and also expression of some homoeotic genes in the skeletal region, for example, in zebra fish *Brachydanio nerio* (Joly *et al*., 1993). For this reason further detailed research of this phenomenon will concentrate the mechanism of spinal deformation during early embryogenesis.

References

Andrades, J.A., J. Berrara and P. Fernandez-llebrez (1996). Skeletal deformities in larval, juvenile and adult stages of cultured gilthead sea bream (*Sparus aurata*). *Aquaculture* 141: 1–11.

Avyle, V.D.M.J., S.J. Carvick, V.S. Blazer, S.J. Hamilton and W.G. Brumbaugh (1989). Skeletal deformities in Small Mouth Bass, *Micropterus dolomieni* from southern Appalachian Reservoirs. *Archives of Environmntal Contanmination and Toxicolology* 18: 688-696.

Chattain, B. (1994). Abnormal swim bladder development and lordosis in Sea Bass (*Dicentrachus labrax*) and Sea Bream *Sparus auratus*. *Aquaculture* 119: 371-379.

Davies, P.H., J.P. Goettl, J.R. Sinley and N.F. Smith (1976). Acute and chronic toxicity of lead to rainbow trout *Salmo gairdneri*, in hard and soft water. *Water Research* 10: 199-206.

Gabriel, M.L. (1944). Factors affecting the number and form of vertebrae in *Fundulus heteroclitus*. *Journal of Experimental Zoology* 95: 105-147.

Joly, J., S. Joly, C. Schulte, S. Merker, S. Boule and H. Condamine (1993). The ventral and posterior expression of the Zebra Fish homeobox gene level is protruded in dorsalized and mutant embryos. *Development* 119: 1261-1275.

Koumoundouros, G., F. Gagliardi, P. Divanach, C. Boglione, S. Cataudella and M. Kentouri (1997). Normal and abnormal osteological development of caudal fin in *Sparus aurata* L. fry. *Aquaculture* 149: 215-226.

Mayer, F.L., P.M. Mehrle, R.A. Schoettger (1975). Collagen metabolism in fish exposed to organic chemicals, pp. 31-54. In: *Recent Advances in Fish Toxicology*: Ecological Research Series. Corvallis, Oregon.

Madsean, L. and I. Dalsgard (1999). Vertebral column deformities in farmed rainbow trout on *Oncorhynchus mykiss*. *Aquaculture* 171: 41-48.

Panday, K.D. and S.K. Awasthi (1994). p. 13. In: Dehadari, P.V., P. Das and S.R. Verma (Eds.). *Threatened Fishes of India* Nature Conservators, Muzaffarnagar, 480pp.

Poynton S.L. (1987). Vertebral column abnormalities in Brown Trout *Salmo trutta*. *Journal of Fish Diseases* 10: 53-57.

Orska J. (1962). Anomalies in the vertebral columns of the Pike *Esox lucicus*. *Acta Biological Cracovtenym Series for Zoology* 5: 327-345.

Sarkar, H.L. and B.G. Kapoor (1956). Deformities in some catfishes. *Journal of Zoological Society of India* 8(2): 157-164.

Sauer, G.R., N. Watanabe (1984). Zinc uptake and its effect on calcification in the scales of the Mummichog *Fundulus heteroclitus*. *Aquature Toxicology* 5: 51-66.

Sennar, I.W. (1980). An Evolutionary Ecological Perspective, p.161.. In: Soule, M.E. and B.A. Wilcox (Eds.). *Conservation Biology*. California University Press, California.

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OCCURRENCE OF THE SHORT-NOSED FRUIT BAT (*CYNOPTERUS SPHINX* VAHL, 1797) IN THE THAR DESERT OF RAJASTHAN

Sumit Dookia

Desert Regional Station, Zoological Survey of India, Jhalamand, Jodhpur, Rajasthan 342005, India
Email: sdookia_gazelle@rediffmail.com

The chiropteran fauna of the Rajasthan Thar Desert is mainly known through the works of Prakash (1963), Sinha (1979, 1980) and Gaur (1981), where they recorded a total of 24 species (both Megachiroptera and Microchiroptera). Although the Short-nosed Fruit Bat, *Cynopterus sphinx*, is one of the common chiropteran species in India, it is not commonly encountered in the Indian Thar Desert. In Rajasthan, Advani (1982) reported it from Banswara, Bundi and Jhalawar, whereas, Sinha (1980) reported this species from Banswara and Bundi in a guava orchard. Prater (1971) gives the distribution of this species from peninsular India and Southeast Asia. Prakash (1963) and Bates *et al*. (1994) did not report this species from Thar Desert of Rajasthan.

On 6 February 2003, in one of our intensive tour program to survey the faunal diversity of the Thar Desert, I visited Bhinmal, a Tehsil of Jalore District, which comes under the semi arid part of Thar Desert tract. There I observed 18 Short-nosed Fruit Bats actively feeding on *Zizyphus jujuba* trees, with an assemblage of *Pteropus giganteus*, inside the city at the Government Dak Bungalow Campus. These bats were seen feeding while flying. They picked up ripe berries and sucked the pulp during flight, dropped the seed and returned to the tree for another fruit. The bats repeated this until midnight.

The probable reason for the occurrence of this species in the semi-arid region of Thar Desert might be due to several newly established fruit orchards and the introduced date palm trees which provide a natural roost (CAZRI, Jodhpur unpub. data).

Reference

Advani, R. (1982). Distribution and status of chiroptera species in Rajasthan, India. *Saugertierkundliche Mitt*. 30(1): 49-52.

Bates, P.J.J., D.L. Harrison and M. Muni (1994). The bats of eastern India, revised - Part I. *Journal of the Bombay Natural History Society* 91(1): 1-15.

Gaur, B.S. (1981). Ecology of the bats of the Indian Desert. Ph.D. Thesis. University of Jodhpur, Jodhpur, 110pp.

Prakash, I. (1963). Taxonomic and biological observations on the bats of the Rajasthan Desert. *Records of Indian Museum* 59(1-2): 149-170.

Prater, S.H. (1971). *The Book of Indian Animals*. 3rd edition. Bombay Natural History Society, Bombay, 324pp.

Sinha, Y.P. (1979). Studies on taxonomy, distribution, zoogeography, osteology and field ecology of bats of Rajasthan, specially the Indian Desert. Ph.D. Dissertation. University of Jodhpur, Jodhpur, 204pp.

Sinha, Y.P. (1980). Further observations on the field ecology of Rajasthan bats. *Journal of the Bombay Natural History Society* 77(3): 465-470.

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