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Current status of fish diversity of Barganat Dam North Waziristan Agency, KPK, Pakistan

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Abstract
The objective of the research work was to find out the diversity of fish fauna of bargant dam locate din North Waziristan Agency, Federally Administered Tribal Areas, Pakistan. In the present study 10 species were identified *Barilius vagra, Cyprinus carpio, Puntius sarana, Cirrhinus mrigala, Ctenopharyngodon idella*, *Labeo rohita*, *Hypophthalmichthys molitrix*, *Oreochromis niloticus*, *Oreochromis aureus*, *Tor tor*, so from the present it may be concluded that barganat dam is favorable for fish survival and hatchery.

Keywords: Barganat dam, Fish fauna, diversity.

Introduction
Biodiversity is the quantity, variety and distribution across biological scales ranging through genetics and life forms of populations, species, communities and ecosystems [1]. Fishes show huge diversity in their morphology, in the habitats they occupy and in their life. Unlike the other frequently documented vertebrates, fishes are a diverse group [2]. The active features of these lotic ecosystems are the result of changes in water levels due to difference in rainfall in the catchment areas [3]. This dynamics brings about changes in fish community structure which are frequently bring about by ecological aspect within the fluvial environment, fish movements [4], food availability [5], and species connections [6]. Floods cause a sudden remarkable change in all environmental parameters and all these changes influence the organisms inhabiting the reservoir ecosystem from microorganisms to fish [7]. Large numbers of young fish die or are even lost during normal cyclic flooding in systems where the timing of high flows coincides with delicate life stages [8]. Approximately 20% of the world's freshwater fish is currently either endangered or extinct. United States, generally, viewed as a center of biological diversity in the freshwater environment, and is thought to be losing freshwater species at a rate comparable to the rates observed for species loss in tropical forests. Throughout the world, freshwater life is disproportionately more at risk, compared with land based or terrestrial life, and this can be generally attributed to the degradation and destruction of habitat [9]. It is often claimed that freshwater ecosystems are the most endangered ecosystems in the world [10] affecting both species diversity and abundance. Global estimates suggest that 75 to 95 percent of riverine habitats are degraded [11, 12]. These have resulted in less fishing opportunity and a direct impact on the people that depend on riverine fisheries for their livelihood [13]. Barganat Dam is a small dam, which is situated in North Waziristan Agency of Federally Administered Tribal Areas (FATA), Pakistan, as shown in Figure 1 respectively. The purpose of the dam is irrigation, flood control and fish cultivation [14]. The aim of the research work was to find out the diversity of fishes in Bargant dam.

Materials and Methods
Fish Sampling: Fish samples were collected randomly from the different regions of Barganat dam with the help of local fisherman using different types of nets namely hand nets, cast nets and hooks during the period from June 2015 to March 2016. Immediately photographs were taken prior to preservation with 10% formalin, since formalin decolorizes the fish color on long preservation.

Fish Preservation and Identification: After collection and photography, all samples were preserved and transferred into the laboratory of Zoology department, Kohat University of

Science and Technology (KUST), district Kohat. In the laboratory, each fish sample was identified up to species level and identification of the species was done mainly on the basis of the color pattern, specific spots or marks on the surface of the body, shape of the body, structure of various fins etc. by using different systemic and identification keys [15, 16, 17]

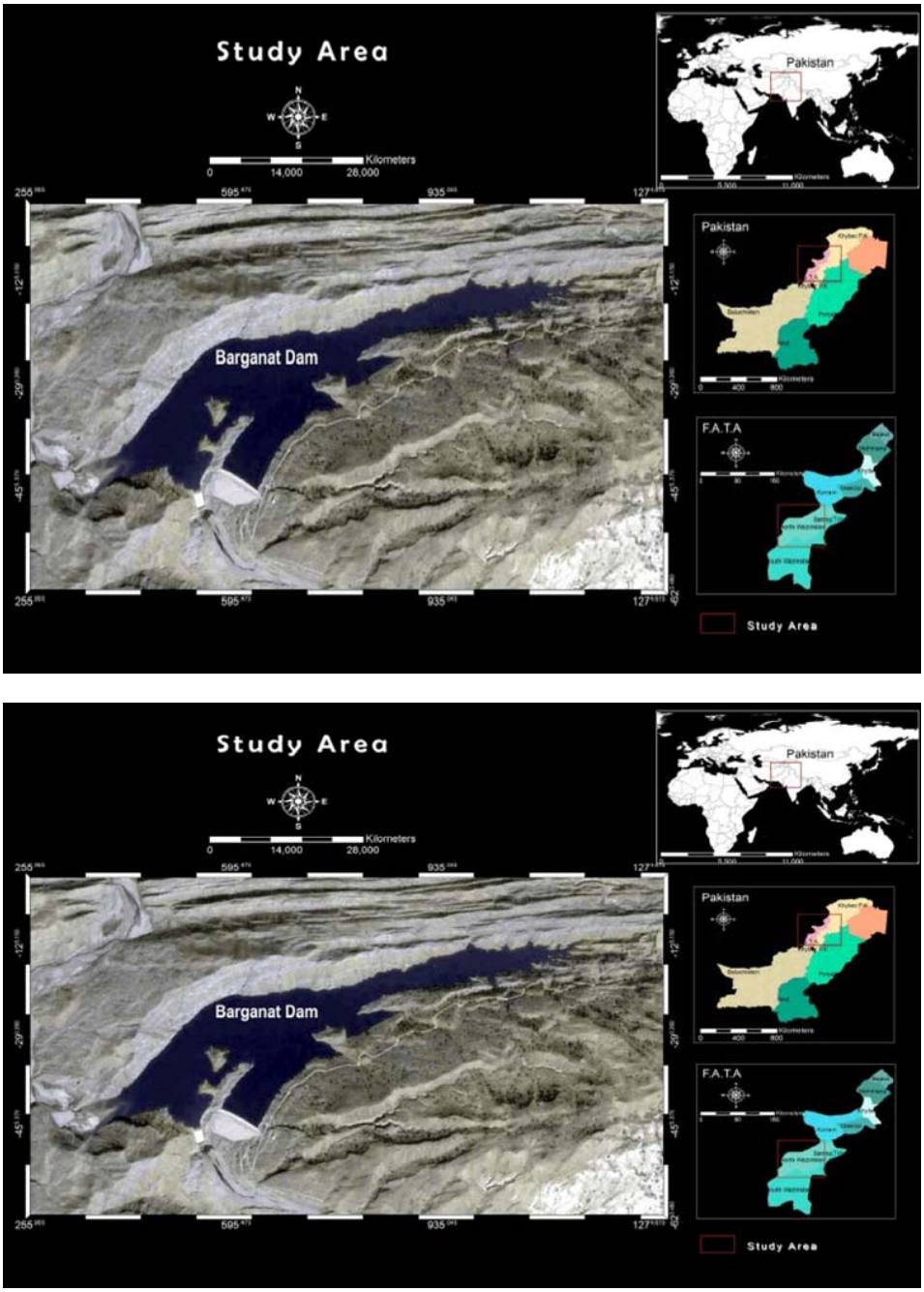

Fig 1: Map showing Barganat dam locatedin North Waziristan Agency, Federally Administered Tribal Areas, Pakistan

Results and Discussion

Table 1: Taxanomic classification of fishes of Barganat dam located in North Waziristan Agency, Federally Administered Tribal Areas, Pakistan.

S\No	Order	Family	Species	Common Name (English)
1	Cypriniformes	Cyprinidae	*Barilius vagra*	Lahori chilwa
2	Cypriniformes	Cyprinidae	*Cyprinus carpio*	Common carp
3	Cypriniformes	Cyprinidae	*Puntius sarana*	Olive barb
4	Cypriniformes	Cyprinidae	*Cirrhinus mrigala*	Mrigal carp
5	Cypriniformes	Cyprinidae	*Ctenopharyngodon idella*	Grass carp
6	Cypriniformes	Cyprinidae	*Labeo rohita*	Rohu
7	Cypriniformes	Cyprinidae	Hypophthalmichthys *molitrix*	Silver carp
8	Perciformes	Cichlidae	*Oreochromis niloticus*	Nile tilapia
9	Perciformes	Cichlidae	*Oreochromis aureus*	Blue tilapia
10	Cypriniformes	Cyprinidae	*Tor tor*	Mahseer

A Survey was conducted on barganat dam from June 2015 to march 2016 situated in North Waziristan Agency of Federally Administered Tribal Areas (FATA), Pakistan. During the survey 10 species were identified through different identification keys. During the survey 10 species were identified in these identified species 8 were belong from Cyprinidae species and 2 from Cichlidae species order Cypriniformes and Perciformes respectively which may be shown in table 1. In 2011 H.U. Rehman *et al* [18] was conducted study in Dandy dam North Waziristan. During the study about five species were identified which are *Cyprinuscarpio, Hypophthalmichthys molitrix, Ctenopharyngodon idella, Cirrhinus cirrhosus and Tor tor.* A. Ullah *et al* in 2014 [19] conducted studies on bannu baran dam and were identified about 15 species were belong 4 orders 6 families and 11 genera. [20] Study was carried out to find out the fish diversity of Dargai Pal Dam South Waziristan Agency, Pakistan during the period of June 2010 to July 2011. A total 5 species were found and identified in which all of 5 were belong to one family cyprinidae. These five species were *Cyprinuscarpio, Hypophthalmichthys molitrix, Ctenopharyngodon idella, Cirrhinus cirrhosus; Tor tor*. For the first time a fish diversity survey was conducted on barganat dam from the above study it may be cleared that barganat dam having divers' fish fauna and having rich fauna of cyprinidae species.

Conclusion

From the obtained study it may be concluded that Barganat dam rich for cyprinidae species. It is therefore recommended that special enhancement programmes are required to initiate sustainable use of fisheries resources. One common form of enhancement is the stocking of natural water resources with the fish seed produced in hatcheries.

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