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Growing on a Scar: Population Genetics of a Colorado Wildflower

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Natural Science

Oral

Title: Growing on a Scar: Population Genetics of a Colorado Wildflower

Presenter: Spitzer, Ace

Faculty Sponsor: McGlaughlin, Mitchell

Abstract:

Speciation is a natural process in organisms caused by geographic isolation and adaptation to novel conditions. Human activities are a source for environmental changes in the air, soil, and waterways of an ecosystem. Organisms living around agricultural or industrial developments must adapt at a much faster rate than organisms subjected to natural selection pressures. Molecular biology technologies allow us to study genetic variation changes in populations subjected to human disturbances, with preliminary studies on plants showing greater genetic diversity in the genome, contrary to how organisms are expected to respond to anthropogenic pressures. Leaf tissue from the yarrow plant, *Achillea millifolium*, was collected within and around a reclaimed uranium mine outside of Meeker, CO. Leaf tissue DNA was extracted, and its microsatellites regions were analyzed for genetic variation. Plants growing on the mine are expected to have greater variation in their genome compared to those outside of the mine's influence, due to greater selection pressures from the mine's run-off. Plants subject to differential rates of mutation present initial indicators of divergence and show how human activities drive biological processes.