

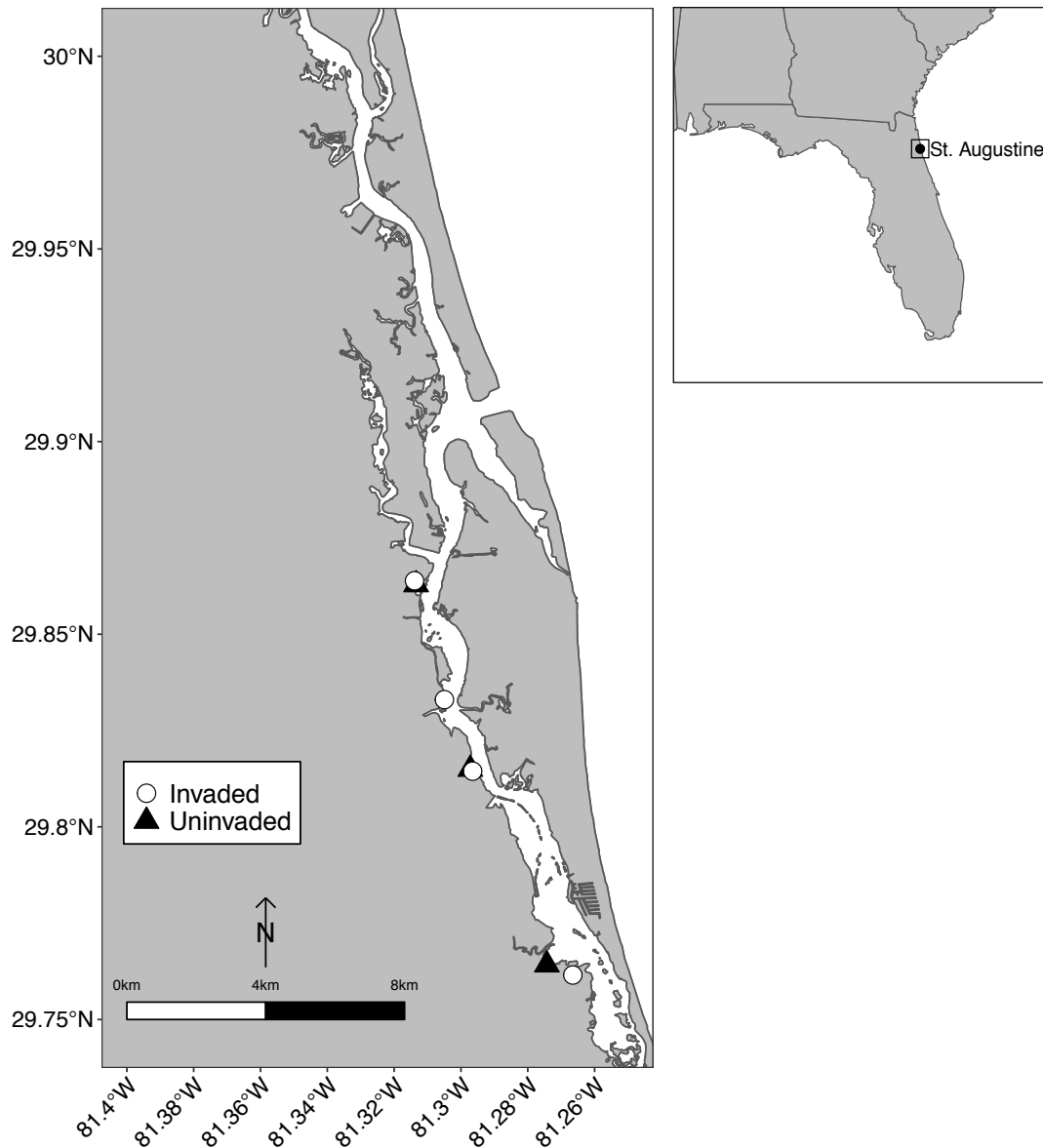
**Table S1:** Locations, invasion status, geographic coordinates, and dates sampled for all sites included in field surveys, as well as the mean  $\pm$  SD for the pre-Matthew wrack line distance from the upland (WDU) and associated sample sizes. WDU measurements include those taken during the 2015 baseline surveys and those taken in the two weeks immediately following Hurricane Matthew (inferred from the locations of bare patches in the intertidal). Invaded sites had adult mangroves present. Although we established perpendicular transects from the upland to the water's edge at all four sites during the 2015 surveys, we had limited time to sample wrack in 2015; by Fall 2016, we expanded the wrack sampling design to include all four sites.

Site	Site location	Invasion status	Latitude	Longitude	Sampling dates	Mean WDU	SD	N
1	Moses Creek Conservation Area, Crescent Beach, FL	Invaded	29.761547 °N	81.266517 °W	Aug-2015 Nov-2015 Oct-2016 to Dec-2017	71.10	9.60	6
1	Moses Creek Conservation Area, Crescent Beach, FL	Uninvaded	29.764200 °N	81.274278 °W	Aug-2015 Nov-2015 Oct-2016 to Dec-2017	7.01	1.86	7
2	Florida State Road 312, St. Augustine, FL	Invaded	29.863867 °N	81.313894 °W	Nov-2015 Dec-2015 Oct-16 to Dec-17	33.88	7.49	6
2	Florida State Road 312, St. Augustine, FL	Uninvaded	29.862864 °N	81.313425 °W	Nov-2015 Dec-2015 Oct-2016 to Dec-2017	15.43	2.49	6
3	Canopy Shores Park, St. Augustine, FL	Invaded	29.814456 °N	81.296497 °W	Oct-2016 to Dec-2017	26.10	8.63	2
3	Canopy Shores Park, St. Augustine, FL	Uninvaded	29.814967 °N	81.297200 °W	Oct-2016 to Dec-2017	31.85	11.38	2
4	Lewis Point, St. Augustine, FL	Invaded	29.833017 °N	81.304950 °W	Oct-2016 to Dec-2017	8.33	0.67	3

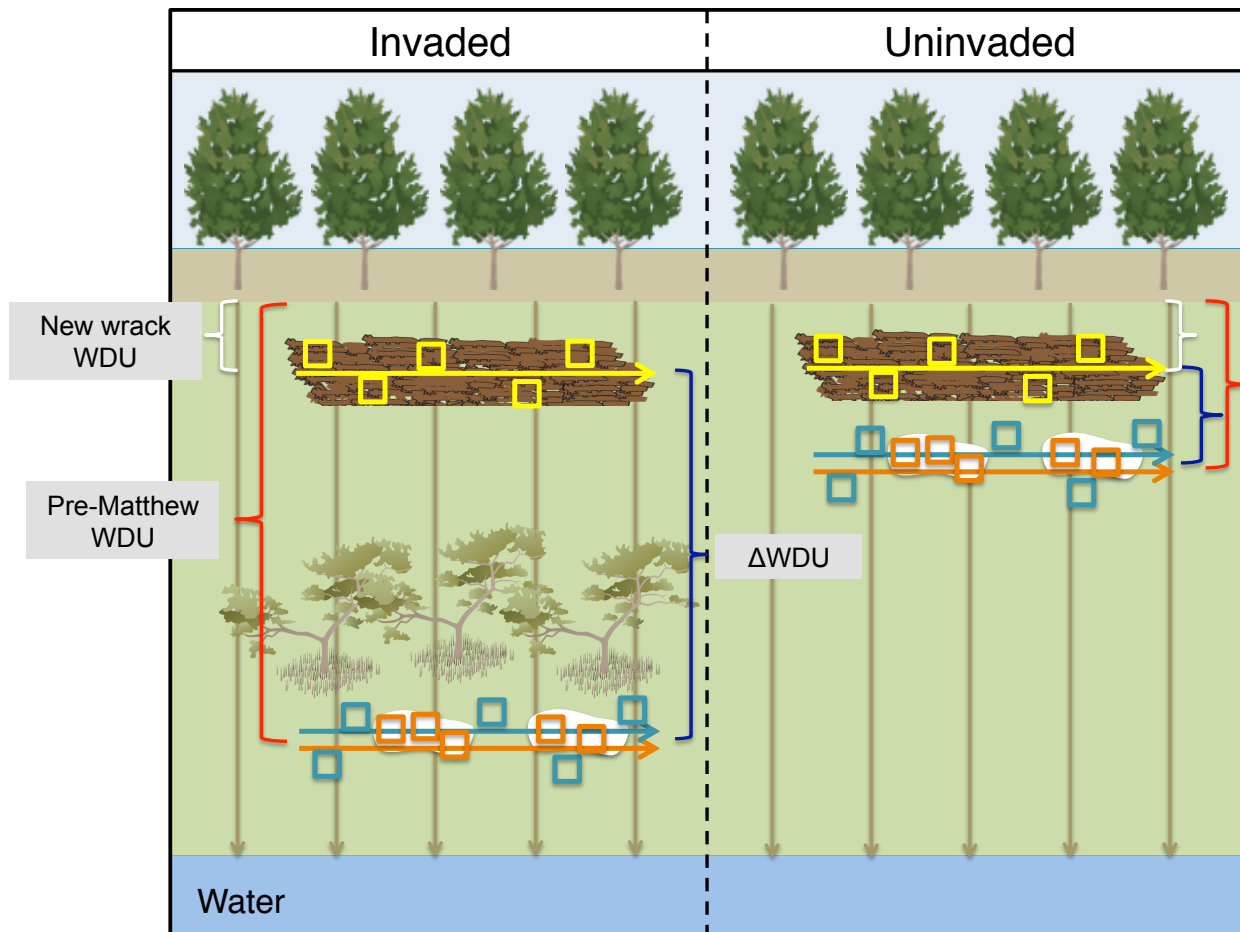
**Table S2:** Mean  $\pm$  SE for propagule and seedling counts in 0.25 m<sup>2</sup> quadrats in intertidal microhabitats from monthly surveys for four invaded and three uninvaded areas for the 2016 and 2017 propagule recruitment season (vegetated, n = 10; bare sediment, n = 10; new wrack deposits, n = 5 per area per month, averaged across three months; October-December). Seedling counts are for the 2016 propagule cohort only and includes seedlings that established following 2016 propagule recruitment.

Date	Life stage	Invasion status	Microhabitat	Mean	SE
Oct-2016 to Dec-2016	Propagule	Invaded	Bare sediment	7.28	1.06
			Vegetated	11.74	1.13
			Wrack	Absent	Absent
		Uninvaded	Bare sediment	1.30	0.20
Vegetated	2.79		0.55		
Wrack	Absent		Absent		
Oct-2017 to Dec-2017	Propagule	Invaded	Bare sediment	3.26	0.78
			Vegetated	5.33	0.74
			Wrack	34.45	4.91
		Uninvaded	Bare sediment	1.07	0.49
Vegetated	2.86		0.60		
Wrack	9.33		1.97		
Jan-2017	Seedling (2016 cohort)	Invaded	Bare sediment	4.90	1.03
			Vegetated	9.18	1.78
		Uninvaded	Bare sediment	0.27	0.13
			Vegetated	0.70	0.20
Dec-2017	Seedling (2016 cohort)	Invaded	Bare sediment	3.43	0.60
			Vegetated	9.98	1.50
		Uninvaded	Bare sediment	0.10	0.07
			Vegetated	0.30	0.14

**Figure S1:** Map of four survey sites in the Matanzas River estuary in St. Augustine, Florida on the Atlantic coast of the U.S. We divided three of the sites into paired blocks of mangrove invaded (white circles, adult mangroves present) and uninvaded salt marsh areas (black triangles, no adult mangroves present). The fourth site had only invaded areas (no paired uninvaded area). For two of the sites, the symbols for the paired areas are partially overlapping on the map.



**Figure S2:** Illustration of experimental design of field surveys. We used perpendicular transects (vertical brown arrows) from the upland to the marsh lower edge to quantify the initial pre-Matthew wrackline distance from the upland (pre-Matthew WDU; red brackets) in paired invaded and uninvaded salt marsh areas at each of four sites. We inferred the location of the pre-Matthew WDU two weeks after Hurricane Matthew at all sites based on the presence of bare sediment patches (in white) and marked these locations as references. Each month, we counted mangrove propagules and seedlings (2016 cohort) in  $0.25 \text{ m}^2$  quadrats placed in bare sediment (in orange;  $n = 10$ ) and in adjacent vegetation (in teal;  $n = 10$ ) along fixed transects that ran parallel to the water in the footprint of the pre-Matthew wrack lines at the pre-Matthew WDU. If a new wrack line was present at a site, we measured the new wrack line distance to the upland (WDU) along the perpendicular transects (new wrack WDU; white brackets). We relativized WDU measures for new wrack lines to the pre-Matthew wrack line WDU to calculate the change in WDU ( $\Delta\text{WDU}$ ; navy blue brackets). Positive values of  $\Delta\text{WDU}$  ( $> 0$ ) represent landward movement of wrack; negative values of  $\Delta\text{WDU}$  ( $< 0$ ) represent seaward movement of wrack. We also counted mangrove propagules and collected, dried and weighed wrack biomass from  $0.25 \text{ m}^2$  quadrats ( $n = 5$ ) placed along an additional transect line that followed the new wrack line (in yellow) parallel to the water.



Landward wrack movement:  $\Delta\text{WDU} > 0$

Seaward wrack movement:  $\Delta\text{WDU} < 0$