

## **Response of forest succession to agricultural land-abandonment in the Giant Mountains**

### **ABSTRACT:**

Since the end of the 19th century, there is undergoing process of land-abandonment of mountain meadows and pastures in most of the European mountains, including the Giant Mountains. Mountain agriculture in the Giant Mountains was terminated no later than before World War II. Abandoned meadows were then subjected to secondary forest succession. The question is, how fast was this succession and how was its dynamics. My research was focused on 4 areas of interest, located in the vicinity of former mountain huts. Methods applied included the analysis of historical maps and aerial photographs and dendrochronological research of age structure of Norway spruce (*Picea abies*) stands.

The aim of this thesis was to find out the extent of mountain agriculture near the huts and the dynamics of forest succession following land abandonment. Main peaks of seedlings establishment were observed in a very short time (10 – 20 years) following termination of mountain agriculture and in most cases these peaks were further followed by one or two more weaker peaks in the later periods. These peaks became evident in the change maps of forest development with approximately 20 years delay. Forest succession was moving gradually from the forest boundary to the huts. Process of natural afforestation is taking place in the treeline ecotone, however in the lower parts of the research areas, the large areas of artificial afforestation are present. The main influencing factor of forest succession at meadows near treeline ecotone in the Giant Mountains was the end of the mountain agriculture and land-abandonment.

**Keywords:** mountain agriculture, Giant Mountains, forest succession, timberline, tree line, Norway spruce (*Picea abies*)