Model\_selection\_num

R-squared > 0.2

**0.2 > R-square >0 but significant**

1. X5.1\_AdultBodyMass\_g

Step 1

Current model: x ~ 1

AIC(k=2): 3943.38940717302

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

3943 -1970

Raw residuals:

Min 1Q Median 3Q Max

-487084 -463884 -419474 -299376 1796966

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 1623565680

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 488974 164601 2.9707 0.003476 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0 Adjusted R-squared: 0

1. **X13.1\_AdultHeadBodyLen\_mm**

Step 2

Current model: x ~ 1 + OrganicCarbon

AIC(k=2): 1650.57810691929

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1650.6 -822.3

Raw residuals:

Min 1Q Median 3Q Max

-1329.3 -794.8 -441.3 157.3 2384.7

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 11460.98

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 1889.65 453.56 4.1663 6.295e-05 \*\*\*

OrganicCarbon 267.83 114.79 2.3332 0.0215 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.04842 Adjusted R-squared: 0.03952

1. X3.1\_AgeatFirstBirth\_d

Step 1

Current model: x ~ 1

AIC(k=2): 1110.44404121788

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1110.4 -553.2

Raw residuals:

Min 1Q Median 3Q Max

-979.4 -586.2 -363.4 -135.3 1388.5

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 4257.886

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 1230.32 274.34 4.4847 2.547e-05 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0 Adjusted R-squared: 0

1. **X9.1\_GestationLen\_d**

Step 5

Current model: x ~ 1 + ClayPercentage + PETseasonality + PETWettestQuarter + bio2

AIC(k=2): 1370.25632230482

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1370.3 -679.1

Raw residuals:

Min 1Q Median 3Q Max

-188.66 -119.92 -77.19 -36.47 231.18

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 70.96205

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 293.5844 35.0303 8.3809 6.845e-14 \*\*\*

ClayPercentage -4.6262 2.3321 -1.9837 0.0493641 \*

PETseasonality -8.6005 2.2852 -3.7635 0.0002511 \*\*\*

PETWettestQuarter 5.4684 3.4121 1.6026 0.1114056

bio2 3.8528 3.7159 1.0368 0.3017040

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.1241 Adjusted R-squared: 0.09761

1. X22.1\_HomeRange\_km2

Step 7

Current model: x ~ 1 + Aspect + BulkDensity + ClayPercentage + PhCaCL + Slope + bio2

AIC(k=2): 1002.27764657145

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1002.3 -493.1

Raw residuals:

Min 1Q Median 3Q Max

-512.88 -211.48 -101.77 0.79 1665.04

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 4722.989

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 122.945 305.349 0.4026 0.6886230

Aspect -178.040 117.014 -1.5215 0.1332944

BulkDensity 454.078 113.212 4.0109 0.0001676 \*\*\*

ClayPercentage -162.145 74.165 -2.1863 0.0326413 \*

PhCaCL -240.562 93.783 -2.5651 0.0127905 \*

Slope 67.347 49.583 1.3583 0.1793784

bio2 -112.396 57.141 -1.9670 0.0537377 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.2825 Adjusted R-squared: 0.2119

1. **X14.1\_InterbirthInterval\_d**

Step 3

Current model: x ~ 1 + BulkDensity + ClayPercentage

AIC(k=2): 965.247860098712

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

965.2 -478.6

Raw residuals:

Min 1Q Median 3Q Max

-393.0 -242.4 -170.9 -123.8 544.2

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 457.5999

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 571.628 92.043 6.2105 2.585e-08 \*\*\*

BulkDensity -68.597 29.709 -2.3089 0.02367 \*

ClayPercentage -38.592 15.951 -2.4193 0.01794 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.1264 Adjusted R-squared: 0.1034

1. X15.1\_LitterSize

Step 7

Current model: x ~ 1 + BulkDensity + ClayPercentage + PhCaCL + bio2 + bio14 + bio15

AIC(k=2): 96.7556451164425

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

96.76 -40.38

Raw residuals:

Min 1Q Median 3Q Max

-1.1077 -0.3919 -0.3283 -0.1536 4.4465

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 0.006310852

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 1.341049 0.333625 4.0196 9.817e-05 \*\*\*

BulkDensity 0.063665 0.035743 1.7812 0.07721 .

ClayPercentage -0.030463 0.025659 -1.1872 0.23730

PhCaCL 0.145367 0.055383 2.6248 0.00971 \*\*

bio2 0.020031 0.029259 0.6846 0.49482

bio14 0.256118 0.047403 5.4030 3.022e-07 \*\*\*

bio15 0.057338 0.034084 1.6822 0.09492 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.349 Adjusted R-squared: 0.319

1. **X17.1\_MaxLongevity\_m**

Step 3

Current model: x ~ 1 + bio15 + bio19

AIC(k=2): 1436.71534898707

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1436.7 -714.4

Raw residuals:

Min 1Q Median 3Q Max

-294.1 -203.1 -154.5 -115.4 361.1

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 254.2062

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 397.7589 66.0603 6.0211 1.819e-08 \*\*\*

bio15 -17.3120 4.3366 -3.9921 0.0001114 \*\*\*

bio19 -12.1675 5.2398 -2.3221 0.0218568 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.142 Adjusted R-squared: 0.1282

1. **X21.1\_PopulationDensity\_n\_km2**

Step 5

Current model: x ~ 1 + PETseasonality + bio14 + bio15 + bio18

AIC(k=2): 1030.24779943679

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1030.2 -509.1

Raw residuals:

Min 1Q Median 3Q Max

-17.167 -4.864 0.629 6.175 116.819

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 21.61749

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 7.5865 19.4516 0.3900 0.6972686

PETseasonality 3.4135 1.7845 1.9128 0.0583478 .

bio14 -10.5024 2.7392 -3.8341 0.0002095 \*\*\*

bio15 -7.1019 1.8399 -3.8600 0.0001909 \*\*\*

bio18 4.9151 1.7819 2.7583 0.0067968 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.1669 Adjusted R-squared: 0.1368

1. X23.1\_SexualMaturityAge\_d

Step 1

Current model: x ~ 1

AIC(k=2): 1643.50966363503

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1643.5 -819.8

Raw residuals:

Min 1Q Median 3Q Max

-942.0 -665.6 -414.7 -238.8 1660.6

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 5103.398

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 1080.63 292.31 3.6968 0.0003384 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0 Adjusted R-squared: 0

1. X10.2\_SocialGrpSize

Step 7

Current model: x ~ 1 + BulkDensity + ClayPercentage + PETDriestQuarter + PhCaCL + bio14 + bio15

AIC(k=2): 865.020543783396

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

865.0 -424.5

Raw residuals:

Min 1Q Median 3Q Max

-17.199 -2.005 3.876 13.605 86.908

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 12.31045

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 5.9053 15.2025 0.3884 0.6985582

BulkDensity -14.1757 4.4141 -3.2114 0.0018029 \*\*

ClayPercentage 6.8853 2.3633 2.9134 0.0044566 \*\*

PETDriestQuarter -4.7125 2.4020 -1.9619 0.0527012 .

PhCaCL 12.5675 3.5557 3.5345 0.0006332 \*\*\*

bio14 3.5106 2.4067 1.4587 0.1479455

bio15 9.8730 2.2764 4.3370 3.596e-05 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.3173 Adjusted R-squared: 0.2742

1. X24.1\_TeatNumber

Step 1

Current model: x ~ 1

AIC(k=2): 211.130607053687

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

211.1 -103.6

Raw residuals:

Min 1Q Median 3Q Max

-2.1888 -0.1888 -0.1888 -0.1888 7.8112

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 0.05310811

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 4.1888 1.0781 3.8854 0.0002293 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0 Adjusted R-squared: 0

1. **X25.1\_WeaningAge\_d**

Step 5

Current model: x ~ 1 + Aspect + PETseasonality + Slope + bio14

AIC(k=2): 1148.07720680987

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1148 -568

Raw residuals:

Min 1Q Median 3Q Max

-240.77 -152.03 -95.60 -23.06 321.75

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 337.3024

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 246.468 77.156 3.1944 0.001919 \*\*

Aspect -38.864 19.392 -2.0041 0.047996 \*

PETseasonality -17.003 10.190 -1.6685 0.098609 .

Slope -32.185 10.676 -3.0146 0.003325 \*\*

bio14 -20.340 9.117 -2.2310 0.028109 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.1796 Adjusted R-squared: 0.144

1. AVGFoodConsumption

Step 9

Current model: x ~ 1 + Aspect + BulkDensity + ClayPercentage + PETseasonality + OrganicCarbon + PhCaCL + bio2 + bio15

AIC(k=2): 2094.34813540567

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

2094 -1037

Raw residuals:

Min 1Q Median 3Q Max

-379.44 -103.66 -19.80 73.25 639.72

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 4593.795

Coefficients:

Estimate StdErr t.value p.value

(Intercept) -6.190 285.743 -0.0217 0.9827479

Aspect -123.997 33.614 -3.6889 0.0003224 \*\*\*

BulkDensity 187.919 58.411 3.2172 0.0016106 \*\*

ClayPercentage 49.757 25.233 1.9719 0.0506085 .

PETseasonality -93.656 32.084 -2.9191 0.0040961 \*\*

OrganicCarbon 327.524 75.121 4.3600 2.514e-05 \*\*\*

PhCaCL 123.878 37.336 3.3179 0.0011577 \*\*

bio2 -91.540 31.810 -2.8777 0.0046386 \*\*

bio15 45.360 28.311 1.6022 0.1113733

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.8849 Adjusted R-squared: 0.8783

1. Lifespan

Step 2

Current model: x ~ 1 + bio15

AIC(k=2): 897.265448579854

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

897.3 -445.6

Raw residuals:

Min 1Q Median 3Q Max

-15.877 -10.420 -7.860 -4.205 33.818

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 3.083326

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 27.20736 7.36348 3.6949 0.0003238 \*\*\*

bio15 0.77543 0.46533 1.6664 0.0980559 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.02107 Adjusted R-squared: 0.01348

1. CarryWeight

Step 1

Current model: x ~ 1

AIC(k=2): 3470.2146609174

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

3470 -1733

Raw residuals:

Min 1Q Median 3Q Max

-97417 -92777 -83895 -59875 359393

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 64942627

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 97795 32920 2.9707 0.003476 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0 Adjusted R-squared: 0

1. **AVGMovingSpeed**

Step 3

Current model: x ~ 1 + PhCaCL + Slope

AIC(k=2): 588.387894810804

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

588.4 -290.2

Raw residuals:

Min 1Q Median 3Q Max

-50.579 -3.159 4.658 15.890 37.870

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 11.66195

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 52.7964 14.7423 3.5813 0.0006478 \*\*\*

PhCaCL -6.1861 2.9026 -2.1313 0.0367970 \*

Slope -4.7576 1.8863 -2.5222 0.0140824 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-squared: 0.1638 Adjusted R-squared: 0.1384

1. AVGTravelDistance

Step 2

Current model: x ~ 1 + ClayPercentage

AIC(k=2): 1663.99137576233

---END

Call:

phylolm(formula = create.formula(plm), data = data, phy = phy,

model = model, lower.bound = lower.bound, upper.bound = upper.bound,

starting.value = starting.value)

AIC logLik

1664 -829

Raw residuals:

Min 1Q Median 3Q Max

-93.46 -58.32 -36.55 9.20 2651.16

Mean tip height: 87.3

Parameter estimate(s) using ML:

sigma2: 3888.644

Coefficients:

Estimate StdErr t.value p.value

(Intercept) 67.355 261.328 0.2577 0.7971

ClayPercentage -58.317 35.888 -1.6250 0.1069

R-squared: 0.02226 Adjusted R-squared: 0.01383