

Logistic and Probit Regression for Meron Data

Results of linear regression from exploratory analysis

Residuals:

	Min	1Q	Median	3Q	Max
	-1.15400	-0.23830	0.02867	0.23995	0.81359

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-5.5060718	1.3355106	-4.123	5.62e-05	***
alt	0.0066339	0.0014086	4.709	4.83e-06	***
stream.dist	-0.0020502	0.0006666	-3.075	0.00242	**
road.dist	0.0001016	0.0001829	0.556	0.57900	
water.dist	0.0003433	0.0001803	1.904	0.05850	.
slope	1.0618379	1.2894984	0.823	0.41130	
ns.aspect	0.0025722	0.0018368	1.400	0.16305	
ew.aspect	0.0010591	0.0031985	0.331	0.74092	
cattle.low	0.3890631	0.1695149	2.295	0.02283	*
cattle.med.high	0.1834058	0.2066002	0.888	0.37582	
goats	0.1478609	0.2694239	0.549	0.58379	
slope:ns.aspect	-0.0261511	0.0102421	-2.553	0.01147	*
slope:ew.aspect	0.0130690	0.0193914	0.674	0.50117	

Residual standard error: 0.3466 on 187 degrees of freedom
Multiple R-squared: 0.4996, Adjusted R-squared: 0.4674
F-statistic: 15.56 on 12 and 187 DF, p-value: < 2.2e-16

Results of logistic regression

Deviance Residuals:

	Min	1Q	Median	3Q	Max
	-3.4974	-0.3888	0.1139	0.4903	2.1899

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-3.209e+01	1.425e+03	-0.023	0.98203	
alt	4.874e-02	1.374e-02	3.546	0.00039	***
stream.dist	-1.489e-02	6.075e-03	-2.451	0.01426	*
road.dist	-5.820e-04	1.721e-03	-0.338	0.73529	
water.dist	3.610e-03	1.760e-03	2.051	0.04022	*
slope	1.137e+01	1.169e+01	0.972	0.33100	
ns.aspect	2.804e-02	1.805e-02	1.554	0.12018	
ew.aspect	-2.098e-02	3.628e-02	-0.578	0.56304	
cattle.low	-9.500e+00	1.425e+03	-0.007	0.99468	
cattle.med.high	-1.107e+01	1.425e+03	-0.008	0.99380	
goats	-1.061e+01	1.425e+03	-0.007	0.99406	
slope:ns.aspect	-3.032e-01	1.094e-01	-2.771	0.00559	**
slope:ew.aspect	2.953e-01	2.343e-01	1.260	0.20756	

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 256.41 on 199 degrees of freedom
Residual deviance: 122.60 on 187 degrees of freedom
AIC: 148.6

Number of Fisher Scoring iterations: 16

Results of logistic regression

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(Dispersion parameter for binomial family taken to be 1)

Null deviance: 256.41 on 199 degrees of freedom
Residual deviance: 122.60 on 187 degrees of freedom
AIC: 148.6

Number of Fisher Scoring iterations: 16

Results of probit regression

Deviance Residuals:

Min	1Q	Median	3Q	Max
-3.5588	-0.4136	0.1045	0.5246	2.0799

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-1.911e+01	2.043e+02	-0.094	0.925453	
alt	2.417e-02	7.120e-03	3.394	0.000688	***
stream.dist	-8.174e-03	3.288e-03	-2.486	0.012926	*
road.dist	-2.985e-04	9.007e-04	-0.331	0.740335	
water.dist	1.997e-03	9.193e-04	2.172	0.029834	*
slope	4.823e+00	6.164e+00	0.782	0.433946	
ns.aspect	1.972e-02	9.920e-03	1.988	0.046825	*
ew.aspect	-1.754e-02	1.891e-02	-0.928	0.353487	
cattle.low	-1.817e+00	2.041e+02	-0.009	0.992897	
cattle.med.high	-2.468e+00	2.041e+02	-0.012	0.990352	
goats	-2.370e+00	2.041e+02	-0.012	0.990738	
slope:ns.aspect	-1.834e-01	5.993e-02	-3.060	0.002212	**
slope:ew.aspect	2.079e-01	1.235e-01	1.684	0.092266	.

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 256.41 on 199 degrees of freedom
Residual deviance: 126.40 on 187 degrees of freedom
AIC: 152.4

Number of Fisher Scoring iterations: 15

Comparison of link functions for p in $(0.005, 0.995)$

