Seminar/Talk

Genetic diversity and water use efficiency in 53 silver fir populations from marginal and core areas of the species range

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Species range edges are often characterized by small population sizes and high degree of isolation. Evolutionary theory predicts that such populations harbour less genetic diversity than populations from the centre of the distribution range, and that under such conditions adaptation is prevented. We tested these predictions using patterns of the genetic variation across 53 populations (with 20 individuals from each) of silver fir (Abies alba) across the western part of the species' natural range. We sampled stands from southern France and Italy, through Switzerland and Germany. Genetic diversity was characterized from 338 SNP loci, some from neutrally evolving regions, while others from candidate gene regions. Further, we measured an adaptive trait on each tree, its water use efficiency, that is expected to play a key role under global warming. We found no evidence that marginal populations generally harbour less diversity, instead we speculate that population history play a major role in shaping diversity patterns. Water use efficiency shows a distinct spatial pattern, with southern populations and northern populations from dry regions being the most drought tolerant. Overall, peripheral populations in southern France appear to have a high conservation value as they can potentially be pre-adapted to future drier climatic conditions.

Wednesday, September 27, 2017 02:30pm - 03:00pm
Meeting room 1st floor / Central Bldg. (I01.1OG - Zentralgebäude)

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