



## Aspen Monitoring in the UCBN

### Network parks where resource is being monitored

- City of Rocks National Reserve
- Craters of the Moon National Monument

### Importance: At risk of region-wide decline

Quaking aspen is currently undergoing a region-wide decline. Aspen decline in the West has been observed over the past 50 years and is commonly attributed to a decrease in fire frequency, caused by the effective fire suppression that began as a result of Euro-American settlement. Changing fire regimes has allowed an expansion of conifer species into some aspen stands. Another phenomenon commonly referred to as aspen 'die-off' has been observed within the past decade that is possibly as a result of drought and early snow melt cause by the warming climate trends. Mature aspen stems begin to die and if aspen regeneration is limited this will eventually lead to the loss of the aspen roots and stand. Aspen ecosystems contribute considerably to the biodiversity of the parks and their unique beauty attracts visitors in the summer and fall.

### Long Term Monitoring – CRMO Aspen 2007 to 2010

Aspen stands in CRMO (21 stands) have been identified and mapped via remote sensing, aerial photo interpretation and field reconnaissance. The sampled population consist of all stands larger than 0.3 ha in size, except for aspen growing on private land, directly in riparian areas or shrubby snow-damaged aspen. Each aspen stand is assigned a number of plots depending on the stand size. In 2010, 102 permanently marked plots in 21 stands were sampled in CRMO. These plots and stands were also sampled in 2007 and this is the first year that we are able to evaluate trend within the aspen population in CRMO. At each plot we record the number of aspen and conifer stems in six predefined size classes, including dead standing stems. These data will provide estimates of aspen regeneration, stem density, dead aspen stems and conifer abundance. The aspen stem counts in stems/hectare in 2007 and 2010 were:

CRMO 2007: suckers – 4839, regeneration – 1545, mature – 818, and dead – 1009

CRMO 2010: suckers – 5412, regeneration – 1761, mature – 698, and dead – 923

In 2007 four stands in CRMO measured a regeneration < 500 stems/ha, while in 2010 only stand #26 measured a regeneration < 500 stems/ha.

### Monitoring Objectives

Estimate current status and long-term trend in

- regeneration of park aspen populations as well as individual stands
- conifer density within CIRO and CRMO aspen stands
- aspen abundance, as measured by stem density of live and dead trees

### Management Applications

- Provide information and decision support to park management
- Identify stands with insufficient regeneration or a negative trend in regeneration, live aspen abundance, or conifer density
- Record long-term trends for climate change assessments and affects in parks

### Contact Information

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Aspen crew members Steve and Will Bunting are enjoying the new yurt at CRMO. The yurt was under construction this summer but next year visitors in the CRMO Science Camp will be able to stay here during field sampling.



2007



2010

In stand #12 the aspen suckers increased by 331 stems/ha and regeneration increased by 1260 stems/ha while the mature stem count did not change and the number of dead stems decreased by 464 stems/ha.