SUPPLEMENTARY MATERIAL TABLE S5 | Statistic parameters of the Generalized Additive Mixed Models (GAMMs) used to model the abundance of *Inpaichthys kerri* in streams from Aripuanã River basin (Mato Grosso State, Brazil): *s* = smooth term for GAMM; *te* = smoothing full tensor for GAMM; *ti* = smoothing interaction tensor for GAMM; SCS = Spatial Correlation Structure; FC = false convergence; NC = no convergence; SC = singular convergence; † = best-fitting model based on the AIC. Pink mark indicates the best model.

Formula (RV_EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(PHI) + *te*(Current) + *te*(DO) + *te*(Grass) + *te*(Trees)	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: SC	----
$A_{Ik.}$ ~ *te*(PHI) + *te*(Current) + *te*(DO) + *te*(Grass)	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Exponential: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Gaussian: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Rational: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Spherical: SC	----

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
$A_{Ik.}$ ~ *te*(PHI) + *te*(Current) + *te*(DO) + *te*(Trees)	0.823	Intercept: 1.96e-04 *te*(PHI): 2.855 *te*(Current): 2.136 *te*(DO): 3.860 *te*(Trees): 3.798	Intercept: 1.000 *te*(PHI): 0.027* *te*(Current): <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Exponential: 1.09e-03	274.505
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Rational: NC	----
	0.823	Intercept: 0.012 *te*(PHI): 2.850 *te*(Current): 2.147 *te*(DO): 3.860 *te*(Trees): 3.797	Intercept: 0.971 *te*(PHI): 0.027* *te*(Current): <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Spherical: 7.76e-03	274.003
$A_{Ik.}$ ~ *te*(PHI) + *te*(Current) + *te*(Grass) + *te*(Trees)	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{ik} ~ ***te*(PHI) + *te*(DO) + *te*(Grass) + *te*(Trees)**	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: SC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----
A_{ik} ~ ***te*(Current) + *te*(DO) + *te*(Grass) + *te*(Trees)**	**0.915**	**Intercept: -1.875** ***te*(Current): 3.832** ***te*(DO): 3.881** ***te*(Grass): 1.00** ***te*(Trees): 3.833**	**Intercept: 0.023*** ***te*(Current): <0.001*** ***te*(DO): <0.001*** ***te*(Grass): <0.001*** ***te*(Trees): <0.001***	**Exponential: 8.78e-09**	**265.062 «**
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(PHI) + *te*(Current) + *te*(DO)	0.685	Intercept: 0.492 t2(PHI): 3.612 *te*(Current): 3.720 *te*(DO): 3.930	Intercept: 0.063 *te*(PHI): 0.005* *te*(Current): <0.001* *te*(DO): <0.001*	Exponential: 9.44e-04	487.487
	0.685	Intercept: 0.492 t2(PHI): 3.612 *te*(Current): 3.720 *te*(DO): 3.930	Intercept: 0.064 *te*(PHI): 0.005* *te*(Current): <0.001* *te*(DO): <0.001*	Gaussian: 1.45e-03	487.579
	----	Intercept: ---- tw(PHI): ---- *te*(Current): ---- *te*(DO): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ----	Linear: FC	----
	0.685	Intercept: 0.492 t2(PHI): 3.612 *te*(Current): 3.720 *te*(DO): 3.930	Intercept: 0.064 *te*(PHI): 0.005* *te*(Current): <0.001* *te*(DO): <0.001*	Rational: 2.26e-07	487.582
	----	Intercept: ---- tw(PHI): ---- *te*(Current): ---- *te*(DO): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(DO): ----	Spherical: NC	----
A_{Ik} ~ *te*(PHI) + *te*(Current) + *te*(Grass)	0.880	Intercept: -0.414 *te*(PHI): 3.229 *te*(Current): 3.709 *te*(Grass): 4.360	Intercept: 0.522 *te*(PHI): 0.003* *te*(Current): <0.001* *te*(Grass): <0.001*	Exponential: 4.76e-04	222.542
	0.880	Intercept: -0.414 *te*(PHI): 3.229 *te*(Current): 3.709 *te*(Grass): 4.361	Intercept: 0.522 *te*(PHI): 0.003* *te*(Current): <0.001* *te*(Grass): <0.001*	Gaussian: 2.49e-03	222.513
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Grass): ----	Linear: FC	----
	0.880	Intercept: -0.414 *te*(PHI): 3.229 *te*(Current): 3.709 *te*(Grass): 4.361	Intercept: 0.522 *te*(PHI): 0.003* *te*(Current): <0.001* *te*(Grass): <0.001*	Rational: 4.98e-07	222.503
	0.880	Intercept: -0.413 *te*(PHI): 3.229 *te*(Current): 3.709 *te*(Grass): 4.361	Intercept: 0.523 *te*(PHI): 0.003* *te*(Current): <0.001* *te*(Grass): <0.001*	Spherical: 9.44e-03	231.311
A_{Ik} ~ *te*(PHI) + *te*(DO) + *te*(Grass)	0.579	Intercept: 0.250 *te*(PHI): 1.000 *te*(DO): 3.851 *te*(Grass): 5.639	Intercept: 0.407 *te*(PHI): <0.001* *te*(DO): <0.001* *te*(Grass): <0.001*	Exponential: 1.80e-02	357.939
	0.495	Intercept: -0.185 *te*(PHI): 1.000 *te*(DO): 3.899 *te*(Grass): 5.850	Intercept: 0.543 *te*(PHI): <0.001* *te*(DO): <0.001* *te*(Grass): <0.001*	Gaussian: 2.48e-02	554.012
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ---- *te*(Grass): ----	Linear: FC	----
	0.565	Intercept: 0.128 *te*(PHI): 1.000 *te*(DO): 3.853 *te*(Grass): 5.611	Intercept: 0.693 *te*(PHI): <0.001* *te*(DO): <0.001* *te*(Grass): <0.001*	Rational: 1.47e-02	434.215
	0.527	Intercept: 0.337 *te*(PHI): 1.000 *te*(DO): 3.866 *te*(Grass): 5.694	Intercept: 0.243 *te*(PHI): <0.001* *te*(DO): <0.001* *te*(Grass): <0.001*	Spherical: 5.50e-02	400.259

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(PHI) + *te*(Current) + *te*(Trees)	0.800	Intercept: 0.149 *te*(PHI): 3.892 *te*(Current): 3.925 *te*(Trees): 3.933	Intercept: 0.542 *te*(PHI): <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Exponential: 1.06e-03	353.513
	0.800	Intercept: 0.158 *te*(PHI): 3.891 *te*(Current): 3.926 *te*(Trees): 3.934	Intercept: 0.517 *te*(PHI): <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Gaussian: 3.74e-03	352.151
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ---- *te*(Trees): ----	Linear: FC	----
	0.800	Intercept: 0.148 *te*(PHI): 3.892 *te*(Current): 3.925 *te*(Trees): 3.934	Intercept: 0.542 *te*(PHI): <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Rational: 3.30e-07	353.401
	0.800	Intercept: 0.175 *te*(PHI): 3.890 *te*(Current): 3.926 *te*(Trees): 3.934	Intercept: 0.472 *te*(PHI): <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Spherical: 9.46e-03	350.346
A_{Ik} ~ *te*(PHI) + *te*(DO) + *te*(Trees)	----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *Te*(PHI): ---- *te*(DO): ---- *te*(Trees): ----	Spherical: NC	----
A_{Ik} ~ *te*(PHI) + *te*(Grass) + *te*(Trees)	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(Current) + *te*(DO) + *te*(Trees)	0.817	Intercept: 0.422 *te*(Current): 2.808 *te*(DO): 3.853 *te*(Trees): 3.675	Intercept: 0.161 *te*(Current): <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Exponential: 1.17e-03	256.163
	0.817	Intercept: 0.438 *te*(Current): 2.809 *te*(DO): 3.856 *te*(Trees): 3.677	Intercept: 0.138 *te*(Current): <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Gaussian: 3.70e-03	255.244
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Linear: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Trees): ----	Rational: NC	----
	0.817	Intercept: 0.466 *te*(Current): 2.810 *te*(DO): 3.859 *te*(Trees): 3.678	Intercept: 0.103 *te*(Current): <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Spherical: 9.35e-03	253.910
A_{Ik} ~ *te*(Current) + *te*(DO) + *te*(Grass)	0.895	Intercept: -2.357 *te*(Current): 3.638 *te*(DO): 3.847 *te*(Grass): 3.925	Intercept: 0.048* *te*(Current): <0.001* *te*(DO): 0.003* *te*(Grass): <0.001*	Exponential: 5.18e-04	263.865
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Linear: FC	----
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ---- *te*(Grass): ----	Rational: NC	----
	0.895	Intercept: -2.356 *te*(Current): 3.636 *te*(DO): 3.847 *te*(Grass): 3.927	Intercept: 0.049* *te*(Current): <0.001* *te*(DO): 0.003* *te*(Grass): <0.001*	Spherical: 9.43e-03	263.794
A_{Ik} ~ *te*(Current) + *te*(Grass) + *te*(Trees)	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: SC	----
	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(DO) + *te*(Grass) + *te*(Trees)	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----
A_{Ik} ~ *te*(PHI) + *te*(Current)	-0.329	Intercept: 1.978 *te*(PHI): 3.581 *te*(Current): 3.935	Intercept: <0.001* *te*(PHI): <0.001* *te*(Current): <0.001*	Exponential: 5.20e-02	439.881
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Intercept: ---- *te*(PHI): ---- *te*(Current): ----	Rational: NC	----
	-0.415	Intercept: 2.062 *te*(PHI): 3.742 *te*(Current): 3.953	Intercept: <0.001* *te*(PHI): <0.001* *te*(Current): <0.001*	Spherical: 0.143	408.114
A_{Ik} ~ *te*(PHI) + *te*(DO)	-0.264	Intercept: 1.844 *te*(PHI): 3.108 *te*(DO): 3.691	Intercept: <0.001* *te*(PHI): 0.021* *te*(DO): <0.001*	Exponential: 2.70e-02	566.196
	-0.311	Intercept: 1.824 *te*(PHI): 3.377 *te*(DO): 2.565	Intercept: <0.001* *te*(PHI): 0.003* *te*(DO): 0.002*	Gaussian: 2.21e-02	724.909
	----	Intercept: ---- *te*(PHI): ---- *te*(DO): ----	Intercept: ---- *te*(PHI): ---- *te*(DO): ----	Linear: FC	----
	-0.286	Intercept: 1.84 *te*(PHI): 3.186 *te*(DO): 3.449	Intercept: <0.001* *te*(PHI): 0.023* *te*(DO): <0.001*	Rational: 1.71e-02	638.662
	-0.273	Intercept: 1.781 *te*(PHI): 3.101 *te*(DO): 3.557	Intercept: <0.001* *te*(PHI): 0.037* *te*(DO): <0.001*	Spherical: 5.21e-02	633.408
A_{Ik} ~ *te*(PHI) + *te*(Grass)	0.457	Intercept: 0.753 *te*(PHI): 1.000 *te*(Grass): 6.406	Intercept: 0.004* *te*(PHI): 0.005* *te*(Grass): <0.001*	Exponential: 1.31e-02	328.426
	----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ----	Intercept: ---- *te*(PHI): ---- *te*(Grass): ----	Gaussian: NC	----
	0.515	Intercept: 0.437 *te*(PHI): 1.000 *te*(Grass): 6.365	Intercept: 0.184 *te*(PHI): 0.005* *te*(Grass): <0.001*	Linear: 2.10e-02	341.512
	0.475	Intercept: 0.689 *te*(PHI): 1.000 *te*(Grass): 6.380	Intercept: 0.013* *te*(PHI): 0.006* *te*(Grass): <0.001*	Rational: 9.85e-03	327.799
	0.480	Intercept: 0.596 *te*(PHI): 1.000 *te*(Grass): 6.368	Intercept: 0.033* *te*(PHI): 0.004* *te*(Grass): <0.001*	Spherical: 3.02e-02	339.239

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(PHI) + *te*(Trees)	----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Exponential: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Intercept: ---- *te*(PHI): ---- *te*(Trees): ----	Spherical: NC	----
A_{Ik} ~ *te*(Current) + *te*(DO)	0.698	Intercept: 0.699 *te*(Current): 3.512 *te*(DO): 3.926	Intercept: 0.004* *te*(Current): <0.001* *te*(DO): <0.001*	Exponential: 8.87e-04	444.424
	0.698	Intercept: 0.708 *te*(Current): 3.510 *te*(DO): 3.927	Intercept: 0.003* *te*(Current): <0.001* *te*(DO): <0.001*	Gaussian: 3.47e-03	443.083
	----	Intercept: ---- *te*(Current): ---- *te*(DO): ----	Intercept: ---- *te*(Current): ---- *te*(DO): ----	Linear: NC	----
	0.698	Intercept: 0.699 *te*(Current): 3.512 *te*(DO): 3.926	Intercept: 0.004* *te*(Current): <0.001* *te*(DO): <0.001*	Rational: 1.91e-07	444.456
	0.699	Intercept: 0.732 *te*(Current): 3.502 *te*(DO): 3.928	Intercept: 0.002* *te*(Current): <0.001* *te*(DO): <0.001*	Spherical: 9.39e-03	439.931
A_{Ik} ~ *te*(Current) + *te*(Grass)	0.838	Intercept: 0.144 *te*(Current): 3.753 *te*(Grass): 5.731	Intercept: 0.698 *te*(Current): <0.001* *te*(Grass): <0.001*	Exponential: 8.08e-04	196.409
	0.838	Intercept: 0.146 *te*(Current): 3.753 *te*(Grass): 5.733	Intercept: 0.693 *te*(Current): <0.001* *te*(Grass): <0.001*	Gaussian: 3.74e-03	196.343
	----	Intercept: ---- *te*(Current): ---- *te*(Grass): ----	Intercept: ---- *te*(Current): ---- *te*(Grass): ----	Linear: FC	-----
	0.838	Intercept: 0.150 *te*(Current): 3.754 *te*(Grass): 5.734	Intercept: 0.683 *te*(Current): <0.001* *te*(Grass): <0.001*	Rational: 1.46e-03	196.238
	0.838	Intercept: 0.150 *te*(Current): 3.754 *te*(Grass): 5.737	Intercept: 0.684 *te*(Current): <0.001* *te*(Grass): <0.001*	Spherical: 9.60e-03	196.198
A_{Ik} ~ *te*(Current) + *te*(Trees)	0.540	Intercept: 0.901 *te*(Current): 3.665 *te*(Trees): 3.876	Intercept: <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Exponential: 2.11e-03	515.134
	0.539	Intercept: 0.913 *te*(Current): 3.667 *te*(Trees): 3.877	Intercept: <0.001* *te*(Current): <0.001* *te*(Trees): <0.001*	Gaussian: 4.64e-03	506.338
	----	Intercept: ---- *te*(Current): ---- *te*(Trees): ----	Intercept: ---- *te*(Current): ---- *te*(Trees): ----	Linear: FC	----
	0.536	Intercept: 0.908 *te*(Current): 3.682 *te*(Trees): 3.880	Intercept: <0.001* *te*(Current): <0.001* *te*(Grass): <0.001*	Rational: 2.59e-03	497.546
	0.384	Intercept: 1.044 *te*(Current): 3.790 *te*(Trees): 3.925	Intercept: <0.001* *te*(Current): <0.001* *te*(Grass): <0.001*	Spherical: 4.08e-02	387.408

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(DO) + *te*(Grass)	0.557	Intercept: 0.113 *te*(DO): 3.814 *te*(Grass): 6.100	Intercept: 0.746 *te*(DO): <0.001* *te*(Grass): <0.001*	Exponential: 1.31e-02	259.344
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Grass): ----	Intercept: ---- *te*(DO): ---- *te*(Grass): ----	Linear: FC	----
	0.569	Intercept: 0.005 *te*(DO): 3.810 *te*(Grass): 6.100	Intercept: 0.990 *te*(DO): <0.001* *te*(Grass): <0.001*	Rational: 8.93e-03	260.834
	0.544	Intercept: 0.136 *te*(DO): 3.815 *te*(Grass): 6.047	Intercept: 0.693 *te*(DO): <0.001* *te*(Grass): <0.001*	Spherical: 3.51e-02	266.684
A_{Ik} ~ *te*(DO) + *te*(Trees)	-0.115	Intercept: 1.534 *te*(DO): 3.834 *te*(Trees): 3.812	Intercept: <0.001* *te*(DO): <0.001* *te*(Trees): <0.001*	Exponential: 4.37e-02	322.471
	----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Linear: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Intercept: ---- *te*(DO): ---- *te*(Trees): ----	Spherical: NC	----
A_{Ik} ~ *te*(Grass) + *te*(Trees)	0.576	Intercept: 0.827 *te*(Grass): 3.526 *te*(Trees): 3.879	Intercept: <0.001* *te*(Grass): <0.001* *te*(Trees): <0.001*	Exponential: 1.73e-02	905.680
	0.692	Intercept: 0.425 *te*(Grass): 3.674 *te*(Trees): 3.930	Intercept: 0.087 *te*(Grass): <0.001* *te*(Trees): <0.001*	Gaussian: 5.15e-03	2014.323
	----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Linear: FC	----
	----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Rational: NC	----
	----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Intercept: ---- *te*(Grass): ---- *te*(Trees): ----	Spherical: NC	----
A_{Ik} ~ t2(PHI)	-0.152	Intercept: 1.967 *te*(PHI): 3.335	Intercept: <0.001* *te*(PHI): <0.001*	Exponential: 2.91e-02	600.453
	-0.198	Intercept: 1.96 *te*(PHI): 3.564	Intercept: <0.001* *te*(PHI): <0.001*	Gaussian: 2.39e-02	668.004
	-0.166	Intercept: 1.926 *te*(PHI): 3.433	Intercept: <0.001* *te*(PHI): <0.001*	Linear: 4.13e-02	640.445
	-0.180	Intercept: 1.962 *te*(PHI): 3.491	Intercept: <0.001* *te*(PHI): <0.001*	Rational: 1.95e-02	648.927
	-0.165	Intercept: 1.919 *te*(PHI): 3.421	Intercept: <0.001* *te*(PHI): <0.001*	Spherical: 5.90e-02	639.973

TABLE S5 | (Continued)

Formula (RV ~ EV)	Adj. R^2	Estimate	P	SCS: Range	AICc
A_{Ik} ~ *te*(Current)	-0.158	Intercept: 1.966 *te*(Current): 3.951	Intercept: <0.001* *te*(Current): <0.001*	Exponential: 4.81e-02	529.373
	-0.260	Intercept: 1.956 *te*(Current): 3.969	Intercept: <0.001* *te*(Current): <0.001*	Gaussian: 2.93e-02	745.355
	-0.161	Intercept: 1.894 *te*(Current): 3.957	Intercept: <0.001* *te*(Current): <0.001*	Linear: 6.16e-02	590.182
	-0.202	Intercept: 1.948 *te*(Current): 3.960	Intercept: <0.001* *te*(Current): <0.001*	Rational: 2.50e-02	636.210
	-0.149	Intercept: 1.914 *te*(Current): 3.951	Intercept: <0.001* *te*(Current): <0.001*	Spherical: 8.21e-02	562.846
A_{Ik} ~ *te*(DO)	-0.067	Intercept: 1.760 *te*(DO): 3.706	Intercept: <0.001* *te*(DO): <0.001*	Exponential: 2.20e-02	620.027
	-0.0725	Intercept: 1.739 *te*(DO): 3.077	Intercept: <0.001* *te*(DO): <0.001*	Gaussian: 1.85e-02	788.843
	----	Intercept: ---- *te*(DO): ----	Intercept: ---- *te*(DO): ----	Linear: FC	----
	-0.070	Intercept: 1.759 *te*(DO): 3.620	Intercept: <0.001* *te*(DO): <0.001*	Rational: 1.42e-02	666.268
	-0.073	Intercept: 1.730 *te*(DO): 3.510	Intercept: <0.001* *te*(DO): <0.001*	Spherical: 4.54e-02	689.694
A_{Ik} ~ *te*(Grass)	0.512	Intercept: 0.623 *te*(Grass): 6.451	Intercept: 0.038* *te*(Grass): <0.001*	Exponential: 1.12e-02	323.620
	0.417	Intercept: 2.057 *te*(Grass): 6.534	Intercept: <0.001* *te*(Grass): <0.001*	Gaussian: 1.26e-02	276.344
	0.561	Intercept: 0.343 *te*(Grass): 6.381	Intercept: <0.001* *te*(Grass): <0.001*	Linear: 1.93e02	332.553
	----	Intercept: ---- *te*(Grass): ----	Intercept: ---- *te*(Grass): ----	Rational: NC	----
	0.547	Intercept: 0.416 *te*(Grass): 6.398	Intercept: 0.235 *te*(Grass): <0.001*	Spherical: 2.58e-02	330.813
A_{Ik} ~ *te*(Trees)	-0.053	Intercept: 1.834 *te*(Trees): 3.816	Intercept: <0.001* *te*(Trees): <0.001*	Exponential: 3.35e-02	428.756
	----	Intercept: ---- *te*(Grass): ----	Intercept: ---- *te*(Grass): ----	Gaussian: NC	----
	----	Intercept: ---- *te*(Grass): ----	Intercept: ---- *te*(Grass): ----	Linear: FC	----
	----	Intercept: ---- *te*(Grass): ----	Intercept: ---- *te*(Grass): ----	Rational: NC	----
	----	Intercept: ---- *te*(Grass): ----	Intercept: ---- *te*(Grass): ----	Spherical: NC	----

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