

**A Comparison of Collected Data from Idaho BLM and FIRE-Up Students  
at the Pixley Basin Prescribed Burn**

**A Report Prepared for the Bureau of Land Management**

**Data Gathered from  
Idaho BLM- Summer of 2002  
FIRE-Up Students- Summer of 2004**

**Teacher Team**

**Robert E. Beckwith- Retired From Meridian School District  
Steve DeMers- Biology Teacher, Eagle High School, Meridian School District  
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Gina Lockwood- Biology Teacher, Mountain View High School, Meridian School District**

**January 10, 2006**

## Introduction

The following document is a comparison of data collected in Pixley Basin, south of Grand View by the Idaho BLM in the summer of 2002 and by the FIRE-Up (Field Inquiry Research Experience) Student teams in the Summer of 2004.

There were 71 Pins in the 6,000-acre, 10 square mile study area. The pins were marked with fence posts, placed by the BLM. The BLM used the Complete Data Dictionary to access each pin. At a given pin, a 66 ft radius circle was set and then questions were answered as directed by the Data Dictionary. The complete version has 137 questions to be answered.

The Data Dictionary was modified in two ways for the FIRE-Up Students. The questions that did not pertain to Pixley Basin were eliminated. The total number of questions for the students was then reduced to 80. The second way that the dictionary was altered was the potential response or code for each question. Codes or responses that were deemed unnecessary for Pixley Basin were eliminated.

## The Graphs and Data

The 71 pins were divided into two groups: prescribed-burned areas and non-burned areas. For the chosen questions there are two types of graphs, one set representing the non- burned areas. The other set represents the prescribed-burned areas.

Time limited this comparison to ten questions for each type of graph discussed. The hope was to pick questions that would reflect the comparison in the best manner possible. Each graph is titled according to the question asked. The titles come directly from the Complete and Modified Data Dictionary used by BLM and the students.

## Outcomes and Errors

Review of the graphs shows a Bar/Line configuration. The line and bars should be very similar between the non-burned pins. The pins did not experience the prescribed burn so their flora should have little change. This conclusion does not take into account the natural succession that the Pixley Basin is going through and does not take into account those natural changes.

The graphs representing the pins in burned areas should show dramatic changes. The lines and bars should not be the same, which reflects the changes that occurred as a result of the prescribed burn.

The aspect and percent of slope of each pin was evaluated because the fire would have had no effect on the result of these pins. The hope that the BLM/Student data would be very similar was not realized. Better results are anticipated for next time with more intense training and evaluation during the data gathering processes. It should also be noted that responses only one code apart, might be quite close. While creating this report it was noticed that a student observed the slope to be 18%, responding with a value of 2. The BLM data revealed the slope to be 22%, responding with a value of 3. When grouped, the two points are not the same, which reflect difference, but in reality their responses are very similar.

The questions chosen have two numbers; the first reflects the order they appear in this report, and the second number reflects the question's number from the Student Edition of the Data Dictionary

# Thank You

The Fire-Up for Summer Team would like to thank the following people for making the summer program possible. Without the team work and support of the following the Pixley Basin study would not have been possible.

## Bureau of Land Management:

K Lynn Bennett, State Director, Retired  
Kurt Kotter, Associate State Director  
Rosemary Thomas, Manager Four Rivers Field Office  
Shelley Davis-Brunner, Environmental Education/Interpretation Coordinator  
J.R. Epps, District Fuels Specialist, Currently National Interagency Fire Center  
Chris Cromwell, Fire Operations  
Mike Ford, Fuels Specialist  
Steve Jirik, Fuels Specialist  
Alex Webb, GIS Specialist  
John Courtright, IT Specialist  
Sue Curd, National Interagency Fire Center

## Northwest Nazarene University:

Dr. Dan Nogales, Dean of Health and Science  
Dr. John Cossel, Professor of Biology  
Cindy Baldwin, Concurrent Credit

## Meridian School District:

Dr. Linda Clark, Superintendent  
Jana McCarthy, Director of Student Achievement  
Jerry Reininger, Administrator of Technology  
Aaron Maybon, Principal Mountain View High School  
Terry Beck, Principal Eagle High School  
Alta Graham, Principal Centennial High School  
Don Nesbit, Principal Meridian High School

Charla Adams, Boise State University, GIS

Brian Wilbur, Ada county Weed Control

Ron Spomer, Professional Photographer

## Students:

Without the students and the work they accomplished this comparative report would not have been possible.

Summer Babbitt	Mathew Dwyer-Bradford
Melissa Code	Daniel Coombs
Chantelle Craft	Sarah Eames
Maja Elezovic	Benjamin Greenway
Kris Holt	Shannon Luna
Katelyn Messa	Brehona Morris
Eldisa Music	Erika Robertson
Allison Roehling	Audrey Sturtevant
Michael Wynkoop	

**FIRE-Up Team  
Pixley Basin  
June 2004**

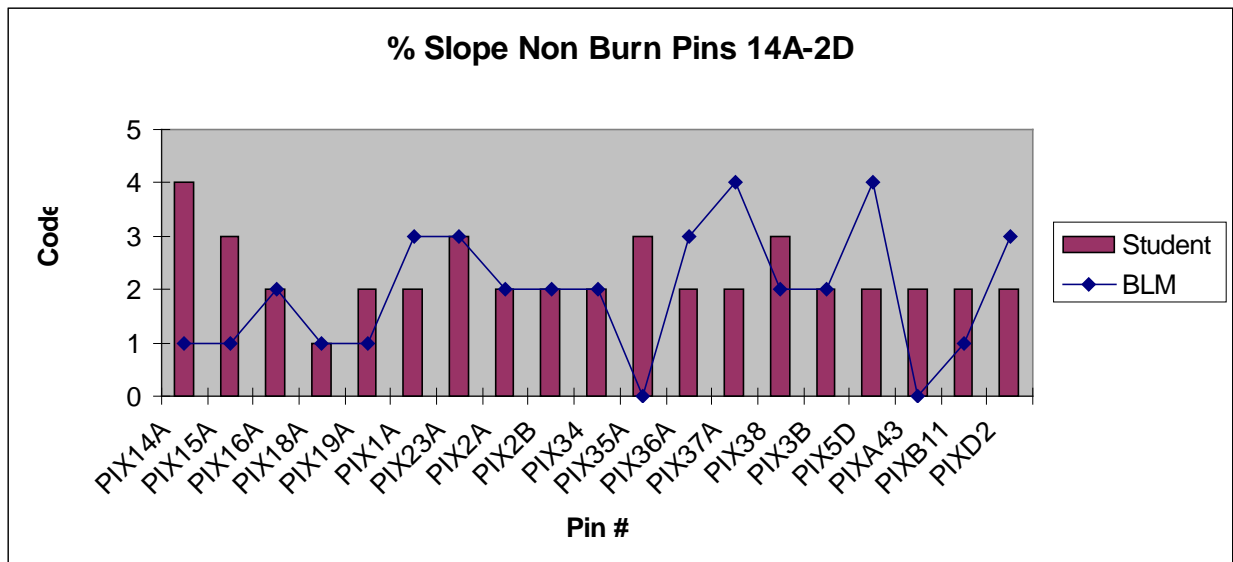
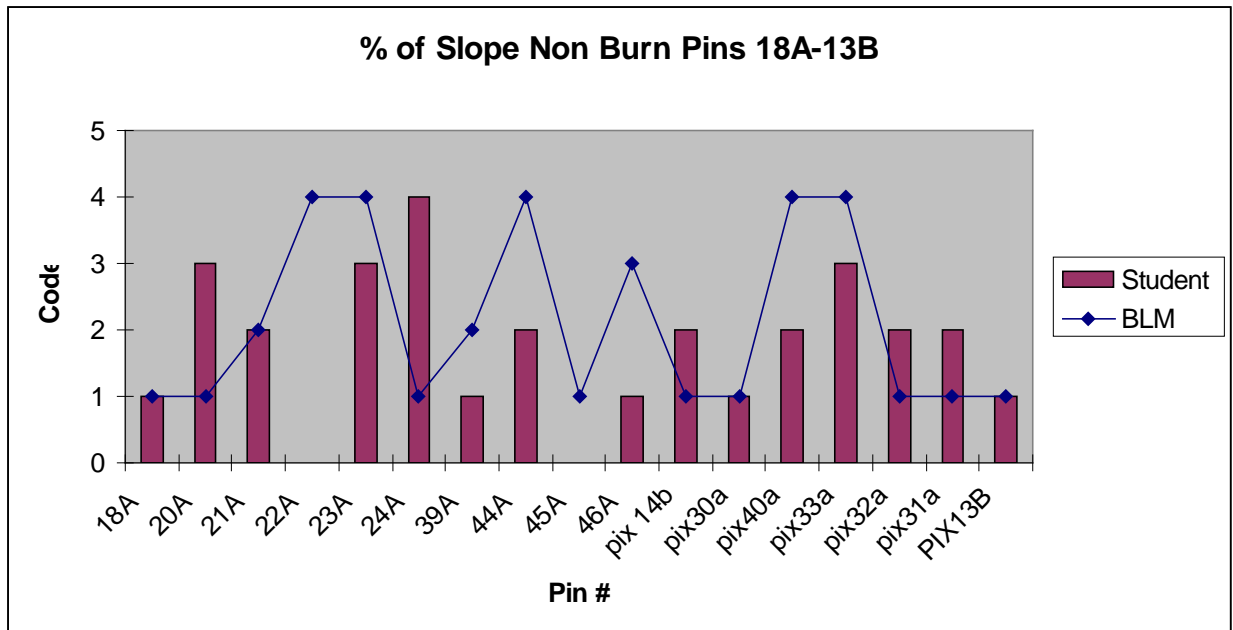


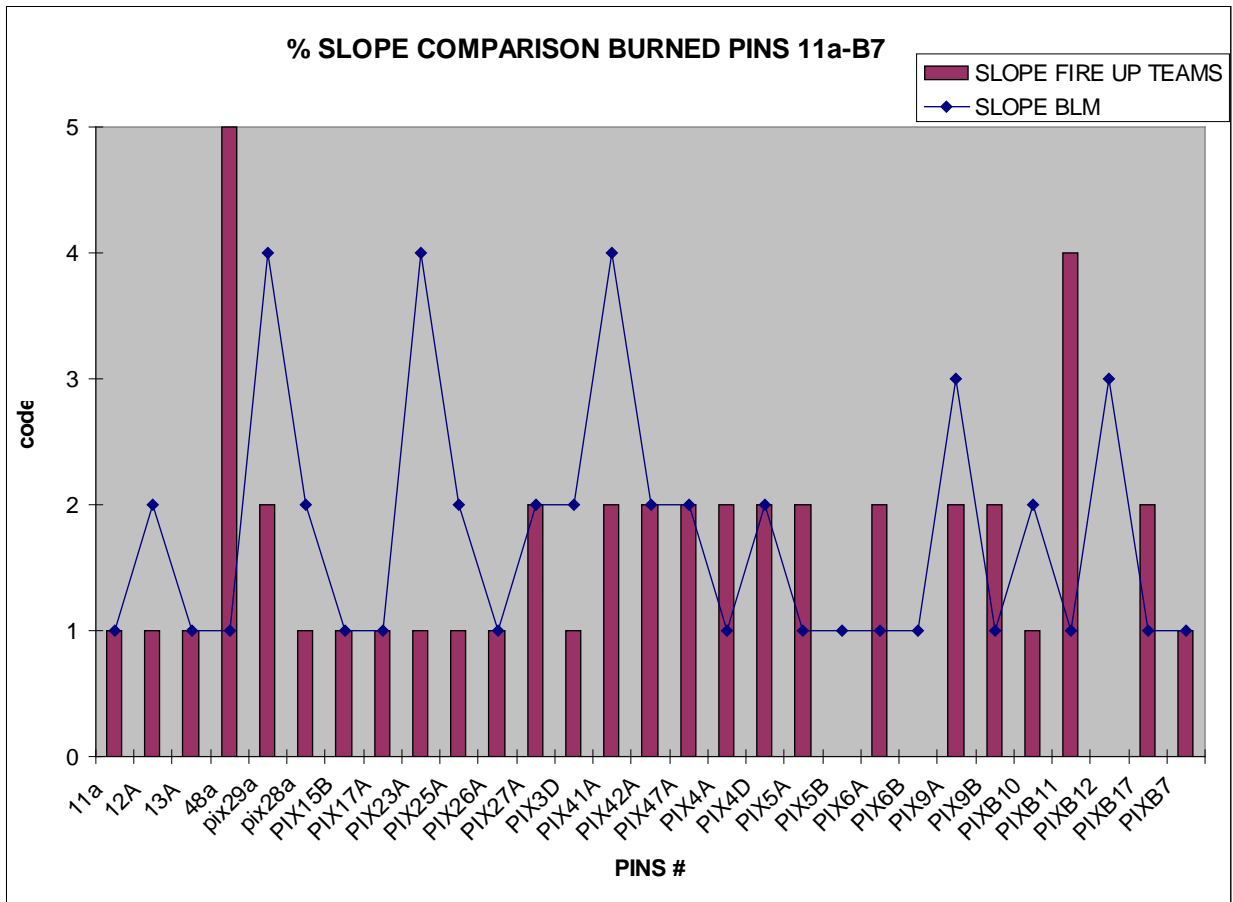
Left to Right, Back row: Audrey Sturtevant, Chantelle Craft, Allison Roehling, Instructor- Steve DeDemers, Matt Dwyer-Bradford, Instructor-Gina Lockwood, Shannon Luna, Melissa Code, Instructor-Tobey Jossis, Khris Holt, Benjamin Greenway.  
Middle Row: Summer Babbitt, Katelyn Messa, Sarah Eames, Brehona Morris, Instructor-Bob Beckwith.  
Front Row: Daniel Coombs, Michael Wynkoop. Not pictured: Maja Elezovic, Eldisa Music.

**1- 9. perct\_slope\* (perct\_slop)**

Visual estimate of the percent slope. This data is used for determining fire behavior using the BEHAVE program. Choose the range of percent which best fits the average slope for the plot area.

<u>Estimate</u>	<u>Code</u>
none	1
1_to_20	2
21_to_40	3
41_to_60	4
61_to_80	5
81_to_100	6





Summer Babbitt releases beetles on a Boise River Island. The beetles attach the noxious weed, purple loosestrife.

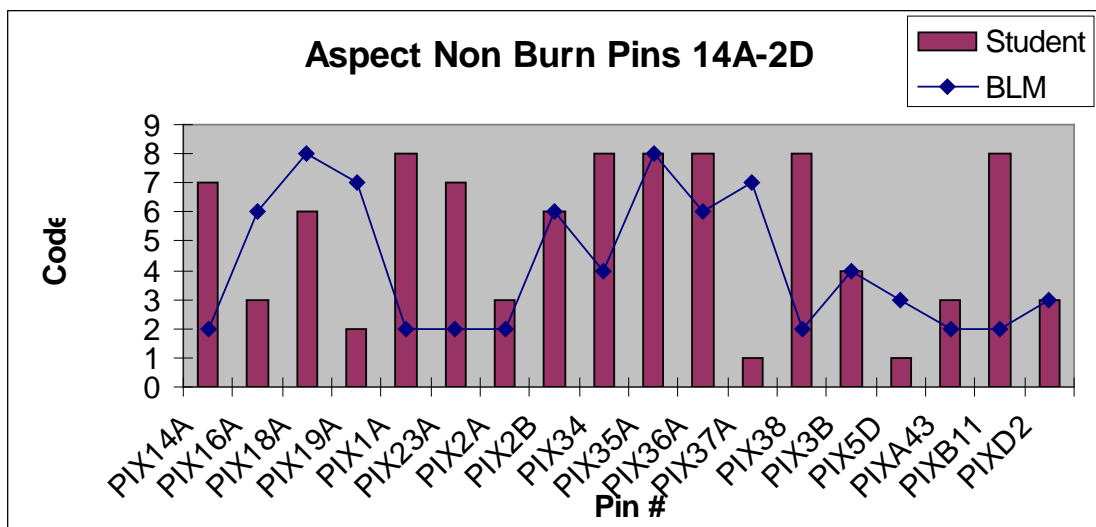
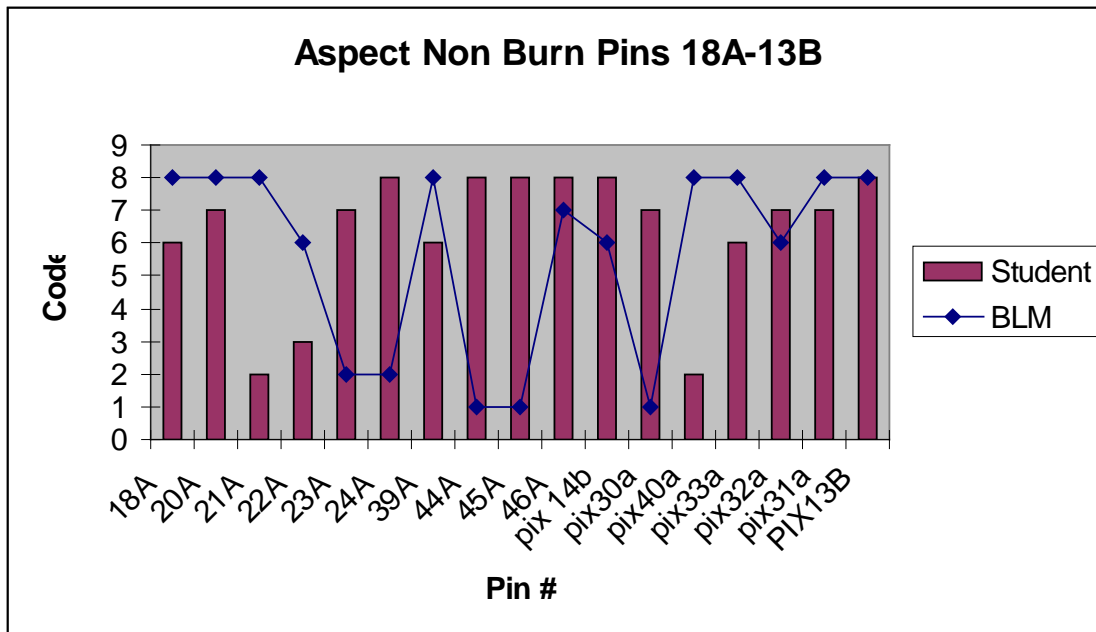
Plot_id	perct_slope	perct_slope	Plot_id	perct_slope	Plot_id	Perct_slop
	student	BLM		STUDENT DATA		BLM DATA
18A	1	3	<b>18A</b>	8.00%	PIX18A	21_to_40
20A	3	4	20A	C	PIX20A	41_to_60
21A	2	32	21A	B	PIX21A	1_to_20
22A	4	4	22A	G	PIX22A	41_to_60
23A	3	5	23A	C	PIX23A	61_to_80
<b>24A</b>	4	3	24A	D	PIX24A	21_to_40
<b>39A</b>	2	2	<b>39A</b>	5	PXA39	1_to_20
<b>44A</b>	4	2	<b>44A</b>	43	PX44A	1_to_20
<b>45A</b>	2	2	<b>45A</b>	3.00%	PIX45A	1_to_20
46A	2	3	<b>46A</b>	18.00%	PIX46A	21_to_40
pix 14b	2	3	pix 14b	b	PIX14B	21_to_40
pix30a	2	2	pix30a	a	PIX30A	1_to_20
pix40a	2	6	pix40a	b	PX40A	81_to_100
pix33a	3	4	pix33a	c	PIXA33	41_to_60
pix32a	2	5	pix32a	b	PIXA32	61_to_80
<b>pix31a</b>	2	5	pix31a	b	PIXA31	61_to_80
PIX13B	2	2	<b>PIX13B</b>	11%	PIX13B	1_to_20
PIX14A	4	4	PIX14A	D	PIX14A	21_to_40
PIX15A	3	3	PIX15A	C	PIX15A	21_to_40
PIX16A	2	4	PIX16A	B	PIX16A	41_to_60
PIX18A	2	3	PIX18A	8	PIX18A	21_to_40
PIX19A	2	3	PIX19A	B	PIX19A	21_to_40
PIX1A	2	2	PIX1A	B	PIX1A	1_to_20
PIX23A	3	5	PIX23A	C	PIX23A	61_to_80
PIX2A	2	2	PIX2A	B	PIX 2A	1_to_20
			PIX2B	B	PIX2B	21_to_40
PIX2B	2	3	PIX34	B	PIX34A	61_to_80
PIX34	2	5	PIX35A	C	PIXA35	61_to_80
PIX35A	3	5	PIX36A	B	PX36A	61_to_80
PIX36A	2	5	PIX37A	B	PIXA37	21_to_40
PIX37A	2	4	PIX38	C	PXA38	21_to_40
PIX38	3	3	PIX3B	B	PIX3B	61_to_80
PIX3B	2	5	PIX5D	B	PIX5D	1_to_20
PIX5D	2	2	PIXA43	B	PXA43	1_to_20
PIXA43	2	2	PIXB11	B	PIX11B	1_to_20
PIXB11	2	2	PIXD2	B	PIX2D	21_to_40
<b>PIXD2</b>	2	3	<b>Plot_id</b>	perct_slope		

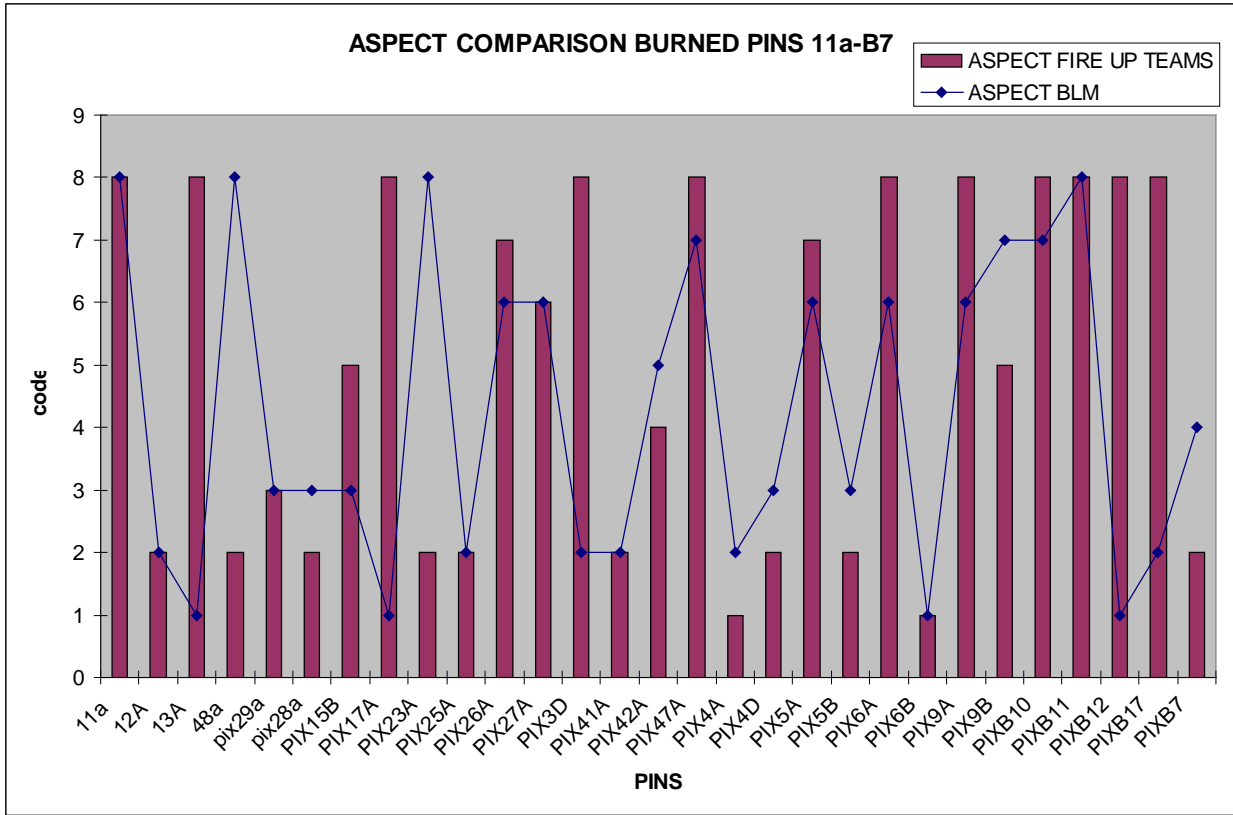
2- 10. aspect\* (aspect)

Measurement taken with a declinated compass and converted to lettered direction.

Values in parentheses represent the range of degrees. This data is used to determine fire behavior based on microclimate conditions.

Attribute Value	Code
n_(338_to_23)	1
ne_(23_to_68)	2
e_(68_to_113)	3
se_(113_to_158)	4
s_(158_to_203)	5
sw_(203_to_248)	6
w_(248_to_293)	7
nw_(293_to_338)	8
none	9



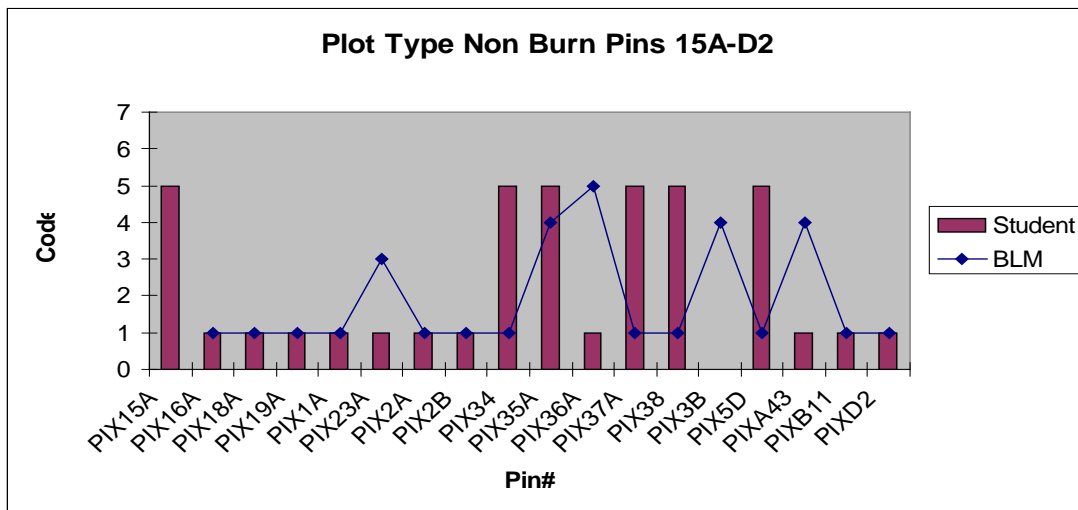
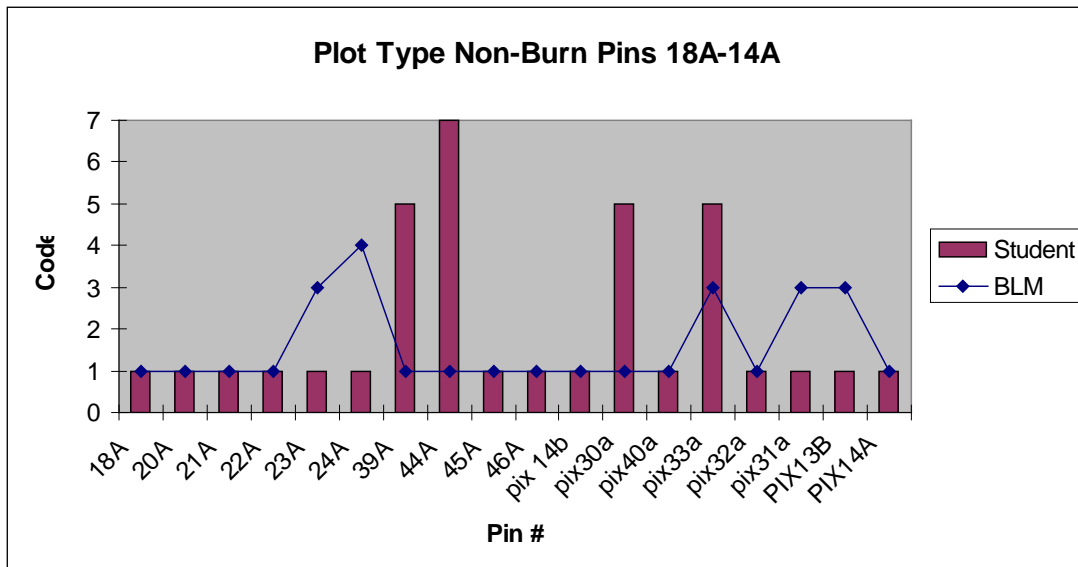


The fence post marks the pin.. Sarah Eames and Melissa Code have used GPS to find their assigned post. They will set up a 66 foot circle and use the Data Dictionary to record 80 questions about the habit within the 66 foot area.

### 3- 5. plot\_type (plot\_type)

Assessment of the current dominant community. This data will be used to verify point types for spatial analysis. For non-forested shrub communities select AShrub@. Select AConifer@ for any forest community dominated by a coniferous tree species. Choose AAspen@ for any forest community in which aspen is the dominant tree species. Select AJuniper/Pinyon@, for any community dominated by either juniper, pinyon, or both. Select AGrass@ for any community that is composed of annual or perennial grasses and in which shrubs and trees are not a dominant species in the community. Choose ARiparian@ for communities in which the dominant species are dependent on a constant water source. Select AOther@ for any community which does not fit the previous community choices.

<u>Attribute List</u>	<u>Code</u>
shrub	1
conifer	2
aspen	3
juniper/pinyon	4
grass	5
riparian	6
other	7

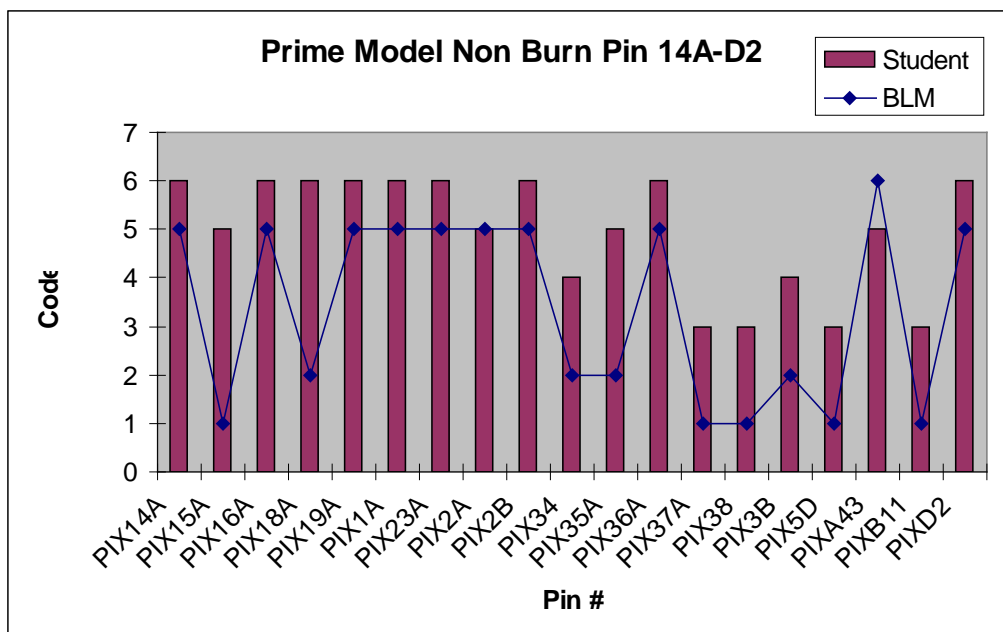
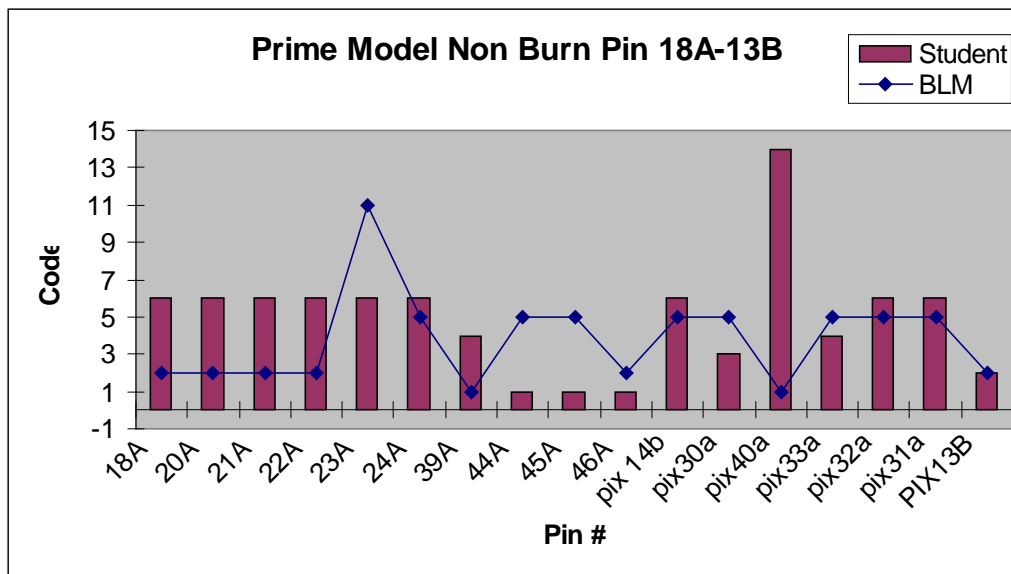


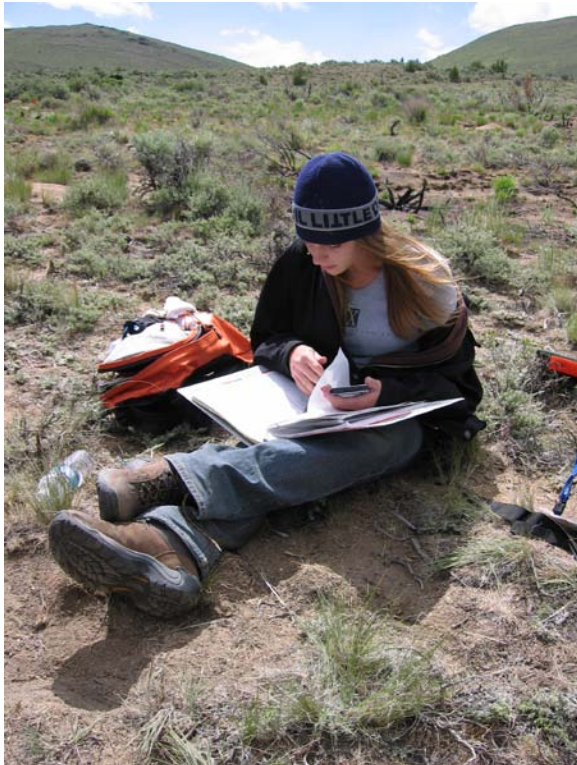
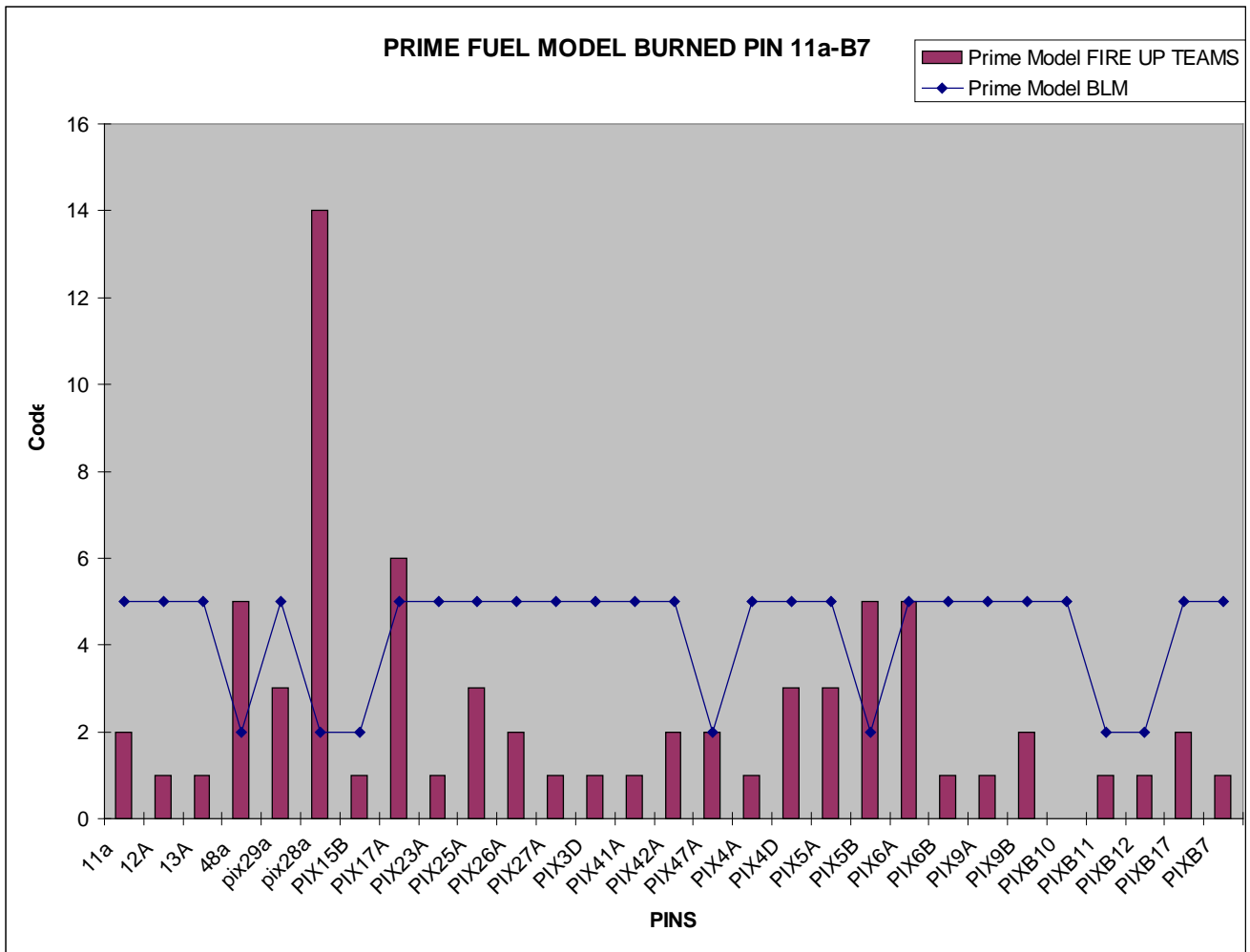


4- **12. prime\_model\*** (prime\_mode)

Visual assessment of the fuel structure of the plot. The fuel model system used for this assessment is the NFFL Fuel Models. This data is used to determine fuel hazard and is also used in the ABEHAVE@ fire behavior program. Choose the fuel model which most appropriately fits the primary fire carrier. Use fuel model guide “Aids to Determining Fuel Models for Estimating Fire Behavior” (Hal E. Anderson 1982, NWCG general technical report INT-122).

Attribute Value	Code	Attribute Value	Code
None	1	Southern Rough	9
barren_rock	2	Closed timber	10
short_grass	3	Hardwood_l_needle	11
grass_timber	4	Timber_understry	12
tall_grass	5	Light_slash	13
chaparral	6	Medium_slash	14
2_ft_brush	7	Heavy_slash	15
dormant_brush	8		



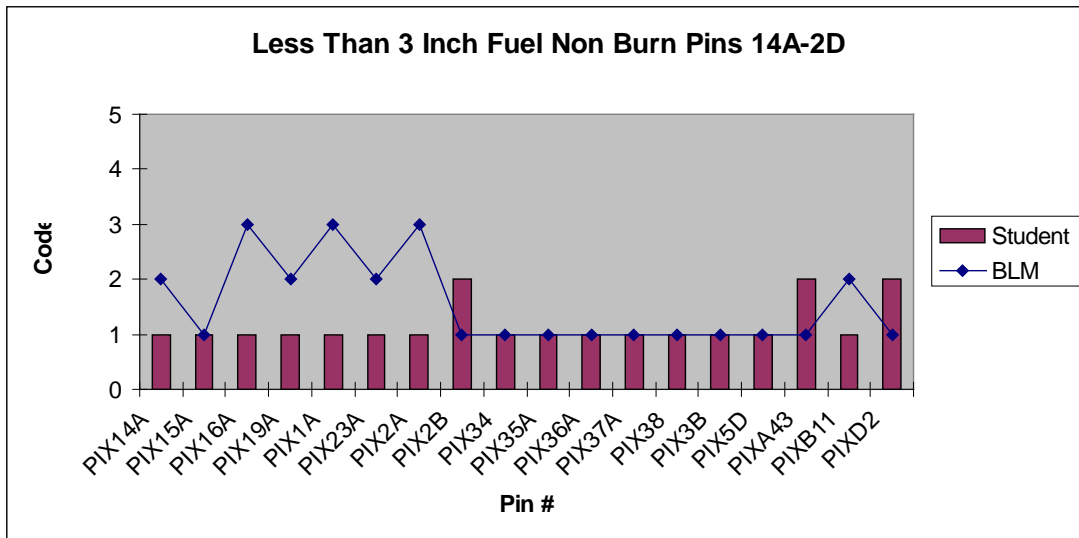
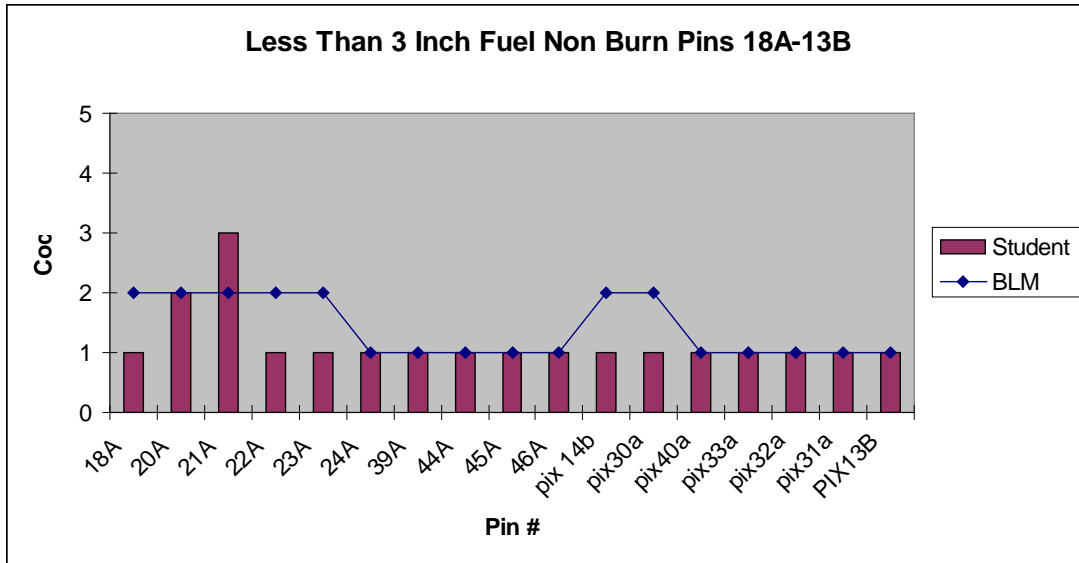


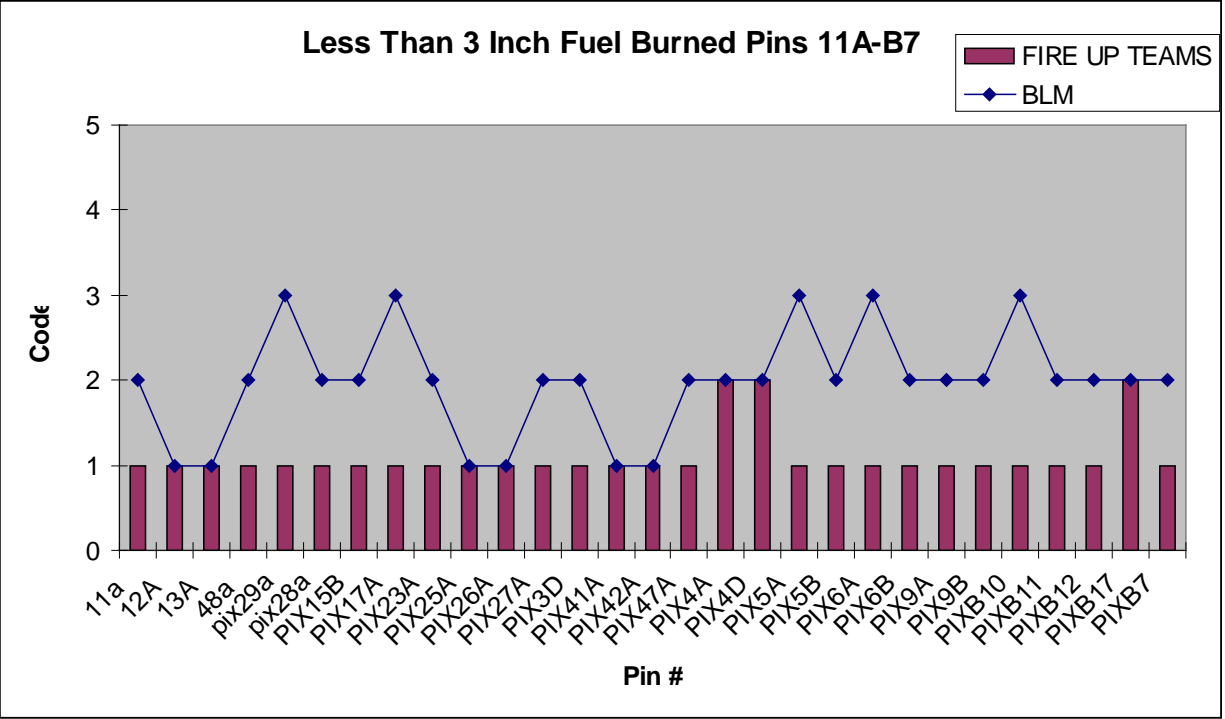
Erica Robertson records answers using the Data Dictionary and her PDA. Each team of two to three students was assigned given pins to inventory in the Basin.

5- **16. less\_than\_3in\_fuel\*** (less\_than\_)

Estimate of the fuel loading for fuels less than 3 inches in diameter. This is used for determining fire behavior and fire hazard. Select the range of approximate tons per acre which best fits the plot.

Attribute Value	Code
less_than_1	1
1.1_to_3	2
3.1_to_5	3
5.1_to_10	4
more_than_10	5



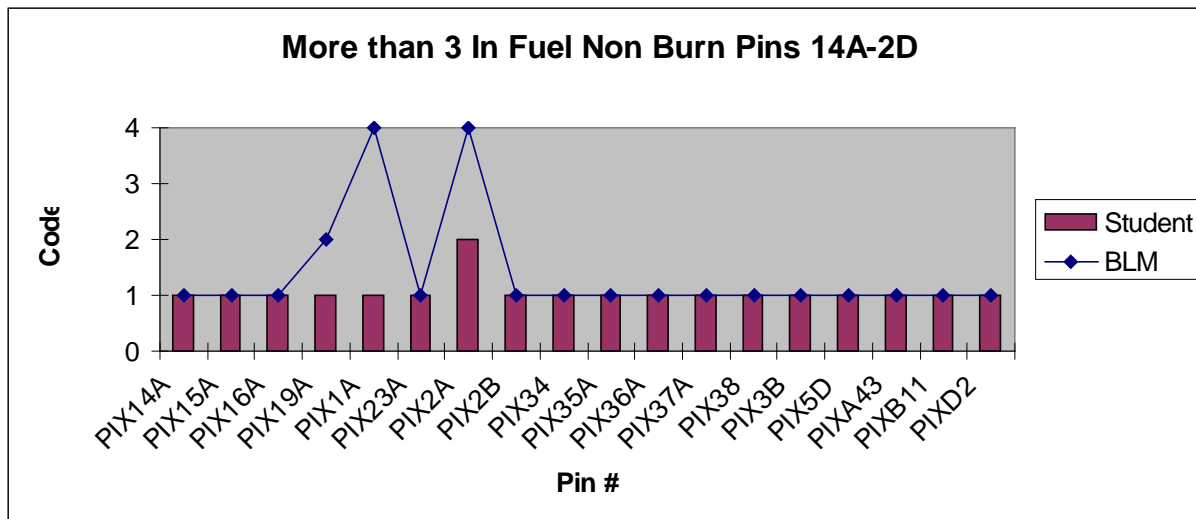
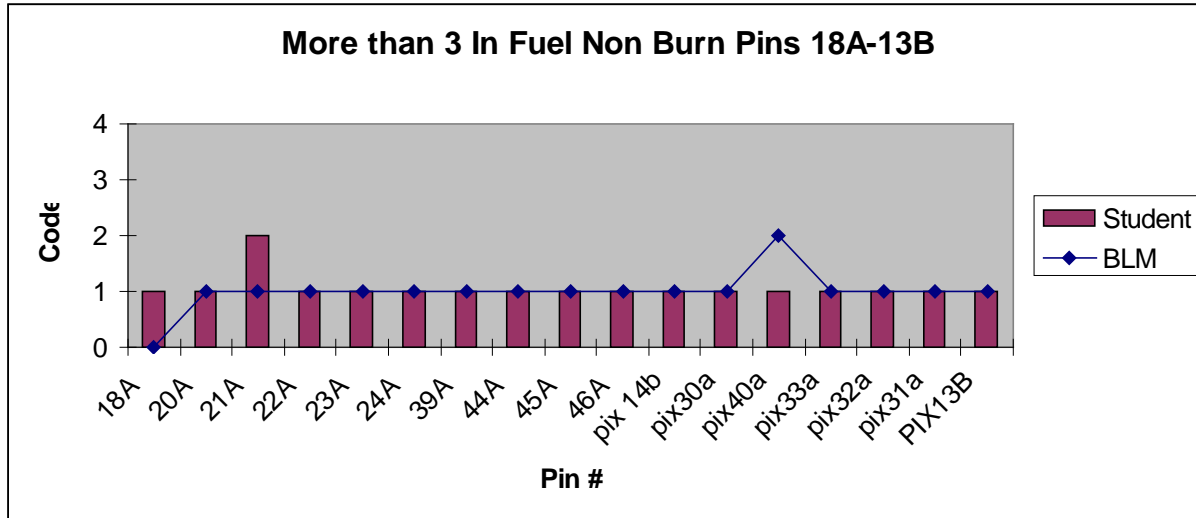


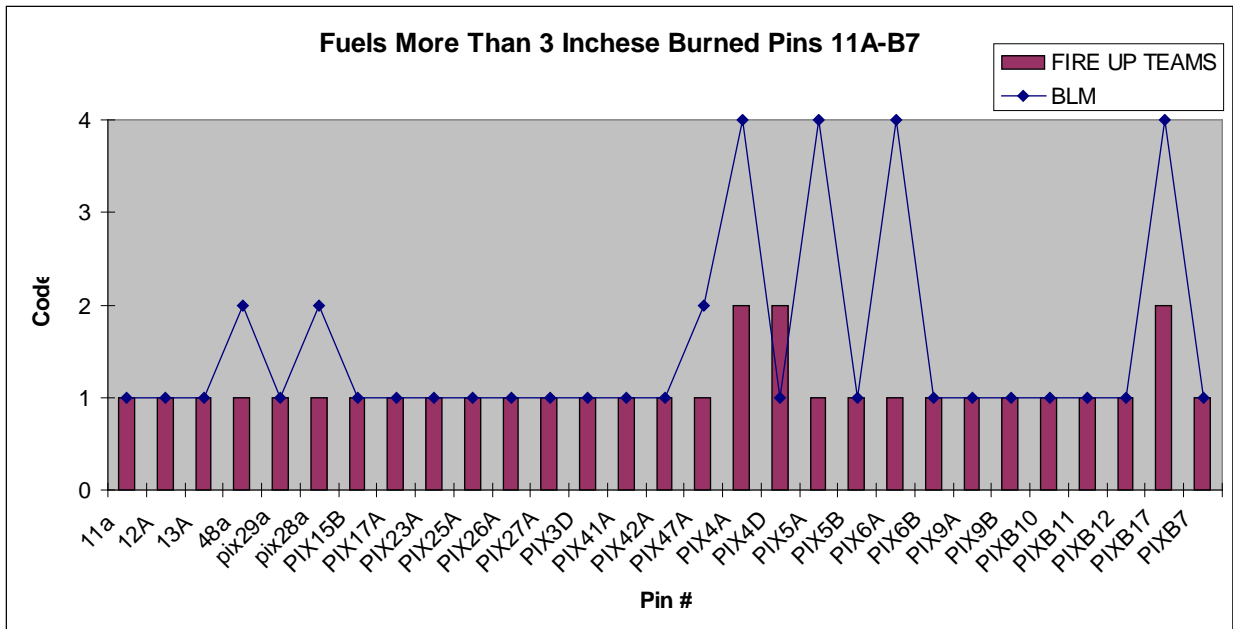
The F.I.R.E. Up for Summer Team uses works to complete the inventory at a pin. The tape measure running to upper right hand corner of the picture is used to set the 66 foot radius study area. Back packs are used to carry manuals, radios, GPS, PDA's, water and lunches.

6- 17. **more\_than\_3in\_fuel\*** (more\_than\_)

Estimate of the fuel loading for fuels greater than 3 inches in diameter. This is used for determining fire behavior and fire hazard. Select the range of approximate tons per acre which best fits the plot.

<u>Attribute Value</u>	<u>Code</u>
less_than_3	1
3.1_to_10	2
10.1_to_20	3
more_than_20	4



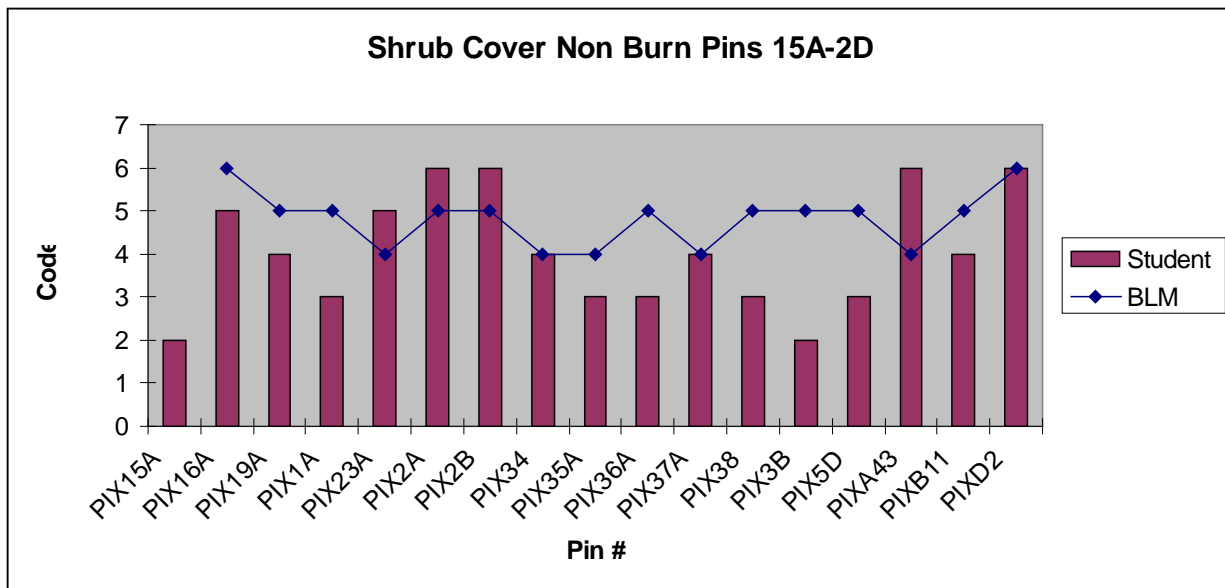
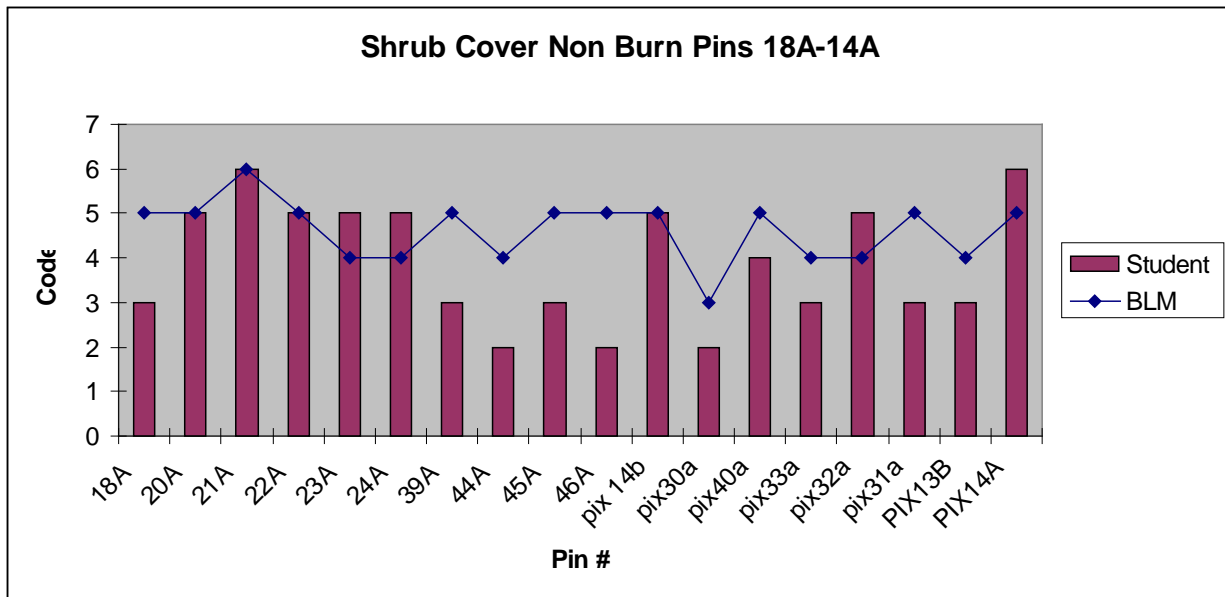


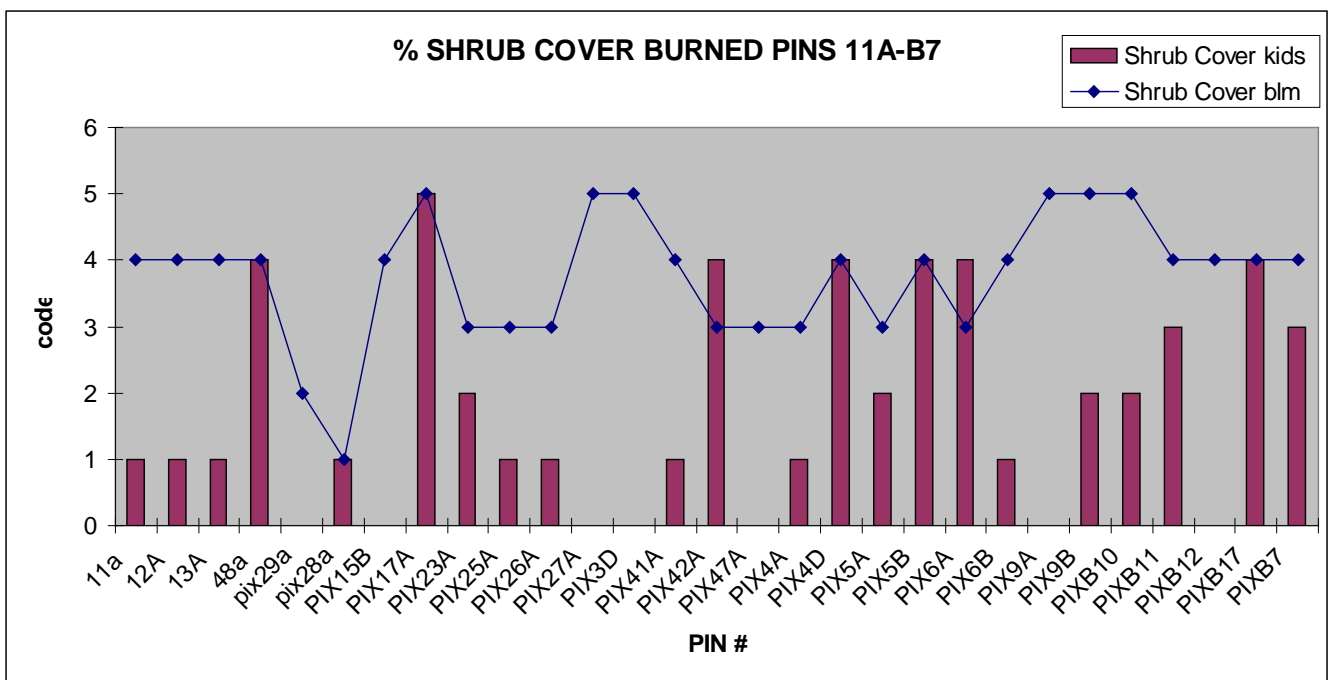
Students use GPS to find the fence post that mark the pins for the study areas. Learning the plants and the landscape challenges students in new ways. The data gathered is used by BLM to determine the changes that a prescribed burn brings to the land.

**7- 70. shrub\_cover\*** (shrub\_cove)

Visual estimate of the percent of the ground covered by shrubs. This data is used to determine shrub fuel loading. Add all ground directly below the perimeter of each individual shrub. The sum of the total shrub coverage area divided by the total area of the plot is equal to the percent coverage. Enter the appropriate corresponding code number into the AShrub Cover@ data dictionary field.

<u>Estimate</u>	<u>Code</u>
none	1
1_to_5_perct	2
6_to_15_perct	3
16_to_30_perct	4
31_to_60_perct	5
more-than_60_perct	6





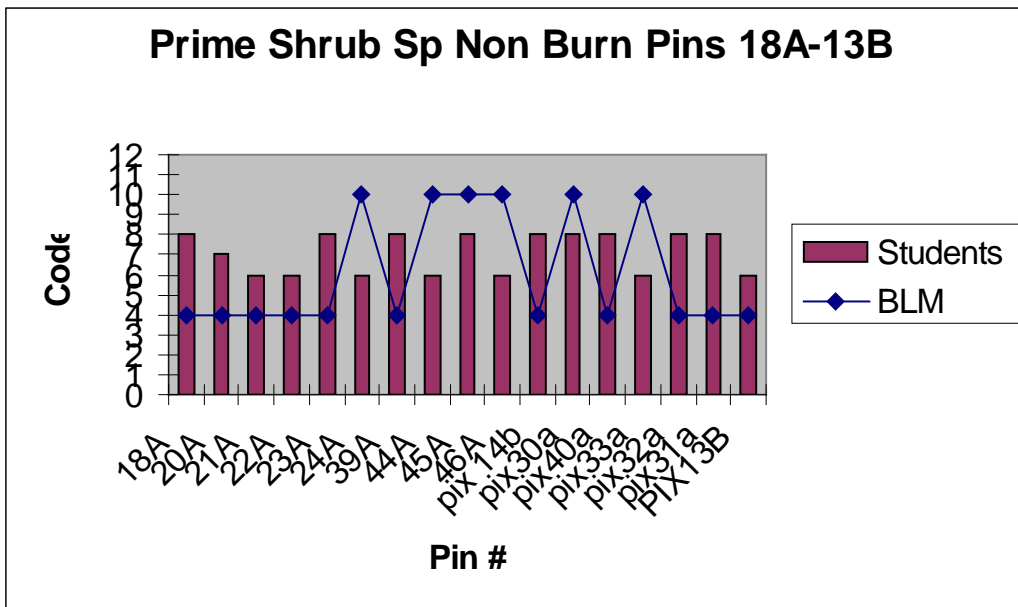
Instructors Gina Lockwood and Steve Demers help Sarah Eames and Chantelle Craft with plant identification and questions with the Data Dictionary.

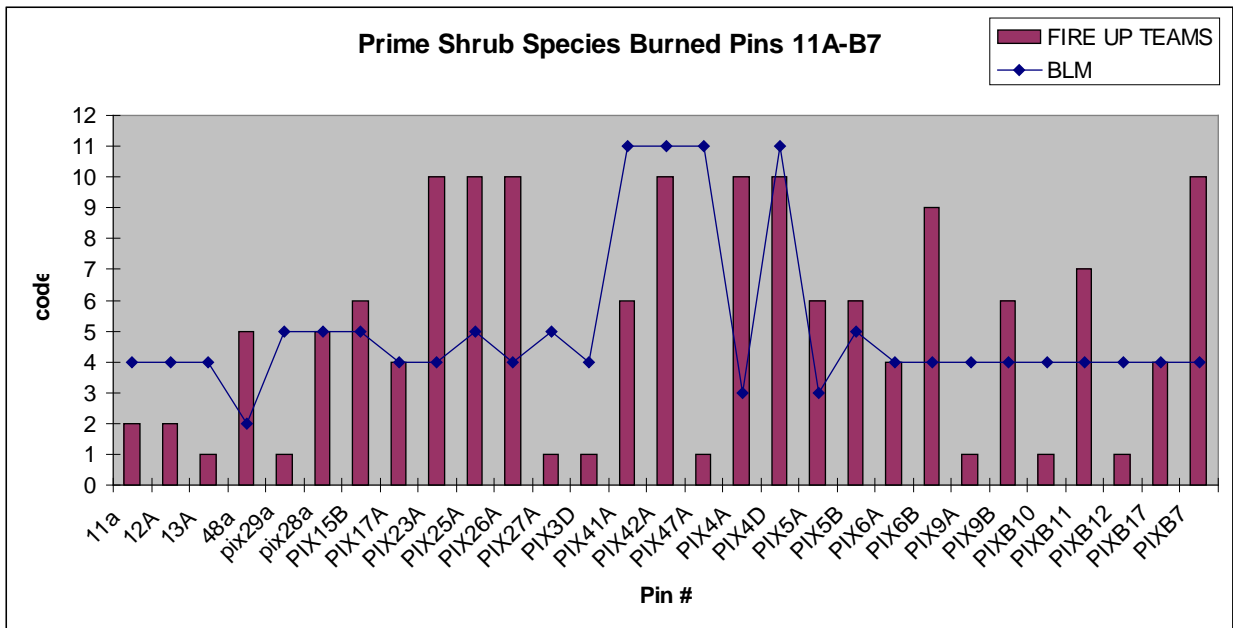
**8- 71. prime\_shrub\_sp\*** (prime\_shru)

Visual observation of the shrub species with the greatest ground cover. This information is used to determine management needs and fire behavior. Choose the species from the data dictionary list which matches the single dominant shrub species in the plot. If the dominant shrub is not listed in the data dictionary menu select Aother@.

Note: The following chart has been modified to illustrate the choices that BLM and Students made from original choices found in the data dictionary. The data dictionary had 28 choices for this questions, only 12 were selected by survey teams.

Attribute	Code	Attribute	Code
No shrubs	1	Ceanothus	7
Other unknown	2	Common juniper	8
Other sage	3	Grouse whortleberry	9
Basin big sage	4	Low sage	10
Bitterbrush	5	Mountain sage	11
Cactus	6	Rabbitbrush	12



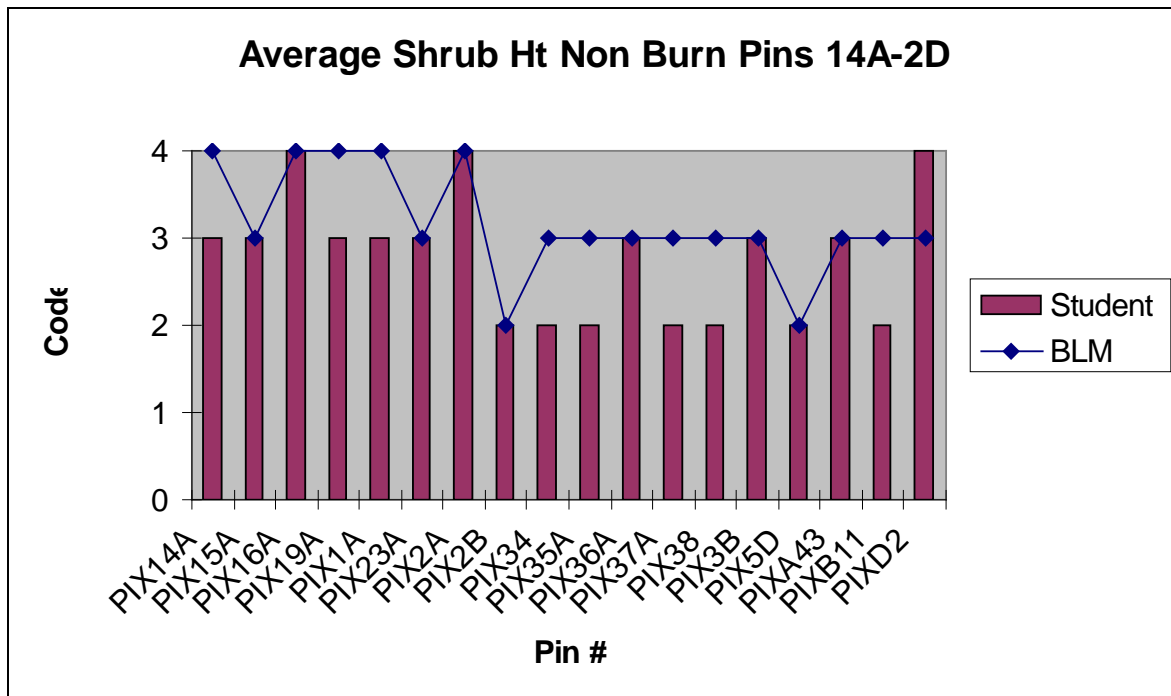
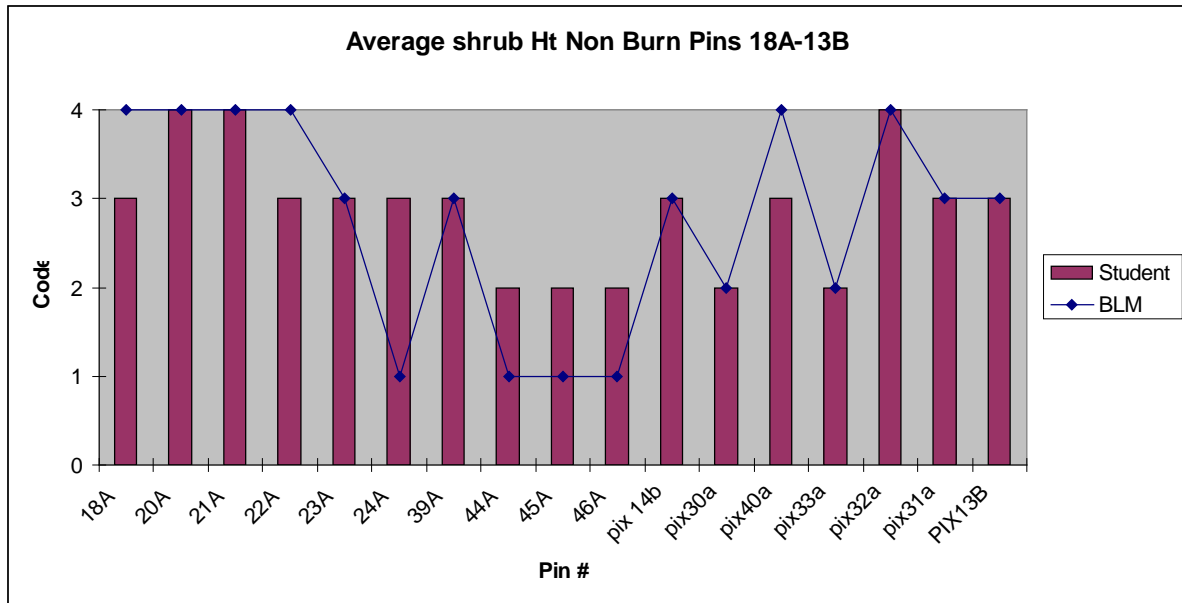


Tobey Jossis teaches Mellissa to use the GPS /Radio.

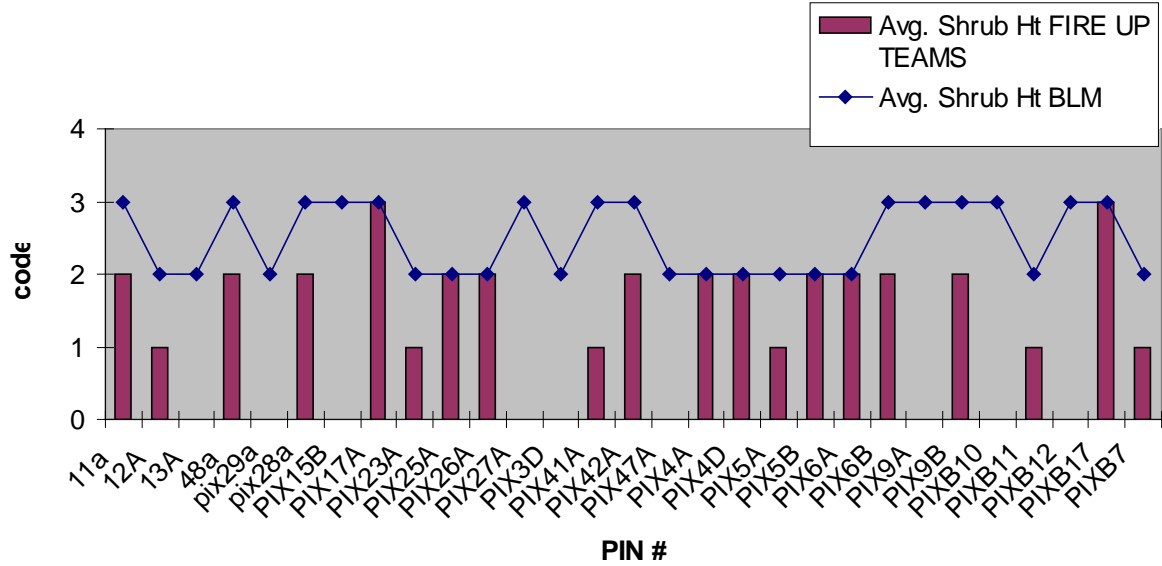
**9- 75. avg\_shrub\_ht\*** (avg\_shrub\_)

Visual estimation of the average shrub height of all the shrubs in the plot area. This data is used to determine the height of the shrub fuel component. This estimate is the average of the total shrubs based on area, not on individual plant heights. Shrubs that cover more total area have greater bias in determining average height. Enter the appropriate corresponding code number into the AShrub Height@ data dictionary field.

Attribute Value	Code
no_shrubs	1
less_than_1ft	2
1_to_3ft	3
more_than_3ft	4



### Average Shrub Ht Burned Pins 11a-B7

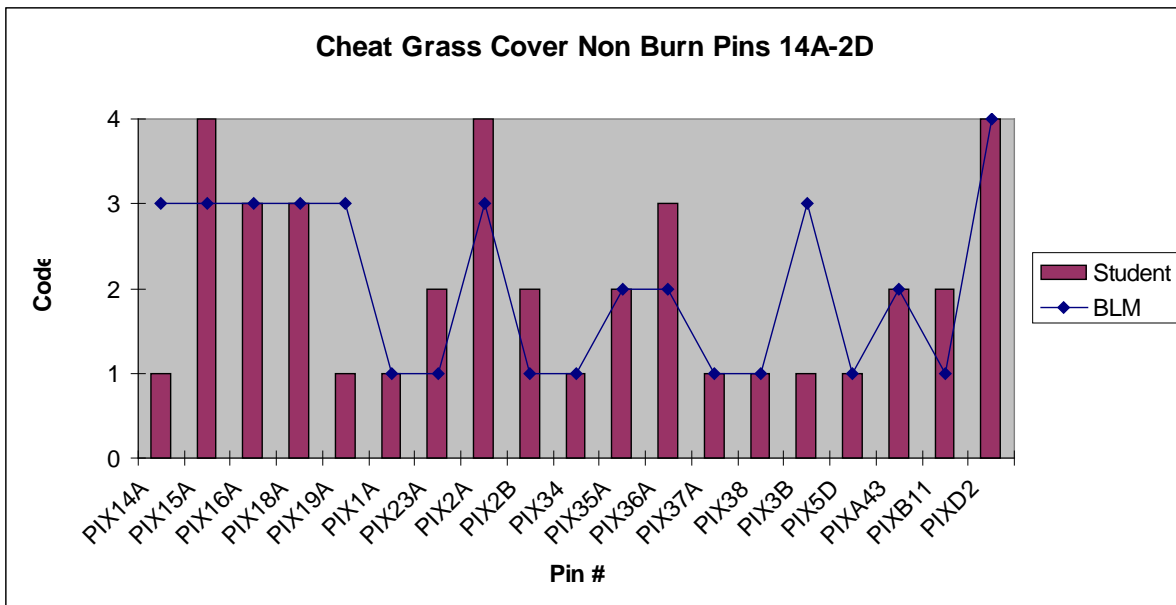
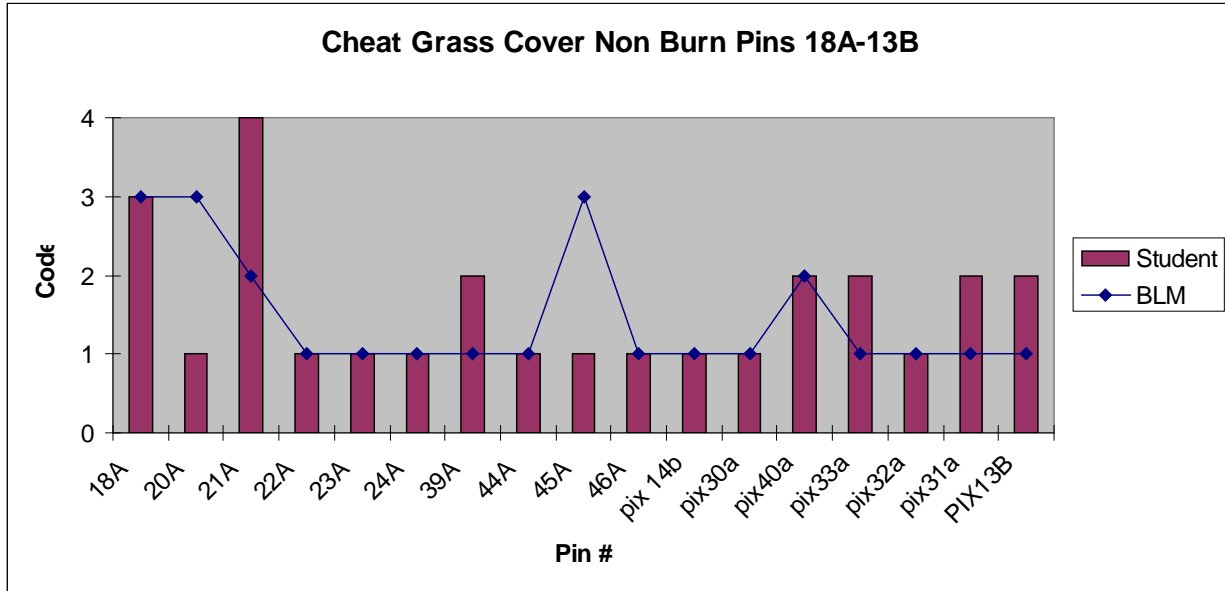


Students experience the adventure of learning. The river corridor is a contrast to the high desert of Pixley Basin prescribed burn study area. The one day float trip is between Swan Falls Dam and Celebration park on the Snake river.

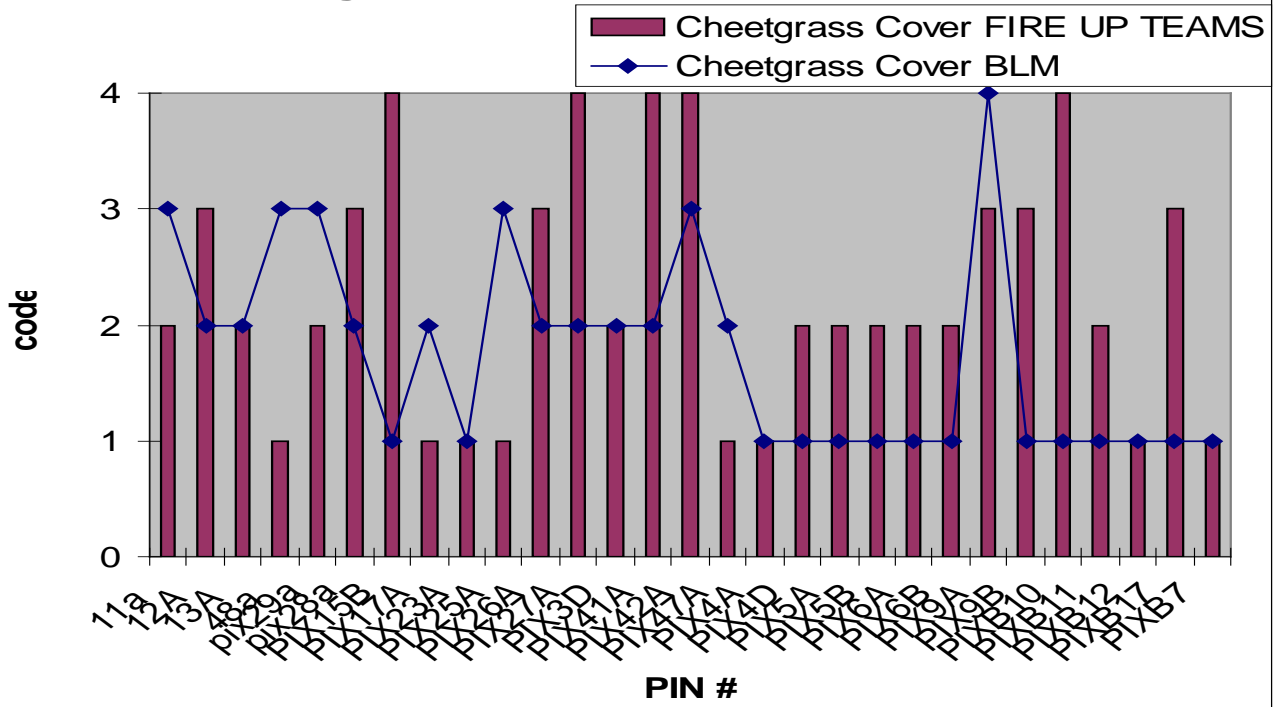
**10- 89. cheatgrass\_cover\*** (cheatgrass)

Estimate of the percent of ground covered by cheatgrass. This is used to determine management needs, fire behavior, and post-burn strategies. The estimate is based on percent of total plot area.

<u>Attribute Value</u>		<u>Code</u>
none	NONE	1
trace_rare	[less_th]	2
low_occasional_plts.	[1_to_5]	3
mod_scatt_plts.	[6_to_25]	4



### Cheatgrass Cover Burned Pins 11a-B7



Ben, Dan and Mike work together to complete gathering and recording data at one of their assigned pins.

# Appendices

This report is supported with a CD that has the following files:

1. BLM Student Comparison of 10 Pins.
2. Fuel Data 2003 (BLM version of the Data Dictionary)
3. Fuel Data Student (Student version of Data Dictionary)
4. Copy of BLM Student
5. Copy of Data Comparison
6. Copy of Graphs DeMers
7. BLM Address Labels

