

Spatial assignment of test sample

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Input

Website Identifier: 005p562-11

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-26.1	10.9	14.1	-47.6	11.8

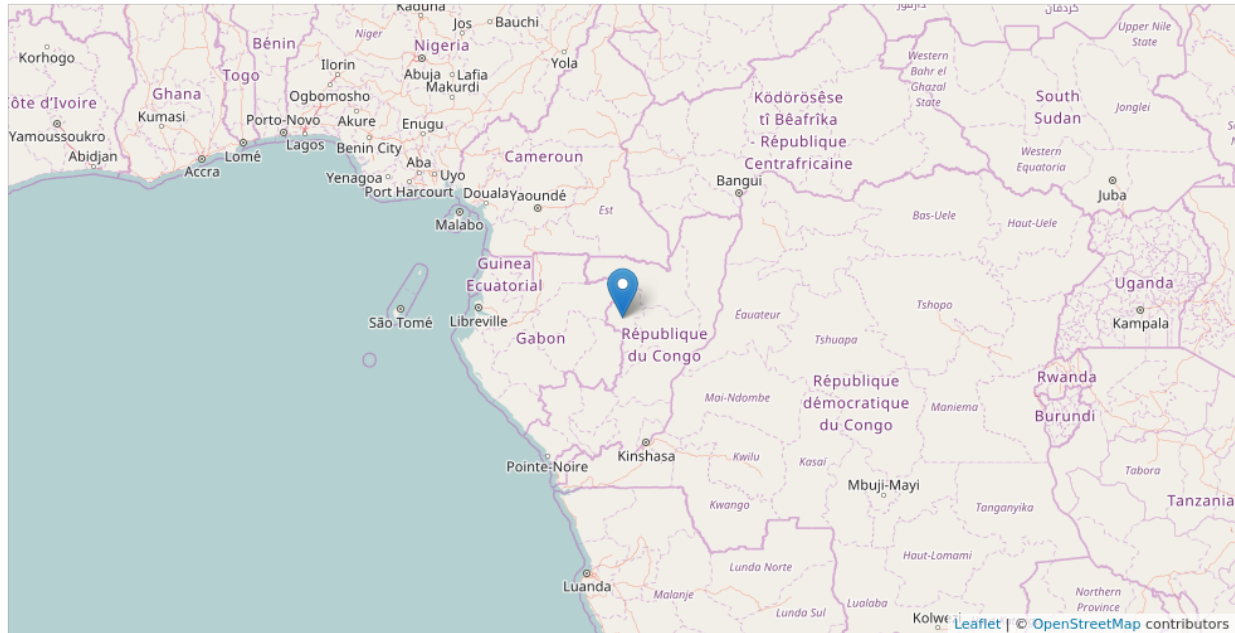
Output

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**

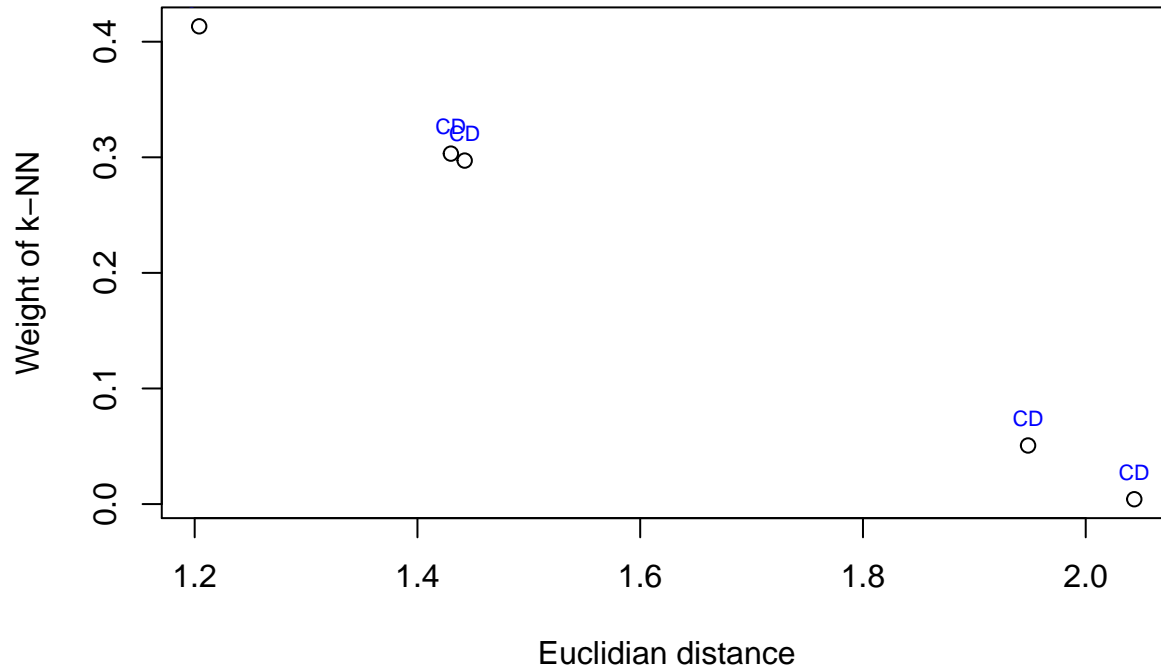
Map of best fitted reference sample



Best fitted reference sample:

- Site: Dem. Rep. Congo
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: -0.006244
- Lon: 14.471917

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
14.47	-0.01	Dem. Rep. Congo	-25.0	10.2	15.8	-49.9	10.1
17.11	-1.10	Dem. Rep. Congo, Lukolela	-24.8	10.5	15.4	-43.4	8.4
14.57	-0.08	Dem. Rep. Congo	-24.9	10.3	16.4	-49.5	10.0
16.20	-3.40	Dem. Rep. Congo, Tua	-22.8	10.2	14.8	-42.0	9.8
21.31	-2.34	Dem. Rep. Congo	-27.1	11.2	13.7	-62.0	6.9

Country of prediction: CD

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

“0.62086655, 0.00160003, 0.00092529, 0.00008731, 0.00000031”

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**”