Analysis Results - Random Forest

importance_mean
regression
0.345638690529327
0.12295229864276656
52.23280572270131
7.541087891533945
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
38333333333, 15.487625, 23.975075000000007, 19.327741666666668, 17.4549, 15.241141666666664, 18.077516666666668, 11.26980
0.10581545866623181
0.06782614231427267
0.06245887019405166
0.05818591560341483
0.05185781953996077
0.04935628545652692
0.04399616087108105
0.043994946025141236
0.04299319632237191
0.03736143427527017
0.03717139475449366
0.03541196479511028
0.02999009245312659
0.026359835504559476
0.02616140540771854
0.021487381920337032
0.02148142081672542
0.02146565780631389
0.02130092457255353
0.021130544887428836
0.019089065117876673
0.018976806903796325
0.017435435088194447

0.015585509959001454
0.0153775414225072
0.014189531720847469
0.014157707604403361
0.013846239138687433
0.012954413370658724
0.009778927626821275
0.007867002341129196
0.007536520912957616
0.007398446606428602

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	0.0825	0.1209	0.1837	0.0003	2.6781	0.1209	Yes
ENV_SOILNO3	0.0367	0.5144	0.0909	0.0791	0.5285	0.5144	No
ENV_SOILP	0.2028	0.0001	0.1248	0.0157	16.7772	0.0001	Yes
ENV_SOILOC	0.4835	0.0000	0.4601	0.0000	119.2943	0.0000	Yes
ENV_SOILTN	0.4808	0.0000	0.4570	0.0000	117.5512	0.0000	Yes
ENV_SOILTC	0.4834	0.0000	0.4595	0.0000	119.2008	0.0000	Yes
ENV_PH	-0.0157	0.7558	-0.0387	0.4727	0.0968	0.7558	No
ENV_SOILCLAY	0.3548	0.0000	0.3541	0.0000	56.2918	0.0000	Yes
ENV_SOILSILT	0.4313	0.0000	0.4004	0.0000	89.3405	0.0000	Yes
ENV_SOILSAND	-0.4132	0.0000	-0.3831	0.0000	80.5038	0.0000	Yes
ENV_SOILMOIS	0.4618	0.0000	0.4453	0.0000	105.9672	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	0.0724	-0.1762	0.0005	3.5783	0.0724	Yes
COVER_TOTAL_JUL	0.3040	0.0000	0.4258	0.0000	39.8262	0.0000	Yes
COVER_SHANNON_JUL	-0.0290	0.6032	-0.1081	0.0366	0.3289	0.6032	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	0.0248	0.6440	-0.0134	0.8151	0.2400	0.6440	No
GH_COUNT	-0.3009	0.0000	-0.2971	0.0000	38.9156	0.0000	Yes
PC_HEIGHT	0.4491	0.0000	0.4438	0.0000	98.8059	0.0000	Yes
ENV_PROBEMOIS_AUG	0.5002	0.0000	0.4429	0.0000	130.4838	0.0000	Yes
ENV_PROBEMOIS_JUL	0.3386	0.0000	0.2924	0.0000	50.6438	0.0000	Yes
ENV_PROBEMOIS_JUN	0.2328	0.0000	0.2335	0.0000	22.4076	0.0000	Yes

Permutation Importance

Feature	Mean	SD
SUBPASTURE_TOTALAREA	0.0838	0.0756
COVER_TOTAL_JUL	0.0371	0.0111
PC_HEIGHT	0.0330	0.0050
PLOT	0.0211	0.0139
COVER_TOTAL_AUG	0.0172	0.0119
ENV_PROBEMOIS_AUG	0.0169	0.0441
ENV_SOILP	0.0165	0.0035
LAT	0.0143	0.0060
ENV_SOILTC	0.0143	0.0472
LONG	0.0112	0.0091
ENV_PROBEMOIS_JUN	0.0106	0.0036
ENV_SOILOC	0.0091	0.0160
ENV_SOILTN	0.0091	0.0128
COVER_RICHNESS_AUG	0.0083	0.0063
PASTURE_WETLANDAREA	0.0079	0.0022
PASTURE_FORESTAREA	0.0068	0.0217
COVER_RICHNESS_JUN	0.0060	0.0045

PASTURE_TOTALAREA	0.0048	0.0043
COVER_SHANNON_JUN	0.0046	0.0029
COVER_RICHNESS_JUL	0.0044	0.0013
ENV_PROBEMOIS_JUL	0.0036	0.0040
ENV_SOILNO3	0.0034	0.0033
ENV_SOILCLAY	0.0033	0.0046
COVER_TOTAL_JUN	0.0030	0.0204
ENV_SOILNH4	0.0018	0.0013
ENV_PH	0.0012	0.0029
ENV_AIRTEMP	0.0008	0.0029
ENV_SOILSAND	0.0006	0.0048
GH_COUNT	-0.0007	0.0018
COVER_SHANNON_AUG	-0.0012	0.0049
COVER_SHANNON_JUL	-0.0016	0.0027
ENV_SOILSILT	-0.0058	0.0073
ENV_SOILMOIS	-0.0089	0.0305

SHAP Values

Feature	Mean |Abs|
ENV_PROBEMOIS_AUG	1.6375
COVER_TOTAL_JUL	1.2206
ENV_SOILTN	0.7822
ENV_SOILTC	0.7653
COVER_TOTAL_AUG	0.6028
PASTURE_TOTALAREA	0.5172
PASTURE_FORESTAREA	0.4910
ENV_SOILMOIS	0.4853
PC_HEIGHT	0.4597
SUBPASTURE_TOTALAREA	0.4173
COVER_RICHNESS_AUG	0.4052
COVER_TOTAL_JUN	0.3391
ENV_SOILOC	0.2923
LONG	0.2694

COVER_SHANNON_AUG	0.2516
PLOT	0.2476
COVER_SHANNON_JUN	0.2435
COVER_SHANNON_JUL	0.2195
ENV_SOILP	0.2172
ENV_SOILSILT	0.1889
ENV_PH	0.1561
COVER_RICHNESS_JUL	0.1491
LAT	0.1297
ENV_PROBEMOIS_JUL	0.1252
COVER_RICHNESS_JUN	0.1155
ENV_PROBEMOIS_JUN	0.1060
ENV_SOILNH4	0.1033
PASTURE_WETLANDAREA	0.1005
ENV_SOILNO3	0.0946
ENV_SOILSAND	0.0713
GH_COUNT	0.0658
ENV_SOILCLAY	0.0653
ENV_AIRTEMP	0.0600

Per-Split Model Metrics

Split	R^2	MSE
	0.4729	62.4129
	0.3846	44.3901
	0.1794	49.8954
Mean ± SD	**0.3456 ± 0.1230**	**52.2328 ± 7.5411**