Diseases of *Pinus sibirica* Provenances Induced by *Lophodermiun pinastri* in South Central Siberia

Irina D. GRODNITSKAYA * – Galina V. KUZNETSOVA – Nataliya V. PASHENOVA

V.N. Sukachev Institute of Forest, Siberian Br., Russian Academy of Science, Krasnoyarsk, Russia

Abstract – A reliable method of studying intraspecific variability of woody plants is by provenance trials.

The *Pinus sibirica* Du Tour provenance trials were organized in 1983 in foot heels of West Sayan Mountains (Yermakovsk district, Krasnoyarsk region) characterized by optimal Siberian pine growth conditions. *P. sibirica* plots were represented by climatypes moved from western Siberia (Kemerovo and Tomsk regions) and Krasnoyarsk region. Korean pine (*Pinus koraiensis* Siebold ETZUCC.) was represented by climatypes from the Russian Far East: Khabarovsk and Primorie regions.

These Siberian pine provenances were studied in 1990, 1995, 2000, and 2006 to reveal that they differed in rate of survival 20 years after they had been moved. The highest survival rate (89%) was exhibited by Siberian pine of Krasnoyarsk and Korean pine of Primorie provenances, followed by 87, 80, and 69% survival for Tomsk, Khabarovsk, and Kemerovo provenances, respectively. The provenances from Kemerovo region were found to be characterized by lower values of biometric parameters compared to other provenances. For this provenance, the needle foliage was observed to turn yellow and brown annually, which gradually lead to tree mortality.

Mycological analysis showed *Lophodermiun pinastri* (Schrad.:Fr.) Chevall to be the major factor accounting for Kemerovo mature Siberian pine needle drying out. This fungus was also recorded on 3-4 year-old *Pinus sibirica* seedlings in a forest nursery. *Aspergillus, Alternaria, Mucor, Trichoderma, Fusarium* saprophytic fungi were noticed to accompany *L. pinastri*.

The role of *L. pinastri* as a needle fall agent for Siberian pine individuals moved from Kemerovo region remains an open question.

Kemerovo provenance was recorded to become less resistant to Krasnoyarsk regional ecological factors with aging compared to other provenances.

* Corresponding author: microlab@forest.akadem.ru; Akademgorodok, Krasnoyarsk, 660036 Russia