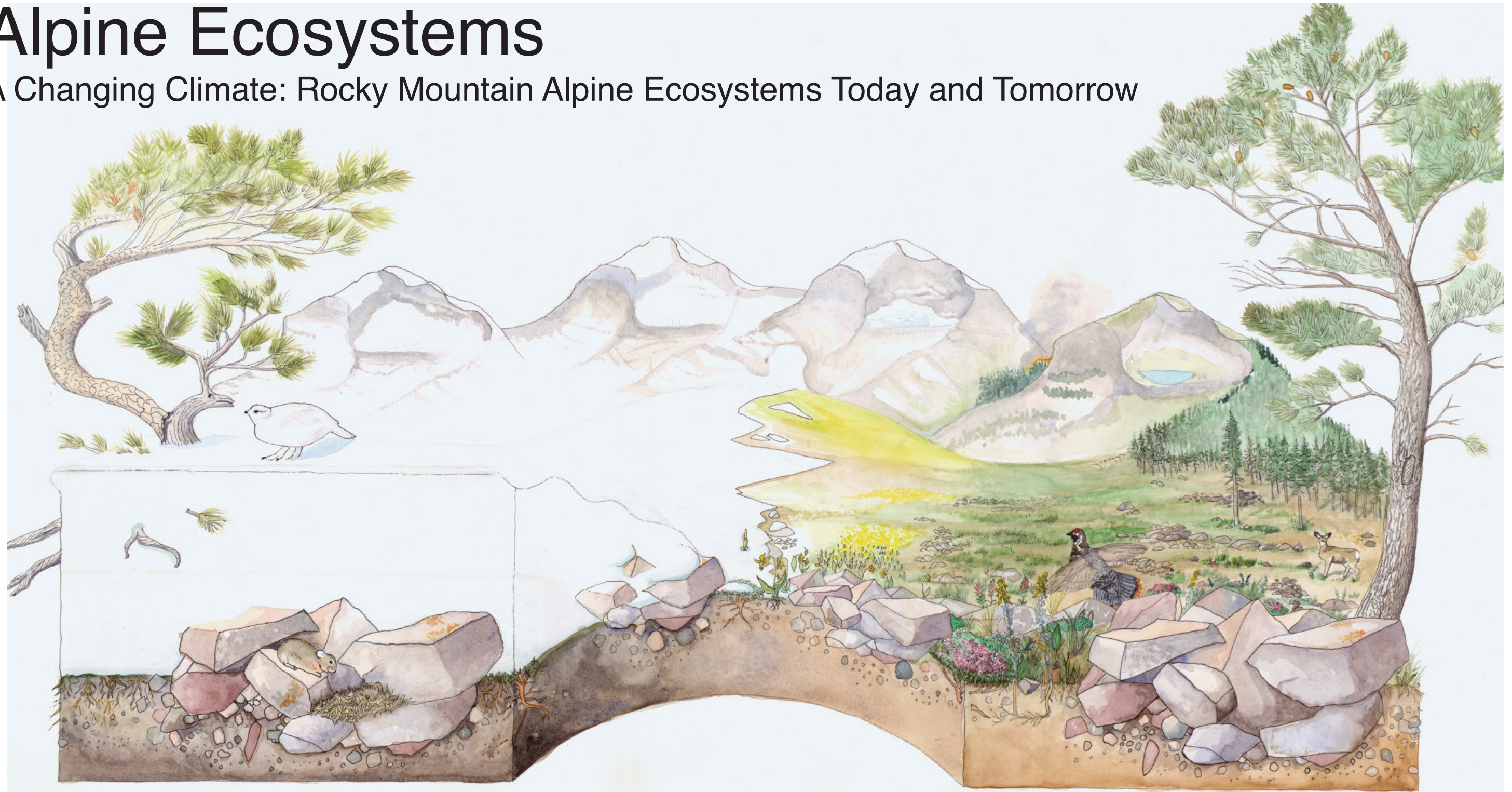


# Alpine Ecosystems

## A Changing Climate: Rocky Mountain Alpine Ecosystems Today and Tomorrow



### Intact Rocky Mountain Alpine Ecosystem

The alpine ecosystem of the Rocky Mountains is characterized by the krumholtz forms of whitebark pine and the short, hearty plants that only grow for a few months of the year. Most of the time, this system is blanketed with snow which flora and fauna is adapted to. The pika does not hibernate but instead makes haystacks underneath the snow. The white-tailed ptarmigan's snowy plumage helps the bird stay camouflaged during the winter. A system of rock and ice, glaciers have carved out this dramatic landscape.

### Increasing Temperature

The biggest changes in temperature due to climate change in this environment have occurred during the month of March. Snowmelt is happening much sooner and some of the first plants to peak through the snow, like glacier lilies, are blooming earlier. Warming temperatures has resulted in melting glaciers and creeping treelines as well.

### Ecosystem Collapse

Eventually the alpine ecosystem will be replaced by a lower elevation scheme. White bark pines, historically protected from native pine bark beetles are now infested due to the increased presence of lodge pole pine. Having no evolutionary mechanisms to counteract the beetles, much of the ancient forests of high altitude whitebark pine will be wiped out within this century. A changing forest regime will accompany warmer temperatures and dryer winters. Forest fire may be an increasing hazard during the next century.