Table S1. Livestock disturbance at census points as inferred from 106 questionnaires filled out by local people; arrival and departure peak: period when herds are arriving at and leaving an area; herds: estimated total number of herds visiting the area (both goats and sheep); goats/sheep/dogs: estimated total numbers of goats, sheep and accompanying dogs in an area; dist. goats/sheep: disturbance level classes for both goats and sheep: 0 (very low) = no goats and sheep in the area, 1 (low) = 1-250 individuals, 2 (moderate) = 251 – 1000 individuals, 3 (high) = more than 1000 individuals; dist, dogs: disturbance level classes for accompanying dogs: 0 (very low) = no dogs in the area, 1 (low) = 1-15 individuals, 2 (moderate) = 16 – 35 individuals, 3 (high) = 36 - 150 individuals; at six sites disturbance level of herds and dogs was set to zero (“/0”) for GLM analysis due to late arrival peak of herds at the end of the breeding season.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **census point** | **closest settlement** | **arrival** | **departure** | **herds** | **goats** | **dist. goats** | **sheep** | **dist. sheep** | **dogs** | **dist. dogs** |
| Damzai1 | Karoser, Mughal Abad | end of May | September | 15 | 500-550 | 2 | 0 | 0 | 10 to 15 | 1 |
| Damzai 2 | Karoser | start of June | September | 3 | 150-160 | 1 | 40-45 | 1 | 4 to 5 | 1 |
| Damzai 3 | Karoser, Gadar | start of June | end of September | 10 | 700-750 | 2 | 600 | 2 | 10 to 15 | 1 |
| Singara 1 | Lower Singara | not regular | not regular | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Singara 2 | Lower Singara | not regular | not regular | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Takhto 1 | Farwurgah | start of June | August | 10 | 200-250 | 1 | 50-60 | 1 | 10 to 15 | 1 |
| Takhto 2 | Farwurgah | start of June | September | 15-18 | 600-650 | 2 | 500-550 | 2 | 15-16 | 2 |
| Moru | Bar paro | June | September | 120-150 | 2000-2500 | 3 | 200-2500 | 3 | 100-150 | 3 |
| Moru Nala | Sheeshy Baig | start of June | end of September | 80-100 | 1500-1800 | 3 | 1500-1600 | 3 | 100-110 | 3 |
| Kabkot 1 | Barser | end of May | end of August | 20 | 300-350 | 2 | 200-250 | 1 | 20-25 | 2 |
| Kabkot 2 | Barser | end of May | August | 15 | 200-250 | 1 | 300-350 | 2 | 15 to 20 | 2 |
| Kabkot 3 | Barser | end of July | end of August | 14 | 400-450 | 2/0 | 250-300 | 2/0 | 14-16 | 1/0 |
| Kabkot 4 | Barser | August | September | 25 | 700-750 | 2/0 | 600-650 | 2/0 | 25-30 | 2/0 |
| Kabkot 5 | Barser | August | end of September | 30 | 1000-1200 | 3/0 | 800-1000 | 2/0 | 30-35 | 2/0 |
| Kabkot 6 | Barser | June | August | 20 | 900-950 | 2 | 700-750 | 2 | 20-25 | 2 |
| Kabkot 7 | Barser | May | September | 25 | 1200-1250 | 3 | 600-650 | 2 | 25-30 | 2 |
| Diwan 1 | Diwan | end of May | August | 10 | 250-280 | 2 | 150-200 | 1 | 10 to 15 | 1 |
| Diwan 2 | Diwan | end of May | August | 5 to 6 | 150-200 | 1 | 80-100 | 1 | 5 to 7 | 1 |
| Diwan 3 | Diwan | June | August | 3 | 100-150 | 1 | 100-120 | 1 | 3 to 4 | 1 |
| Diwan 4 | Diwan | July | August | 4 to 6 | 150-200 | 1/0 | 100-120 | 1/0 | 5 to 10 | 1/0 |
| Diwan 5 | Diwan | June | August | 5 | 100-110 | 1 | 100-110 | 1 | 5 to 8 | 1 |
| Diwan 6 | Diwan | July | end of August | 7 | 300-350 | 2/0 | 200-210 | 1/0 | 7 to 8 | 1/0 |
| Diwan 7 | Diwan | end of July | end of August | 9 | 400-450 | 2/0 | 200-250 | 1/0 | 9 to 12 | 1/0 |

Table S2. Anthropogenic disturbance from hunters and collectors of mushrooms and medical plants at census points as inferred from 106 questionnaires filled out by local people; collectors (mushrooms and med. plants) and hunters: estimated total number of visitors in the area; dist. coll1 (mushrooms) and coll2 (medical plants): disturbance level classes for collectors: 0 (very low) = no collectors in the area, 1 (low) = 1-20 individuals, 2 (moderate) = 21 – 99 individuals, 3 (high) = more than 100 individuals; dist, hunting: disturbance level classes for hunters: 0 (very low) = no hunters in the area, 1 (low) = 1-10 individuals, 2 (moderate) = 11– 20 individuals, 3 (high) = more than 20 individuals.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **census point** | **closest settlement** | **mushrooms** | **dist. coll1** | **med. plants** | **dist. coll2** | **hunters** | **dist. hunting** | **anth. disturbance** |
| Damzai1 | Karoser, Mughal Abad | 15-16 | 1 | 20-25 | 2 | 5 to 10 | 1 | 1,33 |
| Damzai 2 | Karoser | 3 to 4 | 1 | 0 | 0 | 0 | 0 | 0,33 |
| Damzai 3 | Karoser, Gadar | 10 to 20 | 1 | 5 to 6 | 1 | 7 to 8 | 1 | 1 |
| Singara 1 | Lower Singara | 50-55 | 2 | 20-25 | 2 | 8 to 10 | 1 | 1,67 |
| Singara 2 | Lower Singara | 20-25 | 2 | 4 to 5 | 1 | 0 | 0 | 1 |
| Takhto 1 | Farwurgah | 20-25 | 2 | 8 to 10 | 1 | 5 to 10 | 1 | 1,33 |
| Takhto 2 | Farwurgah | 20-30 | 2 | 15-20 | 1 | 10 to15 | 2 | 1,67 |
| Moru | Bar paro | 300-350 | 3 | 100-120 | 3 | 15-20 | 3 | 3 |
| Moru Nala | Sheeshy Baig | 50-60 | 2 | 30-35 | 2 | 10 to 15 | 2 | 2 |
| Kabkot 1 | Barser | 50-60 | 2 | 20-25 | 2 | 20-25 | 3 | 2,33 |
| Kabkot 2 | Barser | 100-110 | 3 | 50-60 | 2 | 20-25 | 3 | 2,67 |
| Kabkot 3 | Barser | 100-120 | 3 | 40-50 | 2 | 15-20 | 2 | 2,33 |
| Kabkot 4 | Barser | 150-160 | 3 | 50-60 | 2 | 20-25 | 3 | 2,67 |
| Kabkot 5 | Barser | 100-110 | 3 | 40-50 | 2 | 10 to 15 | 2 | 2,33 |
| Kabkot 6 | Barser | 50-60 | 2 | 30-40 | 2 | 20-25 | 3 | 2,33 |
| Kabkot 7 | Barser | 100-110 | 3 | 40-50 | 2 | 12 to 15 | 2 | 2,33 |
| Diwan 1 | Diwan | 50-60 | 2 | 20-30 | 2 | 15-20 | 3 | 2,33 |
| Diwan 2 | Diwan | 10 to 15 | 1 | 8 to 10 | 1 | 5 to 6 | 1 | 1 |
| Diwan 3 | Diwan | 10 to 15 | 1 | 5 to 6 | 1 | 5 to 7 | 1 | 1 |
| Diwan 4 | Diwan | 5 to 6 | 1 | 1,2 | 1 | 10 to 12 | 2 | 1,33 |
| Diwan 5 | Diwan | 20-30 | 2 | 15-20 | 1 | 10 to 12 | 2 | 1,67 |
| Diwan 6 | Diwan | 20-25 | 1 | 15-20 | 1 | 10 to 12 | 2 | 1,33 |
| Diwan 7 | Diwan | 50-60 | 2 | 10 to 15 | 1 | 10 to 15 | 2 | 1,67 |

Table S3. Occurrence records of the Western Tragopan *Tragopan melanocephalus* used for species distribution modeling; occurrences from online databases such as GBIF (specimens, observations), Oriental Bird Club (OBC) image data base, sound archives (xenocanto; XC) and published literature (for references, see below) and from own field data in Pakistan; collection acronyms: CLO= Cornell Laboratory of Ornithology; FMNH= Field Museum of Natural History, Chicago, USA; MCZ= Museum of Comparative Zoology, Cambridge, USA; NHMUK= Natural History Museum London, UK; UMMZ= University of Michigan Museum of Zoology, USA; WFVZ= Western Foundation of Vertebrate Zoology, Camarillo, Canada; ROM= Royal Ontario Museum, Canada; SMF= Senckenberg Forschungsinstitut und Naturmuseum Frankfurt, Germany; YPM= Yale Peabody Museum, USA; months from i (= January) to xii (= December).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Location** | **Province** | **Country** | **Elevation**  **(m asl)** | **Latitude** | **Longitude** | **Month** | **Source** |
| 1 | Kulu | Punjab | India | 1207-1232 | 31.958 | 77.111 | i, ii, iii, iv, v, xii | Specimen, (MCZ, UMMZ, NHMUK, WFVZ, FMNH), Image (OBC) |
| 2 | Oot | Himachal Pradesh | India | 1000 | 31.743 | 77.209 | i | Specimen, (UMMZ) |
| 3 | Manali, 2 mi E | Himachal Pradesh | India | 1900 | 32.245 | 77.187 | ii | Specimen, (UMMZ) |
| 4 | Kashmir | Jammu and Kashmir | India | 4253 | 34.867 | 75.842 |  | Specimen, (ROM) |
| 5 | top of Sulah and Raipur | Himachal Pradesh | India | 1008 | 32.067 | 76.483 | iii | Specimen, (YPM) |
| 6 | Shogran | Himachal Pradesh | India | 2335 | 34.630 | 73.460 | xii | Specimen,(FMNH) |
| 7 | Kotgarh | Himachal Pradesh | India | 1933 | 31.311 | 77.474 | i, iii, iv, x | Specimen, (MCZ, NHMUK, ROM, SMF) |
| 8 | Mussoorie | Uttarakhand | India | 1958 | 30.460 | 78.064 |  | Specimen (UMZC) |
| 9 | Sainj - Siund Road, Sainj | Himachal Pradesh | India | 1276 | 31.767 | 77.307 | iv | Observation (CLO) |
| 10 | Rupi Bhaba Wildlife Sanctuary | Himachal Pradesh | India | 2225 | 31.597 | 77.836 | iv | Observation (CLO) |
| 11 | Khorli Poi | Himachal Pradesh | India | 3013 | 31.664 | 77.511 | vi | Observation (CLO) |
| 12 | Lapah | Himachal Pradesh | India | 2168 | 31.771 | 77.427 | vi | Observation (CLO) |
| 13 | Khrungcha to Chota Vasu | Himachal Pradesh | India | 2255 | 31.664 | 77.471 | ii | Observation (CLO) |
| 14 | Great Himalayan NP, Shilte | Himachal Pradesh | India | 2828 | 31.683 | 77.480 | vi, vii | Observation (CLO) |
| 15 | Great Himalayan NP, Choidwari | Himachal Pradesh | India | 3087 | 31.689 | 77.484 | iii, v, vi | Observation (CLO) |
| 16 | Rolla-Bandru-Duranga-Rolla | Himachal Pradesh | India | 2365 | 31.675 | 77.487 | ii, v | Observation (CLO) |
| 17 | Choidwr To Rakhundi | Himachal Pradesh | India | 2872 | 31.690 | 77.488 | ii | Observation (CLO) |
| 18 | Choiduar To Shilat | Himachal Pradesh | India | 2882 | 31.692 | 77.490 | i | Observation (CLO) |
| 19 | Grani | Himachal Pradesh | India | 2882 | 31.689 | 77.490 | iv | Observation (CLO) |
| 20 | Choidwar | Himachal Pradesh | India | 2882 | 31.690 | 77.488 | xii | Observation (CLO) |
| 21 | Talai | Himachal Pradesh | India | 2791 | 31.647 | 77.465 | xii | Observation (CLO) |
| 22 | Grehni to Rolla | Himachal Pradesh | India | 2882 | 31.687 | 77.488 | xii | Observation (CLO) |
| 23 | Bundru to Choiduar | Himachal Pradesh | India | 2414 | 31.679 | 77.488 | i | Observation (CLO) |
| 24 | Sarkhan Thatch | Himachal Pradesh | India | 3607 | 31.498 | 77.833 | v | Observation (CLO) |
| 25 | Great Himalayan NP | Himachal Pradesh | India | 1489 | 31.641 | 77.387 | I, ii | Observation (CLO) |
| 26 | Great Himalayan NP--Rolla camp | Himachal Pradesh | India | 2365 | 31.675 | 77.487 | ix | Observation (CLO) |
| 27 | Qadir Gali | North-West Frontier | Pakistan | 2991 | 34.637 | 73.586 | v | Observation (CLO) |
| 28 | Giga Nulla - Bandalo | North-West Frontier | Pakistan | 2694 | 35.186 | 72.861 | v | Observation (CLO) |
| 29 | Maidan Nulla | North-West Frontier | Pakistan | 2098 | 35.206 | 72.884 | v | Observation (CLO) |
| 30 | Upper Maidan Nulla | North-West Frontier | Pakistan | 2708 | 35.226 | 72.845 | v | Observation (CLO) |
| 31 | Kholi Poyi | Himachal Pradesh | India | 2950 | 31.674 | 77.498 | iv | Observation (CLO) |
| 32 | 8,400 ft on the hills w. of Wular | Kashmir | Pakistan | 1580 | 34.370 | 74.558 | ii, iii, vi | Specimen (NHMUK) |
| 33 | Simla | Himachal Pradesh | India | 1977 | 31.105 | 77.173 | i, ii, iii, vii | Specimen (NHMUK) |
| 34 | the hills behind Dharmsala | Punjab | India | 1369 | 32.219 | 76.323 | ii | Specimen (NHMUK) |
| 35 | Chamba Chambra | Himachal Pradesh | India | 878 | 32.553 | 76.126 |  | Specimen (NHMUK) |
| 36 | Almorah, Himalayas | Himachal Pradesh | India | 1662 | 29.589 | 79.647 |  | Specimen (NHMUK) |
| 37 | Baghnala Palumpur, Kangra | Punjab | India | 548 | 31.593 | 76.267 | xii | Specimen (NHMUK) |
| 38 | Neelum Valley; Machyara River | Azad Jammu and Kashmir | Pakistan | 1506 | 34.500 | 73.833 | v | Observation (CLO) |
| 39 | Palampur, Bugh Nala | Himachal Pradesh | India | 1008 | 32.067 | 76.483 | iii | Specimen (YPM) |
| 40 | near Dharmsala | Himachal Pradesh | India | 2199 | 32.233 | 76.400 | i | Specimen (YPM) |
| 41 | Great Himalayan NP | Himachal Pradesh | India | 1488 | 31.641 | 77.387 | iv | Observation (CLO) |
| 42 | Sarahan Pheasantry | Himachal Pradesh | India | 2275 | 31.507 | 77.796 | iv, v, vi | Call (XC), Image (OBC) |
| 43 | Besri, Kaghan | Khyber Pukhtunkhwa | Pakistan | 2981 | 34.661 | 73.607 |  | Newlands, 1974 |
| 44 | Behari, Kaghan | Khyber Pukhtunkhwa | Pakistan | 2828 | 34.765 | 73.651 |  | Newlands, 1974 |
| 45 | Malakandi | Khyber Pukhtunkhwa | Pakistan | 2736 | 34.610 | 73.509 |  | Chaudhry, 1992 |
| 46 | Manur | Khyber Pukhtunkhwa | Pakistan | 2474 | 34.674 | 73.596 |  | Chaudhry, 1992 |
| 47 | Malakandi | Khyber Pukhtunkhwa | Pakistan | 2736 | 34.610 | 73.509 |  | Chaudhry, 1992 |
| 48 | Manur | Khyber Pukhtunkhwa | Pakistan | 2474 | 34.674 | 73.596 |  | Chaudhry, 1992 |
| 49 | Machiara | Azad Jammu and Kashmir | Pakistan | 3126 | 34.563 | 73.602 |  | Mirza, et al. 1978 |
| 50 | Jagran | Azad Jammu and Kashmir | Pakistan | 2615 | 34.515 | 73.806 |  | Mirza, et al. 1978 |
| 51 | Salkhala | Azad Jammu and Kashmir | Pakistan | 2398 | 34.555 | 73.915 |  | Mirza, et al. 1978 |
| 52 | Pir Chinasi | Azad Jammu and Kashmir | Pakistan | 2535 | 34.406 | 73.585 |  | Islam, 1982 |
| 53 | Dubair, Indus Kohistan | Khyber Pukhtunkhwa | Pakistan | 3129 | 35.199 | 72.931 |  | Grimmett and Robson, 1986 |
| 54 | Kabkot, Palas indus kohistan | Khyber Pukhtunkhwa | Pakistan | 2679 | 35.011 | 73.213 |  | Duke, 1989 |
| 55 | Muro, Palas Indus Kohistan | Khyber Pukhtunkhwa | Pakistan | 2652 | 35.022 | 73.138 |  | Duke, 1989 |
| 56 | Diwan, Palas Indus Kohistan | Khyber Pukhtunkhwa | Pakistan | 3021 | 35.008 | 73.263 |  | Duke, 1989 |
| 57 | Khowari, Palas Indus kohistan | Khyber Pukhtunkhwa | Pakistan | 2570 | 35.020 | 73.185 |  | Duke, 1989 |
| 58 | Patan, Indus Kohistan | Khyber Pukhtunkhwa | Pakistan | 2823 | 35.152 | 73.004 |  | Buner and Cornell, 2008 |
| 59 | Palas, Indus Kohistan | Khyber Pukhtunkhwa | Pakistan | 2444 | 35.003 | 73.206 |  | Buner and Cornell, 2008 |
| 60 | Limber Valley | Kashmir | India | 1972 | 34.130 | 74.203 |  | Javed, 1992; Ahmad et al. 2017 |
| 61 | Kishtwar | Kashmir | India | 1630 | 33.312 | 75.766 |  | Gaston et, al. 1983 |
| 62 | Doda, bhadarwah | Kashmir | India | 1356 | 33.040 | 75.654 |  | Gaston et, al. 1983 |
| 63 | Hunza | Gilgit Baltistan | Pakistan | 2110 | 36.307 | 74.631 |  | Birdlife International 2001 |
| 64 | Kayal | Khyber Pukhtunkhwa | Pakistan | 1771 | 35.139 | 73.030 |  | Birdlife International 2001 |
| 65 | Kanshian nalla balakot | Khyber Pukhtunkhwa | Pakistan | 1041 | 34.524 | 73.359 |  | Birdlife International 2001 |
| 66 | Allai | Khyber Pukhtunkhwa | Pakistan | 1627 | 34.818 | 73.121 |  | Birdlife International 2001 |
| 67 | Pir Hasimar | Azad Jammu and Kashmir | Pakistan | 2915 | 34.345 | 73.636 |  | Birdlife International 2001 |
| 68 | Qazinag | Azad Jammu and Kashmir | Pakistan | 1635 | 34.197 | 74.350 |  | Birdlife International 2001 |
| 69 | Leepa valley | Azad Jammu and Kashmir | Pakistan | 2051 | 34.298 | 73.895 |  | Birdlife International 2001 |
| 70 | Haji Pir | Azad Jammu and Kashmir | Pakistan | 1674 | 34.038 | 74.073 |  | Birdlife International 2001 |
| 71 | Gangotri | Uttar Pradesh | India | 3066 | 30.993 | 78.940 |  | Birdlife International 2001 |
| 72 | Keran | Jammu and Kashmir | India | 1833 | 34.665 | 73.961 |  | Birdlife International 2001 |
| 73 | Lolab valley | Jammu and Kashmir | India | 1751 | 34.524 | 74.392 |  | Birdlife International 2001 |
| 74 | Uri | Jammu and Kashmir | India | 1309 | 34.087 | 74.033 |  | Birdlife International 2001 |
| 75 | Poonch | Jammu and Kashmir | India | 908 | 33.766 | 74.094 |  | Birdlife International 2001 |
| 76 | Sandran | Jammu and Kashmir | India | 1398 | 33.506 | 74.161 |  | Birdlife International 2001 |
| 77 | Pir Panjal | Jammu and Kashmir | India | 4035 | 33.857 | 74.399 |  | Birdlife International 2001 |
| 78 | Gamgul Siyabehi Wildlife Sanctuary | Himachal Pradesh | India | 1664 | 32.776 | 75.949 |  | Birdlife International 2001 |
| 79 | Bhataal | Himachal Pradesh | India | 1124 | 31.685 | 76.912 |  | Birdlife International 2001 |
| 80 | Sahu | Himachal Pradesh | India | 1397 | 32.600 | 76.233 |  | Birdlife International 2001 |
| 81 | Ravi valley | Himachal Pradesh | India | 1556 | 32.587 | 76.009 |  | Birdlife International 2001 |
| 82 | Tundah | Himachal Pradesh | India | 2343 | 32.503 | 76.466 |  | Birdlife International 2001 |
| 83 | Kugti | Himachal Pradesh | India | 2776 | 32.464 | 76.704 |  | Birdlife International 2001 |
| 84 | Tali | Himachal Pradesh | India | 2219 | 31.046 | 77.516 |  | Birdlife International 2001 |
| 85 | Kalatop | Himachal Pradesh | India | 2348 | 32.552 | 76.018 |  | Birdlife International 2001 |
| 86 | Hamta | Himachal Pradesh | India | 4337 | 32.270 | 77.347 |  | Birdlife International 2001 |
| 87 | Macleod Ganj | Himachal Pradesh | India | 1699 | 32.243 | 76.321 |  | Birdlife International 2001 |
| 88 | Manalsu | Himachal Pradesh | India | 1965 | 32.254 | 77.184 |  | Birdlife International 2001 |
| 89 | Dharamsala | Himachal Pradesh | India | 1321 | 32.219 | 76.323 |  | Birdlife International 2001 |
| 90 | Palampur | Himachal Pradesh | India | 1271 | 32.107 | 76.541 |  | Birdlife International 2001 |
| 91 | Kandbari | Himachal Pradesh | India | 1488 | 32.116 | 76.581 |  | Birdlife International 2001 |
| 92 | Jagatsukh | Himachal Pradesh | India | 2014 | 32.202 | 77.205 |  | Birdlife International 2001 |
| 93 | solang nala | Himachal Pradesh | India | 2573 | 32.308 | 77.151 |  | Birdlife International 2001 |
| 94 | Kais | Himachal Pradesh | India | 2174 | 32.000 | 77.154 |  | Birdlife International 2001 |
| 95 | Pulga | Himachal Pradesh | India | 2350 | 31.992 | 77.438 |  | Birdlife International 2001 |
| 96 | Kanawar | Himachal Pradesh | India | 1287 | 31.882 | 77.164 |  | Birdlife International 2001 |
| 97 | Nargu | Himachal Pradesh | India | 770 | 31.708 | 76.932 |  | Birdlife International 2001 |
| 98 | Khokan sanctuary | Himachal Pradesh | India | 1184 | 31.798 | 77.018 |  | Birdlife International 2001 |
| 99 | Kashapat | Himachal Pradesh | India | 2474 | 31.407 | 77.836 |  | Birdlife International 2001 |
| 100 | Rampur | Uttarakhand | India | 1175 | 31.451 | 77.639 |  | Birdlife International 2001 |
| 101 | Rupi Bhaba sanctuary | Himachal Pradesh | India | 2538 | 31.597 | 77.836 |  | Birdlife International 2001 |
| 102 | Lippa sanctuary | Himachal Pradesh | India | 3394 | 31.654 | 78.331 |  | Birdlife International 2001 |
| 103 | Pangi | Himachal Pradesh | India | 2655 | 31.589 | 78.278 |  | Birdlife International 2001 |
| 104 | Kinnaur | Himachal Pradesh | India | 3568 | 31.651 | 78.476 |  | Birdlife International 2001 |
| 105 | Tirthan | Himachal Pradesh | India | 3107 | 31.705 | 77.569 |  | Birdlife International 2001 |
| 106 | Barua | Himachal Pradesh | India | 2216 | 31.465 | 78.178 |  | Birdlife International 2001 |
| 107 | Sangla | Himachal Pradesh | India | 2590 | 31.424 | 78.265 |  | Birdlife International 2001 |
| 108 | Daranghati | Himachal Pradesh | India | 2480 | 31.516 | 77.807 |  | Birdlife International 2001 |
| 109 | Tharjot | Himachal Pradesh | India | 1841 | 31.578 | 77.105 |  | Birdlife International 2001 |
| 110 | Sungri | Himachal Pradesh | India | 2606 | 31.310 | 77.702 |  | Birdlife International 2001 |
| 111 | Jakhu | Himachal Pradesh | India | 2445 | 31.101 | 77.184 |  | Birdlife International 2001 |
| 112 | Talra | Himachal Pradesh | India | 549 | 32.241 | 75.903 |  | Birdlife International 2001 |
| 113 | Tons river | Himachal Pradesh | India | 694 | 30,708 | 77,755 |  | Birdlife International 2001 |
| 114 | Chur Mountain | Himachal Pradesh | India | 3594 | 30,871 | 77,480 |  | Birdlife International 2001 |
| 115 | Uttarakashi district | Uttar Pradesh | India | 3245 | 30,924 | 78,465 |  | Birdlife International 2001 |
| 116 | Raveri, Machiara | Azad Jammu and Kashmir | Pakistan | 2845 | 34,578 | 73,561 |  | Birdlife International 2001 |
| 117 | Mali, Machiara | Azad Jammu and Kashmir | Pakistan | 3131 | 34,534 | 73,641 |  | Birdlife International 2001 |
| 118 | Kuthiali, Machiara | Azad Jammu and Kashmir | Pakistan | 3039 | 34,535 | 73,617 |  | Birdlife International 2001 |
| 119 | Moryan, Machiara | Azad Jammu and Kashmir | Pakistan | 2568 | 34,531 | 73,608 |  | Birdlife International 2001 |
| 120 | Charyal, Machiara | Azad Jammu and Kashmir | Pakistan | 2800 | 34,528 | 73,648 |  | Birdlife International 2001 |
| 121 | Chita Kushkar, Serli Sacha | Azad Jammu and Kashmir | Pakistan | 3397 | 34,527 | 73,661 |  | Birdlife International 2001 |
| 122 | Sehr, Serli Sacha | Azad Jammu and Kashmir | Pakistan | 2787 | 34,530 | 73,644 |  | Birdlife International 2001 |
| 123 | Daper, Serli Sacha | Azad Jammu and Kashmir | Pakistan | 3175 | 34,522 | 73,656 |  | Birdlife International 2001 |
| 124 | Chain baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3150 | 354 | 73,222 | v | Own data, this study |
| 125 | Chain baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 2859 | 350 | 73,217 | v | Own data, this study |
| 126 | Eel baig, Kabkot palas | Khyber Pukhtunkhwa | Pakistan | 3085 | 35,010 | 73,218 | v | Own data, this study |
| 127 | Eel baig, Kabkot palas | Khyber Pukhtunkhwa | Pakistan | 2785 | 35,017 | 73,225 | v | Own data, this study |
| 128 | Chain baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3313 | 355 | 73,228 | v | Own data, this study |
| 129 | Chain baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 2890 | 350 | 73,218 | v | Own data, this study |
| 130 | Derh, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3215 | 34,983 | 73,216 | v | Own data, this study |
| 131 | Hubaig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3005 | 34,993 | 73,213 | v | Own data, this study |
| 132 | Konari, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3061 | 34,985 | 73,206 | v | Own data, this study |
| 133 | Chain baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3147 | 34,987 | 73,216 | v | Own data, this study |
| 134 | Eel baig, Kabkot Palas | Khyber Pukhtunkhwa | Pakistan | 3257 | 34,996 | 73,217 | v | Own data, this study |
| 135 | Guraj baig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 2849 | 355 | 73,255 | v | Own data, this study |
| 136 | Shamir baig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3125 | 35,013 | 73,266 | v | Own data, this study |
| 137 | Hubaig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3035 | 354 | 73,250 | v | Own data, this study |
| 138 | Shamir baig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3280 | 358 | 73,267 | v | Own data, this study |
| 139 | Shamir baig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3018 | 35,011 | 73,265 | v | Own data, this study |
| 140 | Guraj baig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3281 | 352 | 73,260 | v | Own data, this study |
| 141 | Hubaig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 3014 | 355 | 73,250 | v | Own data, this study |
| 142 | Dadar baig, Diwan palas | Khyber Pukhtunkhwa | Pakistan | 2881 | 359 | 73,252 | v | Own data, this study |
| 143 | Dadar baig, Diwan palas | Khyber Pukhtunkhwa | Pakistan | 2805 | 35,015 | 73,251 | v | Own data, this study |
| 144 | Hubaig, Diwan Palas | Khyber Pukhtunkhwa | Pakistan | 2864 | 355 | 73,252 | v | Own data, this study |
| 145 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3015 | 35,054 | 73,248 | v | Own data, this study |
| 146 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3062 | 35,052 | 73,249 | v | Own data, this study |
| 147 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3109 | 35,056 | 73,245 | v | Own data, this study |
| 148 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2687 | 35,061 | 73,149 | xi | Own data, this study |
| 149 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2555 | 35,060 | 73,152 | xi | Own data, this study |
| 150 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2854 | 35,060 | 73,147 | xi | Own data, this study |
| 151 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2236 | 35,050 | 73,167 | xi | Own data, this study |
| 152 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2822 | 35,056 | 73,168 | xi | Own data, this study |
| 153 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2486 | 35,048 | 73,174 | xi | Own data, this study |
| 154 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2163 | 35,047 | 73,169 | xi | Own data, this study |
| 155 | Karoser, Palas | Khyber Pukhtunkhwa | Pakistan | 2193 | 35,044 | 73,173 | xi | Own data, this study |
| 156 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3021 | 35,050 | 73,251 | xi | Own data, this study |
| 157 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 2901 | 35,052 | 73,249 | xi | Own data, this study |
| 158 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3244 | 35,054 | 73,252 | xi | Own data, this study |
| 159 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3157 | 35,055 | 73,250 | xi | Own data, this study |
| 160 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 3025 | 35,055 | 73,245 | xi | Own data, this study |
| 161 | Singara, Palas | Khyber Pukhtunkhwa | Pakistan | 2970 | 35,052 | 73,248 | xi | Own data, this study |
| 162 | Singara upper | Khyber Pukhtunkhwa | Pakistan | 3225 | 35,054 | 73,241 | iv | Own data, this study |
| 163 | Singara lower | Khyber Pukhtunkhwa | Pakistan | 2962 | 35,055 | 73,249 | iv | Own data, this study |
| 164 | Shamir baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3104 | 35,014 | 73,267 | iv | Own data, this study |
| 165 | Guraj baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3251 | 353 | 73,257 | iv | Own data, this study |
| 166 | Sheeshy baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3325 | 34,992 | 73,255 | iv | Own data, this study |
| 167 | Hu baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3039 | 356 | 73,243 | iv | Own data, this study |
| 168 | Kachal baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3274 | 351 | 73,242 | iv | Own data, this study |
| 169 | Barid baig, Diwan | Khyber Pukhtunkhwa | Pakistan | 3413 | 34,992 | 73,240 | iv | Own data, this study |
| 170 | Eel baig, Kabkot | Khyber Pukhtunkhwa | Pakistan | 2921 | 35,021 | 73,222 | iv | Own data, this study |
| 171 | Chain baig, Kabkot | Khyber Pukhtunkhwa | Pakistan | 3012 | 352 | 73,219 | iv | Own data, this study |
| 172 | Hu baig, Kabkot | Khyber Pukhtunkhwa | Pakistan | 3336 | 34,991 | 73,218 | iv | Own data, this study |
| 173 | Derh, Kabkot | Khyber Pukhtunkhwa | Pakistan | 3154 | 34,982 | 73,219 | iv | Own data, this study |
| 174 | Konari, Kabkot | Khyber Pukhtunkhwa | Pakistan | 3621 | 34,983 | 73,201 | iv | Own data, this study |
| 175 | Chupper baig, Kabkot | Khyber Pukhtunkhwa | Pakistan | 3208 | 34,994 | 73,200 | iv | Own data, this study |
| 176 | Chui baig, Kabkot | Khyber Pukhtunkhwa | Pakistan | 2835 | 35,010 | 73,197 | iv | Own data, this study |

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Table S4. Results of principal component analysis based on six disturbance indices for numbers of goats, sheep, dogs, mushroom collectors (mush. coll.), medicinal plant collectors (plant coll.); eigenvalues, proportion of variation explained (prop. var= absolute, prop. cum = cumulative) shown for six principal components (PC1-PC6) explaining 100% of the total variation, including factor loadings for the six predictor variables.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **PC1** | **PC2** | **PC3** | **PC4** | **PC5** | **PC6** |
| Eigenvalue | 3.0 | 1.2 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| prop. var. | 0.6254 | 0.2416 | 0.0624 | 0.0458 | 0.0150 | 0.0099 |
| prop. cum. | 0.6254 | 0.8670 | 0.9293 | 0.9751 | 0.9901 | 1.0000 |
|  | **factor loadings** | | | | | |
| goats | 0.559 | 0.256 |  | 0.529 | 0.557 | 0.169 |
| sheep | 0.525 | 0.200 | -0.139 | -0.518 | -0.283 | 0.563 |
| dogs | 0.532 | 0.146 |  | -0.122 | -0.246 | -0.787 |
| mush.coll | 0.137 | -0.541 | -0.709 | -0.18 | 0.383 |  |
| plant.coll | 0.199 | -0.404 | -0.16 | 0.603 | -0.618 | 0.162 |
| hunters | 0.265 | -0.646 | 0.67 | -0.205 | 0.143 |  |