

Spatial assignment of test sample

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Input

Website Identifier: 005p562-13

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-25.4	12	14.2	-53.8	10.3

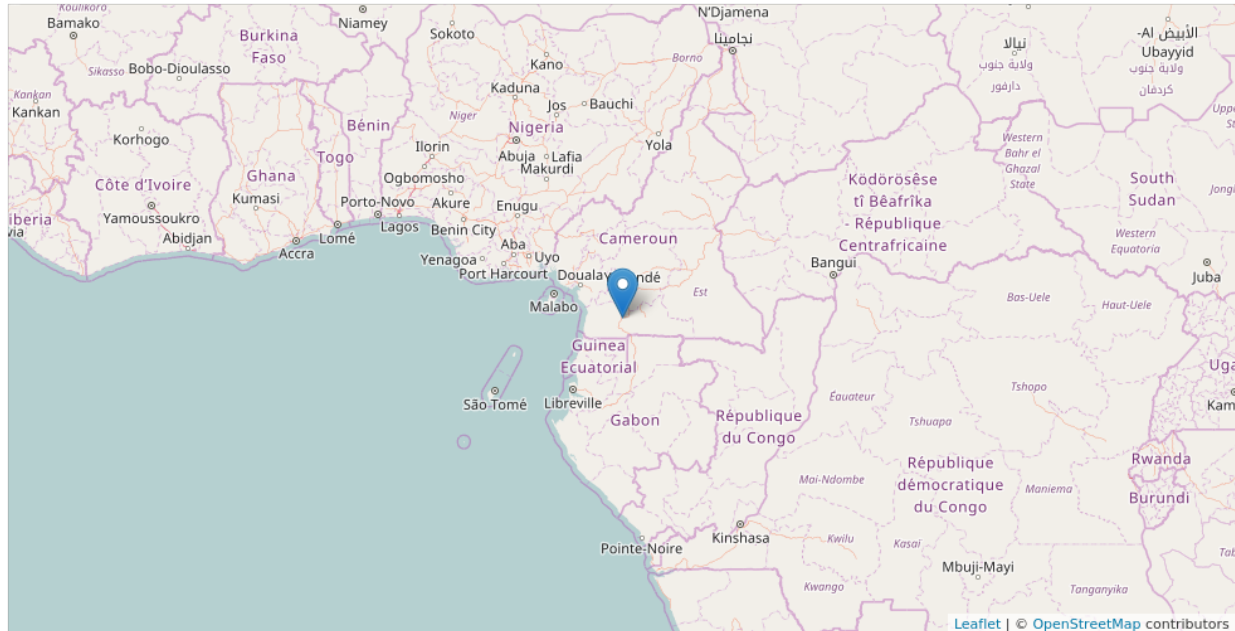
Output

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**

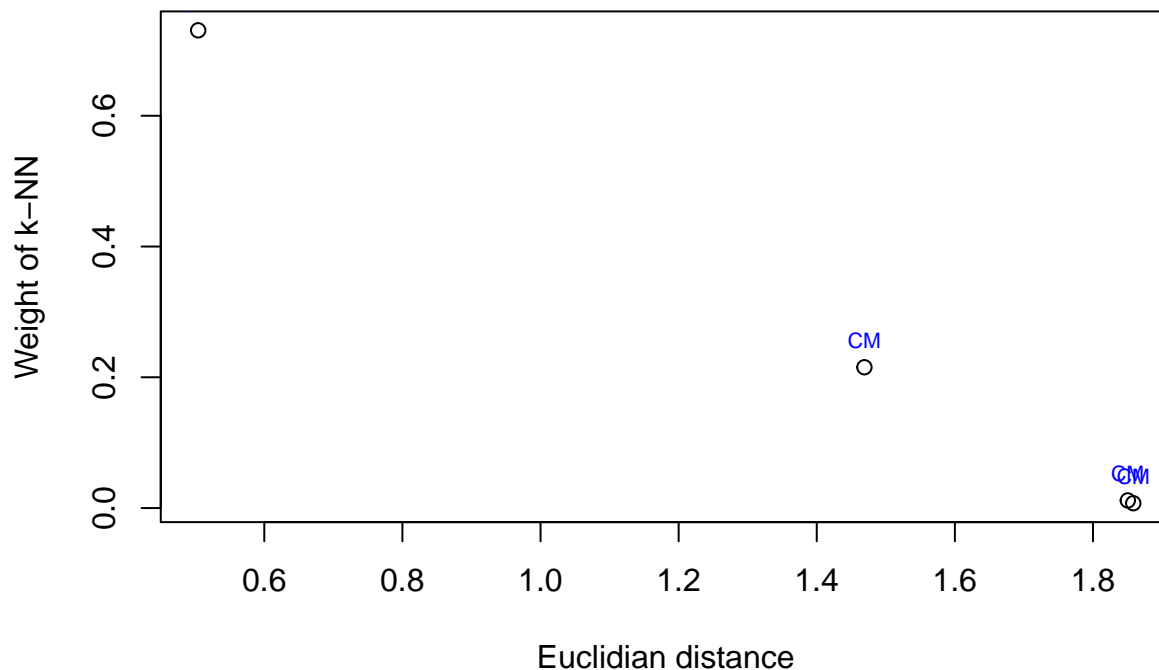
Map of best fitted reference sample



Best fitted reference sample:

- Site: Cameroon, near Ebolowa
- Country: CM
- Region: Central Africa
- CITES: Appendix I
- Lat: 2.86
- Lon: 11.15

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
11.15	2.86	Cameroon, near Ebolowa	-25.0	11.7	15.0	-52.0	10.1
10.20	3.13	Cameroon, Lokundji	-26.7	11.1	15.5	-51.6	6.8
12.47	4.98	Cameroon	-25.0	9.6	15.6	-53.1	6.2
12.47	4.98	Cameroon	-25.0	9.6	15.2	-50.0	6.0

Country of prediction: CM

Testing robustness of assignment: Wilcoxon signed rank test

If $p\text{-value} > 0.05$, 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

“0.093216, 0.004337, 0.000111, 0.000053”

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**”