

Hagen, E. M., McCluney, K. E., Wyant, K. A., Soykan, C. U., Keller, A. C., Luttermoser, K. C., Holmes, E. J., Moore, J. C. and Sabo, J. L. 2012. A meta-analysis of the effects of detritus on primary producers and consumers in marine, freshwater, and terrestrial ecosystems. – *Oikos* 121: 1507–1515.

## Appendix 1

Types of detritus used in literature search and associated ecosystem type.

Type of detritus	Ecosystem type
Detritus	Freshwater and terrestrial
Leaf litter	Freshwater and terrestrial
Leaf fall	Freshwater and terrestrial
Mulch	Terrestrial
Tussock litter	Terrestrial
Plant litter	Terrestrial
Large woody debris OR LWD	Freshwater
Snags	Freshwater and terrestrial
Dead wood	Freshwater and terrestrial
Slash	Terrestrial
Coarse particulate organic matter OR CPOM	Freshwater
Fine particulate organic matter OR FPOM	Freshwater
Dissolved organic matter OR DOM	Freshwater and terrestrial
Seston	Freshwater and marine
Nekton	Freshwater and marine
Sea wrack OR wrack	Marine
Plankton rain	Marine
Marine snow	Marine
Carrion	Terrestrial
Guano	Terrestrial
Frass	Terrestrial
Scat	Terrestrial
Dung	Freshwater and terrestrial
Sea grass OR (kelp AND deep sea)	Marine
Glucose	Freshwater, marine, and terrestrial
Dissolved organic carbon OR DOC	Freshwater, marine, and terrestrial
Soil	Terrestrial

## Appendix 2

Type of detritus, approach, type of consumer, functional role, habitat, measured effect, and effect size (Z) for each record included in the meta-analysis.

Article no.	Author	Type of detritus	Approach	Type of consumer	Functional role	Habitat	Effect	Z
1	Allredge et al. 1986	Marine snow	Mensurative	Detritivore	Both	Ocean	Abundance	-0.669
1	Allredge et al. 1986	Marine snow	Mensurative	Detritivore	Both	Ocean	Abundance	-0.117
1	Allredge et al. 1986	Marine snow	Mensurative	Detritivore	Both	Ocean	Abundance	0.000
1	Allredge et al. 1986	Marine snow	Mensurative	Detritivore	Both	Ocean	Abundance	0.309
2	Alongi 1990	Sediment organic carbon	Mensurative	Detritivore	Both	Deep sea	Density	0.151
2	Alongi 1990	Sediment organic carbon	Mensurative	Detritivore	Both	Deep sea	Density	0.399
2	Alongi 1990	Sediment organic carbon	Mensurative	Primary producer	-	Deep sea	Chlorophyll <i>a</i>	-0.108
3	Alongi and Christoffersen 1992	Mangrove litter	Mensurative	Detritivore	Both	Lagoon	Abundance	0.549
3	Alongi and Christoffersen 1992	Mangrove litter	Mensurative	Detritivore	Both	Lagoon	Density	-0.436
3	Alongi and Christoffersen 1992	Mangrove litter	Mensurative	Detritivore	Both	Lagoon	Richness	1.142
4	Anderson and Rosemond 2007	Benthic organic matter	Mensurative	Mixed	Both	Stream	Biomass	0.984
5	Baar and Kuyper 1998	Sod on forest floor	Experimental	Detritivore	Both	Forest floor	Density	-2.537
5	Baar and Kuyper 1998	Sod on forest floor	Experimental	Detritivore	Both	Forest floor	Density	-3.137
5	Baar and Kuyper 1998	Sod on forest floor	Experimental	Detritivore	Both	Forest floor	Density	-3.627
5	Baar and Kuyper 1998	Sod on forest floor	Experimental	Detritivore	Both	Forest floor	Richness	-0.347
	Baar and Kuyper	Sod on forest						

	1998	floor						
6	Baer et al. 2001	Leaf litter	Experimental	Detritivore	Both	Stream	Abundance	5.702
6	Baer et al. 2001	Leaf litter	Experimental	Herbivore	Habitat	Stream	Abundance	-2.349
6	Baer et al. 2001	Leaf litter	Experimental	Predator	Habitat	Stream	Abundance	4.221
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Abundance	0.494
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Abundance	0.582
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Abundance	0.539
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Abundance	0.359
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Abundance	4.219
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	2.065
7	Bardgett et al. 1998	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	2.864
8	Barqum and Death 2009	CPOM	Mensurative	Mixed	Energetic	Rheocrene springs	Abundance	0.609
8	Barqum and Death 2009	CPOM	Mensurative	Mixed	Energetic	Rheocrene springs	Richness	0.809
8	Barqum and Death 2009	FPOM	Mensurative	Mixed	Energetic	Rheocrene springs	Abundance	0.634
8	Barqum and Death 2009	FPOM	Mensurative	Mixed	Energetic	Rheocrene springs	Richness	0.150
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	2.756
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	-3.288
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	2.028
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	4.290
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	3.367
9	Bauhus et al. 1998	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	4.228
10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Detritivore	Both	Stream	Density	1.120
10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Detritivore	Both	Stream	Density	0.962

10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Detritivore	Both	Stream	Density	-0.170
10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Detritivore	Both	Stream	Density	0.336
10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Predator	Habitat	Stream	Density	0.000
10	Benstead et al. 2003	Leaf litter, CPOM	Mensurative	Predator	Habitat	Stream	Density	0.673
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Abundance	-0.294
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Abundance	-0.486
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Abundance	1.229
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Abundance	1.837
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Abundance	-1.883
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Density	5.387
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Density	4.953
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Density	4.546
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Density	-2.193
11	Botts 1996	Druse	Experimental	Detritivore	Habitat	Bay	Density	6.068
12	Burke et al. 1995	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	2.672
13	Bustamante et al. 1995	Drift kelp	Mensurative	Detritivore	Both	Subtidal	Abundance	-0.811
13	Bustamante et al. 1995	Drift kelp	Mensurative	Detritivore	Both	Subtidal	Abundance	1.045
14	Carneiro et al. 2009	Slash	Experimental	Primary producer	-	Eucalyptus plantation	Biomass	0.268
15	Cerrano et al. 2010	DOC	Experimental	Detritivore	Energetic	Marine-coral	Abundance	1.210
15	Cerrano et al. 2010	DOC	Experimental	Detritivore	Energetic	Marine-coral	Abundance	2.085
16	Clark et al. 1993	Parquat killed rye	Mensurative	Predator	Habitat	Corn agricultural field	Abundance	1.062
16	Clark et al. 1993	Parquat killed rye	Mensurative	Predator	Habitat	Corn agricultural field	Abundance	2.051
17	Cobb et al. 2010	Clear cut	Experimental	Detritivore	Both	Boreal forest	Abundance	0.102
18	Collier and Halliday 2000	Wood	Experimental	Detritivore	Both	Stream	Density	0.859

18	Collier and Halliday 2000	Wood	Experimental	Detritivore	Habitat	Stream	Density	0.813
18	Collier and Halliday 2000	Wood	Experimental	Detritivore	Habitat	Stream	Density	0.822
18	Collier and Halliday 2000	Wood	Experimental	Detritivore	Habitat	Stream	Density	0.761
18	Collier and Halliday 2000	Wood	Experimental	Detritivore	Habitat	Stream	Density	0.470
18	Collier and Halliday 2000	Wood	Experimental	Mixed	Both	Stream	Density	0.559
19	Cullings et al. 2003	Leaf litter	Experimental	Detritivore	Habitat	Forest floor	Richness	0.694
20	Delong et al. 1993	CPOM	Experimental	Detritivore	Both	Stream	Abundance	-0.116
20	Delong et al. 1993	Dead animal matter	Experimental	Detritivore	Energetic	Stream	Abundance	0.406
20	Delong et al. 1993	FPOM	Experimental	Detritivore	Energetic	Stream	Abundance	0.501
21	Dobson et al. 2002	CPOM	Mensurative	Mixed	Both	Stream	Density	0.050
22	Dudgeon 1994	FPOM	Mensurative	Herbivore	Habitat	Stream	Abundance	-0.580
22	Dudgeon 1994	FPOM	Mensurative	Mixed	Energetic	Stream	Abundance	-0.330
22	Dudgeon 1994	FPOM	Mensurative	Mixed	Energetic	Stream	Richness	-0.643
23	Dudgeon 1995	Detritus	Mensurative	Detritivore	Energetic	Stream	Abundance	0.146
24	Dugan et al. 2003	Sea wrack	Mensurative	Detritivore	Both	Beach	Abundance	1.447
24	Dugan et al. 2003	Sea wrack	Mensurative	Detritivore	Both	Beach	Abundance	0.795
24	Dugan et al. 2003	Sea wrack	Mensurative	Detritivore	Both	Beach	Biomass	0.875
24	Dugan et al. 2003	Sea wrack	Mensurative	Mixed	Both	Beach	Abundance	0.933
24	Dugan et al. 2003	Sea wrack	Mensurative	Mixed	Habitat	Beach	Biomass	0.869
24	Dugan et al. 2003	Sea wrack	Mensurative	Mixed	Both	Beach	Richness	0.971
24	Dugan et al. 2003	Sea wrack	Mensurative	Mixed	Both	Beach	Richness	0.594
24	Dugan et al. 2003	Sea wrack	Mensurative	Predator	Habitat	Beach	Abundance	1.313
24	Dugan et al. 2003	Sea wrack	Mensurative	Predator	Habitat	Beach	Abundance	0.639
24	Dugan et al. 2003	Sea wrack	Mensurative	Predator	Habitat	Beach	Richness	1.079
25	Fonte et al. 2009	CPOM	Mensurative	Detritivore	Energetic	Agroecosystem	Biomass	0.615
25	Fonte et al. 2009	CPOM	Mensurative	Detritivore	Energetic	Agroecosystem	Density	0.327

26	Fregni et al. 1998	Organic matter	Mensurative	Detritivore	Energetic	Stream	Richness	0.695
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	-1.909
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	2.288
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	-0.461
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	1.987
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	-2.586
27	Gonzalez and Zou 1999	Leaf litter	Experimental	Detritivore	Both	Soil	Density	2.689
28	Gosselink and Kirby 1974	Spartina stems and leaves	Experimental	Detritivore	Energetic	Salt marsh	Biomass	-2.315
28	Gosselink and Kirby 1974	Spartina stems and leaves	Experimental	Primary producer	-	Salt marsh	Concentration	1.949
29	Halaj and Wise 2002	Detritus	Experimental	Detritivore	Energetic	Agroecosystem	Density	5.196
29	Halaj and Wise 2002	Detritus	Experimental	Detritivore	Energetic	Agroecosystem	Density	6.095
29	Halaj and Wise 2002	Detritus	Experimental	Detritivore	Energetic	Agroecosystem	Density	5.229
29	Halaj and Wise 2002	Detritus	Experimental	Detritivore	Energetic	Agroecosystem	Density	6.259
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.808
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.287
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.518
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	1.851
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	1.277
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	2.151
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.003

29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.000
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.173
29	Halaj and Wise 2002	Detritus	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.179
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	0.629
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	3.093
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	2.302
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	1.946
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	0.738
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	3.081
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	2.364
29	Halaj and Wise 2002	Detritus	Experimental	Predator	Habitat	Agroecosystem	Density	1.822
29	Halaj and Wise 2002	Detritus	Experimental	Primary producer	-	Agroecosystem	Fruit yield	0.457
29	Halaj and Wise 2002	Detritus	Experimental	Primary producer	-	Agroecosystem	Fruit yield	0.631
29	Halaj and Wise 2002	Detritus	Experimental	Primary producer	-	Agroecosystem	Fruit yield	1.636
29	Halaj and Wise 2002	Detritus	Experimental	Primary producer	-	Agroecosystem	Fruit yield	1.755
30	Halaj et al. 2000	Chicken wire filled with straw	Experimental	Predator	Habitat	Soybean agricultural field	Density	4.446
30	Halaj et al. 2000	Chicken wire filled with straw	Experimental	Predator	Habitat	Soybean agricultural field	Density	3.623
30	Halaj et al. 2000	Chicken wire filled with straw	Experimental	Predator	Habitat	Soybean agricultural field	Density	3.660

30	Halaj et al. 2000	Chicken wire filled with straw	Experimental	Predator	Habitat	Soybean agricultural field	Density	3.659
31	Hall and Meyer 1998	Leaf litter	Experimental	Detritivore	Both	Stream	Biomass	1.174
32	Hansen and Alongi 1991	Sediment organic carbon	Mensurative	Detritivore	Both	Deep sea	Density	0.045
32	Hansen and Alongi 1991	Sediment organic carbon	Mensurative	Mixed	Both	Deep sea	Density	0.746
33	Hatch et al. 2000	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	-3.689
34	Heino 2000	CPOM-FPOM	Mensurative	Herbivore	Habitat	Lake	Richness	-1.551
34	Heino 2000	CPOM-FPOM	Mensurative	Mixed	Energetic	Lake	Richness	-0.834
34	Heino 2000	CPOM-FPOM	Mensurative	Primary producer	-	Lake	Cover	-0.686
34	Heino 2000	CPOM-FPOM	Mensurative	Primary producer	-	Lake	Cover	-0.489
35	Hines et al. 2006	Sucrose	Experimental	Herbivore	Habitat	Intertidal salt marsh	Density	1.522
35	Hines et al. 2006	Sucrose	Experimental	Herbivore	Habitat	Intertidal salt marsh	Density	3.691
35	Hines et al. 2006	Sucrose	Experimental	Predator	Habitat	Intertidal salt marsh	Abundance	0.293
35	Hines et al. 2006	Sucrose	Experimental	Primary producer	-	Intertidal salt marsh	Density	2.139
35	Hines et al. 2006	Sucrose	Experimental	Primary producer	-	Intertidal salt marsh	Biomass	1.292
35	Hines et al. 2006	Sucrose	Experimental	Primary producer	-	Intertidal salt marsh	Height	0.486
35	Hines et al. 2006	Sucrose	Experimental	Primary producer	-	Intertidal salt marsh	Biomass	0.698
35	Hines et al. 2006	Thatch	Experimental	Herbivore	Habitat	Intertidal salt marsh	Density	1.934
35	Hines et al. 2006	Thatch	Experimental	Herbivore	Habitat	Intertidal salt marsh	Density	3.810
35	Hines et al. 2006	Thatch	Experimental	Predator	Habitat	Intertidal salt marsh	Abundance	3.393
35	Hines et al. 2006	Thatch	Experimental	Primary producer	-	Intertidal salt marsh	Density	0.941
35	Hines et al. 2006	Thatch	Experimental	Primary producer	-	Intertidal salt	Biomass	0.366

						marsh		
35	Hines et al. 2006	Thatch	Experimental	Primary producer	-	Intertidal salt marsh	Height	1.203
35	Hines et al. 2006	Thatch	Experimental	Primary producer	-	Intertidal salt marsh	Biomass	0.887
36	Holland and Coleman 1987	Till	Experimental	Detritivore	Energetic	Soil	Biomass-C	2.447
36	Holland and Coleman 1987	Till	Experimental	Detritivore	Energetic	Soil	Biomass-C	-1.145
37	Holmes and Zak 1999	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	3.412
37	Holmes and Zak 1999	Soil organic carbon	Mensurative	Detritivore	Energetic	Soil	Biomass-C	2.221
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	-2.441
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	0.704
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	-2.852
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	3.582
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	2.392
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	2.990
38	Holomuzki and Messier 1993	Leaf litter	Mensurative	Detritivore	Both	Stream	Density	3.883
39	Jansson et al. 2010	DOC	Mensurative	Detritivore	Energetic	Subarctic Sweden Lakes	Biomass	1.251
39	Jansson et al. 2010	DOC	Mensurative	Primary producer	-	Subarctic Sweden Lakes	Biomass	1.472
40	Jonasson et al. 1996	DOC	Experimental	Detritivore	Energetic	Forest floor	Biomass-C	2.372
40	Jonasson et al. 1996	DOC	Experimental	Detritivore	Energetic	Forest floor	Biomass-C	1.217
41	Jordan et al. 2000	Litter and LWD	Experimental	Detritivore	Energetic	Forest soil	Abundance	-0.110
41	Jordan et al. 2000	Litter and LWD	Experimental	Detritivore	Energetic	Forest soil	Biomass	-0.040
42	Kallasvuoto et al.	Bladder wrack	Mensurative	Herbivore	Habitat	Coastal littoral	Density	1.293

	2010					habitat		
42	Kallasvuori et al. 2010	Bladder wrack	Mensurative	Mixed	Habitat	Coastal littoral habitat	Density	0.892
43	Kon et al. 2010	Mangrove vegetation	Experimental	Detritivore	Both	Intertidal mangrove forest	Abundance	1.725
43	Kon et al. 2010	Mangrove vegetation	Experimental	Detritivore	Both	Intertidal mangrove forest	Abundance	1.321
43	Kon et al. 2010	Mangrove vegetation	Experimental	Detritivore	Habitat	Intertidal mangrove forest	Abundance	0.773
43	Kon et al. 2010	Mangrove vegetation	Experimental	Detritivore	Habitat	Intertidal mangrove forest	Abundance	0.526
43	Kon et al. 2010	Mangrove vegetation	Experimental	Herbivore	Habitat	Intertidal mangrove forest	Abundance	1.022
43	Kon et al. 2010	Mangrove vegetation	Experimental	Herbivore	Habitat	Intertidal mangrove forest	Abundance	0.977
43	Kon et al. 2010	Mangrove vegetation	Experimental	Herbivore	Habitat	Intertidal mangrove forest	Abundance	3.186
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Both	Intertidal mangrove forest	Abundance	1.114
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Both	Intertidal mangrove forest	Abundance	1.795
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Both	Intertidal mangrove forest	Abundance	1.141
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Both	Intertidal mangrove forest	Abundance	2.083
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	0.315
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	3.328
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	1.497
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	1.866
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	0.355
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	2.098
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	0.191

43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Abundance	0.000
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Both	Intertidal mangrove forest	Biomass	0.329
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Biomass	0.558
43	Kon et al. 2010	Mangrove vegetation	Experimental	Mixed	Habitat	Intertidal mangrove forest	Biomass	0.511
44	Krueger and Peterson 2009	Slash	Mensurative	Primary producer	-	Temperate forest	Density	-0.354
44	Krueger and Peterson 2009	Slash	Mensurative	Primary producer	-	Temperate forest	Richness	-0.299
44	Krueger and Peterson 2009	Slash	Mensurative	Primary producer	-	Temperate forest	Richness	-0.192
45	Laitung et al. 2002	Leaf litter	Experimental	Detritivore	Energetic	Stream	Density	-0.772
45	Laitung et al. 2002	Leaf litter	Experimental	Detritivore	Energetic	Stream	Density	-0.634
45	Laitung et al. 2002	Leaf litter	Experimental	Detritivore	Energetic	Stream	Richness	-0.535
45	Laitung et al. 2002	Leaf litter	Experimental	Detritivore	Energetic	Stream	Richness	-0.031
46	Lavery et al. 1999	Wrack	Experimental	Detritivore	Both	Mud beach	Richness	0.051
46	Lavery et al. 1999	Wrack	Experimental	Detritivore	Both	Sand beach	Richness	0.033
46	Lavery et al. 1999	Wrack	Experimental	Primary producer	-	Mud beach	Biomass	1.010
46	Lavery et al. 1999	Wrack	Experimental	Primary producer	-	Sand beach	Biomass	2.641
47	Lovell and Jarvis 1996	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	0.701
47	Lovell and Jarvis 1996	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	4.620
47	Lovell and Jarvis 1996	Dung	Experimental	Detritivore	Energetic	Terrestrial	Biomass-C	4.067
48	Malmqvist and Eriksson 1995	Seston	Mensurative	Mixed	Energetic	Stream	Richness	0.421
49	Marsden 1991	Sea wrack	Mensurative	Detritivore	Both	Beach	Abundance	3.713
49	Marsden 1991	Sea wrack	Mensurative	Detritivore	Both	Beach	Abundance	3.473
50	Mathews et al. 2002	Compost mulch	Experimental	Detritivore	Energetic	Apple orchard	Abundance	6.414
50	Mathews et al. 2002	Compost mulch	Experimental	Herbivore	Habitat	Apple orchard	Abundance	3.566
50	Mathews et al. 2002	Compost mulch	Experimental	Predator	Habitat	Apple orchard	Abundance	3.948

50	Mathews et al. 2002	Synthetic mulch	Experimental	Detritivore	Both	Apple orchard	Abundance	6.373
50	Mathews et al. 2002	Synthetic mulch	Experimental	Detritivore	Habitat	Apple orchard	Abundance	3.197
50	Mathews et al. 2002	Synthetic mulch	Experimental	Herbivore	Habitat	Apple orchard	Abundance	1.163
50	Mathews et al. 2002	Synthetic mulch	Experimental	Herbivore	Habitat	Apple orchard	Abundance	3.644
50	Mathews et al. 2002	Synthetic mulch	Experimental	Predator	Habitat	Apple orchard	Abundance	3.805
50	Mathews et al. 2002	Synthetic mulch	Experimental	Predator	Habitat	Apple orchard	Abundance	1.953
51	McCay and Komoroski 2004	LWD	Mensurative	Predator	Habitat	Forest	Abundance	0.317
51	McCay and Komoroski 2004	LWD	Mensurative	Predator	Habitat	Forest	Abundance	0.386
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Biomass	1.502
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Biomass	0.921
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Emergence rate	2.203
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Emergence rate	2.159
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Emergence rate	1.317
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Length	0.151
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Length	2.287
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Length	2.067
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	No. leaves	0.095
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	No. leaves	1.492
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	No. leaves	0.250
52	Navarro-Cano et al.	Pine litter	Experimental	Primary producer	-	Semiarid	Root/shoot ratio	0.001

	2010					scrubland		
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Root/shoot ratio	0.000
52	Navarro-Cano et al. 2010	Pine litter	Experimental	Primary producer	-	Semiarid scrubland	Root/shoot ratio	0.180
53	Naxara et al. 2009	LWD	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.523
53	Naxara et al. 2009	LWD	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.940
53	Naxara et al. 2009	LWD	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.416
53	Naxara et al. 2009	LWD	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.139
53	Naxara et al. 2009	LWD	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.175
53	Naxara et al. 2009	Small woody debris	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.523
53	Naxara et al. 2009	Small woody debris	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.940
53	Naxara et al. 2009	Small woody debris	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.416
53	Naxara et al. 2009	Small woody debris	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.139
53	Naxara et al. 2009	Small woody debris	Mensurative	Mixed	Habitat	Rainforest	Abundance	-0.175
54	Perry and Sheldon 1986	Seston	Mensurative	Detritivore	Energetic	Stream	Richness	0.659
54	Perry and Sheldon 1986	Seston	Mensurative	Primary producer	-	Stream	Chlorophyll <i>a</i>	1.799
54	Perry and Sheldon 1986	POC	Mensurative	Primary producer	-	Stream	Chlorophyll <i>a</i>	1.141
55	Ploug and Grossart 2000	Marine Snow	Mensurative	Detritivore	Both	Deep sea	Abundance	0.939
56	Polis & Hurd 1996	Sea wrack	Mensurative	Detritivore	Both	Beach	Abundance	1.172
56	Polis & Hurd 1996	Seabird guano	Mensurative	Detritivore	Energetic	Beach	Biomass	0.853
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Energetic	Montane stream	Abundance	0.607
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Energetic	Montane stream	Abundance	0.333
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Energetic	Montane stream	Abundance	1.119

57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Energetic	Montane stream	Abundance	0.761
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Energetic	Montane stream	Abundance	0.796
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Habitat	Montane stream	Abundance	0.158
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Habitat	Montane stream	Abundance	0.480
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Habitat	Montane stream	Abundance	0.204
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Habitat	Montane stream	Abundance	0.203
57	Richardson 1992	CPOM, leaf detritus	Experimental	Detritivore	Habitat	Montane stream	Abundance	0.355
57	Richardson 1992	CPOM, leaf detritus	Experimental	Mixed	Energetic	Montane stream	Abundance	0.891
57	Richardson 1992	CPOM, leaf detritus	Experimental	Mixed	Habitat	Montane stream	Abundance	0.271
58	Rowe and Richardson 2001	Leaf litter	Experimental	Detritivore	Energetic	Stream	Emigration	0.980
59	Rypstra and Marshall 2005	Compost	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.504
59	Rypstra and Marshall 2005	Compost	Experimental	Herbivore	Habitat	Agroecosystem	Density	0.351
59	Rypstra and Marshall 2005	Compost	Experimental	Predator	Habitat	Agroecosystem	Density	0.134
59	Rypstra and Marshall 2005	Compost	Experimental	Predator	Habitat	Agroecosystem	Density	0.629
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Density	1.341
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Density	1.348
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Density	0.918
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Density	0.835
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Height	1.286
59	Rypstra and	Compost	Experimental	Primary producer	-	Agroecosystem	Height	0.852

	Marshall 2005							
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Height	1.372
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Height	2.030
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Leaf size	1.343
59	Rypstra and Marshall 2005	Compost	Experimental	Primary producer	-	Agroecosystem	Leaf size	1.100
59	Rypstra and Marshall 2005	Till	Experimental	Herbivore	Habitat	Agroecosystem	Density	1.539
59	Rypstra and Marshall 2005	Till	Experimental	Herbivore	Habitat	Agroecosystem	Density	1.036
59	Rypstra and Marshall 2005	Till	Experimental	Predator	Habitat	Agroecosystem	Density	0.369
59	Rypstra and Marshall 2005	Till	Experimental	Predator	Habitat	Agroecosystem	Density	0.105
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Density	2.726
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Density	1.359
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Density	2.111
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Density	1.720
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Height	1.172
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Height	1.789
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Height	0.920
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Height	1.155
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Leaf size	0.354
59	Rypstra and Marshall 2005	Till	Experimental	Primary producer	-	Agroecosystem	Leaf size	1.769
59	Rypstra and Marshall 2005	Till and compost	Experimental	Herbivore	Habitat	Agroecosystem	Density	1.171

59	Rypstra and Marshall 2005	Till and compost	Experimental	Predator	Habitat	Agroecosystem	Density	0.502
59	Rypstra and Marshall 2005	Till and compost	Experimental	Primary producer	-	Agroecosystem	Density	2.340
59	Rypstra and Marshall 2005	Till and compost	Experimental	Primary producer	-	Agroecosystem	Density	1.923
59	Rypstra and Marshall 2005	Till and compost	Experimental	Primary producer	-	Agroecosystem	Height	1.816
59	Rypstra and Marshall 2005	Till and compost	Experimental	Primary producer	-	Agroecosystem	Height	1.192
59	Rypstra and Marshall 2005	Till and compost	Experimental	Primary producer	-	Agroecosystem	Leaf size	0.847
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	0.655
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	3.096
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	2.926
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	1.442
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	3.086
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	2.733
60	Sanders et al. 2008	Leaf litter	Experimental	Herbivore	Habitat	Chalk grassland	Abundance	2.711
60	Sanders et al. 2008	Leaf litter	Experimental	Predator	Habitat	Chalk grassland	Abundance	1.235
60	Sanders et al. 2008	Leaf litter	Experimental	Predator	Habitat	Chalk grassland	Abundance	2.554
60	Sanders et al. 2008	Leaf litter	Experimental	Predator	Habitat	Chalk grassland	Abundance	1.403
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Both	Stream	Abundance	1.347
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Both	Stream	Abundance	-1.356
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Energetic	Stream	Abundance	2.342
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Energetic	Stream	Abundance	1.570
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Both	Stream	Richness	0.285
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Both	Stream	Richness	1.098
61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Energetic	Stream	Richness	1.001

61	Scarsbrook and Townsend 1994	Tussock grass	Experimental	Mixed	Energetic	Stream	Richness	1.163
62	Schartau et al. 2001	DOC	Mensurative	Detritivore	Energetic	Lake	Richness	1.001
63	Settle et al. 1996	Organic matter	Experimental	Detritivore	Energetic	Irrigated rice fields	Density	2.457
63	Settle et al. 1996	Organic matter	Experimental	Detritivore	Energetic	Irrigated rice fields	Density	3.144
63	Settle et al. 1996	Organic matter	Experimental	Herbivore	Habitat	Irrigated rice fields	Density	2.115
63	Settle et al. 1996	Organic matter	Experimental	Predator	Habitat	Irrigated rice fields	Density	3.520
63	Settle et al. 1996	Organic matter	Experimental	Predator	Habitat	Irrigated rice fields	Density	3.703
64	Silver et al. 1978	Marine Snow	Mensurative	Detritivore	Energetic	Deep sea	Abundance	0.209
65	Smith 1987	Sediment organic carbon	Mensurative	Detritivore	Both	Deep sea	Abundance	1.291
65	Smith 1987	Sediment organic carbon	Mensurative	Detritivore	Both	Deep sea	Biomass	0.850
66	Smith and Merrick 2001	Carrion	Mensurative	Detritivore	Energetic	Temperate mountain	Abundance	1.537
67	Söderström and Reid 2010	Dung	Mensurative	Predator	Habitat	Savanna	Abundance	0.509
67	Söderström and Reid 2010	Dung	Mensurative	Predator	Habitat	Savanna	Richness	0.467
68	Sota et al. 1996	Carcass	Mensurative	Detritivore	Energetic	Tree hole	Biomass	0.837
68	Sota et al. 1996	Carcass	Mensurative	Detritivore	Energetic	Tree hole	Biomass	0.627
68	Sota et al. 1996	Carcass	Mensurative	Detritivore	Energetic	Tree hole	Richness	-0.080
68	Sota et al. 1996	Carcass	Mensurative	Detritivore	Energetic	Tree hole	Richness	0.575
68	Sota et al. 1996	Carcass	Mensurative	Predator	Habitat	Tree hole	Biomass	-0.231
68	Sota et al. 1996	Carcass	Mensurative	Predator	Habitat	Tree hole	Biomass	0.469
68	Sota et al. 1996	Carcass	Mensurative	Predator	Habitat	Tree hole	Richness	-0.203
68	Sota et al. 1996	Carcass	Mensurative	Predator	Habitat	Tree hole	Richness	0.408
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Detritivore	Habitat	Lake	Density	0.896
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Detritivore	Habitat	Lake	Density	0.924

69	Stewart et al. 1998	Zebra mussel shells	Experimental	Detritivore	Habitat	Lake	Density	1.210
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Detritivore	Habitat	Lake	Density	1.722
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Detritivore	Habitat	Lake	Density	2.178
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Mixed	Habitat	Lake	Biomass	1.639
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Predator	Habitat	Lake	Density	-0.563
69	Stewart et al. 1998	Zebra mussel shells	Experimental	Primary producer	-	Lake	Chlorophyll <i>a</i>	2.233
70	Stoddard et al. 2008	Slash	Experimental	Primary producer	-	Pinyon-juniper woodland	Percent cover	0.708
70	Stoddard et al. 2008	Slash	Experimental	Primary producer	-	Pinyon-juniper woodland	Percent cover	1.145
71	Teira et al. 2009	DOC	Mensurative	Detritivore	Energetic	Open ocean	Abundance	0.893
71	Teira et al. 2009	DOC	Mensurative	Detritivore	Energetic	Open ocean	Abundance	0.873
71	Teira et al. 2009	DOC	Mensurative	Detritivore	Energetic	Open ocean	Abundance	0.895
71	Teira et al. 2009	DOC	Mensurative	Detritivore	Energetic	Open ocean	Abundance	0.457
72	Tian et al. 1993	Acioa prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	1.875
72	Tian et al. 1993	Acioa prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	0.813
72	Tian et al. 1993	Acioa prunings	Experimental	Detritivore	Energetic	Maize agricultural fields	Density	3.967
72	Tian et al. 1993	Acioa prunings	Experimental	Predator	Habitat	Maize agricultural fields	Density	0.516
72	Tian et al. 1993	Gliricidia prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	2.058
72	Tian et al. 1993	Gliricidia prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	0.943
72	Tian et al. 1993	Gliricidia prunings	Experimental	Detritivore	Energetic	Maize agricultural fields	Density	2.570
72	Tian et al. 1993	Gliricidia prunings	Experimental	Predator	Habitat	Maize agricultural fields	Density	3.022
72	Tian et al. 1993	Leucaena prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	2.599

72	Tian et al. 1993	Leucaena prunings	Experimental	Detritivore	Both	Maize agricultural fields	Density	0.000
72	Tian et al. 1993	Leucaena prunings	Experimental	Detritivore	Energetic	Maize agricultural fields	Density	3.051
72	Tian et al. 1993	Leucaena prunings	Experimental	Predator	Habitat	Maize agricultural fields	Density	2.729
72	Tian et al. 1993	Maize stover	Experimental	Detritivore	Both	Maize agricultural fields	Density	2.170
72	Tian et al. 1993	Maize stover	Experimental	Detritivore	Both	Maize agricultural fields	Density	0.000
72	Tian et al. 1993	Maize stover	Experimental	Detritivore	Energetic	Maize agricultural fields	Density	3.630
72	Tian et al. 1993	Maize stover	Experimental	Predator	Habitat	Maize agricultural fields	Density	-0.764
72	Tian et al. 1993	Rice straw	Experimental	Detritivore	Both	Maize agricultural fields	Density	2.221
72	Tian et al. 1993	Rice straw	Experimental	Detritivore	Both	Maize agricultural fields	Density	0.000
72	Tian et al. 1993	Rice straw	Experimental	Detritivore	Energetic	Maize agricultural fields	Density	3.260
72	Tian et al. 1993	Rice straw	Experimental	Predator	Habitat	Maize agricultural fields	Density	1.165
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.979
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.735
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.256
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	1.423
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	1.395
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	1.349
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.403
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.086
73	Tittarelli et al. 2009	Bovine manure	Experimental	Primary producer	-	Agricultural	Biomass	3.365

		compost						
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.378
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.082
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.330
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.605
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.214
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	1.090
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.186
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.835
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.930
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.182
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	3.797
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Biomass	2.927
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Height	1.701
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Height	1.545
73	Tittarelli et al. 2009	Bovine manure compost	Experimental	Primary producer	-	Agricultural	Height	1.222
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.187
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.220
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	0.663
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.533
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.467
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	0.971

73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.187
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.546
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.427
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.285
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.667
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.504
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.980
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	2.835
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	1.622
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	3.095
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	3.887
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	4.363
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	3.092
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	3.884
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Biomass	4.359
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Height	1.613
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Height	1.383
73	Tittarelli et al. 2009	Green compost	Experimental	Primary producer	-	Agricultural	Height	1.267
74	Touma et al. 2009	Leaf litter	Mensurative	Mixed	Both	Stream	Density	4.545
74	Touma et al. 2009	Leaf litter	Mensurative	Mixed	Both	Stream	Richness	2.451
75	Vetter 1995	Carrion	Experimental	Detritivore	Energetic	Marine - sandy Bottom at 20m depth	Abundance	-0.223
75	Vetter 1995	Carrion	Experimental	Detritivore	Energetic	Marine - sandy Bottom at 20m depth	Abundance	-0.196
75	Vetter 1995	Drift kelp	Experimental	Detritivore	Both	Marine - sandy Bottom at 20m depth	Abundance	-1.061
75	Vetter 1995	Drift kelp	Experimental	Detritivore	Both	Marine - sandy Bottom at 20m depth	Abundance	-1.134

75	Vetter 1995	Drift kelp	Experimental	Detritivore	Both	Marine - sandy Bottom at 20m depth	Abundance	2.489
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Mixed	Both	Deep sea	Abundance	0.017
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Mixed	Both	Deep sea	Abundance	0.196
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Mixed	Both	Deep sea	Abundance	0.133
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Mixed	Both	Deep sea	Abundance	0.118
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Predator	Habitat	Deep sea	Abundance	0.256
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Predator	Habitat	Deep sea	Abundance	0.467
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Predator	Habitat	Deep sea	Abundance	0.531
76	Vetter and Dayton 1999	Macrophyte	Mensurative	Predator	Habitat	Deep sea	Abundance	0.220
77	Vohland and Schroth 1999	Plant litter	Mensurative	Mixed	Both	Amazonian agricultural monocultures	Density	1.874
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	3.759
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	4.574
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	5.066
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	6.835
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	3.583
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Abundance	-3.461
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	3.254
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	1.400
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	1.654
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	4.150
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	2.803
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	-2.757
78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	3.007

78	Wallace et al. 1995	Log addition	Experimental	Detritivore	Habitat	Stream	Biomass	-1.132
78	Wallace et al. 1995	Log addition	Experimental	Herbivore	Habitat	Stream	Abundance	3.854
78	Wallace et al. 1995	Log addition	Experimental	Herbivore	Habitat	Stream	Abundance	-2.907
78	Wallace et al. 1995	Log addition	Experimental	Herbivore	Habitat	Stream	Biomass	3.077
78	Wallace et al. 1995	Log addition	Experimental	Herbivore	Habitat	Stream	Biomass	-3.136
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Abundance	5.360
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Abundance	6.878
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	3.735
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	3.921
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	2.087
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	3.879
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	3.117
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	-3.576
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	2.734
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	2.562
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	2.602
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	4.280
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	0.463
78	Wallace et al. 1995	Log addition	Experimental	Mixed	Habitat	Stream	Biomass	1.375
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Abundance	4.498
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Abundance	5.336
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	2.553
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	3.910
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	1.760
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	2.902
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	2.465
78	Wallace et al. 1995	Log addition	Experimental	Predator	Habitat	Stream	Biomass	-1.750
79	Wallace et al. 1999	Leaf litter	Experimental	Detritivore	Both	Stream	Abundance	1.949
79	Wallace et al. 1999	Leaf litter	Experimental	Detritivore	Both	Stream	Abundance	1.700

79	Wallace et al. 1999	Leaf litter	Experimental	Detritivore	Both	Stream	Abundance	0.789
79	Wallace et al. 1999	Leaf litter	Experimental	Herbivore	Habitat	Stream	Abundance	1.949
79	Wallace et al. 1999	Leaf litter	Experimental	Predator	Habitat	Stream	Abundance	1.581
80	Warren and Kraft 2003	LWD	Experimental	Predator	Habitat	Stream	Abundance	0.047
81	Warren and Spencer 1996	Leaf litter	Experimental	Detritivore	Both	Pond	Abundance	2.413
82	Zaady et al. 1996	Plant litter	Experimental	Detritivore	Both	Soil	Biomass	4.076
83	Zak et al. 1996	Root rhizosphere	Mensurative	Detritivore	Energetic	Soil	Biomass	4.086
84	Zink and Allen 1998	Oat straw	Experimental	Detritivore	Both	Disturbed coastal sage scrub	Biomass	0.762
84	Zink and Allen 1998	Oat straw	Experimental	Detritivore	Both	Disturbed coastal sage scrub	Biomass	0.718
84	Zink and Allen 1998	Oat straw	Experimental	Primary producer	-	Disturbed coastal sage scrub	Abundance	0.788
84	Zink and Allen 1998	Oat straw	Experimental	Primary producer	-	Disturbed coastal sage scrub	Volume	5.142
84	Zink and Allen 1998	Pine bark	Experimental	Detritivore	Both	Disturbed coastal sage scrub	Biomass	0.908
84	Zink and Allen 1998	Pine bark	Experimental	Detritivore	Both	Disturbed coastal sage scrub	Biomass	0.415
84	Zink and Allen 1998	Pine bark	Experimental	Primary producer	-	Disturbed coastal sage scrub	Abundance	2.853
84	Zink and Allen 1998	Pine bark	Experimental	Primary producer	-	Disturbed coastal sage scrub	Volume	6.707

## References

See Appendix 3

## Appendix 3

Full citation of articles used in meta-analysis.

Article no.	Author	Citation
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2	Alongi 1990	Alongi, D. M. 1990. Abundances of benthic microfauna in relation to outwelling of mangrove detritus in a tropical coastal region. – <i>Mar. Ecol. Prog. Ser.</i> 63: 53–63.
3	Alongi and Christoffersen 1992	Alongi, D. M. and Christoffersen, P. 1992. Benthic infauna and organism-sediment relations in a shallow, tropical coastal area: influence of outwelled mangrove detritus and physical disturbance. – <i>Mar. Ecol. Prog. Ser.</i> 81: 229–245.
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## Appendix 4

Summary of formulas used to convert test statistics to  $R$ .

Test statistic	Data required	R conversion
Standardized mean difference	$\bar{X}^{+D}, \bar{X}^{-D}, s^{+D}, s^{-D}, N^{+D}, N^{-D}, d_{ij}$	$R = \sqrt{\frac{d_{ij}^2 N_{ij}^{-D} N_{ij}^{+D}}{d_{ij}^2 N_{ij}^{-D} N_{ij}^{+D} + (N_{ij}^{-D} + N_{ij}^{+D}) + (N_{ij}^{-D} + N_{ij}^{+D} - 2)}}$
$F$ -statistic*, †	$SS_{effect}, SS_{total}, F$	$R = \sqrt{\frac{SS_{effect}}{SS_{total}}}$
$R^\dagger$	$R, N$	-
$R^{2\dagger}$	$R^2, N$	$R = \sqrt{R^2}$
Spearman $R^\dagger$	$R, N$	-
$t$ -test†	$t, N, df_{error}$	$R = \sqrt{\frac{t^2}{t^2 + df_{error}}}$

\*sign of  $R$  inferred from direction of linear effects

†this formula applies only to 1-way ANOVA designs. Conversions for 2-way and higher order designs are more complicated; see Levin and Hullett 2002 for details

## References

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## Appendix 5

### Fixed effects and mixed effects model.

To calculate a mean effect size for each category (Type of user, Functional role and Ecosystem type) we used a mixed effects model. Because the mixed effects model uses the pooled residual variance from the fixed effects model as an estimate of the sampling error, we first estimated the pooled residual variance within a fixed effects model framework. The fixed effects model differs from the mixed effects model in that it assumes that all of the studies share a common true effect size and that any differences in the actual effect size among the different studies are due to sampling error (Gurevitch and Hedges 2001). The fixed effects model was implemented using the average effect size ( $Z_{ij}$ ) and the average weighted effect size ( $w_{ij}$ ) for each paper in each Type of user, Functional role, or Ecosystem type category to calculate the cumulative mean effect size for each Type of user, Functional role, and Ecosystem type category as:

$$\bar{E}_j = \frac{\sum_{i=1}^{k_j} w_{ij} Z_{ij}}{\sum_{i=1}^{k_j} w_{ij}} \quad (\text{A10})$$

where  $k_j$  was the number of studies in category  $j$  (Rosenberg et al. 2000). The standard deviation of  $\bar{E}_j$  was:

$$s_{\bar{E}_j} = \sqrt{\frac{1}{k_j \sum_{i=1}^{k_j} w_{ij}}} \quad (\text{A11})$$

We calculated the lower ( $\bar{E}_j^L$ ) and upper ( $\bar{E}_j^U$ ) 95% confidence limits for  $\bar{E}_j$ , respectively, as:

$$\bar{E}_j^L = \bar{E}_j - \left[ t_{\alpha/2k} s_{\bar{E}_j} \right] \quad (\text{A12})$$

and

$$\bar{E}_j^U = \bar{E}_j + \left[ t_{\alpha/2k} S_{\bar{E}_j} \right] \quad (\text{A13})$$

As described in the Methods section,  $t_{\alpha/2}$  was the two-tailed critical value of the standard normal distribution (Gurevitch and Hedges 2001), adjusted using the Bonferroni correction (Rice 1989) where  $k$  is the number of categories.

Next we calculated a grand “cumulative” effect size across the Type of user, Functional role and Ecosystem type categories as:

$$\bar{\bar{E}} = \frac{\sum_{i=1}^m \sum_{j=1}^{k_j} w_{ij} Z_{ij}}{\sum_{i=1}^m \sum_{j=1}^{k_j} w_{ij}} \quad (\text{A14})$$

Here,  $m$  was the total number of categories (i.e.  $m = 5$ : primary producers, detritivores, herbivores, predators, and mixed consumers). The standard deviation of the grand cumulative effect size was:

$$S_{\bar{\bar{E}}} = \sqrt{\frac{1}{\sum_{i=1}^m \sum_{j=1}^{k_j} w_{ij}}} \quad (\text{A15})$$

To determine if the effect sizes were significantly different among the Type of user, Functional role and Ecosystem type categories, we calculated a homogeneity statistics  $Q_T$ ,  $Q_E$ , and  $Q_M$ . Here total homogeneity,  $Q_T$ , included both within-class homogeneity,  $Q_E$ , and between-class homogeneity,  $Q_M$ .

$$Q_T = Q_M + Q_E \quad (\text{A16})$$

Within-class homogeneity,  $Q_E$ , a measure of the variation among records within each category, was calculated as:

$$Q_E = \sum_{j=1}^m \sum_{i=1}^{k_j} w_{ij} (Z_{ij} - \bar{E}_j)^2 \quad (\text{A17})$$

Between-class homogeneity,  $Q_M$ , a measure of the variation between categories in mean effect size (Rosenberg et al. 2000), was calculated as:

$$Q_M = \sum_{j=1}^m \sum_{i=1}^{k_j} w_{ij} (\bar{E}_j - \bar{\bar{E}})^2 \quad (\text{A18})$$

Once we calculated the fixed effects model, we were able to carry out the mixed effects model using the variance from the fixed effects model to calculate sampling error. As with the fixed effects model, we needed to calculate  $Z_{ij}$ ,  $v_{ij}$ ,  $w_{ij}$ ,  $w_{ij}^2$ ,  $v_{ij}^*$ ,  $w_{ij}^*$ , and  $w_{ij}^*Z_{ij}$  for each record (the asterisk indicates the mixed model version of the term). Here  $v_{ij}^*$ ,  $w_{ij}^*$ , and  $w_{ij}^*Z_{ij}$  included both the unconditional variance,  $v_{ij}$ , and the pooled within class variance,  $\sigma_{pooled}^2$ , which was calculated as:

$$\sigma_{pooled}^2 = \frac{Q_E - (n - m)}{\left( \sum_{j=1}^m \left( \sum_{i=1}^n w_{ij} - \frac{\sum_{i=1}^{k_j} w_{ij}^2}{\sum_{i=1}^{k_j} w_{ij}} \right) \right)} \quad (\text{A19})$$

Here,  $Q_E$  was within-class heterogeneity,  $n$  was the total number of studies,  $m$  was the number of categories,  $k_j$  was the number of studies in the  $j$ th category, and  $w_{ij}$  was the fixed effects weight of the  $i$ th study in the  $j$ th category. Cumulative effect size for each category,  $\bar{E}_j$ , and its variance,  $s_{\bar{E}_j}$ , were calculated as in the fixed effects model (Eq. A10 and A11). We calculated the grand cumulative effect size,  $\bar{\bar{E}}^*$ , and its standard deviation,  $s_{\bar{\bar{E}}^*}$ , as:

$$\bar{E}^* = \frac{\sum_{i=1}^m w_{ij}^* Z_{ij}^*}{\sum_{i=1}^m w_{ij}^*} \quad (\text{A20})$$

and

$$S_{\bar{E}^*} = \sqrt{\frac{1}{\sum_{i=1}^m \sum_{j=1}^{k_i} w_{ij}^*}} \quad (\text{A21})$$

We then calculated the homogeneity among the categories as:

$$Q_M^* = \sum_{i=1}^m w_{ij}^* Z_{ij}^{*2} - \frac{\left(\sum_{i=1}^m w_{ij}^* Z_{ij}^*\right)^2}{\sum_{i=1}^m w_{ij}^*} \quad (\text{A22})$$

where  $w_{ij}^*$  was the sum of the mixed model weights for each category (Gurevitch and Hedges 2001):

$$w_{ij}^* = \frac{1}{\frac{1}{w_{ij}} + \sigma_{pooled}^2} \quad (\text{A23})$$

## References

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