Spatial assignment of test sample

December 10, 2016

Contents

Input

Website Identifier: 21

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-27.2	6.8	16.9	-38.3	11.7

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
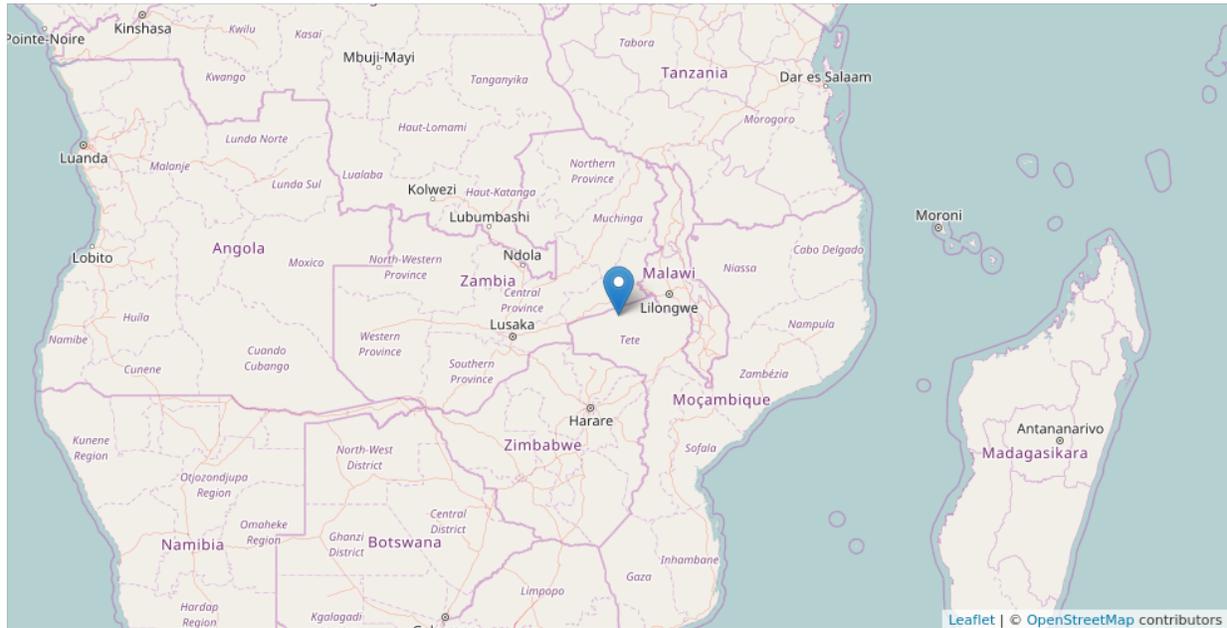
Best fitted reference sample:

- Site: Mozambique, Kambako
- Country: MZ
- Region: Southern Africa
- CITES: Appendix I
- Lat: -14.75
- Lon: 32

Assignment of test sample to nearest neighbours
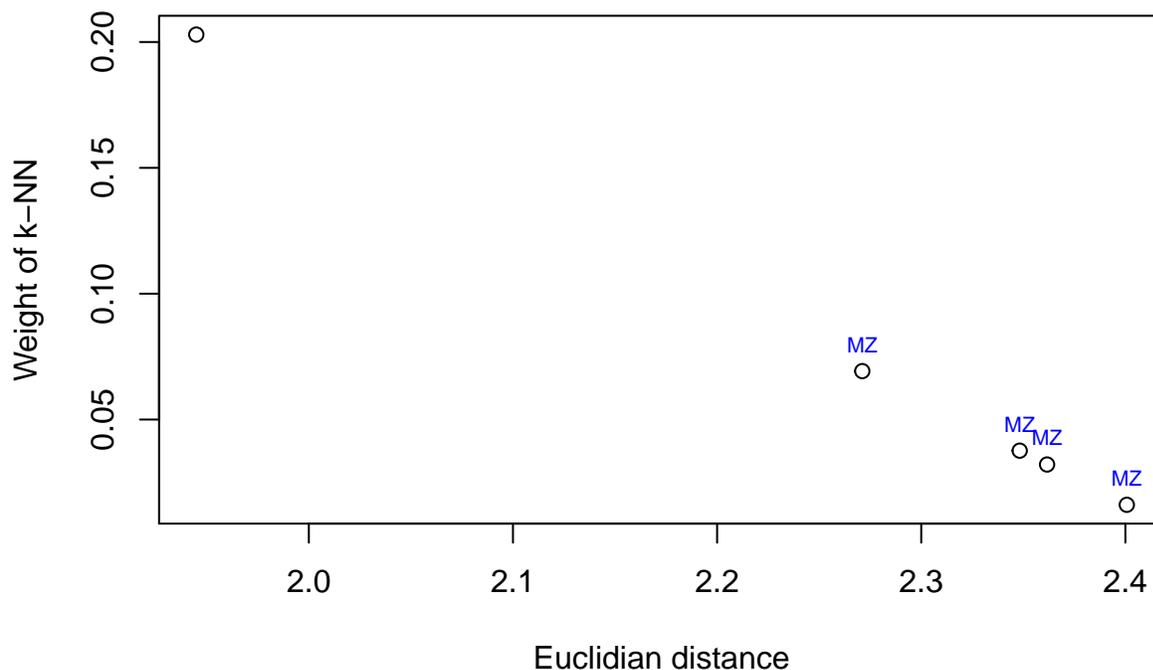
Best fitted reference entries

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
32.00	-14.75	Mozambique, Kambako	-23.6	7.7	17.4	-37.0	11.5
38.52	-12.00	Mozambique, Kambako block - L8	-23.4	8.7	16.6	-35.4	10.0
38.51	-12.00	Mozambique, Kambako block - L8	-23.5	8.6	16.5	-30.4	9.5
37.84	-12.00	Mozambique, Kambako (block L8) area	-23.4	8.1	15.2	-35.8	9.3
31.86	-14.75	Mozambique, Kambako	-23.4	7.9	16.8	-46.0	8.2

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

"0.000000026, 0.000000026, 0.000000026, 0.000000026, 0.000000026"

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: "**uncertain**"