



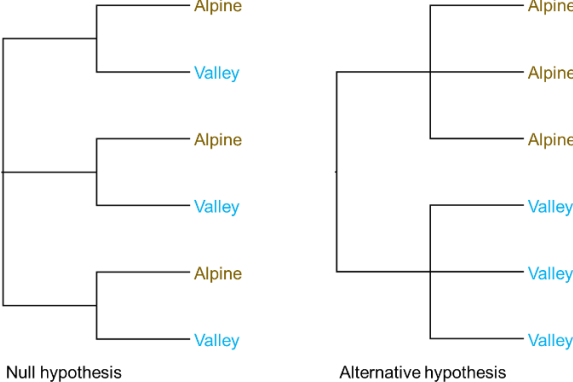
Genetic diversity analysis for biological conservation



```

allheaders=of Editor
Data: Beahmeten Format: Anisite Hile
#fileformat="Vcf.0
##FORMAT=ID=1,Number=1,Type=String,Description="Genotype"
##FORMAT=ID=2,Number=1,Type=Integer,Description="Allele depth for the reference and alternate alleles in the order listed"
##FORMAT=ID=3,Number=1,Type=Integer,Description="Read Depth (only filtered reads used for calling)"
##FORMAT=ID=4,Number=1,Type=Float,Description="Genotype Quality"
##FORMAT=ID=5,Number=3,Type=Int,Description="Raw read, Phred-scaled likelihoods for AA,AB,BB genotypes where A=ref and B=alt; not applicable if
##INFO=ID=MG,Number=1,Type=Integer,Description="Number of Samples With Data"
##INFO=ID=DP,Number=1,Type=Integer,Description="Total Depth"
##INFO=ID=AF,Number=1,Type=Float,Description="Allele Frequency"
##CHROM POS ID REF ALT QUAL FILTER INFO FORMAT
p02_11_0111:COLUHX000:8:250619244 p02_11_0111:COLUHX000:8:250619244 p02_11_0111:COLUHX000:8:250619244 p02_11_0111:COLUHX000:8:250619244
p02_11_0111:COLUHX000:8:250619238 p02_11_0111:COLUHX000:8:250619238 p02_11_0111:COLUHX000:8:250619238 p02_11_0111:COLUHX000:8:250619238
p02_11_0111:COLUHX000:8:250619239 p02_11_0111:COLUHX000:8:250619239 p02_11_0111:COLUHX000:8:250619239 p02_11_0111:COLUHX000:8:250619239
p03_11_0111:COLUHX000:8:250619255 p03_11_0111:COLUHX000:8:250619255 p03_11_0111:COLUHX000:8:250619255 p03_11_0111:COLUHX000:8:250619255
p03_11_0111:COLUHX000:8:250619256 p03_11_0111:COLUHX000:8:250619256 p03_11_0111:COLUHX000:8:250619256 p03_11_0111:COLUHX000:8:250619256
p03_11_0111:COLUHX000:8:250619259 p03_11_0111:COLUHX000:8:250619259 p03_11_0111:COLUHX000:8:250619259 p03_11_0111:COLUHX000:8:250619259
p05_11_0111:COLUHX000:8:250619277 p05_11_0111:COLUHX000:8:250619277 p05_11_0111:COLUHX000:8:250619277 p05_11_0111:COLUHX000:8:250619277
p08_11_0111:COLUHX000:8:250619236 p08_11_0111:COLUHX000:8:250619236 p08_11_0111:COLUHX000:8:250619236 p08_11_0111:COLUHX000:8:250619236
p10_11_0111:COLUHX000:8:250619217 p10_11_0111:COLUHX000:8:250619217 p10_11_0111:COLUHX000:8:250619217 p10_11_0111:COLUHX000:8:250619217
p11_11_0111:COLUHX000:8:250619233 p11_11_0111:COLUHX000:8:250619233 p11_11_0111:COLUHX000:8:250619233 p11_11_0111:COLUHX000:8:250619233
p12_11_0111:COLUHX000:8:250619244 p12_11_0111:COLUHX000:8:250619244 p12_11_0111:COLUHX000:8:250619244 p12_11_0111:COLUHX000:8:250619244
p13_11_0111:COLUHX000:8:250619233 p13_11_0111:COLUHX000:8:250619233 p13_11_0111:COLUHX000:8:250619233 p13_11_0111:COLUHX000:8:250619233
p17_11_0111:COLUHX000:8:250619221 p17_11_0111:COLUHX000:8:250619221 p17_11_0111:COLUHX000:8:250619221 p17_11_0111:COLUHX000:8:250619221
1 40 52_65 A G 20 PASS GT:AD:DP:GQ:PL 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
0/0:2,0:2:79:0,6,72 0/0:2,0:2:79:0,6,72 0/0:2,0:2:79:0,6,72 0/0:2,0:2:79:0,6,72 0/0:2,0:2:79:0,6,72 0/0:2,0:2:79:0,6,72
1 134 51_134 C T 20 PASS GT:AD:DP:GQ:PL 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1 363 51_363 T A 20 PASS GT:AD:DP:GQ:PL 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
0/0:1,0:1:66:0,3,36 0/0:2,0:2:79:0,6,72 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:2,0:2:79:0,6,72 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:2,0:2:79:0,6,72 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
T 544 51_544 C T 20 PASS GT:AD:DP:GQ:PL 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36
1/1:0,1:1:66:36,3,0 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36 0/0:1,0:1:66:0,3,36

```



Photos: *Chara vulgaris* (source: "Charophytes of Europe"), *Linaria alpina* (Karin Tremetsberger)

Aim At our institute, we have assembled genomic data of various plant taxa. The aim of the master's theses is to analyse the data to answer questions about population genetic structure, migration and genetic relatedness relevant for conservation. The thesis work can be started any time. Students may choose from the following topics:

- Differentiation between seasonal cohorts of an annual weed (*Diplotaxis eruroides*)
- Dispersal patterns in alpine plants (*Arabis alpina*, *Linaria alpina*)
- Comparison of microsatellite (SSR) and genotyping-by-sequencing (GBS) data for assessment of population structure (*Cyperus fuscus*)
- Phylogenetic analysis using whole chloroplast sequences in charophytes

Please contact us for further information!

Requirements Basic knowledge of genetics
 Computer skills: Linux, R, motivation to learn new software
 Interest in population genetics and phylogenetics

Language English or German

Information and supervision Karin Tremetsberger Tel.: 47654-83113 Email: karin.tremetsberger@boku.ac.at
 Barbara Turner Tel.: 47654-83116 Email: barbara.turner@boku.ac.at