UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
Office of Fire and Aviation
3833 South Development Ave.
Boise, Idaho 83705

December 22, 1998

In Reply Refer To:
9210 (FA-130) P

EMS Transmission 12/23/98
Information Bulletin No. OF&A 99-019

To: State Directors

From: Director, Office of Fire and Aviation

Subject: Meeting Notes for the National Advisory Group for Fire Danger Rating

The National Advisory Group for Fire Danger Rating (NAGFDR) is an interagency committee charged with advising the Forest Service and National Wildfire Coordinating Group (NWCG) on all aspects of the National Fire Danger Rating System. As such, NAGFDR has become the national forum for innovations and applications of fire danger rating. With new user-friendly software (Firefamily Plus), a web-site for easy access to local Fire Danger Rating Pocket Cards, and more emphasis on training (S-491), NAGFDR is working to make fire danger rating relevant and helpful to the firefighter.

To find out what else this group is doing, we invite you to review the attached Minutes from NAGFDR's May 1998 meeting. Highlights and relevant updates since the meeting are also summarized.

Please contact Paul Schlobohm, Office of Fire and Aviation, at 208-387-5444 if you have any questions regarding this material.

Signed by:
Lester K. Rosenkrance
Director, Office of Fire and Aviation

Authenticated by:
Pat Lewis
Supervisory Mgmt. Asst.

2 - Attachments
1 - Summary (1 p.)
2 - NAGFDR Meeting Notes (18 pp.)

Distribution:
Jay Thietten, Room 5627 MIB
Brian Eldredge, NARTC
Fire Program Manager
Aviation Program Manager
NIFC Administrator

Highlights and Update for NAGFDR Meeting Minutes for May 26-27, 1998

1. This Spring 1998 historical 1300 hour data was retrieved from the Western Regional Climate Center and provided to the Weather Information Management System (WIMS) for the purpose of filling in missing weather records in the National Interagency Fire Management Integrated Database (NIFMID) archive. At this time that data has not yet been merged because WIMS is undergoing a major formatting change.

2. The new program Firefamily Plus will be available February 1999. This public domain software will be the cornerstone of fire danger analysis for years to come. It is a Windows based program that replaces and dramatically improves upon the DOS-based Firefamily programs PCFIRDAT and PCSEASON. It will also perform the fire business analysis now found in FIRES and be the place for easy construction of Fire Danger Pocket Cards. Other feature include performing analysis for a single station or for groups of stations (SIGS); make analysis runs using the Canadian Forest Fire Danger Rating System; enable analysis of daily or hourly data.

3. NAGFDR offered support to current development of S-491 Intermediate Fire Danger Rating, an NWCG course to be presented at the Geographic Area level as a prerequisite to both the national NFDRS course and to S-492 Rerap in the Fire Behavior curriculum.

4. Access to WIMS directly via the internet will be available within the year.

5. A website has been developed for posting and access to local unit Fire Danger Rating Pocket Cards for Firefighter Safety (developed by NAGFDR). The host address is http://fire.blm.gov/nfdrs. You can also get there from the NWCG homepage at http://www.nwcg.gov then select Resources, or from the US Forest Service fire technology transfer website at http://fire.org then select Online and FDRPC. At this site you can find 1) Pocket Cards from the US, organized by geographic area and agency, 2) an explanation of what the card is and how to use it, 3) a guide to creating your own card and how to get it posted, and 4) instructions on how to print cards for your use.

6. Implementation of solar radiation sensors as a measure of or parameter for state of the weather and fuel moisture is expected by 2000.

7. Study results of a comparison of Keetch-Byram Drought Index (KBDI) and Energy Release Component (ERC) to historical fire occurance in Idaho suggest using caution when applying KBDI. No correlation of KBDI to occurance was found throughout the state. KBDI appears most applicable in humid, moist climates with deep duff layers.

8. NAGFDR meets twice a year. Next meeting is December 15-16, 1998.

National Advisory Group

for

Fire Danger Rating

NAGFDR Missoula Meeting Minutes May 26 - 27 1998

Attendees:

Members	**Agency Representing**
Dave Bunnell, Chair	USFS, NIFC, FS Rep.
Gary M. Curcio, VC/Sec.	NCDFR, Southeast States Rep.
Doug Anderson	MNDNR, Northeast States Rep.
Larry Bradshaw	USFS, Fire Lab. Rep.
Steve Dunlap	CDF, Western States Rep.
Roger Tucker	USFS, WO, WS&A

Absent Members

Tom Zimmerman	NPS, DOI Rep.
Paul Schlobohm	DOI BLM Rep.

Other Meeting Attendees

Jeff Barnes (Teleconference call)	USFS, WO, Systems Support Gp.
Francis Fujioka	USFS, Riverside Fire Lab
Paul Stokols (Teleconference call)	NWS, WO
Doug Bright	USFS, Winema N.F.
Wayne Mitchell	CDF, Sacramento, CA
Russ Gripp	USFS, NCAP
Mike Barrowcliff (Teleconference call)	USFS, WO, Systems Support Gp.
Marty Whitmore	NWS, Missoula, MT
Bob Burgan	USFS, IMFSL
Paul Stewart	USFS, IMFSL

1. **Review of the previous meeting's business (January 6-9, 1998 Reno, Nevada)**

- to facilitate the review of the Reno, Nevada, meeting the NAGFDR Task Summary Sheet **was** used as guide. The following remarks were made for the respective tasks **as** numbered on the Reno, NV, Task Summary Sheet.

Item #

3 RAWS weather data generated by BLM / WRCC project.

- WRCC Summary paper was completed by Dr. Tim Brown
- Verification & accounting of all RAWS to be completed by ***P. Schlobohm by November 1998.***
- WO Support Group ***(J. Barnes)*** is to still load the data, flag the data, & document in the REM's statement ***by November 1998.***

4 Develop a macro program to streamline the ability to make the Fireflghter's Fire Danger Rating Pocket Card.

- after much discussion this item was deleted, amended and incorporated as a new task. The streamline process will appear as part of the new Fire Family Plus software which should be available this year. (***L. Bradshaw, December 1998)***

5 Solar Radiation Research Work & Solar Sensors.

- research article has gone to publisher (*Wildland Fire*) for review.
- an off WIMS system prototype operation test needs to be implemented this summer for evaluation. **(L** ***Bradshaw & J Barnes****)*
- NAGFDR's recommendation concerning this technology advancement needs to be forwarded to the Director of Fire & Aviation with appropriate cc's as specified in the Reno minutes ***(D. Bunnell & G. Curcio).***

7 Rational & Value to eliminate the KC FAST project & concentrate on improving & enhancing WIMS through the WEB technology.

1) a draft letter was completed & forwarded to **D. Bunnell.** This NAGFDR recommendation was to be passed onto the WO Support Systems Group, **M. Barrowcliff.**
A conference call was to have been conducted to facilitate this recommendation; **J. Barnes, L. Bradshaw, P. Schlobohm & P. Guilbert.**

2) HUB dial up of AWS.
The word is out to the field on the HUB concept. It is still being tested. Before going operational, the USFS Weather Program **(R. Tucker)** & the National RAWS Coordinator **(Kolleen Shelley)** will call the participating respective agency contacts to verify their willingness to be hubbed. **This weather data collection will still require the necessary editing to appear daily on the WFAS Products as generated by the Missoula Fire Lab.**

3) the proper use of WIMS help line is to be facilitated by NAGFDR.
Proposed action, a NAGFDR recommendation to Regional Directors, training officers & NFDRS steering committee on the proper use of WIMS help line, is to be verified by **G. Curcio** (a continued action item).

8 Re-examination of NAGFDR's role with the recent need of sunsetting of NFWAG. An official NAGFDR communication process was initiated with NWWT Chair Gerry Day. An invitation to NAGFDR's meeting in Missoula was extended.

NAGFDR's thoughts concerning this issue were to be passed onto to the Director of Fire & Aviation Mary Jo Lavin. These thoughts were discussed with Tom Patton by R. Tucker. An official NAGDFR

correspondence was not made, and the need for an official NAGFDR response to the Director of Fire & Aviation will be reviewed by NAGFDR's Executive Committee.**(G. Curcio & D. Bunnell).**

9 Check on the availability & use of lightning data as a WFAS product.
This was completed. WFAS is not able to use the lightning data collected by the Global Atmospheric Institute. They have sole control of the data & how it can be distributed. Anyone who has an account password with GAI can access the lightning point data through the Missoula Fire Lab. The lab cannot distribute value added products to anyone on the WEB & what information is passed on can only be forwarded within the USFS (i.e. the THOR project). CDF is developing a lightning information product for their organization. **Steve Dunlap, CDF,** will share this product development at the next NAGFDR meeting.

This concludes the review of the action items generated from the Reno, NV, meeting.

The following items represent the review of the action items generated from the June 1997 Redding CA Meeting Task Summary Sheet.

Item #

1 NAGFDR needs to be placed on the NWCG & USFS Homepage.

- NAGFDR is now on the NWCG Homepage. This task is completed. A new task has been generated whereby the NWCG page now needs to be developed for NAGFDR **(contact Dottie Miller on this issue)** (**G. Curcio & M. Barrrowcliff).** Also, a link on the USFS Homepage **(contact Paul Wilson on this issue)** needs to be established. Both these homepages also need to be linked to the Fire Danger Rating Pocket Card Homepage.

2 Nurture a commensal relationship between NWWT & NAGFDR.

- this is ongoing and will be maintained through VC/Secretary correspondence as well as through the shared members between the working team & the advisory group. **The Fire Weather Team & the Fire Danger Group are separate entities that provide very needed scrutiny, direction, & advisement to the interagency Weather Program & Fire Danger Program needs.**

9 Draft a position letter concerning the development of "new" Fire Danger software products by commercial vendors.
This is on going.

- the concern here is that there needs to be "absolute consistency" of the calculating function of the Fire Danger Indexes & Components by the vendors software.
- Missoula Fire Lab & WO Support Group is to prepare recommendations, & develop standard "B" test to be installed in WIMS **(J. Barnes & L. Bradshaw).**

13 Satellite RAWS, Hubbing AWS network & WIMS Compatibility Issue.
This is ongoing.

- Missoula Fire Lab determine wet flag rules for I 1000 HR fuels (L. **Bradshaw).** Refer to item # 24. - WO Support Group (**M. Barrowcliff)** modify ingest routines & prepare the watchdog rules for the Hubbed AWS network. This is necessary in order to maintain consistency & uniformity between the Satellite RAWS & the Hubbed AWS.
- draft a technical letter for D. Bunnell. This task was completed by L. Bradshaw and handed out at the meeting, "Weather Needs for the Wildland Fire Assessment System".
- **D. Bunnell** will use this draft letter as an attachment to NAGFDR's recommendations for the enhancements to the Fire Danger Program for the Director of F&A, Mary Jo Lavin. It also needs to be noted that Missoula Fire Lab's and Support Systems Group's time and effort are needed on this project NAGFDR's letter needs to appropriately address the need to modify the historical database i.e. fuel temperature, wet flags, and state of weather as determined from solar radiation input.

23 Develop a concise checklist for developing a Fire Danger Operating Plan.

- this was completed by CDF's Wayne Mitchell & Pete Guilbert. However, it is currently residing in a crashed hard drive. It is currently trying to be retrieved. The completed document needs to be forwarded to the Director of Fire Aviation as well as information on the various NAGFDR & FDRPC websites for field distribution. A follow-up advisement, field operations reminder, is recommended by NAGFDR to come from the Director of Fire Aviation. The efforts made by USFS Region 3 Larry McKoy and BLM's Great Basin need to be acknowledged & commended. This is to be followed up (**G. Curcio & Dave Bunnell).**

- NWCG or someone distributed a package concerning "Fire Season Preparedness Review Checklist". There was no attention given to the Fire Danger Program. This would be an opportunity to include & promote the NFDR Operating Plan as well as be consistent in the propagation of NAGFDR's A.6 South Canyon's Recommendations. Concepts reflecting the health of a local unit's Fire Danger Program needs to be incorporated in the Preparedness Review. The NFDR Operating Plan would also support the implementation of the new National Wildland Fire & Prescribed Fire Policy. Because sound decisions need to be based on good quality data, the NFDRS Operating Plan with its decision process along with a weather data collection network can be a source, foundation or starting point for these policies. This is to be followed up by **R. Gripp & G. Curcio**.

- CDF's Steve Dunlap and NAGFDR's new western states representative, did pass out for the Group, copies of CDF.'s format (implementation plan & time table) to prepare and complete an NFDRS Operating Plan.

24 1000 FM Algorithm Correction & Adjustment for snow covered NFDRS RAWS.

This is ongoing.

- this task was partially completed as the corrective measures were developed and tested in PC Danger by the Missoula Fire Lab. L. Bradshaw utilized the original rules as created by John Deeming and re-entered them into the calculation process.
- it now needs to be passed onto the WO Support Group in order to make the necessary correction in WIMS (**M. Barrowcliff**).

31 Solar Radiation Sensors.

This is on going.

- The preparation of a background letter explaining this item has been submitted to NAGFDR & NWWT **(L. Bradshaw).**
- NAGFDR's advisement to the Director of F&A now needs to done in order to complete this assignment. **(D. Bunnell & G. Curcio**)

This concludes the follow-up business generated from the Redding CA meeting.

There was only one item that was reviewed from the Reno NV meeting minutes.

Item #

11 The Need for the Development or the Concept of S level courses, regional & national, for the National Fire Danger Rating System.

-P. Schlobohm's thoughts were shared with the Group as well as Wayne Cook's letter which was addressed to Leenhouts, G. Martin & D. Bunnell. The letter was concerned with the S numbering of NFDRS courses.
- it was discussed & recommended by the NAGFDR that the current Regional level (geographic area) NFDRS course needs to be adopted as NWCG's S 400 and 500 series courses. It is essential that the

Regional course, S 491, have as its core the foundation obtained from the NARTC national NFDRS Course (S 5XX). This will facilitate the health, consistency, continued enhancement, & maintenance of the national fire danger program. It is also recommended that the national S 5XX series course needs to especially emphasize the basic core foundation, emerging technologies and the understanding of the application & use of the NFDRS process as it pertains to Fire management. This would include the application of Prescribed Fire use as well. All S level courses are dynamic. It is essential that they maintain flexibility to adapt to the specific audience. Even though the S 5XX level course will be included in the NWCG arena, the NFDRS Steering committee will continue to work with NAGFDR, NWCG, and all field units as sources for guidance & counsel.

Action:
- this was tasked as a new action item. R.Gripp with the assistance of W. Mitchell, R. Tucker, S.Dunlap, D. Anderson, G. Curcio, & D. Bright were to prepare a rough draft to Chair D. Bunnell who would then finalize NAGFDR's recommendation. This was to be faxed to D. Bunnell by May 28,1998. This action should also facilitate the needs for other S course as RERAP & FARSITE. Emphasis needs to be directed through the F&A to the Regional Directors & Training Officers to insure that at the regional courses core basics are covered as well as generating output files from Fire Danger software & the ability to access fire weather data from KC FAST or WIMS. As time moves on certain positions in wildland fire suppression (i. e. FBA 's , safety officers, intelligence officers, dispatchers, regional experts/instructors, & firefighters) will require various levels of NFDRS training. The regional course is to provide the nuts & bolts focusing on inputs & outputs and what drives what. The national course is to train the trainer & be the test bed for initiating the transfer of new & advancing technology.

- Special Note: if additional letters are required the state representatives (NC, CA, & MN) are ready & willing to provide additional support &/or feedback.

II. NAGFDR New Business - Missoula MT

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1. New or additional business items were solicited & added to the previously prepared Agenda.

2. Teleconference Call to facilitate discussion on NWS & WO Support Group Issues.

A. NWS - Paul Stokols.

a. LAL parameter is there a need to have it as a continued required NWS forecasted parameter?

Discussion:

This item was previously discussed by NAGFDR and was determined not to be a nationally required item in the Fire Danger Program. The NWS would like to eliminate this item in the weather forecast. However, if the local user has the need for this item, the local forecasting office will tailor the local NWS forecast to incorporate this locally required parameter. Also, the NWS can add any pertinent lightning information in the forecast narrative.

Action:
- L. Bradshaw is to prepare a draft letter for D. Bunnell concerning this issue. NAGFDR's is endorsement to exclude this LAL only when there is no local need indicated by the local user. This NAGFDR response will then be forwarded to NWS, PaulStokols.

b. FWWT recommendations to the NWS.

Discussion:

- Since the NWS Fire Weather Task Meeting in Colorado, Dave Goens & Paul Stokols have incorporated many of the FWWT suggestions / recommendations to be used by the NWS (i.e. the certification & evaluation criteria, definition of "dedicated service" etc.,). Paul Stokols will present a

report to the NWS Director on 6/11/98 and plans to discuss it with NWCG at the annual meeting. The FWWT is waiting for the NWS Director's response/decision to this report.

c. Introducing changes to the Gateway.

Discussion:

- When making changes such as the WMO heading on the Gateway, the WO Support Group would like a heads up notification prior to the change. The notification of the change showed up two weeks after the fact. It contained all the necessary information and would have greatly facilitated the change if the NWS Data Review Group, Gary Schilling, had given the WO Support Group an advanced notice.

Action:

- Paul Stokols is to check on improving information flow to the WO Support Group in order to facilitate smoother changes in the future. Paul Stokols will check with the NWS Development Team, Gary Schelling, on timely notification and will advise Jeff Barnes of the improved transfer process.

B. WO Support Group Update - Jeff Barnes, Mike Barrowcliff, & Delvin Bunton.

a. FTS HUB Dialer @ NITC - KC update.

Discussion:

- This HUB is a transport method of weather data from the NFDRS station to WIMS.
- The stations are first loaded into the HUB. There is a setback in getting the data from the HUB to WIMS. There is a date stamp problem where records were being duplicated. This has been resolved.
- The WO Support Group believes that the HUB system will not crash in the year 2000. Remsoft and FTS are committed to resolve the unique FTS call up feature which would limit the systems capability.
- The HUB will cross three time zones and is DOS based as it gives better performance than windows. It takes 45 seconds to complete a station call so 75 stations can be accessed in an hour. The callup frequency is one time per day. The callup time is flexible and will be adjusted as not to interfere with local agency operations.
- WFAS products are based on 1300 obs. and HUB netted stations will be available to WFAS provided that the readings have been edited & state of the weather has been entered. To date there are 100 stations in the HUB.
- The Missoula NWS is considering making their area stations data accessible on their NWS homepage without having to go into WIMS

Action:

- National RA WS Program Coordinator will advise the users when it is up & running and the procedural steps to follow to access the data as well as the necessary steps to implement to see the weather station data infiltrate the WFAS products. This will refine the reliability & accuracy of WFAS. When the HUB is operational, it will be turned over to the WIMS HELP DESK (later this summer) and then administered out of NIFC.

- Currently there is no watchdog built into the HUB system. It is recommended that the WO Support Group initiate action and by the end of the year have a rudimentary system in place. The WO Support needs to be involved in the discussions & system development the Missoula Fire Lab.

- The WO Support Group needs to publish a Tech Note to advise that the HUB system, nonsatellite stations, are watchdog free and it is the responsibility of the user/station owner to check on the accuracy of their archived data. This needs to be done for quality control

- There is the need to check with Kolleen Shelley as to the value & the need in archiving the HUB stations metadata. Is it to be placed in ASCADS? Will this require a BLM account in order to access. This will be followed up by NAGFDR, G. Curcio.

b. 1998 WIMS software update.
Discussion:
- The fuel stick alert, "to old", has been removed.
- The system is going to use state abbreviations. This should facilitate the cross referencing of weather stations in a particular state.
- The Average function that was available in AFFIRMS is going to function in WIMS and the testing of this function is needed.
- WIMS is moving into the WEB technology starting in October. The WO Support Group is currently working on KC FAST WEB technology as a proof of concept. The attempt is to transfer data through the WEB. The WO Support Group is proving that accessing the oracle database through WEB technology works. The KC FAST effort should be completed within the next few weeks.
- The calculated 10HR fuel moisture is going through the gateway. It can be used by the NWS for forecasting purposes.

c. Pre 1972 wet bulb / RH project.
Discussion:
- The year, 1972, is an estimated start time when this data archiving cliche began. It is known that California, Idaho, and Montana NFDRS stations all have good, clean, archived weather data. The WO Support Group proposes that the Group looks at this data, and clean the rest of the weather database.

Action:
NAGFDR recommends that WO Support Group (M. Barrowcliff) perform this work in- house and publish this effort in the TECH NOTES as well as properly footnote the database as to what was done & why. This effort was also endorsed by the USDA-FS Weather Program Manager, R. Tucker.

d. WRCC Data Recovery Project.
Discussion:
- The WO Support Group is in possession of the Documentation / database. The holdup for loading it into WIMS is the determination of the new weather observation format to be used. Once this format is endorsed by NAGFDR, the WO Support Group will initiate the loading process.

Action:
- The WO Support Group (M. Barrowcliff) is to initiate the loading process and P. Schlobohm still needs to verify that all stations are represented. Paul expects the station verification to be completed November 1998.

e. Weather Observation 1998 (WXOBS 98) Format & Historical Weather (HISWX) Database.
Discussion:
-The old WXOBS 72 format used two digit years which caused problems. It did not allow the handling of more than one observation per day. The 98 format will handle time differently and permit multiple observations per day. It has much greater flexibility. Thus the database will be moving from historical weather into a new design. This can be started when the new format is endorsed by NAGFDR. The existing database & the WRCC Recovery Project can be ready to start in one to two weeks. This effort will take one to two months. The new stored data will be very similar to WIMS. The new formatting is a year 2000 compliance issue. The weather database has to be reformatted in order to facilitate the accessibility of the data to the new analysis software programs (i.e. Fire Family Plus). The 72 format will not be immediately phased out. This will occur sometime in 1999. WO Support Group needs to make sure that all analysis programs accept the 72 & 98 format.

-Is Solar Radiation data applicable to the new format?

It is but it has not been written to handle solar radiation data. The WO Support Group does not have the data ranges or the rules in order to facilitate the incorporation and modification of the proposed 98 format. As the field operations start the integration of Solar Radiation data into the weather observations and WFAS moisture modules, the solar data field can be added into the 98 format.

- Because solar radiation data is to be used to calculate or estimate state of the weather and it can have different applications for different agencies, it is recommended that it be transferable in order to facilitate the data access.

- Is the LAL & HCR data to be carried or flushed out of the database. The data is going to be carried in the historical archives. It will be there. It is not included in the transfer format because at the current time there are no plans to analyze the data. Users will always be able to obtain the data, a special query will have to be made, and present plans do not preclude the resumed or continued collection of LAL or HCR.

- The 72 & 98 formats will be available. The selection of the format will be made by KCFAST.

- The current system only has one observation per day. The new data format needs to reflect hours & minutes.

- Verification on the metric units of measure for windspeed & precipitation is required. In AFFIRMS the windspeed is recorded as kilometers / hr. The precipitation needs to be in millimeters with no implied decimal. The NWS has no rounding rules for windspeed. For Fire Danger observations it is a 10 minute average. This was necessary to facilitate windspeed smoothness & consistency as well as the necessary time to sample other parameters at the manual stations. An option to select the units of measure will be displayed (all metric units or all English units of measure).

- The use of the Season codes need to follow the current guides or rules as outlined in the NFDRS 88 revision and the WIMS 's user's publication.

Action:
- The WO Support Group (M. Barrowcliff) needs to plan to test the 98 format with the anticipated phase out of the 72 format. This is planned for late 1999.

- NAGFDR needs to define the ranges & rules for the solar radiation sensor. The Missoula Fire Lab (L. Bradshaw) is to work cooperatively with the WO Support Group and to pass this information for inclusion in the first modification of the WXOBS 98 Format. This is to include a copy of the report prepared by the NWCG/FWWT. Also, since RAWS solar radiation sensors are already installed on 100 plus RAWS, this item needs to be exercised immediately. Once in place, it requires monitoring for corrections.

- The WO Support Group (M. Barrowcliff) needs to adjust the new 98 format to handle the data for Hour/minutes. This would be a change from the old format which recorded only to the hour. Also the metric units for windspeed need to coincide with the AFFIRMS standard, kilometers/hour, and precipitation is to use millimeters with no implied decimal point. Lastly the Seasonal definition published in the NFDRS 98 revision (p. 15 & 16) or in the WIMS user's guide need to be utilized

f. Climatic vs. Fire Business Breakpoints.
Discussion:
- Climatic breakpoints are a top/down control which promotes consistency across the nation, versus Fire Business breakpoints which promotes meaning to the local users. Associated with Climatic breakpoints are the seasonal NFDRS stations versus year round stations. Year round stations tend to lower breakpoint values. Climatic breakpoints are WIMS derived while FIRES derives Fire Business breakpoints.

Action:

- WIMS needs to deal with both breakpoints. They need to be tracked independently. HOW IS THIS TO BE ACCOMPLISHED? The WO Support Group is to (M. Barrowcliff) submit a proposal for NAGFDR review & consideration.

g. RAWS B voltage.
Discussion:
- Is there reason to store this information other than the most recent observation?
If all 24 hr. of RAWS is going to be kept then the B voltage needs to be kept as well. B voltage can be used to assist with state of the weather and trouble shooting the station.

Action:
- The WO Support Group (M. Barrowcliff) is to see that WIMS maintains the collection and storage of this data in the system

h. KC FAST Web Status & WIMS Web Interface.
Discussion:
- At the previous NAGFDR meeting, NAGFDR recommended to the WO Support Group to bypass the KC FAST web page development & go right to the development of WIMS on the Web. This was not implemented. Instead work on KC FAST continued. It was determined that this work would permit & promote a learning process on the concept, & how it would need to be developed for WIMS by the WO Support Group.

This work would provide data access for many people & be a learning process as to how to operate it. As WIMS screens are brought on line, this should promote the use of archived data by making it more easily accessible. It is expected that the KC FAST Web Status is 2 weeks from completion as far as proof of concept, and moving data from the oracle to the web. The WO Support Group expects to start on the WIMS Web effort by October 1998.

i. Building Weather Data Queries.
Discussion:
The WO Support Group using the 98 format is willing to work on weather data queries that are of value to the users.

j. Proper Use of WIMS help line.
Discussion:
- At the last meeting & from the Task Summary sheet the WO Support Group requested a FYI field letter to help minimize the misuse of the WIMS Help Desk.

Action:
- WO Support (J. Barnes) is to check into this matter again & advise NAGFDR (G. Curcio) if* there is still frequent misuse. If so, a letter of explanation & recommendation will be *prepared by NAGFDR for distribution.

k. 510029B Form / Transition Form.
Discussion:
- Delvin Bunton & D. Bunnell will coordinate their work on this project on June 20, 1998 in Boise.

3. North Carolina's Interagency Fire Initiative / IFI / Gary M. Curcio.
Discussion:
- a NCDFR Cooperators presentation was shared with the group for comments and ideas.
- IFI is an interagency effort to address areas of Fire Danger Opportunity in North Carolina.
- Objectives are:
    1. Develop an interagency RAWS network that is:

> reliable & records quality weather data
> timely & routinely archived in WIMS for WFAS generated products
> readily accessible to local units
> maintained to accepted NFDRS RAWS standards

2. Develop & Use the NFDRS Operating Plan beginning at the local level with an interagency effort & acceptance / endorsement by the affected interagency.

> structure the plan through the analysis capability of FIRES
> build local & relevant trend curves for pertinent NFDRS indexes & components as well as the Firefighter's Fire Danger Rating Pocket Card.
> validate & test research projects & incorporate its use in NC i.e. Haines Index, Greenness Factors, Potter's work, Fuels Map Brotak's wind profile

3. Be a sharing house for the transfer of technology

> Infrared Camera Capability
> SEAT Initiative (Single Engine Air Tanker)
fire gates, vortex generators, cowling & baffle system, SEAT standards
> MEAA Initiative (Multi- Engine Amphibious Air Tanker Standards)

Comments:

- NAGFDR felt that the effort was on track and hoped it would be permitted to continue. As positive results materialized and if this were shared with other agencies, then their interest to perform similar activities would be a potential by product. The development of an interagency NC Firefighter's Card would be an excellent team effort. Doug Bright shared a card developed by the interagency effort in the state of Oregon.
- The idea of bringing other RAWS weather networks into the Fire Danger station network is an excellent idea.
- Keep NAGFDR posted as IFI evolves.

4. James Lancaster's publication, Fire Management **Applications of the NFDRS (1978) & the NFDRS User's NFES # 1522 in 1985) are in need of updating to reflect current technology & other key publications. Suggest that NAGFDR discuss the pro's & con's of updating & take the appropriate action.**

Discussion:

- With the loss of personnel & the changes in personnel, " the night shift" has failed to pass on the technology transfer of NFDRS to "the day shift". The new personnel have been plowing down the road and we have observed the detrimental results. The new personnel have no real historical perspective on what has happened or has progressed. These two publications are excellent references on what has happened or has progressed. They talk about the impact in an operational perspective.
- when the NFDRS steering committee meets in June, this issue needs to be discussed.
- these publications are obsolete. The science is good but as the technology has moved on and has not passed on pertinent applications to the layman.
- documents explaining how to interpret & apply NFDRS is needed. There is not one place where the user can go to access this important information.
- NFDRS is presently moving very fast. The system in its greatest flux. A lot energy that would have to be placed in updating these documents may be a wasted effort. Certain concepts may soon be on their way out.
- The process of updating NFDRS information needs to be institutionalized in order to facilitate getting new or updated information out to the user community.
- Is the information currently good enough to serve our users until the situation stabilizes, or do we need to start something in order to capture the next developing Fire Danger program?
- We need to have a document that applies Fire Danger Rating to the layman. (The ones that use the numbers, but may not calculate the numbers.)
- The concept of ERC is not going to change as we go down the road in Fire Danger Rating.
- We are moving towards a Fire Behavior Danger Rating System that will lose climatology. Yet, utilize

fine resolution ' as current fuel conditions and finely spaced gridded interpolated weather become available.
- If Fire Danger Rating is going to be real time, we should not eliminate history but determine how we can learn from it.

Action:
Because of fragmented viewpoints & lack of consensus, NAGFDR decided not to update these documents. However, NAGFDR does need to be concerned about the process, the schedule or methodology of updating materials in order to avoid this dilemma for future Fire Danger Rating publication or materials. Also, there needs to be a central depository, library for these materials.

5. The thought process behind using a 10 minute versus 2 minute average for certain weather parameters.

Discussion:

This recording of weather observations comes from a one day observation which wanted to capture persistency & consistency. The measurement for windspeed was taken while other weather variables were measured and recorded.

6. Home page Developments - What to do?

Discussion:

-This is an issue that is plaguing other committees as well. Who is to carry the responsibilities and management of this activity. How can it be best utilized to serve the national Fire Danger Program.
- Should it be the responsibility of the WO Support Group (M. Barrowcliff)?
- Dottie Miller in Boise is the current Web master for NWCG.
- NAGFDR could not be found on the USFS Homepage.
- It was a previously tasked assignment for NAGFDR to have a presence on the USFS & NWCG web sites. G. Curcio & M. Barrowcliff recommend that NWCG be NAGFDR's home as far as a web site with a definite cross link established on the USFS web site. This will ease the maintenance challenges, yet allow other agencies (those that actually are members as well as anyone else) desire to establish a link to the NWCG site.
- L. Bradshaw volunteered his assistance to help coordinate and manage this new web site for NAGFDR.

Action:
- G. Curcio &/or D. Bunnell are to explore with web master Dottie Miller as to what can. or cannot be done. The NAGFDR Executive Committee will recommend to the Group a course of action to be tried with the NWCG site. It will also be best to maintain the one site as discussed. G. Curcio & M. Barrowcliff will review the USFS homepage to determine if NAGFDR exists on this website. If NAGFDR is not present, then M. Barrowcliff is to make arrangements with the USFS web master, Paul Wilson, to make a cross link to the NWCG site.

7. Archiving the greenup date on an annual basis in WIMS - Russ Gripp.

Discussion:

- WIMS was designed to log the "greenup date" to a blind file for future use. This functionality was never implemented. Firefamily Plus is being designed to utilize the historic greenup dates. .
- During the conference call the WO Support Group (J. Barnes) indicated that there will be a proposal submitted at the next NAGFDR meeting to address this issue.

Action:
- By the next meeting the WO Support Group (J. Barnes) will prepare and submit a proposal on how WIMS will handle the greenup date issue for NAGFDR's consideration.

8. Assignment of NFDRS Station numbers - Operational Confusion - Russ Gripp.

Discussion:

- There seems to be confusion in the field on the assignment of the station numbers in WIMS. It was thought that there would be some intelligence remaining in the new approach of assigning the numbers, i.e. the state coding would be retained. Other thoughts suggest that the intelligence remain and a random number be assigned as a last resort.
- What was the intent when the change was made in how station numbers would be issued?
- It was WO Support Group understanding that an attempt would be made to maintain the intelligence of the state number and the county number if possible. If these numbers were not available then a number would be issued randomly. This latter option would be utilized only if the numbers were not available or states had more than 99 counties.
- This was NAGFDR's intent. The actual implementation can be best explained by the WO Support Group. Any user should have the ability to pick a number that the user can make match to the previous system unless the number is already used.
- This is not working as California has stations with 04 and new stations are being issued 10.
- The state agency or any agency has the right to request the number they want (if it is available).
- The new station numbering system is not being reflected in WFAS. WFAS utilizes the previous numbering system and the use of the state code. If it is 04, it is California. 24 is Montana. In WFAS you need to look at the text files in order to verify your stations.

Action:
- For the record NAGFDR recommends the WO Support Group to prepare a brief guide, tech note as to how the numbers are being issued.

9. A duplicate acronym for WFAS - Russ Gripp.

Discussion:

The new EFSA program was using an already in use acronym, WFAS. However, there has been a recent change & it is no longer an issue. The new program will be WFSA, Wildland Fire Situation Analysis.

10. Loss of the Definition of the Adjective Fire Danger - Russ Gripp.

Discussion:

- As Fire Danger rating progressed the concept or definitions for Adjective Fire Danger got lost. This included the meaning for Low Medium, High Very High, and Extreme. These definitions were found in an obsolete Fire Danger Handbook. These have been shared with NARTC-NFDRS and the WO Support Group. It is proposed that NAGFDR endorses these old definitions. They have never been changed, just lost.
- The Adjective Rating was a means to communicate to the General Public the Fire Danger in the woods.
- These definitions will be used by a wide audience; general public, prevention personnel , intelligence officers, etc.,
- The definitions need to be re-institutionalized.

Action:
- The following group of Doug Bright, Doug Anderson, Steve Dunlop with Russ Gripp as lead will forward a revised up to date rough draft to NAGFDR VC/Chair G. Curcio by July I, 1998. Distribution to the membership for comments will follow. The Executive committee will coalesce the comments. The endorsed version will be forwarded to Mary Jo Lavin, Director of F & A for approval and dissemination to the Field. NAGFDR will use the mailing list in order to assist in the information dissemination as well as utilize the new web site.

11. WFAS Maps - are they representing Staffing Levels or Adjective Rating - P. Schlobohm.

Discussion:

- Are the WFAS products displaying the Staffing Levels or the Adjective Rating?
Adjective rating is being displayed through the data interpolation between NFDRS stations. When there are no weather data observations coming from NFDRS weather stations, it reduces the integrity of the Fire

Danger Map. When viewing the WFAS Maps, one must also check the number of reporting stations & their locations. This certainly impacts the accuracy & reliability of the product.
- It is a data hole problem. Weather observations are simply not being forwarded to WIMS or if the observations have not been edited, these non-edited observations will not appear in WFAS Products. Also, other observations are not being entered until the next day.
- What needs to be done is that every NFDRS station needs to be reporting timely with quality data that will accurately portray the state of Fire Danger in the WFAS products.
- Improving weather data has been an emphasis of the USFS Weather Program. WFAS would be much better off if good quality data came in timely from every existing NFDRS Station.
- The things we are talking about today were discussed in 1960. The problem is not so much the data or the system, but people not using or appreciating the need for Quality & timely data.
- The point of good weather data & the Fire Danger Program needs to be emphasized in the Annual Regional Preparedness Inspections. The Fire Danger Program has been inadvertently omitted.
- In the near future it is hoped to bring on line other weather networks (i.e. the NWS weather stations) in order to fill in the gaps of no data.
- *It is recommended that a letter be sent to the Director of Fire & Aviation & the State & Private Forestry to emphasize the importance of the Fire Danger Operating Plan & the maintenance of the stations as well as timeliness in reporting the observations. Need to re-issue the NFDRS Operating Plan letter as a reminder. For successful implementation of the National Fire Policy, Fire Danger rating needs to be incorporated & emphasized.*

-Fire Management Note Ideas
- National Weather Program Manager - R. Tucker, prepare a one page paper on the importance of collecting good quality data for resource management agencies and that its importance extends beyond the discipline of Fire Danger or Wildland Fire Suppression.
- Quality Data versus Non-Quality Data & its impact on Fire Danger Rating - D. Anderson.
- Full automation of the national Fire Danger Rating System as far as Fire Weather Observation will best serve the program. In the field today personnel are asked to wear too many hats and it is FIRE Danger that receives the last & least attention. We need to face & accommodate reality.
- NAGFDR through L. Bradshaw will prepare a position paper for NWWT that will bring the automation closer to reality through the use of the solar radiation sensor. This sensor will address automating the state of the weather as well as calculate fuel moisture.
- there are other agency weather networks in existence beyond the fire danger weather network. These need to be incorporated to refine the resolution of WFAS. There are proven analysis techniques that can smooth out weather data that does not accurately reflect the actual situation.
- Several years ago Bob Burgan generated a proposed National Fire Danger Network of RAWS.
- A major effort of NAGFDR needs to serve as an influence, guide & advisor for the USFS
- F&A, NWCG, & the user community on the necessary corrective actions to deploy in a Fire Danger Program that is constantly being eroded or simply has a lack of confidence by the users in the process &/or outputs.

Action:
- NAGFDR Executive Committee is to draft a heads up letter to the Director of F&A Mary Jo Lavin & NWCG with appropriate mailing to the Regional Director's & State & Private Forestry concerning the need to re-emphasize the need for a quality, well maintained & timely reporting weather network for every day of the year (365 days). This letter needs to incorporate as a reminder the NFDRS Operating Plan, & to show examples of product accomplishment, i.e., Oregon's Interagency Firefighter's Fire Danger Rating Card & that there is now a National Homepage for the pocket card, as well as the effort being put forth by the Great Basin Fire Danger Group.

12. Firefighter's Fire Danger Rating Pocket Card Website - P. Schlobohm.

Discussion:

- At the NARTC NFDRS training this year, an open discussion with the students requested the capability of getting these cards from a national depository concept. The faculty discussed the concept and

determined the place needed to be in Boise at NIFC and Web Technology needed to be used. Through the support of the BLM, NPS & USFS this has become a reality through the efforts of Paul Schlobohm & Sue Peterson. Great Effort & a Job Well Done, NAGFDR extends a warm fuzzy to Paul & Sue.
- This website needs to be linked on the NWCG-NAGFDR & USFS websites.
- There still exists a challenge in generating the card. There needs to be a mechanism to assist field personnel to generate the card. The Process is still complicated. Presently one needs to be versed in Excel & Powerpoint to generate the card besides PC Season & FIRES. The streamlined, automated capability is coming with the new FIRE FAMILY PLUS Fire Danger software. This software is currently being written by the Missoula Fire Lab & is projected to be available in November 1998.
- Wayne Cook, Tech Transfer Specialist contacted the Group and requested that a plan & place for maintenance of this Fire Danger Product needs to be addressed.

Action:
NAGFDR Executive Committee will respond to Wayne Cook's memorandum with an emphasis on the Labs continued support as the WO Support Group becomes the major help desk.
- NAGFDR Executive Committee will follow up on the preliminary conversation with M. Barrowcliff to assume the responsibility of maintaining & supporting this product. Sue Peterson has already been a great help in generating the Pocket Card Web site & FIRE FAMILY + should shortly facilitate the card generation.
- NAGFDR is recommending and requesting P. Sclilobohm to present his work on the Firefighters Fire Danger Rating Pocket Card to the GACC Intelligence Officers & Regional Safety Officers. Other members will be available to assist Paul in whatever capacity or assistance he requires. These are potential users who may or may not have received information concerning the card & how it may be used in their position* of *responsibility.

13. National Level NFDRS Course Update - P. Schlobohm.

Discussion:
- The Course went extremely well. The group of students were the most advanced & prepared. It was required that the students attending have the prerequisite of a regional course prior to attendance. This made a difference as far as their comprehension of the material.
- During the course Marc Rounsaville stepped down as Chair for the faculty & steering committee and Paul Schlobohm assumed these leadership roles.
- The cadre of the FARSITE & RERAP courses expressed their concern that students attending these course did not possess basic NFDRS skills, manipulation of data files.
- The Steering Committee will be looking for guidance from NAGFDR as to course suggestions. The committee meets June 22-24, to re-examine course curriculum, pre-requisites, target audience & objectives.
- There still needs to be an emphasis placed in collecting quality weather data for the 1300 hr inputs to generate reliable NFDRS outputs.
- It was learned that the Great Basin is utilizing the generated NAGFDR IMRT A.6 Report to develop their training matrix.

Comments:
- NAGFDR felt ***that the course was well on line. The operating plan,*** **&fire** ***danger card development were intertwined with the right twist. During the course there was more time for in depth analysis*** **of** ***the process & how*** **to** ***apply the numbers which is extremely meaningful for the students. Since the course is a test bed for*** **new technology,** ***FIRE FAMILY PLUS with its streamlined pocket card generating capability will*** **be** ***the new product to be introduced. Also, there may be the twist*** **of** ***dealing with two*** **different** ***databases,*** **1972 & 1998. NAGFDR** ***recommends as a course pre-requisite the ability*** **of** ***incoming students to generate output files from*** **PC** ***FIRDAT &*** **PC** ***SEASON as well as the ability to access the Fire Weather Data from Kansas City through KCFAST or through WIMS.***

14. Update From the Missoula Fire Lab.

A. Fire Family Plus (FF+) - Paul Stewart

Discussion:

- Paul made a visual presentation of the FF+ software. Its progress to date & discussed plans where the finishing touches were to be emphasized.

- it is replacing the previous DOS program as well as the flat files & is initiating work on the new database interface.
- This version is to be more user friendly in the way data files are to be moved.
- FF+ automatically opens the database from the previous work session when starting up again.
- It will be able to perform SIG tests. Weights for individual stations can be set. The weights are set as being relative.
- FF+ can calculate the Canadian Indices, NFDRS 78 or 88.
- There will be graphing capabilities. It can be saved as a bitmap with the ability to set sizing capability.
- In another month the BETA test version will be out. NAGFDR will receive a copy for evaluation.
- FF+ will have the capability to export WFX RERAP data files.
- FF+ will be state of the art program instead of using several software packages to perform fire business. It will run on WINDOWS 95, NT, & 98. An operator will be able to intuitively figure their way through it instead of getting weighed down in the process.
- FF+ will be able to handle hourly RAWS data & can facilitate use with Prescribed Fire.
- The Pocket Card generation will be able to be exercised.
- Need to make sure that the FF+ is properly introduced with a well planned publicity campaign.

B. 10 Hour Algorithm - Larry Bradshaw.

Discussion:

This was previously covered in the teleconference call with the WO Support Group. There are several algorithm versions & the Lab is recommending that the latest version that is presently in WIMS be adopted. It yields a slightly higher calculated value.

Action:

NAGFDR endorsed this recommendation for immediate implementation.

C. Position paper on weather needs for WFAS - Larry Bradshaw.

Discussion:

- this document was prepared for the Fire Weather Working Team with sole objective to identify weather requirements essential to fire business. It was handed out at the meeting for review.
- this summer the Missoula Fire Lab will be accessing the impact of the Solar Radiation sensors on data processing requirements. Hopefully, solar radiation will be fully implemented & operating in WIMS by the year 2000. **This development will more likely end the life of the Manual NFDRS stations as part of the national NFDRS network.**

Action:

NAGFDR endorsed this document prepared by the Missoula Fire Lab.

D. Keetch Byrum Drought Index as a fire indicator in Idaho (years 1988-1997) - Larry Bradshaw.

Discussion:

- Analyzed fire weather & fire occurrence data to look at the ERC & KBDI. It was determined that there was no relationship to large fire occurrence in Idaho. The study did validate Burgan's method of re-initializing KBDI from the Palmer Drought Index for seasonal NFDRS stations.

E. Other Weather Networks as potential NFDRS stations - Larry Bradshaw & Roger Tucker.

Discussion:

- There are 621 Snotel sites west of the Mississippi River. With the addition of sensors these stations can serve as secondary NFDRS stations. The USFS Regional RAWS Coordinators have been asked to

perform a survey on the National Forests to check on these Snotel stations and their ability to serve in the NFDRS RAWS/AWS network. This would be a major cost savings as compared to purchasing a fully equipped NFDRS RAWS ($2,500 versus $ 10,000). This data comes through meteorburst technology to a computer in Portland, Oregon (NRCS). A Hub program would be able to access these Snotel stations for ingest into WIMS.

15. USFS Weather Program Update - Roger Tucker.

Discussion:

A. Briefing on the NWS National Weather Wildfire Team

- This team was to address weather concerns needed for the agencies responsible for wildland fire suppression and the use of prescribed fire. This information was to be timely passed onto General Kelly of the NWS. NWCG FWWT members, Chris Fontana, Gerry Day, & Miles Knight, were to provide input in the formulation of the response tasked by General Kelly. Paul Stokols of the NWS is the NWWT leader and will be preparing the transition strategy paper. This document will be made public once submitted & reviewed by General Kelly. There are many potential pluses that can result from this effort.
- General Kelly is reviewing three programs: NOAA radio, Fire Weather, & Aviation Weather.
- Even though fire weather & fire danger are strongly interrelated, there is a strong need for NAGFDR & NFWWT as each are addressing issues that require attention. Each are respectively performing specifically directed missions/assignments even though there is some overlap.

B. National Agricultural Weather Information System (NAWIS)

-This initiative was instigated in 1995. It requested 38 meteorologist, 10 computer scientists and 5 million dollars to develop a National Fire Weather Center to offset what the NWS was not providing. It appears it is going to pass away. However, there are now 37 additional meteorologist positions in the NWS to support the fire program.

C. On going Important Fire Weather Activities.

- Al Peterlin is backing improvements for weather needs in the USDA.
    - there is a Forest Service budget initiative for FY2000 for the following:
        a) $250,000 to clean up existing RAWS data records.
        b) $65,000 per year for the next 4 years to convert Snotel stations to secondary NFDRS stations.
        c) $300,000 for the purchase of solar radiation sensors.
- there is a standards book for NFDRS Stations being prepared by a subcommittee for the FWWT through Phil Sielaff. It is combining the Weather Station Bluebook and the BLM yellow book. It should be ready by the end of the year.
- Hubbing concept will be an option to add various other networks to the database. The editing observation will need to be taken care of through automation.
- The expected life cycle for RAWS should be planned as 10 years. Yet, though they more than likely go beyond this length.
- Present satellite telemetry on existing RAWS is a 100 BAUD rate. Work has been completed to increase this to 300 and 1200 BAUD rates. New stations purchased need to consider as a minimum the 300 BAUD rate.
- National Weather Association/Fire Weather Committee/ Workshop October 20-21.
- it will spotlight fire weather.
    - Gerry Day is to present a paper/user's need Current & Future.
    - Tim Brown, WRCC, to present research perspective & products that can be used by Fire Weather forecaster to assist the user's of Fire Weather.
    - Philip Bothwell is to present his contract effort with the NWS concerning Weather products to assist the forecaster.
- Hubbing
    FTS has solved the year 2000 problem within the Hubbing callup software.
- WRCC Proposal for BLM to develop Fire Weather Products has yet to be moved on. It is under current

consideration.
- USDA purchased a NOAAPORT receive station. It is being installed at NITC at Kansas City where WIMS is located. It will have access to everything the NWS receives. If anyone is interested, they need to contact Al Peterlin of the USDA.

16. Riverside Fire Lab Update - Francis Fujioka.

Discussion: a summary paper is forthcoming to complement the minutes.

- Pegasus update.
    - gridded weather & the integration of fire behavior modeling with FARSITE
    - currently writing the methodology.
    - uses a Global Model of 2 to 3 degrees resolution
    - it can apply to NFDRS application.
    - the resolution can be refined ½ to 1/10 of degree. This regional grid sits within the Global Grid.
    - this is available on the internet. (http://meteora.uced.edu/ecpc/)
    - in the fire severity planning windspeed is at 10m, temperature at 2m, and relative humidity at 2m are key variables.
- NAGFDR is requested to consider & endorse this research effort especially in the review for the access or availability of gridded data.

Action:

NA NAGFDR reviewed & endorsed the Riverside request NAGFDR member Larry Bradshaw was tasked to advise and ask the Fire Weather Working Team to improve the availability of gridded data. As future research develops better resolution & gridded format data is needed. Also, there needs to be a contact made with Al Peterlin to determine what would be available on the NOAA port

17. California Division of Forestry Developments - Wayne Mitchell.

Discussion: CDF Assessment System on Fire Planning.

- This deals with how to deal with the Fire Problem in CA & what drives it & how to fix it. Prescriptions are to be developed locally. The system will try to resolve or at least minimize the fire situation but never eliminate it.
- where does the process begin when resources are limited & fires ignore political & geographical boundaries?
    - 1. Assess the challenging areas / Which areas need to be addressed **first /** set priorities.
        - fuel conditions, **fire** weather severity, what is being damaged, ability to put the **fire** out, resources available & in position.
    - 2. Linking with partners.
        - NPS, USFS, BIA, BLM, Military
    - 3. Utilize the Campbell Prediction System
        - good for local area use. Utilizes aspect, slope, & elevation with RAWS data.
        - used a generic weather day / temperature = 95, midflame windspeed = 7 & relative humidity = 20 %
- Everything is ranked on levels 1, 2,or 3 (low, medium or high)
- utilized the concept of the Fire Weather Index / Fosberg index / (Temp., RH, & windspeed).

18. Proposal for the next NAGFDR meeting - Dave Bunnell.

Discussion:

- NAGFDR will meet at NARTC, Tucson, AZ. There are several motels outside of town that will be suitable for lodging. December 14 & 17, 1998, can be travel dates with the meeting taking place the 15, 16, & part of the 17 if necessary. NAGFDR may need to revisit its charter as there is a potential reorganization change in the USFS Fire Use Program formerly known as the Prescribe Fire Program. There is a proposal for a position to specifically manage the Fire Danger Program. This person will have a strong background as well as be technically sound in NFDRS.

Action:

NAGFDR executive Committee will coordinate arrangements.