The calculation of ΔK and the determination of K values followed the framework proposed by Evanno et al. (2005), which quantifies the rate of change in the likelihood of K (LnP(K)) between successive K values to identify the most biologically meaningful number of genetic clusters. The specific steps were as follows:

1. Extraction of LnP(K) values: After running STRUCTURE for each K (1 to 10) with 3 replicates, the program output the log probability of the data given K (LnP(K)) for each replicate. We first calculated the mean LnP(K) (± standard deviation) across the 3 replicates for each K, which reflects the overall fit of the Bayesian model to the data at different assumed cluster numbers.

2. Calculation of ΔK: Using STRUCTURE HARVESTER v0.6.94, the ΔK value was computed based on the formula:

ΔK = mean(|LnP(K+1) - 2LnP(K) + LnP(K-1)|) / sd(LnP(K))

where "mean(|LnP(K+1) - 2LnP(K) + LnP(K-1)|)" represents the average absolute value of the second-order difference in LnP(K) between consecutive K values, and "sd(LnP(K))" is the standard deviation of LnP(K) across replicates for a given K. This formula emphasizes the magnitude of the "peak" in LnP(K) changes, as ΔK values are highest at the K where the genetic structure is most distinct.

3. Identification of optimal K: A ΔK-K plot was generated by plotting ΔK values on the y-axis and corresponding K values (1 to 10) on the x-axis. The K value corresponding to the highest ΔK peak was identified as the optimal number of genetic clusters. For K=1 and K=10, ΔK values were marked as "NA" (not applicable) because the second-order difference calculation requires LnP(K-1) (unavailable for K=1) and LnP(K+1) (unavailable for K=10), which is consistent with the standard handling of boundary K values in population structure analysis (Evanno et al., 2005; Gvozdanović et al., 2019).

Annexed table: Table showing the relationship between ΔK and K functions

K	Reps	Mean LnP(K)	Stdev LnP(K)	Ln'(K)	|Ln''(K)|	Delta K
1	10	-7366.49	0.25144	NA	NA	NA
2	10	-6861.7	0.33993	504.79	346.76	1020.078
3	10	-6703.67	2.29882	158.03	41.98	18.26157
4	10	-6587.62	10.03912	116.05	14.7	1.46427
5	10	-6486.27	1.39766	101.35	53.06	37.96354
6	10	-6437.98	9.35602	48.29	45.55	4.86852
7	10	-6435.24	19.36441	2.74	10.14	0.52364
8	10	-6422.36	35.68184	12.88	16.29	0.45653
9	10	-6393.19	42.33392	29.17	45.66	1.07857
10	10	-6409.68	77.95721	-16.49	NA	NA

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