

Spatial assignment of test sample

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Input

Website Identifier: 117-L

Isotope values of test sample

Table 1: Isotope values of test sample

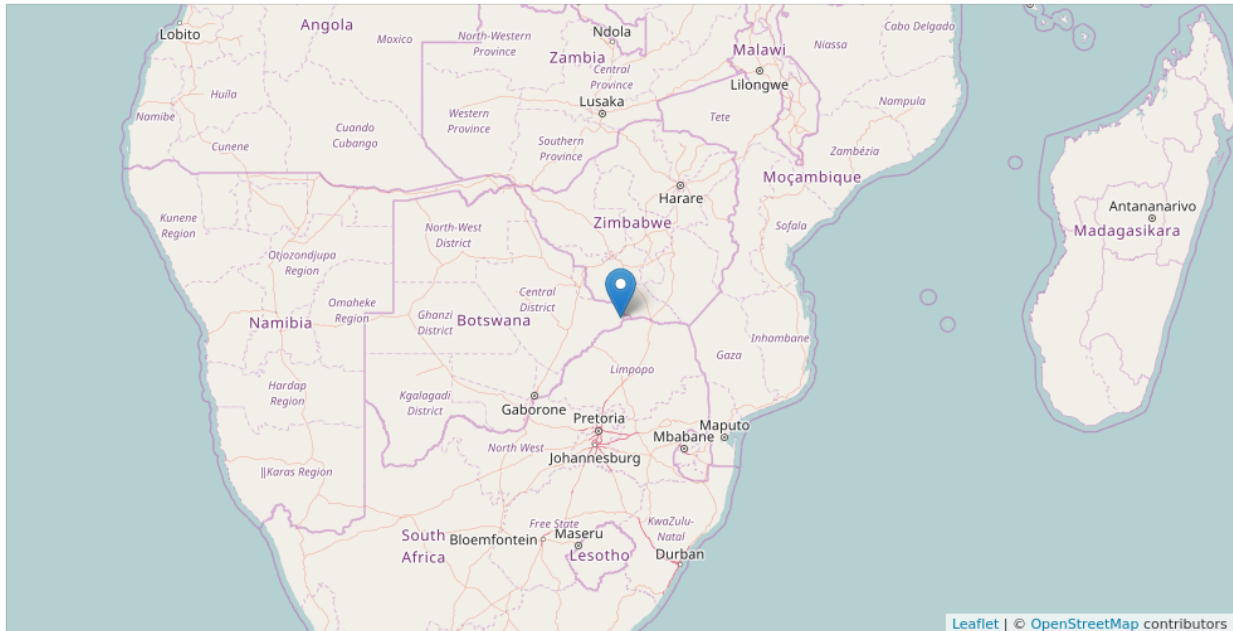
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-21.3	10.7	20	-26.1	8.9

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
```

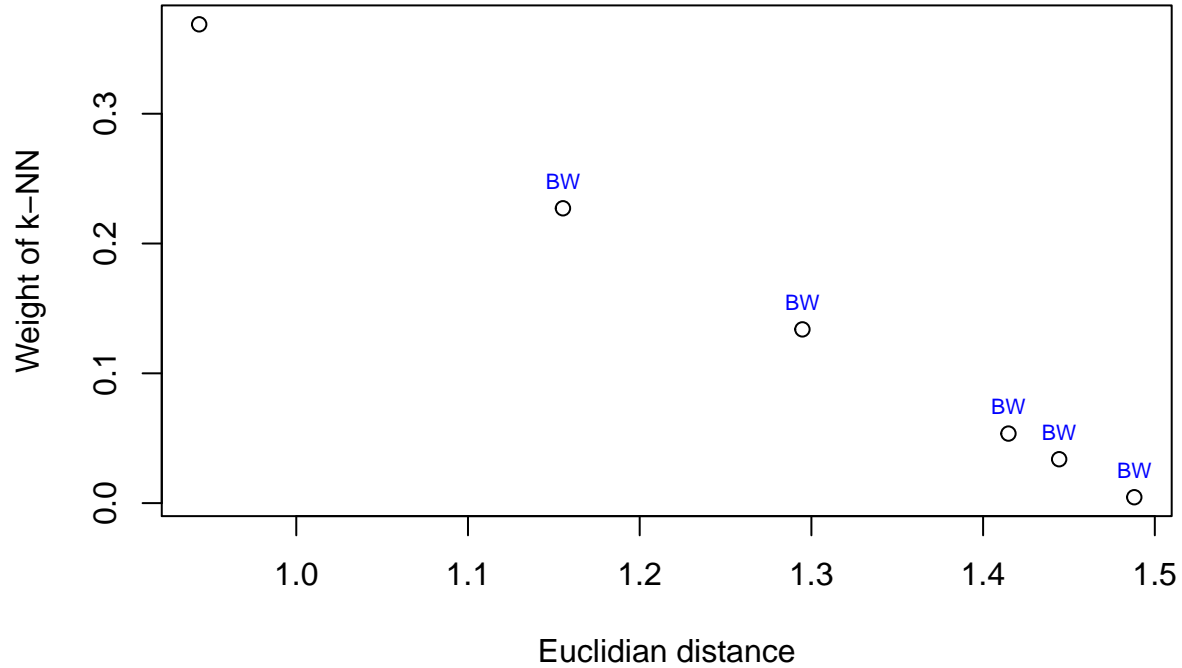
Map of best fitted reference sample



Best fitted reference sample:

- Site: Botswana, Mathathane area
- Country: BW
- Region: Southern Africa
- CITES: Appendix II
- Lat: -22.2
- Lon: 28.91

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
28.91	-22.20	Botswana, Mathathane area	-21.7	10.6	18.2	-24.0	8.5
28.91	-22.20	Botswana, Mathathane area	-19.9	11.6	18.9	-27.9	10.7
28.91	-22.20	Botswana, Mathathane area	-20.4	10.3	18.7	-34.6	11.0
28.91	-22.20	Botswana, Mathathane area	-21.8	9.3	17.9	-32.1	9.6
23.34	-19.80	Botswana, Maun area	-19.5	11.5	19.2	-31.7	11.6
27.73	-21.89	Botswana, Mmadinare area	-21.4	10.2	17.1	-27.7	8.0

Country of prediction: BW

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

“0.8131795, 0.0002215, 0.0002215, 0.0000070, 0.0000001, 0.0000001”

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**”