Spatial assignment of test sample

December 12, 2016

Contents

Input

Website Identifier: 41

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-22.8	7	16	-42.4	8.2

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
```
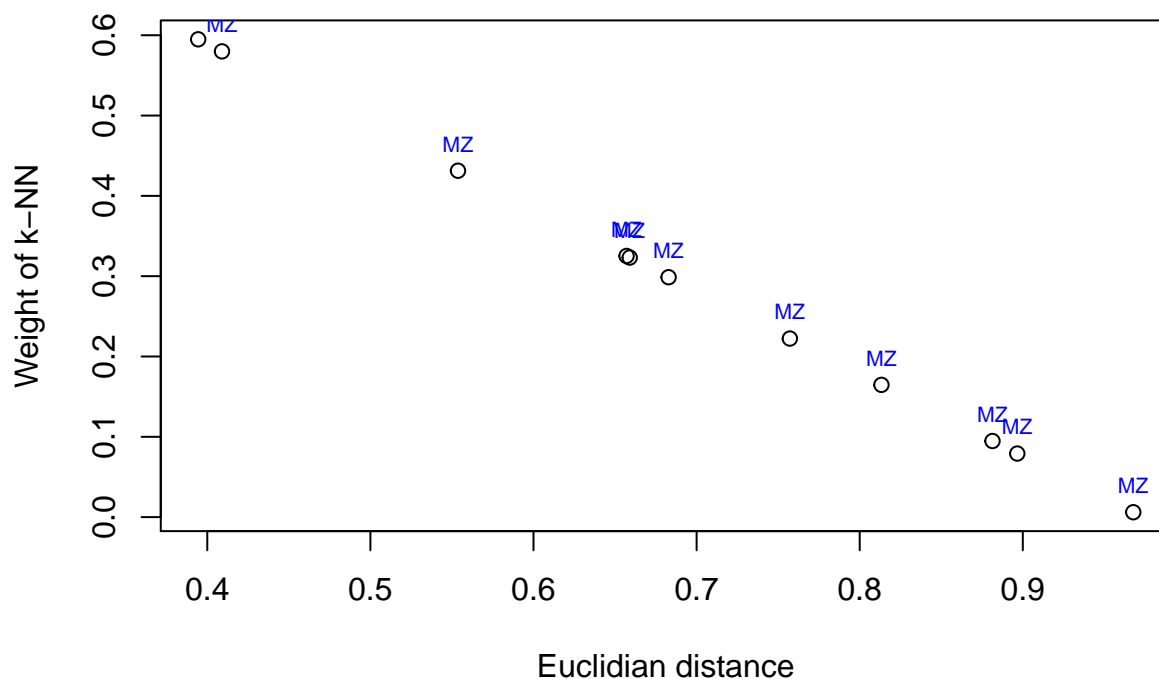
Classifier: **country_code**

Map of best fitted reference sample
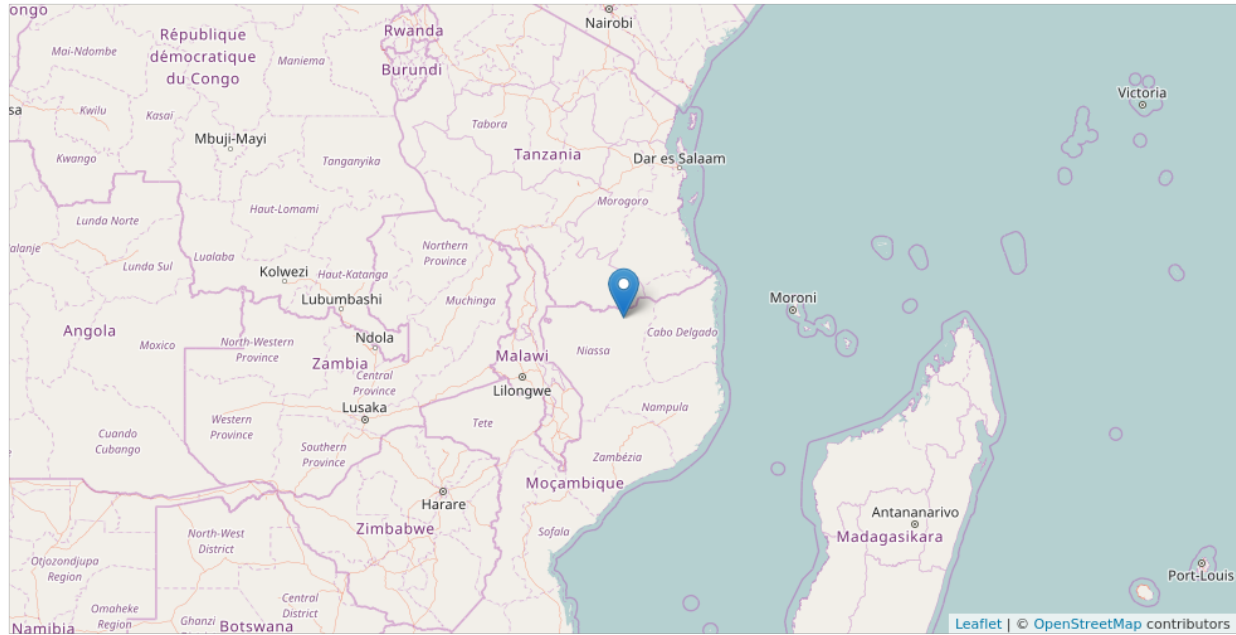
Best fitted reference sample:

- Site: Mozambique, Luwure (block L7) area
- Country: MZ
- Region: Southern Africa
- CITES: Appendix I
- Lat: -12
- Lon: 37.3

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
37.30	-12.00	Mozambique, Luwure (block L7) area	-22.5	6.7	16.5	-41.6	8.9
37.84	-12.31	Mozambique, Block L7 - Lugenda south ban	-23.1	7.0	15.5	-45.2	8.6
37.84	-12.30	Mozambique, Block L7 - Lugenda south ban	-22.0	7.5	15.5	-41.6	8.4
38.42	-11.55	Mozambique, Lugenda north bank - Chipopu	-22.5	6.9	15.7	-35.8	8.4
37.84	-12.31	Mozambique, Lugenda	-23.3	7.4	15.2	-45.8	9.1
37.84	-12.31	Mozambique, Block L7 - Lugenda south ban	-22.1	8.0	16.2	-44.5	7.6
31.86	-14.75	Mozambique, Kambako	-23.4	7.9	16.8	-46.0	8.2
32.58	-14.60	Mozambique, Naulela village	-22.8	7.6	16.3	-43.8	5.7
38.22	-12.18	Mozambique, Lugenda south bank (block C)	-22.0	7.8	15.5	-39.5	10.1
36.86	-11.90	Mozambique, Chipuputa area (block L5)	-21.7	7.0	15.9	-39.0	10.3
37.85	-11.32	Mozambique, Chipupa / Rovuma	-22.0	6.9	16.7	-37.7	10.5

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

"0.9829, 0.9145, 0.8805, 0.7800, 0.6830, 0.2703, 0.1023, 0.0769, 0.0328, 0.0202, 0.0091"

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**"