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Annual channel migration and environmental diversity in the upper reaches of the River Azusa, Central Japan

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Kamikochi Research Group annually made geomorphological maps since 1994 in the upper reaches of the River Azusa, central Japan. Several species of willows such as Salix arbutifolia occur in the patches and as isolated trees in the active riverbed. This study aims to discuss the relationships between geomorphic processes of the riverbed and environmental diversity for vegetation establishment in the active riverbed in the Kamikochi valley. The braided channels in the active riverbed are buried by sediments and new channels are excavated in a severe flood event which occurs once in several years. There are some stable spots in bars and/or islands in the active riverbed where only slight landform change occurs for five or more years. In those spots pioneer plants germinate and grow to young pioneer patches. When lateral erosion occurs, destruction and/or size reduction of the pioneer patches are caused. If a little seedling willow patch remains not to be destroyed for more years, it becomes a grown pioneer patch, finally old isolated trees. Therefore the patches in various age and size classes are found in the active riverbed. The fluvial geomorphic processes provide dynamic environmental diversity for the pioneer species in the active riverbed and cause the destructions and re-establishments of vegetation. As a result the vegetation diversity is created in the Kamikochi valley.

Keywords: channel migration, braided channel, gravel bed river, environmental diversity, River Azusa, Kamikochi