# Additional files

**Additional file 1:**

**Table S1. Priori biological differences between *Tetraogallus tibetanu*s and *Tetraogallus himalayensis***

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| --- | --- | --- |
|  | ***Tetraogallus tibetanus*** | ***Tetraogallus himalayensis*** |
| Fragmentation of habitat | Low | Moderate to high |
| Breeding strategies | k-selection | r-selection or r-k-continum |
| Habitat altitude | High | Moderate to high |
| Feeding habits | Euryphagous | Stenophagous |
| Breeding time | Late | Early |

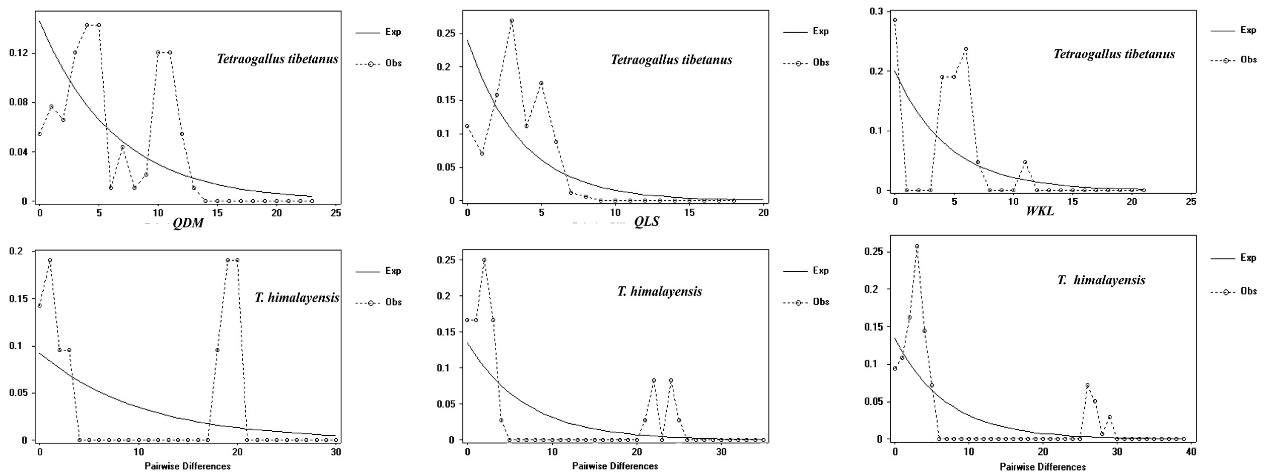
**Table S2.** **Information of Tibetan Snowcock and Himalayan Snowcock samples used in this study.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Group** | **Location** | **Altitude (m)** | **Latitude** | **Longitude** | **Type of sample** |
| *Tetraogallus tibetanus* | | | |  |  |
| QLS | Datong, DT | 3308 | 36°54'N | 101°30'E | Liver |
| Sunan, SN | 4227 | 38°50'N | 99°26'E | Muscle |
| Tianzhu, TZ | 3579 | 37°11'N | 103°08'E | Liver |
| WKL | Atushi, AT | 3511 | 40°18'N | 75°37'E | Muscle |
| Wuqia, WQ | 3683 | 39°53'N | 75°12'E | Muscle |
| Yecheng, YC | 4651 | 37°14'N | 76°33'E | Muscle |
| DM | Haixi, THX | 4025 | 37°28'N | 97°27'E | Liver |
| Delingha, TDL | 4281 | 37°14'N | 98°10'E | Liver |
| TGL | Zhiduo, ZD | 4459 | 33°54'N | 95°38'E | Liver |
| Biru, BR | 5035 | 31°24'N | 93°39'E | Liver |
| Baqin, BQ | 4568 | 31°58'N | 94°04'E | Muscle |
| Anduo, AD | 4661 | 32°03'N | 91°46'E | Liver |
| Suoxian, SX | 4850 | 31°50'N | 93°36'E | Liver |
| BKL | Qumalai, QML | 4813 | 34°08'N | 95°56'E | Liver |
| Total | 14 |  |  |  |  |
| *Tetraogallus himalayensis* | | |  |  |  |
| HQLS | Subei, SB | 3740 | 37°36'N | 94°58'E | Liver |
| HWKL | Pishan, PS | 3960 | 37°37'N | 78°16'E | Muscle |
| Hetian, HT | 4205 | 37°06'N | 79°54'E | Muscle |
| Kashi, KS | 4180 | 37°49'N | 94°53'E | Muscle |
| HQDM | Germ, GM | 4120 | 36°24'N | 94°53'E | Liver |
| Delinha, HDL | 3200 | 37°21'N | 97°21'E | Liver |
| HETS | Qitai, QT | 3800 | 44°01'N | 89°34'E | Liver |
| Houxia, HHX | 3900 | 43°17'N | 87°05'E | Liver |
| HWTS | Akesu, AK | 4850 | 41°10'N | 80°15'E | Liver |
| Zhaosu, ZS | 3357 | 43°09'N | 81°07'E | Blood |
| HPME | Taxkorgan, TS | 3200 | 37°39'N | 75°12'E | Blood |
| Total | 11 |  |  |  |  |

Samples are listed per groups including information on locality with (i) altitude (m), latitude and longitude data, number of individuals, (iii) sampled tissue. Location names correspond to those on the map in Fig. 1

All vouchers are deposited in the Lanzhou University, China.

**Fig. S1.** Mismatch distribution for mitochondria DNA in three sympatric locations of *Tetraogallus tibetanus* and *T. himalayensis*. The solid line represents the expected distribution; the dashed line represents the observed distribution.

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