

YAP STATE WILDFIRE PLAN 2009 – 2013



Yap State Division of Public Safety Fire Section

With technical assistance from:
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USFS Forest Service, Cooperative Fire Program &
Institute of Pacific Islands Forestry

FORWARD

I am pleased to endorse, this, the Second Yap State Wildfire 5- Year Plan, for 2009-1013.

The Fire and Rescue section of DPS exists to provide fire prevention, safety, suppression and rescue services to the people of Yap State. The F&R section strives to minimize the impacts of wildfires while maintaining the safety of its staff. Pre-suppression and Public Awareness efforts will decrease the number of wildfire ignitions and the size of areas burnt by wildfires. The F&R section works to protect native and production forests, traditional cultural sites in the wildfire interface, and other high value areas in order to maintain a high quality environment for the people of Yap to enjoy at the present and in the future.

The relatively small size of Yap islands provides an opportunity to take a holistic approach to wildfire management. The small size of the fire section of Yap's Division of Public Safety, in combination with irregular periods of chronic and catastrophic fire risk make cooperation and integration of efforts within the Division of Public Safety and with other State agencies, such as Forestry, a necessity. In addition to joint efforts among government agencies, this plan calls for the involvement of communities in the reduction of wildfire threats to their natural resources.

The many aspirations for protection and sustainable use of Yap's natural resources from ridge to reef are contingent on our ability to manage wildfires in an era when climate change threatens to intensify El Nino (ENSO) events that can lead to more severe drought and greater threat from wildfires. This plan outlines ongoing efforts and the expanded arrangements and support that are needed to protect Yap from wildfires.

Endorsed this _____ day of _____ 2009.

Victor Nabeyan
Yap State Attorney General

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Executive Summary

Communities, forests and other natural habitat are threatened by chronic bush fires on most years that have a dry season. On years when there are severe and extended droughts, wildfires may be catastrophic and burn not only grasslands but also valuable forest lands. The fire section of Yap's Division of Public Safety is small and not well equipped to deal with severe wildfires that threaten the natural resources of this and future generations. Recently, the protection of land resources has been highlighted by the Micronesia Challenge (TNC 2005) that commits to protection of 30% of marine areas and 20% of land resources. Yap State does not have 20% of its land in healthy native forest. It is thus necessary to protect all remaining forest as well as to restore deforested areas. This cannot be done without addressing wildfire problems. The objective of this five year plan is to explain Yap's wildfire situation, plan what can be done with existing resources and describe what would be needed to be able to better address the wildfire problem on Yap. Appendix I provides information on sources of assistance.

The first need is equipment. While the Fire & Rescue Section has recently received 2 new fire trucks, these are, by Federal law, dedicated to airport operations. This leaves but one old fire truck that frequently breaks down and does not provide adequate water pressure to address wildfires as well as structural and other fires that may occur. With the passage of the Farm Bill, The FSM has become eligible for grant assistance from The U.S. Forest Service Cooperative Fire Program, as well as the Federal Excess Property Program (FEPP). Assistance in obtaining needed equipment will be sought through these programs.

The second need is staff. There are currently a number of vacancies in the already small fire and rescue staff, and 5 firemen also tend to other duties, such as vehicle inspection and licensing, roadside signage and airport security. Fire fighting capacity will be increased by when existing vacancies are filled, and by the cross-training other DPS staff, prisoners and community volunteer fire fighters in safety and fire suppression so that they may assist when there is a bad fire season.

Yap State is in compliance with the U.S. National Emergency Management System and the State Preparedness Plan is being updated in FY 2009 to bring together all existing emergency preparedness plans into an All Hazards Plan that will include fire. The training in the Incident Command System (ICS) provided by the U.S. Forest Service Region 5 Cooperative Fire Program helps to develop the cadre needed for the State Preparedness plan which uses ICS, to operate smoothly.

Given the small size of Yap's F&R section and decreasing Government budgets under the Compact of Free Association, it will be necessary to expand wildfire prevention and suppression from the work of a small government agency into a community concern. Accordingly, community capacity to deal with wildfire will be addressed through Public awareness efforts and training and the provision of fire suppression hand tools to responsive communities that lie within the areas vulnerable to wildfire as ascertained with the Yap State GIS system that includes fire vulnerability maps developed with the help of USFS Cooperative Fire Program.

In addition to suppression, it is necessary to manage fuels and soil erosion. In tropical Yap, approaches include assisting regeneration of forests and developing fire resistant greenbreaks to compartmentalize flammable areas and thus reduce the size of wildfires. Yap State F&R will work cooperatively with Yap State Forestry, the USFS Region 5 Cooperative Fire Program, and the Institute of Pacific Islands Forestry on landscape restoration projects.

The ongoing program of wildfire monitoring will be streamlined and continued. Data from the monitoring program will be used in Public information programs, to develop wildfire prevention and control plans and to evaluate the effectiveness of the wildfire program.

The plan concludes with summary tables of the schedule of regular annual activities, a 5-year timetable for the initiation and accomplishment of tasks and projects described in the plan, and a budget planning table giving estimates of some of the implementation costs. This plan is as a working tool that can be updated as needed and used to develop proposals for funding, and for evaluating progress. Action items within this plan are italicized within the text and then gathered into a draft timetable in Table 3.

1. Introduction & Background

1.1. Introduction to Yap

Yap is one of four States of the Federated States of Micronesia (FSM). It is located in the Western Caroline Islands between latitudes 7-10 N, and longitudes 137-148E. The State consists of four closely associated high islands of “Waab” and about 134 low coralline atolls and islands, 22 of them populated, spread over 100,000 square miles of ocean. The State’s land area is about 49.7 square miles with about 78% located in the high islands of Waab where most wildfires occur. The 2000 census reported a population of about 11,241 for the State.

1.2. Analysis of Yap’s Wildfire Problem

Lying at the western end of Micronesia, the high islands of Yap (Waab), experience a monsoon pattern of rainfall with both rainy and dry seasons on many years. The dry season usually begins following the return of the trade winds in late November, and extends through May or June. The period and severity of droughts associated with ENSO El Nino / La Nina events is often extended. Yap islands experience a chronic pattern of wildfires during the “dry season”, and the islands vegetation reflects this fire regime. Much of the island is covered by easily burnt savanna grasslands that cannot reforest naturally due to the high incidence of wildfires and the poor soils that result from the lack of a forest canopy. The majority of areas that have been planted to trees in an effort to restore forests have been impacted or destroyed by wildfires.

During ENSO related drought years, the danger of wildfires increases and the impact of wildfires during these critical periods of drought can be catastrophic. In the last 25 years, there have been at least 2 periods when over 22% of the island was burnt by wildfires. On these years of severe drought, not only savanna areas burn, but fires also invade and erode away adjacent forests. During the period between extreme droughts, the vegetation begins to recover, but generally does not recover enough to form a dense enough canopy and forest that is less vulnerable to fires. The general result is a buildup of fuel for the next drought and wildfire event.

The relationship between ENSO years and the area burnt by wildfires in Western Micronesia is shown in figure 3 below. This graph shows the fluctuations in sea level associated with ENSO (“El Nino”) events, which are linked with more severe droughts; and with the area burnt by wildfires in Guam where records on the areas burnt by wildfires have been collected for over 20 years. Yap’s pattern of drought is similar to that of Guam. Areas burnt by wildfires on Yap have been mapped for the last seven years. During this period Yap has not experienced an episode of severe drought. The past pattern illustrated in Fig. 1, suggests, however, that Yap could experience a severe drought and wildfire season in the not too distant future.

Guam Wildfires, 1983-2001 in correlation with Sea level changes

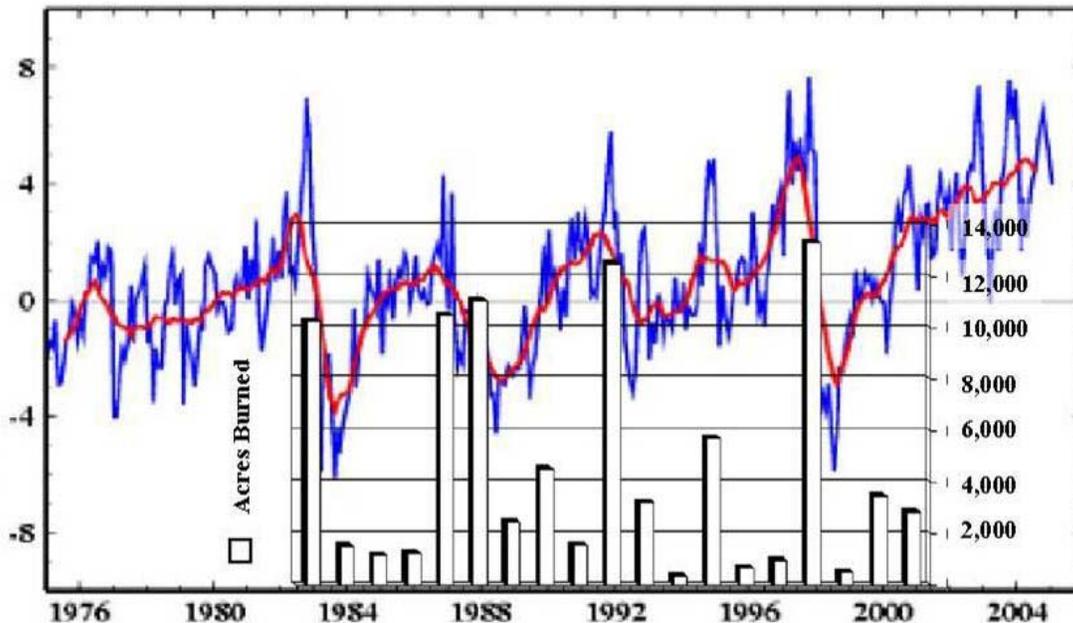


Figure 1. shows the number of acres burnt by wildfires in Guam (shown as bars), compared with major fluctuations in sea level associated with El Nino (ENSO) events. There is a strong correlation between ENSO events and severe wildfire seasons.

Most wildfires are started by people. There are two main types of burning on Yap: burning for traditional agricultural purposes, and “recreational burning” or arson. Fire has long been a tool of traditional agriculture and gardeners, mainly women, generally confine their burning activities within the garden area where they burn girdle trees to open the canopy and clear for a garden. After being abandoned, these scattered gardens are revegetated by more flammable secondary growth. Nowadays abandoned gardens are invaded by invasive species that prevent forest from growing back, and are more vulnerable to wildfires.

Recreational burning (arson) by Yap’s youth is believed to be the main cause of wildfires. To combat arson, a Yap State Law requires that anyone starting a fire must first obtain a fire permit from the Fire Section of the Division of Public Safety. This law enables the Attorney General’s office to prosecute arsonists.

1.3. The Division of Public Safety Fire and Rescue Section

Responsibility for addressing wildfires in Yap State lies within the Fire and Rescue section (F&R) created in 1990 within the Division of Public Safety (DPS). The section provides both fire and rescue services for the state of Yap. Other duties include serving as standby aircraft rescue firefighters each time a commercial plane lands on Yap, monitoring fueling operations at the Mobile facility and airport, putting out fires including fires at the public dump, and secondary services of vehicle inspection, registration, administering driving tests, issuing driver's licenses, issuing fire permits during the dry season, and making and installing traffic signs.



Figure 2. Yap State Fire and Rescue Unit Facility and Staff

1.3.1. Fire & Rescue Section Staff

The F&R staff currently consists of a Fire Chief who also works in the DPS Administrative office and 6 full-time officers operating out of the fire station. The organization of the Division and Section are shown below.

Figure 3. Organization of Division of Public Safety

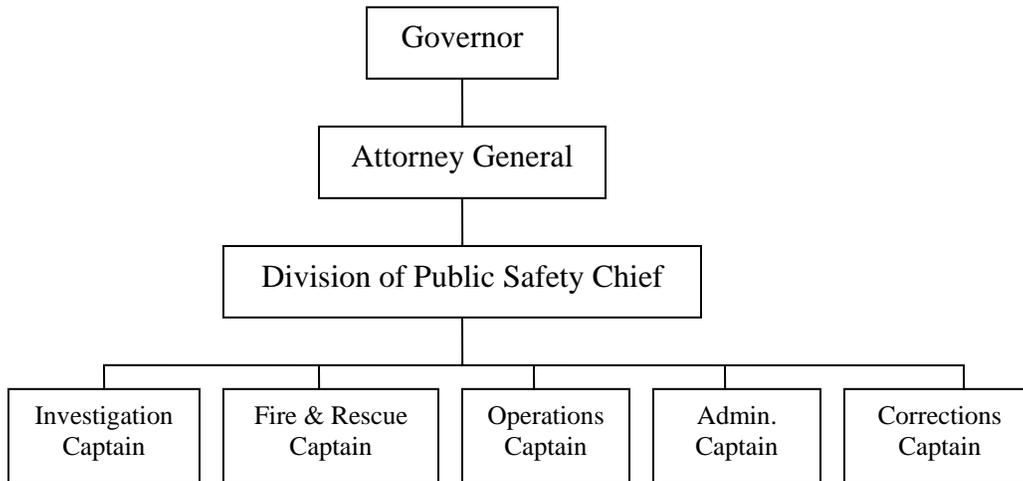
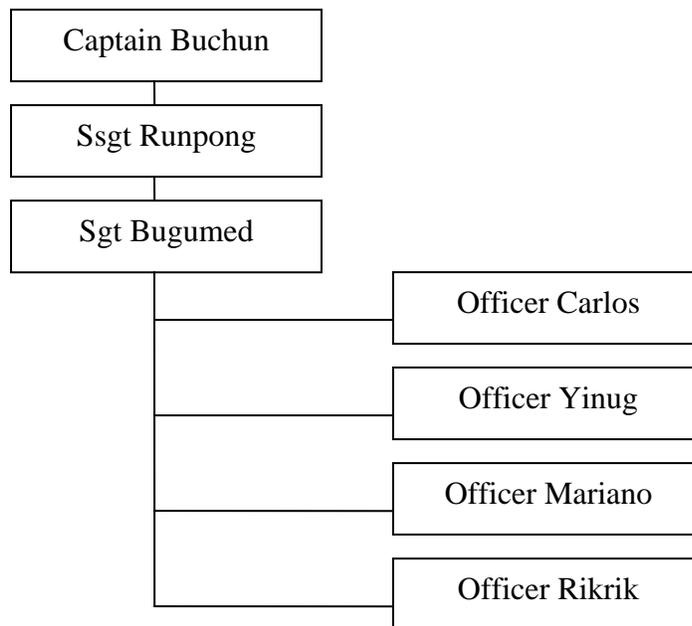


Figure 4. Organization of Division of Public Safety Fire and Rescue



1.3.2. Physical assets of the Fire Section

The Yap F&R Section of the DPS has a fire station Figure 2 above, that can accommodate 2 fire engines. Yap State has recently received fire engines provided solely for use at the Yap International airport in keeping with U.S. Federal regulations. The only

engine available for use with wildfires is an old fire truck that is often in need of repair and currently capable of generating only 27 psi of water pressure. This engine needs to be on call at each commercial aircraft landing. A small fire engine received as surplus from Region 5 long ago is no longer in service. The only other equipments available for suppressing wildfires are hand tools provided by the Region 5 Cooperative Fire Program. These consist of flappers, backpack sprayers, Pulaski's, shovels, etc. A new 1,500 gallon fire engine and at least one smaller 500 gallon brush engine and pumps, water canon sprayers and hand tools would be needed for suppressing larger wildfires. **1 The Fire and Rescue Section will develop a request for a brush engine under the FEPP, and funding to ship the engine to Yap and to support other aspects of the program beginning in FY 2009.*

2. Yap State Strategic Wildfire Plan

2.1 Vision

By the year 2012, the Yap state fire and rescue section will be adequately staffed with trained and certified personnel equipped with proper fire fighting equipment to deal with fire prevention, education, suppression, rescue, and other wildfire control efforts. The F&R staff along with others in DPS and other relevant agencies in Yap will be trained in the Incident Command System that will be required as the structural organization for U.S. Federal assistance for disasters. In addition to dealing with emergencies as they arise, the fire section will follow an annual cycle of fire prevention events and will deliver the highest possible level of service with the resources available.

2.2 Mission

The Fire and Rescue section of DPS exists to provide fire protection, safety, prevention, suppression and rescue services to the people of Yap State. The F&R section strives to minimize the impacts of wildfires while maintaining the safety of its staff. Pre-suppression and Public Awareness efforts will decrease the number of wildfire ignitions and the size of areas burnt by wildfires. The F&R sections work protects native and production forests, traditional areas, and other high value areas in order to maintain a high quality environment for the people of Yap to enjoy at the present and in the future.

2.3. Strategy

The relatively small size of Yap islands and the small size of Yap's fire section provide an opportunity to take a holistic approach to wildfire management. The fire section of Yap's Division of Public Safety is small. The combination with irregular periods of high fire risk make cooperation and integration of efforts within the Division of Public Safety and with other State agencies, such as Forestry, a necessity. In addition to joint efforts among government agencies, this plan calls for the involvement of communities in the reduction of wildfire threats to their natural resources.

Recent documents such as the FSM National Biodiversity Strategy and Action Plan (NBSAP), the Yap BSAP, Blueprint for Conservation in the FSM and the Micronesian Challenge call for new efforts in environmental protection for which there are not

established agencies and staff. The abatement and management of wildfire threats is important to achieving many of the objectives of these documents. This plan outlines ongoing efforts and the cooperative arrangements and support that would be needed to reverse wildfire related trends that deteriorate the health of Yap’s forests and other resources.

Major goals of this five-year plan are described below. Activities and projects are annotated with numbered asterix within the narrative. These activities are then listed in Table 3. with a draft timeline and the person or group assigned to the task. This plan is designed to be a working plan, so time tables and the table of financial considerations also contain extra rows so that they can be annotated as needed. This plan is to be kept in a 3 ring binder so that it can be annotated and updated as needed as described in section 2.4.5.2. The DPS Fire Captain, Chief of DPS and Attorney General will determine which activities can be completed by the current staff and which activities will require additional support. Some sources of assistance are given in Appendix I. At the end of this planning period, or sooner if needed, this fire plan will be evaluated and updated as appropriate.

2.4. GOALS

Yap’s wildfire plan includes the following main goals:

1. Suppression readiness, and ability to fight wildfires
2. Fire prevention via Public awareness
3. Community wildfire planning and readiness
4. Vegetation management and hazardous fuels reduction, Rehabilitation & Restoration
5. Monitoring, program planning, assessment and accountability

2.4.1. Suppression readiness: ability to fight wildfires,

2.4.1.1. Fire Staff and training needs

Within the first two years of this plan, existing vacancies in F&R will be filled. While additional staff is desirable, Yap State funding is limited, so other cost-effective ways to develop fire suppression capability will be sought. These include options for cross-training other Public Safety personnel in fire suppression, and of involving communities in fire suppression as discussed in the next section. The self-assessed training needs of F&R staff are described below.

Table 1. Training needs of F&R staff

Position	Current Staff	Assignment	Training needed (*2)
Captain	Morris Buchun	Acting Head of Division of Public Safety	Supervisory and management courses
SSgt	John Runpong	Head of F&R	
Sgt	Bernard J. Bugmed		
Officer s	Mariano Wur		Training in order to be certified as a firefighter one instructor, ICS

Officer II	Carlos S. Esamai Daniel Yinug		Basic fire suppression training, ICS
Trainee	To be filled		Basic training, ICS

2.4.1.2. Increasing Fire suppression potential through cross- training Public Safety staff and developing Community capacity (*2)

The Division of Public Safety has a staff of about 49. A portion of this staff could be cross-trained for firefighting during acute fire years. This might include 24 Patrol Officers and 6 Investigators. Additionally, low security prisoners might be involved in fire suppression efforts. The general number of such prisoners is about 8 – 16.

Another potential source of fire suppression personnel are Municipals Officers (MOs) located throughout Yap’s communities. Municipal Officers are residents of Yap’s communities who serve as the eyes and ears, and when necessary, the arms, of the Department of Public Safety and Attorney General’s Office. M.O.s are called into service during big events such as the Yap Day celebration or emergencies, or when assistance is needed within communities. When they assist with big events or help to solve a crime they are compensated, or if government employees, they are granted administrative leave. There are 3-5 M.O.s per municipality, resulting in a potential force of about 60 people. In addition to M.O.s, there are Municipal Councils of varying levels of organization and activity. These Councils and the cadre of Municipal Officers might develop a system of volunteer fire fighters if conditions warrant, and training, especially in safety, is available.

2.4.1.3. Contingency Plans

Yap’s limited capacity for suppressing wildfires especially during years of severe drought makes it prudent to develop a contingency plan for obtaining assistance during such emergencies. Fortunately Yap’s “fire season” (about January to May or June) is counterpoint to the USFS Region 5 fire season (June to November). As a result, if support is available, it may be feasible to obtain technical assistance from Region 5 firefighters. Such technical assistance would be valuable both for practical suppression activities and also for training purposes. (*3) *Contingency arrangements for such emergency assistance will be developed within the first two years of this plan.* This project might be undertaken on a regional basis as ENSO related droughts affect all of Micronesia.

Other contingency plans include the finalization and adoption of an oil spill contingency plan, a typhoon contingency plan and (*4), *a contingency plan for dealing with persistent fires at the dump, and the development of an aviation gas spill contingency plan.* The latter aviation gas spill plan is especially needed to protect the Galil mangrove that lies downstream of the Yap International airport. This largest mangrove in Yap has been named an area of special biodiversity significance (ABS) in the Blueprint for Conservation in the FSM (TNC 2000), and is vulnerable to being severely damaged by an aviation gas spill.

2.4.1.4. State Emergency Management and Incident Command System (ICS)

In addition to training in fire suppression, Yap State has requested training in the Incident Command System (ICS) for a range of emergencies. The ICS system was originated by U.S. Forest Service Fire personnel and the Region 5 Cooperative Fire Program has provided ICS training. The first training was conducted just prior to Typhoon Sudal and enabled Yap participants to immediately put what they had learned into practice. By the time FEMA arrived on island, the ICS Command Post was up and running.

Yap State is in compliance with the National Emergency Management System (NEMS) and uses the ICS system for responding to both emergencies such as Typhoon Sudal, and major events such as the “War on Dengue” clean up of mosquito breeding sites. A number of plans exist such as the Health Services Pandemic plan, a Bioterrorism plan, an airport disaster plan, and an oil spill plan. Major stakeholders and partners include the Yap State Disaster Control Office, in the Department of Planning and Budget; The Division of Public Safety, the Yap Airport Authority, Yap State Environmental Protection Agency and the U.S. Forest Service Cooperative Fire Program and U.S. Homeland Security and TSA. The Yap State Disaster Control Office is currently in the process of updating the State All Hazards Preparedness Plan which will bring all emergency plans together, *(*5) In 2009-2010, the State Preparedness plan will be updated and will incorporate fire preparedness, response and recovery. Additional training will be sought from Cooperative Fire in order to assure that enough people are familiar with the ICS system for it to work smoothly in an emergency.*

2.4.1.5. Equipment

Yap State Fire and Rescue Section has only one old fire truck available for fire suppression. This truck is often in need of repair and can pump at only 67 PSI. *(*6) A replacement truck is much needed to support fire suppression activities. (*7) In addition, one or several smaller trucks with 500 gallon tanks are needed to address frequent grass fires before they become too large to control.*

The F&R Section has a variety of hand tools provided by the Region 5 Cooperative Fire Program. These consist of flappers, backpack sprayers, Pulaski’s, shovels, etc. *(*8) Additional pumps, water canon sprayers and hand tools would be needed for suppressing large fires.*

2.4.1.6. Community Assistance: Training and Fire caches

Given the small size of the F&R staff, there is need to develop the capacity of communities to suppress fires in their areas. Through the work of the Yap GIS program and Region 5 Cooperative Fire program, Yap now has a fire vulnerability map that can display villages located in areas of high risk for wildfires. *(*9) Training in fire prevention and suppression along with a cache of fire fighting hand tools, will be provided to selected communities at the rate of one or more communities each year of this plan.* Communities will be chosen on the basis of their vulnerability to wildfires, difficulty of access, and community readiness and responsibility for caring for and using the cache of fire fighting equipment. Equipment would include swatters, backpack sprayers, boots,

gloves and other protective gear, shovels and first aid kits. A request for training in safety and the use of this equipment for fire suppression would be made to the Region 5 Cooperative Fire program. The training would include both F&R and Public Safety personnel and the development of a local firefighter I instructor. In addition, each year's training sessions would include sessions for low security prisoners and community volunteer firefighters. The local firefighter I instructor would assist with the community training sessions and then be available to assist communities between training sessions.

2.4.2 Fire Prevention via Public Awareness

It is believed that most wildfires are due to arson and there is continued need for Public awareness of wildfire problems, especially on drought years. In past years when support was available, F&R personnel would join Yap State Forestry staff in a program of school visits. The school visit program is carried on and should support become available, (*10) *joint efforts with Yap Forestry may be resumed.* A "Smokey Fruit Bat" mascot has been developed and is becoming popular. Smokey Fruit Bat/ Smokey Bear bandanas were given out at last year's Forestry and Fire projects and proved to be very popular. In addition, Smokey Fruit Bat and his cousin Smokey Bear appear in the Yap Almanac Calendar and various posters and brochures to warn about the danger of wildfires.



Prevent Wildfires!

A children's video story about the impact of wildfires has been developed and is shown on occasions such as Earth Day and Tree Planting Day. (*11) *It is proposed that the video be transferred to DVD format for wider availability, and that the story be told through a comic book style booklet with lessons interspersed, for school children. The booklet, DVD, a poster and lesson plans will be developed as a "learning kit" for use with schools. This project would be completed by the second to third year of the plan.* Additional Public Awareness activities (*12) *would include articles in an environment column of the Yap newspaper.*

2.4.3 Community Wildfire Planning, Readiness and Suppression

Community participation is a key element in reducing fire risks to human well-being and important landscapes like watersheds, areas of special biodiversity significance and to forest health. Yap State Forestry and F&R have been gathering GPS/GIS data that could now be incorporated into a (*14) *Public information Power point presentation on wildfires.* A past Urban and Community Forestry project to develop a trail resulted in an effective firebreak when the trail served to stop a fire from crossing into Yap's first protected forest area. A past Cooperative Fire project resulted in conversion of a fire-prone landscape into a fire resistant landscape. Future cooperative projects between Yap Forestry, Communities, F&R and a prison work force could include (*13) *the*

development of green belts to compartmentalize large areas of flammable vegetation and reduce the amount of area burnt by wildfires.

*By the second year of this plan, (*14 assistance will be requested from USFS Region 5 Cooperative Fire program in locating strategic sites for fire breaks in order to protect important landscapes. (*15) By the third year of this plan, a cooperative effort will be made to work with at least one community to develop a community wildfire plan.*

A past program of citizen fire and arson reporting was quite effective and several schools were given awards for their fire reporting. (*16) *By the second year of this plan, F&R will work with the Chief's council, Municipal Officers and community leaders to reinstitute the program.* The USFS Region 5 "WeTip" program will be consulted for helpful tips on this approach to engaging communities in reporting fires and arson

2.4.4. Vegetation management, hazardous fuel reduction, rehabilitation & restoration

In addition to developing ability to suppress wildfires, there is need to develop less fire prone landscapes and to stabilize & rehabilitate burned lands and restore healthy forest ecosystems. Studies of soil cores show that charcoal (fires) began to appear after people inhabited Yap. The pollen record then shows a change from a mainly forested landscape to increased fire prone savanna vegetation. Historical descriptions also report widespread burning during drought years. The result is a large percentage of deforested lands. These lands will be needed for forest and soil resources in the future especially as coastal areas are impacted by sea level rise and outer island residents relocate to mainland Waab as sea level rise makes their home islands uninhabitable. Efforts are currently underway to develop a forest restoration program. (*17) *It is anticipated that F&R and the prison labor force will be involved in cooperative projects with one or more communities, Yap State Forestry, the Region 5 Cooperative Fire Program and the USFS PSW Institute of Pacific Islands Forestry on a Community watershed protection, rehabilitation and restoration project.*

It is recommended that a cooperative effort be developed between Public Works, Division of Agriculture and Forestry (DAF), DPS and Yap State Solid Waste Program and Communities, for (*18) *a "waste to mulch" program to convert hazardous fuels into mulch that can be used in forest restoration efforts.*

2.4.5. Wildfire Monitoring, Program Planning, Assessment and Accountability

2.4.5.1. Wildfire Monitoring

*A wildfire monitoring program (*19) initiated under the first Yap State Fire Plan will be continued. At its inception, the program included aerial surveys of areas burnt by wildfires. Later a wildfire reporting system was added, followed by an annual program of mapping of areas burnt by wildfires of the previous fire season. The latter program has been carried out under the Yap State/ Queen's University (Yap/QU) cooperative GPS/GIS program. This has resulted in 7 years of data on areas burnt by wildfires. This data is now available for use in testing the model used to develop the map of wildfire*

vulnerability for Yap, and for developing wildfire abatement plans. The maps of areas burnt by wildfires can now be incorporated as a layer in the developing Yap State GIS system, along with the fire vulnerability map produced by Region 5 Cooperative Fire personnel (Neill, Rea & Falanruw 2002), and locations of Yap's villages, to show what communities are at most risk of wildfires.

One problem faced in the Yap/ QU program of GPS mapping of wildfires is the difficulty of interpreting areas burnt due to regrowth of vegetation by the time of the annual GPS exercises in May-June. It would be better, and also more conservative of F&R fuel, time and staff resources, to map wildfires as they are reported. Yap's F&R section however lacks the Trimble GPS units (costing about \$4,000), used in the Yap/QU project, as well as expertise and computer system for using these units. In last year's project however, we were able to trial much lower priced Garmin GPS units provided by Region 5 Coop Fire alongside the Trimble units in the field. An evaluation of the GPS/GIS data showed that for larger areas, the areas mapped using the Garmin units were within 1% of the area mapped using the Trimble units. This error is well within the limits of the size units used for fire reporting. "DNS Garmin", a program for transferring data from the Garmin units into the Yap State GIS system was obtained. As a result, (*20) *the Yap F&R section will transition into using Garmin units to map wildfires as they are reported and investigated, using the next Yap/QU annual exercise to develop proficiency in using the Garmin units and the DNL program.* Thereafter, F&R will be able to map wildfires as they occur and utilize the annual Yap/QU GIS/GPS program for honing skills, quality control, and developing annual reports.

2.4.5.2. Wildfire Program Planning, Assessment and Accountability

As Yap's GIS system is developed, the accumulated data on wildfires will be utilized along with GIS layers on vegetation, fire vulnerability, protected and other areas of special biodiversity significance, watersheds, urban-wildland interfaces, restoration projects and other relevant data; for use in (*21) *wildfire prevention and suppression planning.* The ongoing monitoring program will then provide a means for assessing and improving Yap's wildfire program.

This 2nd Yap State Five-Year Wildfire Plan is a working plan, designed to be used. Copies of this plan will be kept in a 3-ring binders in the offices of the Attorney General, Chief of Public Safety and F&R office and annotated as appropriate. Activities described in this plan are annotated with numbered asterisk (*#). These activities are then listed in Table 3 with estimated action dates, assignments and boxes where they may be assigned, annotated and checked off as completed. Extra rows are included in Tables 2,3 & 4 for writing in additional information. A second section, will be used to store wildfire data and reports.

The information from these binder(s) will be used in the development of each year's F&R reports, budget requests and grant proposals. The initial task of the DPS Fire Captain, Chief of DPS and Attorney General will be to (*22) *determine which activities can be completed by the current staff and which activities will require additional support (Table*

3, column 6). At the end of the planning period, or sooner if needed, this fire plan will be evaluated and updated as appropriate. Copies of this 5-Year Wildfire Plan will be deposited in the offices of: F&R, DPS, and AGs office.

3. Timetable

The annual cycle of activities associated with Yap’s Wildfire program are shown in Table 2 below. Table 3 then shows tasks and activities described in the forgoing sections of this 5-year plan. Extra lines are provided for additions.

3.1. Annual Cycle of Activities

Table 2. Schedule of annual events and activities

	Activity	J	F	M	A	M	J	J	A	S	O	N	D
1	Normal Fire Season	-	-	-	-	-	-						-
	Region 5 Fire season						-	-	-	-	-	-	
2	Issuing of fire permits & elevated fire monitoring	-	-	-	-	-	-						-
2	Aerial surveys					-	-						
3	Annual equipment inventory, performance & planning review										-	-	
4	School visitations with Yap Forestry	-	-	-	-	-					-	-	
5	GPS/ GIS mapping exercise & reporting					-	-						
6	Preparation of equipment & training request						-	-	-				
7	General Training time		-	-	-	-							
8	Preparation & Submission of annual wildfire report											-	-
9	Preparation and submission of fire grant proposals	-	-	-									-

3.2. Timetable of planned activities

Table 3. below lists numbered activities described in this plan. The boxes in columns 3-7 will be completed by the F&R Captain and Chief of DPS and presented to the Office of the Attorney General as an assessment and planning tool, and for use in seeking support for this plan.

Table 3. Time table of planned tasks and activities

Description of activity	Date	Staff assignments	Comments	Pending additional support	Ck
Fill existing vacancies in F&R	2009-10				
Basic safety and fire suppression training for MOs, prisoners and volunteer fire fighters	09-13				
Develop contingency plan for obtaining assistance during severe drought fire seasons	2009-10				
Develop av-gas spill contingency plan	2009-10				
ICS training updates	2009-13				
Obtain replacement fire truck, with 1,500 gal. tank	2009-10				
Obtain 1-2 fire trucks with 500 gal. tanks	2009-10				
Obtain additional fire fighting tools	2009-13				
Training & cache of fire fighting tools for communities	09-13		At least 1 community per year		
School visitations & Public Awareness	09-13				
Prepare and present wildfire education "kit" to schools	2010-13				
Publish series of newspaper articles on wildfires	2009-13				
Develop Ppt presentation on wildfire problem and present to communities	2009-13				
Cooperative efforts to establish green belt fire breaks	2011-13				
Obtain assistance from	2009				

USFS Region 5 assistance in locating strategic sites for fire breaks to protect important landscapes	09 - 13				
Develop community wildfire plans	2011 -13		At least 1 community per year		
Re-establish program for community reporting of wildfires and arson	2010 -13		See example of U.S. "WeTip" program		
Coop program on community watershed rehabilitation	2011 -13				
Reduce hazardous fuels through "waste to mulch" program	2012 -13				
Continue wildfire reporting & monitoring with transition to use of Garmin units to map wildfires as they are first investigated	2009 -13				
Develop wildfire program assessment & accountability Assess Wildfire program & update 5-year plan	2009 -12				
Determine support needs & develop proposals	2010				

4. Financing

Table 4 is provided for gathering information on costs associated with implementation of this plan. This information will be amended as needed. The DPS Administrative Officer will utilize this and other relevant data in the preparation of annual budget requests and grant proposals.

Table 4. Some costs associated with plan implementation

Description	Funding Needed	Potential Source, Comments, etc.	Check
New Fire engine with 1,500 gallon tank & capacity to pump at 100% psi			
Current cost of F&R overtime			
Cost of additional F&R Staff			
Difference between current overtime & cost of additional staff			
Aerial survey, 1 hr charter	\$850		
Costs of venue & refreshments for workshops			
Additional fire fighting tools for S&P			
Tools and safety gear for community fire cache(s)			
POL for school visitations			
Materials for school visitations			
Printing of brochures			
Printing of booklets			
Printing of posters			
Cost of 8 wildfire columns in local newspaper			
Ppt projector replacement bulbs			
Transfer of video to DVD format and production of 25 story DVDs			
Email account			
Computer software			
Office supplies, CDs for back-ups, flip charts, etc.			

5. References

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Neill, Christie, Janice Rea and Margie Falanruw. 2002. Yap State Fire Management Assessment. Report prepared by above authors for Yap State through the Region 5 Cooperative Fire Program. 15 page report plus 2 colored large format fire vulnerability maps.

TNC. 2000. A Blueprint for Conserving the Biodiversity of the FSM. 103pp.

Yap State. 2004. Chothowliy yu Waab, Yap State Biodiversity Strategy and Action Plan. 34pp.

TNC. 2005-6. The Micronesia Challenge

6. Appendices

Appendix I. Related U.S. legislation, programs, websites, etc.

- The U.S. National Fire Plan 2000. The National Fire Plan provides funding to protect the lives of firefighters and the public, protect communities and natural resources, and reverse the trend of deteriorating health of our forests. It develops effective fire management policies, increased initial attack capacity to keep fires small & reduce threats to communities at risk, grow public awareness and take an integrated approach. The 5 key points of the plan are: 1) Firefighting, 2) Rehabilitation & Restoration, 3) Hazardous fuel reduction, 4) Community Assistance, 5) Accountability.

- The Healthy Forests Restoration Act 2003. Main purposes are: to reduce wildfire risks to communities, municipal water supplies, and other at-risk federal land, to authorize grant programs to improve the commercial value of forest biomass, to enhance efforts to protect watersheds and address threats to forest, to promote systematic gathering of information on damaging agents on forests, to detect insect and disease infestations and to protect, restore and enhance forest ecosystem components a) to promote recovery of threatened and endangered species, b) to improve biodiversity, c) to enhance productivity and carbon sequestration.

Areas where this act might relate to the work of Yap F&R and DAF/Forestry include: wildfire mitigation efforts, trails, firebreaks & greenbelts to compartmentalize highly flammable areas, fire wise workshops, Fuels reduction: mulching & biomass utilization such as biofuels & mulch for savanna restoration. Other areas relate more directly to Yap State DAF/Forestry (see DAF Five-Year Plan).

- WeTip program for Arson

- State Fire Assistance (SFA) program – incl SFA grants for:
 - Community awareness
 - Community protection planning
 - Training & equipment
 - Mitigation projects
 - Homeowner/ homestead projects

- Fire wise Communities program: “encourages communities & homeowners to take responsibility for hazard mitigation through land use planning

- For information on suppression training see: www.fireleadership.gov

- Rural (DOI) and Volunteer (USFS) Fire Assistance Programs: for “technical assistance, training, supplies, equipment, public education, etc. to “ enhance firefighter safety & strengthen wildland fire production capabilities “ - - matched by Rural Fire Department (RFD) on a 90/10 split. (RFD’s contribute minimum of 10% in \$ or in-kind services). Grants are given to assist communities in their preparedness & hazardous fuel reduction activities & for training & monitoring for activities on non-federal lands that benefit federal lands

- Volunteer Fire Assistance (USFS VFA) program: helps organize, train & equip firefighters with emphasis on needs of departments with wildland and dual wildland/structure protection responsibilities common in the interface. Grants available for training, personal protection equipment, new & used firefighting tools & apparatus , upgrade equipment loaned through Federal Excess Personal Property Program. Grant funds matched dollar-for-dollar.

- Economic Action Programs (EAP) – “helps rural communities & organizations seek market-based, natural resource opportunities for businesses & services forming the basis for long-term sustainable forests & communities”
 - Financial & technical assistance including fuel reduction, utilization projects, bio-energy feasibility studies, wood product utilization & market feasibility studies; support or modify or develop long-range fuels hazard reduction; and community economic development planning that expands & diversifies the use of forest products.”
 - Forest Products Laboratory Technical Marketing Unit. In 2002 encouraged use of small diameter material & low-valued trees. (ex: develop market for juniper wood/plastic composite for weather resistant signs
 - Include wildfire issues as an active part of future local action

- Research: Joint Fire Science Program: Forest Service Research & Development & US Geological Service. They leverage & complement each other to accomplish research projects. There is also a Fire Research Coordination Council to guide fire science & technology transfer efforts. Examples include: fire perimeter data, GPS, IR imagery, aircraft & satellites. See GeoMac website. Examples of research include: research to support rehabilitation, minimize erosion & flooding, optimize recovery of native vegetation in burnt areas, assist land managers in applying burned area emergency rehabilitation and monitoring programs to determine their effectiveness, post fire weed & pathogen invasive suppression. The Institute of Pacific Islands Forestry also does research on fire ecology.