

National Wildfire Coordinating Group  
Fire Environment Working Team  
Fire Behavior Committee  
Minutes  
FINAL

Missoula, MT  
April 10-13, 2006

Members Present:

Dan Jimenez  
John Saltenberger  
Larry VanBussum  
Risa Lange-Navarro  
Robert Ziel  
Wayne Cook  
Punky Moore – Executive Secretary  
Sheri Shetler – Facilitator

Absent:

Dave Whitmer

**April 10-11, 2006**

Strategic Planning Exercise:

FBC began the process of developing a Strategic Plan. The process will continue May 30 – June 2, 2006 – Boise, ID

**April 11, 2006**

FBC provided input to Joint Action Group for the National Wildland Fire Weather Needs Assessment in the education, training, outreach, partnering and collaboration functional area.

**April 12, 2006**

Additional participants joined FBC meeting:

Greg Byrd, COMET  
Matt Jolly  
Tobin Kelly  
Pat Andrews  
Pat Parrish, COMET  
Joe Scott  
Rob Seli

Action Item #189: Update Committee Charter to reflect changes made from Strategic Planning, due date 6/14/06

Action Item #190: Draft a memo to FENWT regarding DHS participation at meetings, due date 4/25/06

## **Fire Behavior Curriculum and Applications:**

Received curriculum status via email

S190 – Certified, should be on the shelf by May 15

S290 – Out for field review, deadline for comments is May 5

S390 – Waiting for final graphic work for student workbook; should be certified in June.

S490 – Will be starting back to work on this course in June with the goal to test and certify by early fall.

FLAME hand off – first of five is set for April 17-18, Reno, the rest will be scheduled for early fall.

FLAME CD/online module, should be available in June.

Committee is working to change the curriculum maintenance process for more timely revisions, supported by new technology and research.

Considerations:

- Current traditional process is not working
- Continuing education is a challenge
- Revisions to courses need to be incorporated into materials
- FENWT will propose to TWT & GATRs that S490 be moved under FENWT
- April 24<sup>th</sup> – Next step in the process will be made (Dick, Paul & Wayne)
- Lessons Learned Center, myfirecommunity will be involved in housing course materials

## **New Fuel Models – Joe Scott**

History and development

Housed on FRAMES website

Frequently asked how to use/access tool

Pre-conference workshops have been helpful

Value in regional subsets – Northeast could be the spring board to continue development of regional tools.

- There needs to be a coordinated effort between partners and their requests – develop a plan in order to leverage the work that is accomplished.

Action Item #191: Memo to National Interagency Fuels Coordinating Group and/or NWCG Fire Use Working Team to host fuel model repository and incorporated throughout the curriculum, due date 4/24/06

## **Pat Andrews:**

### Improved Methods for the Assessment and Prediction of Grassland Curing

Evaluation of a dynamic load transfer function using grassland curing data results showed that live fuel moisture is not an indicator of level of curing. A significant difference is demonstrated in calculated rate of spread using the load transfer model versus direct entry of live fuel moisture and level of curing.

### **Suggest:**

Allow the user the option to specify both live fuel moisture and percent load transferred independently, in anticipation of improved methods of assessing those values.

Clarify use of the use of the term “curing percent”.

If the decision is made to not make changes to systems that use the dynamic fuel models, then users should be made aware of the implications of the link between live fuel moisture and load transfer.

### **BehavePlus & FlamMap:**

Role of FBC:

Where does BehavePlus training fit in?

- Post S390 optional day
- S490 prework
- BehavePlus specialist
- Fuels
- Effects
- University, foreign

Review & Testing – evaluations and certification

Presentation

Support once it's done

Updates

Distribution

Answers for distance learning courses (human)

Kinds of training:

Online, interactive

Paper tutorials

Demo workshop material

Instructor led hands-on courses

BehavePlus training:

Overview:

ppt download with notes

Online view

Features demo:

What it can do, not how to do it

Paper to read

Demo to watch

Workshop, 2-4 hour demo:

Packaged for others to present

Ppt and program demo

Basic operation, tutorials 1-4:

Paper tutorials

Interactive lessons

Instructor guides

Proposals in JFSP:

Reorganize and update tutorials

Workshop package

Update help

Do a 3-day hands-on course – Course Administrator's Guide

Which modules in BehavePlus should be taught in the 3-day workshop?

- Surface
- Crown

- Safety
- Spot
- Size
- Ignite
- Fuel Moisture Tool
- Table Shading
- File Management
- Ref. S490 Pre-course as example of subjects that might be covered, John Kern

What level of involvement should the FBC consider?

Decision: Reasonable to have oversight/attachment/interaction via Wayne, Risa and Dan

Recommendation:

Example of BehavePlus in curriculum. Integrating BehavePlus runs into contingency planning for Rx burns to provide projections where fire could possibly go out of prescription. BehavePlus should be included in courses that involve prescribed burning.

FlamMap:

FlamMap's utility is growing (solving issues in the field)

Online help and tutorials

Need spatial data to feed into tool

Does FlamMap fit into skill set needed for specialists in the field (FBAN/LTAN)

Can it be a formal component of the fire behavior training (NWCG)

Discussion about WFDSS process – integrating WFIP/WFSA

Decision on committee's role: Need to chart a path

**FLAME:**

Is a large component of S290. S290 is out for field review, deadline for comments is May 5. Weather community has reviewed. Science community is reviewing,

Action Item #192: Distribute Brett Butler's review to FBC, due date 4/21/06

Independent study outside of S290 – Articulate software package will be completed by June. First instructor hand off is in Reno, April 17-18, 2006. Geographic area hand offs will begin late summer/early fall.

Decision: As courses are scheduled, FBC will facilitate getting technical specialists into Instructor hand off courses. Wayne will contact Noble by 4/17/06.

Action Item #193: Draft memo to FBAN/LTAN community about proposal, due date 6/14/06.

**IRPG:**

FBC has budgeted funds to have FLAME in the IRPG – will need to reassess whether to reallocate funds

Identify how FBC can influence advanced courses including FLAME

Format has not been determined (Appendix B or belt weather kit)

**Firefighter Math: Brad Monahan**

Presented online capabilities

- Working on an online format that can be edited and updated (self-taught application)
- Where to house? Work with San Dimas
- Firefightermath.org
- Logo

Decision Item: Need to decide if project will be continued

### **COMET Presentation:**

Blended courses: mix of computer aided learning and teletraining

Virtual courses: traditional intensive multi-day course delivered at a distance

Future Trends: The speed at which technology is changing, (memory storage)

Outcome:

In the foreseeable future we will be able to store all kinds of information

Challenge:

Instructional technologists will have to both imagine new instructional uses for technologies and carefully evaluate them

The Future: enhanced design

- Simulations
- Decision Support
- Risk Management
- Teach response to rare events

Already developing products for the National Wx Service – other entities have free access. Fire agencies can join the consortium – more discussion needed.

Costs:

Depends on needs = highly interactive and complex will be costly

High end (\$50-60,000 per hour of instruction)

Medium interaction/animation (\$20-25,000)

Low – capturing text and streaming (\$5-10,000)

FBC should consider:

Drawing on internal expertise and contributions in concert with COMET; could help keep costs down.

Action Item #194: Provide update to FENWT (Dick & Paul) on opportunity to join COMET consortium, due date 4/24/06

### **Curriculum & Application Development & Maintenance Strategy**

Objective: S190 – S490

1. Develop the maintenance and update cycle that facilitates dynamic courses released as soon as possible

Propose to TWT that S490 be moved under FENWT oversight

- Will provide a product that can be updated and kept current
- Will ensure a valid system in place to find the best SMEs
- Frustration among SMEs who participated

- FBC can build the team to get the job done
- SME contribution needs to be identified and recognized in position description
- Support for SMEs (travel)
- Four years and there is still no course
- Lessons Learned Center has agreed to house the site
- Developer support through JFSP
- Possible FiSL Fire Behavior Project involvement
- Cannot over emphasize the need for the right person to oversee the process – more than a training specialist

In order to get course out by fall '06:

- Introductory lesson needs to be redrafted
- Problems with pre-work, progression has changed, needs re-work
- BehavePlus exercises may not produce desired skill levels
- Extreme Fire Behavior needs work
- 2 lessons need to be redrafted

FBC will provide in the revision process:

Group process to funnel information up  
 Periodic peer review  
 Knowledgeable support for direction and guidance

What can TWT provide to FBC?

Short Term: GS 11 Training specialist with fire behavior experience  
 Minimum: 3-6 months of an FTE (training coordinating specialist) to manage the fire behavior curriculum

Discussion about concept for Fire Behavior Service Center: a pool of support not restricted to modeling & curriculum. Coordination and leveraging of funds and resources (WFDSS)

Where is JFSP going? Could it be the UCAR for the fire behavior community?

- Access to research and ability to synthesize the body of knowledge
- Need Fire Behavior Synthesis for meaningful, useful information
- Literature search capabilities to avoid errors in content

S490 Plus – Exploring how to revise the curriculum to reflect changes coming; opportunity to change the path. What is appropriate and how much can be distance/pre-work? FireFamilyPlus should be distance learning module. Where does Data Development fit?

- NAFRI – has the vision to support the S490 plus curriculum
- Distance Learning should be distinct from the courses
- Re-emphasize refresher component
- Change courses to proficiencies

Decision: Need to update course matrix

**April 13, 2006**

Additional participants at FBC meeting:

Brett Butler

Jack Cohen

Jason Forthofer

Brian Potter, via conference call

Review of April 12 notes, decisions & actions

**FBAN/LTAN Competencies & Taskbook:**

NWCG is restructuring its strategic plan which will address competencies and building taskbooks from the competencies, similar to NFAEB. Information will be provided to committees (S590, FBC); they will be asked for input into the process before competencies are finalized. This process should precede our role in updating the curriculum.

Other taskbooks that might be considered for revision:

Burn Boss

**IRPG:**

FBC has a role to see that IRPG supports fire predictions in the field and reflects FLAME – formal proposal has to go to IOSWT. Update for the '08 season needs to be finalized winter '07. Need electronic versions of worksheets to fill the gaps until revisions are made. Training Development Group is producing FLAME insert. Budget allocation for FLAME into the IRPG will be revised.

Decision: Not necessary to request update to IRPG until '08 cycle.

Action Item #195: Open a topic area on myfirecommunity to compile input to be added to or deleted from IRPG, dedicate time at April '07 meeting to address needs, due date 5/30/06

Action Item#196: Draft proposal to IOSWT for changes to IRPG, due date April '07

**JFSP/AFP:**

Discussion included communication with JFSP directors and opportunities for joint requests with Fire Sciences Lab that can benefit the FBC. FBC has recognized gaps in the learning curriculum – our needs could be included in next AFP. Need to submit questions that FBC wants JFSP to consider exploring in the next round of research proposals.

Need to be submitted by **Friday, April 21** for consideration by the Board in May. FBC should also explore opportunities for unsolicited AFPs to meet specific needs.

FBC Recommendations:

- Extreme fire behavior, reference materials
- Fire Behavior Synthesis
- Virtual campus, prototype from COMET
- Fire Weather refresher storehouse including core information and scenarios that are updated periodically

## **Extreme Fire Behavior Discussion:**

Zeke provided background information on previous discussions and outlined expectations for this call. It is recognized that there are problems with content on this topic in the curriculum. To date, not everybody agrees that wind-driven, plume dominated distinction should come out of curriculum.

The group was asked how to map out a strategy for the most expedient way to make changes to the curriculum. A more rapid revision process can help facilitate asking research to review routinely before materials go to print.

Anticipation of extreme fire behavior is where we want to be. At the very least, the order in which things are introduced needs to be addressed. Regardless of wind dominated or plume dominated, what are the safety issues and what should we be teaching?

S290/390/490 Objectives:

Objectives in the classes do not match the objectives in the course topics matrix. Objectives are developed independently from the course material. Personnel and materials were not adequate to write good lessons to accomplish effective learning. Need a pair of researchers and field observers to develop curriculum, subject matter and learning methods.

S490

2<sup>nd</sup> objective – stability is important but one factor ignored is the third dimension when things become erratic (wind shear).

Change to: Describe the relationship between extreme fire behavior and vertical structure of the atmosphere.

3<sup>rd</sup> objective – Remove – Define and relate the relative influences of the power of the wind and power of the fire

S390

Missing discussion of vortices

Issues:

1<sup>st</sup> – Different individuals bring different levels of knowledge to the job. Should focus on various levels of use, training levels and how to incorporate in the curriculum.

2<sup>nd</sup> – Level of revision for curriculum needs to be determined.

3<sup>rd</sup> – Instead of trying to categorically put the behavior in a box, look at the watch outs, environmental factors and probability issues

4<sup>th</sup> – Introduce predisposing factors, comparisons, background elements to have a framework to better define the watch outs for changes.

5<sup>th</sup> – Need to be able to visualize the behavior and have some ways to recognize steps that need to be taken

6<sup>th</sup> – Utilize opportunity to use FLAME, how to look for the next big change

7<sup>th</sup> – Recognize in all courses that series of tools and concepts are available that fireline personnel need to make assessments.

Considerations:

Need to distinguish between firefighter safety and fire suppression effectiveness. How can we consider both things at the same time? FLAME does address this issue.

## JFSP & AFPs

### Recommendations:

Present this to JFSP as an opportunity to do technology transfer. Submit request to upgrade curriculum through a whole course approach. Propose some synthesis work. Operational, education and research aspects need to be covered. Describe the problem and what kind of improvements need to be made for safe and effective operations.

Go to research station directors; researcher informal participation is not working – it's important to give credit due. Researchers are interested in seeing their work realized; keep bringing them back to the table. Identify areas that need further exploration, (researcher's perspective).

Addressing issue now: Training Development Group is aware that the process is broken. A path needs to be determined for course construction and revision. Courses have to be reviewed in detail when they are drafted. Instructors or SMEs may not be the best course developers. Need to work with professional educators.

### Recommendations:

1. Action Item # 197: Provide course materials to reviewers to fix glaring problems, due date 5/30/06
2. Funding ideas – Science application portfolio thru National Fire Plan is a possible avenue for funding for projects, (transfer of research education); make suggestions for JFSP & AFP – see Action Item #179
3. How to design a course management process, prototype and cost
4. Fire Behavior Synthesis – It is time to bring together the current state of knowledge into a resource that can be used by instructors and field practitioners. This knowledge base should serve to identify the needs for future exploration and examination to improve not only the subjective understanding but models for prediction – see Action Item #179

### **'07 Conference Planning:**

Wayne reported on the 1<sup>st</sup> Fuels and Fire Behavior Conference, Portland, OR  
Deemed a success

500 participants

Survey from 1<sup>st</sup> conference will be helpful for planning purposes, Wayne will post on myfirecommunity.

Mark Titus, IAWF Board Member, our rep to IAWF

San Destin representatives came to Portland and agreed to host 2<sup>nd</sup> Conference

IAWF decided to sub contract for conference planning support

FBC is part of the steering committee for the conference

Wayne will make a site visit May 1-2, 2006

Jim Brenner, Florida Div. of Forestry

James Furman, Eglin AFB FMO (field trip or staff ride)

Florida Prescribed Fire Council asked to sponsor conference (vehicle to certify for credits)

Joint Fire Sciences donated \$20,000 to Portland conference

\*\*\*Joint Fire Sciences Principal Investigation participation?

Sponsors are a major part of being successful financially

Private entities can be approached as vendors (Dell)

Consider whether IMT meetings are being held concurrently

Format same as 1<sup>st</sup> conference with multiple sessions, up to 4 tracks

Published proceedings

Raffle, proceeds went to the Wildland Firefighter Foundation

FBC's role in respect to other sponsors will depend on level of conference planning support. FBC members will serve in oversight roles for different functional areas.

Action Item #198: Wayne & Brett will provide template for members to use in approaching sponsors, due date 4/30/06

Action Item #199: Create a schedule for request for papers and deadlines (Wayne, Brett, Dan), due date 5/30/06

Action Item #200: Develop the list of sponsors and start scheduling conference calls (Wayne, Brett, Dan), due date ????

### **Budget Update and Revision:**

Updated spreadsheet attached.

Action Item #201: Larry will inquire whether NWS is interested in providing assistance on weather refresher, due date 5/30/06

Action Item #202: Wayne will ask FENWT (Paul) about interest in funding BLM refresher weather session – what are BLM expectations for materials? Due date 5/30/06

Reference Materials – Appendix B improvement (need contractor with FBC oversight)

Need a course of action how we would update our materials

Joe Scott Work Order Priorities:

- 1 Reference Materials
- 2 NE Fuel Workshop
- 3 Glossary
- 4 Tech Rev, sup

### **Membership:**

It is important that the FBC is fully represented by the membership as well as members representing the FBC back to the agencies and fire community. The proxy opportunity is available if attendance is a problem. Discussion included the need for additional committee members. Recommendations were made to fill the current S590 representative vacancy and to make a request to agencies to fill additional positions. Also considered revising charter to reflect new membership (Qualified Fire Behavior Analysts or Long Term Analysts).

### **Business Practices:**

Discussed posting business information on the NWCG website; agreed on draft/revision schedule before posting.

**Updated Meeting Schedule:**

- Jan. 17, 2006 @ 1300 MST – teleconference
- Feb. 22, 2006 @ 1000 MST – teleconference
- March, 2006 – Canceled
- April 10-14, 2006 – Meeting – Missoula, MT
- May 30-June 2, 2006 – Meeting – Boise, ID
- June 14, 2006 @ 1000 MDT – teleconference
- July 12, 2006 @ 1000 MDT – teleconference
- Aug. 16, 2006 @ 1000 MDT - teleconference
- Sept. 13, 2006 @ 1000 MDT – teleconference
- Oct. 16-20, 2006 – Meeting – Marquette, MI

**After Action Review:**

- We accomplished a lot
- Venue grew on us thru the week
- Very convenient meeting location
- Helpful that Wayne had already participated in a strategic planning exercise
- Followed the agenda

**Meeting adjourned 1730, 4/13/06**