



FOREST INSECT AND DISEASE NOTES

No. 1 of 1970 - November

Division of Entomology

MAINE FORESTRY DEPARTMENT

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	Initials	Date
Supt.		
Admin. Officer	RS	
X Ch. I & R M	RS	
Maint. Spec.		
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X Mgr. W. Dist.	MAE	
Gen. For. E.		
Gen. For. W.		
Park Ranger		
Mechanic		

A series of meetings concerned with efficiently coordinating and managing our expanding activities resulted in the establishment of this past year of two new administrative positions to assist the State Entomologist. The positions were approved by the Personnel Board and in late June, John Chadwick and Dr. Clark Granger were appointed by the Forest Commissioner to fill them. John Chadwick, whose office is in the State Office Building, will be responsible for coordination of a number of activities and in particular those concerned with shade tree problems. Dr. Granger will supervise the Augusta laboratory facility and programs emanating from there.

The Annual Spring Training Session was held this year on May 5-7. Topics ranged from briefings on State Programs and Division Projects to a session on First Aid, presented by Mr. George Pillsbury of Central Maine Power Co., and a talk on the drug problem connected with recent findings of marijuana growing in Maine. Attendance at the sessions averaged around 20. A banquet was held on Wednesday evening, May 6th at the Senator Motel. Guests at the banquet included Commissioner Wilkins, Dr. A. E. Brower and Horace Bell.

A brief summer meeting of personnel was held on July 29th in Augusta to discuss any problems which might have arisen as well as changes in responsibilities resulting from the establishment of the new administrative positions.

James Hadfield, Pathologist, U. S. Forest Service spent several days with Clark Granger, Doug Stark, and Blister Rust District Leaders on the Blister Rust Incidence and Fomes annosus surveys.

We extend our congratulations to Commissioner Austin Wilkins upon his reappointment on September 2nd for an unprecedented fourth four-year term.

PERSONNEL BRIEFS. Marriages and births seemed to be the thing this past year. On December 6th our main office secretary Sara Lilly was married to Arthur Walsh. Our laboratory biologist, Don Ouellette, and radio-dispatcher-typist, Irene Bernard, seemed to catch the idea and were married on August 29th. Don has no reason to shy away from the radio now-or does he?

Forest Insect Ranger Jim McMullen and his wife Linda had an early Christmas present with the birth of a son Jamie on December 8th, 1969. Looks like Jim will have a built in hunting companion. Not to be outdone, the Dearborns added number 4 to their "troop" on January 20th, 1970 when Marjorie gave birth to a daughter, Nora Sue. A trophy should be awarded

to our new laboratory director, Dr. Clark Granger, who calmly announced on March 26th that his wife Rosemarie had just given birth to a baby girl, Kimberly Ann. Very few of us even knew of the impending event. His ability to keep such important events secret should make him a good administrator.

RETIREMENTS. On July 24th Martin (Marty) Calderara retired from the U. S. Forest Service as the last Federal Blister Rust Supervisor in Maine. Marty's efforts can best be described as the epitome of cooperation between a federal and a state agency. He was honored on August 13th at a regional meeting in Turner of various Federal-State agencies. Honors were also extended by such non-forestry related agencies as the Androscoggin County Civil Defense Agency. Marty will be sorely missed.

Although her activities covered the full departmental accounting functions, we would be remiss not to mention the retirement of Kathryn (Kay) Larkin on September 25th. She was always very helpful and will be sincerely missed by all.

ALUMNI. One of our most dedicated Forest Insect Rangers, the late George McGinley, was honored posthumously this past summer. The occasion was dedication of a new pond at the celebration of the opening of the Birdsacre museum and sanctuary. This will be known as McGinley Pond and is located in Ellsworth. It is commonly agreed that this is a well-deserved tribute to his interest and effort in all phases of nature. George served as Ranger from 1949-1969.

Al Thomas, who is currently with the Forestry Sciences Laboratory in Research Triangle Park, N. C., visited with us briefly in August.

MEETINGS. Staff members participated in a number of meetings and conferences this past year other than those on departmental and divisional levels.

John Coughlin continued to serve as our representative on pesticide matters and attended regular monthly meetings of the Maine Pesticide Forum. On February 12th he also attended a conference on pesticide recommendations at Orono. Other meetings attended by John were: The Third Annual Northeastern Forest Insect Work Conference at New Haven, Conn. on Feb. 17-19th; Forest Insect Disease Diagnosis Workshop at Hamden, Conn. on April 28-29th; and The Acadian Ent. Soc. Meetings in Fredericton, N. B. Canada on September 2-3.

This year's Northeastern Forest Pest Council Winter Meeting in Boston was held on March 9 & 10th. Those attending from our division were Bob Nash, Doug Stark, Louis Lipovsky, Hub Trefts and Dick Dearborn. The Summer meeting on September 1-3 was held in Vermont where Dr. Granger represented our division.

The Department was among 33 states, Canada, England and Guam to be represented at a "Symposium on Trees and Forests in an Urbanizing Environment" at the University of Massachusetts in August. A digest of this symposium is available now and a full report of the proceedings are forthcoming. Of special note, Maine was highlighted as a progressive and public awareness state (the Forestry Department) and the first state to recognize and act on a shade tree planting law.

On June 25th Dr. Clark Granger and Dick Dearborn presented the Forest Insect and Disease section of the Conservation Education Workshop at Bryant Pond.

Doug Stark spent one Saturday at Princeton where he conducted sessions on forest insects and diseases at the R. I. Ashman Forestry Summer Camp of the University of Maine.

Various staff members also gave talks before clubs and school groups this past season.

PUBLICATIONS.

Coughlin, John. 1969. The Spruce Budworm in Maine in 1969. Maine Forestry Department, Entomology Division. 16pp.

Granger, C. A. 1970. Trap design and color as factors in trapping the salt marsh greenhead fly. J. Econ. Ent. 63(5):1670-1672.

Stark, D. A., and C. A. Granger. 1970. Protect white pine from blister rust. Me. For. Dept. Circ. No. 10, Augusta, Maine.

Forest Insect and Disease Survey

During 1970 there were 1,851 collections and observations received and processed by the Augusta laboratory. This figure compares favorably with that for 1969 in spite of some personnel reductions and shifts. Approximately 640 (ca. 75%) of Maine's 912 townships were represented to give good statewide coverage (See accompanying map). Collections and observations over the past 5 years follow:

Year	Fire Rangers	Insect Rangers	Div.. Staff + Management Div.	Observations	Total
1966	1,808	369	36	12	2,225
1967	1,665	259	24	10	1,958
1968	1,584	407	144	95	2,230
1969	1,434	288	46	94	1,862
1970	1,358	253	96	144	1,851

Data from the survey are recorded to coincide with the Automatic Data Processing (ADP) system being developed by the U. S. Forest Service.

At this writing, the collections from our 25 light traps have not been processed.

Dr. A. E. Brower was employed this past spring on a contractual basis to organize the F.I.S. summary records on Lepidoptera in a form suitable for printing. George LaBonte has completed the Hymenoptera and Diptera sections and parasite records included in the Lepidoptera section. Work is proceeding on the records for Coleoptera, Hemiptera, Homoptera and smaller orders for publication.

Softwood Insects

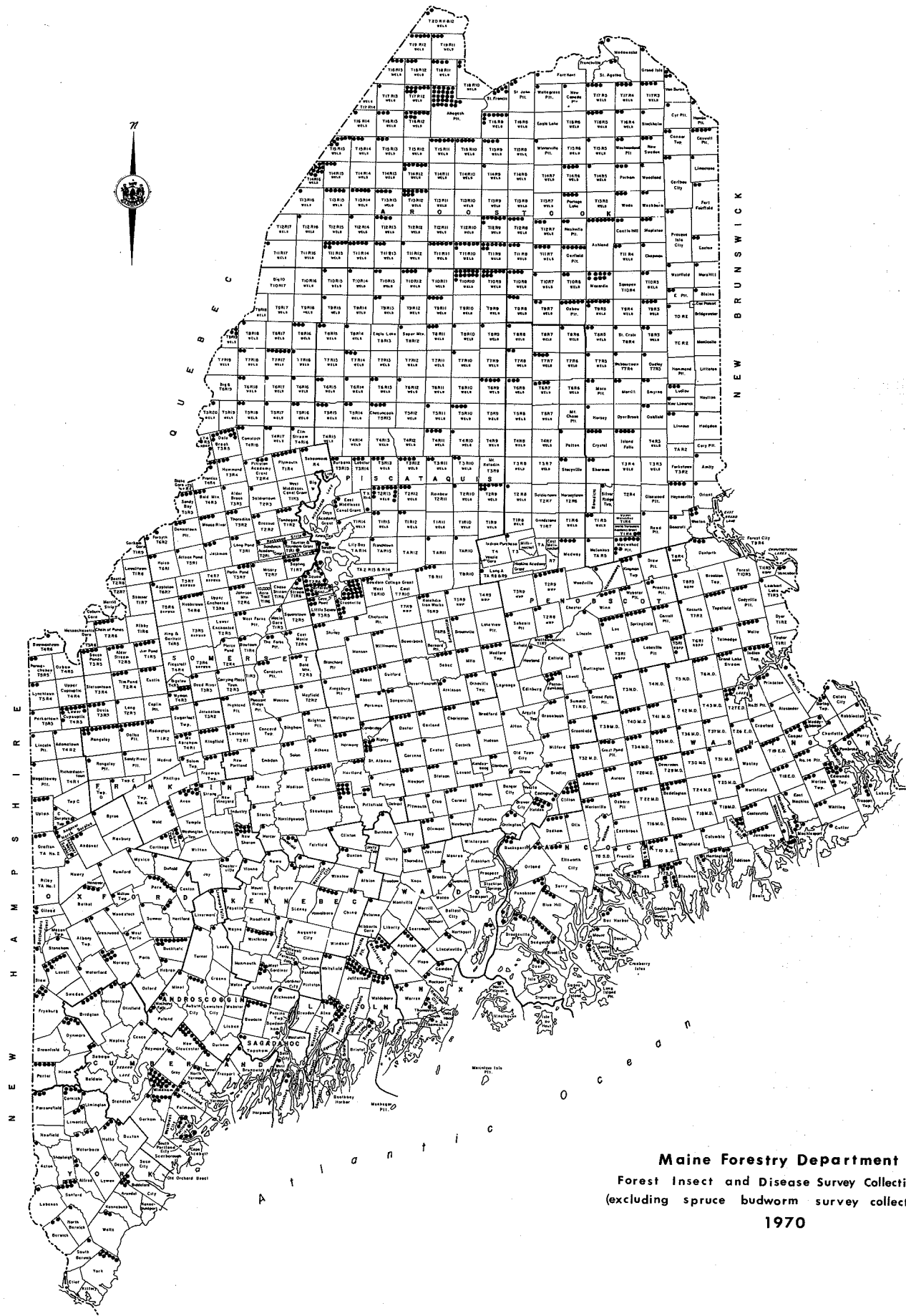
ARBORVITAE LEAF MINERS. Browning of arborvitae was very pronounced throughout most of the State due to larval feeding of one or more leaf-mining species. Although the severity of the problem seems to vary from place to place it appears likely we may be in for at least one more year of heavy damage by these pests.

BALSAM NEEDLE GALL MIDGE (Dasineura balsamicola (Lint.)). This pest of Christmas trees continued to decline in importance in 1970 although it was still very noticeable in some areas. Fewer reports concerning the midge were handled and it appears to be on the down cycle.

BALSAM WOOLLY APHID (Chermes piceae Ratze). Infestations of this insect remained at roughly the same level as in past years. The need for more records on the distribution of this pest was stressed at our annual Spring Training Session and this resulted in tracing a slight northward movement of the boundary of infestation especially in Western Maine. Plans are being made to continue plotting movement and extent of this aphid in Maine this winter and in coming seasons. It is felt that the importance of the balsam woolly aphid on the forest crop should be emphasized to a greater degree.

A LECANIUM-TYPE SCALE ON RED PINE. Light to moderate numbers of a lecanium-type scale were observed in one area of natural red pine at Silsby Plain (Aurora). This insect has been present in that stand for some time and has shown seasonal fluctuations from very abundant, with associated sooty mold and some scale-caused mortality, to almost nonexistent levels. A large area surrounding this plantation has now been planted to red pine and the problem should be considered before the new planting becomes infested.

PINE BARK APHID (Pineus strobi (Htg.)). A number of reports of this insect were received this past season primarily concerning ornamentals. Quite a few pines in and around a housing development in Winslow were severely infested and recommendations for control given. In this case the trees were suffering from a complex of grading and filling damage, and aphid and bark beetle damage. Suggestions were made to improve the situation.



Maine Forestry Department
Forest Insect and Disease Survey Collections
(excluding spruce budworm survey collections)
1970

SARATOGA SPITTLEBUG (*Aphrophora saratogensis* (Fitch)). In mid-June field checks of nymphal populations on sweet fern were made in 4 red pine plantations in Hancock and Washington Counties that had been heavily infested with this pest in 1967 and 1968. Populations in most cases seemed to be low and of little concern at the present. Nymphs were most abundant in one plantation in Aurora where 32 samples of sweet fern showed 16 spittle masses with a total of 44 nymphs. This was the only area which warranted close watching at the present. In most of the other plantations the sweet fern was either in very poor shape or non-existent as a result of the attack by a lepidopterous tube maker, Acrobasis comptoniella Hulst.

SPIDER MITES ON SPRUCE. Reports of a number of moderate to severe infestations of both blue and white spruce by spider mites were received this past season. The problem seemed more pronounced than usual on ornamental trees where the mottling and webbing noticeably affected tree appearance.

SPRUCE BUD SCALE (*Physokermes piceae* (Schr.)). This insect was abundant on spruce in Island Falls and resulted in heavy sooty mold production below the affected branches.

SPRUCE BUDWORM (*Choristoneura fumiferana* (Clem.)). Control using Accothion (fenitrothion) was carried out against the spruce budworm in 1970 on 210,000 acres centered around Oxbow. Base of operation was in Presque Isle Airport. Laboratory facilities and field crews were based at Portage.

Reduction of the spruce budworm population as a result of the treatment was less than had been experienced in previous projects using DDT. Reduction in 1970 was of the order of 84% as compared to 86.8% in 1967, 95.7% in 1964, and 98.5% in 1963. Many budworm caterpillars were killed as indicated by field evidence and drop sheets and the 1969-1970 egg mass population trend in the treated area was downward (as will be seen later) but the goal of population reduction was not sufficiently realized.

The tree protection goal on the other hand seems to have been realized within the treated area. Many of the worst areas saw an improvement in tree condition and, while we have little experience in measuring this, it was the general opinion of field crews and others that much protection of the 1970 foliage resulted from the fenitrothion treatment and that the forest was in generally improved condition.

However, irregular heavy defoliation was observed throughout the treated area. No pattern to this defoliation could be found. In addition medium and heavy defoliation was found outside the treated area, especially near its periphery. The infestation is now larger, especially to the east.

Of particular interest was a heavy infestation that arose in the Cross Lake-17R5-Westmanland-New Sweden area. Heavy larval populations were found in this area and extensive medium and heavy defoliation were noted in areas that have not been troubled since 1958.

Elsewhere in northern Maine populations were present but not at serious levels.

Medium to heavy budworm larval populations and considerable defoliation was noted in parts of Washington County but this apparently heavy infestation did not persist through the egg mass survey.

The budworm threat continues to be serious for 1971 although the tree condition is improved. Egg mass numbers within the treated area decreased slightly from an average of 1.440 egg masses per 15-inch fir sample tip in 1969 to an average of 1.245 in 1970.

Outside the treated area, egg mass numbers more than doubled from an average of .171 per 15-inch fir sample tip in 1969 to an average of .400 in 1970.

It would seem that a highly active, extending budworm population still exists around Oxbow and threatens the surrounding area while a new epicenter has arisen around the Cross Lake-Madawaska Lake area. It also seems that it may no longer be practical to embrace the hope of population reduction and future emphasis may need to be placed on tree protection. The problem gives every indication of becoming worse. It would appear that further experimentation with methods and treatment is needed to meet the threat.

Further survey data are expected and natural control data have not yet been examined but no great changes are expected.

Collections of spruce budworm larvae and pupae in the F.I.D.S. also showed a wide distribution of the pest throughout the spruce-fir regions of the state although not in large numbers except in the heavy infestation area. Light trap collections have not all been processed yet but a quick check has revealed the presence of the moths in nearly all traps including such widely divergent localities as St. Francis, Peaks Island (Casco Bay-Portland), and Marion. No heavy moth flights were recorded this season.

A complete report on the spruce budworm situation will be available around the first of the year. A special report on the Accothion spray project and associated ecological studies is to be issued in February 1971.

WHITE PINE WEEVIL (Pissodes strobi Peck) - Experimental spraying of white pine and spruce was continued in 1970 to determine the time and expense necessary to grow sufficient crop trees in a given area. Last spring both methoxychlor and the systemic Metasystox R were applied by portable hydraulic sprayer and mistblower with hydraulic applications

resulting in slightly better control of weevil populations. Methoxychlor was applied in mid-April to individual tree leaders before most weevil activity had begun and thus was aimed at reducing emerging adult weevil populations prior to mating and oviposition. Metasystox R was applied about two weeks later and was aimed at killing weevil eggs and larvae within the tree stems. Two areas were treated with methoxychlor and two were treated with Metasystox R. The areas treated with Metasystox R showed almost complete reductions in current weevil damage whereas the methoxychlor applications reduced current damage about 75% when compared with unsprayed areas.

Helicopter applications of Metasystox R at two separate locations of white pine and spruce on May 20, 1970, did not effectively reduce weevil damage. This failure is probably due to insufficient deposit of insecticide on the vertical leaders of the trees. Helicopter applications of Metasystox R in the Fall of 1969 did not reduce weevil damage this summer indicating either lack of carry over or insufficient deposit on the vertical leaders.

This fall experimental ground (hydraulic only) applications of lindane and methoxychlor were continued on areas where previous controls and evaluations had been undertaken. An extender, Pinolene #1902, was added to the spray formulations to prolong the effectiveness of the insecticides until adult weevil emergence next spring. Two areas were treated with lindane and two were treated with methoxychlor. Mistblower applications for fall treatments have been discontinued because this means of spraying has been found to be ineffective in the fall, however, some success has been realized with hydraulic applications at that time of year.

Monitoring of the Metasystox R spray areas before and after spraying by a game biologist in the Department of Inland Fisheries and Game did not reveal any undesirable effects on non-target organisms.

Weevil populations in 1970 have been quite variable from one area to another and, therefore, no general statement can be made as far as general seasonal population levels statewide.

MISCELLANEOUS SOFTWOOD INSECTS. Except for an occasional spot infestation, most other softwood insects remained at rather low and insignificant levels. There were quite a few reports, however, of aphids on pine and spruce around homes where the honeydew produced caused some concern especially as it attracted numerous yellow jackets and bald-faced hornets. Sooty mold also blackened many trees thus infested.

The balsam twig aphid did not seem to be as abundant as in past years although it was most certainly noticeable. Other softwood insects which seemed to be less abundant than in the past were the pitch pine needle miner, introduced pine sawfly, larch sawfly, Rusty Tussock Moth, yellow-headed spruce sawfly and Zeiraphera.

Hardwood Insects

A BEECH LEAF TIER (prob. Psilocorsis faginella (Chamb.)). The activity of this pest seemed more severe than usual this year over most of the State. In one woodlot in Bucksport as many as 75% of all leaves were affected on some trees. This in itself is not too important but can add to the problems which the beech already have in the area with the scale-nectria complex.

BIRCH CASEBEARER (Coleophora fuscedinella (Zell.)). On May 12th, just north of the village of East Machias, birch casebearer larvae were active and feeding on expanding leaves. Some buds had been fed into while still swelling. Individual trees, previously hard hit in recent years, were either foliating late or did not appear as if they were going to survive. The malathion-spray test plot on the "Airline" appeared very good by comparison. Elsewhere in the State the casebearer was noticed nearly everywhere there was some birch but feeding was generally light or occasionally moderate in spots.

BROWN-TAIL MOTH (Nygmia phaeorrhoea (Don.)). An intensive effort was made this past winter and spring by the Plant Pest Control Division of the U.S.D.A. to clip and destroy winter nests of the brown-tail moth in the Portland (Casco Bay)-Falmouth area. Most of the infestation was covered very well with the exception of a few of the islands in Casco Bay. Except for these islands, populations of this insect appeared to be very low in 1970 and no problems were reported from the mainland. A series of light traps ranging from Phippsburg to Peakes Island showed no appreciable numbers of moths. Where moths were present they were active around the middle of July. Only male moths were caught in the light trap.

ELM FLEA BEETLE (Altica ulmi Woods). These metallic blue-green beetles were again very common as they fed with conspicuous damage to elms in many parts of the state as early as late May. After the larvae hatched in mid-June the defoliation of elms was nearly complete in many parts of the State. Town spray programs appeared to be effective in reducing larval populations of this insect although widespread concern was expressed over the defoliation already done to the trees by the adults. It appears that two spray applications may be necessary to control the flea beetles (one for the adult beetles and one for the larvae) as compared to one for the elm leaf beetle as the adult flea beetles cause more feeding injury early in the season than do the leaf beetles. The problem should be watched and it is hoped that the flea beetle population will decline shortly as they have following past outbreaks.

FALL CANKERWORM (Alsophila pometaria (Harr.)). Severe defoliation (100%) was common in the eastern and southern parts of the 1969 Bristol infestation area while populations and damage were down in the eastern part near the town dump. A visit to Brown's cove on June 16th showed 100% defoliation common down to the water's edge. The population seemed healthy but the

presence of unusually large numbers of hister beetles in the leaf litter may indicate a high degree of predation. Egg masses collected in this area and sent to the U. S. Forest Service in 1969 produced a number of parasites. This area will be watched this fall to try to determine the extent of possible 1971 populations and fate of the infestation. In the past our infestations have not held up more than 2 or 3 years before dropping down naturally.

FALL WEBWORM (Hyphantria cunea (Drury)). Webs of the fall webworm were more abundant in 1970 than in 1969 and were especially conspicuous along roadsides. Although widespread throughout the State, particular notice was made of abundant activity along Route 2 in Rumford and along Routes 27 and 127 south of Augusta, especially in Dresden. This insect seems to be on the upswing again.

GYPSY MOTH (Porthetria dispar Linn.). Infestations of gypsy moth generally seemed to continue their decline at least from the defoliation standpoint and problem areas were very small and localized. It appears, however, that a buildup is occurring in an area from the Sebago Lakes to the N. H. State line and a close watch is being kept on this development. One hot spot occurred in the area around Jockey Cap Mtn. near Fryeburg. Surveys were made again by the Plant Pest Control Division (PPCD) of the U.S.D.A. to keep an inventory of the status of this pest. The Maine Forest Service will again supply two of its Insect Rangers, Jim McMullen and Dan Pratt, to work on the Christmas Tree Inspections for gypsy moth egg masses in November and December. John Coughlin will continue his inspection work at log landings.

The first record of caterpillar emergence this season was on May 12th at Bowdoinham.

With camping on the rise in the U. S. and Canada the problem with the Gypsy Moth becomes more complicated. Inspections are now stressing camping areas and in particular mobile homes and campers more heavily in an attempt to stop the transport of egg masses.

MAPLE TRUMPET SKELETONIZER (Epinotia aceriella Clem.). This interesting species with its distinctive habits was very abundant this season throughout most of the State but especially so in southern and central sections. The maples seemed to be most heavily affected but reports were also received involving beech and red oak. The species on red oak may possibly be different but specific determinations were not made.

As the larval feeding advanced and larvae extended their frass tubes, the damage became more noticeable and homeowners began calling for information. At this time (mid-August) control was not usually recommended as its effectiveness would probably be very limited (some larvae had already left and pupated). This skeletonizer has been present in Maine in past years but not as abundant. It has, however, been quite a serious problem

in other parts of the Northeast. Pupation apparently occurs in the soil and moths should emerge next July. Control measures should be applied in late July or early August.

OAK SKELETONIZER (Bucculatrix ainsliella Murt.). In some areas of southern and central Maine the feeding of the oak skeletonizer caused quite a lot of concern especially when its activities were combined with those of leaf feeding mites which were also abundant. We received generally fewer complaints from landowners statewide than in past years. Oddly enough most of the reports sent to Augusta came as inquiries by interested individuals concerning what those little white cocoons were on grass and pine needles etc. in infested areas. Larvae of the second brood caused most of the noticeable injury to oak and were a nuisance as they spun down in September. In mid-September a check into a reported infestation in the Kittery area showed severe defoliation and total skeletonizing. In this case, dropping larvae created a tangled mass of silk beneath the trees. This problem was said to be common in northeastern Massachusetts.

OAK TWIG PRUNER (Elaphidionoides sp.). Several instances of abundant shedding of twigs caused by the feeding of oak twig pruner larvae were received in 1970. Although not generally as noticeable or widespread a problem as in some years past, it did cause some concern. Immediate removal and destruction (burning) of fallen twigs can help to reduce the problem.

SADDLED PROMINENT COMPLEX (Heterocampa guttivitta (Wlkr.)). One of the surprises of 1970 as far as forest insects was concerned was the appearance of a large scale infestation of this insect complex in the oak, maple, beech, birch stands along the N.H. border from Bethel south through Parsonsfield. In this area some 12,000 acres were severely or completely defoliated. This problem was apparently an eastern extension of the widespread devastation in nearby N.H.

Saddled prominent feeding last season was minor enough to remain inconspicuous. Upon questioning, one landowner did remember quite heavy defoliation of one ridge along the N.H. border in 1969 but hadn't reported it!

In N. H. it has been said that the infestation was at its peak and should now drop off. Large numbers of predators were seen in some N. H. towns. Predation did not appear to be abundant in Maine so a close watch will be made to see what the trend will be in 1971. Indications were that starvation did take its toll in some areas and pupae seemed smaller. Perhaps with reduced food, disease will help control this insect. Trees in the hardest hit areas had begun limited refoiliation by late August. Sugar maple was the first to show new leaves. Beech were slower to refoiliate. Beech scale-nectria and dry conditions early in the season further added to the tree's problems.

SATIN MOTH (Stilpnotia salicis Linn.). Defoliation of woodland poplar by caterpillars of the satin moth was again very widespread and in and around Millinocket and the infestation appeared to be diffusing out and spreading northward. Although the population of this insect was somewhat lower in the older part of the infestation no real significant population reduction seems evident. Some parasitism of eggs and young caterpillars is noticeable but the older caterpillars seem fairly free of problems. To date there has been little direct mortality of the poplar but it is suspected that a number of factors including an increased incidence of wood borers may speed the demise of many trees.

There continues to be little interest in the status of the poplar and it appears that the aesthetic value of trees with leaves on them is overlooked. Large poplar stands to the north may be hit next as moths were very common in many areas north and east this year.

Defoliation of eastern cottonwood by this pest was very low this past season. Perhaps this insect has found our native poplar more to its taste.

RED-HUMPED CATERPILLAR (Schizura concinna (J.E. Smith)) completely defoliated small flowering crabs in Farmington in August. Seed Mite Gall (Eriophyes betulae) caused localized bud proliferation on white birch in Gouldsboro. The resulting clusters looked like small, woody galls.

WILLOW FLEA WEEVIL (Rhynchaenus rufipes (Lec.)). Browned willows were again prevalent throughout Maine in 1970. The willow flea weevil and its leaf mining larvae were primarily responsible for this damage. The lack of concern for the preservation of willows, except in a few cases, resulted in fewer inquiries than in the past.

?WOOLLY APPLE APHID (Eriosoma lanigerum (Hausmann)). Severe curling and distorting of elm leaves caused by an aphid, presumably the woolly Apple Aphid, prompted a number of calls this past season. The problem seemed spotty with reports coming from such widely separated towns as Portage, Sinclair and Belfast.

MISCELLANEOUS HARDWOOD INSECTS. Although not mentioned, there were many requests for information on other insects. Many of the leaf miners continued to brown the foliage of trees. Of these the birch leaf miners were most common. Mites produced very striking mottling of red oak leaves in some areas and this, along with the oak skeletonizer, trumpet skeletonizer, and leaf tiers, generally made the oaks look very poor. The elm leaf beetle was present but in very insignificant numbers. It was theorized by some that they couldn't compete with the flea beetle.

Miscellaneous Insect Problems

CLUSTER FLY (*Pollenia rudis* (Fab.)). Cluster flies created the usual amount of attention in homes over the past season while moving to and from hibernation. In one case in Gardiner these flies were literally present by the thousands in a garage and in upstairs rooms. In this case too they seemed to "hang on" all summer.

THE CONFUSED FLOUR BEETLE (*Tribolium confusum*). This beetle was found in preserved dried squid in the Biology Department of Bowdoin College. This appears to be the first report of this insect in such material at least in Maine.

EARWIGS were again numerous in some localities and evidence indicates a widespread distribution of this insect.

THE CAT FLEA (*Ctenocephalides felis* (Bouché)) has been the only other flea captured and identified from homes this past year. The incidence of calls have been fewer than the past 3 years. However, hearsay reports of fleas or "sand fleas" were common.

THE HUMAN FLEA (*Pulex irritans* Linn.). This human pest continued to cause severe annoyance for the third season in the Saco valley farm area. Spraying inside and outdoors has not controlled this pest. There are several unanswered questions as to the host source of this flea. There remains some doubt that the primary host is man.

GRAIN BEETLES. There were a variety of other "grain beetles" identified from several sources including dog food, chili powder, and d-CON[®] rodent bait. Among these the saw-toothed grain beetle and spider beetles seemed to be most common.

GREENHEAD FLY (*Tabanus nigrovittatus* (Macq.)). The trapping program was continued during the summer on a salt marsh at Popham Beach State Park. Four experimental decoy constructions were tested to determine which structure might improve trap effectiveness to the greatest degree. Latin square and randomized complete block experimental designs failed to elucidate significant attractant differences among truncated pyramid, winged plate, vertical cylinder, and horizontal cylinder decoys.

In another experiment structural attractants were placed at height intervals to 6 feet. Greenhead flies were attracted in greatest numbers to decoys located one to two feet above the salt marsh sod level.

MONARCH BUTTERFLY (*Danaus plexippus* (Linn.)). This large and beautiful native butterfly seems to be with us again. Many sightings of adults were received this past season and the striking caterpillars were not uncommon on milkweed at least in the Augusta area. For several years, populations of the monarch were so low that it was not even recorded from the State.

A LARGE SCARAB (Polyphylla variolosa (Hentz)) was very common in light traps at Phippsburg and in the Portland area. Although previously reported from Maine it has not been recorded in recent years. The habits of the beetle are not known but a check will be made to see if this species could possibly be the one causing so much lawn damage in coastal areas.

SCARAB LARVAE were very abundant in some lawns in Friendship this past summer and had resulted in separating much of the grass from its roots. The species involved was large but no identification was made because no adults were present. Three broods covering a three year period were present at the same time. Several other reports were received from other coastal areas. Treatment was recommended for the Friendship case.

SWARMING INSECTS. In October many calls involved large numbers of insects collecting on the sides of homes and going inside. In North Augusta the common two-spotted lady beetle, Adalia bipunctata (Linn.), was causing concern. Although this lady beetle is very common it does not usually appear in such large numbers. There were literally thousands swarming over the south sides of at least three homes in the area. Apparently the willows nearby had been heavily infested with aphids and this was suspected as the source of the problem. In several other instances, in Manchester and in Skowhegan, the insect involved was the small milkweed bug, Lygaeus kalmii Stal. In these cases homes were again covered with insects which in some cases seemed to cluster in patches. They also seemed to concentrate primarily on the south side of the buildings. Milkweed seems to be more and more commonly a problem and the milkweed bugs along with it.

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes (Kollar)). The Hollis-West Buxton infestation of this pest was treated according to standard practice this past spring in an attempt to contain this source of possible dispersion of the species in Maine. A check in midsummer revealed only three termites. More checks will be made to further determine the effectiveness of the program. This infestation was especially difficult to treat because it consisted of an area of old boards and a collapsed building.

TYROGLYPHID MITES. An acarid mite proved to be of considerable annoyance to one family in Augusta. The source was determined to be a small bag of dried cat food. These mites reproduced in such numbers that the entire kitchen area was involved and cabinets, refrigerator door seals, floor and walls were covered with mites.

YELLOW JACKETS AND BALD FACED HORNETS again caused a great deal of disturbance especially where they were feeding on aphid secretions of honeydew on spruce, fir and pine.

Diseases & Injuries

Diseases

ARMILLARIA ROOT ROT, (Armillaria mellea Vahl ex Fr.) In a young Belgrade plantation containing blue spruce, Douglas-fir and Scotch pine, blue spruce was the only species attacked. Trees were about three feet tall. Armillaria root rot is a continuing problem in a small portion of a nursery in Southern Maine, particularly on coniferous stock. Armillaria also followed snow bending damage at the margin of a pole-sized red pine plantation in Leeds last spring. Sporophore production was vigorous this September, particularly around stumps in thinned coniferous plantations. In Glenburn this fungus accompanied by Poria obliqua, a fungus which causes spongy white rot, caused extensive heartrot in white birch. The stand had a history of grazing for many years and root systems were somewhat stilted.

ASH ANTHRACNOSE, (Gloeosporium aridum Ell. & Ev.) was reported as widespread in Southern Maine in early June and locally causing heavy defoliation.

ASH LEAF RUST, (Puccinia peridermiospora (Ell. & Tracy) Arth.) was collected from ash in York in July. This is one of very few reports of this rust since the epidemic year of 1956.

BEECH NECTRIA, (Nectria coccinea Pers. ex Fr. var. faginata Lohman et al)? Heavy fruiting was in evidence on mature beech in Glenburn in October. Light scale and Nectria was also reported from T15R10 and T16R9.

BLACK KNOT OF CHERRY, (Dibotryon morbosum (Schw.) Th. & Syd.). A common continuing problem on many stone fruit species.

BLACK LEAF BLISTER, (Taphrina dearnessii Jenkins). Collected from red maple in Greenville.

BLUE STAIN, (Ceratocystis sp.) This stain fungus is common on logs and sawn products, but was particularly prevalent on spruce and fir cut during July in the Ashland area. This stain affects brightness of chips from slabs and edgings. Resultant degrade in paper quality and need for additional bleaching in manufacture adversely affects profits.

CEDAR PENCIL ROT. The two lower seven-foot sections of a number of northern white cedar trees were sectioned and dissected to determine the progression of rot. Rot evidently is preceded by a stain fungus and enters through branch stubs.

CHESTNUT BLIGHT, (Endothia parasitica (Murr.) P.J. & H.W. Anderson). New findings of American chestnuts continue to come to our attention. Unfortunately many of these "new" trees, many of which are of nut-bearing size, contain cankers. Our largest American chestnut, some 23 inches Dbh, has a fatal stem canker and will be salvaged.

CYTOSPORA CANCKER, (Cytospora kunzei Sacc.) A common, continuing problem causing mortality of lower branches on large blue spruce.

DUTCH ELM DISEASE, (Ceratocystis ulmi (Buisman), C Moreau. The high rate of elm losses continues to plague municipalities and property owners from this very persistent and difficult problem. Although the disease is well established over the state, several new "firsts" were confirmed this year in the towns of Blue Hill and at Northeast Harbor on Mount Desert Island. Environmental conditions such as weather and severe winter storm damage to elm trees have been conducive to an upsurge of elm bark beetle populations and consequently to sustained Dutch elm disease fungus development. Concurrently, there is ample evidence in communities that have good sanitation control programs that disease losses can be successfully minimized.

DWARF MISTLETOE, (Arceuthobium pusillum Pk.) continues to cause considerable damage around cottages and estates, particularly to white spruce along the coast and on offshore islands as far south as Boothbay Harbor. Indian Point and Vinalhaven Island were two areas from which advice was requested on this problem this summer.

FOMES ROOT ROT, (Fomes annosus (Fr.) Cke.). New records were established in North New Portland in a thinned, mature mixed stand of red and white pine, and in a red pine plantation in the Auburn Water District. Mortality resulted to only a few trees in the Auburn plantation. In September Peniophora gigantea and Stereum sanguinolentum were occasionally found fruiting on old stumps; P. gigantea was found fruiting sometimes very profusely.

GYMNOSPORANGIUM RUST, (Gymnosporangium sp.) was observed on Mountain-ash on Vinalhaven Island in late July.

HORSE-CHESTNUT LEAF BLOTCH, (Guignardia aesculi (Pk.) V.B. Stewart). Although sometimes possibly confused with leaf scorch on droughty sites, this disease was again prevalent, particularly along the coast and on outlying islands such as Deer Isle, Eastport, and Vinalhaven Island.

OAK LEAF BLISTER, (Taphrina caerulescens (Mont. & Desm.) Tul.). Common on coastal red oak.

PHOMOPSIS GALL, (Phomopsis sp.) A two acre portion of a red oak stand in Norway contained stem and branch galls varying in size from that of a ping-pong ball to basketball size. Affected trees were removed from the stand in a logging operation.

PHYLLOSTICTA LEAF SPOT, (Phyllosticta minima (Burk. & Curt.) Ell. & Ev.) was collected from red maple in Albion.

PINE NEEDLE RUST, (Coleosporium solidaginis (Schw.) Thuem.). Although this rust presents an alarming appearance in young red pine plantations, usually only a portion of affected needles is damaged. As the alternate host plants, goldenrod and asters, are shaded out, disease incidence decreases.

POPLAR INK SPOT, (Ciborinia bifrons (Whet.) Whet.) was reported in June and July from T9R5 on young poplars, and from T2R4. In T3R5, defoliation varied between 30% and 70% in localized spots.

RED RING ROT, (Fomes pini (Brot. ex Fr.) Karst.). Conks and pitching, swollen knots were common on mature spruce on Vinalhaven Island. Although affected trees were not merchantable, they still serve a useful purpose around estates and as windbreaks at the edge of wooded areas.

SNOW MOLD, (Phacidium sp.) On lower branches of balsam fir in the Dover-Foxcroft area in early spring.

WESTERN GALL RUST, (Peridermium harknessii)? was collected from Scotch pine in T4R3 and on one of eight large, ornamental Scotch pine in Camden.

WHITE PINE BLISTER RUST, (Cronartium ribicola Fischer). Following a couple of tutoring sessions by Mulholland and Hadfield of the U. S. Forest Service, the District Leaders and Field Assistants are well on their way toward completion of the Blister Rust Control Efficiency Evaluation as requested by the U. S. Forest Service. This is a time-consuming job when performed according to specified criteria.

An old white pine plantation just north of Grafton State Park and outside of the present Blister Rust Control Protective Zone is suffering heavy loss from this disease. This is a good demonstration area to illustrate what occurs without a sustained control program in a high blister rust hazard area.

Doug Stark has been involved in the final transition of white pine blister rust control in the State from Federal to Maine administration. This accompanied the recent retirement of Martin Calderara from the U.S. Forest Service as the last Federal Blister Rust Supervisor in Maine. Preparation for this had been consummated in recent years by appointment and prior training of State District Leaders Laurence Colby (Belfast), Richard Allen (Auburn), and David Stewart (Harrison).

The District Leaders apparently enjoyed the opportunity in June of spending a few days in the Presque Isle-Portage-Oxbow area observing the many facets of the spruce budworm operation. In spite of relative non-involvement in this program, as departmental personnel, they are frequently asked general questions about the program. Such exposure to other Departmental activities is a desirable feature of our in-service training program.

Animal & Bird Injury

MOUSE INJURY - Some residents on Vinalhaven Island use aluminum foil wrapped around stems of young hardwoods during the winter to prevent mouse injury with apparent success.

PINE GROSBEAK DAMAGE - Virtually every bud was plucked in a young white pine stand in the Manchester area as observed in April. The birds were reported to be present in moderate numbers in Maine last winter so bud damage to white pine in other areas undoubtedly occurred.

Those interested in grosbeak damage are referred to Maine Forest Service Bulletin 21, "Grosbeak Injury to White Pine," and to an article by David B. Cook and E. W. Littlefield which appeared in the Journal of Forestry, Vol. 43, No. 4, April, 1945, entitled "Grosbeak Damage to Scotch Pine." In recent personal correspondence, Mr. Littlefield stated that the plantation at North Hudson, N. Y. mentioned in his publication showed a substantial degree of recovery after twenty-odd years.

SAPSUCKER INJURY - Damage was severe on a row of large Scotch pine in Camden, and was causing large branch and top mortality of exotic weeping birch in Lewiston. Feeding was taking place on April 13 and September 17, respectively. Several members of the Division of Entomology assisted Mr. Francis Rushmore with his project of banding nestling sapsuckers in the Oxbow area last June. This project was designed to study the effect on birds of Accothion as used in the spruce budworm spray project.

Non-Infectious Diseases

DROUGHT - The foliage of birch and maple on ridges with shallow soil yellowed and dropped in mid-August in the Bridgton, Harrison, Waterford and Norway areas due to the affects of a prolonged drought.

HAIL INJURY - In the Richardson Lake - "C" Township area, balsam fir contained many browned tips and had a brownish cast when observed from a distance. Some transverse bark cracking was also evident on small branches. In this same area, damage to white pine resulted in the death of small branches and twigs.

ICE STORMS - Two severe storms in Central Maine on December 22-23 and 26-27 removed the protective snow cover, caused severe breakage not only to brittle species, but to species such as sugar maple and ash, and laid portions of pole-sized white pine flat. Poplar and fir apparently were the hardest hit of forest tree species. Tops of white, red and other pines were snapped off down to diameters of six inches. The ice storms quickly were followed by an extended period of seasonably cold weather in January. This possibly was the cause for spot mortality of sapling white pine in a plantation in Bethel and other areas. Dead trees were restricted to low pockets in the plantations.

LATE FROST INJURY - A late frost early in June killed back new growth of beech in TBR11 and Ludlow. In the Talmage area, extensive damage to beech followed a late frost around June 2. Browned foliage was still obvious by July 10; however, secondary shoot growth was well-developed at this time.

SALT INJURY - Runoff from winter highway salt application apparently killed a group of plantation red pine in Auburn. By mid-August, when mortality was discovered, most of the salt present following snow melt evidently had leached below the 18 inch sample depth in the sandy soil; however, soil analysis by U. of Me. Soils Laboratory in Orono did indicate a higher soluble salt concentration in the area of dead trees than in three other sample points in the plantation. Identical samples taken soon after snow melt in the spring possibly would produce a more striking comparison of soluble salt between samples.

SPOT DEATH OF RED PINE - An underlying vein of deep, coarse sand in Cumberland and underlying ledge in Auburn coupled with a prolonged period of hot, dry weather during July and August probably were responsible for death of small groups of trees. At the Cumberland location, the internodal crack symptom associated with drought injury was also present on living, marginal trees.

"WET FEET" - In Fryeburg, a red pine plantation situated on the bank of the Saco River annually is flooded in the spring and, in addition, last winter was also flooded and followed by a quick freeze and ice formation. These pines undoubtedly are shallow-rooted. Dominant trees with their larger needle surface are therefore liable to suffer most from water stress during periods of drought. These larger trees were dying back from the top and were invaded by what was tentatively identified as the beetle, Ips pini, with egg galleries extending downward into live bark. Top bending, due to heavy ice accumulations last winter, may also have been a predisposing factor allowing beetle infestation. Occasional scattered trees were completely dead with some Dendroctonus sp. activity in the lower bole. Larger roots on dead trees were still green. Prompt destruction of infested trees was recommended.

WINTER BROWNING - Winter browning of spruce was evident in the Moosehead and Rangeley Lakes areas in mid-June.

Pollution Studies

FUME INJURY. The Wiscasset-Freeport-Yarmouth-Cousins Island white pine "decline" areas were aerially surveyed again this spring. The affected area has remained stable in size for several years now, providing at least circumstantial evidence that the causative agent may be of local origin.

SNB. Semi-mature tissue needle blight of 1970 white pine needles was particularly conspicuous in August along Rt. 25 from Gorham, through Standish to Limington, and was apparent again this year in many other parts of the State. Average needle blight severity in 1970 in three study areas was similar to that recorded in 1969. Plots in South Freeport indicated an improvement in tree condition, while in Alna trees had generally deteriorated in health. Intensity of needle blight symptoms

on pines in the Newfield plots was similar to that recorded last year. Average mortality this year among trees showing needle blight symptoms in the three study areas was 7.7%.

Pollution Studies

STATEWIDE AIR POLLUTION SURVEY - Since white pine is among the most sensitive tree species to air pollution, and is a species of high aesthetic as well as high economic importance, there has been concern over the implications of air pollution on Maine forestry in general and the white pine in particular. Considerable evidence has already been gathered to indicate some loss of pine trees to air pollution in Maine.

A cooperative effort with the Department of Botany and Plant Pathology at the University of Maine involved the placement of air-pollution sensitive tobacco throughout the State late last summer. Tobacco was distributed to Maine Forestry Department District Fire Ranger Headquarters in the towns of Alfred, West Paris, Jefferson, Norridgewock, Corinth, Cherryfield, Wesley, Cupsuptic, Eustis, Caratunk, Brownville, Topsfield, Macwahoc, Greenville, Pittston Academy Grant, Island Falls, Hay Lake, Masardis, Ashland, and Allagash Plantation. Except where frost damaged the plants, tobacco was examined three times per week by cooperating Fire Control Division personnel from August 10 to September 21. At this writing the results have not been evaluated.

WHITE PINE BROWNING IN THOMASTON - On April 13 the Division was consulted regarding the browning of pine trees in the vicinity of Thomaston, Maine. A trip to that area revealed large areas in the towns of Rockland and Thomaston and smaller areas in surrounding towns where needles on white pine trees were partially to almost completely dead. Symptoms varied from tipburn to almost complete leaf necrosis, except for a small portion near the fascicle. In the worst areas every needle on every white pine tree appeared to be affected. Damage was greatest within a mile radius of two local industries, one manufacturing cement and the other manufacturing perlite, an expanded rock product. Damage was most extensive toward the west of these industries. Aerial surveys indicated that isolated damage occurred over an area as great as 80 square miles, although all white pine trees within this area were not affected. Red pine, hemlock, and spruce were affected less severely.

Examinations of buds and twigs showed that little or no tree mortality was evident. On this basis it was predicted that most trees would refoliate during the summer, and this prediction was borne out.

Attempts were made to define the cause of browning. Immediately upon becoming aware of the problem, our pathologists transplanted healthy pine seedlings into the vicinity of the worst damage. They have to date shown no browning symptoms. Attempts to induce phytotoxicity from the products and by-products of perlite manufacture were negative. A general survey of air quality in the Thomaston area was made early in the summer

using experimental tobacco to bioassay for ozone and sulfur dioxide, pollutants known to injure white pine. Symptoms of injury by these toxicants were apparent on the tobacco but were not sufficiently extensive to be considered unusually phytotoxic during the period of bioassay.

The precise cause of the browning has not been determined. From the symptoms observed and their extent, the most likely cause would seem to be air pollution accumulating during a period of temperature inversion in the late winter of 1969-1970.

Miscellaneous Fungi and Diseases

BROWN-FOOTED COLLYBIA, (*Collybia velutipes* W. Curt. ex Fr.) was observed fruiting around an old, cement-filled cavity on sugar maple in mid-October.

SHARP-SCALE PHOLIOTA, (*Pholiota squarrosoides* Pk.). Large clusters of this mushroom were collected from an open frost crack in a large white birch in mid-September in Fayette.

SPRUCE BURLS - An area, about 10 acres in size, of burlled white spruce was reported on Great Cranberry Island, Cranberry Isles Township. Burls were reported to vary from a golf ball to a basket ball in size. Reports of such burls have been restricted to areas along the coast within a few hundred yards of salt water. Cause for these burls is undetermined.

Miscellany

AN UNUSUAL PHENOMENON? - White ash grew past and is now suppressing white pine, which was the pioneer species in a stand in Camden. All ground cover vegetation other than white ash seedlings was conspicuously absent from beneath the ash. Lush undergrowth, (ferns, shrubs, etc.) was present in areas not stocked with ash.

BIRD KILL - Excessive feeding on Mt. Ash fruit caused "drunkedness" and subsequent death from flying haphazardly against solid structures in Lewiston.

PHENOLOGY - Last spring plant development was very close to that of the spring of 1969. Ice-out on Webber Pond in Vassalboro occurred on exactly the same date both years.

Autumn coloration apparently occurred earlier than usual and was well advanced on maples, white ash and a few oaks in Vassalboro by September 20. By the 23rd, staghorn sumac was fully colored in this same area. By the 24th, no frosts had occurred in the Vassalboro area. Ground was still frost-free in mid-November in Central Maine.

Lack of heavy winds and rains in late summer-early fall resulted in retention of older red and white pine needles and arborvitae foliage that had assumed the yellow autumn coloration, normal for this time of year. Some trees appeared so off-color that several inquiries were received trying to implicate fume injury or white pine blister rust. Peak coloration in the Lexington-Rumford area was attained in mid-September. On August 22, coloration of balsam fir was conspicuous at Rocky Mt. T17R12. Fall coloration of conifers apparently was conspicuous on September 17 in Aroostook County; a little earlier than usual.

Division of Entomology

Augusta, Maine

Compiled by Staff Members

Maine Forestry Department

November 1970

Richard G. Dearborn and
Douglas A. Stark eds.



August 11, 1970

CONTENTS NOTED		
	Initials	Date
Supt.		
Admin. Officer	LB	8-11-70
X Ch. I & II A		
Admin. Spec.		
Inf. Spec.		
X Mgr. E. Spec.		
Mgr. V. Spec.		
Gen. Inv. C.		
Gen. Inv. W.		
X Park Ranger	LB	
Mechanic		

To: Director, National Park Service

From: Assistant Director, Park Support Services, Northeast Region

Subject: White Pine Blister Rust Control Accomplishment and Expenditure Report and Regional Summary, NPS(M)-21
Report due: August 15, 1970

Enclosed are the following forms on the above subject as required in the Reports Management Handbook, Part II, NPS(M)-21:

1. DI-45d, Blister Rust Control Accomplishments and Expenditure Report - Acadia National Park.
2. DI-45e, Blister Rust Control Accomplishments Summary - NERO
3. DI-45f, Blister Rust Control Expenditure Summary - NERO
4. Narrative Statement of Accomplishments and Examples of Recent Progress in Blister Rust Control:

Acadia National Park

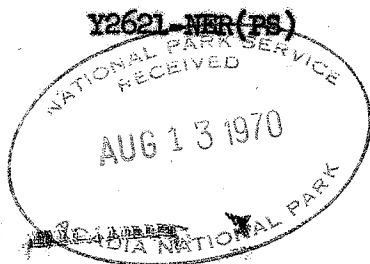
It is our opinion that the Eastern White Pine is one of the more valuable native trees of Maine. As such, we think it desirable to continue the White Pine Blister Rust Control program for Acadia and also Saratoga which is presently on a 5-year cycle. The cost does not appear to be prohibitive, and we believe it would be to our advantage to control the Ribes growth within the parks.

(Sgd) Nathan B. Golub

Nathan B. Golub

Enclosures

cc: Supts., Acadia and Saratoga



August 11, 1970

CONTENTS NOTED		
	Initials	Date
Supt.		
Admin. Officer		
X Ch. I & R M	PP	8-13
Maint. Spec.		
Inter. Spec.		
X Mgr. E. Dist.		
Mgr. W. Dist.		
Gen. For. E.		
Gen. For. W.		
Park Ranger		
Mechanic	KS	

Memorandum

To: Director, National Park Service

From: Assistant Director, Park Support Services, Northeast Region

Subject: White Pine Blister Rust Control - Status Report and Regional Summary, NPS (M)-23
Report due: August 15, 1970

Enclosed are the following forms on the above subject as required by the Reports Management Handbook, Part II, NPS(M)-23:

1. Form DI-45g, Blister Rust Control Status Report, Acadia National Park.
2. Form DI-45g, Blister Rust Control Status Report, Northeast Regional Office Summary.

SIGERD

Nathan B. Golub

Enclosures

cc:
Supt., Acadia

June 16, 1970
Robert I. Ashman Summer Camp
Princeton, Maine 04668

Mr. Lawrence Barden
Park Ranger
Arcida National Park
Bar Harbor, Maine

Dear Mr. Barden:

Doctor Marshall Ashley mentioned today in a camp meeting that you were looking for the employment of a forester this coming fall in your White Pine survey. I would be keenly interested in securing such a job.

This next fall I will be a senior in the School of Forestry at the University of Maine. I have satisfactorily fulfilled all of my academic requirements to date. I am a member of Alpha Gamma Rho fraternity and participate in different organizations on campus.

I have a car so transportation to Arcida will be no problem. My academic schedule is light this next fall so there should be plenty of time to work.

My address will be at Princeton, Maine until July 18th. After that, my address will be RD3, Wolcott, New York 14590. I could start work anytime after August 1st.

Thank you for your time.

796-2394

Yours truly,
George Fowler
George Fowler

Donald Huff
c/o Camp Robert I. Ashman
Princeton, Maine 04668

Mr. Lawrence S. Barden
Park Ranger
Acadia National Park
Bar Harbor, Maine

Dear Mr. Barden:

It was brought to my attention by Dr. Ashley, through Dr. Griffin, that you are looking for a Forestry student to help with a white pine blister rust survey of Acadia National Park.

Right now I am at summer camp in Princeton. By the end of camp I believe I will be a competent surveyor, quite capable of putting up with insects, slash, etc.

Incidentally, I can only work weekends, starting in the middle of September. However, I could come up to Maine earlier to work the first two weeks in September.

I would be interested to hear more of the details of the survey. Possibly, we could set an interview date any Sunday before July 18.

Thank you for your consideration.

Sincerely,

Donald Huff

866-7315



IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Acadia National Park
Hulls Cove, Maine 04644

Y2621

June 29, 1970

MEMORANDUM

To: Blister Rust Control File Y2621
From: Park Ranger, East District
Subject: Analysis Of Blister Rust Control Program

The purchase order on this study (for \$700.00) was written to Professor Ralph H. Griffin, University of Maine School of Forest Resources, as a convenience to the Park Service, to allow Acadia Park staff time to interview students who have applied for the job. If the purchase order is cancelled because the student is unable to complete the job, Dr. Griffin and the School of Forest Resources should not be held responsible. The agreement on the study will be between the Park Service and the student.

Lawrence S. Barden

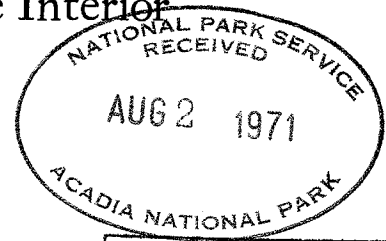
cc: Professor Ralph H. Griffin



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
NORTHEAST REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106



Y2621 NER(PS)

July 30, 1971

Memorandum

To: Superintendent, Acadia NP

From: Acting Assistant Director, Operations and
Park Support Services, Northeast Region

Subject: Project Proposal - White Pine Blister Rust
Control--Acadia National Park

CONTENTS NOTED		
	Initials	Date
Supt.		
Admin. Officer		
X Ch. I & R M.	DS	
Maint. Spec.		
Inter. Spec.		
X Mgr. E. Dist.	DS	
X Mgr. W. Dist.	MS	
Gen. For. E.		
Gen. For. W.		
Park Ranger		
Mechanic		

Enclosed is the Washington Office approved form 10-402,
Project Proposal, signed by Acting Assistant Director
Hadley together with a copy of the incoming cover memorandum.

Frank Barnes
Frank Barnes

Enclosure

REPORTS MANAGEMENT
Report Directives
Division of Park Operations
Form 10-402 (Face)

HANDBOOK
Part II
NPS(M)-13
Page 5
Sample Form

Form 10-402
(Feb. 1971)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PROJECT PROPOSAL

☐ FOREST INSECT OR DISEASE CONTROL ☒ WHITE PINE BLISTER RUST CONTROL

1. AREA Acadia NP	2. STATE Maine	3. REGION Northeast	4. FISCAL YEAR 1972
5. PROJECT NO. ACAD-1-72	6. CAUSAL AGENT BR	7. GROUP -	8. HOST Ribes
9. PREVENTION OR CONTROL METHOD Eradication of Ribes		10. PESTICIDE None	11. DOSAGE RATE N/A

12. ENCLOSURES: A. Biological Evaluation; B. Project Plan; C. Justification

13. INSECT OR DISEASE CONTROL (Other than White Pine Blister Rust)				14. WHITE PINE BLISTER RUST CONTROL			
TYPE OF WORK	UNITS OF WORK	UNIT COST	COST	TYPE OF WORK	UNITS OF WORK	UNIT COST	COST
a. Detection Surveys (Acres)				a. ~~Detection~~ <i>Presuppression</i> Surveys (Acres)	3452		1000
b. Acres to be treated (Number)				b. Ribes Eradication (Acres)	3452		2000
c. Standing trees to be treated (Number)				c. Canker Treatment (No. of trees)			
d. Trees to be removed (Number)				d. Trees to be pruned (Number)			
e. Stumps to be treated (Number)				e. Trees to be removed (Number)			
f. Other				f. Other			
TOTAL				TOTAL 3,000			

15. PROPOSED BY (Signature) *John M. Good* (Title) *Superintendent* (Date) *April 28, 1971*

FOR REGIONAL OFFICE USE

16. REGIONAL OFFICE COST THIS PROJECT 200 18. REGIONAL OFFICE SERVICES TO BE PROVIDED
17. TOTAL PROJECT COST 3200 Travel for assistance to field and inspection of project. Also coordination with USFS representatives.
19. ACTION (Signature) *Robert B. Gohrt* (Title) *Assistant Director* (Date) *June 22, 1971*
☒ APPROVED
☐ DISAPPROVED Park Support Ser.
20. REASON FOR DISAPPROVAL

FOR WASHINGTON OFFICE USE

21. ACTION (Signature) *L. C. Hardy* (Title) *Acting Assistant Director* (Date) *JUL 8 1971*
☒ APPROVED
☐ DISAPPROVED
22. REASON FOR DISAPPROVAL

Amendment No. 91

February 1971

SUMMARY OF PROJECT PROPOSALS

☐ FOREST INSECT AND DISEASE CONTROL ☒ WHITE PINE BLISTER RUST CONTROL

(See Instructions on Reverse)

			REGION Northeast	FISCAL YEAR 1972
PROJECT NUMBER 1	CAUSAL AGENT 2	GROUP 3	AREA 4	PROJECT COST 5
ACAD-1-72	Blister Rust		Acadia National Park	\$3,200
6. TOTAL \$3,200				

7. SUBMITTED BY (Signature)
(Sgd) Nathan B. Golub
Nathan B. GolubTITLE
Assistant Director, Park Support
ServicesDATE
6/22/71

INSTRUCTIONS FOR COMPLETING

Form 10-403

General: Summarize separately all forest insect and disease control and all white pine blister rust control project proposals.

FOREST INSECT AND DISEASE CONTROL

1. Sort project proposals by group; that is, bark beetles (BB), defoliators (DEF), other insects (OI), dwarfmistletoe (DM), oak wilt (OW), and other diseases (OD).
2. Under the appropriate group heading, enter each approved project proposal as indicated by column headings 1 - 5.
3. Enter total of project costs shown in Column 5.
4. This summary may be signed by any person authorized by the Director of a region or by the Director for Service-wide summaries.

WHITE PINE BLISTER RUST CONTROL

1. List each approved white pine blister rust control project proposal by making appropriate entries in columns 1, 2, 4, and 5. For "Causal Agent" enter "Blister Rust." Leave column 3 blank.
2. Enter total of project costs shown in column 5.
3. This summary may be signed by any person authorized by the Director of a region or by the Director for Service-wide summaries.



United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

Y22-MO(E)

JUL 8 1971

Memorandum

To: Director, Northeast Region

From: ^{Acting Assistant} Director

Subject: White Pine Blister Rust Control Project ^{Proposal}
Acadia

The subject proposal, ACAD-1-72, is returned approved. Please note that we have changed Detection Surveys to read Presuppression Surveys. Detection is the responsibility of the Forest Service, U. S. Department of Agriculture.

Samuel C. Kelly

Enclosure

Y2621 NER(PS)

July 30, 1971



Memorandum

To: Director, National Park Service

From: Acting Assistant Director, Operations and Park
Support Services, Northeast Region

Subject: White Pine Blister Rust Control Status
Report and Regional Summary, NPS(M)-23
Report Due: August 15, 1971

Enclosed are the following forms on the above subject as
required in the Reports Management Handbook, Part II, NPS
(M)-23:

1. Form DI-45g, Blister Rust Control Status Report-
Acadia National Park
2. Form DI-45g, Blister Rust Control Status Report-
Northeast Regional Summary.

Frank Barnes

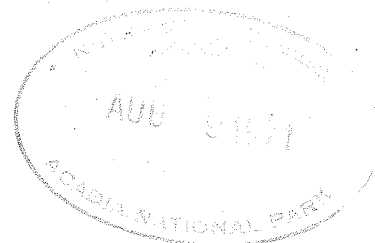
Enclosures

cc: Supt., Acadia ✓

CONTENTS NOTED		
	Initials	Date
Supt.	RS	
Admin. Officer		
Ch. I & M		
Maint. Spec.		
Inter. Spec.		
X Mgr. E. Dist.	RS	
Mgr. W. Dist.		
Gen. For. E.		
Gen. For. W.		
Park Ranger		
Mechanic		

Y2621 NER(PS)

CONTENTS NOTED		
	Initials	Date
Supt.	RBH	
Admin. Officer		
Ch. i & R M		
Maint. Spec.		
Inter. Spec.		
Mgr. E. Dist.		
Mgr. W. Dist.		
Gen. For. E.		
Gen. For. W.		
Parl. Ranger		
Mechanic		



Memorandum

To: Director, National Park Service
Attention: Chief, Division of Park Operations

From: Assistant Director, Operations and Park Support
Services, Northeast Region

Subject: Biological Evaluation--White Pine Blister Rust--
Acadia National Park, NPS(M)-13

Enclosed is a copy of the biological evaluation of the White Pine Blister Rust Control Program at Acadia National Park as prepared by Pathologist John H. Thompson of the U.S. Forest Service at Portsmouth, New Hampshire. The field work and report had not been completed at the time of submission of the Project Proposal for Acadia. We are submitting it for attachment to your copy of the Project Proposal which has been approved by the Washington Office.

If there are any questions regarding this enclosure, please advise us.

(Sgd) Nathan B. Golub

Nathan B. Golub

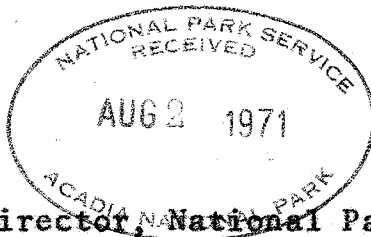
Enclosure

cc: Supt., Acadia
Dir., Northeastern Forest
Experiment Station

Y2621 NER(PS)

July 30, 1971

RBW



Memorandum

To: Director, National Park Service

From: Acting Assistant Director, Operations and
Park Support Services, Northeast Region

Subject: Forest Insect and Disease and White Pine
Blister Rust Control-Pesticide Use Report
NPS(M)-22
Report Due; August 15, 1971

No pesticides were used in the Northeast Region to control forest insects and/or diseases during fiscal year 1971. A negative report on form DI-45i, Forest Insect and Disease Control Pesticide Use Report is enclosed.

Frank Barnes

Enclosure

cc: Supt., Acadia ✓

CONTENTS NOTED		
	Initials	Date
Supr.		
Admin. Officer	RBW	
Ch. I & R M.		
Maint. Spec.		
Inter. Spec.		
X Mgr. E. Dist.	BS	
Mgr. W. Dist.		
Gen. Inv. E.		
Gen. Inv. W.		
Park Ranger		
Monitors		

Y2621 NER(PS)

July 30, 1971

Memorandum

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Subject: Forest Insect and Disease and White Pine
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Gen. Inv. W.		
Park Ranger		
Monitors		



FOREST INSECT AND DISEASE NOTES

No. 1 of 1972 - November

Division of Entomology

MAINE FORESTRY DEPARTMENT

CONTENTS NOTED		
	Initials	Date
✓ Sent.		
Admin. Officer		
X Ch. 1 & 2 A	PS	
Mainr. Spec.		
✓ Insect Spec.		
✓ Agr. E. Dist.	PS	
X Agr. W. Dist.	MM	
✓ Gen. For. E.		
✓ Gen. For. W.		
Park Ranger		
Mechanic		

The annual Spring Training Session was held in Augusta on May 8-12 and this signalled the start of a very busy season. The two and one half days of talks, films and guest speakers went fast and then the work began. Most of our attention this season was focused on a 500,000 acre spruce budworm control project in the Oxbow and Cross Lake-Madawaska Lake areas. Field work for the project was carried out primarily from Portage and Cross Lake with some extension later in the season into other areas of eastern and western Maine. Following plans made earlier, a base of operations for the spraying was set up at the Presque Isle airport. Late May was hectic and then the time for waiting. Wet weather held things up slightly but on June 8 spraying of the single application of Zectran began in the Oxbow area. Spraying was completed in late June following many delays due to adverse weather. Then assessment surveys were stepped up.

While the spruce budworm held most peoples' attention, other leaf-rollers on hardwoods and the Bruce spanworm removed up to 75% of the foliage in some of the northern hardwood stands over the northern two thirds of the State. Southern Maine areas were a little more fortunate as many of the pests in this part of the State (gypsy moth, saddled prominent, fall cankerworm, hardwood leaf miners and the elm leaf beetles) just did not develop to destructive levels. Some types of insects, especially scale insects of both hardwood and conifers, but also Saratoga spittlebug, tent caterpillars, fall webworm, balsam twig aphid and other aphids did cause a great deal of concern. Foliage diseases including ash leaf rust and certain other leaf fungi were abundant in southern and coastal areas. With the bulk of the entomology personnel devoting their time to the budworm problem, the Forest Insect Survey collections by cooperating fire control personnel and others provided a "lion's share" of the information on these varied problems.

It should be pointed out that meetings, family events and the like did not simply hold off because of all of the activity but, because of the fact that it was almost impossible to keep in close touch with many of the personnel, these things were simply not recorded.

Forest Commissioner Austin H. Wilkins has recently announced his plans to retire at the end of 1972. He has served the Department in this capacity since August 5, 1958 and prior to that he held a number of different positions in the Department.

PUBLICATIONS

Nash, R. W., D. Stark and J. Chadwick. 1972 (May). The Planting and Care of Shade Trees. Maine Forestry Department. Bull. 22 (Revised). 60 pp.

PUBLICATIONS (con't.)

Granger, C. A. 1972 (May). Protect White Pine from Blister Rust.
Maine Forestry Department. Circular No. 10 (First Revision).

Coughlin, John. 1971 (December). The Spruce Budworm in Maine in
1971. Maine Forestry Department. 18pp.

Entomology Division. 1972. A Weekly Report of Forest Insect &
Disease Conditions for Maine. Issued to a limited circulation
from May 12 to September 15 (12 Issues).

Forest Insect and Disease Survey (F.I.D.S.)

During the 1972 season, a total of 1645 collections and observations were received and processed at the Entomology Laboratory in Augusta. This total, while falling below that of previous years, (Table I) reflects an increased commitment of entomology personnel to the spruce budworm problem. Routine beating collections by Fire Control personnel remained at levels comparable to previous years (Regular Series) as did collections by the entomology staff and cooperators (B Series). Collections by the 6 Forest Insect Rangers (C Series) and Observations (D Series) fell off.

Table I

Year	"Regular" Series	"B" Series	"C" Series	"D" Series	Total
1968	1,584	144	407	95	2,230
1969	1,434	46	288	94	1,862
1970	1,358	96	253	144	1,851
1971	1,368	105	454	88	2,015
1972	1,340	106	158	41	1,645

In making these collections, approximately 598 (ca. 65% of Maine's 912 Townships were visited (See map). This percentage is somewhat lower than in previous years but again does not reflect the increased personal coverage by division personnel in the various regions and increased activities in assessment of the spruce budworm situation. In many cases areas were visited by entomology staff and records made but these were not an integral part of the F.I.D.S.

A series of 24 light traps were again operated in July throughout the spruce-fir regions of the State in an attempt to detect any unusual flight activity of forest pests (Lepidoptera), especially the spruce budworm. These nightly catches were sent to the Entomology Laboratory for processing and involved a total of 115 boxes of specimens. Numbers of spruce budworm moths were recorded and will be included in the annual spruce budworm report. The moth catches in general did not seem as heavy as usual but several species of interest were noticed. Curiously the night of July 13-14 seemed to yield peak numbers of many of the species. A brief summary of the species found and comments follows:

Choristoneura fumiferana (Clem.). Found in all light trap catches but one but heaviest numbers (season totals) were found at Round Pond Telos (T6R11)(5612+); Camp Dana (T9R5)(5024+); Cross Lake (T17R5)(2625); Dennistown Plt. (819). All other traps yielded far less than 500 moths each for the season. The highest nightly catches

were on the night of July 13-14 when Round Pond Telos yielded 5000+ moths and Camp Dana 4500+. There seemed to be only 1 real peak this year (July 13-14) as compared to 2 or more in some years.

Lexis bicolor Grt. The Northern Smoky Moth. This small grey arctiid was extremely common in nightly catches at Cross Lake and as many as 294 were caught on a single night (July 13-14) with up to 260 on other nights. While larvae of the species are normally feeders on lichens on the bark of conifers they can feed on the foliage as well.

Stilpnotia salicis Linn. Satin Moth. Occurred in much lower numbers than in previous years except at Chesuncook Dam (T3R12) where large numbers were caught on the nights of July 12-13 (364); July 13-14 (352) and July 14-15 (224).

Malacosoma disstria Hbn. The Forest Tent Caterpillar. Occurred in light-moderate numbers in many traps but no catches were extremely heavy. Chesuncook Dam again produced probably the largest numbers of this species.

Dioryctria reniculella Grt. This species was not as abundant as in 1971 but moderate numbers were present in a number of the traps. The abundance of this species in a trap seems to be directly proportional to that of the spruce budworm in many cases although not by date of catch. Larvae mine in cones, needles, buds and shoots of spruces (esp. white), balsam fir, etc.

Choristoneura conflictana Wlk. Large Aspen Tortrix. This species seemed to be abundant again especially at Dennistown and Camp Dana. Larval feeding on aspen was also reported this season.

Records were kept on a number of additional species but did not seem significant abundance to report at this time.

Softwood Insects

APHIDS ON CONIFERS Numerous requests for information on controlling twig aphids (Cinara spp.) on conifers (Spruces & white pine in particular) were received in 1972. In most cases, the aphids were not even noticed until they had produced profuse quantities of honeydew which then attracted all manner of wasps, yellow jackets and ants and supported a "magnificent" culture of sooty mold fungus. This is rather late to remove the problem. Pine Bark Aphid did not seem to be much of a problem although present generally in low numbers.

ARBORVITAE LEAF MINERS (A complex of 4 species) - Populations of this complex were generally holding about the same as in 1971 and browning of pasture and roadside arborvitae as a result of larval mines was especially noticeable in many areas. It looks as though populations will be high again in 1973 if winter conditions are favorable to the overwintering larvae.

BALSAM NEEDLE GALL MIDGE (Dasineura balsamica (Lint.)) This insect remained at very low levels again in 1972 and in many areas previously heavily infested were barely detectable.

BALSAM TWIG APHID (Mindarus abietinus Koch.) Twisted and distorted needles of balsam fir caused by the feeding of these aphids was readily visible over most of the State in 1972 and it appears that populations were higher than in 1971. Damage was most severe and caused the most concern in natural and planted stands of fir used in wreaths and as Christmas trees. In some plantations the needle distortion, stunting, and occasional premature shedding caused a partial crop loss for 1972. Predators such as lady beetles and syrphid fly larvae were also present in large numbers this season and fed heavily on the aphids but in most cases were too late to prevent damage. This winter, some time will be spent looking into the populations of overwintering eggs.

A related twig aphid on white and red spruce was also heavy this season. This may be the species Mindarus obliquus Cholod.

BALSAM WOOLLY APHID (Adelges piceae (Ratz.)) The woolly trunk phase of this species seemed to be at low levels of abundance in most areas again this year. The gout phase, on the other hand, was quite noticeable and prompted numerous requests for information. Some scattered mortality of fir caused by this pest was reported in 1972.

LARCH CASEBEARER (Coleophora laricella (Hub.)) Populations of the larch casebearer were higher this season than they have been for several years and defoliation of larch was light to moderate locally on some trees in central and southern Maine. Both Eastern and European larch were attacked.

LECANIUM-TYPE SCALE ON RED PINE (unidentified) For several years we have been aware of an infestation of red pine on Silsby Plain at Aurora by a lecanium-type scale but the problem did not seem excessive. As a result of the establishment of the regional entomologist-pathologist position more thorough coverage of eastern Maine plantations this season has revealed that the problem is more widespread than previously thought. The Silsby Plain infestation is spreading on to young recently planted trees. Another infestation in a red pine plantation at T25 MD is causing moderate-heavy damage (needle stunting & yellowing) over one acre. In both of these instances there is a very noticeable production of sooty mold associated with the scale.

A NEW MEALYBUG ON PITCH PINE (Dysmicoccus n. sp.) An isolated infestation of a single 3 year transplant pitch pine tree was found at Harpswell on October 2. This tree was transplanted from Scarborough but no other infestations were found either at Scarborough or on another pitch pine transplant nearby which came from another locality. Specimens of this scale were sent to the Systematic Entomology Laboratory at Beltsville Maryland where they were identified as "new." The only other records they had of this "new species" came from Florida.

NURSERY PINE SAWFLY (Diprion frutetorum (Fab.)) This species was first reported from Maine in 1967 and until recently has not been found east of the Augusta-Chelsea area. On September 8 of this year a single larva was collected from a red pine in eastern Maine at T30 M.D.

PINE NEEDLE SCALE (Phenacaspis pinifoliae (Fitch)) Scales seemed to be more common in 1972 than they have for several years and the pine needle scale was no exception. Several reports of light to moderate infestations were reported in 1972 covering widely scattered areas of the State. Hosts ranged from Mugo Pine to balsam fir and spruces.

PITCH MIDGE ON WHITE PINE (unidentified) Pitch masses containing varying numbers of small orange maggots were noted on the bark of scattered ornamental white pine in the 15-20 foot class in many parts of southern and central Maine in May. The excessive pitch flow associated with this problem caused some concern about the health of the trees. By early June numerous small orange-bodied cecidomyid flies with smoky wings had emerged in the lab and the trees seemed to be improving. No direct relationship between the trees and the maggots has been confirmed.

RED-HEADED PINE SAWFLY (Neodiprion lecontei (Fitch)) For the first time in several years we received two reports of defoliation by this sawfly. Both instances involved single trees. Nearly full-grown larvae were collected from a Mugo Pine at Rumford in early June (!) and from a red pine at Lovell on September 9. Either the Rumford specimens were a "freak" instance or we may have 2 or more generations each year in Maine contrary to past reports.

SARATOGA SPITTLEBUG (Aphrophora saratogensis (Fitch)) Moderate to severe reddening of small red pine was evident in several plantations in southeastern Maine this past summer. The total acreage involved may approach 100 acres of potentially high value planted stock. Mortality of the trees was very high (over 80%) on 50 to 75 acres in T25 M.D. where bark beetles had added to the tree decline. This problem seems to be increasing and of great concern in view of the large number of red pine being planted annually. Adult Spittlebugs were abundant, active and still laying eggs on September 8 in T30 M.D. Egg laying was apparently heavy and eggs were even found under bud scales on dead trees in this area.

SAWFLIES Most of our common species of sawflies were reported to the Laboratory this season but none appeared to cause significant defoliation except very locally. On the basis of collections and associated field checks it appears that sawfly populations in general were much lower than in the two previous years.

SPRUCE BUD SCALE (Physokermes piceae (Schrank)) Reports of moderate to heavy infestations of this scale were reported from spruce at Prout's Neck and Orrington in 1972. This scale has been common statewide but normally remains at very low numbers.

SPRUCE BUDWORM (*Choristoneura fumiferana* (Clem.)) Since 1972 was rather a wet year in Aroostook County, spruce budworm damage was not as obvious to the general public as in 1971 when red trees caused widespread comment. Nevertheless tree damage was considerable in five major areas: 1. The Oxbow area, 2. The Cross Lake-Madawaska Lake area, 3. The Telos-Webster-Chamberlain Lakes area, 4. The St. Francis-Allagash area and 5. The St. Croix (boundary) River in eastern Washington County.

Approximately 500,000 acres in two blocks were treated aerially in 1972 with a single application of Zectran. These areas were at Cross Lake-Madawaska Lake and at Oxbow. There was generally a noticeable reduction in the budworm population, but significant numbers survived. Some foliage protection was obtained but in many cases not sufficient to allow stricken trees to make a comeback.

All five areas mentioned above are cause for concern and in addition new outbreaks are either already apparent (around Baker Lake; in northernmost Maine near Estcourt; near St. Pamphile; and throughout much of the Allagash "wilderness") or expected (throughout much of the spruce fir country, west even to Jackman and Dennistown). The time is rapidly approaching when we may find out the true potential of this historically devastating insect. The problem is especially serious in view of the disappointing results of the 1972 spray operation and current lack of alternatives. Salvage of damaged trees is already in progress but the likelihood is great that the budworm is a far more efficient harvester in the spruce-fir country than is man and unless some not now foreseen force intervenes, the budworm may harvest the lion's share of the fir and spruce.

Entomologists from the University of Maine have accelerated studies on the parasites, predators and diseases of the spruce budworm and hope to continue these in 1973. Also associated with this work is assessment of the use and effectiveness of Bacillus thuringiensis which was tried experimentally on a small plot in 1972.

The F.I.D.S. collections, which canvas the entire State, revealed the presence of spruce budworm in all stages from Brunswick to Ft. Kent and from Upton to Eastport and confirmed concentrations in the 5 areas previously cited. Larvae were also collected from Baxter Park. Light trap survey results have been reported previously.

A more comprehensive report of the spruce budworm project will be prepared for distribution to those who have requested it as soon as the data is assembled (early in 1973).

SPRUCE GALL APHIDS (several species) Galls of various aphids were detectable on spruce this past season but did not seem to be as abundant as in previous years. Fewer requests for information on these insects were received this season than have been for several years.

WEBBING SPRUCE LEAF MINER (Taniva albolineana Kft.) Seemed to be much more common than usual this year and is much more destructive than the other leaf miners. Up to 100% of the 1971 needles were mined out and webbed together on some branches of several ornamental spruce trees in central and southern Maine in 1972.

WHITE PINE FLAGGING Flagging caused by death and drooping of current and/or previous years shoots was often severe in some coastal sections of the State in 1972. Several causes were found among which were: pine leaf aphid, eriophyid mites, and a bark beetle (? Myeileborus ramiperda Swaine). In no cases was permanent injury indicated.

WHITE PINE WEEVIL (Pissodes strobi Peck) White pine weevil larvae again destroyed the leaders of many white pine in 1972 but the problem did not seem any worse than in the previous two years. Fewer reports were received in 1972 than have been for several years.

Hardwood Insects

BIRCH CASEBEARER (Coleophora fuscadinella Zeller) Damage from feeding by the birch casebearer was lower in southern and central Maine in 1972 than in 1971 but moderate to heavy feeding was observed in some localities in northern Maine especially near Long Lake (Sinclair). The insects were apparently late enough so that very little bud damage occurred. The problem of assessment of damage by the casebearer was complicated because of the presence of feeding by a tortricid in numbers at the same time.

BIRCH LEAF MINER (Fenusa pusilla (Lep.)) Populations of this species seemed to get off to a good start and browning was moderate to severe in many areas but it soon became evident that the outbreak had collapsed and 2nd and 3rd generations did not appear as expected. By mid-summer many of the birches, especially grey birch, looked the best they have in years.

BIRCH LEAF MINERS (Profenusa thomsoni (Know) and Messa nana (Klug.)) Populations of and damage by these species was way down in 1972 with only spotty and light defoliation noted.

BRUCE SPANWORM (Operophtera bruceata (Hulst) and a tortricid leaf roller Sparganothis (? acerivorana MacKay) caused widespread and locally heavy defoliation of maple over the northern two thirds of the State in late May and early June. This insect complex caused as high as 75% defoliation in several limited areas in northern and western Maine. Moths of the tortricid were common (but not excessive) in some of the light traps in July. By mid-October we were receiving reports of male Bruce Spanworm moth activity from widely scattered portions of the State such as Houlton, Seboomook, Rangeley, Mt. Vernon and Augusta. Males were visible not only at light on warmer nights but also during the warmer parts of the day. Wingless females were picked from the trunks of maple, birch and other hardwoods in many of these areas.

The Bruce Spanworm is found statewide but seems to be concentrated in some areas of the northern and central portions of the State. Mating was observed in Rangeley on November 1 but no eggs were found. At this time, females were collected and brought to Augusta where they were found to be full of eggs. The tiny greenish eggs were first found in the field at Rangeley on November 16. These will turn reddish with time. While defoliation of hardwoods by this species in Maine has caused very little noticeable permanent injury to the trees, there could be a long range effect especially in sugar bush areas such as that at T8R19. Winter surveys for eggs could reveal the potential for future defoliation. Bruce Spanworm populations certainly bear watching.

CHAIN SPOTTED GEOMETER (Cingilia catanaria (Drury) Although of minor importance, an interesting but localized outbreak of this species occurred in Alna in early August. This was the first such report received in several years. The attractive yellow loopers with black spotting caused heavy to severe defoliation of a wide variety of plants from alder, willow and cherry to white pine and sweet fern over approximately 20 acres in the vicinity of an abandoned field.

EASTERN ASH BARK BEETLE (Leperisinus aculeatus (Say) These beetles can cause quite a stir when they emerge by the thousands from firewood stored in homes. People who try to get ahead of things have found that bringing ash inside early in the season (July) can present problems. Two such reports were received in August. One homeowner promptly removed the wood again and "guessed she would keep it outside from now on." No real harm would be done to a home by these beetles and they would soon die but they can sure be a nuisance.

EASTERN TENT CATERPILLAR (Malacosoma americanum (Fab.) Tents of this species were more common generally this spring (1972) than they have been for several years and late in June numerous full grown larvae caused some concern as they wandered over lawns and into homes. Most defoliation was very local in nature.

ELM LEAF BEETLE (Pyrrhalta luteola (Mueller) and ELM FLEA BEETLE (Altica sp.) Defoliation of elms by either of or both of these species seemed light in 1972 in comparison to previous years. Populations of the leaf beetle were increasing after 2 years of very low numbers and defoliation by this species was heavy in a few scattered localities. The flea beetle populations on the other hand, seemed to be on their way down and in some localities it was difficult to find a single specimen even though large numbers were present in 1970 & 1971.

FALL WEBWORM (Hyphantria cunea (Drury) Webs of the fall webworm were as abundant in 1972 as they were in 1971 and concern about the problem again ran high in areas heavily hit such as the Dresden area and toward Sebago Lake.

FOREST TENT CATERPILLAR (Malacosoma disstria Hüb.) Caterpillars of this species were much more frequently encountered in 1972 than in 1971 but defoliation was generally minor except in one moderate-heavy infestation covering approximately 500 acres in Garfield.

GOLDEN OAK SCALE (Asterolecanium variolosum (Ratz.) These small, attractive, yellow-green scales were very abundant on an English white oak at Yarmouth on October 2 and had apparently caused some twig mortality.

GYPSY MOTH (Porthetria dispar (Linn.) Gypsy moth caterpillars were common over most of Maine south of Route 2 and west of the Penobscot River in 1972 but defoliation was much less than in 1971 with no hot spots. Aerial surveys failed to turn up noticeable defoliation except in one small area in Turner where gypsy moth activity was tied in with feeding of the oak leaf tier (Croesia albicomana (Clemens). Infestations at Fryeburg, Pittston and Benton collapsed for the most part. Light-moderate feeding was reported over 40 acres at Pittston but wilt kept populations down. Bait traps set up by the Plant Health Inspection Service (USDA) caught single male moths at several locations outside of the regulated area in August and September. These were at Edmunds, Dennysville and Addison in eastern Maine and at T3R5 (Little Squaw) and T2R6 (Big Squaw) in north central Maine. It appears that there is a potential for heavy gypsy moth populations over much of SW Maine. It is now a waiting game to see if a buildup develops.

HICKORY TUSSOCK MOTH (Halisidota caryae (Harr.) Caterpillars of this species were common in the New Sharon area and were collected from oak at Norridgewock on September 11. This species is not normally common in Maine but has been collected several times over the past 2 years. It is not an important pest except very locally.

JAPANESE BEETLE (Popillia japonica Newn.) The localized infestations of this pest at Lewiston, Auburn and Augusta seemed to hold up this year as in 1971 and noticeable defoliation of various plants and trees occurred. The extent of this problem has not been defined completely as the activities of the Japanese beetle may be combined with those of the rose chafer which has also been common for the past several years.

LARGE ASPEN TORTRIX (Choristoneura conflictana (Wlk.) Poplar stands over much of the northern two thirds of the State were attacked by unusually high populations of this insect in 1972. In some areas, especially west of Moosehead Lake, populations were very high and defoliation very noticeable from both the ground and the air. Some of these areas were quite extensive but have not been mapped. This is the first instance of such high populations of this tortricid in many years and possibly since 1931 when some 100,000 acres of poplar were defoliated. Moths of this species were common in some of our light traps in July (mentioned earlier in this report).

MAPLE TRUMPET SKELETONIZER (Epinotia aceriella (Clemens) Populations of this skeletonizer were much lower than in 1971 and in many cases present but barely detectable.

MOUNTAIN ASH SAWFLY (Pristiphora gemiculata (Hartig) Defoliation by this sawfly was not as noticeable as in previous years in most areas.

OAK LEAF MINER (Profenusa alumna MacG.) This leaf miner continued to remain generally at low population levels this season but mining was moderate to heavy locally in the Gilead area and at Hebron and Norway.

OAK LECANIUM SCALE (unidentified) These hemispherical brown scales were very common this season on red oak in southern and central Maine. In most cases they were very heavy on only a few isolated trees with much lighter amounts on neighboring trees!

OAK SKELETONIZER (Bucculatrix ainsliella Mont.) Populations of this species were again very low as they were in 1971 with few reports of defoliation.

OAK TWIG PRUNER (Elaphidionoides spp.) This species was locally common this season but generally less severe than in the past few years. In addition to oaks, maples were also lightly attacked by this complex of two species.

PIGEON HORNTAIL (Tremex columba (L.) Females of the pigeon horntail created some concern as they appeared in large numbers to lay eggs in Manchester on September 1. Several additional inquiries were received concerning this large colorful wood boring species and its unusual "long-tailed" (the ovipositor) parasite. Pigeon horntails normally attack trees or parts of trees which are dead or dying and are seldom a problem in healthy trees. Control is difficult at any rate.

ROSE CHAFER (Macrodactylus subspinosus (Fab.) These tawny-yellow beetles stripped the foliage from almost every tree and bush in some localized infestations at Greenbush, Wayne, Livermore Falls and Washington this season (June-July).

ROSY MAPLE MOTH (Anisota rubicunda (F.) These attractive pink and yellow moths were seen commonly in late June in the Bridgton, Fryeburg, Harrison, Cornish area. They are commonly associated with the saddled prominent infestation but seemed to have increased in numbers in some areas.

SADDLED PROMINENT (Heterocampa guttivitta (Walker) Larval populations of this pest collapsed in most areas this season after they seemed to be off to a good start. Defoliation was light to non-existent in areas in southwestern Maine which were hard hit in 1971. Defoliation when present seemed mostly restricted to understory trees in small pockets.

SATIN MOTH (Stilpnotia salicis (Linn.) Populations of the satin moth collapsed in 1972 and larvae were almost non-existent in areas heavily defoliated in the recent past. A very large moth flight on July 13 at Chesuncook indicates that somewhere in the north woods there were still plenty of caterpillars.

SILVER SPOTTED SKIPPER (Epargyreus clarus (Cramer) Larvae of this species provided unusual variety to the survey collections. The light yellow-green larvae, 1½-2" long are conspicuous with their constricted neck supporting their large brown head with its 2 orange patches. These skipper larvae were feeding on locust in Westbrook on September 5. Skippers and hairstreak butterflies seem to have been much more common this year than usual and a number of collections of larvae of these groups were made this season on various trees especially of hairstreaks from oak.

THE NORTHERN WALKINGSTICK (Diapheromera femorata (Say) A single male of this species was collected in Bridgton on October 10. This is the first collection of a walkingstick in connection with our work in many years although the species is not uncommon and has caused locally noticeable defoliation in the past.

WILLOW FLEA WEEVIL (Rhynchaenus rufipes (LeC.) and the IMPORTED WILLOW LEAF BEETLE (Plagioderma versicolora (Ltg.) again fed heavily on willows in southern and central Maine often giving the trees a parched brown appearance but it was late enough in the season so that trees should normally recover readily.

Miscellaneous Insects

GREENHEAD FLY - (Tabanus nigrovittatus Macq.) Biting by the greenhead flies was as bad as ever in many areas this summer but populations varied; some seemed on the rise and others on the wane. Trapping programs were carried out in the Goose Rocks section of Kennebunkport under Department supervision and at Reid State Park in Georgetown directly by Department personnel. The results of this season's work will be available at a later date to those requesting it.

ANTS - Ants again made a nuisance of themselves not only to outdoor enthusiasts but to homeowners as well. Large flights of various species were reported throughout the season, while many species fell only in the nuisance category, some such as carpenter ants actually did some damage. Carpenter ants seemed to be present in homes of all classes and were seen in flight periodically from May into November.

TICKS Those species of ticks which affect man seem to be increasing in numbers and spreading in distribution. THE AMERICAN DOG TICK or WOOD TICK (Dermacentor variabilis (Say) is probably the most important species and infests woodland and old field areas of southwestern Maine. In the early 1950's control measures were applied against this pest in the area around Naples, Casco and Otisfield but since then populations have remained down somewhat (or unnoticed) until recently. This species became very numerous this year and was reported as far north as Mt. Vernon and as far east as Pittston with concentrations in the Sebago Lake area, at Auburn and at Pittston. Of primary concern, and the topic of several news stories, was the possibility that the species carries the Rocky Mountain Spotted Fever or Tularemia. Health authorities in Maine know of no confirmed reports of either disease in man originating from Maine. With people on the move as much as they are today, though, the situation bears watching. BROWN DOG TICK (Rhipicephalus sanguineus (Latr.) was reported from a home in the Lewiston-Auburn area this season. This species seems to be of less concern in Maine.

BAGWORMS (*Solenobia walshella* Clem.) Tiny larvae of this species encased in silken bags covered with sand are often common in late July as they wander onto walls and other objects around homes to pupate. They do no real harm but can attach themselves rather firmly making removal difficult. The larvae are feeders on lichens.

YELLOW MEALWORMS (*Tenebrio molitor* Linn.) Adults of this species were very common this season and caused some concern to homeowners who found them wandering about their homes in mid-late July. These dark brown beetles, 1/2 inch in length (+), are present everywhere but have a fairly long life cycle. For this reason they seldom breed in homes which are kept clean but simply enter from outside or from attics where suitable food material (grain or grain products) is found.

WASPS AND YELLOW JACKETS were again common and caused a great many comments and request this season.

MOSQUITOES AND BLACK FLIES Caused their usual degree of annoyance this season but seemed to prolong their stay until much later than usual. In some areas blackflies were still very numerous and biting into early September.

FRUIT FLIES (*Drosophilidae*) and SEWER FLIES (*Borboridae*) This fall has been rather unusual in the number of requests received from distraught homeowners whose homes were invaded by large numbers of one or both of these groups of tiny flies. Most of the cases brought to our attention were in the Augusta area. An infestation of *Drosophilidae* at the Entomology Laboratory resisted efforts to subdue it for some time.

WHITEFLIES on a number of ornamental plants have been very common this fall in homes and greenhouses. Control has often been a lengthy process. Malathion, a commonly recommended insecticide, requires repeated applications to attain satisfactory control.

Disease & Injuries

ASH LEAF RUST (*Puccinia sparganioides* Ellis & Barth.) This disease resulted in the greatest number of homeowner requests for assistance of all diseases received at the Laboratory this summer. Most severe in southwestern coastal sections, damage occurred as far east as Bucksport, Franklin and Sullivan and inland to Augusta and Mount Vernon. The majority of heavily infected trees were defoliated completely by late summer but there was considerable variation among individual trees in both damage and extent of refoilation.

DUTCH ELM DISEASE (*Ceratocystis ulmi* (Buism.) C. Mor.) After a late start the disease infection symptoms became apparent. By late summer municipalities had experienced another season of a high rate of elm losses. As the season progressed it was common to note in many southern and coastal area communities thinly foliated and small leaved crowns. This condition was attributed to the cool, wet season and fewer than normal sunny days.

Benlate (Benomyl) treatments of elms is the latest chemical approach for treating diseased or healthy elm trees to save them from Dutch elm disease. The present status of research on use of this material does not warrant recommending it other than under experimental purposes.

DWARF MISTLETOE (*Arceuthobium pusillum* Pk.) This parasitic seed plant continued to cause heavy damage in localized areas along the coast from Boothbay to Sedgwick in 1972.

LOPHODERMIIUM NEEDLE CAST Early winter absence of snow cover and ice sheet formation apparently predisposed red pine seedlings to *Lophodermium* needle cast disease at the State Forest Nursery in Greenbush. Beds were sprayed with chlorothalonil in Late August and in September very little mortality was apparent.

OTHER FOLIAGE DISEASES - A damp spring contributed to the development of a wide assortment of fungal foliage diseases. Anthracnose - like symptoms were especially common on several hardwood species.

OTHER RUST DISEASES Red pine needle rust was common in young red pine plantations in mid-July, specifically in the Caribou, Woodland and Fort Fairfield areas of Aroostook County. Spruce needle rusts were common in June & July, especially *Chrysomyxa ledicola*. *Pucciniastrum arcticum* was collected from Spencer Lake in Piscataquis County on *Picea glauca*. Cedar-apple rust was collected in May on *Juniperus virginiana* in Wells. A rust resembling western gall rust was observed on Scotch pine in Bingham.

WHITE PINE BLISTER RUST (*Cronartium ribicola* Fisch.) Infection of ribes this season appeared heavier than usual due to unusually favorable infection conditions. Telial columns apparently failed to develop, however, on ribes in Phillips and Strong.

Miscellaneous Problems

FROST DAMAGE An early June frost defoliated extensive acreages of oak and certain other susceptible species in southwestern coastal Maine. Trees refoliated normally following this injury.

HAIL DAMAGE - A severe storm of July 26 caused noticeable defoliation and browning of fir and caused shredding of hardwood foliage in the Dixmont-Etna area along Interstate 95 and in the Hartland area. Windrows of hailstones were still present the morning following the storm. Damage was also reported from other scattered localities.

HEAVY SEEDLING - Heavy seedling of maple was especially noticeable in some areas this season and apparently caused moderate reduction in the size of the foliage. Trees already under stress for other reasons were most noticeably affected.

WINTER INJURY - Brownd spruce, fir, and arborvitae were observed on August 14 in the Basin Pond and Abol Mountain areas of Baxter State Park. Severe winter temperature, drying March winds, or a combination of such adverse climatic conditions presumably was responsible. No insect or disease damage was present which could account for the degree of injury observed.

Shade Tree Planting Program

Programs were again completed this spring by 56 communities despite unfavorable spring conditions. Several towns were forced to cancel plans due to the lack of trees or the poor quality of trees. Towns have much enthusiasm for this program.

Y26

July 30, 1975

Memorandum

To: Director, NARO

From: Superintendent, Acadia

**Subject: Forest Insect or Disease Control and
White Pine Blister Rust Control Reports
Reports Due: August 1, 1975**

1. Forest Insect or Disease Control Accomplishment and Expenditure Report, NPS (OR) - 20. Negative Report.
2. White Pine Blister Rust Control Accomplishment and Expenditure Report, NPS (OR) - 21. Negative Report.
3. Forest Insect and Disease and White Pine Blister Rust Control Pesticide Use Report., NPS (OR) - 22. Negative Report.
4. White Pine Blister Rust Control Status Report, NPS (OR) - 23. Negative Report, same as report submitted for fiscal year, 1974.

Keith E. Miller

CONTENTS NOTED		Initials	Date
✓	Asst. Dir.	R	3/8
	Assoc. Officer	RA	3/3
✓	Chief Clerk	SA	3/11
	Ident. Sec'y		
	Rec. Sec'y		
	Training Sec'y		
	Off. of Cong. & Public Affairs		
	Telephone Rm.		
	Director's Sec'y		
✓	Mr. W. H. Clegg	RS	3/11
	Mr. E. A. Tamm	MHR	3/11
	Mr. J. E. McGuire		
	Mr. F. W. Smith		
	Mr. Nathan		
	Mr. Glavin		

d. Any program or project in which one section (640 acres) or more contiguous acres would be treated as one application.

e. Use of pesticides on a federal installation when that usage is not directly supervised by, nor under the on-site responsibility of, a federal employee trained in the current safe and effective use of the pesticides involved.

NOTE: Pest control conducted indoors (within or to buildings) is normally housekeeping-type pest control and is to be summarized on Form 10-21A. For example, repetition of the details of cockroach control for a number of locations may be avoided by one summarized listing of Form 10-21A, noting the number of locations. Pest control in food-handling areas and storage buildings shall not be considered indoor pest control in the above sense and must be reported in detail in each case, as for all other pest control, except when supervised by or under the on-site responsibility of a federal employee trained in current safe and effective use of the pesticides involved. Building fumigation shall not be considered indoor pest control.

This report should be prepared on Form 10-21A in accordance with Enclosure 1.

FWGPM Form No. 2 is a narrative justification and is to be used (as a supplement to Form 10-21A) when the programs or projects fall into Categories "a," "b" and "c" listed on page 1 of these instructions. This form may be used in any case in which the supplemental information might prove helpful. Use the Form No. 2 guide provided here as an outline for preparation of the narrative justification. This Form No. 2 should be attached to the Form 10-21A which lists the project. A notation should be made in Other Remarks, Form 10-21A, that a Form No. 2 is attached.

Only one copy of both Form 10-21A and the narrative FWGPM Form No. 2 (if used) should be submitted for all projects, including those to be reviewed by the Federal Working Group on Pest Management.

EMERGENCY PROGRAMS

If an unexpected outbreak of a pest requires control measures that were not anticipated in the annual program reviewed by the Working Group, then such a control effort is reviewed by the Working Group as an emergency measure.

In those cases in which the emergency measures were essentially identical to measures that were submitted and reviewed by the Working Group's most recent review, it is not necessary to resubmit it to the Working Group unless the control activities are in a geographically different area or fall into one or more of categories "a," "b" and "c" listed on page 1. Activities that fall into one of these categories or that are not essentially identical to measures that were reviewed by the Working Group at its most recent review, should be submitted on Form 10-21A and FWGPM Form No. 2. However, if time is important, the necessary information may be phoned to the Executive Secretary of the Working Group; and he or his staff will retain prompt review by telephone poll of members so that the submitting agency may have the recommendations of the Working Group before the activity is initiated.

In addition to review by the Working Group, as described above, an emergency program, in which any populated, nonfederally owned land is to be treated with pesticides by or in cooperation with a federal agency, should be reported to the Working Group for its information and records.

CAUTION

Precise information on dosage of pesticides is important. The amount of a given pesticide required to control a particular pest has been carefully determined. Variations in either direction may prove to be ineffective or may endanger plants, animals or humans. The directions on all registered labels have been prepared in the light of such factors and should be followed exactly. If for any reason any federal agency or cooperator finds it desirable to vary from instructions on the registered label, then the usage falls into category "a"; and such variations and the reasons for it should be explained in detail on the forms.

Enclosures

1. Instructions for Completing Pest Control Program Report (Form 10-21A, September, 1973).
2. Illustrative Samples, Form 10-21A.
3. FWGPM Form No. 2 (Rev. 72) - Guidelines.
4. Illustrative Sample, FWGPM Form No. 2.
5. List of Pesticide Usages of Special Interest to the Working Group.
6. Guide to use of FWGPM Form No. 2.
7. List of Examples of Commonly Used Pesticides.

INSTRUCTIONS FOR COMPLETING PEST CONTROL
PROGRAM REPORT
(Form 10-21A, SEPTEMBER 1973)

By utilizing Form 10-21A, the current year's pest control program will serve as the basis for the following year's project requests. Towards the end of the year, each park area will receive a copy of their current year's pest control program with each approved project on a Form 10-21A.

The supplement on the bottom of the form should be completed first. Information is requested regarding the actual application and proposed following year's status of the current year's project.

- 1) Indicate if the current year's project was completed and, if so, the actual date(s) of application. This information will be used to provide an accurate report of yearly pesticide usages by park areas.
- 2) Indicate whether the current year's project will remain the same, be changed or be dropped for the following year. This information will be used to revise and update the individual current year's project reports for utilization as the following year's project requests. In the instance when the proposal is to remain the same or be dropped, simply check the appropriate box. If a proposal requires only minor changes to the past year's project, mark the change box and print the changes directly on the form. Changes to particular items should be made in accordance with the attached item instructions. All modifications are to be made in red ink directly on the form.

Proposals for following year's projects which are not included in the current year's program, i.e., proposals which do not have corresponding current year's reports on Form 10-21A, should be completed on the provided blank forms (10-21A). For proposals that require major revisions to be made to a current year's project report, it is suggested to indicate the current year's project as dropped and complete a new project proposal for the revised project. Hence, a blank Form 10-21A is only to be completed for those following year proposals that are new or substantially modified from a current year's project. All other proposals should be updated revisions of the current year's program reports. Please remember to attach FWGPM Form No. 2 when required.

Submit all new and updated forms (including those which indicate the project as being dropped), along with a cover memorandum listing the proposed projects, by project number, to the appropriate regional personnel. Those projects not designated as being dropped will be considered as the proposed pest control program for the following calendar year and will receive Regional and WASO review as in the past. After final review, a clean copy of the project reports will be returned. These reports will reflect all modifications and indicate which projects have been approved and disapproved.

Form 10-21A should be used by Park Service personnel to request approval for all proposed pest control programs. All of the items must be completed with the exceptions of STRENGTH OR MIX OF 100% ACTIVE INGRED, and LBS/ACRE OR OTHER RATE OF 100% ACTIVE INGRED. In each case please express the information as clearly and concisely as possible. It is essential that information be detailed and specific without becoming verbose. Always specify names such as white oak trees, cattle, elm leaf beetles and Russian thistle in preference to general terms like trees, livestock, beetles, insects, herbaceous plants or vegetation.

Please report only one project per form. An individual project is defined as the use of one and only one pesticide product, having a unique EPA registration number, for the control of one or more target pests.

ITEM INSTRUCTIONS

PERSON TO CONTACT: Indicate the name and telephone number of the park personnel familiar with the project who can be contacted if questions arise.

ORGANIZATION: Indicate the name of the park or area where the project is to be applied.

ORGANIZATION CODE: Indicate the standard four digit NPS organization code used to identify the area where the project is to be applied.

PROJECT NUMBER: In the form of xxxx-xx-xx, state the project number as the area's four letter alpha code, a unique two digit number, and the last two digits of the year in which the project is to be applied (GRSM-01-74, GRSM-02-74, etc).

PURPOSE: State the purpose of the project. Be as specific as possible.

TARGET PEST(S): Identify the pest or pests to be controlled by common name. Be as specific as possible. For example: Japanese beetle larvae and Russian thistle are excellent; root pests and herbaceous plants are too general to be accepted.

PRODUCT NAME: Indicate the trade name of the commercial pesticide as it appears on the label. Only one product should be listed for any given project. The use of two or more products to control the same pest(s) should be treated as separate projects.

EPA REG. NUMBER: Indicate the EPA or USDA registration number as shown on the label. Do not use state or local registration numbers.

FORM APPLIED: Indicate the form in which the final mixture is to be applied (solution, emulsion, dust, granule, crystal, aerosol, etc.).

ACTIVE INGREDIENT(S): List the chemical pesticides contained in the commercial product. Report only those pesticides listed on the product's label under Active Ingredients.

% OR LBS/GALLON OF A.I. IN PRODUCT: Indicate the percent or pounds per gallon of those chemical pesticides listed under ACTIVE INGREDIENTS. These figures are listed on the label. Be careful that these figures are aligned with their corresponding active ingredients.

STRENGTH OR MIX OF 100% ACTIVE INGR: Leave blank.

LBS/ACRE OR OTHER RATE OF 100% ACTIVE INGR: Leave blank.

MIX OF PRODUCT WITH DILUENT: Indicate the strength of the applied formulation in percent of product when diluted, or mixture of product with diluent. If the product is applied full strength, then the mix is 100%. The required or suggested dilution is usually stated in the directions on the label. Also, please indicate the diluent, if any, used (e.g. water, kerosene, grain, etc.).

PRODUCT USAGE RATE: State this figure as pounds of commercial product to be applied per acre, unless some other rate is more appropriate. Indoor applications should usually be expressed in ounces, gallons or pounds per M (1000) square feet. Bait treatments should be indicated as ounces or pounds of product per bait station. Treatment of livestock can be expressed on a per head basis. When applying pesticides to trees, the rate can be expressed either on a per acre or per tree basis. The expression "TO POINT OF RUNOFF" is acceptable. The required or suggested rates are usually expressed in the directions on the products label.

Do not use the term "FULL COVERAGE". Full coverage can be defined as to point of runoff on a horizontal surface and it is usually estimated at 1 gallon/1000 square feet.

Do not use the term "SPOT TREATMENT". Report these treatments as pounds per acre outdoors or as pounds or gallons per m(1000) square feet indoors.

NOTE: When expressing a figure in ounces please indicate weight (avoirdupois) or fluid ounces.

PRODUCT AMOUNT USED PER APPLICATION: Indicate in pounds or gallons the total amount of commercial product used per application.

METHOD OF TREATMENT: As specifically as possible, indicate the type of equipment, e.g., aerosol bomb, hydraulic sprayer, mist blower, bait station, etc., or technique, e.g., hand placement, systemic injection, rodding, and trenching, etc., used in the application.

AREA OR UNITS TO BE TREATED: Report the figure for area or other units to be treated per application. It is required to state this figure in terms of the units indicated as being treated in PRODUCT USAGE RATE. In other words, report this value in the same unit's term as the denominator of the PRODUCT USAGE RATE.

EXAMPLES:

- 1) IF PRODUCT USAGE RATE: xx gall./acre
then AREA OR UNITS TO BE TREATED: xxx acres.
- 2) IF PRODUCT USAGE RATE: xx pints/oak tree
then AREA OR UNITS TO BE TREATED: xxx oak trees
- 3) IF PRODUCT USAGE RATE: xx wt. ounces/bait station
then AREA OR UNITS TO BE TREATED: xxx bait stations

NOTE: When PRODUCT USAGE RATE is "to point of runoff" always report in units of trees.

If this entry is reported in units of bait stations, trees, or livestock head, please also estimate and indicate in parenthesis the acreage or square footage affected per application.

NUMBER OF SITES: Indicate the number of distinct sites being treated per application.

DESCRIPTION OF SITES: Indicate the specific type of sites and pertinent portion of the area to be treated. The usage pattern of the area is of primary concern. BE SPECIFIC AS POSSIBLE. For example: elm trees, picnic areas, trails, marshes, visitor center, maintenance buildings and residences are excellent; trees, park grounds and buildings are too general to be accepted.

NUMBER OF APPLICATIONS: Indicate the number of times the control project will be applied annually. Estimate if necessary.

SEASON OR PERIOD OF APPLICATION(S): As specifically as possible, indicate the period(s) of application during the year.

AREAS TO BE AVOIDED: Indicate the sensitive areas that are to be avoided altogether. State "NONE" if this is the case.

AREAS TO BE TREATED WITH CAUTION: Indicate the sensitive areas that are to be treated with special precautions taken to avoid contamination. State "NONE" if this is the case.

PRECAUTIONS: Describe specific precautions being taken to protect sensitive areas, i.e., AREAS TO BE AVOIDED and AREAS TO BE TREATED WITH CAUTION. State "NONE" if this is the case.

USE OF TRAINED OR CERTIFIED PERSONNEL: Indicate whether the project was administered by trained Park Service personnel or by certified contractor/other outside personnel.

MONITORING: Indicate one of the following:

- a) not done
- b) done for efficacy
- c) done for non-target effects
- d) done for efficacy and non-target effects

OTHER REMARKS: Report any additional relevant information about the project. State "NONE" if this is the case.

Any questions regarding these instructions or forms should be directed to John F. Karish, 202-523-5059.

PERSON TO CONTACT
R. KEMPE
201-264-4431

PEST CONTROL PROGRAM REPORT

09/28/74
NE REGION

SAGAMORE HILL NATIONAL HISTORIC SITE
ORGANIZATION CODE: 4700

PROJECT NUMBER: SAHI-02-73

PURPOSE : TREE AND SHRUB PROTECTION
PRODUCT NAME : CYGON
TARGET PEST(S) : HEMLOCK SCALES
EPA REG. NUMBER : 904-175
FORM APPLIED : EMULSION

ACTIVE INGREDIENT(S)	% OR LBS/GALLON OF A.I. IN PRODUCT	STRENGTH OR MIX OF 100% ACTIVE INGR.	LBS./ACRE OR OTHER RATE OF 100% ACTIVE INGR.
DINETHUATE	26.000 %	0.520000 PINTS/100 GALL.	0.002600 PINTS/PLANT

MIX OF PRODUCT WITH DILUENT : 2.00 PINTS/100 GALL. WATER
SEASON OR PERIOD OF APPLICATION(S) : SPRING
PRODUCT USAGE RATE : 0.01 PINTS/PLANT
AREAS TO BE AVOIDED : NONE
PRODUCT AMOUNT USED PER APPLICATION : 0.018 GALLONS
AREAS TO BE TREATED WITH CAUTION : NONE
METHOD OF TREATMENT : HYDRAULIC SPRAYER
PRECAUTIONS : NONE
AREA OR UNITS TO BE TREATED : 15.0 PLANTS
USE OF TRAINED OR CERTIFIED PERSONNEL : CONTRACTOR OR OTHER OUTSIDE PERSONNEL
NUMBER OF SITES : 15
MONITORING : PERFORMED FOR EFFICACY
DESCRIPTION OF SITES : 15 TREES AT SAHI NHS
OTHER REMARKS : NONE
NO. OF APPLICATIONS : 1

WAS THE ABOVE PROGRAM EXECUTED IN 1973? () NO () YES DATE(S) OF APPLICATION

FOR 1974, THE ABOVE PROGRAM WILL BE () DROPPED
() CHANGED AS INDICATED
() THE SAME

PERSON TO CONTACT
KATHLEEN DILONARDU
813-746-1592

PEST CONTROL PROGRAM REPORT

09/28/73
SE REGIONFORT CAROLINE NATIONAL MEMORIAL
ORGANIZATION CODE: 5310

PROJECT NUMBER: FOCA-01-73

PURPOSE : TURF PROTECTION PRODUCT NAME : CYCLOHEXAMIDE WITH THIRAM
TARGET PEST(S) : BROWN PATCH OF TURF (RHIZOCTONIA SOLANI)
RUSTS
GRAY LEAF SPOT (STEMPHYLIUM SOLANI) EPA REG. NUMBER : 9155-789
FORM APPLIED : SOLUTION

ACTIVE INGREDIENT(S)	% OR LBS/GALLON OF A.I. IN PRODUCT	STRENGTH OR MIX OF 100% ACTIVE INGR.	LBS./ACRE OR OTHER RATE OF 100% ACTIVE INGR.
CYCLOHEXIMIDE	0.75 %	0.004500 OZS./GALLON	0.022500 WT OZ/M SQ. FT.
THIRAM	75.00 %	0.450000 OZS./GALLON	2.250000 WT OZ/M SQ. FT.

MIX OF PRODUCT
WITH DILUENT : 0.60 OZS./GALLON WATERSEASON OR PERIOD
OF APPLICATION(S) : SUMMER

PRODUCT USAGE RATE : 3.00 WT OZ/M SQ. FT.

AREAS TO BE AVOIDED : HUMAN EXPOSURE

PRODUCT AMOUNT USED
PER APPLICATION : 60.375 POUNDSAREAS TO BE TREATED
WITH CAUTION : FOOD AND FOODSTUFFS

METHOD OF TREATMENT : HYDRAULIC SPRAYER

PRECAUTIONS : AVOID INHALATION AND CONTACT WITH SKIN

AREA OR UNITS TO
BE TREATED : 322.0 M SQ. FT.USE OF TRAINED OR
CERTIFIED PERSONNEL : TRAINED PARK SERVICE EMPLOYEE

NUMBER OF SITES : 1

MONITORING : PERFORMED FOR EFFICACY

DESCRIPTION OF SITES: 7 ACRES LAWN

OTHER REMARKS : NONE

NO. OF APPLICATIONS : 2

WAS THE ABOVE PROGRAM EXECUTED IN 1973? () NO () YES DATE(S) OF APPLICATION

() DROPPED
FOR 1974, THE ABOVE PROGRAM WILL BE () CHANGED AS INDICATED
() THE SAME

FORM 10-21
(SEPT. 1)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Enclosure II Cont.

PERSON TO CONTACT
W. M. FORSELL
206-873-4500

PEST CONTROL PROGRAM REPORT

09/28/73
PN REGION

NORTH CASCADES NATIONAL PARK
ORGANIZATION CODE: 9470

PROJECT NUMBER: NOCA-01-73

PURPOSE : PUBLIC HEALTH AND VISITOR COMFORT

PRODUCT NAME : MIREX

TARGET PEST(S) : YELLOW JACKETS

EPA REG. NUMBER : 218-638

FORM APPLIED : SOLID

ACTIVE INGREDIENT(S)

% OR LBS/GALLON
OF A.I. IN PRODUCT

STRENGTH OR MIX OF
100% ACTIVE INGR.

LBS./ACRE OR OTHER RATE
OF 100% ACTIVE INGR.

MIREX

0.500 %

0.500000 %

0.000150 WT OZ/STATION

EXAMPLE
ONLY

MIX OF PRODUCT
WITH DILUENT : 100.00 %

SEASON OR PERIOD
OF APPLICATION(S) : JULY-SEPT, WEEKLY

PRODUCT USAGE RATE : 0.03 WT OZ/STATION

AREAS TO BE AVOIDED : NONE

PRODUCT AMOUNT USED
PER APPLICATION : 0.022 POUNDS

AREAS TO BE TREATED
WITH CAUTION : NONE

METHOD OF TREATMENT : BAIT STATION

PRECAUTIONS : BAIT BOXES LOCKED

AREA OR UNITS TO
BE TREATED : 12.0 STATIONS

USE OF TRAINED OR
CERTIFIED PERSONNEL : TRAINED PARK SERVICE EMPLOYEE

NUMBER OF SITES : 6

MONITORING : PERFORMED FOR EFFICACY

DESCRIPTION OF SITES : 6 CAMPGROUNDS, 12 STATIONS

OTHER REMARKS : NONE

NO. OF APPLICATIONS : 12

WAS THE ABOVE PROGRAM EXECUTED IN 1973? () NO () YES DATE(S) OF APPLICATION

FOR 1974, THE ABOVE PROGRAM WILL BE () DROPPED
() CHANGED AS INDICATED
() THE SAME

FWGPM Form #2 Guideline (to be prepared across length of page)

TOPICS TO BE INCLUDED IN A NARRATIVE JUSTIFICATION

1. (a) AGENCY (b) PROJECT NO. (c) TARGET PEST
2. IMPORTANCE - (Such as economic losses or threat to health that could occur if control operations were not accomplished.)
3. AREA TO BE TREATED - (Give detailed description, including acreage, of type of site to be treated.)
4. METHOD - (Give additional details, beyond those on Form #1, on the specific pesticide, including registration number if available, and control method proposed.)
5. SPECIAL PRECAUTIONS - (Include details of effort to avoid human or environmental hazard and special training or experience of personnel.)
6. ALTERNATIVE MATERIALS OR METHODS - (List any that have been considered and give reason for rejection.)
7. COOPERATORS - (List any other organizations involved and the way in which they are involved, as governmental, private agencies, or individuals.)
8. MONITORING - (Describe type and extent of any monitoring activity planned.)

FWGPM Form #2

1. (a) AGENCY - U.S. Forest Service (b) PROJECT NO. - NA-9-71 (c) TARGET PEST - Saddled prominent, *Heterocampa guttivitta*
2. IMPORTANCE - The saddled prominent is a defoliator of beech and hard maple. The insect poses a serious threat to the sugar industry. Heavy defoliation of maple reduces tree vigor and causes a sharp reduction in sugar content of the tree sap. Repeated defoliation can cause direct tree-killing or pre-dispose trees to attack by bark and wood-boring insects. Over one million acres were defoliated by the saddled prominent in 1969. Most of the outbreak occurred in New York. Entomologists predict heavy defoliation over this same area in 1970 with an estimated 270,000 acres being completely defoliated.
3. AREA TO BE TREATED - The New York State Conservation Department is planning to chemically treat 60,000 acres of the infested area to prevent loss of valuable hard maples. The areas to be treated are near Watertown (Adirondack Mountain), Binghamton (Delaware County) and Albany, New York (Rensselaer County - Taconic Range). The areas are heavily populated. Spray blocks vary from 5 acres to 600 acres in size and are primarily private ownerships.
4. METHOD - The insecticide Sevin 80S (carbaryl) will be applied at the rate of one (1) pound active ingredient per acre. It will be formulated at $1\frac{1}{4}$ pounds of Sevin 80S plus 4 ounces of Pinolene 1882 plus water to make one gallon of final spray, and applied at the rate of one gallon per acre. Helicopters will be used to apply the insecticide. The State helicopter pilots are experienced in this type of spraying. The contract pilots are also experienced and are registered with the Department of Agriculture and Markets, New York State.
5. SPECIAL PRECAUTIONS - The project is under direct supervision of senior pest control technicians who have wide experience in aerial spraying. Technical supervision is provided by entomologists at the Albany office. All beehives within 2 miles of the spray area will be removed until completion of the project. Boundaries of spray blocks will be easily identifiable from both the ground and air. Special precautions will be taken to prevent spraying over water surfaces.
6. ALTERNATIVE MATERIALS OR METHODS - Sevin 80S is the only insecticide that is registered for use against the saddled prominent. The Conservation Department feels that they have a responsibility to the people in the State to suppress insect populations in these valuable hard maple forests.
7. COOPERATORS - Landowners are sharing in the cost of suppression. The State College of Forestry at Syracuse University Applied Forestry Research Institute in cooperation with State Forest Service entomologists are working together to monitor effectiveness of the project and to refine evaluation techniques.
8. MONITORING - Sevin 80S has been successfully used against the saddled prominent for the past few years. Except for its known toxicity to bees, it has created little impact on other organisms in the environment. Except for entomologists collecting efficacy data, there are no other monitoring activities.

red squill
resmethrin (SBP-1382)
ronnel (Korlan)
rotenone, cube extracts
and sulfoxide
Ruelene

S-ethyl-diisobutylthiocar-
bamate (Sutan)
silica aerogel and ammonium
fluorophosphate (Dri-die)
and silica gel
silvex (Kuron) (2,4,5-TP)
simazine
sodium chlorate
sodium fluoride
sodium monofluoroacetate (1080)
sodium pentachlorophenate
streptomycin
strychnine
suffocating gas cartridge
Sulfaquinoxaline and warfarin
(Prolin)
sulfur

Tandex
TCA
TEPP
thiram (Arasan)
toxaphene
trichlorfon (Dylox, Dipterex)
trifluralin (Treflan)
2,4-D
2,4-DB
2,4-DP (dichlorprop)

2,4,5-T
2,3,6-trichlorobenzoic acid

Vernam
Vitavax
Vorlex

warfarin.

Xylene

Zectran
zinc ion and manganese
ethylenebisdithiocarbamate
(Dithane M-45) (Fore)
zinc phosphide
zineb (Parzate)
Z. I. F.
ziram (Zerlate)
Zytron

August 1973

LIST OF PESTICIDE USAGES OF SPECIAL
INTEREST TO THE WORKING GROUP
FOR WHICH FWGPM FORM NO. 2 IS REQUIRED ¹

acrolein	fenthion (Baytex)
aldicarb (Temik)	Furadan
aldrin	
amitrole	heptachlor
Aramite	
arsenical compounds	lindane
azinophosmethyl (Guthion)	
and homologs	mercurial compounds
Azodrin	Metasystox
	methyl bromide
benomyl	mevinphos (Phosdrin)
BHC (benzene hexachloride)	mirex
Bidrin	Monitor
chlordane	paraquat
chlorobenzilate	parathion and homologs
coumaphos	phorate (Thimet)
cyanide compounds	phosphamidon
	picloram (Tordon)
DDT	
DDD (TDE)	sodium monofluoroacetate (1080)
demeton (Systox)	Strobane
dicamba (Banvel D)	
dieltrin	TEPP (Tetron)
dinitro-cresols	toxaphene
diquat	
Dursban	
endosulfan (Thiodan)	
endothall	
endrin	
EPN	
ethion (Nialate)	

¹Listing of a pesticide on this appendix is not intended to preclude use of the compound.

GUIDE AS TO USE OF FWGPM FORM NO. 2

FWGPM NO. 2

- a. Usage of a pesticide that is not registered under the Federal Insecticide, Fungicide and Rodenticide Act for that particular purpose or in that particular way ☐ Yes

- b. Usage of any of the compounds listed in Enclosure 5, List of Pesticide Usages of Special Interest to the Working Group . . . ☐ Yes

- c. Any pesticide that would be applied to water or could reasonably be expected to get into water ☐ Yes

- d. Any program or project in which one section (640 acres) or more contiguous acres would be treated as one application. ☐ No

- e. Use of any pesticide on a federal installation when that usage is not directly supervised by, nor under the on-site responsibility of, a federal employee trained in the current safe and effective use of the pesticides involved ☐ No

Examples of Commonly Used Pesticides

Abate
 acrolein
 alachlor
 aldicarb (Temik)
 aldrin
 alkyl dimethyl benzyl
 ammonium chloride
 allethrin
 aluminum phosphide
 ametryne
 amiben
 amitrole
 amitrole and dicamba
 amitrole and simazine
 AMS (ammonium sulfamate)
 Antymicin A (Fintrol)
 ANTU
 aromatic oils
 Aspon
 atrazine
 Avitrole
 azinphosmethyl (Guthion)

Bacillus thuringiensis (Thuricide)

barban (Corbyne)
 Bayer 73 (Bayluscide)
 benefin (Balan)
 benomyl (Benlate)
 bensulide (Betasan)
 benzalkonium chloride (Roccal)
 BHC (benzene hexachloride)
 borate
 borate-chlorate

borate-chlorate/monuron
 (Chlorea)
 borate-chlorate/prometone
 (Pramital 5P granular)
 borate-chlorate, prometone
 and simazine (Pramital 5PS
 granular)
 borate/monuron (Ureabor)
 borate/2,3,6 TBA (Benzbor)
 Bordeaux mixture
 bromacil (Hyvar X)
 bromacil, chlorate/borate (Ureabor)
 bromoxynil
 butoxy-thiocyanodiethyl ether
 (Lethane 384)

cacodylic acid
 calcium arsenate, and calcium
 arsenate and metaldehyde
 calcium cyanamide
 calcium cyanide
 captan
 carbaryl (Sevin)
 carbaryl and DDT micronized for
 aircraft disinsection (quarantine
 requirement)
 carbon bisulfide
 carbophenothion (Trithion)
 CDEC (Vegadex)
 chelated copper sulfate (Cutrine)
 chlordane
 chlorobenzilate
 chloropicrin
 chloropicrin and methyl bromide
 chloroxuron (Tenoran)

chlorphospham
 chlorpyrifos (Dursban)
 copper oleate
 copper sulfate
 coumafuryl (Fumarin)
 coumsphos (Co-Ral)
 creosote
 cyclohexamide (Acti-dione)

dalapon (Dowpon) (Radapon)
 dazomet (Mylone)
 DCPA (Dacthal)
 DDT
 DEET (diethyl toluamide)
 demeton (Systox)
 diazinon
 dicamba (Banvel D)
 dichlobenil (Casoron)
 dichloropropene (D-D mixture)
 dichlorvos (DDVP) (Vapona)
 dicofol (Kelthane)
 dieldrin
 diesel oil
 dimethoate (Cygon)
 dinocap (Karathane)
 dinoseb (DNBP) (dinitro
 butylphenol)
 dioxathion (Delnav)
 diphacinone (Diphacin)
 diphenamid (Enide) (Dymid)
 diphenylamine
 diquat
 disulfoton (Di-syston)
 diuron (Karmex)
 DNOC (dinitro-o-cresol)

dodine
DRC-1339 (Starlicide) (3-chloro-p-toluidine hydrochloride)
DSMA (disodium methanearsonate)
Dyfonate
Dyrene

endosulfan (Thiodan)
endothall
endrin (including uses in products such as Rid-A-Bird)
endrin and thiram (seed protectants)
Eptam (EPTC) (S-ethyl-dipropylthiolcarbamate)
ethion (Nialate)
ethyl hexanediol
ethylene dibromide
ethylene dibromide and methyl bromide
ethylene oxide
ethyl parathion
famphur (Warbex)
fenac
fensulfothion (Dasanit)
fenthion (Daytex)
fenuron (Dybar)
fenuron-TCA (Urab)
ferbam (Fermate)
ferrous sulfate
Flit MLO (petroleum oils)
folpet (Phaltan)
formaldehyde and formalin

Gardona

heptachlor
HTH (calcium hypochlorite)

Kepone
Koban
Kromad

lampricide (Lamprecid) (3-trifluoromethyl-4-nitrophenol) (TFM)
lead arsenate
lime sulfur
lindane
linuron (Lorox)

magnesium chloride hexahydrate
malathion
Maleic hydrazide (MH-30)
maneb (Manzate)
MCPA
MCPP (Mecoprop)
metalddehyde
metham (Vapam) (S-MDC)
methoxychlor (Marlate)
methyl bromide
methyl demeton (Metasystox)
methyl parathion
mevinphos (Phosdrin)
Mirex
miscible oils (petroleum)
monuron (Telvar)

monuron-TCA (Urox)
Morestan
MSMA (monosodium methane-arsenate)

naled (Dibrom)
naphthalene
naptalem (Alanap)
nitralin (Planavin)
norbormide (Raticate)

oxydemetonmethyl (Meta-Systox-R)

paradichlorobenzene
paraquat
Paris green
PCNB (pentachloronitrobenzene)

Pentac
pentachlorophenol (PCP)
phenyl methylcarbamate:
m-(1-ethyl-propyl), 1 part
& m-(1 methyl butyl), 3 parts (Bux-ten)
phorate (Thimet)
phosmet (Imidan) (Prolate)
picloram (Tordon)
pindone (Pival)
PMP
polyram
prometone (Premital)
propanil (STAM)
propazine (Milogard)
propoxur (Baygon)
pyrethrum (Pyrethrins)



JAN 8 1974

ANNUAL REVIEW OF PEST CONTROL PROGRAMS
BY THE FEDERAL WORKING GROUP ON PEST MANAGEMENT

Instructions to National Park Service

	Initials	Date
Asst. Dir.		
Asst. Dir. (Admin. Officer)	REN	2/14
Ch. 1 & 2 R M	A	3/14
Maint. Spec.		
Int. Spec.		
Man. Dist.		
Asst. Dir. (W. Dist.)	PS	2/15/74
Gen. Inv. W.	MMR	3/11
Mechanic		

BACKGROUND

The charter of the Federal Working Group on Pest Management provides that the Working Group may request any federal agency to submit for review a detailed description of its proposed and current pest control programs. Such programs will be reviewed from the standpoint of safety and hazard to human health, to livestock and crops, to fish and wildlife and to other elements of the environment, as well as effectiveness and economic impact. Based on such review, the Working Group shall recommend to the heads of the departments or agencies concerned such modifications in the programs as it feels will best serve the public interest. In no case, however, will this advice supersede the responsibility of each department and agency to carry out the functions assigned to it by legislative and executive mandates.

To expedite such submittal and review of plans for the calendar year 1974, the following guidelines have been prepared.

REVIEW OF PLANNED PROGRAMS

Each Federal agency should prepare a detailed description of all of its anticipated pest control programs or projects that fall into one or more of the following categories:

- a. Usage of a pesticide that is not registered under the Federal Insecticide, Fungicide and Rodenticide Act for that particular purpose or in that particular way.
- b. Usage of any of the compounds listed in enclosure 5, List of Pesticide Usages of Special Interest to the Working Group, except termite control and interior use, provided registered directions on labels are followed (Enclosure 5 is not intended to preclude the use of a compound.)
- c. Any pesticide that would be applied to water or could reasonably be expected to get into water.

d. Any program or project in which one section (640 acres) or more contiguous acres would be treated as one application.

e. Use of pesticides on a federal installation when that usage is not directly supervised by, nor under the on-site responsibility of, a federal employee trained in the current safe and effective use of the pesticides involved.

NOTE: Pest control conducted indoors (within or to buildings) is normally housekeeping-type pest control and is to be summarized on Form 10-21A. For example, repetition of the details of cockroach control for a number of locations may be avoided by one summarized listing of Form 10-21A, noting the number of locations. Pest control in food-handling areas and storage buildings shall not be considered indoor pest control in the above sense and must be reported in detail in each case, as for all other pest control, except when supervised by or under the on-site responsibility of a federal employee trained in current safe and effective use of the pesticides involved. Building fumigation shall not be considered indoor pest control.

This report should be prepared on Form 10-21A in accordance with Enclosure 1.

FWGPM Form No. 2 is a narrative justification and is to be used (as a supplement to Form 10-21A) when the programs or projects fall into Categories "a," "b" and "c" listed on page 1 of these instructions. This form may be used in any case in which the supplemental information might prove helpful. Use the Form No. 2 guide provided here as an outline for preparation of the narrative justification. This Form No. 2 should be attached to the Form 10-21A which lists the project. A notation should be made in Other Remarks, Form 10-21A, that a Form No. 2 is attached.

Only one copy of both Form 10-21A and the narrative FWGPM Form No. 2 (if used) should be submitted for all projects, including those to be reviewed by the Federal Working Group on Pest Management.

EMERGENCY PROGRAMS

If an unexpected outbreak of a pest requires control measures that were not anticipated in the annual program reviewed by the Working Group, then such a control effort is reviewed by the Working Group as an emergency measure.

In those cases in which the emergency measures were essentially identical to measures that were submitted and reviewed by the Working Group's most recent review, it is not necessary to resubmit it to the Working Group unless the control activities are in a geographically different area or fall into one or more of categories "a," "b" and "c" listed on page 1. Activities that fall into one of these categories or that are not essentially identical to measures that were reviewed by the Working Group at its most recent review, should be submitted on Form 10-21A and FWGPM Form No. 2. However, if time is important, the necessary information may be phoned to the Executive Secretary of the Working Group; and he or his staff will retain prompt review by telephone poll of members so that the submitting agency may have the recommendations of the Working Group before the activity is initiated.

In addition to review by the Working Group, as described above, an emergency program, in which any populated, nonfederally owned land is to be treated with pesticides by or in cooperation with a federal agency, should be reported to the Working Group for its information and records.

CAUTION

Precise information on dosage of pesticides is important. The amount of a given pesticide required to control a particular pest has been carefully determined. Variations in either direction may prove to be ineffective or may endanger plants, animals or humans. The directions on all registered labels have been prepared in the light of such factors and should be followed exactly. If for any reason any federal agency or cooperator finds it desirable to vary from instructions on the registered label, then the usage falls into category "a"; and such variations and the reasons for it should be explained in detail on the forms.

Enclosures

1. Instructions for Completing Pest Control Program Report (Form 10-21A, September, 1973).
2. Illustrative Samples, Form 10-21A.
3. FWGPM Form No. 2 (Rev. 72) - Guidelines.
4. Illustrative Sample, FWGPM Form No. 2.
5. List of Pesticide Usages of Special Interest to the Working Group.
6. Guide to use of FWGPM Form No. 2.
7. List of Examples of Commonly Used Pesticides.

INSTRUCTIONS FOR COMPLETING PEST CONTROL
PROGRAM REPORT
(Form 10-21A, SEPTEMBER 1973)

By utilizing Form 10-21A, the current year's pest control program will serve as the basis for the following year's project requests. Towards the end of the year, each park area will receive a copy of their current year's pest control program with each approved project on a Form 10-21A.

The supplement on the bottom of the form should be completed first. Information is requested regarding the actual application and proposed following year's status of the current year's project.

- 1) Indicate if the current year's project was completed and, if so, the actual date(s) of application. This information will be used to provide an accurate report of yearly pesticide usages by park areas.
- 2) Indicate whether the current year's project will remain the same, be changed or be dropped for the following year. This information will be used to revise and update the individual current year's project reports for utilization as the following year's project requests. In the instance when the proposal is to remain the same or be dropped, simply check the appropriate box. If a proposal requires only minor changes to the past year's project, mark the change box and print the changes directly on the form. Changes to particular items should be made in accordance with the attached item instructions. All modifications are to be made in red ink directly on the form.

Proposals for following year's projects which are not included in the current year's program, i.e., proposals which do not have corresponding current year's reports on Form 10-21A, should be completed on the provided blank forms (10-21A). For proposals that require major revisions to be made to a current year's project report, it is suggested to indicate the current year's project as dropped and complete a new project proposal for the revised project. Hence, a blank Form 10-21A is only to be completed for those following year proposals that are new or substantially modified from a current year's project. All other proposals should be updated revisions of the current year's program reports. Please remember to attach FWSPM Form No. 2 when required.

Submit all new and updated forms (including those which indicate the project as being dropped), along with a cover memorandum listing the proposed projects, by project number, to the appropriate regional personnel. Those projects not designated as being dropped will be considered as the proposed pest control program for the following calendar year and will receive Regional and WASO review as in the past. After final review, a clean copy of the project reports will be returned. These reports will reflect all modifications and indicate which projects have been approved and disapproved.

Form 10-21A should be used by Park Service personnel to request approval for all proposed pest control programs. All of the items must be completed with the exceptions of STRENGTH OR MIX OF 100% ACTIVE INGRED, and LBS/ACRE OR OTHER RATE OF 100% ACTIVE INGRED. In each case please express the information as clearly and concisely as possible. It is essential that information be detailed and specific without becoming verbose. Always specify names such as white oak trees, cattle, elm leaf beetles and Russian thistle in preference to general terms like trees, livestock, beetles, insects, herbaceous plants or vegetation.

Please report only one project per form. An individual project is defined as the use of one and only one pesticide product, having a unique EPA registration number, for the control of one or more target pests.

ITEM INSTRUCTIONS

PERSON TO CONTACT: Indicate the name and telephone number of the park personnel familiar with the project who can be contacted if questions arise.

ORGANIZATION: Indicate the name of the park or area where the project is to be applied.

ORGANIZATION CODE: Indicate the standard four digit NPS organization code used to identify the area where the project is to be applied.

PROJECT NUMBER: In the form of xxxx-xx-xx, state the project number as the area's four letter alpha code, a unique two digit number, and the last two digits of the year in which the project is to be applied (GRSM-01-74, GRSM-02-74, etc).

PURPOSE: State the purpose of the project. Be as specific as possible.

TARGET PEST(S): Identify the pest or pests to be controlled by common name. Be as specific as possible. For example: Japanese beetle larvae and Russian thistle are excellent; root pests and herbaceous plants are too general to be accepted.

PRODUCT NAME: Indicate the trade name of the commercial pesticide as it appears on the label. Only one product should be listed for any given project. The use of two or more products to control the same pest(s) should be treated as separate projects.

EPA REG. NUMBER: Indicate the EPA or USDA registration number as shown on the label. Do not use state or local registration numbers.

FORM APPLIED: Indicate the form in which the final mixture is to be applied (solution, emulsion, dust, granule, crystal, aerosol, etc.).

ACTIVE INGREDIENT(S): List the chemical pesticides contained in the commercial product. Report only those pesticides listed on the product's label under Active Ingredients.

% OR LBS/GALLON OF A.I. IN PRODUCT: Indicate the percent or pounds per gallon of those chemical pesticides listed under ACTIVE INGREDIENTS. These figures are listed on the label. Be careful that these figures are aligned with their corresponding active ingredients.

STRENGTH OR MIX OF 100% ACTIVE INGR: Leave blank.

LBS/ACRE OR OTHER RATE OF 100% ACTIVE INGR: Leave blank.

MIX OF PRODUCT WITH DILUENT: Indicate the strength of the applied formulation in percent of product when diluted, or mixture of product with diluent. If the product is applied full strength, then the mix is 100%. The required or suggested dilution is usually stated in the directions on the label. Also, please indicate the diluent, if any, used (e.g. water, kerosene, grain, etc.).

PRODUCT USAGE RATE: State this figure as pounds of commercial product to be applied per acre, unless some other rate is more appropriate. Indoor applications should usually be expressed in ounces, gallons or pounds per M (1000) square feet. Bait treatments should be indicated as ounces or pounds of product per bait station. Treatment of livestock can be expressed on a per head basis. When applying pesticides to trees, the rate can be expressed either on a per acre or per tree basis. The expression "TO POINT OF RUNOFF" is acceptable. The required or suggested rates are usually expressed in the directions on the products label.

Do not use the term "FULL COVERAGE". Full coverage can be defined as to point of runoff on a horizontal surface and it is usually estimated at 1 gallon/1000 square feet.

Do not use the term "SPOT TREATMENT". Report these treatments as pounds per acre outdoors or as pounds or gallons per m(1000) square feet indoors.

NOTE: When expressing a figure in ounces please indicate weight (avoirdupois) or fluid ounces.

PRODUCT AMOUNT USED PER APPLICATION: Indicate in pounds or gallons the total amount of commercial product used per application.

METHOD OF TREATMENT: As specifically as possible, indicate the type of equipment, e.g., aerosol bomb, hydraulic sprayer, mist blower, bait station, etc., or technique, e.g., hand placement, systemic injection, rodding, and trenching, etc., used in the application.

AREA OR UNITS TO BE TREATED: Report the figure for area or other units to be treated per application. It is required to state this figure in terms of the units indicated as being treated in PRODUCT USAGE RATE. In other words, report this value in the same unit's term as the denominator of the PRODUCT USAGE RATE.

EXAMPLES:

- 1) IF PRODUCT USAGE RATE: xx gall./acre
then AREA OR UNITS TO BE TREATED: xxx acres.
- 2) IF PRODUCT USAGE RATE: xx pints/oak tree
then AREA OR UNITS TO BE TREATED: xxx oak trees
- 3) IF PRODUCT USAGE RATE: xx wt. ounces/bait station
then AREA OR UNITS TO BE TREATED: xxx bait stations

NOTE: When PRODUCT USAGE RATE is "to point of runoff" always report in units of trees.

If this entry is reported in units of bait stations, trees, or livestock head, please also estimate and indicate in parenthesis the acreage or square footage affected per application.

NUMBER OF SITES: Indicate the number of distinct sites being treated per application.

DESCRIPTION OF SITES: Indicate the specific type of sites and pertinent portion of the area to be treated. The usage pattern of the area is of primary concern. BE SPECIFIC AS POSSIBLE. For example: elm trees, picnic areas, trails, marshes, visitor center, maintenance buildings and residences are excellent; trees, park grounds and buildings are too general to be accepted.

NUMBER OF APPLICATIONS: Indicate the number of times the control project will be applied annually. Estimate if necessary.

SEASON OR PERIOD OF APPLICATION(S): As specifically as possible, indicate the period(s) of application during the year.

AREAS TO BE AVOIDED: Indicate the sensitive areas that are to be avoided altogether. State "NONE" if this is the case.

AREAS TO BE TREATED WITH CAUTION: Indicate the sensitive areas that are to be treated with special precautions taken to avoid contamination. State "NONE" if this is the case.

PRECAUTIONS: Describe specific precautions being taken to protect sensitive areas, i.e., AREAS TO BE AVOIDED and AREAS TO BE TREATED WITH CAUTION. State "NONE" if this is the case.

USE OF TRAINED OR CERTIFIED PERSONNEL: Indicate whether the project was administered by trained Park Service personnel or by certified contractor/other outside personnel.

MONITORING: Indicate one of the following:

- a) not done
- b) done for efficacy
- c) done for non-target effects
- d) done for efficacy and non-target effects

OTHER REMARKS: Report any additional relevant information about the project. State "NONE" if this is the case.

Any questions regarding these instructions or forms should be directed to John F. Karish, 202-523-5059.

PERSON TO CONTACT
R. KEMPE
201-264-4431

PEST CONTROL PROGRAM REPORT

09. / 73
NE REGION

SAGAMORE HILL NATIONAL HISTORIC SITE
ORGANIZATION CODE: 4700

PROJECT NUMBER: SAHI-02-73

PURPOSE : TREE AND SHRUB PROTECTION
PRODUCT NAME : CYGON
TARGET PEST(S) : HEMLOCK SCALES
EPA REG. NUMBER : 904-175
FORM APPLIED : EMULSION

ACTIVE INGREDIENT(S)	% OR LBS/GALLON OF A.I. IN PRODUCT	STRENGTH OR MIX OF 100% ACTIVE INGR.	LBS./ACRE OR OTHER RATE OF 100% ACTIVE INGR.
DIMETHUATE	26.000 %	0.520000 PINTS/100 GALL.	0.002600 PINTS/PLANT

MIX OF PRODUCT WITH DILUENT : 2.00 PINTS/100 GALL. WATER
SEASON OR PERIOD OF APPLICATION(S) : SPRING
PRODUCT USAGE RATE : 0.01 PINTS/PLANT
AREAS TO BE AVOIDED : NONE
PRODUCT AMOUNT USED PER APPLICATION : 0.018 GALLONS
AREAS TO BE TREATED WITH CAUTION : NONE
METHOD OF TREATMENT : HYDRAULIC SPRAYER
PRECAUTIONS : NONE
AREA OR UNITS TO BE TREATED : 15.0 PLANTS
USE OF TRAINED OR CERTIFIED PERSONNEL : CONTRACTOR OR OTHER OUTSIDE PERSONNEL
NUMBER OF SITES : 15
MONITORING : PERFORMED FOR EFFICACY
DESCRIPTION OF SITES : 15 TREES AT SAHI NHS
OTHER REMARKS : NONE
NO. OF APPLICATIONS : 1

WAS THE ABOVE PROGRAM EXECUTED IN 1973? () NO () YES DATE(S) OF APPLICATION

FOR 1974, THE ABOVE PROGRAM WILL BE () DROPPED
() CHANGED AS INDICATED
() THE SAME

PERSON TO CONTACT
KATHLEEN DILONARDU
813-746-1592

PEST CONTROL PROGRAM REPORT

09/20/73
SE REGIONFORT CAROLINE NATIONAL MEMORIAL
ORGANIZATION CODE: 5310

PROJECT NUMBER: FOCA-01-73

PURPOSE : TURF PROTECTION PRODUCT NAME : CYCLOHEXAMIDE WITH THIRAM
TARGET PEST(S) : BROWN PATCH OF TURF (RHIZOCTONIA SOLANI)
RUSTS
GRAY LEAF SPOT (STEMPHYLIUM SOLANI) EPA REG. NUMBER : 9155-789
FORM APPLIED : SOLUTION

ACTIVE INGREDIENT(S)	% OR LBS/GALLON OF A.I. IN PRODUCT	STRENGTH OR MIX OF 100% ACTIVE INGR.	LBS./ACRE OR OTHER RATE OF 100% ACTIVE INGR.
CYCLOHEXIMIDE	0.750 %	0.004500 OZS./GALLON	0.022500 WT OZ/M SQ. FT.
THIRAM	75.000 %	0.450000 OZS./GALLON	2.250000 WT OZ/M SQ. FT.

MIX OF PRODUCT
WITH DILUENT : 0.60 OZS./GALLON WATERSEASON OR PERIOD
OF APPLICATION(S) : SUMMER

PRODUCT USAGE RATE : 3.00 WT OZ/M SQ. FT.

AREAS TO BE AVOIDED : HUMAN EXPOSURE

PRODUCT AMOUNT USED
PER APPLICATION : 60.375 POUNDSAREAS TO BE TREATED
WITH CAUTION : FOOD AND FOODSTUFFS

METHOD OF TREATMENT : HYDRAULIC SPRAYER

PRECAUTIONS : AVOID INHALATION AND CONTACT WITH SKIN

AREA OR UNITS TO
BE TREATED : 322.0 M SQ. FT.USE OF TRAINED OR
CERTIFIED PERSONNEL : TRAINED PARK SERVICE EMPLOYEE

NUMBER OF SITES : 1

MONITORING : PERFORMED FOR EFFICACY

DESCRIPTION OF SITES: 7 ACRES LAWN

OTHER REMARKS : NONE

NO. OF APPLICATIONS : 2

WAS THE ABOVE PROGRAM EXECUTED IN 1973?

☐ NO☐ YES

DATE(S) OF APPLICATION

FOR 1974, THE ABOVE PROGRAM WILL BE

☐ DROPPED☐ CHANGED AS INDICATED☐ THE SAME

FORM 10-
(SEPT.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Enclosure II Cont

PERSON TO CONTACT
A. M. FORSELL
206-873-4500

PEST CONTROL PROGRAM REPORT

09/28/73
PN REGION

NORTH CASCADES NATIONAL PARK
ORGANIZATION CODE: 9470

PROJECT NUMBER: NOCA-01-73

PURPOSE : PUBLIC HEALTH AND VISITOR COMFORT
PRODUCT NAME : MIREX
TARGET PEST(S) : YELLOW JACKETS
EPA REG. NUMBER : 218-638
FORM APPLIED : SOLID

ACTIVE INGREDIENT(S)

% OR LBS/GALLON
OF A.I. IN PRODUCT

STRENGTH OR MIX OF
100% ACTIVE INGR.

LBS./ACRE OR OTHER RA
OF 100% ACTIVE INGR.

MIREX

0.500 %

0.500000 %

0.000150 WT OZ/STATION

MIX OF PRODUCT
WITH DILUENT : 100.00 %

SEASON OR PERIOD
OF APPLICATION(S) : JULY-SEPT, WEEKLY

PRODUCT USAGE RATE : 0.03 WT OZ/STATION

AREAS TO BE AVOIDED : NONE

PRODUCT AMOUNT USED
PER APPLICATION : 0.022 POUNDS

AREAS TO BE TREATED
WITH CAUTION : NONE

METHOD OF TREATMENT : BAIT STATION

PRECAUTIONS : BAIT BOXES LOCKED

AREA OR UNITS TO
BE TREATED : 12.0 STATIONS

USE OF TRAINED OR
CERTIFIED PERSONNEL : TRAINED PARK SERVICE EMPLOYEE

NUMBER OF SITES : 6

MONITORING : PERFORMED FOR EFFICACY

DESCRIPTION OF SITES : 6 CAMPGROUNDS, 12 STATIONS

OTHER REMARKS : NONE

NO. OF APPLICATIONS : 12

WAS THE ABOVE PROGRAM EXECUTED IN 1973? () NO () YES DATE(S) OF APPLICATION

FOR 1974, THE ABOVE PROGRAM WILL BE () DROPPED
() CHANGED AS INDICATED
() THE SAME

FWGPM Form #2 Guideline (to be prepared across length of page)

TOPICS TO BE INCLUDED IN A NARRATIVE JUSTIFICATION

1. (a) AGENCY (b) PROJECT NO. (c) TARGET PEST
2. IMPORTANCE - (Such as economic losses or threat to health that could occur if control operations were not accomplished.)
3. AREA TO BE TREATED - (Give detailed description, including acreage, of type of site to be treated.)
4. METHOD - (Give additional details, beyond those on Form #1, on the specific pesticide, including registration number if available, and control method proposed.)
5. SPECIAL PRECAUTIONS - (Include details of effort to avoid human or environmental hazard and special training or experience of personnel.)
6. ALTERNATIVE MATERIALS OR METHODS - (List any that have been considered and give reason for rejection.)
7. COOPERATORS - (List any other organizations involved and the way in which they are involved, as governmental, private agencies, or individuals.)
8. MONITORING - (Describe type and extent of any monitoring activity planned.)

FWGPM Form #2

1. (a) AGENCY - U.S. Forest Service (b) PROJECT NO. - NA-9-71 (c) TARGET PEST - Saddled prominent, *Heterocampa guttivitta*
2. IMPORTANCE - The saddled prominent is a defoliator of beech and hard maple. The insect poses a serious threat to the sugar industry. Heavy defoliation of maple reduces tree vigor and causes a sharp reduction in sugar content of the tree sap. Repeated defoliation can cause direct tree-killing or pre-dispose trees to attack by bark and wood-boring insects. Over one million acres were defoliated by the saddled prominent in 1969. Most of the outbreak occurred in New York. Entomologists predict heavy defoliation over this same area in 1970 with an estimated 270,000 acres being completely defoliated.
3. AREA TO BE TREATED - The New York State Conservation Department is planning to chemically treat 60,000 acres of the infested area to prevent loss of valuable hard maples. The areas to be treated are near Waterton (Adirondack Mountain), Binghamton (Delaware County) and Albany, New York (Rensselaer County - Taconic Range). The areas are heavily populated. Spray blocks vary from 5 acres to 600 acres in size and are primarily private ownerships.
4. METHOD - The insecticide Sevin 80S (carbaryl) will be applied at the rate of one (1) pound active ingredient per acre. It will be formulated at 1 1/4 pounds of Sevin 80S plus 4 ounces of Pinolene 1882 plus water to make one gallon of final spray, and applied at the rate of one gallon per acre. Helicopters will be used to apply the insecticide. The State helicopter pilots are experienced in this type of spraying. The contract pilots are also experienced and are registered with the Department of Agriculture and Markets, New York State.
5. SPECIAL PRECAUTIONS - The project is under direct supervision of senior pest control technicians who have wide experience in aerial spraying. Technical supervision is provided by entomologists at the Albany office. All beehives within 2 miles of the spray area will be removed until completion of the project. Boundaries of spray blocks will be easily identifiable from both the ground and air. Special precautions will be taken to prevent spraying over water surfaces.
6. ALTERNATIVE MATERIALS OR METHODS - Sevin 80S is the only insecticide that is registered for use against the saddled prominent. The Conservation Department feels that they have a responsibility to the people in the State to suppress insect populations in these valuable hard maple forests.
7. COOPERATORS - Landowners are sharing in the cost of suppression. The State College of Forestry at Syracuse University Applied Forestry Research Institute in cooperation with State Forest Service entomologists are working together to monitor effectiveness of the project and to refine evaluation techniques.
8. MONITORING - Sevin 80S has been successfully used against the saddled prominent for the past few years. Except for its known toxicity to bees, it has created little impact on other organisms in the environment. Except for entomologists collecting efficacy data, there are no other monitoring activities.

August 1973

LIST OF PESTICIDE USAGES OF SPECIAL
INTEREST TO THE WORKING GROUP
FOR WHICH FWGM FORM NO. 2 IS REQUIRED ¹

acrolein	fenthion (Baytex)
aldicarb (Temik)	Furadan
aldrin	
amitrole	heptachlor
Aramite	
arsenical compounds	lindane
azinophosmethyl (Guthion)	
and homologs	mercurial compounds
Azodrin	Metasystox
	methyl bromide
benzoyl	mevinphos (Phosdrin)
BHC (benzene hexachloride)	mirex
Bidrin	Monitor
chlordane	paraquat
chlorobenzilate	parathion and homologs
coumaphos	phorate (Thimet)
cyanide compounds	phosphamidon
	picloram (Tordon)
DDT	
DDD (TDE)	sodium monofluoroacetate (1080)
demeton (Systox)	Strobane
dicamba (Eanvel D)	
dieldrin	TEPP (Tetron)
dinitro-cresols	toxaphene
diquat	
Dursban	
endosulfan (Thiodan)	
endothall	
endrin	
EPN	
ethion (Nialate)	

¹Listing of a pesticide on this appendix is not intended to preclude use of the compound.

GUIDE AS TO USE OF FWGPM FORM NO. 2

FWGPM NO. 2

- a. Usage of a pesticide that is not registered under the Federal Insecticide, Fungicide and Rodenticide Act for that particular purpose or in that particular way
- b. Usage of any of the compounds listed in Enclosure 5, List of Pesticide Usages of Special Interest to the Working Group . . .
- c. Any pesticide that would be applied to water or could reasonably be expected to get into water
- d. Any program or project in which one section (640 acres) or more contiguous acres would be treated as one application.
- e. Use of any pesticide on a federal installation when that usage is not directly supervised by, nor under the on-site responsibility of, a federal employee trained in the current safe and effective use of the pesticides involved

Yes

Yes

Yes

No

No

Examples of Commonly Used Pesticides

Abate
 acrolein
 alachlor
 aldicarb (Temik)
 aldrin
 alkyl dimethyl benzyl
 ammonium chloride
 allethrin
 aluminum phosphide
 ometryne
 amiben
 amitrole
 amitrole and dicamba
 amitrole and simazine
 AMS (ammonium sulfamate)
 Antymicin A (Fintrol)
 ANTU
 aromatic oils
 Aspon
 atrazine
 Avitrole
 azinphosmethyl (Guthion)

Bacillus thuringiensis (Thuricide)

barban (Carbyne)
 Bayer 73 (Bayluscide)
 benefin (Palan)
 benomyl (Benlate)
 bensulide (Petasan)
 benzalkonium chloride (Roccal)
 BHC (benzene hexachloride)
 borate
 borate-chlorate

borate-chlorate/monuron
 (Chlorea)
 borate-chlorate/prometone
 (Pramital 5P granular)
 borate-chlorate, prometone
 and simazine (Pramital 5PS
 granular)
 borate/monuron (Ureabor)
 borate/2,3,6 TEA (Benzbor)
 Bordeaux mixture
 bromacil (Hyvar X)
 bromacil, chlorate/borate (Ureabor)
 bromoxynil
 butoxy-thiocyanodiethyl ether
 (Lethane 334)

 cacodylic acid
 calcium arsenate, and calcium
 arsenate and metaldehyde
 calcium cyanamide
 calcium cyanide
 captan
 carbaryl (Sevin)
 carbaryl and DDT micronized for
 aircraft disinsection (quarantine
 requirement)
 carbon bisulfide
 carbophenothion (Trithion)
 CDEC (Vegadex)
 chelated copper sulfate (Cutrine)
 chlordane
 chlorobenzilate
 chloropicrin
 chloropicrin and methyl bromide
 chloroxuron (Tenoran)

chlorphospham
 chlorpyrifos (Dursban)
 copper oleate
 copper sulfate
 coumafuryl (Fumarin)
 coumaphos (Co-Ral)
 creosote
 cyclohexamide (Acti-dione)

dalapon (Dowpon) (Radapo)
 dazomet (Mylone)
 DCPA (Dacthal)
 DDT
 DEET (diethyl toluamide)
 demeton (Systox)
 diazinon
 dicamba (Banvel D)
 dichlobenil (Casoron)
 dichloropropene (D-D mixture)
 dichlorvos (DDVP) (Vapona)
 dicofol (Kelthane)
 dieldrin
 diesel oil
 dimethoate (Cygon)
 dinocap (Karathane)
 dinoseb (DNBP) (dinitro
 butylphenol)
 dioxathion (Dalanav)
 diphacinone (Diphacin)
 diphenamid (Enide) (Dymid)
 diphenylamine
 diquat
 disulfoton (Di-syston)
 diuron (Karmex)
 DNOC (dinitro-o-cresol)

dodine
 DRC-1339 (Starlicide) (3-chloro-p-toluidine hydrochloride)
 DSMA (disodium methanearsonate)
 Dyfonate
 Dyrene

 endosulfan (Thiodan)
 endothall
 endrin (including uses in products such as Rid-A-Bird)
 endrin and thiram (seed protectants)
 Eptam (EPTC) (S-ethyl-dipropylthiolcarbamate)
 ethion (Nialate)
 ethyl hexanediol
 ethylene dibromide
 ethylene dibromide and methyl bromide
 ethylene oxide
 ethyl parathion
 famphur (Warbex)
 fenac
 fensulfothion (Dasanit)
 fenthion (Daytex)
 fenuron (Dybar)
 fenuron-TCA (Urab)
 ferbam (Fermate)
 ferrous sulfate
 Flit MLO (petroleum oils)
 folpet (Phaltan)
 formaldehyde and formalin

Gardona

heptachlor
 HTH (calcium hypochlorite)

 Kepone
 Koban
 Kromad

 lampricide (Lamprecid) (3-trifluoromethyl-4-nitrophenol) (TFM)
 lead arsenate
 lime sulfur
 lindane
 linuron (Lorox)

 magnesium chloride hexahydrate
 malathion
 Maleic hydrazide (MH-30)
 maneb (Manzate)
 MCPA
 MCPP (Mecoprop)
 metaldehyde
 metham (Vapam) (EMDC)
 methoxychlor (Marlate)
 methyl bromide
 methyl demeton (Metasystox)
 methyl parathion
 mevinphos (Phosdrin)
 Mirex
 miscible oils (petroleum)
 monuron (Telvar)

monuron-TCA (Urox)
 Morestan
 MSMA (monosodium methane arsenate)

 naled (Dibrom)
 naphthalene
 naptalem (Alanap)
 nitralin (Planavin)
 norbormide (Raticate)

 oxydemetonmethyl (Meta-Systox-R)

 paradichlorobenzene
 paraquat
 Paris green
 PCNB (pentachloronitrobenzene)
 Pentac
 pentachlorophenol (PCP)
 phenyl methylcarbamate:
 m-(1-ethyl-propyl), 1 & m-(1 methyl butyl), parts (Bux-ten)
 phorate (Thimet)
 phosmet (Imidan) (Pro)
 picloram (Tordon)
 pindone (Pival)
 RMP
 polyram
 prometon (Pramital)
 propanil (STAM)
 propazine (Milogard)
 propoxur (Baygon)
 pyrethrum (Pyrethrins)

red squill
resmethrin (SBP-1382)
ronnel (Korlan)
rotenone, cube extracts
and sulfoxide
Ruelene

S-ethyl-diisobutylthiocar-
bamate (Sutan)
silica aerogel and ammonium
fluorophosphate (Dri-die)
and silica gel
silvex (Kuron) (2,4,5-TP)
simazine
sodium chlorate
sodium fluoride
sodium monofluoroacetate (1080)
sodium pentachlorophenate
streptomycin
strychnine
suffocating gas cartridge
Sulfaquinoxaline and warfarin
(Prolin)
sulfur

Tandex
TCA
TEPP
thiram (Arasan)
toxaphene
trichlorfon (Dylox, Dipterex)
trifluralin (Treflan)
2,4-D
2,4-DB
2,4-DP (dichlorprop)

2,4,5-T
2,3,6-trichlorobenzoic acid

Vernam
Vitavax
Vorlex

warfarin.

Xylene

Zectran
zinc iron and manganese
ethylenebisdithiocarbamate
(Dithane M-45) (Fore)
zinc phosphide
zineb (Parzate)
Z. I. P.
ziram (Zerlate)
Zytron

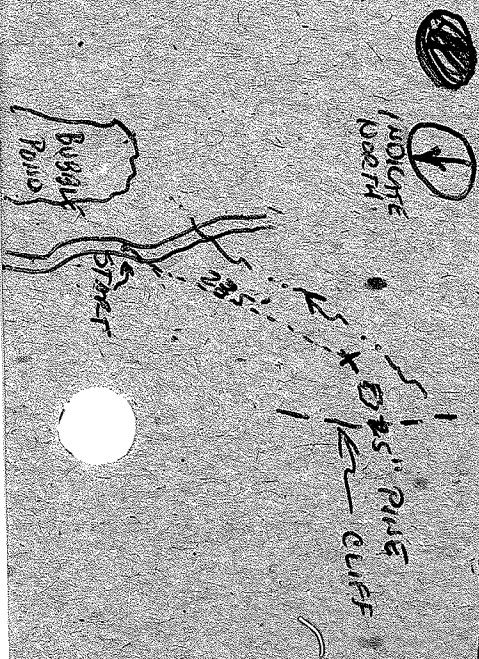
RIBES LOCATOR CARD (EXAMPLE)

Position -

STARTING POINT - STANDING IN CENTER OF CARPENTER ROAD WEST OF BUBBLE POUD, THE SOUTH TIP OF BUBBLE POUD BEARS DUE EAST.

POSITION OF RIBES PATCH: FROM STARTING POINT, THE RIBES PATCH BEARS S 25° W AND IS 235' DISTANT. PERIMETER OF PATCH IS MARKED WITH ORANGE FINEGALD.

AREA SKETCH



DATA (SAMPLE)

DATE LOCATED: 28 SEPT 73

NO. PLANTS INITIALLY ERADICATED: 62

NO. FEET ROOTS EXTRACTED: 125'

PIWE IN AREA: SCATTERED MATURE, MUCH REPROD.

SUGGESTED RADIUS FOR PRUNING: 900'

SUBSEQUENT WORK:

DATE	WORK
5/3/74	PRUNING - 900' RADIUS - Pruned off 18 infected branches (aerial sprouts present) Sowed 5 trees.
7/22/74	RECHECK FOR RIBES - pulled 8 plants 25' of roots.
5/10/75	PRUNING - ~~900'~~ 900' Radius - pruned off 3 branches; sowed 2 trees.
5/10/75	PRUNING - 900' Radius - No infected branches found
10/25/75	RECHECK FOR RIBES - pulled 2 plants, 5' of root

Bo 4-

THIS IS MY IDEA OF A POSSIBLE
CARD FOR RECORDING A PERMANENT
POSITION OF ALL RIBES PATCHES FOUND.
DO WITH IT WHAT YOU SEE F.I.T.

Bill Caldwell

(603) 436-7720 Ext. 765

3450

September 28, 1979

Mr. W. Lowell White, Superintendent
Acadia National Park
National Park Service, USDI
Bar Harbor, ME 04609

Dear Mr. White:

This is a surveillance report of insect and disease conditions on your park observed by Parker Snowden of this office on July 24-25, 1979. Areas examined on Mount Desert Island were particular areas on which you needed to know the pest conditions, and high use forest recreational sites (see map).

The most important pest found on the Park was spruce budworm. Spruce budworm infestation was light on Pine Hill - Long Pond area, Bass Harbor Head area, Pretty Marsh area, Uncle Dick Hill area, Western Mountain Road area, and Park property on Route 102. Off the Park, the infestation was light to moderate in the Indian Point area. I was not able to determine the extent and severity of the infestation in higher elevations, ridges, and drainage areas because of the topographic features of the Park. No spruce budworm was found on Otter Cliffs and Jordan Pond areas.

No gypsy moth egg masses were found in areas examined on the Park. However, it is not certain that gypsy moth is not present on the Park or on Mount Desert Island. In 1977 about 20 acres were moderately defoliated (30-60 percent) on Mount Desert Island. In 1979 gypsy moth defoliation in Maine increased significantly from 4000 acres in 1978 to 25,000 acres in 1979. though aerial surveys made by the Maine Forest Service showed no noticeable defoliation on Mount Desert Island in 1979.

White pine on Park property below Hamilton Pond, Salisbury Cove, which displayed cankers, were examined for white pine blister rust and other problems. No evidence of white pine blister rust was observed on the trees. The cankers may be caused by a normally harmless fungus, Aleurodiscus amorpha, which sometimes becomes parasitic. However, we were unable to prove this. Many mature pines exhibited old white weevil damage, i.e., forked and crooked terminals and lateral branches. Weevils were also attacking many of the younger pine trees. Pine bark aphids and white pine aphids were also noticeable on the pines. The population of these pests is not high enough to cause any tree damage.

Browning of birch foliage caused by birch leafminer was quite noticeable throughout the Park. The larva of the moth feeds on the tissue between the leaves, causing hollowed-out brown areas in the leaves. These leaves wrinkle and turn brown. Damage is quite noticeable from July to leaf fall. Probably the greatest damage caused by the insect is that trees weakened by these insects are subject to attack by other insects.

A high population of an unidentified aphid was found feeding on needles of white pine between Western Point and Hunter Head areas on Park Loop Road. A close examination indicated that 90 percent of the aphids were dead. Their feeding resulted in causing the needles to turn yellow and dropping from the trees. These trees will be examined again in 1980 to determine if they have recovered their color and vigor.

Eastern spruce gall aphids and Cooley spruce gall aphids were noticeable on many spruce trees throughout the Park. Both insects make walnut-sized, pineapple-shaped galls on the trees. They are usually not considered serious pests on forests trees; their damage is limited primarily to loss of aesthetic value of the trees.

Beech bark scale population was moderate to heavy on beech trees about a half mile from Long Pond. A fungus, Nectria coccinea, enters tiny feeding wounds created by beech scale. Infected trees usually die one to five years after the Nectria appears. However, the disease has been present in the Park for many years and it is difficult to say when these survivors are likely to die.

Due to the physical features of the Park we suggest an aerial survey be conducted in 1980 to detect evidence of noticeable insect defoliation (30 percent or more), disease infection, and tree damage in higher elevations, drainage areas, and ridges. These can be seen more readily from the air than the ground. If you concur, Mr. Snowden will conduct the survey in June 1980. At the same time he will conduct a ground examination and examine areas on Isle Au Haut, Schoodic Peninsula, Thompson Island, and other Park areas on Mount Desert Island that were not examined in July.

I hope this report provides you and your staff some information on what pests may pose potential threat to the Park and what pests are of minor importance.

If you have any questions, please do not hesitate to call or write us.

Sincerely,

MELVYN J. WEISS
Field Representative
Forest Insect & Disease Management