Table 2. Average monthly fluctuations of the families of Collembola for the three sites at three soil layers (Numbers x $10^2 m^{-2}$)

Soil Layers (cm)	Family	Sampling months											
		M	J	J	A	S	O	N	D	J	F	M	A
0-10	Onychiuridae	5	2	3	4	9	21	56	44	31	15	9	3
	Hypogastruridae	45	51	44	23	11	5	3	-	-	7	12	21
	Entomobryidae	10	16	22	20	18	10	-	-	5	4	7	10
	Isotomidae	39	48	73	61	25	83	20	7	5	6	8	14
	Sminthuridae	3	4	8	5	6	11	4	-	-	2	1	2
	Brachystomellidae	2	2	3	3	-	2	1	1	-	-	1	1
10-20	Onychiuridae	3	1	1	2	2	6	14	13	11	8	6	5
	Hypogastruridae	18	20	13	10	5	3	2	-	-	2	5	9
	Isotomidae	5	6	3	19	16	35	7	2	2	3	4	5
	Sminthuridae	1	2	3	3	2	4	2	1	-	-	1	2
20-30	Onychiuridae	3	1	1	2	2	5	16	11	8	5	4	4
	Hypogastruridae	5	6	4	2	1	2	-	-	1	2	3	4
	Isotomidae	4	4	2	10	12	18	11	8	3	2	2	5

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AN ALBINO *ANABAS TESTUDINEUS* (BLOCH) IN A WETLAND OF ASSAM, INDIA

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web supplement

During a study of the wetlands of Hajo, Kamrup district, Assam for ichthyofaunal resources (component beels 33 in number) we collected a fish from the Sorusola beel on 16 August 2004 which was completely white in colour in live condition which turned creamy-white on preservation (Formaldehyde) (see Image 1[w]). On comparison it was found to resemble the Koi fish *Anabas testudineus* (Bloch). The normal colouration of this fish is black, sometimes with a greenish tinge.

This species was captured with the help of different types of gears like *Ghokajal* (a lift net, triangular in shape, tied in a bamboo frame), *Kawailangi jal* (a gill net), *Goroilangi* net (a gill net), *Dingora* (made of bamboo stripes, rectangular in shape) and *Chalani* (made of bamboo stripes, rounded in shape) in the beels of Hajo. *Anabas testudineus* (Bloch) also known as climbing perch is called as *Kawai* fish in Assamese. It inhabits all kinds of freshwater, including large streams but flourish mostly in canals, ditches, lakes, ponds and swamps. By means of its supplementary breathing apparatus, it can thrive in water deficient in oxygen. These fishes are indigenous to Africa. This is a valuable food fish and considered medicinal in treatment of the sick and convalescent.

DESCRIPTION

Comparative measurements of the albino fish (1) IASSTF68 and a normal fish (2) IASSTF67 are given as percentage of standard length in Table 1.

Fin formula was found to be within the range.
Normal range (Talwar & Jhingran, 1991): D XVI –XVIII 8-10; A VIII-XI 9-11; Pi 13-14; VI 5;
Albino fish: D XVII, 9; A X,10; P i, 14; V I 5; C 16
Normal fish: D XVII 8 ; A XI 9; P I 14 ;V I 5; C16.
Body elongate and moderately deep, its depth 3.2 times of standard length.
Normal range (3.0-3.5) (Jayaram, 1999).
Snout length 7.2 times of standard length. Normal range 5.7-7.7 (Jayaram, 1999).

Mouth relatively terminal and oblique. Head is moderate and compressed. Snout, slightly conical. Head and body covered with ctenoid scales. Eyes large, lateral, in anterior part of head. Lips thin. Jaws equal. Two lateral lines are present, one with 15 scales and other with 11 scales. In lateral series 28 scales are

[w] See Image in the web supplement at www.zoosprint.org

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Table 1. Morphometric Data of albino and normal* Anabas testudineus *(Bloch)

	Albino (Male) in cm	% SL	Normal (Male) in cm	% SL
Total length	8.76		8.73	
Standard length	7.36		7.3	
Body depth at dorsal origin	2.4	32.61	2.21	30.27
Body width at anal origin	0.57	7.74	0.49	6.71
Head depth	1.64	22.28	1.6	21.92
Head length	2.59	35.19	2.39	32.74
Head width	1.9	25.82	1.9	26.03
Eye diameter	0.52	7.07	0.52	7.12
Snout length	0.53	7.20	0.53	7.26
Predorsal length	2.83	38.45	2.82	38.63
Post dorsal length	0.65	8.83	0.63	8.63
Pre pelvic distance	2.98	40.49	2.91	39.86
Length of dorsal fin spine	0.85	11.55	0.85	11.64
Length of base of soft dorsal fin	0.58	7.88	0.49	6.71
Length of base of anal fin	2.9	39.40	2.72	37.26
Length of pectoral fin	1.4	19.02	1.4	19.18
Length of pelvic spine	0.75	10.19	0.75	10.27
Depth of Caudal peduncle	1.11	15.08	1.1	15.07
Length of Caudal Peduncle	0.47	6.39	0.43	5.89
Length of longest finray	1.45	19.70	1.45	19.86
Width of gap of mouth	0.74	10.05	0.74	10.14
Pre dorsal scales	5		5	
Lateral series scales	28		28	
Dorsal fin to lateral line scales	4		4	
Lateral line to Pelvic base scales	9		9	
Circum peduncular scales	14		14	

present. Caudal fin rounded.

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HUNTING PRESSURE AND IMPACT OF AGHAN REFUGEES ON MIGRATORY CRANES IN PAKISTAN

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Two provinces of Pakistan, i.e., the North West Frontier Province (NWFP) and Balochistan are well known for crane hunting (Robert, 1977; Robert & Land Fried, unpublished). The Banuchi, Wazir and Marwat Pathan tribesman hunt migratory cranes by special means of trapping devices called *seya* (in Pashtoo language). It is a long string, as long as 80m, having a ball, the size of a golf ball. This string is specially designed for hunting and is strong enough to hold down 10kg for hours. It needs special training and technique to through a *seya*. An inexperienced trapper could easily hit either himself or his partners instead of birds. An experienced person can trap the birds by using the *seya* without damaging and wounding them.

When the cries of the approaching migratory cranes are heard overhead, the hunter whistles to the caged, tamed cranes to elicit a loud response. As the curious cranes fly towards the trap, some time as low as 3m from the ground, the *seya* is thrown at them. Some times, as many as 20 seyas are thrown at a time when a big trapping group is involved. Skilled throwers can cast a *seya* up to 10m high. The *seya* strikes the crane, spins around its neck, body or wings about half dozen of times, pinning it helpless.

The trapping of wild cranes is possible only at night. Tame cranes in cages are used as decoys to lure them to fly lower. Rainy and dark nights are when most crane trapping is done, though some attempts are made on moony nights too. The hunters usually avoid nights with thunder and lightning as this frightens the cranes away.

Since the 1940s the hunting sites in these provinces in Pakistan are Kurrum Valleys, North and South Waziristan and Zhob District. The species hunted include the Common Crane *Grus grus lilfordii*, Demoiselle crane *Anthropoides virgo* and the Siberian crane *Grus leucogeranus* (Nawaz, 1984). Published reports and evidences speculate that Common and Demoiselle cranes migrate through or over Pakistan in large numbers. The Siberian cranes has not been seen or caught by crane hunters in Pakistan during the past 40 years. Extensive surveys and interviews with hunters in Bannu district indicate no evidence of the Siberian Crane's existence in captivity or visit in the past 40 years. The hunters are very familiar with the morphology of Siberian Cranes which were caught extensively before 1960 and eaten in the field. According to the hunters this bird is unfit as

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