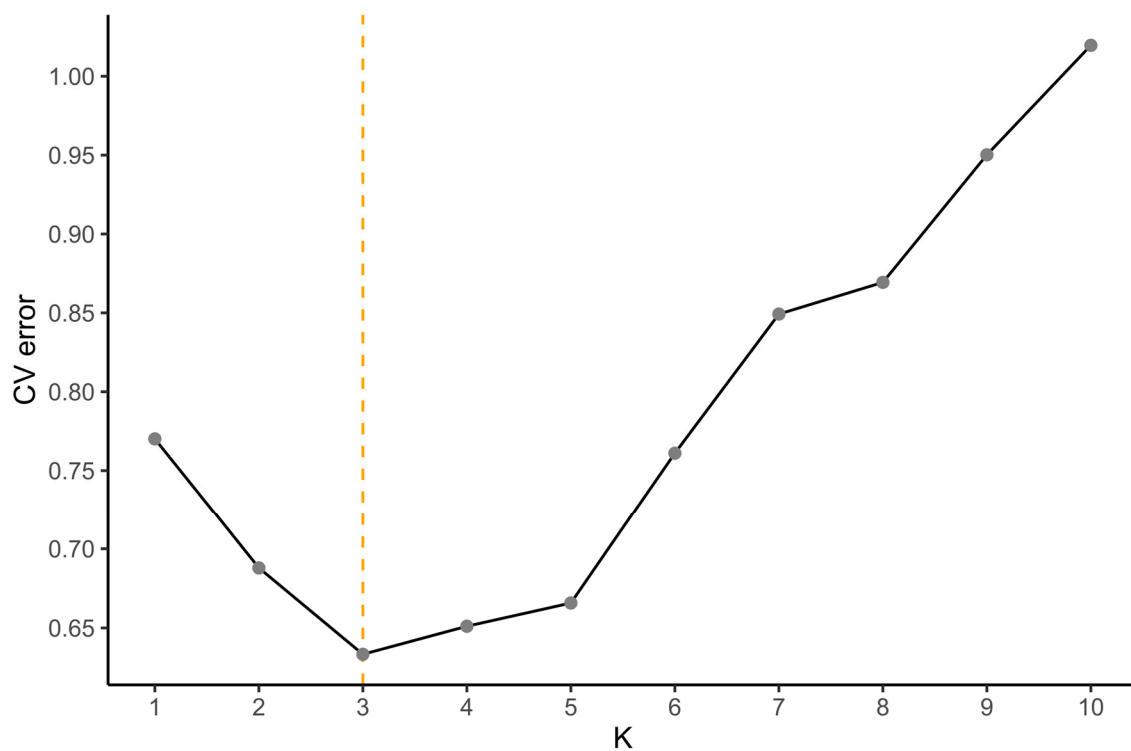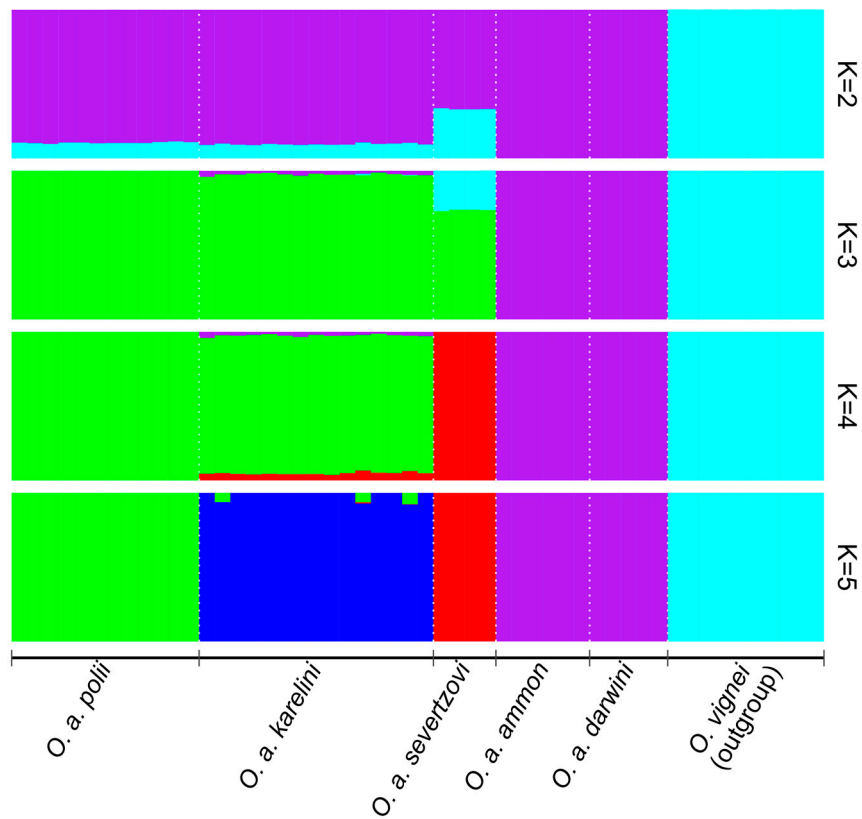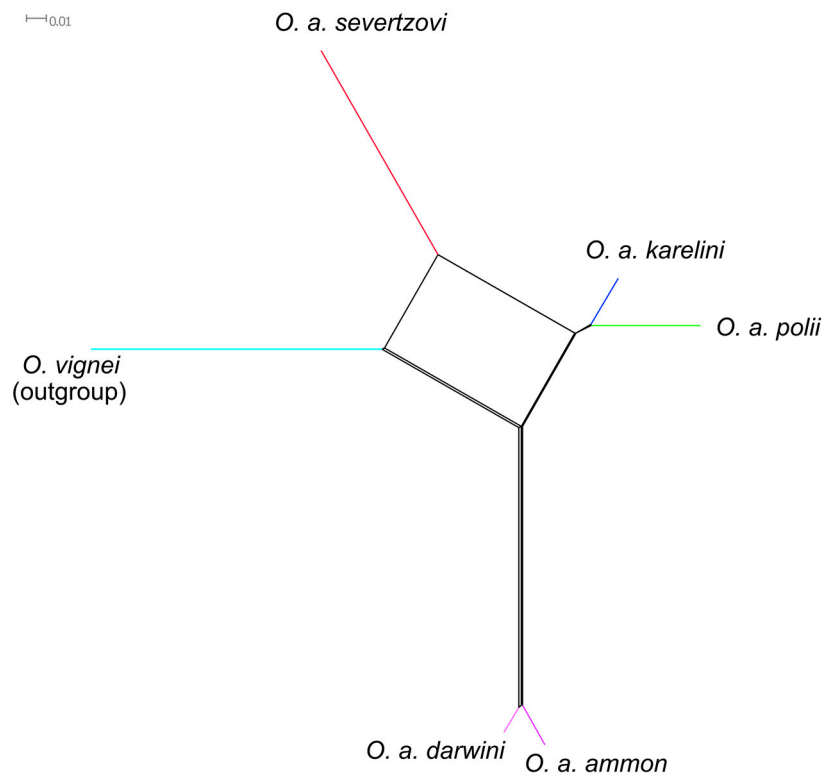**Figure S1.** Principle component analysis (PC1 and PC3) of the studied populations of *O. ammon*.
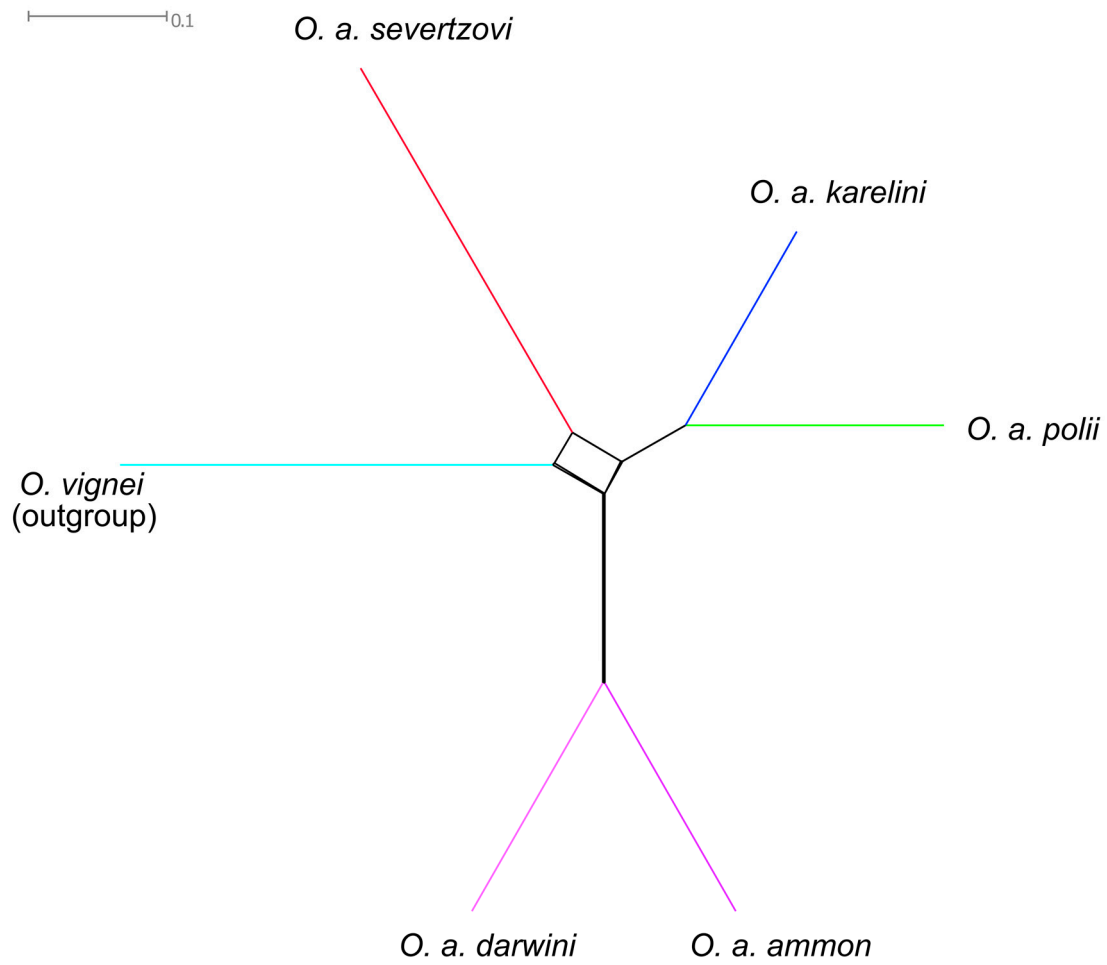

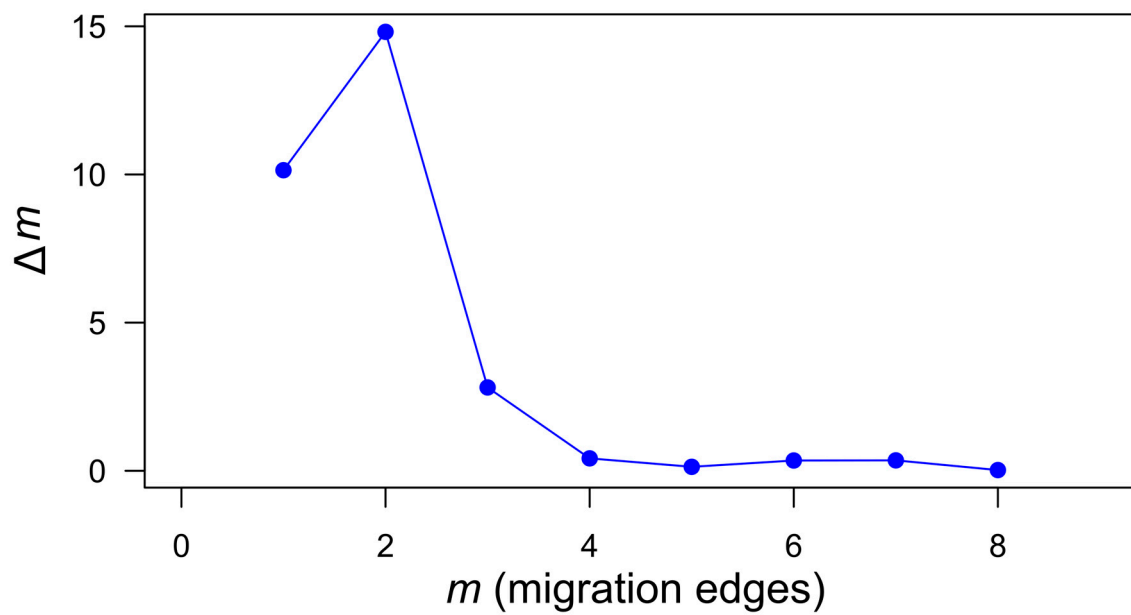**Figure S2.** Cross validation (CV) error for the Admixture analysis for values of K from 1 to 10.

1

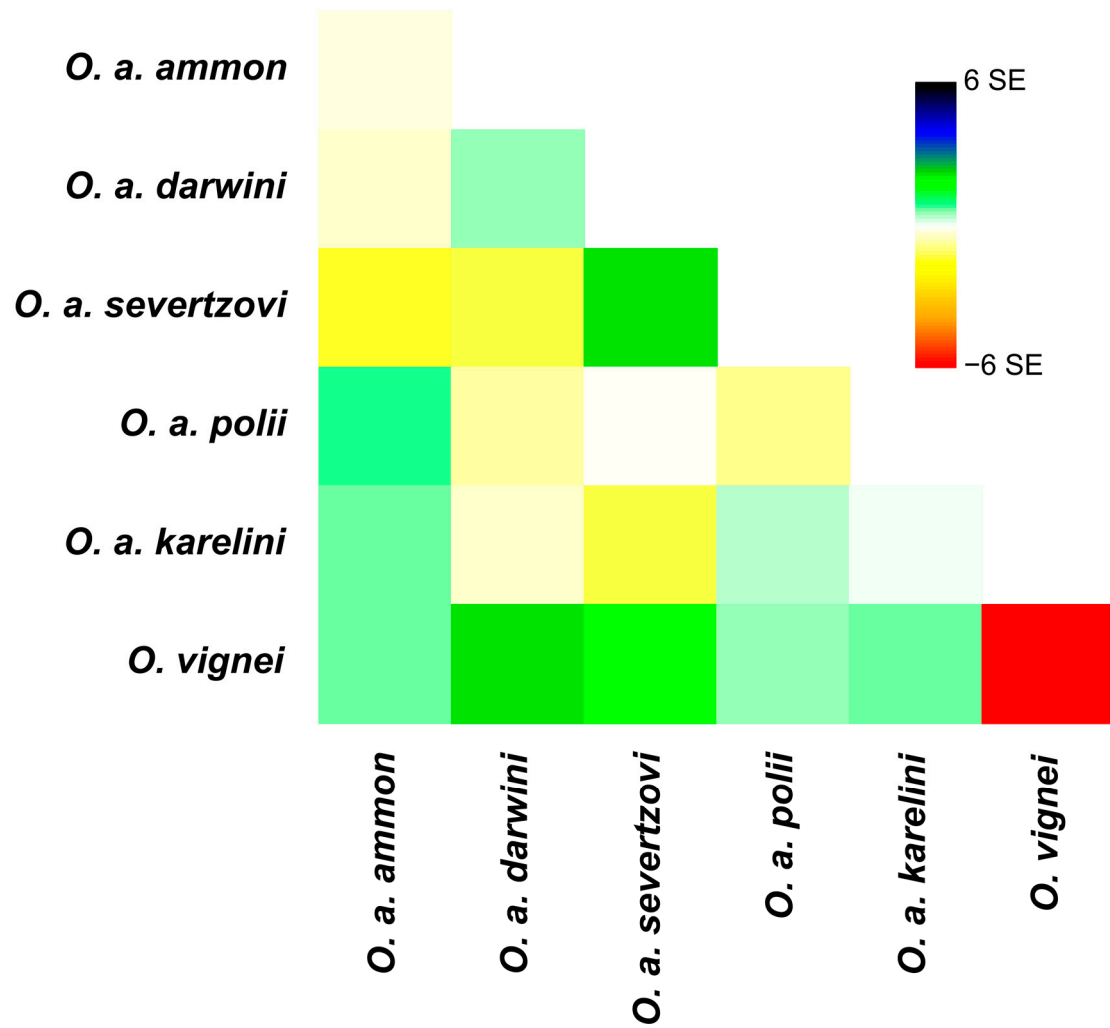**Figure S3.** Admixture analysis of the studied populations of *O. ammon* and *O. vignei* for K from 2 to 5.

Figure S4. Neighbor-Net dendrogram of the studied populations of *O. ammon* based on F_{ST} pairwise genetic distances.

2

O. a. severtzovi

O. a. karelini

O. a. polii

O. vignei
(outgroup)

0.1

O. a. darwini   O. a. ammon

Figure S5. Neighbor-Net dendrogram of the studied populations of *O. ammon* based on Reynolds pairwise genetic distances.

Figure S6. The optimal number of migration edges for the Treemix analysis evaluated using the Evanno method.

Figure S7. The residual fit plot corresponding to Treemix analysis with two migration events.