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DECEMBER, 1932

Montana Insect Pests for 1931 and 1932

The Twenty-Fourth Report of the
State Entomologist of
Montana

BY

A. L. STRAND, STATE ENTOMOLOGIST



The sugar-beet webworm, *Closteria sticticalis* L., greatly enlarged. This was the most destructive insect in gardens, beet fields, peas, and alfalfa in 1932.

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BOZEMAN, MONTANA



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LETTER OF TRANSMITTAL

Bozeman, Montana,

December 15, 1932

To His Excellency,
Governor John E. Erickson,
Helena, Montana.

My dear Sir:

I present herewith the twenty-fourth report of the State Entomologist of Montana.

The first twenty-three reports, from 1903 to 1930, were issued by Prof. R. A. Cooley. When Professor Cooley took up his work as entomologist of the Montana Agricultural Experiment Station in 1899, practically nothing was known about the injurious native and introduced insects which had already begun to affect agricultural crops. The fruit insects such as the codling moth, oyster shell scale, etc., were the first to attract attention. Fruit growing was all important. The claim made by others that this new country was free of the insect pests which handicapped the industry elsewhere proved to be an unsupported boast. Later, with the breaking up of thousands of acres of prairie land, it was discovered that certain native insects, which had existed in small numbers on native grasses, could transfer their attention to wheat and other grain crops. The new conditions favored the insects. In some years their populations rose to enormous numbers. Many of these were new to the science of economic entomology; no control methods were known; little information was available about their life cycles on which possible control schemes might be based. Entomologist Cooley was faced with the necessity of beginning at the very bottom to dig out the essential facts about these pests and to experiment on possible methods by which their ravages could be counteracted. For thirty-one years he devoted his best efforts to this work.

It was not long after he came to Montana that the desirability was recognized of setting up some way by which the information he obtained through the support given him by the Agricultural Experiment Station could be put into more effective practice; also there was the question of protecting our agricultural industry from foreign pests likely to be introduced unless proper precautions were taken. The outcome was the creation of the office of State Entomologist by the 1903 session of the legislature. It was provided thereby that the entomologist of the experiment station should act as the chief entomological officer of the state, not only to accumulate information on insect problems but to carry it to the farmers of the state and aid them in insect control campaigns based on that information.

For the first eleven years after the creation of the office there was no statewide organization for agricultural work through which the state entomologist could work. Since 1914, however, when the agricultural extension service was instituted, the entomological program has been carried out mostly through cooperation with the county agricultural extension agents.



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When it is considered how small were the appropriations available for this work it is safe to say that in few other respects have the farmers of the state received as full value in return for the money expended.

No other factor, save drouth or other adverse weather conditions, is more important to the raising of crops in Montana than the control of injurious insects. The hazard they constitute, though, is one that can be successfully combated in most instances. As time goes on, further study and experimentation is continually reducing the number of injurious species for which no control measures exist. This work, we believe, is a very justifiable function of the state.

Respectfully yours,

A. L. STRAND,

State Entomologist.

Twenty-Fourth Report of the State Entomologist

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INTRODUCTION

The expenditures of the State Entomologist were limited to an appropriation of \$500 in 1931-32, and \$450 in 1932-33. It is thus perfectly evident from the amount of money available that no extensive insect-control activities, no matter how great the emergency might be, could be undertaken. On account of the threatened grasshopper outbreaks it was possible through cooperation with the Agricultural Extension Service to employ an assistant during four months of the 1931 season and during two months of 1932. The work was very largely limited therefore to the control of grasshoppers. Other services were necessarily carried out through correspondence.

The unprecedented outbreak of the sugar-beet webworm should have received more active attention from this office. Although hundreds of telephone calls and letters, asking for the identification of the insect and methods of control, were handled, in few instances was it possible to furnish the direct supervision of control operations that was requested. Our efforts relative to this insect were greatly supplemented by County Agent Ray Cameron at Great Falls, and County Agent R. B. McKee at Billings, who by frequent radio talks brought information on webworms not only to farmers of their own counties but also to those in many other parts of the state.

In an agricultural region such as Montana, where rainfall, insect population, and crop production fluctuate greatly from one year to the next, one of the most valuable services that can be rendered the farmers, from the entomological standpoint, is the prediction of injurious insect outbreaks. If farmers can be warned in advance that a certain insect is soon to become a serious menace to crops, they can prepare to take the necessary steps toward its control. By tak-

ing advantage of methods which have been worked out largely by the Montana Agricultural Experiment Station, for which that institution has gained a world-wide reputation, predictions were furnished in regard to the pale western cutworm, grasshoppers, and the sugar-beet webworm. The advance notice on this cutworm was given about nine months ahead of the outbreak of 1932, from information developed by Dr. R. E. Wall and was based on the rainfall records of 1930 and 1931. The prediction came true with a vengeance, as some 140,000 acres of grain were affected. This was the largest acreage infested by the pale western cutworm since 1921. The relationship between weather conditions and the webworm is not sufficiently worked out to make possible such a long-range prediction as in the case of the pale western cutworm. However, several weeks' notice on webworms was given. This probably came to the attention of relatively few farmers and it is true that most of them were unfamiliar with the possible danger from webworms until they saw their gardens and field crops disappearing from invasions of untold numbers of these insects.

Grasshopper surveys were made through cooperation with Dr. J. R. Parker, Bureau of Entomology, United States Department of Agriculture, with headquarters in Bozeman. In 1931 the Federal agency assumed the entire cost of the survey; in 1932 it paid the necessary travel expense and the Montana Agricultural Experiment Station paid the salary of the assistant employed for the work. The advance information obtained, that is the accurate data as to where eggs have been laid by grasshoppers in sufficient number to cause trouble the following year, is of real value. A successful campaign against grasshoppers depends on early organization for the work, and early poisoning of the young grasshoppers before they have spread from the egg beds into crops.

In addition to the insects which attack our major crops there are others that need serious attention. Among these are the pests of shade trees. Some of these insects, such as the defoliators, the common aphids, red spider, and a few others, can be controlled. There are many others, though, on which we have not sufficient information to base satisfactory recommendations. Among these are blister beetles, leaf-cutter bees, some gall-forming aphids, leaf-rollers, and several species of borers. The leaf-cutter bees and the borers are the most important. So far none of the species of borers in Montana has ever been controlled by spraying, notwithstanding various claims

to the contrary. The Montana Agricultural Experiment Station is investigating some of these pests of shade and shelterbelt trees and new methods of control based upon reliable information will be made known as fast as they can be developed.

INSECTS AND ECONOMICS

It is perhaps true that in a time when farmers may be losing money on every bushel of grain produced and on every animal sent to market, no justification, based solely on economic return, can be made for insect control work. We realize that although insects, next to dry weather, are the greatest hazard to the grain crops of Montana, nevertheless right now if not a leaf were ever touched by an insect, it would make little difference in the economic condition of the farming industry. In spite of this critical situation the need of the individual farmer to save his crops was such that nearly \$20,000 was spent during the summer of 1932 for chemicals to combat various insect pests. The requests for information on insects have not decreased; in the past two summers, which were bad insect years all over the country, such requests have increased. Agricultural production depends on the successful control of the environment. Even if we have to drop back during the next few years to "agriculture as a way of living," the insect problem will continue to beset us, and possibly become even more important.

OUTLOOK FOR CUTWORMS IN 1933

PALE WESTERN CUTWORM—*Agrotis orthogonia* MORR

More widespread infestations of the pale western cutworm were experienced in grain in 1932 than in any season since 1921. Extensive crop damage resulted in most of the northern part of Valley County, in the Judith Basin, in western Fergus County, and in western Gallatin County. Light, scattering infestations were recorded from many other sections. A few thousand acres of grain, together with a small acreage of corn, cultivated mustard, and flax, were completely destroyed by the cutworms, and reports show that 140,000 acres of crop were noticeably damaged. (See figure 1.) Favorable moisture conditions early in the season enabled grain to get such a start that light or moderate infestations of the cutworm did not completely take the crops in most instances.

The very serious outbreak of the pale western cutworm in 1919-21 followed the dry years of 1918 and 1919. Studies made

by the Montana Experiment Station have shown that dry conditions during May, June, and July bring about the increase of the cutworm which results in crop damage the following year. Two dry years in succession are especially serious with respect to pale western cut-

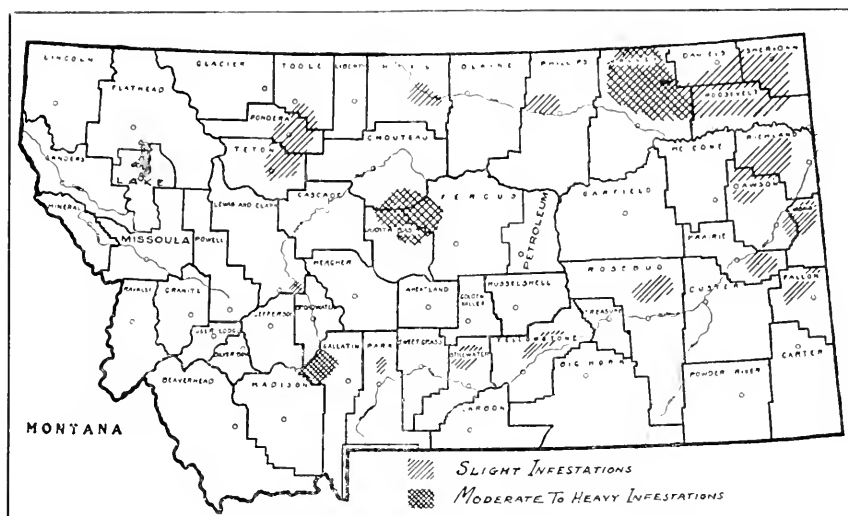


Figure 1.—The 1932 outbreak of the Pale Western Cutworm. About 140,000 acres of crop was damaged.

worm abundance. Once the pest becomes bad, more than one year of normal weather is required before the cutworm numbers are reduced.

Subnormal moisture conditions during the critical periods in 1930 and 1931 were responsible for the 1932 outbreak, which was predicted in advance on the basis of precipitation records. The normal rainfall during the 1932 season undoubtedly restricted development of the cutworms, nevertheless some carry-over into 1933 is expected in the districts which are infested. This prediction is based upon observation of fair flights of the moths in those areas during the first week in September and upon the history of the similar carry-over effect in 1921. Only those districts which experienced trouble last spring are expected to harbor infestations again in 1933.

The general showers during the latter part of August this season came at a very desirable time since crusts were formed over fallow fields which, if left unbroken, made the surface unattractive for egg-laying. Stubble fields which were disturbed by harvesting

operations probably caught most of the eggs in sections where the recommended practice was followed of leaving fallow undisturbed until after September 15.

ARMY CUTWORM—*Chorizagrotis auxiliaris* Grt.

Three outbreak areas of army cutworm were recorded during 1932. That in southeastern Montana centered in Big Horn and southern Yellowstone counties where several hundred acres of grain and alfalfa were severely damaged. In Lake, Missoula, and Ravalli counties in western Montana, alfalfa, grain, and young beets were damaged, and along the Judith Mountains in Fergus County the army cutworm was destructive to grain. The amount of crop totally destroyed was considerably less than in 1931. However, the two years, 1931 and 1932, have seen the army cutworm much more abundant than it was during the preceding ten years.

Poisoned bran bait was applied on a small scale for this cutworm in most infested localities. In Lake County where about a ten was used particularly good results were reported. Moisture conditions during April were favorable so that crops, though damaged by the cutworms, were able to make good growth, and under those circumstances growers were much less inclined to poison than when the growing crops disappear completely.

This pest does not increase during dry weather in the same way as the pale western cutworm, and it is not possible at present to forecast trouble with such certainty. The moth was found flying in only small or moderate numbers during September in central and south-central Montana and it seems likely that the species will show a decline during the coming season.

RED-BACKED CUTWORM—*Euroa ochrogaster* Gn.

This cutworm occurred in only limited numbers during 1932. In the Bitter Root Valley, where it is often abundant in beet fields, it was exceedingly scarce, only one field showing evident damage. In Richland County a limited number of fields of beets and grain were known to be infested. It is improbable that the red-backed cutworm will occur in large numbers in 1933.

GRASSHOPPERS

During the past two years Montana's grasshopper problem has not been as acute as that which has confronted our neighboring states and provinces. The extraordinary outbreaks in the Dakotas,

Nebraska, and Minnesota in 1931, and in North Dakota and Minnesota in 1932, threatened the complete destruction of crops over large parts of those states. One of them spent over a quarter of a million dollars fighting grasshoppers in 1932. Next year the Canadian provinces to the north expect a widespread and severe infestation. This statement is made for comparative purposes, for while Montana had slight to moderate outbreaks in 1931 and 1932 in no case did they reach the critical stage of destructiveness which was common in districts east of us.

GRASSHOPPERS IN 1931. Lake and Flathead counties experienced rather small but severe outbreaks of the warrior grasshopper (*Camnula pellucida* Seud.). These appeared in small bands, a circumstance which made control operations against them very effective. Flathead County also had an increase in the lesser migratory species (*Melanoplus mericanus* Sauss.). The trouble expected from the warrior hopper in the Centennial Valley, Beaverhead County, did not materialize, but the two-striped grasshopper (*M. bivittatus* Say) caused severe loss of crop in a small area near Dell in this county. Supplies already on hand made it possible to poison them rather promptly but not before some losses had occurred. This infestation was confined to an irrigated district.

Cascade, Chouteau, Hill, Liberty, and Fergus counties had grasshoppers in sufficient numbers to make poisoning necessary. The most extensive areas in which grasshoppers increased and caused moderate losses were in the eastern counties bordering North Dakota, and along river bottoms in Rosebud and Custer counties where alfalfa grown for seed was severely damaged.

GRASSHOPPERS IN 1932. The extent of grasshopper trouble in the state in 1932 is indicated in Figure 2. Fourteen counties appropriated money from their insect pest funds as follows:

Cascade	\$ 50	Pondera	\$ 200
Custer	50	Prairie	60
Dawson	216	Richland	315
Fergus	1150	Roosevelt	229
Flathead	110	Rosebud	150
Hill	150	Valley	200
Lewis and Clark	50	Wibaux	30
		Total	\$2960

Nebraska damage to which so much newspaper publicity was given in 1931. It is not likely to become important in Montana.

THE OUTLOOK FOR GRASSHOPPERS IN 1933

No heavy infestations of grasshoppers are expected during 1933 but a number of sections can anticipate some trouble from slight to moderate numbers of these pests. This is the prediction based upon a survey made by the Montana Agricultural Experiment Station in cooperation with the United States Bureau of Entomology.

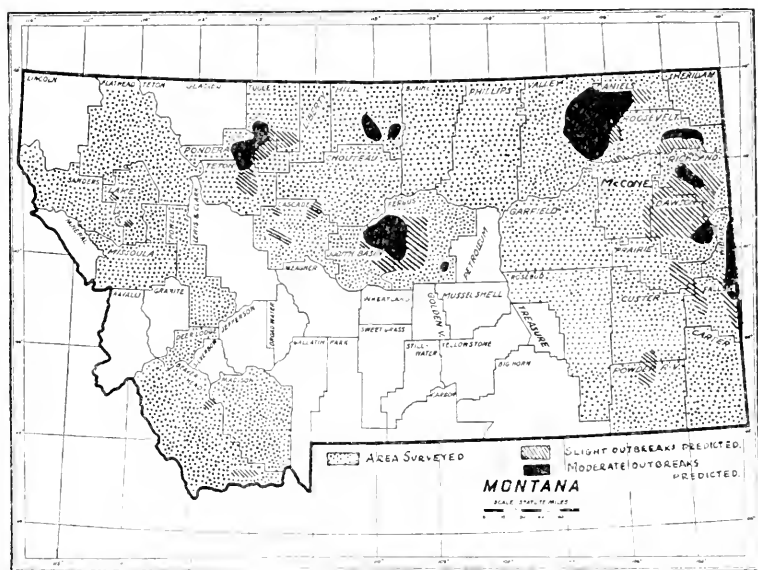


Figure 3.—Areas in Montana where grasshopper infestations are expected to occur in 1933. The dotted part shows the counties covered by the survey. The black areas are where moderate outbreaks are expected and the oblique-lined portions show where only slight trouble may occur.

In general grasshoppers will occur in 1933 in very much the same territory as in 1932. (See Figure 3 as compared with Figure 2.) It is likely that there will be fewer 'hoppers in Lake and Flathead counties on account of the effective control work done there the past summer. On the other hand, evidence has been obtained to show that the Centennial Valley in Beaverhead County must prepare for a very much increased abundance of grasshoppers.

Moderate and slight outbreaks will probably develop in parts of Toole, Pondera, Teton, Cascade, Hill, Judith Basin, and Fergus counties. With weather favorable for grasshoppers next spring Fergus County is likely to suffer from a widespread infestation in spite of the effective work which was done there during 1932.

The largest areas over which grasshoppers have deposited eggs for next year's brood are to be found in the eastern counties, especially Valley, Daniels, Roosevelt, Richland, Dawson, and Wibaux. In these sections the grasshopper populations probably did not increase in 1932 over what were present in 1931 with the exception of Valley County and one or two smaller sections. However, should the grasshoppers be favored by dry weather in 1933, control campaigns against them will have to be organized.

Estimates of the probable cost, the areas most apt to be troubled, and other information obtained from the survey which was made, have been furnished the counties concerned. A total of about \$16,600 would have to be expended to control the grasshoppers over the areas indicated in Figure 3. This amount for the whole state is less than one-third of the amount spent by some individual counties in former outbreaks. It will thus be seen that the present grasshopper situation is far less severe than Montana farmers have experienced in the past.

The \$16,600 estimated cost for 1933 when compared with the amount spent in 1932 does not mean increased grasshopper abundance. It means that only the worst outbreak areas were treated with poison in 1932 and if fairly complete control had been obtained an amount equal to or greater than the estimate for 1933 would have been required.

A NEW PEST OF WHEAT IN MONTANA

Blapstinus substriatus Champ.

In late May, 1931, farmers and county agents reported the sudden destruction of both spring and winter wheat by a small black beetle. The cause of the trouble has been tentatively named the wheat-leaf beetle and belongs to a family of insects (Tenebrionidae) the larvae of which are commonly known as false wireworms. In this case, however, the larval stage is apparently harmless, the adult only being responsible for crop damage. In Teton county, east of Dutton, several fields of winter wheat were almost totally

destroyed by these insects, which numbered about 25 to every square foot. In Cascade county, on a single farm, 200 acres of spring wheat was severely damaged within a period of ten days to two weeks. Sugar beets were attacked in Pondera County with approximately 25 per cent loss. The beetles feed readily on potato vines, alfalfa, mustard, and numerous weeds.

Dry weather conditions with an absence of precipitation in the spring seem to afford ideal conditions for the increase of this pest to outbreak proportions. Following the heavy spring rains in 1932, no further trouble was experienced from this pest in areas severely attacked during the previous year. As this beetle is normally present in small numbers over a wide area of the state, having been collected in Stillwater, Sweetgrass, Gallatin, Broadwater, Cascade, Teton, Pondera, Toole, Blaine and Phillips counties, it is a potential source of trouble should climatic conditions at any time favor its increase. Effective control can be obtained by poisoned bran mash.

THE MORMON CRICKET

Anabrus simplex Hald.

In 1931 the Mormon cricket occurred in large swarms in the foothills near Pryor in western Bighorn County. On account of the tremendous number of the crickets it was feared that they would move down on cultivated crops and a campaign, financed by the Indian Service, was organized against them. Dusters and supplies of arsenic and hydrated lime were purchased and used by farmers, under the direction of Mr. Carl Sloan, who had been appointed by the Crow Agency. Although only a part of the numerous bands of crickets was destroyed, no serious invasion of crops took place. In 1932 the number of crickets was greatly reduced, compared with the previous year, and no poisoning was necessary.

This same insect was more numerous than usual in north-central Montana in 1932. Reports of its occurrence in small numbers came from Chouteau County.

THE SUGAR-BEET WEBWORM

Lorostege sticticalis L.

Rather extensive damage by the sugar-beet webworm occurred during the summer of 1931 but the widespread and severe outbreak of this insect which developed in 1932 surpassed any previous infestation within the records of this office.

Conservative estimates obtained from several different sources show that the following acreages were partially or completely destroyed:

Alfalfa	73,825 acres
Gardens	5,685 acres
Sweet clover	7,520 acres
Field peas	525 acres
Corn	140 acres
<hr/>	
Total	87,695 acres

The foregoing estimates do not include sugar beets. Being better prepared to fight leaf-feeding insects, through cooperation with the sugar companies who supplied arsenic and sprayers, the beet growers were able to handle the webworm problem without such extensive losses as occurred in the case of other field crops.

The damage to gardens was very severe. As a result of the drought the previous year many sections of the state depended on gardens as the first local source from which to replenish food supplies. Sudden attacks by tremendous armies of webworms completely wiped out hundreds of such gardens and as many more were badly damaged before any protective measures could be applied. In some cases the webworms came in such great numbers that crops were lost in spite of any and all combative practices. In one instance an onion grower with excellent crop prospects lost seven out of nine acres of onions within two days in spite of having sprayed the plants with one application of Paris green. Not enough poison could be put on the plants to save them. Where the webworms occurred in moderate numbers good success was obtained in gardens through the use of heavy applications of Paris green or arsenate of lead.

Heavy losses were incurred by the alfalfa-seed growers. A large part of the alfalfa acreage which would otherwise have been kept for seed was cut early for hay. Young alfalfa suffered heavily as much of this could not withstand the attack like older plantings.

The over-wintering generation of moths (responsible for the first generation of webworms), was very large in 1931 as well as in 1932. In each of these years the flight of moths was so heavy from May to late June that there is strong evidence that they were responsible

for the low honey flow in these years. Beekeepers observed that after light showers which brought out the moths in millions, there was a reduction in the amount of honey produced.

FRUIT INSECTS

THE CODLING MOTH (*Carpocapsa pomonella* L.). In the Hamilton section of the Bitter Root Valley apple orchards which have been unsprayed for one to three years show from 2 to 15 per cent codling moth infestation. In a few orchards the percentage runs even higher. In the Missoula district the unsprayed orchards show from 40 to 50 per cent infestation. In either of these districts one lead arsenate spray was sufficient in many cases to reduce the infestation to 1 per cent. In cases where both the calyx and first cover sprays were applied the damage from codling moth was negligible.

THE OYSTERSHELL SCALE (*Lepidosaphes ulmi* L.). On account of less spraying being done the last two or three years, the oyster-shell scale has increased to a point where 1 to 4 per cent of the fruit was infested.

WOOLLY APHIS (*Eriosoma lanigera* Hansm.). This insect is very bad in the central part of the Bitter Root Valley around Hamilton, Victor, and Stevensville. Associated with it in a few orchards is the disease known as perennial canker. The spread of this disease now makes the control of woolly aphis very much more important than formerly. Advantage is being taken of the Oregon method by which the aphis is destroyed with tobacco extract sprays, cankered tissue cut out, and the new wood protected by a special paint.

GREEN APPLE APHIS (*Aphis mali* DeG.). Very general distribution of the green apple aphis occurred in 1932 and heavy infestations were common on the younger trees.

WASPS (VESPIDAE). Several species of wasps or yellow jackets caused an important loss to the cherry crop by eating the partially ripened fruit. Some trouble from these insects was experienced in the Bitter Root Valley but it was in the Flathead cherry districts that they became a major pest. It has been noted in the past that wasps become enormously abundant during two or three years and then suddenly drop to insignificant numbers. This will doubtless happen in this instance but a reliable control method is very much needed. The Montana Agricultural Experiment Station will make an effort to solve the problem during the coming season.

CORRESPONDENCE ON INSECT PESTS

The following tabulation of the insect pest correspondence for 1931-32 is made up of inquiries which came to the state entomologist's office and represents only a small part of the entire correspondence in the state on this subject, for much of it was handled directly by the county agricultural agents. The list as printed here is a fair sample of the many destructive insects against which farmers have to defend their crops. This list of insects is printed not with the idea of showing the volume of correspondence which is handled but rather toward fulfilling the need for information as to the seasonal distribution of injurious insects over the state, a complete record of which for a series of years is of great value in studying the rise and fall of insect populations as correlated with weather conditions.

ALFALFA

COMMON NAME	SCIENTIFIC NAME	LOCALITY	DATE	
			1931	1932
Blister beetle	<i>Epicauta maculata</i> Say	Dixon	July	6
Do	do	Livingston		June 25
Do	do	Miles City		July 10
Do	do	Dillon		July 13
Do	do	Roundup		July 15
Do	do	Kalispell		July 18
Thrips	Super. Family Thripoidae	Malta		Aug. 9
Chalcis fly	<i>Bruchophagus fovebris</i> How.	Great Falls		May 28
Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Big Timber		June 20
Do	do	Missoula		June 27
Do	do	Fairfield		July 6
Do	do	Bighorn		July 29
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Custer	Dec.	19
Do	do	Joliet		April 20
Do	do	Sagey		April 23
Do	do	Ashland		April 24
Do	do	Boyes		April 24
Do	do	Broadus		April 26
Do	do	Selway		April 30
Do	do	Brusett		May 3
Do	do	Lodge Grass		May 4
Do	do	Wyola		May 5
Do	do	Siteska		May 7
Do	do	Lame Deer		May 8
Alfalfa looper	<i>Antographa californica</i> Speyer	Kalispell		July 9

ANIMAL PARASITES

Wood tick	<i>Dermacentor andersoni</i> Stiles	Angusta	May	13
Do	do	Springdale		May 23
Bot fly	<i>Hypoderma lineata</i> DeVill	Deer Lodge	June	25

APPLES

Blister mite	Eriophyes pyri Pgst.	Canas	June 11
Do	do	Hot Springs	June 16
Do	do	Canas	June 21
Do	do	Thompson	June 24
		Falls	
Do	do	Eureka	Oct. 20
Oyster shell scale	Lepidosaphes ulmi L.	Florence	May 5
Aphids	(Aphididae)	Miles City	June 11
Do	do	Laurin	July 8
Do	do	Butte	July 14
Codling moth	Carpocapsa pomonella L.	Brookus	May 5
Do	do	Polson	May 2
Tent caterpillar	Malacosoma americana Fabr.	Billings	June 7
"Fruit-fly"	Anacampta latiuscula Loew.	Huntley	Dec. 11
Flat-headed borer	Chrysobothris femorata Oliv.	Springdale	Feb. 15
Do	do	Whitefish	May 18

CURRENTS

Current aphid	Myzus ribis L.	Deer Lodge	May 20
Do	do	Choteau	May 13
Do	do	Billings	Aug. 17
Do	do	Great Falls	Aug. 17
Fruit-fly	Epochra canadensis Loew.	Helena	Mar. 5
Do	do	Great Falls	Mar. 31
Do	do	Missoula	April 10
Do	do	Bison	May 9
Do	do	Deer Lodge	May 20
Do	do	Bozeman	May 26
Do	do	Livingston	May 16
Do	do	Sheridan	May 31
Do	do	White Sulphur	July 23

CHERRIES

Ants	Formicidae	Hamilton	April 28
Black cherry aphid	Myzus cerasi Fabr.	Kalispell	July 17
Do	do	Columbia	Aug. 14
		Falls	
Cherry slug	Eriocampoides limacina Retzius	Pompeys	July 8
		Pillar	

FLOWERS

Nematodes		Butte	June 3
Do		Anaconda	June 21
Bulb-mite	Rhizoglyphus hyacinthi Boisd.	Billings	Aug. 5
Aphids	Aphididae	White Sulphur	Aug. 14
Spiny rose gall	Diplolepis bicolor Harr.	Billings	Aug. 24
Circulio	Rhynchites bicolor Fabr.	Butte	June 23
Do	do	Miles City	June 20
Do	do	Judith Gap	Aug. 4
Do	do	Fromberg	Jan. 23
Sap feeders	Nitidulidae	Divide	Aug. 9
Crane fly larvae	Tipulidae	Helena	Feb. 9
Gall insect	Hymenoptera	Melstone	Mar. 30

GENERAL GARDEN CROPS

Earthworms	Lumbricus terrestris	Valier	April 12
Do	do	Danvers	June 10
Do	do	Chadbourne	Sept. 8
Do	do	Geraldine	Sept. 6

GENERAL GARDEN CROPS (Continued)

Earthworms	<i>Lumbricus terrestris</i>	Havre	Apr. 3
Do	do	Montague	May 13
Do	do	Helena	May 15
Do	do	Lodge Grass	June 12
Garden slug	<i>Agriolimax agrestis</i> Linn		
Aphids	Aphididae	Ryegate	Oct. 9
Leather jackets	Tipulidae	Ophelm	July 12
Do	do	Terry	Oct. 18
Onion maggot	<i>Hyemymia antiqua</i> Meig.	Whitefish	April 1
Do	do	Missoula	April 21
Do	do	Stevensville	May 8
Do	do	Walkerville	Sept. 30
Do	do	Florence	April 2
Do	do	Arlee	Mar. 28
Do	do	Stevensville	Mar. 5
Do	do	Bridger	June 3
Do	do	Big Timber	June 30
Do	do	Kalispell	Aug. 17
Seed corn maggot	<i>Hyemymia ciliatula</i> Rondani	St. Ignatius	May 30
Do	do	Glasgow	June 7
Do	do	Missoula	June 10
Do	do	Stevensville	June 13
Do	do	Bowdoin	June 16
Flea beetles	Chrysomelidae	Big Timber	June 3
Do	do	Missoula	June 17
Do	do	Maschetah	July 14
Do	do	Thoeny	July 16
Do	do	Malta	Aug. 19
Do	do	Uobra	May 5
Do	do	Billings	May 18
Do	do	Arlee	May 31
Do	do	Hogeland	May 31
Do	do	Biddle	June 15
White grubs	Scarabaeidae	Missoula	June 2
Do	do	Gildford	June 16
Blister beetle	<i>Epicauta pennsylvanica</i> DeGeer	Billon	July 16
Do	do	Havre	May 26
Do	<i>Epicauta maculata</i> Say	Glendive	June 24
Do	do	Missoula	June 24
Do	do	Deer Lodge	June 25
Do	do	Glendive	June 25
Do	do	Simms	July 14
Cabbage looper	<i>Autographa brassicae</i> Riley	Boulder	June 23
Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Great Falls	June 25
Do	do	Lewistown	June 26
Do	do	Moccasin	June 30
Do	do	Townsend	July 1
Do	do	Broadview	July 1
Do	do	Moccasin	July 2
Do	do	Shelby	July 27
Do	do	Harrison	July 28
Do	do	Helena	Aug. 1
Do	do	Big Sandy	Aug. 14
Do	do	Glasgow	Aug. 20
Do	do	Richland	Aug. 24
Do	do	Helena	June 28
Do	do	Roundup	June 29
Do	do	Deer Lodge	June 29

GENERAL GARDEN CROPS (Continued)

Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Ingomar	June 29
Do	do	Redstone	June 29
Do	do	Freedom	June 30
Do	do	Lewistown	July 1
Do	do	White Sulphur	July 1
Do	do	Sand Springs	July 1
Do	do	Kelley	July 1
Do	do	Craig	July 3
Do	do	Fairfield	July 6
Do	do	Jordan	July 7
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Big Timber	May 5
Do	do	Camas	May 11
Do	do	Walkerville	May 13
Do	do	Dillon	May 15
Do	do	Huntley	April 20
Do	do	Camps Pass	May 6

CABBAGE

Aphis	<i>Brevicoryne brassicae</i> L.	Redstone	July 16
Maggot	<i>Phorbia brassicae</i> Bouche	Lewistown	May 13
Flea beetle	<i>Chrysomelidae</i>	Billings	May 18
Do	do	Whitefish	May 19
Imported cabbage worm	<i>Pieris rapae</i> Linn.	Phillipsburg	June 17
Do	do	Arlee	June 28
Do	do	Marion	July 8
Do	do	Maxville	Aug. 17
Do	do	Ismay	Aug. 17
Do	do	Great Falls	Aug. 26
Do	do	Great Falls	Aug. 26
Diamond backed moth	<i>Plutella maculipennis</i> Curtis	Bozeman	May 13
Looper	<i>Autographa brassicae</i> Riley	Kalispell	July 1

CORN

Corn ear worm	<i>Heliothis obsoleta</i> Fab.	Great Falls	June 1
Do	do	Norris	Aug. 5
Do	do	Wilboux	Sept. 12
Do	do	Shawmut	Sept. 13
Do	do	Glendive	Sept. 8
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Baker	Feb. 9
Meal worm	<i>Tenebrio molitor</i> Linn.	Baker	May 27

ONION

Onion maggot	<i>Hylemyia antiqua</i> Meig.	Stevensville	Mar. 5
Do	do	Arlee	Mar. 28
Do	do	Florence	April 2
Do	do	Bridger	June 3
Do	do	Big Timber	June 30
Do	do	Kalispell	Aug. 17

POTATOES

Wireworms	<i>Elatridae</i>	Libby	Mar. 15
Do	do	Living Springs	July 11
Do	do	Bowler	Dec. 5

HOUSEHOLD INSECTS

Pseudo-scorpions	Pseudoscorpionida	Manhattan	April 18
Do	do	Bozeman	May 6
Red clover mite	Byrobia pratensis Garman	Great Falls	May 5
Mites	Tetranychus sp.	Roundup	Nov. 13
Do	do	Stockett	Nov. 25
Do	do	Hardin	May 21
Silverfish	Lepisma saccharina Linn.	Great Falls	Aug. 29
Do	do	Helena	Oct. 3
Do	do	Missoula	Sept. 30
Do	do	Billings	Oct. 10
Cockroach	Periplaneta americana Linn.	Manhattan	Mar. 11
Do	do	Helena	Aug. 17
Red bug hunter	Reduvius personatus Linn.	Billings	Jan. 19
Red bug	Cimex lectularius Linn.	Helena	Mar. 14
Do	do	Deer Lodge	April 15
Do	do	Billings	May 6
Do	do	Butte	June 11
Do	do	Plevna	July 29
Do	do	Richey	July 31
Do	do	Belton	April 21
Do	do	Great Falls	June 1
Do	do	Camas	June 9
Do	do	Thompson Falls	June 27
Do	do	Missoula	Aug. 8
Do	do	Philipsburg	Aug. 11
Do	do	Missoula	Aug. 17
Do	do	Great Falls	Aug. 17
Confused flour beetle	Tribolium confusum Duval.	Missoula	June 2
Do	do	Turner	July 20
Do	do	Wolf Point	Aug. 26
Do	do	Belgrade	Sept. 1
Golden spider beetle	Niptus hololeucus Fald.	Philipsburg	Mar. 7
Larder beetle	Dermestes lardarius Linn.	Scobey	May 20
Do	do	Havre	July 31
Do	do	Scobey	May 11
Do	do	Belgrade	Sept. 30
Black carpet beetle	Attagenus piceus Oliv.	Great Falls	Oct. 16
Do	do	Missoula	Feb. 5
Buffalo carpet beetle	Anthrenus scrophulariae Linn.	Lewistown	May 20
Do	do	Missoula	April 11
Do	do	Helena	April 23
Fleas	Ctenocephalus canis Curtis	Culbertson	Sept. 30
Mediterranean flour moth	Ephestia kuehniella Zell.	Cascade	Oct. 27
Clothes moth	Tineola biselliella Humm.	Hardin	April 6
Do	do	Choteau	July 18
Ants	Formicidae	Billings	April 3
Do	do	Charlo	April 3
Do	do	Bigfork	June 11
Do	do	Hardin	June 26
Do	do	Havre	June 30
Do	do	Broeton	July 8
Do	do	Billings	July 28
Do	do	Butte	April 30
Do	do	Livingston	May 16
Do	do	Big Timber	May 28
Do	do	Hardin	July 22

HOUSEHOLD INSECTS (Continued)

Ants	Formicidae	Jugomur	July	27
Do	do	Helena	Aug.	17
Do	do	Great Falls	Aug.	17
Do	do	Great Falls	Aug.	17
Do	do	Great Falls	Aug.	17
Do	do	Lewistown	Aug.	18

HOUSE PLANTS

Mealy bug	Pseudococcinae	Joliet	May	15
Scale	Coccidae	Lewistown	Nov.	8
Do	do	Peerless	Feb.	26
Plant lice	Aphididae	Chilbertson	Aug.	8
White fly	Trialeurodes vaporariorum	Maxville	Oct.	5
Do	do	Westwood		
Flies	Undetermined	Choteau	May	26
Do	do	Butte	June	10
		Saco	June	4

LAWNS

White grubs	Lechnosterna sp.	Billings	July	25
Do	do	Billings	July	28
Do	do	Hayre	Aug.	18
Billbug	Sphenophorus graminis Chitt.	Billings	Aug.	20
Ants	Formicidae	Anaconda	June	27

PEAS

Sugar-beet webworm	Loxostege sticticalis L.	Kalispell	July	5
Do	do	Bozeman	July	6

PLUMS

Aphis	Aphididae	Plains	July	8
Do	do	Joliet	Oct.	13
Plum gougler	Coccotorns scutellaris Lec.	Broadus	May	5

RASPBERRIES

Cane borer	Oberca bimaculata Olly.	Fairview		
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STRAWBERRIES

False chinch bug	Nysius ericae Schilling	Kalispell	June	21
Aphids	Aphididae	Colstrip	Aug.	8
Leather jackets	Tipulidae	Great Falls	July	1
White grubs	Scarabaeidae	Stevensville	June	1
Do	do	Billings	June	13
Do	do	Gildford	June	16
Do	do	Wolf Point	Aug.	3
Do	do	Hamilton	Aug.	1
Do	do	Missionla	June	2
Do	do	Bigfork	Sept.	16
Strawberry root weevil	Otiorynchelus ovatus Linn.	Polson	Oct.	11
Leaf roller	Ancyliis comptana Fiedlich	Billings	June	25
Do	do	Billings	June	28
Hornets	Vespidae	Wolf Creek	May	11
Do	do	Whitepine	Aug.	18

STRAWBERRIES (Continued)

Hornets	Vespidæ	Victor	Aug. 20
Do	do	Clancy	Aug. 22
Ants	Formicidæ	Libby	June 22
Do	do	Wolf Point	July 3

STORED PRODUCTS

Rust red flour beetle	<i>Tribolium ferrugineum</i> Fabr.	Billings	Oct. 22
Do	do	Bozeman	Oct. 22
Meal worm	<i>Tenebrio molitor</i> Linn.	Wilbaux	July 17
Saw-toothed beetle	<i>Oryzaephilus surinamensis</i> Linn.	Billings	Aug. 9
White-marked spider beetle	<i>Ptinus fir</i> Linn.	Winnett	Jan. 5
Beetles	Undetermined	Outlook	July 19

SUGAR BEETS

Root-louse	<i>Pemphigus betæ</i> Doane	Big Timber	Sept. 12
White grubs	<i>Lechnosterna</i> sp.	Shamus	Aug. 17
Leaf beetle	<i>Galerucella</i> sp. (decora?)	Stevensville	May 22

SWEET CLOVER

Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Harlowton	July 1
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Ekalaka	May 14
Pale western cutworm	<i>Agrotis orthogonia</i> Morr.	Judith Gap	June 27
Clover hay worm	<i>Hypsopygia costalis</i> Fab.	Ronan	Sept. 14

TREES AND SHRUBBERY

Red clover mite	<i>Bryobia pratensis</i> Garman	Lewistown	Aug. 21
Red spider	<i>Tetranychus telarius</i> Linn.	Chester	Jan. 23
Do	do	Fromberg	April 18
Scale	Coccidæ	Ronan	April 18
Aphids	Aphididæ	Clancy	Aug. 17
Borer		Sidney	July 16
Bill bug	Cureulionidæ	Great Falls	May 20
Blister beetle	<i>Lytta nuttalli</i> Say	Ekalaka	May 3
Do	do	Fort Benton	June 12
Do	do	Choteau	June 12
Do	do	Brockway	July 12
Do	do	Whitetail	July 18
Forest tent caterpillar	<i>Malacosoma disstria</i> Hbn.	Stevensville	Feb. 20
Do	do	Bison	May 9
Do	do	Geraldine	July 12
Big poplar sphinx	<i>Pachysphinx modesta</i> Harris	Medicine Lake	May 13
Leaf cutter bees	Megachilidæ	Geraldine	July 12
Ants	Formicidæ	Missoula	May 15
Do	do	Hysham	May 20

ASH

Aphis	Aphididæ	Sidney	June 2
Leaf hoppers	Cicadellidæ	Ronan	June 12
Borers	Undetermined	Culbertson	Aug. 25
Do	do	Hardin	Sept. 11
Do	do	Malta	July 6
Do	do	Niarada	July 16
Do	do	Choteau	July 19
Do	do	Forsyth	July 30

ASH (Continued)

Borers	Undetermined	Malt	July 31
Borer	<i>Aegeria arizonae</i> Buetennanuller	Custer	May 23
Blister beetle	<i>Lytta sphaericoollis</i> Say	Chester	July 2
Do	do	Virgelle	July 5
Tent caterpillar	<i>Malacosoma disstria</i> Hbn.	Choteau	July 1
Sphinx caterpillar	<i>Pachysphinx</i>	H. Zealand	June 16
Do	do	Peerless	July 14
Do	do	Scobey	Aug. 15
Do	do	Glasgow	Aug. 27
Leaf-cutter bee	<i>Megachilidae</i>	Geraldine	Aug. 23

BOX ELDER

Gall insects	Undetermined	Selway	June 16
Do	do	Belfry	May 31
<i>Cecropia</i> caterpillar	<i>Samia cecropia</i> Linn.	Hinsdale	Aug. 12

EVERGREENS

Aphids	<i>Aphididae</i>	Helena	Aug. 17
Pine leaf scale	<i>Chionaspis pinifoliae</i> Fitch	Ronan	Sept. 14
Do	do	Whitefish	April 16
Do	do	Gardiner	May 30
Do	do	Billings	Aug. 17
Bark beetles	<i>Dendroctonus</i> sp.	Butte	Aug. 17

ELM

Elm aphid	<i>Eriosoma americana</i> Riley	Forsyth	June 11
Do	do	Silesia	May 19
Do	do	Belfry	May 31
Do	do	Glasgow	June 17

MAPLE

Maple aphid	<i>Drepanaphis acerifolia</i> Thomas?	Libby	Mar. 3
Do	do	Hamilton	July 1
Cottony Maple scale	<i>Pulvinaria vitis</i> Linn.	Hamilton	Mar. 3

POPLAR

Mites	<i>Paratetranychus populi</i>	Butte	Sept. 14
Do	do	Dillon	Sept. 15
Aphid	<i>Aphididae</i>	Sidney	July 23
Do	do	Whitetail	July 18
Do	<i>Pemphigus</i> sp.	Hysham	July 9
Vagabond gall	<i>Mordwilkoja vagabunda</i> Walsh	Choteau	April 18
Do	do	Dutton	Aug. 2
Do	do	Dutton	Aug. 18
Leaf beetle	<i>Lina scripta</i> Linn.	Billings	June 21
Leaf miner	<i>Zeugophora scutellaris</i> Suffr.	Choteau	Aug. 20
Do	do	Cutbank	Sept. 14
Do	do	Hysham	July 9
Do	do	Ft. Benton	Aug. 15
Borer	Undetermined	Laurel	June 21
Do	do	Deer Lodge	May 13
Do	do	Whitchall	June 1
Do	do	Fromberg	June 29
Tiger moth	<i>Arctidae</i>	Sidney	June 30
Horn tail wasp	<i>Siricidae</i>	Great Falls	Sept. 13

WILLOW

Aphids	Aphididae	Melrose	June 15
Do	do	Butte	Aug. 19
Do	do	Harlowton	Aug. 13
Glover's silk worm	<i>Samia gloveri</i> Strecker	Emigrant	Aug. 27

VINES

Mites	Eriophyidae	Hardin	April 29
Do	do	Hardin	May 24
Mealy bug	Pseudococcinae	Dayton	May 18
Aphis	Aphididae	Butte	Mar. 31
Leaf hopper	<i>Erythroneura ziezae</i> Walsh	Livingston	June 16
Do	do	Hedgesville	June 21
Do	do	Townsend	June 27
Do	do	Billings	July 25
Do	do	Forsyth	Aug. 31

WHEAT

Aphis	<i>Macrosiphum granarium</i> Kirby	Kalispell	July 13
Do	do	Libby	July 13
Do	do	Hall	July 30
Do	do	Sidney	July 7
Do	do	Kalispell	Aug. 3
Leaf hoppers	Cicadellidae	Melville	June 25
Grasshoppers	<i>Melanoplus bivittatus</i> Say	Dell	July 16
Do	do	Kalispell	July 11
Do	do	Valier	Sept. 2
Do	<i>Camula pellucida</i> Send.	Kalispell	July 14
Do	Acerididae, various sp.	Glendive	June 3
Do	do	Wibaux	May 26
Do	do	Lewistown	May 27
Do	do	Wibaux	June 4
Do	do	Livingston	June 25
Do	do	Sidney	June 28
Do	do	Brockton	June 29
Do	do	Glendive	July 1
Do	do	Reserve	July 25
Do	<i>Dissosteira carolina</i> Linn.	Ollie	Aug. 17
Do	<i>Brachystola magna</i> Girard	Sidney	Aug. 29
Do	<i>Metator pardalinus</i> Sauss.	Malta	Aug. 4
White grubs	Scarabaeidae	Ronan	May 27
Wireworms	Elateridae	Missoula	April 21
Do	do	Malta	May 19
Do	do	Plains	May 12
Do	do	Havre	May 25
Do	do	Choteau	June 3
False wireworms	<i>Eledus</i> sp.	Cavern	May 15
Do	do	Chester	May 31
Do	do	Glasgow	June 25
Do	do	Forsyth	June 30
Wheat leaf beetle	<i>Blapstinus substriatus</i> Champ.	Malta	May 19
Do	do	Glasgow	June 25
Cutworm	Phaenidae	Malta	May 19
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Fort Benton	Mar. 19
Do	do	Hardin	Mar. 24
Do	do	Melstone	Mar. 25
Do	do	Columbus	April 2
Do	do	Lewistown	April 6

WHEAT (Continued)

Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Glendive	April 16
Do	do	Denton	April 16
Do	do	Missoula	April 21
Do	do	Wilbux	April 21
Do	do	Hayre	April 22
Do	do	Flowerce	April 23
Do	do	Kepderville	April 29
Do	do	Wilbux	May 5
Do	do	Lewistown	April 5
Do	do	Lewistown	April 9
Do	do	Biddle	April 18
Do	do	Joliet	April 22
Do	do	Boyes	May 16
Do	do	Great Falls	May 24
Do	do	Ophelm	June 9
Do	do	Outbank	June 17
Do	do	Great Falls	Aug. 17
Pale western cutworm	<i>Agrotis orthogonia</i> Morr.	Hardin	May 5
Do	do	Moccasin	May 23
Do	do	Choteau	June 3
Do	do	Hayre	June 3
Do	do	Carbert	June 6
Do	do	Glasgow	June 8
Do	do	Custer	June 8
Do	do	Custer	June 8
Do	do	Custer	June 8
Do	do	Roundup	June 13
Do	do	Plentywood	June 17
Do	do	Great Falls	Aug. 17
Red backed cutworm	<i>Euxoa ochrogaster</i> Gn.	Malta	June 21
Western wheat-stem sawfly	<i>Cephus cinctus</i> Norton	Lewistown	Oct. 23

 INSECTS AND OTHER ORGANISMS SENT IN FOR IDENTIFICATION OR
 FOR GENERAL CONTROL RECOMMENDATIONS

Nematodes		Miles City	May 18
Salamander		Craig	July 19
Texas hog-nosed snake	<i>Heterodon tasieus</i>	Melstone	July 16
Whip-tailed scorpion		Sidney	Aug. 25
Scorpion	<i>Vejois boreus</i> Girard	Wilder	May 5
Solpugid spider		Helena	June 10
Do		Billings	Aug. 28
Raspberry leaves	Arsenical burn	Ronan	July 12
Dog tick		Power	June 20
Wood tick	<i>Dermacentor andersoni</i> Stiles	Billings	April 13
Do	do	Phillipsburg	Aug. 11
Springtails	<i>Collembola</i>	Bridger	Jan. 25
Do	do	Ronan	Mar. 25
Do	do	Sayle	Mar. 14
Do	do	Fairfield	July 6
Oriental cockroach	<i>Blatta orientalis</i> Linn.	Helena	Aug. 17
Do	do	Missoula	Sept. 3
Jerusalem cricket	<i>Stenopelmatus fuscus</i> Hald.	Reed Point	Sept. 1
Do	do	Oswego	Oct. 15
Do	do	Molt	Dec. 23
Do	do	Glendive	Sept. 8
Do	do	Reed Point	Nov. 2

SENT IN FOR IDENTIFICATION (Continued)

Mormon cricket	<i>Anabrus simplex</i> Hald.	Fort Benton	Aug. 5
Do	do	Pryor	May 23
Lubber grasshopper	<i>Brachystola magna</i> Girard	Knowlton	Nov. 4
Mayflies	Ephemerida	Kalispell	July 1
Stone or salmon fly	<i>Pteronarcys</i> sp.	Billings	June 23
Cicada	<i>Tibicen synodica</i>	Forsyth	June 30
Aphis	Aphididae	Simms	Aug. 18
Tarnished plant bug	<i>Lygus pratensis</i> Linn.	Choteau	May 21
Stink bugs	Pentatomidae	Stevensville	Feb. 9
Do	do	Ronan	Mar. 1
Diving beetle	<i>Dytiscus dauricus</i> Gebb.	Bannack	May 19
Ground beetles	Carabidae	Forsyth	June 30
Do	do	Culbertson	July 14
Do	do	Jordan	July 27
Do	do	Great Falls	Aug. 23
Do	do	Glasgow	Sept. 17
Ladybird beetles	Coccinellidae	Missoula	July 3
Do	do	Great Falls	Sept. 10
Do	do	Missoula	Sept. 13
Dung beetles	<i>Aphodius distinctus</i> Mull.	Wibaux	April 18
White grubs	Scarabaeidae	Opheim	June 20
Do	do	Lodge Grass	June 21
10-lined June bug	<i>Polyphyla 10-lineata</i> Say.	Niarada	July 16
Do	do	Miles City	July 7
Nuttall's blister beetle	<i>Lytta nuttalli</i> Say	Wibaux	July 5
Do	do	Fairfield	July 6
Do	do	Sidney	July 15
Spotted blister beetle	<i>Epicauta maculata</i> Say	Roundup	Aug. 2
Do	do	Lewistown	Aug. 2
Leaf beetle	<i>Tygogramma exclamations</i> Fab.	Glendive	July 19
Do	do	Culbertson	July 14
Flower beetle	Undetermined	Lambert	June 29
Long horned beetle	Cerambycidae	Whitefish	Mar. 5
Robber flies	<i>Asilus</i> sp.	Deer Lodge	June 25
Leather jackets	Tipulidae	Missoula	June 4
Mosquitoes	Culicidae	Kalispell	June 22
March fly	<i>Bibio albipennis</i> Say	Kalispell	May 20
Do	do	Kalispell	May 23
Long-legged fly	Dolichopodidae	Sidney	July 18
Grass stem maggots	Oscinidae	Forsyth	April 16
Bee flies	Bombyliidae	Glasgow	Sept. 17
Butterfly	Papilionidae	Sidney	Aug. 5
Do	do	Helena	Sept. 9
Do	Pieridae	Darby	Aug. 13
Thistle butterfly	<i>Vanessa cardui</i> Linn.	Hall	June 29
Do	do	Forsyth	June 30
Do	do	Choteau	Aug. 2
Do	do	Deer Lodge	Aug. 20
Do	do	Helena	July 9
Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Twin Bridges	June 2
Do	do	Glendive	June 3
Do	do	Lewistown	June 25
Do	do	Joplin	April 11
Do	do	Hayre	April 12
Do	do	Sidney	April 15
Do	do	Scobey	April 18
Do	do	Choteau	April 18
Do	do	Digmar	April 22

SENT IN FOR IDENTIFICATION (Continued)

Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Cutbank	May 15
Do	do	Malta	May 19
Do	do	Culbertson	May 23
Do	do	Chester	May 31
Do	do	Shelby	May 31
Do	do	Choteau	June 3
Do	do	Opheim	June 9
Do	do	Circle	June 10
Do	do	Weldon	June 19
Do	do	Sand Springs	June 15
Do	do	Miles City	June 13
Do	do	Richey	June 11
Do	do	Sioux Pass	June 14
Do	do	Sidney	June 16
Do	do	Helena	June 16
Do	do	Scobey	June 16
Do	do	Turner	June 17
Do	do	Vida	June 17
Do	do	Mink	June 17
Do	do	Wilsall	June 18
Do	do	Lambert	June 18
Do	do	Hall	June 18
Do	do	Whitehall	June 21
Do	do	Chadbourne	June 25
Do	do	Ronan	June 27
Do	do	Findon	June 27
Do	do	Mosby	June 28
Do	do	Alder	June 29
Do	do	Forsyth	June 30
Do	do	Wolf Point	July 1
Do	do	Glendive	July 1
Do	do	Kalispell	July 1
Do	do	Kalispell	July 1
Do	do	Jordan	July 2
Do	do	Chester	July 2
Do	do	Dillon	July 2
Do	do	Two Dot	July 6
Do	do	Cardwell	July 6
Do	do	Jordan	July 6
Do	do	Kalispell	July 7
Do	do	Brockway	July 7
Do	do	Big Timber	July 8
Do	do	Townsend	July 10
Do	do	Lavina	July 10
Do	do	Wilsall	July 11
Do	do	Sand Springs	July 12
Do	do	Armstead	July 12
Do	do	Armstead	July 12
Do	do	Ryegate	July 12
Do	do	Sixteen	July 12
Do	do	Dillon	July 13
Do	do	Lavina	July 16
Do	do	Sheridan	July 19
Do	do	Buffalo	July 19
Do	do	Missoula	July 19
Do	do	Walkerville	Aug. 2
Do	do	Stevensville	Aug. 3

SENT IN FOR IDENTIFICATION (Continued)

Sugar-beet webworm	<i>Loxostege sticticalis</i> L.	Valley	Aug. 8
Carpenter worm	Cossidae	Big Timber	Sept. 8
Do	do	Billings	June 29
Sphinx caterpillar	<i>Celerio lineata</i> Fabr.	Billings	June 24
Do	do	Galata	May 30
Do	do	Forsyth	June 30
Do	do	Helena	July 9
Do	do	Havre	July 14
Do	do	Malta	July 19
Do	do	Jordan	July 20
Do	do	Missoula	July 25
Do	do	Sidney	Aug. 5
Army cutworm	<i>Chorizagrotis auxiliaris</i> Grote	Culbertson	June 16
Do	do	Leedy	June 27
Do	do	Glendive	June 27
Do	do	Leedy	July 1
Do	do	Circle	July 2
Do	do	Joplin	July 14
Do	do	Glasgow	July 15
Do	do	Missoula	April 19
Do	do	Ronan	May 6
Do	do	Culbertson	May 18
Do	do	Billings	May 20
Do	do	Sidney	May 23
Do	do	Havre	May 31
Do	do	Ekalaka	May 31
Do	do	Chester	June 17
Do	do	Vida	June 17
Do	do	Glasgow	June 21
Do	do	Malta	June 21
Giant Noctuid	<i>Erebis odorata</i> Linn.	Wason Flats	July 15
Tent caterpillar	<i>Malacosoma disstria</i> Hbn.	Helena	Aug. 17
Io moth	<i>Antomeris io</i> Fabr.	Chapman	Sept. 3
Polyphemus moth	<i>Teia polyphemus</i> Cramer	Sheridan	May 28
American silkworm	<i>Samia cecropia</i> Linn.	Malta	June 1
Do	do	Wilder	July 2
Do	do	Scobey	May 22
Do	do	Billings	Aug. 17
Glover's silkworm	<i>Samia gloveri</i> Strecker	Toston	June 12
Do	do	Logan	June 16
Wasp	<i>Bembix</i>	Kalispell	July 1
Do	Sphecidae	Dillon	May 25
Do	do	Chinook	July 28

