

Mapping the Risk for West Nile Virus Transmission, Africa

Appendix 1

Favorability Function

$$F = \frac{\frac{P}{1-P}}{\frac{n1}{n2} + \frac{P}{1-P}}$$

F being favorability value and P the probability value. n1 is the number of OGUs with reported WNV, and n0 the number of OGUs with no virus reported. The result was a F value (ranging from 0 to 1) in every OGU, representing the degree to which environmental conditions in the OGU favor the occurrence of the virus. For a more detailed procedure, see García-Carrasco et al. (1).

Appendix 1 Table 1. Explanatory variables used in the West Nile virus models*

Type	Subtype	Abbreviation	Name	
Human	Human	dens_pop	Population density (2)	
		concentration	Distance to population center (3)	
	Livestock	chicken	Poultry density (4)	
		duck	Farmed duck density (4)	
		horse	Horse density (4)	
		buffalo	Buffalo density (4)	
		goat	Goat density (4)	
		cattle	Cattle density (4)	
		sheep	Sheep density (4)	
		pig	Pig density (4)	
	Infrastructure	dist_road	Distance to roads (5)	
		dist_rail	Distance to railway tracks (5)	
	Agriculture	class 11	Irrigated croplands (6)	
		class 14	Rainfed croplands (6)	
		Crop_veg 20	Mosaic cropland (>50%)/Vegetation(<50%) (6)	
		class 30	Mosaic vegetation(>50%)/Cropland (<50%) (6)	
		irrig	Percentage of areas equipped for irrigation (7)	
Non-human		Ecosystem	class 40	Broadleaved evergreen and/or semi-deciduous forest (6)
			class 50	Closed broadleaved deciuous forest (6)
	class 60		Open broadleaved deciuous forest (6)	
	class 70		Closed needleleaved evergreen forest (6)	
	class 90		Open needleleaved deciuous or evergreen forest (6)	
	class 100		Closed to open mixed broadleaved and needleleaved forest (6)	
	class 110		Mosaic Forest/Shrubland/Grassland (6)	
	class 120		Mosaic Grassland/Forest/Shrubland (6)	
	class 130		Shrubland (6)	
	class 140		Grassland (6)	
class 150	Sparse vegetation (6)			
class 160	Broadleaved forest regularly flooded (6)			
class 170	Broadleaved semi-deciduous and/or evergreen forest regularly flooded (6)			

Type	Subtype	Abbreviation	Name
		Veg_flood	Vegetation on regularly flooded or waterlogged soil (6)
		class_200	Desert (6)
		forest_loss	Forest loss (8)
	Hydrographic	dist_ramsar	Distance to Ramsar sites (9)
	Topographic	dist_river	Distance to rivers (10)
		alt	Altitude (11)
		slope	Slope (11)
	Climatic	Mean_temp	Annual Mean Temperature (12)
		Max_temp	Max Temperature of Warmest Month (12)
		Min_temp	Min Temperature of Coldest Month (12)
		Temp_range	Temperature Annual Range (Bio5-Bio6) (12)
		Prec	Annual Precipitation (12)
		Prec_season	Precipitation Seasonality (Coefficient of Variation) (12)

Appendix 1 Table 2. Comparative assessment of the classification and discrimination capacities of models

Classification	Potential Risk Model	All-presences model
Kappa	0.0626	0.0835
Sensitivity	0.8675	0.8434
Specificity	0.6676	0.7371
CCR	0.6718	0.7393
Underprediction	0.0042	0.0045
Overprediction	0.9472	0.9359
Discrimination		
AUC	0.8612	0.8737

*Favorability value 0.5 used as a cutoff point for classification purposes.

References

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