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Comparison Of Mountain Pine Beetle In Colorado And Surrounding States

The Purpose of this project is to isolate mtDNA from Colorado Mountain Pine Beetles (*Dendroctonus Ponderosae*), and then run a PCR to find their genetic sequences. It is hypothesized that the genetic sequence of the Colorado Mountain Pine Beetle will illustrate slight differences when compared to the beetles found in Arizona and Utah, and will demonstrate larger genetic differences when compared to beetles from more distant states. The DNA will be isolated, then an optimization will be ran to digest and sequence the mtDNA of the Colorado Mountain Pine Beetle to establish the temperature for running the PCR. A gel electrophoresis will be ran to determine which beetle mtDNA would sequence the most. Then the DNA will be sequenced and compared to other Mountain Pine beetles from surrounding states. The hypothesis was supported after comparing the genetic sequences of all of the Mountain Pine Beetles. There were only two beetles that were more similar to pine beetles in California. This can not yet be explained. It can be determined that Mountain Pine Beetles from Colorado exhibit similar evolutionary trends when compared with Pine Beetles from surrounding states. The information gained could help find a possible solution for the destruction this beetle has caused in several states.