Table 1. Factors considered in the MCDA analysis for the definition of the environmental vulnerability of the Cuban Archipelago to AIVs introduction. The table reports also the geographical analyses performed, the relationship used between the factor and AIVs suitability and the main reference for the relationship and the weights for the Weighted Linear Combination. The curves defining the relationship between the values of the factor and the AIVs suitability, is considered to have four inflection points, at the values a,b,c,d.

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| **Factor category** | **Factor** | **GIS analyses** | **Relationship between the factor and AIVs suitability** | **Reference** | **Weight** |
| Natural and anthropogenic environment | Proximity to roads (as roads act as a proxy for increased movement of poultry/products or fomites) | Type: motorway, primary, secondary Calculated Euclidean distance to Roads at 1 km spat res | Sigmoidal, monotonically decreasing (a,b,c= 5 km, d=60 km) | Stevens et al, 2013 | 0.061 |
| Density of human population (as a proxy factor such as trade-associated movement of domestic poultry and fomites) | Raster from GHS global population (https://ghsl.jrc.ec.europa.eu/ghs\_pop.php) at 1 km spat res | Quadratic relationship (a= 10 persons/sq.km, b=100, c= 1000, d=10000) | Loth et al, 2010 | 0.060 |
| Proximity to waterbodies (as a proxy for increased contact with wild and domestic waterfowl) | National shapefile. Calculated Euclidean distance to Waterbodies at 1 km spat res | Sigmoidal, monotonically decreasing (a,b,c= 5 km, d=60 km) | Stevens et al, 2013 | 0.133 |
| Proximity to ocean ports and marines (as a proxy for movement of poultry and byproducts) | National shapefile. Calculated Euclidean distance to Ports and Airports at 1 kmspat res | Sigmoidal, monotonically decreasing (a,b,c= 5 km, d=60 km) |  | 0.057 |
| Proximity to rice-growing areas and natural wetlands (as a proxy for increased contact with wild and domestic waterfowls) | National shapefile. Calculated Euclidean Distance at 1 km spat res | Sigmoidal, monotonically decreasing (a,b,c= 5 km, d=60 km) | Stevens et al, 2013 | 0.157 |
| animal density | Commercial poultry density (excluding ducks, only broiler, layer flocks and other categories are considered) | Kernel Density tool with 3 km radius buffer (output is density in sq.km) | Quadratic relationship (a= 0 poultry/sq.km, b=500, c= 5000, d=10000) | Stevens et al, 2013 | 0.110 |
| Backyard poultry density (Considering they use to be free range) | Raster density of backyard poultry pop (heads/sq.km)  resampled at 1 km | Sigmoidal, monotonically increasing (a= 0 poultry/sq.km, b,c,d=100) |  | 0.104 |
| Commercial Duck density (Considering they use to be free range) | Kernel Density tool with 3 km radius buffer (output is density in sq.km) at 1 km spat res | Quadratic relationship (a= 0 ducks/sq.km, b=500, c= 5000, d=10000) |  | 0.166 |
| migratory effect | Abundance of wild waterfowls (resulting in a higher presence of the main AIV natural reservoir) | The number of birds of Spring Migration and Fall Migration were geographically distributed around the point with Ferrer function.  Then, for each pixel, the maximum (SM, FM) was retained. | Linear increasing (a=0, b,c,d=100 birds/sq.km) | Ferrer et al, 2014 | 0.152 |