

Supplementary Table S1. Weekly pond-specific dataset of *Australomicrodeutopus* abundance and environmental variables during the 12-week monitoring period

Week	Pond	Amphipod Abundance (ind./m ²)	Temperature (°C)	Salinity (ppt)	DO (mg/L)	pH	Total Organic Matter (%)
1	A	145	29.1	18.5	5.8	7.6	4.5
1	B	98	30.2	16.7	5.1	7.4	3.8
2	A	152	29.0	18.8	5.9	7.7	4.6
2	B	105	30.0	16.9	5.2	7.5	3.9
3	A	168	28.9	19.2	6.1	7.8	4.8
3	B	112	29.8	17.0	5.3	7.5	4.0
4	A	175	28.7	19.5	6.2	7.8	5.0
4	B	120	29.6	17.3	5.4	7.6	4.1
5	A	182	28.5	19.8	6.3	7.9	5.2
5	B	128	29.4	17.5	5.5	7.6	4.2
6	A	190	28.4	20.1	6.4	7.9	5.3
6	B	135	29.2	17.7	5.6	7.6	4.3
7	A	205	28.3	20.4	6.5	8.0	5.5
7	B	142	29.0	18.0	5.7	7.7	4.5
8	A	218	28.2	20.6	6.6	8.0	5.6
8	B	150	28.9	18.2	5.8	7.7	4.6
9	A	225	28.1	20.9	6.7	8.1	5.8
9	B	158	28.7	18.4	5.9	7.8	4.8
10	A	238	28.0	21.2	6.8	8.1	6.0
10	B	165	28.5	18.6	6.0	7.8	4.9
11	A	245	27.9	21.5	6.9	8.2	6.1
11	B	172	28.3	18.9	6.1	7.9	5.0
12	A	258	27.8	21.8	7.0	8.2	6.3
12	B	180	28.2	19.1	6.2	7.9	5.2

Notes:

Pond A = intensive pond.

Pond B = traditional pond.

DO = dissolved oxygen.

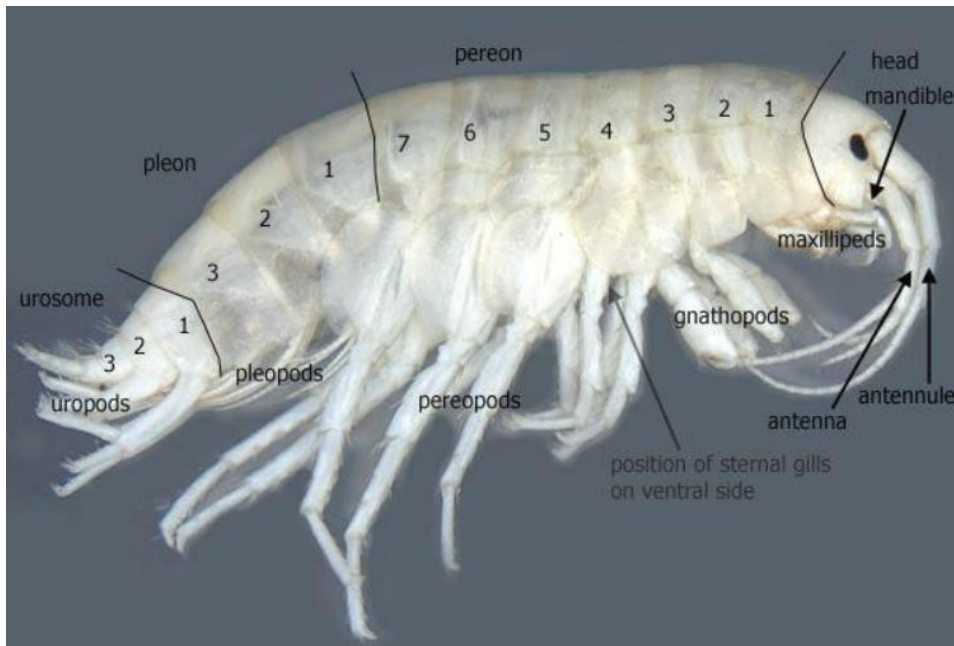
Abundance values are expressed as individuals per square meter.

Supplementary Table S2. Diagnostic morphological characters used for identification of *Australomicrodeutopus* specimens.

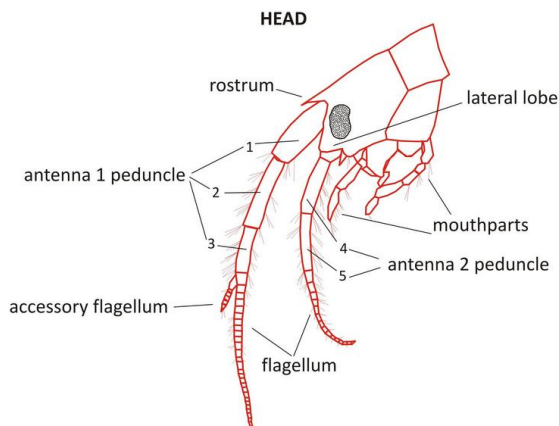
Character	Observation	Taxonomic Relevance
Body shape	Laterally compressed body	Typical Amphipoda characteristic
Antenna 1	Longer than antenna 2	Consistent with genus description
Gnathopod morphology	Subchelate gnathopods present	Diagnostic amphipod feature
Pereopods	Well-developed walking appendages	Consistent with benthic amphipods
Uropods	Three pairs clearly visible	Consistent with <i>Australomicrodeutopus</i> morphology
Telson	Distinct terminal telson structure	Used for genus-level identification
Habitat association	Brackish-water pond sediment	Consistent with reported ecological distribution

Note: Identification was conservatively assigned to the genus level due to the absence of molecular confirmation.

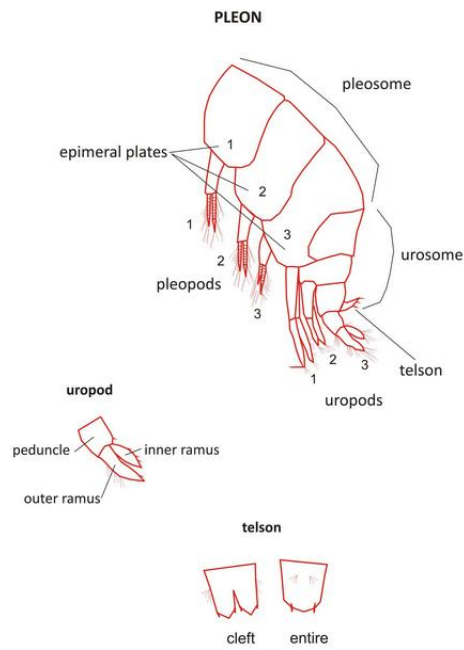
Figure S1. Representative specimen of *Australomicrodeutopus* sp. and diagnostic morphological characters used for taxonomic identification. (A) Whole-body lateral view showing the laterally compressed amphipod body; (B) antennae morphology; (C) gnathopod structure; (D) uropod arrangement; and (E) telson morphology. The identification was based on diagnostic morphological characteristics observed under a stereomicroscope and compared with published taxonomic descriptions of the genus *Australomicrodeutopus*.



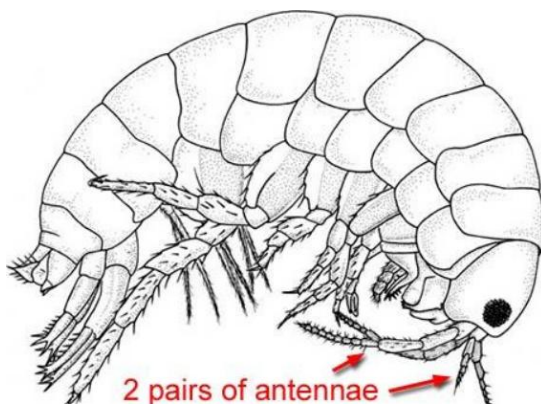
(A) Whole-body lateral view showing the laterally compressed amphipod body



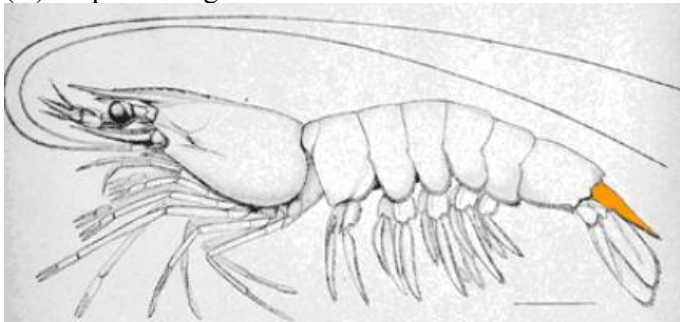
(B) antennae morphology



(C) gnathopod structure



(D) uropod arrangement



(E) telson morphology

Supplementary Table S3. Correlation matrix among environmental variables

Variable	Temperature	Salinity	pH	DO	BOD	BOT
Temperature	1.000	0.312	0.154	-0.284	0.238	0.201
Salinity	0.312	1.000	0.196	0.114	-0.102	0.087
pH	0.154	0.196	1.000	0.482	-0.391	-0.214

DO	-0.284	0.114	0.482	1.000	-0.645	-0.402
BOD	0.238	-0.102	-0.391	-0.645	1.000	0.571
BOT	0.201	0.087	-0.214	-0.402	0.571	1.000

Table S3. Pearson correlation matrix among measured environmental variables. Values indicate pairwise correlation coefficients (r). No pairwise correlation exceeded $|0.70|$, suggesting the absence of severe multicollinearity among predictors.

Supplementary Table S4. Variance Inflation Factor (VIF)

Predictor Variable	VIF
Bottom Organic Matter (BOT)	2.13
Dissolved Oxygen (DO)	2.47
pH	1.68
Biological Oxygen Demand (BOD)	2.84

Table S4. Variance Inflation Factor (VIF) values for predictors retained in the final multiple regression model. All VIF values were below 5, indicating that multicollinearity was not a significant issue in model estimation.