

April 9, 2014

Dear Ben Pfohl,

The Colorado State Forest Service has received slippage for the 2010 SFA funding cycle. We have decided to fund the Boulder District. The account numbers designated to utilize these funds of **\$15,474.02** are 5367470 (\$3,474.02) and 5321280 (\$12,000). We ask that any project under these accounts be **completed by September 1, 2014** and that all payment requests be submitted to the State Office before this time.

Thank you for your interest in mitigating wildfire hazards in your community. Feel free to contact me if you have questions.

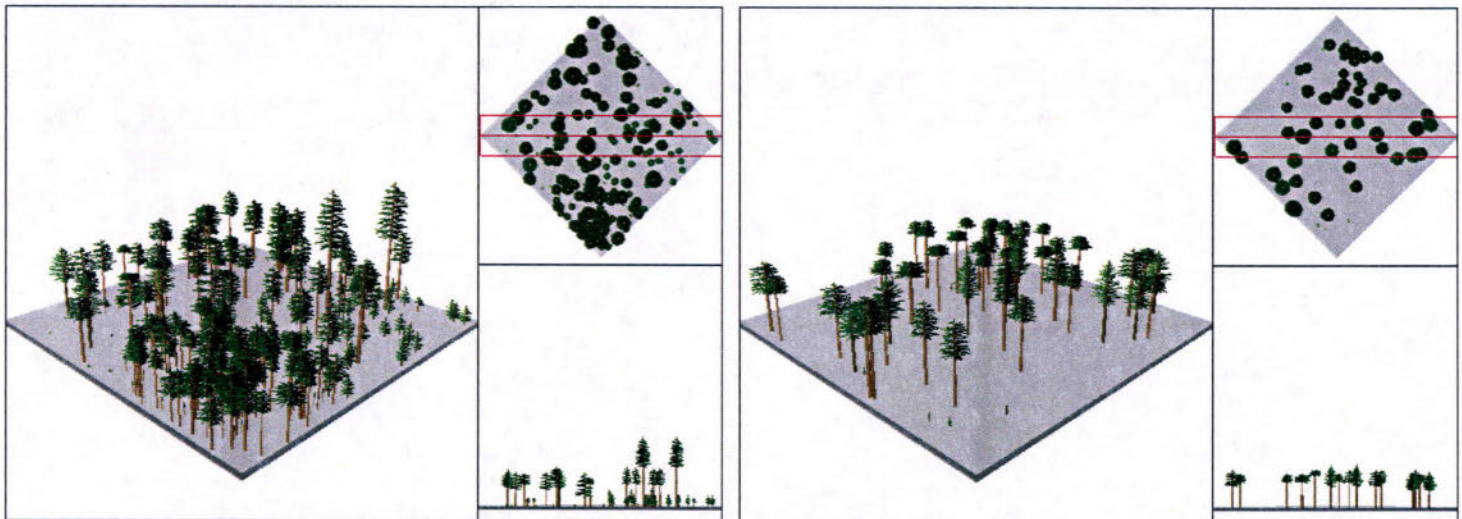
Sincerely,

Scott Woods  
Interim Forest Management Division Supervisor  
Colorado State Forest Service  
9769 W. 119th Drive  
Broomfield, CO 80021  
Office – 303.404.9057  
Cell – 303.909.2956  
Fax – 303.465.9048

### Flagstaff Road Thinning Project- 2014

The Flagstaff Rd thinning project covered a total of 65 acres between the 4 and 5 mile marks of Flagstaff Rd. All of the work was completed by OSMP seasonal crews between April 1 and August 27, 2014. The thinning in this area was focused on the removal of heavy Douglas-fir regeneration and removing a large portion of the mid-aged, medium diameter trees (8-12" dbh) that dominated the stand. This project improved Flagstaff Rd as a landscape level fuel break, it improved an important emergency egress route off the mountain, and it restored a large area of ponderosa pine forest habitat that gets a wide variety of wildlife use.

The project included cutting, chipping all of the slash on-site, and skidding and removing all the larger diameter wood. On average, the thinning decreased the stand basal area from 92 sq. ft/acre to 57 sq. ft/acre. This translates to a decrease in trees per acre from 226 to 61. The mean tree diameter increased from 9.9 inches to 14.3 inches and the canopy cover decreased by 13%. Overall, the stand has shifted to fewer trees in the young and mid-aged diameter classes and a more equal distribution across all size classes.



Visualizations of forest inventory data collected before (left) and after (right) thinning in the Flagstaff Rd area.



Before thinning



After thinning







COPY

### Colorado State Forest Service Program Payment Request

GRANT PROGRAM (CHECK APPROPRIATE PROGRAM TYPE):	
Forest Restoration Grant (SB71 and HB1199)	
Volunteer or Rural Fire Assistance (a.k.a.: VFA/RFA)	
Insect and Disease Prevention and Suppression Program	
State Fire Assistance (a.k.a.: SFA)	X
Front Range Fuels Treatment Partnership (a.k.a.: FRFTP)	
Stevens Fuels Treatment Funds	
Cooperative Fire Agreement (Active Fire Suppression Cooperators; CRS#R-24-103-206-01)	
Emergency Supplemental Funds (a.k.a.: ESF)	

☒ Checked for Federal suspension and debarment (State Office) <http://www.epls.gov/>

Name:

City of Boulder Open Space

Address:

and Mountain Parks

Attn: Chris Wanner

66 S. Cherryvale Rd.

Boulder, CO 80303

Doc. #3824523

Approved for Payment

C.S.F.S.

06-30-14

The above named has submitted a project application that has been reviewed and approved by the Colorado State Forest Service for funding from Federal Assistance.

Grant Number: 5367470; 5321280-BO Cooperator Match: \$34,974.00 19,499.98

Approved Funding: \$15,474.02 ~ Total Project: \$50,448.02 34,974.00

Split Funding - See Below

CSFS Account Number: 5367470; 5321280 Amount of Payment: \$15,474.02 ~ 4

'10CPG SFA CGI WUI Incentives + Education; '10CPG Coop Fire Protection SFA

Circle one: 1<sup>st</sup> Payment 2<sup>nd</sup> Payment 3<sup>rd</sup> Payment Final Payment ~

Approved by

(Program manager signature)

SCOTT WOODS

Date:

6/27/14

Colorado State Forest Service

Colorado State University Fort Collins ~ Colorado 80523-5060 ~ (970) 491-6303 ~ FAX: (970) 491-7736

5367470-6693  
(#3474.02)

5321280-6693  
(#12,000) ~

4

2010 SFA



COPY





EXHIBIT B  
CSFS GRANT AND COST-SHARE PROGRAM REIMBURSEMENT REQUEST

In order to receive reimbursement, you must provide documentation supporting your costs and corresponding match. Complete Form D and submit it with your request for reimbursement. Reimbursement requests must be accompanied by Form D, receipts for actual costs (out of pocket expenses) incurred by the recipient, and any additional supporting documentation. Other costs and matching funds incurred by the applicant and/or donated by other resources includes expenses for goods, services and labor necessary for project implementation. You may request partial reimbursement as you incur expenses and you must show corresponding match.

1. Project/Account #: 5367470/5321280	2. Total Award Amount: \$15,474.02
3. Project Name: Flagstaff Road	4. Reimbursed Amount to Date: \$0
5. Make Payment To: Name: City of Boulder Open Space and Mountain Parks Attn: Chris Wanner Address: 66 South Cherryvale Road Boulder, CO 80303	6. Period of Performance (Project Period): From: 4/26/2014 To: 6/10/2014

7. What has been accomplished? Please provide a description of accomplishments that meet the requirements listed in the project Scope of Work. Please be specific and report numbers such as acres treated, numbers of defensible spaces, tons of, cubic feet or yards of slash collected, number of presentations, number of plans written, etc., for which the award was granted. Attach additional sheets as necessary.

The City of Boulder has completed 31 acres of thinning to reduce basal areas by 30-40%. Trees have been processed and hauled off site for use by public who have applied for the necessary permit. The slash has been chipped on site. This unit is part of a larger, 70 acre unit.

8. Reimbursement request amount cannot exceed the total project award obligation as identified in the project award notification. The reimbursement request amount must comply with the appropriate cost-share requirement for the period being billed. The reimbursement amount cannot exceed the actual project costs to recipient.

A. Remaining Award Amount	B. Reimbursement Requested Amount (recipient cost)	C. Match (recipient cost)	D. Match (non-recipient cost)	E. Total Project Cost	F. Recipient Match Rate (%)
				B+C+D	(C+D)/E
\$15,474.02	\$15,474.02	19,500		34,974.00	56

\* Use results from Form D CSFS Financial Assistance Cost Documentation Worksheet to complete table above. Include Form D, and other approved documentation with Exhibit B to request reimbursement.

Reimbursement Request: I request reimbursement in the amount of \$ \$15,474.02 for the work completed and documented above or attached.

9. I certify that to the best of my knowledge this report is correct and complete, and that all outlays reported are for the purposes set forth in the project documents (i.e. award notification, scope of work, etc.). All expenses and all cost-share are true and accurate.

Grant Recipient Signature: Chris Wanner

Date: 6/13/14

10. Certification:

Work meets minimum standards and specifications as set forth by the CSFS in the Scope of Work.

District Forester Signature: [Signature]

Date: 6/16/14

11. Funding is available and request is approved for reimbursement.

Program Manager Signature: [Signature]

Date: 6/24/14

COPY





## CSFS Financial Assistance Cost-Share Program Cost Documentation Worksheet

Project/Account #:  
Award Amount (obligated from funding source):

**A. Remaining Award Amount:**

5367470/5321280

\$15,474.02

Reimbursement Request:

☒ First

☐ Second

☐ Third

☐ Fourth

☐ Fifth☐ Final

	Match			
B. Recipient Cost to be reimbursed (not to exceed the remaining award amount and excluding items not eligible for reimbursement)* <sup>a</sup>	C. Recipient Cost (reimbursable costs that exceed the award amount and items or costs not allowable for reimbursement)** <sup>a</sup>	D. Non-recipient Cost <sup>tb</sup>	E. Total Project Cost = B+C+D	F. Recipient Match Rate = (C+D)/E
\$15,474.02	\$19,499.98	\$0.00	\$34,974.00	56%

[illegible]

<b>TOTALS:</b>	<b>G. Cumulative Recipient Cost=</b>	<b>\$34,974.00</b>
	<b>H. Recipient Cost (Match)=</b>	<b>\$19,499.98</b>
	<b>I. Non-recipient Cost (Match)=</b>	<b>\$0.00</b>

Grant Recipient Signature:

District Forester Signature:

Date: 6/13/14

Date: 6/16/14



TO Scott Woods  
6/17/14

## Colorado State Forest Service Program Payment Request

GRANT PROGRAM (CHECK APPROPRIATE PROGRAM TYPE):	
Forest Restoration Grant (SB71 and HB1199)	<input type="checkbox"/>
Volunteer or Rural Fire Assistance (a.k.a.: VFA/RFA)	<input type="checkbox"/>
Insect and Disease Prevention and Suppression Program	<input type="checkbox"/>
State Fire Assistance (a.k.a.: SFA)	<input checked="" type="checkbox"/>
Front Range Fuels Treatment Partnership (a.k.a.: FRFTP)	<input type="checkbox"/>
Stevens Fuels Treatment Funds	<input type="checkbox"/>
Cooperative Fire Agreement (Active Fire Suppression Cooperators; CRS#R-24-103-206-01)	<input type="checkbox"/>
Emergency Supplemental Funds (a.k.a.: ESF)	<input type="checkbox"/>

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Name: City of Boulder Open Space

Address: and Mountain Parks

Attn: Chris Wanner

666 S. Cherryvale Rd.

Boulder, CO 80303

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CSFS Account Number: 5367470; 5321280 Amount of Payment: \$15,474.02

Circle one: 1<sup>st</sup> Payment 2<sup>nd</sup> Payment 3<sup>rd</sup> Payment Final Payment

Approved by \_\_\_\_\_ Date: \_\_\_\_\_  
(Program manager signature)

Colorado State Forest Service  
Colorado State University Fort Collins ~ Colorado 80523-5060 ~ (970) 491-6303 ~ FAX: (970) 491-7736

5367470      5321280  
(\$3,474.02)      (\$12,000)

2010  
SFA





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9. I certify that to the best of my knowledge this report is correct and complete, and that all outlays reported are for the purposes set forth in the project documents (i.e. award notification, scope of work, etc.). All expenses and all cost-share are true and accurate.

Grant Recipient Signature: \_\_\_\_\_

Date: \_\_\_\_\_

*Chris Wanner*

*6/13/14*

10. Certification:

Work meets minimum standards and specifications as set forth by the CSFS in the Scope of Work.

District Forester Signature: \_\_\_\_\_

Date: \_\_\_\_\_

*Ally*

*6/16/14*

11. Funding is available and request is approved for reimbursement.

Program Manager Signature: \_\_\_\_\_

Date: \_\_\_\_\_



Project/Account #:		5367470/5321280
Award Amount (obligated from funding source):		\$15,474.82
A. Remaining Award Amount:		\$15,474.02
Reimbursement Request:	<input checked="checked" type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third	

	Match			
B. Recipient Cost to be reimbursed (not to exceed the remaining award amount and excluding items not eligible for reimbursement)*a	C. Recipient Cost (reimbursable costs that exceed the award amount and items or costs not allowable for reimbursement)**a	D. Non-recipient Cost* <sup>b</sup>	E. Total Project Cost = B+C+D	F. Recipient Match Rate = (C+D)/E
\$15,474.02	\$19,499.98	\$0.00	\$34,974.00	56%

[illegible]

TOTALS:	G. Cumulative Recipient Cost=	\$34,974.00
	H. Recipient Cost (Match)=	\$19,499.98
	I. Non-recipient Cost (Match)=	\$0.00

Chen Wei

Date \_\_\_\_\_

6/13/14

Ally

Date \_\_\_\_\_

6/16/14



# Open Space Project, Employee Detailed Report

City of Boulder



Date Range 4/26/2014 - 6/10/2014

Employee(s)				
Max Barlerin	Daniel Coghill	William K Coghill	Christopher Dirolf	Hayden Gardner
Elliott LaBonte	Dan Murphy	Julie Quibodeaux	Michael Steinbeiss	

Project	Date	Hours	Cost
FEMP (Forest Ecosystem Management Plan) 07			

Barlerin, Max

04/28/14	10.00	\$150.00
04/29/14	10.00	\$150.00
04/30/14	10.00	\$150.00
05/01/14	10.00	\$150.00
05/05/14	10.00	\$150.00
05/06/14	10.00	\$150.00
05/07/14	10.00	\$150.00
05/08/14	10.00	\$150.00
05/12/14	10.00	\$150.00
05/13/14	10.00	\$150.00
05/14/14	10.00	\$150.00
05/15/14	10.00	\$150.00
05/19/14	10.00	\$150.00
05/20/14	10.00	\$150.00
05/21/14	10.00	\$150.00
05/22/14	10.00	\$150.00
05/26/14	10.00	\$150.00
05/27/14	10.00	\$150.00
05/28/14	10.00	\$150.00
05/29/14	10.00	\$150.00
06/02/14	10.00	\$150.00
06/03/14	10.00	\$150.00
06/04/14	10.00	\$150.00
06/05/14	10.00	\$150.00

Summary for Barlerin, Max 240.00 \$3,600.00

Coghill, Daniel

04/28/14	10.00	\$150.00
04/29/14	10.00	\$150.00
04/30/14	10.00	\$150.00
05/01/14	10.00	\$150.00
05/02/14	6.00	\$135.00
05/05/14	10.00	\$150.00
05/06/14	10.00	\$150.00
05/07/14	10.00	\$150.00
05/08/14	10.00	\$150.00
05/12/14	10.00	\$150.00
05/13/14	10.00	\$150.00
05/14/14	10.00	\$150.00
05/15/14	10.00	\$150.00
05/19/14	10.00	\$150.00
05/20/14	10.00	\$150.00
05/21/14	10.00	\$150.00
05/22/14	10.00	\$150.00

Project	Date	Hours	Cost
<b>FEMP (Forest Ecosystem Management Plan) 07</b>			
	05/26/14	10.00	\$150.00
	05/27/14	10.00	\$150.00
	05/28/14	10.00	\$150.00
	05/29/14	10.00	\$150.00
	06/02/14	10.00	\$150.00
	06/03/14	10.00	\$150.00
	06/04/14	10.00	\$150.00
	06/05/14	10.00	\$150.00
Summary for Coghill, Daniel		<b>246.00</b>	<b>\$3,735.00</b>
<b>Coghill, William K</b>			
	04/28/14	10.00	\$170.00
	04/29/14	10.00	\$170.00
	04/30/14	10.00	\$170.00
	05/01/14	10.00	\$170.00
	05/02/14	6.00	\$153.00
	05/05/14	10.00	\$170.00
	05/06/14	10.00	\$170.00
	05/07/14	10.00	\$170.00
	05/08/14	10.00	\$170.00
	05/12/14	10.00	\$170.00
	05/13/14	10.00	\$170.00
	05/14/14	10.00	\$170.00
	05/15/14	10.00	\$170.00
	05/19/14	10.00	\$170.00
	05/20/14	10.00	\$170.00
	05/21/14	10.00	\$170.00
	05/22/14	10.00	\$170.00
	05/26/14	10.00	\$170.00
	05/27/14	10.00	\$170.00
	05/28/14	10.00	\$170.00
	05/29/14	10.00	\$170.00
	06/02/14	10.00	\$170.00
	06/03/14	10.00	\$170.00
	06/04/14	10.00	\$170.00
	06/05/14	10.00	\$170.00
Summary for Coghill, William K		<b>246.00</b>	<b>\$4,233.00</b>
<b>Dirolf, Christopher</b>			
	04/28/14	10.00	\$180.00
	04/29/14	10.00	\$180.00
	04/30/14	10.00	\$180.00
	05/01/14	10.00	\$180.00
	05/05/14	10.00	\$180.00
	05/06/14	10.00	\$180.00
	05/07/14	10.00	\$180.00
	05/08/14	10.00	\$180.00
	05/12/14	10.00	\$180.00
	05/13/14	10.00	\$180.00
	05/14/14	10.00	\$180.00
	05/15/14	10.00	\$180.00
	05/19/14	10.00	\$180.00
	05/20/14	10.00	\$180.00
	05/21/14	10.00	\$180.00
	05/22/14	10.00	\$180.00
	05/26/14	10.00	\$180.00
	05/27/14	10.00	\$180.00
	05/28/14	10.00	\$180.00



Project	Date	Hours	Cost
<b>FEMP (Forest Ecosystem Management Plan) 07</b>			
	05/29/14	10.00	\$180.00
	06/02/14	10.00	\$180.00
	06/03/14	10.00	\$180.00
	06/04/14	10.00	\$180.00
	06/05/14	10.00	\$180.00
Summary for Dirolf, Christopher		<b>240.00</b>	<b>\$4,320.00</b>
<b>Gardner, Hayden</b>			
	04/28/14	10.00	\$150.00
	04/29/14	10.00	\$150.00
	04/30/14	10.00	\$150.00
	05/01/14	10.00	\$150.00
	05/02/14	6.00	\$135.00
	05/05/14	10.00	\$150.00
	05/06/14	10.00	\$150.00
	05/07/14	10.00	\$150.00
	05/08/14	10.00	\$150.00
	05/12/14	10.00	\$150.00
	05/13/14	10.00	\$150.00
	05/14/14	10.00	\$150.00
	05/15/14	10.00	\$150.00
	05/19/14	10.00	\$150.00
	05/20/14	10.00	\$150.00
	05/21/14	10.00	\$150.00
	05/22/14	10.00	\$150.00
	05/26/14	10.00	\$150.00
	05/27/14	10.00	\$150.00
	05/28/14	10.00	\$150.00
	05/29/14	10.00	\$150.00
	06/02/14	10.00	\$150.00
	06/03/14	10.00	\$150.00
	06/04/14	10.00	\$150.00
	06/05/14	10.00	\$150.00
Summary for Gardner, Hayden		<b>246.00</b>	<b>\$3,735.00</b>
<b>LaBonte, Elliott</b>			
	05/05/14	10.00	\$150.00
	05/06/14	10.00	\$150.00
	05/07/14	10.00	\$150.00
	05/08/14	10.00	\$150.00
	05/12/14	10.00	\$150.00
	05/13/14	10.00	\$150.00
	05/14/14	10.00	\$150.00
	05/15/14	10.00	\$150.00
	05/19/14	10.00	\$150.00
	05/20/14	10.00	\$150.00
	05/21/14	10.00	\$150.00
	05/22/14	10.00	\$150.00
	05/26/14	10.00	\$150.00
	05/27/14	10.00	\$150.00
	05/28/14	10.00	\$150.00
	05/29/14	10.00	\$150.00
	06/02/14	10.00	\$150.00
	06/03/14	10.00	\$150.00
	06/04/14	10.00	\$150.00
	06/05/14	10.00	\$150.00
Summary for LaBonte, Elliott		<b>200.00</b>	<b>\$3,000.00</b>

Project	Date	Hours	Cost
<b>FEMP (Forest Ecosystem Management Plan) 07</b>			
<b>Murphy, Dan</b>			
	04/28/14	10.00	\$180.00
	04/29/14	10.00	\$180.00
	04/30/14	10.00	\$180.00
	05/01/14	10.00	\$180.00
	05/05/14	10.00	\$180.00
	05/06/14	10.00	\$180.00
	05/07/14	10.00	\$180.00
	05/08/14	10.00	\$180.00
	05/12/14	10.00	\$180.00
	05/13/14	10.00	\$180.00
	05/14/14	10.00	\$180.00
	05/15/14	10.00	\$180.00
	05/19/14	10.00	\$180.00
	05/20/14	10.00	\$180.00
	05/21/14	10.00	\$180.00
	05/22/14	10.00	\$180.00
	05/27/14	10.00	\$180.00
	05/28/14	10.00	\$180.00
	05/29/14	10.00	\$180.00
	05/30/14	10.00	\$180.00
	06/02/14	10.00	\$180.00
	06/03/14	10.00	\$180.00
	06/04/14	10.00	\$180.00
	06/05/14	10.00	\$180.00
Summary for Murphy, Dan		<b>240.00</b>	<b>\$4,320.00</b>
<b>Quibodeaux, Julie</b>			
	04/28/14	10.00	\$150.00
	05/05/14	10.00	\$150.00
	05/06/14	10.00	\$150.00
	05/07/14	10.00	\$150.00
	05/08/14	10.00	\$150.00
	05/09/14	6.00	\$135.00
	05/12/14	10.00	\$150.00
	05/13/14	10.00	\$150.00
	05/14/14	10.00	\$150.00
	05/15/14	10.00	\$150.00
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	06/02/14	10.00	\$150.00
	06/03/14	10.00	\$150.00
	06/04/14	10.00	\$150.00
	06/05/14	10.00	\$150.00
Summary for Quibodeaux, Julie		<b>216.00</b>	<b>\$3,285.00</b>
<b>Steinbeiss, Michael</b>			
	04/28/14	10.00	\$210.00
	04/29/14	10.00	\$210.00
	04/30/14	10.00	\$210.00
	05/01/14	10.00	\$210.00



Project	Date	Hours	Cost
<b>FEMP (Forest Ecosystem Management Plan) 07</b>			
	05/02/14	6.00	\$189.00
	05/05/14	10.00	\$210.00
	05/06/14	8.00	\$168.00
	05/08/14	10.00	\$210.00
	05/12/14	10.00	\$210.00
	05/13/14	10.00	\$210.00
	05/14/14	10.00	\$210.00
	05/15/14	10.00	\$210.00
	05/19/14	10.00	\$210.00
	05/20/14	10.00	\$210.00
	05/21/14	10.00	\$210.00
	05/22/14	10.00	\$210.00
	05/27/14	10.00	\$210.00
	05/28/14	10.00	\$210.00
	05/29/14	10.00	\$210.00
	05/30/14	2.00	\$42.00
	06/02/14	10.00	\$210.00
	06/03/14	10.00	\$210.00
	06/04/14	7.00	\$147.00
	06/05/14	10.00	\$210.00
Summary for Steinbeiss, Michael		<b>223.00</b>	<b>\$4,746.00</b>
<i>Project Summary for FEMP (Forest Ecosystem Management Plan) 07</i>		<b>2,097.00</b>	<b>\$34,974.00</b>

<b><u>Grand Total</u></b>
<b>Hours: 2,097.00</b>
<b>Cost: \$34,974.00</b>

# State Fire Assistance Grant Application

FOR OFFICIAL USE ONLY	
State Submitting Project:	
State Priority Number:	
Dollar Amount Requested:	<b>\$15,474.00</b>
Matching Share:	<b>\$55,000.00</b>

\*For guidance on filling in each box in this application, refer to the *Criteria and Instructions*

1	Applicant Information	
	<b>Applicant:</b>	City of Boulder Open Space and Mountain Parks
	<b>Contact Person:</b>	Chris Wanner
	<b>Address:</b>	66 S. Cherryvale Rd.
	<b>City/Zip Code:</b>	Boulder, 80303
	<b>Phone (Work/Cell):</b>	720-564-2045
	<b>Email:</b>	wannerc@bouldercolorado.gov
	<b>Fax:</b>	720-564-2095
	<b>Federal Tax ID\DUNS #:</b>	

2	Community At Risk Information			
	<b>Name of Project:</b>	Flagstaff Road		
	<b>Community Name:</b>	City of Boulder, Upper Flagstaff, Pine Needle Notch/Bison Dr		
	<b>County(ies):</b>	Boulder		
	<b>Congressional District:</b>			
	<b>Latitude:</b>	39.990229	<b>Longitude:</b>	105.319081 (WGS84)

3	Grant Contributors (Matching Share)							
	(Applications will be disqualified if insufficient match is identified; federal dollars DO NOT qualify- see criteria & instructions for exception)							
	Specify each match contributor and the dollar amount of each contribution.							
	DO NOT show grant requested funds in this table. This is for matching share only.							
	<b>Contributors Name:</b>	City of Boulder						<b>TOTAL</b>
<b>Dollars (Hard Match):</b>	\$55,000.00						\$55,000.00	
<b>In-Kind (Soft Match):</b>							\$0.00	
	<b>TOTAL:</b>	\$55,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$55,000.00

4	Total Project Expense (break down matching share totals from block #3)				
	Budget Detail (Provide additional information in Block 7)	Grant Share (\$ Amount Requested)	Match (from block #3)		TOTAL
			Dollars	In-Kind	
	<b>Personnel / Labor:</b>	\$15,474.00	\$55,000.00		\$70,474.00
	<b>Fringe Benefits:</b>				\$0.00
	<b>Travel:</b>				\$0.00
	<b>Equipment:</b>				\$0.00
	<b>Supplies:</b>				\$0.00
	<b>Contractual:</b>				\$0.00
	<b>Construction:</b>				\$0.00
	<b>Other:</b>				\$0.00
	<b>Indirect Costs:</b>				\$0.00
	<b>TOTAL:</b>	\$15,474.00	\$55,000.00	\$0.00	\$70,474.00



Budget Narrative	
5	<p>All of the work planned for this project will be completed "in-house" by City of Boulder seasonal and permanent staff. The funds requested will pay for a portion of the seasonal crew that will be implementing the project. The OSMP seasonal crew has extensive experience with this type of work and has thinned over 1200 acres on City lands. This crew will be responsible for cutting, chipping, skidding and hauling all the trees cut as part of this project. The \$55,000 hard match are funds already allocated in the 2014 City of Boulder OSMP budget to fund the OSMP seasonal forest crew.</p>

Project Area Description	
6	<p>The Flagstaff Road project area is located between the 4 and 5 mile marks of Flagstaff Rd. The treatment is at an elevation of 7400 feet and is dominated by ponderosa pine forest with a dense understory of Douglas-fir regeneration. The average stand basal area is 90 sq.ft/acre with an average stand age of 108 years. Many of the grassy openings in this area have become overgrown with young trees, diminishing the habitat value for some wildlife species.</p> <p>The treatment area follows the road corridor but also extends north and south into a large contiguous forest patch. The project will focus on both improving the road corridor as a landscape scale fuel break and important evacuation route as well as improving overall forest health and function.</p>

Scope of Work	
7	<p>The work proposed for this project will include thinning, chipping of slash and the skidding and removal of logs. All three of these phases will be completed as part of this project and will cover roughly 70 acres. All of this work will be completed by OSMP staff and funded with 2014 OSMP funds and this grant. The work will also include project layout, tree marking, and regular progress checks which will be completed by the OSMP forest ecologist. Thinning efforts will focus on the removal of trees smaller than 12" in diameter with an overall target decrease in basal area of 30-40%. In addition to the thinning work, deliverables will include before and after treatment photos and a post-management overstory inventory to measure structure change.</p>



<b>Project Summary</b> (check all that apply and answer related questions)	
8	<b>Project Category 1: Hazard Fuels Reduction / Fire Adapted Ecosystem Restoration</b> Yes
	<b>Number of acres to be treated:</b> 70 <b>Estimated cost per acre:</b> \$1,000.00
	<b>Number of communities directly affected by this project:</b> 3
	<b>Project Category 2: Information &amp; Education</b> N/A
	<b>Number of citizens to be reached:</b>
	<b>Project Category 3: Planning</b> N/A
	<b>Number of residences affected:</b>

<b>Interagency Collaboration</b>	
9	All of the work for this project will be completed by OSMP staff with some collaboration with Rocky Mountain Fire. OSMP has worked closely with RMF on a number of forest projects in this area. OSMP and RMF staff have discussed this project area and adjusted treatment boundaries to benefit both programs. This project will also build on thinning work that RMF has planned this summer for the area above the 5 mile mark of Flagstaff road, improving the entire road corridor as an emergency egress route.
<b>Community Wildfire Protection Plan (CWPP)</b>	
<b>Does this community have a wildfire protection plan that follows the Healthy Forest Restoration Act CWPP guidelines?</b> Yes	
<b>Is this project part of the plan?</b> Yes	
<b>Where would we obtain a copy of this plan?</b> CSFS website	
<b>Is this project identified in your Statewide Forest Resource Assessment and Strategy?</b> Yes	

<b>Project Timeline</b>	
10	Project layout, planning, and marking will begin in late March and will likely take 3 to 4 weeks. Cutting will begin in mid to late April with project completion anticipated near the end of June 2014. All aspects of the project including cutting, chipping, skidding and hauling will be complete by the end of the year. An end-of-year report will outline the accomplishments of the project, final stand conditions and the project goals that were met

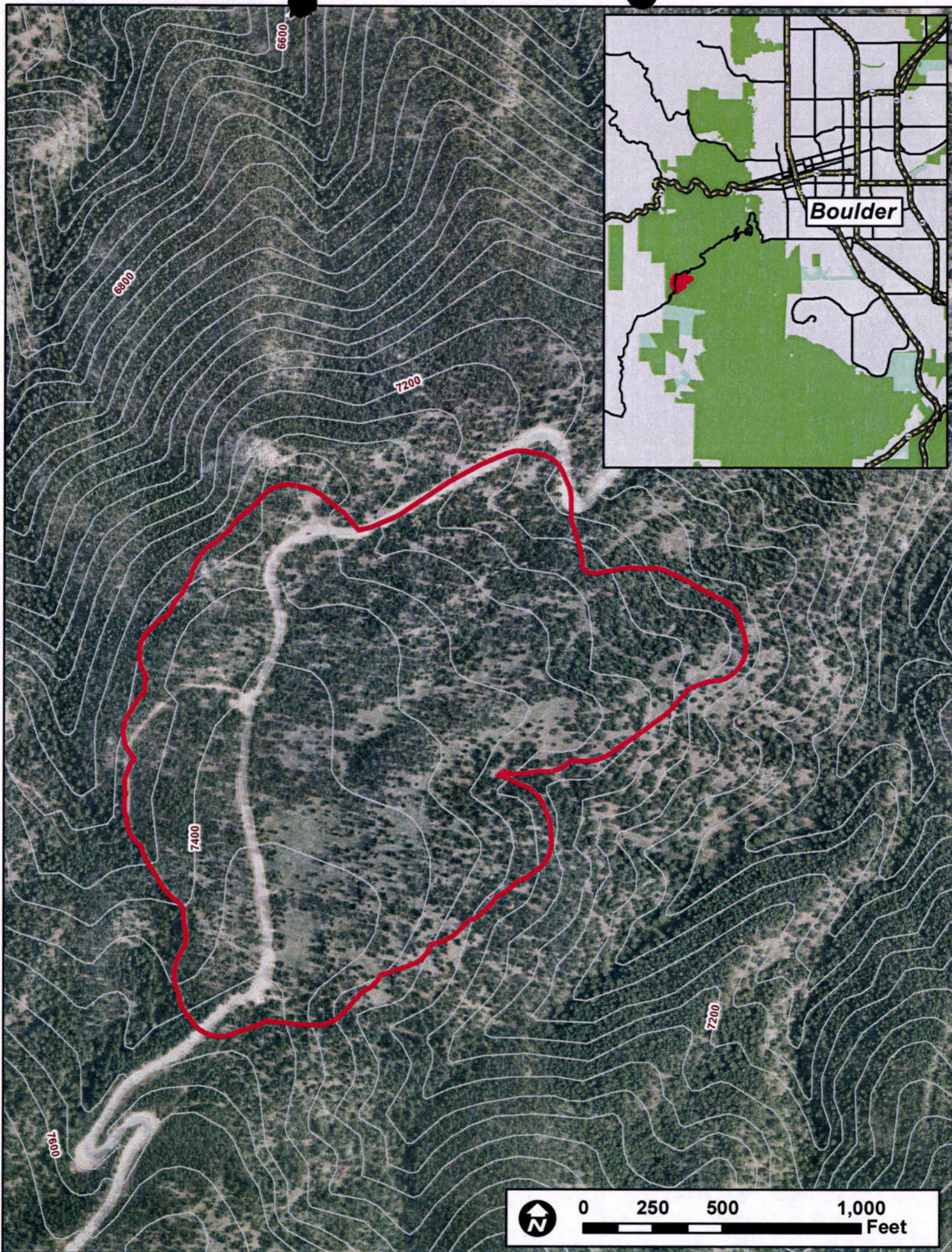


Maintenance / Sustainability	
11	Long-term maintenance will include monitoring and overstory inventories conducted by the OSMP forest ecologist. An inventory following the thinning project will measure the success of the treatment and, in some cases, additional thinning may be added to maintain desired conditions. Forested areas will be monitored on a ten year cycle to track changes in forest conditions and the effectiveness of previous treatments. All on-going forest work will be included in long-term OSMP workplans.

Landscape Scale	
12	This project fits into the larger Flagstaff Mountain landscape and a very visible and heavily used portion of the City of Boulder mountain backdrop. At the large scale, this project builds on previous and future work completed by the City, the County, USFS, Denver Water and local fire departments to improve forest health and emergency routes around the Flagstaff area. This project was identified in both the Boulder County and Rocky Mountain Fire CWPPs as a high priority project. This project will improve forest conditions and wildlife habitat, decrease fuel loads, create a large fuel break and evacuation route, and restore a more natural forest structure to a large area of Flagstaff Mountain.

**ALL INFORMATION MUST FIT INTO THE BOXES PROVIDED. ATTACHMENTS AND/OR MODIFICATIONS WILL NOT BE CONSIDERED BY THE COMMITTEE.**







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**Financial Assistance Program  
Cooperative Match Project**

To be conducted by:

City of Boulder – Open Space and Mountain Parks (COB OSMP)

<b>Project Number:</b>	5367470/5321280
<b>Estimated Project Cost:</b>	\$70,474
<b>Funding provided by CSFS:</b>	\$15,474.02
<b>Minimum Recipient Match:</b>	\$55,000
<b>Project to be completed by:</b>	8-15-2014

Based on the strength of the application submitted by the COB OSMP, the Colorado State Forest Service is providing funding in the amount up to but not exceeding \$15,474.02 to accomplish the Flagstaff Road project described in the attached scope of work.

As the cooperator, COB OSMP, will be reimbursed for actual (hard dollars spent) costs incurred in implementing the project up to the amount listed above once the following requirements are met:

- A. Complete work as described in "*Exhibit A*" (*Scope of Work*).
- B. Provide documentation that project funds have been matched at a minimum ratio of 1:1.
- C. Complete and submit through the local CSFS District Office periodic Grant Report(s)/Reimbursement Request(s) using the forms provided and a Final Report that provides details on expenditures and accomplishments as a result of this project. Submission to:

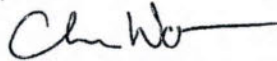
CSFS-Boulder District  
5625 Ute Highway  
Longmont, CO 80503

- D. Certify that neither the cooperator nor any principals represented herein are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency.

This funding will remain available until August 15, 2014. There will be no extensions provided due to federal fund grant requirements.

As a representative of the cooperator, I have read and understand the conditions of participating in this cooperative match project.

**Cooperator Signature:**



**Date:** 4/29/14

City of Boulder Open Space and Mountain Parks  
66 S. Cherryvale Rd.  
Boulder, CO 80303

**Telephone Number:** (720) 564-2045

**Email Address:** [wannerc@bouldercolorado.gov](mailto:wannerc@bouldercolorado.gov)

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**Email Address:** [wannerc@bouldercolorado.gov](mailto:wannerc@bouldercolorado.gov)

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EXHIBIT A  
TO SUBAWARD 5367470/5321280  
SCOPE OF WORK

**2014 : City of Boulder Open Space and Mountain Parks (COB OSMP) Flagstaff Road Project**

**Work to be completed:** This grant will cover up to half of the cost of the Flagstaff Road project on OSMP land. Approximately 70 acres of forest have been identified for treatment. In order to acquire full grant payment, a minimum of 30.1 acres of thinning must occur.

**Milestone dates:** OSMP has identified this area in the City of Boulder's Forest Ecosystem Management Plan (FEMP) and Boulder County Community Wildfire Protection Plan (CWPP). Implementation will begin upon approval of this Scope of Work. The project implementation must be completed and paperwork submitted prior to August 15, 2014. OSMP will submit an "Exhibit B: Grant and Cost-share Program Reimbursement Request" and a "Form D: Financial Assistance Cost-Share Program Cost Documentation Worksheet" to the CSFS Boulder District.

**Standards and Guidelines:** Project work will meet the recommendations identified in the FEMP and CWPP. The OSMP is responsible for determining implementation details, communicating with the public as necessary, and ensuring the project is completed within the grant cycle. A CSFS representative will inspect the reported acreage before reimbursement approval.

All grant funds will be used as a  $\leq 50\%$  reimbursement for work done on this project. COB OSMP will initially cover the cost of implementation by using their FEMP crew, fire crew, or by paying contractor(s). OSMP will then submit documentation of the work for reimbursement. The maximum limit for CSFS grant matching contribution is set at \$500 per acre. If the costs for treatment are above \$1,000 per acre, COB OSMP will cover the excess costs for the project.

**Project Period:** April 9, 2014 through August 15, 2014

**Subaward Amount:** \$15,474.02

**Minimum Cooperator Match:** \$15,474.02

**Deliverables:** A minimum of 30.1 acres of forest thinning to reduce BA by 30-40% will be completed. The funding will go toward acres where cutting, chipping, skidding and hauling trees are done. Forest treatment will meet objectives outlined in the city's FEMP plan. Treatment photos of before and after conditions will also be submitted.

**Project Types:** Implementation/Treatment, and Monitoring/Evaluation.

All work completed under this sub-award must be certified as meeting minimum Colorado State Forest Service standards prior to any reimbursement being made to the sub-awardee. CSFS forms Exhibit B and Form D will be the documents used to both request reimbursement and to certify that work has been completed to minimum standards.



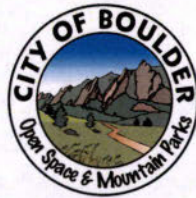
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# **2009 Forest Management Summary Report**

City of Boulder Open Space and Mountain Parks

and

City of Boulder Fire Department



Prepared by Chris Wanner, Forest Ecologist  
March 2010

*Cover photos: This pair of photos shows the same location in the Enchanted Mesa project area before and after thinning activities conducted in 2009*



## **EXECUTIVE SUMMARY**

The 2009 field season was the sixth consecutive year Open Space and Mountain Parks (OSMP) committed full time resources to the implementation of the Forest Ecosystem Management Plan. In total, 140 10-hour days were spent on forest management by the OSMP crew between May 4 and December 22, 2009. One hundred and twenty two forest acres were thinned and an additional 40 acres were burned in 2009. Much of the success during the 2009 season can be attributed to a grant from the Colorado State Forest Service and a continued collaborative effort with the City Fire Department Mitigation Crew. The field season also included a continued emphasis on wildlife and vegetation monitoring, continued data modeling, mapping, and analysis, and collaborative efforts on issues such as prescribed fire and mountain pine beetle management.

## **BACKGROUND**

In June of 1999, the City Council approved part one of the City of Boulder Forest Ecosystem Management Plan (FEMP). The plan established a framework, policy guidelines, and management direction for forest ecosystem management on city lands. The goals of FEMP are to:

- Maintain or enhance native plant and animal species, their communities and the ecological processes that sustain them
- Reduce the wildfire risk to forest and human communities

## **FOREST MANAGEMENT PROGRESS**

During the period 1999-2003 a lack of equipment and minimal staffing reduced the effectiveness and efficiency of forest management on OSMP lands. Most wood skidding and removal was dependent on private contractors. In many cases using contractors resulted in increased expenses, increased resource damage, and increased staff time because of logistical and planning issues. OSMP acquired its own chipper and tractor in 2004, dramatically improving the efficiency of projects and reducing reliance on contractors.

Prior to 2004, forest management on OSMP lands was solely dependent on the city Fire Department fire mitigation crew and occasional help from OSMP staff. In 2004 OSMP hired its first full time seasonal forest management crew of four. Although the fire mitigation crew was fully staffed, they were unable to devote significant time to OSMP projects in 2004. In 2005 OSMP and fire staff developed the first Service Level Agreement (SLA) to define the annual work plan for both the OSMP and fire crews. The use of the SLA and crew coordination has continued through 2009.

Forest management on OSMP has made a shift over the past years from doing smaller, partial projects to larger complete projects (Figure 1). This shift can be attributed to better equipment,



broader scale planning, and more committed staff time. Large complete projects are much more efficient because less time is spent on layout and logistics and there is no follow-up work for future seasons. Larger projects also have ecological benefits. Impacts are greatly decreased by doing one large project instead of a series of smaller ones (one access road, one pass with the skidder, etc.). Large projects also have a more dramatic impact on the landscape by increasing habitat for wildlife and understory plants, increasing vigor and health of entire stands of trees and by decreasing the threat of large catastrophic fire events.

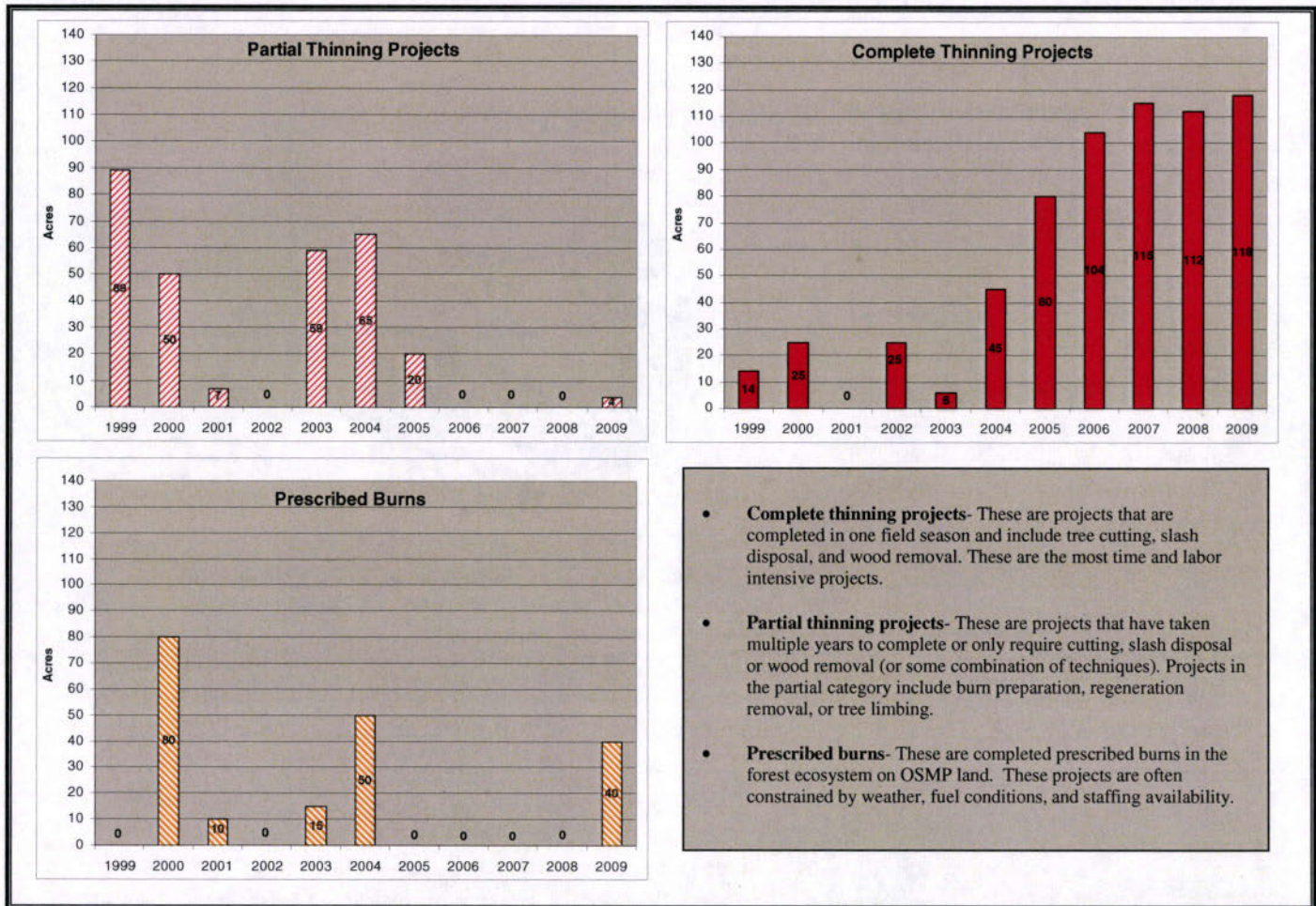


Figure 1: Annual FEMP progress

#### Major Forest Management Projects by Year:

**2009:** Enchanted Mesa thinning, S3 prescribed burn, Flatirons Vista Grassland restoration

**2008:** Shanahan Ridge (four units east of Mesa Tr.)

**2007:** Flagstaff Road Corridor, Pinebrook Fuel Break, Marshall Mesa

**2006:** Lindsay/Jeffco-NE, Marshall Mesa, Lindsay/Jeffco-SE

**2005:** Lindsay South, Olson/McIntosh, Daman, Enchanted Mesa Reservoir, Lindsay Road

**2004:** S3 Cutting and Skidding, McIntosh, Conda Meadow, Watertank/FLVI Burn Prep, Lindsay Meadow Burn

**2003:** S3 Cutting, Volunteer Regen Cutting, Conda Meadow, Lindsay North Burn (3)

**2002:** ST3, Shanahan/Devils Thumb Neighborhood Thinning

**2001:** Lindsay North Burns (1, 2), Wittemyer Fuel Break

**2000:** Lindsay North, Enchanted Mesa, Shanahan Burn

**1999:** Lindsay North, Enchanted Mesa, Flagstaff Top Shop



The efficiency and effectiveness of forest management on OSMP lands has steadily increased since the seasonal OSMP crew was added in 2004. The 2009 season shows a consistent treatment area with previous years. A relatively static treatment level has probably been reached and additional annual treatments would require an increase in staff and equipment, an extended year for seasonal staff, or a budget for hiring contractors.

## **2009 FOREST MANAGEMENT CREW**

Most of the implementation of the Forest Ecosystem Management Plan is carried out by a dedicated and hard working seasonal crew. In 2009 the OSMP forest crew consisted of three members that worked from May 4 to December 22. The crew spent a total of 140 work days (up from 123 in 2008) on various OSMP projects with the emphasis on forest thinning (Figure 2). The OSMP crew also spent time in 2009 on other departmental priorities including monitoring projects, IPM and restoration work, and a variety of other tasks.

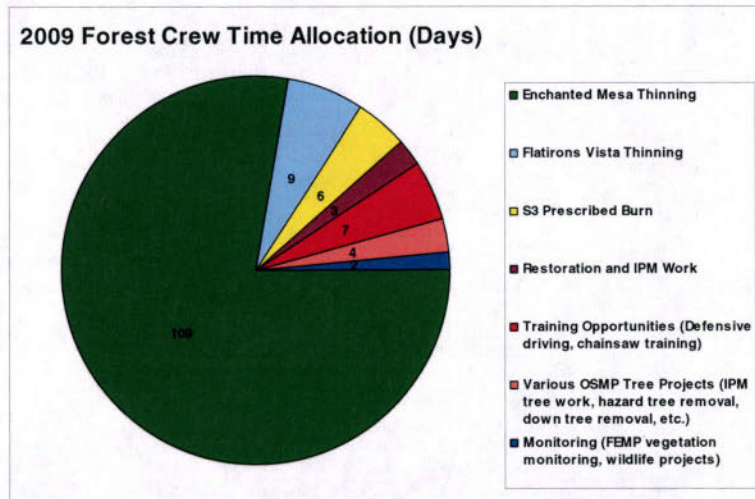


Figure 2: Time spent on 2009 projects by the OSMP forest crew

The OSMP crew received help on thinning projects from the City Fire Department's seasonal mitigation crew. The fire crew spent 46 days on OSMP forest projects in 2009, up from 30 days the previous season. The fire crew is also an essential part of prescribed fire operations and planning. In 2009, fire staff helped plan for over 100 acres of prescribed burning on OSMP



property and implemented prescribed burns on City property including the S3 prescribed forest burn. The Fire Department was responsible for and completed smoke permitting, collaboration with local fire districts, resource coordination, collaboration on burn plan development and staff training. In 2009, Fire Department staff conducted a multi-day chainsaw training for OSMP staff on the forest, IPM, and trails crews. This training was essential for keeping staff safe when using chainsaws and maintaining OSMP equipment in good working order.

The OSMP seasonal forest crew was directly impacted by budget cuts during the 2009 field season. At the beginning of the year enough funding was available for a crew of three for approximately five months. This was roughly a 50% decrease in forest crew



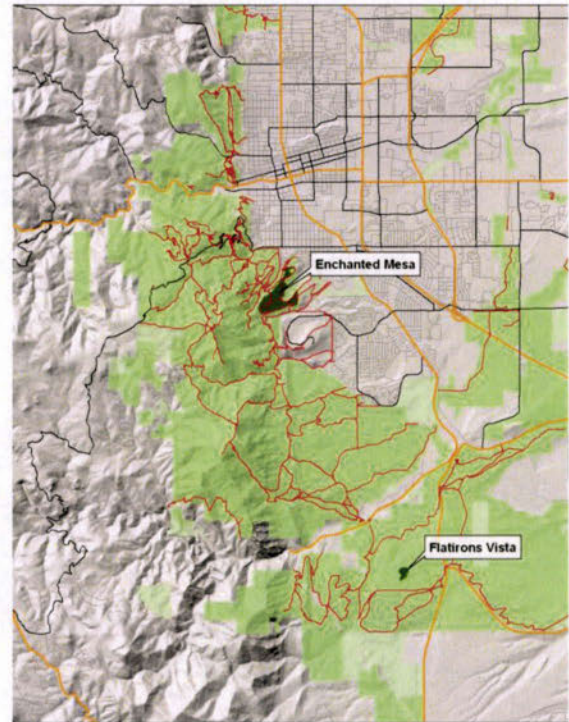
time compared to previous years. Luckily, OSMF was able to use the existing budget to match a grant from the Colorado State Forest Service. A matching grant of \$30,000 was awarded to OSMF as part of the Front Range Fuels Treatment Partnership grant program to fund the implementation of Community Wildfire Protection Plans. The grant stretched the three person forest crew for a total of eight months. The grant funding allowed OSMF to complete a large forest management project that would have been impossible with the 2009 base budget.

## **2009 THINNING PROJECTS**

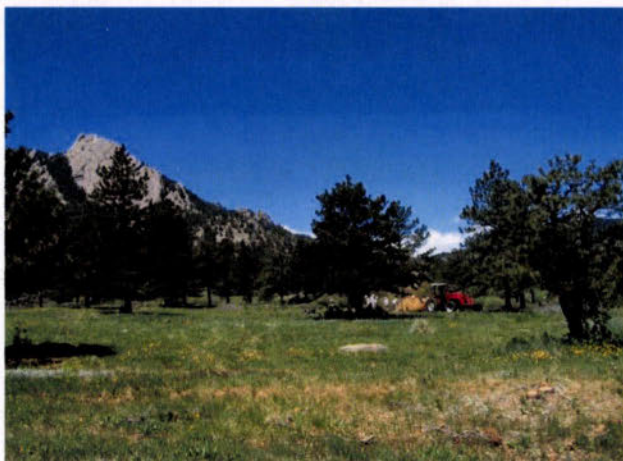
A total of 118 days were spent by the OSMF forestry crew and 35 days by the fire crew on thinning projects in 2009. The crew also benefited from the help of Americorp and other work groups. Twenty five days were spent working with Americorp and jail crews which usually included 8 to 12 individuals. A total of 122 acres were thinned in two treatment areas during the 2009 season (Map 1).

### **Enchanted Mesa**

The Enchanted Mesa (Emesa) project area was located to the south of Chautauqua Park between the McClintock trail on the north, Kohler Mesa trail on the south and the Mesa trail on the west. A total of 109 days were spent by the OSMF forest crew and 35 days by the Fire department on this project between May 11 and December 21. The treatment area included 9 separate units and covered a total of 110 acres of thinning, chipping, skidding and hauling.



Map 1: Forest management project locations for the 2009 season.



The levels of treatment varied across the Emesa project but overall, the focus of the project was restoring a more natural forest structure and decreasing the threat of wildfire. This area is a low elevation ponderosa pine stand and, like many of these types of stands across the Front Range, has experienced a high level of fire suppression over the past 100 years. Prior to thinning, the area had a basal area of 120 sq. ft./ acre; probably close to double natural densities prior to historic fire suppression. High tree densities in ponderosa pine stands can lead to decreased habitat value for vegetation and wildlife, and an increased risk of a high intensity canopy fire.



A variety of treatments were implemented in this area. Along the Enchanted Mesa road behind the Chautauqua cottages and below the water tank, 90% of the non-native green ash were removed from the slopes. This treatment both removed an aggressive invasive weed species and improved the access along the road for emergency vehicles. Further south, the areas west of the water tank and on the Kohler Mesa adjacent to the NIST property were heavily thinned to maintain a more open grassland savannah. The areas on top of Enchanted and Kohler Mesas were thinned with a focus on removing medium diameter trees in the 8-14 inch diameter classes and opening up the large ponderosas that are approaching 200 years old. A number of larger patches were also left unthinned or lightly thinned to maintain habitat for Abert's squirrels and a nesting Cooper's hawk that was discovered prior to the thinning during forest raptor surveys.

Overall, the Emesa project decreased the stands average density from a basal area of 120 sq. ft./acre to 70 sq. ft./acre. This translates to a decrease from 222 trees per acre to 90 trees per acre after thinning. The focus on removing medium diameter trees also resulted in an increase of the average tree diameter in the stand from 11.5 inches to 13.6 inches. Removing a large proportion of the trees also breaks up the continuity in the canopy and removed many of the ladder fuels that could lead to a high intensity canopy fire. The canopy cover of the stand decreased from 37% to 25% (Figure 3).

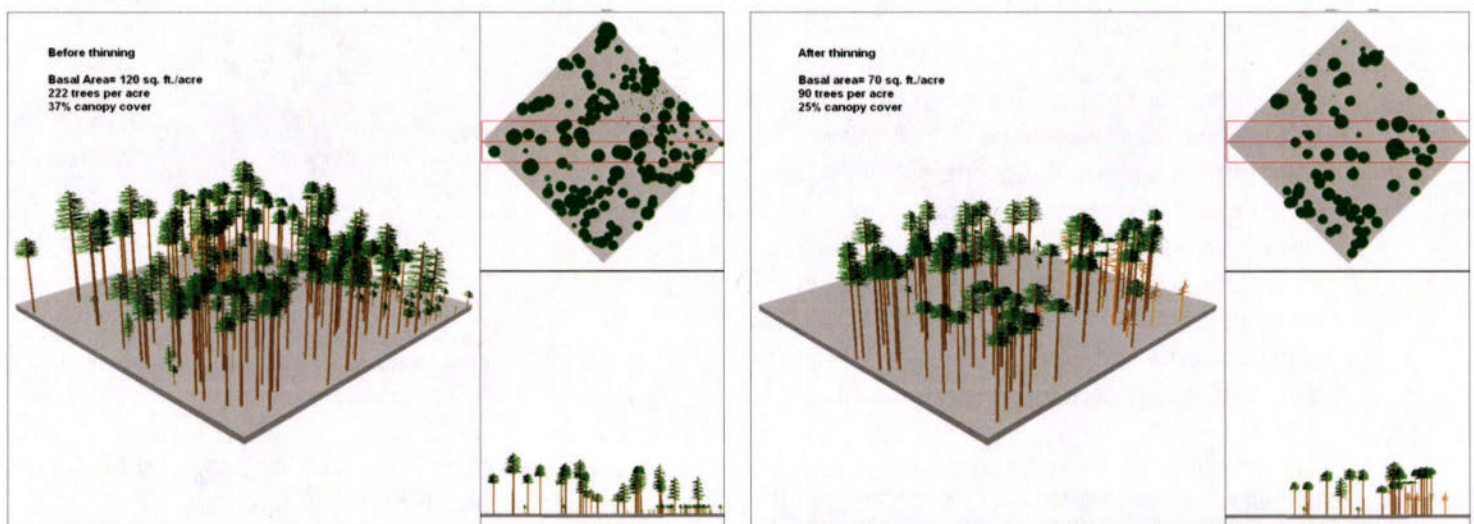


Figure 3: Enchanted Mesa overstory structure change due to thinning

## Flatirons Vista

The Flatirons Vista project was added late in the season as the forest crew completed work on Enchanted Mesa. This will be an ongoing, long term project that is part of the implementation of the OSMP Grassland Ecosystem Management Plan. The focus in this area is removal of all the trees. The Flatirons Vista mesa was historically an open grassland but over the past century ponderosa pines have encroached east (Figure 4). The current high density of trees has decreased the habitat value of this area for ground nesting birds and native vegetation.



Surrounding open areas on the mesa have some of the best ground nesting bird habitat on the OSMP system.

During the 2009 field season a total of nine days were spent by the OSMP forest crew on the Flatirons Vista project. Work included the completion of eight acres where 100% of the trees were removed and an additional 4 acres where the small diameter trees were cut and chipped. The Americorp crew spent two days on this project with the OSMP crew and helped chip and haul in the project area. Future thinning efforts on Flatirons Vista will continue to focus on 100% tree removal, especially along the eastern edge of the trees and on the north side of the Flatirons Vista trail.

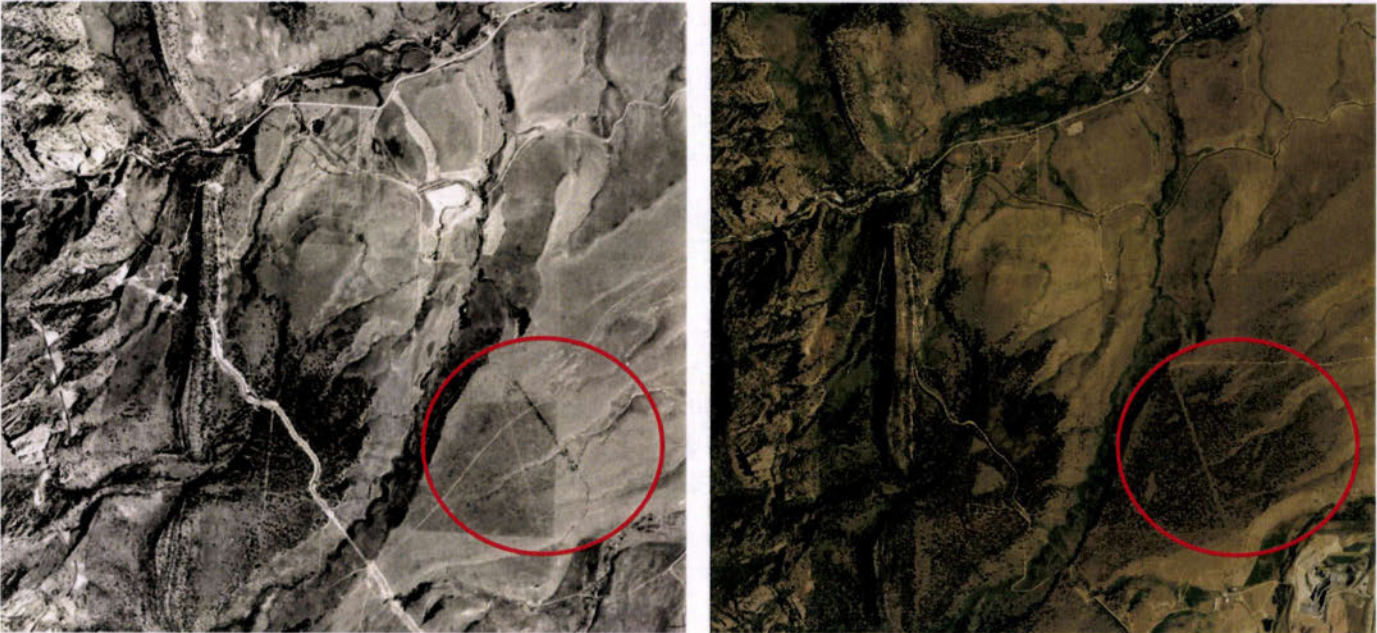


Figure 4: Aerial photos of the Flatirons Vista area taken in 1938 (left) and 2008 (right). The photo comparison shows a dramatic increase in tree density over 70 years

### **2009 PRESCRIBED BURNING**

During the 2009 field season OSMP completed its first forest prescribed burn since 2004. The S3 burn had been planned for approximately 5 years prior to 2009 but conditions outlined in the burn prescription could not be met for a variety of reasons. This burn followed a thinning project that was completed in 2004 and had a number of goals including further decreasing the tree density, removing duff and dead vegetation, reintroducing fire to a ponderosa pine stand, and burning a number of research plots to test the impacts of prescribed fire on vegetation and wildlife. The burn





covered a total of 40 acres in the Shanahan Ridge area east of the Mesa trail and south of the south fork of the Shanahan trail.

The burn was conducted on September 16 with approximately a week of burn preparation prior



to the burn and on-site monitoring for approximately 5 days following the burn. Coordination of the burn was managed by the City fire department and many of the burn overhead positions were filled by OSMP and Fire department staff. The burn was a collaborative effort and included 85 firefighters and support staff from nine local agencies.

Ignition operations began at approximately 10:00 am and were completed by 1:00 pm. Before ignitions started the burn plan required that the desired weather, fuel, and smoke parameters were met. Through the course of the burn, weather conditions tended to be on the high side of the desired range with relative humidity averaging in the mid 30's and wind speeds of less than 5 mph. The slight upslope wind helped lift and move the smoke to the south and west, away from the City. The higher humidity and low wind speed resulted in a low intensity, slow moving fire with flames lengths of 1-3 feet. The burn met the objective of removing fine fuels from the site and will likely result in an immediate increase in

vegetation cover. There will likely be some tree mortality in the years following the burn but, due to the low intensity, mortality will likely be lower than the original target. The impacts of the fire on wildlife and vegetation will be monitored over the coming years with the long-term research plots within the burn boundary.

## **2009 FOREST MONITORING PROJECTS**

### **Understory Vegetation Monitoring**

The forest understory monitoring program has been steadily growing over the past five years. OSMP currently has a total of 13 long-term vegetation monitoring plots in treatment stands across the ponderosa pine stands of OSMP. These plots follow a Modified Whittaker methodology and are usually sampled on an annual basis (no sampling occurs when cutting is taking place). The sampling is stratified by treatment type (Thin, Burn, and Thin/Burn) and plots are sampled at least once before any treatment occurs. Approximately 15 days were spent by a crew of one or two setting up and sampling the 13 forest vegetation plots in 2009.

At the end of 2009, a total of 5 plots had before treatment and three years post-treatment data collected for analysis (sampled subplots= 50). Twenty of the subplots were burned during the S3 prescribed burn. These plots now have pre and post-thinning data and will be sampled in 2010 post-burning.



Thinned areas show a statistically significant increase in vegetation cover two years after cutting occurred (Figure 5). The increase in native cover was significant between the pre-thinning and two years post-thinning ( $p = 0.0039$ ; Tukey HSD test,  $\alpha = 0.050$ ). Non-native vegetation cover did show a significant increase after the first year ( $p < 0.0001$ ) but there was no statistical significance between the pre-treatment data and year two.

Initial data analysis shows that thinning is meeting the goals of increasing vegetation cover but also shows a temporary increase in non-native plant growth. The majority of the non-native cover increase is due to the increase in annual non-native grasses like cheatgrass (*Anisantha tectorum*), rattlesnakegrass (*Bromus briziformis*), and Japanese brome (*Bromus japonicus*). There were very few OSMP high priority weed species sampled in the monitoring plots. After three years of monitoring, the spike in non-native cover appears to be temporary and directly related to the disturbance and increased light associated with the thinning. However, since much of the non-native cover is annual grasses the change may be related to annual moisture. Future monitoring will expand the data to multiple years following treatments. This will give a longer term indication of understory response.

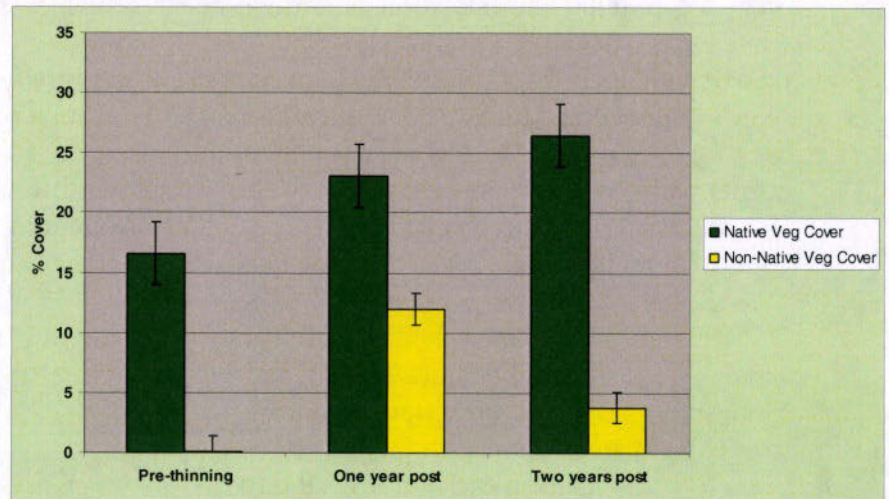


Figure 5: Mean ( $\pm$ SE) cover values for understory vegetation sampled before and after thinning

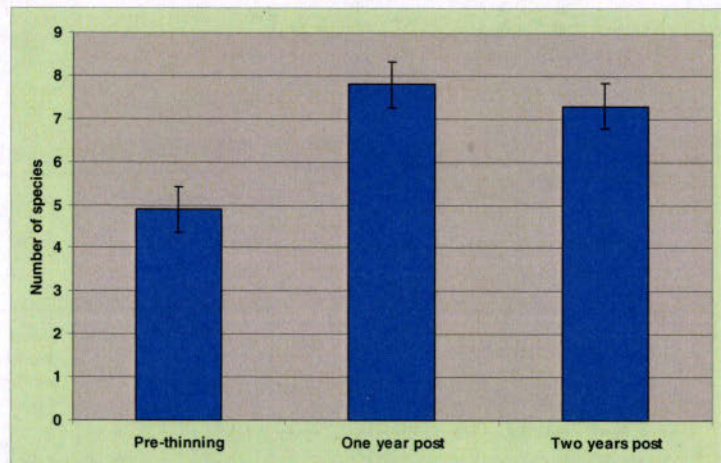


Figure 6: Mean ( $\pm$ SE) species richness values for understory vegetation sampled before and after thinning

Species richness in thinned areas also showed an increase post-treatment. A significant change in richness occurred one year after the treatment ( $p < 0.0001$ ; Tukey HSD test,  $\alpha = 0.050$ ) but there was no significant change between one and two years post. The average increase was about three new species in plots following thinning operations (Figure 6). Future analysis will look at cover and richness by lifeforms, relationship of vegetation change based on changes in basal area or canopy cover, and cover change for specific species of interest. A large portion of the sampling plots also fall within areas with planned prescribed burns. Post burn monitoring will likely show dramatic changes in vegetative cover and composition.



## Forest Bird Monitoring

Like the understory monitoring, wildlife monitoring in the OSMP forests has been steadily increasing over the past years. In 2009 staff continued implementing monitoring projects that started during the 2006 field season. In early 2006 staff began monitoring the effects of thinning on bird community composition and brown-headed cowbird abundance in forest stands.

OSMP staff spent 21 days in 2009 between June 1 and July 8 monitoring forest birds at sampling plots in thinned and unthinned (control) forest plots. A total of 37 plots were sampled three times each for a total of 111 site visits throughout the summer. OSMP also continued collaborative efforts with Boulder County Parks and Open Space wildlife staff to sample forest bird plots on Heil Ranch. This effort has increased the number of sampling sites in the study and incorporated county thinning data.

OSMP monitoring sites were distributed across the system within low elevation ponderosa pine stands—four sites in Enchanted Mesa, and 11 sites in Lindsay, Wittemyer, and Shanahan Ridge. Monitoring plots were stratified as controls ( $n = 16$ ) and areas thinned in the past 10 years ( $n = 21$ ). During each survey, all birds detected within 50 meters of plot center were recorded for 10 minutes. Following the ten-minute passive survey, vocalizations of Brown-headed Cowbirds were broadcast at varying intervals using portable speakers for 10 minutes.

Our results indicate that birds were more abundant and bird communities were more diverse in thinned ponderosa pine stands than in unthinned stands on OSMP. When data collected from 2007-2009 were combined, staff detected more native birds per visit and more native species per visit to monitoring plots in thinned stands than in unthinned stands (Figure 7). Further, some species that prefer a more open forest canopy, such as Chipping Sparrows and Plumbeous Vireos, were more abundant in thinned stands (Figure 8), indicating that OSMP forest restoration treatments can be a management tool to improve wildlife habitat as well as mitigate against severe wildfire.

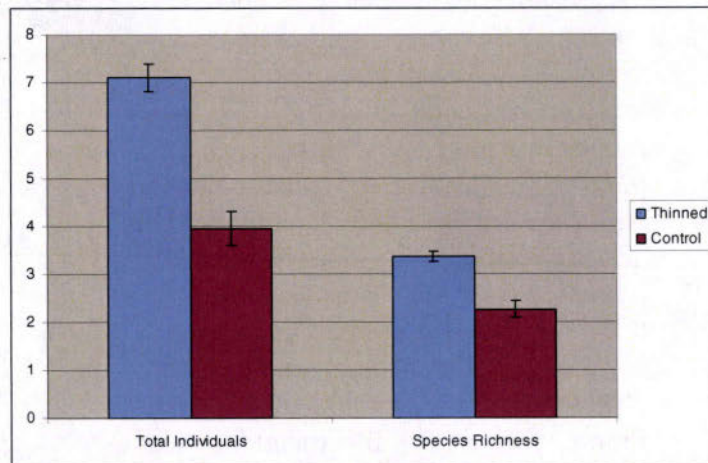


Figure 7: Mean ( $\pm$ SE) number of individual native birds and native bird species detected during forest bird surveys in thinned ( $n = 21$ ) and unthinned ( $n = 17$ ) ponderosa pine forests on OSMP, 2007-2009. Both comparisons are significantly different at  $p < 0.001$ .



However, one potential consequence of forest restoration projects, particularly those which open up the forest canopy near cowbird feeding centers, is an increase in the abundance of Brown-headed Cowbirds. Cowbirds are nest parasitizers and edge-specialists that feed in urban or grazed areas and breed in proximate forests by quietly observing songbird nest-building activities from an inconspicuous perch. Opening the forest canopy may increase the visibility of songbird nests, especially those species that build an open-cup nest and have historically acted as hosts, such as Chipping Sparrows and Plumbeous Vireos. OSMP staff detected three times more cowbirds/plot/visit in thinned stands than in unthinned stands (Figure 8). Further, female cowbirds, the sex ultimately responsible for choosing a nest to parasitize, were three times more abundant (on average) in thinned stands than in unthinned stands.

It is unclear if cowbirds were more abundant in thinned forest stands in response to decreased forest canopy or increased abundance of potential hosts. These explanations are not mutually exclusive. Future OSMP work in thinned and unthinned forests should include: (1) songbird nest monitoring to determine cowbird parasitism levels in each forest type; and (2) conducting songbird surveys before and after thinning activities to control for landscape factors that may be affecting cowbird abundance (i.e., proximity to feeding area).

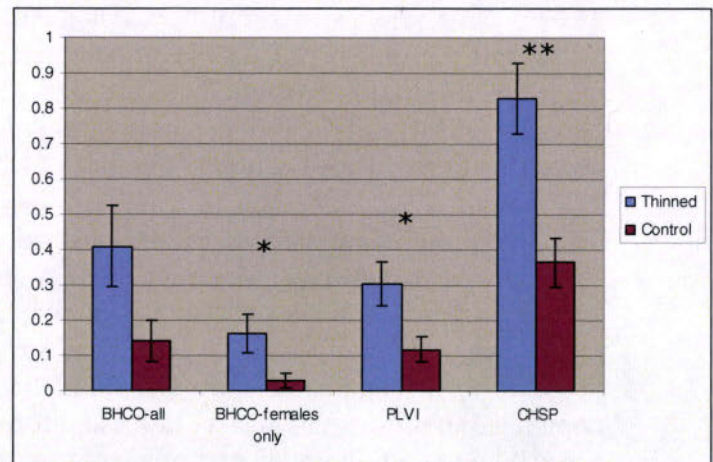


Figure 8: Mean ( $\pm$ SE) number of birds detected per visit to monitoring plots in thinned stands ( $n = 21$ ) and unthinned stands ( $n = 17$ ) of ponderosa pine on OSMP, 2007-2009. (BHCO = Brown-headed Cowbird; PLVI = Plumbeous Vireo; CHSP = Chipping Sparrow) (\* $p < 0.05$ , \*\* $p < 0.001$ )

### Overstory and Photo Point Monitoring

Monitoring of forest stand structure and composition is done with permanent photo points and overstory inventories. Photo points have proven to be an effective way to show differences prior to and following treatment. While they are less quantitative than other forms of monitoring, photos can be useful in displaying changes in tree density, understory density, and non-native composition. Across the two treatment areas in 2009, 30 permanent photo points were established. Each point was located using GPS, marked with a tree tag, and the direction of the photos was recorded. The photos for the two completed projects are attached to this document as Appendix A.

Quantitative data is collected by overstory inventories. OSMP has 337 inventoried forest stands with 2125 sample points. In 2009, overstory inventories focused on post-treatment sampling to measure the effectiveness of thinning. Overstory inventories were completed post management in all the Enchanted Mesa treatment units. The post management inventories included measurements of tree characteristics and understory composition as well as qualitative assessments of fuel loads, wildlife habitat, and non-native plant establishment. The values



collected by the post management inventories are summarized in the "2009 Thinning Projects" section of this report.

## **2010 WORKPLAN**

The upcoming field season will focus on a number of project areas across the OSMP system. Work will continue in the low elevation ponderosa pine forests and will also build on the grassland restoration projects started in 2009. The strong working relationship will continue between OSMP and the Fire department as will collaborative efforts that OSMP is involved in county and Front Range wide.

Thinning projects are planned for the west side of the Anemone Hill area, Shanahan Ridge, Flatirons Vista, and Jewel Mountain. The Anemone Hill project is dependant on access from private property. The thinning in this area will focus on forest restoration but will also build on a large scale fuel break planned by the local fire protection districts to protect the Seven Hills neighborhood. The Shanahan Ridge and Flatirons Vista projects will build on work already completed in those areas and will focus on forest and grassland restoration respectively. The Jewel Mountain thinning is part of a larger restoration effort in the area that will include tree removal, weed control, upgraded fencing to protect wildlife, and numerous wetland and riparian restoration projects.

In addition to the thinning projects, much of the monitoring efforts outlined in this report will be continued in 2010. With the S3 prescribed burn complete staff will have the opportunity to measure the impacts and effectiveness of prescribed burning on vegetation and wildlife. This area will provide multiple years of pre-treatment information and will continue to be measured for post-treatment effects.

Coordination with the City Fire Department has continued to be an essential part of OSMP's forest management efforts. In 2010 OSMP has a long list of prescribed burns planned for grassland areas of the system and the Watertank burn in the Shanahan area is planned in the forest. The Fire department will also have a five person seasonal crew dedicated to both prescribed burning on City lands and implementing OSMP thinning projects.

In 2010 OSMP will also continue to be a partner on broad scale planning and management efforts. OSMP's participation in projects such as the development of local Community Wildfire Protection Plans, the Front Range Mountain Pine Beetle Working Group, and the Boulder County Wildfire Mitigation Group are important ways that the City is involved in larger forest health and management efforts and will continue in 2010.



## **RELATED DOCUMENTS**

Anchor Point. (2007). *City of Boulder, Wildland Urban Interface, Community Wildfire Protection Plan*. Report prepared for City of Boulder, Fire Department. Boulder, Colorado.

Available at: [www.bouldercolorado.gov/files/Fire/city\\_of\\_boulder\\_cwpp\\_main\\_report\\_final.pdf](http://www.bouldercolorado.gov/files/Fire/city_of_boulder_cwpp_main_report_final.pdf)

City of Boulder. (1999). *City of Boulder Forest Ecosystem Management Plan, Part 1*, June 1999. City of Boulder Open Space Department, City of Boulder Mountain Parks Division, and City of Boulder Wildland Fire Division, Boulder Fire Department.

Available at: [www.osmp.org](http://www.osmp.org)



## **Appendix A: Photo Point Monitoring**



## Enchanted Mesa Project Area



Emesa Pt 3: April 30, 2009



October 6, 2009



Emesa Pt 8: April 30, 2009

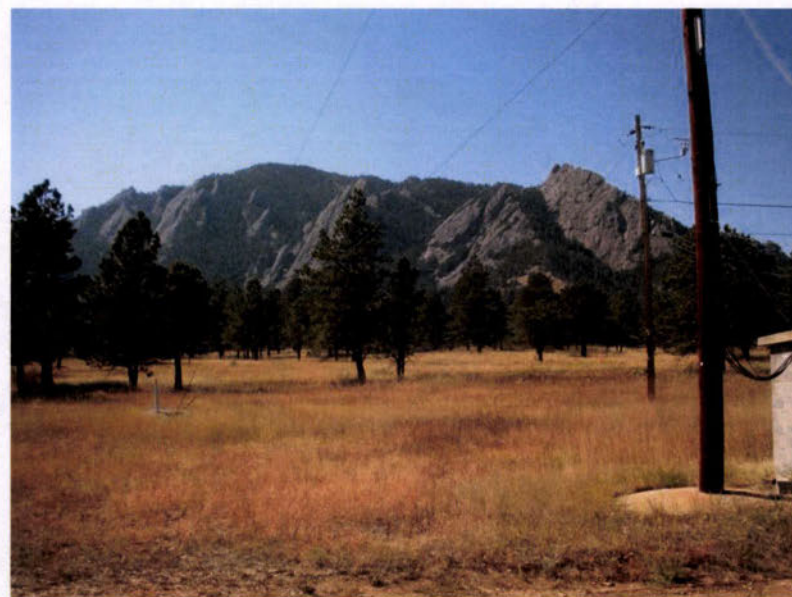


October 6, 2009





Emesa Pt 9: April 30, 2009



October 6, 2009



Emesa Pt 10: April 30, 2009



October 6, 2009





Emesa Pt 12: April 30, 2009



October 6, 2009



Emesa Pt 17: April 30, 2009



October 6, 2009





Emesa Pt 24: September 11, 2009



December 12, 2009



Emesa Pt 25: September 11, 2009



December 12, 2009





Emesa Pt 27: September 11, 2009



December 12, 2009



Emesa Pt 27b: September 11, 2009



December 12, 2009





Emesa Pt 27c: September 11, 2009



December 12, 2009

### **Flatirons Vista Project Area**



FLVI Pt 1: December 1, 2009



December 18, 2009





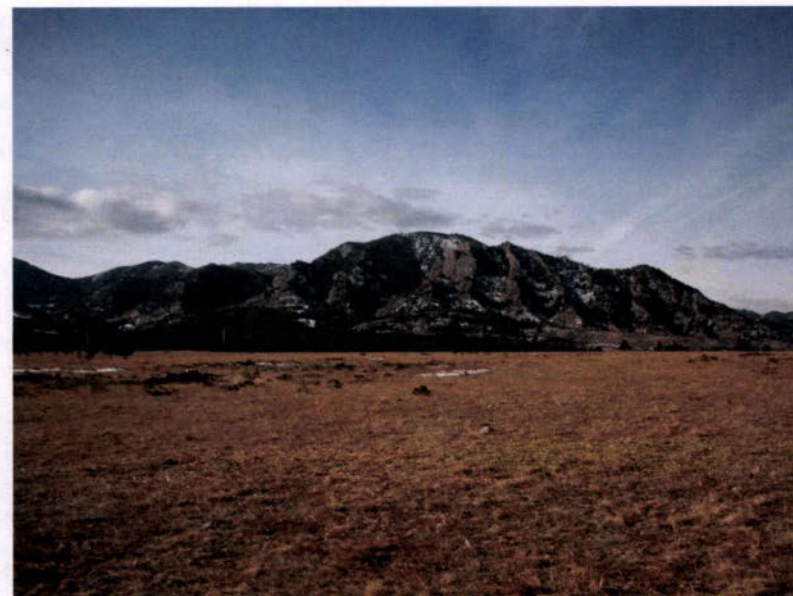
FLVI Pt 2: December 1, 2009



December 18, 2009



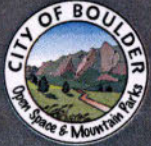
FLVI Pt 3: December 1, 2009



December 18, 2009



# CITY OF BOULDER Open Space & Mountain Parks 2010



## Map Legend

- City of Boulder  
Open Space & Mountain Parks**
- O.S. & M.P. Ownership
  - Easements Held by O.S. & M.P.
  - O.S. & M.P. - No Public Access
  - Joint City-County Purchases/CE
- Other Public Lands**
- Boulder Parks & Recreation
  - Boulder County Open Space/CE
  - County Subdivisions/NUPUD CE
  - Other Government Lands
  - Other Parks and Open Space or CE
  - State of Colorado
  - USFS
  - B.L.M.



Scale 1 inch = 1 mile  
0 0.5 1 2

