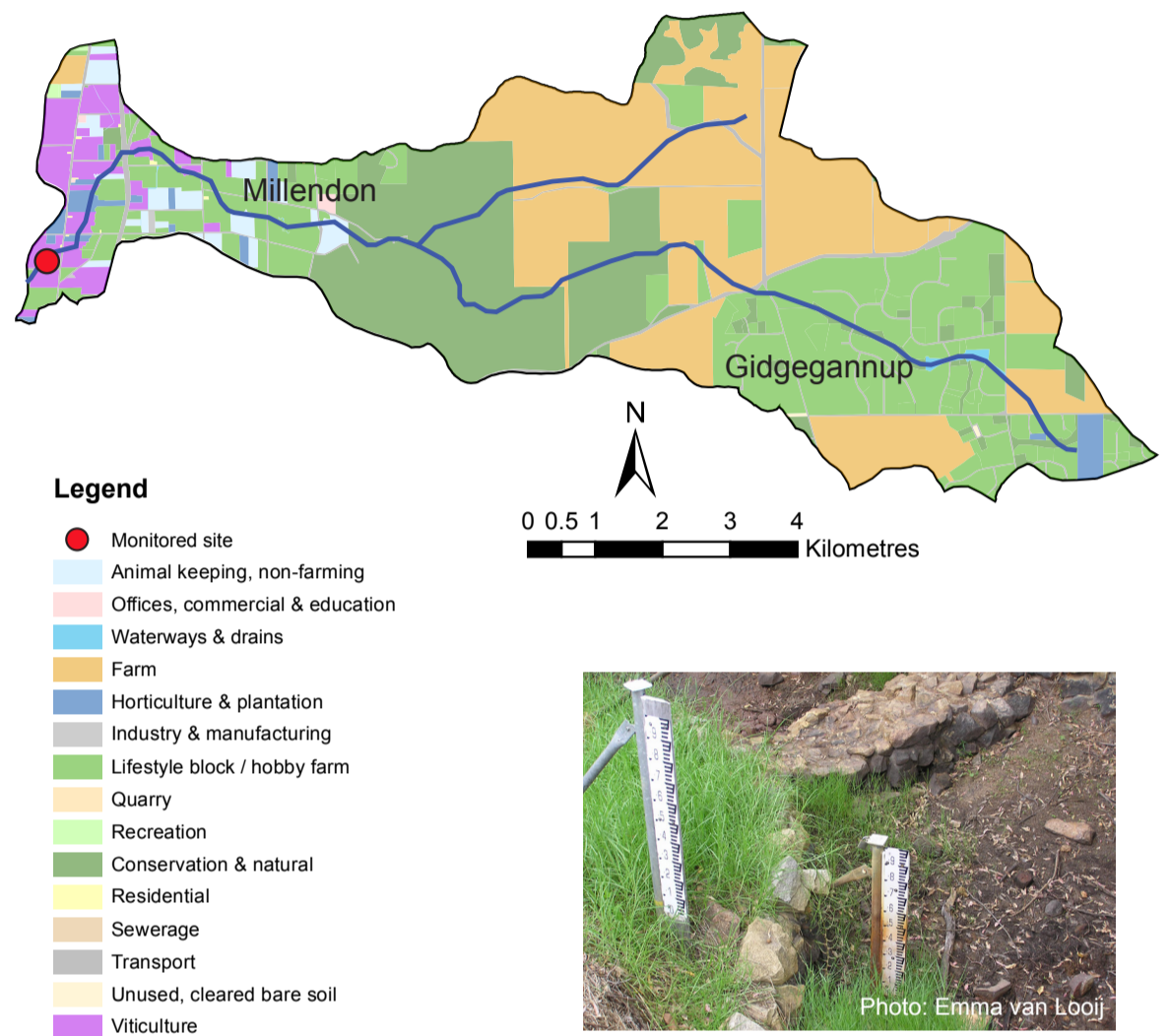
**S**usannah Brook is an ephemeral stream that drains the Darling Scarp: it has several small dams in its upper reaches but is otherwise relatively unmodified. The brook flows into the upper Swan Estuary just west of the Swan Valley Sports Ground in Herne Hill.

Agriculture is the dominant land use in the Susannah Brook catchment. The brook's lower reaches are flanked by horticulture such as orchards and vineyards, while the upper catchment is dominated by pasture. There is an area of remnant vegetation (approximately 20%) situated mostly in the middle catchment, but it is generally in poor condition. The upper catchment has been extensively cleared and very little natural vegetation remains on the lower, coastal plain, section of the catchment.

Soils in the catchment range from lateritic and ironstone gravels in the upper reaches to the east, through to shallow red and yellow earths and rock outcrops on the slopes of the Darling Scarp, to gravelly and sandy Forrestfield and Guildford soils on the western plains. A small area of more fertile alluvial soils is located close to the Swan River and is used for intensive horticulture and orchards.

Surface flow is the dominant transport pathway of nutrients, with groundwater tending to make a relatively minor contribution to flow in Susannah Brook.

Water quality is monitored at the Department of Water gauging station near the catchment's lower end, shortly before the brook flows into the upper Swan Estuary in Herne Hill. This site is positioned to indicate the nutrients leaving the catchment and entering the Swan River, so the data do not accurately represent nutrient concentrations in upstream areas.



Staff gauges at the catchment sampling site.

## Susannah Brook – facts and figures

Length	~ 19.7 km
Average rainfall (2011–15)	~ 709 mm per year (Perth metro)
Gauging station near monitored site	Site number 616099
Catchment area	55 km <sup>2</sup> (total) 55 km <sup>2</sup> (monitored)
River flow	Ephemeral (June to November) No major water supply dams in catchment
Average annual flow	~ 3.2 GL per year (2011–15 average)
Main land uses	Broad-acre agriculture, viticulture, grazing, remnant vegetation and small pockets of residential

## Nutrient Summary: concentrations, loads and targets

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Annual flow (GL)	8.1	4.8	8.8	3.0	7.2*	4.0*	5.5*	0.4	3.4*	3.2*	4.9	4.0*	0.7*
TN median (mg/L)	0.58	0.86	0.54	0.85	0.55	0.50	0.76	0.73	1.50 <sup>#</sup>	1.03 <sup>#</sup>	0.74	0.64	0.44
TP median (mg/L)	0.024	0.016	0.016	0.013	0.012	0.016	0.020	0.012	0.022	0.014	0.015	0.012	0.012
TN load (t/yr)	7.99	4.36	8.88	2.95	7.55*	4.05*	5.50*	0.25	3.43*	2.93*	4.93	3.46*	0.46*
TP load (t/yr)	0.21	0.09	0.22	0.07	0.20*	0.11*	0.15*	0.01	0.07*	0.06*	0.13	0.07*	0.01*

TN short-term target = 2.0 mg/L

TN long-term target = 1.0 mg/L

TP short-term target = 0.2 mg/L

TP long-term target = 0.1 mg/L

insufficient data to test target

failing both short and long-term target

passing short but failing long-term target

passing both short and long-term target

\* best estimate using available data.

<sup>#</sup> Statistical tests that account for the number of samples and large data variability are used for testing against targets on three years of winter data. Thus the annual median value can be above the target even when the site passes the target (or below the target when the site fails).