Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
AWC	Available water capacity	0.285	x	x			
Bot	Depth to bottom of well (feet)	0.227	x				
BotCasing	Depth to bottom of casing (feet)	0.046	x				
CLAYPCT	Percent clay in soil	0.260	x	x	x	x	x
D1 (1972)	Distance to urban land use (meters)	-0.091	x				
D1 (1986)	Distance to urban land use (meters)	-0.091	x				
D1 (1995)	Distance to urban land use (meters)	-0.065	x				
D1 (2002)	Distance to urban land use (meters)	-0.104	x				
D11 (1972)	Distance to residential land use (meters)	-0.140	x				
D11 (1986)	Distance to residential land use (meters)	-0.417	x				
D11 (1995)	Distance to residential land use (meters)	-0.427	x				
D11 (2002)	Distance to residential land use (meters)	-0.439	x				
D12 (1972)	Distance to commercial and services land use (meters)	-0.058	x				
D12 (1986)	Distance to commercial and services land use (meters)	0.180	x				
D12 (1995)	Distance to commercial and services land use (meters)	0.179	x				
D12 (2002)	Distance to commercial and services land use (meters)	0.185	x				
D13 (1972)	Distance to industrial land use (meters)	0.061	x				
D13 (1986)	Distance to industrial land use (meters)	-0.095	x				
D13 (1995)	Distance to industrial land use (meters)	-0.092	x				
D13 (2002)	Distance to industrial land use (meters)	-0.101	x				
D14 (1972)	Distance to transportation or communication land use (meters)	0.078	x				
D14 (1986)	Distance to transportation or communication land use (meters)	0.004	x				
D14 (1995)	Distance to transportation or communication land use (meters)	-0.137	x				
D14 (2002)	Distance to transportation or communication land use (meters)	-0.162	x				
D15 (1972)	Distance to industrial and commercial complexes (meters)	0.038	x				
D15 (1986)	Distance to industrial and commercial complexes (meters)	-0.014	x				
D15 (1995)	Distance to industrial and commercial complexes (meters)	0.089	x				
D15 (2002)	Distance to industrial and commercial complexes (meters)	0.089	x				
D16 (1972)	Distance to mixed urban or built-up land (meters)	0.006	x				
D16 (1986)	Distance to mixed urban or built-up land (meters)	-0.008	x				
D16 (1995)	Distance to mixed urban or built-up land (meters)	-0.114	x				
D16 (2002)	Distance to mixed urban or built-up land (meters)	-0.114	x				
D17 (1972)	Distance to other or built-up land use (meters)	0.022	x				
D17 (1986)	Distance to other or built-up land use (meters)	-0.167	x				
D17 (1995)	Distance to other or built-up land use (meters)	0.129	x				

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
D17 (2002)	Distance to other or built-up land use (meters)	0.140	x				
D18 (1995)	Distance to recreational land (meters)	0.129	x				
D18 (2002)	Distance to recreational land (meters)	0.120	x				
D2 (1972)	Distance to agricultural land use (meters)	-0.192	x				
D2 (1995)	Distance to agricultural land use (meters)	-0.313	x				
D2 (2002)	Distance to agricultural land use (meters)	-0.308	x				
D21 (1972)	Distance to cropland and pastureland (meters)	-0.210	x				
D21 (1986)	Distance to cropland and pastureland (meters)	-0.300	x				
D21 (1995)	Distance to cropland and pastureland (meters)	-0.308	x				
D21 (2002)	Distance to cropland and pastureland (meters)	-0.296	x				
D22 (1972)	Distance to orchards, groves, vineyards or nurseries (meters)	0.056	x				
D22 (1986)	Distance to orchards, groves, vineyards or nurseries (meters)	-0.107	x				
D22 (1995)	Distance to orchards, groves, vineyards or nurseries (meters)	-0.136	x				
D22 (2002)	Distance to orchards, groves, vineyards or nurseries (meters)	-0.114	x				
D23 (1972)	Distance to confined feeding operations land use (meters)	0.068	x				
D23 (1986)	Distance to confined feeding operations land use (meters)	-0.004	x				
D23 (1995)	Distance to confined feeding operations land use (meters)	-0.009	x				
D23 (2002)	Distance to confined feeding operations land use (meters)	-0.009	x				
D24 (1972)	Distance to other agricultural land (meters)	-0.118	x				
D24 (1986)	Distance to other agricultural land (meters)	-0.192	x				
D24 (1995)	Distance to other agricultural land (meters)	-0.247	x				
D24 (2002)	Distance to other agricultural land (meters)	-0.237	x				
D4 (1972)	Distance to forested wetlands (meters)	0.293	x				
D4 (1986)	Distance to forested wetlands (meters)	0.008	x				
D4 (1995)	Distance to forested wetlands (meters)	-0.063	x				
D4 (2002)	Distance to forested wetlands (meters)	-0.161	x				
D41 (1972)	Distance to deciduous forest land (meters)	0.262	x				
D41 (1986)	Distance to deciduous forest land (meters)	0.037	x				
D41 (1995)	Distance to deciduous forest land (meters)	-0.237	x				
D41 (2002)	Distance to deciduous forest land (meters)	-0.205	x				
D42 (1972)	Distance to evergreen forest (meters)	0.102	x				
D42 (1986)	Distance to evergreen forest (meters)	-0.014	x				
D42 (1995)	Distance to evergreen forest (meters)	-0.057	x				
D42 (2002)	Distance to evergreen forest (meters)	-0.095	x				
D43 (1972)	Distance to mixed forest (meters)	0.037	x				

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
D43 (1986)	Distance to mixed forest (meters)	0.212	x				
D43 (1995)	Distance to mixed forest (meters)	0.107	x				
D43 (2002)	Distance to mixed forest (meters)	-0.009	x				
D44 (1986)	Distance to mixed deciduous or coniferous brush or shrub land (meters)	-0.186	x				
D44 (1995)	Distance to mixed deciduous or coniferous brush or shrub land (meters)	-0.060	x				
D44 (2002)	Distance to mixed deciduous or coniferous brush or shrub land (meters)	-0.122	x				
D45 (2002)	Distance to severe burned upland vegetation (meters)	0.059	x				
D5 (1972)	Distance to water (meters)	0.048	x				
D5 (1986)	Distance to water (meters)	0.157	x				
D5 (1995)	Distance to water (meters)	0.140	x				
D5 (2002)	Distance to water (meters)	0.146	x				
D51 (1972)	Distance to streams and canals (meters)	-0.041	x				
D51 (1986)	Distance to streams and canals (meters)	0.335	x				
D51 (1995)	Distance to streams and canals (meters)	0.298	x				
D51 (2002)	Distance to streams and canals (meters)	0.299	x				
D52 (1972)	Distance to nearest lake (meters)	0.011	x				
D52 (1986)	Distance to nearest lake (meters)	-0.082	x				
D52 (1995)	Distance to nearest lake (meters)	-0.057	x				
D52 (2002)	Distance to nearest lake (meters)	-0.075	x				
D53 (1972)	Distance to nearest reservoir (meters)	0.072	x				
D53 (1986)	Distance to nearest reservoir (meters)	-0.139	x				
D53 (1995)	Distance to nearest reservoir (meters)	-0.145	x				
D53 (2002)	Distance to nearest reservoir (meters)	-0.129	x				
D6 (1972)	Distance to wetlands (meters)	0.228	x				
D6 (1986)	Distance to wetlands (meters)	0.161	x				
D6 (1995)	Distance to wetlands (meters)	0.144	x				
D6 (2002)	Distance to wetlands (meters)	0.158	x				
D61 (1972)	Distance to forested wetlands (meters)	0.226	x				
D61 (2002)	Distance to forested wetlands (meters)	-0.081	x				
D62 (1972)	Distance to non-forested wetlands (meters)	0.004	x				
D62 (1986)	Distance to non-forested wetlands (meters)	0.161	x				
D62 (1995)	Distance to non-forested wetlands (meters)	0.144	x				
D62 (2002)	Distance to non-forested wetlands (meters)	0.158	x				
D7 (1972)	Distance to barren land (meters)	0.003	x				
D7 (1986)	Distance to barren land (meters)	0.223	x				

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
D7 (1995)	Distance to barren land (meters)	0.184	x				
D7 (2002)	Distance to barren land (meters)	-0.059	x				
D72 (1995)	Distance to bare exposed rock (meters)	-0.078	x				
D72 (2002)	Distance to bare exposed rock (meters)	-0.077	x				
D73 (1986)	Distance to extractive mining (meters)	-0.073	x				
D73 (1995)	Distance to extractive mining (meters)	-0.033	x				
D73 (2002)	Distance to extractive mining (meters)	-0.014	x				
D74 (1986)	Distance to altered or disturbed lands or wetlands (meters)	0.253	x				
D74 (1995)	Distance to altered or disturbed lands or wetlands (meters)	0.273	x				
D74 (2002)	Distance to altered or disturbed lands or wetlands (meters)	0.052	x				
D75 (1972)	Distance to transitional areas of barren land (meters)	-0.023	x				
D75 (1986)	Distance to transitional areas of barren land (meters)	-0.033	x				
D75 (1995)	Distance to transitional areas of barren land (meters)	-0.168	x				
D75 (2002)	Distance to transitional areas of barren land (meters)	-0.151	x				
D76 (1972)	Distance to undifferentiated barren land (meters)	0.015	x				
D76 (1986)	Distance to undifferentiated barren land (meters)	0.053	x				
D76 (1995)	Distance to undifferentiated barren land (meters)	0.146	x				
D76 (2002)	Distance to undifferentiated barren land (meters)	-0.002	x				
Dallrds	Distance to nearest road (meters)	-0.436	x				
Dallrec	Distance to all recreational areas (meters)	0.116	x				
Dcem	Distance to nearest cemetery (meters)	-0.106	x				
Ddams	Distance to nearest dam (meters)	-0.081	x				
Dkcsl01	Distance to nearest known contamination site, 2001 inventory (meters)	-0.192	x				
Dpdesgw	Distance to nearest permitted ground-water discharge site (meters)	-0.057	x				
Dpdesstorm	Distance to nearest permitted storm discharge location (meters)	0.015	x				
Dpdessw	Distance to permitted surface-water discharges (meters)	0.126	x				
Drail	Distance to the nearest railroad (meters)	0.075	x				
Dstploc	Distance to nearest sewage-treatment-plant location (meters)	0.021	x				
Dstrm24k	Distance to nearest stream (meters)	0.136	x				
Dswl	Distance to nearest surface water discharge location (meters)	-0.038	x				
HoleDepth	Hole depth (feet)	0.218	x				
IMPSURF95PCT	Percent impervious surface	-0.062	x	x	x	x	x
KFACT	Soil erodibility factor, whole soil	0.307	x	x			
KFFACT	Soil erodibility factor, particles less than 2 mm diameter	0.307	x	x	x	x	x
Llocalrds	Length of local roads (meters)	0.468	x	x	x	x	x

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
LMajrds	Length of major roads (meters)	0.159	x				
Lrail	Length of railroads (meters)	-0.067	x				
LStrm24	Length of streams (meters)	-0.172	x	x	x	x	x
Nallrds	Total number of roads	0.444	x				
Nallrec	Number of recreational areas	-0.198	x	x			
Ncem	Number of cemeteries	0.106	x				
Ndams	Number of dams	0.086	x				
Nkcsl01	Number of known contamination site locations, 2001 inventory	0.196	x	x	x	x	x
Nlocalrds	Number of local roads	0.450	x				
Nmajrds	Number of major roads	0.157	x				
Nnjgolf	Number of golf courses	-0.266	x	x	x		
Nnjpdesgw	Number of permitted ground-water-discharge sites	0.058	x	x			
Nnjpdesstorm	Number of permitted storm discharge sites	-0.015	x	x			
Nnjpdessw	Number of permitted surface-water-discharge sites	-0.144	x	x			
Nrail	Number of railroads	-0.074	x				
Nstploc	Number of sewage treatment plant locations	-0.021	x	x	x		
Nstrm24k	Number of streams	-0.108	x	x			
Nswl	Number of solid waste locations	0.037	x	x			
OI	Well length of open interval (feet)	0.129	x	x	x	x	x
ORGPCT	Percent organic material in soil	-0.244	x	x	x		
P00010	Temperature, water (degrees Centigrade)	-0.071	x				
P00076	Turbidity (NTU)	-0.067	x				
P00095	Specific conductance (microsiemens per cm)	0.027	x				
P00300	Dissolved oxygen (mg/L)	0.493	x				
P00400	pH, water, whole, field (standard units)	-0.203	x				
P00403	pH, water, whole, laboratory (standard units)	-0.235	x				
P00608	Nitrogen, ammonia, dissolved (mg/L as N)	-0.406	x				
P00613	Nitrogen, nitrite, dissolved, (mg/L as N)	-0.046	x				
P00623	Nitrogen, ammonia plus organic, dissolved (mg/L as N)	-0.172	x				
P00631	Nitrate plus nitrite, dissolved (mg/L as N)	1.000	x				
P00666	Phosphorus, dissolved (mg/L as P)	-0.124	x				
P00671	Phosphorus, orthophosphate, dissolved (mg/L as P)	-0.127	x				
P00681	Carbon, organic, dissolved (mg/L as C)	-0.147	x				
P00915	Calcium, dissolved (mg/L as Ca)	0.000	x				
P00925	Magnesium, dissolved (mg/L as Mg)	0.070	x				

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
P00930	Sodium, dissolved (mg/L as Na)	-0.057	x				
P00935	Potassium, dissolved (mg/L as K)	0.006	x				
P00940	Chloride, dissolved (mg/L as Cl)	0.081	x				
P00945	Sulfate, dissolved (mg/L as SO_4)	-0.115	x				
P00950	Fluoride, dissolved (mg/L as F)	-0.201	x				
P00955	Silica, dissolved (mg/L as SiO_2)	0.041	x				
P01000	Arsenic, dissolved (µg/L as As)	-0.463	x				
P01022	Boron, total (µg/L as B)	-0.376	x				
P01046	Iron, dissolved (µg/L as Fe)	-0.431	x				
P01056	Manganese, dissolved (µg/L as Mn)	-0.555	x				
P1 (1972)	Percent urban land	0.088	x	x	x	x	x
P1 (1986)	Percent urban land	0.075	x	x	x	x	x
P1 (1995)	Percent urban land	-0.006	x	x	x	x	x
P1 (2002)	Percent urban land	0.035	x	x	x	x	x
P11 (1972)	Percent of residential land use	0.145	x	x	x	x	x
P11 (1986)	Percent of residential land use	0.445	x	x	x	x	x
P11 (1995)	Percent of residential land use	0.453	x	x	x	x	x
P11 (2002)	Percent of residential land use	0.464	x	x	x	x	x
P12 (1972)	Percent commercial services land use	0.053	x	x	x		
P12 (1986)	Percent commercial services land use	-0.230	x	x	x		
P12 (1995)	Percent commercial services land use	-0.245	x	x	x		
P12 (2002)	Percent commercial services land use	-0.247	x	x	x		
P13 (1972)	Percent industrial land	-0.061	x	x			
P13 (1986)	Percent industrial land	0.097	x	x			
P13 (1995)	Percent industrial land	0.092	x	x			
P13 (2002)	Percent industrial land	0.100	x	x			
P14 (1972)	Percent transportation, communication and utilities land use	-0.092	x	x			
P14 (1986)	Percent transportation, communication and utilities land use	-0.009	x	x			
P14 (1995)	Percent transportation, communication and utilities land use	0.119	x	x			
P14 (2002)	Percent transportation, communication and utilities land use	0.147	x	x			
P15 (1972)	Percent of industrial plus commercial land	-0.038	x	x			
P15 (1986)	Percent of industrial plus commercial land	0.013	x	x			
P15 (1995)	Percent of industrial plus commercial land	-0.089	x	x			
P15 (2002)	Percent of industrial plus commercial land	-0.089	x	x			
P16 (1972)	Percent mixed urban or built-up land	-0.007	x				

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
P16 (1986)	Percent mixed urban or built-up land	0.008	x				
P16 (1995)	Percent mixed urban or built-up land	0.114	x				
P16 (2002)	Percent mixed urban or built-up land	0.114	x				
P17 (1972)	Percent other urban or built-up land	-0.021	x	x			
P17 (1986)	Percent other urban or built-up land	0.173	x	x			
P17 (1995)	Percent other urban or built-up land	-0.093	x	x			
P17 (2002)	Percent other urban or built-up land	-0.066	x	x			
P18 (1986)	Percent recreational land	-0.255	x				
P18 (1995)	Percent recreational land	-0.229	x				
P18 (2002)	Percent recreational land	-0.224	x				
P2 (1972)	Percent agricultural land use	0.223	x	x	x	x	x
P2 (1986)	Percent agricultural land use	0.313	x	x	x	x	x
P2 (1995)	Percent agricultural land use	0.312	x	x	x	x	x
P2 (2002)	Percent agricultural land use	0.315	x	x	x	x	x
P21 (1972)	Percent of cropland and pastureland	0.237	x	x			
P21 (1986)	Percent of cropland and pastureland	0.304	x	x			
P21 (1995)	Percent of cropland and pastureland	0.308	x	x			
P21 (2002)	Percent of cropland and pastureland	0.300	x	x			
P22 (1972)	Percent orchards, vineyards, nurseries and horticultural areas	-0.056	x	x			
P22 (1986)	Percent orchards, vineyards, nurseries and horticultural areas	0.108	x	x			
P22 (1995)	Percent orchards, vineyards, nurseries and horticultural areas	0.139	x	x			
P22 (2002)	Percent orchards, vineyards, nurseries and horticultural areas	0.118	x	x			
P23 (1972)	Percent confined feeding operations land use	-0.068	x	x			
P23 (1986)	Percent confined feeding operations land use	0.004	x	x			
P23 (1995)	Percent confined feeding operations land use	0.009	x	x			
P23 (2002)	Percent confined feeding operations land use	0.009	x	x			
P24 (1972)	Percent confined feeding operations land use	0.118	x	x			
P24 (1986)	Percent agricultural land use other than cropland and pastureland	0.193	x	x			
P24 (1995)	Percent confined feeding operations land use	0.238	x	x			
P24 (2002)	Percent agricultural land use other than cropland and pastureland	0.228	x	x			
P38260	Methylene blue active substance (mg/L)	-0.012	x				
P39086	Alkalinity, water, dissolved, total, (mg/L as $CaCO_3$)	-0.109	x				
P4 (1972)	Percent forested land	-0.299	x	x	x	x	x
P4 (1986)	Percent forested land	0.035	x	x	x	x	x
P4 (1995)	Percent forested land	0.089	x	x	x	x	x

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
P4 (2002)	Percent forested land	0.051	x	x	x	x	x
P41 (1972)	Percent deciduous forest	-0.267	x	x			
P41 (1986)	Percent deciduous forest	-0.008	x	x			
P41 (1995)	Percent deciduous forest	0.072	x	x			
P41 (2002)	Percent deciduous forest	0.033	x	x			
P42 (1972)	Percent coniferous forests	-0.102	x	x			
P42 (1986)	Percent coniferous forests	0.009	x	x			
P42 (1995)	Percent coniferous forests	0.058	x	x			
P42 (2002)	Percent coniferous forests	0.088	x	x			
P43 (1972)	Percent mixed forest	-0.031	x	x			
P43 (1986)	Percent mixed forest	-0.213	x	x			
P43 (1995)	Percent mixed forest	-0.138	x	x			
P43 (2002)	Percent mixed forest	-0.006	x	x			
P44 (1986)	Percent brush land and shrub land	0.203	x				
P44 (1995)	Percent brush land and shrub land	0.153	x				
P44 (2002)	Percent brush land and shrub land	0.123	x				
P45 (2002)	Percent severe burned upland vegetation	-0.059	x				
P5 (1972)	Percent water	-0.051	x	x	x	x	x
P5 (1986)	Percent water	-0.107	x	x	x	x	x
P5 (1995)	Percent water	-0.081	x	x	x	x	x
P5 (2002)	Percent water	-0.093	x	x	x	x	x
P51 (1972)	Percent streams and canals	0.041	x				
P51 (1986)	Percent streams and canals	-0.332	x				
P51 (1995)	Percent streams and canals	-0.307	x				
P51 (2002)	Percent streams and canals	-0.307	x				
P52 (1972)	Percent natural lakes	-0.012	x				
P52 (1986)	Percent natural lakes	0.080	x				
P52 (1995)	Percent natural lakes	0.056	x				
P52 (2002)	Percent natural lakes	0.074	x				
P53 (1972)	Artificial lakes and reservoirs	-0.074	x				
P53 (1986)	Artificial lakes and reservoirs	0.139	x				
P53 (1995)	Artificial lakes and reservoirs	0.145	x				
P53 (2002)	Artificial lakes and reservoirs	0.128	x				
P6 (1972)	Percent wetlands	-0.230	x	x	x	x	x
P6 (1986)	Percent wetlands	-0.226	x	x	x	x	x

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
P6 (1995)	Percent wetlands	-0.224	x	x	x	x	x
P6 (2002)	Percent wetlands	-0.223	x	x	x	x	x
P61 (1972)	Percent marshes and vegetated dunes	-0.228	x				
P61 (2002)	Percent marshes and vegetated dunes	0.081	x				
P62 (1972)	Percent non-forested wetlands	-0.004	x				
P62 (1986)	Percent non-forested wetlands	-0.226	x				
P62 (1995)	Percent non-forested wetlands	-0.224	x				
P62 (2002)	Percent non-forested wetlands	-0.224	x				
P7 (1972)	Percent barren land	-0.001	x		x	x	x
P7 (1986)	Percent barren land	-0.215	x		x	x	x
P7 (1995)	Percent barren land	-0.177	x		x	x	x
P7 (2002)	Percent barren land	0.072	x		x	x	x
P71890	Mercury, dissolved (µg/L as Hg)	-0.076	x				
P72 (1995)	Percent bare exposed rock and rock slides	0.081	x				
P72 (2002)	Percent bare exposed rock and rock slides	0.081	x				
P73 (1986)	Percent extractive mining land use	0.074	x				
P73 (1995)	Percent extractive mining land use	0.033	x				
P73 (2002)	Percent extractive mining land use	0.015	x				
P74 (1986)	Percent altered barren lands	-0.263	x				
P74 (1995)	Percent altered barren lands	-0.273	x				
P74 (2002)	Percent altered barren lands	-0.045	x				
P75 (1972)	Percent of transitional areas of barren land	0.024	x				
P75 (1986)	Percent of transitional areas of barren land	0.033	x				
P75 (1995)	Percent of transitional areas of barren land	0.170	x				
P75 (2002)	Percent of transitional areas of barren land	0.150	x				
P76 (1972)	Percent undifferentiated barren land	-0.014	x				
P76 (1986)	Percent undifferentiated barren land	-0.053	x				
P76 (1995)	Percent undifferentiated barren land	-0.126	x				
P76 (2002)	Percent undifferentiated barren land	0.002	x				
P82084	Nitrogen ^{15}N/^{14}N ratio (per mil)	0.117	x				
P90095	Specific conductance (microsiemens per cm)	0.008	x				
P90410	Acid neutralizing capacity, water (mg/L as CaCO$_3$)	0.003	x				
PERM	Soil permeability	0.075	x	x	x	x	x
POPDEN	Population density (2000 census, per square kilometer)	0.407	x	x	x	x	x
SEPDEN	Septic density (1990 census, per square kilometer)	0.216	x	x	x		

Appendix 2. Geographic and environmental characteristics evaluated as possible explanatory variables in models of median nitrate concentrations in groundwater in the NJ Highlands Region.—Continued

Variable name	Variable description	Spearman's rho	logistic egression				
			1 variable	2 variables	3 variables	4 variables	5 variables
SLOP	Slope of land (percent)	0.000	x	x			
SOILPH	Soil pH (standard units)	-0.103	x	x	x		
THICK	Soil thickness (cm)	-0.144	x	x			
Top	Depth to top of well screen (feet)	0.141	x				
WellDepth	Depth of well (feet)	0.225	x	x	x	x	x