

Spatial assignment of test sample

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Input

Website Identifier: 005p562-16

Isotope values of test sample

Table 1: Isotope values of test sample

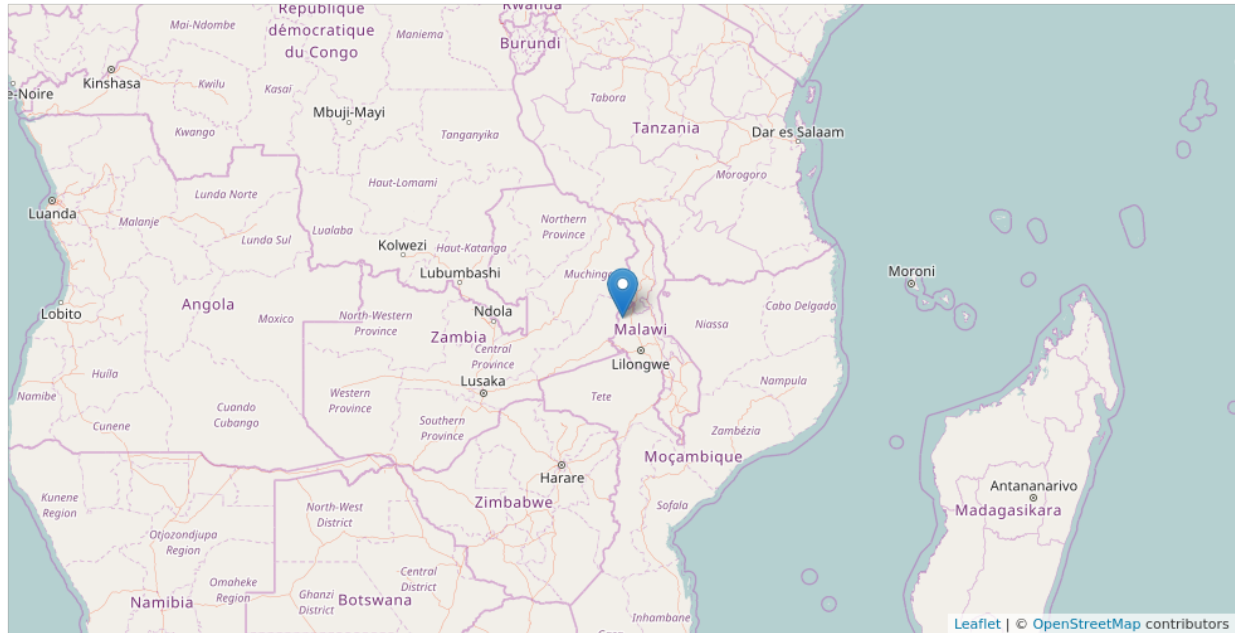
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21.1	5.9	16.7	-48.9	10

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
```

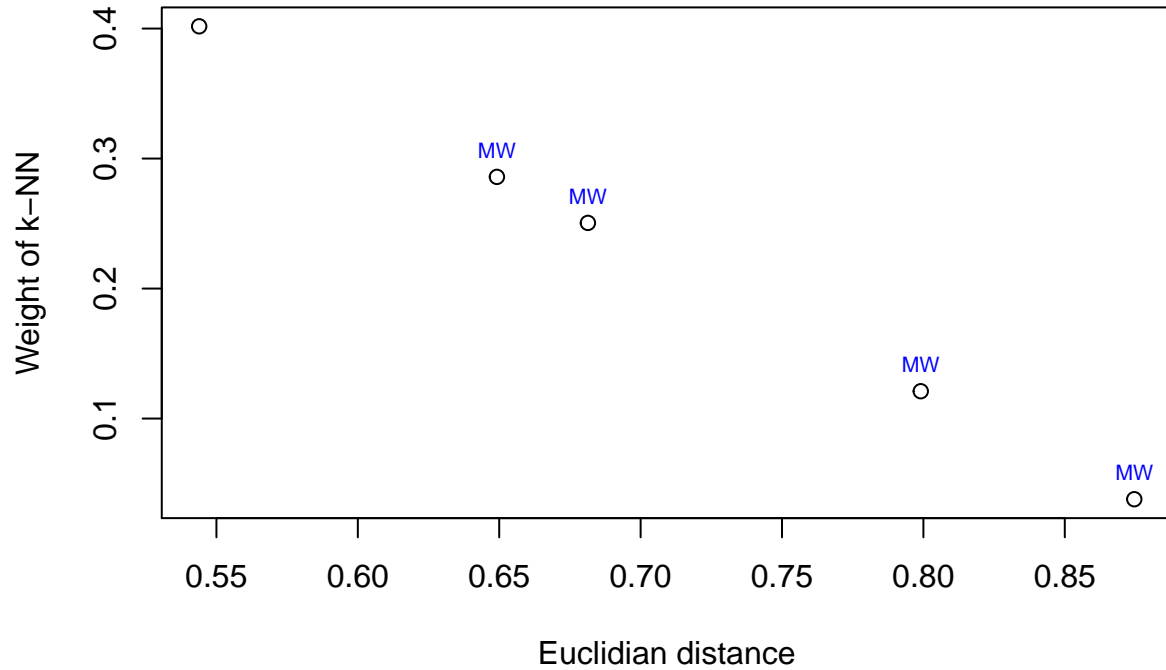
Map of best fitted reference sample



Best fitted reference sample:

- Site: Malawi, Kasungu
- Country: MW
- Region: Southern Africa
- CITES: Appendix I
- Lat: -12.91
- Lon: 33.13

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
33.13	-12.91	Malawi, Kasungu	-20.4	5.7	17.1	-52.3	10.4
33.13	-12.91	Malawi, Kasungu	-20.2	6.6	16.9	-51.4	10.4
33.13	-12.91	Malawi, Kasungu	-20.2	6.3	16.3	-47.3	11.3
33.13	-12.91	Malawi, Kasungu	-20.3	6.2	15.8	-51.9	11.4
35.33	-14.90	Malawi, Liwonde National Park	-21.5	6.2	15.6	-55.7	10.0

Country of prediction: MW

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

“1.000, 0.561, 0.400, 0.172, 0.026”

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**”