

Taxonomically distant species show similar invasion traits

Tina Heger, Sylvia Haider, Wolf-Christian Saul and Jonathan M. Jeschke

Supplementary material 2

Tables S1 to S7: Additional documentation of results

Table S1: Relative frequencies (%) of invasion trait values.

Tables S2-4: Size and taxonomic composition of clusters gained by agglomerative cluster analysis. Clusters group species according to similarity in combinations of invasion traits.

Tables S5-7: Frequencies of species of the hypothetical invader types in the clusters.

Table S1 Relative frequencies (%) of invasion trait values. Data are given for all species in our dataset, and for each of the seven taxonomic groups separately.

Invasion trait	Value	All species (n = 201)	Bacteria (n = 5)	Plants (n = 70)	Red Algae (n = 3)	Animals (n = 108)	Fungi (n = 6)	Alveolates (n = 3)	Heterokonts (n = 6)		
----- Transport -----	Intentional transport	Yes	59	0	77	33	58	0	0	17	
		No	41	100	23	67	42	100	100	83	
	In IUCN Red List	Yes	3	0	1	0	5	0	0	0	
		No	97	100	99	100	95	100	100	100	
	Transport as diaspore	Yes	36	0	66	67	10	100	67	100	
		No	64	100	34	33	90	0	33	0	
----- Escape -----	Seed bank	Yes	33	20	74	67	6	17	67	50	
		No	67	80	26	33	94	83	33	50	
	Intentional release	Yes	36	0	31	33	45	0	0	0	
		No	64	100	69	67	55	100	100	100	
	Release adult	Yes	65	100	31	100	81	100	67	83	
		No	35	0	69	0	19	0	33	17	
----- Establishment -----	Phenotypic plasticity	Yes	28	0	47	33	21	0	0	0	
		No	72	100	53	67	79	100	100	100	
	One individual can form a population	Yes	52	100	81	100	25	100	100	67	
		No	48	0	19	0	75	0	0	33	
	More than one reproductive phase per year	Yes	56	100	49	100	51	100	100	100	
		No	44	0	51	0	49	0	0	0	
	Fecundity above average	Yes	38	0	46	67	36	0	33	33	
		No	62	100	54	33	64	100	67	67	
	Offspring in first year	Yes	61	100	63	100	51	100	100	100	
		No	39	0	37	0	49	0	0	0	
	----- Spread -----	Intentional spread	Yes	9	0	10	0	11	0	0	0
			No	91	100	90	100	89	100	100	100
Spread as active mobile organism		Yes	49	60	0	0	84	17	67	33	
		No	51	40	100	100	16	83	33	67	

Table S2 Size and taxonomic composition of five clusters gained by agglomerative cluster analysis. In the clusters species are grouped according to similarity in combinations of invasion traits.

			Clusters					
			1	2	3	4	5	Total
Taxa	Bacteria	<i>n</i>	2	3	0	0	0	5
		% within taxon	40	60	0	0	0	100
		% within cluster	4	7	0	0	0	2
	Green plants	<i>n</i>	18	0	36	5	11	70
		% within taxon	26	0	51	7	16	100
		% within cluster	39	0	92	8	100	35
	Red algae	<i>n</i>	3	0	0	0	0	3
		% within taxon	100	0	0	0	0	100
		% within cluster	7	0	0	0	0	2
	Animals	<i>n</i>	11	36	2	59	0	108
		% within taxon	10	33	2	55	0	100
		% within cluster	24	88	5	92	0	54
	Fungi	<i>n</i>	5	1	0	0	0	6
		% within taxon	83	17	0	0	0	100
		% within cluster	11	2	0	0	0	3
	Alveolates	<i>n</i>	3	0	0	0	0	3
		% within taxon	100	0	0	0	0	100
		% within cluster	7	0	0	0	0	2
	Heterokonts	<i>n</i>	4	1	1	0	0	6
		% within taxon	67	17	17	0	0	100
		% within cluster	9	2	3	0	0	3
Total	<i>n</i>	46	41	39	64	11	201	
	% of all species	23	20	19	32	5	100	

Table S3 Size and taxonomic composition of three clusters gained by agglomerative cluster analysis.

		Clusters			Total	
		1	2	3		
Taxa	Bacteria	<i>n</i>	2	3	0	5
		% within taxon	40	60	0	100
		% within cluster	2	3	0	2
	Green plants	<i>n</i>	54	5	11	70
		% within taxon	77	7	16	100
		% within cluster	64	5	100	35
	Red algae	<i>n</i>	3	0	0	3
		% within taxon	100	0	0	100
		% within cluster	4	0	0	2
	Animals	<i>n</i>	13	95	0	108
		% within taxon	12	88	0	100
		% within cluster	15	90	0	54
	Fungi	<i>n</i>	5	1	0	6
		% within taxon	83	17	0	100
		% within cluster	6	1	0	3
	Alveolates	<i>n</i>	3	0	0	3
		% within taxon	100	0	0	100
		% within cluster	4	0	0	2
	Heterokonts	<i>n</i>	5	1	0	6
		% within taxon	83	17	0	100
		% within cluster	6	1	0	3
Total	<i>n</i>	85	105	11	201	
	% of all species	42	52	5	100	

Table S4 Taxonomic composition of two clusters gained by agglomerative cluster analysis.

		Clusters			
Taxa		1	2	Total	
Bacteria	<i>n</i>	2	3	5	
	% within taxon	40	60	100	
	% within cluster	2	3	2	
	Green plants	<i>n</i>	65	5	70
		% within taxon	93	7	100
		% within cluster	68	5	35
	Red algae	<i>n</i>	3	0	3
		% within taxon	100	0	100
		% within cluster	3	0	2
Animals	<i>n</i>	13	95	108	
	% within taxon	12	88	100	
	% within cluster	14	90	54	
Fungi	<i>n</i>	5	1	6	
	% within taxon	83	17	100	
	% within cluster	5	1	3	
Alveolates	<i>n</i>	3	0	3	
	% within taxon	100	0	100	
	% within cluster	3	0	2	
Heterokonts	<i>n</i>	5	1	6	
	% within taxon	83	17	100	
	% within cluster	5	1	3	
Total	<i>n</i>	96	105	201	
	% of all species	48	52	100	

Table S5 Frequencies of species of the hypothetical invader types in the five clusters.

			Clusters					
			1	2	3	4	5	Total
Hypothetic invader types	Drifters	<i>n</i>	15	1	9	0	0	25
		% within type	60	4	36	0	0	100
		% within cluster	33	2	23	0	0	12
	Fugitives	<i>n</i>	20	3	0	0	0	23
		% within type	87	13	0	0	0	100
		% within cluster	43	7	0	0	0	11
	Establishers	<i>n</i>	10	2	12	0	6	30
		% within type	33	7	40	0	20	100
		% within cluster	22	5	31	0	55	15
	Spreaders	<i>n</i>	0	3	0	37	0	40
		% within type	0	8	0	≥93	0	100
		% within cluster	0	7	0	58	0	20
	Promoted	<i>n</i>	0	0	2	17	5	24
		% within type	0	0	8	71	21	100
		% within cluster	0	0	5	27	45	12
No assignment	<i>n</i>	1	32	16	10	0	59	
	% within type	2	54	27	17	0	100	
	% within cluster	2	78	41	16	0	29	
Total	<i>n</i>	46	41	39	64	11	201	
	% of all species	23	20	19	32	5	100	

Table S6 Frequencies of species of the hypothetical invader types in the three clusters.

			Clusters			
			1	2	3	Total
Hypothetic invader types	Drifters	<i>n</i>	24	1	0	25
		% within type	96	4	0	100
		% within cluster	28	1	0	12
	Fugitives	<i>n</i>	20	3	0	23
		% within type	87	13	0	100
		% within cluster	24	3	0	11
	Establishers	<i>n</i>	22	2	6	30
		% within type	73	7	20	100
		% within cluster	26	2	55	15
	Spreaders	<i>n</i>	0	40	0	40
		% within type	0	100	0	100
		% within cluster	0	38	0	20
	Promoted	<i>n</i>	2	17	5	24
		% within type	8	71	21	100
		% within cluster	2	16	45	12
No assignment	<i>n</i>	17	42	0	59	
	% within type	29	71	0	100	
	% within cluster	20	40	0	29	
Total	<i>n</i>	85	105	11	201	
	% of all species	42	52	5	100	

Table S7 Frequencies of species of the hypothetical invader types in the two clusters.

			Clusters		Total
			1	2	
Hypothetic invader types	Drifters	<i>n</i>	24	1	25
		% within type	96	4	100
		% within cluster	25	1	12
	Fugitives	<i>n</i>	20	3	23
		% within type	87	13	100
		% within cluster	21	3	11
	Establishers	<i>n</i>	28	2	30
		% within type	93	7	100
		% within cluster	29	2	15
	Spreaders	<i>n</i>	0	40	40
		% within type	0	100	100
		% within cluster	0	38	20
	Promoted	<i>n</i>	7	17	24
		% within type	29	71	100
		% within cluster	7	16	12
No assignment	<i>n</i>	17	42	59	
	% within type	29	71	100	
	% within cluster	18	40	29	
Total	<i>n</i>	96	105	201	
	% of all species	48	52	100	