

CHECKLIST OF PARASITES OF THE PECAN NUT CASEBEARER,
Acrobasis nuxvorella Neunzig (= *A. caryae* Grote), AND OTHER HOSTS
FOR BIOCONTROL AND QUARANTINE PURPOSES

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Biological control of the pecan nut casebearer (PNC) and hickory shuckworm on pecan has been limited by the ability to rear the pests on a continuous basis. Discovery of PNC in Far West Texas in 1988 and expansion into New Mexico in the El Paso/Las Cruces area threaten pecan production and place these pests in a geographically isolated area beyond their native range. Similarly, PNC was initially found in Hermosillo, Sonora, Mexico infesting pecans in 2002 and has rapidly established as the primary pest in the region. Parasites of these pests not already established in this new area are unlikely to become established naturally due to the geographical isolation of the El Paso/Las Cruces and Hermosillo areas. This list has been developed to identify PNC parasites and their other hosts in an attempt to further facilitate additional research. Some PNC parasites may be reared on other hosts that are in culture and, thereby, overcome one barrier to introducing these parasites. Hyperparasites are also noted with the obvious intention of avoiding their introduction. The checklist is presented in three tables: Table 1 is a list of primary PNC parasites and their other hosts, notation on whether the host is in culture (Edwards et al. 1987) and references (1-5) on parasitism; Table 2 is a list of hyperparasites; and Table 3 is a list of contacts for host species in culture as of ~ 2003.

Table 1. Parasites Listed by Scientific Name^{1,2}

Parasite	Host	Reference	Host species in culture
Hymenoptera <i>Agathis acrobasidis</i> (Cushman) (= <i>Bassus acrobasidis</i> Cush)	<i>Acrobasis caryae</i> Grote; <i>A. caryivorella</i> Rag.; <i>A. evanescentella</i> Dyar; <i>A. exsulella</i> (Zell.); <i>A. juglandis</i> (LeB.); <i>A. nuxvorella</i> Neunzig; <i>A. peplifera</i> Dyar; <i>A. stigmella</i> Dyar; <i>Blastodacna curvilineella</i> (Chamb.); <i>Choristoneura fumiferana</i> (Clem.); <i>C. houstonana</i> (Grote); <i>Laspeyresia ingens</i> Heinr.; <i>Rhyacionia frustrana</i> (Comst.)	3,4,5	<i>C. fumiferana</i> (Clem.) G-20
<i>Amblyteles</i> sp.	<i>Acrobasis nuxvorella</i> Neunzig	5	
<i>Apanteles epinotiae</i> Viereck	<i>Acrobasis caryivorella</i> Rag.; <i>A. nuxvorella</i> Neunzig; <i>Episimus argutanus</i> (Clem.); <i>Grapholitha molesta</i> (Busck); <i>Gypsonoma salicicolana</i> (Clem.); <i>Homoeosoma electellum</i> (Hulst); <i>Laspeyresia caryana</i> (Fitch); <i>Phalonia</i> sp.; <i>Pterophorus periscelidactylus</i> Fitch; <i>Rhyacionia</i> sp.; <i>Tetralopha robustella</i> Zell	3,4,5	<i>Grapholitha molesta</i> (Busck) P9,Z1 <i>Homoeosoma electellum</i> (Hulst) C6,R17
<i>Brachymeria hammari</i> (Crawford)	<i>Acrobasis caryae</i> Grote; <i>A. juglandis</i> (LeB.); <i>A. nuxvorella</i> Neunzig; <i>Ancylys comptoni fragariae</i> (W. and R.); <i>Archips argyrospilus</i> (Walk.); <i>Argyrotaenia citrana</i> (Fern.); <i>Filatima monotaeniella</i> (Bott.); <i>Grapholitha molesta</i> (Busck); <i>Laspeyresia caryana</i> (Fitch); <i>L pomonella</i> (L.); <i>Platynota sultana</i> Wlsh.; <i>Psorosina hammondi</i> (Riley)	3,4,5	<i>Grapholitha molesta</i> (Busck) P9,Z1
<i>Bracon variabilis</i> (Provanchers) (= <i>Microbraccon variabilis</i> Prov.)	<i>Acrobasis rubrifasciella</i> Pack; <i>A. nuxvorella</i> Neunzig; (= <i>A. caryae</i> Grote); <i>Blastodacna</i> sp.; <i>Conotrachelus nenuphar</i> (Hbst.); <i>Paralobesia viteana</i> (Clem.); <i>Tachypterellus quadrigibbus</i> (Say); <i>T. q. magna</i> List	3,4,5	
<i>Calliephialtes grapholithae</i> (Cresson)	<i>Acrobasis hebescella</i> Hulst; <i>A. juglandis</i> (LeB.); <i>A. rubrifasciella</i> Pack; <i>A. nuxvorella</i> Neunzig; <i>Carmenta texana</i> (Hy, Ed.); <i>Laspeyresia caryana</i> (Fitch); <i>Meskea dyspteraria</i> Grt.; <i>Stigmatophora ceanothiella</i> Cos.; <i>Thyridopteryx ephemeraeformis</i> (Haw.); <i>Megalopyge</i>	2,3,4,5	

Parasite	Host	Reference	Host species in culture
	<i>opercularis</i> (J. E. S.)		
<i>Chaetochlorops inquilina</i> (Coq.)	<i>Acrobasis nuxvorella</i> Neunzig	5	
<i>Cremastus</i> sp.	Usual hosts are Coleopterous stem borers or gall makers, but also rearings recorded from lepidopterous larvae <i>Acrobasis nuxvorella</i> Neunzig	4,5	
<i>Diadegma</i> sp.	<i>A. nuxvorella</i> Neunzig; Genus attacks a very wide host range.	3	
<i>Dimmockia</i> sp.	<i>Anacampsis innocuella</i> (Zell.); <i>Acrobasis nuxvorella</i> Neunzig; <i>Argyrotoxa semipurana</i> (Kearf.); <i>Episimus argutanus</i> (Clem.); <i>Sphecodina abbotii</i> (Swains.); <i>Sparganothis peltitana</i> (Rob.); <i>Exorista larvarum</i> (L.); <i>Winthemia datanae</i> (Tsn.); <i>Apanteles clisiocampae</i> Ashm.; <i>A. congregatus</i> (Say); <i>A. melanoscelus</i> (Ratz.); <i>Psychophagus omnivorus</i> (Wlk.); <i>Sphecophaga burra</i> (Cress.); almost always a secondary parasite.	3,4,5	
<i>Euderus acrobasis</i> (Crawford) (= <i>Secodella acrobasis</i>)	<i>Acrobasis juglandis</i> (LeB.); <i>A. nuxvorella</i> Neunzig; (= <i>A. caryae</i> Grote); <i>Laspeyresia pomonella</i> (L.)	2,3,4	
<i>Euderus purpureus</i> Yoshimoto	<i>Grapholitha molesta</i> (Busck); <i>Acrobasis nuxvorella</i> Neunzig	3,4	
<i>Eulophine</i> sp.	<i>Acrobasis nuxvorella</i> Neunzig	5	
<i>Eupelmus limneriae</i> Howard. Conn.	<i>Grapholitha molesta</i> (Busck); <i>Acrobasis nuxvorella</i> Neunzig ; <i>Homaledra sabalella</i> (Chamb.); <i>Campoplex validus</i> (Cress.); <i>Ceratismicra</i> sp.; <i>Macrocentrus ancylivorus</i> Roh.	3,4	<i>Grapholitha molesta</i> (Busck), P9,Z1
<i>Gelechia variabilis</i> (Provancher)	<i>Acrobasis nuxvorella</i> Neunzig; (= <i>A. caryae</i> Grote); <i>A. rubrifasciella</i> Pack; <i>Blastodacna</i> sp.; <i>Conotrachelus nenuphar</i> (Hbst.); <i>Paralobesia</i>	2,4	<i>Conotrachelus nenuphar</i> (Hbst.),

Parasite	Host	Reference	Host species in culture
	<i>viteana</i> (Clem.); <i>Tachypterellus quadrigibbus</i> (Say); <i>T. q. magnas</i> List.		G10,P9
<i>Goniozus columbianus</i> Ashmead	<i>Acrobasis nuxvorella</i> Neunzig ; <i>Ancylis comptana fragariae</i> (W. and R.); <i>Rhyacionia buoliana</i> (Schiff.)	3,4	<i>Rhyacionia buoliana</i> (Schiff.) Z1
<i>G. foveolatus</i> (Brues.)	<i>Acrobasis nuxvorella</i> Neunzig (=A. <i>caryae</i> Grote); <i>Polychrosis viteana</i> (Clem.); <i>Coleophora malivorella</i> Riley; <i>Ancylis comptana fragariae</i> (W. and R.); <i>Anchylopera nubeculana</i> (Clem.); <i>Grapholitha molesta</i> (Busck); <i>Acrobasis caryvorella</i> Rag.; <i>Gracilaria negundella</i> Charnb.; <i>Nemapogon granella</i> (L.); <i>Laspeyresia caryana</i> (Fitch); <i>Rhyacionia buoliana</i> (Schiff.)	4,5	<i>Grapholitha molesta</i> (Busck), P8Z1; <i>Rhyacionia buoliana</i> (Schiff.), Z1
<i>G. fratellus</i> Evans	<i>Acrobasis nuxvorella</i> Neunzig	3	
<i>G. punctaticeps</i> (Kieffer)	<i>Acrobasis nuxvorella</i> Neunzig	3	
<i>Habrabracon variabilis</i> (Cush)	<i>Acrobasis nuxvorella</i> Neunzig	2,4	
<i>Itoplectis conquisitor</i> (Say)	<i>Hyaloscotes pithopoera</i> (Dyar); <i>Oiketicus abbotti</i> Grt.; <i>Thyridopteryx ephemeraeformis</i> (Haw.); <i>Coleophora frischella</i> (L.); <i>C. pruniella</i> Clem.; <i>Epermenia cicutaella</i> Kft.; <i>Anacamptis inocuella</i> (Zell.); <i>Dichomeris marginella</i> (F.); <i>Choristoneura conflictana</i> (Wlk.); <i>C. fumiferana</i> (Clem.); <i>C. lambertiana</i> (Bsk); <i>C. pinus</i> Free; <i>Aphelia alleniana</i> (Fern); <i>Archips argyrospilus</i> (Wlr.); <i>A. cerasivoranus</i> (Fitch); <i>A. georgianus</i> (Wlk.); <i>A. rileyanus</i> (Grt.); <i>Argyrotaenia cockerellana</i> (Kft.); <i>A. pinatubana</i> (Kft.); <i>A. velutinana</i> (Wlk.); <i>Acleris hastiana</i> (L.); <i>A. minuta</i> (Rob.); <i>Cnephasia virgaureana</i> Treit.; <i>Sparganothis pettitana</i> (Rob.); <i>S. flavibasana</i> (Fern.); <i>Xenotemna pallorana</i> Rob.; <i>Ancylis comptana</i> (Froel.); <i>A. c. fragariae</i> (W. and R.); <i>Evora hemidesma</i> (Zell.); <i>Paralobesia viteana</i>	4,5	<i>C. fumiferana</i> (Clem.),G20; <i>Rhyacionia buoliana</i> (D. and S.), Z1;

Parasite	Host	Reference	Host species in culture
	(Clem.); <i>Rhyacionia buoliana</i> (D. and S.); <i>R frustrana</i> (Com.); <i>R frustrana bushnelli</i> (Bsk.); <i>Spilanota ocellana</i> (D. and S.); <i>Pterophorus periscelidactylus</i> Fitch; <i>Acrobasis betulella</i> Hulst; <i>A. caryvoriella</i> Rag.; <i>A. juglandis</i> (LeB.); <i>A. kearfottella</i> Dyar		
<i>Itoplectis conquisitor</i> (Say) (continued)	<i>A. rubrifasciella</i> Pack; <i>Diorycteria reniculella</i> (Grt.); <i>Diaphania hyalinata</i> (L.); <i>Ostrinia nubilalis</i> (Hbn.); <i>Cingilia catenaria</i> (Drury); <i>Lambdina fervidaria</i> (Wlk.); <i>L. fiscellaria fiscellaria</i> (Gn.); <i>Ennomos subsignarius</i> (Hbn.); <i>Nematocampa filamentaria</i> Gn.; <i>Rheumaptera hastata</i> (L.); <i>Dryocampa rubicunda</i> (F.); <i>Malacosoma americanum</i> (F.); <i>M. disstria</i> Hbn.; <i>M. californicum fragile</i> (Stretch); <i>Dasychira plagiata</i> (Wlk.); <i>Lymantria dispar</i> (L.); <i>Orgyia antiqua</i> (L.); <i>O. leucostigma</i> (J. E. S.); <i>Alabama argillacea</i> (Hbn.); <i>Anomis erosa</i> Hbn.; <i>Exyra semicrocea</i> (Gn.); <i>Simyra henrici</i> (Grt.); <i>Trichoplusia ni</i> (Hbn.); <i>Lascoria ambigualis</i> (Wlk.); <i>Hyphantria cunea</i> (Drury); <i>Hemileuca</i> sp.; <i>Urbanus proteus</i> (L.); <i>Thymelicus lineola</i> (Ochs.); <i>Pieris rapae</i> (L.); <i>Graphium marcellus</i> (Cramer); <i>Diprion similis</i> (Htg.); <i>Neodiprion abietis</i> (Harr.); <i>Rogas stigmator</i> (Say); <i>R. terminalis</i> (Cr.); <i>Dusona ellopiae</i> (Wly.); <i>Gambrus extrematus</i> (Cr.); <i>Hyposoter fugitivus</i> (Say); <i>Phobocampe clisiocampae</i> (Weed); <i>P. pallipes</i> (Prov.); <i>Acrobasis nuxvorella</i> Neunzig	4,5	<i>Diaphania hyalinata</i> (L.), E2; <i>Ostrinia nubilalis</i> (Hbn.), A5, A6, B15, G21, H10, J6, P5, M7, M8, M10, R5, R21, R16, S21; <i>Lymantria dispar</i> (L.), F9, H21, O1, R13, S19, T2, W3; <i>Orgyia antiqua</i> (L.), G20; <i>O. leucostigma</i> (J. E. S.), G20, S19; <i>Trichoplusia ni</i> (Hbn.), A4, B2, B11, B10, B15, E1, H22, J2, J3, K4, L4, P6, S15, W4, W13; <i>Hyposoter fugitivus</i> (Say), S19
<i>Macrocentrus instabilis</i> Muesebeck	<i>Acrobasis betulella</i> Hulst; <i>A. caryvorella</i> Rag.; <i>A. hebescella</i> Hulst; <i>A. juglandis</i> (LeB.); <i>A. nuxvorella</i> Nuenzig (= <i>A. caryae</i> Grote); <i>A. rubrifasciella</i> Pack; <i>Coleophora malivorella</i>	3,4,5	<i>Grapholitha molesta</i> (Busck), P9, Z1

Parasite	Host	Reference	Host species in culture
	Riley; <i>Grapholitha molesta</i> (Busck); <i>Homaledra sabalella</i> (Chamb.); <i>Laspeyresia caryana</i> (Fitch); <i>L. pomonella</i> (L.); <i>Rhyacionia rigidana</i> (Fern)		
<i>Montanus</i> sp. (= <i>Angitia</i> sp.)	<i>Dioryctria</i> sp.; <i>Acrobasis nuxvorella</i> Neunzig; <i>Zeiraphera</i> sp; <i>Z. fortunana</i> Kft.; <i>Acleris variana</i> (Fern.); <i>Choristoneura fumiferana</i> (Clem.); <i>C. occidentalis</i> Free; leaf roller on poplar, leaf tier on <i>Vaccinium</i>	4,5	<i>Choristoneura fumiferana</i> (Clem.), G20; <i>C. occidentalis</i> Free, G20, M6
<i>Nemorilla floralis</i> (Fall.)	<i>Acrobasis nuxvorella</i> Neunzig	5	
<i>Orgilus maculiventris</i> (Cresson)	<i>Antaeotricha humilis</i> (Zell)	4,5	
<i>Phanerotoma tibialis</i> (Haldeman)	<i>Acrobasis nuxvorella</i> Neunzig (= <i>A. caryae</i> Grote); <i>Acrobasis betulella</i> Hulst; <i>A. caryivorella</i> Rag.; <i>A. rubrifasciella</i> Pack; <i>A. sylviella</i> EIy ; <i>Tetralopha asperatella</i> (Clem.)	3,4,5	
<i>Pristomerus austrinus</i> Townes and Townes	<i>Acrobasis caryivorella</i> Rag.; <i>A. nuxvorella</i> Neunzig; <i>A. vaccinii</i> Riley; <i>Epiblema scudderianum</i> (Clem.) ; <i>Grapholitha molesta</i> (Bsk.); <i>Gretchena bolliana</i> (Sling); <i>Gypsonoma haimbachiana</i> (Kft.); <i>Laspeyresia pomonella</i> (L.)	3,4	<i>Grapholitha molesta</i> (Bsk.), P9, Z1; <i>Gretchena bolliana</i> (Sling), M16
<i>Pristomerus euryptychiae</i> Ashmead	<i>Ancylis comptana</i> (Froel.); <i>Ecdytolopha insiciana</i> Zeller; <i>Epiblema otiosanum</i> (Clem.); <i>E. strenuanum</i> (Wlk.); <i>Grapholitha molesta</i> (Bsk.); <i>Gypsonoma haimbachiana</i> (Kft.); <i>Laspeyresia pomonella</i> (L.); <i>Proteoteras willingana</i> (Kft.); <i>Acrobasis caryivorella</i> Rag.; <i>A. nuxvorella</i> Neunzig; <i>A. juglandis</i> (LeB.); <i>Vanessa atalanta</i> (L.)	4,5	
<i>Secodella subopaca</i> (Gahan)	<i>Cylindrocopturus eatonic</i> Buchanan; <i>Acrobasis nuxvorella</i> Neunzig (= <i>A. caryae</i> Grote); <i>Grapholitha molesta</i> (Busck); <i>Rhyacionia buoliana</i> (Schiff.); <i>R. frustrana</i> (Comst.); <i>Spilota ocellana</i> (D. and S.); <i>Bracon. variabilis</i> (Prov.)	4,5	<i>Grapholitha molesta</i> (Busck), P9, Z1; <i>Rhyacionia buoliana</i>

Parasite	Host	Reference	Host species in culture
			(Schiff.), Z1
<i>Temelucha</i> sp.	Parasitizing lepidopterous larvae which conceal themselves in insect eggs.	3,4	
<i>Trichogramma minutum</i> Riley	Insect eggs deposited in arboreal habitats are parasitized; <i>Acrobasis nuxvorella</i> Neunzig, NCN	4,5	<i>Acrobasis nuxvorella</i> Neunzig, NCN, L2,L6
<i>Zatropis tortricidis</i> Crawford	<i>Etiella zinckenella</i> (Treit.); <i>Polychrosis viteana</i> (Clem.); <i>Acrobasis nuxvorella</i> Neunzig	3,4	
<i>Zenilla boarmiae</i> (Coq.)	<i>Acrobasis nuxvorella</i> Neunzig	5	
<i>Zenilla</i> sp.	<i>Acrobasis nuxvorella</i> Neunzig	5	
Diptera Tachinidae <i>Nemorilla mocusia</i> Meig	<i>Acrobasis nuxvorella</i> Neunzig	2	
<i>Didyma exigua</i> Van	<i>Acrobasis nuxvorella</i> Neunzig	2	

¹ Hosts are listed alphabetically by genus.

² Hosts in culture are designated by a letter/number code referring to contents in Table 3.

Table 2. Hyperparasites Listed by Scientific Name

Parasite	Host	Reference
<i>Secodella</i> N. sp.	<i>Microbracon variabilis</i> (primary parasite)	5
<i>Eupelmus amicus</i> Girault	<i>Bassus acrobasides</i> ; <i>Brachymeria hammari</i> ; <i>Calliephialtes grapholithae</i> ; <i>Macrocentrus instabilis</i> ; <i>Microbracon variabilis</i> ; <i>Perisierola cellularis</i> var. <i>punctaiceps</i>	3,4,5
<i>Eurytoma tylodermatis</i> (Ashm.)	<i>Microbracon variabilis</i> ; <i>Macrocentrus instabilis</i> ; <i>Bassus acrobasidis</i>	5
<i>Calliephialtes grapholithae</i> (Cress.)	<i>Bassus acrobasidis</i>	5
<i>Perilampus fulvicornis</i> Ashm.	<i>Apanteles epinotiae</i> ; <i>Bassus acrobasidis</i> ; <i>Calliephialtes grapholithae</i> ; <i>Microbracon variabilis</i> ; <i>Perasierola cellularis</i> var. <i>punctaiceps</i> ; <i>Orgilus maculiventris</i> ; <i>Phanerotoma tibialis</i> ; <i>P. fasciata</i> (Prov.)	3,4,5
<i>Perasierola cellularis</i> var. <i>punctaiceps</i> Kieffer	<i>Laspeyresia caryana</i> (Fitch); <i>Acrobasis</i> sp.; <i>A. caryae</i> Gt.; <i>Pectinophora gossypiella</i> (Sound.)	4,5

Table 3. List of Contacts (Edwards 1987)

Host species in culture code	Contact
A4	Anderson, T. Boyce Thompson Institute, Tower Road, Ithaca, NY 14853, 607-257- 2030.
A5	Andow, D. A. University of Minnesota, 219 Hodson Hall, 1980 Folwell Avenue, St. Paul, MN 55108, 612-373-1700.
A6	Andreadis, T. Connecticut Agricultural Experiment Station, Box 1106, 123 Huntington Street, New Haven, CT 06504, 203-789-7260.
B2	Bariola, L. A. USDA-ARS, Western Cotton Research Lab., 4135 E. Broadway, Phoenix, AZ 85040, 602-261-3524.
B10	Bielefeld, U. Stauffer Chemical Co., Mountain View Research Center, Box 760, Mountain View, CA 94042, 408-773-2605.
D11	Biever, K. D. USDA-ARS, Yakima Agricultural Research Lab., 3706 W. Nob Hill Blvd., Yakima, WA 98902, 509-575-5877.
B15	Blenk, R. G., ICI Americas Inc., Box 208, Goldboro, NC 27534, 919-731-5200.
C6	Chippendale, G. M. University of Missouri, Department of Entomology, Columbia, MO 65211, 314-882-8346.
E1	Edwards, D. R., and Fisher, W. FMC Corporation, Box 8, Route 1, Princeton, NJ 08540, 609-452-2300.
E2	Else, K. U.S. Vegetable Lab., 2875 Savannah Highway, Charleston, SC 29407, 803-551-2210.
F9	Fuester, R. W. USDA-ARS-BIRL, 501 S. Chapel Street, Newark, DE 19713, 302-731-7330.
G10	Goonewardene, H. F. Purdue University, Department of Entomology, West Lafayette, IN 47907, 317-494-4607.
G20	Grisdale, D. Canadian Forestry Service, Forest Pest Management Institute, Box 490, Sault Ste. Marie, Ontario P6A 5M7, Canada, 705-949-9461.
G21	Guthrie, W. D. USDA-ARS, Box 45B, Route 3, Ankeny, IA 50021, 515-964-6664.
H10	Higgins, R. A. Kansas State University, Department of Entomology, Waters Hall, Manhattan, KS 66506, 913-532-6154.
H21	Huffman, R. NJDA, CN 330, Trenton, NJ 08625, 609-771-4168.
H22	Hughes, P. R. Boyce Thompson Institute, Tower Road, Ithaca, NY 14853,607-

Host species in culture code	Contact
	257-2030.
J2	Jaques, R. P. Agriculture Canada Research Station, Harrow, Ontario N0R 1G0, Canada, 519-738-2251.
J3	Jaronski, S. T. Abbot Laboratories, 1400 Sheridan Road, North Chicago, IL 60064.
J6	Jones, R. L. University of Minnesota, 219 Hodson Hall, 1980 Folwell Avenue, St. Paul, MN 55108, 612-376-2538.
K4	Krell, P. University of Guelph, Department of Microbiology, Guelph, Ontario N1G 2W1, Canada, 519-824-4120.
L2	Laing, J. E. University of Guelph, Department of Microbiology, Guelph, Ontario N1G 2W1, Canada, 519-824-4120.
L4	Leppla, N. C. USDA-ARS, Box 14565, Gainesville, FL 32604, 904-374-5747.
L6	Lopez, J. D. USDA, Cotton Insects Research Lab, Drawer DG, College Station, TX 77841, 409-260-9351.
M6	Martignoni, M. E. USDA-ARS, Forest Sciences Lab, 3200 Jefferson Way, Corvallis, OR 97331, 503-757-4328.
M7	Masley, T. Monsanto, 700 Chesterfield Village Parkway, St. Louis, MO 63198, 314-537-4548.
M8	McClanahan, R. J. Agriculture Canada Research Station, Harrow, Ontario N0R, 1G0, Canada, 519-738-2251.
M10	McGregor-Smith, C. I. Agriculture Canada Research Station, University Sub Post Office, London, Ontario N6A 5B7, Canada, 519-679-4452.
M16	Mizell, R. F. University of Florida, Box 63, Route 4, Monticello, FL 32344.
NCN	No common name.
O1	O'Dell, T. M. USDA-ARS, Northeastern Forest Experiment Station, 51 Mill Pond Road, Hamden, CT 06514, 203-773-2036.
P5	Perron, J. M. University of Laval, Department of Biology, Quebec G1K 7P4, Canada, 418-656-3594.
P6	Peters, P. USDA-ARS, Biological Control Lab, Box A Research Park, Columbia, MD 65205, 314-875-5361.
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