

Spatial assignment of test sample

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Input

Website Identifier: 316

Isotope values of test sample

Table 1: Isotope values of test sample

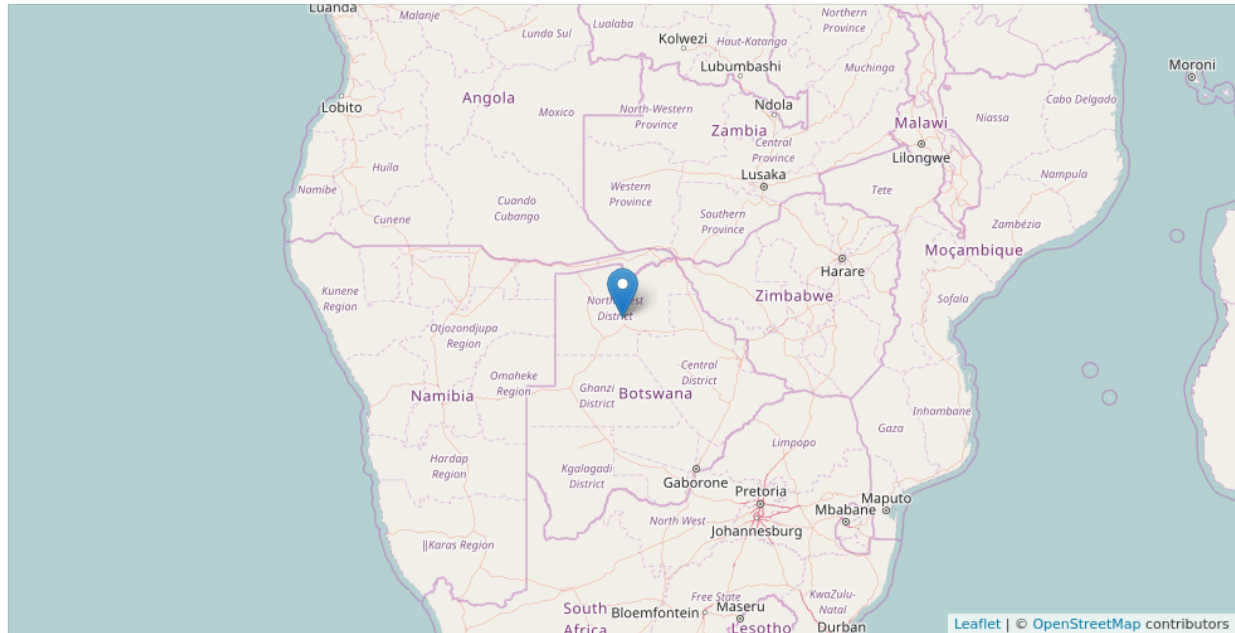
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-20.3	10.6	16.8	-42.5	15.4

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
```

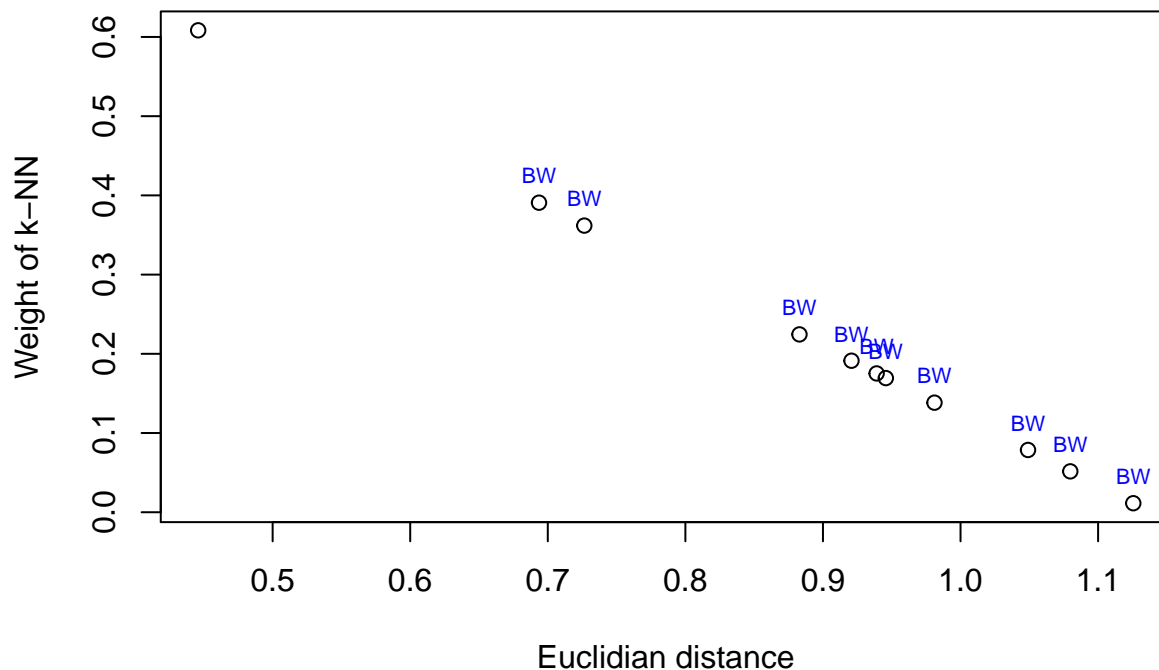
Map of best fitted reference sample



Best fitted reference sample:

- Site: Botswana, Maun area
- Country: BW
- Region: Southern Africa
- CITES: Appendix II
- Lat: -19.8
- Lon: 23.34

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
23.34	-19.80	Botswana, Maun area	-20.2	10.8	16.9	-43.9	16.8
27.57	-21.65	Botswana, Francistown area	-20.1	11.9	17.0	-40.7	15.3
23.34	-19.80	Botswana, Maun area	-20.3	11.1	17.7	-37.2	14.9
23.34	-19.80	Botswana, Maun area	-19.1	10.2	17.6	-38.5	14.6
27.57	-21.65	Botswana, Francistown area	-20.5	10.1	16.8	-51.9	15.6
23.36	-19.80	Botswana, Maun area	-20.5	11.5	17.7	-43.9	13.1
21.92	-21.72	Botswana, Ghanzi area	-20.5	11.1	17.8	-42.9	12.8
25.13	-17.84	Botswana, Kasane / Chobe area	-21.0	10.1	16.7	-40.1	12.5
25.13	-17.84	Botswana, Kasane/Chobe area	-20.6	11.0	15.9	-48.0	12.8
21.93	-21.72	Botswana, Ghanzi area	-20.9	10.0	17.9	-35.0	13.9
25.13	-17.84	Botswana, Kasane/Chobe area	-20.5	11.6	18.8	-42.1	14.9

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

“0.94862, 0.68295, 0.53255, 0.28978, 0.03277, 0.02916, 0.01568, 0.00506, 0.00315, 0.00191, 0.00014”

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**”