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Okanogan-
Wenatchee
National Forest

July 2001

Douglas-fir Tussock Moth Project
Final Report
July 2001

Methow Valley Ranger District

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EXECUTIVE SUMMARY

The Project was initiated as a result of a tussock moth outbreak. Based on the 1997 through 2000 results of the "early warning system", an outbreak of Douglas-fir tussock moth (DFTM) was predicted. The outbreak was validated by the occurrence of about 21,000 acres of light to moderate defoliation in 1999. An Environmental Analysis was conducted, an Environmental Impact Statement published and a Record of Decision signed (http://www.fs.fed.us/r6/nr/fid/eisweb/dftm_eis.htm) empowering action to be taken, if necessary.

The history of damage by this insect required the agency to be prepared to suppress its populations if significant resources were threatened. The tussock moth typically defoliates trees in patches, sometimes over large areas, which can result in significant tree mortality. In the early 1970s approximately 700,000 acres were defoliated in Oregon, Washington, and Idaho. There was approximately 17,270 acres of total mortality in patches, and 75 % tree mortality over 62,070 acres, and 10 % tree mortality over 275,660 acres (USDA Forest Service, 1974).

The Regional goal for the National Forests affected by the DFTM: To maintain existing desired vegetative conditions in Areas of Concern that are at risk from Douglas-fir tussock moth defoliation within the next two to five years. These areas include but are not limited to aquatic and terrestrial species habitat, areas for human use and enjoyment, and administrative areas.

There is a need for management intervention into the natural cycle of the DFTM: The need exists to protect specific Areas of Concern where tussock moth defoliation would jeopardize vegetative conditions in Threatened and Endangered (T & E) species habitat, threaten human health and safety, or adversely affect areas where the Forest Service has made substantial investments (such as a seed orchard). Preserving this vegetation would maintain desired habitats for fish and wildlife, preserve campgrounds, and maintain important scenic view sheds. Additionally, there is a concern for public health. The hairs on the larvae can cause welts, rashes, and other allergic reactions in some people.

Objectives for areas of the Okanogan-Wenatchee (Methow Valley Ranger Districts) National Forests:

- Protect riparian habitat where defoliation would cause unacceptable degradation of occupied habitat, especially critical spawning or rearing habitat for salmon, steelhead, and bull trout (loss of shade, increased sedimentation, etc.
- Protect designated old growth and late/old structure ("OG/LOS") stands where defoliation would substantially degrade habitat values.
- Protect nesting, roosting and foraging habitat for spotted owls where defoliation would reduce total crown closure so that an area could no longer function as a reproductive/fledging site.
- Protect residential and administrative sites where defoliation and the presence of large numbers of larvae would adversely affect people living or working there. This would

include work centers, special use permit summer home sites, resorts, or established camps.
- Protect high use recreation sites where defoliation and the presence of large numbers of larvae would adversely affect many forest visitors. This would include campgrounds, picnic areas, and interpretive sites.
- Protect designated foreground scenic Areas of Concern where defoliation would have a substantial adverse impact on scenery.

The proposed action was to spray TM Bio-Control on areas where outbreak or sub-outbreak populations of DFTM populations have been verified.

In mid-January 2001 we began to make plans to initiate an insect suppression project if a final decision was made to proceed. An organization was established using the Incident Command System as a model. In January 2001 the primary team had been assembled and we held our first meeting in Winthrop WA. Further planning meetings were held throughout the months of March, April and May. The project fieldwork started May 7th with both local employees and detailers.

Up to 75 personnel worked approximately 20,000 hours and drove several hundred miles. About 70.5 hours flight time were logged. We treated 16,690 acres with TM Bio-Control, had two minor personal injuries, no vehicle accidents, and no aviation SAFECOM filed.

Initial entomological analysis indicates how well the following objectives were achieved:

1. Identification of treatable populations of tussock moth was met.
2. The timing of application of the virus was met with a high degree of confidence.
3. The estimation of population densities (pre and post spray) was accomplished.
4. Initial estimates indicate that treatment objectives for foliage protection were met.
5. Success in interrupting the population cycle of the insect can only be determined in one to two years.

This Final Report provides summary information applicable to future project managers, especially the Project Critique chapter. All known relevant electronic files are made a part of this report on a CD-ROM. Hard copies of all maps, entomology field forms, lab results, and administrative paperwork are considered a part of this Final Report and are to be retained at the Methow Valley Ranger District, with duplicates of the maps and reports to be retained at the Pacific Northwest Regional Forest Insect and Disease Group.

The successful completion of this project is the result of everyone who worked on it, but especially the entomology crew from the Methow Valley Ranger District and the primary contractor, Heli-Jet of Eugene, Oregon.

I. Project Area

The project area included seven analysis units that stretched across the Blue Mountains of Northeast Oregon and Southeast Washington. The Methow Valley Ranger District was involved on the Okanogan National Forest.

The Region that addressed the Douglas-fir Tussock Moth (DFTM) infestation in both Oregon and Washington prepared an Environmental Impact Statement. It identified several thousand acres of DFTM host type stands on the Okanogan-Wenatchee National Forest.

After intensive fall sampling for the locations of treatable populations, some of the host type areas were dropped from treatment, but would be analysed for potential control plot locations. The forest was left with approximately 30,630 acres separated into multiple spray blocks in the remaining six analysis units as displayed in Table 1. Maps of the analysis units that display spray block locations are found in Appendix A.

II. Accomplishments

Field crews verified sub-outbreak populations of DFTM in all six-analysis units, however several of the areas did not met the Regional minimum requirement for spray. Eventually 16,190 acres were sprayed on the Okanogan National Forest as shown in Table 1 below.

Table 1: **Project Area Acres**

Column Heading	Column Heading
Analysis Unit Mazama	Analysis Unit Eight Mile
Potential Treatment Acres 22,150	Potential Treatment Acres 7817
Total Acres Sprayed 15.713	Total Acres Sprayed 800
Total Acres Dropped 6437	Total Acres Dropped 7017
Column Heading	Column Heading
Analysis Unit Wolf (Spray)	Analysis Unit Twisp River
Gross Acres 664	Gross Acres 43,667
Total Acres Sprayed 117	Total Acres Qualified 333(control ac.)
Total Acres Dropped 487	Total Acres Dropped 43,334
Column Heading	Column Heading
Analysis Unit Cub	Analysis Unit Wolf (Control)
Gross Acres 9941	Gross Acres 1170
Total Acres Qualified 1258(Control ac.)	Total Acres Qualified 293 (Control ac.)
Total Acres Dropped 8683	Total Acres Dropped 877

III. Entomology (Connie Mehmel)

A. Objectives

Project Entomology had five objectives (USDA 2000):
1. Verify that Douglas-fir tussock moth (DFTM) populations were at sub-outbreak (3 larvae/1000 sq. inches foliage, mid-crown) or higher in Analysis Units proposed to be treated.
2. Ensure the proper timing of insecticide application.
3. Estimate pre-treatment DFTM population densities in blocks to be sprayed.
4. Compare pre-treatment and post-treatment DFTM population densities.
5. Measure defoliation rates and monitor the short-term protection of areas of concern.

B. Verification Of Treatable Populations by Analysis Unit

Extensive cocoon and egg mass sampling was conducted in the fall to determine tussock moth population densities. Sample plots were concentrated in areas of concern. Additional plots were established outside areas of concern to identify sites that could be used to compare the effects of treatment with no treatment. A total of 242 plots were taken in the Methow Valley, at a density of one per square mile. Sampling protocol can be found in the Project Entomology Plan. Based on fall cocoon and egg mass samples, sub-outbreak populations were predicted in five Analysis Units (AUs): Mazama, Wolf Creek, Eightmile, Cub Creek, and portions of Twisp River. Mazama, Wolf Creek, Eightmile and Twisp River were identified as areas of concern in the EIS.

The analysis units were then divided into spray blocks, which had similar topographic characteristics and were operationally feasible to treat with helicopters. These spray blocks were the units which were sampled to determine larval density and stage of development.

Table 1: Analysis Units for Douglas-fir Tussock Moth Project 2001, Treatment and Control

ANALYSIS UNIT	TOTAL ACRES	# OF SPRAY BLOCKS	PREDICTED LARVAL DENSITY
Mazama (treatment)	22,147	128	18.60
Wolf Creek (control)	1,408	19	4.51
Wolf Creek (treatment)	664	9	4.51
Eightmile (treatment)	7,816	40	2.45
Cub Creek (control)	9,641	46	2.40
Twisp River (control)	43,921	159	1.50

Predicted larval densities in the analysis units were relatively low overall. This indicated that heavy defoliation would not occur for at least one year with or without treatment, although the valley floor of the Mazama AU had reached outbreak level. The decision was made to treat sub-outbreak and outbreak populations in the Mazama, Wolf Creek and Eightmile Analysis Units. Cub Creek was retained as a control (non-treatment) Analysis Unit, since it did not include any "areas of concern" identified in the November 2000 Tussock Moth Record of Decision (ROD). Although Twisp River was an "area of concern" identified in the ROD, predicted larval densities overall were below suboutbreak. Two blocks with suboutbreak larval density were identified through sampling in the spring and summer of 2001, and control plots were established in these blocks.

The Tussock Moth EIS identified a portion of Wolf Creek within the Lake Chelan-Sawtooth Wilderness as an "area of concern" to be treated. After further analysis, the Wilderness portion of the AU was withdrawn from

treatment, and only that portion of the watershed between the Wilderness boundary and the private land was treated.[1] This reduced the total potential treatment acreage from 2,072 to 664.

C. Insure Proper Timing of Insecticide Application

In order to ensure proper timing of insecticide application, the entomology crew needed to be able to identify current year egg masses and to be familiar with the differences between larval instars. Therefore, several current year egg masses were collected in early April before entomology field personnel began work. These egg masses were kept in the office, where some were refrigerated and others were kept at room temperature. The non-refrigerated egg masses hatched with 10 days. The unhatched egg masses and young larvae were valuable training aids for new crew members, as well as displays for interested visitors. Entomology field crews began work on May 7.

Every spray block in the Mazama, Eightmile, and Cub Creek Analysis Units, as well as every lower elevation block in Wolf Creek and Twisp River, was surveyed for tussock moth egg masses. Wherever three to ten egg masses could be found within 100 feet of each other, an egg development plot was established as described in the Entomology Plan. Plots that met protocols in the Plan could only be established in Mazama, because egg masses were difficult to find in the other Analysis Units. Thirty-three plots were established between 2000' and 4500' elevation, with at least one plot in each 500-foot elevation band. Between 2000' and 4000' there was at least one plot on each major aspect. These plots were visited every 2 to 3 days to check for egg hatch and larval dispersal.

After every spray block had been surveyed, some egg development plots were established in Eightmile, Cub Creek and Twisp River that had only one or two egg masses. These plots were also monitored for egg hatch and larval dispersal as described in the Entomology Plan.

The first reported egg hatch on national forest land was May 21 at 2150' on a south slope. The first reported egg hatch on private land at the valley floor occurred at about the same time. (Washington State Department of Natural Resources shared project office space, and posted private land egg development plots on a shared map.) The last reported egg hatch was June 18 at 3000' on a north slope.

Once egg hatch had occurred in a given elevation band, spray blocks at that elevation were sampled every 2 to 3 days to determine the stage of larval development. Once 60% of the larvae in a given block reached the second instar or larger, that block was released for spray. If any block was not sprayed within 72 hours of its release, the block was re-sampled. This only occurred once, when spraying had to be delayed because of weather.

D. Estimate Population Densities in Spray Blocks

After egg hatch and dispersal was complete, population densities were estimated for each individual spray block prior to treatment. Population density plots were taken in a grid pattern at an intensity of one plot per 50 acres, or a minimum of two plots per block. Each plot consisted of three trees, using the protocol described in the Entomology Plan. Information from these plots was used for estimating both larval density and larval development.

The overall objective of this Project was to prevent widespread defoliation in identified Analysis Areas. In order to achieve the objective it was necessary to treat tussock moth populations that had mostly reached Phase II (USDA 2000), so that damage characteristic of Phase III could be avoided. This required scheduling

[1] Letter from Regional Forester Harv Forsgren to Forest Supervisor, Wenatchee-Okanogan National Forest, dated June 6, 2001.

Analysis Units for treatment before populations were at high levels. As a result, portions of some Analysis Units were actually below suboutbreak numbers by the time larval development was reaching the second instar, and a number of blocks were dropped from the treatment schedule.

Table 2: Changes in Proposed Treatment Blocks and Acres Based on Population Density Sampling

ANALYSIS UNIT	BLOCKS SPRAYED	BLOCKS DROPPED	ACRES SPRAYED	ACRES DROPPED
Mazama	74	54	15,713	6,437
Wolf Creek	3	6	177	487
Eightmile	6	34	800	7,017

Establishing the presence of treatable populations during this early stage of the outbreak was the most time-consuming task performed by the entomology crew. In order to meet the Purpose and Need stated in the Tussock Moth EIS (page I-4), a site-specific decision was made for each spray block. This meant that every block was visited at least once, and most were visited several times in order to determine both population density and stage of development.

In order to identify adequate control areas for monitoring, every block in Cub Creek, Twisp River, and the wilderness portion of Wolf Creek was visited at least once, and most were visited at least twice, in order to identify blocks in which evaluation plots could be established (see Section 4 below).

In the Mazama AU, two of the blocks dropped from treatment actually had suboutbreak or outbreak tussock moth populations (blocks 221 and 226). These blocks were located in spotted owl habitat, and were used as control sites to compare the effects of treatment with no treatment in this habitat type. This decision was made because suboutbreak populations could not be located in spotted owl habitat type outside areas of concern. One other control block was identified in the Mazama area outside the EIS areas of concern (block 314 in Fawn Creek).

In the Wolf Creek AU, one of the blocks treated had a tussock moth population below suboutbreak level. This block had a spotted owl nest with young, and was sprayed in order to monitor the effects of helicopter overflight on owls as required in the EIS.

E. Compare Pre-Treatment and Post-Treatment DFTM Population Densities

In order to compare the effects of treatment with no treatment, evaluation plots were established in both treatment and control blocks. Each evaluation plot consisted of 20 trees. The first five trees were sampled for larval population. All 20 trees were observed for defoliation and placed in one of eight defoliation categories (see Section 5 below). These plots were sampled immediately before treatment, and again 20 to 23 days after treatment. They will be sampled one more time, in June of 2002, to determine if the spray had the desired long-term effect. In the case of control blocks, the first sample was taken at the time when spraying would have occurred, and again 20 to 23 days later.

Fifty-one evaluation plots were established in treatment blocks: 39 in Mazama, 11 in Eightmile, and one in Wolf Creek. Twenty-two evaluation plots were established in control blocks: three in Mazama, eight in Wolf Creek, nine in Cub Creek and two in Twisp River. This means that there were fewer than 50 evaluation plots in control areas, as called for in the Entomology Plan. However, no other blocks with suboutbreak population densities could be located. All of these blocks had larval densities at suboutbreak or greater according to larval density plot averages, but many individual evaluation plots had calculated densities below suboutbreak.

Walking routes to the evaluation plots were clearly marked on the ground as described in the Entomology Plan. Individual plot trees were marked with a band of orange paint at dbh and an aluminum tag at the base. The GPS location of each plot was also recorded and mapped. Exceptions to clear marking on the ground were made in

the case of evaluation plots established in Wolf Creek Control. These plots were within the Chelan-Sawtooth Wilderness, and were marked using the wilderness protocols for Continuous Vegetation Survey plots.

Walking routes to the evaluation plots were used by ground observers to access treatment blocks for weather observation during spray days. In the future, entomology crews should flag walking routes into every treatment block, whether or not an evaluation plot is established, to facilitate access for ground observers.

The pre-treatment and 20 to 23-day post treatment larval densities are listed in Table 3. The densities are portrayed in numbers per 1000 square inches of foliage, mid crown (Mason, 1979).

Table 3. Corrected Mortality Derived from Pre-Treatment and Post-Treatment Larval Density Samples on Treated Spray Blocks and Untreated Control Blocks

	TREATMENT BLOCKS	CONTROL BLOCKS
Mean Pre-Treatment Density	10.8 ± 2.2	3.6 ± 0.9
Mean Post-Treatment Density	1.0 ± 0.4	1.1 ± 0.7
Mortality	90.6%	69.4%
Corrected Mortality	69.3%	

The means are reported plus or minus the standard error.

Corrected mortality represents the amount of mortality attributable to the spray, after accounting for natural mortality. It is calculated using Abbot's formula (Abbott 1925):

$$\frac{\text{Survival in Control Blocks-Survival in Treatment Blocks}}{\text{Survival in Control Blocks}}$$

F. Defoliation and Short-Term Protection

Tree defoliation on established Evaluation Plots was estimated at the time of the pre-spray larval density sample and again at the post-spray larval density sample. All 20 trees on each plot were observed for defoliation and placed in one of eight defoliation categories, with Category 1 indicating no defoliation and Category 8 indicating total defoliation. Wickman's (1979) 'Annotated Table of Tree Defoliation Classes by Percent of Crown Defoliated' was used to estimate and classify the amount of defoliation on a sample host tree. The same plots will be sampled again in late July, 2002.

Overall defoliation did not exceed 10% in either treated blocks and controls. Aphid damage to new foliage was heavy in some blocks, and made it difficult for field crews to determine the true extent of tussock moth damage. In some cases, defoliation estimates on a given tree were higher at pre-treatment than post-treatment, particularly when it was necessary to determine the difference between zero defoliation and one percent.

Table 4. Percentage of Trees in each Defoliation Class in each Analysis Area

DEFOLIATION CLASS	TREATMENT BLOCKS	CONTROL BLOCKS
1 (no defoliation)	68%	84%
2 (1-10% defoliation)	31%	16%
3 (11-25% defoliation)	1%	0%
4-8 (>25% defoliation)	0%	0%

In all treated areas the corrected larval mortality figures and the defoliation intensities suggest that initial treatment objectives were met. Defoliation of 25% or less will probably result in no mortality attributable to tussock moth feeding (Wickman 1978). The overall treatment objective of interrupting the population cycle and its damage can only be assessed during follow up surveys in 2002.

G. Calculation of Larval Density

Errors in the calculation of midcrown larval density affected the release of spray blocks, and resulted in blocks being dropped that should have been sprayed.

Larval density per 1,000 square inches of midcrown foliage was calculated using the formula from the "Integrated Sample Form for Monitoring WSB and DFTM by Direct Counts," contained in the Entomology Plan for Tussock Moth Control 2000 (Umatilla and Walla-Whitman National Forests):

$$\frac{Total\ Number\ of\ Larvae\ per\ 3\ branch\ sample}{Number\ of\ Trees\ Sampled} \times 2^{*} \times 2^{**}$$

* Lower Crown density per 1,000 square inches
**Crown Distribution Correction

This formula underestimates midcrown density for first instar larvae and overestimates larval density for larger instars. This is because for each tree sampled, larvae were counted from the outer 18 inches of 3 branches. Branch area of these samples was 500 square inches, not 1,000 square inches. Therefore, the number of trees sampled should have been multiplied by 0.5 (Scott and Mason, 1992). For example, if 47 first instar larvae were counted on a 25-tree sample, the midcrown density calculation from the Integrated Sample Form would be:

$$\frac{47}{25} \times 2 \times 2 = 7.5$$

Using the formula given by Scott and Mason, the midcrown density would be calculated with a correction for branch area, and a ratio of midcrown to lower crown density (R) from Mason, 1987:

$$\frac{47}{(0.5)(25)} \times R = Midcrown\ larval\ density$$

Where $R = (5.727)(\text{average larval age in days})^{-0.598}$

Assuming the average age of first instar larvae is 2 days, R = 3.78. Therefore:

$$\frac{47}{(0.5)(25)} \times 3.78 = 14.21$$

Here it can be seen that the Integrated Sample Form formula underestimates the midcrown population of first instar larvae by 47%.

Because the Integrated Sample Form formula fails to account for stage of larval development, it overestimates populations of older larvae. This is because older larvae tend to move downward in the crown, while younger larvae tend to concentrate in the tops. When older larvae are counted in a lower crown sample, the count must be weighted according to the stage of development:

Instar	Weighting Factor
2	15
3	25
4	35

The weighting factor represents the average age (in days) of the larvae. Weighted average age of the sample must then be calculated, as in the following example:

Instar	No. Larvae Sampled	Weighting Factor	Weighted Total
2	13	15	195
3	23	25	575
4	11	35	385
TOTALS	47		1155

Next, the average age of the population represented by the above sample is calculated:

$$\frac{Weighted\ Total}{Total\ Larvae\ Sampled} = \frac{1155}{47} = 24.6\ (average\ age\ in\ days)$$

The ratio of midcrown to lower crown density is calculated using the regression equation:

$$R=(5.727)\ X^{-0.598}$$

In this example, X=24.6. Therefore:

$$R = (5.727)(24.6)^{-0.598} = 0.8436$$

For this example of a sample of older larvae, the estimated density would be:

$$\frac{47\ Larvae}{(0.5)(25\ trees)} \times 0.8436 = 3.17\ Lavae/1{,}000\ square\ inches\ midcrown$$

Here it can be seen that the Integrated Sample Form formula overestimates the midcrown population of older larvae by 137%.

Care should be taken during future projects to estimate populations using the correct formula.

C. Safety

Half of the personnel on the 20-person entomology field crew were experienced forest workers, and half were college students hired under the STEP program. This combination worked extremely well, providing a valuable opportunity for training new, mostly young employees. Briefings were held every morning to provide opportunities for questions, discussion of assignments, and updates on safety concerns. The project safety

officer was usually involved in morning briefings. Particular hazards encountered by field personnel were steep, rocky terrain, heat, rattlesnakes, and driving with unsecured loads. Rental vehicles used on the project also presented a potential hazard, as some of them arrived with mechanical problems that could not be detected on initial inspection.

The entomology field crew sampled a total of 85,597 acres; most of this ground was sampled at least twice. Despite many hours of driving and many more hours of walking on very rugged terrain only two minor injuries were reported.

H. Management Practices and Tussock Moth Hazard

The importance of management practices in reducing tussock moth hazard cannot be overemphasized. The application of direct control measures indicates a willingness on the part of land managers to manipulate stand conditions to meet certain objectives, as specified in the 1999 Tussock Moth EIS. However, unless direct control is followed by appropriate silvicultural practices, it has the potential to further magnify the problem (Stoszek 1978). For example, in certain spray blocks entomology field crews had difficulty locating plots for population surveys because dwarf mistletoe infection rates were so high. Having taken direct control action in these Analysis Units, the Forest should now develop a silvicultural prescription for every treated block with the objective of managing for desired stand conditions.

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IV. Logistics

A. Organization

Logistics Section Chief: Jim Hammer
Supply/Alternate Logistics Section Chief: Richard Murray
Communications Unit Leader: Dave Blanch
Communications Assistant: Dan Long
General Assistant: Brian McAullife, Brian helped out with numerous Logistics needs, Radio operation and with Public Information

The Logistics functions performed were: Facilities, Communications, Ground Support and Supply.

B. Communications

The Project ordered two cache radios kits and a repeater from the fire cache system. This was done to minimize the impact for the channels in use for the day-to-day work of the Methow Valley Ranger District. It was the best way to get and adequate amount of radios for the personnel hired for the project.

The project communication specialist spent a couple of days finding a spot for the repeater for communications between the ICP, the helibase and the Mazama and Eightmile areas. The primary location for the repeater was McClure Mountain, but that location did not provide adequate coverage for the entire project area so it was moved to Blue Buck Mountain.

The six-volt batteries for the repeater seemed to run down easily. One of the batteries came apart and it was discovered that it was several "D" cells wired together. We replaced these batteries with deep cycle automobile type batteries on the repeater sand they seemed to function very well.

C. Facilities

The Basement of the Winthrop Work Center was rented for the project ICP, at a cost of $3,000 per month. We had five telephone lines installed as well as hook-up for the IBM computer system. The facilities provided enough workspace for several different workstations and briefing areas. Computers were borrowed from the Wenatchee S.O. and monitors were picked up surplus at GSA in Auburn. All computers were hooked up to the printers at the Winthrop office through the Okanogan SO office. Getting the computers to function properly required patience and the skills of computer folks from the Okanogan Valley Office. Gloria Quintall and Carol Cummiford, assisted in making the computers functional.

The Spray contractors also used a small part of the basement, which helped with the daily assignment and application communication with the air operations personnel.

The project used the Work Center parking lot which caused some congestion, but there was adequate space and additional parking areas where utilized by all project personnel to lessen the impact to the district personnel.

Washington State Department of Natural Resources had a small spray operation on approximately 1600 acres of private land adjacent to National Forest lands. They where able to utilize the basement for the brief period of time during their operation.. This helped with communication efforts with their personnel for weather information and aerial application.

The spray contractors rented a field near Mazama. For safety purposed the project elected to install a telephone line at the helibase. The contractor was required to provided some type of sanitation facilities for their employees so they rented porta potties. The only other facility that was needed at the helibase location was some type of structure for the radio operator and other personnel to operate out of during aerial application; the project was able to provide a yurt from the fire cache that worked exceptionally well.

D. Ground Support

Most of the people who came on the detail brought their government vehicles from their home units. This helped considerably with the project vehicle needs. The Forest had three summer fleet vehicles that where also able to utilized for this project.

In addition to the above vehicles, the project rented ten pickups through the contracting section at the Okanogan Valley Office. Ten rigs were requested, with one half being 4x4 and the rest 4x2. They were to be one quarter or one half ton, and to be rented for the months of June and July for approximately $29.00 per day cost.

Frank Thompson of Rusty's Rental Cars was easy to deal with, but if he had went over the vehicles first with his own inspection, the process would have been easier.

Most of the vehicles had been bought at auction and were 1991 to 1997 models. Rusty's paid for any mechanical problems. We paid $29.00 per day for each vehicle and paid for tire repair and fuel. When a vehicle broke down, the down days were tracked to deduct from the final pay. Some days, over half the day was taken up working on a problem with a rental vehicle. Renting vehicles seems to be a good way to obtain vehicle needs for a short time basis. There were also breakdowns with some of the Forest Service vehicles that were brought to the project and unless the repairs where covered under some type of vehicle warranty the project occurred all costs.

Recommendations:
Determine vehicle needs as soon as possible. Try to get agency summer fleet if possible. Have as many detailers as possible bring their own rigs. Take a good look at what types of vehicles are needed, and what type of roads will be driven on. If rental rigs are needed, set up a minimum road clearance, type of tire, how much tread, and any other capabilities that the vehicle is determined to need. Some of the two wheel drive one-quarter ton pickups do not have the ground clearance needed to travel all of the roads they needed to be on.

It may have made inspecting easier if the form 296 had been put in the bid package along with the amount of tire tread necessary and any other specifications that were felt necessary.

E. Supply

Supplies from the 2000 program were stored at Wallowa and LaGrande Oregon. Art Anderson and Sandy Summers sent up a list of supplies needed for the project. Connie Mehmel and Jim Hammer traveled to LaGrande with a stock truck to pick up supplies before the project started. The supplies were sorted and stored at Early Winters Compound.

The fire cache at Wenatchee helped to support the project. Any supply item that is commonly carried in a fire cache should be ordered from and returned to the cache so that it would not have to be carried on the project inventory. There are still a lot of supply items that the project needs that the cache doesn't carry.

There was not a good inventory of what was left in the entomology cache to go pick up. It became apparent that a good closing inventory could really help out the next person planning a project. It would also be good to have a list of the supplies that were used so that some supplies could be ordered ahead of time. Items like aluminum tags and nails were hard to get here and would be harder if in a more remote location.

When this project was over, an inventory of the remaining supplies was conducted. A list of what items were commonly used in order to help in the logistics planning for the next project was also made.

Art Anderson went through the items at Early Winters and found items that were no longer necessary for the project. These items were surplused. Not taking these items back to the cache will save room.

Recommendations:

Some supplies are hard to get in remote areas. Aluminum tags, aluminum nails and plotter paper and ink cartridges for the plotter were items that we needed to order from time to time. These items seemed to take time to get. If there was a way to figure out how many of these were needed ahead of time, after it was decided which plotter was to be used, paper and ink could be ordered in such a supply to make it through the project.

V. Monitoring

A. Spray Application

1. Egg hatch and development: Plots were established and egg masses were checked to determine egg hatch dates. First egg hatch was recorded on 5/21/01 in spray block M-75. The database contains additional spray block information for dates by egg development, larval densities, etc, as well as all field data that have been recorded by individual analysis units (see Entomology Operations Plan for protocols).

2. Tree bud development: Foliage elongation was monitored coincident with egg hatch and development to aid in determining proper spray timing (see Entomology Operations Plan).

3. DFTM larvae development: Blocks were released for spray application when thresholds for larvae development were reached (see Entomology Operations Plan for protocols).

4. Application methods, weather, and aerial observation: On spray dates, weather conditions were monitored to ensure compliance with spray prescriptions (see Spray Operations Plan for protocols). Aerial observation was incorporated within contract # 53-046W-1-1090. A total of 27.6 flight hours were flown to accomplish:
   *Airspace coordination
   *Aerial hazards
   *Communication monitoring
   *Sensitive areas (T&E species, recreation sites, horse ranches, publics, non-treatment areas, private lands)
   *Spray deposition
   *Weather parameters
   *Overall application logistics

Spray Standards: Refer to section C, contract #53-046W-1-1090.

Mechanical Operations: *F.S. management oversight VI Air Ops Section C
*RFP contractor oversight management

Accident Contingency Plan:
*Refer to P.A.S.P Contract 53-046W-1-1090
*Fire and Aviation management P.N.W. Region Aircraft crash, search, and rescue guide. Modified to comply with the Douglas Fir Tussock moth suppression project.
*Spill management - Refer to project/contractor spill plan (safety section)

B. Spray Effectiveness

A number of areas were not treated (sprayed) and were used as controls (Mazama blocks M-221, M-226; Wolf Creek blocks W-10, W-12, W-13, W-18, W-19; Cub Creek blocks C-5, C-6, C-8, C-17; and Twisp River blocks T-42 and T-78). Generally all of these areas had relatively low larval densities as compared with treatment areas (mean of 3.6 versus 10.8). The Mazama blocks were added to serve as representative northern spotted owl habitat.

1. Pre-spray:

Larvae development and larvae numbers were monitored to meet protocols for release of spray blocks and initiation of spray operations. In addition, an assessment of pre-spray defoliation was made. Individual plot information is in the database.

2. Post-spray:

The number of larvae was monitored with evaluation plots about 21-days following spray application. For the control plots, measurements occurred when larval development reached target levels used for the treatment areas. Once again, individual plot information is in the database.

The effectiveness of spraying was determined by comparing pre- and post-spray evaluation plot larval densities and defoliation estimates. Summary data is shown in Table 3 in the Entomology section. Larval mortality was detected in both treatment and control areas. Overall defoliation in treatment and control areas did not exceed 10%. Evaluation plots in treatment and control areas will be visited again in July 2002.

3. Aerial Defoliation Detection Flight

Following the 2001 flight, only light areas of defoliation were detected. This is consistent with the measured defoliation levels in treatment and control plots. No other areas of significant defoliation were detected. Foliage protection will be monitored for a second year with an aerial detection survey in 2002.

C. Wildlife

Wildlife monitoring for the project began on 3-28-01. Four Wildlife Biologists spent 4 months collecting information related to the DFTM outbreak and suppression activity.

A .Baseline & Survey:

- Measured the baseline for determining the degree to which the project was successful at retaining wildlife habitat for species such as the northern spotted owl. Habitat loss/protection will be determined following the end of the outbreak and after defoliation and foliage recovery is complete (May/June 2003).
- Surveyed for northern spotted owls and other owl species (8 routes, 26 visits, 109 hours) to document owl presence, species distribution, and ultimately to assess *Strix* owl reaction to helicopters overhead.
- Examined cliffs within the project area for possible nesting by peregrine falcons so disturbance to the birds and possible aircraft accidents could both be avoided.
- Searched for roost sites of Townsend's big-eared bats (a moth specialist) beyond those already known and examined the known nursery roosts within the spray area to document any disruption or change apparent due to outbreak or spraying.
- Gathered species distributions and relative abundance data on other bat species present in the area to help determine which bats might be affected in similar projects in the future.
- Documented the songbird species present within the project area at the time of spraying

B. Results: After evaluating conventional methods of determining canopy closure, the wildlife team developed a method of assessing canopy closure as an indicator of wildlife habitat. The method involved taking over 800 digital photographs of the canopy at set points on transects, both within spray treatment areas

and in non-treatment controls and then returning to these exact photo points in 2003 to assess the change in canopy closure over the two year period. Initial evaluation of the canopy closure prior to tussock moth defoliation was made with a 100-point grid overlaid on printed photos to generate a canopy closure index for each photo point. Although final determination of the success of the method rests on the results from 2003, initial analysis of the 2001 data is encouraging both in the consistency of the results and in the ability for the photographs to be replicated in 2003.

C. Northern Spotted Owl Surveys: Biologists conducted surveys along eight designated routes and detected 68 owl responses in 109 hours of survey effort. A single male spotted owl was located in the Cedar Creek area early during the survey, and later a pair of spotted owls was located near a historical nest site in the Varden Creek vicinity. It is possible that the male at Cedar Creek was also the male at Varden Creek, as no more responses were detected at Cedar Creek once the Varden Creek owls were discovered. The Varden Creek owls were carefully monitored and appeared to be non-reproductive (both owls away from the nest during a time when at least one should have been incubating). About four weeks prior to spraying the vicinity, we no longer were able to find the owls and despite additional efforts lost all contact.

Four other species of owl were detected during surveys. They were northern saw whet (*Aegolius acadicus*) detected 26 times; great horned (*Bubo* virginianus) detected 24 times; barred (*Strix varia*) detected 13 times; and northern pygmy (*Glaucidium gnoma*) detected 2 times. A barred owl nest discovered at Wolf Creek contained 3 fledglings.

D. Effect of Helicopter Overflight on Nesting Owls: An adult female barred owl and three fledglings were monitored during the treatment of the spray block in which the nest was located. Using two video cameras, the response to the helicopter overflight (about 10 passes) by the three fledglings was recorded. A biologist monitored the adult female reaction without a video recorder. The effect of the overflight on the barred owls appeared to be negligible, with no discernable response by the owls other than watching the helicopter as it passed overhead.

E. Peregrine Falcon Nest Site Surveys: Biologists surveyed 12 potential peregrine falcon nesting and foraging sites for peregrine falcon use in May, June, and July according to Region 6 Forest Service protocol. No individual peregrine falcons or nests were observed during the surveys. Golden Eagles (*Aquila chrysaetos*), Red-Tailed Hawks (*Buteo jamaicensis*), and American Kestrels (*Falco sparverius*) were also observed during the surveys.

F. Townsend's Big-eared Bat Roost Surveys: A total of 17 buildings within the spray area were investigated as potential day roost sites for Townsend's big-eared bats. One past roost site on Kumm road in an older storage shed was determined from guano not to be Townsend's. One male bat was found in the upper level of a garage. Several of the buildings showed evidence of night roost activity, however no additional day roosts of Townsend's or any other bat species were found.

G. Bat Surveys: Mist-netting and bridge surveys for bats located 10 bat species present in the spray area including: Yuma (*Myotis yumanensis);* little brown (*Myotis lucifugus*); California (*Myotis californicus*); western long-eared (*Myotis evotis*); fringed (*Myotis thysanodes*); long-legged (*Myotis volans*); Townsend's big-eared (*Corynorhinos townsendii*); big brown (*Eptesicus fuscus*); silver-haired (*Lasionycteris noctivagans*); and spotted (*Euderma maculatum)*.

H. Songbird Species: As part of other fieldwork 88 songbird species were documented within the project area. Some of these are ecologically connected to the tussock moth.

D. Riparian Monitoring:

A number of evaluation plots were located in riparian areas associated with bull trout habitat. Protocols were no different than for other evaluation plots. The change in riparian vegetation was determined by comparing pre- and post-treatment evaluation plots larval counts and defoliation estimates. As anticipated, there was no noticeable difference in pre- or post-treatment defoliation levels in riparian habitat compared to other areas of the overall project area. Tree mortality documented in 2nd year (2002) evaluation plot visits will be used to assess any change in recruitable woody material.

RIPARIAN EVALUATION PLOTS

STREAM	BLOCK	PLOT	PRE-TREAT LARVAE DENSITY	POST-TREAT LARVAE DENSITY	PRE-TREAT DEFOLIATION	POST-TREAT DEFOLIATION
Early Winters	M11	1	3.2	0	1.1	1.0
Cedar Cr.	M22	1	0.8	0	1.1	1.0
Cedar Cr.	M22	2	2.4	0	1.3	1.0
Cedar Cr.	M23	1	0.8	0	1.0	1.0
Lost River	M62	1	16.8	1.6	1.1	1.0
Lost River	M63	1	2.4	0	1.3	1.1
Goat Cr.	M82	1	62.4	2.4	1.2	1.0
Goat Cr.	M84	2	15.2	0.8	1.1	2.0
Wolf Cr.	W12	1	0	0	1.0	1.0
Wolf Cr.	W12	2	0	0	1.0	1.0
Wolf Cr.	W12	3	2.4	0	1.0	1.0

E. Health and Safety of National Forest Visitors and Spray Project Workers

Information on potential irritation caused by the hairs from DFTM larvae (tussockosis) was provided to the public through a variety of informational contacts. The project medical unit leader provided information as well to local medical providers. This item was also discussed with all project personnel during orientation/training. Monitoring was proposed to record the number of reports of tussockosis from Forest visitors and spray project workers. As of the end of August 2001, there were no reports of tussockosis from any project personnel, local medical providers, or the public. This is consistent with the overall low population levels of the DFTM when compared with 'outbreak' levels.

F. Recreational Experiences

This was an interesting item to consider for monitoring. The EIS contained little background information as to how this would be measured. Would individuals be interviewed? How can one person's recreational experience be compared with another? The root issue is based on the premise that spraying to reduce population levels of the DFTM would reduce the amount of overall defoliation and thus generally maintain recreational experiences. Locally, campgrounds were among the targeted 'areas of concern' for spraying and foliage protection. No campgrounds in the project area with target levels of DFTM larvae went unsprayed, so no local comparison could be made.

For a direct measurement of this item, it was proposed to monitor any difference in total fees collected in several high-use campgrounds over a 3-month (May-July) period. Fee data only goes back one year. Compared with year 2000 fee totals, there was a decrease by 4% of total fees collected in 2001 for the Early Winters (N and S), Klipchuck, and Lone Fir Campgrounds. It is difficult to determine with great certainty how much of this is related to the spray project. Factors such as week-end weather, local informational warnings of the pending spray operations, individual public contacts in advance of spraying, or the offer of waived fees all could have influenced the fees collected. Fees for these areas will be monitored in a similar fashion over the next few years to see if the spray project had a great influence. Based on the overall light amounts of defoliation detected in the post-spray condition, it is presumed that future recreational experiences were protected or maintained.

An indirect effect on people (recreational experiences) in campgrounds would be short-term noise and disruption caused by overhead helicopter spraying. To mitigate these effects, it was decided to make individual contacts with local businesses, adjacent residents, and people in campgrounds when it was known when these (or adjacent) areas would be sprayed. Information about the project was provided so people would not be surprised when helicopters operated in the very early morning hours. For campers, other camping areas outside the spray area were suggested; if people chose to stay, fees were waived. This information campaign proved to be very successful. Few, if any, problems were documented. It is to the credit of a great number of project personnel for this result. Additional documentation is contained in the chapter on Information and the Information Appendix.

VI. Air Operations

A. Contract Preparation/Project Mapping
B. R.F.P. Allocated Resources Heli-Jet Corporation Inc.
C. Forest Service Organization/Structure
D. G.I.S./GPS Systems
E. O38A Carrier
F. Virus Batch/Handling Protocol
G. Aerial Application Accomplishments
H. Safety
I. Project Guidelines Operations/Monitoring
J. Air Operations Recommendations

A. Contracting

General**:** Items contracted for project included:

*Aerial application of TM-1 Biocontrol formulation
*Administration flights in support of aerial application
*Carrier 038 formulation
*In early December the project indicated that the amount of acres estimated 26,000 would be adequate based on projected larva density from fall cocoon/egg mass sampling. A variation quantities clause (+or- 20%) was used for the end products contract solicitation
*The contract was solicited as a request for proposals: technical capability was considered more significant than price when the proposals were evaluated.

Events chronology:

November 9,2000 – Request for contract action submitted to Contracting
November 20 – January 6, 2000 – Solicitation/Contract package source selection plan and aviation safety plan drafted
December 6, 2000 – Service contract act wage rates requested
December 6-8, 2000 – Project site visit/spray block delineation/helibase/ICP locations identified and GIS/ARC info layers started
December 11, 2000 – Source selection plan submitted to R.O.
December 12, 2000 – Tussock Moth Contract specs drafted
December 15, 2000 – PASP sent to Steve Baumann
December 19, 2000 – PASP sent to Ken Ross
December 20, 2000 – Contract specs sent to Contracting Officer
January 5, 2001 – Source Selection plan approved
January 9,2001 – PASP approved and sent to Contracting Officer
January 29, 2001 – Request for proposals issued
February 28, 2001 – Proposals received
March 7-8, 2001 – Proposals evaluated by the selection board
March 9, 2001 – Final board recommendation without negotiations
March 20, 2001 – Award recommendation submitted through the Regional Office
April 12, 2001 – Virus determination results completed (14%)
April 19, 2001 – RFP awarded to Heli-jet Corporation Inc.
May 16, 2001 – Heli-jet requested resource reallocation/oversight management change

May 22, 2001 - First administrative flight for host type was completed
June 2, 2001 - Batch site set up
June 2, 2001 - First 038 arrived
June 3, 2001 - Application aircraft arrived
June 5, 2001 - Calibration
June 6, 2001 - Characterization
June 7, 2001 - First application
July 9, 2001 - Last application

Contract Preparation and Mapping

11/20/00 - U.S.G.S. green 1:24,000 Quad maps were ordered through Captain Nautical in Portland – 138 Northwest Tenth Ave, Portland, OR. 97209. Phone (503) 227-1648.
11/25/00 - PBS series maps were ordered for each quad through Sue Steffan Regional Office (503-808-2874) Scale preferred 4"/mile1:15,820.
On December 4th, 2000 a site visit was made to Winthrop, Wa. To determine locations of Helibase operations, staging areas, helispots, potential IC locations and to delineate spray blocks for the Mazama, Eight mile and Wolf Creek Analysis Units.
1/3/01 – Spray block delineation vicinity map sent to Carl Culham (C.O.) to be included in the RFP.

B. Request for Proposal Resource allocation & Heli-Jet Org.

Project Oversight:

Heli-Jet Corp. General Manager	Jim Reid
Project Manager (CDR)	Blaise Gaucher
Project Operations	Mitch Zulyevic
Helicopter N58HJ Pilot	Dave Boden
Helicopter N51AG Pilot	Bonnie Wilkens

2001 Tussock Moth

Equipment Resources

AIRCRAFT

Spray Team	Make/Model	N#	Pilot	Owned By	Tank Capacity
1	Bell 205-1++	N58HJ	Boden	HeliJet	400
2	Bell UH-1H	N51AG	Wilkens	AgRotors	400
Admin	Bell 206-B III	N49589	Lovitt	Cascade	---

SUPPORT EQUIPMENT

Spray Team	Make/Model	Owned By	BatchCapacity	Fuel Capacity	Water Capacity
1	1993 Frtliner	McGregor	2000	500	500
2	1991 Int'l	AgRotors	2000	1500	300
2	Fuel Tender	Helijet	0	3000	0

Support Spray teams are comprised of helicopter pilot, certified aircraft mechanic and batch truck driver.

Batching facilities consisted of one 7,000 gallon cone storage tank, which was plumbed with 3-inch centrifugal pumps and certified cumulative meters. The batch site also was equipped with a portable mixing tank so that loads of 038A carrier and TM-Biocontrol-1
Can be mixed at the helibase.

GPS swathing systems

Both helicopters were equipped with Satlock GPS Swath-Guidance system.
Swath guidance systems utilize the overhead array of GPS satellites for navigating the flight lanes during aerial swathing. With the aid of a "light bar" and computer monitor, the pilot is able to visualize perfectly parallel flight lines, spaced according to preset swath offsets. The system is augmented by differential correction, which "corrects" errors created by the GPS satellites, environmental and atmospheric conditions. The second and equally important feature of the system is the recording capability. All flight, both spray and non-spray positions, is continuously recorded and can be played back utilizing the companion software, MapStar@, or printed to various media to provide documentation of treated areas.
Upon completion of each spray day all treatments were verified with review of the printed (or by monitor screen) map sets which displayed the swathing lanes and application for each spray block or cluster prior to approving the daily aircraft record which converts satisfactory applied gallons of virus formulation to acres treated for payment.

Aircraft spray tanks were Simplex 4000 systems with gear driven simplex pumps capable of handling the flow rates of 1 gallon per acre.

Helicopter N58HJ:

Spray boom had 8 beecomist atomizers with a total flow rate of 18.8 gallons per minute. The air speed of 80 mph with an effective swath width of 150 feet at and application rate of ¾ gallon per acre equals an application rate of 25 acres per minute.
The micron sizes of the beecomist atomizers averaged between 180 to 400 microns.
(This includes the spread factor of times 2 for the O38A carrier).
The beecomist atomizers are electrical driven and requires considerable amps from the aircraft electrical system. The atomizers spin at the rate of 12,000 to 15,000 rpm.

Beecomst atomizers had considerable maintenance problems:

a. Lost 2 beecomist due to bearing's
b. Some of the Beecomist during testing showed that RPM varied after time due to mechanical wear
c. The lower RPM causes larger spray drops

Helicopter N51AG:

Spray boom had 8 micron air a.u. 5000 atomizers, with wide angle blades which are wind driven. The total flow rate of 18.6 gallons per minute with application rate of ¾ gallon per acre air speed of 80 mph and effective swath of 150 feet equals an application rate of 24.8 ac/minute.

The micron air atomizers gave a smaller spectrum of droplet size from 150-300 microns, which resulted in smaller and more drops per square centimeter. We had to adjust the blade angle to 40 degrees from 35 degrees, as the drops were too small to start with.

Micron-air atomizers had no maintenance problems and provided consistent VMD spectrum.

Aerial Application:

During spray operations- Kromacote spray cards were put out on every spray block to monitor spray deposition and coverage. It was noticed that with high humilities 90%+ that the droplet size, spread considerably, 800-1000 microns: as well as drops had a halo-effect on individual drops. Also it was noticed that cards put out during heavy dew point would gather moisture and will not provide accurate sample of droplet size and deposition.

During application of insecticide it is suggested that spray drops actually collect moisture when high humilities are prevalent. (90-99%)

C. Forest Service Organizational structure (Air Operations)

Air Operations Section Chief	Art Anderson
COR	Art Anderson
Depty Air Operations	Sandy Summers
Aerial Observer/ASGS	Jim Trowbridge
ABRO	Terry Dyess/Paul Higgins
HEBM2	Mike Carney
HEMG	Lynn Wyatt
HEMG	Mike Poor
HEMG (T)	Kevin Morin
Ground Observer	Kevin Morin
Ground Observer	Steve Anderson
Ground Observer	Jim Harvey
Ground Observer	Ed Bridgeman

Air operation structure is based on Management of Contract inspection and oversight. (C.O.R.) IHOG prerequisites for aircraft management and aviation management to meet forest needs and project aviation safety plans – following were the positions required to manage 2 type II restricted category helicopters, and 1 type III standard category helicopter.

See organization chart - Appendix B (Page XI-11 of Appendices)

A few of the positions had to be resource ordered as no response to the outreach letters was received.

1. The first position was the A.B.R.O. The request was sent to the local Okanogan Dispatch center through NWCC for regional request. After 2 weeks no response was received so we went national with the request and received a candidate from Texas for a 14 day detail.

2. The second resource order was for a meteorologist from the Spokane Weather Service, we had to convince the office that the need was there for spray projects to warrant an on site I.M.E.T. The resource order was filled on multiple 14 day assignments through Spokane and Seattle National Weather service.

3. This service proved to be extremely critical due to the weather patterns in the Methow valley. It was especially critical to forecast rain on treatment areas to manage the required foliage/product drying time.

D. Electronic Data Interchange

1. Spray block delineation was completed by air operations and entomologist. The polygons were entered into ARCinfo.

2. Once the shape files are built from spray block delineation they are transferred to a floppy disk, or they can be sent electronically. These shape files are loaded into Heli-jet's laptop computer. The pilots then open the shape files and manipulate the vertices if necessary.

3. The new shape files are saved as job files. These job files are loaded onto a PC card, taken to the aircraft, and loaded into the computer system. The aircraft's system creates a log file, which is saved on the PC card. This PC card is brought back to laptop and reviewed.

4. The log files are transferred to a floppy and given to the GIS person. Mapsets are then created using the Mapstar software for exporting the GPS swathing documentation.

Refer to Appendix E (Page XI-25 of Appendices) – for step by step instructions for GSI/GPS interface.

E. O38A Carrier

The 038A carrier was purchased sole source from:

Omnova Solutions Inc.
Performance Chemical Plant
6008 High Point Road
Greensboro N.C. 27407
Contact: Annette Willard
Tech. Contact: Henry Briley
Phone No. (336-454-3141)

1. The first load was received on 6/2/01 and down loaded to the storage cone tank. A sample was taken from the top and bottom of the truck before unloading. No apparent settling of product. The 60 mesh screen had to be cleaned only once.

2. The second load had only 20 gallons through meter before the screen had to be cleaned. There was a lot of sediment that had separated out. After the screen plugged five times, they pumped 038A into the cone storage without a screen just to get it unloaded. Pictures were taken of the sediment with Digital Camera and sent to Heli-Jet, Carl Culham (COR), Dave Bridgwater, and Dick Reardon. After Blaise Gausher and Dick Reardon called Omnova it was found out that quality control procedures had not been followed at Omnova Solutions creating the separation of product causing sediments to clog the screens. This load was sent back to Omnova Solutions Inc. for Re-screening and batching.

3. The third load was satisfactory only cleaned the screen twice.

4. The fourth load was unloaded with no problem.

Disposal of extra 038 due to dropped blocks from lack of larva populations:

a. Dick Reardon had no need for the 038A
b. Heli-jet through Washington State Hazmat contacted a land fill at the Okanogan, no problem to bring it there to dispose of.
c. Contractor hired a local truck to transport 038A to landfill. After discussion with the Hazmat coordinator, the landfill was going to use product for dust abatement. Rather than pay $1300.00 for disposal at the landfill, the private vendor decided to put it on his driveway for dust abatement.

Virus Batch/Handling Protocol

1. TM-1 BIOCONTROL PROJECT INVENTORY

Beginning project quantities:		
Lot #4	**17,185** gallons	**22,913** acres
Lot #5	**3,655** gallons	**4,873** acres
Lot #6	**1,525** gallons	**2,034** acres
Lot #7	**6,975** gallons	**9,300** acres
TOTALS:	29,340 gallons	39,120 acres

Quantities used on project:		
Lot #4	**7,443** gallons	**9,924** acres
Lot #5	**1,345** gallons	**1,793** acres
Lot #6	**510** gallons	**680** acres
Lot #7	**3,015** gallons	**4,020** acres
TOTALS:	12,313 gallon	16,417 acres

Remaining Quantities:		
Lot #4	**9,742** gallons	**12,989** acres
Lot #5	**2,310** gallons	**3,080** acres
Lot #6	**1,015** gallons	**1,353** acres
TOTALS:	13,067 gallons	17,423 acres

TM-1 Biocontrol storage

The virus was stored in a tree cooler at the Methow Valley Ranger District in Twisp, Washington. The temperature was kept at 38 degrees. The virus was stored in the cooler, in transport the virus was put into a cooler that plugged into the cigarette lighters in the vehicle. The virus was only removed at the time of batching.

2. Pre-batching

   The day before operations we would work with the contractor on which aircraft would be spraying which unit, the size loads the aircraft would be taking and would set up our batch accordingly with the right amount of virus per load. We always took extra packets to the helibase for back up or for changes in the daily operations to give us flexibility.

3. Batching

The contractor had tanks that were capable of mixing 1-2 helicopter loads at one time. The contractor would put 5 gallons of 038 in a bucket and mix the appropriate amount of virus for the load. They would use paddles attached to a drill for mixing. The approximate amount of time for mixing is 5 minutes in the 5-gallon bucket and then recalculates the batch in the large tank before pumping into aircraft.

Refer to Appendix C for detailed virus lot information to be added later to the Access Database

PROTOCOLS FOR HANDLING TM-BIOCONTROL-1

1. See Appendix J (page XI-60 of Appendices) for protocols

F. Aerial Application Accomplishments

*Aircraft calibration and characterization was completed on 6/06/01 for helicopter N51AG and N58HJ.
*The first spray blocks were released on 6/05/01 for treatment on 6/07/01. The last day of application was completed on 7/09/01.
*Aircraft were on site 33 calendar days.
*There were a total of 20 spray application days.

Application Aircraft Production Summary

58HJ			51AG			TOTALS		
AC	FH	AC/HR	AC	FH	AC/HR	AC	FH	AC/HR
8200	22.8	360	8490	20.1	422	16690	42.9	389

Administration Helicopter summary

RECON	INSPECTION	REVENUE	TOTAL HRS
2.0	18.0	7.6	27.6

The Access Data Base has 3 reports for review by analysis unit:

a. Accomplishments
b. Aircraft summary
c. Daily summary

G. SAFETY

There was a total of 70.5 hours of flight without an incident or safecom issued.
There were a total of 225 sorties flown for the entire project.

*The emphasis on safety was discussed at the 0400 briefings, the 0900 de-briefings 1300 air ops strategy meetings, as well as when changes in spray ops plan or operations warranted a re-emphasis on risk assessment and safety emphasis.

*Following is thedocumentation of co-ordination with forest, region, military, and local flight services for airspace deconfliction:

Conference Call - June 1st regarding Tussock Moth Spray Project **(DRAFT 6/1/01)**

Participants: Art Anderson - Aviation Officer - Spray Project
Julie Stewart - Airspace Coordinator
Chief Mark Hall - NAS Whidbey
Sally Estes - Okanogan NF
Stephanie - Seattle ARTCC
Representative from Seattle Flight Service Station

Background: There will be a Douglas Fir Tussock Moth spray project involving low level flying helicopters in Eastern Washington involving 28,000 acres from June 6th to July 12th..
Helicopters will be flying 50-75 feet above the canopy and will involve spray helicopters and observation helicopters. We are requesting that a NOTAM (L) or NOTAM (D) be put in place with an advisory regarding the flying. Flight time will basically be between 0430 - 0930 (Local time) and the "go/no go" decision will be based on weather conditions, relative humidity, winds, etc. Airspace involved includes IR-348 (NAS Whidbey) and the Okanogan B MOA.

Discussion:
A decision to "go/no go" will be made daily at 1300 (Local). A "No go" decision could be made at 0400 AM (Local).

Chief Hall: We are not normally using IR 348 before 0900. We can schedule the route so that no one flies it before 10:00. Regarding the Okanogan B MOA, we can request that military aircraft stay at 1500 AGL until 10:00 AM. (Note - Seattle ARTCC agrees with 1500 AGL.)

Flight Service Station: We request verification each day with times, and location.

Art: Confirmed that TFR is 9 NM from Center point.

Seattle Center : Would also like daily notification.
Okanogan NF: Same with notification

Decision:

1) Spray Project will contact ARTCC, NAS Whidbey, FSS and OKF Dispatch daily with "go/no go" decision at 1300 the day before.
2) Spray Project will contact same on day of spraying if decision is made to not fly.
3) Spray Project will provide briefing package, maps, etc for ARTCC, NAS Whidbey and Flight Service Station prior to beginning of spray project along with Points of Contact Listing.

Points of Contact (POC)

Spray Project:
Incident Dispatch – (509)-996-2814 (fax) (509) – 996-4051
Air Operations Chief –(509) – 996-2814 or 2809

NAS Whidbey
POC - OS1 Navarro Phone 360-257-2877 (Open until 1700 or leave msg with ans machine)
FAX 360-257-1283

Seattle ARTCC
POC- Mission Coordinator Phone 253-351-3523
FAX 253-351-3594

Seattle Flight Service Station
POC - Todd Oldroyd Phone 1-800-262-0616
Phone 206-764-6606
FAX 206-764-3341

Okanogan NF Dispatch

POC - Gary Reed	Phone	509-422-3581
	FAX	509-422-2014

AIRSPACE EMERGENCIES:

Julie Stewart:	Phone	503-808-6728
	(Cell)	503-780-0097
	FAX	503-808-6799

HELICOPTER APPLICATION OF TM-BIOCONTROL-1 FOR
THE SUPPRESSION OF THE DOUGLAS FIR TUSSOCK MOTH.

PROJECT LOCATION: Okanogan/Wenatchee National Forest located North of Twisp in the Methow Valley.
Lat/Long for the project at center point within IR348.
N48'34"36 / W 120.14.29 (9 mile radius)

PROJECT DURATION: It is estimated that the project duration will begin on June 6th last until July 12, 2001. (duration is based on weather and larva development.) There will be approximately 28,000 acres scheduled for treatment.

APPLICATION OPS: Aerial application will occur when larva are developed and when weather conditions warrant application, less than 70 degrees temp, less than 10 mph winds, greater than 49% relative humidity and moisture not prevalent. The daily hours of operations will occur between 04:00 and 10:00 hours.

Helicopter application will be applied from 50 – 150 feet AGL. Their will be an aerial platform above the application aircraft for safety, communications and application efficacy. The aerial platforms will be 2 Bell 205's , 1 Hiller Soloy 12E and 1 Bell 206B 111.

INCIDENT CONTACTS: Dispatch – (509) 996-2814 Fax – (509) 996-4051
Chief of Operations - Art Anderson (509) 996-2814

H. PROJECT GUIDELINES OPERATIONS/MONITORING

The following guidelines as outlined in Appendix G of the EIS were adhered to under the Project Aviation Safety Plan, Air Operations, and Contractor's RFP.

G.2 Aerial Observation

Aerial observation was incorporated within contract no. 53-046W-1-1090. A total of 27.6 flight hours were flown to accomplish:

*Airspace coordination
*Aerial hazards
*Communication monitoring
*Sensitive areas (T&E species, recreation sites, horse ranches, publics, non-Treatment areas, private lands)
*Spray deposition
*Weather parameters
*Overall application logistics

Spray standard: Refer to section C, Contract #53-046W-1-1090

Mechanical operations

*F.S. management oversight VI air ops Section C
*RFP contractor oversight management

Accident Contingency Plan

*Refer to P.A.S.P Contract 53-046W-1-1090
*Fire and Aviation management P.N.W. Region Aircraft crash, search, and rescue guide. Modified to comply with the Douglas Fir Tussock moth suppression project.
*Spill management
Refer to project/contractor spill plan (safety section)

I. Air Operations Recommendations

1.Personnel:

*Helicopter managers: One manager per 2 Type I Restricted Aircraft
*Helicopter manager plus a trainee per 2 Type I Restricted Aircraft
*IMET assigned to project
*District work available when there is no spraying
*Detail letters more specific to all duties on project
*More notice on report days
*Entomology: interface more with this group on doing plots and taking weather.

2. Contracting:

*A multi-year contract
*Trade offs on oversight
*Government furnished property – 038

3.Virus/Batch

*All packaging should be in the brown envelopes due to size and quantities available for transport.

VII. Finance (Sharon Cathcart)

The Okanogan-Wenatchee National Forest was the host unit of the Project. Therefore, all business and financial matters were handled through the Okanogan office. The Command and General Staff made the following financial decisions prior to implementing the project:

- All employees will adhere to the rest and recuperation Guidelines of 1 day off in 14 or 2 days off in 21.
- The IC set this example and enforced it with all employees.
- Employees will be on a 1st 40 tour, Sunday through Thursday.
- No Compensatory Time will be allowed. Sick Leave will be charged if off work due to illness.
- Section Chiefs can approve up to 12 hours per day, IC must approve all additional overtime.

A. Organization

The Finance Chief was located at the Incident Command Post in Winthrop. One Personnel/Time Recorder was located at incident headquarters for the majority of the project, especially during the spray operations. The local business administration folks at Twisp were available; therefore, they worked part-time throughout the entire project.

B. Personnel & Hiring

Wayne Kleckner, Incident Commander, recruited the Section Chiefs in January. He and the Logistics Chief were also part of (fire) Incident Management Teams and were dispatched during the final phase of the project. Art Anderson Completed the project as Acting I.C.

An outreach was sent out to all personnel offices in the region to fill additional miscellaneous overhead and entomology crewmember positions. Position titles listed in the outreach were those from the Incident Command System without a description of the duties. This caused confusion, as many positions did not follow the traditional ICS job descriptions. We received enough outreach response forms to fill a large portion of the positions, which were filled as details. We were short mostly heliopter managers, due to the project starting earlier than anticipated. Responses were received from Forest Service and National Park Service employees. The Forest elected to utilize the STEP program to fill most of the temporary positions, which resulted in the hiring becoming an ongoing process through approximately the third full week of the project.

All detailers received a request for personnel action and a letter with a project overview and expectations. The letter would have been more beneficial with more clarification and detailed information about hours, days off, overtime, etc. A request for personnel action was made for all detailers and 1st 40 tour for most of the individuals assigned to the project. The SF-52's where processed thru the Forest and didn't get to the homeunits in a timely manner. This caused some problems as people coming to the project in the middle of a pay period had already worked some credit time. Each detailer completed an "Information Sheet" with personal, payroll, and travel information that was utilized in the finance section. Numbers of employees working on the project varied throughout the duration of the project. The following shows the total personnel working on the project that supported the Methow Valley Project.

Table 11: TOTAL PERSONNEL WORKING ON THE PROJECT
Total Overhead –11 + (Contract IIO; Contract Ent. 1) = 13
Entomology Crews (Detailers (8), Temporaries (15), Locals (7) =30
Air Operations Detailers (11), Locals (2)=13
Miscellaneous Support 15
Wildlife /Monitoring 5

TOTAL PERSONNEL ON PROJECT 76
Most Personnel at One Time (PP 12) On site, 50 Recording Ti me 70

C. Per Diem & Travel

Detailers assigned to the project were in per diem status and standard per diem rules were in effect. For the most part, temporaries worked from their official duty station and were not in per diem status. However, if they were relocated for short periods, they received per diem. The Finance Section completed travel vouchers for all employees. Detailer's hand carried an official packet back to home units containing original signatures.

D. Payroll

Payroll was a challenge due to the Forest main system being inaccessible 80% of the month of May. The Finance Section processed time for all personnel on the project, through the Finance Section Chiefs personnel profile on Lotus Notes. This decision was made because of the long hours employees would be working as well as the number of computers available. Time for the temporaries, detailers, and local District employees was processed through the Finance Section to the Methow Valley Ranger District and then forwarded on to NFC.

Problems and confusion occurred regarding 1st 40 tour, which caused several of the first T&A's to be corrected. In the future Finance Section Chiefs need to refer to FSH 6109.11 – PAY ADMINISTRATION, ATTENDANCE & LEAVE handbook; Chapter 20; Section 22.15 to insure that proper interpretive of the 1st 40 pay options is understood and be followed. Because the project was being managed under the Incident Command System, the day off schedule was 1 in 14 or 2 in 21.

E. Claims

No claims were filed as a result of the project.

F. Accidents, Injury, Illness

Two personal injuries occurred during the project, one twisted leg and one twisted foot. While both accidents did require a doctor's visit only the twisted leg required 2 days of lost time on project..

G. Procurement

Procurement for the project was separated into two categories: 1) Aerial Application Contracting, and 2) Operations Purchasing. The Operations Chief acted as the Contracting Officer's Representative and was delegated authority to handle the Aerial Application Contract. Resource orders were used for operations purchasing to order equipment and supplies for the project. Orders were processed through the Logistics Section. The local district offices assisted with these purchases as well as the use of government credit cards.

H. Costs

Tracking costs for the project was a challenge. During the planning phase, employees charging time to the project and had not turned in of hours worked and dollars spent on per diem and purchases for tracking

purposes. Once the project started, costs were gathered at ICP location and entered into a spreads sheet for the entire project. The difficulties came with the magnitude of employees charging to the project but were not actually detailed to the project. Also, two weeks into the primary project the job code was changed and that caused some problems with making sure that all accounting adjustment were accomplished.

The entomologist that was originally assigned to the project had quit the FS to enter the private sector in the capacity of consultation. This allowed the Forest to contract for entomology services, but the contract was not finalized until a week into the project.

The Job Code Summary Statement reports (Project Manager Statements) were not reliable for tracking daily charging. The reports for each month were not available until the following month. Costs for personnel are actual costs for work.

The cost per acre is high due to the initial project direction, which was for application of a large number of acres, approximately 26,000 acres. The acreage for application decreased significantly resulting in a high cost per acre. In addition, the project total costs are higher than projected, as some of the obligated costs that were incurred from sources outside of the project are included in the project costs.

I. Total Project Costs and Cost per Acre

Table 12:

TOTAL
Salary = $772,740.00
Per Diem = $98,800.00
Vehicles =$42,190.00
Supply/Equipment = $51,039.00
Aircraft (Contract) = $591,468.00
Aircraft (Call When Needed) = $0.00
TOTALS (+5%) = $1,571,237.00 - Acres Sprayed = 16,690
COST PER ACRE $ 94.14

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Table 14: Projected Costs Thru 2002

Projected Costs
2001 Environmental Monitoring = $0.00
2001 Defoliation Sampling =$0.00
2001 Mating Disruption =$0.00
2001 Mating Disruption = $ 0.00
2001 Contract Preparation = $0.00
Report Publication Costs = $0.00

VIII. Safety (Wayne Wilson)

The DFTM project Incident Command Post was located in the basement of the Winthrop Work Center. One safety officer was assigned to this project. The Safety officer worked full time for the first two weeks of the project with the field going employees during orientation and required training including First Aid, CPR, and Defensive Driving. After the first two weeks, SOFR was present approximately 50% of the time. Daily attendance at the morning crew briefings talking about fieldwork safety and driving safety were the emphasis areas. Job Hazard Analysis', Medical Evacuation Plans, and Aviation Safety Plans were written for this project and used during the tailgate safety sessions for reference. When Air Operations started June 7, 2001 daily operational and safety briefings were held at 0345 and debriefings were held at 0900. The Air Operations Chief ran these briefings.

The overall project safety record attests to the diligence of everyone with regard to safety. Starting with crew safety briefing, with follow-up crew tailgate safety meetings, and crews' attention to detail while driving and working in the field.

A. Summary Of Field Crew Activities

Project Activities

Hours Worked:	23,978
Miles Driven:	108,664
Aircraft Hours:	70.5
Injury/Illness Reports	2
Vehicle. Accident	0
Aviation Safety Report	0

Two of the CA-1's required medical attention, one for a twisted knee and one a twisted foot.

Overall the project safety record was very good; considering the large amount of people and the total project hours that where worked, the defensive driving of all employees was greatly appreciated since a total of several thousand miles were logged throughout the project with no accidents. While the project's air operation was of short duration, there where no known incidents and personnel safety was outstanding.

IX. Information (Megan Perkins)

A. General Information Operation

In addition to the signs, a poster was positioned at the fee station of one campground, waiving the campground fee for the duration of the spraying. See appendix J, Section 4.

The Tussock Moth Project headquarters office acquired and utilized a message phone that was updated daily with the spray plan for the following day. The phone number for the Tussock Moth Information Line was on the posters that were distributed throughout the community. Unfortunately, the message machine did not have a feature that allowed for tallying the number of calls to the Information Line. It would have been nice to have a count of the number of calls to be able to assess the effectiveness of this outreach method.

Information Specialists and Incident Commander Wayne Kleckner contacted recreationists as frequently as possible when out posting information signs and whenever campgrounds and dispersed sites were sprayed. The benefit of talking with people directly is the feedback provided. From this type of contact we were able to determine the true impact on the community. See the summary of the public contact log below and the Public and Media Contact Log located in Appendix J, Section 19.

Four news releases were sent to local media regarding the Tussock Moth Spray Project. The first one was to announce the beginning of the project, why the project needed to be done and the implications involved with the spray project. The second news release announced an open house to be held at the Winthrop Work Center. This was an invitation to the community to stop by and find out more about the project and to get any questions answered that they might have. The third news release was to announce the date spraying would begin in the valley. Lastly, a news release was sent out to the media announcing the completion of the Tussock Moth Spray Project. See Appendix J, Section 8-10 to review news releases.

All in all, the information outreach aspect of the Tussock Moth Spray Project went very well. The pro-active approach that was taken by the Forest, preparing the community months prior to the beginning of the spray project was seemingly effective. The first public outreach meeting was held at The Barn on February 1, 2001. An open house was held at the Winthrop Work Center on May 31. (There were about two people in attendance at the open house). It could be assumed that early outreach and the news releases that were sent out to local media sufficiently prepared the community. Spraying began the first week in June.

To gain closure in the information arena, letters were drafted to local businesses that directly supported our effort and to local businesses whose business may have been adversely affected by spraying and low flying aircraft. A letter to the editor was sent to thank the community for their patience and support and a news release was sent to local media informing the community that the project had been completed, provided results of the project and thanked the community for their patience and support. See Appendix J, Section 20-22 to review letters.

B. Information Program Implementation

The following bullets are items that the Information Team believes were the most positive aspects of their outreach efforts:

- The work that the District did during the winter and spring months really helped. It would have been difficult to get acceptance from the community otherwise. The good will that the early outreach brought us was a key component to our success.
- Once spraying began, it was critical that we kept lodging facilities and businesses informed on a daily basis, especially when spraying was close to them. It was very helpful to make these contacts in person when possible.
- Contacting recreationists became our priority once spraying began. It was because most of these visitors came not knowing about the spray project.
- Information was posted at all trailheads.
- Information was posted in all campgrounds.
- Project updates were made daily to local businesses and the public via faxes and phone message system.
- Made personal contacts when recreation sites were planned for spraying.
- The information team worked closely with Methow Valley Ranger District Recreation staff to let them know when recreation sites were to be sprayed.
- Fee system was removed from one main campground for several days while we sprayed. Visitors were told about areas where they could camp or hike without impact.
- Remove all information regarding the project when spraying is completed.
- The IIO detail folks were all highly qualified and did an excellent job making the information part of the project a success.

The following bullets are items that the Information Team feels could use improvements:

- The Information Team was a combination of experienced and inexperienced personnel. The less experienced personnel felt "hampered" by not having done a project like this. Expectations were not clear, especially in terms of staffing.
- Changing the lead IIO once the project began had some impact while new IIO was learning project details.
- Contact with private land spraying done by the Washington Department of Natural Resources (WDNR) could have been better. This would have helped us provided better information or contact person for WDNR.
- Some district folks helping information team were less qualified and needed guidance and training.

The following bullets are suggestions from the Information Team for future incidents:

- Consideration needs to be given to modify the contract to preclude flying in high tourism dependent areas, such as campgrounds, on weekends and holidays. This may mean not flying in units with campgrounds in them, or immediately adjacent to private lands during those times.
- Project details need to be a minimum of two weeks. Anything less is not effective. The longer a person can remain in their detail position, the more effective the information aspect of the project.
- The person in the IIO position needs to stay for the duration of the project.
- IIO Staff, Operations, Entomology Crews and Logistics can always improve in sharing information that is accurate and consistent.
- Notes taken by Information Specialists need to be legible to other people. The people beginning the project are not necessarily the people completing the project.
- Inclusion of a road layer and recreation layer included on the map would be helpful, especially for people who are unfamiliar with the landscape.

X. Project Critique

A. Group Critique

The Command and General Staff critiqued with Regional Office personnel on July 11 to critique the project. That critique follows:

Last years recommendations were reviewed and following are some of the items that where implemented this year:

- One entomology plan should be used for all projects.
- Request for Contract Action needs to start by Oct. 1.
- Cocoon Survey results need to be done by late fall (by each Forest) The project implemented 1 plot per square mile for this fall survey
- Develop consistent reporting standards. Ken Snell developed and tested Access database that was used for several reporting systems
- Monitor amount of virus available to meet ROD-again the Access database was used
- Do their own mapping including GIS.
- Handle their own Communications (radio, phone, fax, office space, etc)
- Aerial contract financed and administered by region.
- Provide a lead COR that is air operations qualified. (GS-462-11-Art Anderson)
- Critical need for quality maps. Mapping standards should be provided. GIS/GPS assigned to project
- Verify IHOG qualifications (Chapter 3) for air operations. John Rawlins and Art Anderson. – Adhered to standards @ national level
- Cocoon sampling needs to be done and a treatable population verified, in the field, in the fall of 2000, for all Analysis Units to be considered for treatment in 2001. This extensive field verification will provide the necessary information to make the project more efficient when spray blocks are determined and spring surveys begin.
- Dave Bridgwater is to review and revise fall sampling protocol.
- Resolve issues concerning virus development, packaging amount, and handling. Don Scott and RO product manager. – Sandy Summers developed and implemented new record system.
- Plan for one week to train the entomology crews.

Team recommendations for the future projects:

1. Air Operations

- Orientation of air operation personnel with entomology crews to better understand the process and evaluations needed to recommend treatment of individual spray blocks.
- Need to cross train both the entomology and ground observer positions so better utilization of individual time can be accomplished.

- Need to include job descriptions when offering detail opportunities so all employees have a full understanding of work requirements.
- Need additional computers for project with forest network capabilities. The Forest needs to assign a computer maintenance person to insure that all personnel have equipment operational in a timely manner.
- Recommend that spraying does not occur when the relative humidity is above 90%. This recommendation would need to be incorporated in the aerial application contract.
- Recommend that contracting and operations look at the type of wind driven atomizer that could be used for future projects. There is evidence that the Micron air atomizers have a better VMD spectrum and less maintenance problems. It may be to require them in the contract.
- Look at having the 038A carrier be Government furnished product.
- Have a facility available to allow the contractors and forest service personnel the ability to work together
- Need to have GIS person assigned to the project who has GPS skills.

2. Logistics

- Need good accurate supply list of what is at the LaGrande cache for the project
- Need to insure that essential project supplies are ordered and available prior to the start of the project. May need to develop a specific project needs lists so minimum supplies are on hand prior to project start-up. Example supply list in the entomology plan.
- Need to have a full time assistant to the Logistics Chief. May require more than one person depending on the project size.

3. Entomology -

- Need to have copies of aerial photos available to field crews
- Flag in walking routes into the more difficult units. This information would be shared with both entomology and ground observer.
- Size of crews need to be consistent with the size of blocks to be inventoried or the total number of plots that need to be collected. This is especially important in steep, rocky terrain.
- Need to pre-print data input forms onto write-in-rain paper
- Project needs to supply hand held GPS units for field crews.
- Need to have physical expectations on job announcement; i.e. steep terrain, packing equipment for long periods of time, etc.

4. Information –

- Minimum detail for information personnel would be a minimum of two weeks and preferably longer.
- The project IIO should be assigned for the duration.
- Road and recreation layers need to be in GIS for planning purposes.

5. Finance –

- All personnel that are charging to the job code will have their time turned in to the finance section for processing.
- The 1st 40 rule needs to be a part of the hiring packet for better understanding.
- Need to organize some type of approval system for project purchases prior to the team arriving on site. Set standards for purchasing for project and stick to them.
- Need to have a computer person available to work the individual team members through the different type of program applications that are to be used on the project: i.e. ACCESS, EXCEL, etc
- Regional recommendations would be to have Project staff perform the IC position in an acting capacity when needed.

The team also identified several things that well on this project and felt they should be mentioned. They are as follows:

- The team as a whole was one of the best mix of experienced and trainable personnel and everyone seemed to work well together across the board.
- The office space was excellent and everyone had adequate space and work areas
- The support from the District and Forest to the detailed employees was excellent
- The forest communication shop was more than willing to help with all aspects of the radio operations
- The finance section did a good job on time-sheets and per diem once the bugs where worked out of the system and concept of 1st 40 week was worked out
- The coordination and inter -acting with the wildlife crews was excellent. This project had several areas of concern in the wildlife area
- Sharon Cathcart did an excellent job in the organization of the project prior to the arrival of all other personnel
- The entomology department (Connie) expertise in the rearing of tussock moths from egg to what ever was interesting and education for all project personnel and visitors.
- The accommodations for the detailers was excellent and all detailers where appreciative
- The GPS/GIS process will enable us provide the contract with job files for the helicopter as well as files that will allow the RO and others to observe the actual spray pattern on the computer
- Safety was the number one concern for this project and all employees did an excellent job. The contractors where very safety consequence
- The contractor was a pleasure to work with and work together very well with all management areas.
- The Access database worked very well after all thirteen revisions where implemented
- The District worked well with the team to provide all transportation and facility needs in a timely manner
- The year the group started a weekly get together which everyone attended this inter-action between departments opened communication lines and friendships that carried over into the work environment
- Entomology –
- The crews where exception and the motivation level they maintained through some very tough terrain and long days were greatly appreciated.
- The District (Arlo) worked very hard to continue the employment of the crewmembers once the project no longer needed the large work force.
- The support from regional office, Dave Bridgwater and Ken Snell was excellent and appreciated by the forest and the team.
- Plan for one week to train the entomology crews

B. 2001 Group Project Critique

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- Regional recommendations would be to have Project staff perform the IC position in an acting capacity when needed.

C. Project Team Cooperation

The team also identified several things that well on this project and felt they should be mentioned. They are as follows:

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XI. APPENDICES:

A: Analysis Unit Maps

B: Organizational Charts

C: Finance and Personnel

D: Logistics

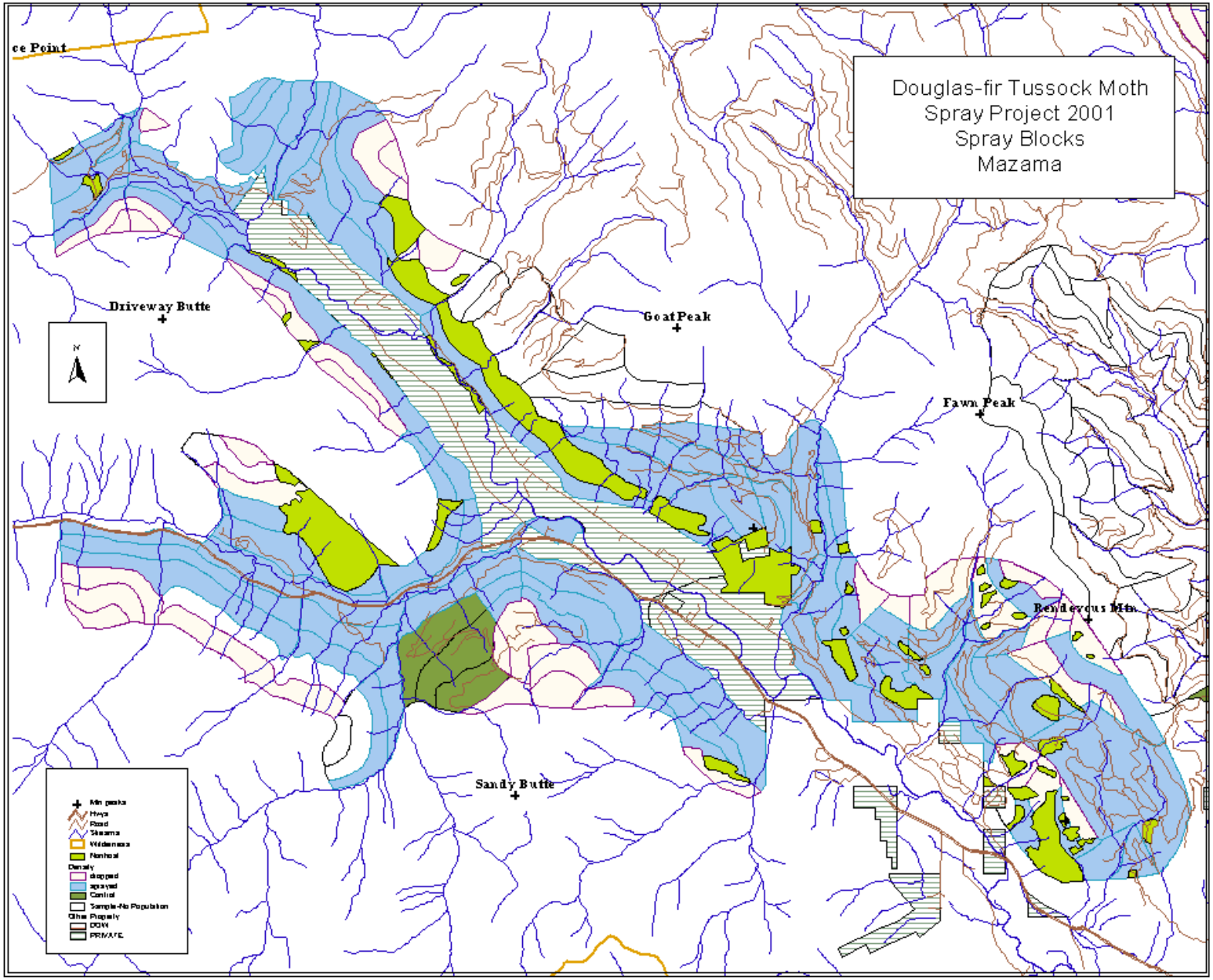
E: Air Operations / Contracting

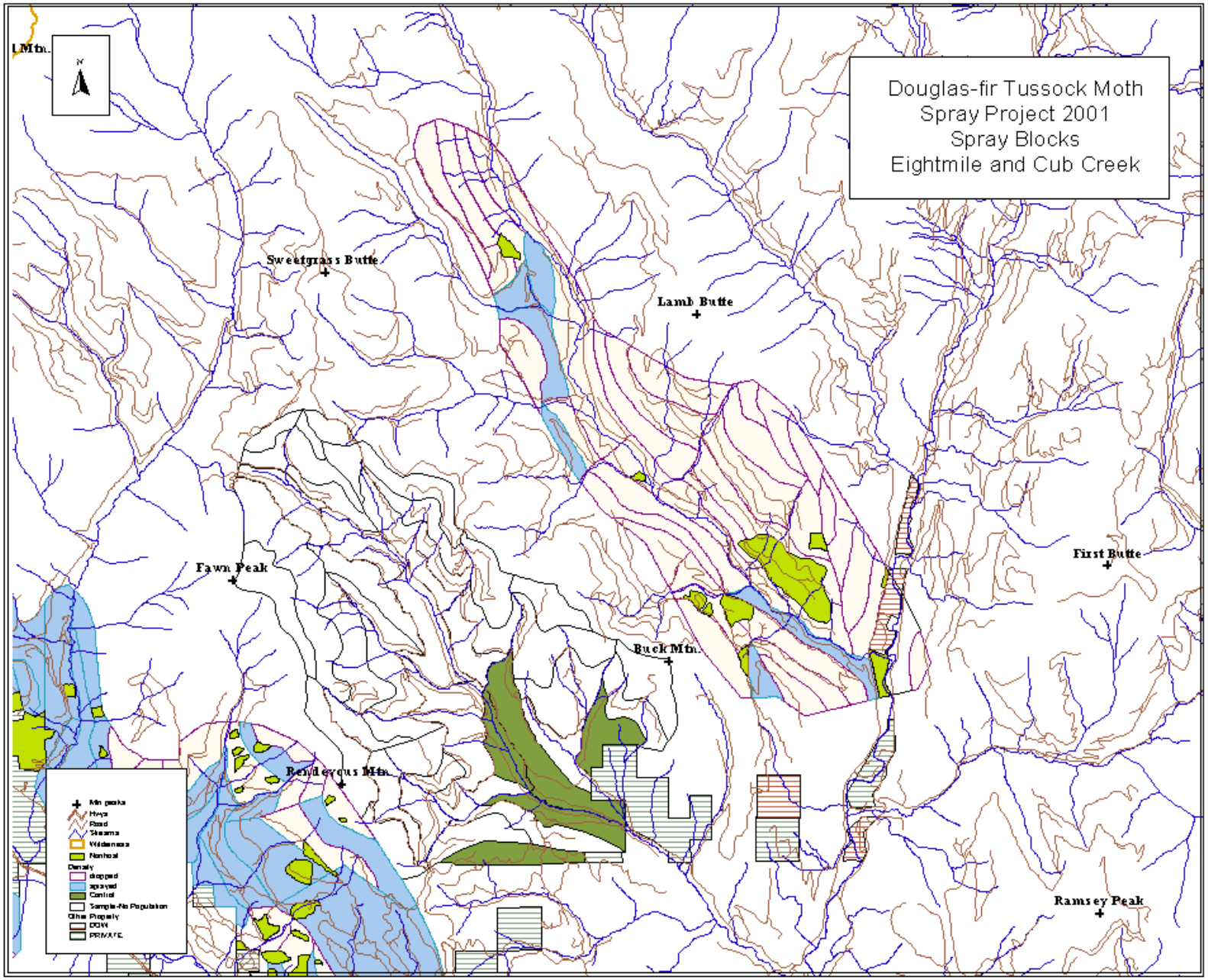
F: Project Planning

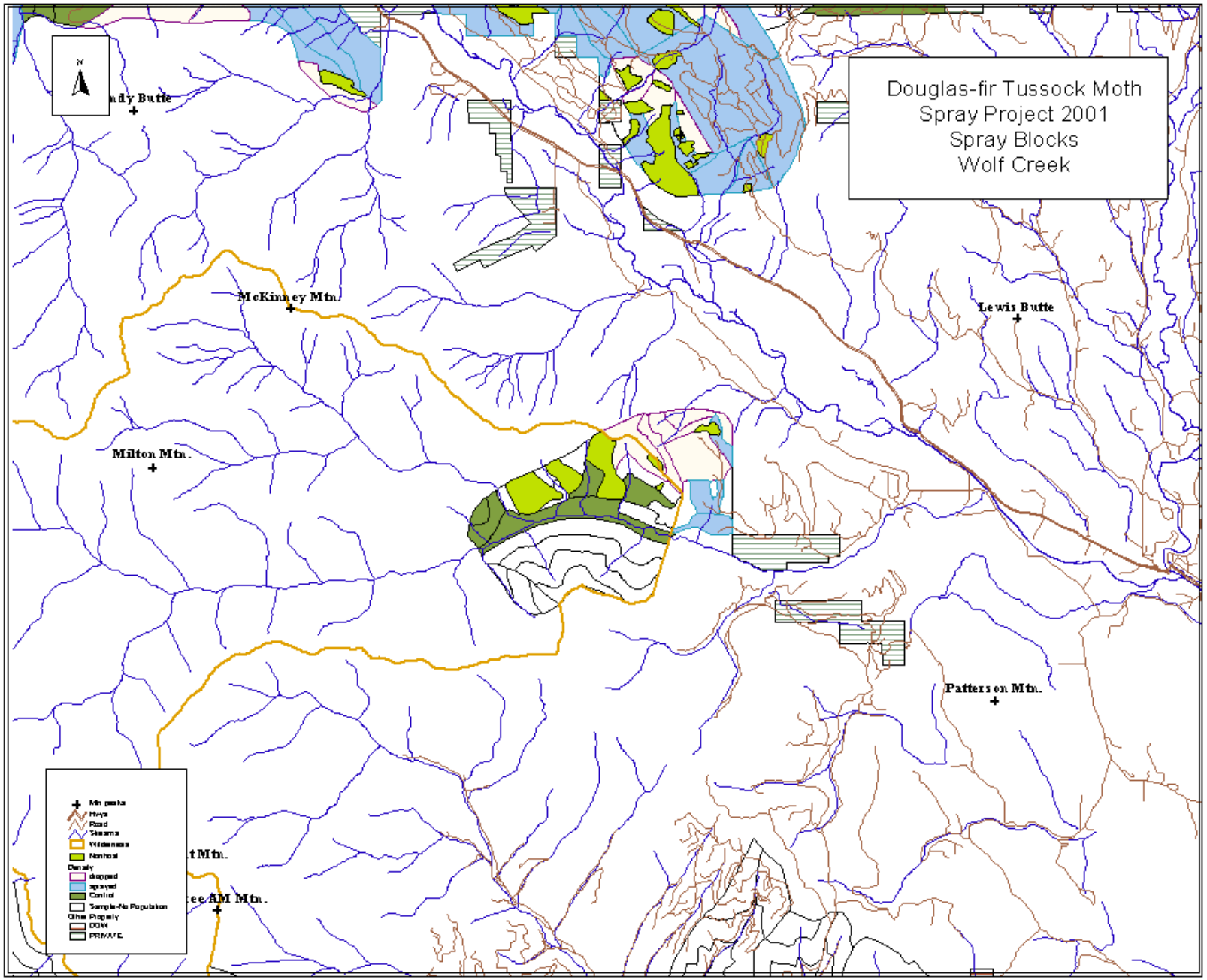
G: Safety

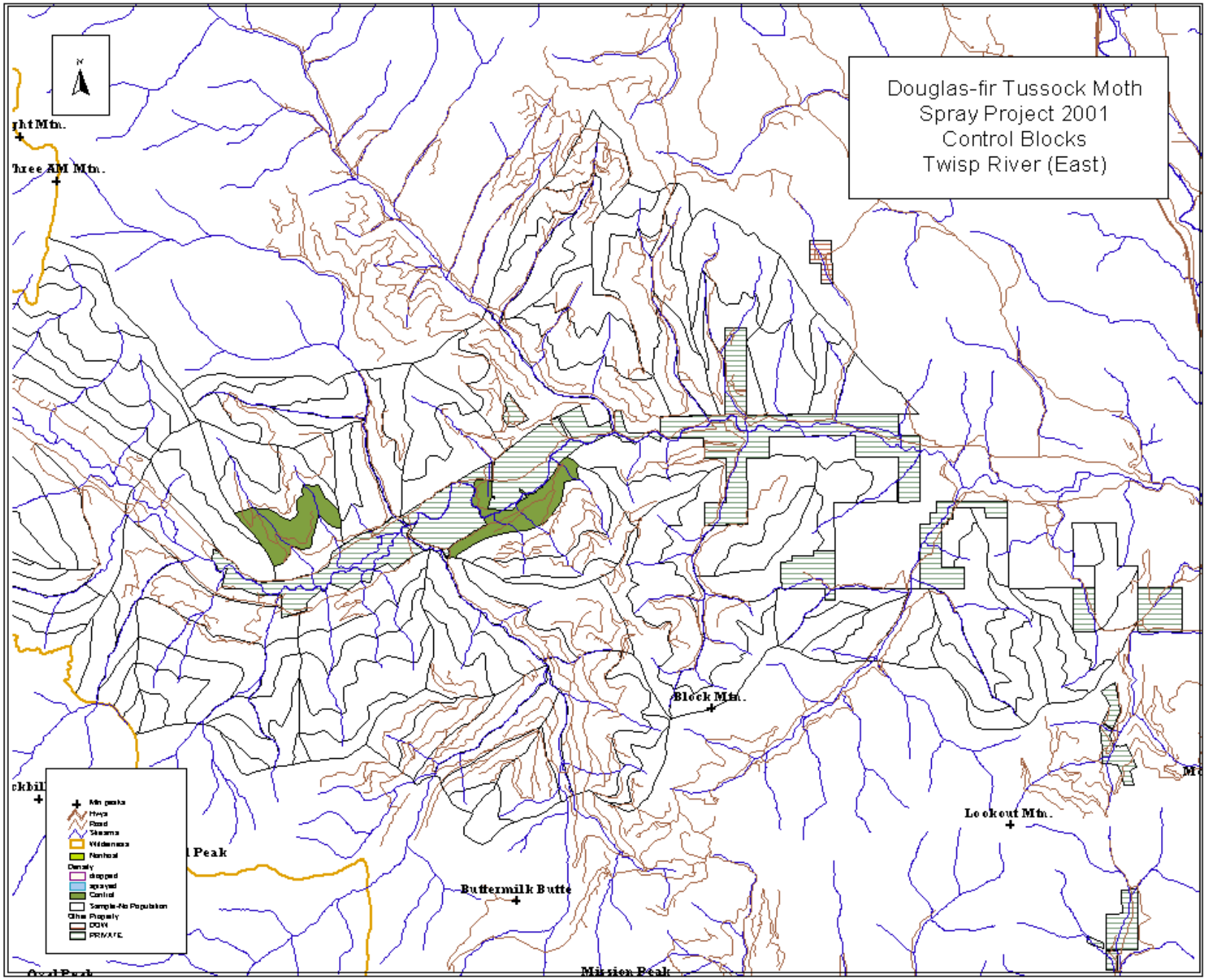
H: Public Information Plan

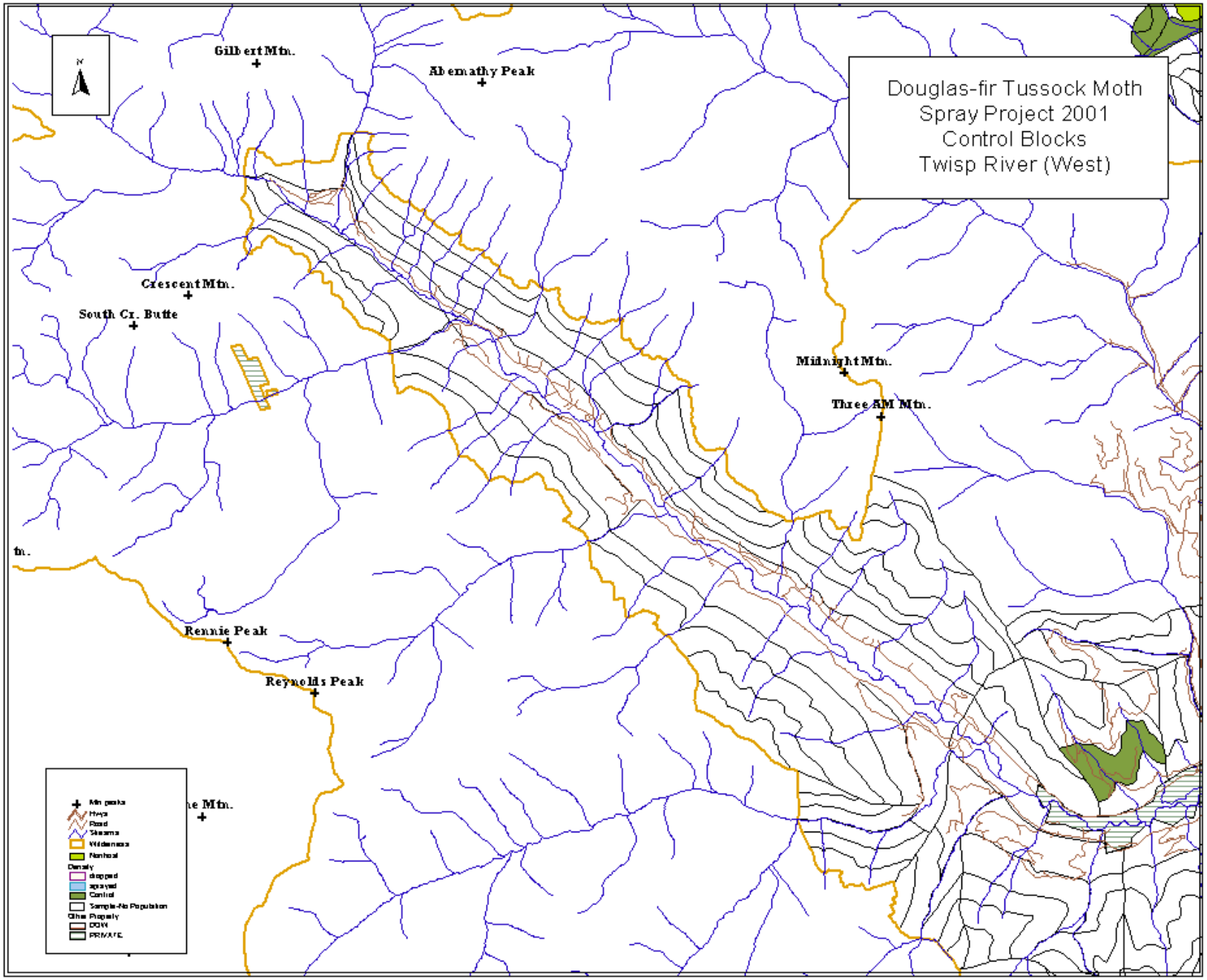
A. Appendix – Analysis and Control A.U. Maps



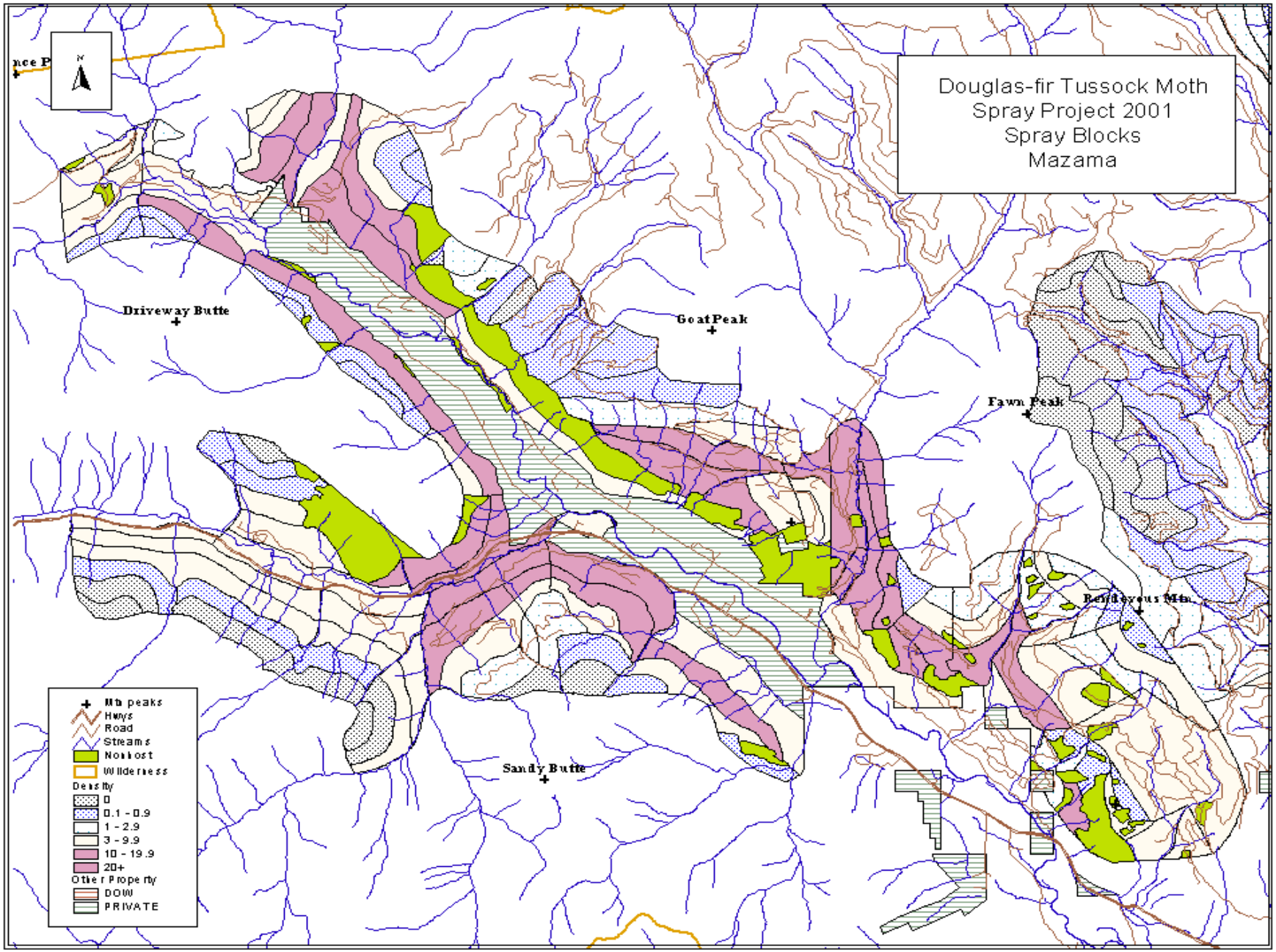

Douglas-fir Tussock Moth
Spray Project 2001
Spray Blocks
Eightmile and Cub Creek
LMtn.
Sweetgrass Butte
Lamb Butte
Fawn Peak
First Butte
Buck Mtn.
Rendevous Mtn.
Ramsey Peak

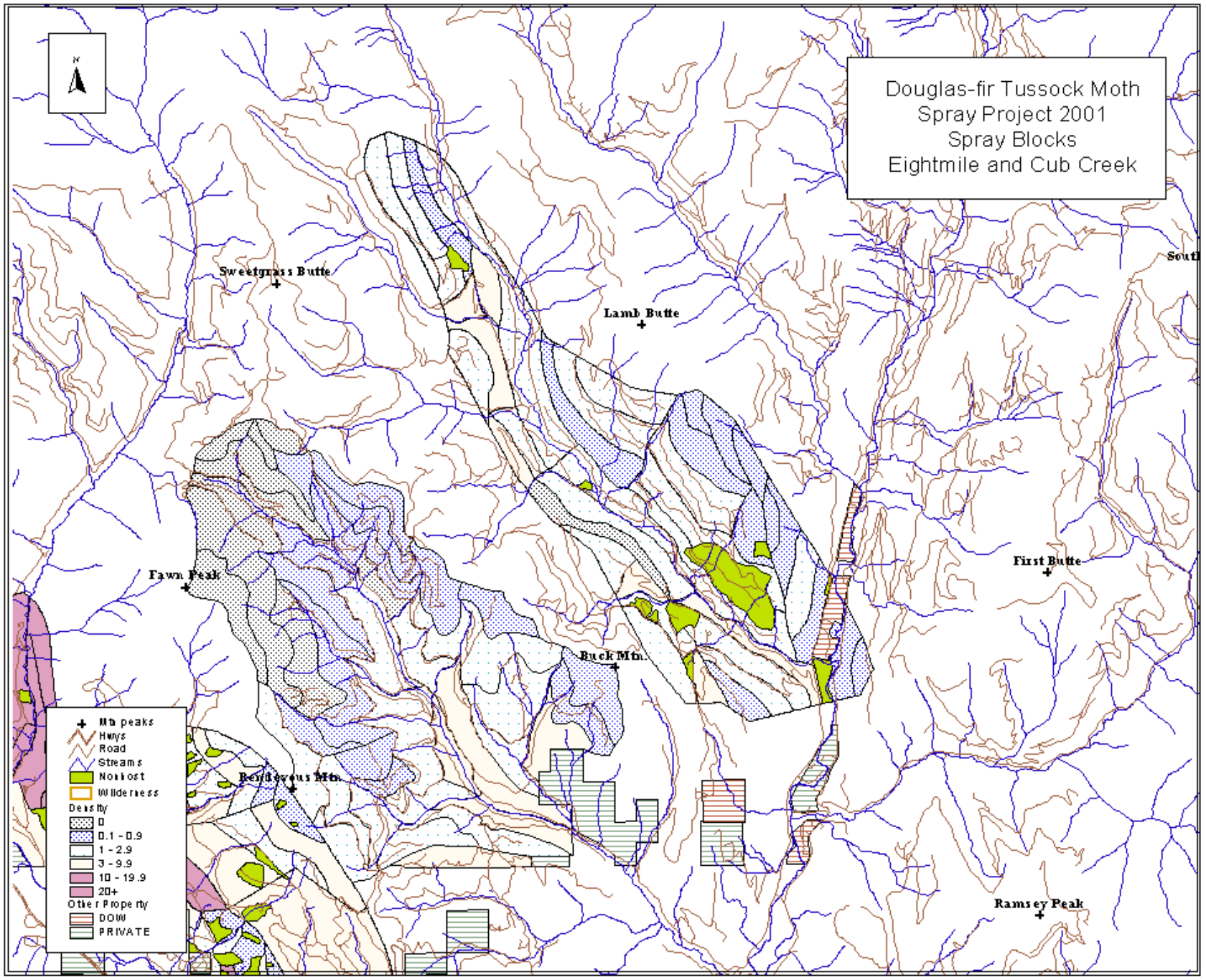

Douglas-fir Tussock Moth
Spray Project 2001
Spray Blocks
Wolf Creek
McKinney Mtn.
Lewis Butte
Milton Mtn.
Patterson Mtn.

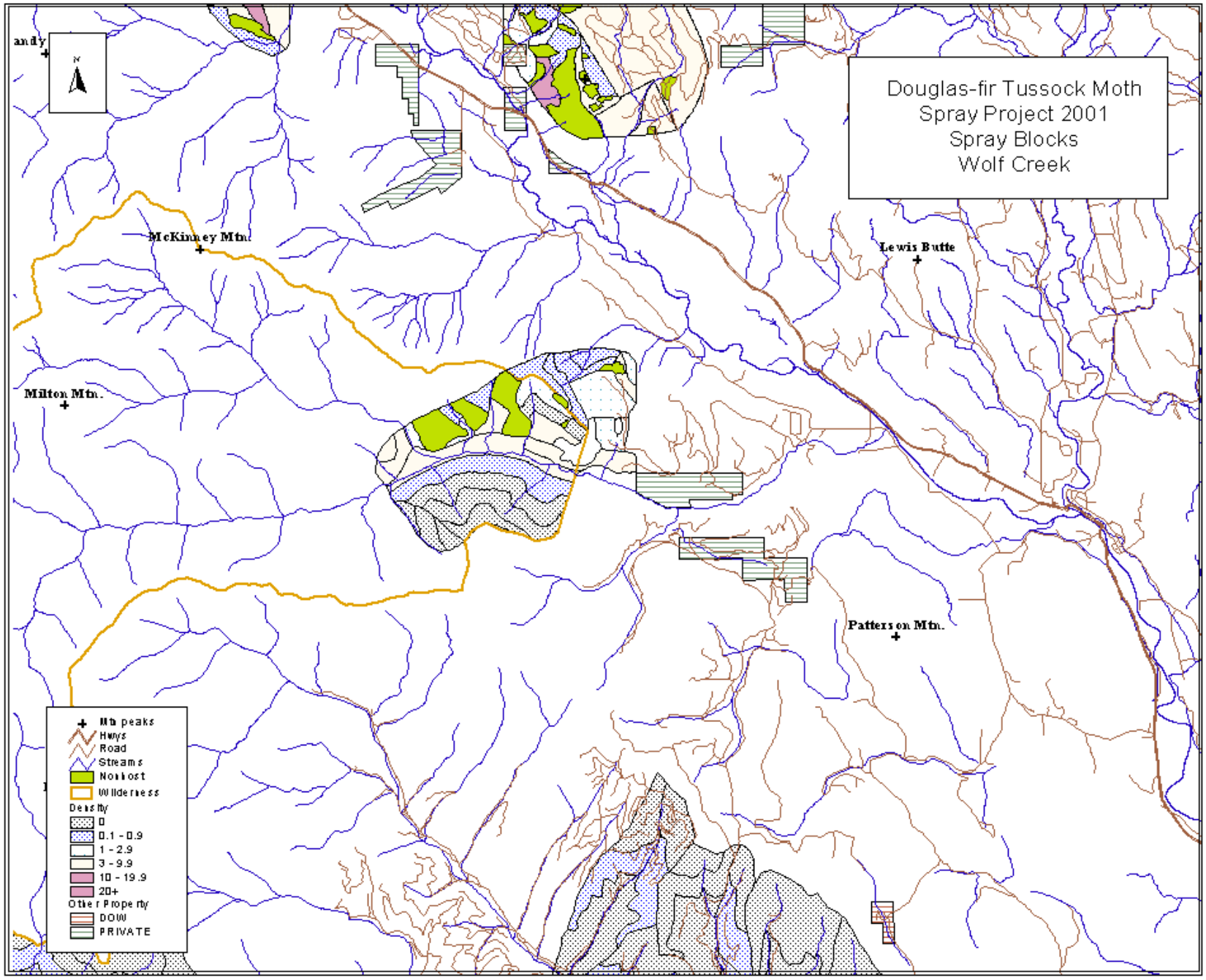

Douglas-fir Tussock Moth
Spray Project 2001
Control Blocks
Twisp River (East)
Block Mtn.
Lookout Mtn.
Buttermilk Butte
Mission Peak

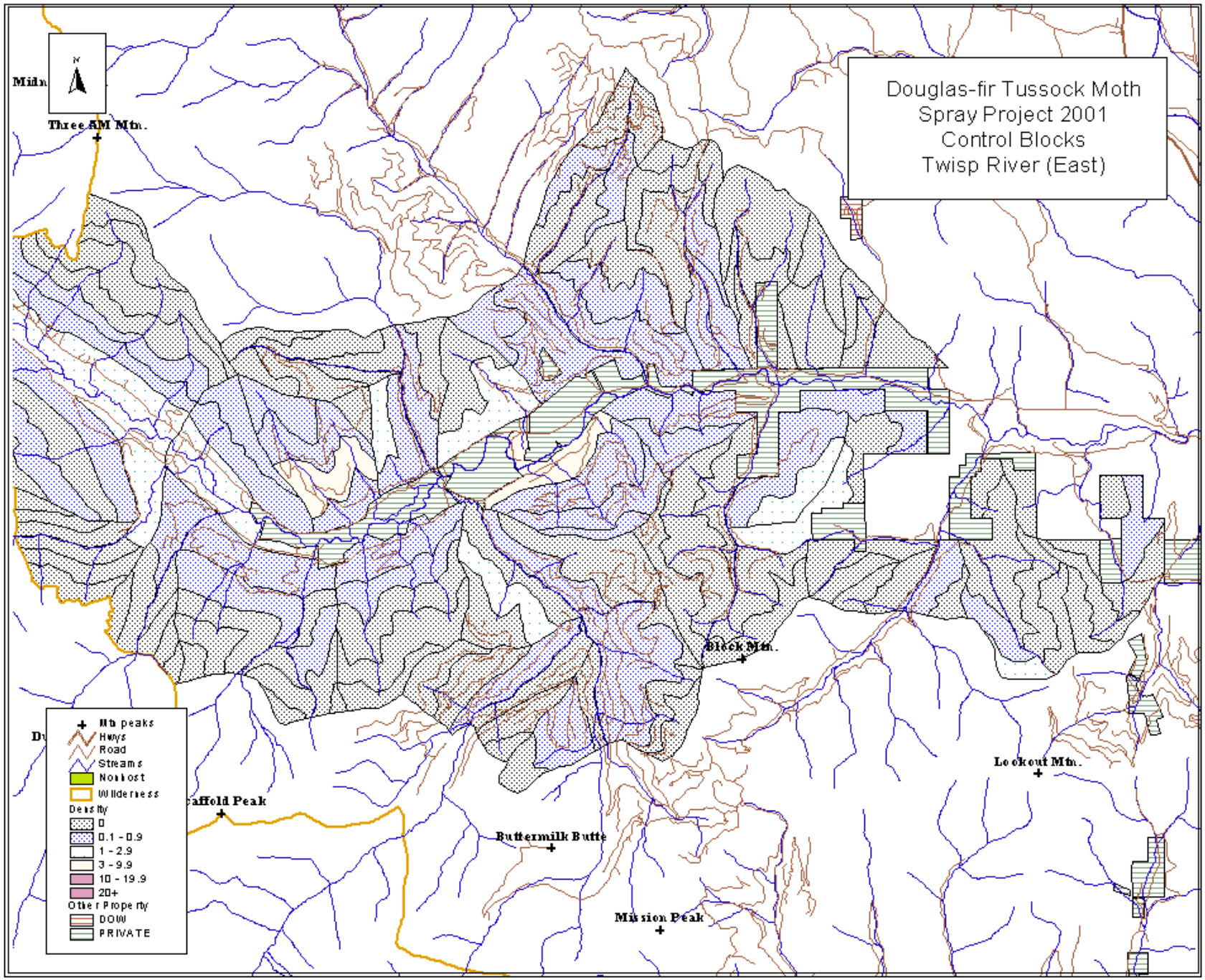

Douglas-fir Tussock Moth
Spray Project 2001
Control Blocks
Twisp River (West)
Gilbert Mtn.
Abernathy Peak
Crescent Mtn.
South Cr. Butte
Midnight Mtn.
Three AM Mtn.
Rennie Peak
Reynolds Peak

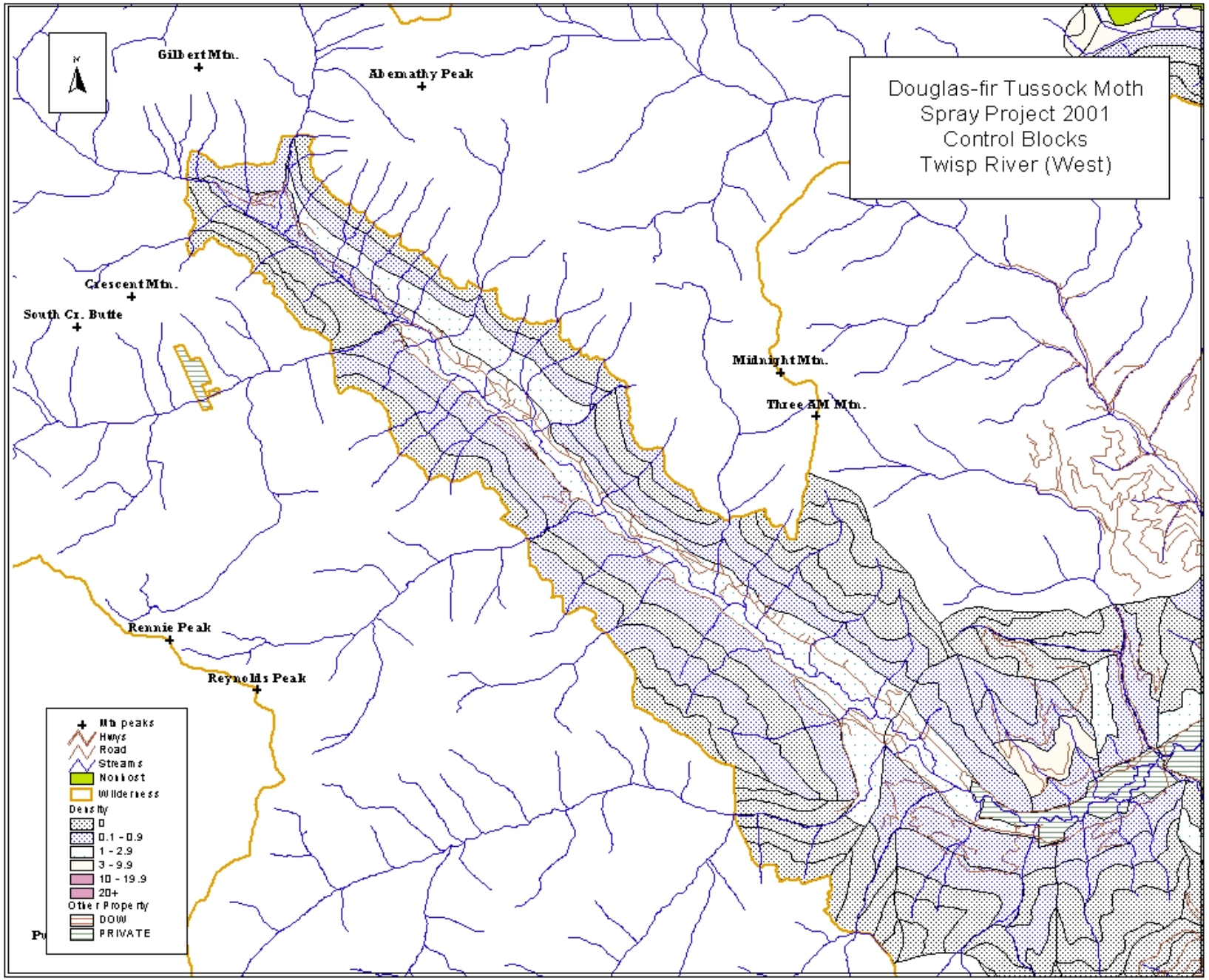
Appendix – A -1 (population density maps)




Douglas-fir Tussock Moth
Spray Project 2001
Spray Blocks
Eightmile and Cub Creek
Sweetgrass Butte
Lamb Butte
Fawn Peak
First Butte
Buck Mtn.
Ramsey Peak
Mtn peaks
Hwys
Road
Streams
Non host
Wilderness
Density
0
0.1 - 0.9
1 - 2.9
3 - 9.9
10 - 19.9
20+
Other Property
DOW
PRIVATE

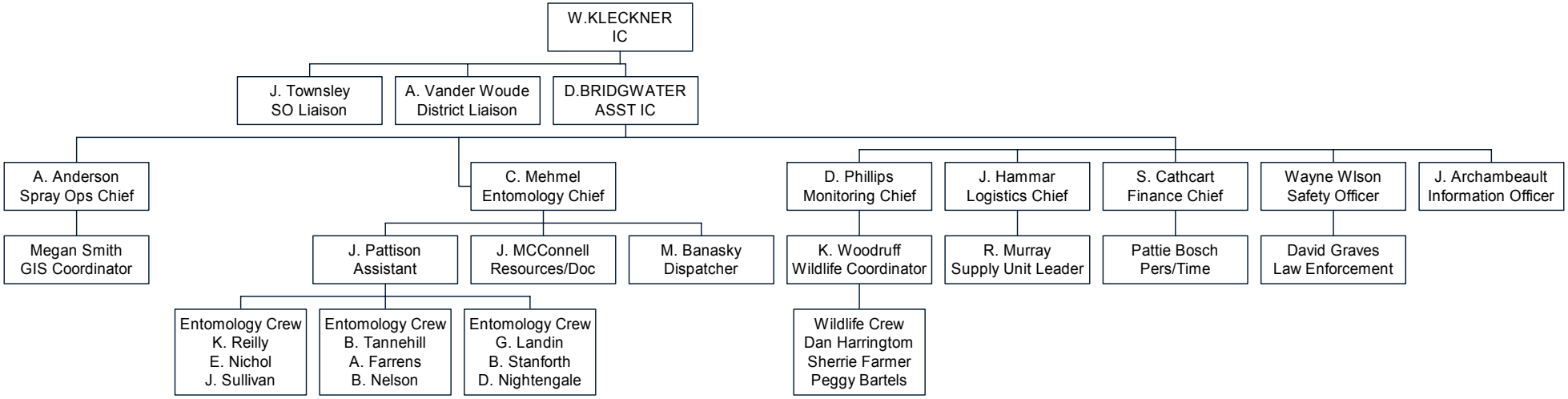

Douglas-fir Tussock Moth
Spray Project 2001
Spray Blocks
Wolf Creek
McKinney Mtn.
Lewis Butte
Milton Mtn.
Patterson Mtn.
Mtn peaks
Hwys
Road
Streams
Nonhost
Wilderness
Density
0
0.1 - 0.9
1 - 2.9
3 - 9.9
10 - 19.9
20+
Other Property
DOW
PRIVATE


Douglas-fir Tussock Moth
Spray Project 2001
Control Blocks
Twisp River (East)
Three AM Mtn.
Block Mtn.
Lookout Mtn.
Buttermilk Butte
Mission Peak
Mtn peaks
Hwys
Road
Streams
Nonhost
Wilderness
Density
0
0.1 - 0.9
1 - 2.9
3 - 9.9
10 - 19.9
20+
Other Property
DOW
PRIVATE


Douglas-fir Tussock Moth
Spray Project 2001
Control Blocks
Twisp River (West)
Gilbert Mtn.
Abernathy Peak
Crescent Mtn.
South Cr. Butte
Midnight Mtn.
Three AM Mtn.
Rennie Peak
Reynolds Peak
Mtn peaks
Hwys
Road
Streams
Non lost
Wilderness
Density
0
0.1 - 0.9
1 - 2.9
3 - 9.9
10 - 19.9
20+
Other Property
DOW
PRIVATE

B. Appendix – Organizational Charts

2001 DFTM SPRAY PROJECT



C. Appendix – Finance and Personnel

Appendix					BUDGET FOR METHOW VALLEY DFTM SUPPRESSION PROJECT									
C-1														
						7/14/01								
		Number of Persons	Estimated Cost Per Day	Days Needed	Perdiem Days	Perdiem Cost Per Day	Total Employee Cost	Supplies	Supply Cost	Vehicles	FOR Cost	Fuel/Main Cost	Total Vehicle Cost	Total Estimated Cost
Op.	Operations	12	$300	37	37	$100	$177,600	Misc	$4,000	11	$750	$1,628	$9,878	$191,478
							$0	Contract acres	$551,468			$0	$0	$551,468
	Art Anderson	1					$40,000	16690	$0			$0	$0	$0
							$0					$0	$0	$0
							$0					$0	$0	$0
							$0					$0	$0	$0
Ent.	Entomology	21	$200	60	19	$100	$291,900	Misc	$10,000	12	$1,500	$2,880	$20,880	$322,780
		1	10wks ft	4 wks 10/wk			$37,000	Contract Entomologist		1	$500	$100	$600	$37,600
							$0					$0	$0	$0
							$0					$0	$0	$0
Safety	Safety	1	$300	30	0	$100	$9,000	Misc	$1,200	1	$100	$180	$280	$10,480
							$0	Mandatory 1st Aid training	$500			$0	$0	$500
							$0	Defensive Driving	$500			$0	$0	$500
							$0					$0	$0	$0
							$0	Cache	$14,000			$0	$0	$14,000
LEO	LEO/Traffic	1	$300	2	0	$0	$600			1	$0	$12	$12	$612
							$0					$0	$0	$0
							$0	Misc/supp	$3,000			$0	$0	$3,000
Logistics	Logistics	2	$240	63			$30,240	Copier	$2,239			$0	$0	$32,479
	Radio comm.	1	$200	10			$2,000	Cooler Utilities	$1,000			$0	$0	$3,000
							$0	Office Lease/rug	$11,000			$0	$0	$11,000
							$0	Print/computer support	$5,000			$0	$0	$5,000
								ELECTRIC	$1,000					$1,000
							$0	Office Cleaning	$1,400			$0	$0	$1,400

IO	IO	1	$240	40	40	$100	$13,600	Video film/prep	$0	2	$500	$480	$1,480	$15,080
	Arch	1	$240	30			$7,200					$0	$0	$7,200
	Contract PIO/Tonn						$6,000					$0	$0	$6,000
Finance	Finance	1	$270	90			$24,300	Excell	$400			$0	$0	$24,700
		1	$240	75	61	$100	$24,100			2	$500	$900	$1,900	$26,000
Monitoring	Monitoring	2	$250	40	0	$100	$20,000	Misc	$6,000	4	$500	$960	$2,960	$28,960
Wildlife Mon. Plan	Wildlife Mon. Plan						$60,000					$0	$0	$60,000
							$0					$0	$0	$0
IC	IC			80			$35,000	Award Pool	$20,000	1	$500	$480	$980	$55,980
							$0					$0	$0	$0
	Liaison	2	$300	20	22	$100	$16,400			1	$500	$120	$620	$17,020
							$0					$0	$0	$0
							$0					$0	$0	$0
Sampling	Fall Sampling	6	$160	30			$28,800			2	$500	$360	$1,360	$30,160
	Spray Analysis						$0	Analysis	$2,000			$0	$0	$2,000
	Winter Cocoon sample	4	$160	20			$12,800	Snow Machines	$800	2	$500	$240	$1,240	$14,840
	Pre Spray						$35,000	IC HQ Phones	$4,000			$0	$0	$39,000
							$0	4 PC + equip	$3,000			$0	$0	$3,000
												$0	$0	$0
					179		$0					$0	$0	$0
							$0					$0	$0	$0
							$0					$0	$0	$0
					Total Estimated Budget Needed:		$871,540						$42,190	$1,516,237
Assumptions:														
	1. Cost per day is based on average 12-hour workday. Hourly costs estimated based on average of grades likely to be in the Staff area.													
	2. No perdiem costs for local personnel, however about 50% of project personnel likely to be detailers.													
	3. Entomology staff includes Connie, Assistant, and 10 - 2 person crews.													
	4. Operations includes GIS, aerial operations, dispatch with total of 13 persons, including Art Anderson.													
	5. Wildlife monitoring program with costs as described by Woodruff in his draft monitoring plan. Need to flesh out plan to address methodology, days of work, sample design, reports, analysis, etc.													
	6. Need to develop vegetation monitoring plan with all elements defined (sample design, sample methods, analysis, etc.)													
	7. Office Lease from 1 May - 31 July.													

D. Appendix – Logistics

ICS 218
Support Vehicle Inventory

Vehicle Information (Use separate sheet for each vehicle category) APPENDIX D - 3

Type	Make	I.D. Number	Location	FOR COST	MO	MI/ COST	MI	AMT	DAILY COST	DAYS	AMT	Released To	Time
E-2	GMC SUB	285-3127	A. ANDERSON	239	3	20	4000	1517			1517	DISTRICT	
E-9	JEEP	242-2951	ICP	165	3	14	500	565			565	WNP	
E-28	FORD PU	150-7198	PATTISON	158	3	11	5280	1055			1055	7/14 HOME	
E-29	CHEV PU	287-9468	STANFORTH	208	1	21	500	313			313	DISTRICT	
E-30	JEEP	242-6605	NIGHTENGALE	165	3	14	1500	705			705	WNP	
E-31	GMC SUB	285-3756	REILLY	191	2	20	3353	1053			1053	06-16/01	
E-32	JEEP	242-6453	LANDIN	145	1	18	2440	584			584	06-09-01	
E-33	FORD PU	150-6421	HAMMER	153	2	11	2000	526			526	DISTRCT	
E-34 -	FORD PU	180-1326	WILDLIFE	151	2	14		602			602	6/2/01 TRAIL CREW	
E-35	DODGE PU	250-9149	WAYNE WILSON	163		15	297	44.55			44.55	DISTRICT	
E-36	FORD BRONCO	5097	SUTTON	215		17	1185	416.45			416.45	HOME 6/29	
E-37	CHEV PU	G6224948	MIKE CARNEY	300	1	16	2649	423.84			423.84	HOME 7/7	NPS
E-38	FORD SUV	245-6348	MARSHALL GOOD	200	1	18	1948	550.84			550.84	HOME 7/8	
E-39	CHEV/…… .CLUB	8279	ED BRIDGEMAN	185	1	16	2484	582.44			582.44	HOME 6/29	
E-40			CHARLES GROGAN				ON POV LIST						
E-41	DODGE… …4X4	280-9318	SANDY SUMMERS	236		36	2260	832			832	HOME 7/12	
E-42	FORD	250-7197	STEVE ANDERSON	158	1	.18	3796	841.28			841.28	HOME 7/11	
E-43	FORD …….4X4	280-7156	RICHARD MURRAY	198		22	800	572			572	DISTRICT	
E-44													

ICS 218
Support Vehicle Inventory

Vehicle Information (Use separate sheet for each vehicle category)

Type	Make	I.D. Number	Location	FOR COST	MO	MI/ COST	MI	AMT	DAILY COST	DAYS	AMT	Released To	Time
E-45	CHEV	8021	DENA NIKKELL	200	1	17	1471	450.07				HOME 7/6	
E-46	FORD	280-3863	KATHY SMITH	200		.27	2210	597				HOME 6/21	
E-47		9082	MIKE POOR	200		.18	1000	380				HOME 7/7	
E-48		6463	KEVIN MORAN	185		.14	1138	285.18				HOME 7/10	
E-49		3890	CARL SHEPPARD	160		.11	1138	285.18				HOME 6/30	
NO E		9276	JIM HARVEY	158		.16	1810	289.60				HOME 7/11	
NO E		6272	WILDLIFE	151				451.00					
NO E		6427	WILDLIFE	153				553.00					
IMET								400				HOME	

ICS 218

(9/95)

ICS 218
RUSTYS RENTALS Support Vehicle Inventory

Type	Make	Agency/Owner APSC/Rental	DATE RECEIVED	MAY	JUNE	JULY		DAILY COST	DAYS	AMOUNT	RELEASED TO/ TIME	JOB CODE	DOWN TIME
E-18	FORD PU	RENTAL	5/18	14	30	7/1 7/2-16		29.00	45 dftm, 15 iral	1276 dftm 435 mating dist	7/13 to district	S4OP04 FHOP54	6/19 U-JOINT
E-19	FORD PU	RENTAL	5/18	14	30	12		29.00	56	1624	7/13 frontline	S4OP04	
E-20	MAZDA PU	RENTAL	5/19	13	30	13		29.00	54	1566	7/13 1700 thirtymile fire	S4OP04	5/29-5/30 KEY
E-21	CHEVY PU	RENTAL	5/29	3	30	13		29.00	46	1334	7/13 1700 thirtymile fire	S4OP04	
E-22	DODGE BLUE DAKOTA	RENTAL	6/1	0	30	13		29.00	43.	1247	7/13 1700 thirtymile fire	S4OP04	
E-23	FORD RED RANGER	RENTAL	6/1	0	30	13		29.00	43	1247	7/13 1700 thirtymile fire	S4OP04	
E-24	CHEV 2500	RENTAL	6/2	0	29	10		29.00	32	928	Owner 7/10/01	S4OP04	6/29-7/3 FUEL LINE 7/8 OVER HEATING
E-25	CHEV S-10	RENTAL	6/2	0	29	7/1 7/2-16		29.00	30 15 iral	870 dftm 435 mating dist	District 7/18	S4OP04 FHOP54	6/17-6/18 SHIMMY
E-26	CHEV S-10	RENTAL	6/9	0	22	13		29.00	29	841	7/13 1700 thirtymile fire	S4OP04	6/17-18 LURCH 6/22-25 BATTERY CABLE
E-27	MAZDA PU	RENTAL	6/14	0	17	8		29.00	23	667	Owner 7/10/01	S4OP04	7/8 FAN BELT
										TOTAL $11,600.00		S4OP04	
										TOTAL $870.00		FHOP54	
										GRAND TOTAL	$12,470.00		

ICS 218

MISC. RIGS — Support Vehicle Inventory

Type	Make	Location	FOR COST	MO	MI/ COST	MI	AMT	DAILY COST	DAYS	AMT	Released To	Time
285-	BLANCH	COMO			20		120				HOME	USED PART-TIME
150-7149	LYNN	HELI	153	1	11	1800	351				HOME 7/13	
183-7158	STAKE TRUCK	WNP			17	900	153				HOME	USED PART-TIME
183-7154	STAKE TRUCK	WNP			17	110	18.70				HOME	USED PART-TIME
280-9147	RANGE	WNP			20	500	100				HOME	USED PART-TIME
POV	JENKINS	PIO			.345		651				HOME 6/10	
POV	KLECKNER				.345		1253				THIRTYMILE FIRE 7/10	
POV	ANDERSON A.				.345		500				HOME 7/15	
POV-	TROWBRIDGE				.345		609.27				HOME 7/11	
POV –	MCCONNELL				.345		800				HOME 7/17	
POV –	FOWELL				.345		200				HOME 7/2	
POV-	GROGAN				.345		330.51				HOME 6/14	
POV	PALMER				.345		400				HOME 7/14	
POV	HIGGINS				.345		500.25				HOME 7/13	
POV	PERKINS				.345		473				HOME 7/12	
POV	BRIDGWATER				.345		1500				HOME back/forth	
POV	BOSCH				.345		600				HOME 7/18	
POV	PHILLIPS				.345		111				HOME b/f	
POV	CATHCART				.345		500				ON PROJECT	
POV	MASTRUDE				.345		200				IDAHO	

Appendix D – 1

Following is a combined list of supplies that where returned to the LaGrande Cache. All items are to be stored for the Regional Entomology Projects that will be conducted in the future.

Items	Quantity	Items	Quantity
Aerial Spray Cards	5bx	"D" Flashlights	14 ea
Water Containers	10 ea	Jumper Cables	5
Hard Hats	21 ea	Tow Chains	2ea
Tarps	1 bx	Cruiser Vests	14 ea
Zahnvisosimeter	3ea	Electric Heater	1 ea
Anemometer	1 ea	Light Table	1 ea
Symmes Values	4 ea	Triangles(helispot)	4 ea
Fluorescent Light Bulbs	1 bx	Spray Indicator Card Holders	58 ea
Easel Paper	4 pad	Alum. Tags	300ea
Display Boards (dry erase)	4 ea	C Clamps	5 ea
Fire Extinguishers	3 ea	Goggles	2ea
Paper Bath Towels	1 bx	Electric Engraver	1 ea
Tent Fly w/stakes	1 ea	Plastic Sample Jars (8oz)	4 ea
Beating Sticks	47ea	Cloth Measuring Tapes	3 ea
Cloth Frames	34 ea	Falling Wedges	8 ea
Beating Clothes	74 ea	Red Spray Paint	8 ea
Spray Indicator Cards	3 bx	Propane Tank	1 ea
Calculators	8 ea	Field Filing Boxes	19 ea
Petri Dishes	500 ea	50' Extension Cords	5 ea
Surge Protectors	2 ea	Orange Flagging	162 rolls
Wash Bottles	5ea	Pink Flagging	187 rolls
Small Coolers	4 ea	Green Flagging	24 rolls
No Smoking Signs	4 ea	Yellow Flagging	124 rolls
Partial Socket Set	1 ea	Clear Wrap	2 rolls
Spray Bottles	2 ea	Orange Cloth Bag	1 ea
Windshield Cleaners	2 gal.	Calculator Paper	22 rolls
Windex	1 gal	Paper staplers	11 ea
Misc. tools w/box	1 ea	Misc. Staplers	------
Single Bit Axe	4 ea	3/8" HD Staples	24 bx
Bond Paper	2 rolls	Red Pencils	60 ea
"D" Cell Batteries	12 ea	Rubber Bands - Lg	7 pkg

Cache Inventory Continues

Items	Quantity	Item	Quantity
Staples	11 bx	Paper Cutters	3 ea
Gloves	9 sm	3-Ring Binders	6 ea
	6 med	Coolers (plug-in style)	6 ea
	1 lg.	Pruning Shears	71 ea
	6 xlg	Hand Cleaner	15 ea
Dissecting Needles	250 + ea	Misc. Vials	------
Ind. First Aid Kits	8 ea	Easel	1 ea
Compasses	31 ea	Hand Counters	11 ea
Altimeter	2 ea	Air Bottles – Tri-max Ext.	5 ea
Blue Ice	10 ea	Microscope	1 bx
Tech Wipes	14 bx	Shovel	1 ea
ID Tags	500 ea	Pulaski	2 ea
Misc. Office Supplies	2 bx	Parachute Cord	1 roll
Nicad Battery Chargers	2 ea		

Supplies to Pre-Order Prior to Project

Items	Quantities	Items	Quantities
Floppy Disks	60 ea	Plotter Paper	6 rolls
Labels – Asst. Sizes	2 pkg ea	Printer Cart. (if known)	10 ea
Wooded Pencils	12 doz	Mech. Pencils	10 doz
Pens-Asst Colors	5 doz ea	81/2”x 11” Paper	10 bx
Scissors	5 ea	Asst Color Paper	3 rm
Write-in-Rain Books	30 ea	Allum. Tags (Ben Mdw)	600 ea
Post-It Notes Asst sizes	3 bx ea	Allum Nails	1000 ea
File Folders	4 bx	Plotter Mylar	5 rolls
Water Test Bottles	3 ea	3-hole Punch	2 ea
Clam Shells	48 ea	2-hole punch	2 ea
Dry Erase Markers	3 sets	5”x7” 3-Ring Binders Min. 2” capacity	20 ea
Highlighters	10sets	Scotch Tape (sm)	15 rolls
Mole Skin			
Foot Powder			
Ziploc Bags – Asst Sizes	3 bx ea		
Filament Tape	10 rolls		

Appendix D-2

06-17-01

Debbie Vander Woude

Please insure that the following resource orders are released and/or transferred to 30-mile Fire as of the indicated dates:

Res#	Date Cancel	Resource Requested	Confirm Release
S-282	07-30-01	Carpet Cleaning	
S-289	07-30-01	Electric Bill	
S-205	07-18-01	Rental Rig Gas	
S-177	07-19-01	Janitorial Service (May)	
S-93	07-11-01	Phone Jacks	
S-85	07-11-01	Phone Service	
S-204	07-30-01	Tire Repair	
S-141	07-11-01	Monthly Phone Billing	
S-170	07-11-01	Janitorial Service	
S-94	07-11-01	Building Lease	
E-2	07-30-01	Suburban – District 3127	
E-3	07-11-01	Copier (ID 29385)	
E-18	-07-20-01	Ford PU- (Ret. Dist)	
E-19	07-13-01	Ford PU (front-line)	
E-20	07-20-01	Mazda PU-assigned E-61	30-mile fire
E-21	07-13-01	Chevy PU- assigned E-62	30-mile fire
E-22	07-13-01	Dodge Dakota-assigned E-63	30-mile fire
E-23	07-13-01	Ford Ranger-assigned E-64	30-mile fire
E-24	07-10-01	Chevy – pick-up	Rusty's
E-25	07-20-01	Chevy-S-10 (Ret. Dist)	
E-26	07-13-01	Chevy –S-10-assigned E-65	30-mile fire
E-27	07-10-01	Mazda –	Rusty's

Also the following District Equipment will be left at the work center until the end of project:

5 - IBM personal computers w/monitors
2 - Desks (old style)
4 - Typing tables
5 - Work tables
11 - Office chairs

E. Appendix – Air Operations and Contracting

2001 TUSSOCK MOTH - WINTHROP PROJECT/APPENDIX C-1								
Batch	Sample			Lot #				Total Gallons
Date	Batch #	038 Gal.	Block #	4	5	6	7	
7-Jun	1,2	363	M-82,M-113	150	15			165
								0
7-Jun	3	299	M-75	187			80	267
7-Jun	3	299	M-79	23			10	33
								0
8-Jun	1	163	M-82	150	15			165
								0
8-Jun	2	200	M-82	147				147
8-Jun	2	200	M-113	53				53
								0
13-Jun	1	212	M-39	210				210
								0
13-Jun	2	220	M-208	57	3			60
13-Jun	2	220	M-34	128	6			134
13-Jun	2	220	M-39	25	1			26
								0
13-Jun	3	220	M-34	210	10			220
								0
13-Jun	4	245	M-85	160	14			174
13-Jun	4	245	M-92	65	6			71
								0
13-Jun	5	250	M-65	225	25			250
								0
14-Jun	1	93	M-103		95			95
								0
15-Jun	1	289	M-91	78		17	13	108
15-Jun	1	289	M-19	132		28	22	182
								0
15-Jun	2	243	M-41	210		35		245
								0
16-Jun	1	150	M-83	35	15			50
16-Jun	1	150	M-87	70	30			100
								0
17-Jun	1	170	M-64	150	20			170
								0
17-Jun	2	164	M-64	150	15			165
								0
17-Jun	3	175	M-84		175			175

2001 TUSSOCK MOTH - WINTHROP PROJECT/APPENDIX C-1								
Batch	Sample			Lot #				Total Gallons
Date	Batch #	038 Gal.	Block #	4	5	6	7	
								0
17-Jun	4	175	M-84	85	2			87
17-Jun	4	175	M-20	85	3			88
								0
17-Jun	5	170	M-20		122			122
17-Jun	5	170	M-21		48			48
								0
18-Jun	1	170	M-53			35	135	170
								0
18-Jun	2	165	M-53			35	135	170
								0
18-Jun	3	184	M-12				29	29
18-Jun	3	184	M-18				151	151
								0
19-Jun	1	206	M-114	162				162
19-Jun	1	206	E-11	48				48
								0
19-Jun	2	159	M-46	5	50	105		160
								0
20-Jun	1	221	M-93	103	5			108
20-Jun	1	221	M-86	107	5			112
								0
20-Jun	2	186	M-38		5		180	185
								0
20-Jun	3	144	M-62		140			140
								0
22-Jun	2	145	M-253		10		135	145
								0
22-Jun	3	114	M-80	20			90	110
								0
22-Jun	4	206	M-102		5	20	180	205
								0
23-Jun	1	213	M-33			35	180	215
								0
23-Jun	2	200	M-11	105			90	195
								0
23-Jun	3	161	M-11		30		135	165
								0
23-Jun	4	161	E-15		12		53	65
23-Jun	4	161	E-30		18		82	100
								0
23-Jun	5	214	M-78		30		180	210

2001 TUSSOCK MOTH - WINTHROP PROJECT/APPENDIX C-1								
Batch	Sample			Lot #				Total Gallons
Date	Batch #	038 Gal.	Block #	4	5	6	7	
								0
24-Jun	1	197	W-2	14			12	26
24-Jun	1	197	W-11	28			24	52
24-Jun	1	197	W-94	63			54	117
								0
24-Jun	2,3	353	M-81				137	137
24-Jun	2,3	353	M-77				223	223
								0
24-Jun	4	301	M-52			7	59	66
24-Jun	4	301	M-60			10	76	86
24-Jun	4	301	M-61			18	135	153
								0
24-Jun	5	296	M-47		12		124	136
24-Jun	5	296	M-54		10		108	118
24-Jun	5	296	M-55		3		38	41
								0
25-Jun	1,2	291	M-22	150				150
25-Jun	1,2	291	M-8	150				150
								0
25-Jun	3,4	268	M-63	130				130
25-Jun	3,4	268	E-29	135				135
								0
25-Jun	5	296	M-90	47		8	10	65
25-Juun	5	296	M-108	158		27	35	220
								0
25-Jun	6	315	M-108	315				315
								0
25-Jun	7	316	M-108	315				315
								0
26-Jun	1	195	M-209		36		32	68
26-Jun	1	195	M-210		33		30	63
26-Jun	1	195	M-211		31		28	59
								0
26-Jun	2	206	M-23		137			137
26-Jun	2	206	E-37		73			73
								0
28-Jun	1	285	M-101	32				32
28-Jun	1	285	M-104	256				256
28-Jun	2	284	M-101	27				27
28-Jun	2	284	M-104	8				8

2001 TUSSOCK MOTH - WINTHROP PROJECT/APPENDIX C-1								
Batch	Sample			Lot #				Total Gallons
Date	Batch #	038 Gal.	Block #	4	5	6	7	
28-Jun	2	284	M-116	102				102
28-Jun	2	284	M-117	76				76
28-Jun	2	284	E-28	67				67
28-Jun	3	201	M-59	38				38
28-Jun	3	201	M-9	152	10			162
28-Jun	4	202	M-9	96	5			101
28-Jun	4	202	M-10	95	4			99
28-Jun	5	206	M-13	190	10			200
								0
29-Jun	1	229	M-6	166				166
29-Jun	1	229	M-7	59				59
29-Jun	2	229	M-6	166				166
29-Jun	2	229	M-7	59				59
29-Jun	3	282	M-212	179				179
29-Jun	3	282	M-56	30				30
29-Jun	3	282	M-57	19				19
29-Jun	3	282	W-5	57				57
								0
30-Jun	1	181	M-66	180				180
30-Jun	2	238	M-26	36				36
30-Jun	2	238	M-106	204				204
								0
6-Jul	1	143	M-31	135	10			145
								0
6-Jul	2,3	197	M-37	105				105
6-Jul	2,3	197	M-97	75	10			85
								0
9-Jul	1	164	M-14	100				100
9-Jul	1	164	M-40	65				65
								0
								0
								0
								0
								0

HOW TO CONVERT THE SPRAYBLOCKS TO WGS 1984 LAT/LONG COORDINATES

DC means to double click the left side of the mouse

Create, build, and populate the polygons in Arcinfo. If you are using PCArcview, then copy those files and the corresponding info files to your C drive. I would suggest using PCArcview as it runs much faster.

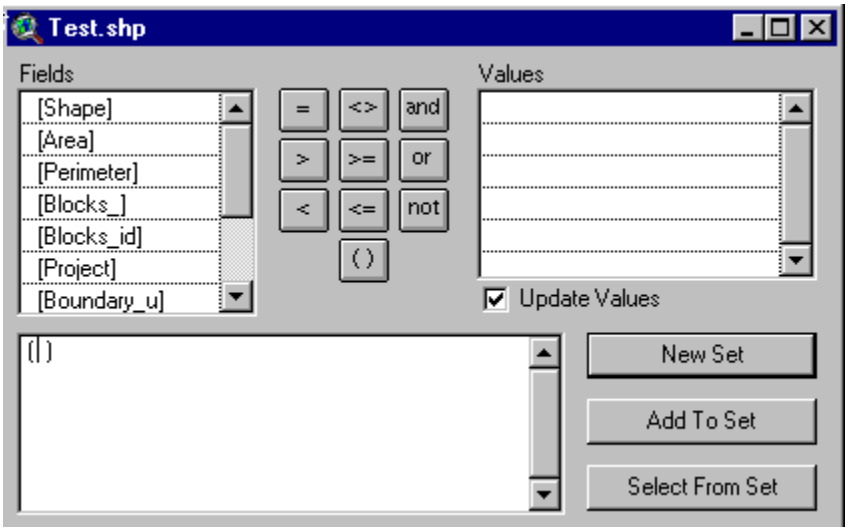
Click ARCVIEW  (icon with a magnifying glass). An **"Arcview GIS"** window appears with a "**Welcome to Arcview GIS"** window in front.

At the "Welcome to Arcview GIS" **window in front.** Click "Open an Existing Project". **If this is the first time in the project then you will create a new project. Set the working directory so the file opens to it every time you open it. Save this project in an accessible place. Also create a folder called shapes. This is a good place to put all your shape files that you create.**

If this is project is already created on your C: drive, then **Click OKAY**. An **"Open Project"** window appears. In the right box navigate to the directory where you files are stored. In the left box navigate to the .APR file. Leave the **"Data Source"** box as is. **Click OKAY**. The .APR should open, but it may take a while. You may get a window that reads "*****.apr". There are icons to the left, with a "views" icon () at the top. You want to open the view that you are using to create your shape files in. **Click OPEN** or DC the view and it will open. You now have the map of the spray blocks. The top of the screen has the following menu bar:

(continued next page)

Now you need to convert the theme to a shape file. **Click** the hammer  . A table will appear:



Scroll down in the "fields" side to the name of your spray block cover and **DC**. The fields are the attributes you used in ARCINFO to populate the polygons with. Choose the boundary unit or analysis block depending on what shape file you want to create. **Click "="**. Scroll down the "values" side to the spray block number you want. *HINT: the spray blocks are alphanumeric.* **DC the SPRAY BLOCK #. Click NEW SET.** The block(s) should turn yellow. I would do one block at a time unless you have been told that some blocks are to be clustered**.** Close the table window by clicking the "**X**" in the upper right corner.

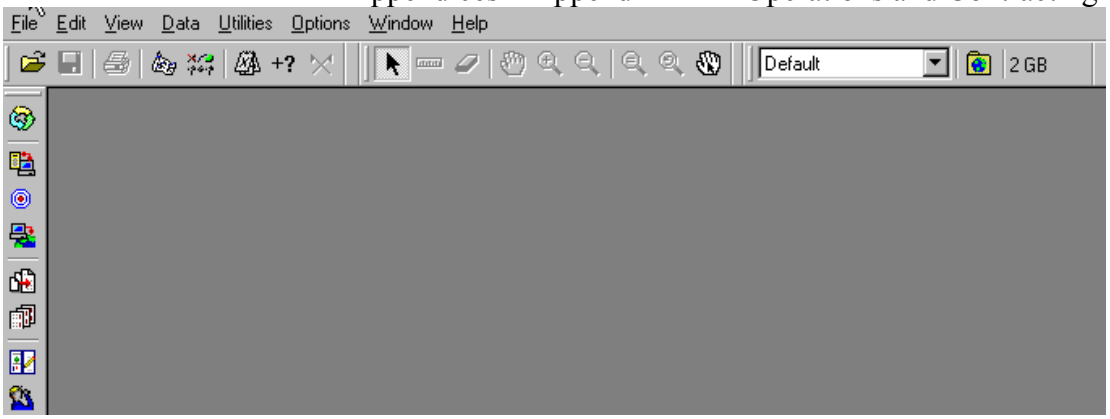
Click THEME on the top menu bar. **Click CONVERT TO SHAPEFILE.** A **"Convert ….shp"** window appears. Navigate to your shape folder. Type the block # in the box in the upper left (example: m104.shp) and **Click OK.** You will be asked if you want to add the shape file as a theme to the view. **Click YES.** The theme is added to the left of the map. **Click** in the shadow box to the left of the name. You should see a black checkmark and the theme will turn on.

Continue this procedure until all the blocks you need for the day are converted to a shapefile

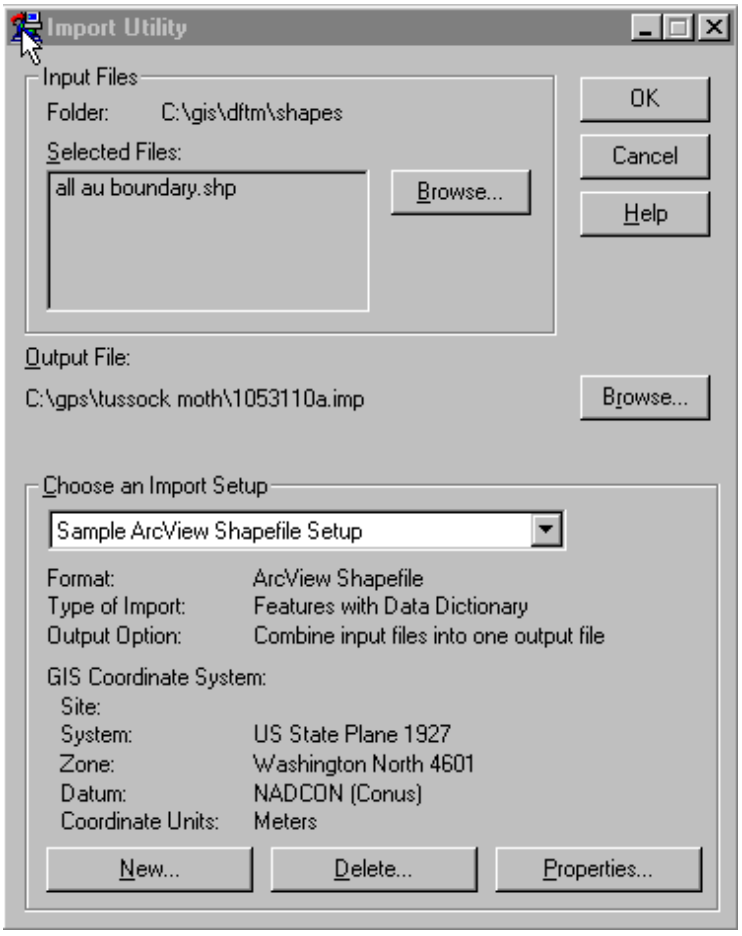
DC the **PATHFINDER OFFICE** icon to open the program. A "**Select Project**" window appears. You might have to create a new project if this is the first time you have been in the program. If so, click new. A "Projects Folder" window appears. Type the project name and **tap ENTER**. Then **click OKAY**.

If the project already exists in Pathfinder Office, then **Click the project's name. Click OKAY. IF** the **"Project Folders"** window **DOES NOT** appear, then: **Click FILE. Click PROJECTS.** A "**Select Project**" window appears. **Click** the **project and click OKAY.**

The screen will look like this:



Click UTILITIES. Click IMPORT. It is near the bottom. An "**Import Utilility"** window appears.



Click the top **BROWSE** button. A **"select gis data files"** window appears. **Click** the drop down menu arrow to the right of the "look in" box. **Click GIS**
Click the project folder you created. Click your **SHAPE** folder. **Click the file(s) you want to import** (example m104.shp or select all of them). **Click OPEN. Click** the lower **BROWSE** button. A "**Specify Output File**" window appears. Type the spray block # (m104) in "filename" box. If you forget, the software will name it for you. **Click SAVE. THE LOWER PROTION OF THE BOX SHOULD READ EXACLTY LIKE THE ABOVE "IMPORT UTILITY" BOX SHOWS!!!!!!!!!!!!!**

You want to import as a sample Arcview shapefile setup. The coordinates should read:

System: US stateplane 1927
Zone: Washington north 4601
Datum: Nadcon

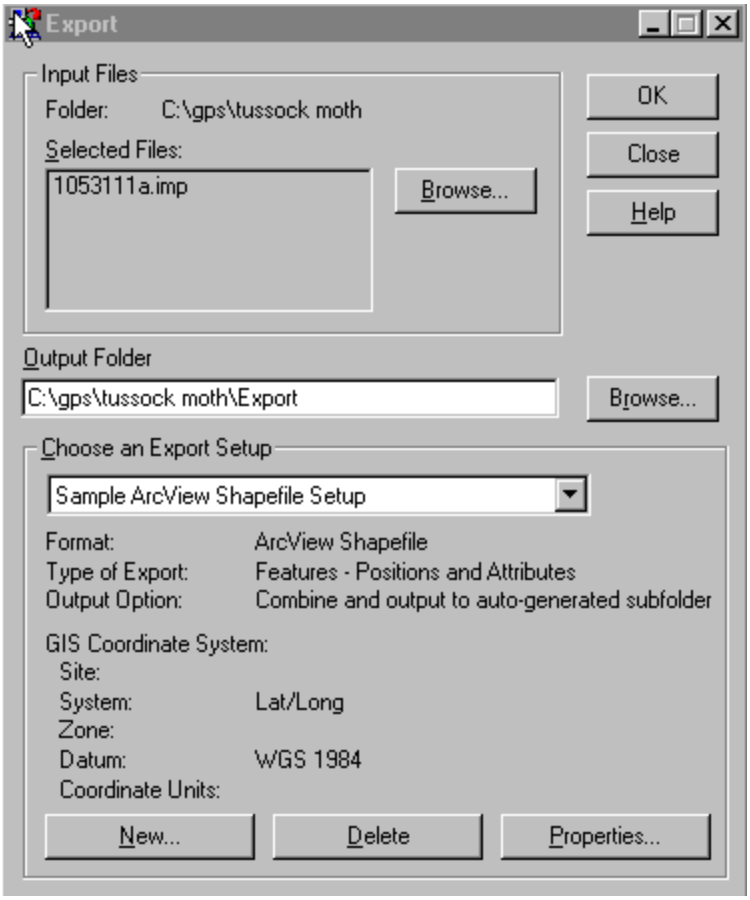
Coordinate System: Meters

If it does not then, click PROPERTIES. **SET UP ALL THE COORDIANTES SO THAT THEY MATCH THE ABOVE MENTIONED**. There will be a progress bar that runs for a minute or so. An **"Import Completed"** box appears. Read the text to ensure that you imported a file. If the import completed successfully, then close the import window. If not, then try to import the file again.

(Continued next page)

Once you have all the shapefiles imported you need to export them.

Click UTILITIES. Click EXPORT. It is near the bottom. An **EXPORT UTILITY** window appears:



Click the top **BROWSE** button. A **"select gis data files"** window appears. **Click the drop down menu arrow** to the right of the "look in" box. Navigate to your GIS project directory with the shapefiles. **Click the file(s) you want to export** (example m104.imp). **Click OPEN. Click** the lower **BROWSE** button. A "**Specify Output File**" window appears. Type the spray block # (m104) in "filename" box. If you forget, the software will name it for you. **Click SAVE.**

THE LOWER PROTION OF THE BOX SHOULD READ EXACLTY LIKE THE ABOVE "EXPORT UTILITY" BOX SHOWS!!!!!!!!!!!!!

You want to export as a sample Arcview shapefile setup.
The coordinates should read:
System: lat/long
Datum: WGS 1984

If it does not then, Click PROPERTIES. SET UP ALL THE COORDIANTES SO THAT THEY MATCH THE ABOVE MENTIONED. There will be a progress bar that runs for a minute or so. An **"Export Completed"** box appears. Read the text to ensure that you exported a file. Look where it was put (the file extension). Read the text to ensure that you imported a file. If the import completed successfully, then close the import window. If not, then try to import the file again.

IF ALL WENT WELL, YOU CAN PUT A DISC IN THE A DRIVE AND COPY THE SHAPEFILE TO IT. YOU WILL HAVE TO NAVIGATE TO YOUR PROJECT'S GPS ECPORT

FOLDER. ONCE THERE YOU WILL HAVE TO OPEN THE FOLDER THAT HAS THAT DAYS DATE ON IT (O61213A). THE FILE READS FUNNY. IT GOES LIKE THIS:

MONTH: 06
DATE: 12
HOUR: 13
SEQUENCE IN THAT HOUR: A

COPY THE .SHP FILE TO THE FLOPPY.

YEAH, YOU ARE ALL DONE NOW. happy spraying!!

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 Reveiwed 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

4 February 2002

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-identfied 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 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 requireed 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 alowed if one of the following regulations are met.

1. Page 12-13, c. 1., Closed circuit refueling system is present and approved on the aircraft, aircraft may be refueled with engines running or
2. Page 12-13, c. 2., Open Port (rapid refueling); If requested by the government and the contractor has been approved, this type of refueling cand 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/occurences 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 obseving 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:

Personnal 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 calulations. 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
1. Is there an alternative method which would accomplish the mission more safely and/or efficiently (including accomplishment by ground methods)?	**NO**
2. 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	
1. Can factors of terrain, altitude, temperature, or weather which could adversely affect the mission's success be mitigated?	**YES**
2. Will the mission be conducted at low (below 500' AGL) altitudes – can the same objective be Achieved by lying at a higher altitude AGL?s	**YES**
3. If low-level flights, have all known arial hazards been identified during the planning process And are they known to all participants?	**YES**
4. 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 wihtin the Pilot flight time/duty day requirements and limitations?	**YES**
3. Have the minimum number of personnel necessary to accomplish the mission safely been Assigned, and do they meet personnel qualifications and experience requirements?	**YES**
4. Will adequate personnel (flight and ground crew) and Pilot briefings be conducted prior to the flight?	**YES**
5. Are users aware that the Pilot-in-command has the final authority over any operations Conducted involving the aircraft or its occupants?	**YES**
MACHINE	
1. 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
FY2001

JOB HAZARD ANALYSIS

HAZARD	MITIGATING MEASURE
MTR'S/MOA'S	Check routes in advance. Coordinate with Okanogan Dispatch for risk mangement.
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 frequencyes become inoperable. Cease operations any time communications fail.

F. Appendix -- Entomology

No additional information

G. Appendix -- Monitoring

No additional information

H. Appendix – Project Planning

PROJECT PLANNING AND OPERATIONS SCHEDULE

Date	Activity	Person Responsible	Location
Sept./Oct	Prepare monitoring plan for wildlife items.	Kent Woodruff, Wildlife	Winthrop
Nov./ Dec.	Develop specific monitoring design and review	Kent Woodruff, Wildlife	Winthrop
January	Review of monitoring plan by Wenatchee Lab Scientists and Regional experts	Kent Woodruff, Wildlife	Winthrop
2/14-2/15	C&GS Meeting (Develop Team Objective)	All	Wintrop
MARCH			
3/13-3/17	C&GS Meeting (Map Spray Blocks)	All	Wintrhop
3/21	Identify Deputy Entomologist Section Chief	Connie Mehmel, ESC	
3/22	Send Internal Outreach	Sharon Cathart, FSC	
3/24	Spray Block Maps Completed	Connie Mehmel, OSC Art Anderson, OSC	Winthrop
3/27	Temporary Vacancy Announcement Opens		
3/28	Contract Request for Proposals Open		
APRIL			
4/1	Wildlife monitoring crew on board. Orientation and field work begins	Kent Woodruff, Wildlife	Winthrop
4/08	Evaluation Panel Reviews Contract Proposals	Art Anderson, OSC Carl Culham, CO	
4/14	Supply List Completed and Submitted to Jim Hammer	All	
4/24-4/25	C&GS Meeting (Tactical Issues and Operation Plan)	All	
4/27	Project Plan Chapters Sent To Arlo	All	
4/27	Temporary Requests & 52 Packages	Sharon Cathcart, FSC	
4/27	Lodging and ICP Location Confirmed	Jim Hammer, LSC	
MAY			
5/1	Edited Operations Plan to IC for Review/Approval	Sharon Cathcart, FSC	
5/7	C&GS/RD Meeting at Winthrop Work Center (1300)	All plus RD personnel	
5/7	C&GS "Check In" (Winthrop Work Station)	All	Winthrop
5/7	Entomology Crew "Check in" and Training	Entomology Crews	Winthrop
5/7	C&GS Meets Crews (Orientation)	C&GS (most)	Winthrop
5/16	Entomology Crew Training (Continued from 14th)	Entomology Crew	Winthrop
5/18	Repeaters Set Up	Logistics	Winthrop
5/22	Host Type Confirmation – Helicopter	Art Anderson, OSC	
5/27	Start Local Press Release On Incident and Project	Information Officer	All Locations
JUNE			
6/4	Helibase Mgr, Dep. Spray Ops., Air Observer "Check In"	Spray Operations	Winthrop
6/11	Spray Operations Crew (Report to work full time)	Spray Operations	Winthrop
6/12	Spray Operations/ Contract Coordination Meeting	Operations	Winthrop
6/12	Miscellaneous Overhead (Reports to Work Full Time)	General Staff/Logistics/Finance	Winthrop
6/12	1st Spray Blocks Released	Entomology	Winthrop
6/13	Dry Run Spray Day	Operations	Winthrop
6/18	Spraying Begins	Operations	Winthrop
6/20	Media Day	Judy Wing, IIO Art Anderson, OSC	Winthrop
JULY			

Date	Activity	Person Responsible	Location
7/9	Spraying Complete	Operations	Winthrop
7/9	Spray Operations Demobilize	Operations	Winthrop
7/10	Initial monitoring accompanied report to IC and team	Kent Woodruff	Winthrop
7/13	Demob of "Surplus" Resources	All	Winthrop
7/30	Complete wildlife monitoring baseline work. Begin reporting process and prepare for 2003 data collection	Kent Woodruff	Winthrop
	Post Spray Sampling Complete – 28-day	Entomology	Winthrop
	Post Spray Sampling Complete – 35-day	Entomology	Winthrop
	Temporary Employees (Terminated or Placed)	Entomology	Winthrop
	Projects Demobilized Draft Project Reports Completed	Entomology	Winthrop
Nov. 20	Initial budget notification and request for 2003 monitoring	Kent Woodruff, Wildlife	Winthrop
Nov. 30	Complete Data Analysis	Kent Woodruff, Wildlife	Winthrop
Dec. 30	Final wildlife monitoring report for 2001. Final monitoring plan for 2003	Kent Woodruff, Wildlife	Winthrop

I. Appendix – Safety

APPENDIX F – 1 FS-6700-7 (2/98)

U.S. Department of Agriculture Forest Service	1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
	Field Work	**Okanogan/Wenatchee N.F.**	**Tussock Moth Spray Project**
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)	4. NAME OF ANALYST **D. Wayne Wilson**	5. JOB TITLE **Project Safety Officer**	6. DATE PREPARED **April 5, 2001**

7. TASKS/PROCEDURES		8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
Field Work	Foot Travel in Forest Terrain		Wear comfortable foot wear (heavy socks and 8-10 inch high leather laced boots) that properly fit the foot. Boots should have a slip-resistant sole and heel such as provided by Vibram soles. Always make sure of secure footing and safe working positions. Walk--never run--down slopes. **Watch your step!** Ground surface conditions coverings and topographic relief can all contribute to changing footing conditions and the possibility of slips and falls. Work supervisors shall advise crews of particular terrain conditions and precautions to avoid falls and injuries. Rocky slopes, especially slide rock and steep country, are treacherous. Have one hand free, preferably on the uphill side, for protection against falls or obstructions. Always carry tools on downhill side. Always be on the guard against injury form falling trees, snags, limbs, rolling logs, or rocks. Look up in the tree canopy, periodically, as well as on the ground while walking, and avoid walking under wind fallen or broken trees that are caught up in the canopy. These can be very dangerous. When contouring a steep slope, maintain an erect posture or slightly leaning out to insure a more secure footing. Make sure stepping surface is solid and stable before placing full body weight onto the foot. Step over logs, never on them, unless caulk boots are worn. Never step on logs with loose bark, even when wearing caulk boots. In heavy undergrowth, lift your knees high to clear obstacles. Slow down and exaggerate steps in the area of exposed roots of "jack-strawed" bark beetle-killed lodgepole pines to keep from tripping and falling. On slippery, loose ground, or going downhill, keep most of your weight on your heels. Shorten your stride, keep knees bent, and lean slightly backward. When moving uphill or in sandy soils, lean slightly forward, turn feet outward, shorten stride, and use as much of the inside of the foot as possible.
Field Work	Getting Lost		Never travel or work alone in isolated areas without an emergency plan and radio. Leave an itinerary of planned trip with family and immediate supervisor or other employee when it is necessary to travel or work alone. When traveling in backcountry it is important to carry plenty of water, and have a first-aid kit available. In addition, make sure you have a compass, map, pocket knife, hand axe, matches in waterproof container, flashlight, day's supply of food, raingear or poncho, extra set of dry clothing, a lightweight shelter or space blanket, and snakebite kit, if in snake country. If you become lost, **keep calm, don't panic** Select a warm shelter. Shelter, warmth and liquids are much more important than food. Select sheltered spot and prepare camp, shelter, and firewood well before dark. Check the surrounding country and attempt to orient yourself. Do not walk aimlessly. Carry and trust the map and compass. If you can reach a road, trail, or telephone line, follow it until you can determine you are moving in the right direction. As a last resort, travel downhill parallel to a stream or drainage--roads eventually cross drainages and traveling down a less-travelled road usually always will lead to a more heavily traveled road and increase the likelihood of someone finding you soon. If unsuccessful in attempts to find your way, stay in one place, conserve your strength, and build a fire so that smoke may be seen by searchers. If signal mirror or portable radio is available have ready for immediate use.
	Stream or Creek		Crossing creeks are hazardous under the best conditions. Creek bottoms are always slippery and with the water current added, losing your footing is a common occurrence.

	Crossings	Another hazard associated with creek crossings is when dry weather reduces water flow making crossings easy in the morning, however with rain during the day, the same crossing may become a raging torrent capable of sweeping an adult away. Caulk boots are not effective on rocks and are a poor alternative to rubber boots in these terrain conditions. Hypothermia is another hazard associated with creek crossings. Spare clothing carried in your pack can help minimize this hazard. Caution, attention to weather conditions, and common sense are the best tools for safe creek crossings.
	Rain	Getting caught in the woods without raingear can be a miserable experience. The real danger of not having raingear is *hypothermia*. Hypothermia can be, and often is fatal. Layering your clothing is the most effective way to dress for the woods. Clothing can be shed as you exert yourself and put back on as you cool down. Wool or polypropylene clothing is preferred due to its ability to provide thermal insulation while wet. Goose down is ineffective once it becomes wet.
Field Work	Snow, Freezing Weather, Cold Temperatures, and Adverse Conditions	As with rainy conditions, hypothermia is a major threat in snowy and/or freezing conditions. Layering of clothing is the most effective way to maintain a steady body temperature as your exert and rest. One hazard associated with snow conditions are snow bridges. A snow bridge is formed when heavy snows fall on criss-crossed down logs. The snow fills in the gaps between the logs and gives the appearance of solid ground. Falling through the gaps causes leg joints to bend in directions they were not designed to bend. Testing the ground before you walk in areas you suspect to have snow bridges is the best preventative measure. Frozen ground is another hazard associated with freezing weather. When the ground is frozen it is difficult to dig your heel into the slope to gain support, also falling on frozen ground is like falling on concrete. Steep terrain and snow make a dangerous combination, especially when wearing raingear. The raingear tends to act as a "toboggan" and you can quickly slide out of control. Always carry PPE for changing weather conditions, such as rain gear, a wool hat, sweater, jacket, and dry socks. The chance of rain and/or cold increases for every day there is warm, dry weather and conditions can change hourly in mountainous areas. Listen to weather forecasts and plan field work accordingly. The following are key items for winter survival: (1) Get adequate rest. (2) Dress in layers of lose clothes, cotton, polypropylene or wool underneath, waterproof material on top. Be sure to cover hands, feet, neck and head. (3) Keep active to maintain body metabolism and high body temperature. (4) Prevent dehydration by drinking warm water. Avoid caffeine. (5) Eat balanced meals with high energy snacks in between. (6) Always travel in pairs as a minimum. (7) If camping out, prepare for night (shelter and firewood) before dark.
Field Work	Lightning and High Winds	Although most common in the summer, thunder and lightning can occur anytime. If caught in a storm near the vehicle, return to the vehicle and stay inside while the storm is most active. Park vehicle in an open area away from trees. Turn off radios during the storm. Lightning is more likely to strike when radio transmission occurs. After the storm passes, turn forest radio on and check in with dispatch. If caught in a storm away from your vehicle, try to find some form of building or shelter. **Do not** seek shelter under large trees or open areas. Stay off ridge tops and mountain tops. Seek shelter in low lying areas such as a ditch or cave. The main hazards associated with windy conditions are falling, snapped-off treetops from healthy trees and dead snags, and branches falling out of trees, often unexpectedly. Even a small branch when falling out of a 150 foot tree can cause serious injury or death. **Wear your hardhat at all times!** Extreme winds can blow down large tracts of timber in short periods of time. Listen to the weather forecast each day and avoid traveling in the woods on days of predicted high winds. If high winds were not predicted by occur anyway, move to open ground, such as meadows and other clearings, to avoid falling debris.
	Hypothermia	Most hypothermia cases develop in temperatures between 30 to 50 degrees F, usually on a cold, wet windy day. Hypothermia occurs when the body core temperature is lowered leading to mental and physical collapse. Other factors that can cause or aggravate hypothermia include injuries, immobilization, immersion in water, lack of proper clothing or shelter, and fatigue. SYMPTOMS: Feeling cold, pain in extremities, shivering, numbness, muscle stiffness (especially in the neck, arms, and legs), poor coordination, drowsiness, slow or irregular breathing and heart rate, cool skin, and puffiness in the face. Thinking processes slow down and victims become apathetic and disagreeable.

		Slurred speech and loss of vision are reported just prior to terminal coma. TREATMENT: 1) Call for medical help. 2) Give artificial respiration if needed. 3) Move into a warm area. 4) Get out of frozen, wet, or tight, clothes. 5) Bundle in warm clothes or blankets. 6) Drink something warm, not hot (no caffeine or alcohol).
	Frostbite	CAUSE: exposure of unprotected flesh to subfreezing temperatures. SYMPTOMS: feeling uncomfortably cold, numbness, sometimes with tingling, aching, or brief pain. Skin color changes from white or grayish yellow to reddish violet and black. TREATMENT: warm body part quickly with dry material or warm (not hot) water. Once it is warm, exercise it but do not walk on frostbitten feet. Do not rub the body part or break blisters. Get medical help!
Field Work	Bears	The best way to travel in bear country is to make as much noise as possible. Bears are most dangerous when they are startled or when they are with cubs. By making plenty of noise, the bear is given time to avoid contact with you. Bears rely on their sense of smell and hearing. Their eyesight is poor at best. This is especially important when traveling on or near streams. The noise of the stream may mask your movement and if you are downwind of the bear, it is possible to come very close without detecting each other's presence. Move out of an area in an orderly manner when a bear is spotted. Do not run! Running tends to excite a bear and can provoke an attack. Black bears must be treated with the same respect shown to brown bears. Both can be unpredictable.
	Brush	When traveling through brushy country, do not follow too close to the person ahead. Being struck in the face or eye by swinging branches is a typical and painful result. Allow at least 10 feet of distance between you and the person you are following. If you must work in brushy country where there is a high probability of being struck by a branch in the face due to the nature of the work you are doing, gloves an protective goggles are effective safety equipment for these conditions.
	Insects and Ticks	Mosquitoes, ticks, yellow jackets, and bald-faced hornets are commonly encountered while conducting field work. Most of the time, these insects and ticks are merely minor nuisances, but if populations are high--as they may be in certain areas and times of the season--certain insects may become more troublesome, and even life threatening to certain sensitive individuals, if not properly prepare for emergency treatment. Mosquitoes are generally among the most benign of the biting and stinging arthropod likely to be encountered in the forest. An insect repellent containing the compound N, N-diethyl-m-toluamide (DEET) has been a highly effective insect repellent for over 30 years against mosquitoes and many other arthropod. It is somewhat less effective against ticks when applied to exposed skin, but when used along with a repellent containing permethrin that is applied to clothing, it will provide maximum protection from ticks, as well as mosquitoes. Permethrin actually kills ticks. Crews that are bothered by mosquitoes should carry and use insect repellents containing DEET, and apply permethrin to their clothing to increase protection against ticks, as well, if they know they will be entering tick habitat (areas with an abundance of bitterbrush usually also contain and abundance of ticks). This is the treatment recommended and used by the U. S. Department of Defense for mosquitoes and ticks. A DEET-containing product, and several permethrin products are available through GSA: Insect/Arthropod Repellent Lotion (DEET) NSN 6840-01-284-3982 Insect Repellent, aerosol, 0.5% permethrin, 6-oz can NSN 6840-01-334-2666 Insect Repellent, 2-gallon sprayer formulation, 40% permethrin, 151 ml bottle NSN 6840-01-345-0237
Field Work	Insects and Ticks (con't.)	Dry cleaning will completely remove permethrin from clothing. Any treated clothing that has been dry cleaned must be retreated, if protection from arthropod is still desired. Ticks are responsible for transmission of a number of mammalian diseases including **Lyme Disease** (bacterium transmitted by the deer tick in eastern and midwest US; western black leg tick in Rocky Mountains and Pacific coast): **Rocky Mountain Spotted Fever** (bacterium transmitted by the dog tick in east and west coast; Rocky Mountain wood tick in western mountain states and Lone Star tick in southwest); **Colorado Tick Fever** (virus transmitted by Rocky Mountain wood tick; found in western US, usually at altitudes higher than 4,000 feet); **Tick Bite Paralysis** (neurotoxin released in tick's saliva by Rocky Mountain wood tick and dog tick); and **Tularemia** (bacterium transmitted by Lone Star tick, Rocky Mountain wood tick, Pacific Coast and American dog ticks). The Centers for Disease Control and Prevention provide the following recommendations for tick control: (1) Wear light colored, long-sleeved clothing that fits tight at wrists, ankles, and waist. (2) All clothing should overlap, including high-top boots and socks. Tuck pants into boots or top of socks. (3) Use chemical repellents: a. DEET containing liquids, aerosols or sticks can be applied to exposed skin or clothing. Avoid face area and any cuts, wounds or irritated skin. b. Permanone (0.5% permethrin) can be sprayed on clothing. Do not wear

clothing until dry. **Do not spry on skin!**

c. Citronella oil and Skin-So-Soft are non-chemical repellents that are less hazardous for children and sensitive adults.

(4) Try to find ticks on clothing and body prior to attachment.
(5) Repeatedly search your body, especially around and in the hairy regions.
(6) Immediately remove attached ticks. Grasp the tick with tweezers, as close to the skin as possible, and pull gently. If fingers must be used, protect with tissue paper, plastic wrap, rubber gloves, etc. After removal, wipe the affected area with antiseptic and wash your hands.
(7) Keep the tick in a jar or vial for identification should you later develop disease symptoms. Note the date of exposure.
(8) Any illness within two weeks requires a trip to the doctor immediately.

Field Work

Insects and Ticks (con't.)

Most people fear venomous insects such as bees, wasps, yellow jackets. hornets and ants because of the severe pain they can inflict, and their considerable aggressiveness when the nests of these social insects are disturbed. Under the worst case scenario, a sensitized individual may rapidly develop an allergic reaction that could lead to anaphylaxis, which could be life threatening unless quickly treated. It has been stated that the frequency of insect sting allergy is probably less than 1% of the population. Of that percentage only a small number will ever develop severe anaphylactic reactions

Several reactions to insect stings are recognized: (1) local reactions; (2) large local reactions; (3) systemic reactions (anaphylactic, allergic reactions--cutaneous reactions, respiratory reactions, and cardiovascular reactions or anaphylactic shock); and (4) toxic reactions.

Treatment for Venomous Insect Stings:

For most people, treatment of an insect sting with a local anti-inflammatory, and analgesic topical solution or compound, such as use of products such as Sting Ease Swabs (by Ever Ready) is all that is needed to relieve pain and help reduce swelling and localized tissue reaction. However, for those who are known to be sensitive to venom of insects, or who develop anaphylaxis, should receive an epinephrine injection via an autoinjector as soon as possible after being stung.

(1) Move the sting victim to an area well away from the irritated insect(s).
(2) Flick the stinger off if any remain--speed of removal is more important than method of removal.
(3) If the victim has laboured breathing, swelling inside the mouth or throat, or loss of consciousness, the first priority is to maintain the airway. If the primary problem is breathing difficulty, raise the victim to a head-forward position (where victim is looking straight ahead). If the primary problem is delirium or unconsciousness, the victim's head should be lower than the body (Trendelenburg position). CPR skills are needed in this situation.
(4) If the victim is known to be allergic to stings or has airway obstruction, hives, or other signs of anaphylaxis, a subcutaneous or intramuscular injection of epinephrine should be given. We recommend the use of an autoinjector to administer epinephrine. An example is Epi-Pen, which delivers a premeasured dosage via a spring loaded, pre-cocked syringe. The most convenient location for an injection is the outside of the upper arm or the thigh. Autoinjectors will penetrate a shirt or jeans, but should not be applied through more than one layer of clothing. **Do not inject into the neck, chest, or over a vein or artery: only a physician or an emergency medical team should consider these injection sites.**
(5) If a person is stung in an extremity, apply a loose tourniquet between the sting site and the trunk of the body.
(6) A cold pack should be applied directly on the area(s) stung.
(7) If victim has no history of allergic reactions to stings, an antihistamine such as Benadryl should be taken orally.

Field Work	Insects and Ticks (con't.)	(8) Monitor the victim for 24 hours to ensure that there are no delayed reactions. If you are known to be allergic to insect stings, do not work in insect-infested areas during the insect season. Follow these precautions when working in areas where bees, wasps, yellow jackets, or hornets are prevalent: (1) Wear long-sleeved shirts with close fitting collars. (2) Keep trousers tucked in boots. (3) Avoid wearing strong scented lotions--they can attract bees. (4) Keep alert for ground and overhead nests, and avoid these areas if at all possible. (5) Stay in vehicle to eat lunch if wasps, yellow jackets and hornets are especially numerous. (6) Always carry sting kit (e.g., Sting Ease Swabs), first aid kit, and epinephrine autoinjectors when working during times and in areas where stinging insects are active. Know how to recognize onset of allergic reactions, and know how to properly use the autoinjector.
	Handtools	Observe these guidelines when selecting and using a tool: (1) All handles tightly fitted, secured with a wedge, inspected for splitting, checking, warping, and absence of slivers. (2) Only sharp tools available for use. (3) Tool guards in position on the cutting edge while tool is transported to and from the job site. Guards kept by each worker to use when leaving the job site. (4) The proper tool for the job. (5) Maintain tool in good condition on the job site by keeping it touched up with a file (6) Always keep tools secure and in a safe place both on the job and in storage. (7) Never transport loose tools inside the same compartment with people, unless the vehicle is equipped with a protective screen or cargo net, or tools can be secured inside a toolbox that is fastened down. (8) When tool is not in use, place it in a predetermined location, away from persons, with the cutting edge shielded or on the ground, resting the handle against a wall, bank or stump. (9) Return worn tools to the tool room or warehouse for repairs. Separate tools needing repair from broken or worn out ones. Tag unrepairable tools that must be disposed of. (10) Never throw tools under any circumstances. When carrying an unsheathed chopping tool (exempli gratia, axes, adzes, brush hooks, hatchets, machetes, and pulaskis) grasp handle close to the head with fingers and thumb around the shoulder of the handle. Place blade parallel to the leg, at arm's length and free from body. Be sure the area is cleaned of debris, and footing is secure before chopping.
Field Work	Handtools (continued)	Never carry chopping tool on shoulder. <u>General Chopping Rules</u>. When chopping logs, branches, roots, or bark from trees: (1) Never allow bystanders to stand in front of or behind the chopping area. (2) Remove any branches or underbrush that might interfere with chopping. (3) Remove all overhead branches or vines that the tool might strike or hang up in. (4) Never chop cross-handed; always use a natural striking action. (5) Protect against flying chips by wearing eye protection. (6) Be especially alert when working on hillsides or uneven ground--clear your are and get a firm footing. (7) Watch out for springing if cutting a sapling that is bound down; cut from underneath if there is room. Watch for sudden breakage in brittle wood. If there is no need to remove it, leave it. (8) When standing on logs, chop only if equipped with nonskid or calked boots. (9) Never use chopping tools as wedges or mauls. Use only tools designed for striking to drive wedges or stakes. (10) Do not allow two people to chop together on the same tree. (11) When grubbing with a pulaski, pull out roots rather than cut them. (12) When chopping limbs from a felled tree, always stand on the opposite side of the log from the limb being chopped, swinging toward the top of the tree or branch and keeping the striking angle of the ax head almost perpendicular to prevent glancing. (13) Use special tool and shin protection if needed on chopping jobs.

Bow Saws

When inserting a blade in a bow saw frame, keep hands and fingers in the clear when the tension lever snaps into or against the saw frame.
When removing a bow saw blade from the frame, see that the blade guard is in place.
Carry bow saw over the shoulder with guarded blade to the rear.
Don't push or force the saw. Begin with light gentle strokes until the teeth begin forming a kerf.

Vehicle Travel (Operating a vehicle on highways and other paved road surfaces, on unpaved back-country road surfaces, and under adverse conditions).

General vehicle operation and travel hazards are covered in detail in Chapter 2 of the Health and Safety Code Handbook. (FSH 6709.11). The vehicle operator is responsible for familiarizing with material contained in this chapter before operating a government vehicle. In addition, the vehicle operator must possess a valid state driver's license and a Government Vehicle Operator's Identification Card (form WW-6730-1), and carry both on person while operating any government owned or leased vehicles. Several of the vehicle operation and driving hazards contained in the listed references are emphasized in the following.

Shifting loads

Secure all cargo, gear, and loose objects in bed of truck, or behind cargo net in area separated from the passenger area. Never keep loose items on the dashboard or over the sunvisor.

Driving Fatigue

Warnings
A number of warning signs appear when a vehicle operator experiences fatigue:
(1) Vehicle feels too warm.
(2) Muscular tension.
(3) Eye strain.
(4) Restlessness (rubbing face, neck, or arms, and inability to get comfortable).
(5) Inattention, daydreaming.
(6) Impatience or irritability not normally experienced.
(7) Hallucinations, that is, misinterpreting shadows, reflections, objects on or near road, resulting in impulse to strongly control vehicle.
(8) Drowsiness, especially after meals.
(9) Feeling that it is "ok" to close eyes for just a second.

Abatement Actions:
Don't wait for these signals to overpower you. Pull over and rest, or change to a fresh, rested driver it more than one authorized driver are in the vehicle. NEVER push yourself to go the last several miles since "you're almost there anyway;" an accident isn't worth that risk!

Under normal, non-emergency conditions, employees operating government vehicles shall not drive:
(1) Unless they have had at least eight (8) consecutive hours off duty before beginning a shift.
(2) More than two (2) hours without a rest stop. Drivers carrying 15 or more passengers shall stop for 10 minutes every hour.
(3) More than 10 hours per shift.
(4) After more than 16 hours from beginning of shift, including rest stops and meal stops.

Vehicle Travel	Driving to and from the work site (continued)	Loose gravel on road surface can cause loss of traction on grades and curves, and may triple usual stopping distance. Slow down before curves. Watch for flying rocks from other traffic and stay on your side of the traveled portion of the road. Maintain vehicle control, and don't fight ruts, chuckholes, puddles and washboard roads, just drive slowly and calmly. Take the best route. Don't drive with your thumb wrapped on the steering wheel. Hitting large rocks, obstacles or chuckholes may cause the steering wheel to kick back and injure your thumbs. Approach log landings with caution. Low guy lines, mainline and haulbacks are hare to see. Approach any line or cable with caution. Keep clear if there is any movement. If rocks, boulders, and windfalls are on the road, stop if there is room and remove them from the road. Make sure of adequate clearance before driving over or around them. Any adverse weather conditions, such as rain, snow, smoke, or fog affects your ability to see other vehicles and road hazards. The other drivers have similar problems and extra caution is necessary. Slow down and use your headlights. Snow requires proper tires and/or chains and does not always appear slick. Increase following interval to four seconds. On blacktopped logging roads watch for vehicles travelling at a high speed. Usually shoulders are narrow or absent. Frost is more of a hazard on blacktop than on gravel, and crossing over paved overpasses or bridges are especially hazardous. Slow down and maintain control, and drive with greater caution.
	Approaching Traffic	Keep as far to the right as possible and signal your turns as necessary. Anticipate close following traffic and emergency stops.
	Passing	Signal your intention and allow enough clearance. Be sure of adequate passing distance and visibility. Avoid awkward or high-speed pass. Be courteous.
	Traversing Steep Grades	Check brakes, use low gear and alternately apply and release your brakes while descending. Watch for overheating and brake fade on long descents. Stop if necessary for cooling. Use low-range 4WD on steep descending jeep roads or other unmaintained primitive roads.
	Backing	If possible, avoid backing up by positioning the vehicle for a forward departure. If backing is necessary, it is generally safer to back at the time of arrival then at the time of departure. Check for clearance and blind spots before backing. If any problems, get out and look over the situation or have your passenger get out and help guide you. If you use a guide, make sure only the designated person gives signals. Sound horn and back up slowly.
Vehicle Travel	Backing (continued)	Backing down steep grades are especially hazardous as weight of the vehicle shifts to the rear, and front wheels lock-up easily when brakes are applied, causing front wheels to skid. Skidding wheels cannot control direction of vehicle.
	Parking	Park off the traveled roadway whenever possible to keep from impeding flow of traffic. Leave plenty of clearance on logging roads, at landings, and truck turns. Make sure you are on stable ground and avoid soft shoulders. Leave your vehicle in **low** or **reverse** if manual, or **park** if automatic transmission, and engage parking brake. Use chock blocks on steep grades. Even when stopping for a short time on the roadway, watch for oncoming traffic. Lock up vehicle if it will be unattended for a time. If possible, turn around only on surfaced turnouts.

	Turning Around	Make sure you have complete clearance before turning around. If it's necessary to turn around on a soft spot, keep the driving wheels on solid ground. Get out and check ground condition when in doubt. Turn vehicle around before leaving vehicle. If you're stuck then you'll have more time to work on the problem. Always "face the danger" when backing up to turn around. Back rear of the vehicle toward the cutbank.
Vehicle Travel	Driving to and from the work site (Backcountry driving)	Avoid putting the front wheels too far out on the fill slope edge of the road. Use a passenger to help guide you. Drive defensively. Always drive at a safe speed for the weather and road conditions. Be a courteous driver: sound your horn and drive slowly around blind corners on winding mountain roads, staying well on the right side portion of the road surface, and be able to stop the vehicle within less than half of the visible distance. Have passenger talk with the driver to help keep him/her awake and alert during long trips. When approaching a vehicle coming from the opposite direction on a narrow or one lane road, pull over and stop in a turnout to let them safely pass. Trade off with other drivers often to avoid fatigue. Do a safety check on the vehicle before driving it each day. Always drive with your headlights on. Always wear a seatbelt, even if the vehicle is only going a short distance. Before starting downgrade, shift into a lower gear. If you are riding your brakes, you are in too high a gear. Use one gear lower to descend a grade than would be used to ascend it. Release and apply brakes often to avoid burning brake lining. Use 4-wheel drive judiciously: use it to get you <u>out</u> of a situation; <u>not</u> <u>into</u> trouble. Use when steep grades and road surfaces warrant it. Fresh berm on road surface means a grader may be on the roadway ahead. Head on traffic is likely, and it is difficult to cross over high or rocky berms so vehicle operator must slow down and drive with extra caution. Stay on your side of the road unless there is not enough room. If you must cross over the berm watch for large rocks that can damage the oil pan, transfer case, transmission housing, drive-line, fuel tank, etc. Also, be extra alert for on-coming traffic. Don't follow closely behind other vehicles. Their dust cloud can obscure your visibility, especially to see oncoming traffic and other road hazards.
Vehicle Travel	Scouting and "Windshield" Surveys Map Reading	When scouting or surveying the countryside from the vehicle, use a passenger as an observer. If no observer is available, stop periodically to observe and make notes after pulling off the traveled roadway. Use a passenger to read maps and help navigate. If a navigator is unavailable and it is necessary to refer to a map or instructions, pull off the travelled portion of the road and stop. **Never try reading a map while you are operating the vehicle!**

	Wildlife on Roadway	Occasionally deer, elk, and small animals dart out in front of a moving vehicle. Always be alert to the possibility of unexpected animals appearing on the roadway. Keep speed down so that vehicle can be stopped in time, or so that control of the vehicle can be maintained while evasive action is taken. Small animals on the roadway are frequently indecisive in their direction of travel, and will abruptly change directions i front of the closely approaching vehicle. Many times it is best to avoid trying to take evasive action when there is uncertainly what the animal will do. There is greater risk in performing an unsafe maneuver that might lead to loss of vehicle control and result in an accident.
	Driving Emergencies	<u>Emergency Situations and Corrective Actions</u> (1) YOUR BRAKES COMPLETELY FAIL WHILE DRIVING DOWNHILL. **Take action immediately!** First, pump brakes to try to get pressure back. Use parking brake and gear down to reduce momentum. Drive into a bank or uphill as necessary to stop vehicle. (2) YOU MEET A LOG TRUCK ON A TIGHT CURVE WITH NO FOREWARNING. Look for nearest turnout. If it's ahead of you, quickly assess whether you have adequate time to make it. If not. You may have to back up quickly to your turnout. Use your passenger to help watch for approaching vehicles. (3) THE STEERING WHEEL BEGINS VIBRATING A LOT AND YOU REALIZE YOU JUST HAD A BLOWOUT. The most important thing to do is to maintain control and gradually slow down and stop the vehicle. NEVER slam on the brakes. Don't use the brakes until you've regained control of the vehicle. Then find enough room off the travelled portion of the road to change the tire, and gradually move the vehicle off the roadway. (4) YOU BEGIN TO SKID ON ICE, SNOW OR A SLICK SPOT. When you begin to slide, **Don't slam on the brakes!** Decelerate the vehicle by easing your foot off the gas and turning your wheels the same direction as the rear of your vehicle is sliding. As soon as you straighten out and regain traction, get to the right hand side of the road and proceed slowly. Other emergency situations can occur unexpectedly during back-country driving. Keep an alert attitude and be ready for an emergency situation around each corner. Be prepared to take evasive action. BE AWARE OF DRIVING HAZARDS AND DRIVE DEFENSIVELY! Follow these basic defensive driving principles: (1) Drive slowly. (2) Keep right. (3) Keep alert. (4) Use headlights. (5) Keep windshield and headlights clean. (6) Sound horn on blind curves. (7) Allow following distances. (8) Park out of the way so vehicle does not impede traffic, and that backing up is unnecessary. (9) Check condition of vehicle before use. (10) Turn around in locations affording a view of at least 500 feet in each direction.

10. LINE OFFICER SIGNATURE	11. TITLE	12. DATE

Medical Plan

TUSSOCK MOTH
Methow Valley ICP
Medical Evacuation Plan

Operational Period

May 7, 2001
To
September 30, 2001

Prepared By, (Safety Officer) Reviewed By, (Incident Commander)

__//S//____D. Wayne Wilson _____

Revised 4/26/01

Introduction:
This plan attempts to provide information and recommend actions in the event of an emergency or non-emergency situation in support of an evacuation via ground or air transport.

Purpose & Need:
The purpose of this plan is to expedite and assist emergency actions by the individual(s) on scene, determine status, effect rescue and facilitate medical treatment. To assist with security measures to ensure a safe and proper evacuation of any injured party(s).

Incident Information Required:
Type of accident -
Physical location -
Needs for more assistance? Number of patients involved?-
Quick evaluation of patient condition -
If transported by helicopter weather conditions at site-
If transported by ground closest road or junction-
Estimated time to transport patient to road or helispot-

Medical Emergency Procedures

Off Scene Responsibilities:

⇒ Notify ICP, Okanogan Valley Dispatch and local district administrator of the incident.

⇒ Administer local "Search & Rescue Plan" if needed.

⇒ Remember to document location of accident, Date and time notified, name of individual relaying information, and name & phone number of each person contacted when coordinating a medical evacuation.

⇒ Arrange for security and investigation at the mishap site if needed or requested. Call Agency or local Law Enforcement to assist if needed.

⇒ Notify area hospital of the situation and extent of injuries.

On Scene Responsibilities:

⇒ Notify your Supervisor, ICP Dispatch, Okanogan Valley Dispatch or Local Duty Officer of any accidents, or medical situations that require assistance.

⇒ Provide first aid to individuals and transport them the most effective way to medical assistance "**safely**", if the injuries are not life threatening.

⇒ Ensure personnel involved; do not broadcast names of individuals or state the extent of injuries other than to qualified medical personnel over the radio.

⇒ Prepare a helispot landing for medical helicopter(s) if needed.

⇒ Assist medical personnel on scene if requested.

* Information regarding an individual's death is not to be talked about over the radio or released to the general public until "agency officials" have authorized it.

To Place a Medivac Helicopter on standby or alert call...

[ ]	Incident Command Post	1-509-996-2816
[ ]		1-509-996-2832
[ ]	Incident Dispatch	1-509-996-2814
[ ]	Incident Operations	1-509-996-2809
[ ]	Methow Valley R. D.	1-509-997-2131
[ ]	Okanogan Valley Office	1-509-826-3275
[ ]	Med Star	1-800-422-2440
[ ]	Airlift Northwest	1-800-426-2430
[ ]	Supervisor Office	1-509-662-4335
[ ]	General Emergency	- 911-

* * (*Note: Med Star dose not charge for standby or when placed on alert*)

Radio Frequencies:

	Rx Freq.	Tx Freq.
Methow Valley Ranger District	169.875/146.2	169.875
Okanogan Valley Office	170.475/146.2	170.475
Air to Ground –	167.200	167.200

Med Star & Helicopter Flight Times TO:

Twisp WA	51 Min. (Moses Lake ship)
Omak WA	49 Min. (Moses Lake ship)
Brewster WA	45 Min. (Moses Lake ship)

Ground Transportation Times:

Twisp to Brewster	50 Min.
Twisp to Omak	55 Min.
Twisp to Wenatchee	1 Hr. 30 Min.

Alternate Air Resources for Medivac

Airlift Northwest	**Seattle 1-800-426-2430**
US Army	**Yakima 1-509-577-3479**

Law Enforcement contacts:

	LOCATION	PHONE
Okanogan County Sheriff	Okanogan WA	800-572-6604 509422-7232
Chelan County Sheriff	Wenatchee WA	509 664-5243
Washington State Patrol	Okanogan WA	509 422-3800

USFS-LEO

ROGER FUSION	**Okanogan/Wenatchee-SO Special Agent** **509-662-4236**
David Graves	**Methow Valley Ranger District** **509-996-4037**

J. Appendix – Public Information Plan

METHOW VALLEY RANGER DISTRICT

Okanogan and Wenatchee National Forests

PUBLIC INFORMATION PLAN

Douglas Fir Tussock Moth Suppression Project - 2001

3/12/01 – J. Newcom, P. Hart, J.Zbyszewski, D.Phillps, J. Archambeault

3/20/01 – Input from Project Team at Winthrop
5/11/01 Final – Archambeault

Situation:

Field sampling shows Douglas-fir tussock moth numbers at sub-outbreak or outbreak levels within the Methow Valley Ranger District. About 27,000 forested acres may have a high enough population of insects and meet regional criteria for an aerial spray project to suppress the outbreak. Of highest concern are National Forest lands in the Early Winters, Eight Mile Creek, and Wolf Creek areas. Unless virus tests and field sampling show the outbreak is collapsing naturally, a spray project will occur between the second week in June and mid-July. Spraying will be with the TM-BioControl-1 virus, mixed with a carrier. Most local citizens have been supportive of a spray project, though there has been some concern about the proposal to spray several thousand acres within the Chelan-Sawtooth Wilderness. Several local residents have asked that the TM bio-control agent be made available for spraying tussock moth infestations on adjacent private lands. Private landowners interested in spraying on their own property are being directed to the Washington Department of Natural Resources (DNR).

Objectives:

- Inform and educate the public regarding the analysis process used, information considered, and Forest Service rationale for suppressing insect populations in selected areas.
- Provide basic information on tussock moth biology and ecology (life cycle, etc.).
- Gain and preserve public support for the project.
- Facilitate feedback from an informed public, and use that feedback to fine-tune the areas where suppression will occur, within the framework of the Final Environmental Impact Statement (FEIS) and Record of Decision (ROD).
- Keep recreationists and local residents posted on a daily basis during the spray project.

Audience:

- Adjacent private land owners, Colville and Yakima Tribal Governments, environmental organizations that have expressed interest in management of the National Forest; the general public with emphasis on Mazama; Winthrop; Twisp; Upper Methow Valley residents; travelers on the North Cascades Scenic Highway; recreation visitors; County Commissioners and other local elected officials; federal elected officials (Hastings/Davis; Gorton/Caswell; Murray); Okanogan Conservation Coalition: cattle permitees; Methow Valley Sports Trails Assn.; Methow Conservancy; Other Agencies (County Extension; Washington Department of Fish & Wildlife, NRCS, NPS, DNR, FWS, NMFS…); City governments for Twisp/Winthrop; Forest Service Employees; Edelweiss Home Owners Association; Lost River Airport Home Owners Association.

Actions:

What	Who	When
Cascade Lookout Story	**IIO**	**by 3/26**
Web page -Link to OKA and/or WEN page	**IIO and I&DC**	**by 5/1, then Daily**
Media (also included in "Fax Tree") -News Releases -KVLR, KOZI, KOMW -MVNews, Omak Chronicle, Wenatchee World, Spokesman Review, Spokane TV, Key Seattle Media.	**IIO**	**Mid-April, June 1, when spraying begins, then as needed**
Accident Plan -Spills -a/c accident/incident -Accidental spray on pvt. land	**Safety Off./OPS/IIO**	**by 5/15**
Posters/Printed Info. -For All CGs and THs -For affected CG and TH -Hand out info. sheet for campgrounds and front desk/VICs -mail to folks who've attended public meetings to date	**IIO**	**by 5/15**
Orientations/Information Packets -All field going employees - one time -Rec guards, CG hosts, Frontliners, VIC staff - as needed -With LARGE packet of background information, for reference **-**Talking points sheet	**Monitor/OPS/Rec Staff/IIO**	**5/15- 6/1**
Large 'Easel style' Display -With Laptop PowerPoint presentation, if possible -Washington Pass? -For Winthrop VIC, Sun Mtn., Freestone, Others?	**IIO**	**by 6/1**
Updates via e-mail, hard copies and FAX -To Visitor information Centers (VICs), CG hosts, Methow Recreation folks -Frontliners (Methow, Chelan, Wenatchee, Tonasket, NCNP) -Methow RD employees, as needed -Fax "tree" -Local Call-in number with updates -Include private land spraying, if known	**IIO**	**Daily**
Film Liaison	**IIO?**	
Personal Contacts Local Environmental groups-Peter Goldman, George Wooten Aileen Jefferies, Amy Marshall, Bruce Morrison, Lincoln Post, Susan Crampton, Ed/Vicky Welch. Upper Methow Residents- John Hogness, John Hayes, Bob Spiwak, Dalton DuLac, Darrell Gantt, Nancy Farr, Red McComb, Harold Heath, George Wooten	**IIO/DR/IC/OPS**	**As needed**

What	Who	When
District Meeting -Methow Employees	**IIO/DR**	**As needed**
Medical Info. -Local physicians -Ambulance Service -MSDS Sheets - in handout to employees -Labeling Info. - in handout to employees	**Med Unit/Safety Off./Monitor Ldr./IIO**	**As needed**
Group Contacts **-**Chambers and Town Councils Twisp and Winthrop -Congressional State/Federal -Landowners -Outfitters, other recreation providers, (possible letter/brochure?) -Cattle Permittees (possible letter/brochure?) -OC3 -Lost River Homeowners (possible letter/brochure?) -Edelweiss Homeowners (possible letter/brochure?) -Businesses: Freestone Inn, Sun Mtn., Browns Farm, Mazama Country Inn, Mazama Store, etc. -Agencies: NMFS, FWS, WADFW, DNR, NPS, NRCS, WSDOT, County -Methow Conservancy, Methow Valley Citizens' Council. -Include in "fax Tree"	**IIO**	**As needed**
Political Contacts -Federal and State Legislators, Okanogan County Commissioners (Dave Schultz)	**IC/IIO**	**As Needed**
Campground/TH Closures **-**36 hours???? ahead of time, when possible -Identify alternate camping locations -KOA -Rocking Horse Ranch -Dispersed sites -No spray- weekends and/or Holidays???? -CGs identified as separate, smaller, spray blocks?? -Sandwich Boards at CG entrances -Include Wolf Creek TH here	**Monitor Staff/OPS/Rec Staff/IIO**	**As Needed**
List of available PIOs	**IIO/HART**	**April 15**
Monitoring Sheets -Rec. experience -Health	**Monitor/Rec Staff/IIO**	**As needed**

Jim Archambeault will be lead information officer for the project. He will be supported by a team of incident information specialists from on-forest and from elsewhere in the region. A few seasonal employees will be assigned to do public contacts in campgrounds and at trailheads during the project.

Okanogan and Wenatchee National Forests

215 Melody Lane
Wenatchee, WA 98801

Public Affairs Office:
(509) 662-4314; Fax (509) 664-2731

Visit our websites at www.fs.fed.us/r6/wenatchee
www.fs.fed.us/r6/okanogan

NEWS RELEASE

Date: July 12, 2001

Subject: Successful Douglas Fir Tussock Moth Suppression Project Wraps Up

Contact: Don Nightengale, Entomology Coordinator, at 509-997-2131

The Douglas Fir Tussock Moth Suppression Project in the Methow Valley is coming to a close. Project officials are beginning to send workers home after completing a project to reduce populations of the tussock moth in the Methow Valley. The last day that acreage was sprayed was Monday July 9.

To sum up the success of this project, Incident Command Leader, Wayne Kleckner says "the project has been a success in the fact that we have already seen dramatic reductions in tussock moth populations, plus the predicted defoliation of the fir trees has been only slightly noticed"." Entomology crews will continue to complete evaluation plots for treatment effectiveness until August 1.

The initial results of the spray project using TM-BioControl-1, a virus specific to the tussock moth, has been very positive. The project entomology crew is finding that the tussock moth populations are considerably reduced in areas that have been treated. Connie Mehmel, program entomologist states that crews are "just beginning to gather tussock moth population data in the sprayed areas. Spraying of nuclear polyhedrosis virus, a virus specific only to the tussock moth has significantly reduced tussock moth populations. In spray blocks that had high caterpillar numbers, the population has decreased by 92% to 98%. Defoliation in the sprayed blocks has been less than 10%."

We had projected that 30,361 acres in three major areas would need to be treated. Those areas included Eightmile Creek, Wolf Creek and Mazama. Of those 30,631 acres, only 16,689 acres were

sprayed. This was due to low population findings in many of the blocks, mainly in the Eightmile area, because the outbreak did not progress beyond numbers found in the Fall 2000 population surveys. A portion of these areas were set aside for control areas.

Entomology crews will continue gathering data to determine the final outcome of the project. Fall surveys will reveal the effectiveness of the Suppression Program. From these finding, Forest Service officials will determine the need for any future suppression programs in the Methow Valley.

The community was over-all receptive to the Tussock Moth Suppression Project in the Methow Valley. According to Information Specialist Megan Perkins, " project team members went all out to distribute information to all home owners and businesses in areas that were to be sprayed. Officials were readily available to answer questions of the public and measures were taken to inform the public on a daily basis of the project spray plan."

Tussock Moth Suppression Project officials and Methow Valley Ranger District would like to extend their appreciation to the local community. "We appreciate the great deal of support and patience displayed by the citizens and businesses within the communities we have impacted," says Wayne Kleckner.

Any further questions regarding the Tussock Moth Suppression Project can be directed to Don Nightengale, Winthrop Work Center, 509-997-2131.

END

(i) TM-BioControl Product Label

TM-BIOCONTROL

For Douglas-fir Tussock Moth

Biological Insecticide
Wettable Powder

ACTIVE INGREDIENT: *
Polyhedral inclusion bodies of
Douglas-fir Tussock moth nuclear
Polyhedrosis virus……..……..…11.6%W/W

INERT INGREDIENTS
Insect parts/inert solids……88.4% W/W
Total……100.00% W/W
* **Contains at least 621.7 billion inclusion bodies per ounce**

KEEP OUT OF REACH OF CHILDREN

WARNING
AVISO
Read First Aid Treatment Before Use

Si usted no entiende la etiqueta, busque a alguien para que se la exlque a usted en detalle. (If you do not understand the label, find someone to explain to you in detail).

MFG. For: USDA Forest Service
180 Canfield Street
Morgantown, VA 26505

EPA Registration No: 27586-1
EPA Establishment No: 58971-MD-001

Net Weight_____ Lot No:_____

FIRST AID TREATMENT

IF IN EYES: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention if irritation persists.

IF ON SKIN: Wash with plenty of soap and water

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING: Causes substantial but temporary eye irritation. Do not get in eyes, on skin or clothing. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Shoes and socks
- Protective gloves
- Mixers must also use additional protective eyewear (e.g., goggles or face shield).

User Safety Recommendations

Users should wash hands before eating or drinking. If pesticide gets inside clothing, wash skin thoroughly before putting on clean clothes. Remove PPE immediately after handling this product. Bathe and change clothing soon after product application.

Environmental Hazards

For terrestrial uses, avoid direct application to lakes, streams, or ponds. Do not contaminate water when cleaning equipment or disposing of equipment washers.

Notice

The USDA Forest Service makes no warranty, express or implied, of merchantability and/or fitness concerning this material, except those contained on the label.

Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Only for formualtion into a biological insecticide for use in managing Douglas-fir tussock moth infestations in wide-area public pest control programs sponsored by government entities. This product is registered only for the management of this moth and its use to forest trees and ornamental or noncommercial trees in urban parks, golf courses, lawns and landscapes. Tree species include but are not limited to Douglas-fir, blue spruce, and Englemann spruce. Registration of this product does not allow use on ornamental trees for sale, or commercial seed production.

TM-BioControl contains a virus efficacious for larvae of the Douglas-fir tussock moth with maximum effectiveness exhibited against early instar larvae. Spray application should occur soon after egg hatch when first and second instar larvae are actively feeding on new needles. Best results are expected when applications are made early in the morning on dry foliage. Application is not recommended if rain is predicted within 12 hours.

Ground Application
Spray formulation using hydraulic equipment should be applied in sufficient volume for thorough coverage. It is recommended that the formulated field sprays, 0.40 ounces per acre of product be applied at a rate of 100 gallons per acre to woodlots and small acreages. Individual trees should be sprayed once to runoff (e.g., 15 to 20 gallons for large Douglas-fir trees).

Tank mix sequence (per 100 gallons):
- Fill tank with 98 gallons of water and start agitation. **Never use chlorinated water in the spray formulation**.
- When necessary, adjust pH with products available for swimming pools to pH 6.0 to 7.2.
- Add 2 gallons of Bond® (Loveland, Inc.)
- Prepare 0.4 ounces (11 grams) of TM-Biocontrol water slurry and add to tank-mix.
- Continue agitation for 15 minutes and check pH before spraying.

Mixing equipment should have in-line filter and allow continuous circulation during agitation. Adjuvants may enhance performance of this product. Carrier mixture can be prepared within 24 hours of use and TM-BioControl added just before application. Although not recommended, it is possible to apply unused formulated field spray up to 48 hours after preparation if pH has not exceeded 7.2

Aerial Application
For foliage protection, apply 0.4 ounces of TM-BioControl per acre. **Adjust mixture proportions in field spray to accommodate different delivery rates of ½ to two gallons per acre** Preparation sequence for each of the aerial tank mixtures should follow the same general precautions as those outlined for ground application. Circulate tank-mix for 15 minutes before loading aircraft. Use boom and nozzle systems or rotary atomizers designed to result in droplet Volume Median Diameters (VMD) of 50 to 300 microns. **DO NOT ADD TM-BIOCONTROL DIRECTLY TO AIRCRAFT HOPPER.**

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

Storage: Direct sunlight or temperatures above 80° F will impair activity. Store in sealed containers in cool dry place. Temperatures below freezing are recommended for long-term storage.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed on site or at an approved waste disposal facility.

Container Disposal: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration or, if allowed by State and local authorities, burning. If burned, stay out of smoke.

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USDA Forest Service
OKANOGAN – WENATCHEE NATIONAL FORESTS
Methow Valley Ranger District

DOUGLAS-FIR TUSSOCK MOTH PROJECT - 2001

An outbreak of Douglas-fir tussock moth is threatening forest resources on portions of the Methow Valley Ranger District. A decision was made by the Regional Forester in spring 2000 to protect specific areas of concern where surveys determine that heavy defoliation by tussock moth will likely cause unacceptable impacts. This leaflet provides information about the project.

Douglas-fir Tussock Moth **-** Tussock moths damage trees by eating their needles and are a major defoliator of fir forests in western North America. Douglas-fir and true firs are the tussock moths preferred food source: however, the insect will feed on other tree species when it has eaten all the fir needles available. The caterpillar, or larval stage of the insect, does all the feeding; the moths do not feed. Larvae reach a length of about 1.25 inches, are very colorful and have tufts of long hairs.

The tussock moth is a native inhabitant of fir forests in Eastern Oregon and Washington. Tussock moth populations are cyclic, with an increase in population every 7 to 13 years. Each outbreak lasts 2 to 4 years and ends with a sudden crash. The outbreaks usually occur in mature and over-mature multi-story stands with a high density of host trees; trees on ridge tops and south facing slopes are the most vulnerable. A very large number of larvae can completely strip trees of all their foliage within a few weeks. Trees without their needles are more susceptible to attack by other insect pests, particularly bark beetles, and increase the risk and severity of fires.

Because of an outbreak in the early 1970s, the United States Department of Agriculture initiated a program to research the moth. The objective was to better anticipate future outbreaks and to develop management options. One result of this program was a survey technique, the "Douglas-fir Tussock Moth Early Warning System", which monitors population trends. According to data from this "early warning" monitoring, tussock moth populations have been increasing. The anticipated outbreak is expected to occur primarily in the years 2000-2002 and could last through 2004 in the Pacific Northwest.

In many places, the tussock moth can act as a natural disturbance agent by reducing overstocking and creating stand openings. However, defoliation in some areas would cause unacceptable harm to fish and wildlife habitat (including species federally listed as threatened or endangered) or to areas where people live, recreate and work.

The Final Environmental Impact Statement for the tussock moth project analyzed short-term management strategies that would maintain existing vegetative conditions in specific areas and would protect specific resources until long-term management actions restore a more balanced forest condition over the landscape. It is not the intent of this project to stop or prevent the overall tussock moth outbreak, or to prevent defoliation over the entire area where the outbreak may occur.

Insecticide - Aerial application of TM-BioControl-1 will be used to protect specific areas of concern from defoliation. TM- BioControl-1 is an insecticide made from a natural virus of the tussock moth. This virus is the primary cause of the collapse of Douglas-fir tussock moth outbreaks under natural conditions. This virus is specific only to Douglas-fir tussock moth and two other species of tussock moth in the western US.

Exposure to the Douglas-fir tussock moth larvae can cause effects on humans. About one third of the people who come in contact with the hairs of tussock moth larvae have an allergic reaction of skin, eye, and respiratory tract irritation. People who are sensitive or allergic to other insects tend to be more sensitive to the tussock moth larvae. These effects are not life threatening or debilitating and are reversible. Exposure to TM-BioControl-1 may also cause some of the same symptoms, but at much lower risk. First aid treatment includes flushing with a stream of water or washing thoroughly with soap and water.

Treatment Criteria - Application of TM-BioControl-1 will occur only after sampling has confirmed the presence of treatable populations of tussock moth larvae and that they are in a stage of development most vulnerable to treatment. TM-BioControl-1 will be applied by helicopter. Generally, spray operations will occur between 5 a.m. and 7 a.m. each day, but may last longer if weather conditions permit. Weather conditions include wind between 1 and 8 MPH, relative humidity more than 50 percent and a temperature between 34 and 70 degrees.

Project location - The project area includes about 30,000 acres on the Methow Valley Ranger District, including areas near Mazama, along the North Cascades Scenic Highway (State Route 20), the Eightmile/Chewuch drainage, and a small area in the Wolf Creek drainage outside of the Lake Chelan-Sawtooth Wilderness. Actual acres sprayed for the Tussock Moth could be less than the amount above.

The area to be treated has been divided into about 175 individual spray blocks. Treatment for each block depends on weather conditions, elevation and tussock moth larval development and will be determined about 2 days before spraying. Notices will be posted at campgrounds and along roads and public contact will be made daily within the treatment area. All treatment will be on National Forest System lands.

Staffing - Approximately 60 people will be working at Winthrop WA, throughout the project. Some entomology crews will begin working May 7th, surveying the tussock moth population. These crews will continue working through the entire project monitoring population levels. Additional people will be assigned to the project when application begins, some only for a few days. Forest Service employees, local temporary hires, and contactor personnel will work together to complete the project.

Contractor - TM-Biocontrol-1 will be applied with a helicopter by a private contractor under the supervision of the Forest Service. Heli-Jet Corporation headquartered in Eugene, Oregon has been awarded the contract. They have conducted similar projects throughout the United States. They will operate from a helibase near Winthrop, and from other temporary spots in the project area.

Project Schedule - Application of TM-BioControl-1 will begin in mid June and end in early July. An approximate schedule of key events is listed below. This schedule is subject to change due to weather and larval development.

- May 7 - Crews begin monitoring insect population levels.
- mid June - First spray blocks released and application begins.
- mid July - Tentative completion of application.
- mid to late July - Crews monitor effectiveness of treatment.
- mid August - Tentative end of project.

Other Activities – At the same time the Forest Service is conducting this project, private landowners in the upper Methow may be spraying the same insecticide on their lands. Those landowners are working with the Washington State Department of Natural Resources to spray about 1600 acres. Although they will be operating at about the same time, and may use the same applicator, this effort is completely separate from the Forest Service project.

Project headquarters - The tussock moth project is operating out of the Winthrop Work Center in Winthrop. If you are interested in more information about the project, contact the Forest Service at the number below:

Winthrop: Wayne Kleckner, Project Director or Jim Archambeault, Information Officer
Phone: **509-996-2832**
More information and pictures: www.fs.fed.us/r6/nr/fid/dftmweb

Instructions for updating the 996-4040
PHONE MESSAGE

1. pick up handset
2. press 71
3. enter password 1-1-1-1-#
4. press 6 (*to change personal options*)
5. press 1 (*mailbox options*)
6. press 1 (*to change your greeting*)
7. press 1 (*to record your primary greeting*)
8. record message below (*first you must listen to the old message before you record the new message*)

Hello…you have reached the US Forest Service Douglas fir Tussock Moth Spray Project Information Line.

On _____*(Day of week))*_____ (*Date)*, weather permitting, we plan to spray: _____ acres in the area(s) of: _____
_____
_____

Helicopters will be used to spray a naturally occurring virus, specific only to the Tussock Moth.

On _____*(Day of Week)*_____(*Date),* _____ acres were sprayed in the area(s) of:
_____
_____
_____

To date, _____ acres of National Forest land have been treated since spraying began on June 7th.

Spraying will usually occur between 5 and 8 am, due to the limited weather conditions under which spraying can occur.

Recreationists can use the areas that have been sprayed at any time, but may not want to be in the area when spraying actually occurs.

Please call 509-996-2832 or 996-2816 for more information.

This message will be updated daily.

The spring 2001 burning program has been completed, however you may continue to see smoke in Finley Canyon, and Little Bridge Creek areas. Forest Service crews are patrolling those areas.

Thank you and have a good day.

Other Message Machine Options:

9. press #, when done
10. press #, again
11. hang –up, then check the message from another phone

Okanogan and Wenatchee National Forests

Methow Valley Ranger District
Douglas Fir Tussock Moth Project

Date _____

Time_____

Daily Spray Project Information

On_____, _____ ____, aircraft will be spraying _____ acres, in the following areas:

Total acres sprayed today: _____

Total acres sprayed to date: _____

Generally, spray operations will occur early in the morning between 5 and 8 am. However, if weather conditions allow, operations may last longer into the morning.

Areas being sprayed are available for use by recreationists.

A recording of our daily plans is also available at 996-4040

Project information is available at 509-996-2832 or 996-2816
For more information about the Tussock Moth, visit our website: www.fs.fed.us/r6/nr/fid/dftmweb

Public and Media Contact Log

Name:_____ Date: _____ Event: _____

Time/Date	Contact's Name	Phone Number	Questions/Comments/Action Taken

Douglas Fir Tussock Moth Project

Daily Fax Contact List

Agency	Name	Phone Number	Fax Number	Address
Chelan Ranger District		509-682-2576	509-682-9004	428 West Woodin Avenue Chelan, WA 98816
Cle Elum Ranger District		509-674-4411	509-674-1530	803 West 2nd Street Cle Elum, WA 98922
Entiat Ranger District		509-784-1511	509-784-1150	2108 Entiat Way, P.O. Box 476 Entiat, WA 98822
Lake Wenatchee Ranger District		509-763-3103	509-763-3211	22976 Highway 207 Leavenworth, WA 98826
Methow Valley Ranger District	Tommy Days, Information Assistant	509-997-2131	509-997-9770	502 Glover, P.O. Box 188 Twisp, WA 98856
Methow Valley Visitors Center	Tommy Days, Information Assistant	509-996-4000	509-996-4060	Building 49, Highway 20 Winthrop, WA 98862
Okanogan Supervisor's Office	Kristy Longanecker, Information Assistant	509-826-3257	509-422-2014	1240 South Second Avenue Okanogan, WA 98840-9723
Wenatchee Supervisor's Office	Paul Hart, PAO, Robin DeMario, Information Assistant	509-662-4335	509-662-4368	215 Melody Lane Wenatchee, WA 98801-5933

Media	Name	Phone Number	Fax Number	Address
KOMW Radio, Omak		509-826-0100	509-826-3929	320 Emery St., Omak, WA 98841
KOZI Radio, Chelan		509-682-4033	509-682-4035	123 E. Johnson Avenue, Chelan
KVLR Radio, Twisp		509-997-5857	509-997-5859	109 W. Glover, Twisp, WA 98856
Methow Valley News	John Hanron	509-997-7011	509-997-3277	201 Glover, Twisp, WA 98856
Omak Chronicle		800-572-3446	509-826-5819	618 Okoma Dr., Omak, WA 98841
Quad City Herald			509-689-2507	525 W. Main, Brewster, WA 98812
Wenatchee World	KC Mehaffey			

Douglas Fir Tussock Moth Project

Daily Fax Contact List

Business	Name	Phone Number	Fax Number	Address
Antlers Tavern		509-997-5693		132 Glover St., Twisp, WA
Jacks Hut		509-996-2752		
Mazama Store		509-996-2855		50 Lost River Rd, Mazama, WA
Sun Mountain Lodge		509-996-2211		Winthrop
Tenderfoot		509-996-2288		Winthrop
Twisp Community Center				
Winthrop Mountain Sports		509-996-2886		256 Riverside , Winthrop, WA 98862

MEDIA LIST

Media	Address	Phone #	Fax #
Methow Valley News	201 Glover, Twisp, WA 98856	509-997-7011	509-997-3277
Omak-Okanogan County Chronicle	618 Okoma Dr., Omak, WA 98841	800-572-3446	509-826-5819
Wenatchee World	124 2nd Street, Okanogan, WA 98840	509-422-3848	509-422-3850
KOZI-Radio Lake Chelan	123 E. Johnson Avenue, Chelan	509-682-4033	509-682-4035
KVLR Radio	109 S. Glover Street, Twisp, 98856	509-997-5857	509-997-5859

Douglas Fir Tussock Moth

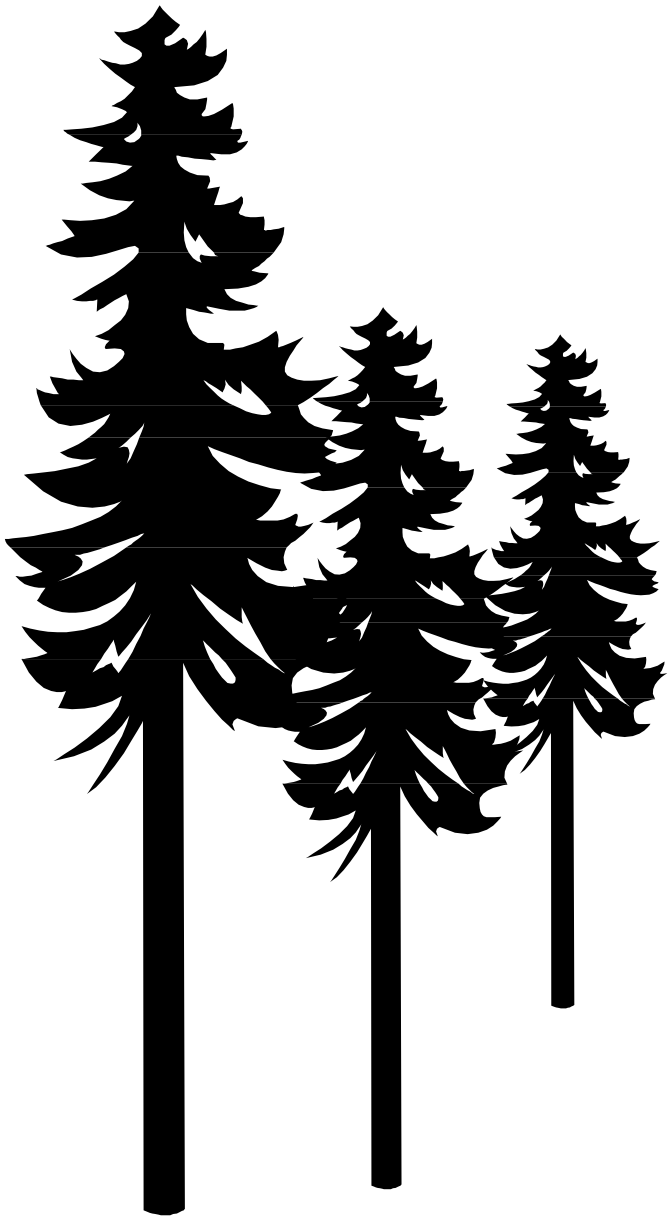
Incident Information Contact List

Name	Agency	Phone Number	Email	Address	Dates on Project
Archambeault, Jim	USFS, Okanagan National Forest	509-997-9738	jarchambeault@fs.fed.us	P.O. Box 188, Twisp, WA 98856	
Hart, Paul	USFS, Wenatchee-Okanogan National Forest, Public Affairs Officer	509-	phart@fs.fed.us	215 Melody Lane, Wenatchee, WA 98801-5933	Ongoing
Doug Jenkins	USFS, Wenatchee National Forest,		dsjenkins@fs.fed.us		3 days
Cathy Smith	USFS, Wallowa-Whitman National Forest	541-962-8549	kasmith@fs.fed.us	3502 Hwy 30, La Grande, OR 97850	
McAuliffe, Brian	USFS, Okanogan National Forest, Seasonal				May 30 – July, 2001
Perkins, Megan	USFS, Umpqua National Forest	541-767-5009	mperkins@fs.fed.us	78405 Cedar Park Road, Cottage Grove, OR 97424	July 1 – July 14, 2001
Tonn, Chuck	Contractor	509-997-2257		32 Lewisia Rd. Winthrop, WA 98862	May 15 – July 14, 2001

Public and Media Contact Log

Douglas Fir Tussock Moth

Spray Project



Contact Codes

P – Public Meeting
R – Recreation Contact, Campground or Trailhead
H – Private Home, Cabin or Land Owner
L – Vacation Lodge, Inn, Hotel, Motel
O – Outfitter
T – Telephone
E – Email
M – Media
A – Agency

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
Feb 1	Winthrop Barn Open House		Those present at the meeting: Ron Wonch, Wash. St. DNR, 193 Conconully Hwy, Okanogan, raon.wonch@wandnr.gov Tom Thank, 157 Lost River Road, Mazama, 996-8076, Brad Martin, Rt. 1 Box 240, Winthrop, bmartin@tmethow.com John Hanron, PO Box 97, Twisp, editor@methowvalleynews.com Ken Westman, 95 W. Chewuch Rd., Winthrop, elken@methow.com R. and B. Windish, 241 C Lost River Road, Mazama, 996-3311, Liz Tanke, 1495 First Cr. Rd., Chelan, 687-5607 Amy Marshall, 349 D, West Chewuch Road, Winthrop, orion@methow.com Ed and Vicki Welch, 932 A Twisp River Road, sunnypine@methow.com Dan Omdal, DNR, Olympia, domd490@wadnr.gov Also present: Connie Mehmel Kent Woodruff, John Rohrer John Daily Pete Soderquist John Newcom Arlo Vanderwoude Paul Flanagan Don Phillips Jennifer Zbyszewsk Jim Archambeault Jay Jenkins, County Extension, WSU	P
Feb 7	Ken and Mary Lynn Woods		Leahe Swayze received a phone call from these people. The email correspondence is as follows: I received a call this afternoon from Den and Mary Lynn Woods asking about the DFTM Spray Project. They own 13 acres across from North cascades base camp. They wanted information – and reassurance that we will spray the strip of federal land between Goad Wall and the private land, as has been requested by others also. I'm not sure which one of you is keeping the "contact" record, but they would like to be notified later whether the project is going to proceed and if that strip is included. Ken and Mary Lynn Woods, P.O. Box 43 Zionsville, IN 46077	T

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
Feb 7	Ken and Mary Lynn Woods		Leahe Swayze received a phone call from these people. The email correspondence is as follows: I received a call this afternoon from Den and Mary Lynn Woods asking about the DFTM Spray Project. They own 13 acres across from North cascades base camp. They wanted information – and reassurance that we will spray the strip of federal land between Goad Wall and the private land, as has been requested by others also. I'm not sure which one of you is keeping the "contact" record, but they would like to be notified later whether the project is going to proceed and if that strip is included. Ken and Mary Lynn Woods, P.O. Box 43 Zionsville, IN 46077	T
Apr 12	Ken Sletten		Report private land owner questions, referred to DNR	H
Apr 25	Bob Ulrick		Twisp, General Information	
May 2	Rob Tharlackson		Sun Mountain	L
May 5	Ron Wonch		DNR	A
May 7	Tom of WNP			A
May 8	R. Merryfield and Contract forester, Don Stragis and DNR			A
May 9	John Hayes			
May 9			Email to all on forest with project information.	E
May 9	D. Thayer		Kiwanis, on meeting	
May 9	Chris Chartes		PSM	
May 10	Blue Bradley		PSM	
May 15	Winthrop Kiwanis		25+ (M. Heath, etc.). Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	P
May 15	Rocking Horse, Dave Swenson		Wolf Creek, Goat Creek. Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	L

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
May 15	Early Winters Outfitting		Aaron / Jody Burkhart, and employees, Sandy Butte, Goat/Fawn Routes. Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	O
May 15	Freestone		Areas adjacent. Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	L
May 15	Dick and Sue Roberts		North Cascades Basecamp, private entity. Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	
May 15	Sun Mountain		Call activities center or concierge. Cedar Creek or Driveway. Arch Dave and Wayne provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	L
May 16	Julie Lagenburg and Michael Martin		Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	
May 16	Mike and Laurie Myers		At KOA. Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	
May 16	Bob Grainger		Lost River Resort. Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	L
May 16	George Turner		Mazama Country Inn. Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts	L
May 16	Jeff and Alyson Brown		Brown's Farm. Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	
May 16	Winthrop City Council Meeting		Provided maps of area to be sprayed, explained Tussuckosis, what was in the spray and gave handouts.	P
May 18	KC Mehuffey		Wenatchee World. Background information.	M
May 21	John Hayes			
May 21	John Hanron		Methow Valley News, contacted.	M
May 24	Scott Dunham		PLOBS. May want speaker at their staff Training on June 11 and 12.	
May 25	News Release		News release ton 5/31 about Public Meeting to Newspapers and email list	M
May 25	Dee Camp, Chronicle		Sent fax of 5/18 information. Left message for KC Mehaffey at OMAK Chronicle.	M
May 25	John Hanron		Methow Valley News	M

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
May 31	Open House		Open house was held at Winthrop Work Station. It is thought that there were2-3 people in attendance.	P
June 4	Barb, Guest at Sun Mountain Called		Concerned about the effect of the spray on asthma sufferers. Should know concerns xxx her. She will look for daily updates at Sun Mountain.	L
June 6	Doug Perrin, Mazama Ranch House	996-2040	Concerned about helicopter noise on Sat. June 9, and Sun. June 10 at his Ranch House Inn, Mazama. Has group of Buddhist Monks coming in. Told him I would Keep him informed, but have little control once spray blocks are released to the contractor.	L,T
June 6	Judy at Early Winter Outfitter		Tell her that spraying would begin Thursday AM. She thanked me.	O
June 6, 14:30	Mazama Area		Posted Goat Creek Trailhead for spraying 6/7. Talked to Scootee at Mazama Store and Dick at Base Camp Resort. All were cool with spraying 6/7. Dick had his resort sprayed by DNR today.	R
June 7, 07:30	Ellen and Ken Brown Called	996-2780	Very upset – Said they were sprayed and said, "they did not want to be". Sent message by radio to OPS to have someone from DNR contact them.	H
June 7, 09:00	Called Ellen and Ken Brown		Left message to call me with their concerns	H,T
June 7	Mike Notaro		Wanted information on project. Already had received.	
June 7, 14:30	Ellen and Ken Brown	669-2780	Concern over spraying their property. Will visit. (Chuck called)	H
June 8, 11:15	Carol Gorrard	901144-1293-540-512	Tour. Faxed information	
June 8, 11:30	Helen Krakoy		Emailed information to helen_krahay@hotmail.com. Member of tour.	E
June 9, 9:15	Viola Eberly	996-3706	Mazama. Wedding Sunday morning. Does not want spray. Call when we get word.	H
June 9, 13:30	Viola Eberly	996-3706	Called and left message. Area they are having wedding will not be area to be sprayed, but . . .?	H
June 10, 10:30	Freestone	996-3906	Informed them of spraying North of Freestone on 6/11.	L
June 10, 10:30	Early Winters Outfitters	996-2659	Informed them of spraying near them on 6/11.	O
June 10	Don Phillips, USFS	667-4019	Called Don to discuss some . . . Mon. AM at Early Winters Campground. (See original)	A

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 11	Campground Hosts at Klipchuck Campground		Met Host and put out some more info sheets at some campsites.	R
June 11	Mazama Store		Talked to staff at store and gave them more info sheets.	B
June 11	Freeman Inn, Jeff Childs	996-3906	Didn't spray today due to rain and will try to spray tomorrow (weather permitting) from Early Winters to Looney to Little Boulder Cr.	L
June 11	Early Winters Outfitters	996-2659	Left Message – Didn't spray today due to rain and will try to spray tomorrow (weather permitting) from Early Winters to Looney to Little Boulder Cr.	O
June 11, PM	Campers (5 groups) Early Winters Campground		Told them we will spray near Early Winters Campground on 6/12 early AM if weather permits. (Note: It rained so we could not spray 6/12 AM)	R
June 12	Called Early Winters Outfitters	996-2659	Informed Judy that spraying will occur south of them on 6/13.	O
June 12	Called Freestone Inn	996-3906	Told them we would be spraying near the Inn on 6/13.	L
June 13	Bob ?	996-2777	Called to say he had photographed the spraying this AM. Good conditions. Will provide to Methow Valley News.	M
June 12	Recreationists at Ballard Riverview and Early Winters Campgrounds and Lost River Sno Park (About 9 groups)		Posted and distributed information sheets about DFTM project. Gave general info about the project. (We are not spraying in this area yet). One camper moved out (Maybe didn't want to hear helicopters in the early AM?)	R
June 13, 09:30	Freestone Inn		Called to ask how guests responded to helicopter noise this AM. Said they had some complaints.	L
June 13	WA Fish and Wildlife Campgrounds, Falls Cr., Flat, Nice, Ruffed Grouse and Honeymoon Campgrounds and 2 dispersed sites.		Posted DFTM info sign posters on signboards, and on some picnic tables.	R
June 13	Ranch House Inn, Mazama		Update on status of spraying and provided more info sheets.	L

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 13	Mazama Country Inn		Update on status of spraying and provided more info sheets.	L
June 13	Basecamp on Lost River		Update on status of spraying and provided more info sheets.	O
June 13	Klipchuck Campground and Cedar Creek and Driveway Butte Trailheads and Perrygen State Park		Posted, re-supplied, distributed DFTM info sheets and talked to some recreationists (General Info about project).	R
June 14	Freestone Inn	996-3906	Called for Jeff Childs to meet with him to discuss project and noise impacts. He is not in until Friday. Left message with Beth.	L
June 14	Timberline Meadows Lodge	996-3949	Contacted owner to provide info. She complained that she had been sprayed and showed us spray on outdoor furniture.	L
June 14, 16:30	Lost River Area, Peggy ___ Hockmar, #706 B Simmons, #706 A		Talked to homeowners in or near Block 62. They were fine with being sprayed or having drift when we spray Block # 62.	H
June 14	Recreationists staying along Lost River		Gave info sheet and info about spraying. Will Spray within less than a week, probably.	R
June 14, 17:30	Shardon Flowers (mailbox), Lives by Lost River Resort (across Rd. from Jct. To airstrip). Brown house to the right of the other brown house.		Gave info sheet and told him we'd be spraying on NF land adjacent to his property, with in a few days to a week. He choose not to spray his private land so doesn't not want his land sprayed. I told Art A. and Chuck we need to check and adjust, change spray block boundary so we don't spray his land (by Block M64). Other people with cabins in that area are John O'hollerow, Ted Wagner, and Allie Long.	H
June 14, 18:30	Billy Hill, H & K Excavating, Twisp	509-669-6425 509-667-4044	He is working adjacent to Block M41. Gave him info sheets and told him we'd be spraying that area tomorrow, weather permitted.	B,H
June 14	John Hays	996-2792	Left message saying we'd be spraying that area tomorrow weather permitting.	H
June 14	Terry O'Reilly	996-3689	Tried to call him about 6 times over 45 minute period and phone was busy.	T,H

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 14	Buck Lake in 8-Mile area		Info posters posted.	R
June 14, 19:00	Early Winters Campground Recreationists	D.L. : ATL 721 and KLM 756 British Columbia	Told them we are planning to spray in this campground early tomorrow AM and gave them info about spray and effects and project, etc. They decided to stay in the campground.	R
June 14, afternoon	Early Winters Campground		Put up large sandwich board signs saying we're planning to spray in campground tomorrow AM.	R
June 15, 06:30	Helibase Air Ops and Security		Went to helibase to talk to any public people there, to answer any questions and give info about spray project. No public folds there then. Security man has handouts to give to public that stop by.	A
June 15, AM	Early Winters Campground		Collection officer refunded fee for camping last night because we sprayed in campground this morning (2 campers were there). Info officer accompanied collection officer.	R
June 15, 12:45	KC Mehaffey, Wenachee World Newspaper	997-3025 (?) 422-3848 (?) 422-3850 (?)	Gave her update on status of project. She'll check with her editor to see where they want to go with this. Told her we could probably get photos they could use or they could come out and get photos, if they want to.	M
June 15, 14:00	John Hanron, M. V. News	997-7011	Not in – Will connect on Monday	M
June 15, 14:05	Jeff Childs, Freestone Inn	996-3906	Called to discuss spray project with Jeff Childs. See about impacts on guests and if we could provide info	L
June 15, 17:00	10 homeowners on Lost River Road between Yellowjacket Sno Park and Goat Wall	Anderson Gray Allen Rogers Rea Hoyness & Others	Gave info sheets and update on project and said we'll be spraying on National Forest land next to their property in the next week or 2. Left note saying this and info sheet at houses and cabins where no one was there.	H
June 15, 18:30	Dispersed recreation sites along Methow River between Ballard Campground and Forest Boundary, near Lost River.		Posted Info Sheets at about 11 sites, couple of recreationists in that area.	R
June 15, 19:30	Miller Realty, Jolly Miller	996-3148	Msg to tell him we plan to spray tomorrow (Sat 6/16 AM) on NF Land near Goad Cr. About ¾ miles SE of his property.	H
June 16, 0700	Helibase		Briefing and Tour of Helibase with Entomology Crew.	A

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 16, AM	Early Winters Campground, 2 Recreation Groups		Explained the project and status of it and showed them Tussock Moth larvae and collected samples to take back to the office and collected larvae that had been sprayed yesterday.	R
June 16	Browns Farm (Rent cabins and rest stop on Methow Valley Trail)		Gave info sheet and update on spray project.	L
June 16	Chris Moore		Wanted to know where we will plan to spray tomorrow. They are planning backpacking trip. Harts pass and Silver Lake are not in spray blocks and are 4 + miles away from closest spray block.	H
June 16	Contacted users up Valley, Ballard, Rivers Bend			R
June 16	Mazama Store		Talked to owners. Have not had complaints about helicopter noise.	B
June 16	About 75 cabin owners and home owners in the area around Lost River Airstrip		Left info sheets about project and sheet saying you are outside spray areas but near spray area and will see/hear helicopters for the next se4veral weeks. Left info sheets and made contacts at about 75 cabins and homes. Only found 15% approximately of the cabins/homes had people who were there.	H
June 16	Campers at dispersed rec site on road above Yellowjacket Sno-Park		They are inside block planned to be sprayed tomorrow AM. Gave them info about project and spraying and tussock moths. They are looking forward to seeing the helicopters spray tomorrow.	R
June 17	Pat – Visitors Center		Three Fingers Jack Restaurant asked to be taken off the daily fax info list. He said we were doing a great job and to carry on. He felt he doesn't' need to keep knowing specific areas and acres we are spraying each day.	A
June 17, PM	Dispersed camping and recreation areas along upper Methow River above Lost River and Up to Rattlesnake area.		Did not find anyone camping overnight who will be here in the morning when this are is sprayed. About 8 groups of recreationists were leaving the area. Talked to several day use recreationists who won't be spending the night and won't be in the area when it is sprayed tomorrow morning. Posted several DFTM info posters at 4 more places in these dispersed sites (part of Block 53).	R

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 17	Ballard and River Bend Campgorunds. Monument and Robinson Trailheads and Rattlesnake Trailhead		2 groups camped in campground. 2 groups will be leaving the area. 3 vehicles at trailheads. Posted signs that say these areas are in the area to be sprayed sometime between now and July 15 approx. Told these people they will hear and see helicopters, but they are not in the spray block. This is the other part of block 53.	R
June 17, 1830	Group of 15 college students and professors staying at Whidbey Island, WA this summer and doing field experience. Students majoring in Biology, Botany, Entomology and Environmental Studies, etc.	Michigan 20Y 117	Camped along upper Methow River near Rattlesnake Camp area and trailhead. Great real life opportunity for students to learn about real life DFTM project. Shared info sheets and info about project and Tussock Moths etc.	R
June 17	Paul Hart, Forest PAO	Fax at SO Wenatchee, 622-4368	Email update with status of project and info about spraying around campgrounds. Gave info about supportive response from public over all, etc.	A
June 18	Robin De Mario, Info Assistant, SO, Wenatchee		Gave update about project, acres, public response, etc.	A
June 18 and each day	Daily Fax Group Fax List		We fax out daily project update sheet each day to a group fax mailing list, through the FS Twisp office.	A
June 18 and each day	Recorded phone message on 996-4040		We update the recorded message on 996-4040 each day with status of the project.	A,T
June 18	Dispersed camp sites past Forest boundary in 8-Mile Ranch (Chewuch Info Board and snowmobile info board)		Posted general DFTM info posters at 3 sites.	R

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 19	Paul Hart Wenatchee SO	622-4369, SO Fax	Email update with status of project and info about spraying around campgrounds and gave info about supportive response from public overall, etc.	A
June 19	Elton Thomas O/W N.F.		Called to find out how program is going for mtg. Gave him information	R
June 18, 1830	Buck Lake Campground and Flat Campground		5 groups in campground. Told them about spraying and project and restocked info sheets on picnic tables, as needed. Will spray about ¾ mile from Buck Cr. Campground so they may hear/see helicopters and will spray right next to (not in) Flat Campground on 6/19.	R
June 18	Pat, Visitors Center		Update and fax lists.	A
June 19	Twisp FS RD office		Update and fax lists.	A
June 19	Kristy Longanecker, Okanogan Office		Update on project. We need to send fax to t6hem to say attention Public Affairs, so that it will get from Dispatch to Public Affairs, or we could email update. She is putting updates on website. She'll fax us a coy of their media list. Told her summary of public/ recreationists comments about project	A
June 19	Deb Kelly		See above entry	A
June 19	John Hanron, Methow Valley News		Will use black and white photo in this weeks M.V. News with photo info.	M
June 19	Various property owners along the East Chewuck on the 5010 Rd.		Left fliers at each site (about 17 cabin/home owners.	H
June 19	About 20 cabin/home owners on the west side of the Chemuch River below 8-mile ranch		Talked to the few people who were there and left info at other cabins. General info sheet and sheet saying you're outside spray area but will hear and see helicopters.	H
June 19, 1830	5 homeowners/ landowners in Lost River area by junction of Lost River and Upper Methow River		Informed them of Spraying planned for Monument Creek Trail area on 6/20 and other areas nearby in the next 3 weeks or so. All these people are supportive of spraying and okay if any drift spray gets on their land.	H
June 19	Monument Creek Trailhead		Posted information that this area is planned for spraying on 6/20 (Monument Creek Trail Area)	R
June 19, 1900	Rob Thorlakson	996-3246	He reported smoke in some Forest prescribed burn unit, inside the fire line. No flam just smoke and smoldering. Reported this to Pete Soderpriest, Fire Management Officer.	

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 19, 1930	Freestone Inn	996-3906	Told them that spraying is planned on 6/20 for area between Early Winters Creek and Looney creek.	L
June 20	Downtown Winthrop, Recreationists, tourists, local residence		Talked to about 5-6 people about DFTM project and general FS questions and rec questions	B
June 20	Meadow Campground and Harts Pass Campground		Posted general DFTM info sheets and talked to campers. No spraying planned for 6/21 because no blocks are ready to be released.	R
June 21	Called Tracy Sonyemectera		Told her about spraying Ballard and River Bend Campgrounds on June 22, AM.	R
June 21	Called Wenatchee and Okanogan PAO	Kristy Longenecker and Paul Hart	Told them about spraying campgrounds on 6/22. Spraying in Ballard and River Bend Campgrounds	A
June 21, 1500-1600	Freestone Inn, Mazama Inn, Ranch House, Early Winters Outfitters, Mazama Store		Checked in with all places. All were happy. No Complaints from guests. Are hearing helicopters.	L,B,O
June 21	Robinson Creek Trailhead, Ballard and River Bend Campgrounds, Rattlesnake area dispersed sites, Harts Pass Road		Recreationists in those areas. General DFTM info. Saw about 5 parties in those areas. Put up large sandwich board signs telling it will be sprayed in Ballard River Bend and Rattlesnake. No one camping overnight in Ballard and River Bend Campgrounds as of 1830 on 6/21. We plan to spray in those campgrounds on June 22.	R
June 21	Ellis – Recreation Specialist at Winthrop		Arranged for collection officer to to go our to Ballard and River Bend Campgrounds June 22, AM to refund money after we spray campgrounds. June 22, collection officer not needed in the end, because not one camped overnight in those campground, on 6/22.	R
June 22	Paul Hart, PAO, Wenatchee SO, Robin DeMario, Kristy Longanecker, Deb Kelly		Spray plans for tomorrow, June 23 including spray next to Klipchuck Campground and Buck Lake Campground and other areas. Total 1259 acres planned for 6/23 and atus of wsthat completed.	A

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 22	Campers in Buck Lake Campground and dispersed sites along 8-Mile Creek and Ruffed Grouse Campgrounds		Told recreationists that we pan to spray next to Buck Lake Campground June 23. We also plan to spray about ¾ mile south of Ruffed Grouse Campground. Talked to 3 groups at Buck Lake. Gave general DFTM info and handout sheets. 1-2 groups at dispersed sites.	R
June 22	Klipchuck Campground – Campers		Gave info to about 12 groups camped in campground that we'll be spraying rioght next to Klipchuck Campground June 23. Gave general DFTM spray project info.	R
June 22	Lone Fir Campground and other recreationists in area		Gave DFTM info and posted info sheets on bulletin boards in campgrounds.	R
June 22	Early Winters Outfitters		Told them we would be spraying in Klipchuck area.	L
June 23	About 11 homeowners in the Wolf Creek Area (upper portion of Wolf Cr. Closer to NF Boundary)		Told them spraying will start in Wolfe Creek area on June 24 and will continue intermittently for 2-3 weeks. People okay with spraying and project.	H
June 23	Wolf Creek Trailhead		Posted signs that spraying starting 6/24, and will continue intermittently for 2-3 weeks. 2 vehicles at trailhead.	R
June 23, 1730	Sun Mountain Resort		Gave them information sheets to handout and general DFTM information and told them we'll be spraying up Wolf Cr. (1st Day) on 6/24 and intermittently until mid-July.	L
June 23	Curious/ Concerned campers that stayed at Klipchuck Campground on June 22, PM		Arrived at campground after dark and did not see signs about spraying next to campground. 6/23 AM talked to campground host but wanted more details about spray project. Went to helibase and Lynn Wyatt and Mike Carney explained and shoed them about the spray project. Good job guys!	R

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 23	Robinson Creek and Monument Trailheads. Ballard and River Bend Campgrounds and dispersed sites between monument and Rattlesnake Trailheads (16 parties in these areas)		3 parties not happy about 0500 helicopters and 2 parties looking forward to air show. Explained that spray not harmful to anything but tussock moth, to alleviate some concerns. One party camped at Klipchuck Campground 6/22 PM when sprayed next to campground 6/23 and did not want to be woke up at 5 am by helicopters again and are leaving now and won't stay at River Bend Campground now and asked to have their money refunded, $3.00. I will give this info to collection officer to refund their money: Chris Kuhr, 1525 2nd Ave. West, Seattle, WA, 98119. 206-270-9766.	R
June 24	Betsy Cushman, lives near Lost River Airstrip	996-3905	She lives close to Lost River Airstrip and has been waked up by helicopters about 5 am quite a few days. Would like us to let her know when we will be landing and loading a batch at Lost River Airstrip. Told her we weren't landing and loading at Lost River Airstrip on 6/25. We have already sprayed quite a bit of the area around there, but we still had some more to spray in that area. All spraying should be done around mid-July.	H
June 24	Twisp Office, Pat and Tommy	997-9770 Fax	Please fax out our daily project info update sheets to your group fax list, as you have been doing each day.	A
June 24	Paul Hart, PAO, Wenatchee and Robin DeMario, Kristy Longanecker and Deb Kelly, Okanogan PAO.	509-662-4368 509-422-2014	Faxed daily spray project info update sheet.	A
June 24, 0300	Spraying		Observe and photograph spraying and help record weather observations (Kathy)	
June 24	Early Winters Outfitters	996-2659	Plan to spray area along Cedar Creek Trail below Cedar Falls and area near road to Cedar Creek Trailhead as well as other areas on 6/25.	O
June 24	Visitor Information Center		Gave project status update.	A
June 24	Freestone Inn at Wilson Ranch	996-3906	Plan to spray by Cedar Creek Trail and South of Early Winters Creek between Pekin Creek and Cedar Creek on 4125. She hasn't heard any comments from guests lately (from evening shift). They have information posted at the front desk.	L
June 24	Cedar Creek Trailhead		Posted information and talked to one party telling them that we plan to spray 6/25. Cedar Creek Trail below Cedar Falls and trailhead. Also we'll be spraying other areas near there between now and July 15.	R
June 24	Eight Mile Cr. And Nice Campgrounds and dispersed sites near there.		Project info and plant to spray one area by 8-Mile Creek on 6/25.	R

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 25	Linda Harris	206-870-0475	Called and left message regarding Family Reunion June 30-July 4 in Lost River Airport areas. Called her back and left message. Would like to meet with her and discuss.	H
June 25	Lee Miller	996-2725	Called to let Lee know we would be spraying near his brothers (Jolly Miller) cabin, near Flagg Mtn. Not concerned. All okay.	H
June 25	Paul Hart Office: Robin DeMario, Wenatchee and Kristy Longanecker, Okanogan PAO		Status update of project and how thins are going. Wenatchee and Okanogan PAO offices have received 0 or very few calls from public about spray project.	A
June 25	Marilyn, Methow Valley News		They are getting duplicate copies (2) of our daily fax updates. I told her this is because we are faxing info out to 2 group fax mailing lists from Twisp office. She said they could probably live with it. We'll be done spraying by mid-July.	M
June 25	Tedra, Freestone Inn	996-3906	We're planning to spray near Cedar Creek again on 6/26. (Flight path is not right over Freestone.) She hasn't heard any comments from visitors about spraying or helicopters. They had a light load of guests last night.	L
June 25, 1130	Paul Hart, PAO		Talked about project and accomplishments/ concerns. He will be up next week.	A
June 25	Deb Kelly, PAO Okanogan	826-3275	Deb will be up Wed. June 27. She is new to the job in Okanogan.	A
June 25	Early Winters Outfitters	996-2659	Message: We plan to do more spraying in Cedar Creek area on 6/26.	O
June 25	Flat Campground, Nice Campground, Ruffed Grouse Campground, Honeymoon Campground, Billy Goat Trailhead, and 6 dispersed sites by Eight Mile Creek		Talked to Campers in these areas (about 5 parties in Campgrounds and dispersed camp sites). Posted DFTM info sheets at 6 dispersed sites. Gave general project info. Plan to spray an area 1 ¼ mile south of Ruffed Grouse Campground. Posted info sheets at trailhead signboards. 8 vehicles at trailhead.	R

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 26	Linda Harris, Cabin owner by Lost River Airstrip	206-870-0475 (home)	No phone at her cabin at Lost River. Could get a message to her 6/29 – 7/4 thru the managers of Lost River Resort. Cindy and Bob Granger, Managers, 996-2537 or phone at Brown motel/cabin rental units at Lost River Resort. 996-8153. They are having a family reunion with about 50 people at their cabin. (1st cabin on SW side of Lost River Airstrip, closest to cement pad where spray helicopter has landed) from June 30-July 4. Concern for rotor wash, wind and dust for tents if we land at airstrip. There is about 1600 acres left to spray all around Lost River area that could be batched out of Lost River Airstrip. Would only batch there if we had over 400 acres to spray there is one day. They can move their tent camping area to a couple other lots farther away from the cement pad where the helicopter lands, to be away from the dust and wind caused by the helicopter. Linda Harris will call us each day between June 29 and July 4 to find out where we'll be spraying the next day and whether we will batch a load and land at Lost River Airstrip the next day.	H
June 26	Ellis, Methow Valley Ranger District		District made decision to waive campground use fee in Klipchuck campground from 6/27-7/12, approximately, while spraying in and near campground. We helped recreation by making and laminating 50 posters with this message to put on tables and bulletin boards in the campgrounds.	A, R
June 26, 1300	Air Ops.		No spraying planned for tomorrow due to rain.	
June 27	Deb Kelly		New PAO from Okanogan. Came by with District Ranger to see Moth Headquarters.	A
June 27, each day	Coordinate with Entomologist and Air Ops		Get info about blocks released and spray plans for the next week and blocks dropped and blocks added. Rain today, no spraying on 6/27.	A
June 27, 1730	Klipchuck Campground		Talked to campers (4 parties) in campground and posted large sandwich board sign near entrance and distributed posters about waiving fee in Campground due to spraying at all tables and signboards. Plan to spray in Klipchuck campground and other areas near campground on 6/28 weather permitting. Good time to spray campground, low number of campers on a Wednesday night and following cool wet weather, less campers there.	R
June 27	Ellis and Jean, Rec Techs.		Msgs: We plan to spray in and around Klipchuck campground on 6/28, weather permitting, or on 6/29 if we can't spray on 6/28. We visited campground and posted big sandwich board sign about spraying and talked to campers and helped distribute fee waiver posters on tables.	R
June 27	Early Winters Outfitters	669-2659	Plan to spray around Early Winters Creek, and Klipchuck Campground 6/28, weather permitting.	O
June 27	Freestone Inn, Lily	996-3906	Plan to spray around Early Winters Creek, and Klipchuck Campground 6/28, weather permitting	L
June 28	Called Wenatchee and Okanogan PAO		Leave update and informed them we had sprayed Klipchuck Campground	A
June 28	Carlton General Store		Wanted to get off daily fax list. Just let them know them know when project is complete. Done 6/28.	B
June 28	Dan White	541-962-6572	Called Winthrop to come video helicopters spraying for PNW station, La Grande. Put him in touch with air ops. Also, Dave Bridgewater involved.	A

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
June 28	Sonny O'Neal		Forest Supervisor visited incident Headquarters. Attended General Staff Meeting and gave update. Asked questions.	A
June 28	Pacific Institute		Contacted at Klipchuck Campground. Answered questions and provided info about the project.	R
June 28	Various Campers		Klipchuck Campground. Informed them of spray project. Answered questions, let them know we'd be spraying 6 & 7 in the AM.	R
June 29	Lost River Airport, Linda Harris		Attempted to contact Linda Harris about family reunion. Not there yet.	H
June 30	Lost River Airport, Linda Harris		Met with Linda. She was positive about spraying and any impacts on family reunion. Will keep her informed.	H
July 1	Contacted Linda Harris, Lost River Airport		50+ family. They were happy when I told her we would not spray Monday also.	H
July 1	Contacted Folks in Ballard and River Bend		All were fine with us spraying, but happy they did not hear helicopters this AM.	R
July 1	Mazama Store		Just stopped in to see how things were going and if any one had complained about early AM helicopters. None had.	B
July 2	Lost River, Linda Harris		Attempted to contact Linda, no one home.	H
July 2	Paul Hart, PAO		Paul Called to check in and get update on project.	A
July 3	John Hanron, Methow Valley News		Contacted to see if interested in covering Tussock Moth Project in newspaper. Will contact later to see if they are interested in a final coverage.	M
July 3	8-Mile Campgrounds		Pulled as many tussock moth posters as could be found. Total 43. Spoke to about 4 camping groups about the project. No concerns.	R
July 3	Winthrop Visitor Center		Checked in. Introduced myself. Brought back Larvae display jar. All larva were dead and molding. Hope to get a replacement display to the VC. Will talk to Connie.	A
July 4	Jim Archambeault	997-9738	Left message regarding getting together with him to get information about what happened earlier in the project with public information. Need some clarification on some notes.	A
July 4	Robin Merrifield	996-3863	Contacted to see if he would do a write up regarding what worked and what didn't work regarding his role in the project. He will send a write up in 5-10 days.	A
July 4	Jim Archambeault		Called back. Will meet with the information group on July 12 at 8:00 AM to discuss what worked and what didn't work on the project and to look at recommendations for future spray projects.	A

Time/ Date	Contact's Name	Phone Number	Questions/Comments/Action Taken	Contact Code
July 5	Paul Hart, Wenatchee PAO		Chuck Tonn, Paul Hart, and Megan Perkins went out to look at high infestation areas in Early Winters Campground, Klipchuck Campground, and areas around Mazama and Lost River.	A
July 6	Spraying Occurred		Spraying occurred today in three areas. See fax info sheet for details.	
July 6	Eight Mile		Collected remaining signs posted at two Washington Dept. of Fish and Wildlife campgrounds.	
July 8	Dan White		Called to see if there were any opportunities to catch the spray operation in action. Reported that we would be spraying July 9 at 0400. He was unable to make it to that operation.	M
July 10	Entomology Crew		Signs were removed from Mazama and Wolf Creek. All signs should be removed now.	
July 11	Megan Perkins		Letters were sent to District Ranger for signature and to be mailed to local business.	
July 11	Megan Perkins		News Release was sent to local media regarding the close of the project. Faxes were sent to Methow Valley R.D. via email, KVLR Radio, Okanogan Public Affairs, Wenatchee Pubic Affairs, KOZI Radio, Wenatchee World, Methow Valley News, and attempts were made to send to Omak-Okanogan Chronicle.	M
July 11	Paul Hart, Deb Kelly		Paul and Deb were scheduled to stop by the office. This plan changed when a fire broke out up Eightmile.	
July 11	Chuck Tonn		Chuck delivered the letters to businesses to the Ranger District Office for John Newcom's signature. I included a note with the packet that after a signature has been acquired that someone would need to put letters in an envelope and mail. Envelopes were included.	
July 11	Megan Perkins		Final report for Information was completed. Files are saved on the J drive for Jacque to access and hard copies were given to the IC, Art Anderson. A copy was made for Wayne Kleckner. Files were sent via email to Paul Hart, Jim Archambeault, Kathy Smith and Megan Perkins.	

PROPOSED CONTRACTS FOR ADVISORY AND ASSISTANCE SERVICE ("Under")$25K

1. **Name, agency, office address, and telephone number of person to contact about the proposed procurement**. JIM ARCHAMBEAULT, OKANOGAN-WENATCHEE NF. Methow Valley RD, PO Box 188 Twisp, WA 98856. 509-997-9738 or Wayne Kleckner, Douglas Fir Tussock Moth Project Director, at 509-996-2832

2. **Describe the services to be performed, including any deliverables to be provided. Attach a copy of the statement of work, if one has been prepared.** Assist in forest service public information needs, as needed, for the Douglas Fir Tussock Moth Spray program. See statement of work, below.

3. **What is the total amount of time for completion of the project?** Approximately May 15 thru July 30th 2001.

4. **What is the total estimated cost of the project (including cost of options or out years)?** $30/hour for 10-15 days, not to exceed 200 hours during the above time period, on a call when needed basis.

5. **Is funding available for this requirement? Please provide documentation showing that funds are available for the initial period of the requirement. If funds have not yet been made available for the requirement, explain how the proposed contract will be funded**. Funding is available from appropriated funds for the project (JOB CODE S4OP04)

6. **Why can't the required services be performed by government personnel?** Outreach efforts for detailers, locally and regionally have been only unsuccessful. Additionally, the nature of the project, which involves some controversy, means that there may be un-expected needs for help in the public affairs arena. Shifting personnel (the original IIO for the job has been detailed elsewhere) means that there is an immediate need for help.

7. **What program objectives will be served by award of the proposed contact? What negative consequences are anticipated if the proposed contract is not awarded?** Project objectives of accomplishing the spray target will be met. If not awarded, public information needs relative to that accomplishment may not be met.

8. **If similar or related work has been performed previously for the same project or program, please describe the services performed and their relationship to the current request.** None that I am aware of.

9. **Is it intended that the contract is to be awarded on a sole-source basis? If so, please justify why the contract must be awarded sole source.** Proposed contractor is a 30-year veteran of public affairs work, and is available locally on an as needed basis. If position is not filled, harm to the Government will occur in that public information needs will not be met on very visible $2,000,000 spray project. Public sentiment could mean that the project could be in danger.

10. **If the answer to question 9 is "No," have you identified a particular company or individual whom you are recommending to provide the services?**

11. **If the answer to either question 9 or question 10 is "Yes"**
    a. **Please provide the name and business address of the individual or company (the vendor).** Chuck Tonn, 997-2257, 32 Lewisia Road, Winthrop WA 98862

b. **Please describe any contacts, which have occurred between the vendor and USDA employees concerning the proposed contract. Such contacts include correspondence received from the vendor as well as discussions or correspondence between the vendor and the agency or mission area.** Inquiries about his interest and availability, and costs have been made by myself and Paul Hart, OKA-WEN PAO.

c. **Has the vendor already done any work on the project, such as drafting a description of the requirements? If so, please describe the vendor's current involvement with the project.** No

12. **If subcontracts are anticipated, will the prime contractor be required to direct work to a particular individual or company? Directed subcontracts are not favored because they restrict competition, may interfere with the prime contractor's independent judgment, and may increase the Government's risk from a business standpoint. If you nevertheless intend to direct subcontract work to a particular source or sources, please justify why you intend to do so.** No

13. **Is there any possibility of the appearance of a personal or organizational conflict of interest if award is made to the recommended individual or company?** No **If so, please explain. An organizational conflict of interest "means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage." (Federal Acquisition Regulation (FAR) 9.501)**

14. **If the proposed contract or requirement was not submitted within the schedule for quarterly review, please also explain why this requirement was not included in the list of advisory and assistance services contracts submitted for this fiscal quarter**. Planning for the project staffing has occurred only in the last month, as dictated by entomological reports. Loss of the lead IIO on the project occurred on 5/24/01, necessitating a replacement.

Signature and Title /s/ James R. Archambeault Date 5/29/01

Statement of work for Public Information contractor

Perform the following duties on the Douglas Fir Tussock Moth spray Project at the direction of Project Director and other Command and Staff of the project;

- Prepare news releases and other materials for public information,
- Contact forest visitors, residents and businesses to inform them of the project,
- Handle inquiries from media and the public about the project via phone calls, and personal visits,
- Interface, as necessary, with other project team members to accomplish project public affairs goals.

Wayne Kleckner, Project Director, is a suitable COR. 509-996-2832.
Additional financial details available from Sharon Cathcart at 509-996-2832.

Management code S4OP04

United States Department of Agriculture **Forest Service** **Okanogan and Wenatchee NFs Methow Valley Ranger District** **502 Glover, P. O. Box 188 Twisp, WA 98856 Phone (509) 997-2131**

File Code: 1600
Date: July 10, 2001

Dear _____,

The Douglas-fir Tussock Moth Suppression Project is nearing completion. We would like to pass along to you the results of our efforts and we would also like to take this opportunity to thank you for your support.

The initial results of the spray project using TM-BioControl-1, the virus specific to the tussock moth, has been very positive. The Project entomology crew is finding that the tussock moth populations are considerably reduced in areas that have been treated. We had projected that 30,361 acres in three major areas would need to be treated. Those areas included Eightmile Creek, Wolf Creek, and Mazama. Of those 30,361 acres, only 16,689 were sprayed. This is due to low population findings in many of the blocks, mainly in the Eightmile area because the outbreak did not progress from the initial Fall populations found.

On behalf of the Methow Valley Ranger District and the Project Team, we would like to thank you for the much needed support to our project. ***(Please insert statement here regarding specific businesses that you worked with)***

In the future, should the Forest Service have other projects that need support in order to meet forest management objectives, we would look forward to utilizing your services.

For more information regarding the Douglas-fir Tussock Moth Spray Project, please feel free to contact the Methow Valley Ranger District Office.

Sincerely,

Wayne A. Kleckner,
Incident Commander

John E. Newcom
Methow ValleyDistrict Ranger

The above letter was sent to the following businesses and organizations:

Mazama Store and Fly Shop
Pardners Mini Market
Winthrop Motors
Quality Lube, Twisp
Ace Hardware
Daily Business, Twisp
Les Schwab Tire, Twisp
Ulrich's Valley Pharmacy, Twisp
Aero-Methow Rescue
Rusty's Car Rental
Two Rivers Café
Duck Brand
Three Fingered Jacks
Hometown Pizza, Twisp
Boulder Creek Deli
Sheri's Ice Cream
Winthrop Red Apple Market
Hanks Market, Twisp
Winthrop Chamber of Commerce
Sun Mountain Lodge
Freestone Inn
Mazama Ranch House
Mazama Country Inn
Early Winters Outfitters
Tenderfoot
Aero-Methow Rescue Service
Winthrop Visitor Center

United States Department of Agriculture **Forest Service** **Okanogan and Wenatchee NFs Methow Valley Ranger District** **502 Glover, P. O. Box 188 Twisp, WA 98856 Phone (509) 997-2131**

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The initial results of the spray project using TM-BioControl-1, the virus specific to the tussock moth, has been very positive. The Project entomology crew is finding that the tussock moth populations are considerably reduced in areas that have been treated. We had projected 30,361acres in three areas would need to be treated to protect ecosystem habitats, to retain scenic values and to preserve recreation sites. Those areas included Eightmile Creek, Wolf Creek, and Mazama. Of those 30,361 acres, only 16,689 were sprayed. This was due to low population findings in many of the blocks, mainly in the Eightmile area because the outbreak did not progress from the initial Fall populations found.

On behalf of the Methow Valley Ranger District and the Project Team, we would like to thank the community for the much needed support and patience for this project. Many businesses and members of the community displayed tremendous amounts of flexibility and helped provide solutions to help us accommodate the completion of this project.

For more information regarding the Douglas-fir Tussock Moth Suppression Project, please feel free to contact the Methow Valley Ranger District Office.

Wayne A. Kleckner
Incident Commander

and

John E. Newcom
Methow Valley District Ranger

Letters of appreciation were sent to the following addresses:

Pardners Mini Market Hwy 20 Winthrop, WA 98862	Urlich's Valley Pharmacy Inc. E Methow Valley Hwy. Twisp, WA 98856	Methow Valley Visitor Center 49 Hwy 20 Winthrop, WA 98862

Rusty's Rental Cars 606 Okoma Dr. Omak, WA 98841	Daily Business 114 S Glover St. Twisp, WA 98856	Winthrop Chamber of Commerce 202 Hwy 20 Winthrop, WA 98862
Winthrop Motors 228 Riverside Avenue Winthrop, WA 98862	Mazama Store 50 Lost River Road Mazama, WA 98833	Aero-Methow Rescue Service Twisp, WA 98856
Quality Lube 427 S Glover Twisp, WA 98856	Two Rivers Café 253 Riverside Ave. Winthrop, WA 98862	
Ace Hardware 920 Hwy 20 Winthrop, WA 98862	Duck Brand Duck Brand Bldg Winthrop, WA 98862	
Sun Mountain Lodge PO 1000 Winthrop, WA 98862	Tenderfoot P.O. Box 9 Winthrop, WA 98862	
Freestone Inn 17798 Hwy 20 Winthrop, WA 98862	Three Fingered Jacks Saloon & Café 176 Riverside Ave. Winthrop, WA 98862	
Mazama Ranch House 42 Lost River Road Winthrop, WA 98862	Hometown Pizza 607 Canyon St. Twisp, WA 98856	
Mazama Country Inn 42 Lost River Road Winthrop, WA 98862	Boulder Creek Deli 100 Bridge Street Winthrop, WA 98862	
Early Winters Outfitters HCR 74, Box B 6 Mazama, WA 98833	Sheri's Sweet Shop 207 Riverside Ave. Winthrop, WA 98862	
Winthrop Red Apple Market 920 Hwy 20 Winthrop, WA 98862	Hanks Market P.O. Box 68 Twisp, WA 98856	

Douglas-fir Tussock Moth Project
Okanogan and Wenatchee National Forests
Methow Valley Ranger District

This Recreation Site is located within an area that is scheduled to be aerially treated for an outbreak of Douglas-fir Tussock Moth.

TM-BioControl-1, an insecticide made from a natural virus of the tussock moth, will be applied using a helicopter.

Exposure to the tussock moth larvae and TM-BioControl-1 may each cause similar effects on humans. About one third of the people who come in contact with the hairs of tussock moth larvae (caterpillar) have an allergic reaction of skin, eye, and respiratory tract irritation. People who are sensitive or allergic to other insects tend to be more sensitive to the tussock moth larvae. These effects are not life threatening or debilitating and are reversible. First aid treatment includes flushing with a stream of water or washing thoroughly with soap and water.

Estimated time for treatment for this site is expected to be between _____and _____

If you have questions about this project, call the project office at 509-996-2832 or 996-2816 in Winthrop, Washington

For more information: www.fs.fed.us/r6/nr/fid/dftmweb

Attention!

Due to the disturbance caused by the aerial application of TM-BioControl-1, the Methow Valley Ranger District has decided to temporarily waive the campground use fee during the time when helicopters will be spraying near this area. The tentative dates for this waiver period are June 27th to approximately July 12th. If treatment is completed before July 12th then the fee will be reinstated. The Douglas Fir Tussock Moth Spray Project apologizes for any inconvenience that the helicopters may cause by operating in this area between the hours of 4:30am and 8:30am.

Attention!

DOUGLAS-FIR TUSSOCK MOTH SPRAY PROJECT

Methow Valley Ranger District

Although this recreation site is located outside of the Douglas fir Tussock Moth treatment area, you may still see and/or hear helicopters and large tanker trucks that are part of the project. These helicopters are spraying a product called TM-BioControl-1. This product is an insecticide made form a naturally occurring virus specific only to the Tussock Moth.

Exposure to Tussock Moth larvae and TM-BioControl-1 may each cause similar effects on humans. About one third of the people who come in contact with the hairs of Tussock Moth larvae (caterpillar) have an allergic reaction of the skin, eye, and respiratory tract irritation. People who are sensitive or allergic to other insects tend to be more sensitive to the tussock larvae. These effects are not life threatening or debilitating and are reversible. First-aid treatment includes flushing with a stream of water or washing thoroughly with soap and water.

Aerial treatment of these adjacent areas will occur mainly between the hours of 4:30 am and 8:00 am. This is due to the weather conditions needed for TM-BioControl-1 to be most effective.

The Methow Valley Ranger District apologizes for any inconvenience or disturbance this may cause the public. If you have any questions about this project, call the project office at (509) 996-2832 or (509) 996-2816 in Winthrop, WA.

For more information: www.fs.fed.us/r6/nr/fid/dftmweb

Okanogan/Wenatchee National Forest

DOUGLAS-FIR TUSSOCK MOTH PROJECT

Methow Valley Ranger District,
Okanogan and Wenatchee National Forests

- **Summer 2001:** When you visit some areas in the Methow Valley this summer you may notice an increase in insect activity. The Douglas-fir tussock moth population has been on the increase for the past few years and is expected to reach outbreak levels in the summer of 2001.

- The tussock moth is a native inhabitant of Northwest forests. Tussock moths damage Douglas-fir and true fir trees by eating their needles. The caterpillar, or larvae stage of the insect, does all the feeding; the moths do not feed. The larvae grow to about 1.25 inches in length and become very colorful.

- The project area includes about 30,000 acres of the Methow Valley Ranger District in the following areas; Mazama and Lost River, Highway 20 near Klipchuck and Early Winters Campgrounds, Wolf Creek Trailhead, and areas in the lower Chewuch River and Eightmile Creek.

- Aerial application of TM-BioControl-1 will be used to protect specific areas of concern from defoliation and mortality. Defoliation of trees in some areas could cause unacceptable impacts to fish and wildlife habitat, watershed, recreation and other resources.

- TM-BioControl-1 is an insecticide made from a natural virus of the tussock moth. Application of TM-BioControl-1 will occur only after sampling has confirmed the presence of treatable populations of tussock moth larvae that are in a stage of development most vulnerable to treatment.

- Spraying will be done by helicopter between 5 a.m. and 7 a.m., but may last longer if weather conditions permit. Areas to be treated will be determined 2 or 3 days prior to spraying. Notices will be posted at campgrounds and along roads and public contacts will be made daily within the treatment areas. The spraying should begin about mid-June and should be completed by mid-July. Insect monitoring crews will continue to work the rest of the summer.

For additional information on the Douglas-fir Tussock Moth Project:

- Visit the website: www.fs.fed.us/r6/nr/fid/dftmweb, or contact:
- Jim Archambeault, Project Information Officer or Wayne Kleckner, Project Director at **509-996-2832 or 996-2816** in Winthrop
- Or, call **996-4040** for a *recorded message*, updated daily, on that day's treatment areas where helicopter spraying will occur.

Okanogan and Wenatchee National Forests

215 Melody Lane
Wenatchee, WA 98801

Public Affairs Office:
(509) 662-4314; Fax (509) 664-2731

Visit our websites at www.fs.fed.us/r6/wenatchee
www.fs.fed.us/r6/okanogan

NEWS RELEASE

Date: April 20, 2001

Subject: **Methow Valley Spray Project Gets Green Light**

Contact: John Newcom, (509) 997-2131
John Townsley, (509) 826-3275

A Forest Service spray project to head off a destructive tussock moth infestation in the Methow Valley has been given a green light based on scientific studies showing the outbreak will not collapse this year without help.

"Levels of a naturally occurring virus are too low for a tussock moth outbreak in the Methow Valley to collapse by itself this year," said John Newcom, Methow Valley District Ranger. "We are proceeding with plans for a project to spray about 27,000 acres of national forest in June and July."

An entomology laboratory in Vancouver, B.C. studied larvae hatched from tussock moth egg masses gathered in the Methow Valley last fall. Scientists determined that the virus level is too low for the insect population to collapse naturally this year. Widespread defoliation of fir trees is likely in affected areas of the Methow Valley without a spray project, Newcom said.

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Field surveys have shown an outbreak of tussock moth in Douglas-fir trees in the Early Winters, Eight Mile Creek, and Wolf Creek areas of the Methow Valley Ranger District. Tussock moth larvae have been found in the Twisp River drainage, but not in sufficient numbers to warrant spraying at this time, Newcom said.

The tussock moth is always present at low numbers in Douglas- fir forests, but populations occasionally explode with serious results, said John Townsley, silviculturist for the Okanogan and Wenatchee National Forests.

At the peak of an outbreak, millions of inch-long tussock moth caterpillars often strip the needles from firs, causing widespread defoliation. Trees may be killed in small groups or over several hundred acres at a time. The dead trees can eventually become fuel for wildfires…a major concern near rural communities.

Hairs from tussock moth caterpillars also cause allergic reactions for some human visitors to an outbreak area. Potential health impacts on forest visitors are one reason the Forest Service proposes to spray around recreation sites and in scenic areas.

"TM-BioControl spray is a natural virus toxic only to species of the tussock moth," Townsley said. TM-BioControl was made from tussock moth larvae following an outbreak several years ago. About 40,000 acres were successfully sprayed with it in the Blue Mountains of northeastern Oregon last summer to stem a large outbreak.

Scientists first detected increases in tussock moth numbers in the Methow Valley in 1998. Using traps that catch adult moths, entomologists have developed an 'early warning system' that provides advance notice of an epidemic well before extensive tree defoliation is visible.

An Environmental Impact Statement (EIS) was developed in 1999 to consider the possibility of spray projects to respond to expected tussock moth outbreaks in eastern Oregon and Washington.

Based on the analysis, the Forest Service decided to concentrate spraying on areas where insects killing large numbers of trees could seriously damage important wildlife sites and

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recreation areas, increase forest fire hazard near rural residences, or create a public health risk for rural residents and forest visitors.

Spray will be applied from the air in June and early July when caterpillars are most vulnerable to the virus, Townsley said. Some defoliation still will occur, but most affected trees would be expected to survive in the sprayed area, he said.

The tussock moth is native to eastern Washington forests. Prior to European settlement periodic outbreaks probably killed small patches of fir trees, Townsley said.

However, since fire suppression began in the early 1900's, drier eastside forests have become crowded with trees. As a result, outbreaks have become more intense and more and more trees are killed.

Spraying is seen as a way to lessen the impacts of defoliation in areas of high importance. It may also buy time for the Forest Service to do under burning or thinning, where appropriate, to move to more widely spaced, healthier trees that are more resistant to insects and disease.

Most spraying will occur on federal lands. However, some private landowners who are concerned about tussock moth damage are working with Washington Department of Natural Resources in hopes of spraying susceptible trees on their lands.

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NEWS RELEASE

Date: May 24, 2001

Subject: OPEN HOUSE – Douglas Fir Tussock Moth Project

Contact: Jim Archambeault, Information Officer, or Wayne Kleckner, Project Director, at 509-996-2832 or 509-997-9738

The Douglas Fir Tussock Moth Spray Project will be hosting an open house for those interested in the project on Thursday, May 31, from 3 to 6 pm at the Winthrop Work Center.

"This will a great opportunity for local residents to visit with our staff and learn more about the project" said Dave Bridgewater, deputy project director, and one of the entomologists working on the project. "We'll have staff there who can answer questions about the tussock moth, about the spraying for the insects, and the evaluation and monitoring we'll be doing as the project proceeds. People will also be able to view maps and other information about the project", Bridgewater said.

The project involves potential spraying of up to 30,000 acres of forested land in the upper Methow and Chewuch Rivers that are experiencing sub-outbreak and outbreak levels of Douglas Fir Tussock Moth.

The project offices are located in the basement of the Winthrop Forest Service building on the west side of Winthrop. Visitors should park in front of the building and enter the front door, then go down the stairs in the foyer to the project offices in the basement.

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NEWS RELEASE

Date: May 29, 2001

Subject: EARLY HATCH MEANS SPRAYING MAY BEGIN– Douglas Fir Tussock Moth Project

Contact: Jim Archambeault, Information Officer, or Wayne Kleckner, Project Director, at 509-996-2832 or 509-997-9738

Recent warm temperatures and sunny days have accelerated the development of the Douglas-fir Tussock Moth egg hatch. As a result, spray operations in the upper Methow Valley could begin earlier than planned, possibly as early as Wednesday, June 6th.

"We started seeing egg masses hatch and begin to disperse at the lower elevations, starting last week", said Connie Mehmel, project entomologist. Mehmel said that the egg hatch and dispersal of larvae generally means that the larvae will be in the second instar, or stage of development 14 to 18 days after that point. "That is the point in larval development that the larvae are most susceptible to the virus", said Mehmel. Crews will continue to survey potential spray areas, and will be releasing areas for spraying as different elevations of the forest reach the proper condition for spraying.

Contract applicators will begin spraying the virus, TM-Biocontrol-1, with helicopters on or after June 6th. They will be operating from a helibase on private land, along State Hwy. 20 near the Mazama junction. Spray operations will occur only when temperature, wind and humidity are within certain parameters; those generally occur only early in the morning, usually between 5 and 8 am. There could be as many as three helicopters operating at once, depending on the number of areas to be sprayed each day.

While some people may experience allergic discomfort from the moth (a condition called Tussockossis), very few people should feel any discomfort from the spray, which contains only a small number of the moth hairs that cause the reaction. The Forest Service will be posting trailheads and campgrounds with the approximate time of spraying. Anyone who wants to know the general areas of spraying, so they may avoid them, can call 996-4040 and hear a message about that days activities. That message will be updated daily once spraying begins.

Project staff is available at 996-2832, 7 days a week between 7 am and 5 pm to answer questions about the project.

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