附录1　A岛生物群落调查数据

Appendix 1　Detailed survey data of biotic communities on Island A

趋势类群 Trend group	植物 Plants				昆虫 Insects				鸟类 Birds			
	科数 No. of families	物种丰富度 Species richness	占总丰富度比例 Proportion of total richness (%)	代表科(物种数) Representative families (no. of species)	目数 No. of orders	物种丰富度 Species richness	占总丰富度比例 Proportion of total richness (%)	代表目(物种数) Representative orders (no. of species)	科数 No. of families	物种丰富度 Species richness	占总丰富度比例 Proportion of total richness (%)	代表科(物种数) Representative families (no. of species)
逐渐上升 Gradually increasing	3	16	30.2	莎草科(2)、豆科(11)、锦葵科(3) Cyperaceae (2), Fabaceae (11), Malvaceae (3)	1	5	19.2	半翅目(5) Hemiptera (5)	5	10	19.2	鸭科(1)、鸻科(2)、鹬鸻科(3)、秧鸡科(3)、反嘴鹬科(1) Anatidae (1), Charadriidae (2), Motacillidae (3), Rallidae (3), Recurvirostridae (1)
逐渐下降 Gradually decreasing	2	3	5.7	千屈菜科(1)、禾本科(2) Lythraceae (1), Poaceae (2)	3	12	46.2	鳞翅目(10)、螳螂目(1)、蜻蜓目(1) Lepidoptera (10), Mantodea (1), Odonata (1)	2	2	3.8	佛法僧科(1)、燕鸻科(1) Coraciidae (1), Glareolidae (1)
先上升后下降 Increasing then decreasing	1	3	5.7	马鞭草科 (3) Verbenaceae (3)	1	1	3.8	鞘翅目(1) Coleoptera (1)	1	2	3.8	杜鹃科(2) Cuculidae (2)
其他类群 Other groups	19	31	58.4	漆树科(1)、夹竹桃科(2)、菊科(3)、木麻黄科(1)、使君子科(1)、鸭跖草科(1)、旋花科(5)、大戟科(2)、龙胆科(1)、草海桐科(1)、唇形科(2)、楝科(1)、桑科(2)、西番莲科(1)、叶下珠科(1)、马齿苋科(1)、茜草科(3)、苦木科(1)、荨麻科(1) Anacardiaceae (1), Apocynaceae (2), Asteraceae (3), Casuarinaceae (1), Combretaceae (1), Commelinaceae (1), Convolvulaceae (5), Euphorbiaceae (2), Gentianaceae (1), Goodeniaceae (1),	2	8	30.8	蜚蠊目(2)、直翅目(6) Blattodea (2), Orthoptera (6)	15	38	73.2	鹰科(3)、雨燕科(1)、鹭科(11)、山椒鸟科(1)、卷尾科(1)、隼科(1)、燕科(3)、伯劳科(1)、鸥科(1)、蜂虎科(1)、鹟科(5)、鹦科(1)、雀科(1)、柳莺科(1)、丘鹬科(6) Accipitridae (3), Apodidae (1), Ardeidae (11), Campephagidae (1), Dicruridae (1), Falconidae (1), Hirundinidae (3), Laniidae (1), Laridae (1), Meropidae (1), Muscicapidae (5), Pandionidae (1), Passeridae (1), Phylloscopidae (1), Scolopacidae (6)

	Lamiaceae (2), Meliaceae (1), Moraceae (2), Passifloraceae (1), Phyllanthaceae (1), Portulacaceae (1), Rubiaceae (3), Simaroubaceae (1), Urticaceae (1)

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附录2　研究岛屿基本信息及环境因子

Appendix 2　Basic information and environmental factors of study islands

序号 No.	岛屿名称 Island name	经度 Longitude	纬度 Latitude	年均温 Mean annual temperature (°C)	年降水量 Annual precipitation (mm)	温度季节性变化 Temperature seasonality (SD × 100)	降水量变异系数 Coefficient of variation of precipitation (%)	总氮 Total nitrogen (g/kg)	有机碳 Organic carbon (%)	pH	碳氮比 C/N ratio
环境簇1 Environmental cluster 1											
太平洋 Pacific Ocean											
大洋洲 Oceania											
1	波拉波拉岛 Bora Bora Island	151.74° W	16.50° S	23.61	2,039	58.61	18.82	1.41	1.68	6.4	11
2	库克群岛 Cook Islands	159.78° W	21.23° S	25.81	1,604	105.35	37.34	1.41	1.68	6.4	11
3	法图伊瓦岛 Fatu Hiva Island	138.65° W	10.49° S	24.26	1,875	61.82	17.83	1.41	1.68	6.4	11
4	弗格森岛 Fergusson Island	150.67° E	9.52° S	23.41	1,609	98.87	46.81	1.03	1.20	5.1	12
5	富图纳岛 Futuna Island	178.09° W	14.30° S	26.22	1,099	120.38	35.75	1.03	1.20	5.1	12
6	哈图图岛 Hatutu Island	140.57° W	7.92° S	25.84	1,226	46.36	23.24	1.41	1.68	6.4	11
7	希瓦瓦岛 Hiva Oa Island	139.00° W	9.77° S	25.35	1,770	52.55	13.20	1.41	1.68	6.4	11
8	胡阿希内岛 Huahine Island	151.01° W	16.74° S	24.64	1,983	95.63	31.91	1.41	1.68	6.4	11
9	科斯雷岛 Kosrae Island	162.98° E	5.32° N	24.44	2,902	91.07	70.70	1.07	1.32	6.1	12
10	马努斯岛 Manus Island	146.87° E	2.08° S	26.23	2,911	63.83	65.68	1.03	1.20	5.1	12
11	莫雷阿岛 Moorea Island	149.83° W	17.54° S	25.30	1,857	98.15	37.07	1.41	1.68	6.4	11
12	莫塔内岛 Motane Island	138.83° W	9.99° S	26.07	858	47.97	39.67	1.41	1.68	6.4	11
13	新几内亚岛 New Guinea	141.39° E	6.00° S	24.70	2,861	66.05	27.32	1.57	1.88	5.0	12
14	新汉诺威岛 New Hanover	150.25° E	2.51° S	26.13	2,925	63.47	67.99	1.03	1.20	5.1	12
15	诺曼比岛 Normanby Island	151.09° E	10.08° S	26.46	1,727	107.39	39.60	1.03	1.20	5.1	12
16	西北夏威夷群岛 Northwestern Hawaiian Islands	177.38° W	28.21° N	18.46	3,479	70.32	43.41	2.47	3.04	5.7	12
17	努库希瓦岛 Nuku Hiva Islands	140.15° W	8.86° S	24.26	1,875	61.82	17.83	1.41	1.68	6.4	11
18	赖阿特阿岛 Raiatea Island	151.46° W	16.81° S	25.38	1,864	90.66	37.84	1.41	1.68	6.4	11
19	圣马提亚斯群岛 St Matthias Islands	149.61° E	1.41° S	26.58	1,429	45.87	91.31	1.03	1.20	5.1	12
20	所罗门群岛 Solomon Islands	159.17° E	8.03° S	26.71	955	94.22	35.97	1.45	1.17	6.6	11
21	塔哈岛 Tahaa Island	151.50° W	16.61° S	26.16	1,875	83.50	40.25	1.41	1.68	6.4	11
22	塔希提岛 Tahiti	149.43° W	17.65° S	23.95	1,802	124.52	33.91	1.41	1.68	6.4	11
23	塔胡阿塔岛 Tahuata Island	139.09° W	9.94° S	25.64	1,727	52.12	13.24	1.41	1.68	6.4	11
24	图瓦卢Tuvalu	179.21° E	8.51° S	26.02	1,306	127.09	37.88	1.03	1.20	5.1	12
25	乌阿胡卡岛 Ua Huka Island	139.55° W	8.91° S	25.24	1,788	59.30	18.19	1.41	1.68	6.4	11
26	乌阿普岛 Ua Pou Island	140.08° W	9.40° S	25.64	1,727	52.12	13.24	1.41	1.68	6.4	11
27	瓦努阿图 Vanuatu	166.91° E	15.37° S	21.96	3,427	16.37	14.22	1.64	2.20	5.0	12
亚洲 Asia											
28	阿洛群岛 Alor Archipelago	124.73° E	8.28° S	26.38	1,495	118.44	35.27	0.40	0.34	6.5	9
29	巴占群岛 Bacan Islands	127.52° E	0.55° S	26.05	2,163	61.73	43.04	0.47	0.43	6.4	10
30	加里曼丹岛 Borneo	114.36° E	1.13° N	25.74	2,809	33.37	26.57	1.21	1.42	5.2	12
31	布鲁岛 Buru Island	126.69° E	3.41° S	25.02	2,069	82.94	36.71	1.03	1.20	5.1	12
32	东沙群岛 Dongsha Islands	116.73° E	20.70° N	25.64	4,621	11.42	15.01	0.52	0.63	5.7	13
33	弗洛勒斯岛 Flores Island	121.07° E	8.63° S	25.88	1,098	106.82	34.16	0.40	0.34	6.5	9
34	海南岛 Hainan Island	109.69° E	19.16° N	27.34	2,796	22.61	35.64	1.37	1.75	5.2	12

35	龙目岛 Lombok Island	116.34° E	8.65° S	24.60	1,432	113.56	30.65	0.40	0.34	6.5	9
36	莫约岛 Moyo Island	117.56° E	8.23° S	26.64	956	84.70	33.13	1.07	1.32	6.1	12
37	伦邦岸岛 Nusa Lembongan Island	115.46° E	8.68° S	26.16	1,178	113.86	34.72	2.87	4.01	6.8	9
38	珀尼达岛 Nusa Penida Island	115.54° E	8.73° S	24.83	1,149	115.78	33.59	2.87	4.01	6.8	9
39	奥比岛 Obi Island	127.72° E	1.53° S	26.11	2,064	59.21	46.86	1.03	1.20	5.1	12
40	菲律宾群岛 Philippine Islands	123.42° E	11.54° N	24.96	2,736	92.24	48.06	1.19	1.60	5.1	13
41	罗地岛 Rote Island	123.12° E	10.74° S	26.27	1,968	86.90	40.86	1.50	3.16	6.7	12
42	萨武岛 Sawu Island	121.87° E	10.54° S	23.85	1,899	108.06	34.17	1.07	1.32	6.1	12
43	塞兰岛 Seram Island	129.34° E	3.06° S	25.15	1,794	77.74	39.93	1.03	1.20	5.1	12
44	索洛尔群岛 Solor Islands	123.47° E	8.41° S	24.71	1,607	120.01	32.70	0.40	0.34	6.5	9
45	苏拉群岛 Sula Islands	124.96° E	1.82° S	25.95	1,649	74.40	42.50	1.03	1.20	5.1	12
46	苏拉威西岛 Sulawesi	121.04° E	2.04° S	23.74	2,325	37.55	30.93	1.28	1.58	5.3	12
47	苏门答腊岛 Sumatra	101.47° E	0.39° S	24.22	2,661	35.25	31.14	1.63	1.90	5.1	12
48	松巴岛 Sumba Island	119.97° E	9.68° S	26.52	1,447	108.88	36.89	1.07	1.32	6.1	12
49	松巴哇岛 Sumbawa Island	118.11° E	8.73° S	25.56	1,372	111.75	31.47	1.50	3.16	6.7	12
50	卫古岛 Waigeo Island	130.98° E	0.20° S	27.76	575	93.64	66.11	1.03	1.20	5.1	12
51	帝汶岛 Timor Island	125.39° E	9.00° S	25.51	2,095	88.57	39.25	1.50	3.16	6.7	12
52	西沙群岛Xisha Islands	111.71° E	16.45° N	26.23	3,431	54.54	22.92	1.14	1.43	4.5	13
53	美济礁 Meiji Reef	115.54° E	9.93° N	28.28	1,683	68.47	61.14	1.03	1.20	5.1	12
54	永暑礁 Yongshu Reef	112.89° E	9.55° N	28.28	1,683	68.47	61.14	1.12	1.38	4.8	13
55	渚碧礁 Zhubi Reef	114.07° E	10.91° N	28.15	1,637	78.04	64.37	1.03	1.20	5.1	12
56	太平岛 Taiping Island	114.37° E	10.38° N	28.28	1,683	68.47	61.14	1.12	1.38	4.8	13
北美洲 North America											
57	科科斯岛 Cocos Island	87.06° W	5.53° N	26.12	3,179	58.39	21.45	1.40	1.65	5.1	12
南美洲 South America											
58	巴尔特拉岛 Baltra Island	90.27° W	0.46° S	26.07	3,500	53.72	25.02	0.93	0.78	7.5	9
59	大达夫尼岛 Daphne Major Island	90.37° W	0.42° S	26.15	3,525	54.22	23.98	0.45	0.31	5.6	11
60	复活节岛 Easter Island	109.35° W	27.11° S	26.12	3,251	56.84	22.12	0.37	0.31	5.3	9
61	艾斯潘诺拉岛 Española Island	89.67° W	1.37° S	26.62	2,293	56.08	53.11	1.92	2.41	6.6	13
62	北西摩岛 North Seymour Island	90.29° W	0.39° S	26.31	3,472	52.37	23.17	0.93	0.78	7.5	9
63	平松岛 Pinzón Island	90.67° W	0.61° S	27.03	2,076	72.75	55.16	0.45	0.31	5.6	11
64	拉维达岛 Rábida Island	90.71° W	0.41° S	27.35	2,051	66.82	56.03	1.34	1.69	6.9	13
65	圣克里斯托巴尔岛 San Cristóbal Island	89.42° W	0.82° S	25.81	1,531	124.20	46.45	1.34	1.69	6.9	13
66	圣克鲁兹岛 Santa Cruz Island	90.34° W	0.63° S	25.93	1,388	125.35	28.59	0.45	0.31	5.6	11
67	圣菲岛 Santa Fé Island	90.06° W	0.82° S	26.40	2,171	60.57	52.67	0.45	0.31	5.6	11
68	圣玛丽亚岛 Santa María Island	90.43° W	1.29° S	23.50	2,017	53.23	58.74	0.45	0.31	5.6	11
印度洋 Indian Ocean											
亚洲 Asia											
69	安达曼和尼科巴群岛 Andaman and Nicobar Islands	92.75° E	12.39° N	27.04	5,320	9.47	14.98	1.40	1.65	5.1	12
70	爪哇岛 Java Island	110.46° E	7.38° S	22.14	2,527	45.66	59.22	1.96	2.53	6.0	11
71	苏梅岛 Ko Samui	100.01° E	9.52° N	27.55	3,396	13.90	17.42	1.03	1.20	5.1	12
72	拉克沙群岛 Lakshadweep	72.64° E	10.57° N	25.35	2,832	36.53	10.64	0.62	0.90	5.3	13
73	槟榔屿 Penang Island	100.25° E	5.37° N	25.54	2,770	36.10	23.81	1.03	1.20	5.1	12

74	普吉岛 Phuket Island	98.34° E	7.95° N	27.19	2,922	28.38	14.19	1.03	1.20	5.1	12
75	索科特拉岛 Socotra Island	53.86° E	12.49° N	26.54	3,715	13.19	6.04	0.58	0.71	7.4	13
76	斯里兰卡 Sri Lanka	80.70° E	7.58° N	26.96	2,532	76.65	36.18	1.03	1.20	5.1	12
77	刁曼岛 Tioman Island	104.17° E	2.79° N	22.90	3,274	21.65	8.52	1.03	1.20	5.1	12
非洲 Africa											
78	昂儒昂岛 Anjouan	44.44° E	12.22° S	24.41	3,174	84.28	13.22	1.48	1.53	5.6	12
79	拉迪格岛 La Digue Island	55.84° E	4.36° S	25.42	3,270	18.06	13.37	1.45	1.17	6.6	11
80	马埃岛 Mahé Island	55.48° E	4.68° S	22.45	3,038	45.90	38.92	1.45	1.17	6.6	11
81	马约特 Mayotte	45.16° E	12.82° S	25.99	3,470	26.70	8.26	1.41	1.68	6.4	11
82	莫埃利岛 Mohéli Island	43.73° E	12.32° S	25.25	3,729	89.19	22.93	1.48	1.53	5.6	12
83	普拉兰岛 Praslin Island	55.84° E	4.36° S	22.87	2,908	31.88	37.84	1.45	1.17	6.6	11
84	留尼汪岛 Réunion	55.54° E	21.12° S	26.58	3,537	66.32	17.48	0.40	0.34	6.5	9
85	塞舌尔群岛 Seychelles	55.48° E	4.68° S	21.80	2,764	25.12	21.17	1.45	1.17	6.6	11
86	锡卢埃特岛 Silhouette Island	55.23° E	4.49° S	24.38	3,314	22.14	25.82	1.45	1.17	6.6	11
大西洋 Atlantic Ocean											
非洲 Africa											
87	阿森松岛 Ascension Island	14.37° W	7.94° S	23.80	1,876	87.12	77.23	1.40	1.65	5.1	12
88	布拉瓦岛 Brava Island	24.70° W	14.85° N	26.38	1,541	59.60	81.97	1.78	2.60	6.9	14
89	博阿维斯塔岛 Boa Vista Island	22.81° W	16.10° N	26.13	1,407	58.47	57.40	0.58	0.71	7.4	13
90	福古岛 Fogo Island	24.38° W	14.92° N	25.49	1,718	59.79	82.98	1.78	2.60	6.9	14
91	马约岛 Maio Island	23.17° W	15.20° N	25.49	1,500	58.01	93.32	0.22	0.24	6.9	11
92	普林西比岛 Principe Island	7.40° E	1.62° N	26.99	1,241	60.73	90.50	1.50	3.16	6.7	12
93	萨尔岛 Sal Island	22.93° W	16.73° N	24.90	1,627	68.31	71.06	0.58	0.71	7.4	13
94	圣卢西亚岛(佛得角) Santa Luzia Island (Cabo Verde)	24.74° W	16.76° N	21.91	2,459	58.29	55.35	0.58	0.71	7.4	13
95	圣安唐岛 Santo Antão Island	25.16° W	17.07° N	25.59	3,143	36.84	21.93	0.58	0.71	7.4	13
96	圣多美岛 Sao Tomé Island	6.62° E	0.29° N	24.71	1,600	84.88	71.82	0.47	0.43	6.4	10
97	圣维森特岛 São Vicente Island	24.97° W	16.84° N	26.43	2,626	30.70	27.49	0.58	0.71	7.4	13
北美洲 North America											
98	安圭拉 Anguilla	63.04° W	18.23° N	26.59	2,879	34.00	24.21	1.64	2.20	5.0	12
99	安提瓜岛 Antigua Island	61.79° W	17.08° N	26.96	1,921	81.17	67.19	2.56	3.11	6.7	12
100	巴布达岛 Barbuda Island	59.56° W	13.17° N	27.63	2,433	65.82	64.04	0.40	0.34	6.5	9
101	英属维尔京群岛 British Virgin Islands	64.63° W	18.43° N	26.69	2,435	50.32	24.84	1.41	1.68	6.4	11
102	开曼群岛 Cayman Islands	81.24° W	19.32° N	26.09	1,765	36.81	20.08	1.31	1.63	6.5	12
103	塞瓦科岛 Cebaco Island	81.09° W	7.55° N	25.71	2,416	45.64	38.45	1.64	2.20	5.0	12
104	库莱布拉岛 Culebra Island	65.28° W	18.32° N	26.58	2,817	28.26	31.42	1.41	1.68	6.4	11
105	科伊瓦岛 Coiba Island	81.76° W	7.47° N	24.66	3,361	59.71	54.98	2.11	2.86	5.2	11
106	格朗德特尔岛 Grande-Terre Island	61.47° W	16.28° N	27.56	1,689	102.29	75.08	2.56	3.11	6.7	12
107	格林纳达 Grenada	61.69° W	12.11° N	25.00	2,702	66.01	69.20	1.41	1.68	6.4	11
108	帕里达岛 Isla Parida	82.34° W	8.11° N	22.16	2,045	49.89	24.95	1.03	1.20	5.1	12
109	牙买加 Jamaica	77.32° W	18.14° N	24.69	2,214	38.40	24.50	1.64	2.20	5.0	12
110	玛丽亚群岛 Maria Islands	106.59° W	21.64° N	27.61	1,111	91.86	108.41	0.58	0.71	7.4	13
111	玛丽-加朗特岛 Marie-Galante Island	61.26° W	15.93° N	26.39	2,915	80.32	78.20	2.56	3.11	6.7	12
112	马提尼克 Martinique	61.03° W	14.65° N	23.22	2,201	96.73	64.94	1.20	1.27	5.9	11

113	纳瓦萨岛 Navassa Island	75.01° W	18.40° N	25.69	3,059	37.42	16.43	1.03	1.20	5.1	12
114	波多黎各 Puerto Rico	66.48° W	18.23° N	25.34	2,842	32.53	24.41	1.03	1.20	5.1	12
115	美属维尔京群岛 United States Virgin Islands	64.90° W	18.34° N	24.97	2,657	37.33	16.43	1.41	1.68	6.4	11
116	别克斯岛 Vieques Island	65.44° W	18.13° N	25.51	2,568	82.51	39.54	1.41	1.68	6.4	11
南美洲 South America											
117	费尔南多-迪诺罗尼亚群岛 Fernando de Noronha Archipelago	32.42° W	3.85° S	24.26	1,977	70.10	42.47	0.46	0.66	5.7	13
环境簇2 Environmental cluster 2											
太平洋 Pacific Ocean											
大洋洲 Oceania											
118	阿吉甘岛 Aguijan Island	145.56° E	14.85° N	24.06	549	165.88	82.81	1.07	1.32	6.1	12
119	阿鲁群岛 Aru Islands	134.47° E	6.11° S	22.03	203	170.09	164.29	1.07	1.32	6.1	12
120	安加尔 Angaur	134.14° E	6.91° N	24.28	297	148.25	73.74	0.47	0.43	6.4	10
121	南方群岛 Austral Islands	149.50° W	23.37° S	20.86	1,987	135.65	32.30	1.41	1.68	6.4	11
122	巴伯尔图阿普岛 Babeldaob Island	134.57° E	7.50° N	23.41	380	179.66	86.09	0.47	0.43	6.4	10
123	比亚克岛 Biak Island	135.97° E	0.99° S	23.29	2,634	187.94	170.42	0.47	0.43	6.4	10
124	特鲁克群岛 Chuuk Islands	151.74° E	7.38° N	20.23	1,207	207.61	27.45	1.07	1.32	6.1	12
125	迪西岛 Ducie Island	124.79° W	24.67° S	24.13	1,494	182.49	15.92	0.37	0.31	5.3	9
126	埃奥岛 Eiao Island	140.70° W	8.00° S	23.02	1,397	195.79	19.27	1.41	1.68	6.4	11
127	斐济群岛 Fiji Islands	177.98° E	17.83° S	23.86	1,823	186.73	30.23	1.03	1.20	5.1	12
128	关岛 Guam	144.73° E	13.42° N	20.30	355	131.33	80.24	1.07	1.32	6.1	12
129	格林群岛 Green Islands	154.23° E	4.51° S	24.27	165	165.34	170.25	1.07	1.32	6.1	12
130	亨德森岛 Henderson Island	128.32° W	24.37° S	22.50	1,466	201.13	16.82	1.41	1.68	6.4	11
131	卡霍奥拉韦岛 Kahoʻolawe Island	156.61° W	20.55° N	24.14	1,371	157.67	85.55	2.47	3.04	5.7	12
132	考拉岛 Kaʻula Island	160.54° W	21.65° N	22.62	1,418	299.60	31.33	2.47	3.04	5.7	12
133	科罗尔岛 Koror Island	134.40° E	7.26° N	22.97	197	170.67	96.84	0.47	0.43	6.4	10
134	拉奈岛 Lānaʻi Island	156.93° W	20.82° N	23.05	699	176.68	49.45	2.83	3.69	4.9	13
135	马拉卡尔岛 Malakal Island	134.45° E	7.33° N	24.22	390	140.92	70.30	0.47	0.43	6.4	10
136	马绍尔群岛 Marshall Islands	171.19° E	7.07° N	23.43	514	179.16	77.32	1.45	1.17	6.6	11
137	摩洛凯岛 Molokai Island	157.02° W	21.15° N	22.73	1,232	147.76	29.73	1.48	1.53	5.6	12
138	瑙鲁 Nauru	166.94° E	0.53° S	22.11	271	187.53	137.13	1.45	1.17	6.6	11
139	新不列颠岛 New Britain	150.77° E	5.71° S	22.25	728	273.16	112.81	1.03	1.20	5.1	12
140	新喀里多尼亚 New Caledonia	165.08° E	21.06° S	23.58	131	178.97	154.63	1.41	1.68	6.4	11
141	新爱尔兰岛 New Ireland	152.00° E	3.30° S	23.15	390	204.80	107.90	0.47	0.43	6.4	10
142	尼豪岛 Niihau Island	160.16° W	21.90° N	23.72	1,053	143.92	33.18	2.47	3.04	5.7	12
143	农福尔岛 Numfoor Island	134.88° E	1.01° S	23.16	2,294	182.58	149.61	4.04	4.27	5.0	11
144	奥埃诺岛 Oeno Island	130.73° W	23.92° S	12.19	953	145.11	45.54	1.41	1.68	6.4	11
145	佩莱利乌 Peleliu	134.24° E	7.00° N	24.29	236	154.63	87.35	0.47	0.43	6.4	10
146	皮特凯恩岛 Pitcairn Island	130.10° W	25.07° S	23.20	1,357	205.42	21.49	1.41	1.68	6.4	11
147	伦内尔岛 Rennell Island	160.23° E	11.64° S	20.38	278	161.84	167.85	1.74	1.95	4.9	12
148	洛克群岛 Rock Islands	134.37° E	7.21° N	24.45	159	154.32	103.62	0.47	0.43	6.4	10
149	罗塔岛 Rota Island	145.21° E	14.15° N	19.81	306	118.38	88.93	1.07	1.32	6.1	12
150	塞班岛 Saipan Island	145.75° E	15.19° N	23.47	244	153.45	81.86	1.07	1.32	6.1	12
151	圣克鲁斯群岛 Santa Cruz Islands	165.92° E	10.72° S	20.33	192	140.85	49.85	1.45	1.17	6.6	11

152	天宁岛 Tinian Island	145.64° E	15.01° N	21.31	303	173.23	78.73	1.07	1.32	6.1	12
153	提维群岛 Tiwi Islands	130.84° E	11.65° S	22.89	148	177.23	162.42	1.48	1.53	5.6	12
154	特罗布里恩群岛 Trobriand Islands	151.06° E	8.51° S	13.98	502	163.54	143.03	1.07	1.32	6.1	12
155	托克劳 Tokelau	171.85° W	9.20° S	23.45	2,031	168.23	32.20	1.41	1.68	6.4	11
156	土阿莫土群岛 Tuamotu Archipelago	145.50° W	16.29° S	22.28	1,690	201.49	27.00	1.41	1.68	6.4	11
157	雅浦岛 Yap Island	138.13° E	9.55° N	24.36	118	155.05	109.00	0.47	0.43	6.4	10
158	亚彭岛 Yapen Island	136.18° E	1.76° S	22.82	285	151.59	155.30	1.03	1.20	5.1	12
亚洲 Asia											
159	安汶岛 Ambon Island	128.11° E	3.63° S	25.16	1,163	153.71	56.11	1.03	1.20	5.1	12
160	邦加岛 Bangka Island	106.05° E	2.27° S	24.30	1,460	208.78	58.71	1.30	1.26	4.8	12
161	勿里洞岛 Belitung Island	107.91° E	2.89° S	25.75	1,359	182.45	69.95	0.62	0.90	5.3	13
162	哈鲁库岛 Haruku Island	128.48° E	3.57° S	23.35	1,914	161.04	34.96	0.47	0.43	6.4	10
163	大卡伊岛 Kai Besar Island	133.08° E	5.56° S	25.48	1,258	163.41	60.24	1.03	1.20	5.1	12
164	小卡伊岛 Kai Kecil Island	132.73° E	5.77° S	25.37	1,164	160.72	36.44	1.03	1.20	5.1	12
165	林加群岛 Lingga Islands	104.42° E	0.46° S	17.25	1,176	118.52	58.01	0.62	0.90	5.3	13
166	莫罗泰岛 Morotai Island	128.40° E	2.37° N	25.13	1,237	215.57	57.95	1.03	1.20	5.1	12
167	廖内群岛 Riau Islands	104.45° E	1.09° N	25.57	1,450	207.88	67.58	0.62	0.90	5.3	13
168	桑义赫群岛 Sangihe Islands	125.56° E	3.52° N	25.10	1,299	196.62	70.31	1.07	1.32	6.1	12
169	塔劳群岛 Talaud Islands	126.81° E	4.30° N	25.27	1,410	212.08	66.59	1.03	1.20	5.1	12
170	托吉安群岛 Togian Islands	122.01° E	0.39° S	23.90	1,437	146.95	31.47	1.03	1.20	5.1	12
171	韦塔岛 Wetar Island	126.34° E	7.78° S	17.87	1,383	120.11	56.47	0.40	0.34	6.5	9
172	扬德纳岛 Yamdena Island	131.38° E	7.56° S	25.91	891	111.97	59.62	1.03	1.20	5.1	12
173	永兴岛 Yongxing Island	112.34° E	16.84° N	26.53	1,459	201.84	82.60	1.12	1.38	4.8	13
174	赵述岛 Zhao Shu Island	112.27° E	16.98° N	26.73	1,522	213.94	81.63	1.14	1.43	4.5	13
175	珊瑚岛 Coral Island	111.61° E	16.53° N	27.10	1,493	195.66	84.16	1.14	1.43	4.5	13
176	东岛 Dong Island	112.73° E	16.67° N	26.67	1,470	194.58	84.98	1.14	1.43	4.5	13
177	琛航岛 Chenhang Island	111.71° E	16.45° N	27.10	1,493	195.66	84.16	1.14	1.43	4.5	13
178	金银岛 Jin Yin Island	111.51° E	16.45° N	27.10	1,493	195.66	84.16	1.14	1.46	5.2	13
179	晋卿岛 Jin Qing Island	111.74° E	16.46° N	27.10	1,493	195.66	84.16	1.14	1.43	4.5	13
180	石岛 Stone Island	112.35° E	16.84° N	26.53	1,459	201.84	82.60	1.14	1.43	4.5	13
181	甘泉岛 Ganquan Island	111.59° E	16.51° N	27.10	1,493	195.66	84.16	1.14	1.43	4.5	13
182	中建岛 Zhongjian Island	111.20° E	15.79° N	26.40	1,399	207.66	90.96	1.74	1.95	4.9	12
183	北岛 North Island	112.31° E	16.96° N	26.73	1,522	213.94	81.63	1.12	1.38	4.8	13
184	东沙岛 Dongsha Island	116.73° E	20.70° N	25.27	1,820	298.09	99.42	0.52	0.63	5.7	13
185	广金岛 Guangjin Island	111.70° E	16.45° N	27.10	1,493	195.66	84.16	1.14	1.43	4.5	13
186	西沙洲 Xisha Zhou	112.21° E	16.98° N	26.84	1,524	218.60	82.05	1.12	1.38	4.8	13
187	银屿 Yin Yu	111.70° E	16.58° N	27.10	1,493	195.66	84.16	1.12	1.38	4.8	13
188	南岛 Nan Dao	112.33° E	16.95° N	26.85	1,535	214.88	81.04	1.12	1.38	4.8	13
南美洲 South America											
189	费尔南迪纳岛 Fernandina Island	91.51° W	0.39° S	23.21	1,183	123.07	53.47	0.93	0.78	7.5	9
190	伊莎贝拉岛 Isabela Island	91.14° W	0.82° S	24.88	1,371	119.54	55.51	0.37	0.31	5.3	9
印度洋 Indian Ocean											
亚洲 Asia											

191	马尔代夫 Maldives	73.51° E	4.17° N	27.16	1,641	157.41	104.90	0.62	0.90	5.3	13
非洲 Africa											
192	马达加斯加 Madagascar	46.95° E	18.49° S	22.73	1,451	219.56	101.28	1.11	1.25	5.8	12
大西洋 Atlantic Ocean											
非洲 Africa											
193	圣地亚哥岛 Santiago Island	90.72° W	0.26° S	23.44	1,390	112.51	65.44	1.34	1.69	6.9	13
北美洲 North America											
194	巴布达岛 Barbuda Island	61.77° W	17.63° N	23.64	1,330	101.49	60.31	2.56	3.11	6.7	12
195	古巴 Cuba	79.21° W	21.63° N	24.98	1,406	192.49	58.43	1.44	1.39	6.2	11
196	伊斯帕尼奥拉岛 Hispaniola	71.14° W	19.00° N	23.36	1,291	126.29	49.15	1.74	1.75	6.4	11
197	拉代西拉德岛 La Désirade Island	61.05° W	16.32° N	22.16	1,670	344.80	75.08	2.56	3.11	6.7	12
198	(背风)安的列斯群岛 Leeward Antilles	68.97° W	12.17° N	23.73	1,143	188.39	46.49	0.74	0.67	8.0	9
199	多巴哥岛 Tobago Island	60.67° W	11.24° N	21.20	1,764	225.12	50.65	1.41	1.68	6.4	11
200	特立尼达岛 Trinidad Island	61.25° W	10.43° N	14.26	1,718	253.10	48.98	1.52	1.64	4.8	11
201	特克斯和凯科斯群岛 Turks and Caicos Islands	71.75° W	21.82° N	22.54	2,055	122.40	70.62	1.31	1.63	6.5	12
环境簇3 Environmental cluster 3											
太平洋 Pacific Ocean											
大洋洲 Oceania											
202	夏威夷岛 Hawaii	155.48° W	19.62° N	22.47	1,344	140.29	55.94	3.52	4.27	5.7	12
203	卡尔卡尔岛 Karkar Island	145.98° E	4.64° S	26.34	781	166.83	44.99	5.95	8.12	5.4	12
204	可爱岛 Kaua‘i Island	159.53° W	22.09° N	23.78	1,127	165.71	30.91	2.83	3.69	4.9	13
205	利希尔群岛 Lihir Islands	152.59° E	3.11° S	21.18	2,043	138.10	41.80	5.95	8.12	5.4	12
206	莱恩群岛 Line Islands	157.35° W	1.80° N	26.25	1,104	120.93	36.54	3.52	4.27	5.7	12
207	毛依岛 Maui Island	156.33° W	20.80° N	17.05	2,688	164.15	24.12	4.73	4.60	6.3	11
208	北马里亚纳群岛 Northern Mariana Islands	145.67° E	16.35° N	22.79	459	175.55	56.64	4.42	7.53	5.6	16
209	欧胡岛 O‘ahu Island	157.98° W	21.47° N	22.27	1,092	156.81	19.75	2.05	3.00	4.9	16
210	波纳佩 Pohnpei	158.22° E	6.89° N	24.48	145	155.93	103.60	5.95	8.12	5.4	12
211	萨摩亚群岛 Samoa Islands	172.44° W	13.64° S	26.09	2,859	67.41	32.76	2.65	5.15	5.3	19
212	塔巴尔群岛 Tabar Islands	151.97° E	2.80° S	26.88	1,446	142.09	58.75	5.95	8.12	5.4	12
213	汤加 Tonga	175.16° W	21.21° S	26.79	3,023	39.90	32.63	4.73	4.60	6.3	11
214	温博伊岛 Umboi Island	147.94° E	5.65° S	25.10	2,465	63.51	69.27	5.95	8.12	5.4	12
215	瓦利斯岛 Wallis Island	147.94° E	5.65° S	25.10	2,465	63.51	69.27	5.95	8.12	5.4	12
亚洲 Asia											
216	邦盖群岛 Banggai Islands	122.94° E	1.36° S	24.62	1,509	223.31	41.94	4.04	4.27	5.0	11
217	拉贾安帕特群岛 Raja Ampat Islands	130.50° E	0.14° S	26.42	1,026	100.98	35.62	4.04	4.27	5.0	11
北美洲 North America											
218	雷维亚希赫多群岛 Revillagigedo Islands	110.98° W	18.79° N	26.71	1,309	94.29	115.48	5.15	8.29	5.4	16
南美洲 South America											
219	赫诺韦萨岛 Genovesa Island	89.96° W	0.32° N	26.11	2,012	98.72	51.43	3.31	6.96	5.9	12
220	马切纳岛 Marchena Island	90.48° W	0.33° N	27.45	2,046	68.23	56.03	3.31	6.96	5.9	12
221	詹姆斯岛 James Island	23.62° W	15.09° N	24.85	1,554	62.66	78.29	3.38	6.55	5.6	16
印度洋 Indian Ocean											
大洋洲 Oceania											

222	圣诞岛 Christmas Island	105.67° E	10.49° S	28.22	2,796	28.00	33.10	4.04	4.27	5.0	11
亚洲Asia											
223	巴厘岛 Bali Island	115.09° E	8.34° S	26.45	1,005	100.73	33.41	2.65	5.15	5.3	19
224	科莫多岛 Komodo Island	119.44° E	8.58° S	26.43	1,151	111.95	34.26	5.95	8.12	5.4	12
225	林卡岛 Rincah Island	119.66° E	8.73° S	25.40	1,601	112.15	28.12	4.04	4.27	5.0	11
非洲 Africa											
226	大科摩罗岛 Grande Comore Island	43.35° E	11.68° S	26.89	2,642	34.81	12.96	3.52	4.27	5.7	12
227	毛里求斯岛 Mauritius	57.58° E	20.28° S	25.79	3,180	76.55	17.06	5.95	8.12	5.4	12
228	罗德里格岛 Rodrigues Island	63.42° E	19.71° S	23.08	3,803	47.87	18.30	5.95	8.12	5.4	12
大西洋 Atlantic Ocean											
非洲 Africa											
229	圣尼古劳岛 São Nicolau Island	24.31° W	16.61° N	25.61	1,614	55.15	56.20	3.38	6.55	5.6	16
230	比奥科岛 Bioko Island	8.75° E	3.63° N	22.09	1,655	88.55	79.28	2.65	5.15	5.3	19
北美洲 North America											
231	巴斯特尔岛 Basse-Terre	61.66° W	16.14° N	25.27	1,820	298.09	99.42	5.95	8.12	5.4	12
232	多米尼克岛 Dominica	61.35° W	15.46° N	28.67	1,945	51.02	40.10	5.95	8.12	5.4	12
233	蒙特塞拉特岛 Montserrat	62.19° W	16.74° N	25.40	1,601	112.15	28.12	5.95	8.12	5.4	12
234	尼维斯岛 Nevis	62.58° W	17.16° N	26.66	2,591	34.83	15.88	5.95	8.12	5.4	12
235	萨巴岛 Saba	63.24° W	17.63° N	25.72	2,699	64.25	46.76	5.95	8.12	5.4	12
236	圣巴泰勒米岛 Saint Barthélemy	62.83° W	17.90° N	25.70	2,968	83.95	53.68	5.95	8.12	5.4	12
237	圣基茨岛 Saint Kitts	62.76° W	17.34° N	27.31	2,008	31.84	33.48	5.95	8.12	5.4	12
238	圣卢西亚 Saint Lucia	60.98° W	13.91° N	27.08	1,574	73.24	90.03	3.52	4.27	5.7	12
239	圣马丁岛 Saint Martin	63.05° W	18.07° N	23.29	1,837	61.02	34.15	5.95	8.12	5.4	12
240	圣文森特和格林纳丁斯岛 Saint Vincent and the Grenadines	61.19° W	13.22° N	26.73	2,647	39.92	38.53	3.52	4.27	5.7	12
241	圣尤斯特歇斯岛 Sint Eustatius	62.97° W	17.49° N	27.15	2,594	59.38	55.18	5.95	8.12	5.4	12

钟秋菊, 张娟娟, 贾尤鑫, 张学聪, 任芷叶, 冯赣鑫, 杨静, 姜沄林, 廖慧璇, 梁敏霞 (2026) 基于物种分布数据的海岛多类群演替参照系构建及其在热带新成岛生态系统的应用. 生物多样性, 34, 26067. https://www.biodiversity-science.net/CN/10.17520/biods.2026067.

附录3　环境簇1生物群落演替参照系及类群组成与丰富度时间序列

Appendix 3　Successional reference framework and temporal series of successional group composition and richness for biotic communities in environmental cluster 1

	植物 Plant			昆虫 Insect			鸟类 Bird		
	逐渐下降Gradually decreasing	逐渐上升 Gradually increasing	先上升后下降 Increasing then decreasing	逐渐下降 Gradually decreasing	逐渐上升 Gradually increasing	先上升后下降 Increasing then decreasing	逐渐下降 Gradually decreasing	逐渐上升 Gradually increasing	先上升后下降 Increasing then decreasing
代表科/目 Representative families/orders	凤梨科、金壳果科、藤黄科、石松科、千屈菜科、禾本科、水龙骨科、杨柳科、金星蕨科 Bromeliaceae, Chrysobalanaceae, Clusiaceae, Lycopodiaceae, Lythraceae, Poaceae, Polypodiaceae, Salicaceae, Thelypteridaceae	莎草科、豆科、唇形科、锦葵科、野牡丹科、桃金娘科、酢浆草科、无患子科 Cyperaceae, Fabaceae, Lamiaceae, Malvaceae, Melastomataceae, Myrtaceae, Oxalidaceae, Sapindaceae	马鞭草科 Verbenaceae	鳞翅目、螳螂目、蜻蜓目 Lepidoptera, Mantodea, Odonata	半翅目、膜翅目 Hemiptera, Hymenoptera	鞘翅目、双翅目 Coleoptera, Diptera	佛法僧科、燕鸻科、凤头雨燕科、鸻鹬科、雀鹎科、织雀科、鹟鹟科、鸸科、咬鹃科 Coraciidae, Glareolidae, Hemiprocnidae, Phalacrocoracidae, Phyllastrephidae, Ploceidae, Podicipedidae, Sittidae, Trogonidae	鸭科、鸻科、鸦科、梅花雀科、军舰鸟科、鹊鸽科、雉科、八色鸫科、鹦鹉科、秧鸡科、反嘴鹬科、扇尾鹟科、椋鸟科、鲣鸟科、鹈科 Anatidae, Charadriidae, Corvidae, Estrildidae, Fregatidae, Motacillidae, Phasianidae, Pittidae, Psittacidae, Rallidae, Recurvirostridae, Rhipiduridae, Sturnidae, Sulidae, Turdidae	杜鹃科、啄木鸟科、鹬科、鸱鸮科 Cuculidae, Picidae, Scolopacidae, Strigidae
时间点Time point (yr)									
0	49.2%	18.1%	1.1%	69.6%	6.7%	11.0%	3.7%	15.2%	14.1%
5	39.4%	24.2%	2.4%	51.5%	13.3%	35.2%	3.5%	16.3%	15.3%
10	29.7%	30.3%	3.2%	36.7%	20.8%	41.3%	3.3%	17.5%	16.0%
15	19.9%	36.3%	3.4%	23.1%	27.8%	25.4%	3.1%	18.6%	16.2%
20	10.4%	42.4%	3.0%	12.4%	34.9%	0.0%	2.9%	19.7%	15.8%
25	3.6%	48.5%	2.0%	1.9%	41.9%	0.0%	2.7%	20.8%	14.9%
30	0.3%	54.5%	0.5%	0.0%	49.0%	0.0%	2.5%	21.9%	13.5%
35	0.0%	60.6%	0.0%	/	/	/	2.3%	23.0%	11.5%
40	/	/	/	/	/	/	2.1%	24.2%	9.0%
45	/	/	/	/	/	/	1.9%	25.3%	6.9%
50	/	/	/	/	/	/	1.7%	26.4%	4.7%
55	/	/	/	/	/	/	1.5%	27.5%	2.2%
60	/	/	/	/	/	/	1.3%	28.6%	0.3%
65	/	/	/	/	/	/	1.1%	29.7%	0.0%
70	/	/	/	/	/	/	0.9%	30.9%	0.0%
75	/	/	/	/	/	/	0.7%	32.0%	0.0%
80	/	/	/	/	/	/	0.6%	33.1%	0.0%
85	/	/	/	/	/	/	0.4%	34.2%	0.0%
90	/	/	/	/	/	/	0.0%	35.3%	0.0%

附录4　环境簇1参照系中“逐渐上升”类群相对占比时间序列

Appendix 4　Time series of relative proportions of the gradually increasing group in the reference framework of environmental cluster 1

时间点 Time point (yr)	植物 Plant	昆虫 Insect	鸟类 Bird
0	26.5%	7.7%	46.1%
5	36.7%	13.3%	46.4%
10	47.9%	21.1%	47.6%
15	60.9%	36.4%	49.1%
20	76.0%	73.8%	51.3%
25	89.7%	95.7%	54.2%
30	98.6%	100.0%	57.8%
35	100.0%	/	62.5%
40	/	/	68.6%
45	/	/	74.2%
50	/	/	80.5%
55	/	/	88.1%
60	/	/	94.7%
65	/	/	96.4%
70	/	/	97.2%
75	/	/	97.9%
80	/	/	98.2%
85	/	/	98.8%
90	/	/	100.0%

钟秋菊, 张娟娟, 贾尤鑫, 张学聪, 任芷叶, 冯赣鑫, 杨静, 姜沄林, 廖慧璇, 梁敏霞 (2026) 基于物种分布数据的海岛多类群演替参照系构建及其在热带新成岛生态系统的应用. 生物多样性, 34, 26067. https://www.biodiversity-science.net/CN/10.17520/biods.2026067.

附录5　候选岛屿列表

Appendix 5　List of candidate islands

环境簇 Environmental cluster	植物群落 Plant community	昆虫群落 Insect community	鸟类群落 Bird community
1	加里曼丹岛 Borneo	加里曼丹岛 Borneo	安达曼和尼科巴群岛 Andaman and Nicobar Islands
	牙买加 Jamaica	牙买加 Jamaica	加里曼丹岛 Borneo
	新几内亚岛 New Guinea	马提尼克 Martinique	爪哇岛 Java Island
	塞舌尔群岛 Seychelles	波多黎各 Puerto Rico	菲律宾群岛 Philippine Islands
	苏门答腊岛 Sumatra		普吉岛 Phuket Island
2	古巴 Cuba	伊斯帕尼奥拉岛 Hispaniola	古巴 Cuba
	伊斯帕尼奥拉岛 Hispaniola	马达加斯加 Madagascar	斐济群岛 Fiji Islands
	马达加斯加 Madagascar	新喀里多尼亚 New Caledonia	伊斯帕尼奥拉岛 Hispaniola
	新喀里多尼亚 New Caledonia	特立尼达岛 Trinidad Island	多巴哥岛 Tobago Island
	特立尼达岛 Trinidad Island		特立尼达岛 Trinidad Island
3	巴斯特尔岛 Basse-Terre	巴斯特尔岛 Basse-Terre	巴厘岛 Bali Island
	夏威夷岛 Hawaii	夏威夷岛 Hawaii	夏威夷岛 Hawaii
	可爱岛 Kaua‘i Island	毛依岛 Maui Island	可爱岛 Kaua‘i Island
	毛依岛 Maui Island	欧胡岛 O‘ahu Island	欧胡岛 O‘ahu Island
	欧胡岛 O‘ahu Island		圣卢西亚 Saint Lucia

候选岛屿的筛选遵循统一标准: 记录连续且物种丰富度显著上升趋势 ≥ 20年, 表中各环境簇下列出的岛屿即为满足该标准后的最终候选岛屿。

Candidate islands were selected using a unified criterion, namely continuous records and a significantly increasing trend in species richness for at least 20 years. The islands listed under each environmental cluster represent the final candidate islands that satisfied these criteria.