Supporting Information

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SI Text

Field Sampling. To compare our experimental systems with naturally-developed communities, we deployed 10 identical seagrass mimics in nearby seagrass beds for 10 days. These mobile grazer communities reach nearly static levels of richness and abundance between 4 and 6 days (1). Our data from a simultaneously-deployed field experiment indicates that species richness in the field is equivalent to that seen in our experiment. Species richness in experimental treatments receiving the most propagules was 10.8 ± 0.65 (mean ± SE) compared with 10.5 ± 0.56 in identical-sized habitat patches deployed in a nearby seagrass bed. Highest observed species richness was 12 species in our experiment and 14 species in the field.

1. Virnstein RW, Curran MC (1986) Colonization of artificial seagrass versus time and distance from source. *Mar Ecol Prog Ser* 29:279–288.

Propagule Additions. Final grazer species richness increased significantly with the estimated number of species added ($R^2 = 0.24$, $n = 30$, $P < 0.006$; Fig. S1*A*). The mean number of species included in 4 treatment levels of grazer propagule supply was estimated by using rarefaction analysis of samples taken from the initial propagule pool ($n = 20$). In supply treatments receiving a single addition, small additions received an estimated 123.5 total individuals of 8.85 species; medium–low, 246.9 individuals of 10.25 species; medium–high, 493.8 individuals of 11.59 species; large, 987.6 individuals of 12.8 species. A total of 15 species were observed in the additions.

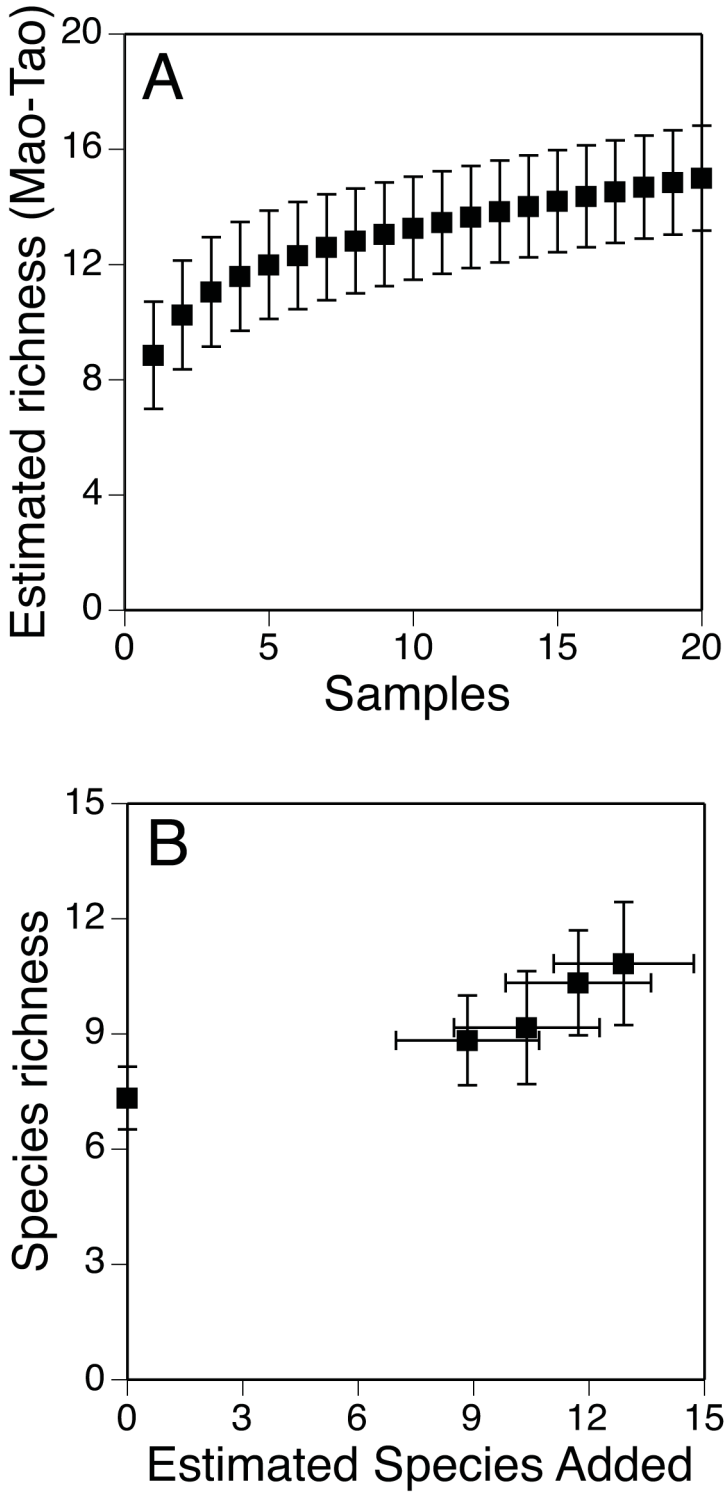

Fig. S1. (*A*) MaoTao expected species richness (± 1 SD) as a function of accumulated samples (http://purl.oclc.org/estimates). (*B*) Relationship between observed species richness and estimated number of species added for single-frequency propagule additions.

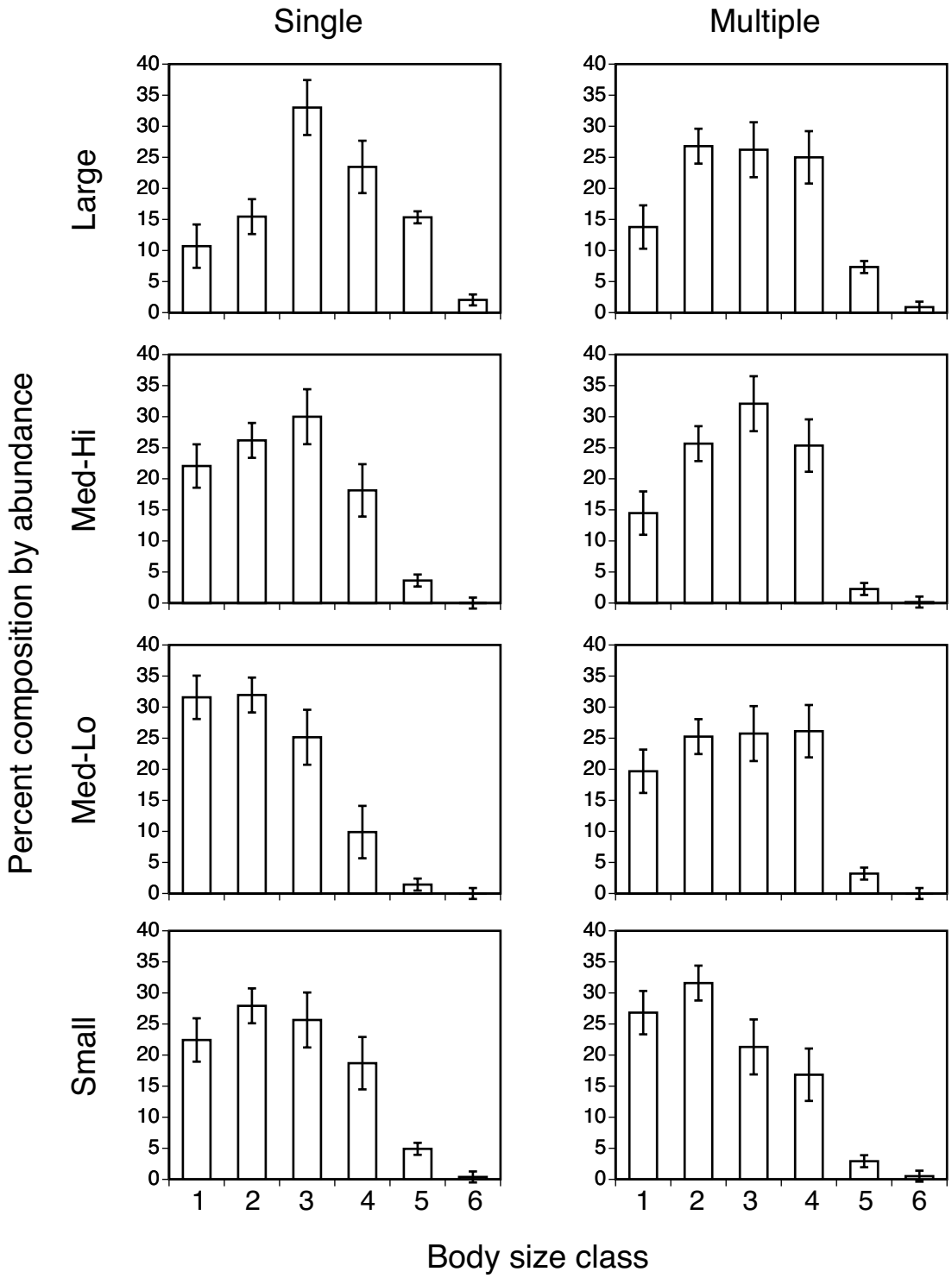

Fig. S2. Effect of propagule supply magnitude and frequency on proportion of ampithoids in each size class (mean ± 1 SE, $n = 3$).

Table S1. Results of 2-factor ANOVA testing the effects of supply size and frequency on individual taxa abundance and percent gravid females

Response	Effect	df	SS	*F*	*P*	ω^2
Log(Ampithoidae + 1)	Supply size	3	5.8	4.8	<0.01	18.5
	Error	40	15.9			
Log(*Dulichiella* +1)	Supply size	3	23.7	17.0	<0.0001	23.1
	Supply frequency	1	52.8	113.8	<0.0001	54.2
	Error	40	18.6			
Log(*Elasmopus* +1)	Supply frequency	1	5.7	16.8	<0.001	25.0
	Error	40	13.6			
Log(*Corophium* + 1)	Supply frequency	1	6.8	10.8	<0.01	17.3
	Error	40	25.4			
Log(Gastropoda + 1)	Supply size	3	10.9	8.5	<0.001	31.4
	Supply frequency	1	1.9	4.4	<0.05	4.7
	Error	40	17.0			
Log(*Paracerces* +1)	Supply size	3	19.1	4.8	<0.01	16.3
	Supply frequency	1	16.1	12.1	<0.01	15.9
	Error	40	53.0			
Log(Polychaeta + 1)	Supply size	3	14.2	10.3	<0.0001	33.6
	Supply frequency	1	3.8	8.2	<0.01	8.7
	Error	40	18.4			
Log(Caprellidae + 1)	Supply size	3	10.6	4.0	<0.05	15.3
	Error	40	35.0			
Log(Pelecypoda + 1)	Supply size	3	21.8	14.8	<0.0001	33.1
	Supply Frequency	1	18.9	38.6	<0.0001	30.0
	Error	40	19.6			
% Ampithoidae gravid	Supply size	3	0.04	2.5	<0.07	
	Error	40	0.21			

Only significant tests are listed.