Analysis Results - Random Forest

importance_mean
regression
0.3497239606917943
0.15174442306263994
50.84426299526842
2.6438038099601426
ookkeeping fields; high importance for them usually reflects row ordering, not biology. Consider excluding them.']
OVER_SHANNON_AUG', 'LAT', 'LONG', 'PASTURE_TOTALAREA', 'SUBPASTURE_TOTALAREA', 'PASTURE_FORESTAREA', 'PASTUR
33, 14.10628333333333, 22.95019166666667, 17.869716666666662, 17.77156666666667, 13.386466666666665, 15.330441666666665,
0.2873698715648919
0.06501857540068363
0.05063161188126839
0.032886791438989836
0.032060996810868346
0.03056340705840428
0.029349004242134605
0.02798803407414961
0.026562974312877703
0.024614078587262073
0.023070714999630874
0.02257832785847332
0.022521089049045845
0.022074733649940198
0.021857912251229444
0.02070007380485003
0.020177533667539063
0.02007517234062996
0.019177312634512587
0.01832240603984556
0.018127688729566868
0.017307986664575826
0.016308284182041523

0.01627390386900517
0.01613300920554246
0.015663709236423205
0.014860215531202614
0.014197206038156098
0.01403072053452168
0.013751564255119553
0.010807815343500995
0.00989537659667957
0.005041898146437193

Pre-Modeling Statistics

Feature	Pearson r	Pearson FDR	Spearman rho	Spearman FDR	ANOVA F	ANOVA FDR	Sig?
PLOT	-0.3602	0.0000	-0.2762	0.0000	58.3020	0.0000	Yes
ENV_SOILNH4	0.0948	0.0712	0.2332	0.0000	3.5459	0.0712	Yes
ENV_SOILNO3	0.0490	0.3658	0.1557	0.0023	0.9414	0.3658	Yes
ENV_SOILP	0.2086	0.0000	0.1279	0.0127	17.7800	0.0000	Yes
ENV_SOILOC	0.4799	0.0000	0.4664	0.0000	117.0170	0.0000	Yes
ENV_SOILTN	0.4810	0.0000	0.4640	0.0000	117.6691	0.0000	Yes
ENV_SOILTC	0.4838	0.0000	0.4658	0.0000	119.4975	0.0000	Yes
ENV_PH	-0.0175	0.7289	-0.0393	0.4651	0.1203	0.7289	No
ENV_SOILCLAY	0.3526	0.0000	0.3511	0.0000	55.5275	0.0000	Yes
ENV_SOILSILT	0.4335	0.0000	0.4026	0.0000	90.4940	0.0000	Yes
ENV_SOILSAND	-0.4135	0.0000	-0.3816	0.0000	80.6270	0.0000	Yes
ENV_SOILMOIS	0.4648	0.0000	0.4496	0.0000	107.7234	0.0000	Yes
COVER_RICHNESS_JUN	-0.1236	0.0180	-0.2224	0.0000	6.0689	0.0180	Yes
COVER_TOTAL_JUN	0.3246	0.0000	0.3628	0.0000	46.0578	0.0000	Yes
COVER_SHANNON_JUN	-0.1289	0.0139	-0.2211	0.0000	6.6112	0.0139	Yes
COVER_RICHNESS_JUL	-0.0952	0.0712	-0.1762	0.0005	3.5783	0.0712	Yes
COVER_TOTAL_JUL	0.3040	0.0000	0.4258	0.0000	39.8262	0.0000	Yes
COVER_SHANNON_JUL	-0.0290	0.5844	-0.1081	0.0354	0.3289	0.5844	Yes
COVER_RICHNESS_AUG	-0.1788	0.0005	-0.2615	0.0000	12.9125	0.0005	Yes
COVER_TOTAL_AUG	0.3803	0.0000	0.4278	0.0000	66.1066	0.0000	Yes

COVER_SHANNON_AUG	-0.1623	0.0017	-0.2305	0.0000	10.5809	0.0017	Yes
LAT	0.3925	0.0000	0.2620	0.0000	71.1924	0.0000	Yes
LONG	0.3863	0.0000	0.2380	0.0000	68.5667	0.0000	Yes
PASTURE_TOTALAREA	-0.3975	0.0000	-0.3756	0.0000	73.3916	0.0000	Yes
SUBPASTURE_TOTALAREA	-0.3140	0.0000	-0.3013	0.0000	42.7582	0.0000	Yes
PASTURE_FORESTAREA	0.2970	0.0000	0.2509	0.0000	37.8304	0.0000	Yes
PASTURE_WETLANDAREA	-0.0718	0.1766	0.0063	0.9004	2.0286	0.1766	No
ENV_AIRTEMP	0.0357	0.5115	-0.0067	0.9004	0.4987	0.5115	No
GH_COUNT	-0.3535	0.0000	-0.3948	0.0000	55.8253	0.0000	Yes
PC_HEIGHT	0.5451	0.0000	0.5156	0.0000	165.2833	0.0000	Yes
ENV_PROBEMOIS_AUG	0.5002	0.0000	0.4429	0.0000	130.4838	0.0000	Yes
ENV_PROBEMOIS_JUL	0.3403	0.0000	0.2940	0.0000	51.1940	0.0000	Yes
ENV_PROBEMOIS_JUN	0.2328	0.0000	0.2335	0.0000	22.4076	0.0000	Yes

Permutation Importance

Feature	Mean	SD
PC_HEIGHT	0.1815	0.0811
SUBPASTURE_TOTALAREA	0.0530	0.0267
ENV_PROBEMOIS_JUN	0.0157	0.0110
COVER_RICHNESS_JUL	0.0138	0.0104
LONG	0.0105	0.0100
COVER_TOTAL_JUL	0.0096	0.0132
PLOT	0.0091	0.0041
PASTURE_TOTALAREA	0.0081	0.0117
COVER_TOTAL_JUN	0.0072	0.0114
COVER_SHANNON_JUN	0.0060	0.0048
COVER_RICHNESS_AUG	0.0056	0.0088
COVER_RICHNESS_JUN	0.0047	0.0030
LAT	0.0045	0.0012
PASTURE_FORESTAREA	0.0034	0.0111
COVER_TOTAL_AUG	0.0026	0.0113
ENV_SOILMOIS	0.0025	0.0121
ENV_SOILNO3	0.0024	0.0004

ENV_AIRTEMP	0.0021	0.0040
COVER_SHANNON_JUL	0.0017	0.0013
PASTURE_WETLANDAREA	0.0016	0.0047
COVER_SHANNON_AUG	0.0014	0.0079
ENV_SOILCLAY	0.0002	0.0030
ENV_SOILNH4	-0.0000	0.0067
ENV_PH	-0.0003	0.0003
ENV_SOILTN	-0.0012	0.0024
ENV_SOILP	-0.0013	0.0192
ENV_SOILOC	-0.0025	0.0061
ENV_PROBEMOIS_AUG	-0.0043	0.0407
ENV_SOILTC	-0.0045	0.0122
ENV_PROBEMOIS_JUL	-0.0061	0.0054
ENV_SOILSILT	-0.0144	0.0157
GH_COUNT	-0.0186	0.0150
ENV_SOILSAND	-0.0188	0.0247

SHAP Values

Feature	Mean |Abs|
PC_HEIGHT	3.4051
COVER_TOTAL_JUL	1.0292
ENV_PROBEMOIS_AUG	0.7705
ENV_SOILMOIS	0.4773
COVER_TOTAL_AUG	0.4086
COVER_RICHNESS_AUG	0.3694
GH_COUNT	0.3585
PASTURE_TOTALAREA	0.3453
ENV_SOILTC	0.2734
COVER_TOTAL_JUN	0.2639
ENV_SOILP	0.2598
COVER_SHANNON_JUN	0.2401
ENV_SOILTN	0.2353
COVER_RICHNESS_JUL	0.2221

COVER_SHANNON_AUG	0.2190
SUBPASTURE_TOTALAREA	0.2145
ENV_SOILSAND	0.2045
ENV_SOILSILT	0.2038
LONG	0.2035
COVER_SHANNON_JUL	0.1782
COVER_RICHNESS_JUN	0.1563
ENV_PH	0.1390
PASTURE_FORESTAREA	0.1346
ENV_AIRTEMP	0.1285
LAT	0.1261
ENV_SOILOC	0.1207
PLOT	0.1206
ENV_PROBEMOIS_JUL	0.1067
ENV_SOILNO3	0.0887
ENV_PROBEMOIS_JUN	0.0873
ENV_SOILNH4	0.0826
PASTURE_WETLANDAREA	0.0630
ENV_SOILCLAY	0.0579

Per-Split Model Metrics

Split	R^2	MSE
	0.5417	54.2708
	0.3368	47.8353
	0.1707	50.4267
Mean ± SD	**0.3497 ± 0.1517**	**50.8443 ± 2.6438**