

Spatial assignment of test sample

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Input

Website Identifier:

Isotope values of test sample

Table 1: Isotope values of test sample

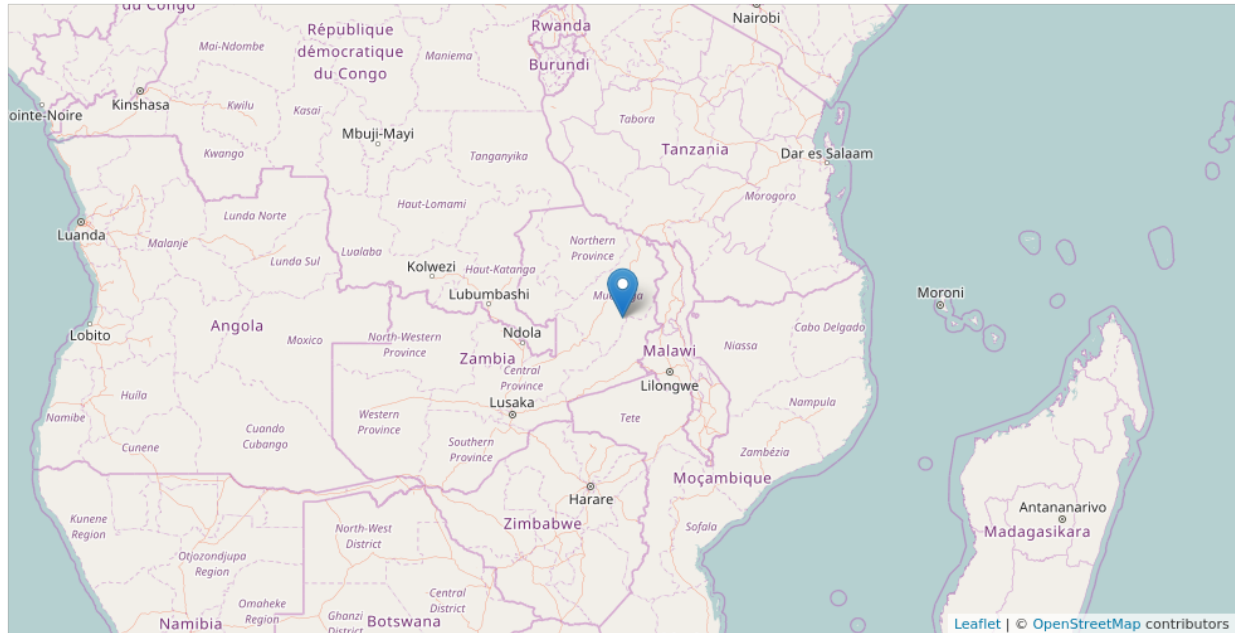
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21	7.3	16.9	-69	7

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
```

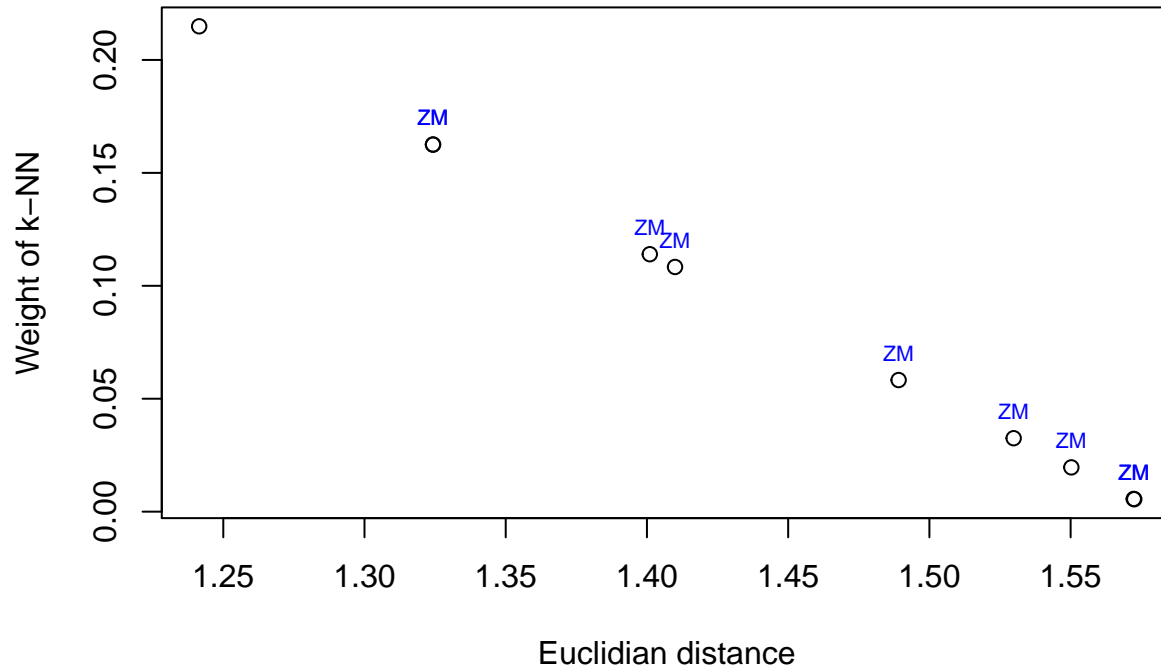
Map of best fitted reference sample



Best fitted reference sample:

- Site: Southern Zambia
- Country: ZM
- Region: Southern Africa
- CITES: Appendix I
- Lat: -12.17373
- Lon: 32.14499

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
32.14	-12.17	Southern Zambia	-19.7	7.2	18.1	-62.3	9.0
25.93	-15.96	Zambia, South of Kafue National Park	-20.3	8.5	16.2	-58.9	8.7
32.09	-11.48	Southern Zambia	-19.9	7.2	17.8	-57.2	7.4
32.30	-11.10	North Zambia, near Chibesakunda	-22.1	6.7	17.6	-56.4	6.3
32.08	-11.40	Southern Zambia	-19.5	8.2	17.2	-57.5	7.0
26.71	-14.96	Zambia, Eastern of Kafue National Park	-22.0	7.5	17.3	-54.9	8.4
31.53	-12.03	Southern Zambia	-21.5	6.5	16.7	-54.3	8.6
25.68	-16.76	Southern Zambia	-20.7	6.4	18.0	-57.7	10.0
25.88	-16.09	Southern Zambia	-21.0	6.4	18.1	-56.6	9.6
25.81	-15.84	Southern Zambia	-19.7	8.6	17.8	-57.7	8.8

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, 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**”