

*The following supplement accompanies the article*

## **Driving forces behind latitudinal variations in plant–herbivore interactions in SW Atlantic salt marshes**

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**Table S1.** Climate data: Temperature: maximum = MaxT (°C), minimum = MinT (°C), average = AverT (°C), and maximum thermal amplitudes = DelT (°C); annual precipitation = Prec (mm), and differences en day length = Dlen (h). Physical condition of water that flood marshes: average of tides amplitudes =Tides (m), and water salinity = Salinity (PSU). Sediment characteristics: content in moisture = Moisture (%), mud = Mud (%), sand = Sand (%), grave = Grave (%), organic matter = OM (%) and oxygen: O<sub>2</sub> (umol<sub>x</sub> l<sup>-1</sup>) of both marshes (low dominated by *Spartina alterniflora* and high, dominated by *S. densiflora*) along 8 southwestern Atlantic coastal marshes: the outlet of Salado River (SAL), San Clemente (SC), Bahía Blanca (BB), Bahía Anegada (BA), the outlet of Rio Negro (RN), Bahía San Antonio (BSA), Riacho San Jose (RSJ), and the outlet of Rio Chubut (RCH). Different lowercase letters denote significant differences between sites at  $p < 0.05$  with Tukey's honestly significant difference test. --: absence of plants at that location.

Sites		SAL 35° 44' S	SC 36° 19' S	BB 38° 51' S	BA 40° 31' S	RN 41° 01' S	BSA 40° 43' S	RSJ 42° 25'	RCH 43° 19' S
Climate	MaxT (°C)	35.81 (1.89) <sup>a</sup>	35.81 (1.89) <sup>a</sup>	38.94 (2.29) <sup>b</sup>	39.18 (2.06) <sup>b</sup>	39.64 (2.07) <sup>b</sup>	41.28 (1.13) <sup>b</sup>	38.80 (2.53) <sup>b</sup>	39.26 (2.30) <sup>b</sup>
	MinT (°C)	-2.58 (1.00) <sup>a</sup>	-2.58 (1.00) <sup>a</sup>	-6.84 (2.50) <sup>b</sup>	-6.49 (1.82) <sup>b</sup>	-6.42 (1.53) <sup>b</sup>	-7.15 (0.49) <sup>c</sup>	-7.58 (0.89) <sup>c</sup>	-7.77 (0.95) <sup>cb</sup>
	AverT(°C)	14.70	14.70	15.35	14.44	14.55	15.32	14.00	13.85
	DelT(°C)	24.15 (2.31) <sup>a</sup>	24.15 (2.31) <sup>a</sup>	24.98 (1.79) <sup>ab</sup>	27.60 (0.79) <sup>bc</sup>	27.98 (0.46) <sup>c</sup>	26.62 (2.24) <sup>c</sup>	27.31 (1.81) <sup>bc</sup>	27.44 (2.01) <sup>bc</sup>
	Prec (mm)	897.45(157.30) <sup>a</sup>	897.45(157.30) <sup>a</sup>	520.06 (107.24) <sup>b</sup>	381.91 (92.47) <sup>bc</sup>	304.62 (96.91) <sup>c</sup>	199.34 (84.48) <sup>d</sup>	188.66 (55.97) <sup>d</sup>	190.32 (50.19) <sup>d</sup>
	Dlen (h)	9.73	9.73	9.43	9.27	9.22	9.25	9.07	8.97
Water	Tides (m)	0.75	0.75	2.44	1.64	2.94	6.44	3.00	2.77
	Salinity (PSU)	9.4 (0.84) <sup>a</sup>	25.7 (0.95) <sup>d</sup>	40.63 (4.01) <sup>b</sup>	38.1 (0.99) <sup>c</sup>	13.7 (0.95) <sup>c</sup>	38.7 (1.25) <sup>bc</sup>	38.9 (1.1) <sup>bc</sup>	3.9(0.99) <sup>f</sup>
<i>Spartina densiflora</i>									
Sediment	Moisture (%)	44.09 (3.41) <sup>ac</sup>	22.39 (1.88) <sup>b</sup>	48.81 (4.90) <sup>a</sup>	20.35 (1.23) <sup>b</sup>	37.61 (8.82) <sup>c</sup>	23.58 (2.00) <sup>b</sup>	39.83 (6.28) <sup>cd</sup>	45.49(3.97) <sup>ad</sup>
	Mud (%)	98.44 (1.10) <sup>a</sup>	9.90 (3.25) <sup>b</sup>	97.12 (0.94) <sup>a</sup>	16.14 (3.82) <sup>b</sup>	69.06 (32.72) <sup>cd</sup>	41.32 (4.64) <sup>e</sup>	55.33 (6.83) <sup>ce</sup>	85.79(12.67) <sup>ad</sup>
	Sand (%)	0.76 (0.62) <sup>a</sup>	14.33 (1.87) <sup>ab</sup>	1.09 (0.29) <sup>a</sup>	47.82 (6.96) <sup>c</sup>	19.07 (22.33) <sup>bc</sup>	32.80 (2.27) <sup>ce</sup>	7.39 (2.45) <sup>de</sup>	5.20(5.60) <sup>ae</sup>
	Grave (%)	0.00 (0.00) <sup>a</sup>	00.00 (0.00) <sup>a</sup>	0.00 (0.00) <sup>a</sup>	16.19 (5.00) <sup>b</sup>	0.00 (0.00) <sup>a</sup>	20.23 (5.05) <sup>b</sup>	0.60 (1.33) <sup>a</sup>	1.07(1.53) <sup>a</sup>
	OM (%)	5.24 (0.32) <sup>a</sup>	1.86 (0.50) <sup>b</sup>	6.62 (0.36) <sup>c</sup>	1.41 (0.18) <sup>b</sup>	4.42 (1.37) <sup>a</sup>	2.97 (0.41) <sup>d</sup>	6.78 (1.59) <sup>c</sup>	5.13(0.99) <sup>a</sup>
	O <sub>2</sub> (umol <sub>l</sub> l <sup>-1</sup> )	23.53 (11.99) <sup>a</sup>	15.58 (0.58) <sup>a</sup>	7.62 (1.35) <sup>c</sup>	36.49 (42.77) <sup>a</sup>	70.92 (41.87) <sup>b</sup>	194.18 (47.50) <sup>d</sup>	96.71 (61.64) <sup>b</sup>	19.02(6.22) <sup>a</sup>
<i>Spartina alterniflora</i>									
Sediment	Moisture (%)	62.90 (2.09) <sup>a</sup>	29.93 (11.53) <sup>b</sup>	56.62 (1.39) <sup>a</sup>	41.06 (5.16) <sup>c</sup>	45.23 (2.91) <sup>c</sup>	22.38 (1.04) <sup>d</sup>	31.61 (5.80) <sup>b</sup>	
	Mud (%)	100 (0.00) <sup>a</sup>	35.49 (6.57) <sup>b</sup>	97.12 (2.21) <sup>a</sup>	57.74 (4.67) <sup>c</sup>	96.87 (0.75) <sup>a</sup>	49.99 (2.66) <sup>c</sup>	37.98 (14.28) <sup>b</sup>	--
	Sand (%)	0.00 (0.00) <sup>a</sup>	9.38 (2.83) <sup>b</sup>	0.92 (0.97) <sup>a</sup>	9.97 (3.76) <sup>b</sup>	0.63 (0.30) <sup>a</sup>	31.94 (2.36) <sup>c</sup>	11.85 (7.75) <sup>b</sup>	--
	Grave (%)	0.00 (0.00) <sup>a</sup>	0.00 (0.00) <sup>a</sup>	0.00 (0.00) <sup>a</sup>	7.51 (5.14) <sup>b</sup>	0.00 (0.00) <sup>a</sup>	5.90 (1.71) <sup>b</sup>	0.26 (0.28) <sup>a</sup>	--
	OM (%)	5.24 (0.19) <sup>a</sup>	1.97 (0.72) <sup>b</sup>	5.52 (0.30) <sup>a</sup>	3.09 (0.61) <sup>cd</sup>	4.48 (0.41) <sup>ac</sup>	1.79 (0.14) <sup>b</sup>	3.11 (1.43) <sup>d</sup>	--
	O <sub>2</sub> (umol <sub>l</sub> l <sup>-1</sup> )	19.16 (2.16) <sup>ac</sup>	17.67 (2.36) <sup>ac</sup>	5.44 (1.58) <sup>b</sup>	16.77 (1.87) <sup>c</sup>	9.86 (0.78) <sup>d</sup>	30.48 (24.59) <sup>a</sup>	16.22 (1.32) <sup>c</sup>	--

**Table S2.** Plant characteristics: density ( $n \times m^{-2}$ ), height (cm) and for its tissue composition: Fiber content (%) and C:N ratios for *Spartina alterniflora* and *S. densiflora* along 8 southwestern Atlantic coastal marshes: the outlet of Salado River (SAL), San Clemente (SC), Bahía Blanca (BB), Bahía Anegada (BA), the outlet of Rio Negro (RN), Bahía San Antonio (BSA), Riacho San Jose (RSJ), and the outlet of Rio Chubut (RCH). 1. Different lowercase letters denote significant differences between sites at  $p < 0.05$  with Tukey's HSD test after ANOVA or \* after unequal variance F (Welch's approximation). --: absence of plant species at that location.

Sites	SAL 35° 44' S	SC 36° 19' S	BB 38° 51' S	BA 40° 31' S	RN 41° 01' S	BSA 40° 43' S	RSJ 42° 25'	RCH 43° 19' S
<i>Spartina densiflora</i>								
Density( $n \times m^{-2}$ )	260.40 (87.07) <sup>a*</sup>	227.20 (119.61) <sup>b*</sup>	133.07 (31.44) <sup>c*</sup>	157.33 (42.81) <sup>c*</sup>	54.40 (6.43) <sup>cd*</sup>	134.08 (23.10) <sup>c*</sup>	58.00 (24.31) <sup>cd*</sup>	74.24 (6.88) <sup>bd*</sup>
Height (cm)	92.20 (13.56) <sup>b*</sup>	86.80 (8.09) <sup>ab*</sup>	49.10 (6.23) <sup>c*</sup>	54.20 (4.16) <sup>c*</sup>	82.93 (9.20) <sup>ab*</sup>	44.80 (6.46) <sup>c*</sup>	77.40 (6.96) <sup>a*</sup>	76.80 (17.85) <sup>ab*</sup>
Fiber (%)	81.10 (2.48) <sup>a</sup>	81.12 (1.11) <sup>a</sup>	74.49 (1.61) <sup>b</sup>	74.05 (1.88) <sup>b</sup>	76.39 (2.09) <sup>b</sup>	77.17 (2.10) <sup>b</sup>	77.07 (1.27) <sup>b</sup>	74.34 (1.22) <sup>b</sup>
C:N	12.90 (4.54) <sup>a</sup>	12.72 (3.59) <sup>a</sup>	8.95 (1.89) <sup>a</sup>	11.02 (3.45) <sup>a</sup>	9.05 (3.31) <sup>a</sup>	9.93 (2.13) <sup>a</sup>	9.59 (3.93) <sup>a</sup>	7.31 (3.22) <sup>a</sup>
<i>Spartina alterniflora</i>								
Density ( $n \times m^{-2}$ )	79.6 (0.00) <sup>ab*</sup>	48.20 (7.73) <sup>b*</sup>	175.40 (15.10) <sup>c*</sup>	126.80 (46.03) <sup>d*</sup>	56.50 (21.43) <sup>ac*</sup>	258.20 (135.33) <sup>cd*</sup>	99.50 (10.34) <sup>ab*</sup>	--
Height (cm)	131.30 (11.26) <sup>a*</sup>	89.20 (3.08) <sup>b*</sup>	57.00 (6.56) <sup>c*</sup>	72.30 (2.00) <sup>dc*</sup>	75.50 (5.15) <sup>d*</sup>	44.20 (3.39) <sup>f*</sup>	64.90 (11.85) <sup>e*</sup>	--
Fiber (%)	59.87 (0.86) <sup>b</sup>	66.54 (1.57) <sup>a</sup>	66.52 (1.23) <sup>a</sup>	56.50 (1.85) <sup>c</sup>	68.48 (1.90) <sup>ac</sup>	74.33 (1.41) <sup>d</sup>	72.34 (5.36) <sup>cd</sup>	--
C:N	9.26 (1.4) <sup>a</sup>	7.45 (1.89) <sup>ab</sup>	5.80 (0.62) <sup>b</sup>	5.80 (1.50) <sup>b</sup>	8.81 (2.16) <sup>ab</sup>	7.23 (1.43) <sup>ab</sup>	6.01 (1.92) <sup>ab</sup>	--

Table S3. Paths coefficient representing the relative importance of direct and indirect effects of climate and physical variables on plant traits and on the moth attack frequencies in (a) *S. alterniflora* SEM (Fig. 3) and (b) *S. densiflora* SEM (Fig. 4) across 8 south western Atlantic coastal marshes. Coeff: path coefficient estimates (standard errors); St Coeff: standardized path coefficients, and MC Coeff: standardized path coefficients (standard errors) estimated by using 10000 Monte Carlo simulations. \* for “Coeff” and St Coeff: significance at  $p < 0.05$ , and for “MC Coeff” there is no difference between standardized path coefficients and path coefficients estimated by Monte Carlo simulations.

y	X	(a) <i>Spartina alterniflora</i>			(b) <i>Spartina densiflora</i>		
		Coeff	St Coeff	MC Coeff	Coeff	St Coeff	MC Coeff
Plant density	Minimum temperatures	-0.79 (0.36)*	-0.93*	-0.79 (0.30)*	-0.26 (0.09)*	-0.25*	-0.26 (0.06)*
	Maximum temperature				-0.98 (0.12)*	-0.99*	-0.98 (0.14)*
	Daily thermal amplitudes				0.19 (0.14)	0.16	0.19 (0.12)*
	Average temperature	0.38 (0.21)	0.38	0.38 (0.17)*			
	Substrate O <sub>2</sub> concentration	0.73 (0.19)*	0.79*	0.73 (0.18)*	0.38 (0.09)*	0.34*	0.38 (0.10)*
	Substrate organic matter	0.11 (0.14)	0.13	0.11 (0.14)*	0.86 (0.09)*	0.96*	0.86 (0.14)*
	Sediment moisture				0.75 (0.11)*	0.74*	0.75 (0.15)*
	Water salinity	-0.02 (0.21)	-0.02	-0.02 (0.18)*	-0.40 (0.04)*	-0.56*	-0.40 (0.05)*
	Tide amplitude	-0.47 (0.38)	-0.5	-0.47 (0.31)*			
Plant height	Daylight length	-0.15 (0.22)	-0.17	-0.15 (0.19)*			
	Precipitation				0.33 (0.08)*	0.41*	0.33 (0.07)*
	Maximum temperature				0.32 (0.22)	0.30	0.33 (0.22)*
	Average temperature	-0.01 (0.17)	-0.01	-0.01 (0.18)*			
	Substrate O <sub>2</sub> concentration	0.09 (0.12)	0.12	0.10 (0.10)*	-0.50 (0.09)*	-0.48*	-0.50 (0.08)*
	Substrate organic matter	0.15 (0.06)*	0.21*	0.15 (0.07)*			
	Sediment moisture				-0.01 (0.06)	-0.01	-0.01 (0.06)*
	Water salinity	-0.37 (0.07)*	-0.46*	-0.37 (0.08)*	-0.11 (0.04)*	-0.17*	-0.11 (0.04)*
	Tide amplitude	-0.51 (0.21)*	-0.61*	-0.51 (0.18)*	-0.70 (0.19)*	-0.85*	-0.71 (0.17)*
	Plant density	-0.06 (0.06)	-0.07	-0.06 (0.07)*	0.28 (0.07)*	0.31*	0.29 (0.10)*

y	X	(a) <i>Spartina alterniflora</i>			(b) <i>Spartina densiflora</i>		
		Coeff	St Coeff	MC Coeff	Coeff	St Coeff	MC Coeff
Plant C/N ratio	Daylight length				0.27 (0.12)*	0.28*	0.27 (<0.01)*
	Minimum temperatures	-0.10 (<0.01)*	-0.10*	-0.10 (<0.01)*	-0.05 (0.03)	-0.05	-0.05 (<0.01)*
	Average temperature	0.18 (<0.01)*	0.15*	0.18 (<0.01)*	-0.02 (0.05)	-0.02	-0.02 (<0.01)*
	Substrate O <sub>2</sub> concentration	0.24 (<0.01)*	0.22*	0.24 (<0.01)*	0.64 (0.01)*	0.55*	0.64 (<0.01)*
	Substrate organic matter	0.01(<0.01)*	0.01*	0.01 (<0.01)*	0.03 (0.03)	0.03	0.03(<0.01)*
	Water salinity	-1.18 (<0.01)*	-1.09*	-1.18 (<0.01)*	0.17 (<0.01)*	0.23*	0.17 (<0.01)*
	Sediment moisture				-0.14 (0.02)*	-0.13*	-0.14 (<0.01)*
	Plant height	<0.001 (<0.01)	<0.001	<0.001 (<0.01)*			
	Plant fiber content	0.14 (<0.01)*	0.13*	0.14 (<0.01)*	0.54 (0.06)*	0.59*	0.54 (<0.01)*
Plant fiber content	Daylight length				0.73 (0.14)*	0.71*	0.73 (<0.01)*
	Minimum temperatures				-0.15 (0.03)*	-0.12*	-0.14 (<0.01)*
	Average temperature	-0.36 (<0.01)*	-0.34*	-0.36 (<0.01)*	-0.12 (0.08)	-0.11	-0.12 (<0.01)*
	Maximum temperature	-1.50 (>0.01)*	-1.58*	-1.50 (<0.01)*	-0.99 (0.11)*	-0.87*	-0.99 (<0.01)*
	Substrate O <sub>2</sub> concentration	-1.00 (<0.01)*	-1.03*	-1.00 (<0.01)*	-0.02 (0.03)	-0.02	-0.02 (<0.01)*
	Substrate organic matter	-0.39 (<0.01)*	-0.40*	-0.39 (<0.01)*	0.74 (0.02)*	0.72*	0.74 (<0.01)*
	Sediment moisture				-0.23 (<0.01)*	-0.20*	-0.23 (<0.01)*
	Water salinity	-0.01 (<0.01)*	-0.01*	-0.01 (<0.01)*	-0.06 (0.01)*	-0.07*	-0.06 (<0.01)*
	Tide amplitude	2.54 (<0.01)*	2.59*	2.54 (<0.01)*			
Plant height	<0.01 (<0.01)	<0.01	<0.01 (<0.01)*	<0.01 (<0.01)	<0.01	<0.01 (<0.01)*	
Moth attack ratios	Precipitation				-0.21 (0.40)	-0.23	-0.23 (0.43)*
	Maximum temperature	0.13 (0.10)	0.13	0.13 (0.10)*			
	Average temperature	0.21 (0.05)*	0.18*	0.21 (0.04)*	-0.23 (0.18)	-0.28	-0.22 (0.18)*
	Water salinity				-0.18 (0.07)*	-0.25*	-0.18 (0.09)*
	Tide amplitude	-0.58 (0.17)*	-0.53*	-0.58 (0.18)*	0.67 (0.28)*	0.73*	0.66 (0.27)*
	Plant density	0.16 (0.06)*	0.14*	0.16 (0.06)*	0.23 (0.09)*	0.26*	0.24 (0.12)*
	Plant height	0.54 (0.10)*	0.41*	0.54 (0.13)*	1.23 (0.18)*	1.27*	1.23 (0.22)*
	Plant fiber content	0.28 (0.07)*	0.25*	0.28 (0.07)*	-0.72 (0.16)*	-0.93*	-0.72 (0.15)*
Plant C:N ratio	0.66 (0.06)*	0.66*	0.66 (0.06)*	0.67 (0.15)*	0.78*	0.67 (0.15)*	

Table S4. Analysis using permutation-based inference of the effects of the plant origin (Plant effect), the transplant site (Site effect) and interaction (Plant: Site) on plant traits and moth attack ratios on *Spartina alterniflora* and *S. densiflora*.

	<i>S. alterniflora</i>				<i>S. densiflora</i>		
		F	Df	p	F	Df	p
Attack ratios	Site	260.44	2	0.0001	1556.77	2	0.0001
	Plant	41.289	2	0.0001	500.175	2	0.0001
	Site:Plant	18.295	4	0.0001	544.447	4	0.0001
	Residuals		46			65	
Plant height	Site	117.45	2	0.0001	57.4985	2	0.0001
	Plant	7.7043	2	0.0025	24.344	2	0.0001
	Site:Plant	5.4733	2	0.0095	49.0607	3	0.0001
	Residuals		33			50	
Plant fiber content	Site	41.329	2	0.0001	16.139	2	0.0001
	Plant	1.0535	2	0.3613	1.22193	2	0.3056
	Site:Plant	0.4784	2	0.6129	1.58405	3	0.2151
	Residuals		24			29	
Plant C:N ratios	Site	3.4632	2	0.0454	28.1398	2	0.0001
	Plant	0.918	2	0.4162	0.74672	2	0.4826
	Site:Plant	1.3443	2	0.2852	2.73066	2	0.0871
	Residuals		26			28	

Table S5. Plant height and plant tissues composition in fiber and C:N ratios of *Spartina alterniflora* and *S. densiflora* from high (SC: 36° 19' S) vs. middle (BB: 38° 51' S) and low-latitude (BSA: 40° 43' S) transplanted to high vs. middle and low-latitude location after 33 months of experiment. Control: auto-transplants treatment. Different lowercase letters indicate differences assessed by 10,000 time Monte Carlo simulation of the pairwise differences of the frequencies of moth attack for each treatment. --: We were unable to assess plant traits, given these were killed by the moth attacks at the experiment end.

Site of transplant	Plant	<i>S. alterniflora</i>			<i>S. densiflora</i>		
	Site of origin	Height	Fiber	C:N	Height	Fiber	C:N
Low latitudes	Control	86.80 (8.09) <sup>a</sup>	66.54 (1.57) <sup>ab</sup>	7.45 (1.89) <sup>a</sup>	86.80 (8.09) <sup>a</sup>	81.12 (1.11) <sup>a</sup>	12.72 (3.59) <sup>a</sup>
	Low	87.50 (6.44) <sup>a</sup>	69.43 (2.09) <sup>a</sup>	7.62 (2.77) <sup>ab</sup>	88.00 (8.85) <sup>a</sup>	80.44 (1.36) <sup>a</sup>	13.02 (3.22) <sup>a</sup>
	Middle	--	--	--	45.79 (7.09) <sup>bc</sup>	82.12 (1.52) <sup>a</sup>	16.78 (3.80) <sup>a</sup>
	High	--	--	--	--	--	--
Middle latitudes	Low	55.86 (7.27) <sup>b</sup>	68.12 (1.65) <sup>a</sup>	5.22 (1.18) <sup>b</sup>	49.04 (7.21) <sup>b</sup>	76.94 (2.59) <sup>c</sup>	7.03 (0.35) <sup>c</sup>
	Control	63.10 (6.23) <sup>c</sup>	66.59 (1.11) <sup>b</sup>	5.85 (0.57) <sup>b</sup>	63.10 (6.23) <sup>d</sup>	74.49 (1.61) <sup>e</sup>	8.95 (1.89) <sup>d</sup>
	Middle	58.50 (7.04) <sup>bc</sup>	68.10 (2.48) <sup>ab</sup>	5.30 (1.32) <sup>b</sup>	60.13 (6.81) <sup>d</sup>	77.54 (2.34) <sup>c</sup>	5.30 (1.03) <sup>c</sup>
	High	40.40 (2.30) <sup>de</sup>	69.91 (2.17) <sup>ab</sup>	5.08 (1.15) <sup>b</sup>	29.60 (6.54) <sup>e</sup>	74.64 (1.64) <sup>c,e</sup>	--
High latitudes	Low	43.20 (6.93) <sup>dg</sup>	75.18 (1.27) <sup>c</sup>	7.26 (2.92) <sup>a</sup>	44.29 (3.09) <sup>bc</sup>	79.85 (0.87) <sup>ad</sup>	9.01 (1.87) <sup>d</sup>
	Middle	39.83 (5.70) <sup>eg</sup>	74.22 (1.04) <sup>c</sup>	5.13 (2.44) <sup>b</sup>	35.55 (7.11) <sup>e</sup>	78.55 (2.23) <sup>cd</sup>	10.39 (3.17) <sup>bd</sup>
	Control	29.80 (6.46) <sup>f</sup>	74.33 (1.41) <sup>c</sup>	7.23 (1.43) <sup>a</sup>	29.80 (6.46) <sup>e</sup>	77.17 (2.10) <sup>c</sup>	9.93 (2.13) <sup>d</sup>
	High	33.07 (7.95) <sup>f</sup>	75.15 (1.72) <sup>c</sup>	7.25 (1.21) <sup>a</sup>	35.67 (9.02) <sup>ce</sup>	78.67 (1.37) <sup>c</sup>	9.59 (2.48) <sup>dc</sup>

Table S6. Plant height and tissues composition in fiber and C:N ratios of *Spartina densiflora* from high (SC: 36° 19' S) vs. middle (BB: 38° 51' S) and low-latitude (BSA: 40° 43' S) transplanted to a moth-free environment at mid-latitude site (Mar del Plata 38° 56' S) with natural photoperiod and temperature values. Different lowercase letters denote significant differences between sites at  $p < 0.05$ ) by Tukey test after ANOVA.

<i>S. densiflora</i>			
Plants	Height	Fiber	C:N
SC	76.20 (8.2) <sup>a</sup>	78.59 (1.8) <sup>a</sup>	13.28 (2.7)
BB	69.30 (8.0) <sup>a,b</sup>	81.86 (1.10) <sup>a</sup>	11.71 (2.8)
BSA	62.40 (5.4) <sup>b</sup>	82.62 (0.4) <sup>b</sup>	11.63 (2.50)

**Figure S1.** A priori causal model to develop Structural Equation Modeling (SEM) of the direct and indirect (by means of its effects on plant traits) effects of physical variables on the frequencies of moth attack on *Spartina alterniflora* and *S. densiflora* along latitude of the SWA coast. The arrows designate the predicted direction of causality. For clarity purposes, a single arrow was drawn. But, please notice that these arrows in the a priori model tested included the relationships (and hence arrows) from each single physical variable (independent variables detailed box inside), to the variable response. Given the high frequency of astronomical tidal flooding at the low marsh (twice a daily), we excluded in the a priori model for *S. alterniflora* the independent variables Precipitation and Sediment moisture.

