Spatial assignment of test sample

December 14, 2016

Contents

Input

Website Identifier: 216

Isotope values of test sample

Table 1: Isotope values of test sample

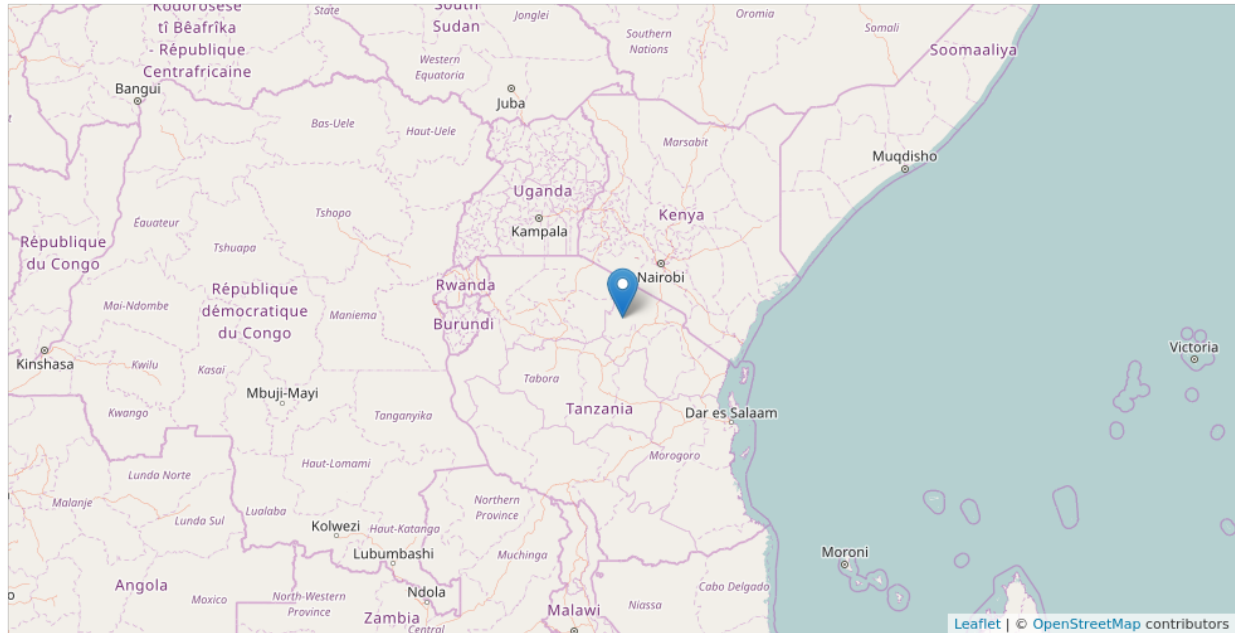| 13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-19.8	11.7	15.6	-39.2	6.7

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2,    kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.1889986
## Best kernel: triangular
## Best k: 14
```
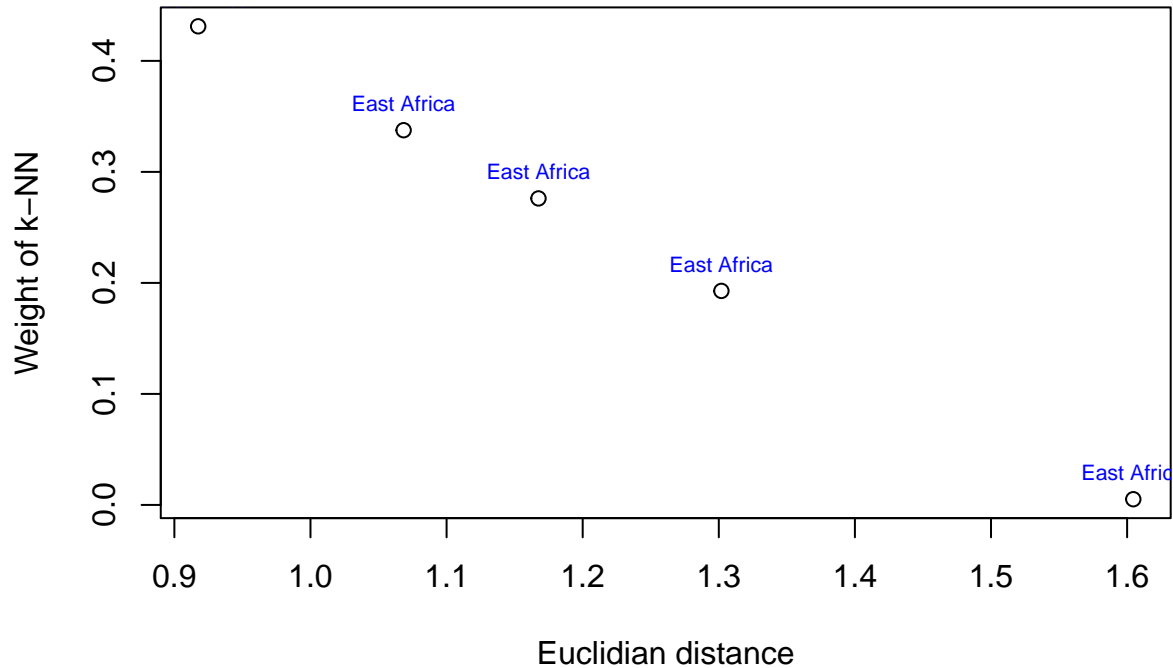
Classifier: **region**

Map of best fitted reference sample

Best fitted reference sample:

- Site: Tanzania, Gebirgswald im Ngorongoro
- Country: TZ
- Region: East Africa
- CITES: Appendix I
- Lat: -3.205556
- Lon: 35.463611

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
35.46	-3.21	Tanzania, Gebirgswald im Ngorongoro	-20.1	10.7	15.4	-41.9	9.1
36.10	6.70	Ethiopia, Lower Omo valley	-20.4	12.5	15.6	-48.1	8.2
37.88	-2.90	Kenya, Elefant wurde bei Iltilal (zwisch	-19.4	12.0	15.3	-42.8	10.4
37.49	0.73	Kenya	-20.4	10.2	14.8	-33.4	9.3
36.70	0.35	Kenya, Laikipia Plateau, nordwestlich vo	-18.2	11.5	16.0	-37.1	11.3

Region of prediction: East Africa

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

"0.30216, 0.01247, 0.00662, 0.00395, 0.00012"

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**"