

Spatial assignment of test sample

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Input

Website Identifier:

Isotope values of test sample

Table 1: Isotope values of test sample

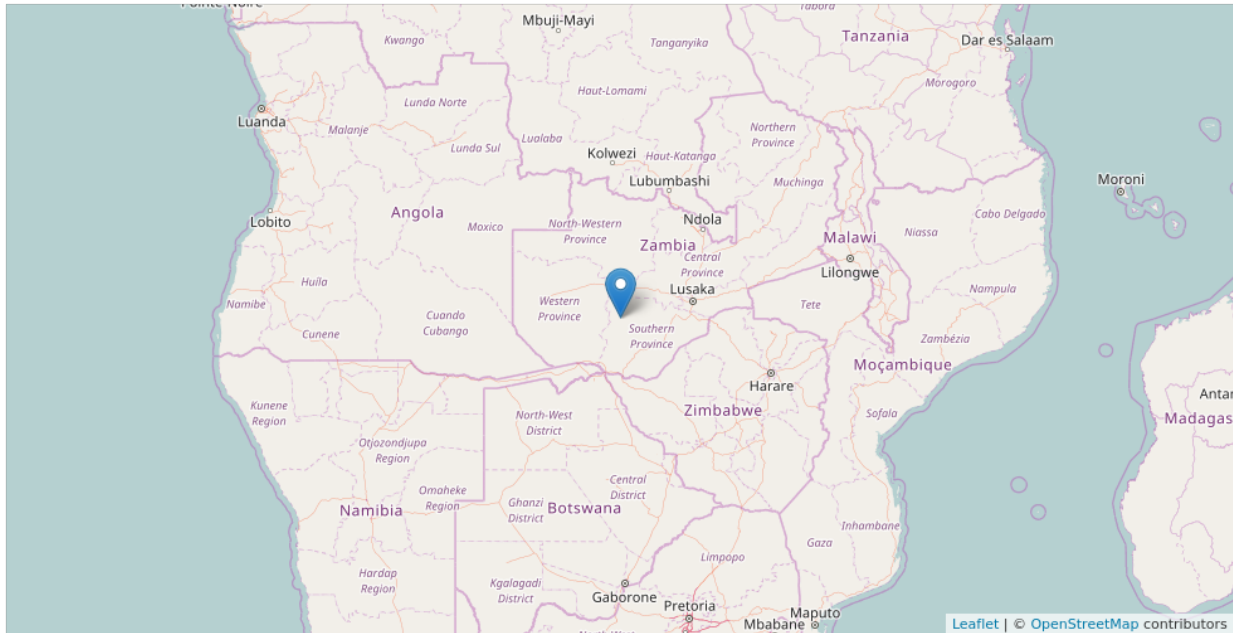
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-22.5	7.5	21.8	-46.7	8

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
```

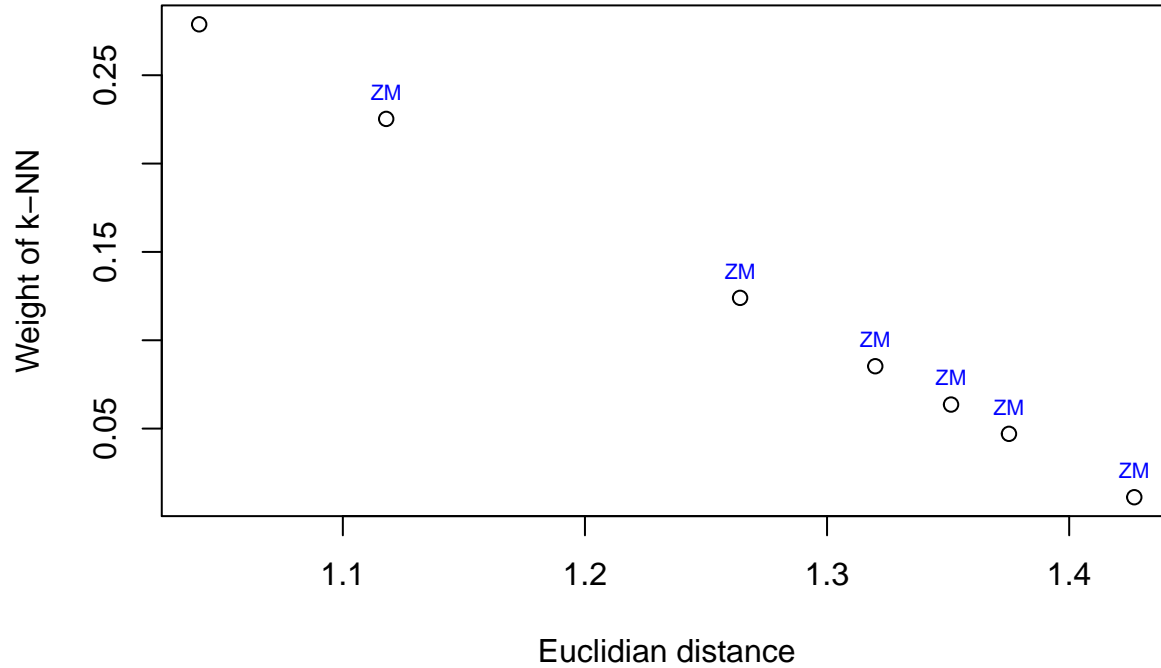
Map of best fitted reference sample



Best fitted reference sample:

- Site: Southern Zambia
- Country: ZM
- Region: Southern Africa
- CITES: Appendix I
- Lat: -16.008779
- Lon: 25.754361

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
25.75	-16.01	Southern Zambia	-22.5	8.8	20.8	-41.2	9.3
25.96	-15.98	Southern Zambia	-22.0	8.9	22.2	-40.8	10.0
31.59	-12.32	East Zambia, North of South Luangwa Nati	-21.7	6.8	19.5	-47.5	8.1
31.54	-12.29	Southern Zambia	-22.0	9.0	20.4	-46.2	10.7
25.60	-16.34	Southern Zambia	-22.0	7.1	19.8	-39.4	9.8
26.06	-15.91	Southern Zambia	-21.1	8.1	19.8	-45.3	9.8
25.96	-14.97	Southern Zambia	-20.4	7.0	20.1	-49.2	8.5

Country of prediction: ZM

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

“0.000764607, 0.000000181, 0.000000103, 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**”