

Spatial assignment of test sample

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Input

Website Identifier: 252

Isotope values of test sample

Table 1: Isotope values of test sample

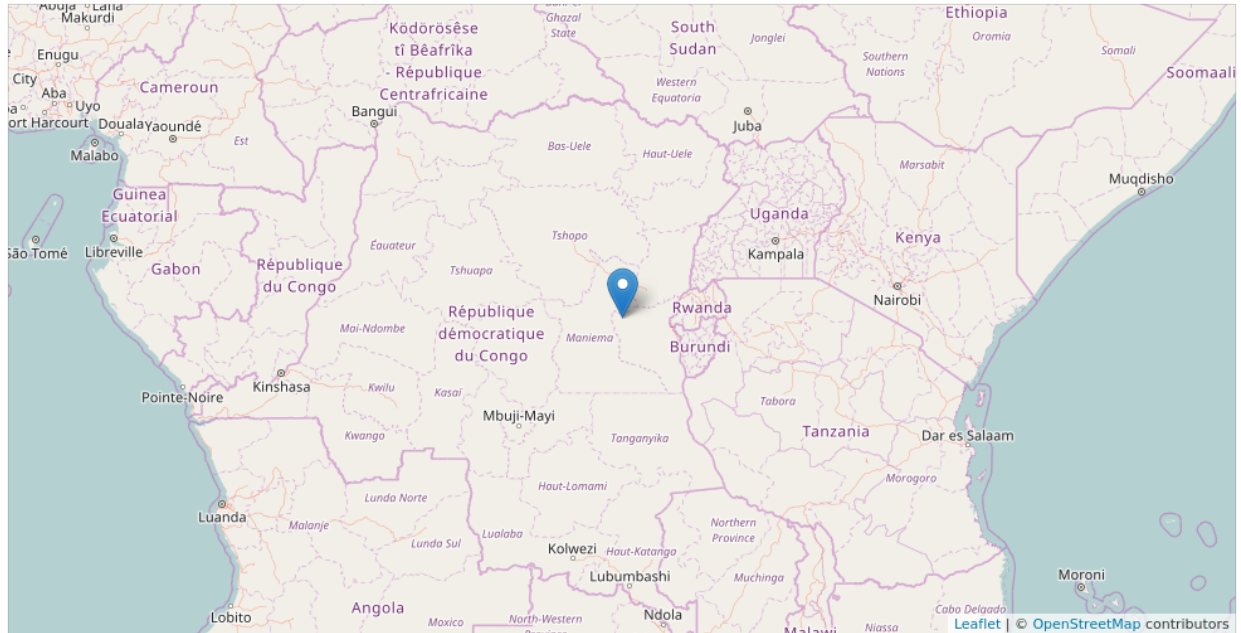
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21.8	9.2	16.3	-37.3	-0.5

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
```

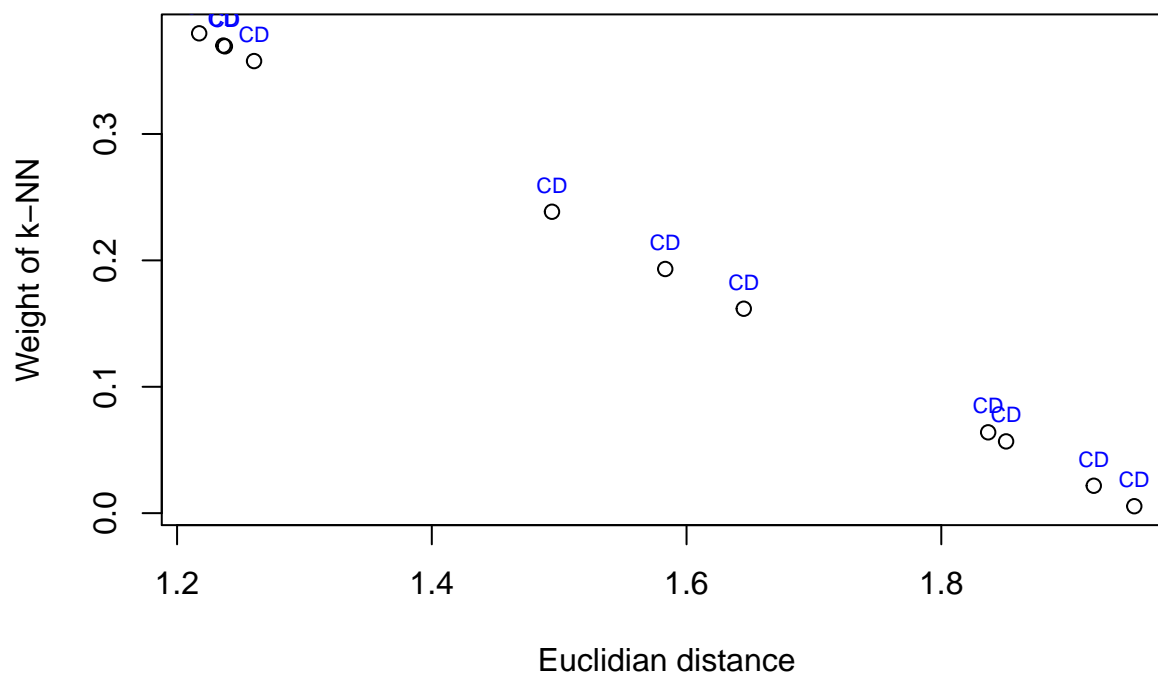
Map of best fitted reference sample



Best fitted reference sample:

- Site: Dem. Rep. Congo, Bakisi
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: -2.42
- Lon: 27.2

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
27.20	-2.42	Dem. Rep. Congo, Bakisi	-22.4	10.9	16.3	-35.5	2.2
28.50	-2.30	Dem. Rep. Congo, Bukavu	-21.5	8.6	17.4	-27.3	1.2
30.03	1.56	Dem. Rep. Congo, Mongbwalu	-23.3	9.0	16.9	-38.4	2.6
27.43	-4.42	Dem. Rep. Congo, Kabambare	-22.0	8.7	16.5	-38.2	3.7
22.90	3.89	Dem. Rep. Congo, Uele	-22.8	10.2	17.9	-39.5	3.0
27.20	-2.40	Dem. Rep. Congo, Shabunda terr	-22.5	10.3	17.3	-29.5	3.4
27.43	-4.42	Dem. Rep. Congo, Kabambare	-21.9	8.1	16.1	-37.2	4.8
30.26	1.23	Dem. Rep. Congo, Kasenyi	-19.6	9.2	16.0	-30.5	3.9
28.50	-1.25	Dem. Rep. Congo, Lubeleke	-23.1	9.9	17.6	-26.2	3.5
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.1	8.5	16.5	-28.6	2.8
28.56	-4.18	Dem. Rep. Congo, Mukunga-Capita	-22.8	9.1	16.1	-31.8	5.7

Country of prediction: CD

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

“0.310143148, 0.158309390, 0.093215724, 0.025884994, 0.005890244, 0.005890244, 0.000275688, 0.000111219, 0.000000309, 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: “**good fit**”