Using double-observer surveys to monitor urial and ibex populations in the Hindu Kush of Wakhan National Park, Afghanistan

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SUPPLEMENTARY TABLE 1 Annual differences in the total minimum number of urials *Ovis vignei* and ibexes *Capra sibirica* counted by two teams during the 2015 and 2018 surveys in the Wakhan Valley, Afghanistan (listed geographically from west to east; see Fig. 2).

Region	Site	Size (km^2) of area surveyed in 2015/2018	Urial 2015	Urial 2018	Ibex 2015	Ibex 2018
Lower Wakhan	Fetur	14.4	0	14	6	5
	Kishnikhan-Shekhawr	29.4	44	14	74	78
	Suro Shekhawr	32.6	4	0	48	42
	Total	76.4	48	28	128	125
Middle Wakhan	Rig-e Jurm	21.4	0	5	91	155
	Ishmurgh	16.7	55	16	51	107
	Pakoy-Pak	24.8	0	0	214	101
	Abgarch	32.3	45	39	55	47
	Total	95.2	100	60	411	410
Upper Wakhan	Kuzgut-Kharich	33.8	0	0	22	8
	Archa-Nirs	28.3	0	3	11	9
	Dehqankhana	54.4	41	0	87	7
	Total	116.5	41	3	120	24
Grand total		288.1	189	91	659	559

SUPPLEMENTARY TABLE 2 Reported densities of the urial throughout its range. The urial subspecies that are far away from the study area or for which the habitat circumstances are different are not included in this table.

Subspecies	Country/Area	Mean herd size	Adult males per 100 females	Density (no./100 km^2)	% of yearlings of the non-lamb population	Reference
Ovis vignei cycloceros	Central Asia			5–319		Baskin & Danell 2003
O. v. bocharensis	Central Asia			48–207		Baskin & Danell 2003
O. v. vignei	Ladakh, India			403		Raghavan et al. 2003
	Bunji, Gilgit-B, Pakistan			251		Sirajuddin et al. 2016
	Gilgit-Baltistan, Pakistan	7	94	191		Sirajuddin et al. 2016
	Chitral, Pakistan	6–10	100	–	20	Schaller 1977
	Rizong WR, Ladakh, India			130		Fox et al. 1991
	Matho, Ladakh, India			130		Fox et al. 1991
	Gya-Meru WR, Ladakh, India			100		Fox et al. 1991
	USL, Ladakh, India	15		127		Khara et al. 2021
	HLTL, Ladakh, India	30		96		Khara et al. 2021
	Hemis NP, Ladakh, India			90		Fox et al. 1991
	Ladakh, India			71		Mallon 1983
	Ladakh, India			46		Raghavan & Bh. 2006
	Gilgit-Baltistan, Pakistan		84	27	18	Khan et al. 2014
	Wakhan, Afghanistan	8–10	70	72	23	This study
	Wakhan, Afghanistan	8–10	70	35	23	This study

SUPPLEMENTARY TABLE 3 Reported densities of the Siberian ibex throughout its range.

Country/area	Mean herd size	Adult males per 100 females	Density (no./100 km^2)	% of yearlings of the non-lamb population	Reference
Wakhan, Afghanistan	13–16	102	245	22	This study
Eastern Pamir			600		Heptner et al. 1966
Tersker Alatau, Kyrgyzstan			280		Heptner et al. 1966
Sarychat, Kyrgyzstan	25	36[1]	226	24	Khanyari et al. 2020
Koiluu, Kyrgyzstan	29	38[1]	75	23	Khanyari et al. 2020
Murghab, Tajikistan			4		Kachel et al. 2017
Madiyan, Tajikistan			2		Kachel et al. 2017
Central Asia			10–130		Baskin & Danell 2003
Xingjiang, China	8		269		Feng et al. 2007
Tian Shan, China	12		154		Wu et al. 2015
Xingjiang, China			70		Schaller et al. 1988
Taxkorgan, China			30		Khan et al. 2016
Taxkorgan, China			2–190		Schaller et al. 1987
Taxkorgan, China			2–25		Wang et al. 2012
Upper Suru Valley, Ladakh, India			400–600		Fox et al. 1992
Pin Valley NP, India			242		Bhatnagar 1997
Pin Valley NP, India			229		Pandey 1992
Pin Valley NP, India			160		Pandey 1991
Kanji WS, Ladakh, India			120		Fox et al. 1991
Kanji WS, Ladakh, India			88		Mallon 1991
Rangdum WS, Ladakh, India			60		Fox et al. 1991
Ladakh and Himachal P., India			50–60		Fox et al. 1992
Lungnag WS, Ladakh, India			50		Fox et al. 1991

[1]Includes kids.

SUPPLEMENTARY TABLE 3 (*cont.*)

Country/area	Mean herd size	Adult males per 100 females	Density (no./100 km^2)	% of yearlings of the non-lamb population	Reference
Shun Gorge, Ladakh, India			50		Namgail 2006
Pin, Spiti Valley, India			37		Suryawanshi et al. 2012
Boodkharbu WS, Ladakh, India			30		Fox et al. 1991
Lossar, Spiti Valley, India			14		Suryawanshi et al. 2012
Kibber, Spiti Valley, India			11		Suryawanshi et al. 2012
Himachal Pradesh, India			5		Fox et al. 1992
South Gobi, Mongolia	5	67–94	75	4–18	Tumursukh et al. 2016
Chitral, Pakistan	9	33–292	180	14–27	Schaller 1977
Koksil-Patikeshek, Pakistan			71		Khan et al. 2016
Chitral, Pakistan			70		Schaller 1977
Hunza, Pakistan			40		Schaller 1977
Dhee, Pakistan			38		Khan et al. 2016
Nagar Valley, Pakistan	19	75	32	28	Ali et al. 2015
Gilgit-Baltistan, Pakistan		110	10	14	Khan et al. 2014
Shimshal, Pakistan			24		Khan et al. 2016
Qarchanai, Pakistan			18		Khan et al. 2016
Barkhon, Pakistan			6		Khan et al. 2016
Khunjerab Pass, Pakistan			4		Khan et al. 2016
Northern Pakistan	16–19	80	14–624	22	Ahmad et al. 2020

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