

Spatial assignment of test sample

December 12, 2016

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Input

Website Identifier: 297

Isotope values of test sample

Table 1: Isotope values of test sample

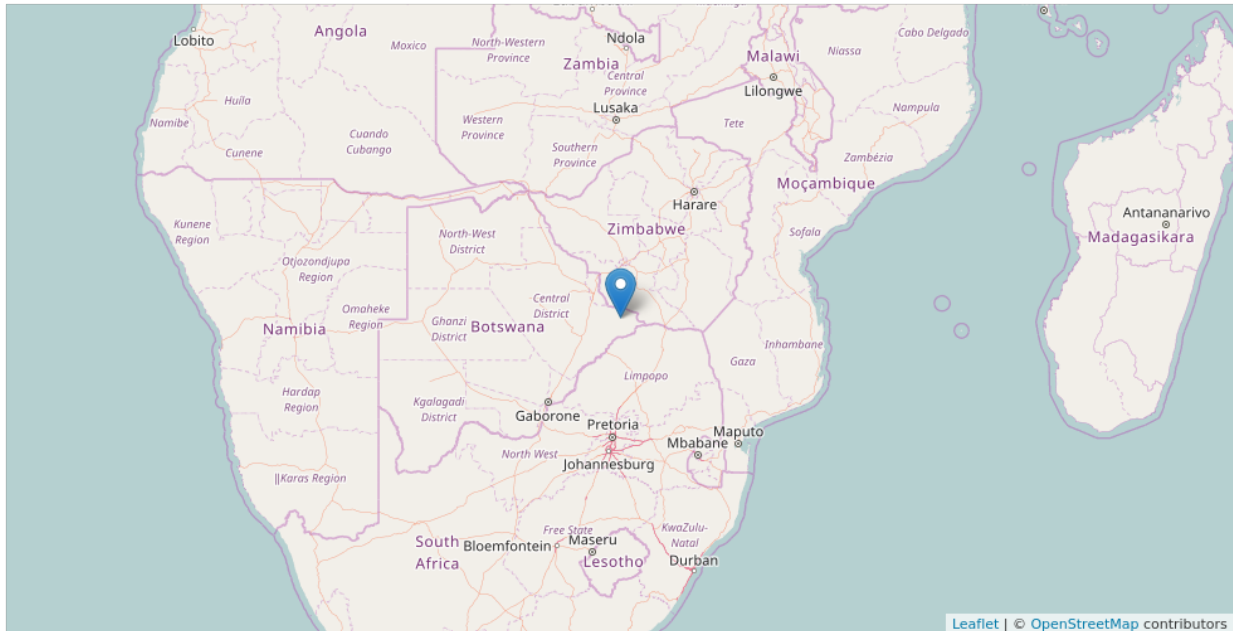
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-20.5	8	18.5	-32.4	11

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
```

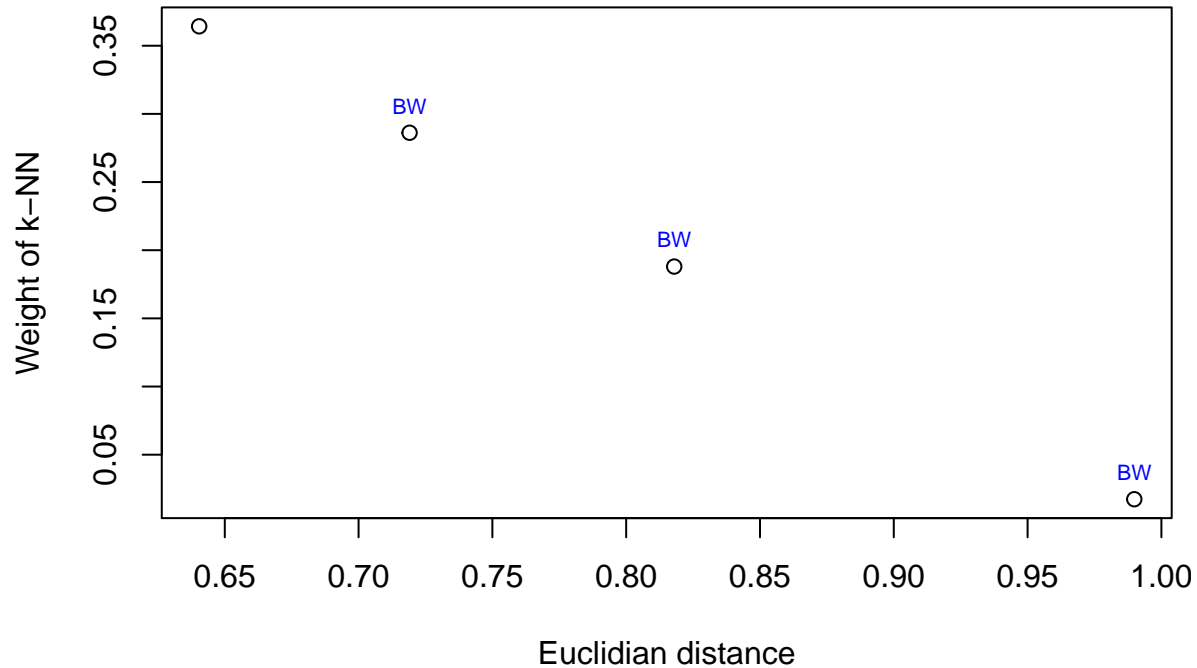
Map of best fitted reference sample



Best fitted reference sample:

- Site: Botswana, Bobonong area
- Country: BW
- Region: Southern Africa
- CITES: Appendix II
- Lat: -22
- Lon: 28.42

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
28.42	-22.00	Botswana, Bobonong area	-21.4	8.7	18.5	-35.0	10.7
25.13	-17.84	Botswana, Kasane / Chobe area	-20.2	8.6	18.4	-38.8	11.7
28.42	-22.00	Botswana, Bobonong area	-20.7	9.2	18.7	-38.0	11.3
27.57	-21.65	Botswana, Francistown area	-20.2	8.9	19.6	-28.3	12.9

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

“0.18608, 0.01048, 0.00683, 0.00018”

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**”