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خلاصه مقاله:

We assessed the correlation of fish assemblages with habitat and environmental variables temporally from July and October, ۲۰۱۹ and January and April, ۲۰۲۰ across ۵ study sites in the Phewa Khola stream of Mangsebung Rural Municipality, Ilam, Nepal. We sampled ۳۵۷۱ fish representing ۱۳ species, belonging to ۳ orders, ۴ families, and ۹ genera. An analysis of similarity (ANOSIM) indicated that there is a significant difference between the fish assemblage structure in space (R= ۰.۸۳۳, P= ۰.۰۰۱) but not in time (R= -۰.۱۴۸, P= ۰.۹۸۵). Our habitat study showed that glides, runs, pools and deep pools are the primary habitats contributing to the maximum diversity in the Phewa Khola stream. The canonical correspondence analysis (CCA) affirmed that variables such as pH, water temperature, water velocity, total hardness and dissolved oxygen play an important role in shaping fish species distribution. Results from the similarity percentage analysis (SIMPER) hinted that, ۶۷.۰۸% similarity was found between the months and the major contributing species were Schistura multifasciata (۲۰.۶۱%), Devario aequipinnatus (۱۶.۴۸%), Schistura rupecula (۱۵.۶۵%), Garra annandalei (۱۵.۳۶%), Schistura horai (۷.۷۴%), Schistura scaturigina (۵.۹۱%), Schistura savona (۵.۷۴%), Schizothorax plagiostomus (۴.۳۷%), Channa punctata (۳.۹%), Puntius terio (۱.۹%) and Neolissochilus hexagonolepis (۱.۳۹%). On the contrary, a ۷۶.۲۳% similarity was found between the sites and the major contributing species were Schistura multifasciata (۲۱%), Devario aequipinnatus (۱۶.۸%), Garra annandalei (۱۵.۸۹%), Schistura rupecula (۱۵.۳۸%), Schistura horai (۷.۷%), Schistura scaturigina (۵.۶۶%), Schistura savona (۴.۹%), Schizothorax plagiostomus (۴.۴%), Channa punctata (۳.۹۷%), Puntius terio (۲%) and Neolissochilus hexagonolepis (۱.۴۳%). Ongoing road development, micro-hydropower generation, the use of poisonous herbicides, illegal electro-fishing, deforestation and water diversion are all found to be major threats to the present fish species of the Phewa Khola stream.