Table 8. Variogram model fit parameters for soil properties for the BCI 50-ha plot

Soil variable	Lambda	Trend order	Model	Nugget	Partial sill	Effective range (m)
Al	1.0	2	Exponential	10801.7	68415.3	155.0
B	0.5	2	Exponential	0.04053	0.3649	100.0
Ca	0.5	2	Exponential	21.29	425.6	56.5
Cu	1.0	2	Exponential	0.9552	4.54	179.1
Fe	0.5	2	Exponential	2.95	15.83	146.6
K	0.0	2	Exponential	0.0875	0.2193	78.5
Mg	0.5	2	Exponential	5.73	64.27	85.2
Mn	0.5	2	Exponential	2.846	133.5	212.8
P	0.5	2	Exponential	0.4556	1.471	204.5
Zn	0.5	2	Exponential	0.00662	2.135	33.3
N	0.0	2	Spherical	0.0754	0.0986	239.5
N_{min}	0.5	1	Spherical	6.23	2.192	141.1
pH	1.0	2	Exponential	0.0172	0.1403	220.7

The measured data values were first transformed by using Box−Cox transformation, and then a polynomial trend surface regression was fitted. The residuals from the trend surface regression were used to compute empirical variograms, to which variogram models were fitted. Lambda is the Box−Cox parameter. Trend order is the order of the polynomial regression. Effective range for the exponential variogram model is estimated at three times the fitted range, because the variogram approaches the sill only asymptotically.