Spatial assignment of test sample

December 14, 2016

Contents

Input

Website Identifier: 245

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-18.7	10	16.1	-33.8	12.3

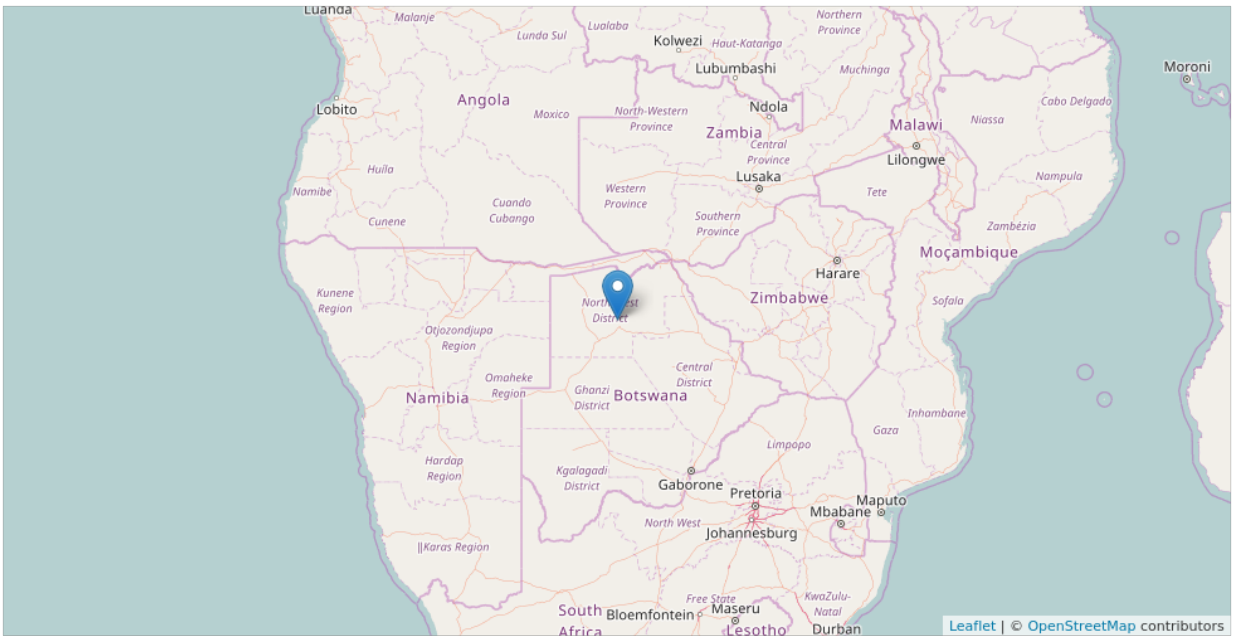
Output

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
```

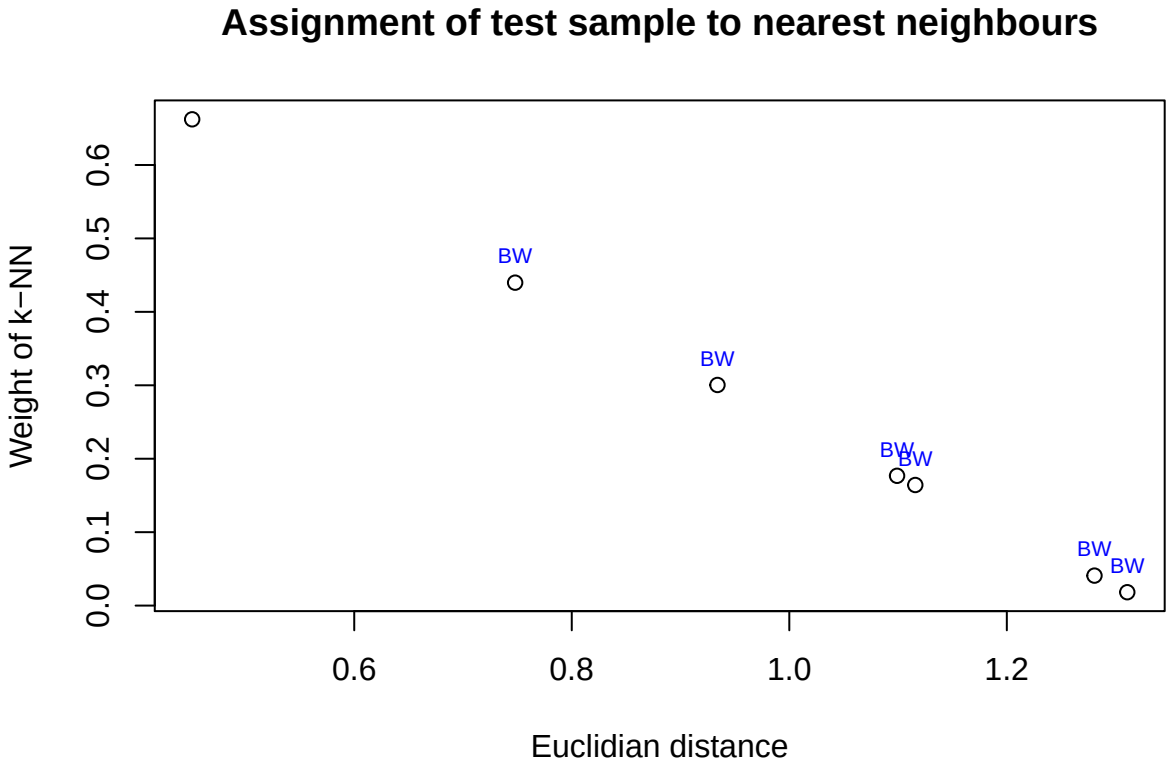
Classifier: **country_code**

Map of best fitted reference sample



Best fitted reference sample:

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



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	-18.4	10.0	16.9	-34.2	11.8
28.91	-22.20	Botswana, Mathathane area	-19.6	9.6	16.9	-33.7	11.0
23.34	-19.80	Botswana, Maun area	-19.7	10.7	16.8	-39.7	11.5
28.91	-22.20	Botswana, Mathathane area	-19.9	10.9	17.5	-29.9	12.4
23.34	-19.80	Botswana, Maun area	-19.1	10.2	17.6	-38.5	14.6
23.02	-19.62	Botswana, Maun area	-18.6	11.0	18.1	-40.0	11.4
23.34	-19.80	Botswana, Maun area	-20.0	10.2	17.9	-40.2	11.2

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

"0.42526, 0.33140, 0.18608, 0.10231, 0.09322, 0.02025, 0.00042"

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**"