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*[JGR: Biogeosciences]*

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Supporting Information for

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**[A unique combination of aerodynamic and surface properties contribute to surface cooling in restored wetlands of the Sacramento-San Joaquin Delta, California]**

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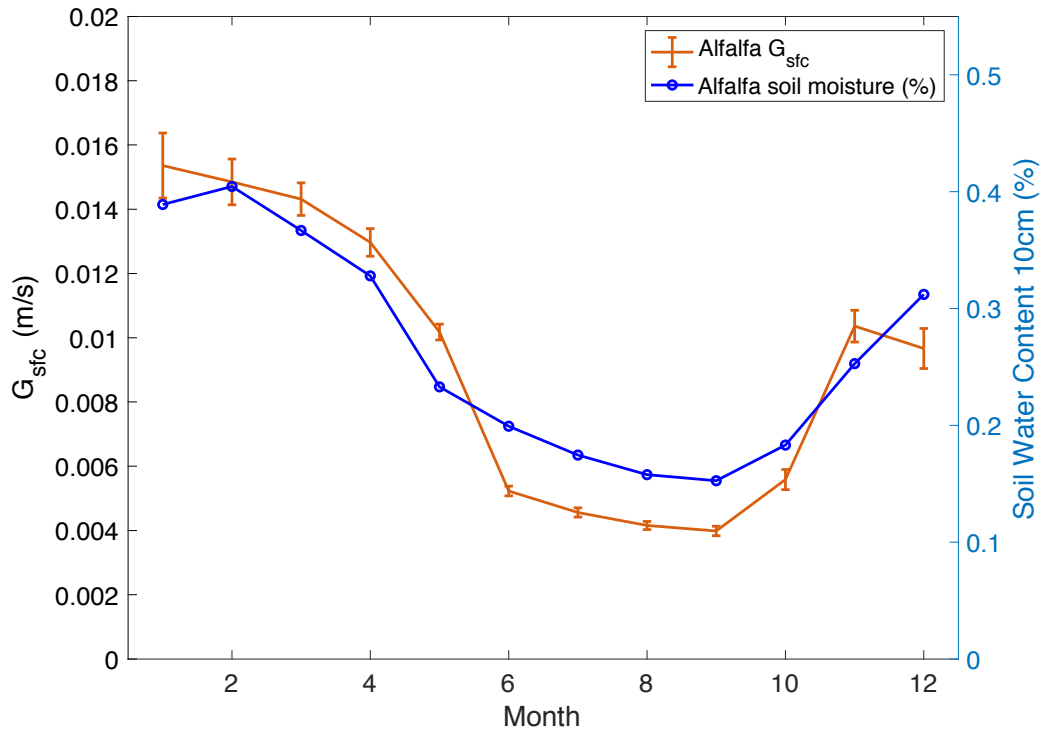
## **Introduction**

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Supplementary figures, referenced in the text.

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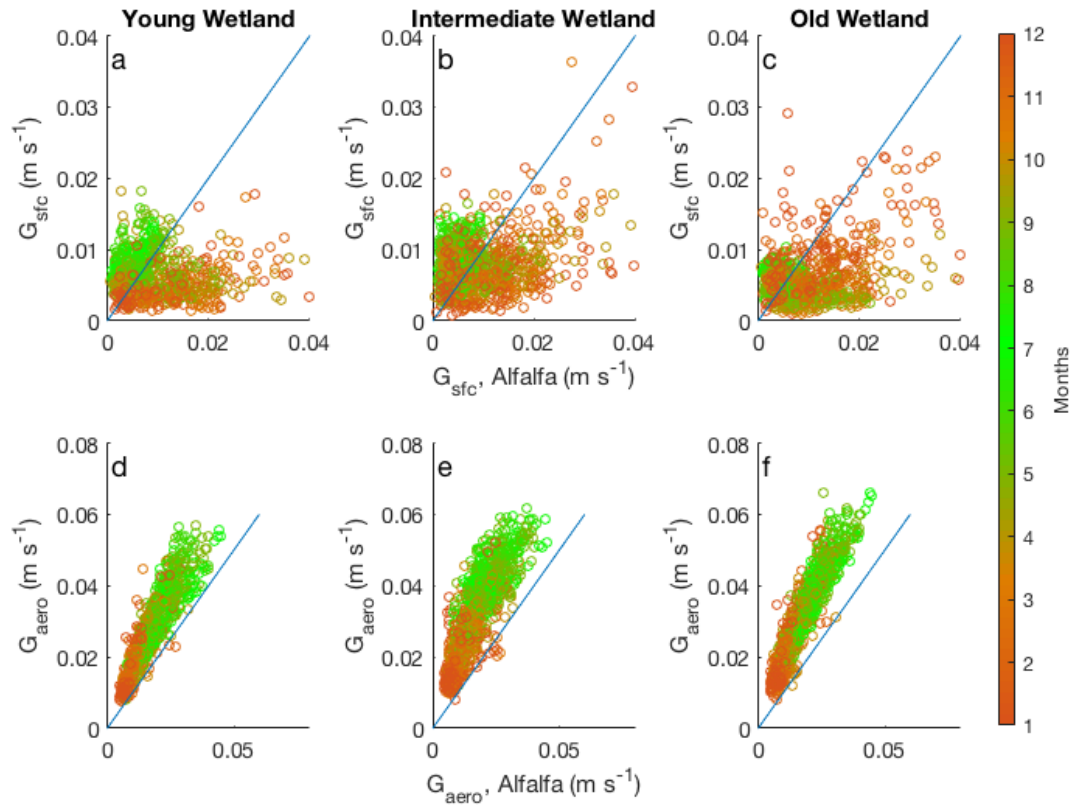
## **Supporting Figures and Tables**



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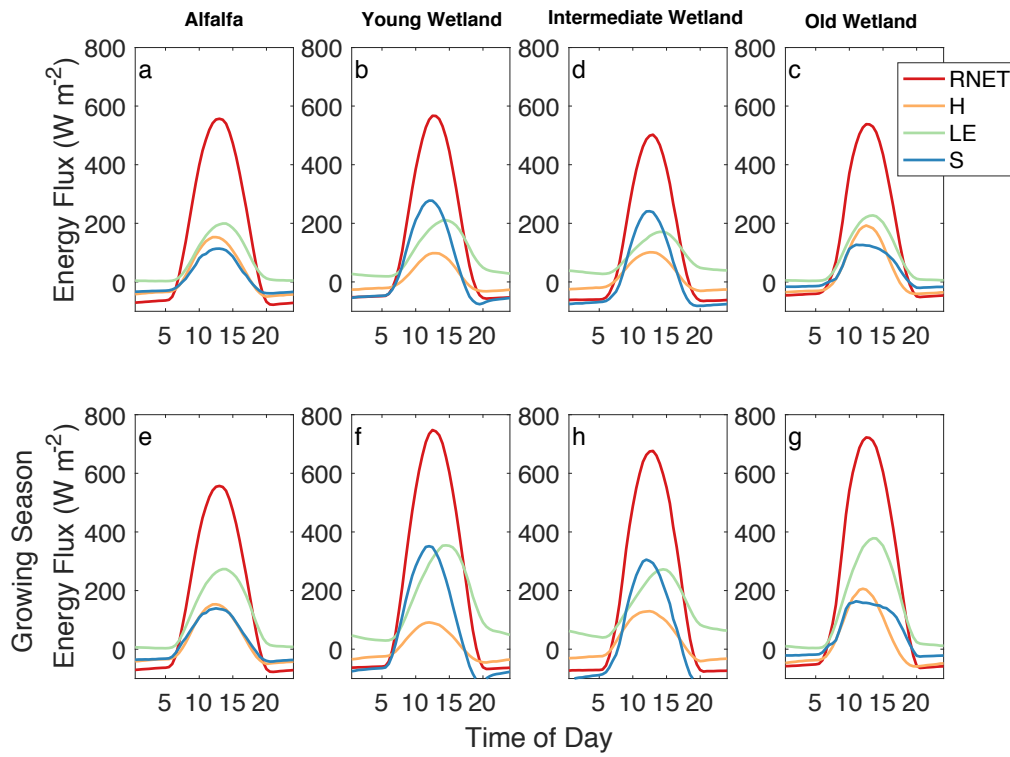
28 *Figure S1: Alfalfa mean monthly surface conductance and soil water content at 10 cm.*

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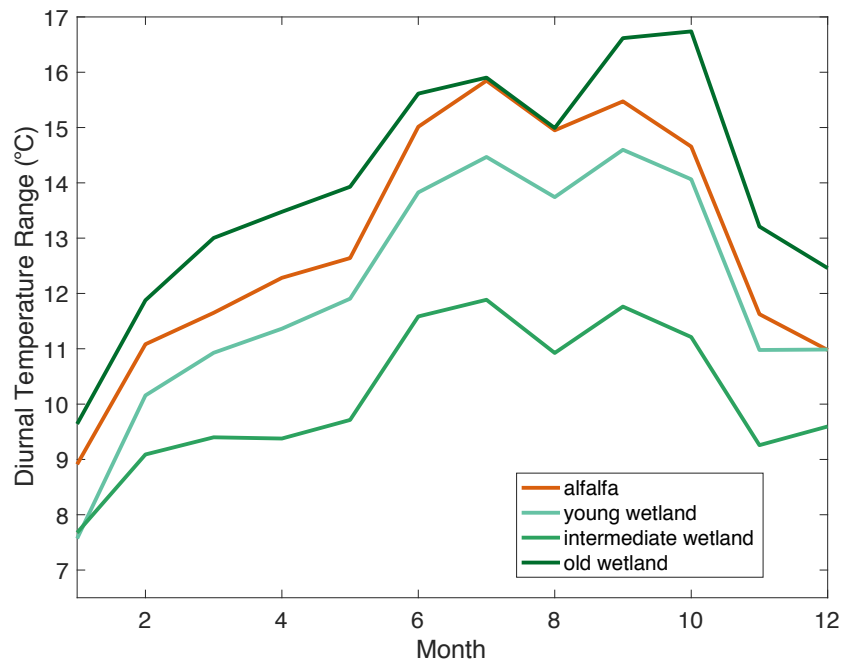
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*Figure S2: One to one plots of surface (a,b,c) and aerodynamic (d,e,f) conductance between the Alfalfa site on the x-axis and the three different restored wetland sites on the y-axis. Data is colored by seasonality, with growing season in green.*

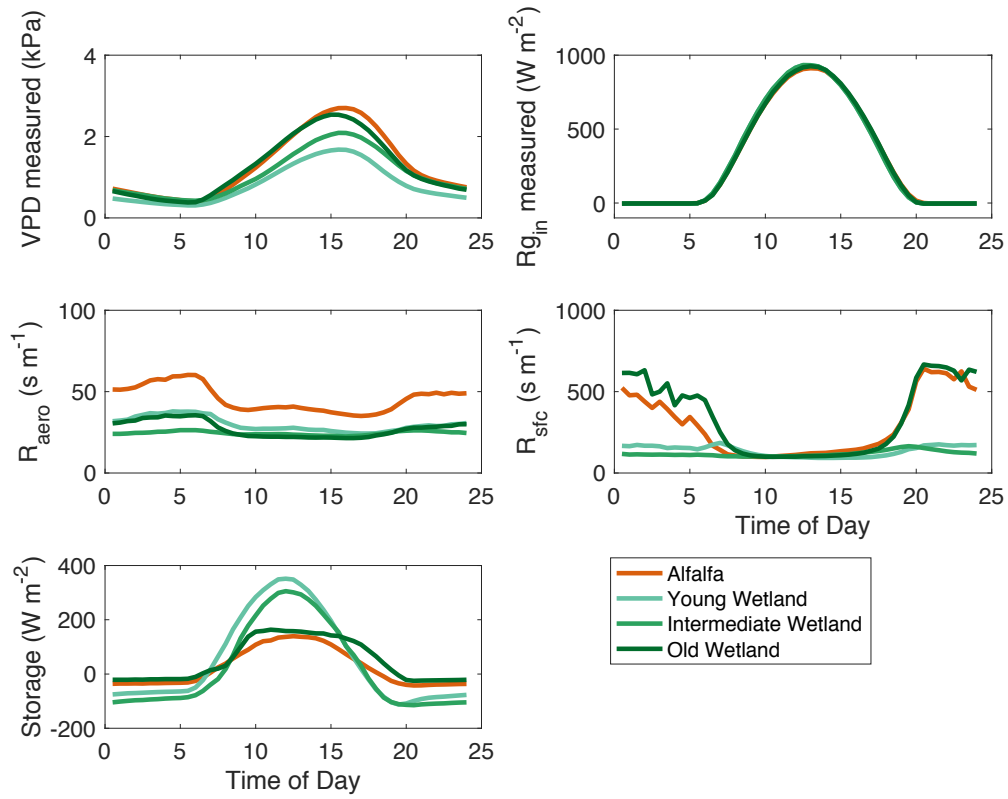


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*Figure S3: Yearly (a-d) and growing season (e-h) mean diel energy fluxes.*



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50 *Figure S5: Energy balance – planetary boundary layer (EB-PBL) model inputs.*

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2015-2017	$\Delta$ Surface Temperature ( $^{\circ}\text{C}$ )			$\Delta$ Net Radiation ( $\text{W m}^{-2}$ )			$\Delta$ Latent Heat Flux ( $\text{W m}^{-2}$ )			$\Delta$ Sensible Heat Flux ( $\text{W m}^{-2}$ )		
	Young Wetland	Intermediate Wetland	Old Wetland	Young Wetland	Intermediate Wetland	Old Wetland	Young Wetland	Intermediate Wetland	Old Wetland	Young Wetland	Intermediate Wetland	Old Wetland
Jan	-1.65	-0.81	-1.15	15.59	-6.51	14.99	-18.25	-22.36	-1.46	6.14	-2.10	1.00
Feb	0.06	0.75	0.35	25.70	-3.62	24.22	-24.25	-36.94	-25.81	24.74	19.68	30.31
Mar	1.60	2.00	1.76	44.05	11.49	38.30	-21.18	-27.53	-48.73	29.08	27.31	64.42
April	1.70	1.91	2.25	46.29	9.76	39.48	8.09	-1.23	-40.75	21.82	20.66	62.11
May	1.52	1.25	1.74	49.53	13.24	47.90	10.40	-7.88	-39.30	28.06	38.99	74.47
June	-0.11	-0.15	0.00	66.20	31.26	65.10	65.98	19.49	26.21	-23.74	10.80	10.63
July	-0.68	-0.87	-1.15	74.92	42.44	74.32	78.68	37.52	63.81	-37.45	0.74	-22.00
Aug	-1.04	-0.73	-1.30	67.07	37.32	66.05	68.55	39.61	63.73	-33.53	-7.13	-26.52
Sept	-0.12	0.77	-0.77	50.75	23.02	49.02	51.95	38.95	46.05	-22.63	-15.98	-15.17
Oct	-0.86	1.36	-0.02	38.56	14.73	38.72	28.06	26.97	11.50	-8.43	-9.69	0.20
Nov	0.33	1.18	0.13	25.81	-0.59	26.91	-6.75	-7.76	-8.38	12.74	-4.41	20.85
Dec	-0.77	0.36	-0.60	22.38	0.56	19.16	-6.80	14.58	-2.60	7.09	-17.50	4.20

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*Table S1: Mean monthly surface temperature and energy balance differences between alfalfa and each wetland. Negative values denote more temperature or energy flux at the wetland, compared to alfalfa.*

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Monthly mean conductance								
	Twitchell Alfalfa		Young Wetland		Intermediate Wetland		Old Wetland	
Month	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )
Jan	0.015	0.010	0.007	0.018	0.009	0.019	0.010	0.020
Feb	0.015	0.012	0.006	0.019	0.008	0.021	0.007	0.022
Mar	0.014	0.014	0.006	0.021	0.008	0.026	0.005	0.026
Apr	0.013	0.018	0.008	0.028	0.009	0.033	0.003	0.033
May	0.010	0.025	0.009	0.035	0.009	0.041	0.004	0.041
Jun	0.005	0.024	0.009	0.035	0.008	0.042	0.005	0.040
Jul	0.005	0.023	0.008	0.035	0.009	0.043	0.006	0.039
Aug	0.004	0.023	0.007	0.037	0.009	0.044	0.007	0.040
Sep	0.004	0.017	0.005	0.028	0.007	0.034	0.006	0.030
Oct	0.006	0.013	0.004	0.021	0.006	0.026	0.005	0.025
Nov	0.010	0.011	0.004	0.017	0.007	0.019	0.007	0.021
Dec	0.010	0.011	0.005	0.017	0.008	0.020	0.008	0.022

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Table S2: Monthly mean surface and aerodynamic conductance.



Growing season mean diel conductance								
	Twitchell Alfalfa		Young Wetland		Intermediate Wetland		Old Wetland	
Hour	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )	$G_s$ ( $m s^{-1}$ )	$G_a$ ( $m s^{-1}$ )
0:00	0.002	0.019	0.006	0.031	0.008	0.042	0.002	0.033
0:30	0.002	0.020	0.006	0.031	0.009	0.041	0.002	0.032
1:00	0.002	0.019	0.006	0.030	0.009	0.041	0.002	0.031
1:30	0.002	0.019	0.006	0.029	0.009	0.041	0.002	0.031
2:00	0.002	0.018	0.006	0.028	0.009	0.040	0.002	0.030
2:30	0.002	0.018	0.006	0.027	0.009	0.040	0.002	0.029
3:00	0.003	0.017	0.007	0.027	0.009	0.039	0.002	0.029
3:30	0.003	0.017	0.006	0.027	0.009	0.039	0.002	0.028
4:00	0.003	0.017	0.006	0.026	0.009	0.039	0.002	0.029
4:30	0.003	0.017	0.007	0.027	0.009	0.038	0.002	0.029
5:00	0.003	0.017	0.007	0.026	0.009	0.038	0.002	0.028
5:30	0.004	0.017	0.006	0.027	0.009	0.038	0.002	0.028
6:00	0.006	0.017	0.006	0.027	0.009	0.038	0.003	0.029
6:30	0.007	0.019	0.005	0.028	0.010	0.039	0.004	0.031
7:00	0.009	0.022	0.006	0.030	0.010	0.040	0.006	0.036
7:30	0.009	0.024	0.007	0.032	0.010	0.041	0.007	0.039
8:00	0.010	0.025	0.007	0.034	0.010	0.042	0.008	0.041
8:30	0.010	0.026	0.008	0.036	0.010	0.042	0.009	0.043
9:00	0.010	0.026	0.009	0.036	0.010	0.042	0.010	0.044
9:30	0.010	0.026	0.010	0.037	0.010	0.042	0.010	0.044
10:00	0.010	0.025	0.010	0.037	0.010	0.042	0.010	0.045
10:30	0.010	0.025	0.010	0.037	0.010	0.042	0.010	0.045

11:00	0.009	0.025	0.010	0.037	0.010	0.042	0.010	0.045
11:30	0.009	0.025	0.010	0.036	0.010	0.042	0.010	0.045
12:00	0.009	0.024	0.010	0.036	0.009	0.042	0.010	0.045
12:30	0.008	0.025	0.011	0.037	0.009	0.043	0.010	0.045
13:00	0.008	0.025	0.011	0.037	0.009	0.043	0.010	0.046
13:30	0.008	0.026	0.011	0.038	0.009	0.043	0.010	0.046
14:00	0.008	0.026	0.011	0.038	0.009	0.044	0.009	0.046
14:30	0.007	0.027	0.011	0.039	0.009	0.044	0.009	0.046
15:00	0.007	0.027	0.011	0.040	0.009	0.044	0.009	0.046
15:30	0.007	0.028	0.011	0.040	0.008	0.044	0.008	0.047
16:00	0.007	0.028	0.010	0.041	0.008	0.044	0.008	0.047
16:30	0.006	0.029	0.010	0.041	0.008	0.044	0.007	0.046
17:00	0.006	0.028	0.010	0.041	0.007	0.043	0.007	0.045
17:30	0.005	0.028	0.009	0.041	0.007	0.042	0.006	0.043
18:00	0.004	0.027	0.008	0.040	0.007	0.041	0.004	0.042
18:30	0.003	0.026	0.008	0.039	0.006	0.040	0.003	0.040
19:00	0.003	0.024	0.007	0.038	0.006	0.039	0.002	0.038
19:30	0.002	0.022	0.007	0.036	0.006	0.038	0.002	0.037
20:00	0.002	0.021	0.006	0.035	0.006	0.038	0.001	0.036
20:30	0.002	0.021	0.006	0.035	0.007	0.038	0.002	0.036
21:00	0.002	0.021	0.006	0.034	0.007	0.038	0.002	0.035
21:30	0.002	0.020	0.006	0.035	0.008	0.039	0.002	0.035
22:00	0.002	0.021	0.006	0.034	0.008	0.039	0.002	0.035
22:30	0.002	0.020	0.006	0.033	0.008	0.040	0.002	0.034
23:00	0.002	0.021	0.006	0.033	0.008	0.040	0.002	0.033
23:30	0.002	0.020	0.006	0.033	0.008	0.041	0.002	0.033



