Spatial assignment of test sample

December 13, 2016

Contents

Input

Website Identifier: 157

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-20.3	7	16.4	-43.2	5.8

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2,    kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.3765867
## Best kernel: triangular
## Best k: 15
```
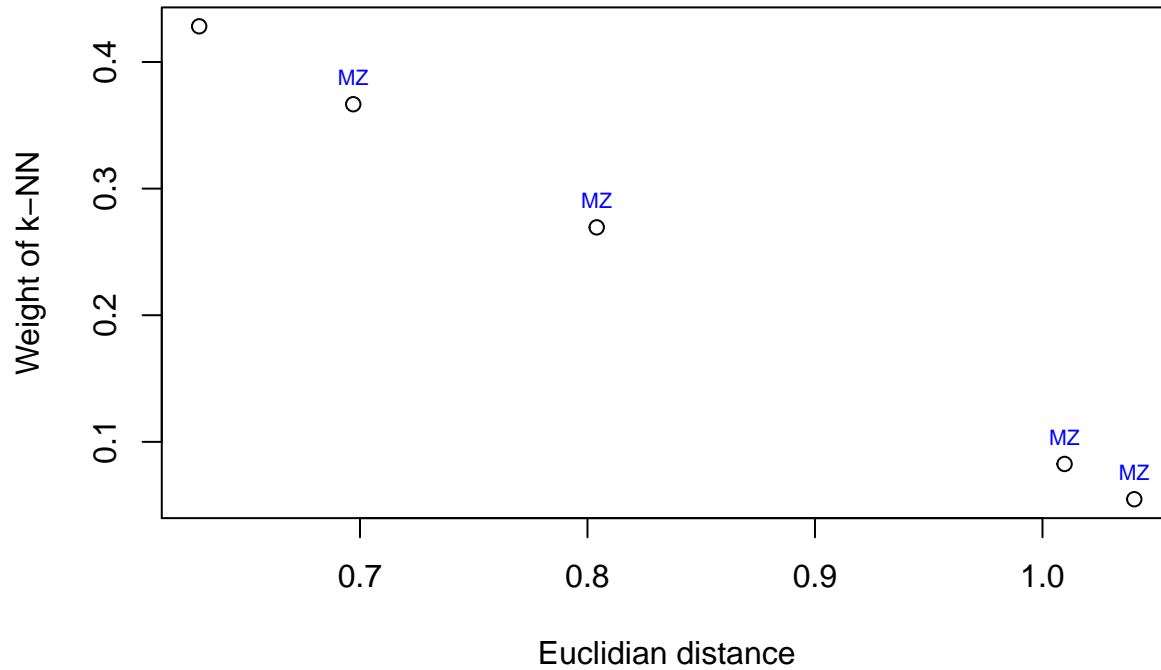
Classifier: **country_code**

Map of best fitted reference sample
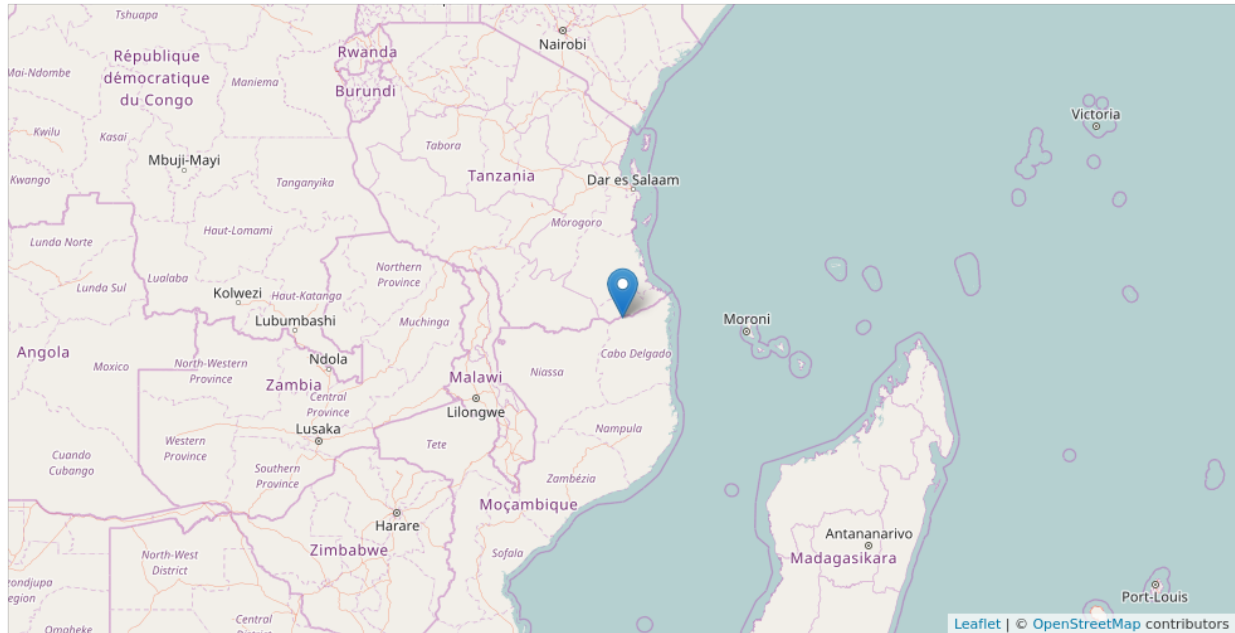
Best fitted reference sample:

- Site: Mozambique, Chipupa / Rovuma
- Country: MZ
- Region: Southern Africa
- CITES: Appendix I
- Lat: -11.26
- Lon: 38.91

Assignment of test sample to nearest neighbours

Best fitted reference entries

Table 2: Details of best fitted reference entry (row 1) and other fitted entries within best classifier

lon	lat	location	13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
38.91	-11.26	Mozambique, Chipupa / Rovuma	-21.1	7.4	16.1	-44.6	4.5
37.15	-12.29	Mozambique, Naulala village	-20.2	8.1	16.6	-38.9	5.6
39.00	-11.18	Mozambique, Rovuma river area	-20.8	7.0	15.4	-40.0	7.5
31.15	-14.86	Mozambique, Bairro Gebeuza village	-19.7	7.3	16.4	-46.3	8.9
37.55	-13.30	Mozambique, Niassa Nature Reserve	-20.8	5.7	15.0	-43.6	6.9

Country of prediction: MZ

Testing robustness of assignment: Wilcoxon signed rank test

If p-value > 0.05, the test concludes that the isotope signature of the test sample is similar to the respective nearest neighbour reference sample.

P-values for the k nearest neighbours in Wilcoxon Test

"0.425262, 0.234007, 0.145619, 0.022923, 0.000018"

Goodness of fit of test sample:

- good fit: if p > 0.05 for at least two tested nearest neighbour reference samples;
- moderate fit: if p > 0.05 for at least one tested nearest neighbour reference samples;
- uncertain: if p > 0.05 for none of the tested nearest neighbour reference samples.

Assumption: At least two nearest reference samples are available.

Overall goodness of fit of test sample: "**good fit**"