Cedar Gulch – Proof of Concept Map **Tmax**

K AICc Delta\_AICc AICcWt Cum.Wt LLR2m R2c

m9 9 1041.83 0.00 0.69 0.69 -511.74 0.1231082 0.7472386

m10 10 1043.85 2.02 0.25 0.94 -511.71 0.1241516 0.7465501

Full 12 1046.94 5.11 0.05 1.00 -511.16

m1 8 1055.29 13.45 0.00 1.00 -519.50

m4 10 1057.65 15.82 0.00 1.00 -518.61

m5 9 1066.90 25.06 0.00 1.00 -524.27

m6 10 1068.98 27.14 0.00 1.00 -524.27

m2 8 1070.44 28.61 0.00 1.00 -527.08

Null 5 1145.55 103.72 0.00 1.00 -567.72

Null2 6 1147.58 105.74 0.00 1.00 -567.71

m3 7 1457.76 415.93 0.00 1.00 -721.77

M9 parameter estimates and 85% CI:

Fixed effects:

Estimate Std. Error t value 7.5% 92.5%

(Intercept) 0.315040 0.276735 1.138 -0.10432107 0.732990191

vol -0.671450 0.179048 -3.750 -0.92973532 -0.413232464

HorCov -0.008573 0.001661 -5.161 -0.01097399 -0.006160346

PTOFF 0.084160 0.087820 0.958 -0.04292333 0.210716895

PTON 0.058272 0.101553 0.574 -0.08878278 0.204640379

The response variable has been standardized by season in order to meet the assumptions of a linear model, so in order to get meaningful values to map, the predicted value has to be “unstandardized.” For the winter dataset, this means:

Y = (Tmax – 15.74418)/5.442096

Tmax = 5.442096y + 15.74418

For the summer dataset:

Y = (Tmax – 42.85368)/4.628203

Tmax = 4.628203y + 42.85368

You’ll notice the new model does not have a main effect or interaction for season. So, just one map – summer – is all we can do, I think.

So, the equation in SUMMER would be:

Y = -0.671450*xvol* – 0.008573*xAC* + 0.084160*PToff* + 0.058272*PTon* + 0.315040

Where Y = (Tmax – 42.85368)/4.628203

Tmax = 4.628203y + 42.85368

The equation for WINTER would be the same, though the equation to “unstandardize” is different:

Y = -0.671450*xvol* – 0.008573*xAC* + 0.084160*PToff* + 0.058272*PTon* + 0.315040

Where: Y = (Tmax – 15.74418)/5.442096

Tmax = 5.442096y + 15.74418

* The PT variables are dummy variables, with the dwarf patch being the reference. So, if the cell comes up as Dwarf, those variables would be set to “0”, if on the Off patch type, the PTON would be set to “0”, and if on the On patch type, PTOFF would be set to “0”.
* Some of the parameter estimates are “not significant” based on an 85 % confidence interval overlapping 0, but obviously all terms need to be included for the predictions.
* I’m assuming random effects are equal to 0, so “the average plant” during an “average” time measurement interval.

Cedar Gulch – Proof of Concept Map **DTR**

K AICc Delta\_AICc AICcWt Cum.Wt LL R2M R2C

m9 9 977.40 0.00 0.70 0.70 -479.53 0.1784043 0.7038857

m10 10 979.42 2.02 0.25 0.95 -479.49 0.1789460 0.7031019

Full 12 982.64 5.24 0.05 1.00 -479.02

m4 10 991.11 13.71 0.00 1.00 -485.34

m1 8 994.72 17.32 0.00 1.00 -489.22

m5 9 1009.41 32.01 0.00 1.00 -495.53

m6 10 1011.42 34.01 0.00 1.00 -495.49

m2 8 1020.94 43.54 0.00 1.00 -502.33

Null 5 1103.92 126.52 0.00 1.00 -546.90

Null2 6 1105.96 128.55 0.00 1.00 -546.90

m3 7 1320.61 343.21 0.00 1.00 -653.20

M9 parameter estimates and 85% CI:

Fixed effects:

Estimate Std. Error t value 7.5 % 92.5 %

(Intercept) 0.321774 0.219370 1.467 -0.01016288 0.651678238

vol -0.584930 0.168597 -3.469 -0.82829439 -0.341692008

AerConc -0.009176 0.001560 -5.882 -0.01143374 -0.006905699

PTOFF 0.140778 0.082258 1.711 0.02167097 0.259328682

PTON -0.014071 0.095155 -0.148 -0.15193123 0.123093006

The response variable has been standardized by season in order to meet the assumptions of a linear model, so in order to get meaningful values to map, the predicted value has to be “unstandardized.” For the winter dataset, this means:

Y = (DTR – 24.84681)/6.043718

DTR = 6.043718y + 24.84681

For the summer dataset:

Y = (DTR – 34.62224)/3.993752

DTR = 3.993752y + 34.62224

You’ll notice the new model does not have a main effect or interaction for season. So, just one map – summer – is all we can do, I think.

So, the equation in SUMMER would be:

Y = -0.584930*xvol* – 0.009176*xAC* + 0. 140778*PToff* – 0.014071*PTon* + 0.321774

Where Y = (DTR – 34.62224)/3.993752

DTR = 3.993752y + 34.62224

The equation for WINTER would be the same, though the equation to “unstandardize” is different:

Y = -0.584930*xvol* – 0.009176*xAC* + 0. 140778*PToff* – 0.014071*PTon* + 0.321774

Where: Y = (DTR – 24.84681)/6.043718

DTR = 6.043718y + 24.84681