

High Elevation Climate Change

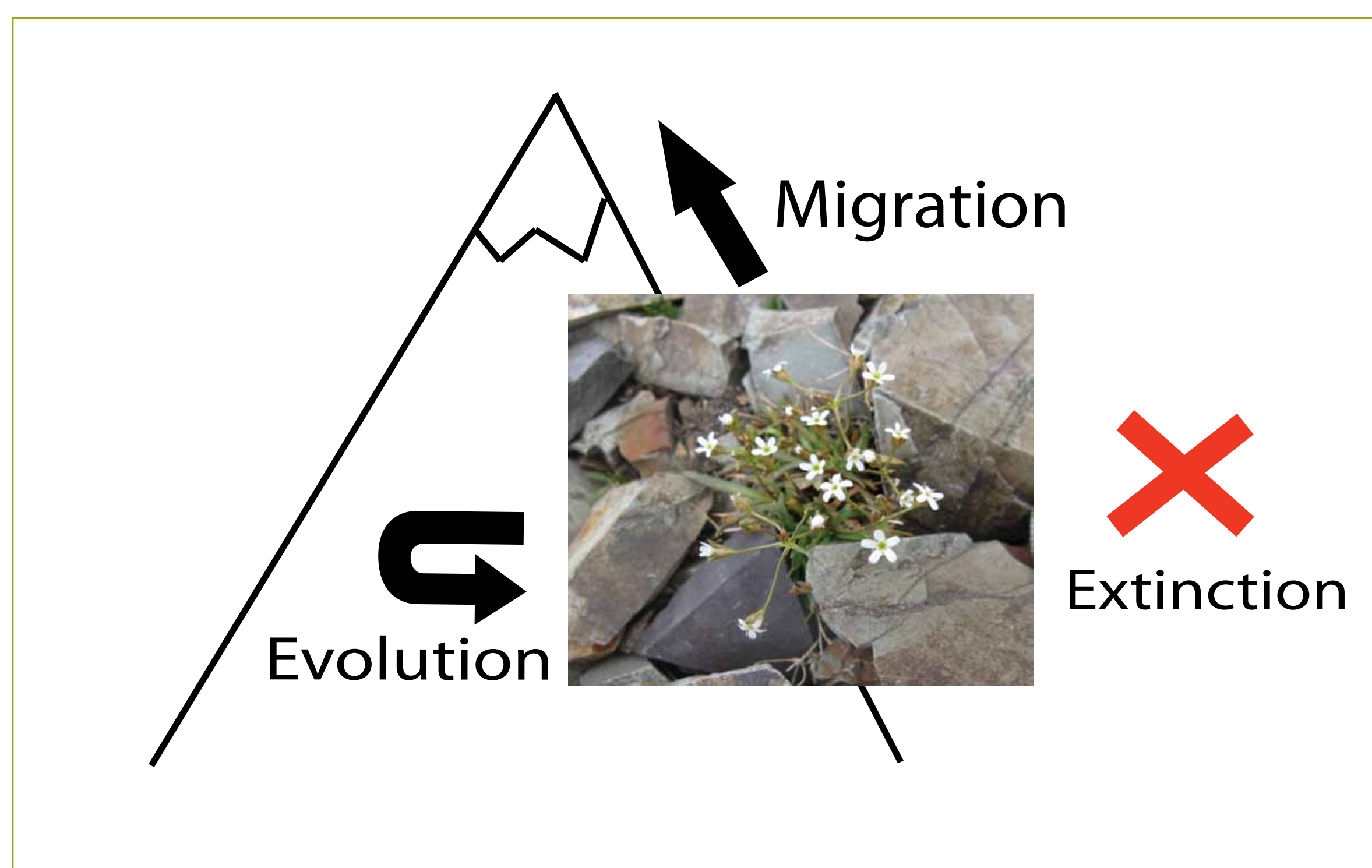
Evolution and migration may save wildflowers from extinction in warming mountain meadows.



▲ 1. In 1991 we began an experiment to test the effect of global warming on mountain meadows. We suspended infrared heaters above sections of a meadow near Rocky Mountain Biological Laboratory.



▲ 2. For the past nineteen years, these heaters have caused earlier snowmelt and warmer, drier soils. This experimental warming has caused a decline in the meadow's wildflowers.



▲ 3. Warming has negatively affected one wildflower in particular; Rock Jasmine faces extinction in the warmest, driest meadow sections. We know that plant and animal populations have three possible responses to warming that exceeds their current tolerance levels: they can evolve new tolerance ranges, they can migrate to cooler, moister habitats, or they can go extinct.



◀ 4. An ongoing field experiment in the warming meadow will help us understand if evolution and migration can prevent Rock Jasmine's extinction in response to climate change. This understanding is critical to the development of conservation and restoration strategies for mountain plant communities. In some cases, we may need to protect a species so that it has time to evolve. In other cases, we may need to actively assist in a species' migration.

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