Abridged Threatened Species Nomination Form

For nominations under the Common Assessment Method (CAM) where supporting information is available, but not in a format suitable for demonstrating compliance with the CAM, and assessment against the IUCN Red List threat status.

Cover Page *(Office use only)*

Species name (scientific and common name)**:**	***Westralunio carteri* (Carter's freshwater mussel)**
Nomination for (addition, deletion, change)**:**	**Addition**
Nominated conservation category and criteria:	**Vulnerable A2c+4c**

Scientific committee assessment of eligibility against the criteria:		
This assessment is consistent with the standards set out in Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding.		Yes ☐ No ☐
A.	Population size reduction	•
B.	Geographic range	•
C.	Small population size and decline	•
D.	Very small or restricted population	•
E.	Quantitative analysis	•

Outcome*:*			
Scientific committee Meeting date:			
Scientific committee comments:			
Recommendation:			
Ministerial approval:		*Date of Gazettal/ Legislative effect:*	

Nomination summary *(to be completed by nominator)*

Current conservation status				
Scientific name:	*Westralunio carteri*			
Common name:	Carter's freshwater mussel			
Family name:	Hyriidae		Fauna ☒	Flora ☐
Nomination for:	Listing ☒	Change of status ☐		Delisting ☐

1. *Is the species currently on any conservation list, either in a State or Territory, Australia or Internationally?* 2. *Is it present in an Australian jurisdiction, but not listed?*	*Provide details of the occurrence and listing status for each jurisdiction in the following table*

Jurisdiction	**State / Territory in which the species occurs**	**Date listed or assessed (or N/A)**	**Listing category i.e. critically endangered or 'none'**	**Listing criteria i.e. B1ab(iii)+2ab(iii)**
International (IUCN Red List)		7/4/2014	Vulnerable	A2c
National (EPBC Act)				
State / Territory	1. WA (WC Act)	7/4/2014	Vulnerable	A2c+4c
	2.			
	3.			

Consistent with Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding, it is confirmed that:	
• this assessment meets the standard of evidence required by the Common Assessment Method to document the eligibility of the species under the IUCN criteria;	Yes ☒ No ☐
Comments:	A comprehensive nomination form and associated published papers supported this nomination.
• surveys of the species were adequate to inform the assessment;	Yes ☒ No ☐
Comments:	A list of survey sites, which was compiled from 1,071 records from museum specimens, is appended to the nomination. Survey respondents from www.musselwatchwa.com and survey sites from Kendrick (1976), Williams et al. (1991), Edward et al. (1994), Graf & Cummings (2010), Growns & Davis (1994), Storey et al. (2005, 2009, 2010), Slack-Smith (2006), Lymbery et al. (2008), Pinder et al. (2004), Klunzinger et al. (2013, 2014).
• the conclusion of the assessment remains current and that any further information that may have become available since the assessment was completed supports or is consistent with the conclusion of the assessment.	Yes ☒ No ☐
Comments:	The assessment outcome was based on the reduction, and projected continued reduction, in EOO, but also would have a corresponding reduction in AOO and extent or quality of habitat. The cause of this reduction is known and understood, and has not ceased and not likely to be reversible.

Nominated national conservation status: category and criteria		
Presumed extinct (EX) ☐	Critically endangered (CR) ☐	Endangered (EN) ☐ Vulnerable (VU) ☒
None (least concern) ☐	Data Deficient ☐	Conservation Dependent ☐
What are the IUCN Red List criteria that support the recommended conservation status category?	**Vulnerable A2c+4c**	
Eligibility against the IUCN Red List criteria (A, B, C, D and E)		
*Provide justification for the nominated conservation status; is the species eligible or ineligible for listing against the five criteria. For **delisting**, provide details for why the species no longer meets the requirements of the current conservation status.*		
A.	Population size reduction (evidence of decline)	• (A2c) EOO has declined by 49% (from the historic distribution of 44 895 km^2 to a current distribution of 22, 584km^2 using the minimum convex polygon alpha hull method) in less than three generations (58 to 87 years, which is the period that the main effect of secondary salinization of the waterways of the south west affecting this species occurred, i.e. between 1950s to 1970s). • (A2c) Species distribution modelling suggests that decline in EOO is due principally to a decline in quality of habitat due to secondary salinisation, seasonal water availability and total nitrogen concentration, the effects of which are expected to continue into the future. • It meets criteria for Vulnerable under A2c. • **WA TSSC:** The issues around the decline in river quality in southwestern WA are understood. There is still a relatively large EOO even though there has been a decline, so it is assumed that the species has some level of tolerance to changing conditions. The TSSC recommended that criteria A4c is also applicable as the cause of the reduction may not have ceased as evidenced by the continuing decline in the quality of the SW rivers habitat. The EOO (and also corresponding AOO and habitat quality) has thus declined in the past and is projected or suspected will continue to decline in the future. • **Meets Vulnerable A2c+4c.**
B.	Geographic range (EOO and AOO, number of locations and evidence of decline)	• AOO has not been determined. • EOO is 22,584 km^2 (i.e. >20,000 km^2) • **Does not meet criteria**
C.	Small population size and decline (population size, distribution and evidence of decline)	• Exact population size is unknown. • **No information to assess**
D.	Very small or restricted population (population size)	• Exact population size is unknown. • **No information to assess**

E.	Quantitative analysis (statistical probability of extinction)	• **No information to assess**

Summary of assessment information					
EOO	22,584 km^2	AOO	Unknown	Generation length	19.5-29 years

No. locations	>10 based on separate waterways	Severely fragmented	Yes ☐ No ☒ Unknown ☐
No. subpopulations	Unknown	No. mature individuals	Unknown

Percentage global population within Australia	100%
Percentage population decline over 10 years or 3 generations	49%

Threats *(detail how the species is being impacted)*

Threat *(describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)*	Extent *(give details of impact on whole species or specific subpopulations)*	Impact *(what is the level of threat to the conservation of the species)*
Refer to section 4.3 of the nomination form for details of threats summarised below.		
Salinity	Moore, Avon, Blackwood, Murray, Williams, Upper Warren, Upper Kent, Frankland, Bow and Lower Canning Rivers	Severe-Catastrophic
Water extraction, dehydration and heat stress	Throughout range, particularly in regulated rivers	Severe-Catastrophic
Climate change – reduction in seasonal water availability	Throughout range, particularly in regulated rivers	Severe
Habitat loss	Throughout range	Moderate-Severe
Nutrient pollution	Throughout range	Severe
Loss of suitable host species	Throughout range	Moderate-Catastrophic
Cattle trampling	Rural catchments	Moderate
Predation by pigs	Rural catchments	Moderate

Management and Recovery

Is there a Recovery Plan (RP) or Conservation Management Plan operational for the species?	Yes ☐ No ☒

List all relevant recovery or management plans (including draft, in-preparation, out-of-date, national and State/Territory recovery plans, recovery plans for other species or ecological communities, or other management plans that may benefit or be relevant to the nominated species).

- Recovery plans and recovery teams for freshwater fish and crayfish may also benefit this species (e.g. Western Trout Minnow; Dunsborough burrowing crayfish, Margaret River burrowing crayfish and Walpole burrowing crayfish; Margaret River hairy marron).

- Freshwater management and recovery programs may also benefit this species, particularly those targeting salinity and nutrient pollution (e.g. Natural Diversity Recovery Catchment Program, State Salinity Action Plan, The Salinity Strategy, Swan Canning River Protection Strategy, Healthy Rivers Action Plan)

List current management or research actions, if any, that are being undertaken that benefit the conservation of the species.

- A PhD projects is currently researching the salinity tolerance of the species.
- Management of water ways that the species occurs in (see above regarding recovery/management programs that may benefit the species).

List further recommended management or research actions, if any, that would benefit the conservation of the species. Please ensure that this section addresses all identified threats.

- Quantification of populations and recruitment success (or factors limiting recruitment success)
- Quantification of juvenile habitat requirements
- Analysis of dietary requirements
- Toxicology testing - environmental tolerance limits (dissolved oxygen and temperature)
- Determination of whether other introduced fish can support the species' life cycle
- Analysis of population genetics
- Captive breeding program
- Ongoing management of water ways (incl. habitat protection and cattle exclusion)
- Feral pig management

Nomination prepared by:	
Contact details:	
Date submitted:	11/7/2016

If the nomination has been refereed or reviewed by experts, please provide their names and contact details:

Summary of subpopulation information *(detailed information to be provided in the relevant sections of the form)*						
Location *(include coordinates)*	Land tenure	Survey information: Date of survey and No. mature individuals	AOO	Site / habitat Condition	Threats *(note if past, present or future)*	Specific management actions
Patchily distributed in freshwater streams, rivers, reservoirs and lakes within 50-100km of the coast, from Gingin Brook south to Kent River, Goodga River and Waychinicup River.	Various	Presence/absence noted most recently between 2010-2015	Unknown	Various. Many catchments have become saline or are high in nutrients, which have led to mass mortality events in recent years.	Salinity (past, present and future) Water extraction, dehydration and heat stress (present and future) Climate change (future) Nutrient pollution (present and future) Cattle trampling (past, present and future) Predation by pigs (present and future)	Maintain freshwater flow and groundwater discharge. Avoid clearing riparian vegetation and forested areas within catchments. Maintain shading riparian vegetation and revegetate where necessary. Avoid unnecessary water extraction and/or mitigate impacts during rapid drawdowns within reservoirs. Reduce nutrient runoff and intercept nutrients before they enter the waterways. Fence cattle out of waterways. Eradicate feral pigs.

Department of
Parks and Wildlife

Form to nominate a Western Australian species for listing as threatened, change of category or delisting 2014.

The purpose of this nomination form is to bring your nomination to the attention of the Western Australian Threatened Species Scientific Committee (TSSC) for its consideration and subsequent advice to the Minister for Environment, who makes the final decision on changes to the threatened species lists. Please read through both the guidelines and the nomination form to familiarise yourself with the information required before filling out the nomination form.

The assessment of the conservation status is according to IUCN red list category and criteria, and whilst it is a State listing process, the TSSC will consider the status of Western Australian species throughout their total natural range in Australia, and where appropriate (eg, for species that do not breed in Australia), their range and status outside Australia. Therefore, information provided in the nomination should include information on populations outside WA where applicable.

Note, this nomination form applies to both flora and fauna species, and hence some questions or options may not be applicable to the nominated species – for these questions, type "N/A".

Nominators should refer to:

DPaW Nomination Guidelines
IUCN (2001). IUCN Red List Categories and Criteria Version 3.1 (IUCN, Gland, Switzerland) IUCN (2011). Guidelines for using the IUCN Red List Categories and Criteria. Version 9.0 (September 2011). www.iucnredlist.org

Nominations should be submitted (preferably in electronic format) to:

Species and Communities Branch
Department of Parks and Wildlife
Locked Bag 104
BENTLEY DC WA 6983

Telephone: (08) 9334 0455

Email: tssc@dpaw.wa.gov.au

TSSC meetings are usually held near the end of the first quarter of the calendar year. The closing date for nominations for TSSC meetings is the last Friday of January that year.

NOTICE: Incomplete forms may result in delays in assessment, or rejection of the nomination. DPaW staff can advise you on how to fill out the form and may be able to supply additional, unpublished information.

SECTION 1. NOMINATION

1.1. Nomination for:

Flora ☐ **Fauna** ☒ as: **Threatened / DRF** ☒ **Change of category** ☐ **Delisting** ☐

1.2. Scientific Name
This name will be used to identify the species on all official documentation. Use the approved name used by the Western Australian Museum or Herbarium, if possible.

Westralunio carteri Iredale, 1934

1.3. Common Name
If the species has a generally accepted common name, please show it here.

Carter's Freshwater Mussel

1.4. Family Name

Hyriidae

1.5. Current Conservation Status. If none, type 'None'.

	IUCN Red List Category e.g. Vulnerable	IUCN Red List Criteria e.g. B1ab(iv); D1
International IUCN Red List	Least Concern	
National EPBC Act 1999		
State of Western Australia		

State of WA Priority	1 ☐	2 ☐	3 ☐	4 x☐	5 ☐

1.6. Nominated Conservation Status.

	IUCN Red List Category e.g. Vulnerable	IUCN Red List Criteria e.g. B1ab(iv);D1
State of Western Australia	Vulnerable	A2c

State of WA Priority	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Is the species listed as 'Threatened' in any other Australian State or Territory? If Yes, list these States and/or Territories and the status for each.

No x☐ **Yes** ☐ **Details:** (endemic to South West Coast Drainage Division and found nowhere else)

1.7. Reasons for the Nomination.
Briefly summarise the reasons for the nomination in dot points. Please include details relevant to the IUCN Category and each Criteria.

Extent of Occurrence has declined by 49% in less than three generations

Species distribution modelling suggests that the decline in EOO is due principally to secondary salinisation, seasonal water availability and total nitrogen concentration, the effects of which are expected to continue into the future.

SECTION 2. SPECIES

2.1. Taxonomy.

Describe the taxonomic history, using references, and describe the key distinguishing features that can be used to separate this taxon from closely related taxa. Include details of the type specimen, changes in taxonomy, scientific names and common names used for the species.

Kingdom: Animalia
Phylum: Mollusca
Class: Bivalvia
Order: Unionida
Family: Hyriidae
Genus: *Westralunio*
Species: *carteri*
Conventionally accepted Binomial name: *Westralunio carteri* Iredale, 1934
(Iredale, 1934; McMichael & Hiscock 1958; Walker et al. 2001; Walker 2004; Walker et al. 2013)

Is this species conventionally accepted? If no, explain why. For example, is there any controversy about the taxonomy? For undescribed species, detail the location of voucher specimens (these should be numbered and held in a recognised institution and be available for reference purposes).

No ☐ Yes ☒

Describe any known hybridisation with other species in the wild, indicating where this occurs and how frequently.

2.2. Description

Describe the physical appearance, habit, behaviour/dispersion and life history. Include anatomy or habit (e.g. size and/or weight, sex and age variation, social structure) and dispersion (e.g. solitary, clumped or flocks etc), and life history (eg short lived, long lived, geophytic, etc).

Physical appearance:

Adult shells brown to brick red and sometimes almost black, usually with conspicuous erosion on umbo region with remainder of shell covered by periostracum with concentric lines;
Growth rings visible in juveniles <40 mm long;
Juveniles <20 mm distinguished from other Australian genera by w-shaped umbo sculpturing
Adult shell length = 40-101 mm, but rarely exceeding 90 mm
Juveniles <25 mm in length
Larvae ('glochidia') length = 0.3 mm; morphology distinct – shells have larval "teeth" used for attaching to fish
Species lacks a byssus
When in burrowed, filter-feeding position, siphons extended, mantle and siphons have a mottled red/black appearance; inhalant siphon lined with papillae

Habit:

Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams

Behaviour:

Adults mostly sessile, but do move through sediments with a muscular foot, creating visual tracks;
Juveniles much more mobile, moving in a similar fashion as a caterpillar;
Glochidia "wink" upon release from females;

Dispersion:

Adults capable of moving localized distances of 7-10 m over a long period of time, but generally sessile;
Glochidia are parasitic on fishes, which is thought to be a dispersal mechanism.

Life History:

Sexes are separate and hermaphroditism is rare;
Spawning in winter (June-August);
Fertilisation in specialized chambers of females' gills, known as 'marsupia';
Embryos brooded in marsupia to mature glochidia which are released in strings of mucus, cued by temperature change and daylength (late-August – December/early-January) and females baron for the remainder of the year;
Glochidia attach to fish and encased in a cyst for 3-4 weeks before detaching to begin life in the sediments as juveniles (no change in shell length while on the fish); mortality rates in glochidia are unknown, but is thought to be high in juveniles due to benthic predation;
Longevity = 36 - 52 years, possibly longer;
Age at sexual maturity = 3 - 6 years;
Generation length = 19.5 - 29 years (=(longevity + age at maturity)/2). Three generations = 58 – 87 yr.

Confirmed host fish species:

Common name	Scientific Name	Glochidia metamorphosis?	
INTRODUCED FISHES:			
Goldfish	*Carassius auratus* Linnaeus, 1758	No	
Eastern Gambusia	*Gambusia holbrooki* (Girard, 1859)	Yes	
One-spot Livebearer	*Phalloceros caudimaculatus* (Hensel, 1868)	Likely	
Pearl cichlid	*Geophagus brasiliensis* (Quoy & Gaimard, 1824)	Unknown	
NATIVE FISHES:			
Freshwater Cobbler	*Tandanus bostocki* Whitley, 1944	Yes	
Western Pygmy Perch	*Nannoperca vittata* (Castelnau, 1873)	Yes	
Southwestern Goby	*Afurcagobius suppositus* (Sauvage, 1880)	Yes	
Swan River Goby	*Pseudogobius olorum* (Sauvage, 1880)	Yes	
Nightfish	*Bostockia porosa* Castelnau, 1873	Likely	
Western Minnow	*Galaxias occidentalis* Ogilby, 1899	Likely	
Western Hardyhead	*Leptatherina wallacei* (Prince, Ivantsoff & Potter, 1982)	Likely	

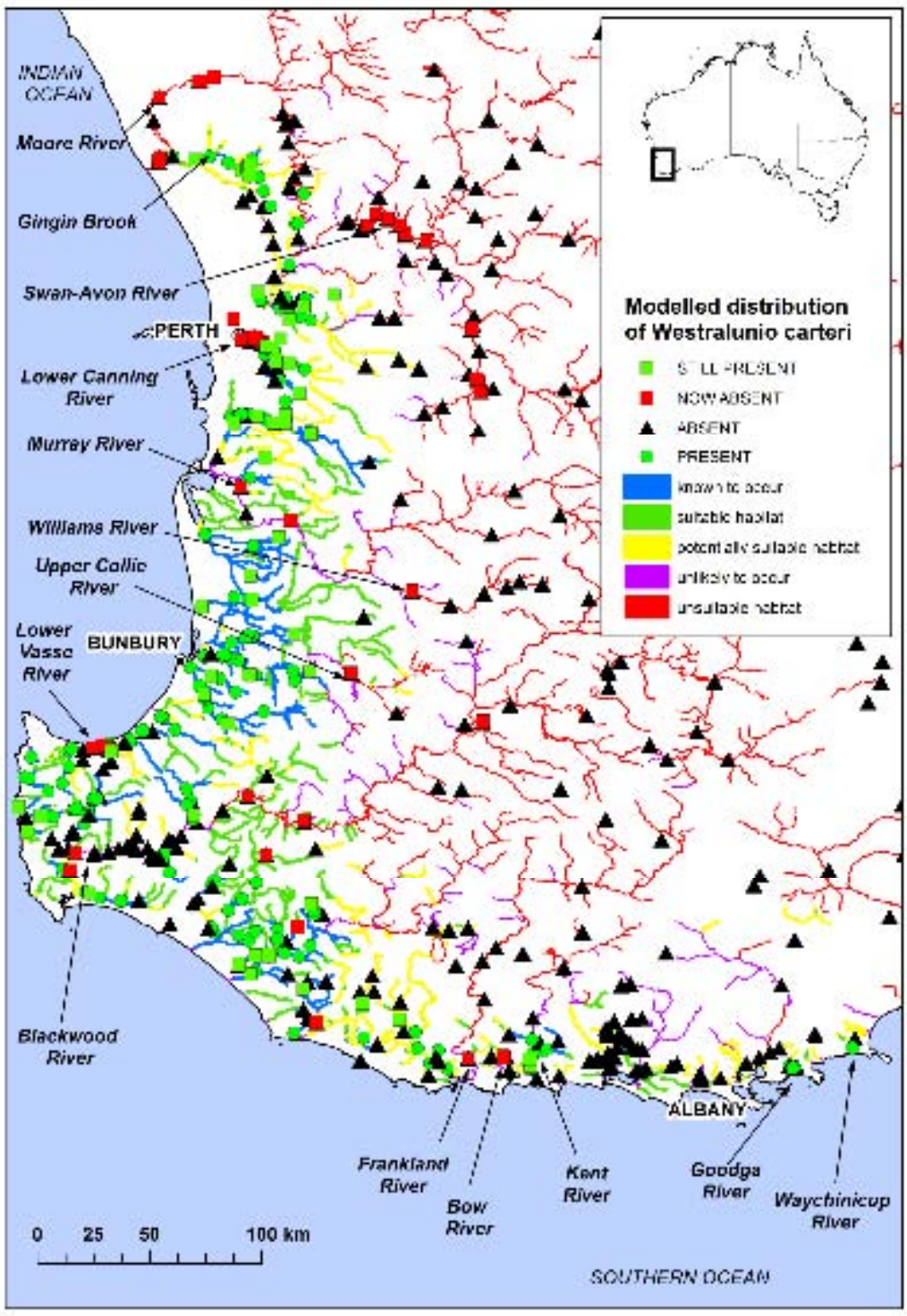
(Kendrick 1976; Klunzinger 2012; Klunzinger et al. 2012a,b, 2013, 2014; Walker et al. 2013; Zieritz et al. 2013)

2.3. Distribution

Describe the distribution of the species in Australia and, if possible, provide a map.

Formerly found from Moore River in the north to King George Sound in the south and inland to the Avon River (McMichael & Hiscock 1958; WA Museum Records; Kendrick 1976)

Current distribution – freshwater streams, rivers, reservoirs and lakes within 50-100 km of the coast, from Gingin Brook southward to the Kent River, Goodga River and Waychinicup River (Klunzinger et al. 2012c, 2014).



2.4. Habitat

Describe the non-biological habitat (e.g. aspect, topography, substrate, climate) and biological habitat (e.g. vegetation type, associated species, sympatric species). If the species occurs in various habitats (e.g. for different activities such as breeding, feeding, roosting, dispersing, basking etc) then describe each habitat. Note if the habitat has a special defining characteristic. If possible estimate the area of habitat, or the relative abundance of the habitat, and note if a critical habitat requirement (eg breeding habitat) is restricted in its availability to the species.

Non-biological habitat

Perennial streams, rivers, lakes and reservoirs, occasionally swamps;
Mean salinity <1.6 g/L (Salinity tolerance LD50 = 1.3 – 3.0 g/L; LD95 = 3.0 – 4.2 g/L);
Sediments composed of sand/mud/clay which are soft enough for burrowing, but stable enough for support;
Mean annual rainfall ≥350 mm;
Water temperatures <30 °C;
Mean Total Nitrogen <0.69 g/L
(Klunzinger et al. 2014)

Biological habitat

IBRA Regions include Swan Coastal Plain, western Jarrah Forest and Warren Bioregion.
Associated with riparian vegetation including Flooded Gum (*Eucalyptus rudis*), *Meleleuca* spp., *Casuarina* spp., *Acacia* spp., *Triglochin* spp., amongst many others;
Relative abundance of adults greatest amongst submerged, exposed tree roots along river banks;
Associated with freshwater fishes, crayfishes, frogs, waterbirds, water rats, freshwater turtles, snakes, benthic macro-invertebrates and aquatic macrophytes;
W. carteri is a known food item for Water Rats (Rakali - *Hydromys chrysogaster*) and has been observed being eaten by Marron (*Cherax cainii*), Margaret River Hairy Marron, Purple Swamphens (*Poriphyrio poriphyrio*), Australian White Ibis (*Threskiornis molucca*) and Laughing Kookaburra (*Dacelo novaeguineae*).

Does the (fauna) species use refuge habitat e.g. in times of fire, drought or flood? Describe this habitat.

The species retreats to shallow pools or damp mud with moist leaf litter, woody debris or aquatic macrophytes or root mats which are well-shaded during times of drought or low water levels, but survival is limited by the availability of dissolved oxygen, moisture and moderate temperatures.
(Lymbery et al., unpublished data; Walker et al. 2013)

Is the species part of, or does it rely on, a listed threatened ecological community? Is it associated with any other listed threatened species?

The species is associated with:
Margaret River Hairy Marron (*Cherax tenuimanus* (Smith, 1912)) – Critically Endangered
Western Trout Minnow (*Galaxias hesperius truttaceus* Valenciennes, 1846)- Endangered
Cape Leeuwin Freshwater Snail (*Austroassiminea letha* Solem, Girardi, Slack-Smith & Kendall, 1982) – Endangered
Western Mud Minnow (*Galaxiella munda* McDowall, 1978)- Vulnerable
Balston's Pygmy Perch (*Nannatherina balstoni* Regan, 1906) – Vulnerable

2.5. Reproduction

Provide an overview of the breeding system.

For fauna: Provide an overview of the breeding system and breeding success, including: when does it breed; what conditions are needed for breeding; are there any breeding behaviours that may make it vulnerable to a threatening process?

For flora: When does the species flower and set fruit? Is the seed produced viable? What conditions are needed for this? What is the pollinating mechanism? If the species is capable of vegetative reproduction, a description of how this occurs, the conditions needed and when. Does the species require a disturbance regime (e.g. fire, ground disturbance) in order to reproduce?

Spawning: mid- to late-winter (June-August) when flows increase with winter rains and temperatures decrease; Brooding in spring (August);
Larval (glochidia) release in mid-spring to early-summer (late-August to early January) with the onset of warming temperatures and decreased flows.
Glochida attach to fish and live as parasites for 3-4 weeks while undergoing metamorphosis to the juvenile form, then detach from the fish to begin life in the sediments.

Fertilisation is approximately 90% successful in areas with relatively dense colonies (20-100 adults/m^2), although females are known to abort immature glochidia when disturbed or during periods of physiological stress (e.g. low dissolved oxygen). Glochidia are short-lived (less than a week) unless they find a suitable host fish.
(Klunzinger 2012; Klunzinger et al. 2012a, 2013)

2.6. Population dynamics

Provide details on ages of sexual maturity, extent of breeding success, life expectancy and natural mortality. Describe population structure (presence of juveniles/seedlings, mature and senescing individuals). Estimate generation length.

Age at sexual maturity: 3-6 years
Extent of breeding success: usually successful breeding (Klunzinger 2012), but glochidia and juveniles are vulnerable to fish immunity and predation by benthic macroinvertebrates in similar species from the Murray-Darling Basin (Walker 1981);
Life expectancy: at least 36-52 years, but variable with growing conditions;
Juveniles require specific micro-habitats (Klunzinger & Boulton, unpublished data)

Questions 2.7 and 2.8 apply to fauna nominations only

2.7. Feeding

Summarise food items or sources and timing/availability.

The diet of this species has not been studied, but it is generally known to be a filter-feeder.

Briefly describe feeding behaviours, including those that may make the species vulnerable to threatening processes.

As a benthic filter-feeder, the species is likely to be vulnerable to pollution, such as heavy metals, which may have lethal or sub-lethal effects. Deformed shells were found in the Helena River in 2010, but the causes are unknown. Hypoxic or anoxic conditions from nutrient pollution could potentially cause abortion of brooding embryos or adult mortality. (Walker et al. 2013)

2.8. Movements

Describe any relevant daily or seasonal pattern of movement for the species, including relevant arrival/departure dates if migratory. Provide details of home range/territories.

The species is relatively sessile and movement is usually localised to a 2-3 m radius, although some individuals have been found to move up to 7-10 m away from a release point over the course of a year (Lymbery et al., unpublished data).

SECTION 3. INTERNATIONAL CONTEXT

For species that are distributed both in Australia and in other countries.

3.1. Distribution
Describe the global distribution.

The species is only found in south-western Australia.

Provide an overview of the global population size, trends, threats and security of the species outside of Australia.

Population size:

Exact population size is unknown, but the metapopulation only exists in south-western Australia.

Trends:

The species is in decline with mass mortality events having occurred as recently as 2010 in the Canning River, Helena River and observed widespread recent death (within the last 5 years) in the main channel of the Blackwood, Murray and Warren Rivers. The species has completely disappeared from salinized catchments since the 1950s-1970s and further declines have been observed since the 1990s (Moore, Swan-Avon, Murray, upper Collie, Blackwood, upper Warren, Bow, upper Kent, Frankland Rivers).

Threats:

Primary - salinity and loss of suitable habitat (i.e. perennial supply of freshwater <2.0 ppt)

Secondary - localised habitat destruction, physical death or predation caused by introduced ungulates (e.g. cattle and pigs) or human activity and nutrient pollution resulting in low dissolved oxygen and high ammonia concentrations.

Loss of suitable host fishes for the completion of the species' life cycle may have long-term impacts (e.g. Goldfish are non-hosts and Pearl Cichlid are voracious benthic predators which may threaten to ingest juvenile *W. carteri*).

Other threats may include those listed for other Australian species (see Walker et al. 2013; Jones & Byrne 2013).

The species is the only member of its genus in Australia and, pending further study, quite possibly the only member of the genus in the world, confined to south-western Australia (N.B. examination of *Westralunio* spp. from New Guinea suggests they are *Velesunio* spp., but collection of fresh specimens and genetic analysis is necessary to investigate further).

Explain the relationship between the Australian population and the global population. What percentage of the global population occurs in Australia? Is the Australian population distinct, geographically separate or does part, or all, of the population move in/out of Australia's jurisdiction? Do global threats affect the Australian population?

100% of the global population occurs in south-western Australia.

SECTION 4. CONSERVATION STATUS AND MANAGEMENT

Conservation status and management information is required for the national extent of the species, however, greater detail is expected for the WA occurrences. If the taxon is considered to be endemic to Western Australia, please provide supporting evidence.

4.1. Population

What is the total national/State population size in terms of number of mature individuals? Has the number of individuals been counted, or is this an estimate? Provide details of the method of determining the number of individuals. Are there other useful measures of population size and what are they? Or if these are unavailable, provide an estimate of abundance (e.g. scarce, locally abundant etc).

Note: The term 'population' is used in a specific sense in the Red List Criteria that is different to its common biological usage. Population is here defined as the total number of mature individuals of the taxon. In the case of taxa obligately dependent on other taxa for all or part of their life cycles, biologically appropriate values for the host taxon should be used. (IUCN 2001)

The population size is unknown, but where the species is found, the species can be locally abundant, but patchily distributed within rivers, streams, reservoirs and lakes, usually confined to the edges or specific habitats that are also conducive to freshwater fishes.

How many subpopulations or locations do you consider the species occurs in and why?

Note: 'Subpopulations' are defined as geographically or otherwise distinct groups in the population between which there is little demographic or genetic exchange (typically one successful migrant individual or gamete per year or less). 'Locations' are defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present. The size of the location depends on the area covered by the threatening event and may include part of one or many subpopulations. Where a taxon is affected by more than one threatening event, location should be defined by considering the most serious plausible threat. (IUCN 2001) Refer to Red List Guidelines 9.0

The number of 'subpopulations' has not been determined. Genetic analysis is required and the precise definition of 'location' needs to be discussed and determined for this and other species of aquatic fauna.

Provide locations of: captive/propagated occurrences or *ex situ* collections; recent re-introductions or introductions to the wild; and sites for proposed re-introductions or introductions. Have these sites been identified in recovery plans?

The species has not been bred in captivity. Anecdotal accounts indicate that some individuals from now extirpated populations may still exist in small farm dams.

For flora, and where applicable, for fauna, detail the location, land tenure, estimated number of individuals, area of occupancy, and condition of site for each known date, location or occurrence. More specific detail is expected for WA occurrences for taxa that are not endemic to WA.

(See attached supplementary tables)

What is the total area of occupancy (in km^2) for the species; explain how it was calculated and datasets used. If an accurate estimate is unavailable, provide a range of values or a minimum or maximum area estimate. Where separate breeding habitat is applicable, if possible, also provide area of breeding habitat.

AOO is impossible to determine without more accurate measures of habitat morphometry (e.g. stream geometry).

What is the extent of occurrence (in km^2) for the species; explain how it was calculated and datasets used. If an accurate estimate is unavailable, provide a range of values or a minimum or maximum area estimate.

Historic EOO = 44,895 km^2
Current EOO =22,584 km^2

Methods: Historic and current presence records were mapped as vector data in ArcGIS™ Desktop 10 using the GCS_GDA_1994 coordinate system (GeoScience Australia, 2003). Extent of occurrence was determined by constructing minimum convex polygons (α-hulls) in ArcGIS™ Desktop 10, following IUCN guidelines. Two α-hulls were constructed from species distributions: one was drawn for historic EOO and another for the current EOO. The areas of the resulting polygons were determined using the feature properties tool and summed to provide a total area. Thus, the percentage change between the α-hulls estimated the temporal change in EOO. (Klunzinger 2012; Klunzinger et al. 2014; IUCN, 2013)

Identify important occurrences necessary for the long-term survival and recovery of the species? This may include: key breeding populations, those near the edge of the range of the species or those needed to maintain genetic diversity.

Specimens have been obtained for genetic study, but analysis cannot proceed without funding. Analysis will be undertaken at the WA Museum Molecular Analysis Laboratory when funding becomes available to cover processing costs.

Is the distribution of the species severely fragmented? Why?

The distribution of the species is fragmented, but severity has not been determined.

Is the taxon subject to extreme fluctuations? If so, provide evidence.

Unknown.

Has there been any known decline in the species within WA or nationally, or is this likely in the future? – provide details in relation to the elements detailed below, including how the decline has been measured or inferred. Is there a presumption of continuing decline? If so, provide details of the decline and how it relates to the specific Red List Categories and Criteria version 3.1.

Note: A continuing decline is a recent, current or projected future decline (which may be smooth, irregular or sporadic) which is liable to continue unless remedial measures are taken. Fluctuations will not normally count as continuing declines, but an observed decline should not be considered as a fluctuation unless there is evidence for this. (IUCN 2001) Refer to Red List Guidelines 9.0

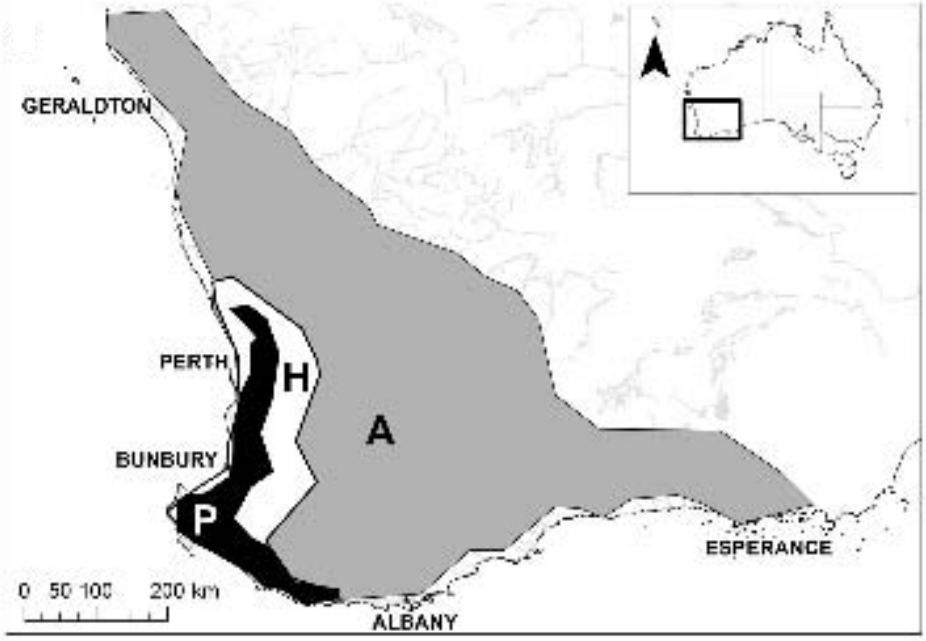
Has there been a decline in the size of the population (number of mature individuals)?

Yes, as inferred from EOO below.

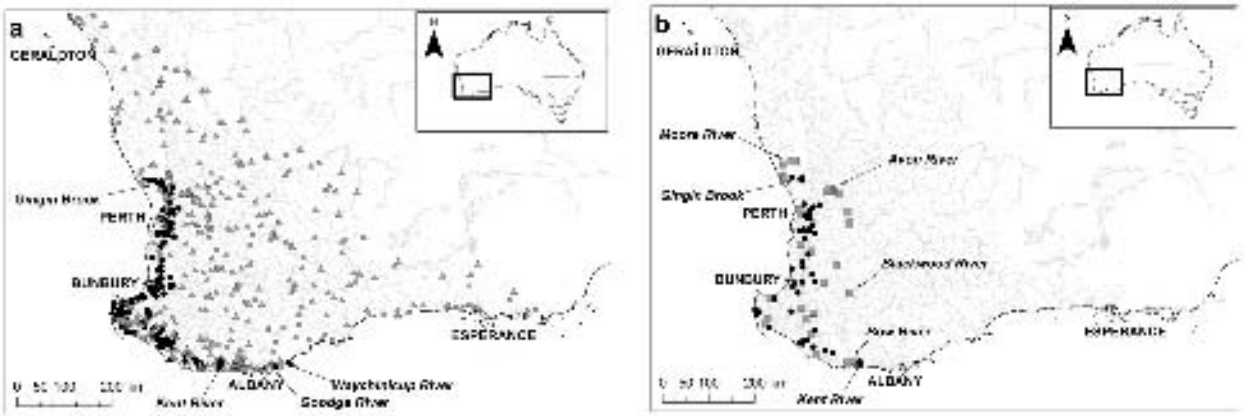
- can the rate of population size reduction be determined over the last 10 years or 3 generations (whichever is the longer)? If so, state whether the determination is based on quantitative data (observed), estimated (provide data and calculations), inferred or suspected.

Yes. Seventy seven sites where *W. carteri* was historically present were able to be resampled, and the species had disappeared from 34% of these sites. The estimated current EOO of the species is 22,584 km^2, a reduction of 49% from its estimated historical EOO of 44,895 km^2. It is now absent from 275,518 km^2 in the South West Coast Drainage Division.

Decline is measured as:
% Change = [(Historic EOO – Current EOO) ÷ Historic EOO] x 100
= [(44,895 – 22,584) ÷ 44,895] x 100
= (22,311 ÷ 44,895) x 100
= 49.695%



α-hulls showing EOO's for: A = Absence; H = historically present and now absent; P = presence.



a) Current distribution – circles = *W. carteri* present, triangles = *W. carteri* absent;
b) Historic (pre-1992) distribution – circles = *W. carteri* still present, squares = *W. carteri* now absent

(from Klunzinger et al. 2014)

- can the rate of population size reduction be estimated for the next 10 years or 3 generations and in any 10 year or 3 generation period (up to a maximum of 100 years into the future)? If so, state how the reduction is estimated (provide data and calculations), inferred or suspected.

Mayer et al. (2005) predicted continued stream salinity increases in catchments affected by salinisation processes. Population size reduction will be determined primarily by salinities which may exceed the maximum salinity threshold of the species (2-3 ppt) and reduction in flows or increased extraction could lead to extirpation if not managed appropriately.

Vulnerable populations include the lower Canning River, lower Collie River, lower Blackwood River, lower Warren River

Has there been a decline in the number of locations, extent of occurrence or area of occupancy?

Yes. EOO has declined by 49% in less than 3 generations.

Has there been a decline in the area or quality of habitat?

Yes.

4.2. Survey effort

Describe the methods to conduct surveys. For example, season, time of day, weather conditions; length, intensity and pattern of search effort (including where species not encountered); any limitations and expert requirements.

From Klunzinger et al. (2014):

"Two databases of *W. carteri* occurrence were compiled: 1) a historical (pre-1992) database of 255 presence-only records from museum specimens and unpublished sources; 2) a current (post-1992) database of 816 records of presence or absence determined from site visits, each consisting of 10-20 minutes of visual and tactile searching, unpublished data and returns from a survey website (www.musselwatchwa.com). Seventy seven sites from the current database were able to be matched with records of mussel presence from the historical database. All sites were within the South West Coast Drainage Division of Western Australia, which covers 326,000 km^2 and includes 19 river basins (AWRC, 1976)."

Provide details on the distinctiveness and detectability of the species, or the distinctiveness of its habitat, that would assist survey success.

The species is only found in freshwater (< 1.6 g/L mean salinity) and only in soft sand/mud/clay/silt, but occasionally gravel sediments. Individuals can be seen from the water surface if visibility allows and burrowing tracks are often observed in sediments. When visibility is poor, individuals can be located by hand-probing sediments and can also be located using a clam rake or set of geological sieves dragged through the sediments. Where the species is present, empty shells can also be seen littering the stream banks or sediments. The species is most abundant amongst submerged tree root complexes, along the edges of stream banks and amongst woody debris/leaf litter out of direct streamflow or on the leeward side of logs in faster-flowing riffle zones.

Has the species been reasonably well surveyed? Provide an overview of surveys to date (include surveys of known occurrences and surveys for additional occurrences) and the likelihood of its current known distribution and/or population size being its actual distribution and/or population size. Include comments on potential habitat and surveys that were conducted, but where the species was not present/found.

Yes. Attached is a list of survey sites, which was compiled from 1,071 records from museum specimens, survey respondents from www.musselwatchwa.com and survey sites from Kendrick (1976), Williams et al. (1991), Edward et al. (1994), Graf & Cummings (2010), Growns & Davis (1994), Storey et al. (2005, 2009, 2010), Slack-Smith (2006), Lymbery et al. (2008), Pinder et al. (2004), Klunzinger et al. (2013, 2014).

4.3. Threats

Identify past, current and future threats indicating whether they are actual or potential. For each threat describe:

a). how and where they impact this species

b). what the effect of the threat(s) has been so far (indicate whether it is known or suspected

c). present supporting information/research

d). does it only affect certain populations?

e). what is its expected effect in the future (is there supporting research/information; is the threat only suspected; does it only affect certain populations?).

If possible, provide information threats for each current occurrence/location:				
Location	**Past threats**	**Current threats**	**Potential threats**	**Management requirements (see section 4.4)**
Moore River, Avon River, Blackwood River, Murray River, Williams River, Upper Warren River, Upper Kent River, Frankland River, Bow River, Lower Canning River	Salinity	Salinity	Salinity	Maintain freshwater flow within tributaries that are still fresh enough to conserve genetic diversity (pending study). Many are fed by groundwater discharge, so hydrology should be maintained. Maintain freshwater flows to lower reaches of otherwise salinized rivers (e.g. Lower Kent and Lower Warren Rivers and Lower Collie River) – avoid clearing the forested areas within these catchments in order to maintain hydrological cycle.
Throughout range, especially in regulated rivers		Water extraction; Dehydration; heat stress	Water extraction; climate change	Maintain shading riparian vegetation, ensuring plant recruitment is occurring and revegetate where necessary; avoid clearing along waterways; maintain environmental flows; avoid unnecessary water extraction and/or mitigate impacts during rapid drawdowns within reservoirs (e.g. translocation of stranded individuals to suitable habitat).
Throughout range		Nutrient pollution	Nutrient pollution	Reduce nutrient runoff; fence cattle out of waterways; utilize nutrient-stripping technologies to intercept nutrients before they enter the waterways, while ensuring nutrient balance is maintained to provide adequate food.
In rural catchments	Cattle trampling	Cattle tramping	Cattle trampling	Fence cattle out of waterways.
		Predation by pigs	Predation by pigs	Eradicate feral pigs.
(See Walker et al. 2013 for others)				

Identify and explain why additional biological characteristics particular to the species are threatening to its survival (e.g. low genetic diversity). Identify and explain any models addressing the survival of the species.

See above mapped distribution model and Klunzinger et al. 2014.

4.4. Management

Identify key management documentation for the species e.g. recovery plans, conservation plans, threat abatement plans etc.

No management plans have been written for the species.

Does this species benefit from the management of another species or community? Explain.

Yes. Managing freshwater ecosystems and management programs designed for the conservation of threatened freshwater fishes and crayfishes may also benefit this species as it is dependent on freshwater fishes for dispersal and requires similar habitats and environmental conditions to other freshwater fauna.

How well is the species represented in conservation reserves or covenanted land? Which of these are actively managed for this species? Provide details.

The species is represented in conservation reserves, although none are managed specifically for the species.

Are there any management or research recommendations that will assist in the conservation of the species? Provide details.

Yes. Quantification of populations and recruitment success (or factors limiting recruitment success), quantification of juvenile habitat requirements, analysis of dietary requirements, toxicology testing, environmental tolerance limits (dissolved oxygen and temperature), determination of whether other introduced fishes can support the life cycle of the mussel, analysis of population genetics, captive breeding, and other research will do much to advance the knowledge necessary to inform effective conservation management.

4.5. Other

Is there any additional information that is relevant to consideration of the conservation status of this species?

Yes. Initial genetic analyses suggest a second species/subspecies, but further investigation is required.

SECTION 5. NOMINATOR

Nominator(s) name(s)	
Organisation(s)	
Address(s)	
Telephone number(s)	
Email(s)	
Date	28 January, 2014

If the nomination has been refereed or reviewed by experts, provide their names and contact details.

SECTION 6. REFERENCES

What references or sources did you use to prepare your nomination? Include written material, electronic sources and verbal information. Include full references, address of web pages and the names and contact details of authorities with whom you had verbal communications.

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APPENDIX: Distribution data for historic and current presence/absence of *Westralunio carteri*.

Table A1. Historic distribution of *Westralunio carteri*.

Table A2. Absence sites for *Westralunio carteri*.

Table A3. Current distribution of *Westralunio carteri*.

Table A1. Historic distribution of *Westralunio carteri* Iredale, 1934. Data obtained from Douglas *et al*. 1966; Kendrick 1976; Lymbery 1977; Davis *et al*. 1988; Storey & Edward 1989; Storey et al. 1990, 1991, 1992; Williams *et al*. 1991; Edward *et al*. 1994; OZCAM Databse 2009; MusselWatchWA 2010; museum specimens (AMS = Australian Museum – Sydney; BMNH = Natural History Museum – London, UK; FMNH = Field Museum of Natural History – Chicago, IL, USA; MCZ = Museum of Comparative Zoology – Cambridge, MA, USA; UMMZ = University of Michigan Museum of Zoology – Ann Arbor, MI, USA; WAM = Western Australian Museum - Perth). Rows shaded orange are sites in which *W. carteri* is now absent; rows shaded blue are sites where *W. carteri* are still present and rows without shading were sites which we did not survey.

Date (d/mm/yyyy)	Catalogue Number	Basin Name	River Name	Site Description	Latitude	Longitude	Source
1978	WAM_34289	ESPERANCE COAST	n/a	Esperance Town Beach	33.8200° S	121.9300° E	B.R. Wilson
1963	WAM_34290	ALBANY COAST	Kalgan River	South Stirlings, Calvin River (CORRECTION: KALGAN RIVER)			E.H. Sedgwick
1877	AMS_126151	ALBANY COAST	King George Sound		35.0500° S	117.9670° E	W.H.Hargraves Coll. Pres. T. Walker
1877	AMS_47295	" "	" "		35.0500° S	117.9670° E	"
1877	AMS_61906	" "	" "		35.0500° S	117.9670° E	"
8/08/1966	WAM_34293	DENMARK COAST	Owingup Swamp	Owingup Swamp near Denmark	34.9985° S	117.0716° E	Riggert
1950	AMC_126319	KENT	Bow River		34.9100° S	116.9300° E	
Pre-1950	AMS_126319	" "	" "	Bow River	34.9170° S	116.9330° E	Lee Woolacott
14/02/1913	AMS_61714	" "	" "	Bow River	33.5500° S	116.8333° E	S.W. Jackson
	AMS_61715	" "	" "	Bow River	34.9166 7° S	116.9333° E	
12/1912	AMS_61717	" "	" "	Bow River	34.9170° S	116.9330° E	S.W. Jackson
16/02/1969	WAM_34299	" "	" "	Kent River Bridge, Kentdale	34.9214° S	117.0373° E	George & McKay
		" "	" "	between Denmark & Albany on Kent R., WA	34.9590° S	117.0410° E	OZCAM Database [2009]
		KENT	Kent River		34.9500° S	117.0400° E	

	WAM_34292	KENT	Kent River	Parryville, W of Denmark			Bunbury
14/02/1913	AMS_61714	FRANKLAND	Frankland River	Frankland River	33.8333° S	116.9166° E	S.W. Jackson
1/11/1977	FMNH_199215	" "	" "	Circular Pool, near Walpole			A. Solem & J. Engel
02/1913	MCZ_191967	" "	" "	Bow River and Frankland River			Jackson
1967	WAM_34286	" "	" "	Frankland River, Circular pool, North Warpole	34.9194° S	116.7910° E	W. E. & G. W. Kendrick
	OZCAM Database [2009]	SHANNON	Beardmore River	Weld R., nr Fernbrook falls on Beardmore R., WA	34.7650° S	116.5790° E	
20/10/1967	WAM_34295	" "	Broke Inlet	Creek flowing into Broke Inlet	34.9184° S	116.5697° E	Muir
1962	WAM_34334	" "	Deep River	Deep River			Mayne
26/10/1967	WAM_34291	" "	Fish Creek	Fish Creek, near Broke Inlet	34.8246° S	116.1564° E	Muir
13/011982	AMS_132736	" "	Shannon River	Shannon Dam, Shannon R., S of Manjimup, WA	34.7000° S	116.3670° E	I. Loch
1987	WAM_34333	" "	" "	Shannon River, Nelson Bridge	34.7129° S	116.3630° E	Milne
20/01/1971	WAM_34287	WARREN	Gardner River	Gardner River, SE of Northcliffe	34.6437° S	116.1290° E	G. W. Kendrick
09/05/1983	WAM_34288	" "	" "	Gardner River, near crossing of Broke Inlet Rd, Northcliffe	34.7756° S	116.1815° E	Ian Crawford
02/1959	WAM_34327	" "	East Brook	East brook, Pemberton	34.3951° S	116.1058° E	Sedgwick
	WAM_34328	" "	Pelgarup Creek	Pelgarup Creek, Manjimup	34.1658° S	116.2130° E	
24/10/1970	WAM_34300	" "	Smith Brook	Smith Brook, Middlesex district, S of Manjimup	34.3037° S	116.1612° E	Merrilees
10/02/1987	WAM_34301	" "	" "	Smith Brook, c. 16km S of Manjimup	34.3037° S	116.1612° E	"
23/04/1989	WAM_34326	" "	" "	Middlesex, Manjimup Smith's Brook	34.3037° S	116.1612° E	"
24/11/1982	WAM_34329	" "	" "	Smith Brook, Middlesex, 16km S of Manjimup	34.3037° S	116.1612° E	"
09/1994	WAM_34332	" "	" "	Middlesex, Smith Brook			Kendrick

1/07/1992	STOREY ET AL. 1991	WARREN	South Yeagarup Lake	D-Entrecasteaux Ntl Park	34.5510° S	115.8676° E	
	AMS_61713	" "	" "		34.5833° S	115.9166° E	
23/01/1971	WAM_34294	" "	" "	Warren River at crossing on fishing track			Kendrick
1955; 1974	WAM_34297	" "	" "	Warren River, Pemberton			Sedgwick
2/09/1974	WAM_34302	" "	" "	Warren State Forest, W of Pemberton	34.5086° S	115.9379° E	Slack-Smith
1972	WAM_34330	" "	" "	Yeagorup-between Warren and Donnelly Rivers			Butler
1972	OZCAM Database 2009	" "	" "	Lake Yeagorup-between Warren and Donnelly Rivers	34.5459° S	115.8749° E	
	OZCAM Database 2009	" "	" "	Warren R., on Northcliffe Rd, WA	34.5070° S	115.9930° E	
1970-1980s	MusselWatchWA 2010	" "	Wilgarup River	behind Nyamup town water supply	34.3184° S	116.3081° E	
11/1991	STOREY ET AL. 1991	" "	Yeagarup Lake		34.5452° S	115.8705° E	
1991	STOREY ET AL. 1991	" "	" "	Greater Hawke Ntl Park	34.5441° S	115.8721° E	
4/11/1991	Edward *et al*. 1994	" "	" "	Yeagarup Lake	34.5452° S	115.8705° E	Edward
02/1989	WAM database	" "	Carey Brook		34.2833° S	115.9166° E	
15/01/1967	WAM_34331	" "	Donnelly River	Donnelly River, Nannup Pemberton Rd crossing	34.1015° S	115.9803° E	Kendrick
07/1991	STOREY ET AL. 1991	" "	" "	Boat Harbour Lake 3	33.0169° S	117.0880° E	
	AMS_61890	BLACKWOOD	Blackwood River	Bridgetown	33.9670° S	116.1330° E	P. DStorey et al.ington
03/1927	AMS_61894	" "	" "	Bridgetown	33.9670° S	116.1330° E	W.S. Brooks
25/12/1920	BMNH_MP_108	" "	" "				A.S. Kennard
	BMNH_MP_118	" "	" "				B.R. Lucas

	MCZ_59801	" "	" "	Bridgetown	33.9670° S	116.1330° E	W.S. Brooks
8/11/1931	MCZ_99001	BLACKWOOD	Blackwood River	Bridgetown	33.9670° S	116.1330° E	P. DStorey et al.ington
8/11/1931	UMMZ_57552	" "	" "	Bridgetown	33.9670° S	116.1330° E	P. DStorey et al.ington
30/12/1996	WAM_34303	" "	" "	Blackwood River, near Lewana Resort (ALL DEAD - MASS MORTALITY)	33.8665° S	115.9067° E	Slack-Smith & Kendrick
28/03/1969	WAM_34305	" "	" "	Blackwood River, Walker? Walkin'? Pool, water's edge (CORRECTION: Worker's Pool)	33.9443° S	115.6907° E	Williams
	OZCAM Database 2009	" "	" "	Blackwood R., Bridgetown, WA	33.9670° S	116.1330° E	
	" "	" "	" "	Blackwood R., Bridgetown, WA	33.9670° S	116.1330° E	
	" "	" "	" "	" "	33.9680° S	116.1340° E	
1958	" "	" "	" "		33.9600° S	116.1300° E	
1/03/1927	" "	" "	" "		33.9600° S	116.1300° E	
1991	Williams *et al*. 1991	" "	" "	Alexandra Bridge	34.1632° S	115.1946° E	
1991	" "	" "	" "	Nannup	34.0930° S	115.2160° E	
1991	" "	" "	" "	Bridgetown	33.9678° S	116.1336° E	
2/03/1984	WAM_34354	" "	Chapman Brook	Forrest Grove			Kendrick
1977	OZCAM Database 2009	" "	Scott River	Scott River Rd	34.2601° S	115.2703° E	
26/12/1979	WAM_34304	" "	St. John Brook	Cambray Pool			Kendrick
27/12/1965	WAM_34309	" "	Ellen Brook	Ellen Brook, Margaret River, near mouth of old homestead	33.9093° S	114.9894° E	Wilson
14/09/1980	WAM_34310	" "	" "	Ellen Brook, dam above homestead	33.9106° S	114.9922° E	Kendrick

7/10/1984	WAM_34312	" "	" "	Mouth of Ellen Brook, on beach	33.9087° S	114.9881° E	Slack-Smith
12/10/1975	WAM_34318	BLACKWOOD	" "	Beach at mouth of Ellen Brook, S of Cowaramup Bay	33.9087° S	114.9881° E	Slack-Smith
1/03/1976	WAM_34319	" "	" "	Ellen Brook, "Glenbourne Farm"	33.9106° S	114.9908° E	Kendrick
2/10/1990	WAM_34320	" "	" "	Ellen Brook Creek, "Glenbourne Farm"	33.9107° S	114.9912° E	Marsh
1/03/1976	WAM_34321	" "	" "	Mouth of Ellen Brook, on beach	33.9087° S	114.9881° E	Kendrick
1982	MusselWatchWA 2010	" "	Gynudup Brook	500 m upstream of Bussel Hwy	33.5111° S	115.5769° E	Bernie Masters
15/12/1979	WAM_34323	" "	Koodjidup Brook (CORRECTION: Boodjidup Brook)	Koodjidup Brook, Leeuwin-Naturaliste National Park (CORRECTION: Boodjidup Brook)	34.0095° S	115.0206° E	Muir
	MCZ_99004	" "	Margaret River				G.M. Allen
20/04/1986	WAM_34311	BUSSELTON COAST	Margaret River	Margaret River, 500m upstream of pumping station	33.9455° S	115.0739° E	BreStorey et al.y & Slack-Sith
1992	WAM_34315	" "	" "	5km upstream Magaret River town			Buick
Pre-1974	WAM_34317	" "	" "	Margaret River			Baker
13/01/1985	WAM_34322	" "	" "	Margaret River weir in town			BreStorey et al.ey
1955	AMC_61712	" "	Vasse River		33.8000° S	115.3000° E	
05/1970	WAM_34383	" "	" "	Vasse River, Busselton PeStorey et al.s			Armour
	OZCAM Database 2009	" "	" "		33.8000° S	115.3000° E	
08/1979	WAM_34307	" "		Canal Rocks, Yallingup			Sedgwick
22/10/1989	WAM_34394	" "		Busselton, Broadwater	33.6712° S	115.2867° E	Buick

1937	WAM_34426	" "		Point Peron? WA			Sedgwick
1958	WAM_34361	PRESTON	Ferguson River	Ferguson River, near Dardanup	33.3865° S	115.7600° E	Sedgwick
1992	WAM_34316	PRESTON	Preston River	Preston River, Boyanup	33.4587° S	115.7323° E	Buick
21/01/1969	WAM_S34235	" "	" "	Preston River, Donnybrook	33.3400° S	115.4900° E	Kendrick
1950	AMC_126273	COLLIE	Collie River		33.3830° S	115.9170° E	
1955	AMC_61716	" "	" "		33.3830° S	115.9170° E	
Pre-1950	AMS_126273	" "	" "		33.3830° S	115.9170° E	Lee Woolacott
Pre-1966	AMS_126372	" "	" "		33.3830° S	115.9170° E	Ward
Pre-1955	AMS_61716	" "	" "		33.3830° S	115.9170° E	Carter
12/1920	BMNH_MP_115	" "	" "				B.R. Lucas
27/12/1991	WAM_34365	" "	" "	just below Wellington Dam			S.M. Slack-Smith
1955-1961	WAM_34368	" "	" "	Collie River, Collie	33.3568° S	116.1567° E	Sedgwick
1930	WAM_34369	" "	" "	Collie River, Shotts	33.3722° S	116.3217° E	Brown
11/1971	WAM_34370	" "	" "	Collie River (under water within township), Collie	33.3568° S	116.1567° E	Archer
1958	WAM_34372	" "	" "	Wellington Weir, Collie	33.4020° S	115.9810° E	Sedgwick
1956	WAM_34378	" "	" "	Collie River, Collie	33.3608° S	116.1645° E	"
06/1983	WAM_34379	" "	" "	Collie River, upstream of Wellington Dam	33.3792° S	116.1269° E	BreStorey et al.y
	OZCAM Database 2009	" "	" "	Minnenup Pool	33.2158° S	116.0921° E	
1955	" "	" "	" "		33.3830° S	115.9170° E	

1966	" "	" "	" "		33.3800° S	115.9100° E	
1959	WAM_34364	HARVEY	Harvey River	Harvey River			Sedgwick
	WAM_34366	HARVEY	Harvey River	Harvey River			
6/12/1979	WAM_34371	" "	" "	Harvey			Wells & Threlfall
25/04/1973	WAM_34374	" "	" "	Harvey River, Harvey			Buick
25/04/1973	WAM_34375	" "	Harvey River	Harvey River, Harbour?, Harvey			"
10/1984	WAM_34380	" "	Harvey River Diversion Drain	HRD near rail bridge out of town			Sedgwick
07/1973	WAM_34306	" "	Harvey River Drain	Myallup Beach, 500-600m from diversion	33.1033° S	115.7084° E	Sedgwick
07/1973	WAM_34308	" "	" "	Binningup, on beach c. 1km N of Harvey River diversion	33.0792° S	115.7082° E	Sedgwick
07/1973	WAM_34324	" "	" "	Binningup Beach, 1km N of parking area (after heavy weather)	33.1472° S	115.6871° E	Sedgwick
1959	WAM_34376	" "	" "	Harvey River Diversion, found c. 200m W of HRD	33.0805° S	115.9248° E	Sedgwick
17/04/70	WAM_34377	" "	" "	HRDD near Old Coast Road	33.1078° S	115.7233° E	Penglase & Kendrick
1988	Davis *et al*. 1988	MURRAY	Gooralong Brook	west side of Jarrahdale	32.3348° S	116.0571° E	Jenny Davis
8/04/1969	WAM_34358	" "	Murray River	Murray River upstream from traffic bridge, Pinjarra	32.6277° S	115.8779° E	Wilson
26/02/1964	WAM_34367	" "	" "	Murray River at crossing from Dwellingup to Nanga Brook	32.8310° S	116.0306° E	Kendrick
5/10/1981	WAM_34363	" "	N. Dandalup River	N. Dandalup R,pool bank 150m upstream from bridge near North Dandalup School	32.5132° S	115.9756° E	Hassell
27/07/1969	WAM_34355	" "	Serpentine River	Serpentine River, below Serpentine Falls, DStorey et al.ing Ranges	32.3684° S	116.0115° E	R. Slack-Smith
25/03/1963	WAM_34356	" "	" "	Serpentine River drain, E of Lake Walyungup	32.3703° S	115.8507° E	Kendrick

1939	WAM_34357	" "	" "	Serpentine Falls	32.3677° S	116.0118° E	Sedgwick
13/03/1977	WAM_34381	" "	" "	Jarrahdale, pool below Pipehead dam, 405998 (51-50-2?)	32.3663° S	116.0566° E	Stoddard
1979	WAM_34428	MURRAY	Serpentine River	Baldivis, Peel Estate WA Drainage Channel			Sedgwick
26/02/1964	OZCAM Database 2009	" "	Murray River	Murray River at crossing from Dwellingup to Nanga Brook	32.7625° S	116.0775° E	
26/12/1951	" "	" "	" "		32.4100° S	116.1600° E	
1/12/1953	" "	" "	" "		32.4100° S	116.1600° E	
	" "	" "	" "		32.4170° S	116.16700° E	
	" "	" "	" "		32.4170° S	116.16700° E	
1988	Davis *et al*. 1988	" "	" "	Rapids Rd	32.3390° S	115.9440° E	Jenny Davis
1988	Davis *et al*. 1988	" "	" "	Karnup Rd	32.3700° S	115.8510° E	"
3/02/1969	WAM_34298	" "	Williams River	Williams River, Quindanning/ Asquith area	33.0448° S	116.5669° E	George & McKay
8/04/1973	WAM_34351	AVON	Avon River	Avon River, "Glen Avon" Pool on downstream side of Katerine	31.6366° S	116.6231° E	J. & P. Masters
7/06/1971	WAM_34352	" "	" "	Walyunga Pool			W.E. & G.W. Kendrick
4/03/1977	WAM_34360	" "	" "	Pool in Avon River, 5km E of Toodyay 454096 (5H-550-Up?)	31.5751° S	116.5147° E	
05/1971	WAM_34410	" "	" "	Avon River, WA, 6-7 miles downstream from Toodyay Sinclair's Farm	31.5769° S	116.3867° E	Pember
05/1971	WAM_34418	" "	" "	Avon River, WA, 10 miles upstream from Toodyay; Vivash's Crossing near the old Katrine church			"
1972	WAM_34427	" "	" "	Avon River WA, deep pool 10-12 miles Downstream Toodyay			"
1/05/1971	OZCAM Database	" "	" "	Avon River at Toodyay	31.5504° S	116.4648° E	George

	2009						W.Kendrick
1/05/1971	Kendrick, 1976	" "	" "	Avon River on both side of Toodyay	31.5492° S	116.4670° E	Mr Dennis R Pember
1/05/1971	OZCAM Database 2009	AVON	Avon River	Glen Avon Pool between Northam and Toodyay	31.6071° S	116.5365° E	James Masters
1/01/1912	Kendrick, 1976	" "	" "	Gwambygine Pool	31.9892° S	116.8050° E	Mr Brian Clifton
1/01/1950	Kendrick, 1976	" "	" "	Gwambygine Pool	31.9892° S	116.8050° E	"
1/01/1930	Kendrick, 1976	" "	" "	West Toodyay	31.5519° S	116.4732° E	M Jeffreys
1/01/1930	Kendrick, 1976	" "	" "	West Toodyay bridge	31.5302° S	116.4190° E	"
1/05/1971	Kendrick, 1976	" "	" "	Avon River at Toodyay	31.5504° S	116.4648° E	George W. Kendrick
1/1/1971	Kendrick, 1976	" "	" "	Glen Avon Pool between Northam and Toodyay	31.6071° S	116.5365° E	James Masters
1960	WAM_34362	" "	Dale River	Original source Spring Pool on Dale River (Beverley District: propperty of L. And N. Doncon and sons. Dug from garden and believed to have been discarded by children.original source Spring Pool on Dale River ~15 years before (1960)-from correspondance N. Doncon and G. W. Kendrick.) (Probably Bedjoording Pool)	32.1917° S	116.8235° E	Doncon
17/11/1910		" "	" "	3 km upstream Westdale Rd	32.2023° S	116.8300° E	
1/01/1958	Kendrick, 1976	" "	" "	Spring Pool, beside the Dale River ~16km SSW of Beverley	32.2400° S	116.8400° E	Mr C Bennett
1/01/1960	Kendrick, 1976	" "	Dale River	Spring Pool, beside the Dale River ~16km SSW of Beverley	32.2400° S	116.8400° E	Mrs NI Doncon
1/01/1968	Kendrick, 1976	" "	" "	Spring Pool, Dale River ~16km SSW of Beverley	32.2400° S	116.8400° E	Mr C Bennett
16/02/1969	WAM_34415	SWAN COAST	Bennett Brook	Bennet Brook, Caversham, WA. Mussel pool on Whiteman's property	31.8434° S	115.9485° E	E. Papadoulis
1967	WAM_34349	" "	" "	Bennet Brook, Middle Swan, Mussel Pool	31.8434° S	115.9485° E	"

13/11/1971	WAM_34350	" "	" "	Bennet Brook at Mussel Pool, West Swan	31.8434° S	115.9485° E	P. G., A. J., & G. W. Kendrick
13/11/1971	WAM_34404	SWAN COAST	Bennett Brook	Bennet Brook, Mussel Pool, West Swan	31.8434° S	115.9485° E	"
1953	WAM_34430	" "	Bickley Brook	Bickley Brook, WA, near Reservoir	32.0306° S	116.0373° E	Sedgwick
1913	AMC35307	" "	Canning River		32.0300° S	115.8800° E	
Pre-1932	AMS_35307	" "	" "		32.0330° S	115.8830° E	
	AMS_404158	" "	" "	at Gosnells	32.0830° S	116.0000° E	
13/04/1975	WAM_34403	" "	" "	Canning Dam, WA			S. Slack-Smith
31/08/1969	WAM_34408	" "	" "	Canning River, Gosnells, Station St Bridge	32.0703° S	116.0063° E	Barry Muir
	WAM_34419	" "	" "		32.0830° S	116.0000° E	
29/04/1965	WAM_34429	" "	" "	Canning River, Cannington, 1/4 mile upstream Nicholson Rd	32.0310° S	115.9449° E	Kendrick
12/1982	WAM_34434	" "	" "	Canning Dam, WA			B. O'Brian
	MusselWatchWA 2010	" "	" "	Beckenham Open Space (Roe Hwy Bridge)	32.0402° S	115.9554° E	Matt Grimbly
	" "	" "	" "	Ilford Pl., Kenwick, at end of cul-de-sac	32.0465° S	115.9671° E	" "
	MusselWatchWA 2010	" "	" "	John Oakey Davis Reserve - Gosnells, near Southern River/Canning River Confluence	32.0605° S	115.9789° E	Matt Grimbly
	" "	" "	" "	Masons Landing, Bacon St Boat Ramp	32.0259° S	115.9376° E	Tom Atkinson
	" "	" "	" "	Wilson Park - just above Kent St Weir	32.0212° S	115.9209° E	"
	" "	" "	" "		32.0330° S	115.8830° E	
10/1988	STOREY ET AL. 1990	" "	" "	Thompson Rd	32.1291° S	116.0708° E	Andrew Storey
	BMNH_MP_112	" "	Helena River	Mundaring, W.A.			B.R. Lucas
	BMNH_MP_117	" "	" "	Mundaring, W.A.			A.S. Kennard
1/08/1936	WAM_34400	" "	" "	Mundaring Weir			Phil?

12/03/1972	WAM_34407	" "	" "	Helena River WA, 3 miles W of Mundaring River	31.9396° S	116.1197° E	Kendrick
12/03/1972	WAM_34420	" "	" "	Helena River, 3 miles W of Mundaring Weir	31.9396° S	116.1197° E	" "
6/04/1968	WAM_34421	SWAN COAST	Helena River	Helena River, DStorey et al.ing Ranges, WA			J. L. Groom
26/12/1964	WAM_34424	" "	" "	Helena River, DStorey et al.ington, WA	31.9459° S	116.0968° E	Kendrick
1950's	MusselWatchWA 2010	" "	" "	Adjacent to Katherine St in Elders Paddocks in the 1950's; friends collected them and pickled them in jars to sell to neighbours	31.9105° S	116.0355° E	
1/08/1936	OZCAM Database [2009]	" "	Jane Brook?	Mundaring Weir	31.9548° S	116.1579° E	
04/1973	WAM_34353	" "	Lake Jandakot	(Renamed Forrestdale Lake)	32.1590° S	115.9377° E	Merrifield
Pre-1974	WAM_34401	" "	Lake Leschenaultia	Lake Leschenaultia	31.8530° S	116.2515° E	Baker
02/1963	WAM_34405	" "	" "	Lake Leschenaultia via Chidlow, WA	31.8530° S	116.2515° E	G. W. Kendrick
1951	WAM_34406	" "	" "	Lake Leschenaultia, Chidlow	31.8530° S	116.2515° E	E. H. Sedgwick
Pre-1974	WAM_34413	" "	" "	Lake Leschenaultia, WA	31.8530° S	116.2515° E	Harry Baker
30/06/1987	Storey & Edward 1989	" "	Lower Canning River	Lower Canning River adjacent to Thompson Rd.	32.1273° S	116.0740° E	
18/08/1987	" "	" "	" "	Lower Canning River adjacent to Thompson Rd.	32.1273° S	116.0740° E	
Pre-1955	AMS_62160	" "	Mahogany Creek		31.9000° S	116.1330° E	Bernhard
1955	WAM_34378	" "	" "		31.9000° S	116.1300° E	Sedgwick
10/1988	STOREY ET AL. 1990	" "	Piesse Gully	just upstream from gauging station	31.9533° S	116.0733° E	Andrew Storey
	AMS_126132	" "	Swan River	Near Perth, WA	31.9500° S	115.8500° E	Pres. D. Serventy
Very Old	WAM_34412	" "	" "	Swan River			
1934	AMS_170635	" "	Victoria Reservior	12 Miles E of Perth	32.0500° S	116.0670° E	Thomas Carter
1934	AMS_61724	" "	" "	DStorey et al.ing Range, 12 Miles E of	32.0500° S	116.0670° E	"

				Perth			
1966	WAM_34402	" "	" "	Victoria Reservoir, DStorey et al.ing Range, 12 mi E of Perth, WA	32.0500° S	116.0670° E	Wilson
20/04/1961	WAM_34416	" "	" "	Probably Victoria Reservoir, WA	32.0439° S	116.0685° E	"
04/1967	WAM_34417	" "	" "	Victoria Reservoir, DStorey et al.ing Ranges, WA	32.0439° S	116.0685° E	B. J. Fleay
15/03/1969	WAM_34435	SWAN COAST	Victoria Reservoir	Victoria Reservoir, DStorey et al.ing Range, 12 mi E of Perth, WA	32.0500° S	116.0670° E	Kendrick
29/08/1971	WAM_34409	" "	Wooroloo Brook	Wooroloo Bk, road to Walyunga Lookout	31.7346° S	116.1171° E	"
21/11/1971	WAM_34425	" "	" "	Wooroloo Brook, DStorey et al.ing Ranges			P.G. Kendrick
21/11/1971	WAM_34433	" "	" "	Wooroloo Bk, Drlg Ranges, pool Guaging Stn road to Walyunga lookout	31.7308° S	116.1147° E	Kendrick
1926	AMC_61893	" "	Wungong Creek		32.1600° S	115.9800° E	
01/1926	AMS_61893	" "	" "	34 miles SW of Perth	32.1670° S	115.9830° E	W.S. Brooks
	OZCAM Database [2009]	" "	" "	Approx 34 km SW Perth, Wungong Ck, WA	32.1670° S	115.9830° E	
10/01/1926	MCZ_186736	" "	Wungong River	21 Miles South of Perth			W.S. Brooks
27/05/1961	WAM_34359	" "		Dam, Brookton Rd. 26.5 Mile Peg			Balchin
	WAM_34373	" "		Mornington Mills			
30/10/1929	WAM_34382	" "		Mornington Mills			White
17/09/1991	WAM_34422	" "		Woodman's Point			A. & F. Turnball
1929	WAM_34423	" "		Claremont Swamp, Claremont, WA			Sedgwick
	WAM_34431	" "		WA, Rossmayne High School			W. G. Buick
	Douglas *et al*. 1966	AVON	Avon River	Abandoned limestone quarry (Dunstan's Lime Kiln Quarries) located 9 miles (=14.4 km) N of Wanneroo.	31.6101° S	115.7550° E	
1960	OZCAM Database [2009]	" "	" "	Near Perth, WA	31.9500° S	115.8500° E	
	" "	" "	" "	Near Perth, WA	31.9500° S	115.8500° E	

107/1953	BMNH_1840-10-21-29	" "	" "	River Avon, South Australia			Mrs. G. Gould
	BMNH_40-10-20-27	" "	" "	River Avon, South Australia			
	AMS_126305	MOORE-HILL	Gin Gin Brook	near Gin Gin	31.2950° S	115.8750° E	
2/01/1970	WAM_34335	" "	" "	Gin Gin Brook at road crossind 20 miles W of Gin Gin	31.3137° S	115.6963° E	Kendrick
13/04/1965	WAM_34338	MOORE-HILL	Gin Gin Brook	Gin Gin Brook, 10 miles W of Gin Gin near bridge	31.3520° S	115.8300° E	" "
18/06/1986	WAM_34339	" "	" "	Gin Gin Brook, near Swan, location 789			Burford
27/04/1958	WAM_34341	" "	" "	Creek 2 miles W of Gin Gin, on the Lancelin Rd	31.3553° S	115.8837° E	Butler
2/01/1970	WAM_34343	" "	" "	Gin Gin Brook, at Gin Gin townsite	31.3481° S	115.9048° E	Kendrick
4/04/1961	WAM_34344	" "	" "	Mud flats along stream E of road, 1 mile N of Gin Gin	31.3369° S	115.9131° E	Archer & Jefferys
4/04/1969	WAM_34347	" "	" "	Gin Gin Brook, ~1 mile upstream from Gin Gin town	31.3280° S	115.9150° E	" "
6/04/1969	OZCAM Database [2009]	" "	" "	1.5 miles S of Gin Gin, near a stream	31.3790° S	115.9120° E	
	" "	" "	" "	Gin Gin Brook	31.2950° S	115.8750° E	
02/1942	" "	" "	" "	" "	31.2900° S	115.8700° E	
	AMS_422334	" "	Moore River	N of Perth, Western Australia, Australia	31.0000° S	115.7170° E	
26/03/1961	WAM_34336	" "	" "	Bridge across Moore River, 26 miles W of Gin Gin	31.3040° S	115.5554° E	George
23/05/1971	WAM_34337	" "	" "	Moore river, 4 miles E of Regans crossing	30.9830° S	115.7700° E	Kendrick
22/05/1971	WAM_34340	" "	" "	Moore River, pool near crossing, 5 miles downstream from			" "
10/10/1978	WAM_34345	" "	" "	Moore, inland from Lancelin Rd	31.3041° S	115.5559° E	Barker (pres.)
09/1961	WAM_34346	" "	" "	Moore River, 4 miles from mouth	31.3208° S	115.5497° E	Sedgwick
4/09/1972	WAM_34348	" "	" "	Moore River, Cowalla Bridge crossing	31.0644° S	115.5525° E	Roe
	OZCAM Database			Moore R., N of Perth, WA	31.0000° S	115.7170° E	

	[2009]						
10/07/1971	" "	" "	" "	Moore River	31.0000° S	115.7100° E	
6/04/1969	WAM_34342	" "		1.5 miles S of Gin Gin, near a stream			Archer & Jefferys
1891	BMNH_MP_110	GASCOYNE	Gascoyne River				H.P. Woodward
1824	BMNH_MP_110	GASCOYNE	Gascoyne River				
07/1991	STOREY ET AL. 1991		Lake Maringup		33.8333° S	116.1986° E	
08/1977	Lymbery 1977		Loch McNess	Lake Loch McNess	31.5468° S	115.6816° E	Alan Lymbery
Pre-1955	AMS_61712	BUSSELTON COAST	Vasse River		33.8000° S	115.3000° E	
	BMNH_88-3-23-35-36			Southwestern Australia			Dr. J. C. Cox
12/02/1959	BMNH_MP_082						
	MCZ_99002			Pemberton, WA; Harvard-Australian Expedition			P. DStorey et al.ington
	UMMZ_111907						Bryant Walker
20/04/1977	WAM_34432			Lake Banbung, WA North Shore			Hembree

Table A2. Sites in which *Westralunio carteri* Iredale, 1934 was found to be absent (Pinder et al. 2004; Slack-Smith 2006; Lymbery et al. 2008; Klunzinger et al. 2012, 2014).

Date (d/mm/yyyy)	Catalogue Number	Basin Name	River Name	Site Description	Latitude (° S)	Longitude (° E)	Source
10/01/2006	WAM_11990	BUSSELTON COAST	Vasse River	Queen Elizabeth Avenue bridge (BDD #06)	33.6636° S	115.3244° E	Slack-Smith 2006
10/01/2006	WAM_11992	" "	" "	Approx 650m upstream of Queen Elizabeth Ave bridge, in sight of Busselton Bypass bridge (BDD #10)	33.6689° S	115.3405° E	"
10/01/2006	WAM_11993	" "	" "	Approx 300m upstream of Busselton Bypass bridge (BDD #11)	33.6732° S	115.3457° E	"
10/01/2006	WAM_11994	" "	" "	Approx 650m upstream of Busselton Bypass bridge (BDD #12)	33.6746° S	115.3492° E	"
10/01/2006	WAM_11995	" "	" "	Approx 900m upstream of Busselton Bypass bridge (BDD #13)	33.6763° S	115.3511° E	"

4/09/1998	SPS130	ESPERANCE COAST	Beaumont NR Salt Lake		33.466	122.613	Pinder et al. 2004
20/08/1998	SPS087	" "	Claypan in Frank Hahn NP		32.88	120.423	" "
10/09/1998	SPS128	" "	Dunn's Swamp		33.924	120.153	" "
4/09/1998	SPS129	" "	Ewert's Lake		33.841	122.87	" "
6/09/98	SPS135	" "	Lake Caitup		33.727	121.726	" "
25/09/1997	SPS003	" "	Lake Cronin		32.392	119.765	" "
7/09/1998	SPS140	" "	Lake east of Salmon Gums NR		32.924	121.934	" "
8/09/1998	SPS136	" "	Lake Gore		33.761	121.52	" "
20/08/1998	SPS089	" "	Lake in Frank Hahn NP		32.964	120.361	" "
3/09/1998	SPS120	" "	Lake in Munglinup NR		33.739	120.889	" "
9/09/1998	SPS127	" "	Lake Mortijinup		33.799	121.637	" "
17/11/1997	SPM005	" "	Lake Wheatfield		33.809	121.922	" "
11/09/1998	SPS121	" "	Mason Bay Lake		33.942	120.43	" "
6/09/1998	SPS141	" "	Mullett Lake		33.801	121.956	" "
9/09/1998	SPS122	" "	North Parriup Lake		33.866	120.637	" "
8/09/1998	SPS123	" "	Oldfield River		33.733	120.72	" "
5/09/1998	SPS131	" "	Perk's Lake		33.631	122.544	" "
10/09/1998	SPS125	" "	Quarry Lake		33.168	121.263	" "
6/09/1998	SPS132	" "	Shark Lake		33.769	121.861	" "
21/08/1998	SPS075	" "	Stennett's Lake		33.199	119.978	" "
7/09/1998	SPS139	" "	Styles Rock		33.126	121.801	" "
5/09/1998	SPS133	" "	Swamp in Cape Le Grand NP		33.976	122.126	" "
4/09/1998	SPS137	ESPERANCE COAST	Thomas River		33.814	123.037	" "
5/09/1998	SPS138	" "	Truslove NR Dam		33.353	121.766	" "
7//091998	SPS134	" "	White Lake (in Helm's		33.718	121.801	Pinder *et al*. 2004

			Arboretum)				
11/09/1998	SPS124	" "	Youlabup Swamp		33.828	120.406	" "
26/09/1998	SPS106	ALBANY COAST	Anderson Lake		34.184	117.96	" "
9/03/2011	Klunzinger et al. 2014	" "	Black Cat Creek	Two People's Bay Rd	34.9493	118.1058	" "
12/09/1998	SPS094	" "	Calyerup Creek		33.936	119.066	" "
09/2010	Klunzinger et al. 2014	" "	Chelguip Creek		34.878117	118.03723	" "
26/08/1998	SPS081	" "	Dam in Lake Magenta NR		33.492	119.09	" "
8/08/1998	SPS078	" "	Dunn Rock		33.336	119.494	" "
26/08/1998	SPS082	" "	Girraween Yate Swamp		33.636	119.353	" "
9/03/2011	Klunzinger et al. 2012	" "	Goodga River	300 m upstream from fishway	34.9465	118.0799	Klunzinger et al. 2012
12/09/1998	SPS100	" "	Hamersley River		33.89	119.861	Pinder *et al*. 2004
09/2010	Klunzinger et al. 2014	" "	Johnston Creek		34.914217	117.95647	Klunzinger et al. 2014
28/12/2011	" "	" "	Kalgan River	Takalarup Rd	34.6267	118.045	" "
09/2010	" "	" "	" "		34.895433	117.99993	" "
" "	" "	" "	" "		34.497017	117.58415	" "
9/03/2011	" "	" "	" "	South Coast Hwy	34.8962	117.9997	" "
09/2010	" "	" "	King River		34.9386	117.90465	" "
26/08/1998	SPS080	" "	Lake in Lake Magenta NR		33.578	119.205	Pinder *et al*. 2004
29/09/1998	SPS107	" "	Lake in Mailalup NR		34.354	118.48	" "
26/09/1998	SPS101	" "	Lake in Three Swamps NR		34.229	117.936	" "
24/10/1999	SPM024	" "	Lk Pleasant View		34.82	118.18	" "
29/09/1998	SPS114	ALBANY COAST	Lk Pleasant View		34.831	118.183	Pinder *et al*. 2004
9/03/2011	Klunzinger et al. 2014	" "	Moates Lake	300 m east of Goodga River mouth	34.9576	118.0994	Klunzinger et al. 2014

12/09/1998	SPS117	" "	Pabellup South Swamp		34.118	119.447	Pinder *et al*. 2004
27/09/1998	SPS115	" "	Peenebup Creek		34.101	118.537	" "
30/09/1998	SPS108	" "	Pillenorup Swamp		34.445	118.099	Pinder *et al*. 2004
27/09/1998	SPS119	" "	Warramurrup Swamp		34.411	119.171	" "
09/2010	Klunzinger et al. 2012	" "	Waychinicup Creek		34.838916	118.3403	Klunzinger et al. 2012
11/09/1998	SPS096	" "	Yate swamp in Fitzgerald River NP		33.84	119.826	Pinder *et al*. 2004
28/09/1998	SPS116	" "	Yellilup Lake		34.313	119.03	Pinder *et al*. 2004
" "	SPS118	" "	Yellilup Swamp		34.383	118.978	Pinder *et al*. 2004
09/2010	Klunzinger et al. 2014	DENMARK COAST	5 Mile Creek		34.9977	117.80105	Klunzinger et al. 2014
" "	" "	" "	7 Mile Creek				" "
" "	" "	" "	Denmark River		34.946167	117.3617	" "
" "	" "	" "	" "		34.946117	117.36237	" "
" "	" "	" "	" "		34.896233	117.35212	" "
" "	" "	" "	" "		34.960633	117.35717	" "
" "	" "	" "	Hay River		34.965417	117.46505	" "
10/03/2011	" "	" "	" "	Boyup Rd	34.6211	117.4396	" "
" "	" "	" "	" "	Muirs Hwy	34.6286	117.4037	" "
24/10/2000	DEN19	" "	Marbellup Brook		34.998333	117.72167	Pinder *et al*. 2004
" "	DEN19	" "	" "		34.998333	117.72167	" "
9/03/2011	Klunzinger et al. 2014	" "	" "	Lower Denmark Rd	35.0087	117.7261	Klunzinger et al. 2014
" "	" "	" "	" "	South Coast Hwy	34.9845	117.7215	" "
09/2010	Klunzinger et al. 2014	DENMARK COAST	Marbellup Brook		34.983883	117.71833	Klunzinger et al. 2014
" "	" "	" "	" "		35.007767	117.72725	" "
" "	" "	" "	Mitchell River		34.83355	117.40628	" "
10/03/2011	" "	" "	" "	Denmark-Mt. Barker Rd	34.833967	117.40709	" "

09/2010	" "	" "	Quickup River		34.872317	117.38712	" "
" "	" "	" "	" "		34.872483	117.38713	" "
" "	" "	" "	" "		34.911867	117.37677	" "
09/2010	" "	" "	Quickup River		34.916433	117.37567	" "
" "	" "	" "	Scotsdale Brook		34.92865	117.30122	" "
" "	" "	" "	Scotsdale Brook		34.922917	117.31277	" "
" "	" "	" "	" "		34.931333	117.34262	" "
11/03/2011	" "	" "	" "	Scottsdale Rd	34.9271	117.2774	" "
" "	" "	" "	" "	Mt. Lindesay Rd	34.9237	117.3119	" "
09/2010	" "	" "	Sheepwash Creek		34.760717	117.44575	" "
10/03/2011	" "	" "	" "	Denmark-Mt. Barker Rd	34.7587	117.4875	" "
26/11/1997	DEN16	" "	Sleeman River		34.971944	117.48444	Pinder *et al*. 2004
" "	" "	" "	" "		34.971944	117.48444	" "
" "	DEN17	" "	" "		34.9725	117.48444	" "
" "	" "	" "	" "		34.9725	117.48444	" "
09/2010	Klunzinger et al. 2014	" "	" "		34.950517	117.60405	Klunzinger et al. 2014
" "	" "	" "	" "		34.940283	117.62752	" "
" "	" "	" "	" "		34.958333	117.50323	" "
9/03/2011	" "	" "	" "	Henning Rd	34.9508	117.604	" "
" "	" "	" "	" "	Sleeman Rd	34.9611	117.5038	" "
" "	" "	" "	" "	South Coast Hwy	34.9702	117.4835	" "
11/03/2011	" "	KENT	Boat Harbour Lake	Lake No. 3, Boat Harbour Rd	35.0159	117.0901	" "
12/03/2011	Klunzinger et al. 2014	KENT	Bow River	Gum Link Rd	34.91476	116.945	Klunzinger et al. 2014
" "	" "	" "	Bow River	South Coast Hwy	34.9678	116.9535	" "
09/2010	" "	" "	Kent River		34.75725	117.04967	" "
11/03/2011	" "	" "	" "	Break Rd	34.8563	117.0777	" "
10/03/2011	" "	" "	" "	Muirs Hwy	34.5566	117.1737	" "
12/03/2011	" "	" "	Kordabup River	South Coast Hwy	34.9881	117.1556	" "

09/2010	" "	" "	Nile Creek		34.823567	116.95367	" "
11/03/2011	" "	" "	Styx River	Break Rd	34.8503	117.1507	" "
27/08/1998	SPS113	" "	Tucker's Road *Melaleuca* Swamp		34.415	117.248	Pinder *et al*. 2004
27/08/1998	SPS112	" "	Tucker's Road Salt Lake		34.417	117.251	" "
10/10/1998	SPS111	FRANKLAND	Boyacup Bridge Road Swamp		34.232	117.247	" "
13/10/1999	FRA02	" "	Frankland River		34.683056	116.85472	" "
" "	" "	" "	" "		34.683056	116.85472	" "
" "	FRA04	" "	" "		34.530556	116.84722	" "
" "	" "	" "	" "		34.530556	116.84722	" "
09/2010	Klunzinger et al. 2014	" "	" "		34.918583	116.791	Klunzinger et al. 2014
12/03/2011	" "	" "	" "	Bridge Rd	34.9185	116.7905	" "
10/03/2011	" "	" "	" "	Muirs Hwy	34.4778	116.9017	" "
" "	" "	" "	Rocky Gully	Frankland Rd	34.4996	117.0091	" "
27/08/1998	SPS102	" "	Swamp in Ngopitchup Reserve		33.958	117.342	Pinder *et al*. 2004
26/09/1998	SPS110	" "	Tambellup Reservoir		34.04	117.566	" "
21/12/2010	Klunzinger et al. 2014	SHANNON	Beardmore Rd Pool	Beardmore Rd, near Southwestern Hwy	34.809883	116.53181	Klunzinger et al. 2014
09/2010	" "	" "	Boorara Brook		34.61175	116.22095	" "
13/03/2011	Klunzinger et al. 2014	SHANNON	Boorara Brook	Middleton Rd	34.6129	116.2208	Klunzinger et al. 2014
09/2010	" "	" "	Deep River		34.98495	116.6316	" "
13/03/2011	" "	" "	" "	South Coast Hwy	34.9853	116.6317	" "
" "	" "	" "	Fish Creek	Fish Creek Track	34.9273	116.3592	" "
" "	" "	" "	" "	Preston Rd	34.6512	116.4124	" "
21/12/2010	" "	" "	Forth River	Chesapeake Rd	34.863213	116.42615	" "

09/2010	" "	" "	Gardner River		34.612633	116.14673	" "
25/10/1999	SPM023	" "	Lake Parkeyerring		33.359	117.348	Pinder *et al*. 2004
0210/1998	SPS103	" "	Lake Poorginup		34.549	116.741	" "
" "	SPS104	" "	Pindicup Lake		34.407	116.713	" "
09/2010	Klunzinger et al. 2014	" "	Shannon River		34.588983	116.40642	Klunzinger et al. 2014
13/03/2011	" "	" "	" "	Preston Rd	34.6548	116.3564	" "
13/03/2011	" "	" "	Walpole River	Angove Rd/Quinn Rd	34.9343	116.6744	" "
13/03/2011	" "	" "	" "	Angove Rd	34.9147	116.6611	" "
09/2010	" "	" "	Weld River		34.694	116.51845	" "
13/03/2011	" "	WARREN	Dombakup Brook	Pemberton-Northcliffe Rd	34.5825	116.0678	" "
21/12/2010	" "	" "	East Brook	Burma Rd	34.451767	116.0611	" "
" "	" "	" "	Gardner River	Chesapeake Rd	34.77712	116.18282	" "
2/10/1998	SPS105	" "	Kodjinup *Melaleuca* Swamp		34.396	116.65	Pinder *et al*. 2004
14/03/2011	Klunzinger et al. 2014	" "	Smith Brook	Kurandra Rd/Irish Point Rd	34.2972	116.1615	Klunzinger et al. 2014
" "	" "	" "	" "	Middlesex Rd	34.3444	116.2062	" "
" "	" "	" "	Unnamed Pool	Yeagarup Rd	34.5495	115.8688	" "
09/2010	" "	" "	Warren River		34.5067	115.99185	" "
21/12/2010	" "	" "		Chesapeake Rd Pool	34.722833	116.12953	" "
" "	" "	" "		Chesapeake Rd Pool	34.756183	116.15	" "
" "	" "	" "		Chesapeake Rd Water Point	34.765783	116.15658	" "
15/03/2011	Klunzinger et al. 2014	DONNELLY	BStorey et al.ee Brook	Stewart Rd	34.2818	115.7073	Klunzinger et al. 2014
" "	" "	" "	" "	Graphite Rd	34.1362	115.8331	" "
" "	" "	" "	" "	Stewart Rd	34.2819	115.7074	" "
" "	" "	" "	Diddenup Brook	Pneumonia Rd	34.3012	115.6876	" "
03/2010	" "	" "	Donnelly Lake	Donnelly River Holliday Village Dam	34.09987	115.98129	MusselWatchWa 2010
09/2010	" "	" "	" "	SW Hwy	34.0759	116.1792	Klunzinger et al. 2014

21/01/2009	" "	" "	" "	Donelly River, SW Highway, ~15km south of Bridgetown	34.043933	116.17002	" "
15/03/2011	" "	" "	Iffley Brook	Vasse Hwy	34.2327	115.764	" "
" "	" "	" "	Jasper Brook	Pneumonia Rd	34.4	115.749	" "
21/01/2009	" "	BLACKWOOD	Balingup Brook	Balingup Brook, Balingup, SW Highway	33.7834	115.9839	" "
" "	" "	" "	Blackwood River	Blackwood River, SW Highway, Bridgetown, under bridge.	33.969083	116.1343	Lymbery notes
04/2010	" "	" "	" "	Sues Bridge	34.0748	115.389	Klunzinger et al. 2014
04/2010	" "	" "	" "	Great North Rd	34.10078	115.289	" "
" "	" "	" "	" "	Denny Rd near Rosa Brook Confluence	34.1081	115.4505	" "
" "	" "	" "	" "	Layman Brook Confluence	34.0721	115.5052	" "
19/01/2010	" "	" "	" "	Warner Glen Rd Bridge	34.07694	115.15002	" "
04/2010	" "	" "	" "	Stacey Rd	34.0421	115.6025	" "
" "	" "	" "	" "	Agg Rd	33.9215	115.8056	" "
14/03/2011	" "	" "	" "	Brockman Hwy, near estuary	34.1632	115.1945	Klunzinger et al. 2014
24/09/1998	SPS056	" "	Bushy Swamp		33.543	117.266	Pinder *et al*. 2004
19/01/2010	Klunzinger et al. 2014	" "	Chapman Brook	Davis Rd Bridge	34.035297	115.12082	Klunzinger et al. 2014
" "	" "	" "	Chapman Brook	Warner Glen Rd Bridge	34.07413	115.18835	" "
24/09/1998	SPS039	" "	Dead Man's Swamp		33.501	116.959	Pinder *et al*. 2004
25/09/1998	SPS061	BLACKWOOD	Katanning Reservoir		33.659	117.518	Klunzinger et al. 2014
" "	SPS063	" "	Kattaning Creek at Twonkwilling Pool		33.719	117.588	" "
09/2010	Klunzinger et al. 2014	" "	Kojonup Brook	Kojunup	33.83705	117.16113	" "
24/10/1997	SPS007	" "	Lake Dulbining		32.907	117.614	Pinder *et al*. 2004

19/08/1998	SPS053	" "	Lake in Arthur River Flats NR		33.077	117.274	" "
25/09/1998	SPS042	" "	Lake in Coblinine Flats NR		33.607	117.708	" "
6/11/1998	SPM011	" "	Lake Kulicup		33.827	116.67	" "
3/10/1997	SPM003	" "	Lake Towerinning		33.578	116.776	" "
25/10/1997	SPS006	" "	Lake Walbyring		32.941	117.593	" "
" "	SPS012	" "	Little White Lake		33.012	117.441	" "
04/2010	Klunzinger et al. 2014	" "	McAtee Brook	Crouch Rd	34.0429	115.5827	Klunzinger et al. 2014
" "	" "	" "	McAtee Brook	Denny Rd	34.0425	115.588	" "
8/10/1998	SPS038	" "	Meeking Lake		33.245	116.784	Pinder *et al*. 2004
9/10/1998	SPS055	" "	Parkeyerring Lake		33.375	117.354	" "
04/2010	Klunzinger et al. 2014	" "	Poison Gully	Blackwood Rd	34.1201	115.6025	Klunzinger et al. 2014
04/2010	" "	" "	" "	near confluence with main channel	33.9215	115.8056	" "
12/08/1998	SPS054	" "	Puntapin Rock		33.325	117.401	Pinder *et al*. 2004
9/10/1998	SPS032	" "	Qualeup Lake		33.839	116.764	" "
04/2010	Klunzinger et al. 2014	" "	Rosa Brook	Crouch Rd	34.0205	115.4569	Klunzinger et al. 2014
" "	" "	" "	" "	Denny Rd	34.0653	115.4235	" "
" "	" "	" "	" "	Lawson Rd	33.9328	115.4695	" "
" "	" "	" "	" "	Mowen Rd	33.9164	115.4715	" "
16/03/2011	Klunzinger et al. 2014	" "	" "	Mowen Rd	34.0616	115.4248	" "
15/03/2011	" "	" "	Scott River	Four Acres Rd	34.2871	115.47	" "
15/03/2011	Klunzinger et al. 2014	BLACKWOOD	St. John Brook	Cambray Rd, near Rocky Gully	33.886	115.6768	Klunzinger et al. 2014
" "	" "	" "	" "	Cambray Rd., old bridge	33.8816	115.6792	" "
19/01/2010	" "	" "	Upper Chapman Brook	Bessel Rd Bridge	34.00763	115.20882	" "
" "	" "	" "	" "	Warner Glen Rd Bridge	34.0739	115.188	" "
" "	" "	" "	" "	Rosa Glen Rd Bridge	34.0122	115.20133	" "

13/11/2009	" "	" "		Police Pool, Kattanning	33.43061	117.35363	MusselWatchWa 2010
2008	" "	BUSSELTON COAST	Buayanup Drain	Buayanup Drain	33.40764	115.14874	Lymbery *et al*. 2008
" "	" "	" "	" "		33.6794	115.2479	Klunzinger et al. 2014
" "	" "	" "	" "	Buayanup River	33.71905	115.24577	" "
" "	" "	" "	" "		33.71905	115.24577	" "
16/03/2011	" "	" "	Ellen Brook	Caves Rd	33.9053	115.0318	" "
2008	LYM_DD03 (BDD05)	" "	Geographe Drain		33.68160	115.35650	Lymbery *et al*. 2008
" "	LYM_DD04 (BDD11)	" "	" "		33.67040	115.35700	" "
" "	LYM_LR02	" "	Ludlow River		33.60610	115.49150	" "
2/09/2008	Klunzinger et al. 2014	" "	" "	Ludlow River, Coolilup Rd	33.6063	115.524	Klunzinger et al. 2014
16/03/2011	" "	" "	Margaret River	Caves Rd	33.9496	115.0161	" "
" "	" "	" "	Margaret River North	Rapids Rd	33.8648	115.3118	" "
16/03/2011	" "	" "	Mowen River	Mowen Rd	33.9409	115.2695	" "
2008	LYM_NR01	" "	New River		33.39397	115.20511	Lymbery *et al*. 2008
" "	LYM_NR02	" "	" "		33.39732	115.19004	" "
" "	Klunzinger et al. 2014	" "	" "		33.65660	115.34190	Klunzinger et al. 2014
" "	" "	" "	" "		33.66220	115.31670	" "
2008	LYM_SR01	BUSSELTON COAST	Sabina River		33.65270	115.49370	Lymbery *et al*. 2008
" "	LYM_SR02	" "	" "		33.65610	115.41650	" "
" "	LYM_VR03	" "	Vasse River		33.43552	115.21564	" "
" "	LYM_VR04	" "	" "		33.45693	115.19293	" "
19/08/2008	Klunzinger et al. 2014	COLLIE	Brunswick River	Brunswick River, Bill Arthurs Bridge, Wellesley Rd	32.2541	115.8222	Klunzinger et al. 2014

" "	" "	" "	Collie River	Collie River, Stanley Park off Ranson Dr	32.29503	115.75813	" "
8/10/1998	SPS031	" "	Nalyerin Lake		33.148	116.371	Pinder *et al*. 2004
09/2010	Klunzinger et al. 2014	MURRAY	Bannister River	Albany Hwy	32.6781	116.5187	Klunzinger et al. 2014
2/10/2008	" "	" "	Coalling Brook	Coalling Brook,, Pinjarra-Williams Rd, ~5km from Williams	33.054617	116.85395	" "
26/10/1997	SPS036	" "	Dam in Congelin NR		32.819	116.885	Pinder *et al*. 2004
09/2010	Klunzinger et al. 2014	" "	Fitts Creek	Glenfield Rd (trib of Williams River)	33.029733	116.94562	Klunzinger et al. 2014
29/10/1997	SPS013	" "	Hotham River		32.643	116.975	Pinder *et al*. 2004
11/2010	Klunzinger et al. 2014	" "	Murray River	Coolup Rd	32.735217	115.90045	Klunzinger et al. 2014
13/11/09	" "	" "	Salt Lakes	Police Pool, Kattanning	33.43061	117.35363	" "
30/11/09	" "	" "	Serpentine River	Stake Hill Bridge	32.303112	115.47059	MusselWatchWa 2010
23/11/10	" "	" "	" "	Lowlands Gauging Station (614114)	32.33755	115.88542	Klunzinger et al. 2014
15/02/11	" "	" "	" "	" "	32.33755	115.88542	" "
11/06/2010	" "	" "	" "	" "	32.33755	115.88542	" "
29/09/2010	" "	" "	" "	" "	32.33755	115.88542	" "
13/08/2010	" "	" "	" "	" "	32.33755	115.88542	" "
30/08/2011	" "	" "	" "	" "	32.33755	115.88542	" "
3/11/2009	" "	" "	" "	Marsh, Lowlands	32.19896	115.52993	" "
3/11/2009	Klunzinger et al. 2014	MURRAY	Serpentine River	near Riverlea Homestead, Lowlands	32.20125	115.53866	Klunzinger et al. 2014
" "	" "	" "	" "	Old Field Granite Rocks Crossing, Lowlands	32.20065	115.53658	" "
" "	" "	" "	" "	stock crossing, Lowlands	32.19903	115.52889	" "

09/2010	" "	" "	" "	Albany Hwy	32.5266	116.39302	" "
2/10/2008	" "	" "	Williams River	Williams River, Narrogin-Williams Rd	33.0064	116.99665	Lymbery *et al*. 2008
" "	" "	" "	" "	" "	33.102333	116.71862	" "
26/10/1997	SPS035	" "	Yornaning Dam		32.742	117.157	Pinder *et al*. 2004
10/11/1998	SPM009	AVON	Ardath Lake		32.098	118.152	Pinder *et al*. 2004
9/10/1997	SPS085	" "	" "		32.098	118.156	" "
21/08/1998	SPS072	" "	Atkin's Yate Swamp		33.13	119.679	" "
27/08/1997	AVO11	" "	Avon River		31.990278	116.80306	" "
28/08/1997	AVO12	" "	" "		31.635278	116.61806	" "
09/2010	Klunzinger et al. 2014	" "	" "	Cobbler Pool Rd	31.579933	116.36542	Klunzinger et al. 2014
" "	" "	" "	" "	Cobbler Pool	31.55835	116.31055	" "
" "	" "	" "	" "		31.5647	116.30117	" "
" "	" "	" "	" "		31.722217	116.65853	" "
" "	" "	" "	" "	Dumbarton Rd	31.57115	116.51593	" "
21/10/1997	SPS022	" "	Baandee Lake		31.591	117.956	Pinder *et al*. 2004
4/11/1998	SPM008	" "	Bennett's Lake		33.281	119.601	" "
21/08/1998	SPS077	" "	" "		33.281	119.602	Pinder *et al*. 2004
09/2010	Klunzinger et al. 2014	" "	Beraking Brook		32.13845	116.37935	Klunzinger et al. 2014
1/10/1997	SPS014	" "	Boase's Seep		31.321	116.967	Pinder *et al*. 2004
7/11/2010	Klunzinger et al. 2014	" "	Boongarup Pool	Wulyunga National Park	31.73682	116.07077	Klunzinger et al. 2014
24/09/1997	SPS059	" "	Cairn Rock		31.859	118.844	Pinder *et al*. 2004
21/10/1997	SPS033	" "	Caley's Soak		32.177	117.819	" "
20/09/2000	SPS210	AVON	Chinocup Road Salt Lake		33.49	118.394	Pinder *et al*. 2004
28/10/1997	SPS005	" "	Christopher Brook		32.17	116.794	" "
1/10/1997	SPS027	" "	Clarke's wetland		31.398	116.608	" "

7/10/1997	SPS043	" "	Claypan near Koorda		30.969	117.463	" "
" "	SPS062	" "	Corboule's Lake		32.373	118.049	" "
10/09/1999	SPS015	" "	Cowcowing Lakes		30.929	117.379	" "
8/10/1997	SPS076	" "	Crook's Lake		31.011	118.761	" "
29/10/1997	SPS010	" "	Dale River		32.302	116.688	" "
09/2010	Klunzinger et al. 2014	" "	" "		32.076467	116.83397	Klunzinger et al. 2014
" "	" "	" "	" "		32.191633	116.82292	" "
" "	" "	" "	" "		32.396867	116.83087	" "
09/2010	Klunzinger et al. 2014	" "	" "		32.32765	116.61517	" "
24/08/1998	SPS018	" "	Dam at Kondinin Golf Club		32.488	118.302	Pinder *et al*. 2004
8/10/1997	SPS092	" "	Dam in NR 17798		31.172	118.284	" "
22/08/1998	SPS028	" "	Dam on Bushfire Rock Road		32.483	119.363	" "
22/10/1997	SPS030	" "	Dam on Gorge Rock		32.458	117.998	" "
7/09/1999	SPS152	" "	Dambouring Lake		30.512	116.704	" "
6/08/1998	SPS070	" "	Dingo Rock		33.009	118.602	" "
30/09/1997	SPS026	" "	Eadine Spring		31.714	116.536	" "
" "	Klunzinger et al. 2014	" "	" "		31.714	116.536	" "
18/09/2000	SPS207	" "	East Mortlock River		31.633	117.192	" "
19/08/1998	SPS025	" "	Fisher's Lake		32.803	118.63	" "
23/09/1997	SPS048	" "	Frog Rock		31.497	119.233	" "
25/08/1998	SPS057	AVON	Frost's Lake		33.251	118.349	Pinder *et al*. 2004
9/10/1997	SPS044	" "	Gmeiner's Pond		31.981	117.771	" "
09/2010	Klunzinger et al. 2014	" "	Gwambygine Pool		31.9765	116.81128	Klunzinger et al. 2014
" "	" "	" "	Heal Brook		31.771117	116.7033	" "
29/10/1997	SPS008	" "	Helena River		31.944	116.436	Pinder *et al*. 2004

09/2010	Klunzinger et al. 2014	" "	" "		31.944133	116.49495	Klunzinger et al. 2014
10/10/1997	SPS086	" "	Irving's Swamp		31.484	119.071	Pinder *et al*. 2004
25/08/1998	SPS058	" "	Isthmus Lake		33.325	118.451	" "
30/09/1997	SPS037	" "	Jim Master's Dams		31.616	116.536	" "
10/10/1997	SPS060	" "	Job's Soak		32.354	117.658	" "
7/10/1997	SPS079	" "	Koorda Lake		30.975	117.442	" "
4/11/1998	SPM006	" "	Lake Altham		33.408	118.445	" "
20/08/1999	SPS109	" "	Lake Baladjie		30.958	118.915	" "
23/08/1998	SPS067	" "	Lake Biddy		33.021	118.949	" "
3/10/1997	SPM001	" "	Lake Bryde		33.355	118.823	" "
8/10/1997	SPS093	" "	Lake Campion		31.103	118.359	" "
26/09/1997	SPS020	" "	Lake Gounter		32.408	118.837	" "
24/08/1998	SPS016	" "	Lake in Kondinin Salt Marsh NR		32.581	118.403	Pinder *et al*. 2004
10/09/1999	SPS156	" "	Lake in McTaggart Road NR		30.803	117.323	" "
12/09/1999	SPS046	" "	Lake in North Wallambin NR		30.919	117.633	" "
21/08/1998	SPS071	" "	Lake King		33.09	119.592	" "
11/09/1999	SPS146	" "	Lake McDermot		30.827	117.931	" "
22/10/1997	SPS009	" "	Lake Mears		32.228	117.358	" "
18/09/2000	SPS212	" "	Lake near East Mortlock River		31.63	117.192	Pinder *et al*. 2004
22/08/1998	SPS021	AVON	Lake near Emu Rock		32.463	119.417	Pinder *et al*. 2004
7/09/1999	SPS159	" "	Lake Ninan		30.954	116.654	" "
20/10/1999	SPM025	" "	Lake Ronnerup		33.254	119.617	" "
23/08/1998	SPS019	" "	Lake VStorey et al.ey		32.706	119.356	" "
7/10/1997	SPS064	" "	Larke's Claypan		32.308	118.046	" "
" "		" "	Larke's Dam		32.329	118.04	" "

09/2010	Klunzinger et al. 2014		Mackie River		31.940117	116.81422	Klunzinger et al. 2014
27/09/1998	SPS091	" "	Magner's Road *Melaleuca* Swamp		33.899	118.531	Pinder *et al*. 2004
26/10/1999	SPM017	" "	Maisey's Lake		31.251	117.069	" "
19/09/2000	SPS142	" "	Maitland's Lake		31.343	117.373	" "
23/10/1997	SPS029	" "	Maitland's Pond		31.422	117.476	" "
23/09/1997	SPS050	" "	Marvel Loch Lake		31.516	119.635	" "
22/10/1997	SPS041	" "	Master's Lake 1		31.568	117.423	" "
" "	SPS097	" "	Master's Lake 2		31.571	117.428	" "
25/09/1997	SPS090	" "	Meranda Road Wetland		31.969	119.279	" "
10/10/1997	SPS047	" "	Mill's wetland		32.273	117.244	" "
9/10/1997	SPS099	" "	Moorine South Lake		31.399	119.114	" "
09/2010	Klunzinger et al. 2014	" "	Mortlock River		31.752317	116.88525	Klunzinger et al. 2014
" "	" "	" "	Mortlock River		31.402683	116.75805	" "
10/09/1999	SPS145	" "	Mount Marshall Dam		30.839	117.905	Pinder *et al*. 2004
2/10/1997	SPS098	" "	Mulinoling Wetland		31.529	117.059	" "
11/09/1999	SPS147	" "	Nicoll's *Melaleuca* Swamp		30.783	118.293	" "
24/10/1997	SPS011	AVON	Nonalling Lake		32.534	117.608	Pinder *et al*. 2004
9/10/1997	SPS051	" "	Nulla Nulla Lake		31.489	119.026	" "
2/10/1997	SPS040	" "	Pearse's Lake		31.631	116.911	" "
20/09/1999	SPS160	" "	Pertruder Rock Dam		30.422	116.961	" "
7/10/1997	SPS066	" "	Pickersgill Lake		32.323	118.028	" "
22/10/1997	SPS024	" "	Pike's swamp		32.228	116.89	" "
20/09/1999	SPS179	" "	Roach's Lake		30.414	116.738	" "

23/09/1997	SPS095	" "	Rodger's Road Wetland		31.134	119.348	" "
24/08/1998	SPS017	" "	Samphire flat in Kondinin Salt Marsh NR		32.59	118.412	" "
21/10/1997	SPS088	" "	Shackleton Lake		31.943	117.895	" "
22/10/1997	SPS052	" "	Simpson's Lake		32.187	117.566	" "
" "	SPS068	" "	Simpson's Pond		32.187	117.566	" "
09/2010	Klunzinger et al. 2014	" "	Southern Brook		31.540217	116.8184	Klunzinger et al. 2014
25/10/1999	SPM019	" "	Swamp in Paperbark NR		32.415	118.097	Pinder *et al*. 2004
8/10/1997	SPS034	" "	Swamp in Paperbark NR		32.416	118.098	" "
28/10/1997	SPS002	" "	Toodyay Brook at Dewar's Pool		31.461	116.433	" "
22/08/1998	SPS073	" "	Town reservoir at Lake King		33.092	119.678	" "
9/10/1997	SPS045	" "	Venemore's Pond		31.983	117.796	" "
11/11/1998	SPM015	" "	Walymouring Lake		31.153	116.869	" "
6/10/1997	SPS069	" "	Walymouring Lake		31.147	116.872	" "
23/10/1999	SPM022	" "	Yaalup Swamp		33.754	118.59	" "
11/09/1999	SPS126	AVON	Yanneymooning Rock		30.681	118.553	Pinder *et al*. 2004
9/10/1997	SPS084	" "	Yarding Lake		31.916	117.981	" "
25/08/1998	SPS083	" "	Yate Swamp on Range Road		33.652	118.79	" "
23/10/1997	SPS001	" "	Yenyenning Lakes		32.23	117.177	" "
19/09/2000	SPS208	" "	Yilgarn River at Kellerberrin		31.696	117.714	" "
24/09/1997	SPS049	" "	Yilgarn Swamp		31.953	119.3	" "
09/2010	Klunzinger et	" "		Canjardine	31.4257	116.8236	Klunzinger et al.

	al. 2014						2014
14/11/2011	" "	SWAN COAST	Bannister Creek	Acacia Pl	32.04083	115.92353	" "
" "	" "	" "	" "	Metcalf & Hybanthus Rds	32.03973	115.91962	" "
11/11/2011	" "	" "	Bickley Brook	Mouth Bickley Brook (Area A)	32.04417	115.96642	" "
" "	" "	" "	" "	" "	32.04435	115.96685	" "
13/11/2009	" "	" "	Bindoon River	Great Northen Hwy	31.208	116.08166	" "
" "	" "	" "	Brockman River	Cook Rd	31.14623	116.04043	" "
" "	" "	" "	" "	Udumung Boondoon-Moora Rd Graham Taylor's prop	31.10264	116.03565	" "
26/02/2010	" "	" "	" "	Chittering Lakes	32.49857	115.95589	" "
3/12/2009	" "	" "	" "	Clune Park, Bindoon	31.38151	116.09301	" "
09/2010	" "	" "	" "	Chittering Rd	31.4504	116.10212	" "
" "	" "	" "	" "	" "	31.511317	116.11228	" "
" "	" "	" "	" "	Julimar Rd	31.49455	116.11555	" "
" "	" "	" "	" "	Chittering Valley Rd	31.570217	116.1035	" "
" "	" "	" "	Brockman River Trib	Flat Rocks Rd	31.412683	116.11058	" "
" "	" "	" "	" "	Flat Rocks Rd	31.4204	116.12852	" "
25/02/2011	" "	" "	Canning River	50 m upstream from Royal St	32.044167	115.96583	" "
" "	" "	" "	" "	100 m upstream from Royal St	32.044444	115.96611	" "
11/11/2011	Klunzinger et al. 2014	SWAN COAST	Canning River	near mouth of Bickley Brook & Royal St Bridge	32.04403	115.96603	Klunzinger et al. 2014
25/02/2011	" "	" "	" "	Royal St	32.044167	115.96583	" "
11/11/2011	" "	" "	" "				" "
09/2010	" "	" "	" "	Kent St Weir	32.02125	115.92095	" "
" "	" "	" "	" "	Greenfield St	32.022733	115.93278	" "
09/2010	" "	" "	" "	Marriamup St	32.0251	115.93607	" "
" "	" "	" "	" "	Hester Park - off Highbury Crescent	32.03045	115.94455	" "
" "	" "	" "	" "	Royal St	32.0436	115.96603	" "

" "	" "	" "	" "	Waterford Ave	32.01745	115.8891	" "
13/11/2009	" "	" "	Chandala Bk	Chandala Bk	31.27322	115.55033	" "
3/10/1997	SPS074	" "	Darkin Swamp		32.113	116.513	Pinder *et al*. 2004
3/12/2009	Klunzinger et al. 2014	" "	Ellen Brook	Brand Hwy	31.57854	115.98916	Klunzinger et al. 2014
09/2010	" "	" "	" "	Brand Hwy	31.5785	115.9891	" "
" "	" "	" "	" "	Rutland Rd	31.6482	116.0092	" "
" "	" "	" "	" "	Brand Hwy Bridge	31.578517	115.98908	" "
3/10/1997	SPS023	" "	Goonaping Swamp		32.149	116.593	Pinder *et al*. 2004
11/2010	Klunzinger et al. 2014	" "	Jane Brook		31.878033	116.13095	Klunzinger et al. 2014
7/11/2010	" "	" "	" "	Rocky Pool at edge of John Forest National Park, Toodyay Rd	31.85941	116.03906	" "
" "	" "	" "	" "	John Forest National Park, near Pechey Rd	31.878851	116.06496	" "
" "	" "	" "	" "	" "	31.878806	116.06532	" "
" "	" "	" "	" "	" "	31.878706	116.06583	" "
" "	" "	" "	" "	" "	31.878633	116.06614	" "
" "	" "	" "	" "	" "	31.878605	116.0663	" "
" "	" "	" "	" "	" "	31.878523	116.06644	" "
11/2010	Klunzinger et al. 2014	SWAN COAST	Jane Brook		31.87535	116.11097	Klunzinger et al. 2014
" "	" "	" "	" "		31.878317	116.0667	" "
28/10/1997	SPS004	" "	Jimperding Brook		31.592	116.362	Pinder *et al*. 2004
12/10/1999	SPS204	" "	Lake Wannamal		31.13	116.046	" "
5/02/2010	Klunzinger et al. 2014	" "	Lennard Brook	Belhus Reserve-Millhouse Rd	31.7831	116.0144	Klunzinger et al. 2014
5/11/2009	" "	" "	Lower Brockman River	Moondyne	31.37568	116.06611	" "
" "	" "	" "	" "	Julimar Bridge	31.25727	116.04832	" "
5/11/2009	Klunzinger et al. 2014	" "	Middle Brockman River	Spoonbill Top Dam	31.25274	116.04557	Klunzinger et al. 2014

24/11/2009	" "	" "	Neerigen Brook	Outlet Peaceful Pond	-32.1424	116.0315	" "
" "	" "	" "	" "	Canns Rd Bridge	32.14258	116.03126	" "
11/2010	" "	" "	Ornamental Drain	Carradine Park	32.149	116.02528	" "
13/11/2009	" "	" "	Snake Spring Creek	Udumung-Snake Spring Rd crossing	31.09402	116.05685	" "
11/2010	" "	" "	Wungong Brook	South West Hwy	32.1942	116.0161	" "
11/11/2011	" "	" "	Wungong River	Riverside & Lake Dr. Area A	32.14307	115.97535	" "
" "	" "	" "	" "	" "	32.14325	115.9754	" "
" "	" "	" "	" "	Riverside & Lake Dr. Area B	32.13928	115.97547	" "
" "	" "	" "	" "	" "	32.13965	115.97558	" "
22/09/1999	SPS182	MOORE-HILL	Arro Lake		29.736	115.166	Pinder *et al*. 2004
18/09/1999	SPS154	" "	Bentonite claypan in Pinjarega NR		30.085	115.954	" "
" "	SPS153	" "	Big Soak Plain Swamp		30.122	115.678	" "
13/08/1999	SPS163	" "	Capamouro Swamp		29.905	115.894	" "
23/09/1999	SPS178	" "	Coastal lake near Jurien		29.868	115.003	" "
24/09/1999	SPS161	" "	Cockleshell Gully		30.147	115.108	" "
9/11/1998	SPM013	MOORE-HILL	Goonaping Swamp		32.151	116.596	Pinder *et al*. 2004
17/09/1999	SPS157	" "	Gunyidi Lake East		30.127	116.225	" "
" "	SPS158	" "	Gunyidi Lake West		30.131	116.202	" "
20/09/1999	SPS172	" "	Just's Lake		29.726	116.366	" "
10/11/1998	SPM012	" "	Lake Campion		31.141	118.337	" "
12/11/1998	SPM016	" "	Lake Eganu		30.002	115.866	" "
20/09/1999	SPS155	" "	Lake in Mortijini NR		30.302	116.454	" "
27/10/1999	SPM002	" "	Lake Logue		29.841	115.129	" "
12/11/1998	SPM010	" "	Lake View		30.591	115.968	" "
8/09/1999	SPS171	" "	Latham Lake		29.704	116.407	" "

24/09/1999	SPS202	" "	Little Three Springs		29.984	115.086	" "
16/09/1999	SPS203	" "	Marchagee NR Lake East		29.959	116.08	" "
" "	SPS201	" "	Marchagee NR Lake West		29.959	116.079	" "
04/2010	Klunzinger et al. 2014	" "	Moore River	Gingin Brook Rd	31.2999	115.6058	Klunzinger et al. 2014
" "	" "	" "	" "	Cowalla Rd	31.0642	115.5524	" "
" "	" "	" "	" "	Guilderton Rd	31.32	115.549	" "
" "	" "	" "	" "	Lancelin Rd	31.302	115.555	" "
" "	" "	" "	Noonee Pool	Bennies Rd	31.1583	115.5285	" "
22/09/1999	SPS183	" "	Swamp north of Arro Lake		29.735	115.166	Pinder *et al*. 2004
29/07/1999	SPS151	" "	Watheroo *Melaleuca* Swamp		30.302	115.936	Pinder *et al*. 2004
23/09/1999	SPS177	" "	Weelawadji Lake		29.832	115.128	" "
14/08/1999	SPS165	YARRA YARRA	Claypan on Kadji Kadji Station		29.137	116.414	" "
8/09/1999	SPS168	YARRA YARRA	Claypan on Wannara Station		29.546	116.731	Pinder *et al*. 2004
18/08/1999	SPS144	" "	Lake Goorly d'stream of Glamoff Causeway		30.15	117.033	" "
20/09/1999	SPS200	" "	Moffat's Lake 1		29.308	115.913	" "
21/09/1999	SPS174	" "	Moffat's Lake 2		29.373	115.892	" "
16/08/1999	SPS166	" "	Mongers Lake		29.543	116.706	" "
15/08/1999	SPS164	" "	Nullewa Lake		29.115	116.201	" "
28/07/1999	SPS175	" "	Pintha Rock		29.073	115.998	" "
8/09/1999	SPS167	" "	Samphire pan near Mongers Lake		29.545	116.699	" "
9/09/1999	SPS150	" "	Sanderson's Lake		30.16	117.096	" "
14/08/1999	SPS173	" "	Simpson Road		29.407	115.878	" "

			Lake				
8/09/1999	SPS176	" "	Wannara Rock		29.524	116.792	" "
15/08/1999	SPS169	" "	Weelhamby Lake		29.201	116.451	" "
12/08/1999	SPS162	" "	Yarra Yarra Lake		29.583	115.758	" "
19/08/1999	SPS170	NINGHAN	Lake Harvey		30.303	117.545	" "
9/09/1999	SPS148	" "	Lake Moore		30.1	117.467	" "
" "	SPS149	" "	Samphire pan next to Lake Moore		30.099	117.445	" "
11/08/1999	SPS181	GREENOUGH	Heaton's Swamp		29.1	115.226	" "
28/07/1999	SPS196	" "	Hebiton's *Casuarina* Swamp		28.863	115.418	" "
27/07/1999	SPS195	" "	Hebiton's Salt Lake		28.833	115.471	" "
21/07/1999	SPS189	" "	Hutt Lagoon		28.208	114.308	" "
26/07/1999	SPS184	GREENOUGH	Kelly Road Salt Flat		28.737	115.81	Pinder *et al*. 2004
24/07/1999	SPS194	" "	Nolba Swamp		28.237	114.855	" "
24/07/1999	SPS193	" "	Skelton Gully		28.536	114.671	" "
25/07/1999	SPS185	" "	Tardun CBC Dam		28.717	115.818	" "
" "	SPS186	" "	Tardun CBC Salt Lake		28.753	115.855	" "
26/07/1999	SPS187	" "	Tardun CBC Swamp		28.723	115.825	" "
11/08/1999	SPS180	" "	Trib. Arrowsmith River at One Tree Hill		29.589	115.442	" "
21/07/1999	SPS188	" "	Utcha Swamp		28.082	114.198	" "
23/07/1999	SPS191	" "	Wicherina Reservoir		28.733	114.998	" "
" "	SPS192	" "	Yarder Gully		28.188	114.411	" "
22/07/1999	SPS190	" "	Yerina Spring		28.103	114.336	" "
9/08/1999	SPS199	MURCHISON	Binnu West Road		28.04	114.633	" "

			Lake				
20/07/1999	SPS198	" "	Murchison River at Murchison Station		27.646	114.234	" "
" "	SPS197	" "	Punjerwerry Claypan		27.638	114.924	" "

Table A3. Sites in which *Westralunio carteri* Iredale, 1934 was found to be present. N.B. Status of *W. carteri* in unshaded rows is unknown. Data obtained from MusselWatchWA 2010; FARWH 2010; Klunzinger et al. 2012, 2014; museum specimens (AMS = Australian Museum – Sydney; WAM = Western Australian Museum - Perth). Rows shaded green are sites in which W. carteri is currently present.

Date (d/mm/yyyy)	Catalogue Number	Basin Name	River Name	Site Description	Latitude (° S)	Longitude (° E)	Source
15/10/2000	AMS_393834	KENT	Kent River	main forest rd, bottom 1m. 0.01-0.20 m, on leaves, weeds, etc. along banks and sheltered corners; absent from fast flowing areas	34.959° S	117.0410° E	W.F. Ponder & S.A. Clark
08/03/2002	WAM_34296	SHANNON	Shannon River	Broke Inlet			E. Barker, WA Fisheries
15/10/2000	AMS_397749	SHANNON	Weld River	near Fernbrook Falls, Beardmore Rd	34.7650° S	116.5790° E	W.F. Ponder & S.A. Clark
5/03/1995	WAM_34414	SWAN COAST	Helena River	Beraking Brook, Darkin, Helena River System, DStorey et al.ing Range, WA	32.0500° S	116.2770° E	" "
14/10/2000	AMS_386609	WARREN	Warren River	Northcliffe Rd, on banks of River	34.5070° S	115.9930° E	W.F. Ponder & S.A. Clark
10/01/2006	WAM database	BUSSELTON COAST	Busselton Diversion Drain	Vasse River approx 200m upstream from junction with Vasse Diversion drain (BDD #01)	33.6884° S	115.3646° E	
10/01/2006	WAM_11987	" "	" "	50m upstream from the origin of Vasse Diversion drain (BDD #02)	33.6864° S	115.3639° E	Slack-Smith & Whisson
10/01/2006	WAM_11988	" "	Busselton Diversion Drain	Chapman Hill Road bidge, approx 350m upstream from the origin of the Vasse Diversion drain (BDD #03)	33.6855° S	115.3605° E	"
10/01/2006	WAM_11989	" "	" "	Approx 600m downstream from Chapman Hill Road bidge (BDD #05)	33.6816° S	115.3560° E	"
10/01/2006	WAM_11991	" "	" "	BDD #08			"
25/04/2003	WAM_34314	" "		Leeuwin-Naturaliste Park			Slack-Smith
8/05/1996	WAM_34411	SWAN COAST	Bickley Reservior	Bickley Reservoir	32.0299° S	116.0369° E	B. R. Wilson
1992	OZCAM Database 2009	" "	Bull Creek	WA, Rossmayne High School	32.0472° S	115.8697° E	
	" "	" "	" "	Canning Dam, WA	32.1520° S	116.1350° E	

9-Mar-11	Field Survey	ALBANY COAST	Goodga River	" "	34.9503	118.0808	Klunzinger et al. 2012
" "	" "	" "	" "	Fishway/Weir	34.9485	118.0799	" "
" "	" "	" "	" "	downstream from weir	34.952	118.0818	" "
" "	" "	" "	" "	" "	34.9546	118.0858	" "
" "	" "	" "	" "	" "	34.9561	118.0887	" "
" "	" "	" "	" "	" "	34.9557	118.0908	" "
" "	" "	" "	" "	" "	34.9574	118.0942	" "
" "	" "	" "	" "	" "	34.9595	118.0962	" "
" "	" "	" "	" "	" "	34.9597	118.0981	" "
" "	" "	" "	" "	" "	34.9592	118.0987	" "
09/2010	" "	" "	" "	" "	34.947183	118.07963	" "
9/03/2011	" "	" "	Moates Lake	near Goodga River mouth			" "
28/12/2011	" "	" "	Waychinicup River	Cheyne Beach Rd	34.87845	118.3305	" "
15/01/1995	KEN01	KENT	Kent River		34.843611	117.04583	Pinder et al. 2004
21/11/2010	MusselWatch WA	" "	" "	48 Williton Rd, Karrinyup	34.90015	117.05002	Mussel Watch WA
11/03/2011	Field Survey	" "	" "	Northumberland Rd	34.8888	117.0821	Klunzinger et al. 2014
" "	" "	" "	" "	South Coast Hwy	34.9593	117.041	" "
11/03/2011	Field Survey	" "	" "	3.5-4 km nw of Kentdale (Dr. Jeremy Coleman's Property)	34.90056	117.05503	" "
" "	" "	" "	Nile Creek	Break Rd	34.8439	117.0455	" "
" "	" "	" "	Styx River	Fernley Rd	34.8843	117.1043	" "
" "	MusselWatch WA	FRANKLAND	John Mayger's Farm Dam	Farm Dam 2000 sq. m, permanent creek, 3rd location west of nth Walpole Rd, between Gardiner & Underhill Rd	34.88847	116.67184	Mussel Watch WA
10/10/1999	SHA18	SHANNON	Blackwater Creek		34.810556	116.08889	Pinder et al. 2004
2011	MusselWatch WA	" "	ChStorey et al.es Brook	Outlet to South Coast			Mussel Watch WA
12/03/2011	Field Survey	" "	Deep River	Gladstone Rd, Granite pool	34.8803	116.5873	Klunzinger et al. 2014

12/03/2011	Field Survey	SHANNON	Deep River	Railway Parade	34.9395	116.6378	Klunzinger et al. 2014
21/01/1999	SHA14	" "	Elsie Brook		34.959722	116.70583	Pinder et al. 2004
2011	MusselWatch WA	" "	Gardner River	South of Northcliffe			Mussel Watch WA
09/2010	Field Survey	" "	" "		34.632617	116.14088	Klunzinger et al. 2014
21/12/2010	" "	" "	Shannon River	Nelson Rd	34.71303	116.36309	" "
" "	" "	" "	" "	Chesapeake Rd	34.83915	116.37086	" "
09/2010	" "	" "	" "		34.588983	116.40642	" "
21/12/2010	" "	" "	Weld River	Beardmore Rd	34.81531	116.57908	" "
6/07/2010	MusselWatch WA	WARREN	Big Brook Dam	Big Brook Dam	34.40631	116.02685	Mussel Watch WA
21/12/2010	Field Survey	" "	Lefroy Brook	Pump Hill Rd	34.451967	116.02373	Klunzinger et al. 2014
14/03/2011	" "	" "	Smith Brook	Middlesex Rd	34.3444	116.1728	" "
" "	" "	" "	" "	614 Middlesex Rd	34.3291	116.1719	" "
6/02/1999	WAR10	" "	Warren River		34.507222	115.99167	Pinder et al. 2004
08/11/2010	MusselWatch WA	" "	" "	3-4 km downstream of Northcliffe off Callcup Rd Pemberton	34.571691	115.9374	Mussel Watch WA
16/11/20 10	" "	" "	" "	Pemberton-Northcliffe Rd	34.50691	115.99275	Klunzinger et al. 2014
2112/2010	Field Survey	" "	" "	Pemberton-Northcliffe Rd	34.50684	115.99275	" "
" "	" "	" "	" "	downstream from Pemberton-Northcliffe Rd	34.51299	115.98902	" "
22/12/2010	MusselWatch WA	" "	" "	from Bannister Rd bridge to Nelson loc 2416 (The Colonels) a few km inland from mouth of Warren River	34.47004	116.15629	Mussel Watch WA
" "	" "	" "	" "	Train Crossing	34.4989	116.05356	" "
13/03/2011	Field Survey	" "	" "	Pemberton-Northcliffe Rd	34.5066	115.9925	Klunzinger et al. 2014
09/2010	" "	" "	" "		34.506667	115.99185	" "
14/03/2011	" "	" "	Yeagarup Lake	Yeagarup Rd	34.543	115.8735	" "
2011	MusselWatch WA	DONNELLY	BStorey et al.ee Brook	Dickson Rd	34.206274	115.77134	Mussel Watch WA
9/02/1999	DON03	" "	" "		34.205833	115.77056	Pinder et al. 2004

15/03/2011	Field Survey	" "	BStorey et al.ee Brook	Vasse Hwy	34.2278	115.7621	Klunzinger et al. 2014
2011	MusselWatch	DONNELLY	Donnelly River	Old Mill Dam			Mussel Watch
1/11/1995	DON06	DONNELLY	Donnelly River		34.284722	115.88472	Pinder et al. 2004
27/01/1996	DON05	" "	" "		34.396667	115.75528	" "
27/01/1996	DON07	" "	" "		34.328333	115.82861	" "
10/02/1999	DON10	" "	" "		34.216389	115.94111	" "
15/03/2011	Field Survey	" "	" "	Scott Rd	34.4159	115.7716	Klunzinger et al. 2014
22/09/1999	DON12	" "	Fly Brook		34.414444	115.93583	Pinder et al. 2004
21/12/2010	Field Survey	" "	" "	off Vasse Hwy	34.450167	115.91045	Klunzinger et al. 2014
6/07/2010	MusselWatch WA	" "	Lake Beedlup	beside Karri Valley Resort at base of Beedlup Falls on Vasse Hwy	34.42939	115.86744	Mussel Watch WA
2010	Field Survey	BLACKWOOD	Milyeannup Brook		34.1233	115.5698	Klunzinger et al. 2014
" "	" "	" "	" "	Millyochre	34.0981	115.5672	" "
" "	" "	" "	" "	Brockman Hwy	34.172	115.5926	" "
04/2010	MB1	" "	" "	near confluence with main channel	34.1201	115.5543	" "
" "	MB2	" "	" "	Brockman Hwy	34.1094	115.5599	" "
30/12/1995	BLA13	" "	Scott River		34.291111	115.39861	Pinder et al. 2004
" "	BLA14	" "	" "		34.261389	115.26917	" "
26/01/1999	BLA34	" "	" "		34.255556	115.25528	" "
27/01/1999	BLA36	" "	" "		34.278611	115.3125	" "
15/03/2011	Field Survey	" "	" "	Milyeannup Coast Rd	34.2927	115.3987	Klunzinger et al. 2014
" "	" "	" "	" "	Scott River Rd	34.2601	115.2707	" "
2011	MusselWatch WA	" "	St. John Brook	Cambray Pool	33.8812	115.6774	Mussel Watch WA
28/01/1999	BLA06	" "	" "		33.94	115.6925	Pinder et al. 2004
16/11/2009	MusselWatch WA	" "	" "	Cambray Pool	33.8812	115.6774	Mussel Watch WA
15/03/2011	Field Survey	" "	" "	Mowen Rd	33.9583	115.6873	Klunzinger et al. 2014

04/2010	SJ1	" "	" "	Mowen Rd	33.9578	115.6865	" "
" "	SJ2	" "	" "	St. John Rd	33.9016	115.6629	" "
" "	SJ3	" "	" "	Baker Rd	33.8365	115.6612	" "
21/10/2009	Survey	" "	Upper Chapman	Bessell Rd Bridge	33.9751	115.2522	Mussel Watch
2008	LYM_AR01	BUSSELTON COAST	Abba River	Abba River, Ludlow-Tuart Forest Dr (Railway Bridge)	33.639283	115.43155	Lymbery *et al.* 2008
" "	LYM_AR02	" "	" "	Abba River, Bussel Hwy	33.646483	115.43787	" "
2009	FARWH_ABBA-01	" "	" "	Layman Road	33.642967	115.4353	FARWH 2010
19/01/2010	Field Survey	" "	Boodjidup Brook	Caves Rd Bridge	34.01133	115.02969	Klunzinger et al. 2014
2008	LYM_CP01	" "	Capel River	Capel River, Vasse Hwy Crossing	33.547133	-115.55803	Lymbery et al. 2008
" "	Lymbery Notes	" "	" "		33.547133	115.55803	" "
2009	MusselWatch WA	" "	" "		0.00000		Mussel Watch WA
" "	MusselWatch WA	" "	" "	under Train Bridge in Capel	33.55300	115.56650	" "
24/09/1999	BUS25	" "	" "		33.551944	115.5625	Pinder et al. 2004
9/09/2010	MusselWatch WA	" "	" "	8km upstream from Capel townsite, permanent pool on private property	33.600610	115.615740	Mussel Watch WA
2008	LYM_CAR01	" "	Carbunup River	Carbunup River, Roy Rd Bridge	33.74837	115.18930	Lymbery *et al.* 2008
" "	LYM_CAR02	" "	" "	Carbunup River, Vasse Yalingup Siding Rd Bridge	33.67590	115.20128	" "
19/01/1995	BUS09	" "	" "		33.814444	115.16278	Pinder et al. 2004
20/01/1999	BUS11	" "	" "		33.684444	115.19194	" "
19/09/2010	MusselWatch WA	" "	" "	corner of Jindong North and Roy roads	33.74798	115.18969	Mussel Watch WA
16/03/2011	Field Survey	" "	Ellen Brook	Ellensbrook Homestead	33.9108	114.9929	Klunzinger et al. 2014
2008	LYM_DD01	" "	Geographe Drain	Vasse Diversion Drain, 300m	33.68620	115.36400	Lymbery *et al.*

	(BDD02)			upstream of Chapman Hill Bridge (BDD#02)			2008
2008	LYM_DD02 (BDD03)	" "	" "	Vasse Diversion Drain, Chapman Hill Bridge, 20m upstream (BDD#03)	33.68530	115.36100	Lymbery *et al*. 2008
12/2010	MusselWatch WA	BUSSELTON COAST	Gunyulgup Brook	Off Caves rd heading south, near timber maze, east on Spencer Rd for 1 km, when bitumen ends driveway on right, stonewall gates old Moondance Lodge, dam on rt under trees	33.71053	115.03608	Mussel Watch WA
2008	LYM_LR01	" "	Ludlow River	Ludlow-Tuart Forest Dr	33.60330	115.48110	Lymbery *et al*. 2008
2008	LYM_LR02	" "	" "	Ludlow River, Bentley Rd	33.606133	-115.49153	" "
2008	LYM_LR03	" "	" "		33.61220	115.49503	" "
2008	Lymbery Notes	" "	" "		33.61220	115.49500	" "
2009	FARWH_LUDL-01	" "	" "	Tuart Drive	33.60215	115.48702	FARWH 2010
21/10/2009	Field Survey	" "	Margaret River	Along Bussel Hwy	33.9454	115.0737	Klunzinger et al. 2014
2009	MusselWatch WA	" "	" "	DoW Pool 3	33.921640	115.206930	Mussel Watch WA
" "	" "	" "	" "	DoW Pool 5	33.918650	115.211910	" "
" "	" "	" "	" "	DoW Pool 6	33.915910	115.219500	" "
" "	" "	" "	" "	DoW Pool 9	33.917620	115.228260	" "
2010	Field Survey	" "	" "	Canebreak Pool	33.878680	115.284390	Klunzinger et al. 2014
" "	MusselWatch WA	" "	" "	" "	33.880930	115.282850	" "
" "	" "	" "	" "	" "	33.880140	115.283620	" "
2011	" "	" "	" "	" "			Mussel Watch WA
9/10/1994	BUS04	" "	" "		33.948611	115.12556	Pinder et al. 2004
17/01/1995	BUS02	" "	" "		33.876111	115.29083	" "
" "	BUS04	" "	" "		33.948611	115.12556	" "

29/12/1995	BUS02	" "	" "		33.876111	115.29083	" "
21/01/1999	BUS17	" "	" "		33.790278	115.01222	" "
22/01/1999	BUS03	" "	" "		33.930278	115.26667	" "
" "	BUS16	" "	" "		33.945556	115.10556	" "
Nov-09	Field Survey	BUSSELTON COAST	Margaret River	along Bussel Highway	33.9454	115.0737	Rio Tinto Earth Assist/Conservation Volunteers Australia
19-Jan-10	" "	" "	" "	Apex Weir	33.9428	115.07064	Klunzinger et al. 2014
" "	" "	" "	" "	Barret St. Weir	33.9479	115.0825	" "
" "	" "	" "	" "	Deadman's Weir	33.9491	115.0861	" "
6-Nov-10	" "	" "	" "	Canebreak Pool	33.878949	115.28426	" "
" "	" "	" "	" "	" "	33.881274	115.28268	" "
" "	" "	" "	" "	" "	33.880446	115.28346	" "
6/11/2010	Field Survey		" "	Jindong-Treeton Rd	33.92164	115.2071	" "
16/03/2011	" "	" "	Margaret River South	Great North Rd	33.8775	115.3011	" "
2005-2010	MusselWatch WA	" "	Millers Creek	300m downstream from bridge over Millers Creek at Millbridge	33.30484	115.7322	Mussel Watch WA
" "	" "	" "	" "	Millbridge estate, playground overlooking Millers Creek on Gascoyne Circle	33.31021	115.73309	" "
27/07/2010	" "	" "	Preston River	1 km south of Dardanup Rd bridge	33.43123	115.71719	" "
2008	LYM_VR01	" "	Vasse River	Vasse River, immediately downstream of junction with diversion drain	33.68690	115.36490	Lymbery *et al.* 2008
" "	LYM_VR02	" "	" "	Busselton Bypass Bridge	33.66730	115.35230	" "
" "	LYM_VR06	" "	" "	~200m upstream of junction with Diversion Drain	33.68840	115.36450	" "
" "	LYM_VR07	" "	" "	Peel Rd near the Old Butter Factory, Busselton	33.65265	115.34870	" "
" "	LYM_VR08	" "	" "	Strelley St Bridge, Busselton	33.65885	115.35097	" "
16/11/2010	MusselWatch WA	" "	Wilyabrup Brook	1 O'Brien St, Cowaramup, behind property in a dam	33.848460	115.101550	Mussel Watch WA

16/03/2011	Field Survey	" "	" "	Caves Rd	33.7945	115.0312	Klunzinger et al. 2014
11/2010	Field Survey	PRESTON	Ferguson River	Ferguson North Rd	33.449467	115.85753	" "
2009	FARWH_FERG-01	PRESTON	Ferguson River	Dowdells Line Road	33.396083	115.7946	FARWH 2010
" "	MusselWatch WA	" "	Preston River				Mussel Watch WA
2008	LYM_PR01	" "	" "	Preston River, Picton Rd Bridge	33.35065	115.67718	Lymbery et al. 2008
2010	MusselWatch WA	" "	" "	at Gwindinup (upstream from Boyanup)	33.51235	115.74818	Mussel Watch WA
" "	" "	" "	" "	Lowden Rd Bridge, 12 km upstream of Donnybrook	33.52852	115.97013	" "
09/2009	" "	" "	" "	From Boyanup Town bridge up to about 1 km downstream	33.4698	115.7329	" "
22/12/2010	" "	" "	" "	Dardanup West Rd bridge	33.42367	115.71097	" "
14/01/2012	" "	" "	" "	in Donnybrook	33.5771	115.8274	" "
11/2010	" "	" "	" "	Boyanup-Picton Rd	33.479	115.73407	Klunzinger et al. 2014
2009	FARWH_PRES-01	" "	" "	Ferguson Road	33.5282	115.97032	FARWH 2010
" "	FARWH_PRES-02	" "	" "	Lot 18245 Southwestern Hwy	33.558183	115.80183	" "
" "	MusselWatch WA	COLLIE	Brunswick River	Beela Rail Siting upstream from Brunswick Junction (town)	33.22205	115.90739	Mussel Watch WA
11/2010	Field Survey	" "	" "	Flynn Rd	33.2264	115.9269	Klunzinger et al. 2014
" "	" "	" "	" "	SW Hwy	33.250767	115.84098	" "
2008	LYM_CR01	" "	Collie River		33.63333	116.51670	Lymbery et al. 2008
2009	MusselWatch WA	" "	" "	Honeymoon Pool	33.38100	115.93800	Mussel Watch WA
" "	" "	" "	" "	SW Hwy	33.30230	115.81840	" "
13/08/1998	COL08	" "	" "		33.366111	116.15583	Pinder et al. 2004
15/04/1999	COL08	" "	" "		33.366111	116.15583	" "
15/04/1999	COL31	" "	Collie River		33.363333	116.08806	" "
09/2009	Survey	" "	" "	Collie River Rd, back of Burekup	33.3145	115.8329	Mussel Watch

							WA
" "	" "	" "	" "	main branch through Collie townsite "The Sanctuary" behing Collie TAFE)	33.21580	116.09210	" "
16/11/2010	Survey	COLLIE	Collie River	Mungalup Dam	33.40445	116.09547	Mussel Watch WA
2009	1b_4	" "	" "	Upstream end of reach located below Burekup Weir. Accessed from Collie River Rd.	33.324	115.87336	Storey et al. 2009
" "	1b_5	" "	" "	Upstream end of reach located below Burekup Weir. Accessed from Collie River Rd.	33.323398	115.87161	" "
" "	1b_6	" "	" "	Upstream end of reach located below Burekup Weir. Accessed from Collie River Rd.	33.322898	115.8702	" "
" "	2_2	" "	" "	SW Hwy	33.299994	115.81359	" "
" "	3_4	" "	" "	Rose Rd	33.309041	115.80236	" "
11/2010	Field Survey	" "	" "	SW Hwy	33.302133	115.81743	Klunzinger et al. 2014
2009	3_3	" "	Harris River	SW Hwy	33.309713	115.80292	Storey et al. 2009
11/2010	Field Survey	" "	Brunswick River		33.25	115.841	Klunzinger et al. 2014
" "	" "	" "	" "		33.23	115.896	" "
" "	" "	" "	" "		33.23	115.909	" "
" "	" "	" "	" "		33.227	115.906	" "
11/2010	Field Survey	" "	" "		33.226	115.928	" "
" "	" "	" "	" "		33.23	115.896	" "
2011	MusselWatch WA	HARVEY	Harvey River	Diversion Drain			Mussel Watch WA
3/11/1997	HAR03	" "	" "		32.818056	115.735	MRHI 1999
6/11/1997	HAR14	" "	" "		33.079167	115.91778	" "
" "	HAR14	" "	" "		33.079167	115.91778	" "
31/08/1999	HAR03	" "	" "		32.818056	115.735	" "
11/2010	Field Survey	" "	" "	base of Harvey Dam	33.079	115.927	Klunzinger et al. 2014
11/2010	Field Survey	" "	" "	Southwestern Hwy	33.076	115.909	" "

" "	" "	" "	" "		33.079617	115.9272	" "
5/11/1997	HAR12	" "	Logue Brook		32.984444	115.91639	Pinder et al. 2004
11/2010	Field Survey	" "	" "	SW Hwy	32.9831	115.91783	Klunzinger et al. 2014
" "	" "	" "	Samson Brook	SW Hwy	32.864633	115.92845	" "
11/06/2010	DH	MURRAY	Birrega Drain	Dog Hill Gauging Station (614098)	32.34248	115.86182	" "
13/08/2010	" "	" "	" "	" "	32.34248	115.86182	" "
23/11/2010	" "	" "	" "	" "	32.34248	115.86182	" "
15/02/2011	" "	" "	" "	" "	32.34248	115.86182	" "
30/08/2011	" "	" "	" "	" "	32.34248	115.86182	" "
11/2009	Field Survey	" "	Gooralong Brook		32.20026	116.03343	Rio Tinto Earth Assist/Conservation Volunteers Australia
23/01/2011	MusselWatch WA	" "	Lake Jones	Mandejal Scout Camp	32.28086	116.05706	Mussel Watch WA
11/08/2011	" "	" "	Maramanup Pool	end of Dog Hill Rd off Young Rd, Baldivis	32.3411	115.8371	" "
11/2010	Field Survey	" "	North Dandalup River		32.51295	115.97487	Klunzinger et al. 2014
30/11/2009	" "	" "	Serpentine River	Falls Rd, SW Hwy Bridge	32.3625	115.9916	" "
1/07/2005	MusselWatch WA	" "	" "	Dog Hill Gauging Station (614098)	32.34194	115.86158	Mussel Watch WA
23/08/1999	MRY03	" "	" "		32.336667	115.91278	Pinder et al. 2004
11/2009	Survey	" "	Serpentine River		32.3625	115.9916	Rio Tinto Earth Assist/Conservation Volunteers Australia
3/11/2009	Field Survey	" "	" "	Berriga Drain, Lowlands	32.3332	115.8737	Klunzinger et al. 2014
" "	" "	" "	" "	Horse Drink, Lowlands	32.3351	115.9036	" "
" "	" "	" "	" "	Lowlands Fern Bush	32.3387	115.9153	" "
3/11/2009	" "	" "	" "	Lowlands Forest (Midge Richardson)	32.3366	115.906	" "

" "	" "	" "	" "	Lowlands Gauging Station (614114)	32.3313	115.8824	" "
" "	" "	" "	" "	Lowlands Track	32.3352	115.9227	" "
" "	" "	" "	" "	near Riverlea Homestead, Lowlands	32.3343	115.8976	" "
3/11/2009	Field Survey	MURRAY	Serpentine River	Serpentine-Birrega Confluence	32.3321	115.8749	Klunzinger et al. 2014
" "	" "	" "	" "	Serpentine-Birrega Confluence	32.3321	115.8749	" "
30/11/2009	" "	" "	" "	Karnup Rd	32.3699	115.8503	" "
26/12/2009	" "	" "	" "	Falls Rd Bridge	32.368798	116.00927	" "
" "	" "	" "	" "	Rapids Rd Bridge	32.339265	115.94436	" "
" "	" "	" "	" "	Richardson St. Bridge	32.35142	115.97565	" "
" "	" "	" "	" "	Serpentine Falls outlet	32.368295	116.01101	" "
" "	" "	" "	" "	Serpentine Falls Top Pool	32.367928	116.01161	" "
" "	" "	" "	" "	Stream between falls and bridge	32.36849	116.01027	" "
11/07/2010	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
" "	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
19/06/2010	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "
" "	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
13/08/2010	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
" "	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
15/08/2010	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
" "	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "
16/08/2010	RR	" "	" "	Rapids Rd Bridge	32.339	115.944	" "
29/09/2010	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
29-Sep-10	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "
" "	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
30-Sep-10	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
23-Nov-10	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
23-Nov-10	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
" "	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "

" "	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
14-Jan-11	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
" "	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
15-Feb-11	HD	MURRAY	Serpentine River	Horse Drink, Lowlands	32.33486	115.90413	Klunzinger et al. 2014
" "	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
" "	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "
" "	RR	" "	" "	Rapids Rd Bridge	32.339	115.944	" "
" "	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
29-Aug-11	HD	" "	" "	Horse Drink, Lowlands	32.33486	115.90413	" "
" "	LF	" "	" "	Lowlands Forest (Midge Richardson)	32.33864	115.91529	" "
" "	RCR	" "	" "	Riverlea Coffee Rocks	32.33479	115.89084	" "
30-Aug-11	SBC	" "	" "	Serpentine-Birrega Confluence	32.33276	115.87546	" "
Nov_2010	Field Survey	" "	" "	Gauging Stn near falls entrance	32.33695	115.90615	" "
" "	" "	" "	" "		32.36875	116.00135	" "
" "	" "	" "	South Dandalup River		32.592983	115.91598	" "
21-Jan-10	" "	SWAN COAST	Bennett Brook	Bennett Bk Trib below Lord St in rhab bush	31.8738	115.9569	" "
22-Jan-10	" "	" "	" "	Bennett Bk Bushland	31.87670	115.9587	" "
25-Feb-10	" "	" "	" "	Bennett Bk Bushland	31.87670	115.9587	" "
Nov_2010	" "	" "	" "	Clarry Small Park	31.879967	115.9604	" "
22-Jan-10	" "	" "	" "	Lanius Drain	31.8738	115.9567	" "
2009	MusselWatch WA	" "	Breera Brook	near dam upstream from Brand Hwy	31.43855	115.96953	Mussel Watch WA
" "	" "	" "	Canning River	Soldiers Rd, Roley Pool	32.1275	116.0658	" "
" "	" "	" "	" "	Thompson Rd, Roley Pool	32.12732	116.0738	" "
2009	MusselWatch WA	" "	" "	Beckenham Open Space (Roe Hwy Bridge)	32.0402	115.95541	" "
" "	" "	" "	" "	Between Albany Hwy and Station St Bridges, Gosnells	32.07094	116.00387	" "
2/08/2001	SWA25	" "	" "		32.118889	116.01861	Pinder et al. 2004
28-Dec-09	Field Survey	" "	" "	Granite Rock Rapids	32.12627	116.07512	Klunzinger et al.

							2014
" "	" "	" "	" "	Granite Rock Rapids	32.12627	116.07512	" "
" "	" "	" "	" "	Roley Pool and Stream	32.12835	116.0691	" "
28-Dec-09	Field Survey	SWAN COAST	Canning River	Roley Pool and Stream	32.1285	116.0724	Klunzinger et al. 2014
" "	" "	" "	" "	" "	32.12772	116.067	" "
" "	" "	" "	" "	Soldiers Rd Bridge	32.1275	116.065	" "
" "	" "	" "	" "	Stocker Rd Bridge	32.128	116.0533	" "
" "	" "	" "	" "	Thompson Rd. Bridge	32.12738	116.0738	" "
22-Feb-10	MusselWatch WA	" "	" "	Astley St, Gosnells	32.07599	116.00872	Mussel Watch WA
" "	" "	" "	" "	Behind Kelmscott Primary School	32.119333	116.02216	" "
" "	" "	" "	" "	Homestead Park, Gosnells	32.0758	116.0086	" "
" "	" "	" "	" "	John Oakey Davis Reserve - Gosnells, near Southern River/Canning River Confluence	32.0605	115.97896	" "
" "	" "	" "	" "	Roley Pool and Stream	32.07708	116.04141	" "
22-Feb-10	MusselWatch WA	" "	" "	Saddlers Retreat - Kelmscott	32.116621	116.0203	" "
17-Nov-10	MusselWatch WA	" "	" "	Ilford Pl., Kenwick, at end of cul-de-sac	32.046579	115.96715	" "
04-Oct-11	MusselWatch WA	" "	" "	Gosnells, Thornlie	32.0758	116.0086	" "
Nov_2010	Field Survey	" "	" "	Soldiers Rd	32.127417	116.06485	Klunzinger et al. 2014
Nov_2010	Field Survey	" "	" "	Fancote Park, Kwlmscott	32.1117	116.0168	" "
2009	Survey	" "	Cookes Brook		31.4549	116.1333	Mussel Watch WA
30-Nov-09	Field Survey	" "	Gooralong Brook	Kingsbury Rd Bridge	32.3347	116.0569	Klunzinger et al. 2014
24/05/2011	Field Survey	" "	Helena River	Pipehead Dam	31.9443	116.0768	" "
24/05/2011	Field Survey	" "	" "	Pool 5	31.93891	116.07558	" "
" "	" "	" "	" "	Pool 4	31.939955	116.07557	" "

8/07/2010	MusselWatch WA	" "	Jane Brook	near Dongara Circle Park adjacent to where Pilbara CR meets Dongara Cir. Also seen adjacent to Sherlock Park	31.8666	116.058	Mussel Watch WA
05/2011	" "	" "	" "	8 Johnston Rd, Parkerville	31.8797	116.1387	" "
2009	MusselWatch WA	SWAN COAST	Lake Leschenaultia	Lake Leschenaultia, WA	31.85306	116.25157	Mussel Watch WA
" "	" "	" "	" "	Lake Leschenaultia, WA	31.85306	116.25157	" "
2/04/2009	Field Survey	" "	" "	Lake Leschenaultia, WA	31.85306	116.25157	Klunzinger et al. 2014
3/12/2009	" "	" "	Lennard Brook	Cockran Rd	31.38012	115.91258	" "
5/02/2010	" "	" "	" "	Cockran Rd	31.38012	115.91258	" "
" "	" "	" "	" "	Westralia Fruits- upstream of office	31.38270	115.9501	" "
5/11/2009	" "	" "	Marbling Brook	Chittering Valley Rd	31.5657	116.1098	" "
30/11/10	MusselWatch WA	" "	" "	1724 Chittering Rd, Lower Chittering	31.56929	116.09869	Mussel Watch WA
24/11/2009	Field Survey	" "	Neerigen Brook	Peaceful Pond	32.1442	116.0266	Klunzinger et al. 2014
" "	" "	" "	" "	Peaceful Pond	32.14417	116.02658	" "
2009	FARWH_SRBDS	" "	Southern River	Southern River Road	32.091667	115.9725	FARWH 2010
" "	MusselWatch WA	" "	Wooroloo Brook		31.73472	116.07333	Mussel Watch WA
2005	VR	" "	Wungong River	Vardi Rd	32.24806	116.11222	STOREY ET AL. 2005
2009	FARWH_SCCIS10	" "	" "	Wungong Brook Bruns Dr	32.1942	116.0106	FARWH 2010
5/11/2009	Field Survey	" "	Yalyal Brook	Yal Yal Reserve Rd	31.5025	115.9965	Klunzinger et al. 2014
09/2010	" "	" "	" "		31.50105	115.99833	" "
" "	Field Survey	" "	" "		31.501233	115.99815	" "
17/04/2010	" "	" "	Gingin Brook	Gingin Brook Rd	31.30253	115.60708	" "
04/2010	" "	" "	" "	Beattie Rd	31.301	115.753	" "
04/2010	Field Survey	MOORE-HILL	" "	Brand Hwy	31.355	115.883	" "

" "	" "	" "	" "	Cheriton Rd	31.336	115.913	" "
" "	" "	" "	" "	in town	31.349	115.902	" "
" "	" "	" "	" "	Whakea Rd	31.312	115.924	" "
09/2010	" "	" "	" "		31.3495	115.9017	" "
" "	" "	" "	" "		31.3137	115.69663	" "
04/2010	Field Survey	MOORE-HILL	Gingin Brook South	Gingin Brook Rd	31.327	115.821	Klunzinger et al. 2014