

Spatial assignment of test sample

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Input

Website Identifier: 130

Isotope values of test sample

Table 1: Isotope values of test sample

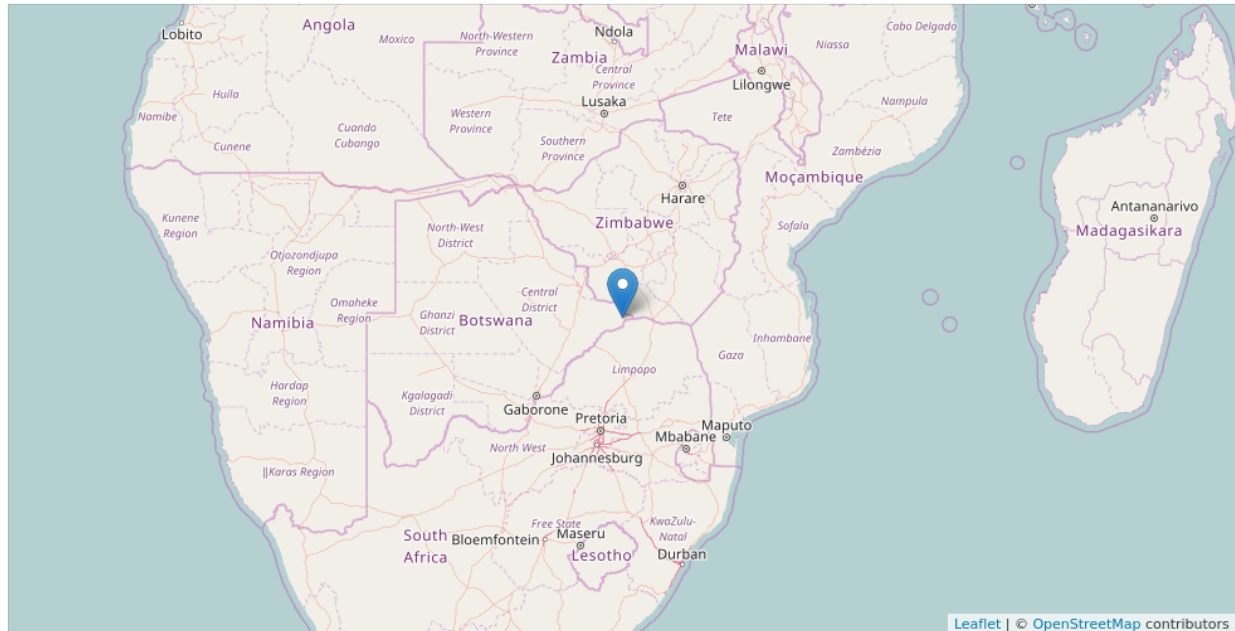
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-19	10.4	18	-26.4	8.3

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
```

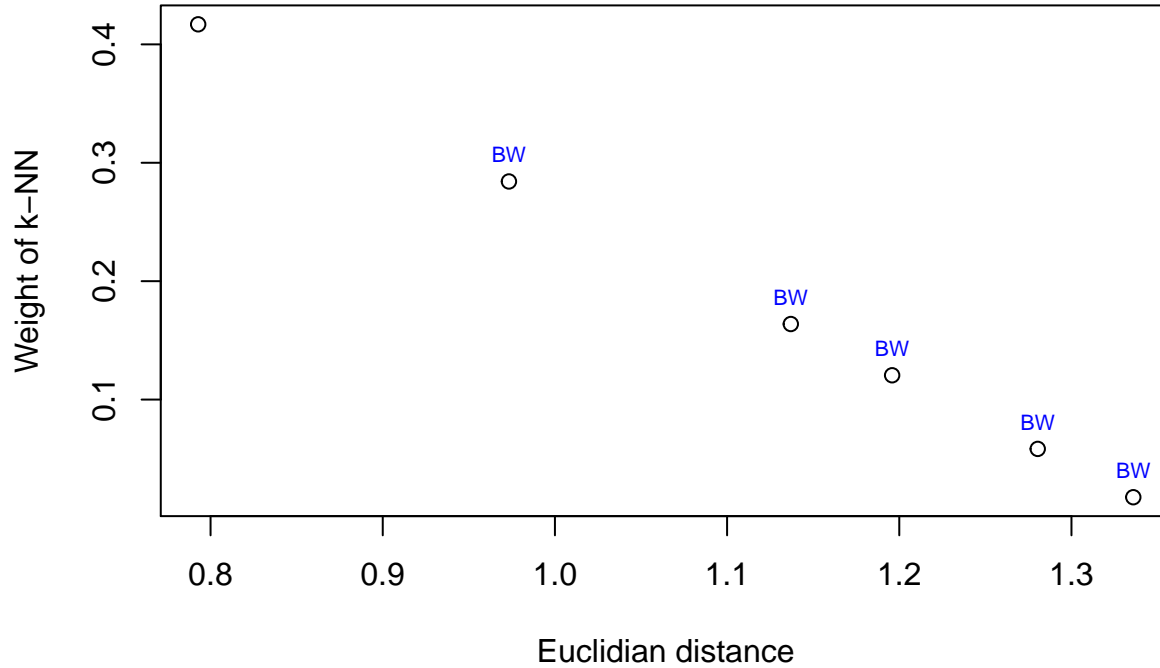
Map of best fitted reference sample



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	-18.9	10.8	18.5	-21.8	10.3
28.91	-22.20	Botswana, Mathathane area	-18.5	11.0	19.4	-25.9	10.2
28.91	-22.20	Botswana, Mathathane area	-19.9	11.6	18.9	-27.9	10.7
28.91	-22.20	Botswana, Mathathane area	-19.1	12.2	17.2	-30.8	10.1
28.91	-22.20	Botswana, Mathathane area	-19.6	9.6	16.9	-33.7	11.0
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 -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

“0.9829, 0.1583, 0.0769, 0.0292, 0.0202, 0.0023”

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**”