

中华人民共和国青藏高原祁连山海北定位站高山植物群落破坏后的恢复

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RECOVERY OF LOW ALPINE PLANT COMMUNITIES AFTER DISTURBANCE, HAIBEI RESEARCH STATION, QILIAN SHAN, QINGHAI-XIZANG PLATEAU, PEOPLE'S REPUBLIC OF CHINA

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ABSTRACT

The taxa composition of undisturbed plant communities and those recovering from surface disturbance were compared in the low alpine belt near Haibei Research Station (3100 m a.s.l.) in the Qilian Shan, Qinghai-Xizang Plateau. The sampled disturbances were between 0 and about 30 years old, and included several types of human disturbance, and surface disturbances by marmots (*Marmota himalayana* Hodgson), pikas (*Ochotona curzoniae* Hodgson and *Ochotona cansa* Lyon), and zokers (*Myospalax fontanicrii* Milne-Edwards). The slowest community recovery occurred on disturbed dry uplands and ridges. There, mature communities are dominated by *Kobresia pygmaea* (C. B. Clarke) C. B. Clarke, and only small amounts of the dominant appeared 25 years after disturbance. The fastest recovery occurred in marshes where relatively high cover 25 years after disturbance. These communities such as *Scirpus distigmaicus* (Kuk.) Tang et Wang, *Blysmus sinocompressus* Tang et Wang, and *Carex enervis* C. A. Mey. developed in 15 years after the disturbance. The recovery of *Kobresia humilis* (C. A. Mey.) Steud. meadows on disturbed moist slopes and uplands is relatively rapid, as considerable cover of the dominant appeared after 20 years. Undisturbed dry slopes are covered by *Kobresia capillifolia* (Decne.) C. B. Clarke and some moist slopes by *Dasiphora fruticosa* (L.) Rydb. The recovery of both these communities is relatively slow. The disturbed *Dasiphora fruticosa* sites are covered by the understory herb taxa relatively early, but *Dasiphora* has a low cover even after a number of years. In all communities, most of the recovery of vegetation cover occurs during the first few years after the disturbance. There are several successional communities for some the mature communities, and one or no successional community for the others. The successional pathway is shortest and simplest in the marshes. The abandoned areally small animal and small human disturbances have similar recovery patterns, somewhat different from areally large human disturbances. These recovery patterns are comparable to those in the similarly continental Colorado Rocky Mountains high alpine belt. These recovery patterns are also comparable to those in the similarly continental Colorado Rocky Mountains high alpine belt. There are significant differences between the two areas, such as: 1. the low alpine belt in Qinghai is more humid, and 2. the low alpine *Dasiphora* shrub communities have no ecological equivalent in Colorado.