Spatial assignment of test sample

November 24, 2016

Contents

Input

Website Identifier: Blind 13_MW

Isotope values of test sample

Table 1: Isotope values of test sample

13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-20.5	8.9	15.4	-34.2	8.6

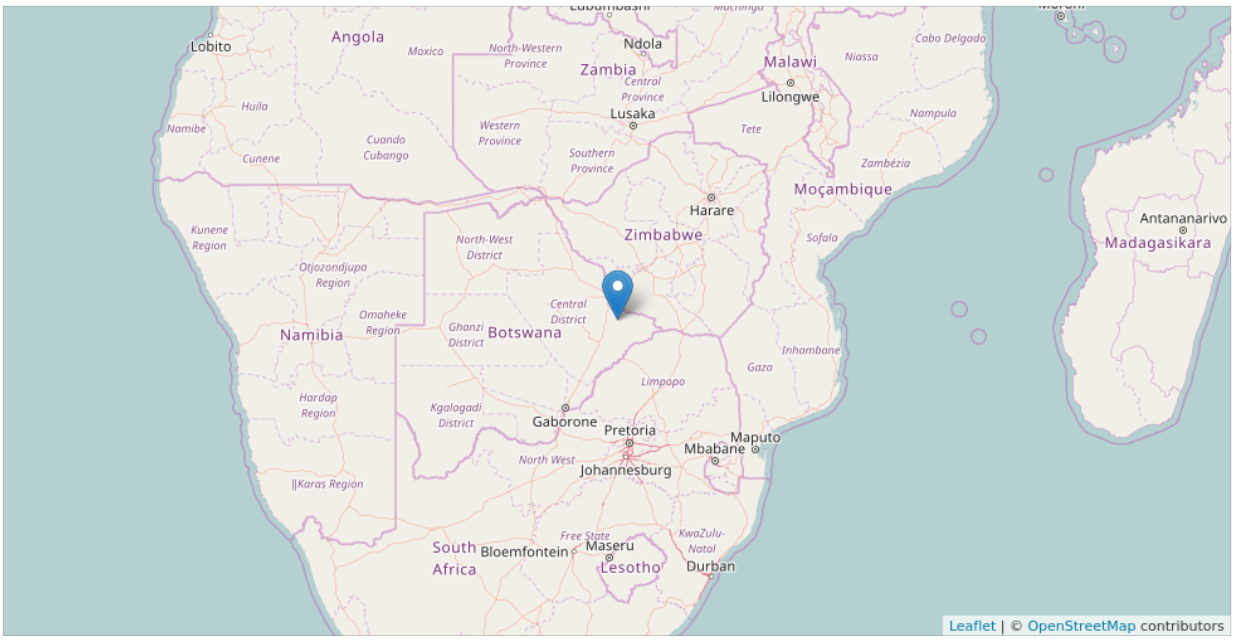
Output

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
```

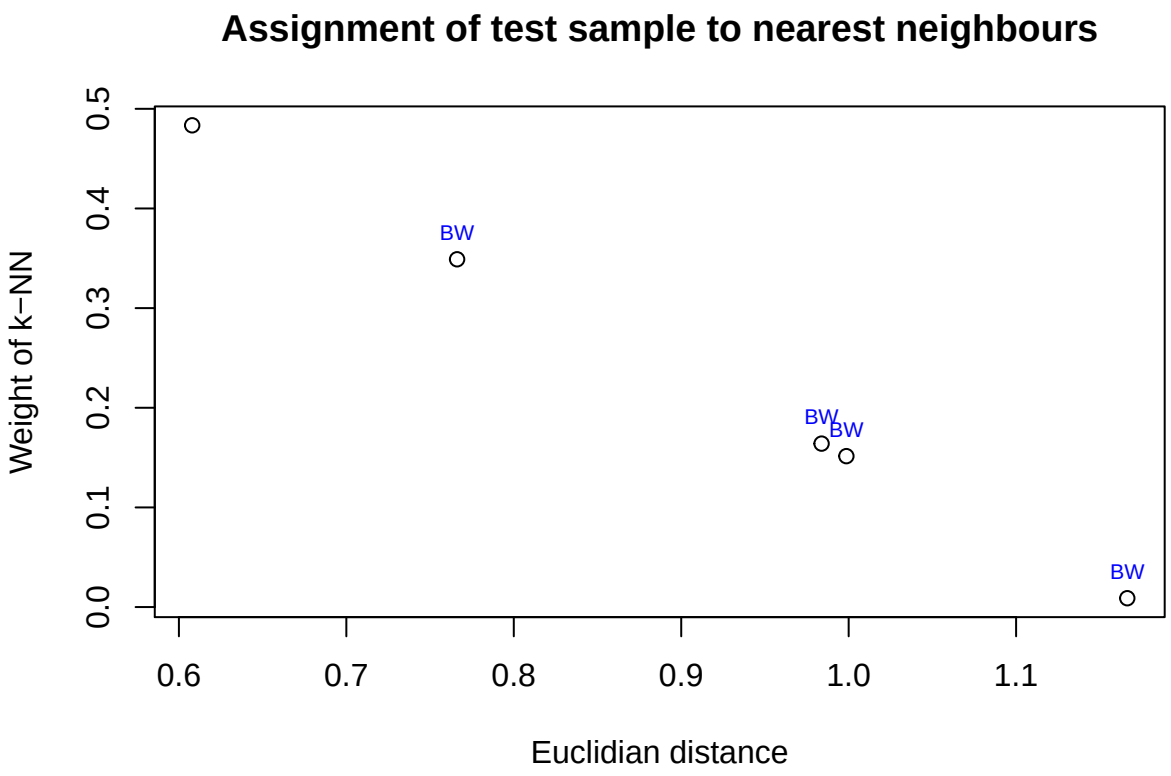
Classifier: **country_code**

Map of best fitted reference sample



Best fitted reference sample:

- Site: Botswana, Mmadinare area
- Country: BW
- Region: Southern Africa
- CITES: Appendix II
- Lat: -21.87
- Lon: 27.73



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
27.73	-21.87	Botswana, Mmadinare area	-20.7	9.7	15.6	-32.0	7.3
27.73	-21.87	Botswana, Mmadinare area	-21.2	9.9	16.3	-33.8	8.6
27.73	-21.87	Botswana, Mmadinare area	-21.4	9.3	14.8	-26.8	7.3
27.57	-21.65	Botswana, Francistown area	-21.0	9.7	16.9	-32.5	10.1
25.13	-17.84	Botswana, Kasane / Chobe area	-20.2	8.8	17.0	-40.7	10.6

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

"0.53255, 0.02588, 0.00370, 0.00076, 0.00076"

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**"