

UNITED STATES FOREST SERVICE, OREGON DEPARTMENT OF FORESTRY &
WASHINGTON DEPARTMENT OF NATURAL RESOURCES

2008 PNW FOREST HEALTH PROTECTION



AVIATION PLAN

PLAN*FOLLOW POLICY*INFORM*COORDINATE*TAKE ACTION

TABLE OF CONTENTS

CHAPTER I - INTRODUCTION

- A. Objectives
- B. Scope
- C. Review and Revision
- D. Authority
- E. General Information
 - 1. Location
 - 2. Period of Operation

CHAPTER II - ORGANIZATION AND RESPONSIBILITIES

- A. Agency Responsibilities
 - 1. State
 - 2. USDA Forest Service
- B. Personnel
 - 1. General
 - a. Regional Aviation Officer
 - b. Regional Aviation Safety Manager
 - c. Forest Health Protection Aviation Officer
 - d. Contracting Officer Representative
 - 2. Survey personnel: Duties and Responsibilities
 - a. Aerial Survey Program Manager
 - b. Aerial Observer/Sketchmapper
 - c. Pilot
- C. Aircraft
- D. Directory

CHAPTER III - FORMS, REPORTS AND ADMINISTRATIVE PROCEDURES

- A. Management Forms and Reports
 - 1. Time keeping procedures
 - 2. Payment procedures
 - 3. Contract/Rental Agreements
- B. Helicopter Contract Administration
 - 1. Contract Administration Structure
 - 2. Time keeping Responsibilities
 - 3. Flight Payment Documents
 - 4. Availability and Stand-by

CHAPTER IV - BASE FACILITIES, COMMUNICATIONS, OPERATIONS, AND DISPATCH

- A. Facilities
- B. Communications
 - 1. Air to Ground Communications
 - 2. Communications with Dispatch Center
 - 3. Airport Communications
 - 4. Air-To-Air Air Tactical Communications
- C. Operations
 - 1. Environmental Considerations
 - 2. Fueling Operations
- D. Dispatch Procedures
 - 1. Briefings and Orientation
 - 2. Procedures
 - 3. Communications
 - 4. Survey Conditions
 - 5. Flight Following

6. Airspace Coordination

CHAPTER V - SAFETY

- A. Evaluations
- B. Protective Clothing/Equipment
- C. Load Calculation
- D. Aerial Hazard Maps
- E. Aircraft Emergency Response Plan
- F. Incident/Hazard/Maintenance Deficiency Reporting
- G. Training

CHAPTER VI – AVIATION SECURITY

EXHIBITS

- F-1 Tussock Moth Spray Project Safety Aviation Plan
- F-2 Manual Exemption letter

CHAPTER I - INTRODUCTION

A. Objectives

The objective of the Forest Health Protection (FHP) Aviation Operations Plan in the Pacific Northwest Region is to provide safe, efficient, and economic use of aircraft in conjunction with land and resource management activities. Safety is paramount in any aviation activity undertaken.

All planning and operations will incorporate the applicable elements of the PNW Aviation Accident Prevention Plan.

This plan is designed to accompany and supplement the PNW Aviation Management Plan.

B. Scope

The major aircraft uses of FHP will involve insect detection surveys, insect suppression and eradication, and administrative travel. Only aircraft and pilots inspected and/or approved by Aviation Management Directorate (AMD), the Regional Aviation Officer or his authorized staff will be used to transport government personnel.

Regional Aerial Sketchmap Survey

Aerial sketch map surveys are flown over approximately 47 million acres of forested land in Oregon and Washington each year. Types of aircraft used will be predominantly fixed-wing, although helicopters may be used in some circumstances. Aircraft used will be acquired through cooperative agreement, contracting or call when needed. Aircraft carrying government employees will be flight followed as outlined in Chapter 4 of this document.

Special Projects (e.g. Insect Suppression or Eradication Project Work)

Aircraft may be used for insect suppression activities. Types of aircraft used will be fixed wing and helicopters. All suppression aircraft will be ordered through the contracting process. Flight following will be required for all aircraft. All aviation projects will have a specific aviation operations plan and will be reviewed by the appropriate Aviation Officer of the benefiting area for compliance with health and safety codes, Federal Aviation Administration (FAA) regulations and Forest Service or AMD policy. Questions regarding which agency policies apply will be referred to the Regional Aviation Officer (RAO). For an example, see Exhibit F-1 "Tussock Moth Spray Project" at the end of this document.

Administrative Flights

Survey aircraft may be used to transport personnel to meetings, administrative activities, or training sessions, when it is the most cost effective mode of transportation and does not interfere with the primary mission. These flights will be requested through the Forest Health Protection Aviation Officer (FHPAO) and documented in accordance with regional policy (see the PNW Administrative Aircraft Use Guide). Other administrative flights not utilizing survey aircraft will request call when needed aircraft through the appropriate dispatcher or travel coordinator.

C. Review and Revision

Aviation plans are reviewed and updated annually as required. The Regional Aviation Group (RAG) and Regional Aviation Safety Manager (RASM) will be used to provide technical and safety reviews and to assist in hazard analysis.

D. Authority

Aviation activities shall be conducted in compliance with Forest Service 5700 Manual requirements. Forest Service Manual (FSM) chapter's 3400 and 3410 provide direction for the detection survey responsibilities. 3404.21 - Regional or Area Staff Director Having Forest Health Management Responsibilities within the Region or Area, the Director assigned forest health management responsibilities shall:

1. Provide advice and guidance to National Forests, other Federal agencies, and States on forest health management and pesticide use.
2. Conduct surveillance and detection surveys to ensure prompt discovery of potentially threatening pest populations and/or damage to forest vegetation.
3. Conduct biological evaluations to determine the need to initiate, continue, intensify, revise, or discontinue pest management activities and, upon request, make pest management recommendations.
4. Work with Federal and State personnel to evaluate and determine the need to initiate, continue, intensify, revise, or discontinue pest management activities and, upon request, make pest management recommendations.
5. Conduct pest management training for resource managers, and provide specialized training for Forest and District unit pest management specialists to facilitate the training and certification of pesticide applicators.
6. Identify forest pest problems as candidates for research programs.
7. Transfer technology through field studies, pilot projects, demonstration areas, and technical assistance.

3412 – DETECTION SURVEYS

Regional and Area Forest Health Management Staffs shall conduct detection surveys on Federal Land, and if necessary, on non-Federal lands as often as necessary to provide insect and disease status information. Upon request and under mutual agreement, Forest Service personnel may conduct detection surveys on State and private lands, or conversely State personnel may conduct surveys on National Forest System Land.

E. General Information

1. Location. Aerial sketchmap surveys are flown over all forested land in Oregon and Washington each year. The aircraft will move from one area to the next as dictated by weather and insect/disease/host biology.

2. Period of Operation. Generally, aerial sketchmap surveys are conducted between April 1 and October 31 of each year. Unusual conditions may necessitate survey missions outside of these times.

CHAPTER II - ORGANIZATION AND RESPONSIBILITIES

A. Agency Responsibilities

1. Oregon Department of Forestry (State)

Each year agreements are arranged between the USDA Forest Service and the Oregon Department of Forestry and the USDA Forest Service and the Washington Department of Natural Resources detailing the responsibilities and contributions of each agency (current copies are available upon request). Suppression, eradication and other special projects will be dealt with on a case by case basis. State observers using Forest Service funded aircraft without a federal observer on board will meet the following requirements: 1) Interagency Aviation Training (IAT) standards for Fixed-wing Manager, Special Use; 2) One observer is a qualified COR and is designated as an alternate COR; 3) Has fully informed Forest Service COR, or Contracting Officer (CO) of all mission plans. The recurrence training for COR is 40 hours every two years.

2. USDA Forest Service

The Director of Aviation and Fire Management is responsible for all Forest Service aviation activities in Region 6. The Director has delegated the authority to the Regional Aviation Officer to supervise, monitor, inspect, and train users of aircraft.

B. Personnel

1. General

a. Regional Aviation Officer (RAO): Designated by the Director of Aviation and Fire Management and is responsible for all aviation activities in Region 6. Aviation management within the Region, whether fire, LE or administrative, will be coordinated through the Regional Aviation Officer, Jon Rollens, or his representative. The RAO will enforce aircraft operations policy and standards in all situations and will initiate action for aircraft accident/incident reports and investigations. The RAO will monitor all aerial activities for compliance with Forest Service Manual (FSM), Health & Safety Code, and FAA regulations. The Regional Aviation Officer has the delegation and authority necessary to accomplish this job.

b. Regional Aviation Safety Manager (RASM): Functions as the Regional Staff Specialist for aviation accident prevention. The qualifications and duties of the RASM can be found in FSM 5720.47d.

c. Forest Health Protection Aviation Officer (FHPAO): As designated by the Regional Aviation Officer, is responsible for general supervision and guidance of the aviation program in Forest Health Protection. Aviation management will be coordinated through Keith Sprengel, or his designated representative.

The FHPAO will enforce aircraft operations policy and standards. The FHPAO will monitor all aerial activities for compliance with FSM, Health & Safety Code, and FAA regulations. The FHPAO has the delegation and authority necessary to accomplish this job.

(1) Qualifications: The FHPAO should have a thorough knowledge of FSM 5700 and publications concerning aircraft safety and use. Background should include a high level of experience in management and supervision of aircraft operations.

(2) Duties:

Oversees all FHPAO aviation operations.

Prepares and monitors the FHP Aviation Plan.

Analyzes FHP aircraft needs.

Coordinates administrative aircraft use.

Establishes priorities for FHP aircraft use.

Seeks advice and keeps the Regional Aviation Group informed on local aviation operations and projects.

Keeps the Group Leader of FHP and Staff fully informed.

Provides information and technical direction for all planned and continuing aviation operations, including advice on utilization and suitability of aircraft needed for aviation projects.

Reviews for RAO approval FHP Aviation Project Plans.

Stays up to date on aviation facilities and operations on or adjacent to areas of operation.

(3) Training:

(a) Coordinates aviation operations training needed by personnel in FHP. Sees that correct training is acquired.

(b) Stays up to date on training available to maintain proficiency and that of all others involved in the program.

(c) Establishes and maintains a training and reference library.

d. Contracting Officers Representative: The COR is responsible for the everyday contract administration pertaining to the aircraft contracts assigned. The COR functions within the authorities and limitations prescribed by the Contracting Officer's Letter of Designation.

(1) Qualifications: The COR will have a working knowledge of the capabilities and limitations of the aircraft for which they are COR, and should have formal training in aircraft operations, aerial survey, and contract administration.

(2) Duties: To perform adequately, the COR must be thoroughly familiar with all contract requirements, administrative, as well as technical. This knowledge will help the COR make decisions promptly, anticipate potential problems and seek solutions before trouble develops. Any technical areas in question should be coordinated with the Regional Aviation Group.

Advise the contracting officer when conditions are appropriate to issue a notice to proceed.

Designate inspectors and provide copies of the designations to the contractor and the contracting officer.

Make decisions or recommend actions necessary for the daily administration of the contract.

Inform the contracting officer of contract work progress and recommend administrative actions to the contracting officer.

Initiate payments and keep current records of progress of partial payments and maintain flight invoices (FS-6500-122 or OAS-23). Provide copies to the contractor and the contracting officer.

Issue orders to suspend or resume work and notify the contracting officer.

Provide instructions relating to compliance with contract specifications, plans, and provisions to the contractors or their designated representatives.

Maintain a daily diary (FS-6300-20) on the entire project. Copies will be provided to the contracting officer weekly or sooner.

Maintain a file of all documents incidental to administration of the contract.

Keeps the Aerial Survey Program Manager advised of weekly activities, flight, and contract progress schedules.

2. Survey Personnel: Duties and Responsibilities

a. Aerial Survey Program Manager: An Aerial Survey Program Manager will be designated to oversee all aerial survey activities associated with the mission of Forest Health Protection. The role of this position will be to provide overall supervision and direction to the survey program.

(1) Qualifications: Program Manager will be familiar with the insects, diseases and forest vegetation of the Pacific Northwest. The Program Manager will also have a working knowledge of the Aerial Survey Program and the capabilities/limitations of the aircraft used in the Annual Aerial Detection Survey.

(2) Duties: Ensures that all aerial activities within assigned area of responsibility are operated in accordance with Forest Service Manual and Forest Service Handbook (FSH) direction, Health & Safety Code, Federal Aviation Regulations and the contents of this Plan.

Immediately reports aircraft accident/incidents to the Regional Aviation Safety Officer.

If so designated, performs the duties of COR.

b. Aerial Observer/Sketchmapper: Sketch maps insect defoliation, tree mortality, disease affects, weather damage, etc. by degree of intensity, extent of mortality and/or tree species. Will estimate area size, numbers of trees, host types and identifies most probable cause.

Develop insect occurrence maps based on aerial and ground information obtained from sketch maps, aerial photographs, and ground survey samples.

Functions as an inspector on the Aerial Survey contract adhering to all the authorities, responsibilities, and limitations so described in the Letter of Designation.

c. Pilot

Oregon: Letters approving Oregon Department of Forestry pilots and aircraft to transport Forest Service employees for the purpose of reconnaissance and point-to-point flights are updated each year. These authorization letters come from the Regional Aviation Officer. No card is issued to ODF pilots or aircraft.

Washington: Aircraft and pilots for survey work in Washington are procured by either contract or from approved "call when needed" FAR 135 operators. In Washington State, all aircraft and pilots for reconnaissance mountain flying, and point-to-point flights are authorized under the normal carding system in accordance with FAR 121, FAR 135 or Forest Service Manual direction. Technical specialists from the Redmond Air Group or other authorized personnel will inspect all aircraft and give pilots check rides to verify the pilots' ability to perform during typical reconnaissance survey flights.

C. Aircraft

1. Experience has shown that survey aircraft require the following features: 1) excellent forward and lateral visibility, 2) good performance in mountainous, high altitude flying, 3) ample cabin space for crew of three or four, survey equipment and maps, and 4) a cruising range of not less than four hours. Aircraft performance for typical aerial survey missions include: 1) ability to safely fly at slow speeds (80 to 100 knots) at altitudes of 500 feet to 10,000 feet, 2) ability to climb and descend rapidly while flying at survey speeds in mountainous terrain, 3) a cruising speed of over 120 knots to fly point to point efficiently within the Region, and 4) be fuel efficient. Acceptable aircraft recently used in the Region include; single engine Cessna 182,182RG, 185, 206 and 210, and twin engine Partenavia P68C and Partenavia P68 Observer. Past survey experience has shown the Partenavia P68 Observer to be the ideal aerial survey aircraft because it offers survey team's performance, safety, fast cruising speed, fuel efficiency, visibility and cabin space. Aircraft selected for FHP mission work must meet the requirements under FSH 5709.16 part 36 unless a waiver is granted by the Regional Aviation Officer (see Exhibit F-2 for waiver to FSH 5709.16 part 36 manual). The State of Oregon Attorney General has determined that the use of the Oregon Department of Forestry's Partenavia as part of our data acquisition and reporting as outlined in the Cooperative Agreement between the USDA Forest Service FHP group and the

Oregon Department of Forestry is in compliance with PL 103-411. Copies of the Attorney General’s determination are available upon request.

2. Rotary wing aircraft, primarily Bell 206B III Jet Ranger, are used occasionally for very low level surveys, but do not suit regular surveys because of costs and cruising range. When required, helicopter operations will comply with the Interagency Helicopter Operations Guide (IHOG), and be managed by a qualified helicopter manager. All aircraft will meet criteria specified as a minimum as per FSM 5703 Policy. No aircraft will be used, unless expressly authorized, without an FS 5700-21 Airplane Data Record, or FS 5700-21A Helicopter Data Record signed by a designated aircraft inspector or letter of authorization by the Regional Aviation Officer. Inspections on aircraft will be coordinated by the UAO, Contracting Officer and Aircraft inspector annually. Any other inspections will be on a case by case basis involving the same personnel. The aircraft used under the participating agreement with the Oregon Department of Forestry will be approved by the Regional Aviation Officer. The letter of authorization will be carried in the aircraft.

3. Additional equipment and avionics will be specified in the Forest Service contract for aircraft services

D. *Directory

Name	Title	Work	Cell
Doug Daoust	Forest Health Protection group leader (USFS) (Agency Administrator)	503-808-2913	
Marganne Allen	Forest Health and Monitoring Manager Oregon Department of Forestry (ODF) (Agency Administrator)	503-945-7240	
Karen Ripley	Forest Health Protection Program Manager Washington Dept of Natural Resources (WDNR) (Agency Administrator)	360-902-1691	
Keith Sprengel	FHPAO/Aerial Survey Program Manager, Aerial Sketchmapper, alternate COR (USFS) (Fixed-wing manager –special use, UAM, COR)	503-668-1476	503-807-4939
Mike McWilliams	Aerial Sketchmapper, Forest Health Monitoring Specialist (ODF) (Fixed-wing manager-special use)	503-945-7395	503-510-6779
Jeff Moore	Aerial Sketchmapper (WDNR), alternate COR (Fixed-wing manager-special use, COR)	360-902-1320	
Ben Smith	Aerial Sketchmapper (USFS), COR (Fixed-wing manager -special use, COR)	503-668-1761	503-803-9188
Robert Schroeter	Aerial Sketchmapper (USFS) (Fixed-wing manager -special use, COR)	541-858-6123	541-840-2311
Rob Flowers	Entomologist, Aerial Sketchmapper (ODF) (Fixed-wing manager -special use)	503-945-7396	503-931-9521
Amy Ramsey	Forest Pathology Technician (WDNR), Sketchmapper (Fixed-wing manager -special use)	360-902-1309	206-351-2931
Jim Baranek	Chief Pilot ODF	503-378-4054	503-510-1328

*Interagency Aviation Training equivalent positions are listed parenthetically following individual’s working title.

CHAPTER III - FORMS, REPORTS AND ADMINISTRATIVE PROCEDURES

A. Management Forms and Reports

1. Timekeeping Procedures. The aerial sketchmapper, inspector, or COR will be responsible for logging start and stop times for each flight where FS 6500-122's or OAS-23's (Flight Invoice) are used on detection flights. The flight manager for each flight will be responsible for ensuring that the Flight Invoice is complete and accurate before signing (flight manager will always be the Forest Service representative, or Forest Service designated representative). An invoice for the use of the Oregon Department of Forestry aircraft will be submitted at the end of the survey season. Copies of the Washington contract aircraft flight invoice will be submitted to the Central Oregon Interagency Dispatch Center for reporting every 30 days.

2. Payment Procedures. Payments will be made by Budget and Finance upon receipt of the invoices or as stated in the participating agreement. Contracts will follow the payment procedure specified in the Prompt Payment Act or as negotiated by the contractor.

3. Contract/Rental Agreements. All aircraft contracts will be cleared through Regional Contracting and all aircraft rental rates will be negotiated by the Contracting Officer. Aircraft specifications, rates, inspections, etc., will be handled by the Contracting Officer, Regional Aviation Officer, and Aircraft Inspector.

B. Helicopter Contract Administration

Helicopters may be used on a limited basis for close inspections of sites not accessible to fixed wing aircraft. Regional Call-When-Needed (CWN) contracted aircraft will be utilized for this purpose and operated in accordance with the terms of that contract. Eradication projects will be planned and conducted in accordance with the Interagency Helicopter Operations Guide (IHOG). A qualified Helicopter Manager meeting IHOG standards will be assigned to each helicopter. This applies to helicopters used on Forest Service missions as well as federally procured helicopters.

1. Contract Administration Structure. Flights will be scheduled through the helicopter COR's. A qualified HEMG will be assigned to each flight

2. Timekeeping Responsibility. The HEMG will perform or delegate timekeeping duties.

3. Flight Payment Documents. The HEMG will review Flight Use Reports and submit them in a timely manner to proper fiscal office for payment.

4. Availability and Stand-by. Requirements will be in accordance with the applicable contract.

CHAPTER IV - BASE FACILITIES, COMMUNICATIONS, OPERATIONS, AND DISPATCH

A. Facilities

Survey air crews utilize Fixed Base Operator Facilities for these missions.

B. Communications

1. Air-to-Ground Communications

If it is necessary to communicate with ground personnel, the primary air-to-ground frequencies assigned to the respective area may be utilized. Contact the respective dispatch center or the PNW Aviation Communication Guide for appropriate air-to-ground or command frequencies.

2. Communications with a Dispatch Center

The PNW Aviation Communications Guide provides the simplex and duplex FM frequencies for Oregon and Washington. Consult the guide for appropriate frequencies. National Flight Following (NFF) may be utilized for the survey flights to simplify communications. If NFF is busy, utilize the respective local command frequency.

3. Airport Communication

The pilot shall consult the appropriate airport guide information to acquire Unicom frequencies.

4. Air-to-Air Air Tactical Communications

a. VHF-AM Air-To-Air

The PNW area has primary and secondary air-to-air AM frequencies assigned. If it is necessary to communicate with fire aircraft, the AM frequencies will be utilized. Consult the PNW Aviation Communication Guide.

b. VHF-AM Air-To-Ground

122.925 can be utilized for air-to-ground AM transmissions.

C. Operations

1. Environmental Considerations. Flight Surveys will be planned to minimize noise impacts on wilderness and other sensitive areas.

2. Fueling Operations. All personnel will disembark prior to and during aircraft fueling. Pilot shall remain at the aircraft during refueling to minimize the possibility of mis-fueling and to assist ground crew as required to obtain the proper amount of fuel.

D. Dispatch Procedures

1. Briefings and Orientation. The National Forest or appropriate administrative area will be notified prior to the actual survey flight. This is usually done through the area dispatcher or assistant. An initial notification or reminder is done formally by way of letter to the Forest Supervisor before the annual aerial survey begins. The responsible Forest Service observer will call the Forest Dispatcher a day or two prior to the planned starting date on the particular Forest. Daily initial notification to the dispatch center(s) affected by the flights is required. During this notification, the observer will be provided with air space management information. The observer will provide the dispatcher with planned area of flight, approximate times and possible alternate areas depending on weather. The survey crew will perform a daily briefing covering anticipated areas of survey, hazard mitigation, and flight following procedures. The Survey Pilot will maintain, at a minimum, the following charts and maps:

a. Klamath Falls and Seattle Sectionals

b. Airport and Facility Directory.

c. IFR charts appropriate to the area being surveyed

2. Procedures. The majority of aerial survey flight time in Region Six is the grid pattern method. Using this survey technique the aircraft flies cardinal directions usually following section lines on the map or lines of latitude and longitude. Flight lines can be as short as four miles and as long as 80 to 100 miles. The observer in the front seat is responsible for detection directly in front and approximately two miles out from the right side of the flight line, while the rear seat observer is responsible for two miles out from the left side of the flight line. Each observer's duty is to detect, locate on the ground, locate on the sketch map, draw the polygon on the

map, label the polygon with tree species, damaging agents, number of trees and/or intensity and continue to orient themselves. At an airspeed of 120 miles per hour, this means the observer views and records four square miles every minute. This procedure requires concentration and communication by observers and the pilot.

The other type of flight pattern is contour flying. This pattern is flown in areas of relatively steep, well-defined topography. The aircraft is flown in a left hand pattern generally parallel to the drainage patterns rather than across them. In steep, wide canyons, the canyon is entered somewhere between the ridge on the left of the aircraft and the drainage on the right; escape routes in this scenario are to drainage right. With safety as the number one priority, the aircraft will fly along ridges whenever practical to accomplish mission objectives

3. Communications. Two way communications with ATC facilities will be in accordance with FAR, AIM, etc. The following Forest Service communications will apply during business hours: Ground and air frequencies for particular geographical areas of the Northwest will be consulted in the Aircraft Communication Plan and Frequency User's Guide.

4. Survey Conditions. The aerial observer will make necessary weather checks and determine feasibility of survey operations. Host forest dispatchers will be notified of flight routing. Because of the subtleties of color changes caused by forest insects to tree foliage, adequate sunlight is important to detection. Maximum flexibility in choosing flight areas is necessary to mission success. The pilot will also check weather conditions and NOTAM for all planned and alternative areas in the Region. In addition, posted hazard maps, location of control zones, ground navigational stations, MOA's, MTR's, TFR's and other known confliction will be noted. Point-to-point flights will have a flight plan and flight following by the appropriate land management agency.

5. Flight Following

- a.** Notification of the State and Federal land management agencies affected by mission flights is the responsibility of the Flight Manager. Flight Managers will contact the appropriate dispatch office(s) prior to commencing the operation. Information relayed will include: tail number, call sign, persons on board, fuel duration in hours and the flight plan.
- b.** Flight following procedures will consist of an initial radio check-in with dispatch (once airborne and out of the airport traffic area) to establish radio communication and affirm that AFF is functional.
- c.** Positive flight following will be by radio communication with dispatch (every 15 minutes) or through AFF.
- d.** The National Flight Following (NFF) frequency will be utilized for the survey operation to simplify communication between units and the survey aircraft.
- e.** All transitions between forests/units shall be acknowledged by both units and the aircraft. If working between units, contact both units/forests dispatch centers by phone prior to the flight and develop an agreement so that communications does not turn into an insurmountable obstacle.
- f.** Landing/takeoff locations and start times and closeout times will be reported to the nearest dispatch center via radio.
- g.** In the event that communication is lost, the aircraft pilot may contact an airport on Unicom and ask to relay a message to dispatch and will proceed directly to an approved landing field. The flight manager will contact dispatch via a cell phone or land line. This procedure will be followed if the pilot/observer/flight manager is unable to maintain communications during the mission. Radio communication capability, through the agency FM system is required, even if AFF is functioning.
- h.** If AFF fails during the flight, the flight may continue, if 15 minute radio check-in occurs. The affected dispatch center will attempt to contact the aircraft on NFF and air guard if AFF fails. If after 30 minutes contact is not made, search procedures will commence as per agency policy.

All units with internet capability will be able to follow the progress of the Oregon and Washington survey flights by logging on the Web Tracker application at <http://www.aff.gov/>. The Web Tracker website requires a

password to access the flight following information. Notifications will be made as outlined above, and back-up flight following frequencies will be monitored.

6. Airspace Coordination. Airspace coordination is accomplished for project work in accordance with the Airspace Coordination Guide. Airspace deconfliction is not appropriate for survey flights in that the aircraft that covers vast areas of many different Forests. The altitudes that aerial survey operations occur are inline with general aviation and are not conducted at low altitudes. Flight managers and the pilot should monitor MOA's and other special use airspace. Flight Managers and the pilot are responsible to monitor and avoid TFR activity. TFR's can be activated at any time, so it is essential that radio communication with dispatch centers is maintained.

CHAPTER V - SAFETY

A. Evaluations

Alternate methods that would accomplish mission objectives more safely and effectively will be of primary consideration. Concurrent hazard analysis and minute-by-minute risk management is everyone's responsibility throughout the project. The aerial hazard map depicts what has been surveyed at the site(s) and pilots will reconnoiter the area prior to descending to lower altitudes. Aerial observers will cancel or terminate operations when conditions are not within acceptable safety standards, or when a question exists regarding the safety of equipment or its' application (29CFR1960.46). The following risks remain for both fixed wing and rotary wing operations and are mitigated as indicated;

Phase	Hazard/ Risk ID	Risk Assessment	Control Options	Residual Risk
All	Improper Aircraft Maintenance	Very High	Aircraft maintenance inspections and repairs shall be made in accordance with appropriate Federal Aviation Regulations, Directives of the Administrator of FAA, and the recommendations of the manufacturer. Appropriate aircraft maintenance records shall be kept for the aircraft and shall be open to the inspection of the Contracting Officer upon request. Windows shall be kept clean at all times. Cracked and/or excessively crazed windows shall be replaced. Additional maintenance shall be performed as outlined in the pertaining Forest Service Contract for Aircraft Services.	Low
All	Severe weather	High	Check with local weather offices daily, fly only in clear weather when possible; file flight plans and/or maintain flight following. Maintain VFR minimums. Observers will be vigilant to changing weather conditions and will modify plans accordingly.	Moderate
All	Inexperienced Observers	High	Conduct annual program reviews and safety sessions to fully familiarize personnel with standard policies and regulations. Pair inexperienced observers with qualified observers for at least 4 weeks. All passengers on aerial surveys will meet Interagency Aviation Training qualifications.	Low
All	Unsecured equipment in cockpit	Moderate	All equipment, including the digital sketchmapping system will be secured in accordance with FAR 135.87	Low

All	Sub-standard Aircraft performance capability	High	Check pilot and aircraft qualification cards; maintain open communication with personnel at Redmond Air Group and the Regional Aviation Group especially when ordering different or unfamiliar aircraft.	Low
All	Aircraft egress & ingress	Moderate	Do not approach aircraft without the pilot's knowledge and visual contact. Follow directions for entering and exiting aircraft on pilots' OK.	Low
All	Inadequate flight following	Moderate	Contact dispatch offices, verify flight following frequencies and back-up frequencies. Verify proper operation of automated flight following system with radio checks.	Low
All	Mountainous flying	High	Hold daily pre-flight briefing sessions to discuss intended flight route and potential hazards. Maintain at least 500' AGL at all times. No up-canyon flying. Check daily weather reports.	Moderate
All	Mid-Air Collision	High	<p>Sterile Cockpit procedure will be followed within 5 miles of airports and until clear of the runway. CTAF will be monitored within 10 miles of airports unless ATC requires otherwise.</p> <p>Air crew members will assist the pilot in visual acquisition of traffic conflicts.</p> <p>Situational awareness will be maintained for MTR and SUA's. The pilot will brief the crew when in the vicinity of this airspace and where possible traffic conflicts may be anticipated.</p> <p>Anti-collision and Landing lights will be displayed in flight to enhance aircraft visibility by others.</p> <p>Temporary Flight Restrictions will be reviewed as part of pre-flight procedures.</p>	Moderate

B. Protective Clothing/Equipment

Headsets will be worn by crew members on fixed wing flights. Helicopter operations require PPE in accordance with IHOG.

When special projects involving hazardous chemicals are planned, a list of poison control centers, local physicians, and local emergency medical treatment facilities should be included. These local medical facilities should also be alerted as to the spray project.

C. Load Calculations

Load calculations and weight and balance limits will be confirmed during the pre-project briefing. The pilot is responsible for overseeing the proper loading of the aircraft.

D. Aerial Hazard Maps

Current Aviation Sectionals will be maintained and reviewed for flight hazards. Pilots should alert the flight crew when in the vicinity of Military Training Routes and of the direction they may expect to see conflicting traffic. Hazard maps for Oregon and Washington can be downloaded from the PNW Aviation Web site.

E. Aircraft Emergency Response Plan

National Forest and State agencies maintain Aircraft Crash, Search and Rescue plans. Agencies providing flight following will be responsible for activating the appropriate agency resources. (This is the primary reason

that the affected units need notification of flight activity so that they will monitor the AFF screen.) In the event of an injury or fatality, the FHPAO, Aerial Survey Coordinator, or appropriate project manager listed in the enclosed FHP directory will notify family members. The person providing flight following will be responsible for having a copy of this aviation plan and notifying the appropriate individuals listed above.

F. Incident/Hazard/Maintenance Deficiency Reporting

Incident/Hazard/Maintenance Deficiency Reporting will be in accordance with the R6 Aviation Accident Prevention Plan and FSM 5720. Aviation incidents, specifically, shall be filed on Forest Service SAFECOM form 5700-14 within 24 hours of the incident. If a serious potential for an aircraft accident was involved, an immediate telephone report should be made to the RASM, or the appropriate program officer (helicopter or fixed wing) at the Regional Aviation Group.

G. Training

Training will, as a minimum, be in accordance with those outlined in applicable Forest Service Manual and Handbooks. Specifically, employees who participate in special use flight activities or function as flight crew members shall receive annually the following:

1. Prior year's Accident Analysis developed by the Regional Aviation Safety Manager.
2. Prior year's Mishap/Incident information developed by the Regional Aviation Safety Manager.
3. Review Aviation Plan
4. View Winds, Wires, and Weights video (helicopter only).
5. Review Risk Assessment and Standard Aviation orders.
6. Complete IAT recurrence requirements
7. View Helosafe video (helicopter only).

In addition to the above requirements, at least one member of the air crew will have received training equivalent to that listed for fixed-wing manager – special use, as listed in Interagency Aviation Training (IAT) (for current qualified position, see parenthetical remarks in directory). Other participants on a mission flight shall have completed the training listed for Air Crewmembers in IAT. Currently, the Forest Health Protection sponsored Aerial Survey Aviation Safety and Management course satisfies these requirements. Currency on this AS2M training is recommended at every three years or as per IAT per the A course recurrence criteria. The FHPAO shall keep track of qualified observers training accomplishments and requirements and will meet the training requirements listed in IAT for Unit Aviation Manager. The FHP group leader shall meet the training requirement listed for Agency Administrator.

Agreements between Cooperators and the Forest Service are reviewed annually prior to June first. Aerial observers must meet the requirements to function as fixed-wing managers-special use. Cooperating agencies will ensure that their employees meet these minimum aviation safety-training requirements.

When operating CWN aircraft or exclusive use contract aircraft at least one air crewmember will have had the necessary training to function as Contracting Officer's Representative or Project Inspector.

To function as a sketchmapper, individuals must also meet the following minimum qualification criteria:

- A desire to participate in aerial survey activities.
- An interest in aviation
- Good eyesight with normal color vision and depth perception
- Ability to endure riding in an aircraft for 3 to 6 hours a day without experiencing the debilitating effects of motion sickness.
- Completed the task book for "Fixed-Wing Manager - Special Use Forest Health Protection Aerial Observer" (Copy available upon request). Observers employed prior to 2002 are exempt from the task book requirement.

At the discretion of the senior observer, the apprentice will be evaluated on the above criteria. Satisfactory performance will be evaluated/determined by both State and Federal Program managers, and when in agreement as to the proficiency of the apprentice, a certification issued.

In addition to Aviation Safety currency requirements, sketchmappers will attend at a minimum, biennially, the annual Calibration and Conformity session which will focus on current safety issues and sketchmapping warm-up exercises.

CHAPTER VI – AVIATION SECURITY

See the PNW Aviation Security Plan and visit http://fsweb.wo.fs.fed.us/eng/documents/phys_sec.pdf - the United States Department of Agriculture Integrated Physical Security Standards and Procedures Handbook. Chapter 2 – Aviation Security references the physical security standards and procedures for aviation operations.

EXHIBIT F-1

TUSSOCK MOTH SPRAY PROJECT PROJECT SAFETY AVIATION PLAN

Okanogan-Wenatchee National Forests

Project Plan Prepared by: Jim Trowbridge AFMO, Cle Elum Ranger District

Project Plan Reviewed by: Art Anderson Spray Project Operations Chief

Project Plan Reviewed by: _____ Aviation Officer, Okanogan-Wenatchee NF's

Reviewed Date: _____

Project Plan Reviewed by: _____ Regional Aviation Group Staff

Reviewed Date: _____

Project Plan Reviewed by: _____ Regional Aviation Safety Officer

Reviewed Date: _____

Project Plan Approved by: _____ Regional Aviation Officer

Approved Date: _____

TUSSOCK MOTH SPRAY PROJECT PROJECT SAFETY AVIATION PLAN

Okanogan-Wenatchee National Forests

Project Name: Tussock Moth Spray Project

Anticipated Project Date: June and July 2001

Supervision: Art Anderson, Tussock Moth Spray Project Operations Chief

Project Description:

The project is the aerial application of tm biocontrol to control Douglas-fir tussock moth on the Methow District of the Okanogan-Wenatchee National Forests. An End Product Contract will be used to complete this project. Helicopters will apply the pesticide and observe the area being treated. At this time it is anticipated that three (3) type II and one (1) type III helicopters will be needed to complete the project. It is estimated 25,000 to 27,000 acres will be sprayed.

The spray blocks will be pre-identified using GPS coordinates and will be entered into a mapping program installed into the spray aircraft as per the contract. No aerial marking will be required as the application aircraft shall be equipped with a GPS guided Satlock swathing system. The application aircraft will fly in formation at altitudes below 500 ft. AGL (actual height will depend on timber canopy and topography) to dispense pesticide, no government employees will be onboard. The observation aircraft with government employees onboard will follow behind the application aircraft to ensure that the spray is falling properly in to the canopy, and that the spray deposition is effective and properly applied. Additional duties of the observation aircraft will include flight following information for all of the aircraft involved and overall supervision of the actual application process.

All helispots and emergency landing sites will be identified prior to operations. The Helibase Manager, along with the Contractor, will be responsible for approving all helispots prior to use.

Justification:

Due to access, aerial application is the most effective way to accomplish the project. Limited road access and steepness of terrain prevents application by alternative ground methods.

Due to the nature of spraying, low level flights are necessary to get the spray to hit the target areas (crowns and foliage of trees). Spray aircraft must consistently operate at altitudes below 500' AGL.

Location:

The project is located on the Okanogan-Wenatchee National Forests, Methow Valley Ranger District. The analysis areas to be included in the project are Early Winters, Eight Mile, and Wolf Creek. (See attached map)

Projected Cost of Aviation Resources:

Source selection of potential contractors has not been completed at this time. Project Aviation Safety Plan will be updated once source selection is completed to include the projected aircraft and associated costs.

Aircraft:

At this time it is anticipated that three (3) type II and one (1) type III helicopters will be needed to complete the project. Aviation Safety Plan will be updated once source selection is completed and aircraft are known.

Application aircraft will be required to meet industry and O.S.H.A. standards. The contractor will be required to be in compliance with Part 137, State AG/Application requirements and licenses. Application aircraft will be carded as per the "Restricted" category guidelines in the USDA-Forest Service Call-When-Needed (CWN) contract.

All "Standard Use" helicopter requirements as per the USDA-Forest Service Call-When-Needed (CWN) contract and IHOG will be adhered to for the observation aircraft, pilots, fuel trucks and drivers.

Application aircraft fueling operations will be adhered to as per IHOG chapter 13.

Hot fueling will be allowed if one of the following regulations is met.

Page 12-13, c. 1., Closed circuit refueling system is present and approved on the aircraft, aircraft may be refueled with engines running or;

Page 12-13, c. 2., Open Port (rapid refueling); If requested by the government and the contractor has been approved, this type of refueling and be allowed in accordance with NFP 407 3-27, see agency policy. Not with standing NFPA 407 3-21.2 (b).

Pilots:

Application pilots will be required to meet industry and OSHA standards. The contractor will be required to be in compliance with part 137, State AG/Application requirements and licenses. Agency carded pilots will not be required for the application aircraft. Pilots for the observation aircraft will be carded as per IHOG.

Project Aviation Safety Plan will be updated once source selection is completed and pilots and aircraft type are known.

Participants:

Project aviation safety plan will be updated prior to project commencing with all personnel, including qualifications and individual's project responsibilities.

A CWN Helicopter Manager will be required for each helicopter (as stated in the IHOG page 2-4) per counsel from the Regional Helicopter Operations Specialist. However, application aircraft management will require no payment documentation (FS-6500-122), no personnel loading, no external or internal cargo loading, and no longline operations.

The helibase will be managed by the appropriate level (Type 1 or 2) Manager (as stated in the IHOG page 2-6). The helibase manager will be responsible for daily briefing and debriefing (using the checklist in IHOG Appendix B) and for development and approval of a Project Crash Rescue Plan. The helibase manager will also be responsible to ensure a *SAFECOM* will be filed to report any condition, act, maintenance problem, or circumstances which has the potential to cause an aviation related accident for all incidents/occurrences and deviations. Copies will be filed with the local Forest Aviation Officer and placed in the project files.

Flight Following and Emergency Search and Rescue:

Daily flight follow during the project will be handled through the project dispatcher. When the observation aircraft is observing aerial application, the aerial observer will be responsible for flight follow information, relaying it to the project dispatcher.

Prior to installation of the project communication system or flights outside the project area flight following of aircraft is required and will be through Okanogan dispatch Center on the Okanogan-Wenatchee Forests or Central Washington Interagency Communication Center (CWICC) in Wenatchee. Specific flight following frequencies will be determined and distributed to all operations personnel at project operations briefings and dispatch centers prior to spray operations. Pacific Northwest Region Search and Crash Rescue Guide will be used as a template for missing or downed aircraft. Project Incident Commander, Aviation Project Manager, Project Dispatcher, and Okanogan Dispatch Center will all be responsible for the follow through of this plan if needed.

Aerial Hazard Analysis:

Aerial hazard map will be generated prior to starting of any spray operations. Initial aerial hazard map will be obtained from the Okanogan Dispatch Center. Verifications and updates will be coordinated with the Okanogan Dispatch Center and Methow Valley Ranger District prior to spray operations.

A copy of the hazard map will be provided to contractor, all pilots and posted at the helibase (or location of morning briefings). All necessary coordination with Federal Aviation Administration and military authorities will be coordinated through the Okanogan Dispatch Center prior to project start.

Known Military Training Routes (MTR) within the proposed project area are:

IR-348

Okanogan B MOA

Protective Clothing/Equipment:

Personnel protective equipment will be required for all pilots (both “Restricted” and Standard Use” helicopters) and passengers according to Chapter 9, IHOG. This includes flight helmets, nomex clothing (either nomex flight suits or nomex shirt and pants), and nomex or leather gloves.

Load Calculations and Weight-and Balance:

Load calculations will be completed to ensure that the helicopter does not exceed its capabilities. The pilot is responsible for accurate completion of load calculations. The helicopter manager and helibase manager will be responsible that load calculations are completed properly and posted daily.

**TUSSOCK MOTH SPRAY PROJECT
OKANOGAN-WENATCHEE NATIONAL FORESTS
FY2001**

RISK ANALYSIS

METHOD	Yes or No
Is there an alternative method which would accomplish the mission more safely and/or efficiently (including accomplishment by ground methods)?	NO
Is the method selected approved and do detailed instructions for safe accomplishment exist?	YES
3. Have adequate flight following and communications methods been established?	YES
MEDIUM	
Can factors of terrain, altitude, temperature, or weather which could adversely affect the mission's success be mitigated?	YES
Will the mission be conducted at low (below 500' AGL) altitudes – can the same objective be Achieved by flying at a higher altitude AGL?s	YES
If low-level flights, have all known arial hazards been identified during the planning process And are they known to all participants?	YES
If there is a potential for an airspace conflict (military, media, or sightseeing aircraft), have mitgating measures been taken?	YES
5. Have adequate landing areas been identified and/or approved to minimum requirements?	YES
MAN (GENERIC)	
1. Is the pilot properly carded for the mission?	YES
2. Will the flight be conducted within the Pilot flight time/duty requirements and limitations?	YES
Have the minimum number of personnel necessary to accomplish the mission safely been Assigned, and do they meet personnel qualifications and experience requirements?	YES
Will adequate personnel (flight and ground crew) and Pilot briefings be conducted prior to the flight?	YES
Are users aware that the Pilot-in-command has the final authority over any operations Conducted involving the aircraft or its occupants?	YES
MACHINE	
Is the aircraft capable of performing the mission in the environment (altitude, temperature, Terrain, weather) where the operation will be conducted?	YES
2. Is the aircraft properly carded for the intended mission?	YES

**TUSSOCK MOTH SPRAY PROJECT
OKANOGAN-WENATCHEE NATIONAL FORESTS
FY2002
JOB HAZARD ANALYSIS**

HAZARD	MITIGATING MEASURE
MTR'S/MOA'S	Check routes in advance. Coordinate with Okanogan Dispatch for risk management.
Private Aircraft	See and Avoid. Post signs at local Airports of operation plans.
Airport Traffic	Monitor UNICOM. See and Avoid.
Weather	Obtain daily weather forecasts, be aware of weather advisories.
Terrain	Do not place aircraft in performance related situations. Make sure Pilots are familiar with spray blocks and terrain.
Low Level Obstacles	Perform a high level reconnaissance before descending below 500' AGL prior to spray operations to identify any previously unidentified obstacles from hazard maps. No unnecessary low level flights.
Unimproved Landing Sites	Recon landing sites prior to operations, identify as many potential emergency landing sites and place on operation maps.
Flight Operations With Doors Off	Use approved harness/straps. Remove loose items in cabin. Secure anything that cannot be removed.
Pilot Not Familiar With Area	Perform a high level reconnaissance before descending below 500' AGL Provide project and hazard maps to each Pilot.
Noise, Rotor Wash	Wear ear and eye protection (IHOG Chapter 9).
Internal and External Loads.	Have qualified and trained personnel assigned to those missions.
Unplanned Aircraft Events	All personnel equipped with proper PPE and trained in crash rescue procedures. Crash rescue plans given to and reviewed by all personnel and posted at helibase (or other appropriate briefing location).
Hazardous Materials	Material Safety Data Sheets provided and reviewed by all personnel. Only trained personnel will handle hazardous materials spill. Contractor is responsible for clean-up of all spills.
Non-Aviation Personnel	Thorough briefings provided to all personnel (IHOG Chapter 10).
Communications	Daily radio checks prior to departing helibase. Develop alternatives in case designated frequencies become inoperable. Cease operations any time communications fail.

EXHIBIT F-2

File Code: 5700

Date: May 31, 2006

Route To:

Subject: Waiver For Aircraft Use

To: Forest Health Protection, Unit Aviation Officer

The purpose of this letter is to grant approval, in accordance with the provisions of FSH **5709.16.36.21,2** for Forest Health Protection to use normally aspirated Partenavia aircraft in execution of Forest Health Protection missions. This includes both the State of Oregon and the exclusive-use Partenavia contracted by the Forest Service for Forest Health Protection in the state of Washington.

The grant of approval is granted based on two rationale. First, there is a considerable and successful precedent of use of Partenavia aircraft for forest health protection missions in Region 6 of the Forest Service. Documented grants of approval are on file and date back well into the 1990's. Second, the airplane is typically flown with the single-engine ceiling, 6900ft, in mind when planning daily flight routing. The highest terrain is flown in the morning and in such a manner to allow safe single-engine flight to a suitable landing area or to an altitude 1000ft below the manufacturer's published single-engine service ceiling. Survey flights over mountainous terrain are planned at 6 to 10 percent below the aircraft maximum gross weight. The Partenavia has a glide ratio, with both engines failed, comparable to most USFS approved single engine aircraft under similar circumstances.

Eg: Wing Loading: C-210 21.7 lbs./sf
Partenavia 21.6 lbs/sf
Power Loading C-210 13.3 lbs/hp
Partenavia 10.8 lbs/hp

The Partenavia has a VMC lower than it's stall speed, making it a very safe and maneuverable aircraft on one engine.

This grant of approval is valid with the understanding that missions will be conducted in parameters similar to the ones listed in the preceding paragraph; and is valid until superceded or cancelled.

/s/ Jonathan M. Rollens
JONATHAN ROLLENS

Jon Rollens
Regional Aviation Officer
Pacific Northwest Region

Cc: **Kim Reed**
Jamie Tackman
Gary Sterling