Ashes to Asters

understory plants are alive and well after the 2002 Hayman Fire

Paula Fornwalt
USDA Forest Service
Rocky Mountain Research Station
Fort Collins, CO

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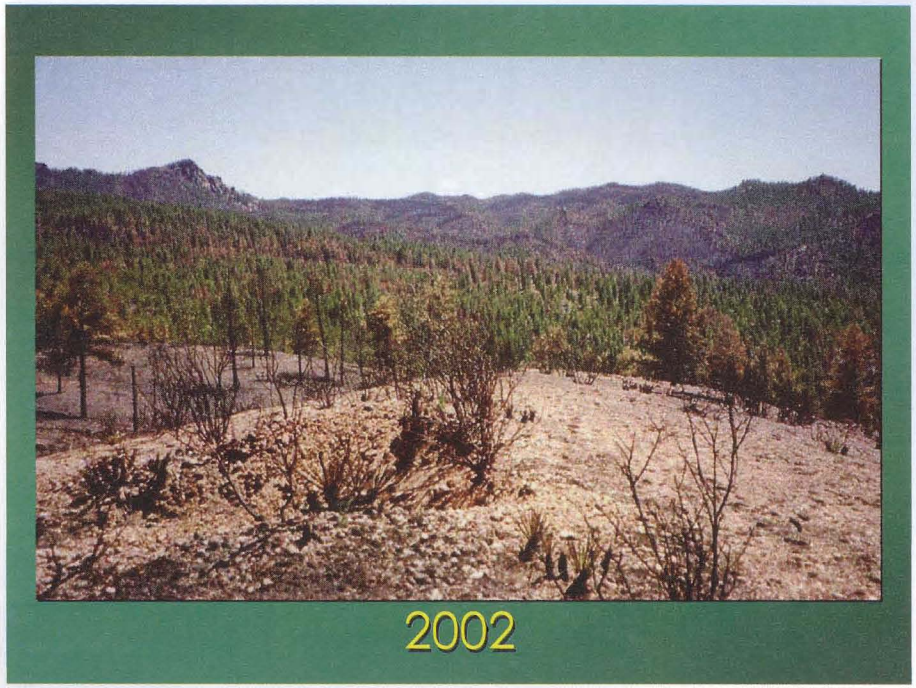
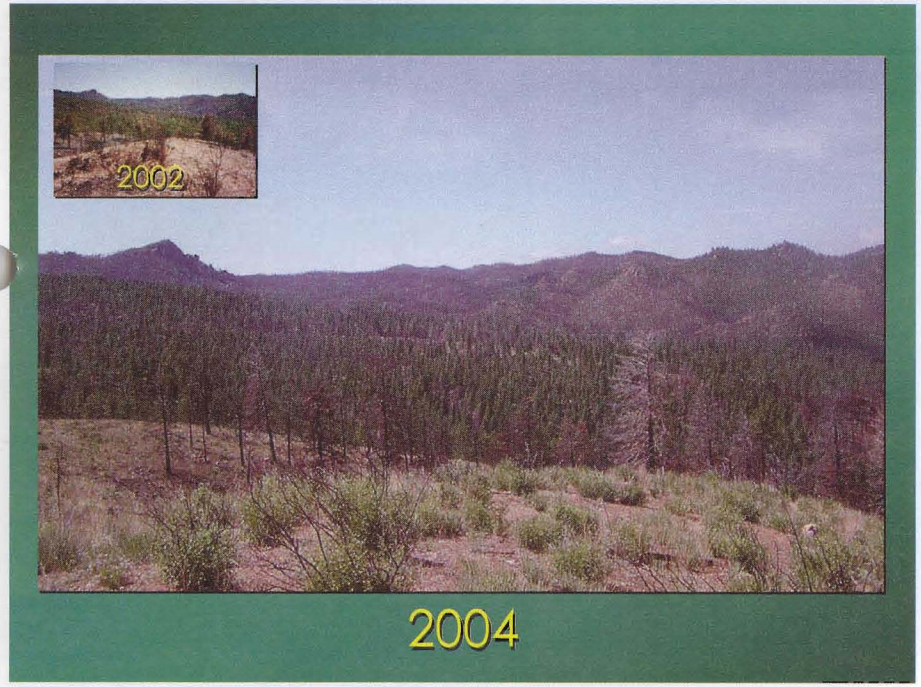
Manitou Experimental Forest Open House

"A bunch of black sticks sticking up out of the ground"

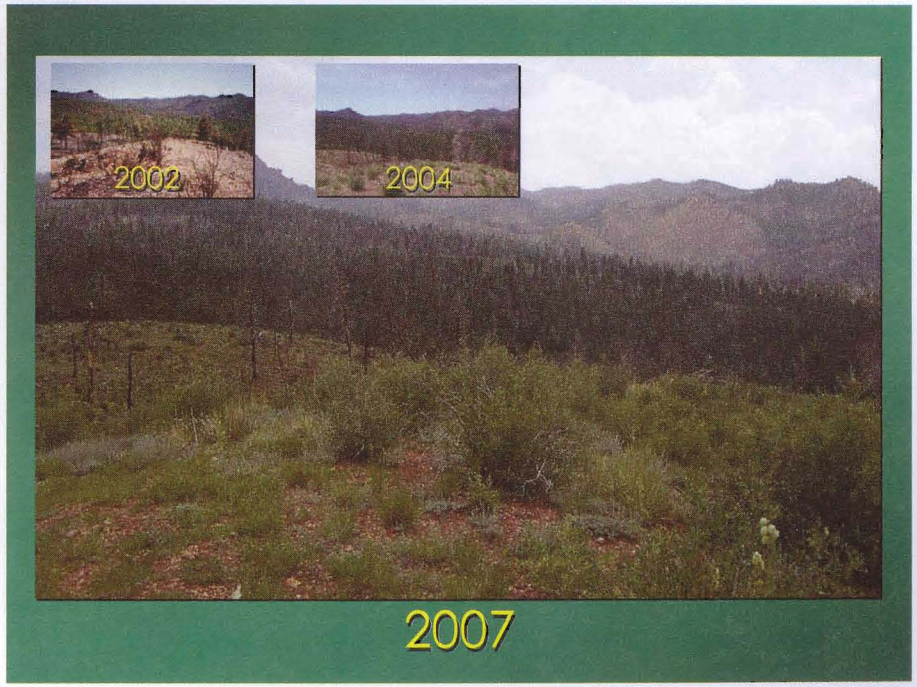
West Creek resident, 2007, to a Rocky Mountain News reporter



2002



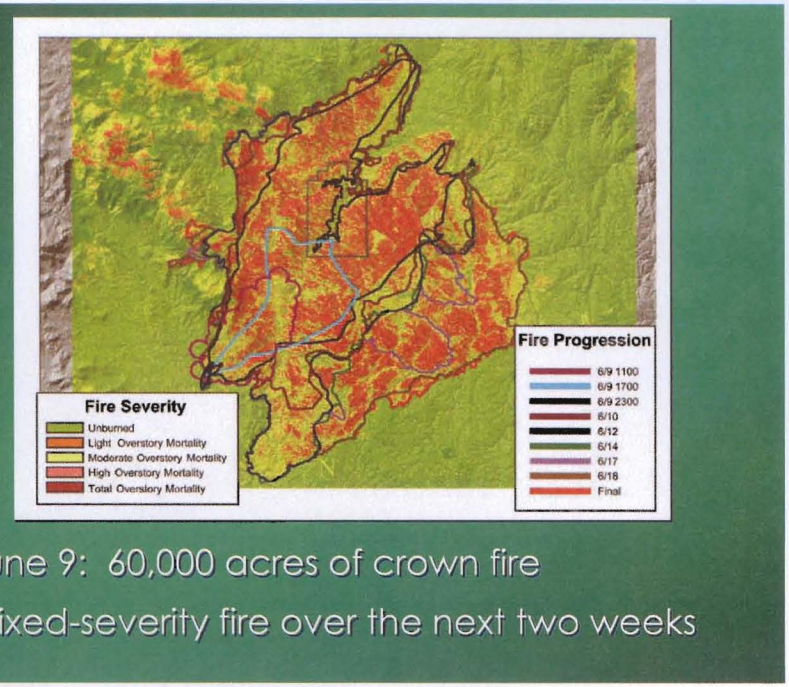
2004



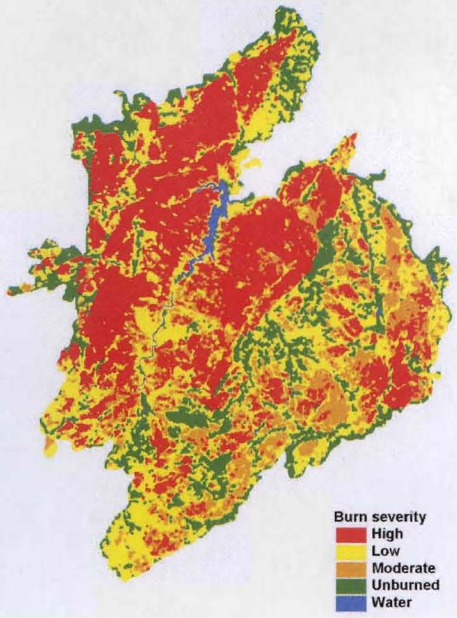
2007

Hayman Fire

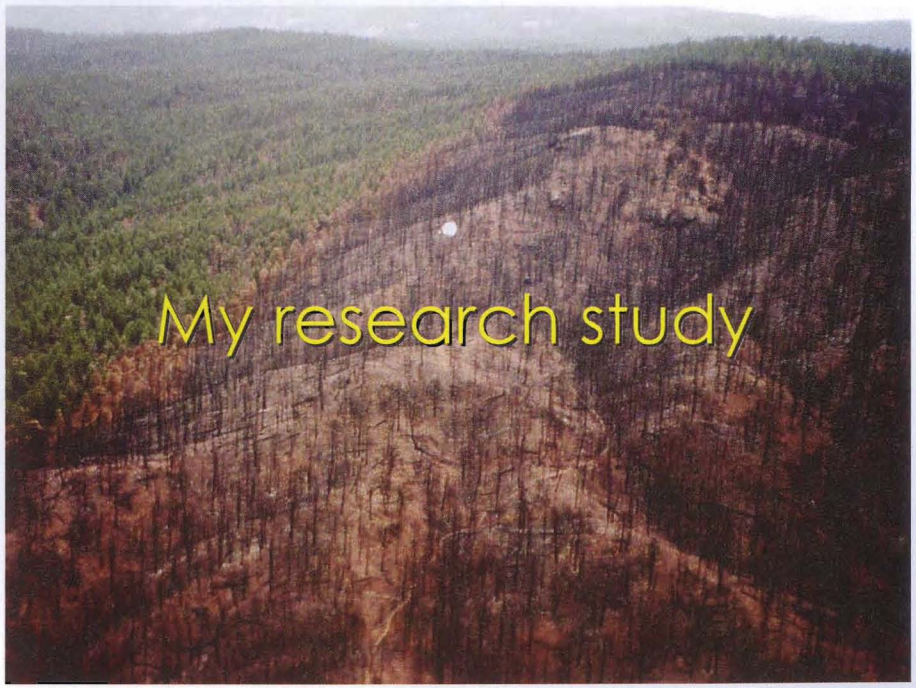
- June 2002
- SW of Denver, CO
- Ponderosa pine/ Douglas-fir
- Largest in Colorado's recorded history
- 138,000 ac



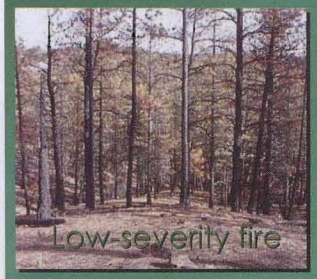
- June 9: 60,000 acres of crown fire
- Mixed-severity fire over the next two weeks



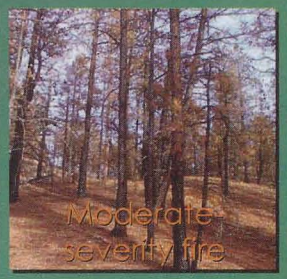
- High: 35%
- Moderate: 16%
- Low: 34%
- Unburned: 15%
- Water <1%



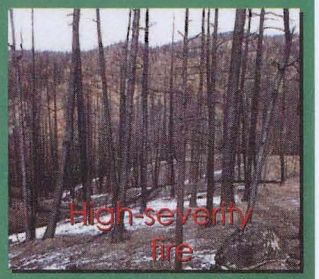
Burn severity



<50% mortality



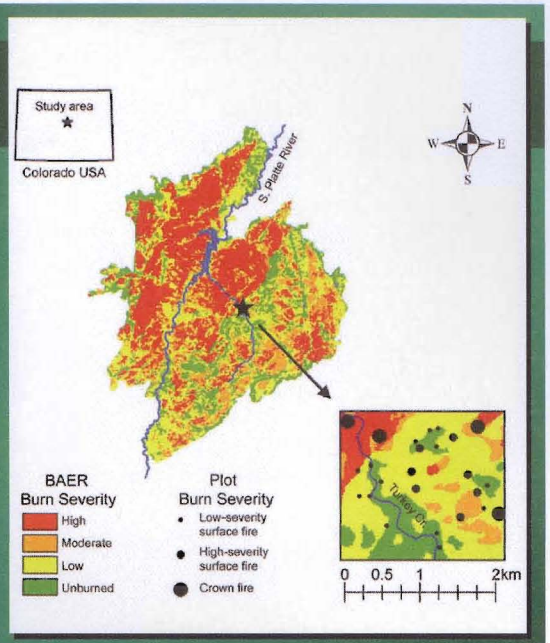
>50% mortality but no crown consumption



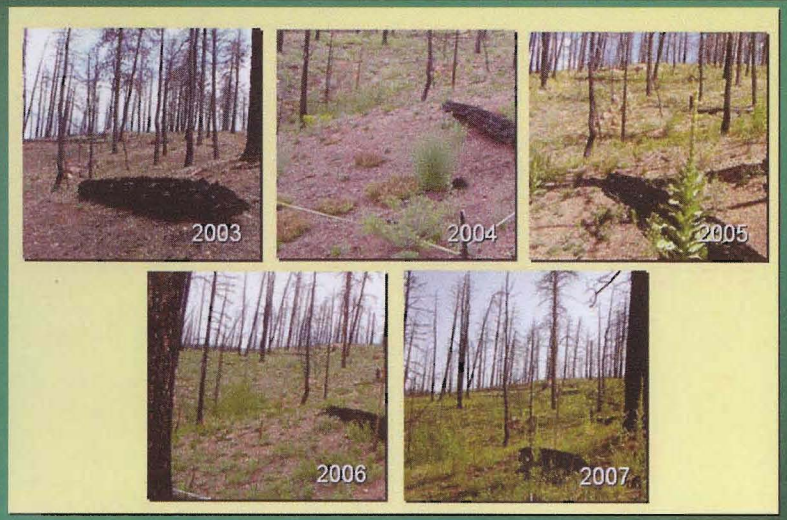
100% mortality and all crowns consumed

6 years and counting:

- 1 prefire year (1996)
- 5 postfire years (2003-7)



Time since fire



My research questions

Did burn severity and time since fire affect the diversity of native understory plants?

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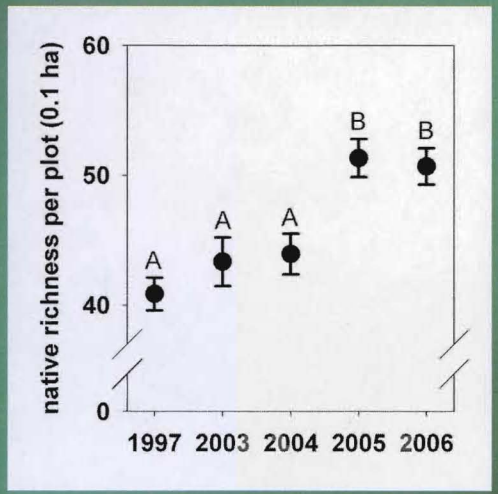
Burn severity - No
Time since fire - Yes

Time since fire affected native diversity, but burn severity did not



Did the prefire plant community influence the composition of the native postfire community?

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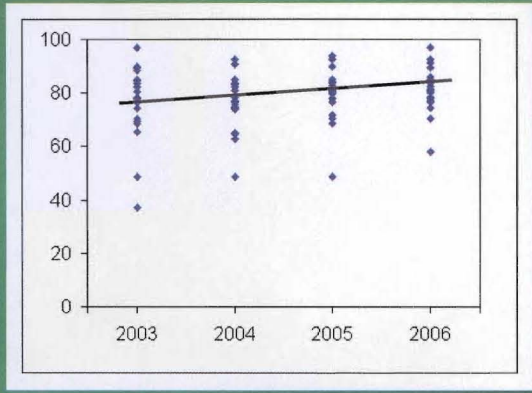
Yes

Most of the prefire native species were found in the postfire community

- 79% of a plot's prefire natives were present in the postfire community in any year



Many natives returned because of fire adaptations: for example, sprouting

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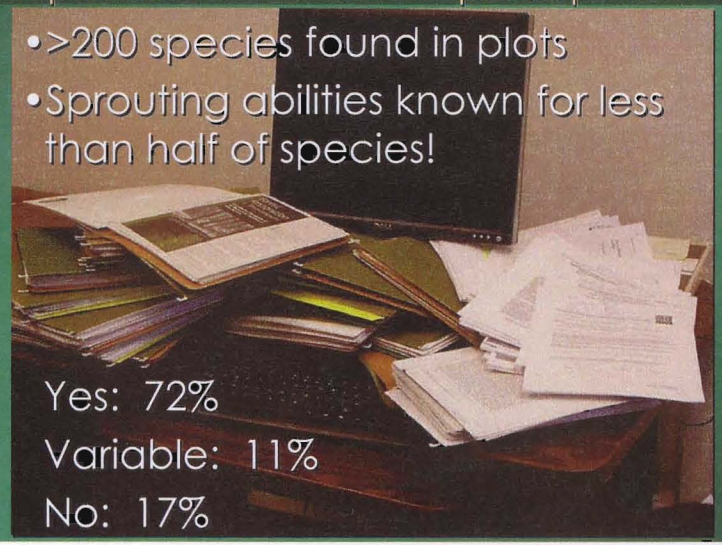
- >200 species found in plots
- Sprouting abilities known for less than half of species!



Yes: 72%

Variable: 11%

No: 17%

Did burn severity and time since fire affect the diversity of exotics?

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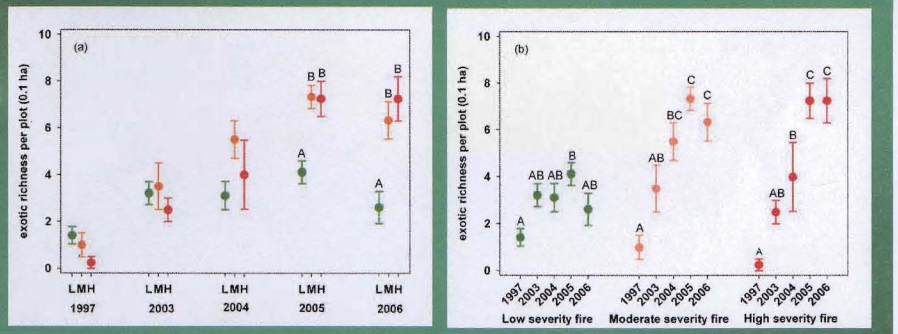
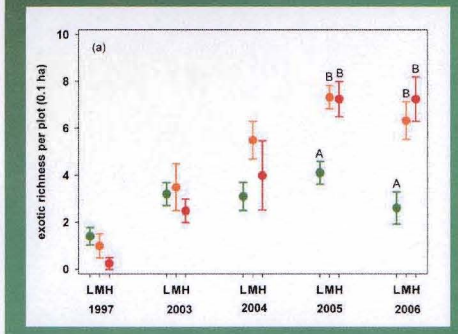
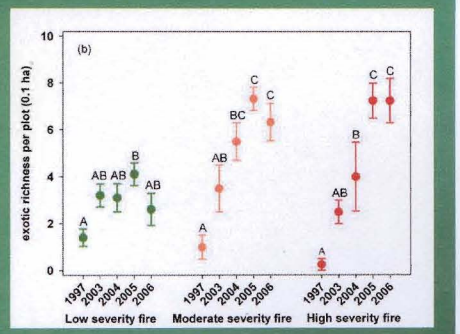
Yes… with a caveat

Burn severity and time since fire affected exotic diversity



Burn severity and time since fire affected exotic diversity





Caveat: the number of exotics was generally low…

- Statistically significant? Sure
- Ecologically significant? Maybe, maybe not

Did the prefire exotic community influence what was present in the postfire environment?

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Yes

Most of the prefire exotic species were found in the postfire community

- 68% of a plot's prefire exotics present in the postfire community in any year
- Unaffected by burn severity or time since fire

Most of the prefire exotic species were found in the postfire community

1997

Most of the prefire exotic species were found in the postfire community

1997

2003

Most of the prefire exotic species were found in the postfire community

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2006

Most of the prefire exotic species were found in the postfire community

1997

Are exotic species threatening the establishment and growth of natives?

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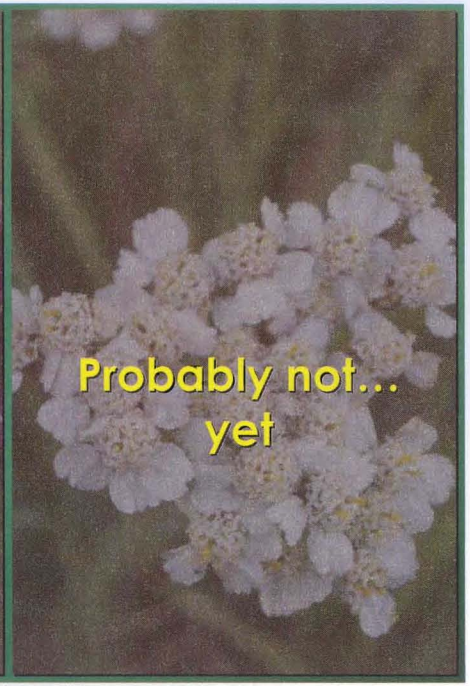
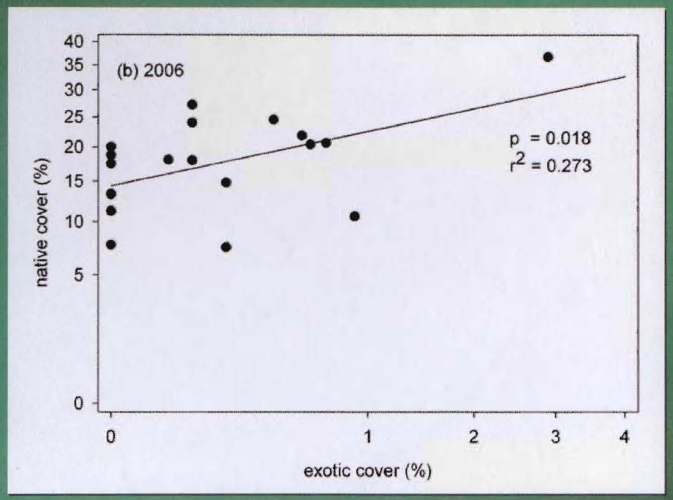


Exotic plants are not threatening native plants



Take-home messages

- Native species did not take a hit from the fire, probably because of post-fire regeneration abilities such as sprouting
- Exotics are on the increase, especially in severely burned areas
- But they probably are not threatening the native species… yet

Acknowledgements

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Questions?