Table S1. Links between coral reef functions and traits used for this study and their description.

Ecosystem function/ process	Trait	Source	Values/ Calculation	Rationale
Reef growth	Calcification rate	González-Barrios and Álvarez-Filip (2018).	Equations developed for each coral morphology	Calcification rates define the processes of reef accretion (González-Barrios and Álvarez-Filip, 2018). Species with higher calcification rates will contribute to developing the reef framework and maintaining the habitat.
	Maximum colony size	Coral trait database and coral identification books.	Maximum reported colony size	Species with larger maximum colony sizes would contribute more to the total reef framework.
Habitat provision	Colony growth form	Classification adapted from González-Barrios and Álvarez-Filip (2018).	Branching Digitate Foliose Massive Sub-massive	All colony growth forms are engineer species, contributing to creating a habitat to maintain biodiversity. Particularly, branching species have tridimensional structures enabling to create simultaneously macro and microhabitats.
	Rugosity	González-Barrios and Álvarez-Filip (2018).	Ratio of the length of the contour of the whole colony and the linear distance along the maximum colony axis	Rugosity defines the processes of provision of habitat (González-Barrios and Álvarez-Filip 2018). Species with a higher rugosity index will contribute to the creation of microhabitats for reefs species.
Resistance	Corallite maximum size	Coral trait database	Widest diameter of a corallite (cm)	Corallite size is an indicator of energy storage of individual coral polyps, so species with larger corallites can store more energy to persist in more harsh environments than species with smaller corallites (Darling et al., 2012).
	Depth range	Coral trait database and coral identification books.	Maximum depth reported minus minimum depth reported.	Species with bigger depth ranges would be more adapted to different environmental conditions (e.g., light and wave exposure variations) than corals with shallower depth distributions.
Recovery	Reproduction	Coral trait database.	Brooders Spawners	Spawners could be limited by low population sizes (i.e., Allee effects) following mortality and disturbance, while brooders have the potential to self-fertilize (Baird et al., 2009), which may promote recovery on disturbed reefs (Darling et al., 2012).

Table S2. Correspondence of each of the 40 coral species registered in this study, to their coral trait values. This information was retrieved from the coral trait online database (Madin et al., 2016) and was completed and verified using different sources such as regional identification books, published literature, and secondary sources. Forms Branching (B), Massive (M), Sub-massive (S), Foliose (F), Digitate (D). Reproductive mode: Spawner (S), Brooder (B).

Life Strategy	Scientific name	Code	Form	Reproductive mode	Maximum size (cm)	Corallite size (cm)	Calcification rate (kgCaCO3 m−2 yr−1)	Rugosity	Depth range (m)
Competitive	*Acropora cervicornis*	ACER	B	S	250	1.7	19.3	2.27	49
	Acropora palmata	APAL	B	S	300	1.6	18.0	3.66	17
	Dendrogyra cylindrus	DCYL	M	S	300	4.2	12.1	1.84	18
Stress-Tolerant	*Colpophyllia natans*	CNAT	M	S	213	12.9	4.5	1.45	52
	Diploria labyrinthiformis	DLAB	M	S	122	5.8	5.9	1.61	40
	Dichocoenia stokesi	DSTO	M	S	38	11.2	4.1	1.51	65
	Eusmilia fastigiata	EFAS	M	S	61	20.9	8.2	1.53	60
	Montastraea cavernosa	MCAV	M	S	244	10.0	6.6	1.86	89
	Meandrina meandrites	MMEA	M	S	91	13.5	2.0	1.35	72
	Orbicella annularis	OANN	M	S	350	3.8	10.7	1.89	38
	Orbicella faveolata	OFAV	M	S	450	3.8	11.5	1.91	45
	Orbicella franksi	OFRA	M	S	350	4.0	9.2	1.90	45
	Pseudodiploria clivosa	PCLI	M	S	122	5.8	5.1	1.70	40
	Pseudodiploria strigosa	PSTR	M	S	183	10.1	5.2	1.87	39
	Solenastrea bournoni	SBOU	M	S	46	20.5	14.1	1.11	16
	Stephanocoenia intersepta	SINT	M	S	61	2.7	4.1	1.09	37
	Siderastrea siderea	SSID	M	S	183	4.5	6.5	1.35	66
Weedy	*Agaricia agaricites*	AAGA	S	B	91	5.5	4.3	1.51	72
	Agaricia fragilis	AFRA	F	B	15	5.0	0.1	1.55	49
	Agaricia grahamae	AGRA	F	B	183	6.5	0.1	1.27	41
	Agaricia humilis	AHUM	S	B	13	6.0	5.3	1.00	22
	Agaricia lamarcki	ALAM	F	B	183	7.9	0.1	1.27	41
	Agaricia tenuifolia	ATEN	F	B	150	5.1	0.9	1.83	22
	Favia fragum	FFRA	M	B	5	5.8	7.8	1.25	48
	Helioseris cucullata	HCUC	F	B	25	5.0	0.1	1.08	75
	Isophyllia rigida	IRIG	M	B	18	18.2	3.8	1.32	19
	Mycetophyllia aliciae	MALI	F	B	46	20.0	0.1	1.37	58
	Mussa angulosa	MANG	S	B	61	60.0	4.3	1.27	53
	Manicina areolata	MARE	M	B	15	15.1	11.7	1.13	60
	Madracis auretenra	MAUR	D	B	122	1.5	4.9	1.44	57
	Madracis decactis	MDEC	M	B	75	2.2	13.7	2.03	38
	Mycetophyllia ferox	MFER	F	B	60	11.0	0.1	1.03	36
	Madracis formosa	MFOR	D	B	152	1.6	9.3	1.40	43
	Mycetophyllia lamarckiana	MLAM	F	B	38	18.5	0.1	1.22	55
	Porites astreoides	PAST	S	B	61	1.6	5.8	1.54	48
	Porites divaricata	PDIV	D	B	30	1.1	1.5	1.41	47
	Porites furcata	PFUR	D	B	150	1.9	1.9	1.39	50
	Porites porites	PPOR	D	B	122	2.5	5.2	1.77	48
	*Scolymia cubensis***	SCUB	S	B	10	56.5	4.3	1.25	70
	Siderastrea radians	SRAD	S	B	30	3.0	4.1	1.09	27

** *Scolymia cubensis* may have been confused with very similar coral species *Scolymia lacera* during the identification process, yet both species share almost the same functional traits.

Table S3. Coral species that have increased in abundance between 2001 and 2019.

	Scientific name	Life Strategy	# Coral colonies in 2001	# Coral colonies in 2019	Fold increase
1	*Agaricia agaricites*	Weedy	125	1058	8.4
2	*Agaricia humilis*	Weedy	2	11	5.5
3	*Agaricia tenuifolia*	Weedy	60	80	1.3
4	*Dichocoenia stokesi*	Stress-Tolerant	2	12	6.0
5	*Manicina areolata*	Weedy	1	2	2.0
6	*Montastraea cavernosa*	Stress-Tolerant	69	78	1.1
7	*Madracis decactis*	Weedy	2	11	5.5
8	*Mycetophyllia lamarckiana*	Weedy	10	14	1.4
9	*Porites astreoides*	Weedy	289	607	2.1
10	*Porites divaricata*	Weedy	53	172	3.2
11	*Porites furcata*	Weedy	57	95	1.7
12	*Porites porites*	Weedy	48	80	1.7
13	*Stephanocoenia intersepta*	Stress-Tolerant	8	86	10.8
14	*Siderastrea siderea*	Stress-Tolerant	77	256	3.3

Table S4. Coral species that have decrease in abundance between 2001 and 2019.

	Scientific name	Life Strategy	# Coral colonies in 2001	# Coral colonies in 2019	Fold decrease
1	*Acropora cervicornis*	Competitive	29	14	2.0
2	*Agaricia fragilis*	Weedy	19	4	4.6
3	*Colpophyllia natans*	Stress-Tolerant	38	7	5.4
4	*Diploria labyrinthiformis*	Stress-Tolerant	21	6	3.5
5	*Helioseris cucullata*	Weedy+	9	1	9.0
6	*Isophyllia rigida*	Weedy+	6	5	1.2
7	*Mycetophyllia aliciae*	Weedy+	10	6	1.7
8	*Meandrina meandrites*	Stress-Tolerant	4	3	1.3
9	*Orbicella annularis*	Stress-Tolerant	146	48	3.0
10	*Orbicella faveolata*	Stress-Tolerant*	168	71	2.7
11	*Orbicella franksi*	Stress-Tolerant*	16	8	2
12	*Pseudodiploria clivosa*	Stress-Tolerant	22	1	22.0
13	*Pseudodiploria strigosa*	Stress-Tolerant	54	30	1.8

Table S5. Coral species that have equal abundance, are newly detected or no longer detected between 2001 and 2019.

	Scientific name	Life Strategy	# Coral colonies in 2001	# Coral colonies in 2019	Category
1	*Agaricia grahamae*	Weedy	3	0	Absent
2	*Agaricia lamarcki*	Weedy	3	0	Absent
3	*Acropora palmata*	Competitive	10	10	Equal
4	*Dendrogyra cylindrus*	Competitive	1	0	Absent
5	*Favia fragum*	Weedy*	1	1	Equal
6	*Mussa angulosa*	Weedy+	1	0	Absent
7	*Madracis auretenra*	Weedy+	17	0	Absent
8	*Madracis formosa*	Weedy+	1	0	Absent
9	*Solenastrea bournoni*	Stress-Tolerant	1	0	Absent
10	*Scolymia cubensis*	Weedy	1	0	Absent
11	*Siderastrea radians*	Weedy	0	62	New

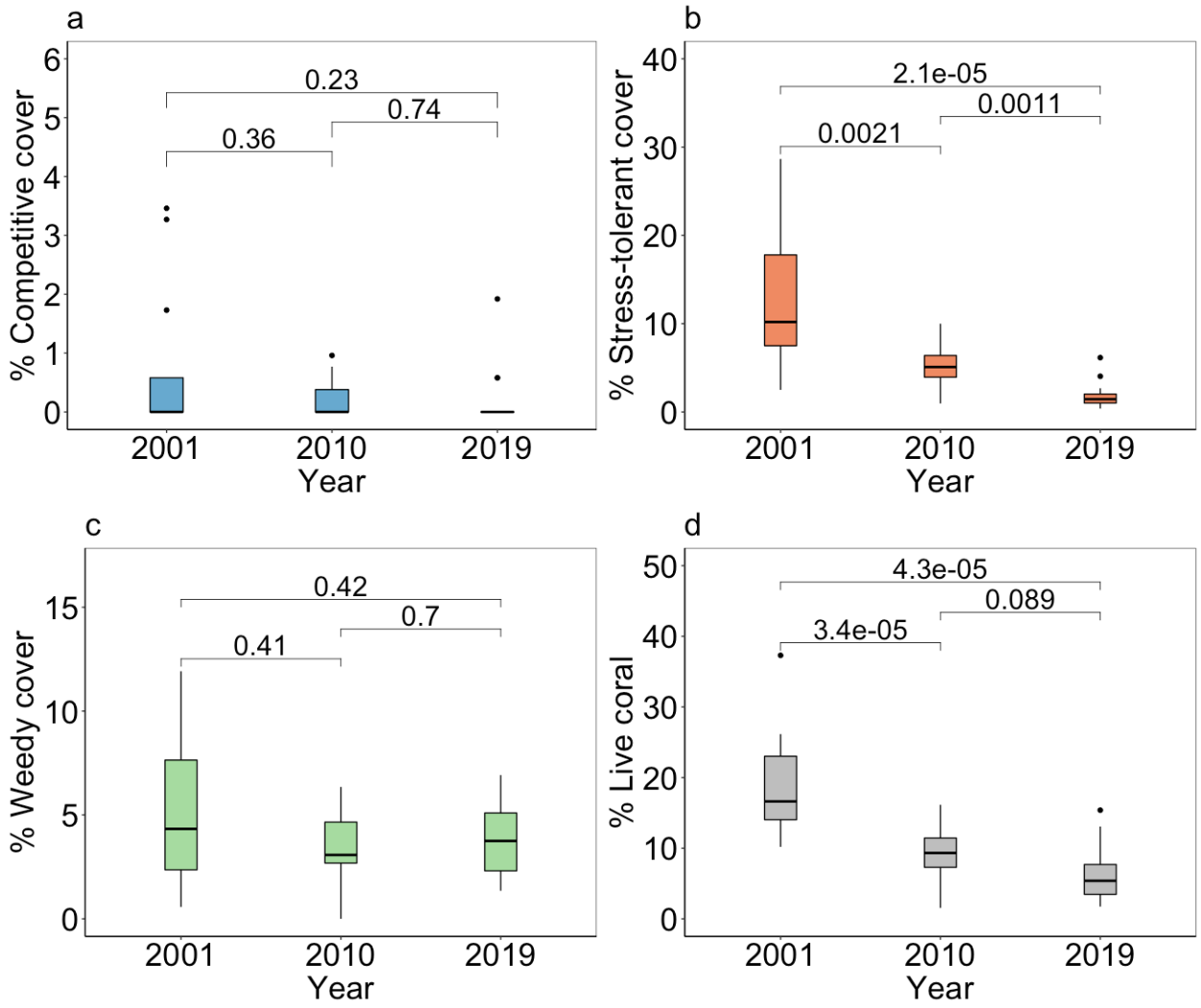

Figure S1. Cover changes between 2001, 2010, and 2019 were tested for each life-history strategy and total coral cover: **(a)** competitive, **(b)** stress-tolerant, **(c)** weedy, and **(d)** total cover.