

Spatial assignment of test sample

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Input

Website Identifier: Blind 5_CD

Isotope values of test sample

Table 1: Isotope values of test sample

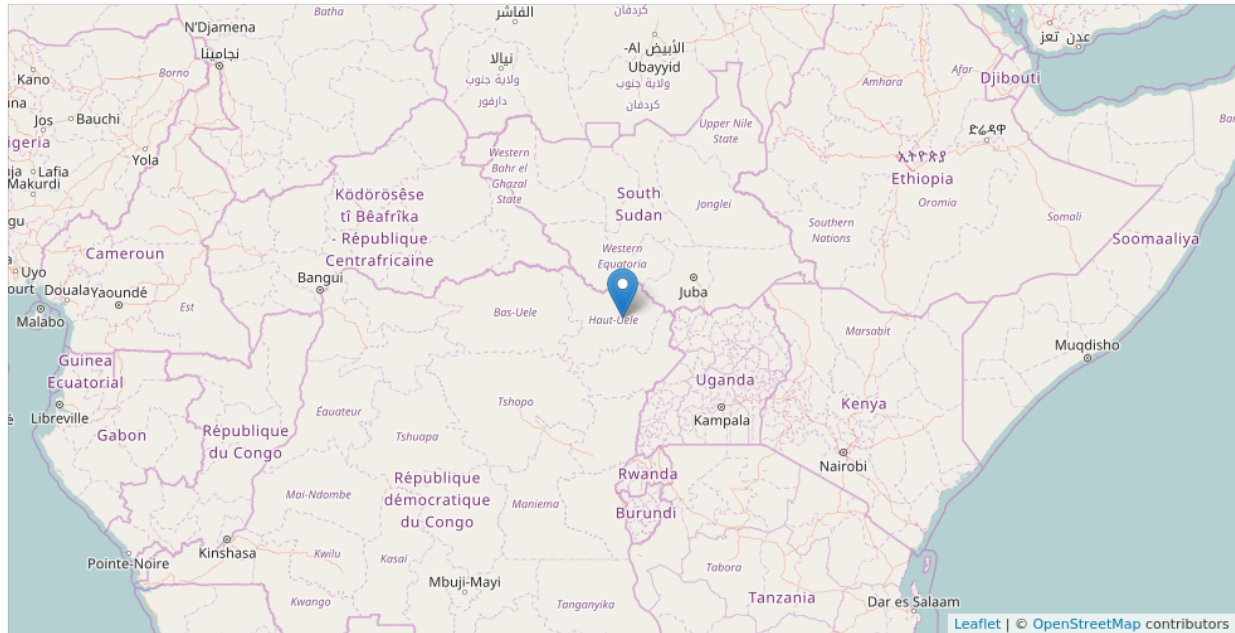
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21.3	7.3	17.2	-24	3.9

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
```

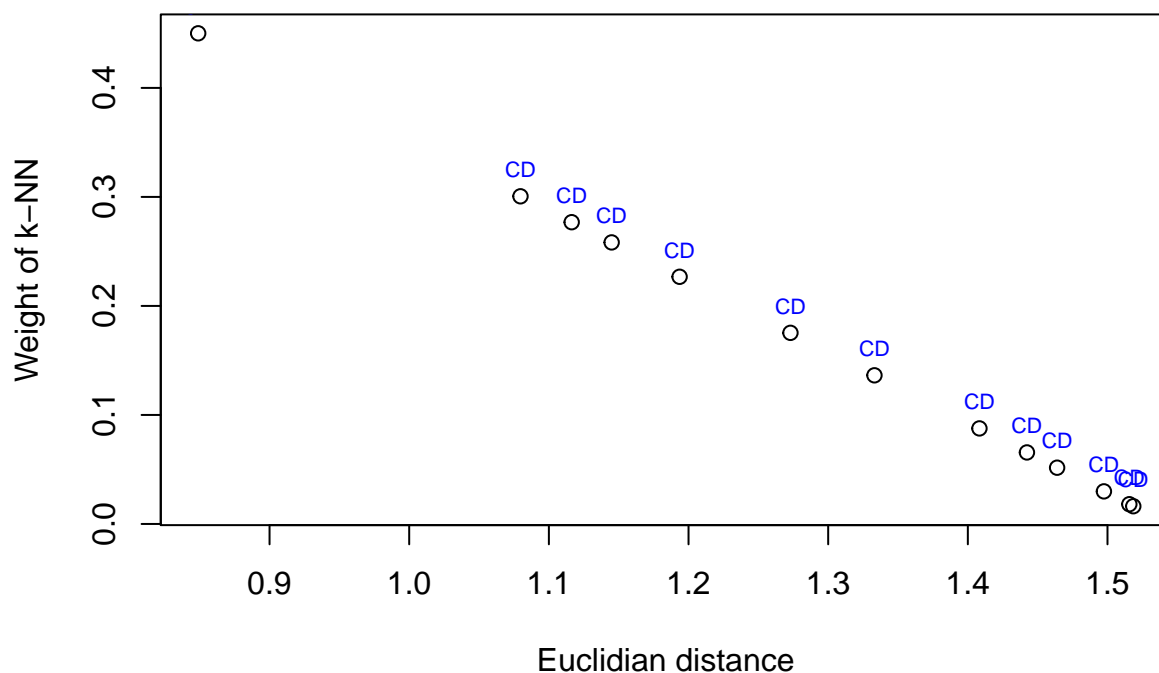
Map of best fitted reference sample



Best fitted reference sample:

- Site: Dem. Rep. Congo, Gangala na Bodio
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: 3.4
- Lon: 29.09

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
29.09	3.40	Dem. Rep. Congo, Gangala na Bodio	-20.6	8.2	16.7	-29.0	5.0
28.50	-2.30	Dem. Rep. Congo, Bukavu	-21.5	8.6	17.4	-27.3	1.2
29.09	3.40	Dem. Rep. Congo, Gangala na Bodio	-20.5	9.1	17.5	-23.1	5.5
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.4	8.2	17.6	-25.6	3.0
25.26	3.40	Dem. Rep. Congo, Api	-20.2	8.1	17.4	-33.6	5.1
29.09	3.40	Dem. Rep. Congo, Gangala na Bodio	-21.4	5.6	17.2	-30.7	6.3
23.05	-7.19	Dem. Rep. Congo, Lula riv	-20.9	6.9	17.8	-30.6	7.7
29.12	3.71	Dem. Rep. Congo, Gangala	-20.1	7.5	17.0	-33.0	7.1
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.1	8.5	16.5	-28.6	2.8
27.43	-4.42	Dem. Rep. Congo, Kabambare	-21.9	8.1	16.1	-37.2	4.8
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.5	9.3	16.7	-20.7	2.4
29.09	3.40	Dem. Rep. Congo, Gangara na Bodio	-22.1	8.0	18.3	-36.0	6.2
29.29	0.29	Dem. Rep. Congo, Beni terr	-19.6	8.9	19.0	-21.4	3.4

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

“0.84669417, 0.81317948, 0.40049439, 0.27029878, 0.06295335, 0.01568359, 0.01048173, 0.00014069, 0.00000701, 0.00000358, 0.00000173, 0.00000173, 0.00000077”

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**”