

Appendix

Geospatial Health #711

**Predictive risk mapping of human leptospirosis using support vector machine
classification and multilayer perceptron neural network**

**Table A1. Comparison of the performance of various kernel functions for support
vector machine.**

Kernel Function	C parameter	γ parameter	Number of mistakes	Accuracy
Polynomial (Degree 3)	2	0.0016	74	0.38
Polynomial (Degree 3)	3	0.0038	72	0.39
Polynomial (Degree 3)	6	0.0010	71	0.40
Linear	4	-	50	0.58
Linear	5	-	48	0.60
Linear	8	-	54	0.55
Polynomial (Degree 2)	2	0.0033	43	0.64
Polynomial (Degree 2)	4	0.0028	42	0.65
Polynomial (Degree 2)	5	0.0032	40	0.66
RBF	2	0.0023	32	0.73
RBF	2	0.0018	34	0.71
RBF	4	0.0076	37	0.69

RBF, radial basis function.

Table A2. Best results of comparing the activity functions for multilayer perceptron.

Number of hidden layers	Numbers of neurons	Activity function	R-squared	Root Mean Square Error	Accuracy
1	5	Tanh	0.6316	0.042	0.51
1	7	Tanh	0.6634	0.037	0.53
1	9	Tanh	0.7158	0.023	0.61
1	10	Tanh	0.6963	0.027	0.58
1	14	Tanh	0.6422	0.040	0.52
1	4	Sigmoid	0.6876	0.028	0.57
1	6	Sigmoid	0.7233	0.022	0.62
1	7	Sigmoid	0.7379	0.019	0.65
1	8	Sigmoid	0.7523	0.017	0.69
1	12	Sigmoid	0.7113	0.025	0.60

Table A3. Moran's I applied on annual data.

Year	Moran's I	Z score	P value	Type of distribution
2009	0.58	11.86	<0.01	Clustered
2010	0.55	11.22	<0.01	Clustered
2011	0.74	12.58	<0.01	Clustered
2012	0.69	14.08	<0.01	Clustered
2013	0.64	12.93	<0.01	Clustered
2014	0.67	13.49	<0.01	Clustered

Table A4. Moran's I applied on monthly data (in 2014).

Month	Moran's <i>I</i>	Z score	P value	Type of distribution
May	0.59	11.98	<0.01	Clustered
June	0.72	12.22	<0.01	Clustered
July	0.56	11.38	<0.01	Clustered
August	0.66	13.43	<0.01	Clustered
Sept.	0.69	11.69	<0.01	Clustered

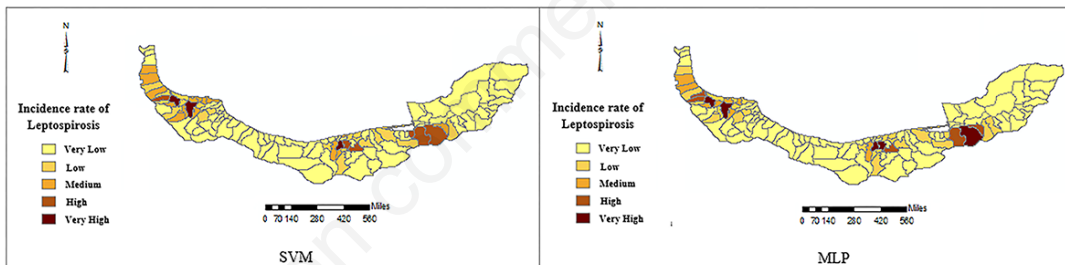


Figure A1. Annual predicted incidence rate of leptospirosis in 2014.