



## **The relationship between the Tamarix spp. growth and lake level change in the Bosten Lake,northwest China**

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Dendrochronology methods are used to analyze the characteristics of Tamarix spp. growth in Bosten Lake. Based on the long-term annual and monthly data of lake level, this paper models the relationship between ring width of Tamarix spp. and lake level change. The sensitivity index is applied to determine the rational change range of lake level for protecting the Tamarix spp. growth. The results show that :( 1) the annual change of lake level in Bosten Lake has tree evident stages from 1955 to 2012. The monthly change of lake level has two peak values and the seasonal change is not significant; (2) the average value of radical width of Tamarix spp. is 3.39mm. With the increment of Tamarix spp. annual growth , the average radical width has a decreasing trend, which is similar to the annual change trend of lake level in the same years ;( 3) the response of the radical width of Tamarix spp. to annual change of lake level is sensitive significantly. When the lake level is 1045.66m, the Sk value of radical width of Tamarix spp. appears minimum .when the lake level is up to1046.27m, the Sk value is maximum. Thus the sensitivity level of radical width of Tamarix spp. is 1045.66- 1046.27m which could be regarded as the rational lake level change range for protecting the Tamarix spp. growth.