Undaria pinnatifida

Uwai et al. - 2006 - Phycologia

Using Korea and Japan (native), wNA and Eur only

nloci = 2 concatenated mtDNA sequences

nind = 141 ind (Native, wNA, Eur only)

```
## Loading required package: spatstat.data


## Loading required package: spatstat.geom


## spatstat.geom 2.4-0


## Loading required package: spatstat.random


## spatstat.random 2.2-0


## Loading required package: spatstat.core


## Loading required package: nlme


## Loading required package: rpart


## spatstat.core 2.4-4


## Loading required package: spatstat.linnet


## spatstat.linnet 2.3-2


##
## spatstat 2.3-4       (nickname: 'Watch this space')
## For an introduction to spatstat, type 'beginner'


##
## Attaching package: 'scales'


## The following object is masked from 'package:spatstat.geom':
##
##     rescale
```
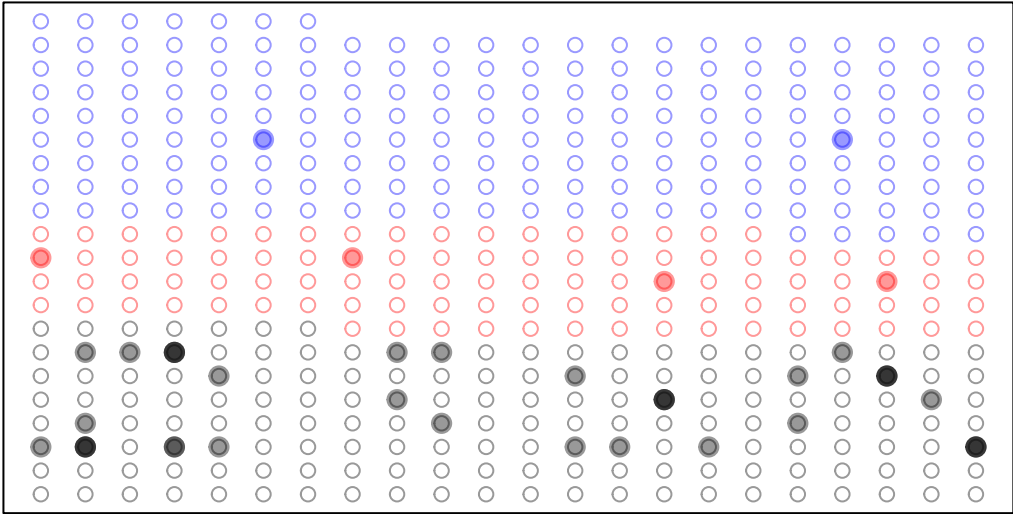
Asia (black); wNA (red); Europe (blue)
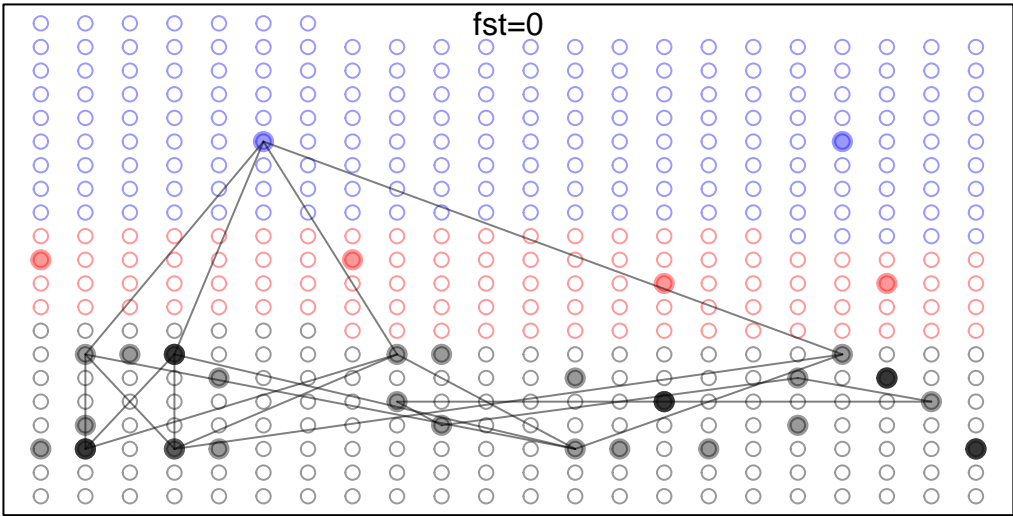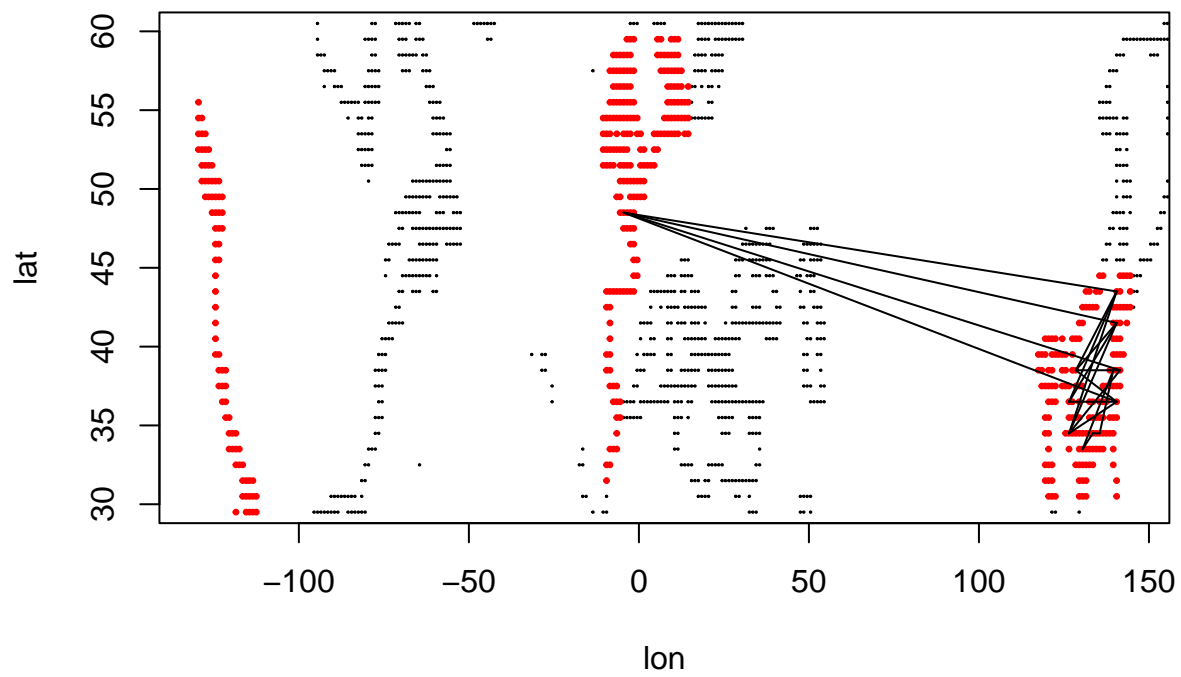

combine pops in that are within the same 1x1º block

Phist

```
##                    label gridID.1 gridID.2 n.1 n.2 CHIsq CHIsq_p.val Fst
## 1  1039 (4) v. 1291 (2)     1039     1291   4   2     6           1   0
## 2  1039 (4) v. 1417 (5)     1039     1417   4   5     9           1   0
## 3 1039 (4) v. 15652 (2)     1039    15652   4   2     6           1   0
## 4 1039 (4) v. 15777 (2)     1039    15777   4   2     6           1   0
## 5  1039 (4) v. 1669 (5)     1039     1669   4   5     9           1   0
## 6 1039 (4) v. 31566 (7)     1039    31566   4   7    11           1   0
##   Fst_p.val PHIst PHIst_p.val
## 1         1    NA          NA
## 2         1    NA          NA
## 3         1     1   0.6666667
## 4         1     1   0.6666667
## 5         1     1   0.6666667
## 6         1     1   0.6666667
```

Asia (black); wNA (red); Europe (blue)

fst=0

overall Fst

```
##          estimate     p.val
## CHIsq 3536.000000 1.0000000
## Fst       0.000000 1.0000000
## PHIst     0.639247 0.6666667
```

3 region Fst

```
##                       label gridID.1 gridID.2 n.1 n.2 CHIsq CHIsq_p.val Fst
## 1 1_Asia (116) v. 2_wNA (16)   1_Asia   2_wNA 116  16   132           1   0
## 2  1_Asia (116) v. 3_Eur (4)   1_Asia   3_Eur 116   4   120           1   0
## 3    2_wNA (16) v. 3_Eur (4)    2_wNA   3_Eur  16   4    20           1   0
##   Fst_p.val      PHIst PHIst_p.val
## 1         1 0.17948995   0.6666667
## 2         1 0.06937589   0.6666667
## 3         1 0.59183612   0.6666667
```

native vs non-native Fst

```
##                          label gridID.1  gridID.2 n.1 n.2 CHIsq CHIsq_p.val
## 1 native (116) v. nonnative (20)   native nonnative 116  20   136           1
##   Fst Fst_p.val    PHIst PHIst_p.val
## 1   0         1 0.112597   0.6666667
```

within pop nucleotide divergence

```
## $within
##     locus stratum         mean q.0      q.0.025      q.0.5      q.0.975
## 1  gene.1    1039 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 2  gene.1    1291 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 3  gene.1    1417 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 4  gene.1   15652 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 5  gene.1   15777 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 6  gene.1    1669 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 7  gene.1   31566 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 8  gene.1   32039 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 9  gene.1   32041 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 10 gene.1   32287 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 11 gene.1   32415 0.0007550019    0 5.662514e-05 0.0011325028 0.001132503
## 12 gene.1   32542 0.0013590034    0 2.548131e-04 0.0011325028 0.002265006
## 13 gene.1   32668 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 14 gene.1   32916 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 15 gene.1   33041 0.0060980922    0 0.000000e+00 0.0090600227 0.011325028
## 16 gene.1   33166 0.0031710079    0 0.000000e+00 0.0000000000 0.007927520
## 17 gene.1   33291 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 18 gene.1   33541 0.0007550019    0 5.662514e-05 0.0011325028 0.001132503
## 19 gene.1   33662 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 20 gene.1   33665 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 21 gene.1   33782 0.0005662514    0 0.000000e+00 0.0005662514 0.001132503
## 22 gene.1   33783 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 23 gene.1   33784 0.0038436460    0 0.000000e+00 0.0011325028 0.009060023
## 24 gene.1   33789 0.0007550019    0 5.662514e-05 0.0011325028 0.001132503
## 25 gene.1   33790 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 26 gene.1   33905 0.0000000000    0 0.000000e+00 0.0000000000 0.000000000
## 27 gene.1   33912 0.0006066979    0 0.000000e+00 0.0011325028 0.001132503
##              q.1
## 1  0.000000000
## 2  0.000000000
## 3  0.000000000
## 4  0.000000000
## 5  0.000000000
## 6  0.000000000
## 7  0.000000000
## 8  0.000000000
## 9  0.000000000
## 10 0.000000000
## 11 0.001132503
## 12 0.002265006
## 13 0.000000000
## 14 0.000000000
## 15 0.011325028
## 16 0.007927520
## 17 0.000000000
## 18 0.001132503
## 19 0.000000000
## 20 0.000000000
## 21 0.001132503
## 22 0.000000000
```

```
## 23 0.009060023
## 24 0.001132503
## 25 0.000000000
## 26 0.000000000
## 27 0.001132503
##
## $between
##    locus strata.1 strata.2          dA         mean        q.0      q.0.025
## 1  gene.1     1039     1291 0.0000000000 0.0000000000 0.000000000 0.000000000
## 2  gene.1     1039     1417 0.0000000000 0.0000000000 0.000000000 0.000000000
## 3  gene.1     1039    15652 0.0056625142 0.0056625142 0.005662514 0.005662514
## 4  gene.1     1039    15777 0.0067950170 0.0067950170 0.006795017 0.006795017
## 5  gene.1     1039     1669 0.0056625142 0.0056625142 0.005662514 0.005662514
## 6  gene.1     1039    31566 0.0056625142 0.0056625142 0.005662514 0.005662514
## 7  gene.1     1039    32039 0.0056625142 0.0056625142 0.005662514 0.005662514
## 8  gene.1     1039    32041 0.0056625142 0.0056625142 0.005662514 0.005662514
## 9  gene.1     1039    32287 0.0056625142 0.0056625142 0.005662514 0.005662514
## 10 gene.1     1039    32415 0.0060400151 0.0064175160 0.005662514 0.005662514
## 11 gene.1     1039    32542 0.0079275198 0.0086070215 0.007927520 0.007927520
## 12 gene.1     1039    32668 0.0079275198 0.0079275198 0.007927520 0.007927520
## 13 gene.1     1039    32916 0.0079275198 0.0079275198 0.007927520 0.007927520
## 14 gene.1     1039    33041 0.0045300113 0.0075790574 0.005662514 0.005662514
## 15 gene.1     1039    33166 0.0061155153 0.0077010193 0.006795017 0.006795017
## 16 gene.1     1039    33291 0.0022650057 0.0022650057 0.002265006 0.002265006
## 17 gene.1     1039    33541 0.0022650057 0.0026425066 0.002265006 0.002265006
## 18 gene.1     1039    33662 0.0079275198 0.0079275198 0.007927520 0.007927520
## 19 gene.1     1039    33665 0.0000000000 0.0000000000 0.000000000 0.000000000
## 20 gene.1     1039    33782 0.0056625142 0.0059456399 0.005662514 0.005662514
## 21 gene.1     1039    33783 0.0056625142 0.0056625142 0.005662514 0.005662514
## 22 gene.1     1039    33784 0.0047702392 0.0066920622 0.004530011 0.004530011
## 23 gene.1     1039    33789 0.0056625142 0.0060400151 0.005662514 0.005662514
## 24 gene.1     1039    33790 0.0022650057 0.0022650057 0.002265006 0.002265006
## 25 gene.1     1039    33905 0.0056625142 0.0056625142 0.005662514 0.005662514
## 26 gene.1     1039    33912 0.0057838537 0.0060872027 0.005662514 0.005662514
## 27 gene.1     1291     1417 0.0000000000 0.0000000000 0.000000000 0.000000000
## 28 gene.1     1291    15652 0.0056625142 0.0056625142 0.005662514 0.005662514
## 29 gene.1     1291    15777 0.0067950170 0.0067950170 0.006795017 0.006795017
## 30 gene.1     1291     1669 0.0056625142 0.0056625142 0.005662514 0.005662514
## 31 gene.1     1291    31566 0.0056625142 0.0056625142 0.005662514 0.005662514
## 32 gene.1     1291    32039 0.0056625142 0.0056625142 0.005662514 0.005662514
## 33 gene.1     1291    32041 0.0056625142 0.0056625142 0.005662514 0.005662514
## 34 gene.1     1291    32287 0.0056625142 0.0056625142 0.005662514 0.005662514
## 35 gene.1     1291    32415 0.0060400151 0.0064175160 0.005662514 0.005662514
## 36 gene.1     1291    32542 0.0079275198 0.0086070215 0.007927520 0.007927520
## 37 gene.1     1291    32668 0.0079275198 0.0079275198 0.007927520 0.007927520
## 38 gene.1     1291    32916 0.0079275198 0.0079275198 0.007927520 0.007927520
## 39 gene.1     1291    33041 0.0045300113 0.0075790574 0.005662514 0.005662514
## 40 gene.1     1291    33166 0.0061155153 0.0077010193 0.006795017 0.006795017
## 41 gene.1     1291    33291 0.0022650057 0.0022650057 0.002265006 0.002265006
## 42 gene.1     1291    33541 0.0022650057 0.0026425066 0.002265006 0.002265006
## 43 gene.1     1291    33662 0.0079275198 0.0079275198 0.007927520 0.007927520
## 44 gene.1     1291    33665 0.0000000000 0.0000000000 0.000000000 0.000000000
## 45 gene.1     1291    33782 0.0056625142 0.0059456399 0.005662514 0.005662514
## 46 gene.1     1291    33783 0.0056625142 0.0056625142 0.005662514 0.005662514
```

```
## 47  gene.1    1291    33784 0.0047702392 0.0066920622 0.004530011 0.004530011
## 48  gene.1    1291    33789 0.0056625142 0.0060400151 0.005662514 0.005662514
## 49  gene.1    1291    33790 0.0022650057 0.0022650057 0.002265006 0.002265006
## 50  gene.1    1291    33905 0.0056625142 0.0056625142 0.005662514 0.005662514
## 51  gene.1    1291    33912 0.0057838537 0.0060872027 0.005662514 0.005662514
## 52  gene.1    1417    15652 0.0056625142 0.0056625142 0.005662514 0.005662514
## 53  gene.1    1417    15777 0.0067950170 0.0067950170 0.006795017 0.006795017
## 54  gene.1    1417     1669 0.0056625142 0.0056625142 0.005662514 0.005662514
## 55  gene.1    1417    31566 0.0056625142 0.0056625142 0.005662514 0.005662514
## 56  gene.1    1417    32039 0.0056625142 0.0056625142 0.005662514 0.005662514
## 57  gene.1    1417    32041 0.0056625142 0.0056625142 0.005662514 0.005662514
## 58  gene.1    1417    32287 0.0056625142 0.0056625142 0.005662514 0.005662514
## 59  gene.1    1417    32415 0.0060400151 0.0064175160 0.005662514 0.005662514
## 60  gene.1    1417    32542 0.0079275198 0.0086070215 0.007927520 0.007927520
## 61  gene.1    1417    32668 0.0079275198 0.0079275198 0.007927520 0.007927520
## 62  gene.1    1417    32916 0.0079275198 0.0079275198 0.007927520 0.007927520
## 63  gene.1    1417    33041 0.0045300113 0.0075790574 0.005662514 0.005662514
## 64  gene.1    1417    33166 0.0061155153 0.0077010193 0.006795017 0.006795017
## 65  gene.1    1417    33291 0.0022650057 0.0022650057 0.002265006 0.002265006
## 66  gene.1    1417    33541 0.0022650057 0.0026425066 0.002265006 0.002265006
## 67  gene.1    1417    33662 0.0079275198 0.0079275198 0.007927520 0.007927520
## 68  gene.1    1417    33665 0.0000000000 0.0000000000 0.000000000 0.000000000
## 69  gene.1    1417    33782 0.0056625142 0.0059456399 0.005662514 0.005662514
## 70  gene.1    1417    33783 0.0056625142 0.0056625142 0.005662514 0.005662514
## 71  gene.1    1417    33784 0.0047702392 0.0066920622 0.004530011 0.004530011
## 72  gene.1    1417    33789 0.0056625142 0.0060400151 0.005662514 0.005662514
## 73  gene.1    1417    33790 0.0022650057 0.0022650057 0.002265006 0.002265006
## 74  gene.1    1417    33905 0.0056625142 0.0056625142 0.005662514 0.005662514
## 75  gene.1    1417    33912 0.0057838537 0.0060872027 0.005662514 0.005662514
## 76  gene.1   15652    15777 0.0011325028 0.0011325028 0.001132503 0.001132503
## 77  gene.1   15652     1669 0.0000000000 0.0000000000 0.000000000 0.000000000
## 78  gene.1   15652    31566 0.0000000000 0.0000000000 0.000000000 0.000000000
## 79  gene.1   15652    32039 0.0000000000 0.0000000000 0.000000000 0.000000000
## 80  gene.1   15652    32041 0.0000000000 0.0000000000 0.000000000 0.000000000
## 81  gene.1   15652    32287 0.0000000000 0.0000000000 0.000000000 0.000000000
## 82  gene.1   15652    32415 0.0003775009 0.0007550019 0.000000000 0.000000000
## 83  gene.1   15652    32542 0.0067950170 0.0074745187 0.006795017 0.006795017
## 84  gene.1   15652    32668 0.0067950170 0.0067950170 0.006795017 0.006795017
## 85  gene.1   15652    32916 0.0067950170 0.0067950170 0.006795017 0.006795017
## 86  gene.1   15652    33041 0.0025263525 0.0055753986 0.000000000 0.000000000
## 87  gene.1   15652    33166 0.0040770102 0.0056625142 0.001132503 0.001132503
## 88  gene.1   15652    33291 0.0045300113 0.0045300113 0.004530011 0.004530011
## 89  gene.1   15652    33541 0.0056625142 0.0060400151 0.005662514 0.005662514
## 90  gene.1   15652    33662 0.0067950170 0.0067950170 0.006795017 0.006795017
## 91  gene.1   15652    33665 0.0056625142 0.0056625142 0.005662514 0.005662514
## 92  gene.1   15652    33782 0.0000000000 0.0002831257 0.000000000 0.000000000
## 93  gene.1   15652    33783 0.0000000000 0.0000000000 0.000000000 0.000000000
## 94  gene.1   15652    33784 0.0005490923 0.0024709153 0.000000000 0.000000000
## 95  gene.1   15652    33789 0.0000000000 0.0003775009 0.000000000 0.000000000
## 96  gene.1   15652    33790 0.0079275198 0.0079275198 0.007927520 0.007927520
## 97  gene.1   15652    33905 0.0000000000 0.0000000000 0.000000000 0.000000000
## 98  gene.1   15652    33912 0.0001213396 0.0004246886 0.000000000 0.000000000
## 99  gene.1   15777     1669 0.0011325028 0.0011325028 0.001132503 0.001132503
## 100 gene.1   15777    31566 0.0011325028 0.0011325028 0.001132503 0.001132503
```

```
## 101 gene.1     15777     32039 0.0011325028 0.0011325028 0.001132503 0.001132503
## 102 gene.1     15777     32041 0.0011325028 0.0011325028 0.001132503 0.001132503
## 103 gene.1     15777     32287 0.0011325028 0.0011325028 0.001132503 0.001132503
## 104 gene.1     15777     32415 0.0015100038 0.0018875047 0.001132503 0.001132503
## 105 gene.1     15777     32542 0.0079275198 0.0086070215 0.007927520 0.007927520
## 106 gene.1     15777     32668 0.0079275198 0.0079275198 0.007927520 0.007927520
## 107 gene.1     15777     32916 0.0079275198 0.0079275198 0.007927520 0.007927520
## 108 gene.1     15777     33041 0.0036588553 0.0067079014 0.001132503 0.001132503
## 109 gene.1     15777     33166 0.0052095130 0.0067950170 0.002265006 0.002265006
## 110 gene.1     15777     33291 0.0056625142 0.0056625142 0.005662514 0.005662514
## 111 gene.1     15777     33541 0.0067950170 0.0071725179 0.006795017 0.006795017
## 112 gene.1     15777     33662 0.0079275198 0.0079275198 0.007927520 0.007927520
## 113 gene.1     15777     33665 0.0067950170 0.0067950170 0.006795017 0.006795017
## 114 gene.1     15777     33782 0.0011325028 0.0014156285 0.001132503 0.001132503
## 115 gene.1     15777     33783 0.0011325028 0.0011325028 0.001132503 0.001132503
## 116 gene.1     15777     33784 0.0016815951 0.0036034181 0.001132503 0.001132503
## 117 gene.1     15777     33789 0.0011325028 0.0015100038 0.001132503 0.001132503
## 118 gene.1     15777     33790 0.0090600227 0.0090600227 0.009060023 0.009060023
## 119 gene.1     15777     33905 0.0011325028 0.0011325028 0.001132503 0.001132503
## 120 gene.1     15777     33912 0.0012538424 0.0015571914 0.001132503 0.001132503
## 121 gene.1      1669     31566 0.0000000000 0.0000000000 0.000000000 0.000000000
## 122 gene.1      1669     32039 0.0000000000 0.0000000000 0.000000000 0.000000000
## 123 gene.1      1669     32041 0.0000000000 0.0000000000 0.000000000 0.000000000
## 124 gene.1      1669     32287 0.0000000000 0.0000000000 0.000000000 0.000000000
## 125 gene.1      1669     32415 0.0003775009 0.0007550019 0.000000000 0.000000000
## 126 gene.1      1669     32542 0.0067950170 0.0074745187 0.006795017 0.006795017
## 127 gene.1      1669     32668 0.0067950170 0.0067950170 0.006795017 0.006795017
## 128 gene.1      1669     32916 0.0067950170 0.0067950170 0.006795017 0.006795017
## 129 gene.1      1669     33041 0.0025263525 0.0055753986 0.000000000 0.000000000
## 130 gene.1      1669     33166 0.0040770102 0.0056625142 0.001132503 0.001132503
## 131 gene.1      1669     33291 0.0045300113 0.0045300113 0.004530011 0.004530011
## 132 gene.1      1669     33541 0.0056625142 0.0060400151 0.005662514 0.005662514
## 133 gene.1      1669     33662 0.0067950170 0.0067950170 0.006795017 0.006795017
## 134 gene.1      1669     33665 0.0056625142 0.0056625142 0.005662514 0.005662514
## 135 gene.1      1669     33782 0.0000000000 0.0002831257 0.000000000 0.000000000
## 136 gene.1      1669     33783 0.0000000000 0.0000000000 0.000000000 0.000000000
## 137 gene.1      1669     33784 0.0005490923 0.0024709153 0.000000000 0.000000000
## 138 gene.1      1669     33789 0.0000000000 0.0003775009 0.000000000 0.000000000
## 139 gene.1      1669     33790 0.0079275198 0.0079275198 0.007927520 0.007927520
## 140 gene.1      1669     33905 0.0000000000 0.0000000000 0.000000000 0.000000000
## 141 gene.1      1669     33912 0.0001213396 0.0004246886 0.000000000 0.000000000
## 142 gene.1     31566     32039 0.0000000000 0.0000000000 0.000000000 0.000000000
## 143 gene.1     31566     32041 0.0000000000 0.0000000000 0.000000000 0.000000000
## 144 gene.1     31566     32287 0.0000000000 0.0000000000 0.000000000 0.000000000
## 145 gene.1     31566     32415 0.0003775009 0.0007550019 0.000000000 0.000000000
## 146 gene.1     31566     32542 0.0067950170 0.0074745187 0.006795017 0.006795017
## 147 gene.1     31566     32668 0.0067950170 0.0067950170 0.006795017 0.006795017
## 148 gene.1     31566     32916 0.0067950170 0.0067950170 0.006795017 0.006795017
## 149 gene.1     31566     33041 0.0025263525 0.0055753986 0.000000000 0.000000000
## 150 gene.1     31566     33166 0.0040770102 0.0056625142 0.001132503 0.001132503
## 151 gene.1     31566     33291 0.0045300113 0.0045300113 0.004530011 0.004530011
## 152 gene.1     31566     33541 0.0056625142 0.0060400151 0.005662514 0.005662514
## 153 gene.1     31566     33662 0.0067950170 0.0067950170 0.006795017 0.006795017
## 154 gene.1     31566     33665 0.0056625142 0.0056625142 0.005662514 0.005662514
```

```
## 155 gene.1      31566      33782 0.0000000000 0.0002831257 0.000000000 0.000000000
## 156 gene.1      31566      33783 0.0000000000 0.0000000000 0.000000000 0.000000000
## 157 gene.1      31566      33784 0.0005490923 0.0024709153 0.000000000 0.000000000
## 158 gene.1      31566      33789 0.0000000000 0.0003775009 0.000000000 0.000000000
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## 60   0.0090600227 0.009060023 0.009060023
## 61   0.0079275198 0.007927520 0.007927520
## 62   0.0079275198 0.007927520 0.007927520
## 63   0.0079275198 0.009060023 0.009060023
## 64   0.0079275198 0.007927520 0.007927520
## 65   0.0022650057 0.002265006 0.002265006
## 66   0.0022650057 0.003397508 0.003397508
## 67   0.0079275198 0.007927520 0.007927520
## 68   0.0000000000 0.000000000 0.000000000
## 69   0.0056625142 0.006795017 0.006795017
## 70   0.0056625142 0.005662514 0.005662514
## 71   0.0056625142 0.009060023 0.009060023
## 72   0.0056625142 0.006795017 0.006795017
```

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## 73  0.0022650057 0.002265006 0.002265006
## 74  0.0056625142 0.005662514 0.005662514
## 75  0.0056625142 0.006795017 0.006795017
## 76  0.0011325028 0.001132503 0.001132503
## 77  0.0000000000 0.000000000 0.000000000
## 78  0.0000000000 0.000000000 0.000000000
## 79  0.0000000000 0.000000000 0.000000000
## 80  0.0000000000 0.000000000 0.000000000
## 81  0.0000000000 0.000000000 0.000000000
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## 83  0.0079275198 0.007927520 0.007927520
## 84  0.0067950170 0.006795017 0.006795017
## 85  0.0067950170 0.006795017 0.006795017
## 86  0.0090600227 0.010192525 0.010192525
## 87  0.0067950170 0.006795017 0.006795017
## 88  0.0045300113 0.004530011 0.004530011
## 89  0.0056625142 0.006795017 0.006795017
## 90  0.0067950170 0.006795017 0.006795017
## 91  0.0056625142 0.005662514 0.005662514
## 92  0.0000000000 0.001132503 0.001132503
## 93  0.0000000000 0.000000000 0.000000000
## 94  0.0011325028 0.007927520 0.007927520
## 95  0.0000000000 0.001132503 0.001132503
## 96  0.0079275198 0.007927520 0.007927520
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## 99  0.0011325028 0.001132503 0.001132503
## 100 0.0011325028 0.001132503 0.001132503
## 101 0.0011325028 0.001132503 0.001132503
## 102 0.0011325028 0.001132503 0.001132503
## 103 0.0011325028 0.001132503 0.001132503
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## 108 0.0101925255 0.011325028 0.011325028
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## 123 0.0000000000 0.000000000 0.000000000
## 124 0.0000000000 0.000000000 0.000000000
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## 148 0.0067950170 0.006795017 0.006795017
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## 179 0.0000000000 0.000000000 0.000000000
## 180 0.0000000000 0.001132503 0.001132503
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## 181 0.0000000000 0.000000000 0.000000000
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## 183 0.0079275198 0.007927520 0.007927520
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## 206 0.0056625142 0.006795017 0.006795017
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## 217 0.0079275198 0.007927520 0.007927520
## 218 0.0079275198 0.007927520 0.007927520
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## 231 0.0011325028 0.002265006 0.002265006
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## 233 0.0011325028 0.001132503 0.001132503
## 234 0.0090600227 0.011325028 0.011325028
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## 235 0.0011325028 0.009060023 0.009060023
## 236 0.0079275198 0.007927520 0.007927520
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## 268 0.0067950170 0.006795017 0.006795017
## 269 0.0067950170 0.007927520 0.007927520
## 270 0.0067950170 0.007927520 0.007927520
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## 287 0.0079275198 0.009060023 0.009060023
## 288 0.0000000000 0.007927520 0.007927520
```

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## 289 0.0079275198 0.007927520 0.007927520
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## 339 0.0079275198 0.007927520 0.007927520
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## 341 0.0000000000 0.001132503 0.001132503
## 342 0.0011325028 0.009060023 0.009060023
```

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## 349 0.0079275198 0.007927520 0.007927520
## 350 0.0079275198 0.009060023 0.009060023
## 351 0.0000000000 0.001132503 0.001132503
```

Asia (black); wNA (red); Europe (blue)