

# Spatial assignment of test sample

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## Input

Website Identifier: 108

### Isotope values of test sample

Table 1: Isotope values of test sample

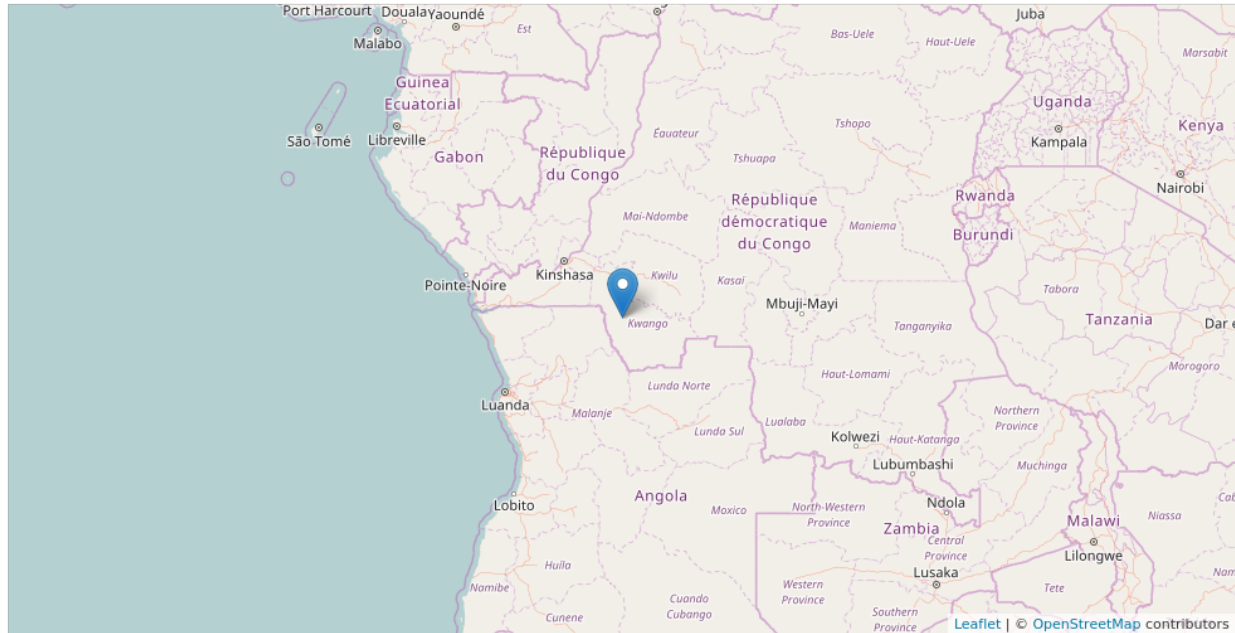
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-24.7	8.6	17.9	-43.5	9.1

## 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
```

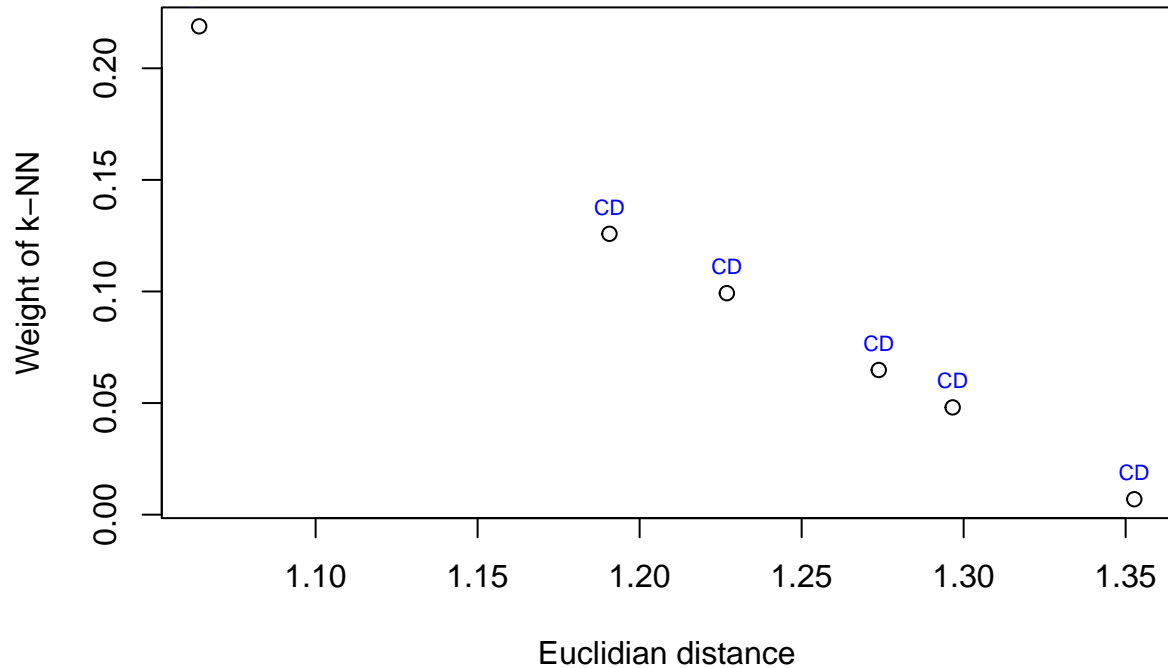
## Map of best fitted reference sample



### Best fitted reference sample:

- Site: Dem. Rep. Congo, Kwango
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: -6.32
- Lon: 17.31

## 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
17.31	-6.32	Dem. Rep. Congo, Kwango	-23.6	7.8	16.5	-47.4	8.5
21.45	-1.00	Dem. Rep. Congo, Itoko	-24.2	10.2	16.9	-42.9	6.8
13.02	-1.43	Dem. Rep. Congo, Itoko	-24.2	10.4	18.1	-38.4	7.0
25.09	-0.28	Dem. Rep. Congo, Loyo	-23.9	9.2	16.8	-45.1	5.6
14.57	-0.08	Dem. Rep. Congo	-24.9	10.3	16.4	-49.5	10.0
26.66	-9.20	Dem. Rep. Congo	-22.9	8.0	17.2	-40.5	6.3

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

“0.714829556, 0.000629304, 0.000629304, 0.000017612, 0.000002501, 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: “**moderate fit**”