

5.3.5 Sub-group 3a: Lowveld: mixture of sub-regions including Foothill-cobble Bed, Foothill-gravel Bed and Rejuvenated Cascade sub-regions, with > 60% bedrock substratum type

Sites in this sub-group generally fall within the Lowveld ecoregion and are in the Foothill-cobble Bed, Foothill-gravel Bed or Rejuvenated Cascade sub-regions. Bedrock is dominant and >60% is generally present. This site is represented by only three sites and therefore results are preliminary.

5.3.5.1 Characterisation of Sub-group 3a in terms of environmental variables

- Channel pattern: single thread: high sinuosity-stable-sinuuous and multiple thread: anastomosing/anabranching.
- Altitude: between 300 and 600 m.
- Distance from source: between 35 km and 100 km.
- Stream order: 3rd or 4th.
- Stream width: between 10 m and 20 m.
- Shallow-water habitat: median (25th and 75th percentile) depth of 0.38 m (0.35 and 0.47 m), exclusively bedrock rapid.
- Deep-water habitat: median depth of 0.55 m (0.52 and 0.90 m).
- Substratum: bedrock is dominant (65%), with cobble/pebble (when present < 5%) and gravel/sand/mud (30%).
- Biotopes: generally have all three biotope-groups present, with AQV/MV the most common (45%), then GSM (40%) and SIC/SOOC (15%).
- Water chemistry: median, 25th and 75th percentile values are tabulated below (Table 5.18).

Table 5.18 Median, (Q25) and 75th (Q75) percentile values for selected water chemistry variables in sub-group 3a (n = 9).

Variable	Unit	Median	Q25	Q75
pH		7.83	7.53	7.87
Temperature	°C	17.3	14.6	20.7
Conductivity	mS m ⁻¹	9.4	6.1	11.2
Total Dissolved Solids	mg l ⁻¹	68	42	74
Turbidity	NTU	2	1	3
Dissolved Oxygen	mg l ⁻¹	8.13	7.88	9.36
Alkalinity	as meq l ⁻¹ CaCO ₃	0.713	0.393	0.733
Total Phosphorus	mg P l ⁻¹	0.024	0.022	0.028
Soluble Reactive Phosphorus	mg P l ⁻¹	0.016	0.014	0.019
Kjeldahl Nitrogen	mg N l ⁻¹	0.18	0.147	0.203
Nitrite+Nitrate	mg N l ⁻¹	0.2	0.113	0.25
Ammonium	mg N l ⁻¹	0.04	0.04	0.04
Silica	mg l ⁻¹	7.3	6.6	7.6

5.3.5.2 Composite SASS Scores

Expected median values and O/E ratios in each band have been calculated for sub-group 3a (Table 5.19) based on multiple-season, combined-biotope sampling, corrected for season. See section 5.3.1.2 for an explanation of interpreting monitoring site data using this table.

Table 5.19 Sub-group 3a: Band ranges for O/E SASS4 Scores, O/E taxa and O/E ASPT. Expected median values for calculating O/E ratios are given for multiple-season, autumn, winter and spring for each indice.

Expected median values for calculating O/E	SASS4 Score	Number of Taxa	ASPT
Autumn	120	18	5.71
Winter	66	13	5.08
Spring	86	16	5.62
Band	O/E SASS4 Score	O/E Taxa	O/E ASPT
X	> 1.3	> 1.2	> 1.1
A	> 0.7-1.3	> 0.8-1.2	> 1.0-1.1
B	> 0.3-0.7	> 0.6-0.8	> 0.9-1.0
C	< 0.3	> 0.3-0.6	> 0.8-0.9
D		< 0.3	< 0.8

5.3.5.3 Expected SASS taxa

Expected taxa for Reference Group 1 are presented in Table 5.20. The frequency of occurrence amongst sites, expressed as a percentage, and biotope and seasonal trends are indicated.

Table 5.20 Expected SASS taxa (present at > 75% of sites within the Reference Group) for sub-group 3a, indicating taxa more commonly recorded in a particular biotope-group (S = SIC/SOOC; V = AQV/MV and G = GSM) or season (W = winter and S = spring).

Order	Taxon	%	Biotope	Season
Ephemeroptera	Baetidae (3 types)	100		
	Heptageniidae	100	S	
Coleoptera	Elmidae/Dryopidae	100	S	
Diptera	Ceratopogonidae	100	G	
	Chironomidae	100		
	Simuliidae	100	S+V	
Hemiptera	Belastomatidae	100	V	S
	Corixidae	100		
	Naucoridae	100		
	Veliidae	100	V	
Odonata	Coenagrionidae	100	V	
	Gomphidae	100	G	
Annelida	Oligochaeta	100	S+G	
	Hydrachnellae	100	S	S

5.3.5.4 Biotope considerations

Expected median values for each biotope-group in each season, together with biological band ranges for O/E ASPT are given in Table 5.21. Because the number of sites in this sub-group are limited, the median values are per biotope-group, and not per season. See section 5.3.1.4 for an explanation of interpreting monitoring site data using this table.

Table 5.21 Sub-group 3a: Expected median values for calculating O/E ratios for each season and biotope-group combination. Band ranges (excluding Band X) for O/E ASPT are given for each biotope-group.

Biotope-group	Season	Expected median values for calculating O/E		
		SASS4 Score	Number of Taxa	ASPT
SIC/SOOC	All	30	5	5.10
AQV/MV	All	69	9	6.38
GSM	All	45	9	5.42
Band		O/E ASPT-SIC/SOOC	O/E ASPT-AQV/MV	O/E ASPT-GSM
A		≥ 1.0	≥ 0.9	≥ 0.7
B		$> 0.9-1.0$	$> 0.8-0.9$	$> 0.5-0.7$
C		$> 0.8-0.9$	$> 0.7-0.8$	$> 0.2-0.5$
D		≤ 0.8	≤ 0.7	≤ 0.2

