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COMISION FORESTAL DE AMERICA DEL NORTE

XX REUNION DEL GRUPO DE ESTUDIO SOBRE MANEJO DE INCENDIOS FORESTALES

BIBLIOTECA
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TUXTLA GUTIERREZ, CHIAPAS, MEXICO.
OCTUBRE 21 y 22, 1986

COMISION FORESTAL DE AMERICA DEL NORTE

CFAN - FAO

XX REUNION DEL GRUPO DE ESTUDIO SOBRE MANEJO DE INCENDIOS FORESTALES

TUXTLA GUTIERREZ, CHIAPAS, MEXICO

OCTUBRE 21 Y 22 DE 1986

NORTH AMERICAN FORESTRY COMISSION

NAFC - FAO

FIRE MANAGEMENT STUDY GROUP

XX MEETING

Tuxtla Gutiérrez, Chiapas, México

October 21-22, 1986

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I. INTRODUCTION

Iniciamos nuestro reporte de la XX Reunión del Grupo de Estudios sobre Manejo de Incendios Forestales lamentando el trágico deceso del compañero Samuel Gerald Mauk, integrante de la Delegación de Estados Unidos, quien debido a un paro cardiaco falleció a las 20 horas del día 20 de octubre de 1986.

El trágico suceso obligó al grupo a cambiar la agenda preliminar de trabajo originalmente prevista. (Ver Cap. III).

La XX Reunión se inició a las 12 horas del martes 21 de octubre de 1986, siendo presidida por el Presidente del Grupo Ing. Jesús Benjamín Cardeña, la cual se desarrolló en el Salón Montebello y Agua Azul del Hotel Flamboyant de la ciudad de Tuxta Gutiérrez, Chiapas.

Antes de dar inicio formal a los trabajos se guardó un minuto de silencio en memoria de Samuel Gerald Mauk.

Se acordó por el Grupo que la Reunión se realizara el día martes y se trataran los temas más sobresalientes quedando aprobada la agenda definitiva para ese día.

Cada Jefe de Delegación hizo la presentación respectiva de los integrantes de su Delegación (ver asistentes).

El Ing. Higinio Padilla, Jefe del Programa Forestal en Chiapas, agradeció a nombre de la Secretaría de Agricultura y Recursos Hidráulicos y del Gobierno del Estado de Chiapas el que el Grupo hubiera elegido a Tuxtla Gutiérrez como sede de la Reunión y posteriormente hizo una exposición sobre la actividad forestal en el Estado.

Fue aprobado por el Grupo el reporte de la XIX Reunión celebrada en Orlando, Florida del 21 al 24 de octubre de 1985, el cual fué presentado por Mic Amicarella, Jefe de la Delegación de Estados Unidos.

Cada Delegación presentó su reporte de incendios correspondientes a 1985 en el que se describen los resultados y las acciones más sobresalientes en la prevención y combate de incendios (ver anexos).

Se analizaron los compromisos de la reunión de Orlando y se establecieron nuevas tareas y compromisos (ver apartado IV)

Corresponde a Canadá la organización y ser anfitrión de XXI Reunión, habiendo indicado Bryan Stocks que posiblemente se realice en Thunderbay, Ontario, en el mes de septiembre. En su oportunidad confirmaran lugar y fecha.

We begin our report of the XX meeting of the Fire Management Study Group regretting the lamentable demise of Mr. Samuel Gerald Mauk, integrant of the U.S. Delegacy, who died on October 20, 1986, dueto a heart - attack.

This event obliged the group to change the preliminary work agenda which was originally seen. (Refer to Section III).

The XX meeting began at 12:00 on Tuesday 21, October, 1986, - presided by The President of the Group, Ing. Jesús Benjamín Cardeña, which was developed in Montebello and Agua azul room at the Flamboyant Hotel in Tuxtla Gutiérrez, Chiapas.

Before the formal beginning of works a one silent minute was offered to the memory of Mr. Samuel Gerald Mauk.

It was agreed that the meeting would be held on Tuesday and - to talk about more outstanding subjets, and the agenda for that day was --- approved.

Every Head of Delegacy presented his respective report to the integrants of his Delegacy (Refer to the List of Attendants).

Ing. Higinio Padilla, Head of the Forestry Program in Chiapas, thanked by the name of the Secretary of Agriculture and Hidraulic Resources and the Government of the State of Chiapas that the Group had chosen Tuxtla Gutiérrez as the headquarters of the meeting and afterwards gave a report on the forestry activity in that state.

The report of the XIX meeting held in Orlando, Florida, Octo - ber 21-24, 1985 was approved; this report was given by Mic Amicarella, Head of the U.S. Delegacy.

Every Delegacy presented its 1985 fire report, in which the more outstanding results and action on prevention and fire control are described (Refer to Annexe No. 1).

The compromises of the Orlando meeting were analized and new tasks and compromises were established. (Refer to Section IV).

It corresponds to Canada the organization and be and host of the XXI meeting, having Bryan Stock indicated that it would be held in Thunderbay, Ontario in September. They will confirm date and place.

II. RELACION DE PARTICIPANTES

II. LIST OF ATTENDANTS

ASISTENTES
ATTENDANCE

DELEGACION DE ESTADOS UNIDOS

L.A. AMICARELLA	DIRECTOR - COOPERATIVE FIRE PROTECTION, USDA FOREST SERVICE - WASHINGTON, DC
G. MAUK	ACTING DIRECTOR - AVIATION AND FIRE MANAGEMENT BUREAU OF LAND MANAGEMENT U.S. DEPARTMENT OF INTERIOR, WASHINGTON, DC
W. SOMMERS	ACTING DIRECTOR, FOREST FIRE AND ATMOSPHERIC SCIENCES RESEARCH. USDA. FOREST SERVICE.
D. COX	DIRECTOR - STATE & PRIVATE FORESTRY, AVIATION AND FIRE MANAGEMENT, USDA FOREST SERVICE ATLANTA, GEORGIA
H. MIKELL	ASSISTANT DIRECTOR - FLORIDA DIVISION OF FORESTRY DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES TALLAHASSEE, FLORIDA

DELEGACION DE CANADA

B. J. STOCKS	HEAD - FIRE RESEARCH UNIT, GREAT LAKES FOREST RESEARCH CENTRE, CANADIAN FORESTRY SERVICE
GRAHAM DANIEL	MANAGER FOREST PROTETION, NOVA SCOTIA CANADIAN COMMITTEE FOREST FIRE MANAGEMENT
J. GOODMAN	DIRECTOR - AVIATION & FIRE MANAGEMENT CENTRE, ONTARIO MINISTRY OF NATURAL RESOURCES
A. JEFFREY	DIRECTOR - CANADIAN INTERAGENCY FOREST FIRE CENTRE - MANITOBA

DELEGACION MEXICANA

JESUS B. CARDEÑA	DIRECTOR GENERAL DE NORMATIVIDAD FORESTAL S.A.R.H.
OSCAR CEDEÑO SANCHEZ	DIRECTOR DE APOYO A LA ACTIVIDAD FORESTAL S.A.R.H.

RODOLFO RODRIGUEZ VELEZ	JEFE DEL PROGRAMA FORESTAL EN EL ESTADO DE MEXICO-S.A.R.H.

OBSERVADORES

ALBERTO ACEVEDO M.	JEFE DEL PROGRAMA FORESTAL EN QUINTANA ROO S.A.R.H.
HIGINIO PADILLA G.	JEFE DEL PROGRAMA FORESTAL EN CHIAPAS S.A.R.H.
LAURA LARA	JEFE DEL DEPARTAMENTO DE EXTENSIONISMO NORMATIVIDAD FORESTAL
JOSE ANTONIO MOLINA A.	REPRESENTANTE DEL GOBIERNO DEL ESTADO EN CHIAPAS.

III. AGENDA DE TRABAJO

III. WORK AGENDA

XX REUNION DEL GRUPO DE ESTUDIOS SOBRE MANEJO DE INCENDIOS FORESTALES
COMISION FORESTAL DE AMERICA DEL NORTE
COFAN

TUXTLA GUTIERREZ, CHIAPAS

20 AL 24 DE OCTUBRE DE 1986

HOTEL FLAMBOYANT

AGENDA PRELIMINAR

LUNES 20 DE OCTUBRE	
18:00 HRS.	RECEPCION
MARTES 21 DE OCTUBRE	
9:00 HRS.	REGISTRO DE PARTICIPANTES
9:30 - 10:00 HRS.	EVENTO INAGURAL
	-- BIENVENIDA POR EL C. DELEGADO ESTATAL DE LA SECRETARIA DE AGRICULTURA Y RECURSOS HIDRAULICOS (SARH)
	-- OBJETIVOS DE LA REUNION POR EL JEFE DE LA DELEGACION DE COFAN DE MEXICO
	-- INAUGURACION POR EL C. GOBERNADOR CONSTITUCIONAL DEL ESTADO DE CHIAPAS
10:00 - 10:15	RECESO
10:15 - 10:45	LA ACTIVIDAD FORESTAL EN EL ESTADO DE CHIAPAS
10:45 - 12:00	MINUTA DE LA XIX REUNION Y REVISION DE COMPROMISOS DE LOS TRES PAISES
12:00 - 14:00	COMIDA
14:00 - 15:00	REPORTE DE CANADA
	COMENTARIOS DEL GRUPO
15:00 - 16:00	REPORTE DE U.S.A.
	COMENTARIOS DEL GRUPO
16:00 - 17:00	REPORTE DE MEXICO
	COMENTARIOS

MIERCOLES 22 DE OCTUBRE	
8:00 - 19:15	SALIDA DE CAMPO
JUEVES 23 DE OCTUBRE	
9:00 - 10:00	CONTINUACION DE LOS TRABAJOS
10:00 - 12:00	RECOMENDACIONES
12:00 - 14:00	COMIDA
14:00 - 17:00	NUEVAS TAREAS, LUGAR DE LA PROXIMA REUNION, ELECCION DEL NUEVO PRESIDENTE DEL GRUPO Y CLAUSURA
19:00	CENA CLAUSURA
VIERNES 24 DE OCTUBRE	
	REGRESO DE LOS DELEGADOS A SUS PAISES DE ORIGEN

XX MEETING OF THE FIRE MANAGEMENT STUDY GROUPS
NORTH AMERICAN FORESTRY COMMISSION
N A F C

TUXTLA GUTIERREZ, CHIAPAS
OCTOBER 20-24, 1986
FLAMBOYANT HOTEL

PRELIMINARY AGENDA

MONDAY 20, OCTOBER

18:00 HOURS	RECEPTION

TUESDAY 21, OCTOBER

9:00 HOURS	ATTENDANTS REGISTRATION
9:30 - 10:00 HOURS	INAUGURAL EVENT
	- WELCOMING BY THE STATAL DELEGATE OF THE SECRETARY OF AGRICULTURE AND -- HIDRAULIC RESOURCES (SARH)
	- OBJETIVES OF THE MEETING BY THE HEAD OF THE NAFC DELEGACY OF MEXICO.
	- OPENNING BY THE CONSTITUTIONAL GOVERNOR OF THE STATE OF CHIAPAS.
10:00 - 10:15	BREAK
10:15 - 10:45	FORESTY ACTIVITY IN THE STATE OF CHIAPAS
10:45 - 12:00	MINUTE OF THE XIX MEETING AND REVISION - OF COMPROMISES OF THE THREE COUNTRIES.
12:00 O 14:00	LUNCH
14:00 - 15:00	CANADA REPORT
	COMMENTS FROM THE GROUP
15:00 - 16:00	U.S.A. REPORT
	COMMENTS FROM THE GROUP

16:00 - 17:00	MEXICO REPORT
	COMMENTS
WEDNESDAY 22, OCTOBER	
8:00 - 19:15	FIELD TRIP
THURSDAY 23, OCTOBER	
9:00 - 10:00	WORKS CONTINUANCE
10:00 - 12:00	RECOMMENDATIONS
12:00 - 14:00	LUNCH
14:00 - 17:00	NEW TASKS, PLACE OF NEXT MEETING
	NEW GROUP PRESIDENT ELECTION, CLOSURE
19:00	CLOSURE DINNER
FRIDAY 24, OCTOBER	DEPARTURE OF DELEGATES

IV. REVISION Y DISCUSION DE RECOMENDACIONES

I. INTRODUCCION

IV. REVISION AND DISCUSSION OF RECOMMENDATIONS

Se revisaron y analizaron las recomendaciones de las 2 reuniones anteriores habiéndose acordado lo siguiente:

1.- Que en la XXI Reunión a celebrarse en Canadá se lleven propuestas concretas sobre un símbolo relativo a los incendios forestales que pudiera ser utilizado por los tres países.

2.- La recomendación respecto a la colaboración de un programa de incendios forestales entre Estados Unidos y México, se ha venido cumpliendo. Los avances se reportan en el informe de cada país.

Se da por concluida esta recomendación.

3.- Respecto a la revista Forest Fire News será publicada por Washington en Francés e Inglés. Se considera que estará lista en enero de 1987 y tendrá artículos relativos a Canada. Se solicita a los tres países que aporten artículos para la revista.

También se da por concluida esta recomendación.

4.- Que en la próxima reunión cada país presente propuestas concretas de acciones para hacer reconocimientos y brindar ayuda en casos de accidentes, actos de heroismo o muertes en tareas de incendios forestales.

5.- Estados Unidos presentará en Canadá un plan integral para coordinar la capacitación y adiestramiento forestal entre los tres países.

6.- Se acordó por el grupo hacer un reconocimiento a Gerald Mauk que se haría llegar a su Familia. El reconocimiento consistió en una placa firmada por los representantes de los tres países. (ver anexo No. 3).

7.- La Delegación de Canadá manifestó no tener conocimiento del memorándum de entendimiento sobre cooperación en materia forestal entre la Secretaría de Agricultura y Recursos Hidráulicos de México y el Departamento de Agricultura de Canadá, suscrito el 4 de marzo de 1986.

México se comprometió a enviarles una copia del documento.

The recommendations of the two previous meeting were revised and analized, having agreed on:

1. That to XXI meeting that will be held in Canada concrete proposals on a forest fire simbol would be brought that could be used by the three countries.

2. The recommendation in respect of the colaboration of a forest fire program between México and the United States has been executed. The aduances are reported in the report of every country.

   This recommendation is concluded.

3. In respect of the Forest Fire News journal, it will be published by Washington in french and english.
   It is considered that it will be ready in January 1987, and it will have articles related to Canada. It is asked that the three countries give articles for the journal.

4. That in the next meeting every country presents concrete propousals to acknowledge people that did or suffer accidents during the combat of forest fires and those that outstand for their heroism in forestry tasks.

5. The United States of America will present in Canada an integral plain to coordinate the forestry trainning among the three countries.

6. It was agreed in the Group that an acknowledge to Gerald Mauk would be send to his family. The acknowledgment consisted on a plate signed by the representants of the three countries (Refer to Annex No. 3).

7. The Canadian Delegacy said they do not know about the Memorandum of - Understanding of Cooperation in Forestry Aspects betwen the Secretary of Agriculture and Hidraulic Resources of México and the Department - of Agriculture of Canada, suscribed on March 4, 1986.
   México said it the document is to be sent.

V. ANEXOS

V. 1. REPORTE DE LOS PAISES PARTICIPANTES

V. 2. MEMORIA FOTOGRAFICA

V. 3. RECONOCIMIENTO A SAMUEL GERALD MAUK, INTEGRANTE DE LA DELEGACION DE ESTADOS UNIDOS DE NORTEAMERICA.

V. ANNEXES

V.1 REPORT OF ATTENDING COUNTRIES

V.2 PHOTOGRAFHS

V.3 ACKNOWLEDGMENT TO SAMUEL GERALD MAUK, INTENGRANT OF THE U.S. DELEGACY

V. 1. REPORTE DE LOS PAISES PARTICIPANTES

V.1 REPORT OF ATTENDING COUNTRIES

A. CANADA

--"REPORTE NACIONAL 1986"
(CENTRO CANADIENSE INTERAGENCIAS PARA INCENDIOS FORESTALES)

-"EL COMITE CANADIENSE PARA EL MANEJO DE INCENDIOS FORESTALES"

--"INVESTIGACION Y DESARROLLO SOBRE INCENDIOS FORESTALES" (D.E. DUBE)

-"FLOTA CANADIENSE DE AVIONES CISTERNA"
(J. F. GOODMAN, DIRECTOR DEL CENTRO DE AERONAUTICA Y MANEJO DE INCENDIOS SAULT STE. MARIE, ONTARIO, CANADA)

--"ANTECEDENTES Y SITUACION ACTUAL DEL PROYECTO JIAPRO (CHINA)"

--"PROPUESTA DE MATERIAL DIVULGATIVO PARA LA PREVENCION DE INCENDIOS FORESTALES"

A. CANADA

- " 1986 CANADA REPORT"
  (CANADIAN INTERAGENCY FOREST FIRE CENTRE)
- CANADIAN COMMITTEE FOREST FIRE MANAGEMENT.
  WILDFIRE PREVETION"
- "FOREST FIRE RESEARCH AND DEVELOPMENT"
  (D.E. DUBE)
- "CANADA'S NATIONAL AIR TANKER FLEET"
  (J.P. GOODMAN, R.P.F., DIRECTOR AVATION AND
  FIRE MANAGEMENT CENTRE. SAULT STE. MARIE,
  ONTARIO, CANADA)
- "BACKGROUND AND CURRENT STATUS OF THE JIAPRO
  (CHINA) PROJECT"
- "PROPOSITION OF

1986 Canada Report

Canadian Interagency Forest Fire Centre

1986 Fire Season Summary

The spring fire season was a busy one in eastern Canada this year. The below normal precipitation levels in the Atlantic Provinces led to multiple fire starts in New Brunswick in mid May. This was highlighted by a 30,000 ha. fire that required the combined efforts of Canadian military troops, the activation of the New Brunswick/Maine Northeast Compact Agreement, 55 helicopters, a dozen waterbombers, and hundreds of fire fighters. At the same time Newfoundland experienced several large fires causing evacuations and power outages. Evacuation alerts were also common in Prince Edward Island where several buildings were destroyed by multiple fire starts during the same time period. Due to the active spring and wet summer, eastern Canada experienced a relatively normal fire season compared to 1984 and 1985 (Table 1).

Late May found Ontario with a sudden increase in fire activity. This included their largest fire of the season of 61,000 ha. in the Northwestern Region. Quebec had a relatively normal fire season except for the month of June in which several large fires burned most of their total of 164,726 ha. which is significantly higher than the 1984 and 1985 totals.

The prairie provinces of Manitoba, Saskatchewan and Alberta all experienced below normal fire starts during the past fire season due to an unusually wet spring and summer. The number of starts and area burned were all significantly lower than those of 1984 and 1985.

Although British Columbia again had the largest number of fires in the country (Figure 1), it was one of the quietest fire seasons on record. The number of fire starts were running at approximately 25 percent of the average throughout the spring and early summer. A 40-50 day dry period from mid summer to fall led to an increased number of fire starts. Due to the high moisture level, the area burned was kept to a relatively low 13,000 ha.

The Northwest and Yukon Territories experienced a relatively normal number of fire starts this year. The figures for area burned are inflated due to the number of large fires in their observation (no action) zone.

To summarize, during the past fire season Canada experienced a 22 percent reduction in the number of fire starts and a 25 percent increase in area burned over the last three years.

Table 1 compares the numbers of fires and area burned up to October 10 of the last three years. Table 2 is a summary of the latest forest fire activity from the October 10, 1986 Situation Report.

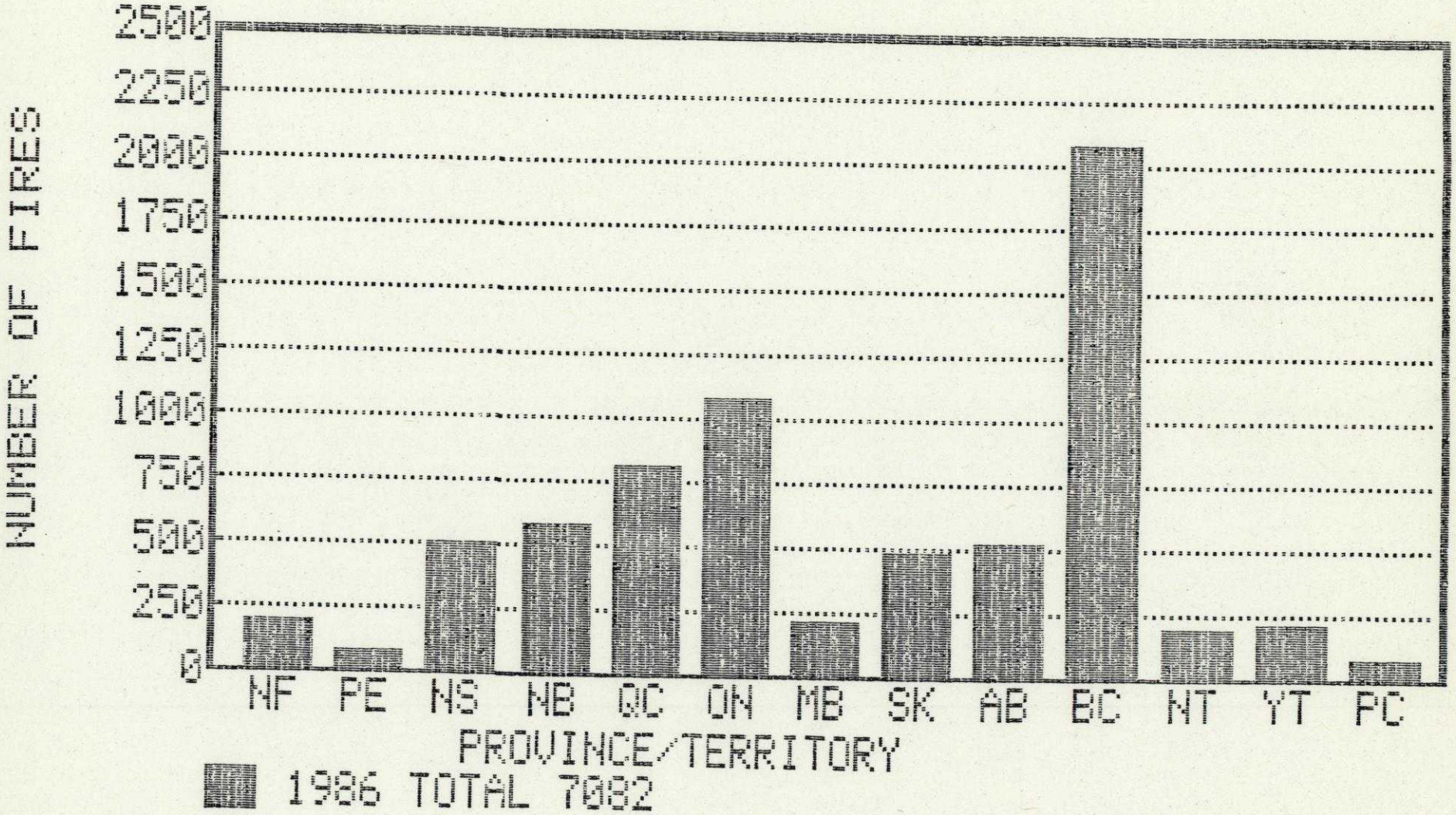
TABLE 1 - TOTAL FIRES AND LOSSES REPORTED - OCT 10,1986

	FIRES			HECTARES		
	1986	1985	1984	1986	1985	1984
NF -	204	250	101	130,850	68,654	7,568
PE -	95	29	33	511	67	196
NS -	500	549	392	826	1,031	565
NB -	583	772	349	43,191	2,467	403
QC -	819	832	601	164,726	2,581	2,956
ON -	1,079	971	1,225	145,206	892	120,911
MB -	215	338	679	10,039	6,304	129,816
SK -	481	515	896	3,284	108,243	341,717
AB -	524	919	1,367	2,135	11,936	94,697
BC -	2,080	3,615	3,059	13,008	242,665	20,218
NT -	206	150	304	321,690	204,744	41,019
YT -	216	105	165	68,165	18,470	22,380
PC -	81	124	93	2,893	6,059	3,364
TOTAL	7,082	9,069	9,264	908,906	674,113	785,810

TABLE 2 - 1986 Canadian Fire Situation Report (Oct.10)

MEMBER	A4	A5	A6	A7	A8	B (HA)
NF	0	0	0	204	204	130850
PE	0	0	0	95	95	511
NS	0	0	0	500	500	826
NB	0	0	0	583	583	43,191
QC	0	0	0	819	819	164,726
ON	0	0	0	1079	1079	145,206
MB	0	0	0	215	215	10,039
SK	0	0	1	480	480	3,284
AB	0	0	2	522	522	2,135
BC	0	0	74	2,006	2,080	13,008
NT	0	0	1	205	206	321,690
YT	0	0	4	212	216	68,165
PC	0	0	1	80	81	2,893
TOTAL	0	0	83	6,999	7,082	908,906

Figure 1. 1986 FOREST FIRES



Resource Exchanges

CIFFC was involved in a total of 74 resource exchanges or inquiries in 1986. This is a significant increase, in fact double the 37 that occurred in 1985. This fact reflects the higher profile and importance placed on CIFFC by its members across Canada.

Of the actual 42 exchanges which occurred, 17 of them were to Ontario (Table 3). The exchanges began as early as May 12 and continued up to August 19. Reflecting the high fire activity of the month, 21 of the 42 exchanges were made in May. The resource most commonly requested was waterbombers. The large problem fires in the Atlantic Provinces and Ontario accounted for 13 requests for waterbombers within a 2 1/2 week period. The CL-215 waterbomber accounted for most of the waterbomber requests and has performed very satisfactorily. Other resources exchanged included such things as the U.S. Terra Torch to Ontario and Quebec, fireline equipment to New Brunswick from Ontario, IR Scanner and training personnel to Ontario from BIFC, as well as fire management teams and crews to the territories.

Table 4 shows the requests for information only that were made during the 1986 fire season. Most of the inquiries were requests or feelers for waterbomber availability information. Other availability inquiries were made for helicopters, fireline equipment, fire fighters, retardant aircraft, IR Scanners, and Overhead personnel for Equador.

National Training Working Group

The National Training Working Group held its first Meeting in Ottawa on January 21, and subsequently held a meeting at the Fire Centre on April 22-23, 1986. The Training Working Group is chaired by Ontario, and includes representatives from British Columbia, Alberta, Manitoba, Quebec, the Fire Centre, and the Training Working Team of the National Wildfire Coordination Group of the United States.

The request for personnel resources for sharing under MARS Agreement is becoming common place and will require standardization through the effort of the National Training Working Group.

ile: TABLE 3.
eport: EXCHANGE SUMMARY

OCT. 10, 1986

DATE:	RESOURCE:	BORROWER:	LENDER:	R.O.	COSTS	DURATION
ay 12	TERRA TORCH	CFS (ON, QC)	BIFC	1	$3000	SEPT - NOV
..ay 15	4 CL215, 2 BD	NB	ON + QC	2		MAY 15-20
May 15	AGCATS	NB DIRECT TO	PE			
ay 16	2 CANSO'S	NF	QC	5		MAY 15-22
ay 17	EQUIPMENT	NB	ON	6	$6925	MAY 17-26
May 17	2 CANSO'S+BD	NF	SK	7		MAY 17-20
''ay 18	2 CANSOS	NF	QC	8		MAY 18-24
ay 19	2 CL215	NF	QC	9		MAY 19-26
may 21	1 CL215	ON	QC	10		MAY 21-25
May 21	1 CL215	ON	MB	11		MAY 21-22
ay 21	2 CL215	ON	QC	12		NOT SENT
ay 23	1 CL215	ON	QC	14		MAY 23-24
May 23	1 CL215	SK DIRECT TO	MB			QUICKSTRIKE
''ay 27	1 CL215 Q/S	ON	MB	17		MAY 27-28
ay 28	1 CL215	ON	MB	18		MAY 28
May 29	1 CANSO	ON	NF	21		MAY 30-JUN 1
May 29	IR SCANNER	ON	BIFC	22		MAY 29-JUN 11
ay 29	TRAINING PERS.	ON	MB, BIFC	23		MAY 30-JUN 8
..ay 30	1 CL 215 Q/S	ON	MB	26		MAY 30-JUN 10
May 30	EQUIPMENT	ON	BC,AB,SK	27	$15315	MAY 30-JUN 24
ay 31	B26 GROUP	AB	YT	29	$30,738	MAY31-JUN3
un 2	1 CL215	SK FOR PC	AB	31		JUN 3-4
Jun 4	EQUIPMENT	ON	AB	33	?	JUN 6-24
Jun 4	1 CL215	ON	MB	34		JUN 4
un 19	2 CL215 + BD	ON	AB	42		JUN 20-21
un 23	1 B26	YT DIRECT TO	AB			
Jun 30	FIRECAT GRP+BD	YT	BC	46		JUN 30-
ul 2	1 DC6 A/T	NT DIRECT TO	BC			
ul 3	FIRE MGT TEAMS	YT	AB, BC	48		JUL 3-14+21
Jul 4	IR SCANNER	YT	CONAIR	49		JUL 4-8
ul 7	IR SCANNER	NT	YT	50		JULY 8-9
ul 7	IA PERSONNEL	YT	AB, BC	51		JUL 8-14+21+24
Jul 7	CL-215 Q/S	ON	MB	52		JUL 8-11
Jul 9	AGA 750 C/W OP.	YT DIRECT TO	SK			JUL 9-24
ul 13	MGT TEAMS, FF CREWS	NT	AB, ON	55		JUL 14-29
ul 15	28MAN CREWS /RADIOS	NT	AB	56		JUL 16-25
Jul 16	2 WATERBOMBERS	NF	AVALON	57		JUL 18-23
ul 19	2-28 MAN CREWS	NT	AB	58		JUL 19-26
ul 21	IR SCANNER	AB	BC	59	$88,212	JUL28-AUG3+14
Jul 31	1 CL215	NT DIRECT TO	YT			AUG 1-12
Aug 18	AIRTANKER	ON	MB	60		Q/S
ug 19	AIRTANKER	ON	QC	61		Q/S

File: TABLE 4. Page 1
Report: 1986 RESOURCE INFO OCT. 10, 1986

DATE	RESOURCE	INQUIRER	AVAILABILITY	R.O.
Apr 18	AIRTANKERS	ON	MB	0
May 15	CL215	NS	ON, QC	3
May 15	WATERBOMBERS	PE	NB	4
May 21	MED HELICOPTERS	ON	INDUSTRY	13
May 22	1 CL215	ON	AB	41
May 23	1 CL215	ON	NOT AVAILABLE	15
May 25	EQUIPMENT	ON	SK, AB	16
May 28	EQUIP/PERSONNEL	ON	BC, AB, SK	19
May 28	1 CL215 Q/S	ON	NOT AVAILABLE	20
May 29	MED HELICOPTER	ON	INDUSTRY	24
May 30	PERSONNEL	ON	WEST CANADA	25
May 30	NF WATERBOMBER	QC	NF	28
May 30	BIFC IR SCANNER	QC	BIFC	30
Jun 3	W/B,EQUIP,PERSONNEL	ON	AB, MB	32
Jun 5	WATERBOMBERS	ON	NF, MB(Q/S)	35
Jun 6	CL215	ON	MB	36
Jun 7	DC6 GROUP	NT	AB, YT, CONAIR	37
Jun 11	WATERBOMBERS	ON	MB	38
Jun 12	CL215	ON	MB	39
Jun 19	2 CL215	ON	MB Q/S ONLY	40
Jun 25	AEROSHELL W120 OIL	ON	INDUSTRY	43
Jun 27	WATERBOMBERS	NF	NOT AVAILABLE	44
Jun 30	A/C+O/H CREWS	YT	BC, AB	45
Jul 3	FIRE MGT TEAMS	YT	AB, BC	47
Jul 8	WATERBOMBERS	ØN	SK, QC, NO REPLY FR	53
Jul 13	MGT TEAMS + FF CREWS	NT	BC,AB	54
Aug 11	I.R. SCANNER	U.S.	BC	59
Aug 19	IR SCANNER	BIFC	BC (CONAIR)	62
Aug 24	CL215 Q/S	ON	MB	63
Aug 29	CL215 Q/S	ON	MB	64
Aug 29	EQUIPMENT	BC	YT+AB	65
Sep 11	PERSONNEL	EQUADOR	AB (3 MEN)	66

Infrared Linescanning

The province of British Columbia, with assistance from Alberta, Saskatchewan, Yukon and Northwest Territories, and the Fire Centre, were able to acquire from Conair Ltd. of Abbotsford, BC, the supply of a high altitude infrared linescanning service for the period from June 15, to August 15, 1986.

Several requests were made from the US to acquire and use the equipment, however, Canadian fire requirements dictated it not be dispatch to the US.

American Tour

For 11 days in August three members of the Boise Interagency Fire Centre, Boise, Idaho toured Air Operations in the provinces of British Columbia, Alberta, Manitoba, and Ontario. They were examining all aspects of Air Attack, both fixed and rotary winged, looking for new approaches that could be incorporated into the U.S. Air Attack Systems.

Fire Related Fatalities

A total of 6 fire related fatalities, including one in British Columbia, and five in the province of Quebec, occurred during the 1986 fire season. This compares to a total of 9 lives which were lost during the 1985 fire season.

Canadian Committee Forest Fire Management(CCFFM)

Wildfire Prevention

As you will recall last year during the same week that the Fire Management Study Group met in Orlando, Florida, the CCFFM Subcommittee on Forest Wildfire Prevention was presenting a Wildfire Prevention Seminar at the Petawawa National Forestry Institute.

The seminar was attended by 55 delegates representing fire management agencies across Canada, the Canadian Forestry Service; various associations representing industry, education and public awareness; as well participation from the United States.

The focus of the seminar was on providing information exchange on prevention programs, techniques and in discussing solutions to common problems. This was accomplished through panel presentations, workshop sessions, prevention material displays, special presentations audio visual materials exchange.

As this was only the second Wildfire Prevention Seminar held by the CCFFM, the first being in 1972, the time was ideal for a "new look" at fire prevention, programs and initiatives. The group was extremely enthusiastic and quality of information exchange appeared very high. Involvement by marketing forest, hydro and railway industry, as well as three panel participants from the United States contributed significantly to the value of this seminar.

There evolved through this seminar a strong feeling of open information exchange, a willingness to assist each other in the future, a developing spirit of understanding and cooperation between industry and fire management agencies, a consensus that a wealth of valuable information was picked up by all participants and a strongly voiced endorsement of holding future seminars of this nature.

The report prepared by the subcommittee was tabled at the thirty-fourth annual meeting with the following recommendations.

1. That a Continuing Committee on Forest Wildfire Prevention be maintained to:

   - promote attention and share solutions to national fire prevention issues.

   - to maintain contact lists; pass on new techniques and strategies, etc.

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2. That a national wildfire prevention seminar be held every three years, or when deemed necessary by the Continuing Committee and upon approval of the CCFFM Exceutive.

3. That the Canadian Forestry Service consider production and media advertising purchase for national fire prevention messages (i.e., recreation and general awareness). Agency programs would deal with specific needs.

The Executive was charged with the responsibility of responding to the recommendations.

It was subsequently agreed that information exchange on fire prevention matters was desirable but it was felt that the proposed objectives for the subcommittee could ge accomplished without have a formally established subcommittee. The necessary communications links already exist -- normal interagency contacts and the network that resulted from the 1985 seminar.

It was agreed that periodic wildfire prevention seminars would be worthwhile and when the time comes for another seminar, a special organizing committee can be set up.

Forest Fire Research

The subcommittee on Forest Fire Research presented a report on Forest Fire Research Analysis of Needs and Priorities and agency prespective at the 34th Annual Meeting of the CCFFM.

In summary the report stated that:

Fire Management Agencies need Decision Making Aids and simultaneously recognize that fundamental research must be accomplished. Based on this review and analysis, the following four fire research priorities have been identified:

1. Fire Weather Forecasting
2. Forest Fire Occurrence
3. Fireline Production
4. Fire Behaviour Predicition

It was recommended that research in these four areas be given priority.

An approach suggested to accomplish this research would be for the Canadian Forestry Service to redirect resources from within, develop cooperative studies with management agencies, and encourage university participation through funding mechanisms such as the Program for Research at Universities in Forestry (PRUF).

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A Forest Fire Research Coordinator was appointed as recommended, and the standing subcommittee on Forest Fire Research continues in its dialogue with the Canadian Forestry Service to ensure that the fire research priorization of the CCFFM remains.

Other actvities of the CCFFM during the past year are summarized as follows:

1. The glossary of forest fire management terms(formerly forest fire control terms) las published by the CCFFM in 1976 has been updated through a subcommittee and is presently at the printers.

2. The Forest Fire Equipment Subcommittee held two meetings during the past year. This is a standing committee of the CCFFM which provides a forum for the exchange of information on research and development of forest fire suppression equipment and products among forest fire management agencies.

At the recent meeting in Newfoundland an establishment of formal liaison with the U.S.A. National Wildfire Coordinating Group, Fire Equipment Working Team was initiated as delegates from the NWCG participated at this meeting.

CANADA REPORT

Forest Fire Research and Development--D.E. Dubé

The Canadian Forestry Service (CFS) is a Federal Research and Development Agency with a goal to provide effective, federal leadership by planning, managing and conducting a program of forest research, development and technology transfer aimed at promoting the wise management and use of Canada's forest resources for the economic, social and environmental benefit of all Canadians.

Historically, the CFS has been primarily concerned with forestry research, including forest fire research, and continues to be the lead agency in forestry/fire research in Canada. In recent years, through agreements with Provincial Governments, the CFS has assumed a more prominent role in Forestry Development thus having a more direct impact on forest and fire management in Canada.

The Canadian Forestry Service consists of eight physical establishments, strategically located throughout the country, with headquarters in Ottawa, the nation's capital. Two of the establishments are National Institutes and are charged with conducting basic, long-term research on problems of national importance. The six regional establishments, called Regional Forestry Centres, conduct more short-term, applied research with a regional focus and also serve as liaison, information and technology transfer centers.

Forest fire research is carried out at three Forestry Centres (Victoria, B.C., Edmonton, Alberta, and Sault Ste. Marie, Ontario) and one of the National Institutes (Petawawa, Ontario). Approximately half of the forty individuals in CFS fire research are located at the Petawawa National Forestry Institute (PNFI) with the remainder at the Regional Forestry Centres. A National Forest Fire Research Coordinator is located in Ottawa to provide focus and direction to the program. Though all aspects of forest fire research are considered legitimate fields of investigation, available resources (dollars/personnel), client needs and individual research interest, experience and expertise largely dictates the specific subject areas receiving vigorous attention. Other fire research areas, treated more broadly, may simply amount to information exchange or liaison by fire research staff resonding to queries or requests.

Fire research priorities within the CFS are determined through formal consultative mechanisms with client agencies and internal review processes. Though several fire research subject areas may be addressed at one establishment through formal study statements, generally an establishment focuses on two or three major areas, reflecting client needs, which in turn are a reflection of the magnitude of the fire problem faced by clients in a particular region. The broad national goal of the fire program is to; "through a program of research and development, discover and demonstrate practical means of controlling and using fire to meet resource management objectives by:

i) Explaining fire in terms of its physical behavior and economic/ ecological impact.

ii) Developing methods, equipment and systems to optimize the efficiency and cost-effectiveness of fire management agencies.

iii) Understanding and using prescribed fire to meet forest management objectives."

All CFS establishments engaged in fire research conduct fire behavior research, principally as part of the ongoing development of the Canadian Forest Fire Danger Rating System (CFFDRS). This research is coordinated through a working group consisting of senior fire researchers from each CFS establishment. Presently the CFFDRS consists of two major subsystems, the Canadian Forest Fire Weather Index (FWI) System and the Canadian Forest Fire Behavior Prediction (FBP) System. The FWI and FBP systems together with lightning and man-caused risk ratings and fire occurrence prediction schemes, will eventually form a comprehensive fire danger rating system.

At the Pacific Forestry Centre in British Columbia, in addition to fire behavior research, a major research thrust focuses on the development of methods and models to incorporate fire effects knowledge into land management practice to improve the application of prescribed fire to silvicultural problems.

Several other agencies, including the B.C. Ministry of Forests, Universities of British Columbia and Victoria, and private industry are engaged in prescribed fire research. Much of this work, primarily related to silvicultural implications, is directed by a Prescribed Fire Research Steering Committee and includes the development of a prescribed fire management information system; the prediction of prescribed fire behavior and effects on tree species establishment, survival and productivity; development of slash and duff consumption models for site preparation and site rehabilitation; the effects of burning and mechanical site preparation on nutrition of planted white spruce; effects of prescribed fire on growth and nutritional status of juvenile coastal plantations.

At the Northern Forestry Centre in Edmonton, Alberta, fire research emphasizes fire danger and behavior rating in forest environments; decision-aid models for use in fire management; evaluation and development of fire detection-suppression technology. Additional research aimed at understanding the role of fire in the prairie provinces, Rocky Mountains and northern Canada is ongoing. Considerable effort is expended on technology transfer and information exchange.

At the Great Lakes Forestry Centre in Sault Ste. Marie, Ontario research studies focus on the influence of fuels and weather on forest fire behavior; the ecology and effects of wildfire in nothern forest ecosystems; and the behavior, ecological and silvicultural effects of pre-

scribed fire in major Ontario slash fuel complexes. Some contract research work includes a study of fuel loadings and fuel arrangement in natural forest stands; a study on the impact of fire on timber supply and a study on fire protection in intensively managed plantations.

At the Petawawa National Forestry Institute, forest fire research is conducted under four major project areas: 1) Forest Fire: Its Behavior, Ecology and Impacts, 2) Fire Equipment and Materials Standards, 3) Fire Management Systems and 4) Fire Suppression Systems. Each project area involves two or more research studies, summarized as follows:

1) Forest Fire: Its Behavior, Ecology and Impacts

   a) Completion and improvement of the Fire Danger Rating and Fire Behavior Prediction Systems

   b) Effects of dry weather, solar radiation and rainfall on fuel moisture

   c) Ecological effects of forest fires

   d) Impact of fire on timber supply and the forest economy

2) Fire Equipment and Materials Standards

   a) Forest fire statistics and technology transfer

   b) Forest fire suppression equipment, products and methods - evaluation and development

3) Fire Management Systems:

   a) Fire management systems applications, 2) studies)

4) Fire Suppression Systems:

   a) Ground suppression systems

   b) Aerial suppression systems

Fire Research Progress 1985-86--B.J. Stocks

On the national scene, two ongoing cooperative research projects involving Canadian Forestry Service (CFS) fire researchers from four CFS establishments were continued. The joint CFS/Alberta Forest Service experimental burning project in the black spruce/Labrador tea/Cladonia fuel complex of northern Alberta continued throughout the month of July. Three successful fires were conducted, bringing to nine the number of completed fires in this fuel type. Further burning is planned in 1987. The CFS Fire Danger Group, which consists of fire researchers from the four CFS establishments, continued a cooperative revamping of the

Canadian Forest Fire Danger Rating System (CFFDRS), concentrating in particular on the development of a Fire Behavior Prediction (FBP) System.

In July of 1986 Dennis Dubé, formerly a fire researcher with the CFS in Edmonton, assumed the role of National Forest Fire Research Coordinator at CFS Headquarters in Ottawa. In this newly-created position, Dennis will work with all CFS establishments and client agencies to provide focus and direction to the fire research program in Canada. In another development Dave Williams recently retired from the CFS and a former director of the Forest Fire Research Institute in Ottawa, has agreed, under contract to the CFS, to serve as editor of the Fire Management Study Group publication Forest Fire News. The first edition will be published, through the U.S. Forest Service, early in 1987.

The following is a summary of additional fire research activity within CFS establishments during the past year.

Pacific Forestry Centre (PFC)

A major five-year study in the use of prescribed fire to rehabilitate productive white spruce sites occupied by non-commercial brush species commenced this year in the control interior of British Columbia. Experimental sites have been selected and plot establishment is underway, with herbicide spraying, burning and mechanical site preparation treatments all planned for 1987. Fire research staff from PNFI are providing assistance with a study of site preparation effects on nutrient cycling. Other studies will examine effects of the site treatments on micro-climate affecting conifer seedling establishment, survival, and growth. In a related, but more extensive study to help develop burning prescriptions for spruce site backlog reforestation, three operational blocks were measured and instrumented for fire behavior and impact documentation in 1986. Only one of these blocks was burned this year because of weather and herbicide-related scheduling problems, but the remaining burns will be re-scheduled for 1987.

Another study to refine burning prescriptions for site preparation immediately after logging is progressing. Research staff (CFS and B.C. Forest Service) monitored one burn, including detailed documentation of changes in competing vegetation on wet spruce sites. Assisting with this work this year is a voluntary prescribed burn monitoring program introduced along with an instructional manual and training sessions. Under this scheme, operational B.C. Forest Service staff and forest industry personnel establish pre- and post-burn monitoring plots on operational prescribed burns. The blocks are then burned under on-site monitored weather conditions and the measured results fed back to both research staff, for prescription refinement, and directly to the operational personnel who collected the data, to help improve their own quantitative knowledge about fire as a site preparation tool.

PFC fire research staff participated in several symposia, workshops and training courses, presenting papers and lectures on the use of prescribed fire and the research work underway to improve its predictability and effectiveness for site preparation in silviculture. As well, training sessions were provided to B.C. Forest Service, Atmospheric Environment Service and to forest industry groups on the Canadian Forest Fire Danger Rating System (CFFDRS) and the new Canadian Forest Fire Behavior Prediction (FBP) System, now being field-tested and refined for publication.

Northern Forestry Centre (NoFC)

Analysis of the intensive fuels inventory of the montane forest zone of Jasper National Park was completed. An M.S. thesis entitled "Physical components and biomass regression equations required for fuel quantification of forest stands in Jasper National Park, Alberta" has been finished. Several papers based on this work are being prepared.

Several computer programs written in BASIC have been prepared for use with lap top computers. These programs deal with the Canadian Forest Fire Weather Index (FWI) and Fire Behaviour Prediction System (FBP). Additional computer programs are also in developmental stages including those related to "expert systems".

A detection evaluation study was initiated in Manitoba under the Canada/Manitoba agreement. In Saskatchewan a contract with Atmospheric Environment Service evaluating the provinces fire weather stations network was conducted. In Alberta a PRUF contract with the University of Alberta is underway to determine fireline production rates for crews and equipment under a variety of conditions.

The experimental burning program in the black spruce-Labrador tea-Cladonia fuel type continued in 1986 at Big Fish Lake in northern Alberta. Nine successful fires to investigate fire behavior characteristics have been carried out to date in this program.

Work was initiated on use of the FLIR scanner for documenting on spread rates on prescribed burns. Infrared fire scanner work was continued in Alberta.

NoFC fire research personnel developed or participated in several training courses, seminars, workshops and information sessions with all user agencies in the Northern Regions (Alberta Forest Service, Saskatchewan Dept. of Parks and Renewable Resources, Manitoba Dept. of National Resources, Indian and Northern Affairs Canada, and Parks Canada).

Petawawa National Forestry Institute (PNFI)

Fire behavior and effects research continued with the designing of moisture content models for woody slash fuels, the issuing of mathematics and a standard program for the 1984 version of the Fire Weather Index

System, the study of suckering in aspen stands following fire or harvesting, work on the economic impact of fire on timber supply, a study of forest floor respiration and nutrient supply and its effect on jack pine growth rates, and further work on the explanation and prediction of crown fire behavior.

In the fire management systems project a digital radio communication system has been developed and is in operational use, the use of radar for precipitation mapping has been demonstrated, refinement of a fire growth model continues, an initial investigation into the use of artificial intelligence for initial attack dispatching looks promising, and continued assistance was provided to the provinces of Ontario and British Columbia in the development of centralized fire control systems.

Suppression-oriented research activity included a laboratory investigation of foam-forming agents, the evaluation of foam dropping from CL-215 and Dromader M-18 aircraft, advising Weyerhauser Co. on the use of skimmer-type air tankers in Arkansas and Oklahoma, assisting British Columbia and the Northwest Territories in air tanker drop studies, participating in a Michigan/Ontario/PNFI evaluation of fire suppression chemicals, carrying out field and laboratory evaluations of fire fighting foams in Quebec, New Brunswick and Nova Scotia, demonstrated use of helitorch in Quebec, participated in the development of national hose and coupling specifications, participated in meetings on the subject of aerial laser ignition of forest fuels, and presented numerous papers and reports on forest fire equipment technology.

Fire danger studies continued with investigations into the effects of rain and dew on forest litter and slash fuels, and fuel complex changes in budworm-killed balsam fir stands in Cape Breton were monitored.

Great Lakes Forestry Centre (GLFC)

No experimental fires were carried out due to poor weather conditions in 1986, but a series of 1.5-3.5 hectare plots were laid out and inventoried in immature jack pine and a series of point-source ignition fires are planned for 1987. Reports on crown fire behavior in immature jack pine and spruce budworm-killed balsam fir were produced.

Monitoring and documentation of large-scale operational prescribed burns continued in 1986 with particular emphasis being placed on studying various ignition patterns and their effect, under certain meteorological conditions, on mass-fire behavior.

A study to evaluate prescribed fire and mechanical site preparation techniques under a variety of harvesting methods has been initiated in northeastern Ontario. Plots have been laid out for treatment and site preparation treatments will begin in 1987.

An MScF thesis on the use of regression models and historical fire data to predict annual people-caused forest fire occurrence in several parts

of Ontario was produced in 1986 in conjunction with the University of Toronto. This regression model could form the basis of a fire occurrence severity index to be used in evaluating the effect of fire prevention programs on annual forest fire occurrence patterns.

In conjunction with the Ontario Ministry of Natural Resources and the Canada International Development Agency an investigation into the feasibility of using the Canadian Forest Fire Danger Rating System in northeastern China was undertaken. Chinese weather data has been analyzed and the work is continuing.

Fire ecology and effects work on regeneration and vegetation succession on all GLFC experimental fires and selected, well documented wildfires was continued in 1986.

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CANADA

Federal Government

Canadian Forestry Service

Herring, Richard J. Assistant Deputy Minister	Canadian Forestry Service Agriculture Canada Sir John Carling Building 930 Carling Avenue 9th Floor Ottawa, Ontario K1A 0C5	613-992-6042 Telex 053-3283
Winget, Carl H. Director General, Research and Technical Services	Canadian Forestry Service Agriculture Canada Ottawa, Ontario K1A 1G5	819-997-1305 Telex 053-3188
Dubé, Dennis E. National Forest Fire Research Coordinator	Canadian Forestry Service Agriculture Canada Ottawa, Ontario K1A 1G5	819-997-1107 Telex 053-3188
Walker, John D. Program Manager, Fire and Remote Sensing	Petawawa National Forestry Institute Canadian Forestry Service Chalk River, Ontario K0J 1J0	613-589-2880 Telex 05334557
Stocks, Brian J. Head, Forest Fire Research Unit	Great Lakes Forestry Centre Canadian Forestry Service P.O. Box 490 Sault Ste. Marie, Ont. P6A 5M7	705-949-9461 Telex 06777180
Barney, Richard J. Fire Project Leader	Northern Forest Research Centre Canadian Forestry Service 5320 - 122 Street Edmonton, Alberta T6H 3S5	403-435-7210 Telex 0372117
Lawson, Bruce D. Head, Forest Fire Research Unit	Pacific Forest Research Centre Canadian Forestry Service 506 West Burnside Road Victoria, British Columbia V8Z 1M5	604-388-3811 Telex 049-7147

Parks Canada

Lohnes, Dave M. Chief	Natural Resources Division Parks Canada National Parks Branch Ottawa, Ontario K1A 1G2	819-994-2639 Telex 053-3711

Indian and Northern Affairs Canada: Northern Affairs Program

Guay, Gaston M. Head, Forest Protection	Forest Resources Division Renewable Resources and Northern Environment Branch Indian and Northern Affairs Can. Ottawa, Ontario K1A 0H4	819-997-3143 Telex 053-3711
Bailey, Robert P. Head, Fire Control	Northern Affairs Program P.O. Box 7 Fort Smith, N.W.T. X0E 0P0	408-872-2103 Telex 034-4815
Kepke, Keith Head, Fire Management	Yukon Forest Service 200 Range Road Whitehorse, Y.T. Y1A 3V1	403-668-2263 Telex 036-8343

Canadian Interagency Forest Fire Centre

Jeffrey, C. Allan Director	CIFFC 210-301 Weston Street Winnipeg, Manitoba	204-783-7267 Telex 0757325 R3E 3H4

Provinces

British Columbia

Doerksen, Hank G. Director	Forest Protection Branch Ministry of Forests 1450 Government Street Victoria, B.C. V8W 3E7	604-387-8720 Telex 049-7263

Alberta

Benson, John E. Director	Forest Protection Branch Alberta Forest Service 10625 - 120 Avenue P.O. Box 7040, Postal Stn. M Edmonton, Alberta T5E 5S9	403-427-6807 Telex 037-3507

Manitoba

Briggs, Art Chief	Fire Management & Communications Department of Natural Resources P.O. Box 10, 1495 St. James St. Winnipeg, Manitoba R3H 0W9	204-945-7781 Telex 07587740

New Brunswick

Clowater, Wayne Manager	Provincial Forest Fire Centre Department of Natural Resources Fredericton, N.B. E3B 3P7	506-453-2530 Telex 01446280

Newfoundland

Fleming, Gerald J. Director	Forest Protection Division Department of Forest Resources and Lands P.O. Box 2006 Corner Brook, Newfoundland A2H 6J8	709-637-2349 Telex 01644109

Nova Scotia

Graham, Dan J. Manager, Forest Protection (Fire)	Fire Control H.Q. Department of Lands & Forests P.O. Box 130 Shubenacadie, N.S. BON 2HO	902-758-2232 Telex 01934545

Ontario

Goodman, John F. Director	Aviation and Fire Management Centre Ministry of Natural Resources 747 Queen Street East P.O. Box 310 Sault Ste. Marie, Ontario P6A 5L8	705-942-1800 Telex 06777134

Prince Edward Island

Arsenault, Jean-Paul Forest Operations Director	Department of Energy & Forestry P.O. Box 2000 Charlottetown, P.E.I. C1A 7N8	902-892-0228 Telex 01444154

Quebec

Proulx, Régis Chef	Service de la protection contre le feu Ministère de l'énergie et des resources 1530 boul. de l'Entente Québec, P.Q. G1S 4S7	418-643-7735 Telex 05131556

Saskatchewan

Richards, W.L. (Bill) Director	Forest Fire Control Branch Department of Parks & Renewable Resources P.O. Box 3003, McIntosh Mall Prince Albert, Saskatchewan S6V 6G1	306-593-2297 Telex 07429126

CANADA'S NATIONAL AIR TANKER FLEET

In the last two decades, Canadians have become aware, as never before, of the importance of the forest industry to their own well being and economic health. Few other countries have a heritage in forest land so rich and so important as Canada's. Our economy is strongly linked to this renewable resource; the forest industry directly employs close to 300,000 Canadians.

Canada is not running out of trees, but it is running low on high quality forests. This is a critical problem for the Canadian forest industry, which competes with countries in warmer climates, where trees mature in one-quarter to one-half the time. Across Canada, our forests are the foundation of the tourism and recreation industry, and they provide a varied source of enjoyment for all Canadians.

Canada's total land area is 916,700,000 hectares, of which forests cover 45 percent. Productive forest land totals approximately 264 million hectares, including a boreal shield that exceeds 130 million hectares. Forest fires damage hundreds of thousands of hectares of Canadian forest land annually. Bad fire years have seen over two million hectares affected. The majority of Canada's fire losses occur in boreal forests in the west and north portions of the country.

Indeed, fire is natural to the boreal forest. Many of the stands we are harvesting today are a result of natural regeneration from fires years ago. However, as fire removes ground cover, the

result can initiate a cycle of erosion and soil loss that can decrease or destroy the potential for successful regeneration. Intensive management has greatly enhanced forest regeneration over the last decade. Without effective forest fire control in Canada for instance, only about one forth of forest stands we establish would survive to harvestable age. We have committed ourselves to protecting the resources that we have re-established.

In Canada, the 10 provinces and two territories are traditionally responsible for forest fire protection within their own jurisdications. During the 1970's and early '80's, it became obvious that forest fire activity had stretched the ability of individual provinces and territories in meeting demands during peak fire loads. Co-operation and mutual assistance on a national scale was needed.

Under the direction of the Canadian Council for Resource and Environment Ministers, the Canadian Interagency Forest Fire Centre was established in Winnipeg, Manitoba. The centre was formed to develop the concept of mutual aid and resource sharing throughout Canada and to provide assistance to neighbouring States. The establishing of a national fire centre was followed closely by the Federal/Provincial Co-operative Supply Agreement, the purpose of which was to deliver a national water bomber fleet. Under the terms of the agreement, for every Canadair CL-215 that a province or territory purchased, the federal government provided an additional aircraft on a 25 year dry lease for a token sum. This agreement will result in a fleet of 49 CL-215 water bombers being based in Canada by the Spring of 1988.

As we speak, 28 of the 49 aircraft have been delivered.

We have found that mutual aid works. The 1986 fire season saw interprovincial/territorial assistance occur on nine separate occasions.

The 28 aircraft operated flew 3,015 hours this past season, actioning 358 fires. Amounts of liquid dropped were:

i) water - 55 million litres

ii) foam - 1,115,000 litres (N.W.T.)

iii) retardant - 227,205 litres (N.W.T. and Alberta)

THE AIRCRAFT

The Canadair CL-215 was designed to satisfy the requirements for a dependable, rugged, amphibious aircraft, capable of carrying out effective water bombing operations from either land or water.

Design characteristics worthy of note are:

- wide field of view from cockpit
- excellent water handling characteristics
- exceptional maneuverability
- long range and endurance
- strong and durable structure
- proven corrosion protection

The aircraft's primary operational advantage lies in its ability to scoop 5347 litres of water (liquid) in less than 10 seconds as it skims across the surface of any suitable body of water. During water pick up operations, the approach path and climb out over a 15 metre obstacle requires a distance of only 1,200 metres, 560 metres is needed on the water. The CL-215 utilizes two retractable probes to pick up water; normal speed for scooping is 130 km/hr, and water depth required is less than 1.5 metres.

Although Ontario Aviation and Fire Management staff have been familiar with the CL-215 for a number of seasons, the aircraft continues to impress as management systems improve and increased numbers of aircraft enhance versatility.

The remarkable maneuverability inherent in the 215's design permits quick turnaround times utilizing surprisingly limited water sources. The excellent tank and gate system results in dense, uniform water drops. The speed (290 km/hr) and endurance (4.5 hours) of the CL-215, allows it to action several fires in one mission during a multiple start situation. Central Canada, especially my Province of Ontario, is a land blessed with countless lakes. Distances from the fire to the nearest water source seldom exceeds 10 kilometers. Turn around times are often less than five minutes, allowing up to 65,000 litres of water to be applied to a fire in one hour. On a fire in Northern Ontario in 1982, a single CL-215 was able to apply 160,000 litres of water to a fire in the critical first hour of initial attack. With two CL-215's working in unison, under the direction of a bird dog aircraft, the results are truly impressive. Although the aircraft can scoop 5347 litres of water, its power and maneuverability allows it to utilize limited water sources and pick up lesser loads. In the case where a limited water source is adjacent to the fire, it may be more prudent to use this source and down load instead of travelling 10 kilometers to a larger body of water.

In Western Canada and the Northern Territories, lakes are less abundant. The aircraft are available as a land based bomber into which retardant can be loaded. Once reaching the fire, the crew has the option of using a water source (if one is available) or returning to the airstrip for retardant.

Canadair announced the CL-215 Program go ahead on February 1, 1966.

Milestones since this date include:

Rollout - September 11, 1967
First Flight - October 23, 1967
Certification - March 27, 1969
First Delivery - June 6, 1969

With a recent commitment to purchase by Italy, the total orders world-wide stand at 111 aircraft; 93 have been delivered since 1969.

Accummulative flight hours of the entire fleet has now surpassed 180,000 with over 450,000 drops recorded.

Sixty-five aircraft are in service in Europe. Countries such as France, Spain, Yugoslavia and Greece have been successfully operating CL-215s for years.

While first and foremost a fire fighter, the CL-215 undertakes a variety of roles. These include aerial spraying (primarily application of pesticides), patrol, search and rescue and utility transport.

Although without a doubt the primary water bomber in the world today, improvements are ongoing. Canadair is presently offering a retro-fit to provide customers with nose wheel steering. Conversion to turbine power is close to receiving the go ahead. These modifications will upgrade the aircraft that is already well on its way to meeting Canada's demands for effective aerial forest fire suppression.

The CL-215, designed and built by Canadians, is now the backbone of Canada's aerial fire fighting fleet. With the creation of a national air tanker fleet, we are effectively reducing the impact of extreme fire seasons, and the costly impact on gross national product as a result of forest fires.

Thank you

Additional Information:

Passenger Capacity: up to 26 seats

Most Drops by One Aircraft in one day: 160, Manitoba 1978

Most Drops by One Aircraft in one hour: 31, Quebec 1975

Countries in Service: Canada, Spain, France, Venezuela, Yugoslavia, Thailand, Greece, Italy*

*On Order

BACKGROUND & CURRENT STATUS OF THE JIAPRO (CHINA) PROJECT - SEPTEMBER, 1986

BACKGROUND

Ontario is providing technical expertise to the People's Republic of China on modern methods to deal with forest fires. In September 1984, Ontario signed an agreement with the Canadian International Development Agency to develop and implement a model forest fire management system in north-eastern China. Ontario is the contractor and the 5 year project (5 Million $) is funded by the Government of Canada. The project has been named "JIAPRO" and is scheduled for completion in 1989.

OBJECTIVES

The bottom line is to significantly reduce the annual area burned on the project. Components of the project include developing a centralized fire organization including fire detection, communications, fire prediction, transportation and coordinated rapid initial attack on all fires. In addition, Ontario Ministry of Natural Resources fire staff will assist the Chinese to develop their fire management program by training Chinese forestry staff in Canada.

WHERE AND WHY

The area where the project is carried out is the most northerly part of China in Heilongjiang Province called the Da Xing An Ling Forestry Management Bureau. It's about the same size as our North Eastern Region. The headquarters of the region and project is a town of 100,000 called Jiagedaqi which means "the home of the larch and the pine".

The Chinese experience large fire losses in this larch/pine forest - one of the last unexploited forests in China. The losses are in the order of 30 x the experience in Ontario.

OTHER ACTORS IN THE PROJECT

Assisting in the project is the Province of Alberta which is developing and carrying out training in fire detection and the federal Canadian Forestry Service who are looking after portions of the fire intelligence component. Federal people involved are Dr. Peter Kourtz who is providing fuel type maps from the Landsat satellite, John Walker on fire behaviour and Brian Stocks who is developing a Fire Weather Index.

The O.M.N.R. commitment comes from across all of Ontario from Cornwall where the equipment is marshalled, packed and shipped through the port of Montreal to Red Lake where eight Chinese have been trained in fire suppression techniques this year.

ACCOMPLISHMENTS TO DATE

1. The manufacture in Canada, shipping and erection in Jiagedaqi of a furnished Canadian two bedroom house. This work was carried out by M.G.S. under the supervision of Wayne MacNeil from the Thunder Bay office. Living conditions in this part of China are very different from those in Ontario. Our Canadian manager, Harold Redding and his wife Ellen need a little bit of Canada to retreat to on occasion. Mr. & Mrs. Redding have been living in China since Spring of 1985.

2. We have purchased a half million dollars worth of Canadian fire suppression equipment including fifty power pumps, hose, hand tools and three Ontario made ATV's. All of the suppression equipment is on site and some of it has been used to suppress forest fires this year.

This year we are also purchasing over one million dollars of radio communication equipment. When installed in 1987, this equipment will greatly enhance two way radio communications in the project area.

3. To date twenty Chinese personnel have received training in Ontario including the Director of Fire Operations in Jiagedaqi, fireline supervisors, aircraft managers, fuel type mapper, radio technician, equipment maintenance technician, fire weather technician and an information systems manager.

4. The detection component carried out by Alberta is well under way. Updated fire finding equipment has been installed in seven lookout towers on the project area. Training of the aerial detection co-ordinator and the lookout tower co-ordinator is complete.

5. OMNR staff who have worked in China are: John Goodman, Director A.F.M.C. one of the project "founders"; Merrill Rush, Canadian Project Director, Sault Ste. Marie; Harold Redding, Canadian Project Manager; Jack Minor, lead advisor Organization & Operations Planning, Sault Ste. Marie; Joe Abela, lead advisor Communications (Radio), Dryden; Jim Mills, lead advisor Suppression Systems and Training, Dryden; Dick White, lead advisor Fire Intelligence, Sault Ste. Marie; Tom Holohan, Fire Weather Station & Lightning Detection Systems, Sault Ste. Marie; and Eric Astley, lead advisor Aircraft Management, Sault Ste. Marie.

Other key staff are: Janet Dool, Project Assistant, Sault Ste. Marie; Jim Moorley, Suppression Systems instructor, Red Lake and John Hadley, Suppression Systems instructor, Cornwall.

In addition a host of staff have contributed their time and talents at one time or another. This is truly a Ministry wide project.

6. By the end of the five year period, approximately 30 Chinese ranging from the head of fire for the Country, Mr. Xu Tianrong (affectionately called "Big Shoe") to unit crew leaders will be trained. A good rapport has developed

between the key Chinese and Canadians involved. We feel good about the chances for overall success. We look forward to seeing the Ontario fire system expanded to other areas of China - a prime example of Ontario's technology being exported.

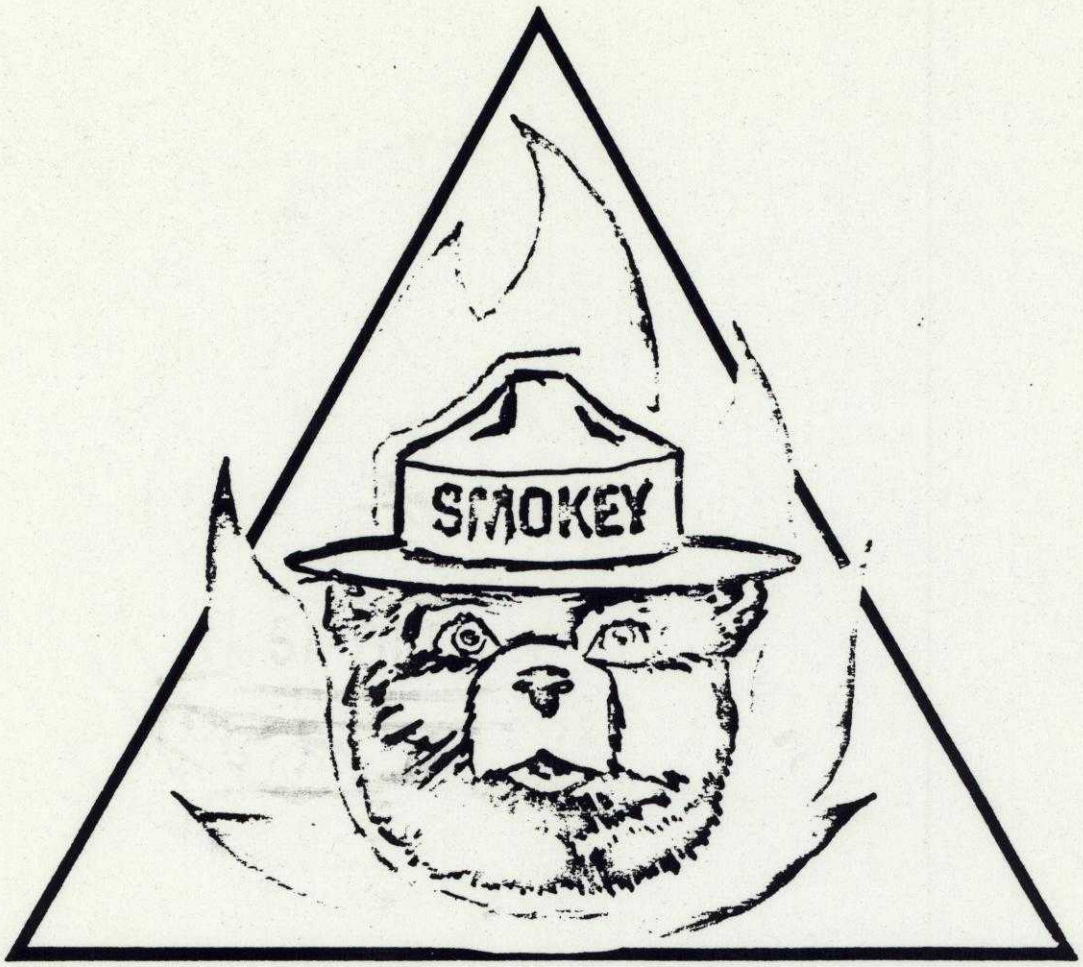
J. F. Goodman,
Director, A.F.M.C.

PROPUESTA DE MATERIAL DIVULGATIVO PARA LA PREVENCION DE INCENDIOS FORESTALES

DIVULGATIVE MATERIAL FOR WILDFIRES PREVENTION

A PROPOSAL

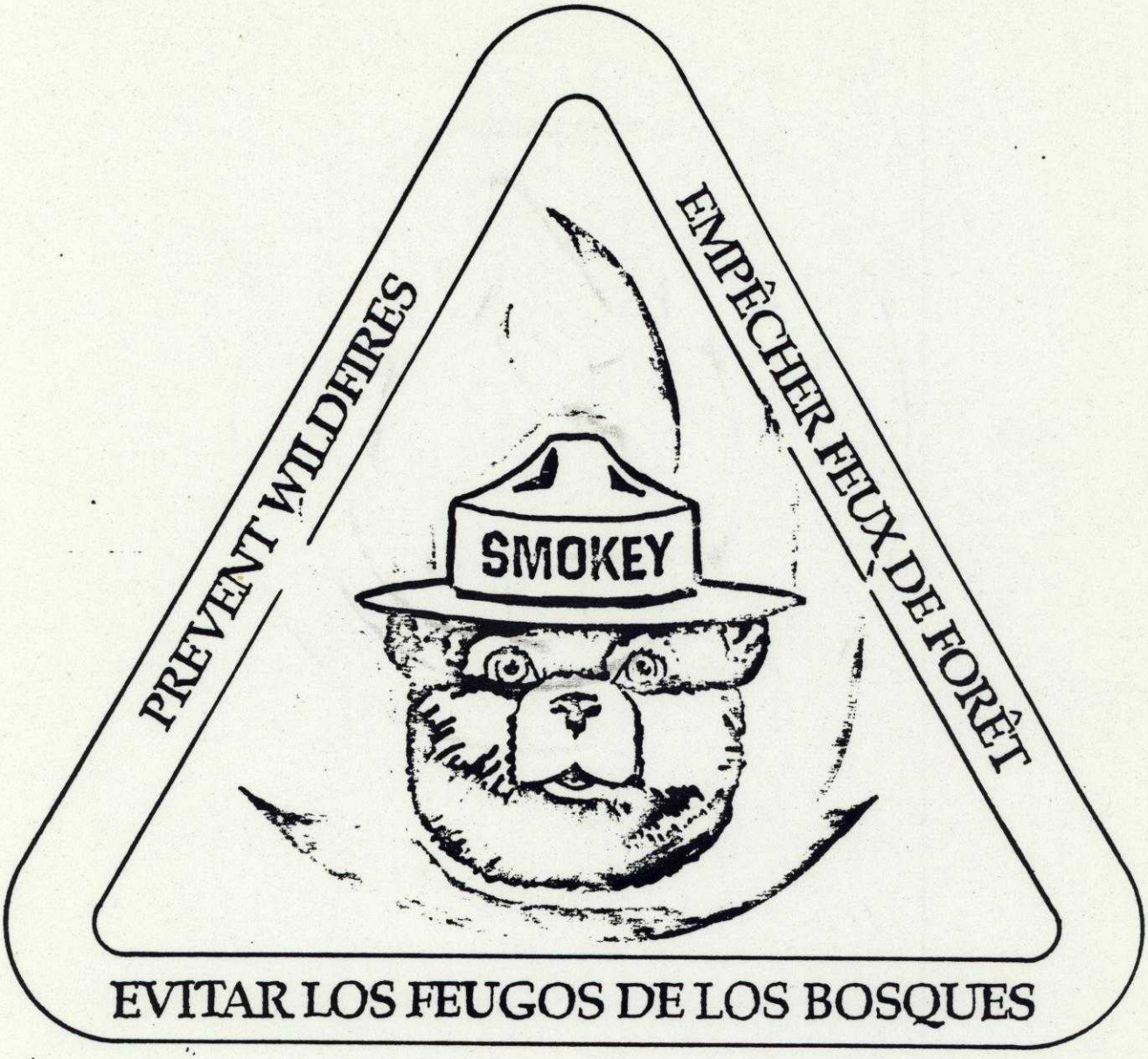
EVITAR LOS FUEGOS DE LOS BOSQUES
PREVENT WILDFIRES
EMPÊCHER FEUX DE FORÊT
SMOKEY



EVITAR LOS FEUGOS DE LOS BOSQUES

EMPÊCHER FEUX DE FORÊT

PREVENT WILDFIRES


PREVENT WILDFIRES
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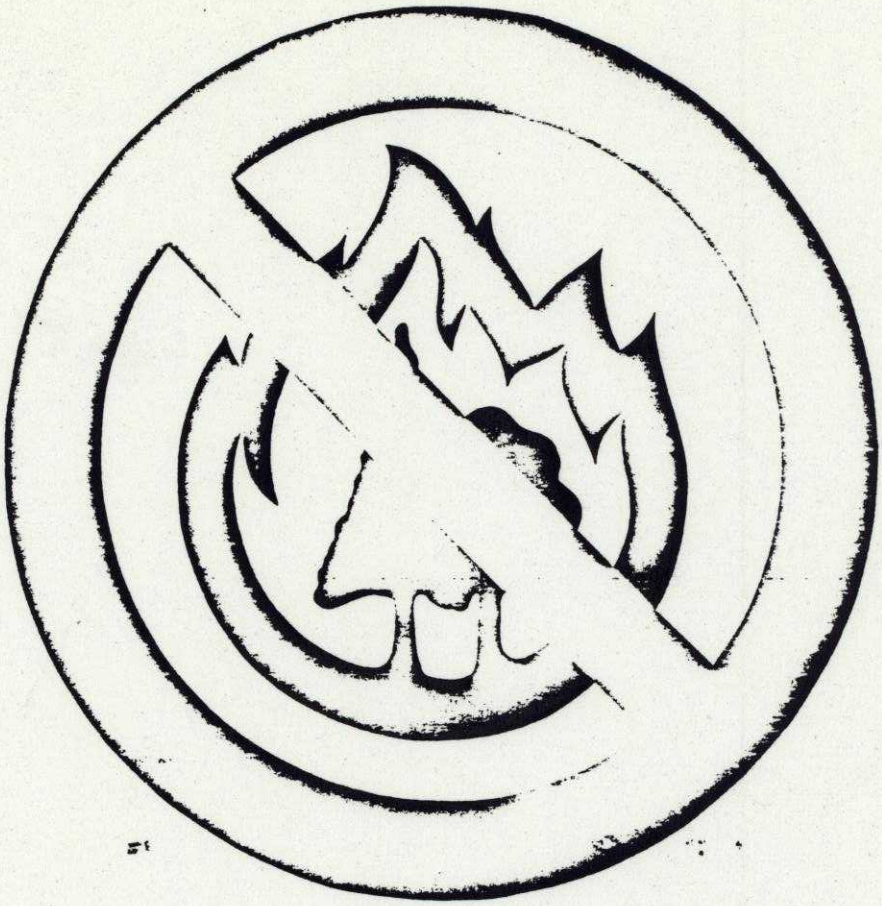

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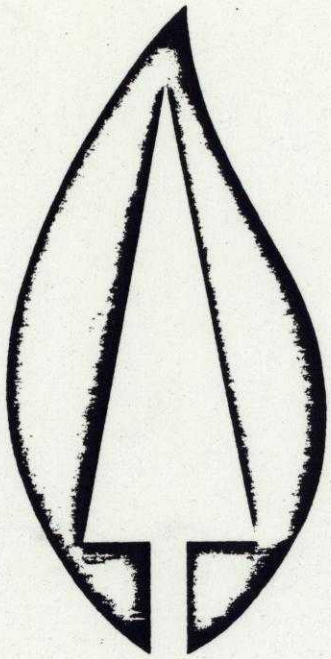
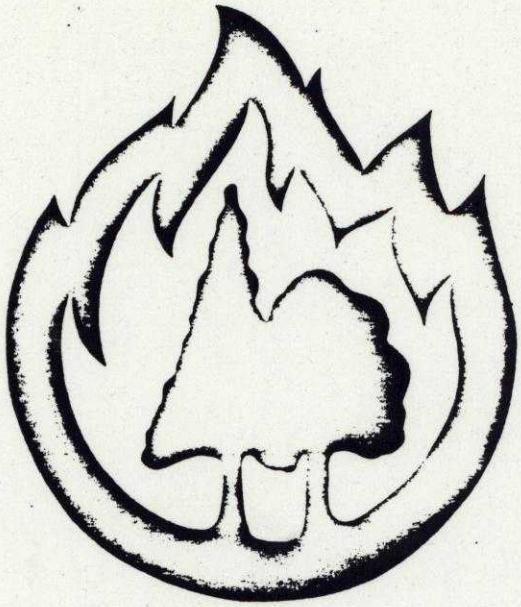
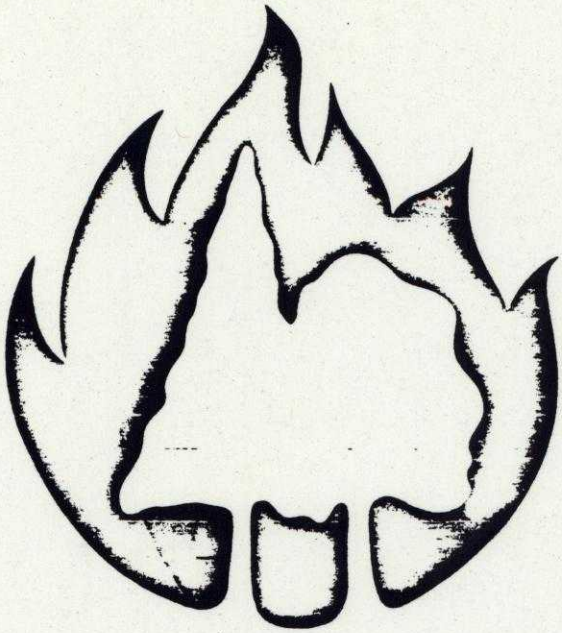
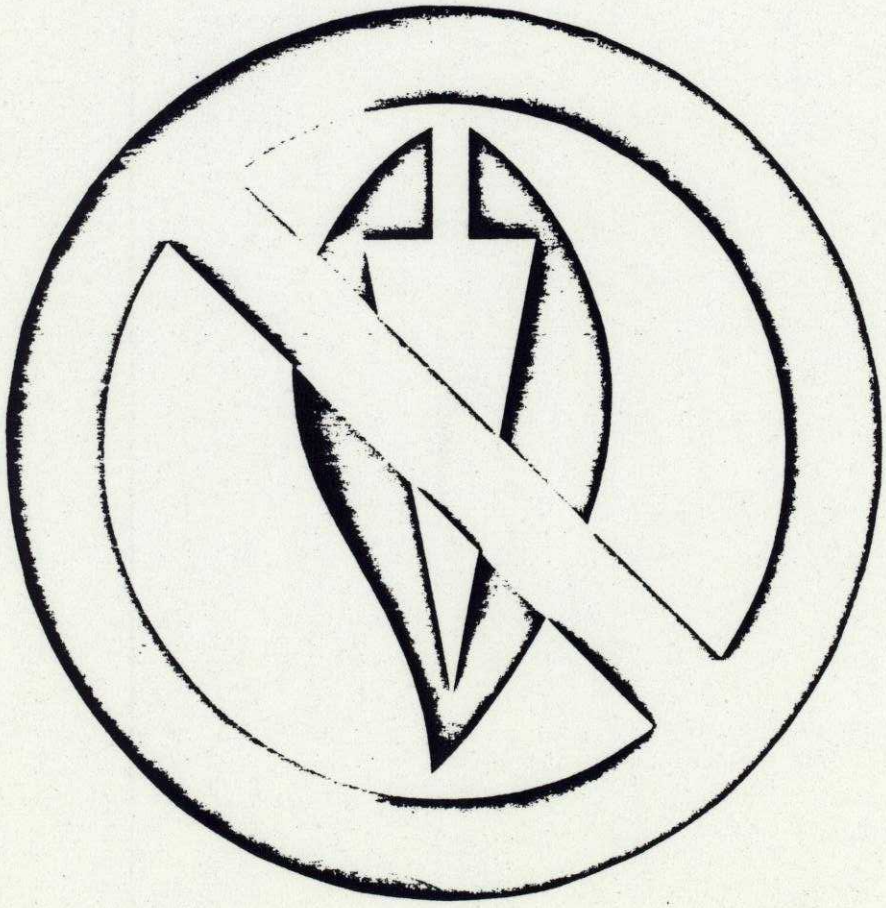
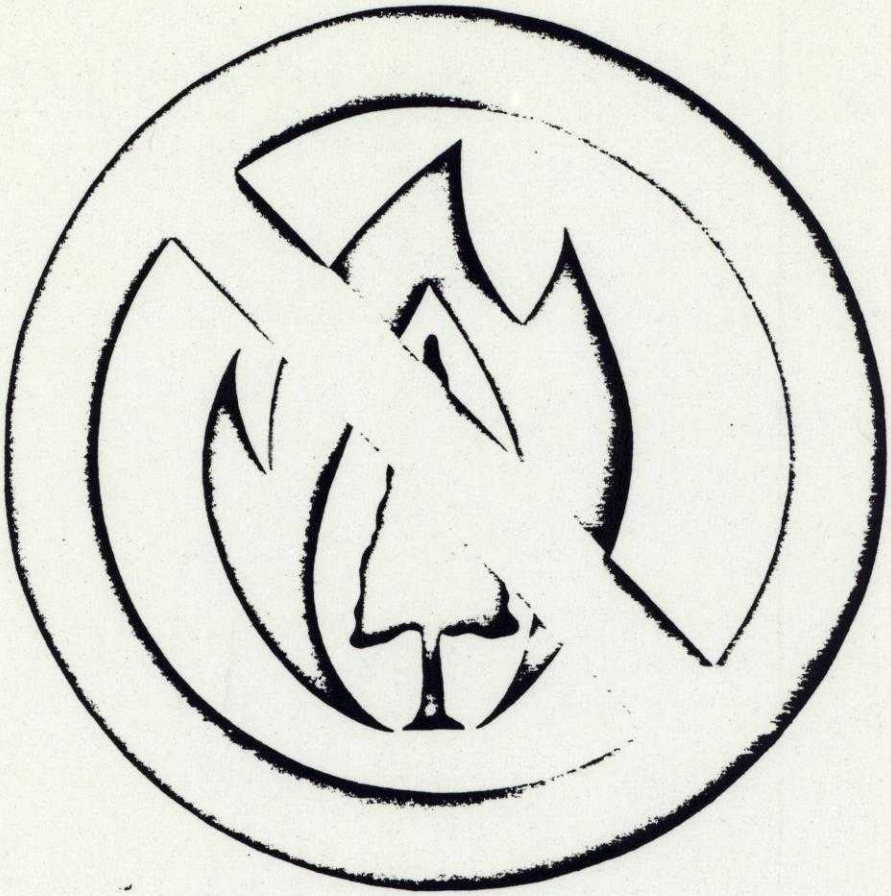
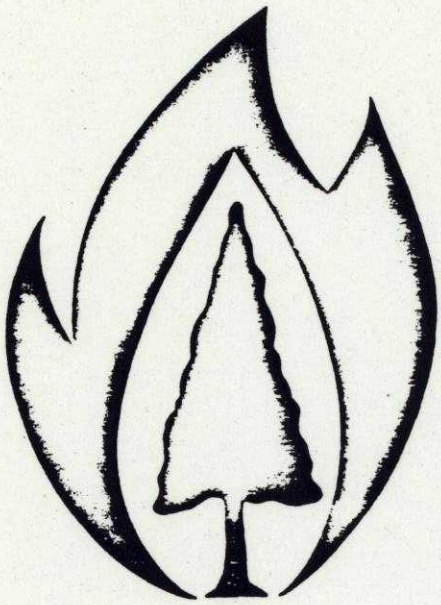












B. ESTADOS UNIDOS DE NORTEAMERICA

-"REPORTE NACIONAL"

-"INCENDIOS PRESENTADOS EN USA DURANTE 1986 Y LA APORTACION DE LA BIFC"

--"SITUACION DE LA INVESTIGACION SOBRE INCENDIOS FORESTALES (W.T. SOMMERS)"

B. UNITED STATES OF AMERICA

- "NATIONAL REPORT"

- "INTERIOR FIRE YEAR AND BIFC SUPORT"

- "STATUS OF FOREST FIRE RESEARCH"

  (W.T. SOMMERS)

UNITED STATES REPORT

To The

NORTH AMERICAN FORESTRY COMMISSION

United States Department of Agriculture

Forest Service

Fire and Aviation Management

UNITED STATES REPORT

To The

NORTH AMERICAN FORESTRY COMMISSION

United States Department of Agriculture

Forest Service

Fire and Aviation Management

INTRODUCTION

As of August 29,1986, the "Cooperative Fire Protection" and "Aviation and Fire" staffs formally combined into a single staff called "Fire and Aviation Management." The National Forest Deputy Chief will still provide program direction as it relates to National Forest System lands, while the Deputy Chief for State and Private Forestry, Al West, will provide direction and overall management of day to day operations. This reorganization has not only saved costs, but will provide better coordinated service to field units, States, the public, and to all other members of the fire protection community. L.A. (Mic) Amicarella is the Acting Director of the newly combined staff until formal approval for Mic's appointment is received from the Department of Agriculture.

NWCG Activities

The National Wildfire Coordinating Group (NWCG) met January 22 and 23 in Ottawa, Canada. The January 22 session was held jointly with the Canadian Committee on Forest Fire Management (CCFFM). NWCG met again in Fairbanks, Alaska, July 7-12, 1986. Significant actions and issues addressed at the meetings are:

1. NWCG adopted a standardized radio frequency agreement format needed for both administration and fire emergencies. The agreement format is for local agreements between sharing agencies.

2. An air quality specialist position was added to NWCG's Prescribed Fire and Fire Effects Working Team. The expertise is needed to deal with the Federal Clean Air Act, Class I Areas (visual protection) standards on prescribed burning.

3. NWCG has taken the lead in establishing a method to consider how forest fire agencies are going to use satellite communications and other systems.

4. Mike Miller resigned as State Forester of Oregon and from NWCG. Jim Brown replaced Miller as State Forester and Dr. Gerald Partain, California State Forester, replaced Miller on the NWCG.

5. An Ad Hoc Fireline Safety Committee was established with John Bethea as liaison. The Committee will analyze fireline mishaps, detect trends, and develop methods and processes to minimize reoccurrences.

6. There are on-going efforts to strengthen research at several Forest Service fire laboratories. High priority items are smoke on the highway, Fire Danger Rating and wildland urban interface problems.

7. There were over 200 fire shelter deployments during the 1985 fire season, warranting NWCG's review of fire entrapments. The following actions/recommendations are being taken:

a. Continued emphasis in further understanding crown fire development and spread, spotting mechanisms, and erratic fire behavior.

b. The Missoula Equipment Development Center is scheduling a fire shelter improvement project for FY 1987.

c. An Accident/Incident Report for Fire Entrapment and Burns form will be issued for field use and evaluation.

d. Fire shelter training materials will be made available.

e. Fireline Safety Committee was formed for elimination of preventable accidents.

NWCG Fire Weather Working Team (FWWT)

The Fire Weather Working Team was chartered by NWCG in January 1984, and charged with developing alternative means of securing fire weather services. A report was finalized and three test alternatives were approved by NWCG in July, 1986. These alternatives are:

1) Private Sector Contract - The objective is to determine if the capability to provide fire weather services exists in the private sector, and to determine the impacts on a user agency to put together and administer a contract. A contract will be prepared and administered by Florida Division of Forestry. Target date for implementation of contract is January 1, 1987.

2) User Provided Hub - The objective is to determine the ability of an agency to organize a staff to provide fire weather services from a centralized "hub" location to other users throughout a state. The Oregon Department of Forestry was selected to implement the test alternative. Implementation will be acomplished by 2nd quarter of FY 1987.

3) National Weather Service Provided Hub - The objective is to determine the capability of NWS to put together a centralized staff to provide fire weather services from a "hub" location to users over a multi-state area. Boise, Idaho was selected as a hub location. The hub will provide services to the states of Utah, Nevada, the majority of Idaho, and the northwest portion of Wyoming. Implementation will be accomplished by 2nd quarter of FY 1988.

Tests will run for two years, be evaluated and recommendations made to NWCG.

INTERNATIONAL COOPERATION

Providing technical and disaster assistance to other countries continues to be an important activity for our fire and aviation specialists.

Training in 1986 included the "International Wildfire Suppression' course in Venezuela, helitack training in Southern California for three Chileans, tractor

plow, air operations, and fire suppression training in various parts of the U.S. for 16 Indians.

Technical assessment teams went to Costa Rica to evaluate their training needs, and to Argentina to assess communications and infra-red detection needs.

The U.S. Forest Service sent six aviation and operations logistics specialists to Africa in September and October to assist with the efforts to control the devasting infeststions of locusts and grasshoppers.

1987 promises to be an active year, with activities planned in Argentina, Australia, Costa Rica, France, Spain, Venezuela, and Mexico.

U.S.-Mexico Cooperation Agreement

Activities carried out under the Cooperative Agreement between the U.S. and Mexico have been very valuable to both countries.

- Helitack training was conducted in Mexico by Forest Service instructors in April and May.

- Fire crew effectiveness training, held in New Mexico, was provided to nine Mexicans in May. This training was a highly successful training experience for instructors and trainees alike.

- A prescribed fire and fire equipment study tour of Southern California and the Southeastern U.S. was conducted for five Mexicans.

Activities planned for 1987 include rural community fire protection initiatives and a focus on fire prevention.

1986 Fire Season

Nationwide, for all agencies, the 1986 fire season was above average. National Interagency Fire Coordination Center (NIFCC) fire support activity was confined to the Southeast in early spring, then Alaska in June, and Oregon and Idaho in July and August. Fire activity started early with 59, 134 fires consuming 955,463 acres by the end of April. However, the majority of the fires occurred in July and August with 14,534 fires burning 1,339,492 acres. NIFCC supported 727 large fires of the total 85,907 fires reported during the 1986 season.

NIFCC mobilized 17,190 personnel using a combination of contract aircraft, commercial charters, and military large air transport:

173 Type I crews

586 Type II crews

1,826 Overhead personnel

In addition to the crew mobilization, nine National (Class I) "Overhead Teams" and eight Class II "Overhead Teams" were mobilized. There were also 11

mobilizations of National "Overhead Teams" performed by other dispatching centers. The bar graphs at the end of this report graphically show the increased activity supported by the Boise Interagency Fire Center (BIFC).

Non-Fire Support

Significant non-fire activities were also supported by NIFCC in 1986. These activities include search and rescue programs, law enforcement, insect spraying, earhtquakes, and assorted aid to African nations. NIFCC mobilized both personnel and equipment to several African locations at the request of the Office of Foreign Disaster Assistance (OICD).

National Wildland/Urban Fire Protection Initiative

130 people representing a wide cross section of commercial, residential, and government fire protection interests, spent three days in Denver working to improve fire protection in wildland areas impacted by residential and commercial growth. At the end of the conference, a 97-page report was prepared that clarifies fire protection issues and recommended strategies for problem solving. This information will form the basis for a national report called "**Wildfire Strikes Home**" which will launch a major United States fire protection initiative.

The Denver Conference culminated an eight month effort by the National Fire Protection Association, U.S. Fire Administration, and Forest Service to gather information, and identify interest groups that could help develop programs to reduce fire losses in what is referred to as the Interface area.

The fire protection problems of Interface areas have been recognized by wildfire and some urban fire organizations for a number of years. However, in 1985 the seriousness of the situation was dramatically demonstrated by wildfire incidents from coast to coast that damaged or destroyed 1400 structures, resulted in 44 deaths, burned over 3,000,000 acres and cost taxpayers over 600 million dollars in losses and fire fighting expenses.

The three sponsoring organizations agreed that steps had to be taken to reverse the trend of increasing fire losses in Interface areas. They also recognized that the protection issues went beyond the fire community and needed to be addressed by Interface communities as a whole. A Task Force of 30 people, representing various Interface community interests, met at N.F.P.A. headquarters in May to strengthen this concept and to lay the ground work for the Denver Conference.

As the "**Wildfire Strikes Home**" initiative moves from the information gathering phase to program development, the sponsors have established a guiding management principle that local fire problems have to be solved by local people. The national support of the Initiative will be to generate national awareness of the issue, exchange information, encourage sharing of technology and other similar activities supporting local efforts.

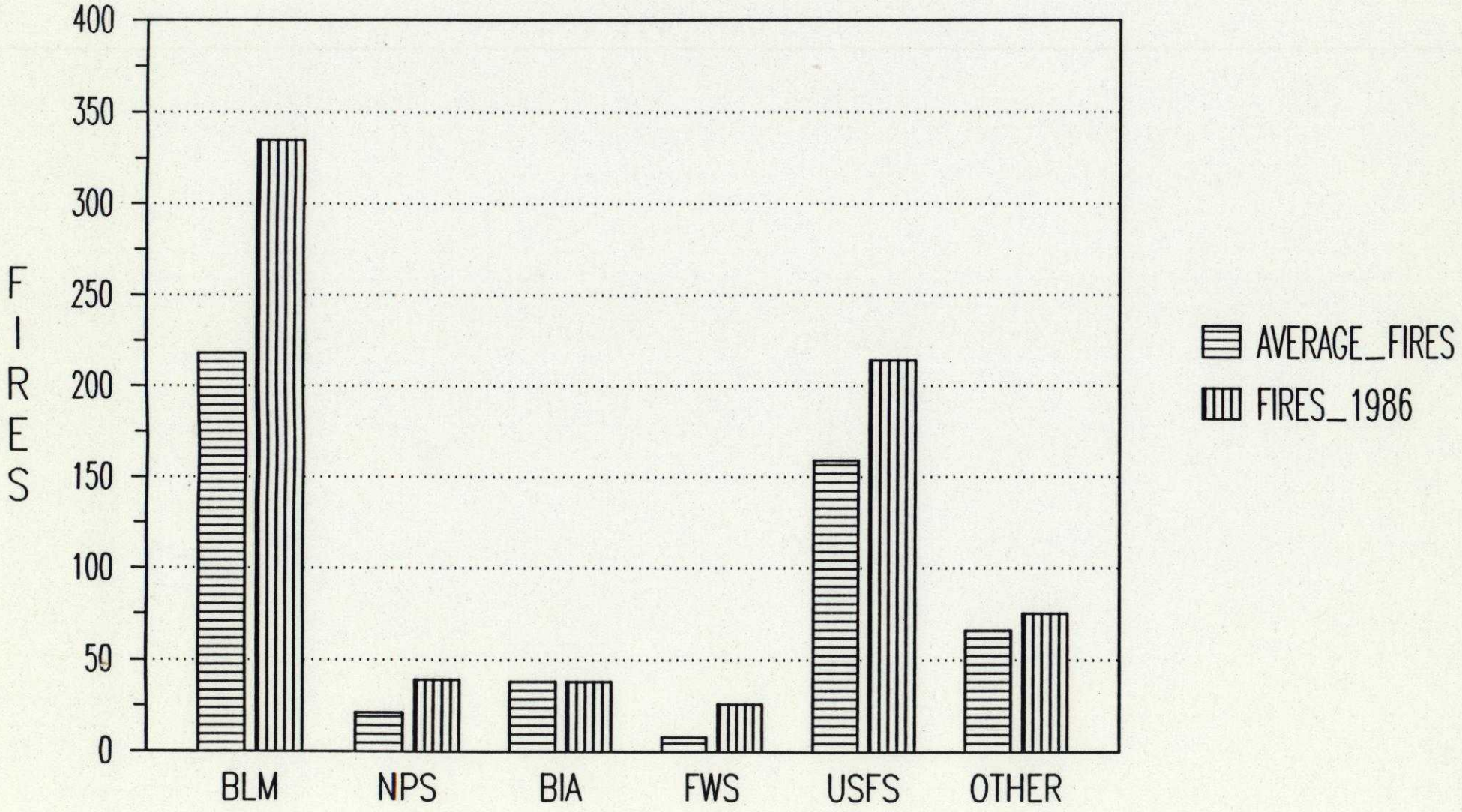
The report "**Wildfire Strikes Home**" is scheduled to be ready for printing by January 1, 1987. National release of the report is scheduled for mid-February, 1987. The report will be supported by a video version that will be telecast to

the Nation's wildfire and urban fire communities in early March, 1987 via N.F.P.A. satellite system. The video programs will also be available for local use and to the gereral public after the satellite broadcast briefing to the fire community.

A series of Regional conferences co-sponsored by state and regional fire associations are also being planned to take place between April 1 and September 1, 1987. The conference objectives are to identify local and regional Interface fire problems, develop action plans and opportunities for the national Initiative effort in support of regional and local efforts.

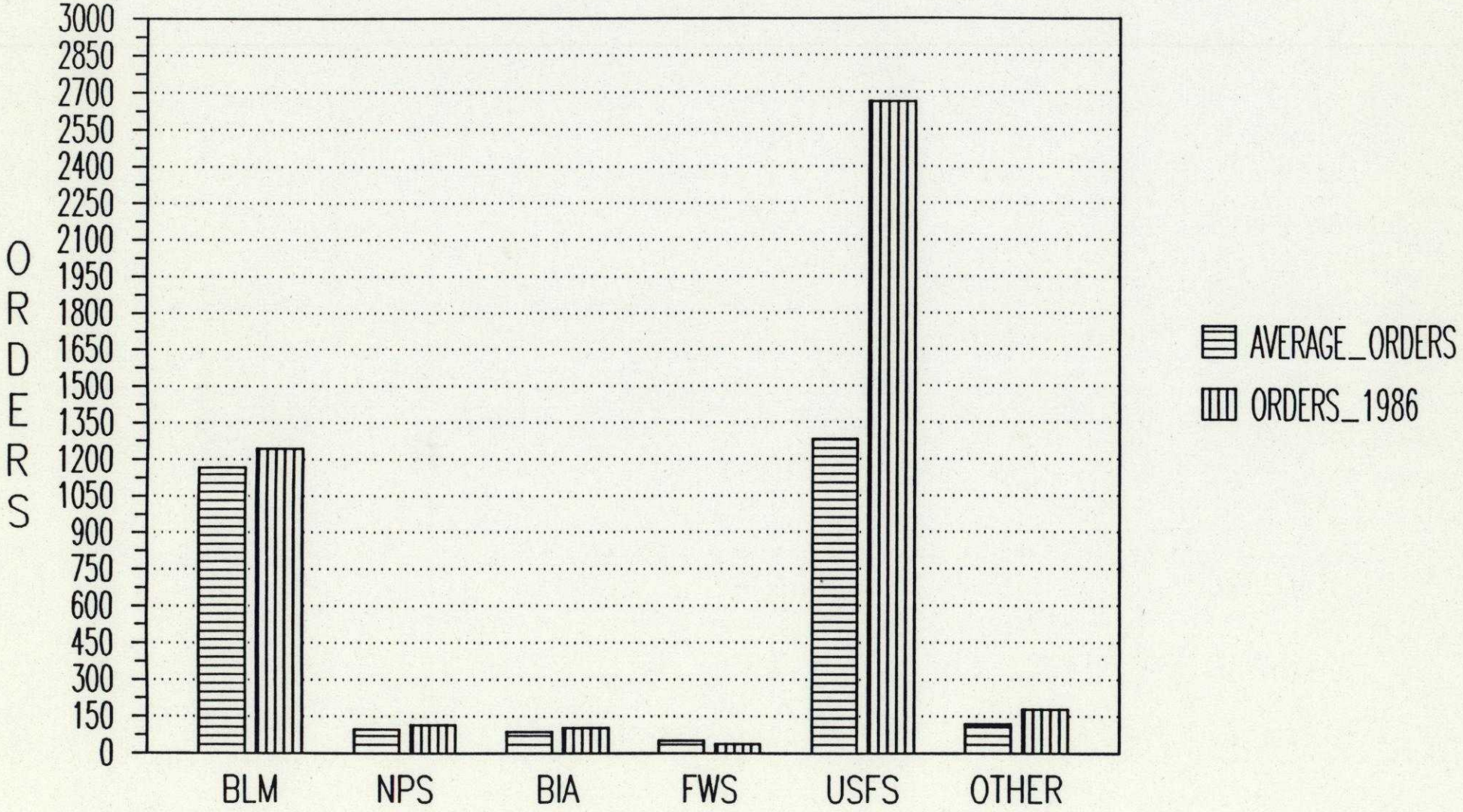
NUMBER OF FIRES SUPPORTED BY BIFC

1981 TO 1985 AVERAGE COMPARED TO 1986



NUMBER OF RESOURCE ORDERS PROCESSED BY BIFC

1981 TO 1985 AVERAGE COMPARED TO 1986



Mic - BLM 75
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DEPARTMENT OF THE INTERIOR COMPONENTS OF THE
UNITED STATES 1986 COUNTRY REPORT FOR
THE FIRE STUDY GROUP OF THE
NORTH AMERICA FORESTRY COMMISSION

INTERIOR FIRE YEAR AND BIFC SUPPORT

Agency 1	1986 Number of Fires	Acres 2	Numbers of Fires Supported by BIFC Average 3	1986	Number of Resources Orders Processed by BIFC Average 3	1986
BLM	2,635	1,179,852	218	335	1,166	1,241
NPS			21	39	97	115
BIA			38	38	87	103
FWS			8	26	50	37
USFS			159	214	1,282	2,661
Other			66	75	119	178
TOTAL			510	727	2,801	4,335

1. BLM - Bureau of Land Management, USDI
   NPS - National Park Service, USDI
   BIA - Bureau of Indian Affairs, USDI
   FWS - Fish and Wildlife Service, USDI
   FS - Forest Service, USDA
   Other - State Foresters, Office of Foreign Disaster, Canadian Providences

2. Type 1 Fires based on data available at the time of report

3. Based on data 1981 - 1985

DEPARTMENT OF THE INTERIOR FIRE SEASON

FIRE SEASON - The 1986 fire season was below average for the Department of the Interior in respect to fire starts and acres burned. The majority of Departmental activity occurred on BLM lands in Alaska in June and some scattered activity on BLM lands in Oregon and Idaho in July and August. However, Interior agencies were above average in the number of support responses to the U.S.F.S. and state agencies.

Nationwide (for all fire fighting agencies), the 1986 fire season was well above average. The majority of fire activity occurred in July and August with 14,534 fires reported for a burned acreage of 1,339,492 acres. The Boise Interagency Fire Center (BIFC) supported 727 of the total of 85,907 fires reported in 1986. BIFC moved 17,190 personnel utilizing a combination of contract aircraft, commercial charters and military large air transport.

BIFC moved a total of 759 twenty-person crews in 1986. Of this 759, 173 crews were Type I and 586 were Type II. There were 1,826 miscellaneous overhead transported to the various fires and nine Class I overhead teams dispatched off the National Rotation.

BIFC fire support activity was largely confined to Alaska BLM and State of Alaska fires in June and to USFS fires in Oregon and Idaho in July and August.

BIFC NON-FIRE SUPPORT - The Boise Interagency Fire Center supported several non-fire activities during the 1986 season. The activities included search and rescue programs, law enforcement, insect spraying projects, floods, earthquakes and assorted aid to African Nations. The Logistics Support Office at BIFC mobilized both personnel and equipment to several locations in Africa at the request of the Office of Foreign Disaster Assistance.

INITIAL ATTACK MANAGEMENT SYSTEM

PHASE I

1. All 54 RIGS units in state and district offices are in place and provide the following capabilities.
   A. Behave
   B. Electronic mail
   C. Display RAWS and ALDS data
2. All 33 ALDS sensors covering II western states are operational.
3. Thirty RAWS units for fire have been placed.

PHASE II of IAMS scheduled for completion the remainder of 1986 and early 1987 requires placement of 67 RAWS units placed on a 75 mile grid. Finishing 28 million acres of fuels mapping of the original 70 million planned.

PHASE III (1987 & 1988) Purchasing an additional 250 RAWS stations.

IAMS/FLIPS interface is now operational in one direction and should be totally operational in 60 days.

NATIONAL OVERHEAD TEAMS - In 1986, Nine Class I and eight Class II interagency overhead teams were mobilized by LSO off the National Rotation. In addition, at least 11 mobilizations of Class I teams were performed internally by the Regions.

Class I mobilization off the National Rotation included two teams to Region 8, one team to Region 4, and five teams plus a R-8 shawdow team to Region 6. Alaska (BLM and State of Alaska) requested three Class II teams from the lower 48 states.

All fires were managed under the Incident Command System.

INTERAGENCY SMOKEJUMPER AGREEMENT - The Interagency Smokejumper Agreement went successfully in 1986. The USFS sent 161 smokejumpers to Alaska in June. Conversely, Alaska sent 52 smokejumpers to the lower 48 in July and August. Both FS-12 and BLM Raw Air Chutes were used successfully in many varying terrain and weather conditions. On BLM fires 44 jumps were made in Nevada, 14 in Utah and one in Oregon.

SINGLE - ENGINE AIR TANKER - Research and testing of Agricultural Aircraft and support mixing/loading equipment for the support of wildfire management indicants several logistical and economic advantages.

Aircraft and pilots were inspected, qualified and positioned in southern California, northern Utah, western Oregon and central Arizona under a tightly supervised test program to collect data necessary for the establishment of a single engine air delivery program.

Plans for the 1987 field season include an expanded number of locations as the program transitions from research and development to one managed and directed by field office personnel.

BUREAU OF LAND MANAGEMENT (BLM) - The BLM experienced a below average fire season in 1986. The Bureau reported 2,632 fires for a total of 1,179,852 acres burned. The only major national support of BLM fires occurred in June when BIFC and the lower 48 supported Alaska.

Oregon

STATUS OF FOREST FIRE RESEARCH - W. T. Sommers

Fiscal year 1986 witnessed some noteworthy changes and developments for the USDA Forest Service fire research program. As you know, the position of Director, Forest Fire and Atmospheric Sciences Research (FFASR), was vacated in March when former Director Charles Philpot became Associate Deputy Chief for Research. His successor has yet to be named. Furthermore, since last October's meeting of the NAFC Fire Management Study Group, significant fire research change and/or progress has occurred in three major areas. These are: (1) the development of plans and new programs to address several of the new FFASR initiatives discussed at last year's meeting, (2) the announcement of a sweeping reorganization plan to consolidate and strengthen our fire science capabilities and resources, and (3) continued development of new scientific information and improved technology as a result of ongoing fire research activities. I will discuss each of these areas in turn.

Progress on Fire Research Initiatives

At last year's meeting, Charlie Philpot outlined nine new research initiatives that will provide a model for fire research direction through the remainder of the century. These nine new emphasis areas are:

1. FIRE MANAGEMENT IN THE WILDLAND/URBAN INTERFACE
2. INTEGRATED FIRE BEHAVIOR/FIRE DANGER RATING SYSTEM
3. PRESCRIBED FIRE FOR WILDERNESS MANAGEMENT
4. EVALUATION OF AIRCRAFT FOR FIRE AND FOREST MANAGEMENT
5. SOCIAL, POLITICAL, AND ENVIRONMENTAL VALUES IN FIRE MANAGEMENT
6. FIRE SUPPRESSION PRODUCTIVITY AND EFFECTIVENESS
7. ALTERNATIVES TO HERBICIDES
8. EFFECTS OF ATMOSPHERIC CHANGE ON FOREST PRODUCTION AND HEALTH
9. LONG-TERM FIRE WEATHER/SEVERITY FORECASTING

New research programs have now been established to address three of these nine initiatives. The fire behavior research work unit at the Intermountain Fire Sciences Laboratory in Missoula, Montana has begun work on a new generation of fire behavior experiments that will ultimately provide an integrated approach to predicting fire behavior and rating fire danger (Initiative #2). Also in Missoula, the fire effects and prescribed burning unit has begun a new effort to determine when and how planned-ignition prescribed fires should be applied in wilderness management (Initiative #3). Finally, an entire research work unit at the Riverside Fire Laboratory in Riverside, California has been redirected to address Initiative #9 -- long-term fire weather/severity forecasting. This latter effort will provide a sound basis for prepositioning fire management forces, in anticipation of critical wildfire activity, on a national or regional scale.

In addition to these newly established programs, program-development efforts have been initiated to address two more of the initiatives -- #1 and #8. A new scientist position has been established at the Riverside Fire Laboratory to formally identify scientific voids related to the protection of lives and property from wildfires in wildland/urban interface areas of the Southwest, while a National Wildland/Urban Interface Fire Research Initiative Plan is being prepared at the Washington Office level. A similar national research initiative plan is being developed for the forest-atmosphere interaction initiative (#8). These two national research plans will receive top FFASR priority for new program development over the coming year.

Fire Research Consolidation Plan

We are preparing for several organizational changes intended to revitalize the FFASR program, improve the quality of its research products, and better address our new research initiatives. The current distribution of FFASR resources, involving 17 research work units at nine widely dispersed locations, is poorly suited to the discipline-oriented work required to deal with several of these emerging problem areas. The basic structure of this program was established in a scientific and managerial climate much different than today's. Though the program's research emphasis has evolved incrementally to accommodate changes in user priorities, the technical and geographic distribution of scientific skills and resources remains largely an artifact of earlier fire research activities.

In July we announced a plan to strengthen the FFASR program through consolidation and redirection. We intend to concentrate all FFASR resources at six locations: Missoula, Montana; Riverside, California; Seattle, Washington; Fort Collins, Colorado; Macon/Athens, Georgia; and East Lansing, Michigan. Application of fire knowledge in studies of silviculture, wildlife habitat management, hydrology, and range management, however, will be continued at additional locations by scientists in those respective fields. The plan is to be implemented over the next year. We believe the resulting distribution of scientific skills, facilities, and funds will reestablish the "critical mass" needed for productive work at all locations to effectively meet the fire science challenges of the coming decade. When fully implemented, this configuration will allow us to continue to generate new knowledge in the fire and atmospheric sciences and to assure application of that knowledge, by both managers and researchers, where fire is an important ecosystem or management concern.

Highlights of Fire Research Progress During 1986

In addition to (or perhaps despite) all of these changes in program leadership, emphasis, and organization, noteworthy progress has continued in research on smoke characteristics and management, prescribed fire use, fire effects, fire behavior, planning and economics, prevention methods, aerial fire suppression techniques, and weather effects on fire activity. Several new fire research products or results have been attained over the past year. Just a few highlights of these accomplishments will be offered as examples.

Planning the Rejuvenation of Aspen Forests Using Prescribed Fire

Trembling aspen is a widely distributed forest tree species throughout North America. Aspen forests occupy roughly 7 million acres in the Western United States alone. These forests are especially important for their wildlife, esthetic, recreation, watershed, and forage-production values. Fires have played an important role in developing and maintaining aspen forests, and without periodic fires, the aspen is being replaced by conifers in many areas. This successional process reduces forage production and water yields, and it diminishes vegetation diversity and the quality of wildlife habitat. Prescribed burning has shown potential as an economically and environmentally acceptable means of reversing this process.

Fire scientists at the Intermountain Fire Sciences Laboratory have developed a method for appraising fuels and flammability in aspen forests to assist in preparing fire prescriptions to promote aspen regeneration. The appraisal process is based on studies of physical fuel properties and vegetation occurring in southeastern Idaho and western Wyoming. It includes a classification of aspen fuels, appraisal of fire behavior potential, and evaluations of seasonal change in live fuel moisture contents. Derived fuel types have been illustrated with color photographs accompanied by information on fuel amounts, vegetation characteristics, fire behavior ratings, and ratings for the likelihood of burn success. Knowledge of how fine fuel moisture content, vegetation curing, windspeed, and topographic slope determine fire behavior has been refined to aid in writing effective burn prescriptions for mainaining healthy aspen forests.

Wildland Fire Spread by Radiation--a Model

When veteran fire fighters talk about the worst forest fires they have had to battle, when rookie fire fighters are warned about dangerous situations they may encounter, and when fire researchers describe the most challenging problems they face, crown fires are at the top of all three lists. Crown fires involve the active burning of the upper portion, or crown, of forest vegetation. That vegetation may be northwestern Douglas fir, southwestern chaparral, or eastern pitch pine, but in all cases the fires once started are intense and fed by the most volatile part of the plants involved.

Forest Service fire scientists have made remarkable progress in developing computer models that predict the behavior of wildfires. These model predictions are used to employ fire management resources in the most efficient way possible. But today's operational fire behavior models are not capable of accurately predicting the behavior of crown fires, the most destructive type of wildland fire. Scientists at the Intermountain Fire Sciences Laboratory have embarked on a systematic research attack to produce the needed fire behavior predictions of crown fires. Their approach is to develop a series of mathematical models that will evolve over the next several years into a definitive predictive system for crown fire behavior. Initial progress has been made by modeling the spread of a line fire through wildland fuel for situations in which unignited vegetation is heated by radiation and cooled by reradiation and convection. Success in depicting the complex physics of crown fires with this initial modeling attempt demonstrates that the scientists are

off to a good start in their planned approach to solving the problem of predicting the behavior of these most destructive of forest fires.

Smoke-Management and Emissions Inventory System

Use of prescribed fire is necessary for good forest ecosystem management in many parts of the United States. In the Pacific Northwest, use of prescirbed fire is of particular ecological and economic importance. But smoke from from prescribed forest fires and other open-air burning can cause air-quality problems when too much smoke enters a limited volume of the atmosphere in too short a period of time. Forestry managers need help to minimize the amount of smoke they generate while accomplishing prescribed burning objectives.

Scientists at the Pacific Northwest Forest and Range Experiment Station are helping to assure good air quality and good forest management practices by gaining basic knowledge of the factors contributing to smoke generation and by turning that knowledge into technology that is being used by foresters. The scientists have combined fire science theory with extensive field experiments to determine what combinations of harvesting practices and weather conditions produce the least smoke for a given prescirbed burning objective. They have used this hard-won knowledge to develop a new smoke management and emissions inventory system. The new system includes such factors as size of logging residue materials, duff depth, terrain slope, time since rainfall, temperature, wind, humidity, and other weather factors. Smoke amounts can vary by more than 50% depending on the variables involved. All forests in the Forest Service's Pacific Northwest Region and the State of Oregon Department of Forestry have adopted the new system for use.

Diffusion of Bound Water in Wood

An important factor influencing the danger and behavior of forest fires is the moisture content of dead leaves, twigs, and branches. When sufficiently dry, these fuel materials can often burn fiercely enough to dry out and ignite the moist, living vegetation surrounding them -- resulting in explosive and potentially dangerous fire behavior. Although the moisture relationships of these materials have been studied for some time, knowledge of the mechanisms governing these relationships remains incomplete in some areas. Results of basic research at the Southern Forest Fire Laboratory are providing new insights into the wood drying process. These insights have been applied in the development of a mathematical model describing temperature and moisture changes of common southern forest fuels as they respond to changing air temperature and relative humidity. Results of this research will improve fire danger ratings and fire behavior predictions for a variety of forest fuels.

Predicting Subsurface Soil Temperatures During Wildland Fires

Soil heating caused by wildfires and prescribed burns plays a large role in determining the effects of fires on wildland resources. The intensity, depth, and duration of soil heating affects soil stability and fertility as well as subsequent vegetation responses. The ability to understand and predict these responses is a critical prerequisite for effective prescribed burning programs.

Scientists at the Pacific Southwest Forest and Range Experiment Station have studied ground surface heating both analytically and experimentally to develop new information on the relationships of flame and soil characteristics to soil temperatures. Results of these studies have provided a predictive mathematical model of heat transfer to soils. The important heat transfer processes identified are: conduction of heat into the soil; radiant exchange between the flame, soil, and surroundings; and radiant exchange between the soil surface and smoldering embers left behind the flame front. Important fire characteristics that drive these processes include: the duration of burning at a single location, flame and ember geometry, and flame and ember temperatures. Results indicate that the location of maximum surface temperature depends only on the flame characteristics, but the magnitude of the surface temperature depends on properties of both the flame and the soil. Actual measurements of soil temperature during experimental burns agree well with the model's predictions. Use of the soil heating model will improve the effectiveness of prescribed burning as a means of managing wildland vegetation. It is especially applicable in the highly flammable chaparral communities of southern California.

Aerial Ignition and Fire Behavior

Prescribed fire is a heavily used silviculture treatment technique in the southeast. Ignition of prescribed fires must be effective in meeting silviculture treatment goals and do so at reasonable cost. Several years of research have been completed on ignition techniques and methods for ignition from the air have been perfected. Two techniques have been shown to be most effective -- the helitorch and the "ping-pong ball" system. Burns started with a helitorch have higher fireline intensities than those ignited using the "ping-pong ball" system. Research conclusions have been found to hold for all southeastern combinations of fuel and weather.

1987 Plans

The climate of change affecting FFASR programs and outputs during the past year can be expected to continue through the next year. Fiscal year 1987 will no doubt be viewed in retrospect as a "year of transition" as the plans for program consolidation and for redirection toward the research initiatives are implemented. As indicated, special emphasis will be placed on initiating new research to address fire protection problems in the wildland/urban interface, and to investigate effects of atmospheric change on the health and productivity of forests. Major investments of effort and resources will be required at all levels of the Forest Service research organization to make these plans a reality. Nevertheless, when fully implemented, the planned changes in organization and emphasis will provide a fertile environment for useful scientific productivity and renewed fire research vitality over the coming decades.

C. MEXICO

- PRESENTACION DE MEXICO
  (ING. JESUS B.CARDEÑA R.)

- PREVENCION DE INCENDIOS FORESTALES
  (ING.OSCAR CEDEÑO SANCHEZ)

- COMBATE DE INCENDIOS FORESTALES
  (ING.MARIO MOSQUEDA V.)

- TECNOLOGIA DE INCENDIOS FORESTALES
  (ING. RODOLFO RODRIGUEZ V.)

- REPORTE DE CURSOS REALIZADOS CON ESTADOS UNIDOS
  (G.T.F. MAX ALMONTE N.)

C. MEXICO

- MEXICO'S REPORT
  (ING. JESUS B. CARDEÑA R.)

- WILDFIRE PREVENTION
  (ING. OSCAR CEDEÑO SANCHEZ)

= WILDFIRE COMBAT
  (ING. MARIO MOSQUEDA V.)

= WILDFIRE TECHNOLOGY
  (ING. RODOLFO RODRIGUEZ V.)

= REPORT ON COURSES GIVEN IN CONJUNCTION WITH THE U.S.A.
  (G.T.F. MAX ALMONTE N.)

TUXTLA GUTIÉRREZ, CHIS.
21-23 DE OCTUBRE DE 1986

XX REUNION DEL GRUPO DE INCENDIOS FORESTALES COMISION FORESTAL DE NORTEAMERICA

INFORME GENERAL DE MEXICO

DISTINGUIDOS MIEMBROS DEL GRUPO DE INCENDIOS FORESTALES DE LA COMISIÓN FORESTAL DE NORTEAMÉRICA.

AÚN CUANDO YA SE HA EXPRESADO LA BIENVENIDA FORMAL A TODOS USTEDES POR EL C.JEFE DEL PROGRAMA FORESTAL EN ESTE ESTADO, ME PERMITO DARLES LA MÁS CORDIAL BIENVENIDA A NOMBRE DEL SR.SECRETARIO DE AGRICULTURA Y RECURSOS HIDRAÚLICOS LIC. EDUARDO PESQUEIRA O.- Y DE LA DELEGACIÓN DE MÉXICO QUE INTEGRA EL GRUPO DE INCENDIOS - FORESTALES, Y DESEARLES A LA VEZ, UNA GRATA ESTANCIA EN ESTE BELLO RINCÓN DE MÉXICO, QUE ES EL ESTADO DE CHIAPAS.

HABIENDO EXPUESTO EN NUESTRA REUNIÓN DE ORLANDO, FLORIDA, REALIZADA EL AÑO PASADO, UNA VISIÓN GENERAL DE LAS CAUSAS E IMPACTO - DE LOS INCENDIOS FORESTALES EN NUESTRO PAÍS, EN ESTA OCASIÓN QUISIERAMOS RETOMAR LOS ASPECTOS MÁS RELEVANTES DE DICHA EXPOSI -- CIÓN, ACTUALIZANDO SU INFORMACIÓN.

CON ESTE PROPÓSITO PUNTUALIZARÉ LO QUE SON LAS ESTRATEGIAS FUNDAMENTALES, DETERMINADAS POR LA PRESENTE ADMINISTRACIÓN PARA IMPULSAR ESPECÍFICAMENTE LO QUE CORRESPONDE A LA PREVENCIÓN Y COMBATE DE INCENDIOS.

ESTAS GRANDES ESTRATEGIAS SON :

- LA PARTICIPACIÓN INSTITUCIONAL.
- LA PARTICIPACIÓN SOCIAL.
- LA PARTICIPACIÓN DEL SECTOR PRIVADO.
- LA CAPACITACIÓN Y EL ADIESTRAMIENTO DEL PERSONAL TÉCNICO.
- LAS ACCIONES DE CULTURA Y DIVULGACIÓN FORESTAL, Y
- EL MEJORAMIENTO DE LOS ASPECTOS TECNOLÓGICOS.

.../

EN EL RENGLÓN DE LA PARTICIPACIÓN INSTITUCIONAL, LA RECIENTE CREACIÓN DE LA "COMISIÓN NACIONAL FORESTAL", ABRE PERSPECTIVAS REALES PARA SUMAR ESFUERZOS Y RECURSOS AL CONJUNTAR LAS ACTIVIDADES FORESTALES DE LA SECRETARÍA DE LA REFORMA AGRARIA, LA SECRETARÍA DE DESARROLLO URBANO Y ECOLOGÍA, Y DE LA SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRAÚLICOS. ASIMISMO, LA REESTRUCTURACIÓN E INTEGRACIÓN DE LOS DISTRITOS DE DESARROLLO RURAL INTEGRAL, COMO CÉLULAS DE PROGRAMACIÓN Y OPERACIÓN DE LA S.A.R.H., PERMITIRÁ VINCULAR EFECTIVAMENTE LA ACTIVIDAD FORESTAL CON LAS ACTIVIDADES AGROPECUARIAS, EVITANDO CON ELLO, VARIAS DE LAS PRINCIPALES CAUSAS DE LOS INCENDIOS FORESTALES EN MÉXICO. EN EL MARCO DE LA POLÍTICA NACIONAL FEDERAL DE DESCONCENTRACIÓN Y DESCENTRALIZACIÓN DE RECURSOS Y FUNCIONES, EN MATERIA DE INCENDIOS FORESTALES, ESTAMOS PROMOVIENDO EL FORTALECIMIENTO DE LAS INSTANCIAS OPERATIVAS REGIONALES Y LA REALIZACIÓN DE CONVENIOS DE COORDINACIÓN CON LOS ESTADOS Y MUNICIPIOS.

SOBRESALEN TAMBIÉN, DENTRO DE ESTA ESTRATEGIA, LAS ACCIONES DE COORDINACIÓN CON INSTITUCIONES FEDERALES, COMO LA SECRETARÍA DE LA DEFENSA NACIONAL, LA PROCURADURÍA GENERAL DE LA REPÚBLICA Y LA SECRETARÍA DE COMUNICACIONES Y TRANSPORTES.

EN LO QUE SE REFIERE A LA PARTICIPACIÓN SOCIAL, ESTA ESTRATEGIA ES CONSIDERADA COMO EJE FUNDAMENTAL, DADO QUE SE HA DETERMINADO QUE ES LA PROBLEMÁTICA Y MARGINACIÓN SOCIOECONÓMICA DEL CAMPESINO, LA PRINCIPAL CAUSA DE DESTRUCCIÓN DE LOS RECURSOS FORESTALES EN MÉXICO. EN ESTE SENTIDO, SOBRESALE COMO UN LOGRO, LOS PRIMEROS CONVENIOS DE TRANSFERENCIA DE LOS SERVICIOS TÉCNICOS FORESTALES A 5 ORGANIZACIONES RURALES DE LOS ESTADOS DE MICHOACÁN, VERACRUZ, DURANGO, TLAXCALA Y OAXACA.

ASIMISMO, EL IMPULSO A LA ORGANIZACIÓN DE CAMPESINOS EN UNIDADES PRODUCTORAS DE MATERIAS PRIMAS, DE GRUPOS CÍVICOS Y DE CORPORACIONES DE VOLUNTARIOS EN EJIDOS Y COMUNIDADES FORESTALES, ASÍ COMO LA CONSOLIDACIÓN DEL PLAN PILOTO FORESTAL DE QUINTANA ROO, EN EL TRÓPICO, SON ACCIONES QUE ALIENTAN LA CORRESPONSABILIDAD Y LA INVOLUCRACIÓN DE LOS CAMPESINOS EN EL PROCESO DE PRODUCCIÓN, PROTECCIÓN Y FOMENTO DEL RECURSO FORESTAL. TAMBIÉN SE HAN VENIDO DESARROLLAN-

DO ACCIONES CONCERTADAS ENTRE ORGANIZACIONES DE AGRICULTORES, GANADEROS Y DUEÑOS Y POSEEDORES DE BOSQUES, BUSCANDO LA REORDENACIÓN DEL USO DEL SUELO Y LA ARMONIZACIÓN Y COMPLEMENTARIEDAD DE ESTAS ACTIVIDADES. EJEMPLO DE ELLO ES EL IMPULSO AL PROGRAMA DE CULTIVO DE LA PLANTA FORRAJERA "VEZA DE INVIERNO", QUE ACTUALMENTE SE DESARROLLA EN 21 ENTIDADES DEL PAÍS, COMO ALTERNATIVA PARA ALIMENTAR GANADO EN ÉPOCAS DE SEQUÍA Y ASÍ REDUCIR LAS QUEMAS DE PASTOS SECOS.

EN LO QUE TOCA AL SECTOR PRIVADO, CUYA APORTACIÓN HASTA PRINCIPIOS DE LA ACTUAL ADMINISTRACIÓN HABÍA VENIDO SIENDO RELATIVAMENTE BAJA, EN ESTOS ÚLTIMOS AÑOS Y EN ESPECIAL, DURANTE 1985 Y 1986, SE HAN TENIDO AVANCES SIGNIFICATIVOS.

TAMBIÉN HEMOS RETOMADO CON ESPECIAL INTERÉS LAS ACTIVIDADES DE CAPACITACIÓN Y ADIESTRAMIENTO DEL PERSONAL, IMPULSÁNDOSE LA PARTICIPACIÓN DE TÉCNICOS MEXICANOS EN EVENTOS DE CARÁCTER INTERNACIONAL, REALIZADOS EN EL MARCO DE ESTA COMISIÓN Y DE CONVENIOS DE COOPERACIÓN BILATERALES CON CANADÁ Y ESTADOS UNIDOS DE NORTEAMÉRICA, BAJO UN ENFOQUE DE FORMACIÓN DE INSTRUCTORES, PARA POSTERIORMENTE ORGANIZAR E INSTRUMENTAR A NIVEL DE MÉXICO, CURSOS REGIONALES CON EL FIN DE TRANSMITIR Y MULTIPLICAR LOS CONOCIMIENTOS ADQUIRIDOS EN EL EXTRANJERO. DURANTE ESTE AÑO SOBRESALEN LOS CURSOS CON E.U.A. :"COMBATE DE INCENDIOS CON HELICÓPTERO", REALIZADO EN LOS ESTADOS DE DURANGO Y MÉXICO, CON INSTRUCTORES NORTEAMERICANOS; "GIRA DE QUEMAS PRESCRITAS", REALIZADO EN CALIFORNIA, CAROLINA Y TEXAS, "PATRULLAS TERRESTRES EFECTIVAS", QUE SE LLEVÓ A CABO EN NUEVO MÉXICO, Y LA "REUNIÓN SOBRE ACTIVIDADES DE PREVENCIÓN CONTRA INCENDIOS FORESTALES", DESARROLLADA EN TEXAS.

CON CANADÁ EN EL PRESENTE AÑO SE CONCRETÓ UN CONVENIO FORESTAL, EL CUAL CONTEMPLA ACCIONES DE PREVENCIÓN Y COMBATE DE INCENDIOS, Y NUESTRO PROPÓSITO ES IMPULSARLO FUERTEMENTE.

ASIMISMO, LA DIFUSIÓN DE LA CULTURA FORESTAL, ASUMIDA CON UNA IMPORTANTE ACCIÓN DE APOYO POR SU FUNCIÓN COMUNICADORA Y CONCIENTI-

ZADORA DE LA POBLACIÓN, SE REALIZA EN FORMA INTENSIVA, MEDIANTE ACCIONES DE DIVULGACIÓN BUSCANDO LA PARTICIPACIÓN ACTIVA DE LAS INSTANCIAS OPERATIVAS, UTILIZANDO MATERIALES SENCILLOS Y MEDIOS NO CONVENCIONALES. ASÍ SE INSTRUMENTARON CAMPAÑAS TELEVISIVAS Y RADIALES, CON MENSAJES GRABADOS O BIEN, MEDIANTE ENTREVISTAS-DE FUNCIONARIOS, ASIMISMO SE HA BUSCADO DAR ATENCIÓN AL PÚBLICO INFANTIL, CON LA EDICIÓN DE MATERIALES ADECUADOS.

LA ATENCIÓN DE LOS ASPECTOS TECNOLÓGICOS REVISTE PARA NOSOTROS ESPECIAL IMPORTANCIA, DESTACÁNDOSE LO REALIZADO CON EL FIN DE MODERNIZAR SISTEMAS, EQUIPOS Y HERRAMIENTAS. ASÍ, DURANTE 1986 SE HA REHABILITADO EL SISTEMA DE TORRES Y CAMPAMENTOS DE DETENCCIÓN Y CADA VEZ CONTAMOS CON MÁS EQUIPOS Y HERRAMIENTAS MODERNAS. SE CONTINUÓ CON LA RENTA DE EQUIPO AÉREO PARA EL COMBATE DE INCENDIOS, ASÍ PARA ESTE AÑO SE CONTO CON UN AVIÓN CL-215 DE LA PROVINCIA DE QUEBEC, UN HELICÓPTERO BELL-212 CON EQUIPO ESPECIALIZADO DE LA EMPRESA "FRONTIER HELICOPTER", Y UN AVIÓN FAIR CHILD C-119 DE LA COMPAÑÍA "HEMET VALLEY", DE CALIFORNIA.

COMO UN HECHO RELEVANTE DE CARÁCTER GLOBAL PARA TODA LA ACTIVIDAD FORESTAL EN MÉXICO, SOBRESALE LA RECIENTE APROBACIÓN POR EL CONGRESO EN MAYO PASADO, DE LA NUEVA LEY FORESTAL, QUE SUPERA REZAGOS EN LA MATERIA, ELEVANDO A RANGO DE LEY LA PARTICIPACIÓN SOCIAL, LA DESCENTRALIZACIÓN POLÍTICA Y LA INVOLUCRACIÓN DE ESTADOS Y MUNICIPIOS EN TODO EL ÁMBITO FORESTAL.

RESPECTO A LAS CIFRAS 1986, INFORMO A USTEDES QUE EN EL PRESENTE AÑO SE REPORTÓ LA EXISTENCIA DE 8,480 INCENDIOS FORESTALES, QUE AFECTARON UNA SUPERFICIE DE 296,160 HA., 95% MAYOR QUE EN 1985, EN QUE SE DAÑARON 152,224 HA. CABE SEÑALAR QUE DE LA SUPERFICIE AFECTADA EN 1986, EL 55% DEL TOTAL, ESTÁ CONSTITUIDO POR PASTIZALES Y MATORRALES Y SOLAMENTE EL 45% FUE ARBOLADO Y RENUEVO.

ESTE INCREMENTO SE DEBIÓ FUNDAMENTALMENTE A QUE EN ESTE AÑO SE RETRASÓ EL INICIO DE LA TEMPORADA DE LLUVIAS EN MUCHAS REGIONES DEL PAÍS, ADEMÁS EN PARTE, A QUE EL MAYOR CUIDADO EN LA CAPTURA DE INFORMACIÓN DE SUPERFICIES DAÑADAS, PERMITIÓ REGISTRAR UN NÚMERO CONSIDERABLE DE INCENDIOS QUE NO ERAN REPORTADOS EN AÑOS ANTERIORES.

FINALMENTE QUISIÉRAMOS REMARCAR QUE EL SUBSECTOR FORESTAL NO HA ESCAPADO AL FUERTE IMPACTO QUE SIGNIFICA LA CRISIS ECONÓMICA QUE SUFRE NUESTRO PAÍS, LA CUAL SE REFLEJA DE MANERA CONCRETA EN LA CONTRACCIÓN VIOLENTA DEL MERCADO INTERNO DE LOS PRODUCTOS FORESTALES, EN DETRIMENTO DE LA ECONOMÍA CAMPESINA, CON EL CONSECUENTE DESINTERÉS DE LA POBLACIÓN RURAL HACIA EL CUIDADO Y PROTECCIÓN DE SUS BOSQUES; ASIMISMO, LAS ESTRICTAS MEDIDAS DE AUSTERIDAD FINANCIERA INSTRUMENTADAS POR EL GOBIERNO FEDERAL HAN IMPACTADO A LA ADMINISTRACIÓN FORESTAL Y A LOS PROGRAMAS QUE ÉSTA VENÍA DESARROLLANDO. SIN EMBARGO Y PESE A ESTAS CONDICIONES, EN LO QUE TOCA A LA ACTIVIDAD DE PREVENCIÓN Y COMBATE DE INCENDIOS, SE LOGRÓ EN 1986 LA ASIGNACIÓN DE UN PRESUPUESTO FEDERAL CON UN INCREMENTO DEL 14% EN TÉRMINOS ABSOLUTOS EN RELACIÓN AL PRESUPUESTO 1985, SIENDO UNA DE LAS CONTADAS ACTIVIDADES FEDERALES QUE SE REFORZARON FINANCIERAMENTE, LO CUAL SIGNIFICA QUE DE ALGUNA FORMA, SE ESTÁ LOGRANDO SENSIBILIZAR A LAS INSTANCIAS DE DECISIÓN DEL GOBIERNO FEDERAL, SOBRE LA IMPORTANCIA QUE TIENE PARA LA NACIÓN, EL CUIDADO, LA PROTECCIÓN Y CONSERVACIÓN DE LOS BOSQUES, SELVAS Y ZONAS ÁRIDAS DEL PAÍS.

LA S.A.R.H. RECONOCE PLENAMENTE LOS BENEFICIOS DE LA COFAN Y AGRADECE LOS INNUMERABLES APOYOS DE LOS GOBIERNOS DE CANADÁ Y E.U.A., Y ESPECIALMENTE DE SUS DEPENDENCIAS RESPONSABLES DE LA ACTIVIDAD FORESTAL.

ING. JESÚS B. CARDEÑA RODRÍGUEZ
DIRECTOR GENERAL.

LVV'

TUXTLA GUTIERREZ, CHIS.
OCTOBER 21-23, 1986
XX MEETING OF THE WILDFIRE GROUP
NORTH AMERICAN FORESTRY COMMISSION

MEXICO'S GENERAL REPORT

Distinguished members of the Wildfire Group of the North American Forestry Commission.

Even tough we have already presented a formal welcome to all of - you, by the Head of the Forestry Program of this State, I would like to give you the most cordial welcome by the name of the Secretary of Agriculture and Hydraulic Resources, Lic. Eduardo Pesqueira O. and by the name of the Mexican Delegacy that makes up the Wildfire Group. At the same time, I would like to wish all of you a pleasant stay in this beatiful place of Mexico, the State of Chiapas.

Having presented in our meeting in Orlando, Florida, that was held the previous year, a general review of the causes and impact of wildfires in our country, at this time I would like to retake the more relevant aspects of such exposition, updating its information.

With this purpose in mind, I will mention the fundamental strategies, determined by the present administration to specifically impulse the fact that belongs to prevention and combat of wildfires.

This great strategies are as follows:
- Institutional Participation,
- Social Participation,
- Participation of the Private Sector,
- Training and Teaching of Technical personnel,

- Cultural and Forestry dissemination actions, and
- Improvement of technological aspects.

Talking about the institutional participation, the recent creation of the "National Forestry Commission" gives real approaches to joint the efforts and resources in conjunction with the forestry activities of the Secretary of the Agrarian Reform, The Secretary of Urban Development and Ecology, and of the Secretary of Agriculture and Hidraulic Resources. Likewise, the reestructuration and integration of the Districts of the Integral Rural Development, as cells of the program and operation of the Secretary of Agriculture and Hidraulic Resources will permit to effectively joint the forestry activity with the agricultural and livestock activities, avoiding many of the principal causes of wildfires in México. In the frame of the federal national policy of disconcentration and descentralization of resources and functions, in the subject of forestry wildfires, we are promoting the strenghtening of the regional operative instances and the performance of agreements of coordination with the states and municipalities.

Within this strategy, the actions of coordination with federal institutions stand out, such as the Secretary of National Defense, General Court of the Mexican Republic and the Secretary of Communications and Transportation.

In the case of the social participation, this strategy is being considered as a fundamental axis, as it has been determined that the problem and socio-economic margination of peasants is the main cause of the destruction of the forestry resources in México. In this sense, the first agreements of transference of forestry technical services to five rural organizations of the States of Michoacán, Veracruz, Durango Tlaxcala and Oaxaca, Stand out.

Likewise, the impulse of the peasants organization in unities that produce raw materials, of civic groups and of the corporations of volunteers in lands and forestry communities, as well as the consolidation of the Forestry Pilot Plan of Quintana Roo in the tropic areas are actions that encourage the corresponsability and integration of peasants in the process of production, protection and fomentation of the forest resource.

Alto, some actions have been developed among some organizations of farmers, cattlemen and owners and users of the forest, looking for the reordenation of the use of the soils and the harmony and complementation of these activities. An example of this is the impulse given to the Program of Cultivation of Forrage Plant such as "Veza de Invierno", that nowadays is being developed in 21 entities of the country, as an alternative to feed cattle during drougth seasons and reduce the burn of dry grasses.

In respect to the Private Sector, whose aid at the beginning of the current administration had been relatively low, during the last years and specially during 1985 and 1986 has had significant advances.

Also, we have retaken a special interest on the activities of training and teaching of personnel, impulsing the participation of the Mexican technitians in international events, performed in the frame of this commission and of agreements of bilateral cooperation with Canada and the United States under the focus of formation of trainers to organize and instrument at the level of Mexico regional courses to transmit and multiplicate the knowledges acquired abroad. During this year, the courses with U.S.A. stand out: "Combat of wildfires with helicopter", carried out in the States of Durango and México, with American Trainers; "Guide for Control Burns", carried out in California, Carolina and New México, and the "Meeting on the Activities of Wildfire Prevention", carried out in Texas.

With Canada, during this year it was concreted a forestry agreement, which focuses actions of prevention and combat of wildfires and our purpose is to impulse it strongly.

Likewise, the dissemination of the forestry culture, assumed with an important action of support for this communicative and awarness function in the population, is carried out in an extensive way, through actions of dissemination looking for the active participation of the operative instances, using non-complicated materials and non-conventional media with recorded messages or well through interviews to government people; likewise, it is being searching the attention of children with the edition of adequate material.

The attention given to technological aspects has a special importance for us, standing out the facts performed to update systems, equipment and tools. During 1986, the system of towers and campaments for detecting has been rehabilitated and we are having more equipment and modern tools. We continue with the rent of aerial equipment to combat wildfires and during this year we had a CL-215 Plane from Quebec, a Bell-212 helicopter specially equipped by the "Frontier Helicopter" Company, and a Frair Child C-119 Plane from the "Hemet Valley" Company of California.

The recent approval of the new Forestry Law, by the Congress, in May, stands out. This law surpasses previous disadvantages giving a legal aspect to the social participation, the political descentralization and the inclusion of states and municipalities in forestry matter.

In respect to the figures in 1986, I would like to inform you that in this year, the existence of 8,480 wildfires was reported, affecting a surface of 296,160 ha., 95% more than in 1985, in which 152,244 ha. were affected. It is worth mentioning that the surface affected in 1986, 55% of the total surface, is constituted by grasses and shrubs and only 45% was woodland and renewals. This increment was mainly due to that in this year the beginning of the rainfall season was late in many regions of the country, and that great part of the information gathered from damaged surfaces permitted to register a large number of wildfires that were not reported in previous years.

Finally, I would like to point out that the Forestry Sector has not escaped from the great impact of the economical crisis that our country is suffering, which is reflected concretely in the violent contraction of the internal market of forestry products, in detriment of the peasant economy with the consequen lack of interest of the rural population to the care and protection of forests; likewise, the strict measures of financial funds taken by the Federal Government have had an impact in the forestry administration and in the program that this administration had been developed. Eventhough and in respect to the activity of prevention and combat of wildfires, in 1986 we obtained the assignation of a federal budget with a 14% of increment in relation to the 1985 budget, being one of the federal activities that were financially strenghthened, which in a certain way is sensibilizing the instances of decision of the Federal Government on the importance that has to the nation the care, protection and preservation of forests, tropical and arid areas of the country.

The Secretary of Agriculture and Hidraulic Resources aknowledges the benefits of the COFAN and thanks the innumerable supports of the Governments of Canada and U.S.A. and specially of the dependences and organizations responsible of the forestry activity.

ING. JESUS B. CARDEÑA RODRIGUEZ
GENERAL DIRECTOR.

XX REUNION DEL GRUPO DE INCENDIOS FORESTALES
REPORTE SOBRE ACCIONES REALIZADAS EN PREVENCION DE INCENDIOS FORESTALES

ING. OSCAR CEDEÑO
DELEGACION DE MEXICO

EN NUESTRO PAÍS EN AÑOS PASADOS, LA ACCIÓN CONTRA LOS INCENDIOS FORESTALES SE LIMITABA BÁSICAMENTE A COMBATIRLOS CUANDO ESTOS SE PRESENTABAN. POCO ERA REALMENTE EL ESFUERZO QUE SE DEDICABA A LAS CAMPAÑAS PREVENTIVAS Y POR LO GENERAL TODO EL ESFUERZO SE REALIZABA EN LAS OFICINAS CENTRALES DE LA CIUDAD DE MÉXICO, D. F. AFORTUNADAMENTE ESTE PANORAMA HA VENIDO CAMBIANDO EN LOS ÚLTIMOS 4 AÑOS Y SE HAN HECHO GRANDES ESFUERZOS POR REALIZAR VERDADERAS CAMPAÑAS PREVENTIVAS, DÁNDOLES UNA ALTA PRIORIDAD, SIN DESCUIDAR DESDE LUEGO LAS ACCIONES EN EL COMBATE DIRECTO.

ANTERIORMENTE TODO EL ESFUERZO POR HACER CAMPAÑAS DE PREVENCIÓN Y COMBATE RECAÍAN EN EL ÁMBITO FEDERAL A TRAVÉS DE LOS PRESUPUESTOS ASIGNADOS PARA ELLO Y POCO O NADA HACÍAN LOS PROPIETARIOS DE LOS PREDIOS FORESTALES POR INTERVENIR EN EL CONTROL DE LOS INCENDIOS, QUIENES LEJOS DE APOYAR, RECRIMINABAN LA POCA EFICIENCIA EN EL CONTROL DE LOS MISMOS.

EN LA ACTUALIDAD ESTE PANORAMA HA VENIDO CAMBIANDO Y YA SE HA IDO INVOLUCRANDO A LA POBLACIÓN RURAL EN SU RESPONSABILIDAD DE COADYUVAR EN EL APOYO PREVENTIVO Y DE COMBATE Y SE HA LOGRADO

TAMBIÉN QUE ALGUNOS GOBIERNOS ESTATALES COLABOREN DIRECTAMENTE - EN LAS CAMPAÑAS APORTANDO PRESUPUESTOS PARA CONTRATACIÓN DE PERSONAL Y ADQUISICIÓN DE MATERIALES Y EQUIPO DIVERSO, LO CUAL HA PERMITIDO TENER MAYORES EXITOS.

LA NUEVA LEY FORESTAL QUE SE APROBÓ EL 30 DE MAYO DEL - PRESENTE AÑO, INVOLUCRA EN SU ARTÍCULO 37 A LOS GOBIERNOS DE LOS ESTADOS Y MUNICIPIOS PARA REALIZAR CAMPAÑAS DE PREVENCIÓN Y ASIMISMO EN EL ARTÍCULO 35 TAMBIÉN OBLIGA A LOS PROPIETARIOS Y A -- LOS TITULARES DE PERMISOS DE APROVECHAMIENTO A PARTICIPAR DIRECTAMENTE EN EL CONTROL DE LOS SINIESTROS.

LAS ZONAS FORESTALES DE NUESTRO PAÍS, SE ENCUENTRAN BAJO EL CONTROL DE LO QUE HEMOS DENOMINADO "UNIDADES DE ADMINISTRACIÓN FORESTAL", (UAF) AL FRENTE DE LAS CUALES SE ENCUENTRA UN -- DIRECTOR TÉCNICO APOYADO POR UN EQUIPO DE INGENIEROS FORESTA-- LES.

BAJO ESTE DIRECTOR TÉCNICO ESTÁ LA RESPONSABILIDAD DIRECTA DEL MANEJO TÉCNICO DE LA ZONA FORESTAL BAJO SU CARGO Y ENTRE OTRAS ACCIONES TIENE LA DE SUPERVISAR LA CAMPAÑA DE PREVENCIÓN Y COMBATE.

ESTAS DIRECCIONES TÉCNICAS HAN PUESTO ESPECIAL EMPEÑO EN LAS CAMPAÑAS PREVENTIVAS Y LOS RESULTADOS FAVORABLES NO SE HAN HECHO ESPERAR, A TAL GRADO QUE LOS INCENDIOS EN ESTAS ZONAS SON MÍNIMOS Y SIEMPRE SE CUENTA CON EL APOYO DE LOS PROPIETARIOS DE LOS BOSQUES QUE POR LO REGULAR SON EJIDOS Y COMUNIDADES, LOS CUALES SABEDORES DE QUE EL BOSQUE LES PROPORCIONA INGRESOS ECONÓ

MICOS, CON PRONTITUD ACUDEN PARA APOYAR EN EL CONTROL DE LOS INCENDIOS.

EN NUESTRO PAÍS ACTUALMENTE SE CUENTA CON 60 UAF, LAS QUE SE ENCUENTRAN LOCALIZADAS CUBRIENDO LOS DIVERSOS TIPOS DE VEGETACIÓN: BOSQUES TEMPLADOS, SELVAS TROPICALES Y DE ZONAS ÁRIDAS.

COMO YA HEMOS MENCIONADO EN ANTERIORES REUNIONES DE ESTE GRUPO, LAS ACCIONES DE PREVENCIÓN LAS DIVIDIMOS EN: PREVENCIÓN CULTURAL, PREVENCIÓN FÍSICA, CAPACITACIÓN Y ADIESTRAMIENTO Y ALTERNATIVAS AGROPECUARIAS.

AFORTUNADAMENTE SE HA VENIDO GANANDO TERRENO EN LAS DIVERSAS ACCIONES EMPRENDIDAS Y ASÍ TENEMOS QUE LOS GOBIERNOS DE LOS ESTADOS EN COORDINACIÓN CON LAS DELEGACIONES DE LA SARH, PARTICIPAN CONJUNTAMENTE EN LAS DIVERSAS ACCIONES, ASÍ, YA EN LOS ESTADOS ELABORAN SUS PROPIOS MATERIALES DIVULGATIVOS (POSTERS, BOLETINES, INSTRUCTIVOS, CALENDARIOS, ETC.), Y REALIZAN SUS CAMPAÑAS DE RADIO Y TELEVISIÓN CON ENTREVISTAS DE FUNCIONARIOS FEDERALES Y ESTATALES. EJEMPLOS CLAROS DE ESTAS ACCIONES LOS TENEMOS EN LOS ESTADOS DE: JALISCO, CHIAPAS Y CHIHUAHUA.

TAMBIÉN HAN EMPRENDIDO ACCIONES DE CAPACITACIÓN Y CURSOS DIVERSOS EN MATERIA DE PREVENCIÓN, LOS ESTADOS DE: COAHUILA Y GUERRERO.

SE HA INVOLUCRADO INCLUSO A PARTIDOS POLÍTICOS DE FUERTE ARRAIGO COMO ES EL CASO DEL PRI (PARTIDO REVOLUCIONARIO INSTITUCIONAL), EN LA ELABORACIÓN DE MATERIAL DIVULGATIVO.

ALGUNOS ESTADOS COMO EL DE HIDALGO, HAN INVOLUCRADO A - LOS GOBERNADORES EN LA FIRMA DE CONVENIOS EXPRESOS PARA LA PRE-- VENCIÓN Y EL COMBATE, INTEGRANDO ADEMÁS A OTRAS DELEGACIONES FE- DERALES COMO: SECRETARÍA DE REFORMA AGRARIA, SECRETARÍA DE LA DEFENSA NACIONAL, SECRETARÍA DE DESARROLLO URBANO Y ECOLOGÍA, ETC.

EN ESTADOS COMO GUANAJUATO Y PUEBLA SE HA DADO ÉNFASIS A LA POBLACIÓN INFANTIL, HACIENDO LLEGAR LAS CAMPAÑAS RESPECTIVAS A TRAVÉS DE LAS ESCUELAS.

EN EL DISTRITO FEDERAL Y EN DURANGO SE HAN VENIDO FORTA LECIENDO LAS ACCIONES DE PREVENCIÓN FÍSICA A TRAVÉS DE APERTURA DE BRECHAS CORTA FUEGO Y DE QUEMAS CONTROLADAS Y SE CONTINUA IM PULSANDO EL CULTIVO DE LA VEZA DE INVIERNO QUE LOS CAMPESINOS -- HAN RECIBIDO CON BENEPLACITO Y QUE LES PERMITE CONTAR CON FORRA- JE PARA SU GANADO EN LA ÉPOCA DE SEQUÍA, DISMINUYENDO CON ELLO LA PRÁCTICA DE LA QUEMA DE PASTOS EN EL BOSQUE, LO QUE SE TRADU- CÍA EN INCENDIOS FORESTALES.

A NIVEL NACIONAL Y CONTROLADO DESDE OFICINAS CENTRALES SE CONTINÚO CON EL APOYO DE ENVÍO DE MATERIAL DIVULGATIVO Y DE SPOTS DE RADIO Y TELEVISIÓN CON DIVERSOS MENSAJES ALUSIVOS A LA PROTECCIÓN DEL BOSQUE Y ENTREVISTAS DE TELEVISIÓN EN CADENA NA- CIONAL CON DIVERSOS FUNCIONARIOS FEDERALES Y TÉCNICOS EN LA MATE RIA.

EN NOVIEMBRE DEL AÑO PASADO EL PRESIDENTE DE LA REPÚBLI- CA, EN LO QUE SE DENOMINÓ LA "3A. REUNIÓN NACIONAL DE FUNCIONA--

RIOS PÚBLICOS" Y EN LA QUE ESTUVIERON PRESENTES LOS TITULARES DE LAS SECRETARÍAS DE ESTADO QUE INCIDEN EN EL SECTOR AGROPECUARIO, ENTRE LAS CUALES LAS MÁS IMPORTANTES SON LA SECRETARÍA DE AGRI-- CULTURA, REFORMA AGRARIA, BANCOS DEL GOBIERNO, ETC. SE TOMARON IMPORTANTES ACUERDOS EN LOS CUALES LAS ACCIONES A EMPRENDER DE-- BEN SER REALIZADAS CONJUNTAMENTE POR REPRESENTANTES DE ESTAS INS TITUCIONES. LO ANTERIOR FORTALECE SUSTANCIALMENTE LAS ACCIONES DE LA SECRETARÍA DE AGRICULTURA EN EL ÁMBITO FORESTAL, YA QUE CO MO SE HA INDICADO, LA SARH HACIA POR SI SOLA TODO LO RELACIONADO EN MATERIA FORESTAL Y CON ESTOS ACUERDOS QUEDAN DIRECTAMENTE IN- VOLUCRADAS LAS OTRAS INSTITUCIONES Y A COLABORAR EN FORMA DIREC- TA.

DENTRO DE LOS ACUERDOS IMPORTANTES ESTÁ EL DE FORTALECER LA CULTURA FORESTAL EN TODOS LOS NIVELES DE LA POBLACIÓN, DENTRO DE LA CUAL SE INVOLUCRAN ACCIONES DE DIFUSIÓN QUE EN LA PRÓXIMA CAMPAÑA DE PREVENCIÓN DE INCENDIOS DE 1987 TENDRÁN UNA RELEVAN- CIA ESPECIAL.

CONSIDERAMOS QUE VERDADERAMENTE SE HAN LOGRADO AVANCES RELEVANTES EN LAS CAMPAÑAS PREVENTIVAS, PERO ESTAMOS CONSCIENTES QUE TODAVÍA FALTA MUCHO POR HACER, SOBRE TODO SI TOMAMOS EN CUEN TA QUE LA MAYORÍA DE LOS INCENDIOS EN NUESTRO PAÍS SON PROVOCA-- DOS POR NECESIDADES SOCIALES Y QUE LOS CAMPESINOS RECURREN AL USO DEL FUEGO PARA DAR SOLUCIÓN A SUS NECESIDADES AGROPECUARIAS Y QUE EN TANTO NO DEMOS ALTERNATIVAS DE SOLUCIÓN A ESTA PROBLEMÁTICA, - POR MÁS CAMPAÑAS COSTOSAS QUE EMPRENDAMOS Y SE CUENTE CON EL EQUI

PO MÁS SOFISTICADO, SEGUIREMOS TENIENDO INCENDIOS FORESTALES QUE COMBATIR.

XX REUNION DE LA COMISION FORESTAL

DE AMERICA DEL NORTE.

"COMBATE DE INCENDIOS FORESTALES"

ING. MARIO MOSQUEDA.

MEXICO

I N T R O D U C C I O N

SE HA ESTIMADO QUE ACTUALMENTE SE AFECTAN 250,000 HAS. DE BOSQUES, SELVAS Y VEGETACION DE ZONAS ARIDAS POR INCENDIOS FORESTALES, POR LO QUE EL IMPACTO DE DESTRUCCION QUE GENERA ESTE AGENTE, SE TRADUCE EN EL DETERIORO CONSTANTE DEL RECURSO FORESTAL Y EN CONSECUENCIA, PERDIDAS ECONOMICAS DE LOS EJIDOS Y POSEEDORES Y CONSECUENTEMENTE DEL PAIS EN GENERAL, SUMANDO ADEMAS EFECTOS NEGATIVOS AL MEDIO AMBIENTE Y LA DEGRADACION PROGRESIVA DE OTROS RECURSOS NATURALES RENOVABLES Y NO RENOVABLES, TALES COMO EL AGUA, EL SUELO Y LA FAUNA SILVESTRE ENTRE OTRAS, LO CUAL OBLIGA A LA SECRETARIA DE AGRICULTURA Y RECURSOS HIDRAULICOS, INSTRUMENTAR DENTRO DEL MARCO DEL PROGRAMA NACIONAL DE BOSQUES Y SELVAS, UNA SERIE DE MEDIDAS Y ESTRATEGIAS DE ACCION ENTRE LAS QUE DESTACAN ADEMAS DE LA COORDINACION E INVOLUCRACION CON LAS DEPENDENCIAS PUBLICAS Y LOS SECTORES SOCIAL Y PRIVADO, LA REHABILITACION Y AMPLIACION DE LA INFRAESTRUCTURA DE PREVENCION Y COMBATE DE INCENDIOS FORESTALES PARA EL MEJOR DESARROLLO DE LAS ACTIVIDADES EMANADAS DE ESTAS PRACTICAS.

ORGANIZACION Y ESTRUCTURA ACTUAL

NIVEL CENTRAL

LA RESPONSABILIDAD EN CUANTO A ACCIONES NORMATIVAS SE REFIERE, RECAE EN LA SECRETARIA DE AGRICULTURA Y RECURSOS HIDRAULICOS A TRAVES DE LA SUBSECRETARIA DE DESARROLLO Y FOMENTO AGROPECUARIO Y FORESTAL Y A SU VEZ EN LA DIRECCION CENTRAL DE NORMATIVIDAD FORESTAL, QUIEN SE ENCARGA DE COORDINAR TODAS LAS ACTIVIDADES QUE SE REALIZAN A NIVEL NACIONAL, ANALIZANDO LOS AVANCES - PROGRAMATICA Y COMPENSANDO LA INFORMACION VERTIDA POR CADA UNA DE LAS ENTIDADES FEDERATIVAS.

DE ACUERDO AL COMPORTAMIENTO Y SIMILITUD DE LAS CAUSAS QUE ORIGINAN LOS INCENDIOS FORESTALES, SE DIVIDIO AL PAIS EN 5 REGIONES, A LAS CUALES SE LES HA DENOMINADO:

- CENTRAL
- NOROESTE
- NORTE CENTRO
- NORESTE
- SURESTE

LO ANTERIOR CON LA FINALIDAD DE DARLE EL TRATO ADECUADO A CADA REGION RESPECTO DE SU PREVENCION, COMBATE Y CONTROL, APLICANDO LAS TECNICAS DE COMUNICACION, EQUIPO Y HERRAMIENTAS.

NIVEL ESTATAL

CON LA FINALIDAD DE REDUCIR EN NUMERO COMO EN SUPERFICIE EL IMPACTO QUE - GENERAN LOS INCENDIOS FORESTALES, SE LLEVA A CABO EN LAS ENTIDADES FEDERATIVAS ESTRATEGIAS DE ACCION, SIENDO ESTAS LAS SIGUIENTES:

1.- PARTICIPACION INSTITUCIONAL.- CON EL FIN DE PROMOVER EN LA MADIDA DE LO POSIBLE LA PARTICIPACION INSTITUCIONAL SE HA LOGRADO ESTABLECER COORDINACION CON LOS GOBIERNOS DE LOS ESTADOS, MUNICIPIOS, SE.DE.NA., S.C.T. - C.F.E. SEDUE, SEP, CONASUPO, S.R.A., ETC., PARA LA PREVENCION Y EL COMBATE DE LOS INCENDIOS FORESTALES.

2.- PARTICIPACION SOCIAL.- A EFECTO DE LLEVAR A CABO ACCIONES ENCAMINADAS A' INVOLUCRAR A LOS DUEÑOS Y POSEEDORES DE LOS RECURSOS FORESTALES Y A LA - SOCIEDAD EN LOS TRABAJOS DE PROTECCION, SE HA LOGRADO LA COORDINACION A' TRAVES DE CONVENIOS CON DEPENDENCIAS, COMUNIDADES Y EJIDOS, LO ANTERIOR' CON EL FIN QUE MEDIANTE LA CONCIENTIZACION, ORGANIZACION Y ADIESTRAMIENTO GRADUALMENTE SE TRANSFIERA RESPONSABILIDADES EN CUANTO A PROTECCION DE LAS AREAS FORESTALES. LOGRANDOSE A LA FECHA CONVENIOS CON ORGANISMOS REPRESENTATIVOS DEL SECTOR CAMPESINO, COMO: C.C.I., C.N.C., C.N.O.P., CLUBS Y ASOCIACIONES CIVILES COMO LOS SCOUTS, ECOLOGISTAS Y RADIOFICIONADOS Y PRINCIPALMENTE LA COLABORACION DE LOS GRUPOS CIVICOS.

3.- PARTICIPACION DEL SECTOR PRIVADO.- CON EL FIN DE CORRESPONSABILIZAR EN ESTAS ACTIVIDADES A LOS PRODUCTORES E INDUSTRIALES DE LA MADERA, SE HA LLEVADO A CABO ACUERDOS PARA LA OBTENCION DE RECURSOS HUMANOS, MATERIALES Y FINANCIERO.

4.- CAPACITACION Y ADIESTRAMIENTO.- LA CAPACITACION Y EL ADIESTRAMIENTO DEL - PERSONAL OFICIAL Y PARTICIPANTES EN LA PREVENCION Y COMBATE DE LOS INCENDIOS, DEBE TENER UN ALTO NIVEL TECNICO, POR LO QUE EN EL TRANSCURSO DEL - PRESENTE AÑO, SE HA ESTIMADO EL DESARROLLO DE CURSOS NACIONALES E INTERNACIONALES EN DIFERENTES NIVELES Y ACTIVIDADES, TALES COMO: CURSOS A NIVEL = ESTATAL EN CHILPANCINGO, GRO., HUASCA, HGO.; ISLAS MARIAS, NAY.; TUXTLA GUTIERREZ CHIAPAS Y EN EL ESTADO DE MICHOACAN, ASI TAMBIEN EN EL MARCO DEL = CONVENIO DE COOPERACION TECNICA ENTRE S.A.R.H. Y EL DEPARTAMENTO DE AGRICULTURA DE U.S.A. SE REALIZARON LOS SIGUIENTES CURSOS:

- "COMBATE DE INCENDIOS CON HELICOPTERO", EFECTUADO EN EL SALTO, DGO. Y VALLE DE BRAVO, MEXICO, IMPARTIDO POR INSTRUCTORES NORTEAMERICANOS.
- "PATRULLAS TERRESTRES EFECTIVAS", EFECTUADO EN ALBUQUERQUE, NUEVO MEXICO' U.S.A.
- "GIRA DE QUEMAS PRESCRITAS", CELEBRADA EN VARIOS ESTADOS DE LA UNION AMERICANA, CON EL PROPOSITO DE CONOCER EQUIPO Y HERRAMIENTAS PARA EL DESARROLLO' DE QUEMAS PRESCRITAS, ASI COMO LA UTILIZACION DE MATERIAL AUDIVISUAL PARA ' CURSOS DE ENTRENAMIENTO SOBRE ESTA ACTIVIDAD.
- "REUNION DE PREVENCION", EFECTUADA EN LA CIUDAD DE EL PASO, TEXAS, TRATANDO ASPECTOS RELACIONADOS CON EL DESARROLLO DE ACTIVIDADES DE PREVENCION CULTURAL Y COORDINACION PARA EL COMBATE DE INCENDIOS EN AREAS FORESTALES FRONTERIZAS.

5.- CULTURA FORESTAL.- CON EL PROPOSITO DE INTENSIFICAR LAS ACTIVIDADES RELACIONADAS CON CULTURA FORESTAL, SE LLEVO A CABO LA DISTRIBUCION DE MATERIAL DIVULGATIVO QUE FUE ELABORADO EN OFICINAS CENTRALES, HACIENDOLES LLEGAR A LAS 32 ENTIDADES DEL PAIS ATRAVES DE LAS DELEGACIONES ESTATALES DE' LA S.A.R.H. COMO APOYO A LAS CAMPAÑAS DE DIVULGACION, DE IGUAL MANERA SE' EFECTUO LA ELABORACION DE MATERIAL DIVULGATIVO PARA AREAS ESPECIFICAS DEL PAIS.

6.- ASPECTOS TECNOLOGICOS.- CON OBJETO DE TECNIFICAR LAS ACCIONES Y MODERNIZAR LOS EQUIPOS Y HERRAMIENTAS TENDIENTES A MEJORAR LAS ACTIVIDADES QUE' SE DESARROLLAN PARA LA PREVENCION Y COMBATE DE INCENDIOS FORESTALES, SE' LLEVARON A CABO A NIVEL ESTATAL DIFERENTES ACCIONES TENDIENTES A MODERNIZAR EL EQUIPO Y HERRAMIENTAS DE COMBATE, LA REHABILITACION Y AMPLIACION' DE LA INFRAESTRUCTURA DE PROTECCION EXISTENTE, ASI COMO LA UTILIZACION ' DE AVIONES Y HELICOPTERO CISTERNA EN EL COMBATE DE INCENDIOS, ASI MISMO ' SE ADQUIRIERON E INSTALARON EQUIPOS DE RADIO - COMUNICACION (REPETIDORES FIJOS, MOVILES Y PORTATILES) E INSTALARON NUEVAS TORRES DE OBSERVACION,' CUBRIENDO CON ELLO UNA MAYOR SUPERFICIE POR VIGILAR Y COMBATIR OPORTUNAMENTE.

ASPECTOS LIMITANTES

LOS FACTORES QUE INFLUYERON EN FORMA NEGATIVA PARA LOGRAR LA REDUCCION TANTO EN NUMERO COMO EN SUPERFICIE AFECTADA POR LOS INCENDIOS, ESTUVIERON REPRESENTADOS BASICAMENTE POR LOS SIGUIENTES ASPECTOS:

1.- AGENTES ATMOSFERICOS.- COMO CONSECUENCIA DE LA PROLONGADA SEQUIA QUE -- AFECTO LAS AREAS FORESTALES DEL PAIS Y DEBIDO A LA FUERTE INTENCIDAD DE LOS VIENTOS QUE SE DEJARON SENTIR DURANTE EL AÑO, PROVOCARON QUE SE FAVORECIERA EL DESARROLLO DE LOS SINIESTROS, ALGUNOS DE LOS CUALES ALCANZA-- RON DIMENSIONES CONSIDERABLES COMO: ZACATECAS, JALISCO, TAMAULIPAS, CHIAPAS Y SINALOA; INDEPENDIENTEMENTE DE QUE ESTOS AGENTES CLIMATICOS CREARON CONDICIONES OPTIMAS PARA LA PROLIFERACION DE LOS MISMOS.

2.- CONCIENCIA CIVICO - FORESTAL.- UNO DE LOS PUNTOS IMPORTANTES PARA LA DISMINUCION EN CUANTO A NUMERO Y SUPERFICIE AFECTADA, ES LA PARTICIPACION DE LOS DUEÑOS Y POSEEDORES DE LOS BOSQUES EN EL COMBATE DE LOS MISMOS, DETECTANDOSE EN ALGUNOS ESTADOS DE LA REPUBLICA LA ESCAZA O NULA PARTICIPACION.

3.- ASPECTOS ADMINISTRATIVOS.- LA DEMORA EN LA RADICACION DE LAS PARTIDAS -- PRESUPUESTALES HA SIGNIFICADO TRADICIONALMENTE COMO UNA DE LAS LIMITAN-- TES DE MAYOR RELEVANCIA PARA REALIZAR EN FORMA OPORTUNA A NIVEL NACIONAL LAS ACCIONES DE PREVENCION Y COMBATE DE LOS INCENDIOS FORESTALES.

4.- OROGRAFIA.- LA MAYOR PARTE DE LOS SINIESTROS SON PROVOCADOS EN ZONAS MUY LEJANAS, DONDE EXISTE POCA INFRAESTRUCTURA CAMINERA Y EN TERRENOS QUE -- DIFICULTA EL COMBATE.

R E S U L T A D O S

LA SUPERFICIE TOTAL AFECTADA POR LOS INCENDIOS FORESTALES EN LA PRESENTE TEMPORADA FUERON 239,762 HAS. CON 7,830 SINIESTROS Y LA PARTICIPACION DE 59,959 PERSONAS DEL SECTOR OFICIAL Y 41,823 VOLUNTARIOS, ESTO REPRESENTA UN INCRE-- MENTO DEL 78.5% EN RELACION A LA TEMPORADA PASADA EN CUANTO AL NUMERO DE INCENDIOS Y UN 63.5% DE INCREMENTO EN SUPERFICIE AFECTADA.

HOJA NUM. 6

LA COMPOSICION PORCENTUAL DE LA SUPERFICIE AFECTADA, ATENDIENDO AL TIPO DE ESTRACTOS REFERIDO AL TOTAL ES:

P A S T O	115,829 HA.	48 %
RENUEVO	37,818 HA.	/ 16 %
ARBOLADO ADULTO	59,646 HA.	25 %
O T R O S	26,469 HA.	11 %
T O T A L	239,762 HA.	100 %

LAS ENTIDADES FEDERATIVAS CON MAYOR NUMERO DE INCENDIOS FORESTALES SON LOS SIGUIENTES (TEMPORADA 85 - 86)

E N T I D A D	No. INCENDIOS	%
MEXICO	3,202	41.00
MICHOACAN	921	12.00
D. F.	626	8.00
PUEBLA	545	7.00
DURANGO	349	4.00
CHIHUAHUA	321	4.00
MORELOS	281	4.00
GUERRERO	188	3.00
JALISCO	171	2.00
O T R O S	1,054	13.00
	7,830	100.00

ENTIDADES FEDERATIVAS CON MAYOR SUPERFICIE AFECTADA POR INCENDIOS FORESTALES - (TEMPORADA 85 - 86)

HOJA NUM. 7

E N T I D A D	No. HECTAREAS	%
OAXACA	29,563	12.00
DURANGO	26,450	11.00
SINALOA	20,076	8.00
MEXICO	17,500	7 .00
TAMAULIPAS	15,214	6.00
CHIHUAHUA	13,486	6.00
SONORA	12,510	5.00
COAHUILA	12,162	5.00
ZACATECAS	11,422	5.00
GUERRERO	10,449	4.00
O T R O S	70,840	30.00
	239,762	100.00

EN ESTOS RESULTADOS HAN DESEMPEÑADO UN IMPORTANTE PAPEL LA CAPACITACION Y EL - ADIESTRAMIENTO DE PERSONAL EN EVENTOS INTERNACIONALES, LO CUAL PERMITIO FORMAR TECNICAS, INSTRUCTORES Y LA REALIZACION DE CURSOS NACIONALES Y REGIONALES; ASI MISMO LA MODERNIZACION, TECNIFICACION Y UTILIZACION DE LOS AVIONES CISTERNAS - FAIRCHILD C - 119 Y CANADAIR C - 119 AL IGUAL QUE EL HELICOPTERO BELL - 212 EN DIFERENTES ENTIDADES FEDERATIVAS; LA INTEGRACION DE LAS ACTIVIDADES FORESTALES (EN ALGUNOS ESTADOS) CON LAS AGROPECUARIAS, REALIZANDO QUEMAS CONTROLADAS Y -- FOMENTANDO EL CULTIVO FORRAJERO DE LA "VEZA DE INVIERNO", COMO ALTERNATIVA AL PASTOREO EXTENSIVO. TAMBIEN HAN CONTRIBUIDO PARA ESTE PROPOSITO, LAS CAMPAÑAS DE DIVULGACION ORIENTADAS A LOS DUEÑOS Y POSEEDORES DEL RECURSO FORESTAL ASI COMO A LA SOCIEDAD CON EL FIN DE INCULCAR UNA CULTURA FORESTAL.

COMISION FORESTAL DE AMERICA DEL NORTE
GRUPO DE ESTUDIOS SOBRE INCENDIOS FORESTALES.

INFORME EN MEXICO SOBRE TECNOLOGIA.

I.- INVESTIGACION SOBRE EL USO DE HERRAMIENTAS ESPECIALIZADAS PARA EL COMBATE DE INCENDIOS FORESTALES.

SE REALIZÓ UN TRABAJO POR PARTE DE LA DIRECCIÓN GENERAL DE NORMATIVIDAD FORESTAL EN SIETE ESTADOS DE LA REPÚBLICA Y EL DISTRITO FEDERAL: CHIAPAS, OAXACA, DISTRITO FEDERAL, HIDALGO, MÉXICO, PUEBLA, SAN LUÍS POTOSÍ Y ZACATECAS. SE PROBARON LAS HERRAMIENTAS TRADICIONALES QUE USAN LOS COMBATIENTES EN ESTOS ESTADOS COMO SON: LOS AZADONES, LOS RATRILLOS, LAS PALAS DE PUNTA, MACHETES, VARAS ESCARAMAN, COA Y ATACOA, COMO HERRAMIENTAS ESPECIALIZADA SE PROBÓ EL PULASKI, MCLOUD Y PALAS TIPO FORESTAL.

LAS COMPARACIONES DE RENDIMIENTO DEL PERSONAL O MEDICIÓN DEL TRABAJO COMPARATIVO DE HERRAMIENTAS SE REALIZÓ CON GENTE ESPECIALIZADA EN LOS TRABAJOS DE COMBATE DE INCENDIOS Y EN ALGUNOS CASOS CON GENTE DE LA SARH QUE NO TENÍA LA EXPERIENCIA EN COMBATE DE INCENDIOS FORESTALES, CUANDO SE CARECÍA DEL PERSONAL ESPECIALIZADO EN LA REGIÓN. SE CONSIDERARON FACTORES SUBJETIVOS EN EL RENDIMIENTO DEL PERSONAL COMO SON LA ESTATURA, EL PESO, LA CONDICION FÍSICA, LA EDAD, LA HABILIDAD FÍSICA PARA EL USO DE HERRAMIENTAS, ESCOLARIDAD Y CAPACITACION RECIBIDA PARA EL COMBATE DE INCENDIOS. EL MISMO PERSONAL QUE USÓ LA HERRAMIENTA TRADICIONAL, UTILIZÓ TAMBIÉN LA HERRAMIENTA ESPECIALIZADA PARA PODER HACER LAS COMPARACIONES DEL ESTUDIO.

LOS RESULTADOS FUERON LOS SIGUIENTES:

1.- SE OBTUVO EN PROMEDIO UN 10% MÁS DE AVANCE EN LA APERTURA DE BRECHAS CORTA FUEGO CON LA HERRAMIENTA ESPECIALIZADA CON BASE AL RENDIMIENTO ARROJADO DE LA HERRAMIENTA TRADICIONAL.

COMENTARIO.- SE CONSIDERA QUE ESTE RENDIMIENTO ES EL ESTANDAR BÁSICO MÍNIMO QUE PUEDEN LOGRAR LOS COMBATIENTES DE INCENDIOS FORESTALES EN MÉXICO, YA QUE EL PER-

2.-

SONAL QUE SE UTILIZÓ COMO COMPARACIÓN DE RENDI--- MIENTO NO TENÍA PRÁCTICA CON EL USO DE HERRAMIENTA ESPECIALIZADA, ADEMÁS DE QUE EL MANTENIMIENTO- DE LA MISMA (AFILADO, LARGO DE LOS MANGOS, MADERA UTILIZADA EN LOS MANGOS DE ENCINO Y PINO) NO FUE- EN MUCHOS CASOS LA ADECUADA.

II.- EVALUACION DE USO DEL EQUIPO AEREO EN EL COMBATE DE INCENDIOS FO-- RESTALES EN MEXICO.

LA DIRECCIÓN GENERAL DE NORMATIVIDAD FORESTAL EVALUÓ LA EFICIENCIA ECONÓMICA Y TÉCNICA DE LOS AVIONES CISTERNA FAIRCHILD C-119, CANADAIR CL-215 Y EL HECLICÓPTERO BELL-212.

LAS CONCLUSIONES OBTENIDAS DE LA EVALUACIÓN SON LAS SIGUIENTES:

A).- ES INDISPENSABLE CONTAR CON PATRULLAS TERRESTRES DE COMBATE - DE INCENDIOS PARA LOGRAR UNA VERDADERA EFICIENCIA DEL USO DE- EQUIPO . EN EL CASO DEL AVIÓN CANADAIR CL-215 LA RENTABILI— DAD ECONOMICA FUE NEGATIVA POR CARENCIA DE PATRULLAS DE COMBA TE EN TIERRA. NO ASÍ EL BELL 212 Y EL FAIRCHILD C-119, CUYA- RENTABILIDAD ECONOMICA FUE POSITIVA AL DISMINUIR EL AREA AFEC TADA POR LOS INCENDIOS FORESTALES.

B).- EL HELICÓPTERO BELL 212 TUVO MAYOR CAPACIDAD DE OPERACION, -- PUESTO QUE FUNCIONÓ HASTA 4,000 M.S.N.M. ADEMÁS DE SU USO MUL TIPLE Y LA DETECCION DE INCENDIOS, DESCARGAS DE AGUA EN FUE-- GOS PEQUEÑOS, TRANSPORTE DE EQUIPO Y HERRAMIENTAS, ASÍ COMO - EL PERSONAL HASTA LA CERCANIA DEL INCENDIO.

C).- EL SEGUNDO AVIÓN EN EFICIENCIA FUÉ EL FAIRCHILD C-119 DADO SU RANGO DE OPERACIÓN HASTA LOS 4,000 M.S.N.M. SU EFECTIVIDAD EN INCENDIOS DE MAYORES MAGNITUDES Y SU RENTABILIDAD ECONOMICA.

D).- EN TERCER LUGAR DE EFICIENCIA QUEDA EL AVIÓN CISTERNA CANA--- DAIR CL-215 DEBIDO PRINCIPALMENTE A SU BAJO RANGO DE OPERA--- CIÓN (2,000 M.S.N.M.), ASÍ COMO MAYORES GASTOS DE ARRENDAMIEN TO EN COMPARACION CON LAS ANTERIORES AERONAVES.

E).- SE RECOMIENDA LA ADQUISICIÓN DE EQUIPO ESPECIAL PARA EL COMBATE - DE INCENDIOS FORESTALES CON EL FIN DE ADAPTAR A LOS HELICÓPTEROS- DE LA SARH PARA EL COMBATE. EL EQUIPO ES TANQUE CISTERNA, SISTEMA DE RAPPELL, HELIBALDE Y HELITORCHA.

F).- SE RECOMIENDA ESTABLECER CONVENIOS CON LA SECRETARÍA DE LA DEFENSA NACIONAL, CON EL FIN DE ADAPTAR Y ACONDICIONAR AVANCES DE LA - FUERZA AÉREA MEXICANA CON EQUIPO CISTERNA PARA EL COMBATE DE IN-- CENDIOS FORESTALES.

G).- ES INDISPENSABLE EL USO DE RETARDANTE O MATERIAL CONDUCTOS QUE -- PERMITA QUE EL AGUA LLEGUE HASTA EL SUELO Y NO SE VOLATICE EN EL- AIRE.

H).- ES INDISPENSABLE UNA BUENA RED DE RADIO-COMUNICACIÓN TIERRA-AIRE- PARA EFICIENTIZAR LAS LABORES DE COMBATE Y EVITAR ACCIDENTES AL - MOMENTO DE REALIZAR LAS DESCARGAS.

I).- APOYO DE LOS AVIONES GUÍA ES DE PRIMORDIAL IMPORTANCIA PARA EL -- BUEN TERMINO DE LA OPERACIÓN, CONSIDERANDOSE INDISPENSABLE UN HELICÓPTERO BELL-206 QUE REALICE LABORES DE DETECCIÓN Y PERMITIR UNA MAYOR EFICIENCIA DE LAS ACTIVIDADES DE COMBATE DEL BELL 212, PRINCIPALMENTE PORQUE EL EQUIPO CISTERNA QUE LO CONFORMA ES MUCHO MÁS- EFECTIVO CUANDO LOS INCENDIOS SON DE MAGNITUDES PEQUEÑAS.

J).- ES NECESARIO QUE EL PERSONAL QUE HA PARTICIPADO DURANTE LAS CAMPAÑAS 1985-1986 CONTINUE EN LAS OPERACIONES POSTERIORES DE COMBATE- AÉREO DE INCENDIOS FORESTALES.

K).- DEBE HABER UN COORDINADOR DE TIEMPO COMPLETO DE LA DIRECCIÓN GENERAL DE NORMATIVIDAD FORESTAL A NIVEL NACIONAL PARA ORGANIZAR Y SUPERVISAR LAS ACCIONES DEL EQUIPO AÉREO.

L).- SE REQUIERE MAYOR DIFUSIÓN A LA OPINIÓN PÚBLICA DEL USO DE ESTOS- EQUIPOS PARA EL COMBATE DE INCENDIOS FORESTALES.

M).- PARA QUE EL USO DE EQUIPO AÉREO SE GENERALICE Y SEA CONSTANTE A - TRAVÉS DE LOS AÑOS EN LAS ACCIONES DE COMBATE DE INCENDIOS FORES-

4.-

TALES DE DEBE CORRESPONSABILIZAR A LAS DELEGACIONES ESTATALES DE LA SARH EN LOS ESTADOS Y A LOS GOBIERNOS LOCALES, PERMISIONARIOS E INDUSTRIALES DE LA MADERA PARA CUBRIR LOS GASTOS DE ARRENDA--- MIENTO Y OPERACIÓN QUE ÉSTO SIGNIFICA.

III.-LA VEZA DE INVIERNO (VICIA VILLOSA) COMO ALTERNATIVA PARA LA PREVENCION DE INCENDIOS FORESTALES.

1.- CARACTERISTICAS.

-DE ORIGEN RUSO SEMBRADA EN ESTADOS UNIDOS Y CANADA.
-LEGUMINOSA DE LA ESPECIE VILLOSA.
-SEMITREPADORA.
-RESISTENTE A LAS MÁS BAJAS TEMPERATURAS.
-PRODUCE FORRAJE EN LA ÉPOCA DE ESTIAJE.

2.- OBJETIVO.

EVITAR LA QUEMA DE PASTOS PARA LA OBTENCIÓN DE PELILLO TIERNO Y EL PASTOREO EMPÍRICO CON EL CONSECUENTE DETERIORO DEL RECURSO FORESTAL.

OFRECER UNA ALTERNATIVA A LOS GANADEROS Y AGRICULTORES, PARA-LA OBTENCIÓN DE FORRAJE VERDE EN LA ÉPOCA DE ESTIAJE.

INCREMENTAR LOS RECURSOS ECONÓMICOS DE LOS AGRICULTORES Y GANADEROS DE LAS ZONAS FORESTALES, MEDIANTE LA SEMIESTABULACIÓN DE SU GANADO.

3.- RESULTADOS.

EN 1975 SE INICIÓ SU SIEMBRA CON 8 HAS. EN DIFERENTES PUNTOS-EN 1984 SU ESTABLECIMIENTO SE INCREMENTÓ A 50 HAS. INCLUYENDO EL DISTRITO FEDERAL, EN 1985 SE SEMBRARON 854 HAS. DIFUNDIDAS EN 12 ESTADOS DE LA REPÚBLICA CON EL 80% DE RESULTADOS POSITIVOS, EN 1986 ESTÁN ESTABLECIDAS 1,250 HAS. DIFUNDIDAS EN 22 - ESTADOS DE LA REPÚBLICA MEXICANA.

COMENTARIOS.

POR LA INEXISTENCIA EN EL MERCADO NACIONAL DE SEMILLA CERTIFICADA DE VEZA DE INVIERNO, EL 70% DE LA SUPERFICIE SEMBRADA ESTÁ DESTINADA A LA PRODUCCIÓN DE SEMILLA, PARA LOS SIGUIENTES-AÑOS PARA FOMENTAR E INCREMENTAR SU CULTIVO.

IV.- DEBIDO A LA REESTRUCTURACIÓN QUE SUFRIÓ EL INSTITUTO NACIONAL DE INVESTIGACIONES FORESTALES AL INCORPORARSE EN UN SOLA INSTITUCIÓN INVESTIGADORA AGROPECUARIA Y FORESTAL EN EL INSTITUTO NACIONAL DE INVESTIGACIONES FORESTALES AGROPECUARIAS Y A QUE EL ING. OCTAVIO MAGAÑA Y LA ING. JUANA MARÍN CHÁVEZ, SALIERON FUERA DEL PAÍS, PRACTICAMENTE SE SUSPENDIERON LOS TRABAJOS QUE A NIVEL CENTRAL VENÍA REALIZANDO EL ANTIGUO INSTITUTO NACIONAL DE INVESTIGACIONES FORESTALES Y NO EXISTE EN EL ACTUAL INSTITUTO UN ÁREA DE INVESTIGACIÓN SOBRE INCENDIOS FORESTALES. SIN EMBARGO EL BIÓLOGO ROSENDO TOLEDO MEDINA INICIÓ UNA INVESTIGACIÓN SOBRE EFECTOS DEL FUEGO SOBRE LA VEGETACIÓN Y SUELO EN ALGUNOS DE LOS BOSQUES DEL ESTADO DE MICHOACAN A TRAVÉS DEL CENTRO DE INVESTIGACIONES FORESTALES DE OCCIDENTE, DEPENDIENTE DEL INIFAP.

SE SIGUE EN PROCESO DE INVESTIGACIÓN LOS RESULTADOS DE LA SUCESIÓN VEGETAL Y CAMBIO DE SUELO EN EL BOSQUE DE PINO HARTWEGUII SIN TENER RESPUESTA A LA FECHA.

LAS INVESTIGACIONES SOBRE QUEMAS CONTROLADAS EN EL PREDIO EL LARGO, MUNICIPIO DE MADERA CHIHUAHUA Y LA INVESTIGACIÓN SOBRE EL EFECTO ECOLÓGICO DE LOS INCENDIOS EN EL EJIDO "EL LARGO" MUNICIPIO DEL MISMO NOMBRE SIGUEN EN PROCESO.

ATENTAMENTE

ING. RODOLFO C. RODRIGUEZ VELEZ.

DESARROLLO DE EVENTOS Y REUNIONES DE CAPACITACION DE PREVENCION Y COMBATE DE INCENDIOS FORESTALES EN EL MARCO DEL MEMORANDUM DE ENTENDIMIENTO PARA EL DESARROLLO DE COOPERACION CIENTIFICA Y TECNOLOGIA EN MATERIA DE RECURSOS FORESTALES ENTRE MEXICO Y ESTADOS UNIDOS.

ANTECEDENTES.-

En 1984 en el seno de la XVIII Reunión del Grupo de Estudio sobre Incendios Forestales que se llevó a cabo en Victoria, Canadá, la Delegación de los Estados Unidos propuso a la Delegación Mexicana, un Programa de Adiestramiento para el personal encargado de atender las actividades de prevención y combate de incendios forestales en México.

OBJETIVO GENERAL.-

Promover la comunicación y cooperación entre los dos países con la oportunidad de exponer técnicas y sistemas de prevención y combate de incendios forestales, así como el intercambio de experiencias sobre investigaciones en este tema, con el propósito de reducir la presencia y daños ocasionados por estos siniestros.

PROPUESTA.-

Este programa contempló el desarrollo de cinco eventos, tres de capacitación de técnicos y personal combatiente para uso

EFECTIVO DE EQUIPO AÉREO, HERRAMIENTAS MANUALES, ORGANIZACIÓN, TECNICAS DE COMBATE Y EQUIPOS MECANIZADOS PARA COMBATE DE INCENDIOS Y DESARROLLO DE QUEMAS PRESCRITAS.

UNA REUNIÓN DE PREVENCIÓN PARA ANALIZAR LOS DIFERENTES CAUSALES QUE GENERAN LOS INCENDIOS FORESTALES A FIN DE IMPLEMENTAR LAS FORMAS MAS EFICACES PARA EVITARLOS, MEDIANTE EL DESARROLLO DE DIFERENTES ALTERNATIVAS Y

UN EVENTO DE INVESTIGACIÓN DE LOS EFECTOS DEL FUEGO CON EL INTERCAMBIO DE ESPECIALISTAS PARA LA DETECCIÓN DE PROYECTOS REFERIDOS AL IMPACTO DEL FUEGO Y SISTEMAS DE ÍNDICES DE PELIGRO EN LOS DIFERENTES ECOSISTEMAS MEXICANOS Y POSTERIORMENTE, ENTRENAMIENTO DE PERSONAL MEXICANO DURANTE SEIS MESES EN ESTADOS UNIDOS, PARA LA CONTINUACIÓN DE ESTAS INVESTIGACIONES Y EXPERIENCIAS DE LOS PROYECTOS AMERICANOS.

ESTA PROPUESTA, QUE HABÍA SIDO PLANTEADA PARA EFECTUARSE - DURANTE LOS AÑOS 1985 Y 1986, NO PUDO LLEVARSE A CABO EN ESE TIEMPO, DEBIDO A PROBLEMAS ECONÓMICOS POR PARTE DE AMBOS PAÍSES, MOTIVO POR EL CUAL EN LA XIX REUNIÓN DEL MISMO GRUPO DE INCENDIOS, QUE SE CELEBRÓ EN ORLANDO FLORIDA, -- U.S.A. EN EL MES DE OCTUBRE DE 1985, NUEVAMENTE SE ABORDÓ ESTA PROPUESTA, CONVINIENDO AMBOS PAÍSES (MÉXICO Y ESTADOS UNIDOS), INICIAR DURANTE 1986, EL DESARROLLO DE ESTOS EVENTOS. CON RELACIÓN A ÉSTO, SE NOMBRARON RESPONSABLES DE CADA PAÍS PARA COORDINAR: FECHAS, LUGARES, PROGRAMAS DE TRABAJO, PARTICIPANTES Y COMPROMISOS DE CADA PAÍS, TRABAJOS -

QUE SE REALIZAN CON ÉXITO A TRAVÉS DE LOS CONTACTOS ESTABLECIDOS CON PERSONAL DEL SERVICIO FORESTAL DE U.S.A., DE LA SIGUIENTE MANERA:

1.- TEMA:- "COMBATE DE INCENDIOS CON HELICOPTERO".

CONTACTO: EAIR PALMER

FECHA EN QUE SE REALIZO EL EVENTO: DEL 1o. AL 28 DE MARZO DE 1986.

LUGAR: EL SALTO (EDO. DURANGO) Y VALLE DE BRAVO (EDO. MÉX.)

PARTICIPANTES: DOS INSTRUCTORES AMERICANOS.
TREINTA ELEMENTOS OPERATIVOS DE 14 ESTADOS DEL PAÍS Y
UN PILOTO Y MECÁNICO DE HELICÓPTERO.

OBJETIVO ESPECIFICO.-

CAPACITAR UN GRUPO DE ELEMENTOS OPERATIVOS EN EL MANEJO DEL EQUIPO ESPECIALIZADO PARA HELICÓPTERO COMO UN MEDIO EFICAZ Y DE GRAN VERSATILIDAD PARA EL TRASLADO DE COMBATIENTES A ZONAS INACCESIBLES QUE PERMITAN UN ATAQUE EFECTIVO Y OPORTUNO DE INCENDIOS FORESTALES.

LOGROS ALCANZADOS.-

EL CONOCIMIENTO DE LOS VARIADOS SISTEMAS ESPECIALIZADOS QUE

A TRAVÉS DE LA UTILIZACIÓN DE HELICÓPTEROS, PERMITEN SU -- APLICACIÓN MÁS VERSÁTIL EN DIFERENTES ACTIVIDADES DE PREVENCIÓN Y COMBATE DE INCENDIOS FORESTALES.

COMPROMISOS ESTABLECIDOS.-

CON LA ADQUISICIÓN DE EQUIPO ESPECIAL DE DESCENSO CON CUERDA DESDE HELICÓPTERO A ALTURAS DE 80 - 60 - 40 Y 20 MTS. - (RAPELLS) Y ADITAMENTOS ESPECIALES COMO HELITORCHA PARA LA APLICACIÓN DE CONTRAFUEGOS EN INCENDIOS FORESTALES, ASÍ - COMO USO DE FUEGO CONTROLADO EN ÁREAS FORESTALES ESPECÍFICAS, EL GRUPO DE TÉCNICOS ESPECIALIZADOS EN EL USO DE ESTOS SISTEMAS DE TRABAJO, PODRÁ LLEVAR A CABO LA INTEGRACIÓN DE CUADRILLAS ESPECIALIZADAS EN ESTAS TÉCNICAS DE TRABAJO CON HELICÓPTERO A NIVEL ESTATAL, EN LAS ENTIDADES DEL PAÍS QUE PRESENTAN SERIOS PROBLEMAS POR LA GENERACIÓN DE INCENDIOS FORESTALES EN ÁREAS INACCESIBLES Y QUE SEAN FACTIBLES DE -- APOYAR CON HELICÓPTERO.

2.- TEMA:- "GIRA DE QUEMAS PRESCRITAS"

CONTACTO: DICK COX Y
JIM SORENSEN.

FECHA EN QUE SE REALIZO EL EVENTO: 17 DE MARZO AL 4 DE ABRIL, 1986.

LUGAR: ESTADO DE CALIFORNIA.

CAROLINA DEL NORTE Y
TEXAS (U.S.A.)

PARTICIPANTES: CINCO ELEMENTOS OPERATIVOS DE 5 ENTIDADES DE MÉXICO.

OBJETIVO:

ADIESTRAR A UN GRUPO DE TÉCNICOS MEXICANOS EN EL MANEJO DEL FUEGO EN ÁREAS PRESCRITAS PARA EL DESARROLLO DE DIFERENTES OBJETIVOS DE MEJORAMIENTO SILVÍCOLA.

LOGROS ALCANZADOS:

NO SE CUMPLIÓ CON EL OBJETIVO PLANTEADO ORIGINALMENTE PARA EL DESARROLLO DE ESTE EVENTO, YA QUE ÚNICAMENTE SE TUVO LA OPORTUNIDAD DE CONOCER EQUIPOS TERRESTRES, AÉREOS Y CENTROS DE ADIESTRAMIENTO Y EQUIPO VARIO, PARA LA CAPACITACIÓN DE PERSONAL EN ACTIVIDADES DE INCENDIOS FORESTALES CON QUE -- CUENTA EL SERVICIO FORESTAL AMERICANO.

COMPROMISOS ESTABLECIDOS:

CON LA FINALIDAD DE CONSTRUIR EN MÉXICO UN CENTRO NACIONAL DE CAPACITACIÓN DE PERSONAL, SE APOYARÁ A MÉXICO CON TÉCNICOS AMERICANOS DEL SERVICIO FORESTAL DE TEXAS, CON EQUIPO Y ASISTENCIA TÉCNICA, PARA INTEGRAR EN ESTE CENTRO, UN SIMULADOR DE INCENDIOS FORESTALES.

MEDIANTE LOS ARREGLOS NECESARIOS, LAS AUTORIDADES DEL SERVICIO FORESTAL DE CRAFTON HILL COLLEGE, ESTARÁN EN CONDICIONES DE PONER A DISPOSICIÓN DEL SERVICIO FORESTAL MEXICANO, UN CARRO BOMBA DE USO PARA QUE SIRVA COMO PROTOTIPO DE LA FABRICACIÓN Y ADECUACIÓN DEL EQUIPO EXISTENTE EN MÉXICO, PARA ESTAS ACTIVIDADES.

3.- TEMA:- "PATRULLAS TERRESTRES EFECTIVAS"

CONTACTO: JIMMY HECKMAN

FECHA EN QUE SE REALIZO EL EVENTO: DEL 20 DE MAYO AL 9 DE JUNIO, 1986.

LUGAR: ALBURQUERQUE NUEVO MÉXICO (U.S.A.)

PARTICIPANTES: NUEVE ELEMENTOS OPERATIVOS DE 8 ESTADOS DE MÉXICO.

OBJETIVO ESPECIFICO:

DAR A CONOCER A LOS PARTICIPANTES, LOS DIFERENTES TIPOS DE ORGANIZACIÓN, INFRAESTRUCTURA, MÉTODOS DE DETECCIÓN, PLANEACIÓN Y COMBATE DE INCENDIOS FORESTALES, ASÍ COMO LOS CONOCIMIENTOS EN EL USO DE EQUIPOS Y HERRAMIENTAS ESPECIALIZADAS PARA ESTAS ACTIVIDADES.

LOGROS ALCANZADOS:

CONTAR CON LOS ELEMENTOS NECESARIOS PARA TRANSMITIR ESTAS -

EXPERIENCIAS AL RESTO DEL PERSONAL, A TRAVÉS DE CURSOS DE CAPACITACIÓN Y CON LA ADQUISICIÓN DE EQUIPOS Y HERRAMIENTAS ESPECIALIZADAS, LLEVAR A CABO EN FORMA AGRESIVA, UN - PROGRAMA DE MODERNIZACIÓN Y ADECUACIÓN DE LA ORGANIZACIÓN E INFRAESTRUCTURA, CON LA FINALIDAD DE REDUCIR LOS DAÑOS QUE ESTOS SINIESTROS CAUSAN A LA VEGETACIÓN FORESTAL.

COMPROMISOS ESTABLECIDOS.-

A TRAVÉS DE LOS CONVENIOS EXISTENTES ENTRE AMBOS PAÍSES:

PROPONER Y JUSTIFICAR LA ADQUISICIÓN DE EQUIPOS Y HERRA-- MIENTAS ESPECIALIZADAS PARA MEJORAR ESTAS ACTIVIDADES EN MÉXICO.

4.- TEMA:- "REUNION SOBRE ACTIVIDADES DE PREVENCION CONTRA INCENDIOS FORESTALES".

CONTACTO: JOHN MARKER

FECHA EN QUE SE REALIZO EL EVENTO: DEL 17 AL 22 DE MARZO DE 1986.

LUGAR: EL PASO, TEXAS (U.S.A.)

ASISTENTES:

POR U.S.A. CUATRO ESPECIALISTAS EN PROGRAMAS DE COMUNICACIÓN Y DETECCIÓN DE GRUPOS DE TRABAJO EN ÁREAS RURALES PARA SU ESPECIALIZACIÓN EN ACTIVIDADES DE PRE

VENCIÓN Y COMBATE DE INCENDIOS FORESTALES.

POR MEXICO: TRES ESPECIALISTAS EN PROGRAMAS DE COMUNICACIÓN Y DIVULGACIÓN Y UN CATEDRÁTICO INVESTIGADOR ESPECIALIZADO EN ACTIVIDADES FORESTALES DE LA UNIVERSIDAD AUTÓNOMA DE CHAPINGO.

OBJETIVO ESPECIFICO.-

LLEVAR A CABO EL ESTUDIO DE LOS CAUSALES QUE GENERAN LOS INCENDIOS FORESTALES, A FIN DE IMPLEMENTAR LAS FORMAS MÁS EFICASES PARA EVITARLOS, MEDIANTE EL DESARROLLO DE DIFERENTES ALTERNATIVAS Y ELABORACIÓN DE MATERIAL DIVULGATIVO ADECUADO.

LOGROS ALCANZADOS.-

DEL ANÁLISIS DE LAS PROPUESTAS, SE DESPRENDIÓ LA INTEGRACIÓN DE TRES PAQUETES QUE CONTEMPLAN SU IMPLEMENTACIÓN A CORTO, MEDIANO Y LARGO PLAZO, BUSCANDO ENTRE AMBOS ESPECIALISTAS, EL INTERCAMBIO DE INFORMACIÓN CON MIRAS A OBTENER UNA EFICAZ COORDINACIÓN Y ASISTENCIA TÉCNICA ENTRE LOS DOS PAÍSES.

PRIMER PAQUETE:-

CONTEMPLA LO SIGUIENTE:

PROGRAMA FORESTAL DEL ESTADO DE TEXAS.

FECHA:- 1o. AL 5 DE DICIEMBRE DE 1986.- MEXICO
FECHA POR DETERMINAR 1987.- E.U.A.

* UTILIZACIÓN ADECUADA DE HERRAMIENTAS.
* DISPONIBILIDAD DE EQUIPOS DONADOS.
* PROGRAMA DE ADAPTACIÓN DE EQUIPO.
* PROGRAMAS DE PROTECCIÓN CONTRA INCENDIOS EN ÁREAS RURALES.
* INTERCAMBIO DE INFORMACIÓN CON TÉCNICOS MEXICANOS EN LA ZONA FRONTERIZA.
* PLANTES BÁSICOS CONTRA INCENDIOS.

SEGUNDO PAQUETE:-

CONTEMPLA LO SIGUIENTE:

PROGRAMA FORESTAL DEL NOROESTE, WASHINGTON Y OREGON.

FECHA:- 1o. AL 7 MARZO, 1987.- MEXICO.
FECHA POR DETERMINAR.- E.U.A.

* INTERCAMBIO DE INFORMACIÓN DE TÉCNICOS MEXICANOS Y NORTEAMERICANOS.
* PROGRAMA DE COMUNICACIÓN.
* UTILIZACIÓN DE MEDIOS MASIVOS.
* PAQUETES DE PROGRAMAS EDUCATIVOS.
* PLANTEAMIENTO DE UN PROGRAMA PARA LA CREACIÓN DE UN SÍMBOLO EN MÉXICO.

* ADIESTRAMIENTO EN METEOROLOGÍA.

TERCER PAQUETE:-

CONTEMPLA LO SIGUIENTE:

ACUERDO INTERNACIONAL DE AYUDA MUTUA.

FECHA:- NO DETERMINADA.
A REALIZARSE EN MÉXICO.

* APOYO Y ASISTENCIA OPORTUNA EN LOS PLANES DE EMERGENCIA EN DESASTRES Y SINIESTROS.
* ESTABLECIMIENTO DE MECANISMOS PARA DISPONER DE RECURSOS PARA LA ATENCIÓN INMEDIATA DE ACCIONES DE PREVENCIÓN Y COMBATE DE INCENDIOS FORESTALES.
* COOPERACIÓN EN ACTIVIDADES DE LAS CAMPAÑAS DE EMERGENCIA Y ASISTENCIA EN LOS ESTADOS FRONTERIZOS.

COMPROMISOS ESTABLECIDOS.-

A.- CARACTERÍSTICAS DE LOS PAQUETES.

- DESARROLLO A CORTO, MEDIANO Y LARGO PLAZO.
- CONTAR CON UN MÉTODO DE SEGUIMIENTO Y EVALUACIÓN.
- FÁCILMENTE VENDIBLES Y JUSTIFICABLES ANTE LAS AUTORIDADES DE LA S.A.R.H. MÉXICO Y U.S.A.

- UTILIZACIÓN DE RECURSOS FINANCIEROS MÍNIMOS PARA LA EJECUCIÓN DE LOS PAQUETES.

B.- INTEGRACIÓN DE TÉCNICOS ESPECIALISTAS DE DIVERSAS DISCIPLINAS PARA ATENDER TODAS LAS ACCIONES PLANTEADAS.

C.- INCLUIR LA PARTICIPACIÓN DE JEFES DE PROGRAMA DE LOS ESTADOS FRONTERIZOS PARA CONCRETIZAR ACCIONES CONJUNTAS CON EL ESTADO DE TEXAS, U.S.A.

D.- PARA LLEVAR A CABO LOS ACUERDOS Y COMPROMISOS ESTABLECIDOS EN ESTA REUNIÓN, SE CONVINO EN MANTENER UNA CONSTANTE COMUNICACIÓN ENTRE LOS RESPONSABLES DE LOS PAQUETES.

4.- TEMA:- "ACTIVIDADES RELACIONADAS CON LA INVESTIGACION DE LOS EFECTOS DEL FUEGO".

CONTACTO: DR. ROUSSOUPWLLS.

FECHAS EN QUE SE PROGRAMO EL EVENTO:- 3 FASES.

OBJETIVO.-

CAPACITAR A INVESTIGADORES Y TÉCNICOS MEXICANOS PARA DESARROLLAR EN MÉXICO, SISTEMAS DE ÍNDICES DE RIESGOS DE INCENDIOS FORESTALES EN ÁREAS ESPECÍFICAS Y PROVEER LAS BASES PARA IM-

PLEMENTAR LA HISTORIA DEL FUEGO Y MANUALES DE VALORACIÓN DE DAÑOS OCASIONADOS POR ESTOS SINIESTROS.

PRIMERA FASE:- DEL 15 AL 31 DE OCTUBRE DE 1986.

VISITA DE DOS INVESTIGADORES AMERICANOS A MÉXICO PARA CONOCER Y VALORAR LA PROBLEMÁTICA DE LOS INCENDIOS, A FIN DE - DETERMINAR LAS NECESIDADES PARA IMPLEMENTAR UN SISTEMA DE ÍNDICE DE RIESGO DE INCENDIOS FORESTALES, ASÍ COMO PARA - DETECTAR PROYECTOS REFERIDOS A LA INVESTIGACIÓN DE LOS -- EFECTOS DEL FUEGO POR INVESTIGADORES MEXICANOS.

EN ESTE EVENTO PARTICIPAN 6 TÉCNICOS MEXICANOS DE CUATRO ENTIDADES DEL PAÍS.

SEGUNDA FASE:- DEL 15 DE NOVIEMBRE DE 1986, AL 10 DE FEBRERO DE 1987.

UN CIENTÍFICO MEXICANO INTERESADO EN LOS EFECTOS DE LOS - INCENDIOS E INVESTIGACIÓN DE LA ECOLOGÍA DEL FUEGO, SE -- TRASLADARÁ A U.S.A., PARA COMPARTIR EXPERIENCIAS E INTER-CAMBIO DE INFORMACIÓN TÉCNICA SOBRE LOS PROYECTOS QUE A - LA FECHA REALIZAN INVESTIGADORES AMERICANOS SOBRE LOS IM-PACTOS DE ESTOS SINIESTROS EN LA VEGETACIÓN FORESTAL.

TERCERA FASE:- 28 DE NOVIEMBRE DE 1987 A 28 DE FEBRERO DE 1988.

OTRO CIENTÍFICO MEXICANO PARTICIPARÁ EN UN ENTRENAMIENTO -

REFERIDO A EFECTOS DEL FUEGO, INICIADO POR EL TÉCNICO MEXICANO ANTERIOR, ASÍ COMO ESTUDIOS RELACIONADOS A LA VALORACIÓN DE DAÑOS CAUSADOS POR INCENDIOS FORESTALES.

LOS LOGROS Y COMPROMISOS RESPECTO AL DESARROLLO DE ESTE EVENTO, SE DARÁN A CONOCER EN SU OPORTUNIDAD EN VIRTUD DE QUE A LA FECHA SE LLEVA A CABO EL DESARROLLO DE LA PRIMERA FASE DEL EVENTO CON LA VISITA DE LOS TÉCNICOS AMERICANOS POR CUATRO ESTADOS DE MÉXICO.

ES NECESARIO HACER PATENTE AL DEPARTAMENTO DE AGRICULTURA DE U.S.A., NUESTRO AGRADECIMIENTO Y RECONOCIMIENTO AL PERSONAL ENCARGADO DE COORDINAR EL DESARROLLO DE ESTOS EVENTOS, ASÍ COMO AL PERSONAL DE INSTRUCTORES QUE EN TODO MOMENTO MANIFESTARON DISPONIBILIDAD Y EFICIENCIA PARA TRASMITIR LOS CONOCIMIENTOS AL PERSONAL MEXICANO.

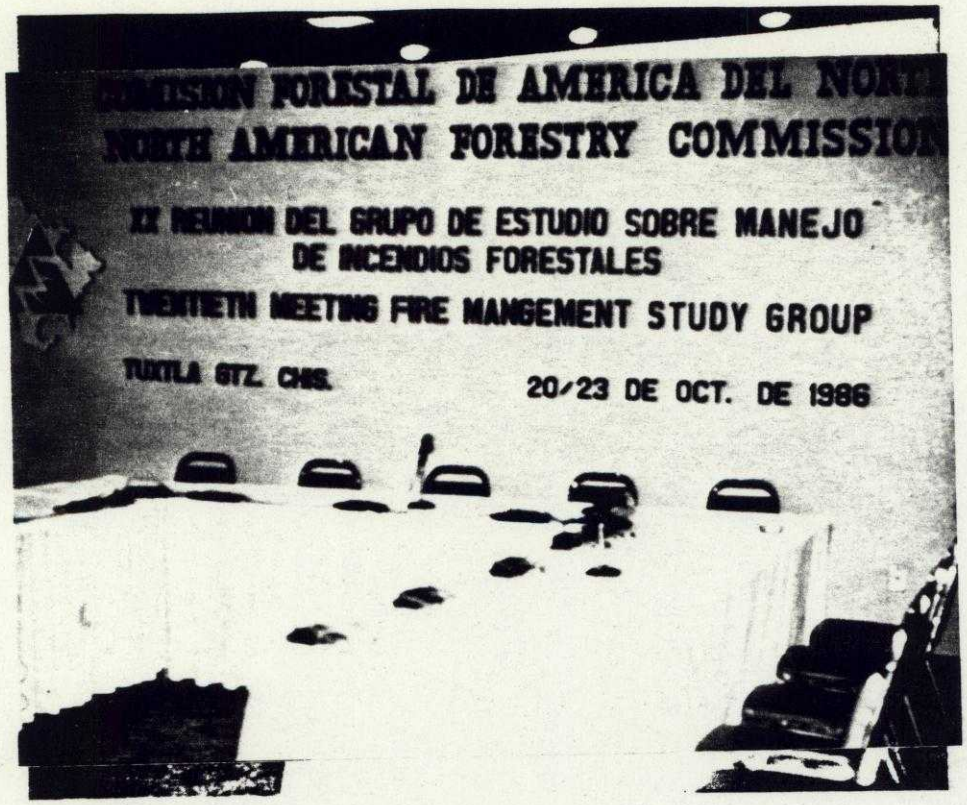
ATENTAMENTE.
EL ENCARGADO DE COORDINAR POR
PARTE DE MEXICO ESTOS EVENTOS

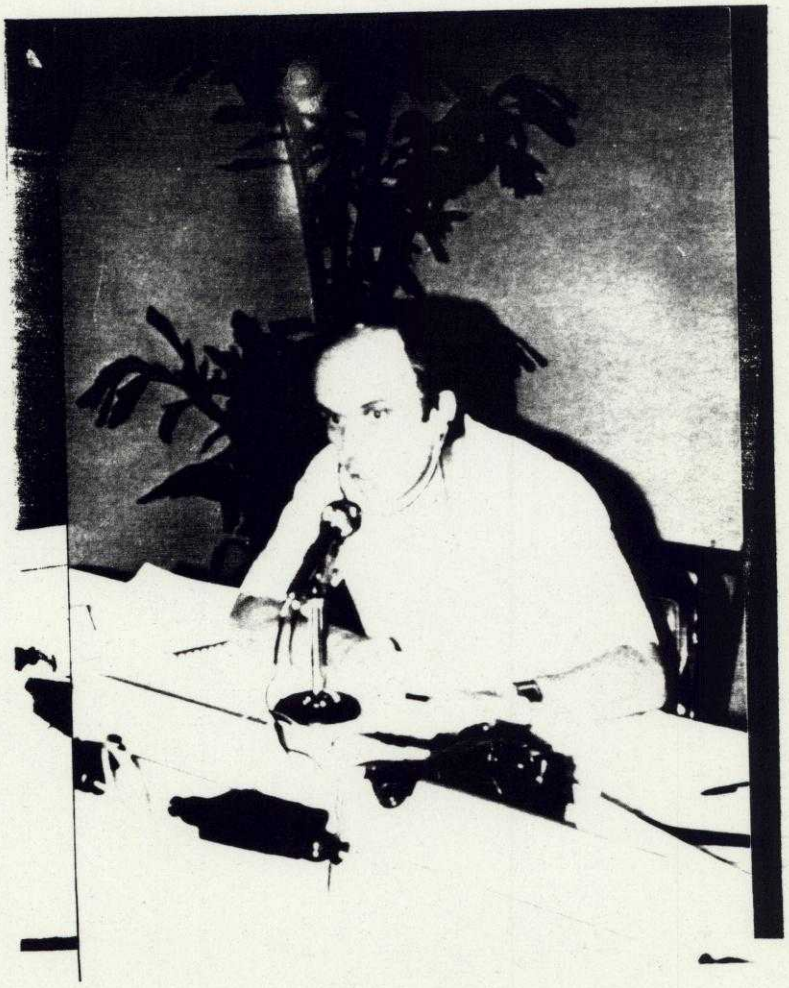
G.T.F. MAX J. ALMONTE NORIEGA.

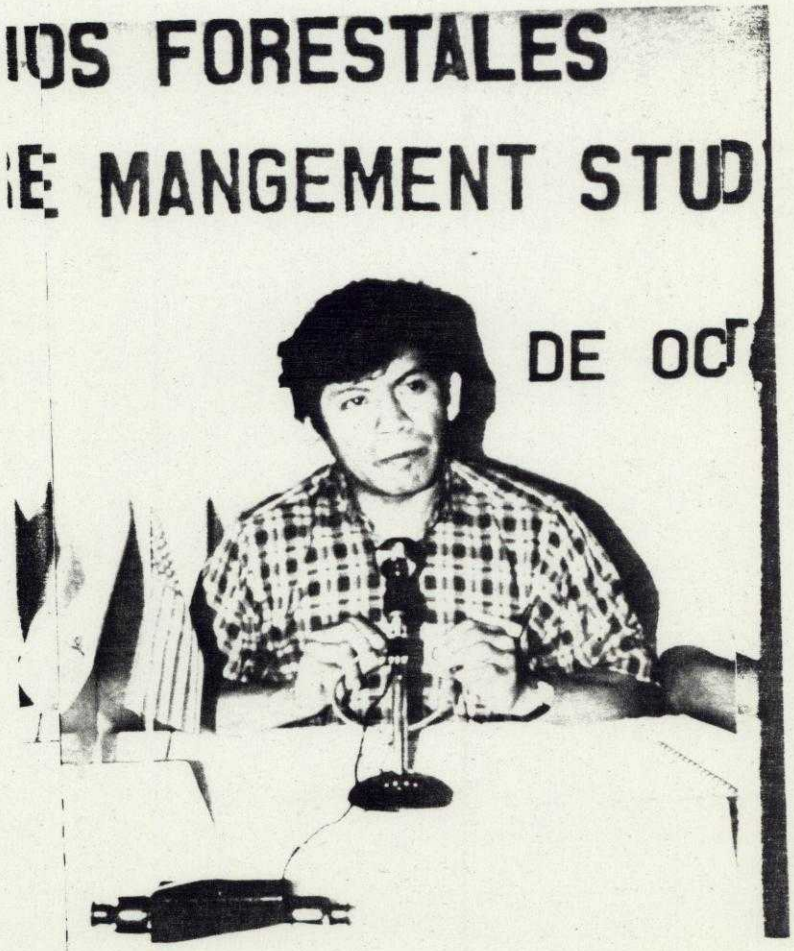
MJAN/CDJ.

V. 2. MEMORIA FOTOGRAFICA

V. 2. PHOTOGRAPHS


COMISION FORESTAL DE AMERICA DEL NORTE
NORTH AMERICAN FORESTRY COMMISSION
XX REUNION DEL GRUPO DE ESTUDIO SOBRE MANEJO
DE INCENDIOS FORESTALES
TWENTIETH MEETING FIRE MANGEMENT STUDY GROUP
TUXTLA GTZ. CHIS.
20/23 DE OCT. DE 1986




IOS FORESTALES
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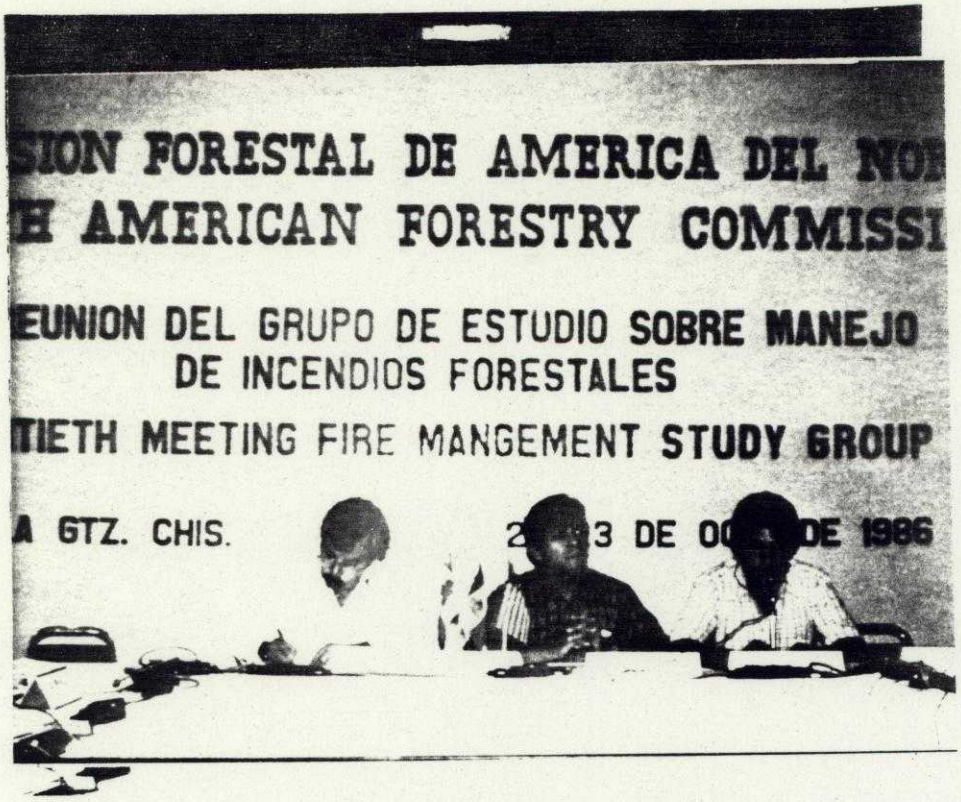
ASPECTOS DEL CONVIVIO



DELEGACION DE MEXICO

PARTICIPANTES

DELEGACION DE CANADA

DELEGACION DE ESTADOS UNIDOS

V. 3. RECONOCIMIENTO A SAMUEL GERALD MAUK, INTEGRANTE DE LA DELEGACION DE ESTADOS UNIDOS DE NORTEAMERICA.

V.3. ACKNOWLEDGMENT TO SAMUEL GERALD MAUK, INTEGRANT OF THE U.S. DELEGACY

FAO
NORTH AMERICAN FORESTRY COMMISSION
FIRE WORKING GROUP

In Memory
of

SAMUEL GERALD MAUK

for his
DEDICATION AND EFFORT IN FIRE PREVENTION AND SUPPRESSION

Tuxtla Gutierrez, Chiapas Mexico
October 1986

Brian Stocks
Chairman, Canada

L.A. Amicarella
Chairman, United States

Jesus Cardena
Chairman, Mexico