

Spatial assignment of test sample

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Input

Website Identifier:

Isotope values of test sample

Table 1: Isotope values of test sample

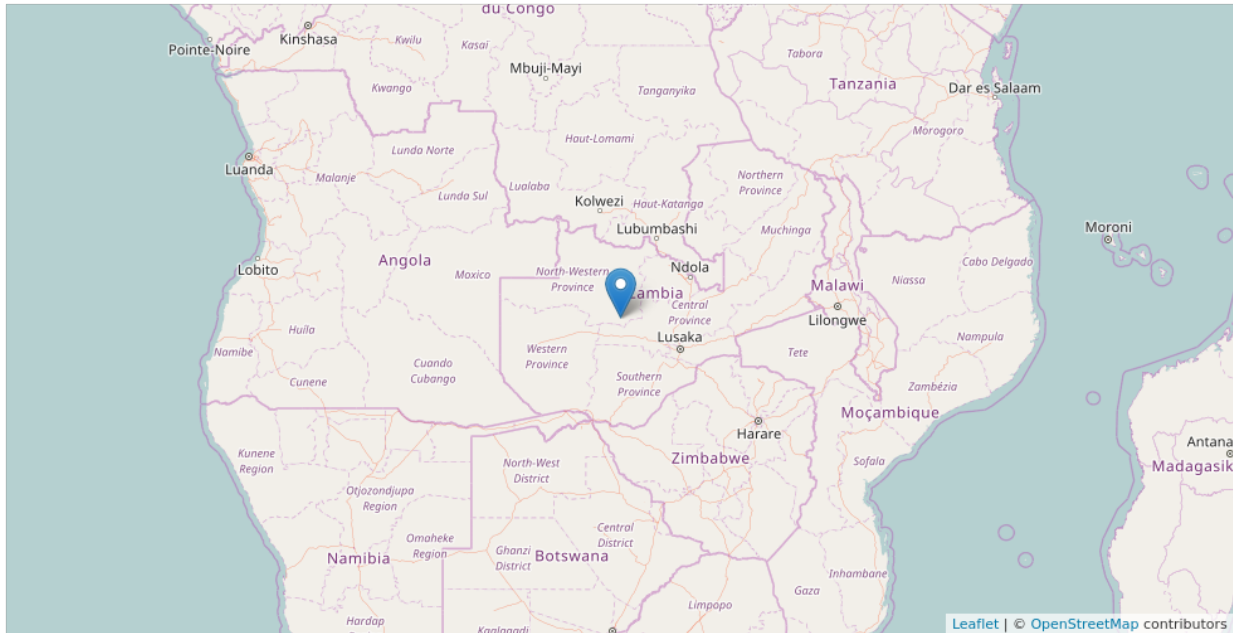
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-24.9	8.8	18.9	-44.9	10.3

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
```

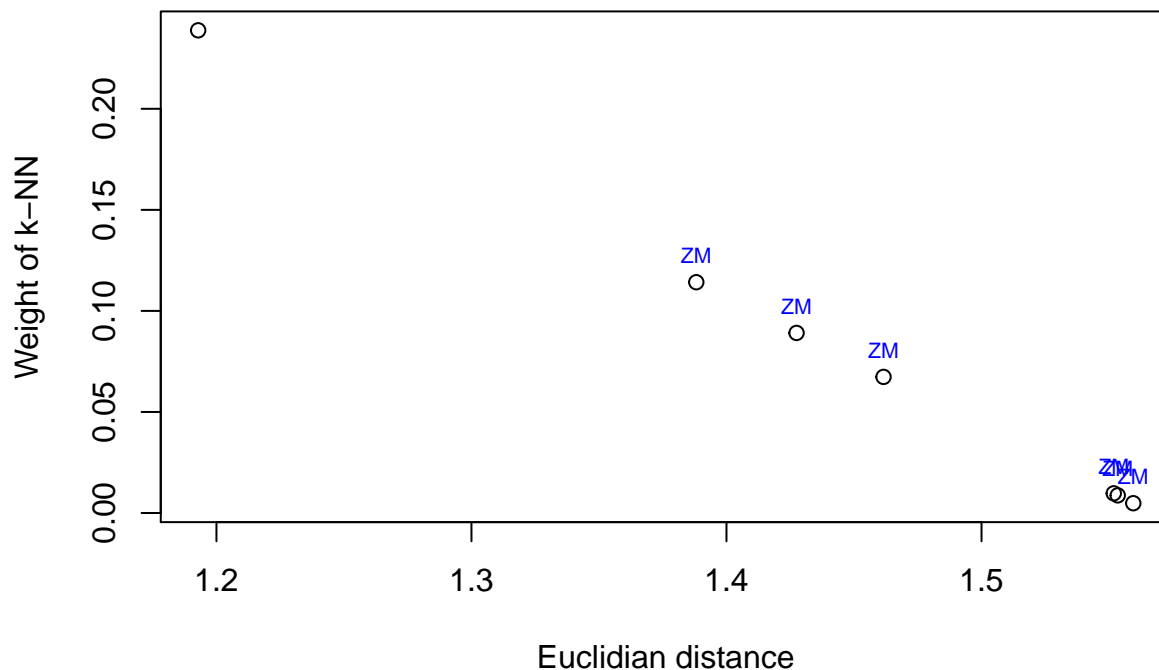
Map of best fitted reference sample



Best fitted reference sample:

- Site: Southern Zambia
- Country: ZM
- Region: Southern Africa
- CITES: Appendix I
- Lat: -14.377122
- Lon: 26.211615

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
26.21	-14.38	Southern Zambia	-23.0	7.9	18.2	-43.4	9.2
26.01	-15.84	Southern Zambia	-22.4	8.0	18.5	-46.3	10.8
32.06	-11.38	Southern Zambia	-22.6	8.7	19.0	-37.8	8.9
26.49	-12.20	Southern Zambia	-22.8	8.2	18.0	-36.8	9.3
31.57	-12.28	Southern Zambia	-22.1	8.8	18.8	-39.2	10.6
25.96	-15.92	Southern Zambia	-22.1	8.4	19.3	-49.4	11.0
32.46	-11.08	Southern Zambia	-22.1	8.1	18.3	-42.0	9.7

Country of prediction: ZM

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

“0.000000026, 0.000000026, 0.000000026, 0.000000026, 0.000000026, 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: “**uncertain**”