

Spatial assignment of test sample

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Input

Website Identifier: Blind 1_MW

Isotope values of test sample

Table 1: Isotope values of test sample

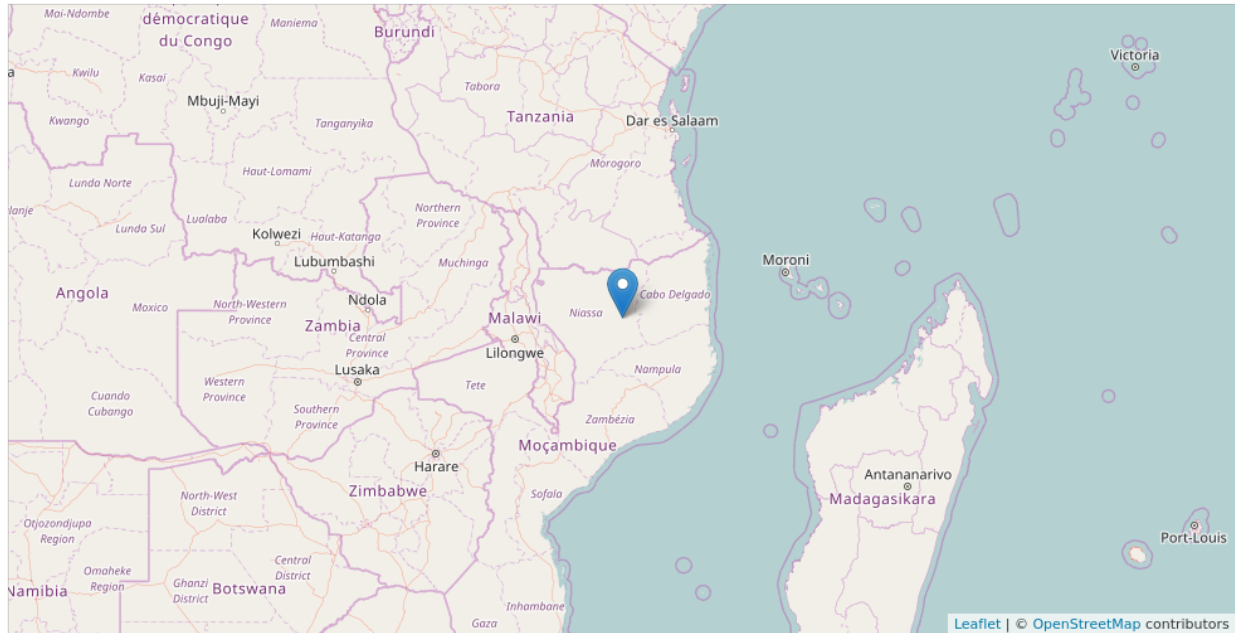
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-20.3	5.5	15.6	-45.7	8.1

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
```

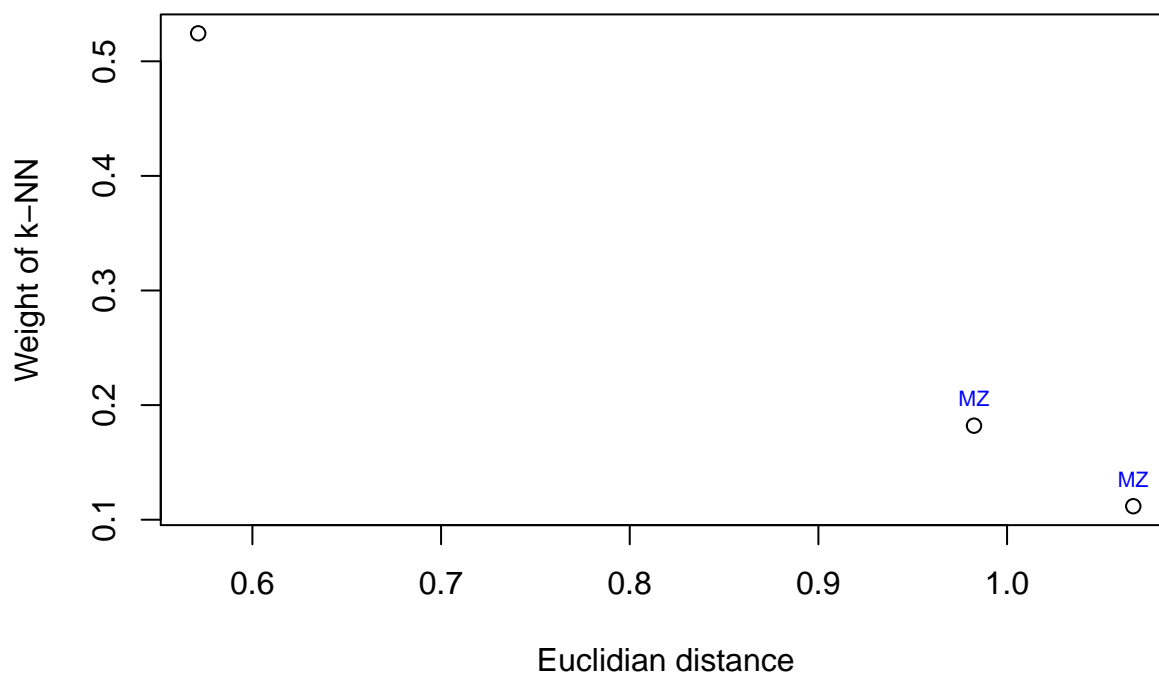
Map of best fitted reference sample



Best fitted reference sample:

- Site: Mozambique, Niassa Nature Reserve
- Country: MZ
- Region: Southern Africa
- CITES: Appendix I
- Lat: -13.3
- Lon: 37.55

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
37.55	-13.30	Mozambique, Niassa Nature Reserve	-20.8	5.7	15.0	-43.6	6.9
39.00	-11.18	Mozambique, Rovuma river area	-20.8	7.0	15.4	-40.0	7.5
31.15	-14.86	Mozambique, Bairro Gebeuza village	-19.7	7.3	16.4	-46.3	8.9

Country of prediction: MZ

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

“0.051090, 0.001115, 0.000023”

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**”