Spatial assignment of test sample

December 12, 2016

Contents

Input

Website Identifier: 128

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-26	7.7	16.2	-45.6	8.7

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
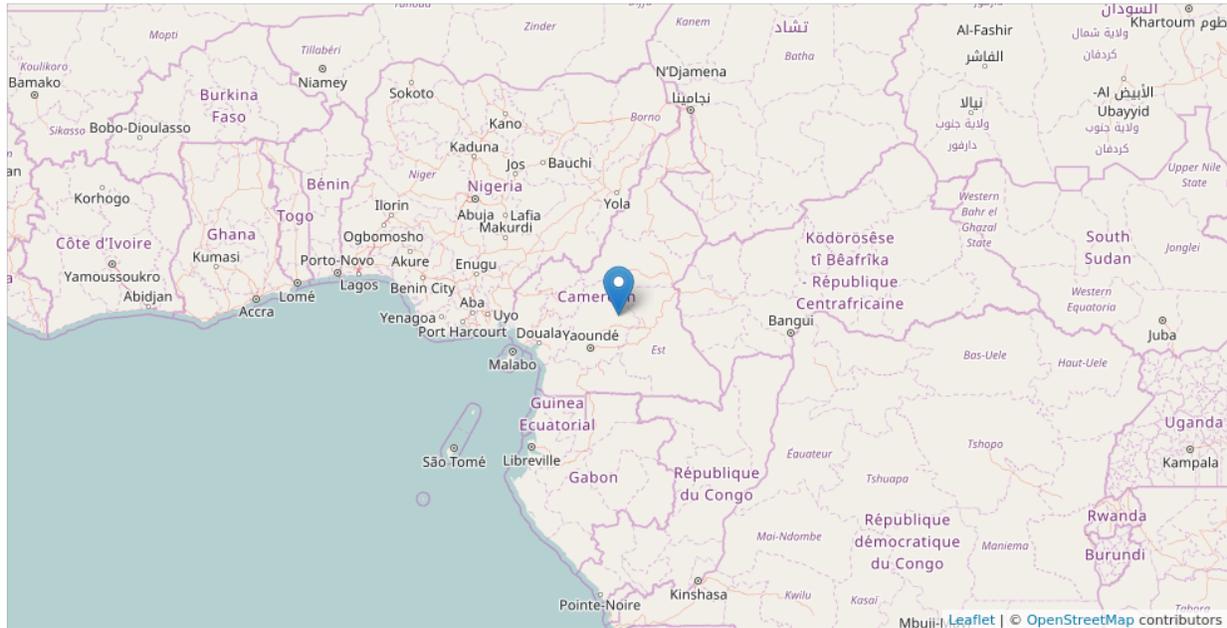
Best fitted reference sample:

- Site: Cameroon
- Country: CM
- Region: Central Africa
- CITES: Appendix I
- Lat: 4.98
- Lon: 12.47

Assignment of test sample to nearest neighbours
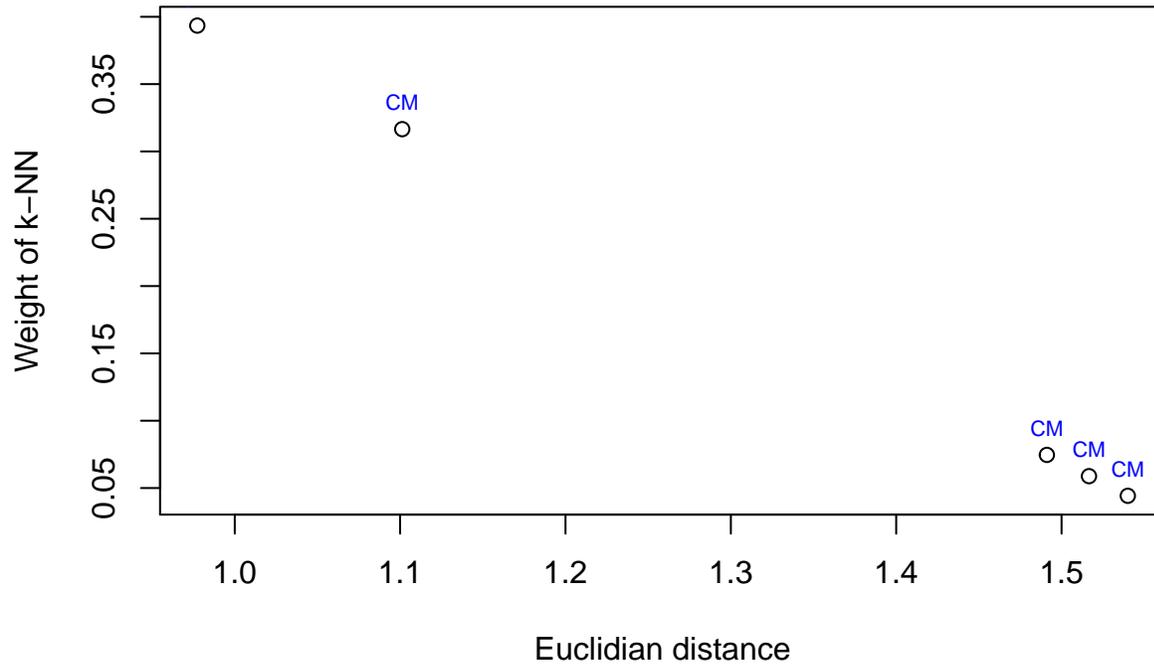
Best fitted reference entries

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
12.47	4.98	Cameroon	-25.0	7.7	14.9	-50.6	9.5
9.97	3.07	Cameroon, Longji	-25.8	8.2	14.6	-51.9	7.3
12.47	4.98	Cameroon	-25.0	9.6	15.2	-50.0	6.0
12.47	4.98	Cameroon	-25.0	9.6	15.6	-53.1	6.2
12.47	4.98	Cameroon	-24.5	7.3	15.9	-57.4	6.3

Country of prediction: CM

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

"0.112070, 0.005890, 0.000177, 0.000041, 0.000007"

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: "**moderate fit**"