Analysis Results - Random Forest

importance_mean
regression
0.5441458900607786
0.012830433148343605
39.3700908334597
4.061467245208062
bookkeeping fields; high importance for them usually reflects row ordering, not biology. Consider excluding them.']
HANNON_JUN', 'COVER_RICHNESS_JUL', 'COVER_TOTAL_JUL', 'COVER_SHANNON_JUL', 'COVER_RICHNESS_AUG', 'COVER_TO
3.01905833333333, 18.0465534351145, 16.46481176844783, 18.639591666666668, 8.692183333333332, 18.16529363867685, 24.0547
0.24287090400993458
0.15567829334512998
0.0538901971122333
0.04837467983535242
0.045649100851543035
0.044120189792577834
0.03988751894729435
0.03219225555580141
0.028124445817846427
0.02083090768285487
0.016521458726209425
0.014597202884851149
0.01424901290511191
0.013392963739215035
0.013185675209029649
0.013146797284762793
0.012732814673102137
0.01239442326321856
0.01204488748055535
0.011957532260909514
0.01182060900220989
0.011079489193988894
0.011018037086031161

0.010565978445647953
0.010564497583715951
0.010312682119536383
0.010082127193006876
0.009206856874265305
0.008422472989215118
0.00828207429761723
0.0075293075879430795
0.007113794570243463
0.00668345833650244
0.006037883117457337
0.0059922870933109195
0.004519285188789859
0.004010344407470153
0.0038737964644315753
0.0035591796786130637
0.0034845773924696744

Pre-Modeling Statistics

Feature	Pearson r	Pearson FDR	Spearman rho	Spearman FDR	ANOVA F	ANOVA FDR	Sig?
PLOT	-0.3566	0.0000	-0.2676	0.0000	57.9998	0.0000	Yes
LAT	0.3911	0.0000	0.2634	0.0000	71.8502	0.0000	Yes
LONG	0.3848	0.0000	0.2388	0.0000	69.1789	0.0000	Yes
ENV_SOILNH4	0.0824	0.1208	0.1870	0.0002	2.7239	0.1208	Yes
ENV_SOILNO3	0.0367	0.5015	0.0933	0.0691	0.5376	0.5015	No
ENV_SOILP	0.2028	0.0001	0.1271	0.0133	17.0726	0.0001	Yes
ENV_SOILOC	0.4830	0.0000	0.4605	0.0000	121.1279	0.0000	Yes
ENV_SOILTN	0.4801	0.0000	0.4567	0.0000	119.2385	0.0000	Yes
ENV_SOILTC	0.4829	0.0000	0.4597	0.0000	121.0029	0.0000	Yes
ENV_PH	-0.0157	0.7540	-0.0332	0.5344	0.0983	0.7540	No
ENV_SOILCLAY	0.3541	0.0000	0.3538	0.0000	57.0470	0.0000	Yes
ENV_SOILSILT	0.4306	0.0000	0.4009	0.0000	90.5771	0.0000	Yes
ENV_SOILSAND	-0.4124	0.0000	-0.3838	0.0000	81.5668	0.0000	Yes

ENV_SOILMOIS	0.4614	0.0000	0.4451	0.0000	107.6683	0.0000	Yes
RC_SHOOTMASS	0.5332	0.0000	0.6073	0.0000	158.0640	0.0000	Yes
RC_WOODMASS	0.1152	0.0283	0.1585	0.0019	5.3525	0.0283	Yes
RC_LITTERMASS	0.4564	0.0000	0.3922	0.0000	104.7397	0.0000	Yes
RC_LITTERWMASS	0.0591	0.2724	0.1293	0.0120	1.3947	0.2724	Yes
PC_WOODMASS	0.2348	0.0000	0.2313	0.0000	23.2218	0.0000	Yes
PC_LITTERMASS	0.4327	0.0000	0.4261	0.0000	91.6693	0.0000	Yes
PC_LITTERWMASS	0.1439	0.0058	0.1252	0.0144	8.4115	0.0058	Yes
PC_ROOTMASS	0.1007	0.0571	0.2809	0.0000	4.0741	0.0571	Yes
PC_HEIGHT	0.4465	0.0000	0.4329	0.0000	99.0837	0.0000	Yes
GH_COUNT	-0.2974	0.0000	-0.2940	0.0000	38.6160	0.0000	Yes
ENV_AIRTEMP	0.0247	0.6379	-0.0142	0.7971	0.2435	0.6379	No
COVER_RICHNESS_JUN	-0.1236	0.0185	-0.2189	0.0000	6.1702	0.0185	Yes
COVER_TOTAL_JUN	0.3239	0.0000	0.3605	0.0000	46.6550	0.0000	Yes
COVER_SHANNON_JUN	-0.1286	0.0143	-0.2196	0.0000	6.6913	0.0143	Yes
COVER_RICHNESS_JUL	-0.0938	0.0761	-0.1713	0.0008	3.5336	0.0761	Yes
COVER_TOTAL_JUL	0.3024	0.0000	0.4263	0.0000	40.0461	0.0000	Yes
COVER_SHANNON_JUL	-0.0286	0.5981	-0.1044	0.0421	0.3263	0.5981	Yes
COVER_RICHNESS_AUG	-0.1785	0.0005	-0.2616	0.0000	13.0987	0.0005	Yes
COVER_TOTAL_AUG	0.3798	0.0000	0.4245	0.0000	67.0752	0.0000	Yes
COVER_SHANNON_AUG	-0.1615	0.0018	-0.2277	0.0000	10.6585	0.0018	Yes
PASTURE_TOTALAREA	-0.3966	0.0000	-0.3771	0.0000	74.3077	0.0000	Yes
SUBPASTURE_TOTALAREA	-0.3128	0.0000	-0.3020	0.0000	43.1698	0.0000	Yes
PASTURE_FORESTAREA	0.2953	0.0000	0.2456	0.0000	38.0232	0.0000	Yes
PASTURE_WETLANDAREA	-0.0716	0.1802	0.0093	0.8533	2.0486	0.1802	No
SUBPASTURE_FORESTAREA	0.2507	0.0000	0.2206	0.0000	26.6878	0.0000	Yes
SUBPASTURE_WETLANDAREA	0.0440	0.4219	0.0704	0.1730	0.7734	0.4219	No

Permutation Importance

Feature	Mean	SD
RC_SHOOTMASS	0.1785	0.0372
RC_LITTERMASS	0.1239	0.0229
PC_LITTERMASS	0.0505	0.0164

PC_WOODMASS	0.0372	0.0128
COVER_TOTAL_JUL	0.0311	0.0122
ENV_SOILOC	0.0129	0.0088
ENV_SOILTN	0.0117	0.0021
SUBPASTURE_TOTALAREA	0.0090	0.0039
LAT	0.0077	0.0018
COVER_SHANNON_AUG	0.0044	0.0036
ENV_SOILTC	0.0042	0.0076
PASTURE_TOTALAREA	0.0041	0.0047
PC_HEIGHT	0.0039	0.0016
COVER_SHANNON_JUN	0.0039	0.0016
ENV_SOILNH4	0.0036	0.0027
COVER_RICHNESS_AUG	0.0033	0.0015
PASTURE_FORESTAREA	0.0030	0.0016
ENV_SOILSILT	0.0030	0.0072
LONG	0.0015	0.0015
SUBPASTURE_WETLANDAREA	0.0015	0.0018
ENV_SOILCLAY	0.0014	0.0009
COVER_TOTAL_AUG	0.0010	0.0007
ENV_SOILP	0.0009	0.0025
PASTURE_WETLANDAREA	0.0009	0.0025
SUBPASTURE_FORESTAREA	0.0007	0.0012
COVER_SHANNON_JUL	0.0005	0.0016
ENV_SOILSAND	0.0004	0.0015
COVER_RICHNESS_JUN	0.0003	0.0051
PLOT	0.0003	0.0007
COVER_TOTAL_JUN	0.0003	0.0039
RC_LITTERWMASS	0.0003	0.0017
GH_COUNT	0.0002	0.0005
RC_WOODMASS	-0.0005	0.0008
ENV_SOILNO3	-0.0006	0.0028
COVER_RICHNESS_JUL	-0.0010	0.0054
ENV_AIRTEMP	-0.0013	0.0007
PC_ROOTMASS	-0.0024	0.0030
PC_LITTERWMASS	-0.0029	0.0028

ENV_PH	-0.0030	0.0033
ENV_SOILMOIS	-0.0030	0.0005

SHAP Values

Feature	Mean |Abs|
RC_SHOOTMASS	3.1732
PC_LITTERMASS	0.8018
ENV_SOILTN	0.7207
COVER_TOTAL_JUL	0.6951
RC_LITTERMASS	0.6325
PC_WOODMASS	0.5116
COVER_TOTAL_AUG	0.4220
ENV_SOILTC	0.3008
LAT	0.2414
COVER_RICHNESS_AUG	0.2336
PC_LITTERWMASS	0.1972
ENV_PH	0.1740
COVER_RICHNESS_JUN	0.1478
COVER_SHANNON_JUN	0.1476
PASTURE_TOTALAREA	0.1467
COVER_SHANNON_AUG	0.1447
ENV_SOILSILT	0.1302
PC_HEIGHT	0.1216
SUBPASTURE_FORESTAREA	0.1195
SUBPASTURE_TOTALAREA	0.1193
COVER_SHANNON_JUL	0.1121
SUBPASTURE_WETLANDAREA	0.1056
ENV_SOILOC	0.1040
ENV_SOILNH4	0.0991
ENV_SOILMOIS	0.0987
PLOT	0.0864
COVER_TOTAL_JUN	0.0828
RC_WOODMASS	0.0776

COVER_RICHNESS_JUL	0.0771
ENV_SOILNO3	0.0682
ENV_SOILCLAY	0.0612
ENV_SOILP	0.0552
PASTURE_FORESTAREA	0.0550
LONG	0.0506
ENV_AIRTEMP	0.0450
PASTURE_WETLANDAREA	0.0433
GH_COUNT	0.0429
ENV_SOILSAND	0.0366
PC_ROOTMASS	0.0328
RC_LITTERWMASS	0.0257

Per-Split Model Metrics

Split	R^2	MSE
	0.5598	44.4866
	0.5284	39.0723
	0.5442	34.5514
Mean ± SD	**0.5441 ± 0.0128**	**39.3701 ± 4.0615**