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PSW FOREST AND RANGE
EXPERIMENT STATION

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ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION

INSECTS:

A Guide to Their Collection, Identification,
Preservation, and ShipmentJohn D. Stein¹

Homeowners can send insects to their State extension entomologist for identification. The basic requirements for proper collection, preservation, and shipment of insects are summarized briefly here. A reference table lists 184 typical or prevalent insects associated with 52 tree and shrub hosts found in North and South Dakota.

Keywords: Insect collection, insect identification.

Introduction

Current urban forestry programs emphasize protection and management of planted trees. A survival survey in the Plains area indicated that 39 percent of all trees encountered were dead (Dahl 1940), with the majority mortality factor attributed to insects. Thus it is desirable to identify the insects responsible for damage, determine their biology, establish whether the insect is a new pest or a new outbreak of an old pest, and recommend control measures, if appropriate. A common question from property owners is, "How do we get this information?"

This Note was compiled to inform the public about who to contact for insect identification, and how to adequately collect, preserve, and ship specimens to the insect specialist.

feeding habits, and extent of the infestation should be attached to each sample. Your State extension entomologist will identify insects, and provide current recommendations for control. Your local county agent can provide the name and address of the extension entomologist for your State.

Tree and shrub hosts of the 184 insects listed in table 1 are based upon research findings at the Shelterbelt Laboratory in Bottineau, North Dakota. The table lists the more typical representatives of certain insect groups or the more prevalent insects that attack a particular tree species.

Additional information on identification, biology, host, and distribution of those insects listed in the table is available in other publications (Baker 1972, Stein and Kennedy 1972).

Collection and Identification

Ideally, insect collections shipped for species determination should include 5 to 20 specimens, and represent all the different stages of the insect pest. Samples should be carefully preserved, and information concerning the date, location, host material,

¹Associate Entomologist, located at the Station's Shelterbelt Laboratory at Bottineau, in cooperation with North Dakota State University—Bottineau Branch; Station's central headquarters maintained at Fort Collins, in cooperation with Colorado State University.

Preservation and Shipment

Flies, wasps, plant bugs, and beetles can be killed in either 70 percent alcohol or a chloroform bottle. Those killed in alcohol are preserved, and can be shipped in the same material; those killed with chloroform should be transferred to alcohol or placed between layers of cleansing tissues in a pill box or a cigar-type box for shipment. **Adult moths and butterflies** may be killed by either method, but should be shipped between layers of cleansing tissues, not in alcohol. **Soft-bodied specimens and immature stages of any insect** should be killed by dropping them in boiling water for 1 or 2 minutes,

and then transferred to vials that contain 70 percent alcohol for shipment. The boiling water prevents immatures from turning black.

Vials containing liquids must be wrapped separately in mailing tubes with adequate packing so they cannot move around. Dried insect material to be shipped in pill boxes or cigar-type boxes should be packed inside a second container with at least 2 inches of excelsior on all sides to hold the box in place. Invariably, **insects sent in ordinary envelopes are crushed and worthless.**

Before shipment you should again check to make sure that labels with the complete collection information are attached to the proper specimens.

Literature Cited

Baker, Whiteford L.

1972. Eastern forest insects. U.S. Dep. Agric., Misc. Publ. 1175, 642 p. Gov. Print. Off., Wash., D.C.

Dahl, Jerome.

1940. Progress and development of the Prairie States Forestry Project. J. For. 38:301-306.

Stein, John D., and Patrick C. Kennedy.

1972. Key to shelterbelt insects in the northern Great Plains. USDA For. Serv. Res. Pap. RM-85, 153 p. Rocky Mt. For. and Range Exp. Stn., Fort Collins, Colo. 80521.

- 1 *Archips cerasivoranus*
(uglynest caterpillar)
Top: webbed foliage
Bottom: larvae
- 2 *Clastoptera proteus*
(dogwood spittlebug)
- 3 *Diprion similis*
(introduced pine sawfly)
- 4 *Disonycha alternata*
(a chrysomelid leaf beetle)
- 5 *Eriosoma americanum*
(woolly elm aphid)
- 6 *Mordwilkoja vagabunda*
(poplar vagabond aphid)
- 7 *Neoborus amoenus*
(ash plant bug)
- 8 *Pachypsylla celtidismamma*
(hackberry nipplegall maker)
- 9 *Pemphigus populicaulis*
(poplar leaf-petiolegall aphid)
- 10 *Pulvinaria innumerabilis*
(cottony maple scale)
- 11 *Vasates quadripedes*
(maple bladdergall mite)

Table 1.--Common insects found on trees and shrubs in North and South Dakota

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
AMERICAN ELM			
<i>Ulmus americana</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Dicerca divaricata</i> (a flatheaded wood borer)	<i>Corythucha ulmi</i> (elm lace bug)
	<i>Cimbex americana</i> (elm sawfly)	<i>Hylurgopinus rufipes</i> (native elm bark beetle)	<i>Cuerna striata</i> (a leafhopper)
	<i>Ennomos subsignarius</i> (elm spanworm)	<i>Magdalis armicollis</i> (red elm bark weevil)	** <i>Eriosoma americanum</i> ² (woolly elm aphid)
	<i>Erannis tiliaria</i> (linden looper)	<i>Neoclytus acuminatus</i> (redheaded ash borer)	<i>Stictocephala bubalus</i> (buffalo treehopper)
	<i>Hyphantria cunea</i> (fall webworm)	<i>Scolytus multistriatus</i> (smaller European elm bark beetle)	
	<i>Nymphalis antiopa</i> (mourningcloak butterfly)		
	<i>Pyrrhalta luteola</i> (elm leaf beetle)		
AMERICAN PLUM			
<i>Prunus americana</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Coccotorus hirsutus</i> (sandcherry weevil)	<i>Aphis setariae</i> (rusty plum aphid)
	<i>Caliroa cerasi</i> (pearslug)	<i>Coccotorus scutellaris</i> (plum gouger)	<i>Asiphonaphis pruni</i> (a plum aphid)
	<i>Hyphantria cunea</i> (fall webworm)	<i>Conopia pictipes</i> (lesser peachtree borer)	<i>Empoasca fabae</i> (potato leafhopper)
	<i>Neurotoma inconspicua</i> (plum webspinning sawfly)	<i>Conotrachelus nenuphar</i> (plum curculio)	** <i>Eriophyes emarginate</i> (a finger gall mite)
	<i>Paleacrita vernata</i> (spring cankerworm)	<i>Hyperplatys aspersus</i> (a roundheaded wood borer)	<i>Macropsis trimaculata</i> (plum leafhopper)
			<i>Stictocephala taurina</i> (a treehopper)
AMUR MAPLE -- (see silver maple)			
<i>Acer ginnala</i>			
ARNOLD HAWTHORN			
<i>Crataegus arnoldiana</i>			
	<i>Acrobasis indiginella</i> (a leaf crumpler)	<i>Saperda candida</i> (roundheaded apple tree borer)	<i>Chaitophorus populicola</i> (aphid)
	<i>Antheraea polyphemus</i> (polyphemus moth)		<i>Corythucha cydoniae</i> (hawthorn lace bug)
	<i>Caliroa cerasi</i> (pearslug)	<i>Xylotrechus convergens</i> (a roundheaded wood borer)	<i>Eriosoma lanigerum</i> (woolly apple aphid)
	<i>Hyalophora cecropia</i> (cecropia moth)		<i>Rhopalosiphum fitchii</i> (aphid)
			<i>Telamona tristis</i> (treehopper)

**Damage by this species results in abnormal growths, swellings, or leaf curls.

²Illustrated on page 2.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
AUSTRIAN PINE -- (see ponderosa pine)			
<i>Pinus nigra</i>			
BLACK HILLS SPRUCE -- (see blue spruce)			
<i>Picea glauca</i> var. <i>densata</i>			
BLUE SPRUCE			
<i>Picea pungens</i>			
	<i>Archippus packardianus</i> (a caterpillar)	<i>Dioryctria reniculella</i> (spruce coneworm)	<i>Nalepella halourgia</i> (a mite)
	<i>Choristoneura fumiferana</i> (spruce budworm)	<i>Dioryctria zimmerman</i> (Zimmerman pine moth)	<i>Phenacaspis pinifoliae</i> (pine needle scale)
	<i>Epizeuxis aemula</i> (a spruce cutworm)	<i>Pissodes strobi</i> (white pine weevil)	<i>Tetranychus urticae</i> (twospotted spider mite)
	<i>Pikonema alaskensis</i> (yellowheaded spruce sawfly)	<i>Scolytus piceae</i> (a spruce bark beetle)	<i>Toumeyella</i> sp. (a tortoise scale)
	<i>Taniva albolineana</i> (spruce needleminer)		
BOXELDER			
<i>Acer negundo</i>			
	<i>Acrionicta americana</i> (American dagger moth)	<i>Dicerca divaricata</i> (a flatheaded wood borer)	** <i>Aceria negundi</i> (warty leafgall)
	<i>Alsophila pomataria</i> (fall cankerworm)	<i>Prionoxystus robiniae</i> (carpenterworm)	<i>Lecanium corni</i> (European fruit lecanium)
	<i>Halisidota tessellaris</i> (pale tussock moth)	** <i>Proteoteras willingana</i> (boxelder twig borer)	<i>Periphyllus negundinis</i> (boxelder aphid)
	<i>Paleacrita vernata</i> (spring cankerworm)	<i>Tremex columba</i> (pigeon tremex)	<i>Psylla negundinis</i> (boxelder psyllid)
			<i>Pulvinaria innumerabilis</i> ³ (cottony maple scale)
BUR OAK			
<i>Quercus macrocarpa</i>			
	<i>Acrionicta americana</i> (American dagger moth)	<i>Agrilus bilineatus</i> (twolined chestnut borer)	** <i>Aceria querei</i> (a blister gall mite)
	<i>Alsophila pomataria</i> (fall cankerworm)	<i>Conotrachelus posticatus</i> (an acorn weevil)	** <i>Andricus ignotus</i> (woolly oak gall)
	<i>Halisidota tessellaris</i> (pale tussock moth)	<i>Curculio iowensis</i> (an acorn weevil)	<i>Corythucha arcuata</i> (oak lace bug)
	<i>Heterocama manteo</i> (variable oakleaf caterpillar)	<i>Curculio strictus</i> (an acorn weevil)	** <i>Disholcaspis quercusmamma</i> (oak bullet gall)
	<i>Maldcosoma disstria</i> (forest tent caterpillar)	<i>Elaphidion mucronatum</i> (spined bark borer)	<i>Heliria molaris</i> (a treehopper)
		<i>Elaphidionoides villosus</i> (twig pruner)	<i>Telamona maculata</i> (a treehopper)

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³Illustrated on page 3.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
	<i>Paleacrita vernata</i> (spring cankerworm)	<i>Prionus imbricornis</i> (tilehorned prionus)	<i>Telamona monticola</i> (a treehopper) <i>Telamona spreta</i> (a treehopper)
CAROLINA (NORWAY) POPLAR -- (see Siouxland cottonwood) <i>Populus canadensis eugenei</i>			
CHINKOTA ELM -- (see Siberian elm) <i>Ulmus pumila</i> 'Chinkota'			
COMMON CHOKECHERRY <i>Prunus virginiana</i>			
	<i>Alsophila pometaria</i> (fall cankerworm) <i>Archips cerasivoranus</i> ⁴ (uglynest caterpillar) <i>Hyphantria cunea</i> (fall webworm) <i>Malacosoma californicum</i> <i>lutescens</i> (prairie tent caterpillar)	<i>Chaetophlocus heterodoxus</i> (a bark beetle) <i>Clytophorus verrucosus</i> (a roundheaded wood borer) <i>Ropalopus sanguinicollis</i> (a roundheaded wood borer)	<i>Asiphonaphis pruni</i> (a plum aphid) ** <i>Contarinia virginianiae</i> (chokecherry midge) <i>Gyponana flavilineata</i> (a leafhopper) <i>Rhopalosiphum cerasifoliae</i> (chokecherry aphid) <i>Tortistilus inermis</i> (a treehopper)
DROPMORE ELM -- (see Siberian elm) <i>Ulmus pumila</i> 'Dropmore'			
EASTERN REDCEDAR <i>Juniperus virginiana</i>			<i>Lecanium corni</i> (European fruit lecanium) <i>Lecanium fletcheri</i> (Fletcher scale)
GOLDEN CURRANT <i>Ribes aureum</i>		<i>Conopia tipuliformis</i> (caterpillar)	
GOLDEN WILLOW -- (see white willow) <i>Salix vitellina</i>			
GREEN ASH <i>Fraxinus pennsylvanica</i>			
	<i>Alsophila pometaria</i> (fall cankerworm) <i>Malacosoma disstria</i> (forest tent caterpillar)	<i>Leperisinus aculeatus</i> (eastern ash bark beetle) <i>Leperisinus californicus</i> (a bark beetle)	<i>Aspidiotus ancylus</i> (Putnam scale) ** <i>Eriophyes fraxiniflora</i> (ash flower gall mite)

**Damage by this species results in abnormal growths, swellings, or leaf curls.

⁴Illustrated on page 2.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
	<i>Paleacrita vernata</i> (spring cankerworm)	<i>Neolytus acuminatus</i> (redheaded ash borer)	<i>Lecanium corni</i> (European fruit lecanium)
	<i>Sphinx chersis</i> (great ash sphinx)	<i>Podosesia syringae fraxini</i> (ash borer)	<i>Neoborus amoenus</i> ⁵ (ash plant bug)
	<i>Tethida cordigera</i> (blackheaded ash sawfly)	<i>Prionoxystus robiniae</i> (carpenterworm)	<i>Prociphilus fraxinifolii</i> (leafcurl ash aphid)
		<i>Thysanocnemis nr. fraxini</i> (an ash seed weevil)	<i>Pulvinaria innumerabilis</i> ⁵ (cottony maple scale)
HACKBERRY			
<i>Celtis occidentalis</i>			
	<i>Asterocampa clyton</i> (hackberry butterfly)	<i>Agrilus celti</i> (a flatheaded wood borer)	<i>Aspidiotus ancylus</i> (Putnam scale)
	<i>Calligrapha</i> sp. (a leaf beetle)	<i>Elaphidion mucronatum</i> (spined bark borer)	<i>Pachypsylla celtidismamma</i> ⁵ (hackberry nipplegall maker)
	<i>Paleacrita vernata</i> (spring cankerworm)	<i>Elaphidionoides villosus</i> (twig pruner)	<i>Pachypsylla celtidisvesicula</i> (hackberry blister gall)
	<i>Sphinx drupiferarm</i> (hackberry sphinx)	<i>Phloeotribus dentifrons</i> (a bark beetle)	<i>Pachypsylla venusta</i> (hackberry petiolegall)
		<i>Scolytus muticus</i> (hackberry engraver)	
HANSEN HEDGEROSE			
<i>Rosa</i> sp.			
	<i>Malacosoma californicum</i> <i>lutescens</i> (prairie tent caterpillar)	<i>**Diplolepis spinosa</i> (rose twiggall)	
		<i>**Rhabdophaga rosacea</i> (rosette midge)	
		<i>Rhynchites bicolor</i> (rose curculio)	
HARBIN PEAR			
<i>Pyrus ussuriensis</i>			
	<i>Caliroa cerasi</i> (pearslug)		<i>**Eriosoma lanigerum</i> (woolly apple aphid)
	<i>Paleacrita vernata</i> (spring cankerworm)		
HONEYLOCUST			
<i>Gleditsia triacanthos</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Xyleborus saxeseni</i> (a barkbeetle)	<i>Lecanium corni</i> (European fruit lecanium)
	<i>Datana ministra</i> (yellownecked caterpillar)		<i>Macropsis</i> sp. (a leafhopper)
			<i>Pulvinaria innumerabilis</i> ⁵ (cottony maple scale)

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⁵Illustrated on page 3.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
LATE LILAC			
<i>Syringa villosa</i>	<i>Ceratomia undulosa</i> (sphinx moth)	<i>Podosesia syringae fraxini</i> (ash borer)	<i>Stictectphala bubalus</i> (buffalo treehopper)
	<i>Sphinx chersis</i> (great ash sphinx)		
	<i>Sphinx kalmiae</i> (sphinx moth)		
LAUREL WILLOW -- (see white willow)			
<i>Salix pentandra</i>			
LILAC -- (see late lilac)			
<i>Syringa vulgaris</i>			
MANCHURIAN CRABAPPLE -- (see Siberian crabapple)			
<i>Malus baccata mandshurica</i>			
MISSOURI RIVER WILLOW -- (see white willow)			
<i>Salix missouriensis</i>			
NORTHWEST POPLAR -- (see Siouxland cottonwood)			
<i>Populus deltoides</i> x <i>Populus balsamifera</i>			
PEKING COTONEASTER			
<i>Cotoneaster acutifolia</i>	<i>Acrobasis indigenella</i> (leaf crumpler)		<i>Ligyrocoris diffusus</i> (a lygaeid bug)
	<i>Alsophila pometaria</i> (fall cankerworm)		
	<i>Malacosoma californicum lutescens</i> (prairie tent caterpillar)		
	<i>Paleacrita vernata</i> (spring cankerworm)		
PLAINS COTTONWOOD -- (see Siouxland cottonwood)			
<i>Populus sargentii</i>			
PONDEROSA PINE			
<i>Pinus ponderosa</i>	<i>Cotalpa lanigera</i> (goldsmith beetle)	<i>Dioryctria auranticella</i> (a pine cone moth)	<i>Cinara</i> sp. (a pine aphid)
	<i>Diprion similis</i> ⁶ (introduced pine sawfly)	<i>Dioryctria cambicola</i> (a pine moth)	<i>Cuerna striata</i> (a leafhopper)
	<i>Neodiprion fulviceps</i> (a sawfly)	<i>Dioryctria gulosella</i> (a pine moth)	<i>Phenacaspis pinifoliae</i> (pine needle scale)
	<i>Neodiprion ventralis</i> (a sawfly)	<i>Dioryctria tumicolella</i> (a pitch moss borer)	

⁶ Illustrated on page 2.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
		<i>Dioryctria zimmermani</i> (Zimmerman pine moth)	
		<i>Neoclytus acuminatus</i> (redheaded ash borer)	
		<i>Orthotomicus caelatus</i> (a bark beetle)	
		<i>Petrova luculentana</i> (pine pitch-nodule maker)	
		<i>Pogonocherus mixtus</i> (a roundheaded wood borer)	
		<i>Rhyacionia bushnelli</i> (western pine tip moth)	
REDOSIER DOGWOOD <i>Cornus stolonifera</i>			
	<i>Acleris</i> sp. (a budworm)	<i>Oberea tripunctata</i> (dogwood twig borer)	<i>Aspidiotus ancylus</i> (Putnam scale)
	<i>Macremphytus testaceus</i> (a sawfly)		<i>Clastoptera proteus</i> ⁷ (dogwood spittlebug)
			<i>Pulvinaria innumerabilis</i> ⁸ (cottony maple scale)
ROBUSTA POPLAR -- (see Siouxlant cottonwood) <i>Populus angulata</i> x <i>Populus nigra</i>			
ROCKY MOUNTAIN JUNIPER -- (see eastern redcedar) <i>Juniperus scopulorum</i>			
RUSSIAN ALMOND -- (see American plum) <i>Prunus tenella</i>			
RUSSIAN OLIVE <i>Elaeagnus angustifolia</i>			
	<i>Choristoneura rosaceanus</i> (obliquebanded leafroller)		<i>Capitophorus</i> sp. (an aphid)
	<i>Estigmene acrea</i> (saltmarsh caterpillar)		<i>Empoasca fabae</i> (potato leafhopper)
SASKATOON SERVICEBERRY <i>Amelanchier alnifolia</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Chaetophloeus heterodoxus</i> (a barkbeetle)	<i>Stictocephala</i> sp. (a treehopper)
	<i>Archips cerasivoranus</i> ⁷ (uglynest caterpillar)		
SCOTCH PINE -- (see ponderosa pine) <i>Pinus sylvestris</i>			
SIBERIAN APRICOT -- (see American plum) <i>Prunus armeniaca sibirica</i>			

⁷Illustrated on page 2.⁸Illustrated on page 3.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
SIBERIAN CRABAPPLE			
<i>Malus baccata</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Conotrachelus nemuphar</i> (plum curculio)	<i>Eriosoma lanigerum</i> (woolly apple aphid)
	<i>Biston cognataria</i> (pepper-and-salt moth)	<i>Hyperplatys aspersus</i> (a roundheaded wood borer)	
	<i>Erannis tiliaria</i> (linden looper)	<i>Saperda candida</i> (roundheaded apple tree borer)	
	<i>Paleacrita vernata</i> (spring cankerworm)		
SIBERIAN ELM			
<i>Ulmus pumila</i>			
	<i>Alsophila pometaria</i> (fall cankerworm)	<i>Astyleiopus variegatus</i> (a roundheaded wood borer)	** <i>Aceria</i> sp. (a finger gall mite)
	<i>Antheraea polyphemus</i> (polyphemus moth)	<i>Magdalis armicollis</i> (red elm bark weevil)	<i>Deraeocoris histrio</i> (a plant bug)
	<i>Calligrapha scalaris</i> (elm calligrapha)	<i>Mecas mornata</i> (a roundheaded wood borer)	<i>Empoasca bipunctata</i> (a leafhopper)
	<i>Cimbex americana</i> (elm sawfly)	<i>Saperda tridentata</i> (elm borer)	<i>Lecanium corni</i> (European fruit lecanium)
	<i>Heterocampa guttivitta</i> (saddled prominent)		<i>Stictocephala taurina</i> (a treehopper)
			<i>Tortistilus inermis</i> (a treehopper)
SIBERIAN LARCH			
<i>Larix sibirica</i>			
	<i>Anavitrinella pampinaria</i> (cranberry spanworm)	<i>Dioryctria abietvorella</i> (a coneworm)	
	<i>Coleophora laricella</i> (larch casebearer)		
	<i>Pristiphora erichsonii</i> (larch sawfly)		
	<i>Semiothisa sexmaculata</i> (an inchworm)		
SIBERIAN PEASHRUB			
<i>Caragana arborescens</i>			
	<i>Epicauta fabricii</i> (ashgray blister beetle)	<i>Bruchophagus caraganae</i> (caragana seed chalcid)	<i>Acyrtosiphon caraganae</i> (caragana aphid)
	<i>Epicauta subglabra</i> (caragana blister beetle)		<i>Empoasca fabae</i> (potato leafhopper)
	<i>Lytta nuttallii</i> (Nuttall blister beetle)		<i>Macrosiphum caraganae</i> (an aphid)
			<i>Stictocephala bubalus</i> (buffalo treehopper)
			<i>Stictocephala taurina</i> (a treehopper)

**Damage by this species results in abnormal growths, swellings, or leaf curls.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
SILVERBERRY -- (see Russian olive) <i>Elaeagnus commutata</i>			
SILVER BUFFALOBERRY <i>Shepherdia argentea</i>			
	<i>Datana</i> sp. (a caterpillar) <i>Erannis tiliaria</i> (linden looper)		<i>Paratrioza arbolensis</i> (a psyllid) <i>Psylla magnicauda</i> (a psyllid)
SILVER MAPLE <i>Acer saccharinum</i>			
	<i>Erannis tiliaria</i> (linden looper) <i>Halisidota maculosus</i> (spotted tussock moth) <i>Paleacrita vernata</i> (spring cankerworm)	<i>Chrysobothris femorata</i> (flatheaded appletree borer)	<i>Aspidiotus ancyclus</i> (Putnam scale) <i>Pulvinaria innumerabilis</i> (cottony maple scale) ** <i>Vasates quadripedes</i> ⁹ (maple bladdergall mite)
SIOUXLAND COTTONWOOD <i>Populus deltoides</i> 'Siouxland'			
	<i>Acrionia lepusculina</i> (cottonwood dagger moth) <i>Alsophila pomataria</i> (fall cankerworm) <i>Chrysomela scripta</i> (cottonwood leaf beetle) <i>Hyphantria cunea</i> (fall webworm) ** <i>Phyllocolpa bozemani</i> (poplar leaf-folding sawfly)	<i>Agrilus liragus</i> (bronze poplar borer) <i>Cryptorhynchus lapathi</i> (poplar-and-willow borer) <i>Dicera divaricata</i> (a flatheaded wood borer) <i>Prionoxystus robiniae</i> (carpenterworm) <i>Saperda calcarata</i> (poplar borer)	** <i>Aceria parapopuli</i> (poplar bud gall mite) ** <i>Mordwilkoja vagabunda</i> ⁹ (poplar vagabond aphid) <i>Neothomasia populicola</i> (cloudywinged cottonwood leaf aphid) ** <i>Pemphigus populicaulis</i> ⁹ (poplar leaf-petiolegall aphid) <i>Pterocomma populifoliae</i> (reddishbrown poplar aphid)
TATARIAN HONEYSUCKLE <i>Lonicera tatarica</i>			
	<i>Linsleya sphaericollis</i> (a blister beetle) <i>Zaraea inflata</i> (honeysuckle sawfly)		<i>Empoasca fabae</i> (potato leafhopper) <i>Macrostelus fascifrons</i> (aster leafhopper) <i>Psylla negundinis</i> (boxelder psyllid)
WESTERN SANDCHERRY -- (see American plum) <i>Prunus pumila besseyi</i>			
WHITE SPRUCE -- (see blue spruce) <i>Picea glauca</i>			

**Damage by this species results in abnormal growths, swellings, or leaf curls.

⁹ Illustrated on page 3.

Table 1.--Continued

Tree species	Insect species		
	Leaf feeders	Borers	Sucking insects
WHITE WILLOW			
<i>Salix alba</i>			
	<i>Antheraea polyphemus</i> (polyphemus moth)	<i>Cryptorhynchus lapathi</i> (poplar-and-willow borer)	<i>Cavariella</i> sp. (a willow aphid)
	<i>Chrysomela scripta</i> (cottonwood leaf beetle)	<i>Janus abbreviatus</i> (willow shoot sawfly)	<i>Pterocomma</i> sp. (a willow aphid)
	<i>Cimbex americana</i> (elm sawfly)	** <i>Pontania proxima</i> (bean gall sawfly)	<i>Stictocephala bubalus</i> (buffalo treehopper)
	<i>Disonycha alternata</i> ¹⁰ (a chrysomelid leaf beetle)	<i>Prionoxystus robiniae</i> (carpenterworm)	
	<i>Hyphantria cunea</i> (fall webworm)		

**Damage by this species results in abnormal growths, swellings, or leaf curls.

¹⁰Illustrated on page 2.