

PROCEDURES FOR ENCODING TOXICITY DATA PUBLISHED IN THE OPEN LITERATURE FOR USE IN ECOLOGICAL RISK ASSESSMENTS

U.S. Environmental Protection Agency (EPA) Office of
Pesticide Products (OPP) Environmental Fate and Effects
Division (EFED)

EFED Chemical Verification, Literature Searching and Application
of EFED Criteria

Prepared for:

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Office of Research and Development (ORD)
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Mid-Continent Ecology Division (MED)
Duluth, Minnesota

By:

CSRA LLC, Duluth, Minnesota
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OVERVIEW

This Standard Operating Procedure (SOP) documents the procedure for the U.S. Environmental Protection Agency (EPA) Office of Pesticide Products (OPP) Environmental Fate and Effects Division (EFED) chemical verification, literature searches, identifying toxicological literature for acquisition and application of EFED criteria for chemicals identified in Mid-Continent Ecology Division (MED) Work Requests.

RELATED SOPS

Documentation Related to the EFED Project:

Help
Document Name
ECOTOX Literature Searches, Citation Identification and Skimming
ECOTOX Literature Acquisition and Paper Processing
EFED Coding Guidelines SOP
ECOTOX Chemical Verification and Entry Procedure
EFED Reports

EFED CHEMICAL VERIFICATION

The EFED chemical verification process is:

1. Verify CAS numbers provided by EFED are in the UNIFY Chemicals system
 If yes, go to step 2
 If no, this goes to chemical verification
2. Verify names provided by EFED are in the UNIFY Chemicals system
 If yes, go to step 3
 If no, this goes to chemical verification
3. Finding related chemicals that may be of interest to EFED (e.g., degradates, other forms, etc.) and synonym names and trade names to include in the search strategy. Please note that trade names should be used with care. Ensure that the trade name is not used for multiple chemicals prior to using it in the literature search.

Search the UNIFY Chemicals for names that are similar to the chemical names that EFED has requested. The chemical verification staff should search for part of the name in the UNIFY Chemicals to see if there are any similar name matches.

For example, EFED has requested pentachlorophenol. Contractor noted that there was also pentachlorophenol sodium salt. Contractor asked EFED if this should be added to the pentachlorophenol chemical list. A second example is for Antimycin A. The chemical verification staff should search on just Antimycin to check for additional chemicals. A third example is for metal compound. If EFED requested copper sulfate,

the metal copper is used. The best way to find these additional chemicals is to use the “contains” feature for chemical name searches rather than “starts with”.

PAN: The Pesticide Action Network (<http://www.pesticideinfo.org>) is a site that provides information about pesticides. After entering a name or CAS number into the search field, choose the chemical of interest from the search results and scroll down to the bottom of the page. Related chemicals will be listed here along with a reason. Parent chemicals, derivatives, and degradates/metabolites can be found here.

PFATE: EPA’s Pesticide Fate Database is a database that provides degradates for pesticides. Searching on a chemical name returns associated degradates. These degradates are sent to EFED for review. The contractor has a copy of the PFATE database located in their directory N:\Chemicals\PFATE.

DOC: Check the Dictionary of Chemical Names and Synonyms and the ChemBioFinder website (www.chembiofinder.com) for synonym names. STN should also be used for the synonym search if a search was conducted to verify the chemical. These names should be compiled into a list that is used for searching bibliographic databases for new papers. Chemical names and synonyms that may result in “false hits” during the literature searches, should be in a separate list directly beneath the synonym list under the heading “Synonyms that may cause false hits”. **Be sure that this list also includes additional chemicals that were found in step 3.

Appendix A from the *UNIFY Chemicals Chemical Verification SOP* is a list of approved sources of verification for chemical names and structures. The most common websites searched include:

- ChemBioFinder
- Compendium of Pesticide Common Names
- California Department of Pesticide Regulation

If the chemical cannot be found on these websites or any other approved sources, an Internet search is performed to locate additional information. Any degradates found during synonym searches are forwarded to EPA for approval.

4. An email (see Example Email 1 or Email 2 below) summarizing the information about the chemicals being coded for either initial or refresh chemicals is sent to the EPA at least two months prior to the deliverable date. Along with an email, a Word document showing the chemical structures of the chemicals should be included (see Appendix C). The email serves to document the chemicals, related chemicals and target species to be coded and document issues that arise from the chemical verification process, e.g. CAS Numbers and chemical names not matching. Emails need to be sent to EFED through the EPA MED Data Coordinator documenting any issues. If there are issues found regarding the chemicals, clarification by the EPA should be requested by providing information that was found during chemical verification and/or offer a resolution for the problem (see example Emails 3 and 4, below). If questions are sent to EFED, all questions and responses are tracked at the Contractor site (G:/EFED Questions Tracking Table.xls). For both initial and related chemicals questions, if EFED does not respond by one month prior to the deliverable date, CSRA should process the

chemical as requested; or as was done in the previous data submission (i.e., if initial review, only include the requested chemical(s). If a previous data submission, do not add new chemicals that were identified.

Example Email 1

Please forward the following documentation for the EFED Thiobencarb report; this correspondence is to verify the compounds to be included in the report. Verification is needed in order to start work; CSRA is scheduled to initiate the task as soon as possible in order to deliver this report on September 1, 2016.

Thiobencarb – Refresh from February 2009

CSRA is providing the compounds listed below and an attachment as documentation for the Thiobencarb Refresh EFED Report. CSRA is scheduled to deliver this report on September 1, 2016.

The Chemical Use is defined as Herbicide and the Targets are identified as Plants
only plants on plant species list EFED Acquisition Appendix B, Table 1 and Table 2.
Included is a copy of the EFED Acquisition Appendix B for your reference.

Listed below are the three previously approved chemicals. CSRA located ten additional related chemicals not previously approved. Two of these chemicals will not be included as a CAS number could not be located.

CSRA requests approval or advisement if there are changes to this list.

Three (N=3) previously approved chemicals

28249-77-6 Thiobencarb
51954-76-8 Thiobencarb sulfoxide
5925-80-4 4-Chlorobenzyl methyl sulfone

Eight (N=8) additional related chemicals, not previously approved

39918-94-0 Desethylthiobencarb
60766-35-0 2-Hydroxythiobencarb
77916-81-5 3-Hydroxythiobencarb
51954-75-7 Thiobencarb sulfone
74-11-3 4-Chlorobenzoic acid
104-88-1 4-Chlorobenzaldehyde
873-76-7 4-Chlorobenzyl alcohol
24176-68-9 4-Chlorobenzylmethyl sulfoxide

Two (N=2) chemicals not included as CAS number unavailable

O-[(4-chlorophenyl)methyl]diethyl carbamate
4-Chloro methyl sulfone

Example Email 2

Please forward the following documentation for the EFED Metribuzin report; this correspondence is to verify the compounds to be included in the report. Verification is needed in order to start work; CSRA is scheduled to initiate the task as soon as possible in order to deliver this report on October 15, 2016.

Metribuzin - Not a Refresh

CSRA is providing the compounds listed below and attachment as documentation for the Metribuzin EFED Report. CSRA is scheduled to deliver this report on October 15, 2016.

The Chemical Use is defined as Herbicide and the Targets are identified as Plants
only plants on plant species list EFED Acquisition Appendix B, Table 1 and Table 2. Included is a copy of the EFED Acquisition Appendix B for your reference.

There were 13 related chemicals located. Listed below are the proposed chemicals for inclusion (N=5). Nine related chemicals will not be included as a CAS number could not be located.

CSRA requests approval or advisement if there are changes to this list.

Five (N=5) Proposed Chemicals to Include

21087-64-9 – Metribuzin (Parent)

(Related)

35045-02-4 – Desaminometribuzin

64529-56-2 – Ethyl metribuzin

52236-30-3 – Desaminodiketometribuzin

56507-37-0 – Diketometribuzin

Nine (N=9) Related chemicals not included as a CAS number could not be located

6-tert-Butyl-4,5-dihydro-1,2,4-triazin-5-one-3-mercaptopuric acid

t-BuOH-desamino-metribuzin: 6-(1-Hydroxy-1-methyl-ethyl)-3-methylsulfanyl-4H-[1,2,4]-triazine-5-one

Desmethythio-metribuzin: 4-Amino-6-(1,1-dimethylethyl)-1,2,4-triazine-5(4H)-one

4-Methyl-desamino-diketo-metribuzin: 4-Methyl-6-(1,1-dimethylethyl)-1,2,4-triazine-3,5(2H,4H)-dione

M09: 4-Amino-6-(2,2-dimethylethyl-ethanol)-3-methylthio)-1,2,4-triazin-5-(4H)-one

M04: 6-(2,2-Dimethyl-ethanol)-1,2,4-triazine-3,5(2H,4H)-dione

M05: 6-(2,2-Dimethyl-ethanol)-3-(methylthio)-1,2,4-triazine-5-(4H)-one

M08: 4-Amino-6-(2,2-dimethyl-ethanol)-1,2,4-triazine-3,5(2H,4H)-dione

M15: Sulfamate-metribuzin

Example Email 3

CSRA has found an error with CAS numbers/chemical names assigned by the EFED group. CSRA is seeking a clarification on the CAS numbers and names for the Chlorflurenol chemicals.

While performing chemical verification, CSRA discovered that Chlorflurenol methyl and Chlorflurenol methyl ester are synonyms of the same CAS Number; 2536-31-4 (See the first record below). EFED

reports that the CAS number for Chlorfluorene methyl ester as 37339-61-0. STN does not list Chlorfluorene methyl ester as a synonym for this CAS number (see second record below). It does appear that Chlorfluorene methyl ester is one of three components of this compound.

CSRA would like to know if EFED would like the CAS Number 37339-61-0 to be used as it is not Chlorfluorene methyl ester. If this CAS # is to be used, what is the correct name that EFED would like to have associated with this CAS number?

L3 ANSWER 1 OF 1 COPYRIGHT 1985 ACS on STN

RN 2536-31-4 LREGISTRY

CN 9H-Fluorene-9-carboxylic acid, 2-chloro-9-hydroxy-, methyl ester (9CI)
(CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Fluorene-9-carboxylic acid, 2-chloro-9-hydroxy-, methyl ester (7CI, 8CI)

OTHER NAMES:

CN 2-Chloro-9-fluorene-9-carboxylic acid methyl ester

CN 2-Chloro-9-hydroxy-9H-fluorene-9-carboxylic acid methyl ester

CN 2-Chloro-9-hydroxyfluorene-9-carboxylic acid methyl ester

CN CF 125

CN Chlorfluorene IT 3456

CN Chlorfluorene methyl

CN Chlorfluorene methyl ester

CN Chlorfluorene-methyl

CN Chlorfluorene methyl

CN Chlorfluorene methyl ester

CN Chlorfluorene methyl ester

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN

RN 37339-61-0 REGISTRY

ED Entered STN: 16 Nov 1984

CN 9H-Fluorene-9-carboxylic acid, 2,7-dichloro-9-hydroxy-, methyl ester,
mixt. with methyl 2-chloro-9-hydroxy-9H-fluorene-9-carboxylate and methyl
9-hydroxy-9H-fluorene-9-carboxylate (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 9H-Fluorene-9-carboxylic acid, 2-chloro-9-hydroxy-, methyl ester, mixt.
contg. (9CI)

CN 9H-Fluorene-9-carboxylic acid, 9-hydroxy-, methyl ester, mixt. contg.
(9CI)

OTHER NAMES:

CN 2-Chloro-9-hydroxyfluorene-9-carboxylic acid methyl ester

9-hydroxyfluorene-9-carboxylic acid methyl ester 2,7-dichloro-9-
hydroxyfluorene-9-carboxylic acid methyl ester mixt.

CN CF 125

CN Maintain CF 125

CN Morphactin CF 125

DR 63100-35-6

MF C15 H12 O3 . C15 H11 Cl O3 . C15 H10 Cl2 O3

CI MXS

Example Email 4

There are additional compounds that have bromine chloride identified as a synonym (listed below). Would EFED like these compounds included in the data for Bromine chloride (CAS# 13863-41-7 (Molecular formula: BrCl) or should these be omitted?

CAS	Name	Mol. Formula

12360-50-8	Bromine chloride	BrCl ₃
12360-51-9	Bromine chloride	Br ₂ Cl ₂
12360-52-0	Bromine chloride	Br ₃ Cl
55799-34-3	Bromine chloride	Br ₂ Cl

5. Chemical Verification. Access the “ECOTOX Chemical Verification and Entry Procedure” and follow all standard verification procedures.

6. Once an EFED chemical is verified and entered into the UNIFY Chemicals, return to Step 3 of EFED Chemical Verification. All information for a chemical report (chemical name, CAS#, target species, synonyms to be used in the literature search and structures) should be documented in the current chemical report format (Appendix F). Synonyms for use in the literature search are also provided in a separate Word document. The synonyms should be entered in OR delimited format (XXX OR XXX, e.g. Dursban OR Lorsban).

7. To find the target species group(s) for any pesticide, go to the PAN website and enter in the EFED chemical at http://www.pesticideinfo.org/Search_Chemicals.jsp

The target species is the same as the “use type” category on the search results page. If no target species is available through PAN, an internet search should be conducted to try and locate a use. If no use is found, “NA” is entered in the EFED schedule. If a related chemical is located and the use type for the related chemical is not reported in PAN nor can it be identified from other online sources, then no use type is applied. The EFED Quick Glance will identify the TARGET2012/PESTS/WEEDS species groups (see Table 1).

Table 1. Chemical Use Type Category (PAN) and ECOTOX Target Species Groups

Chemical Use Type	Target Species Group
Avicide/Bird Repellant	Laboratory/Domesticated Birds (Wild Birds, OK)
Algaecide	Terrestrial Algae
Deer Repellant	No target group
Plant Growth Regulator	Plants on plant species list EFED Acquisition Appendix B, Table 1 and Table 2
Fumigant	Terrestrial Fungi, Nematodes, Insects (including pest species listed in Appendix B, Table 3). Exceptions are beneficial insects such as bees, spiders, beetles, butterflies and some mites that are not pest species (See Appendix E). Beneficial insect species are not considered a target species for insecticidal exposures.,
Fungicide	Terrestrial Fungi
Herbicide (includes Defoliant)	Plants on plant species list EFED Acquisition Appendix B, Table 1 and Table 2
Insect Growth Regulator	Insects (including pest species listed in Appendix B, Table 3). Exceptions are beneficial insects such as bees, spiders, beetles, butterflies and some mites that are not

Chemical Use Type	Target Species Group
	pest species (See Appendix E). Beneficial insect species are not considered a target species for insecticidal exposures.
Insecticide*	Insects (including pest species listed in Appendix B, Table 3). Exceptions are beneficial insects such as bees, spiders, beetles, butterflies and some mites that are not pest species (See Appendix E). Beneficial insect species are not considered a target species for insecticidal exposures.
Microbiocide	Terrestrial Fungi
Molluscicide	Terrestrial Mollusks (within the INVERT subdatabase)
Nematocide	Terrestrial Nematodes (Note: Some older references may still be listed under INVERT species group)
Piscicide	No target group
Rodenticide	Rodents (Other mammals OK)
Wood Preservative	No target group

The Quick Glance (Contractor site WO001 EFED_Quick_Glance.xlsx) for chemicals will be updated with the TARGET2012/PESTS/WEEDS groups in EFED literature searches and ECOTOX holdings searches. If <50 references and/or papers are received for any chemical (only initial search, not subsequent (refresh), forward a message to the EPA staff to determine whether all TARGET2012/PESTS/WEEDS references/papers should be acquired and coded.

8. During the EFED reviewing process, reviewers may find papers with additional possible synonyms for the Chemical of Concern (COC). These synonyms will have to be verified using the process above. If the chemical is indeed a synonym of the COC, it will have to be entered into the UNIFY Chemicals (if not present already). All synonyms used during the coding of papers must be verified in the UNIFY Chemicals. Note: PAH and 24DXY were group codes, but as specific chemicals were added, the term now means that test chemical under this chemical group is reported, but specific Chemical Group code not created, so the group code is assigned.

9. Upon completion of the chemical verification process, set up the chemical tracking and reports (see the EFED Chemical Reports SOP).

THE EFED SEARCH

The EFED search is conducted on internet data bases and for the purpose of discovering documents that may be relevant to particular EFED chemicals. The chemicals to be searched as well as the timing of the searches are set forth in the appropriate IDing schedule located on the G: drive. The search process is comprised of constructing the search, conducting the search, assembling the search results into a ProCite file, and *real time* documenting of the process in a Search Memo (see APPENDIX G for an example).

Constructing the EFED Search

Constructing the search begins by creating a set of *general search terms*. The terms to be included are provided by the chemical lead and are located on the Contractor site. Non-English and long scientific chemical names are not used in the searches. Also note that if one term is part of another term, e.g. Chlorpyrifos and Chlorpyrifos oxon, only the first term is used, e.g. Chlorpyrifos.

For example, the following terms are listed for the chemical propachlor:

Acilid OR Albrass OR Bexton OR CP 31393 OR Kartex A OR Muharicid OR
Nitacid OR Propachlor OR Propachlore OR Ramrod Flo OR Ramrod 65 OR
Satecid OR US EPA PC Code 019101

(Please note that terms containing a space will have to be contained within parentheses, brackets, or quotations marks at some point. The advantages/disadvantages of each varies from site to site.).

When conducting the search, the set of *general search terms* will be modified for each of the internet sites. The modifications required for a particular site are part of what is referred to as the Search Strategy *for that site*. The Search Strategy for a site is comprised of the set of *general search terms*, site specific sub-data bases, site specific exclusion terms, and the site specific syntactical form of the search.

Conducting the EFED Search

The EFED search is conducted on the internet sites of *Science Direct*, *ProQuest Dissertation Abstracts*, *ProQuest ESPM*, *Agricola*, *Web of Science*, and *TOXNET*.

Science Direct

In addition to the set of *general search terms*, the EFED Search Strategy for *Science Direct* is comprised of specific document fields, sub-data bases, and exclusion terms. The syntactical form of the *Science Direct* search is as follows:

Tak(Term1 OR Term2 OR Term3) AND NOT key(human* or child* or occupat*
OR infant* OR homind* OR woman OR women OR patient* OR OSHA OR
chromatograph* OR Spectrometr* OR pediatric*)

Tak (highlighted in yellow) stands for Title, Abstract, and Keyword. These are the fields that will be searched in the documents contained in the *Science Direct* data base. The

terms highlighted in blue are exclusion terms. All *Science Direct* documents in which any of the exclusion terms appear in the Keyword field will be automatically excluded from the *Science Direct* search results.

When the above set of *general search terms* for EFED chemical propachlor is inserted, the syntactical form of the *Science Direct* search becomes:

Tak(Acidid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101") AND NOT key(human* or child* or occupat* OR infant* OR homind* OR woman OR women OR patient* OR OSHA OR chromatograph* OR Spectrometr* OR pediatric*)

(Please note the propachlor terms containing a space are now contained within quotation marks, brackets, or parenthesis)

For step by step instructions for conducting a constructed search on *Science Direct*, please see attached Appendix A.

ProQuest Dissertation Abstracts

In addition to the set of *general search terms*, the EFED Search Strategy for *Dissertation Abstracts* is comprised of fields to be searched and sub-data bases. The syntactical form of the *Dissertation Abstracts* search is as follows:

ALL(Term1 OR Term2 OR Term3) NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

When the above set of *general search terms* for EFED chemical propachlor is inserted, the syntactical form of the *Dissertation Abstracts* search becomes:

ALL(Acidid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101") NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

(Please note the propachlor terms containing a space are now contained within quotation marks, brackets, or parenthesis)

For step by step instructions for conducting a constructed search on *Dissertation Abstracts* please see attached Appendix A.

ProQuest ESPM

In addition to the set of *general search terms*, the EFED Search Strategy for *ESPM* is comprised of fields to be searched, sub-data bases, and inclusion/exclusion terms. The syntactical form of the *CSA* search is as follows:

ALL(Term1 OR Term2 OR Term3) AND STYPE("Scholarly Journals" OR Reports OR Thesis OR "Government Documents") AND(su(*toxicity OR *toxicology OR bioassay* or *lethal OR bioaccum*) OR cc(01504 or 08504 or "D 047*" or "X 241*") OR (LC NEAR/3 50)) NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

When the above set of *general search terms* for EFED chemical propachlor is inserted, the syntactical form of the *Dissertation Abstracts* search becomes:

ALL(Acilid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101") AND STYPE("Scholarly Journals" OR Reports OR Thesis OR "Government Documents") AND(su(*toxicity OR *toxicology OR bioassay* or *lethal OR bioaccum*) OR cc(01504 or 08504 or "D 047*" or "X 241*") OR (LC NEAR/3 50)) NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

(Please note the propachlor terms containing a space are now contained within quotation marks, brackets, or parenthesis)

For step by step instructions for conducting a constructed search on CSA please see attached Appendix A.

Agricola

In addition to the set of *general search terms*, the EFED Search Strategy for *Agricola* is comprised of sub-data bases to be searched. The syntactical form of the *Agricola* search is:

Term1 OR Term2 OR Term3

When the above set of *general search terms* for EFED chemical propachlor is inserted, the syntactical form of the *Agricola* search becomes:

Acilid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101"

For step by step instructions for conducting a constructed search on *Agricola* please see attached Appendix A

Current Contents

In addition to the set of *general search terms*, the EFED Search Strategy for *Current Contents* is comprised of fields to be searched and sub-data bases. The syntactical form of the *Current Contents* search is:

TI(Term1 OR Term2 OR Term3)

When the above set of *general search terms* for EFED chemical propachlor is inserted, the syntactical form of the *Current Contents* search becomes:

TI(Acilid OR Albrass OR Bexton OR "CP 31393" OR "Kartex A" OR Muharicid OR Niticid OR Propachlor OR Propachlore OR Ramrod OR Satecid OR "US EPA PC Code 019101")

(Please note the propachlor terms containing a space are now contained within quotation marks, brackets, or parenthesis)

For step by step instructions for conducting a constructed search on *Current Contents* please see attached Appendix A.

TOXNET

Instead of general search terms, the EFED Search Strategy for TOXNET is comprised of CAS numbers and sub databases. The syntactical form of the TOXNET search is:

CAS#1 OR CAS#2 OR CAS#3

When the CAS numbers for EFED chemical propachlor are inserted, the syntactical form of the TOXNET search becomes:

13684-56-5 OR 621-42-1 OR 7159-96-8

For step by step instructions for conducting a constructed search on *TOXNET* please see attached Appendix A.

INITIAL PROCITE SEARCH FILES AND SEARCH DOCUMENTATION

File Location

Save search output and documentation files at the appropriate location on a network drive. Create new directory name by priority grouping (e.g., DecJan Priority) or chemical name, as needed. Verify search download information has been completed using the search terms and number of hits for each database searched. Check these numbers against the file to ensure you received all references intended. This search history is used for tracking searches and search summary documentation.

Initial ProCite Formatting

After each transfer:

1. Change all to ECOTOX workform format.
2. Add the applicable Chemical Group code to Field#29
3. Add Source (Field#44) to include the vendor code, chemical and date.
4. Add NON-APPLICABLE to field #37.
5. Do not remove data from Field #43.

Vendor Codes (Field #44):

Agricola = Agricola

CC = Current Contents

CSA = ProQuest (CSA)

TOXNET = Toxline

SciFinder = SciFinder

SD = Science Direct

DissAbs = Dissertation Abstracts (via ProQuest)

ECOREF = UNIFY Exported

Example Source format:

New Searches "EFED Propachlor SD ATZ 2007//"

Refresh searches "EFED Propachlor SD ATZ REFRESH 2007//"

Move all non-bibliographic fields to the correct field (e.g., Field #42 contains abstract first, then any keywords after).

If the reference is incomplete, do not correct these fields before IDing. Reference corrections are rectified later and only those that will be ordered.

Tracking Searches

When a new chemical grouping is created (e.g., December/January) a new tracking file is created on the Contractor site G:\ directory and linked to the weekly project status is used to track the search and acquisition process.

When the initial search files are received, a new row is added for each chemical and includes all the search information available (database hits, target species). As search information is available, this is added to the tracking file. Each week the literature search status is updated regarding how many references have been ordered and how many are left to skim until the chemical grouping is completed.

Prepare File for Identification Process

Duplicate Checking

To list the duplicate references in ProCite, first make sure that only the Title field is used for automatic checking. This menu option is located under Database, Configure Duplicates. Then, click on the "Duplicates" tab (at the bottom). This will list two or more duplicate references. Displaying page number field (#25) and sort by title field helps to quickly determine duplicates. There are four possible actions to take in removing duplicates:

- Exact duplicates from the same search database and chemical. One of the two references can be deleted.
- Exact duplicates from different databases (e.g., CSA and TOXNET). Determine and keep the source with the most complete reference.
- Exact duplicates from same database, but different chemicals. Type or paste the one chemical into the other reference (these have usually been ID'd previously) and delete unedited reference.
- Not duplicate references (close, e.g., part 1, part 2). Leave as is or edit the

page numbers, if needed, so you can easily identify them when viewing duplicate lists.

Identifying References for Ordering

1. Change Field#37 = "NON-APPLICABLE" this saves on typing, since most references will not be ordered. If you determine the reference is applicable, then change the field to "OL".
2. Determine the target species groups for each chemical: WO001 EFED_Quick_Glance.xlsx located on the Contractor site.
3. Search on "#40=empty" to locate references to ID and as needed, the chemical of concern (#29 = xxx,xxx,xxx).
4. To ID, read the title and abstract/keywords. Read the data field SOP (See "UNIFY Datafields and Codes").

Quick searches of the files may allow for a faster identification during the skimming process of a set of articles that are for the most part applicable or non-applicable. You can utilize a standard list of species groups at N:\LITSRCH\EFEDLitSearch\SPECIES LIST.doc). Use these species names to locate applicable terms first and extract references to order quicker.

a). If reference is Non-Applicable

- Fill in Field #40 with appropriate habitat (this must be filled in). If a database cannot be determined, then place an "AT" in the field (See "UNIFY Data Fields and Codes", Table 5).
- Fill in #39, if appropriate (See "UNIFY Data Fields and Codes", Table 7).
- Fill in #45 with valid reject keyword (if multiple, separate them by a comma, See "UNIFY Data Fields and Codes", Table 4).

b) If applicable and non-target: (this includes all Aquatic papers, as these are always ordered)

- Overwrite field #37 "NON-APPLICABLE" to read "OL". If the reference is applicable, but does not contain the COC, then mark as "OL (NO Chemical Group code)" to be ordered later, and remove the Chemical Group code from field 29.
- Fill in #40 with appropriate database A or T (this must be filled in). If unable to determine the habitat, place an "AT" in the field.
- Enter Field #39 with valid species group designator. If no ECOTOX species, this is left blank.

c) If applicable, but a TARGET2012/PESTS/WEEDS in(see Table 4):

- Overwrite field #37 "NON-APPLICABLE" to read TARGET2012/PESTS/WEEDS
- Fill in #40 with habitat S and/or T (this must be filled in).
- Field #39 with valid species group.

Table 4: EFED Specific Keywords used for ProCite Reference ID Process (Field #37)

EFED Specific Keywords
<p>OL – Priority order from library, copy or author request. References are transferred to UNIFY References.</p> <p>OL (NO COC) – References are copied to UNIFY References but are not ordered.</p> <p>OL – COMM Priority order commercial source. References are copied to UNIFY References.</p> <p>OL – NO EXP TYPE References are copied to Unify References, but not ordered.</p> <p>NON-APPLICABLE Not applicable to ECOTOX nor EFED. A reject keyword must be entered in Field #45. References are copied to the historical Non-Applicable file.</p> <p>TARGET2012/PESTS/WEEDS When test chemical added is intended to impact the pest and the study only reports results on the target organism (includes identifiers TARGET2012/PESTS/WEEDS from Appendix A. [From October, 2009 through May, 2012 some plants were designated as plants that were considered applicable to encode. The plant target list changed in June, 2012 (see Appendix A). View the Chemical Verification section of this document to determine when to order <i>Lepidoptera</i> and <i>Coleoptera</i> insect orders for the “lawsuit” chemicals.</p> <p>TARGET GROWTH REGULATOR Toxicant is classified as a growth regulator, priority is given to those references reporting toxic effects. Physiological or intended regulating response references will be marked as a “Target Growth Reg”. Example: Plant growth is regulated to prevent overgrowth (prune), which improves the quality of the organisms left (e.g., grass turf quality improves). If the intended result is achieved, this is categorized as Target Growth Regulator.</p>

1. After each ProCite ID session, search on #40=empty to determine how many references you have processed. Unless there are many references to order (>250), you can send them off to the task manager/data entry to order once each chemical has been completed. If there are a large number (>100) to order, send forward data entry in several smaller batches. For references lacking the chemical of concern as the toxicant, remove the Chemical Group code from Field #29 and mark Field #37 as “OL (NO COC)”. These may be moved into UNIFY before the EFED report deadline, but are not ordered as priority references.
2. Quality assurance includes ensuring that each references has been properly categorized as applicable – priority, target or non-applicable, with a valid keyword. Quality assurance focuses on the specific fields in ProCite file to ensure they are properly edited (Field #37, #39, #40, #45, and #29).
 - All Field #37 = Non-applicable must have a valid reject code in Field #45.
 - Search on the chemical of interest, you searched and display Field #37 and examine entries for any typos (the codes should be “OL”, Non-applicable”, or “ECOREF” or TARGET).
 - View the term index for reject keywords to locate typographical errors and fix.
 - View Chemical Group code (#29) and species group(s) (#39) for any typographical errors.
 - If the file is a refresh chemical also look at old references to ensure all “OL” references have been ordered.

Transfer Applicable New References to ProCite Format and Order Process

Ensure that reference fields contain the correct content (author, title, journal, year, volume, pagination) for each reference that is ordered:

Missing reference information, critical to correct ordering can be located at:

- Toxnet: <http://toxnet.nlm.nih.gov/> (or Google "Toxnet")
- Science Direct (SD): references usually found by doing a Google search for reference. Corrected, In Press references are acceptable to order and code for copy requests. The updated bibliographic information is updated after the final article is published. Insert "PRESS" in the volume field.

Copy the marked "OL-" references to a new file in the same directory as the original chemical grouping (e.g., DecJan Priority) and filename format as "OL-Chem code(date).pdt. Commercial orders (e.g., "COMM UMI") references are sent to data entry staff with other references, so references can be added to a commercial order list (N:\Litacquis\commercial*.*) After you copy the references, add today's date to the original chemical ProCite file marked references (e.g., OL - 12/7/04) to Field#37.

Check applicable references against ECOTOX References for duplicates before importing applicable references. Search to locate possible duplicate references already in UNIFY References. If the existing ECOTOX reference does not have the current Chemical Group code, add this to the UNIFY reference either within References (for unreceived or Non-Applicable references, OR for received applicable, add via the skimming screen). The ECOREF location must be marked back in the ProCite search file, Field #37, as (ECOREF#(number), ECOREF(Outprocess), or ECOREF (InProgress) and the "OL - date" text removed. This step is important to complete as it locates references in ECOTOX that contain the chemical of concern that have not been identified as containing the COC. Detection for unreviewed or unordered publications is only if located in the publication title field, so the literature search (utilizing abstract, CAS#, keyword fields) is a more rigorous method to locate references with the chemical of concern. When located, the unreceived references must have the Chemical Group code added to the reference so that it can be tracked. If received and not at the Contractor site, the paper should be recalled, but the Chemical Group code will be added when the paper is received and skimmed.

Open the new "OL" ProCite file and prepare file for UNIFY import using the "ECOTOX Literature Acquisition and Paper Processing SOP (Import Refs option)" with these additional instructions:

For EFED Chemical Searches OL (NO Chemical Group code), TARGET2012, WEEDS or PESTS in ProCite Field #37:

After the priority references have been transferred into UNIFY and ordered the next groups of references are formatted and transferred into UNIFY with slight modifications to the procedures.

Field #37	Instruction
OL (NO Chemical Group code)	Field #29 must not contain chemical of concern (Chemical Group code). If it does, contact

Field #37	Instruction
	reviewer staff to verify.
TARGET2012	Add " TARGET2012/" at the end of Field #44
WEEDS	Add " WEEDS/" at the end of Field #44
PESTS	Add " PESTS/" at the end of Field #44

All references are imported into UNIFY, except for Non-Applicable (Field #37) references.

The references marked as TARGET2012, WEEDS and/or PESTS are QuickSkimmed in Unify adding the chemicals and organisms tested.

Processing References for Ordering

1. Order files are generated according to *ECOTOX Acquisition and Paper Processing SOP* and forwarded to EPA for processing.
2. Access UNIFY References and determine whether the publication is available from:

Code	Action
Copy Request	MED Library has a copy or via an electronically accessible website (SCI or WEB)
ILL	Order via the MED library
COMM	Needs further evaluation to determine possible acquisition source or to be purchased
Author	Author email is listed and the order source is ILL or COMM

3. Quality assure key bibliographic fields (Journal/Sources, volume and pagination) and mark each reference as Order QAed within UNIFY. All references are prepared for ordering via standard "ECOTOX Literature Acquisition and Paper Processing SOP (Order References)".
4. Once the references are prepared, search Order Refs for the references by chemical and divide them as "Copy Requests", "ILL", "COMM" with order batches and author requests. The batch name will include the month, Chemical Group code (COC) and the type of order process and date (e.g., July ETHN Copy Requests 11/18/10). Save the file(s) to the following location: N:\Litacquis\Order References.
5. Attach the files to an email to the EPA staff as follows (save a copy in an email):

Example Email

From Contractor Staff
 To EPA Staff
 Cc Pertinent Contractor Staff
 Subject Fw: October EFED Priority Reorder - CBNDO, (n=9) (WR001)

Here are 9 Author, Copy and Order Requests:



October CBNDO Author Order 08-31-09.doc



October CBNDO Order Rqsts 08-31-09.doc



October CBNDO Copy Rqsts 08-31-09.doc

Contractor to receive.

Thanks.

6. Delete order file(s) once the order has been sent to EPA.

7. Update the Literature Search Status at the Contractor site (EFED SearchStatus(month)) with information about any ordered or completed chemicals.

IDENTIFYING PAPERS IN EXISTING ECOTOX HOLDINGS

Once a chemical has been placed on the priority list and chemical verification is complete, a search for all papers containing the chemical is conducted in the ECOTOX holdings. This is done by conducting a search in UNIFY References file by Chemical Group code and by chemical name and synonyms in the title field. For more information on the UNIFY References searching, see *"ECOTOX Literature Acquisition and Paper Processing SOP (Search References)"*.

Chemicals for each month are logged within the literature search logs to track the status of locating relevant chemicals for reordering and pulling from existing ECOTOX holdings. These are stored at the Contractor site (EFEDsearchstatus_AugSept####.doc).

References Chemical and Title Searching

The ECOTOX References are searched two ways for potentially applicable papers: by Chemical Group code and by title. The chemical verified names and Chemical Group codes are located at the Contractor site. (WO001 EFED_Quick_Glance.xlsx).

Tag Refs	Searches chemical names within the publication title field and references lacking the Chemical Group code (COC) are displayed and rectified. Tag potentially applicable references with the Chemical Group code for the report or reject.
-----------------	---

The UNIFY system is designed to locate potentially applicable references through setting up chemical names using the Manage Main EFED Reports feature in UNIFY (see Chemical Verification area in this document).

1. Once the chemical names and names that generate false results and the custom reject batch steps are completed, the Tag Refs screen will display the search results for chemical names to be rectified.

Tag References

SEARCH REPORT GROUPS Collapse Pane

Name

☒ Starts With
☐ Contains
☐ Exact
☐ Match Case

COC

124T
 12DPA
 12DPE
 13DPA
 13DPE
 1CPA

Due Date
From
Through

☐ Include Delivered Reports

EFED Report Groups:

August 2010 (08/31/2010)
 December 2006 (12/31/2006)
 December 2007 (12/31/2007)
 ECOTOX OPPTS Chemicals (February 2008 (02/29/2008))
January 16th 2011 (01/16/2011)
 January 1st 2011 (01/01/2011)
 January 2007 (01/31/2007)
 January 2010 (01/31/2010)
 June 2009 (06/30/2009)

Reports in Selected Group:

	Report Name	COC	Title String	NOT Title String	Batch to Exclude
view results	Cyanamide REFRESH	CYA (03/08/2008-01/16/2011) CaCC (03/08/2008-01/16/2011) CaCY (03/08/2008-01/16/2011) NaCY (03/08/2008-01/16/2011)	Amidocyanogen Carbamonitrile Carbimide Carbodiimid		EFED January CYA Rejects (3)
view results	Etofenprox REFRESH	EFX (01/05/2008-01/16/2011)	1-[(2-(4-Ethoxyphenyl)-2-methylpropoxy)methyl]-3-p		EFED EFX Rejects (2)

**NOTE: All References that match on Title String search (excluding NOT Title string search matches) are displayed here regardless of whether they have been tagged or not.

Cyanamide Results - 1 records

-- SELECT COC --

Select: All, None

	Order ID	Title	Status	EFED Status	Chemical Groups	Species Groups	Reject Batch
<input type="checkbox"/>	269380	Roberts, R.H., R.D. Radeleff, and J.N. Ka Bioassay of the Blood from Cattle Treated J. Econ. Entomol. 1958 51 861 864	Reviewing			MAMMAL	

☐ Exclude Tagged ☒

2. Select the report deadline date from the list, then the chemical name and click on View results to display the references that meet the search criteria for locating potential references that lack the Chemical Group code (COC).

3. The initial screen will display references that meet the title search criteria but have not been assigned a Chemical Group code. Mark all applicable references and add the primary Chemical Group code to each reference. All references which are false hits will be marked and rejected.

4. The second screen will list all the references to be processed:

- Papers that have been reviewed for this chemical will be verified against previous EFED reports; if they were previously delivered to EFED they will be rejected; if they are included in the current report no action is needed.
- Unreviewed papers should be recalled by marking the references and selecting To Recall. A recall batch will be created and sent to EPA.
- Papers on order will be ordered via COPY, ILL, COMM or Author as described above.

Example Recall Email

From: Contractor Staff

To: EPA Staff

Cc: Contractor Staff, EPA staff as needed

Date: 04/02/2010 04:35 PM

Subject: UNREVIEWED Papers needed from MED for EFED Apr chems (Sodium Bisulfate, n=3)

The following UNREVIEWED papers (n = 3) need to be pulled from MED for April EFED chemicals.
Please check out to XX/EFED

UNIFY Recall Batch Name = April NaBS 04/02/10

Thank you!

APPLYING EFED CRITERIA

When a paper is received for use in the EFED project, the EFED criteria checklist is applied using the UNIFY Skim screen. This checklist is printed and attached to the back of each publication. Publications are returned to EPA after determining data extracted meet EFED criteria, a chemical is linked to a scheduled EFED report and reviewing completed, or does not meet EFED criteria nor contains a currently scheduled chemical.

EFED CRITERIA CHECKLIST

REVIEWER: sgraves

ECOTOX 161203 (*Acute Toxicity of Herbicide Formulations and Chronic Toxicity of Technical-Grade Trifluralin*
Reference #: to Larval Green Frogs (*Lithobates clamitans*))

All pages received and legible: Yes

Chemicals:	Chemical	COCs	EFED Statuses	ECOTOX Statuses
	Malathion (121755)	MLN	OK	OK
	Prowl (40487421)	PDM	OK	OK
	Treflan (1582098)	TFN	OK	OK

Keywords:

Exposure Type AQUA

Groups:

Projects: ECOTOX, EFED

Effect Groups: GRO, MOR

Status: UNREVIEWED

Species

Groups: HERP

Skimming

Notes:

ECOTOX Checklist

Criteria	Description	Yes/No
Valid control	Does the paper have a valid control Studies that do not discuss the use of controls, or where the authors specifically state that a control was not used (ECOTOX codes NR and Z) will be marked as lacking a control. "NO CONTROL" is the Project Status. It is then removed from the coding queue.	Yes
Endpoint or analyzed results	Do the authors report either a calculated endpoint, as defined by the ECOTOX coding guidelines, or present statistically analyzed results? Papers presenting only qualitative data will be marked as such ("NO ENDPOINT, STATS" is the Project Status. It is then removed from the coding queue.	Yes
Text or tabular data	Are the endpoints and/or statistical results summarized in either the text or the tables? If results are only presented graphically or in figures, and specific concentrations (not ranged or approximate values) associated with the endpoint/statistical results are not presented, the paper is marked as having only graphed/figure data. "No Endpoint, Graphed" is the Project Status. It is then removed from coding queue.	Yes

EFED Checklist

General Instructions: If more than one experimental design is used in the study, multiple Literature Acceptance Criteria Checklist forms may be required, but the acceptability of the paper is based on at least one experimental design meeting all of the Acceptability Criteria.

No.	Criteria / Instructions	Yes/No
1	The paper reports toxicology information for a chemical of concern to EFED.	OK
2	The article is published in the English language.	OK
3	The study is presented as a full article.	OK
4	The paper is a publicly available document.	OK

Each criteria question has a reject code and codes for EFED are listed. They are as follows:

No.	Criteria / Instructions	REJECT CODE	
1	The paper reports toxicology information for a chemical of concern to EFED.	NO COC	
2	The article is published in the English language.	NON-ENGLISH	
3	The study is presented as a full article.	NO ABSTRACT	
4	The paper is a publicly available document.	NO SOURCE	
5	The paper is the primary source of the data. Remember to identify applicable citations before returning.	NO REVIEW, REFS CHECKED	
6	The paper reports a calculated endpoint.	NO ENDPOINT	
7	The paper reports that treatment(s) were compared to an acceptable control.	NO CONTROL	
8	The paper reports an explicit duration of exposure.	NO DURATION	
9	The paper reports a concurrent environmental chemical concentration/dose or application rate.	NO CONC	
10	The paper reports a route exposure that is NOT by an injection type	NO EXP TYPE	
11	The paper reports the location of the study (e.g., laboratory vs. field).	NO LOCATION	
12	The paper reports a biological effect on live, whole organisms.	NO IN VITRO	
13	The paper reports the species that was tested; and this species can be verified in a reliable source.	NO SPECIES	
14	The paper reports effects associated with a single chemical exposure.	NO MIXTURE	
15	For chemicals that have designated terrestrial species/species group(s) that should not be coded for EFED: The species/species group is acceptable for coding (NOT identified as a TARGET2012/PESTS/WEEDS test.	TARGET2012,PEST S,WEEDS	
16	Please evaluate ALL chemicals in paper for ECOTOX Priority Criteria	#6	NO CONTROL
		#7	NO ENDPOINT, STATS

APPENDIX A: STEP BY STEP INSTRUCTIONS FOR EFED SEARCH SITES

Science Direct

1. Access Science Direct at: <https://idp2.shib.umn.edu/idp/umn/login>
2. After logging in, click "S" from *Databases by Title*.
3. Click *Science Direct (Elsevier)*.
4. Click *Expert Search*.
5. Click *Agricultural and Biological Sciences*.
6. Hold down the Ctrl key and scroll down the sub-data base menu and select by clicking:
Biochemistry, Genetics and Molecular Biology;
Environmental Science;
Pharmacology, Toxicology and Pharmaceutical Science; and
Veterinary Science and Veterinary Medicine.
7. Select appropriate years. (If the search is not a REFRESH, select *All Years*. If the search is a REFRESH, select the year previous to the date of the last search and up to the present. The date of the last search can be found in WO001 *EFED_Quick_Glance.xlsx* located on the Contractor site).
8. Copy and paste the Science Direct search into the *Search for* field.
9. Ensure that each EFED search term containing a space is contained within its own set of brackets, parentheses, or quotation marks (should you choose to contain such terms prior to copying and pasting, keep in mind that quotation marks must be neutral).
10. Click *Search*.
11. Copy and paste search results into your Search Memo.
12. Click *Export*.
13. Click *Export*.
14. Click *Save*.
15. Choose where you wish the file to be saved and name the file consistent with the following naming convention: SD [EFED Chemical] 20XX REFRESH.txt. (If the search is not a REFRESH, then leave out the word REFRESH).

Your Science Direct search is now complete.

Dissertation Abstracts

1. Access *ProQuest Dissertation Abstracts* at: <https://idp2.shib.umn.edu/idp/umn/login>
2. After logging in, click "D" from *Databases by Title*.
3. Click *Dissertations & Theses*.
4. Click *All databases*;
5. Click *Databases 34*.
6. Deselect *Select All*.
7. Select (1) *Dissertations & Theses @ CIC Institutions* and (2) *ProQuest Dissertations & Theses A&I*
8. Click *Use selected databases*.
9. Select *Command Line* from the *Advanced Search* drop down arrow;
10. Select appropriate years. (If the search is not a REFRESH, select *All dates*. If the search is a REFRESH, select *Specific date range*. The *Start Year* will be the year previous to the date of the last search. The *End Year* will be the current year. The date of the last search can be found in WO001 *EFED_Quick_Glance.xlsx* located on the Contractor site).
11. Click the drop down arrow for *Items per page* and select 100.
12. Copy and paste the ProQuest Dissertation Abstracts search into the search field. Ensure that each EFED search term containing a space is contained within its own set of brackets, parentheses, or quotation marks (should you choose to contain such terms prior to copying and pasting, keep in mind that quotations marks must be neutral).
13. Click *Search*.
14. Copy and paste search results into your Search Memo.
15. Select all references on the page and subsequent pages up to 500 references.
16. Click *More*.
17. Select *RIS*.
18. Click *Continue*.
19. Click *Save*.
20. Choose where you wish the file to be saved and name the file consistent with the following naming convention: DissAbs [EFED Chemical] 20XX REFRESH.txt. (if the search is not a REFRESH, then leave out the word REFRESH).

Your Dissertation Abstracts search is now complete.

ProQuest ESPM

1. Access *ProQuest ESPM* at: <http://search.proquest.com/>
2. After logging in, click *Databases* on the menu bar.
3. Deselect *Select All*.
4. Click the “+” sign to the left of *ProQuest Environmental Science Collection*.
5. Select (1) *Aquatic Science & Fisheries Abstracts* (2) *Ecology Abstracts*, (3) *Pollution Abstracts*, (4) *Toxicology Abstracts*; and (5) *Water Resources Abstracts*.
6. Click *Use selected databases*.
7. Click *Advanced Search* on the menu bar.
8. Click *Command line*.
9. Select appropriate *Publication date*. (If the search is not a REFRESH, leave as *All dates*. If the search is a REFRESH, select *Specific date range*. The *Start Year* will be the year previous to the date of the last search. The *End Year* will be the current year. The date of the last search can be found in WO001 *EFED_Quick_Glance.xlsx* located on the Contractor site).
10. For *Items per page*, select 100.
11. Copy and paste the ProQuest ESPM search into the search field. Ensure that each EFED search term containing a space is contained within its own set of brackets, parentheses, or quotation marks (should you choose to contain such terms prior to copying and pasting, keep in mind that quotations marks must be neutral);
12. Click *Search*;
13. Check Select 1- ###.
14. Click More and select *RIS*.
15. Click *Continue*.
16. Click *Save*.
17. Choose where you wish the file to be saved and name the file consistent with the following naming convention: ProQuestESPM [EFED Chemical] 20XX REFRESH.txt. (if the search is not a REFRESH, then leave out the word REFRESH).
18. If your search returned more than 100 results, go to the next page of your search results and repeat steps 13 through 17 until all results have been exported.

Your ESPM search is now complete.

Agricola

1. Access Agricola at: <http://agricola.nal.usda.gov/>

2. Click *Go* (to the right of the *Articles* search field).
3. Click *Advanced Search*.
4. Click *Article Citation Database*.
5. Enter 100 into *Results per page*.
6. From the Limits options, select English from the language drop down menu.
7. Select appropriate years. (If the search is not a REFRESH, leave as *No Date Limit*. If the search is a REFRESH, input the year previous to the year of the last search and select *Published After*. The date of the last search can be found in WO 001 *EFED_Quick_Glance.xlsx* located on the Contractor site).
8. Copy and paste your Agricola search into the search field. (Please note that the constructed search is limited to 383 characters. This limit may require you to breakdown your search into more than one search).
9. Click *Search*.
10. Copy and paste the numerical results into your Search Memo.
11. At the bottom of the page, select *All on this page*.
12. Select *Export Format* from the select format drop down menu.
13. Click *Format for Print or Save*.
14. Select *Save as* from the File drop down menu.
15. Choose where you wish the file to be saved and name the file consistent with the following naming convention: Agricola [EFED Chemical] 20XX REFRESH.txt. (If the search is not a REFRESH, then leave out the word REFRESH).
16. If your numerical results were greater than 100, then (i) return to the results page by clicking the back arrow in the upper right corner, (ii) go to the next page of your results by clicking *Next*, and (iii) repeat steps 11 through 15 until all citations have been exported.
17. Return to the *Advanced Search* screen, select *Books Catalog* from the Select a Database options, and repeat steps 5 through 15.

Your Agricola search is now complete.

Current Contents

Access Current Contents via <https://access.webofknowledge.com/>

1. Select *Current Contents Connect* by clicking the drop down arrow next to All Databases.
2. Select Advanced Search by clicking the drop down arrow next to Basic Search.
3. Copy and paste the already prepared search into the search box.
4. Restrict results by selecting English.
5. Click the More Settings arrow and deselect all but “Agriculture, Biology & Environmental Sciences (ABES)” and “Life Sciences.”
6. Click the Search button.
7. Copy and paste search results into your Search Memo.
8. Click the numerical results.
9. Select Save to EndNote desktop from the Save to EndNote online button.
10. Select Records “1 to ###” to a maximum of 500 records.
11. Select Full Record from the Record Content drop down menu.
12. Click Send.
13. Choose EndNote from Export To and click OK.
14. Choose where you wish the file to be saved and name the file consistent with the following naming convention: CC [EFED Chemical] 20XX REFRESH.txt. (If the search is not a REFRESH, then leave out the word REFRESH).

If your search returned more than 500 records, repeat steps 9 through 13 until all records have been saved to EndNote desktop.

Your Current Contents search is now complete.

TOXNET

Access TOXNET via <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TOXLINE>

1. Click *Advanced Search*;
2. Input *Years of Publication*;
3. From TOXLINE COMPONENTS, select the below data bases:
 BIOSIS;
 NTIS;
 PESTAB;
 PubMed; and
 TSCATS.
4. From LANGUAGE, select *English*;
5. Copy and paste the CAS number(s) into the Search field;
6. Click *Search*;
7. Copy and paste the history information into your Search Memo and X on the history page;
8. Click *Download Records*;
9. Select *Tagged*;
10. Click *Download*; and
11. Choose where you wish the file to be saved and name the file consistent with the following naming convention: TOXNET [EFED Chemical] 20XX REFRESH.txt. (If the search is not a REFRESH, then leave out the word REFRESH).

Your TOXNET search is now complete.

APPENDIX B: PLANT/INSECT SPECIES NOT CODED

Table 1 identifies agricultural plant species that are classified as TARGETS; there are no additions to this table unless prior approval has been obtained from EPA. Table 2 lists plant species that are classified as WEED species. Table 2 lists species that have already been verified for UNIFY or ones that have been approved to add as WEEDS when they are encountered in publications. Data for TARGET AND WEED species will not be coded for EFED if they meet the following criteria:

The exposure must be to a species in Table 1 and the WEED species are reduced OR the purpose of the study is to evaluate the effectiveness of a chemical on weeds to benefit agricultural species (Table 1).

All target, weed and pest publications will be quality assured by a reviewer for accuracy. Please bundle these publications separately during the skim process.

Table 3 identifies Lepidoptera/Coleoptera species that are now classified as PESTS. This table lists species that have already been verified for UNIFY, or ones that have been approved to add as PESTS when they are encountered in publications. Data for PEST species will not be coded for EFED.

Table 1: Agricultural Plant Species Not Coded (modified from 2007 NASS crop list used in LOCATES Database version 2.2.3) (Added June, 2012) USDA Plants Database Crop Nutrient Selection Tool for generating US crop lists. (<http://plants.usda.gov/npk/main>) (Added 3/9/16)

**Species listed on both the TARGET and WEEDS groups. These species can be harvested as a crop and are listed on the USDA Plants Database Noxious Weed list.

Species Number	Genus Species Name	Common Name
3079	Abelmoschus esculentus	Okra
21944	Abelmoschus sp.	Okra
27944	Actinidia chinensis	Kiwi
3000	Allium cepa	Common Onion
3131	Allium fistulosum	Bunching Onion
8589	Allium odorum	Chinese Chives
3132	Allium porrum	Leek
3133	Allium sativum	Garlic
16687	Allium schoenoprasum	Wild Chive
24599	Allium scorodoprasum	
8590	Allium scorodoprasum ssp. viviparum	
4156	Allium sp.	Wild Onion
28199	Allium sphaerocephalon	Round-headed Leek
8591	Allium textile	Prairie Onion
3134	**Allium vineale	Field Garlic

Species Number	Genus Species Name	Common Name
18189	Allium wakegi	Tree Onion
3153	Anethum graveolens	Dill
22610	Anethum sp.	
8622	Anona squamosa	
4159	Apium graveolens	Wild Celery
4057	Apium graveolens var. dulce	Wild Celery
3161	Arachis hypogaea	Peanut
3167	Armoracia rusticana	Horseradish
4162	Asparagus densiflorus	Sprenger Asparagus
4163	Asparagus officinalis	Garden Asparagus
21943	Asparagus sp.	Asparagus
3191	Avena abyssinica	Abyssinian Oat
25626	Avena myosuroides	
25225	Avena nuda	
3194	Avena sativa	Common Oat
4166	**Avena sp.	Oat
3195	Avena sterilis	Animated Oats
8650	**Avena sterilis ssp. ludoviciana	Animated Oat
3196	Avena strigosa	Bristle Oat
3197	Averrhoa carambola	Starfruit
21793	Averrhoa sp.	
8665	Azukia angularis	Bean
22777	Azukia sp.	
3210	Beta patellaris	Beet
3211	Beta procumbens	Cultivated Beet
18979	Beta sp.	Beet
4168	Beta vulgaris	Sugar Beet
4077	Beta vulgaris ssp. cicla	Chard
3212	Beta vulgaris ssp. vulgaris	Beet
3218	Bifora radians	Parsley
21709	Bifora sp.	
3229	Brassica alboglabra	Chinese Kale
25238	Brassica campestris ssp. pekinensis	
3230	Brassica carinata	Abyssinian Mustard
3231	Brassica chinensis	Pak-Choi
3232	Brassica juncea	Brown Mustard
3233	Brassica napus	Colza
10611	Brassica napus var. napus	Rape
3235	Brassica nigra	Black Mustard
3236	Brassica oleracea	Cabbage
3238	Brassica oleracea ssp. capitata	Cabbage

Species Number	Genus Species Name	Common Name
3239	Brassica oleracea ssp. gemmifera	Brussels Sprouts
5375	Brassica oleracea ssp. italica	Broccoli
3237	Brassica oleracea var. botrytis	Broccoli
3242	**Brassica rapa	Bird Rape
5219	Brassica rapa var. rapa	Turnip
3241	Brassica rapa var. amplexicaulis	Celery Cabbage
4169	**Brassica sp.	Mustard
3258	Cajanus cajan	Pigeonpea
3272	Capsicum annuum	Bell Pepper
43635	Capsicum annuum var. annuum	Cayenne Pepper
22394	Capsicum sp.	Pepper
3275	Carica papaya	Papaya
23632	Carica sp.	
24329	Carthamus sp.	
3279	Carthamus tinctorius	Safflower
3281	Carya illinoensis	Pecan
3288	Castanea sativa	European Chestnut
22209	Castanea sp.	
29423	Chenopodium quinoa	Quinoa
3318	Cicer arietinum	Chick Pea
3319	Cichorium endivia	Endive
3320	**Cichorium intybus	Chicory
23531	Cichorium sp.	
3322	Citrullus lanatus	Watermelon
29399	Citrullus lanatus var. citroides	Watermelon
4349	Citrus alata	Citron
8771	Citrus aurantifolia	Lime
3323	Citrus aurantium	Sour Orange
8774	Citrus aurantium ssp. bergamia	Bergamot Orange
41026	Citrus clementina	Clementine Mandarin Orange
18210	Citrus iyo	Iyo Orange
3324	Citrus jambhiri	Rough Lemon
3325	Citrus limon	Lemon
31710	Citrus limettioides	Sweet
8775	Citrus maxima	Orange
3328	Citrus reticulata	Mandarin Orange
3329	Citrus sinensis	Orange
4324	Citrus sp.	Orange
8777	Citrus x limonia	Mandarin Lime
3326	Citrus x nobilis	King Orange
3327	Citrus x paradisi	Grapefruit

Species Number	Genus Species Name	Common Name
3334	Cocos nucifera	Coconut
21342	Cocos sp.	
4173	Coffea arabica	Coffee
23038	Coffea sp.	
3339	Colocasia esculenta	Coco-Yam
4129	Corylus americana	American Hazel
3352	Corylus avellana	European Filbert
3353	Corylus cornuta	Beaked Filbert
23537	Corylus sp.	
20293	Crambe orientalis	Crambe
23777	Crambe sp.	
3368	**Cucumis melo	Honeydew
18698	**Cucumis melo melo var. cantalupensis	North American Cantaloupe
24723	Cucumis melo ssp. melo	
28748	**Cucumis melo var. dudaim	Synonym of Cucumis melo (3368)
3369	Cucumis sativus	Cucumber
3372	Cucurbita maxima	Squash
9927	Cucurbita maxima var. maxima	Pumpkin
3373	Cucurbita moschata	Squash
3374	Cucurbita pepo	Pumpkin
28153	Cucurbita pepo var. melopepo	Squash
8412	Cucurbita sp.	Squash
22496	Cyamopsis sp.	
3377	Cyamopsis tetragonoloba	Clusterbean
3381	Cynara scolymus	Artichoke
4181	Daucus carota	Wild Carrot
3989	Daucus carota ssp. sativus	Carrot
21434	Daucus sp.	Carrot
4184	Dioscorea sp.	Yam
32266	Dioscorea trifida	Indian Yam
3415	Diospyros kaki	Persimmon
3416	Diospyros montana	Persimmon
20148	Elsholtzia argyi	Mint
20149	Elsholtzia splendens	Mint
5291	Eupatorium cannabinum	Sunflower
3461	Fagopyrum esculentum	Buckwheat
3469	Ficus carica	Fiku
8030	Ficus sp.	Fig
8967	Fortunella hindsii	Kumquat
4189	Fragaria sp.	Strawberry

Species Number	Genus Species Name	Common Name
3069	Fragaria virginiana	Strawberry
11788	Fragaria x ananassa	Hybrid
23676	Glycine sp.	Soybean
3477	Glycine max	Soybean
4151	Gossypium arboreum	Tree Cotton
3478	Gossypium barbadense	American-Egyptian Cotton
3480	Gossypium hirsutum	Cotton
4192	Gossypium sp.	Cotton
9013	Haplopappus sp.	Sunflowers
4194	Helianthus sp.	Sunflower
3714	**Helianthus annuus	Common Sunflower
3715	Helianthus tuberosus	Jerusalem-Artichoke
20581	Hordeum distichum	Barley
4196	Hordeum sp.	Barley
3501	Hordeum vulgare	Barley
3503	Humulus lupulus	Hop
3521	Ipomoea batatas	Sweet Potato
3530	Juglans regia	English Walnut
3541	Lactuca sativa	Lettuce
4202	Lactuca sp.	Lettuce
3554	Lens culinaris	Lentil
9577	Lens sp.	Lentils, Chilean
8036	Linum sp.	Flax
3573	Linum usitatissimum	Flax
4208	Lycopersicon sp.	Tomato
3599	Macadamia integrifolia	Gympie Nut
22500	Macadamia sp.	
4209	Malus sp.	Apple
3604	Malus pumila	Paradise Apple
3609	Mangifera indica	Mango
9120	Manihot esculenta	Tapioca
23162	Manihot sp.	
3615	Medicago sativa	Alfalfa
4210	Medicago sativa ssp. sativa	Alfalfa
44411	Medicago sativa ssp. varia	Alfafa
4339	Mentha sp.	Mint
3625	Momordica balsamina	Southern Balsampear
9119	**Momordica charantia	Balsampear
32270	Momordica dioica	Balsampear
21509	Momordica sp.	
3630	Musa acuminata	Edible Banana

Species Number	Genus Species Name	Common Name
4330	Musa sp.	Banana
27939	Musa X paradisiaca	French Plantain
4261	**Nicotiana sp.	Tobacco
9152	Nicotiana alata	Jasmine Tobacco
3643	Nicotiana glutinosa	Tobacco
4026	Nicotiana langsdorffi	Langsdorff's Tobacco
3645	Nicotiana tabacum	Tobacco
9157	Nicotiana xanthine	Tobacco
9156	Nicotiana x sanderae	Cultivated tobacco
3651	Olea europaea	Olive
8223	Olea sp.	Olive
28800	Oryza glaberrima	African Rice
3657	Oryza sativa	Rice
26957	Oryza sativa ssp. japonica	Short-grained Rice
3666	Panax pseudoginseng	Ginseng
10703	Panax quinquefolius	American Ginseng
3672	**Panicum miliaceum	Proso Millet
3595	Pennisetum glaucum	Pearl Millet
3699	Persea americana	Avocado
3701	Petroselinum crispum	Parsley
3707	Phaseolus lunatus	Lima Bean
3708	Phaseolus vulgaris	Bean
32994	Phaseolus vulgaris var. vulgaris	Snap
24906	Pistacia sp.	Pistache
24907	Pistacia vera	Pistachio Nut
4222	Pisum sativum	Pea
4268	Pisum sp.	Pea
24558	Poncirus sp.	Orange
3763	Poncirus trifoliata	Hardy Orange
4224	Prunus sp.	Plum
3778	Prunus armeniaca	Apricot
3779	Prunus avium	Mazzard Cherry
3781	Prunus cerasus	Sour Cherry
3782	Prunus domestica	Common Plum
3783	Prunus dulcis	Almond
3786	Prunus persica	Peach
4127	Prunus persica ssp. nucipersica	Nectarine
3796	Psidium guajava	Guava
3799	Punica granatum	Pomegranate
3803	Pyrus communis	Pear
3820	Raphanus sativus	Radish

Species Number	Genus Species Name	Common Name
8316	Raphanus sp.	Radish
3836	Ribes rubrum	Common Currant
4267	Ribes sp.	Currant
3636	Rorippa nasturtium-aquaticum	Watercress
4229	Rubus sp.	Blackberry
4131	Rubus flagellaris	American Dewberry
20161	Rubus fruticosus	Bramble Blackberry
3845	Rubus idaeus	European Red Raspberry
4367	Rubus procerus	Himalaya Blackberry
3850	Rubus trivialis	Southern Dewberry
16327	Rubus ursinus	California Blackberry
3856	Saccharum officinarum	Sugarcane
3875	Sesamum orientale	Sesame
25587	Simmondsia chinensis	Jojoba
24669	Solanum lycopersicum	Tomato
5134	Solanum lycopersicum lycopersicum	Tomato
4040	Solanum melongena	Aubergine
4074	Solanum tuberosum	Potato
4237	Sorghum sp.	Sorghum
3895	**Sorghum bicolor	Sorghum
10080	**Sorghum bicolor ssp. bicolor	Grain Sorghum
3901	Spinacia oleracea	Spinach
4238	Spinacia sp.	Spinach
42702	Trichosanthes cucumerina	Snakegourd
42816	Trichosanthes dioica	Pointed Gourd
3930	Triticum aestivum	Bread Wheat
5139	Triticum dicoccon	Emmer
3933	Triticum durum	Durum Wheat
3949	Vaccinium angustifolium	Lowbush Blueberry
31933	Vaccinium angustifolium X corymbosum	Blueberry Hybrid
3950	Vaccinium arboretum	Tree Sparkleberry
9516	Vaccinium atropurpureum	Black Highbush Blueberry
3952	Vaccinium corymbosum	Highbush Blueberry
10333	Vaccinium elliotii	Elliott's Blueberry
3951	Vaccinium formosum	Southern Blueberry
3953	Vaccinium macrocarpon	Cranberry
3954	Vaccinium myrtillus	Myrtle Blueberry
18261	Vaccinium ovalifolium	Oval Leaf Blueberry
3955	Vaccinium ovatum	California Huckleberry
3956	Vaccinium pallidum	Blue Ridge Blueberry

Species Number	Genus Species Name	Common Name
9519	Vaccinium parvifolium	Red Huckleberry
4248	Vaccinium sp.	Blueberry
31855	Vaccinium stamineum	Deerberry
9517	Vaccinium virgatum	Smallflower Blueberry
19958	Vaccinium vitis-idaea	Northern Mountain Cranberry
4251	Vicia faba	Faba Bean
7811	Vigna angularis	Bean, Adzuki
3967	Vigna mungo	Black Lentil
3968	Vigna radiata	Mung Bean
3968	Vigna radiata var. radiata	Mungbean
3971	Vigna unguiculata	Blackeyed Pea
4255	Vigna unguiculata ssp. unguiculata	Blackeye pea
3976	Vitis labrusca	American Grape
29104	Vitis riparia	Riverbank Grape
3977	Vitis rotundifolia	Muscadine Grape
4256	Vitis sp.	Grape
3978	Vitis vinifera	European Grape
3979	Vitis vulpina	Frost Grape
9533	Vitis x champini	Champin'S Grape
9534	Vitis X labruscana	Grape, Concord
4257	X Triticosecale sp.	Triticale
3984	Xanthosoma sagittifolium	Cocoyam
3987	Zea mays	Corn
4316	Zea mays ssp. mays	Corn
18718	Zea mays var. saccharata	Corn
21251	Zea sp.	Corn
9564	Zingiber officinale	Garden Ginger

Table 2: Weed Species Not Coded (modified from Federal and State Noxious Weeds list located at <http://plants.usda.gov/java/noxiousDriver#state>) (Added August, 2012)

**Species listed on both the TARGET and WEEDS groups. These species can be harvested as a crop and are listed on the USDA Plants Database Noxious Weed list.

Species Number	Scientific Name	Common Name
3083	<i>Abutilon theophrasti</i> Medik.	Velvetleaf
30669	<i>Acacia mearnsii</i> De Wild.	Black wattle
	<i>Acacia paradoxa</i> DC.	Kangaroothorn
	<i>Acaena novae-zelandiae</i> Kirk	
	<i>Acaena novae-zelandica</i> Kirk, orth. var.	New Zealand bur
	<i>Acaena pallida</i> (Kirk) Allen	Pale biddy-biddy
8553	<i>Acalypha ostryifolia</i>	Pineland Threeseed
3095	<i>Acanthospermum hispidum</i>	Bristly Starbur
3107	<i>Achillea millefolium</i>	Bloodwort
29325	<i>Achnatherum brachychaetum</i> (Godr.) Barkworth	Punagrass
8559	<i>Achyranthes aspera</i>	Devil's Horsewhip
3113	<i>Aegilops cylindrical</i>	Jointed Goatgrass
	<i>Aegilops geniculata</i> Roth	
	<i>Aegilops ovata</i> L. p.p.	Ovate goatgrass
3117	<i>Aegilops triuncialis</i>	Barbed Goatgrass
21228	<i>Aeginetia</i> L.	Aeginetia
4055	<i>Aegopodium podagraria</i> L.	Goutweed
19170	<i>Aeschynomene indica</i> L.	Kat sola, Indian jointvetch
	<i>Aeschynomene rudis</i> Benth.	Rough jointvetch
29006	<i>Aeschynomene virginica</i> (L.) Britton, Sterns & Poggenb.	Curly indigo
8941	<i>Ageratina adenophora</i> (Spreng.) King & H. Rob.	Crofton weed
10386	<i>Ageratina riparia</i> (Regel) King & H. Rob.	Creeping croftonweed, Hamakua pamakani
4087	<i>Ageratum conyzoides</i>	White-Weed
3120	<i>Ageratum houstonianum</i>	Ageratum
8126	<i>Agropyron repens</i> (L.) P. Beauv.	Quackgrass
3122	<i>Agrostemma githago</i>	Corn Cockle
3124	<i>Agrostis stolonifera</i>	Creeping Bentgrass
	<i>Alectra</i> Thunb.	Alectra
	<i>Alhagi camelorum</i> Fisch.	Camelthorn
	<i>Alhagi maurorum</i> Medik.	Camelthorn
	<i>Alhagi pseudalhagi</i> (M. Bieb.) Desv. ex B. Keller & Schaparenko	Camelthorn
27827	<i>Alliaria petiolata</i>	Garlic Mustard
4156	<i>Allium</i> L.	Wild onion, wild garlic

Species Number	Scientific Name	Common Name
	<i>Allium neapolitanum</i> Cirillo	
	<i>Allium paniculatum</i> L.	Panicked onion
3134	** <i>Allium vineale</i> L.	Wild garlic
	<i>Allium vineale</i> L. ssp. <i>compactum</i> (Thuill.) Coss. & Germ.	Wild garlic
30945	<i>Alopecurus aequalis</i>	Shortawn Foxtail
32957	<i>Alopecurus carolinianus</i>	Carolina Foxtail
30024	<i>Alopecurus japonicus</i>	Japanese Foxtail
3138	<i>Alopecurus myosuroides</i>	Blackgrass
21191	<i>Alternanthera</i> Forssk.	Alligatorweed
659	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Alligatorweed
29360	<i>Alternanthera sessilis</i>	Sessile Joyweed
27147	<i>Alyssum corsicum</i> Duby	Yellowtuft
33665	<i>Alyssum murale</i> Waldst. & Kit.	Yellowtuft
4046	<i>Amaranthus blitoides</i>	Prostrate Pigweed
8597	<i>Amaranthus dubius</i>	Spleen Amaranth
3141	<i>Amaranthus hybridus</i>	Green Amaranth
39493	<i>Amaranthus hybridus</i> ssp. <i>quitensis</i>	South American Amaranth
4049	<i>Amaranthus palmeri</i>	Palmer's Amaranth
20297	<i>Amaranthus powellii</i>	Powell's Amaranth
3142	<i>Amaranthus retroflexus</i>	Green Amaranth
4158	<i>Amaranthus</i> sp.	Pigweed
4366	<i>Amaranthus australis</i>	Southern Amaranth
3143	<i>Amaranthus spinosus</i>	Spiny Amaranth
24840	<i>Amaranthus tuberculatus</i>	Tall Waterhemp
3145	<i>Amaranthus viridis</i>	Green Amaranth
4088	<i>Ambrosia artemisiifolia</i>	Common Ragweed
4088	<i>Ambrosia artemisiifolia</i> L. var. <i>elatior</i> (L.) Descourtils	
4088	<i>Ambrosia elatior</i> L.	Ragweed
8970	<i>Ambrosia confertiflora</i>	Weakleaf Bur Ragweed
8971	<i>Ambrosia grayi</i> (A. Nelson) Shinnars	Bur ragweed
4089	<i>Ambrosia psilostachya</i>	Western Ragweed
8607	<i>Ambrosia</i> sp.	Ragweed
	<i>Ambrosia tomentosa</i> Nutt.	Skeletonleaf bursage
26041	<i>Ambrosia trifida</i> L.	Giant ragweed
29361	<i>Ammannia baccifera</i>	Monarch Redstem
39213	<i>Ammophila arenaria</i>	European Beachgrass
8612	<i>Amsinckia menziesii</i>	Common Fiddleneck
	<i>Amorpha fruticosa</i> L.	False indigo
	<i>Ampelopsis brevipedunculata</i> (Maxim.) Trautv.	Porcelainberry
8614	<i>Anagallis arvensis</i>	Scarlet Pimpernel

Species Number	Scientific Name	Common Name
9114	Anchusa arvensis	Annual Bugloss
	Anchusa officinalis L.	common bugloss
	Andropogon bicornis L.	West Indian foxtail
3150	Andropogon gerardii	Turkeyfoot
3152	Andropogon virginicus	Broomsedge
8614	Anagallis arvensis	Pimpernel
3154	Anoda cristata	Spurred Anoda
39643	Anredera cordifolia (Ten.) Steenis	Madeira vine
4091	Anthemis arvensis L.	Scentless chamomile
4092	Anthemis cotula L.	Mayweed chamomile
28741	Anthriscus sylvestris (L.) Hoffm.	Wild chervil
8586	Aphanes microcarpa	Parsley-Piert
	Araujia sericifera Brot.	Bladderflower
	Arctium minus Bernh.	Common burdock
10380	Arctotheca calendula	Capeweed
	Ardisia elliptica Thunb.	Shoebutton ardisia
3164	Argemone mexicana	Mexican Pricklypoppy
3169	Artemisia absinthium L.	Absinth wormwood
3166	Artemisia vulgaris	Mugwort
	Arthraxon hispidus (Thunb.) Makino	Hairy jointgrass
3171	Arundo donax	Giant Reed
30952	Asclepias curassavica	Wild Ipecacuanha
3172	Asclepias syriaca	Broadleaf Milkweed
25654	Asphodelus fistulosus L.	Onionweed
4166	**Avena sp.	Oat
41797	Avena barbata	Slender Oats
3193	Avena fatua	Red Oats
3195	Avena sterilis L.	Animated oat, wild oat
8650	**Avena sterilis ssp. ludoviciana	Animated Oat
3200	Axonopus compressus	Broadleaf Carpetgrass
8664	Axonopus fissifolius	Common Carpetgrass
2965	Azolla pinnata	Mosquito Fern
19430	Azolla pinnata imbricata	Mosquito Fern
33706	Bassia prostrata	Forage Kochia
4354	Berberis sp.	Barberry
42626	Berteroa incana (L.) DC.	Hoary alyssum
3217	Bidens pilosa	Hairy Beggarticks
30445	Bifora testiculata	European Bishop
	Bocconia frutescens L.	Plume poppy
42939	Boerhavia diffusa	
	Boerhavia erecta	
20014	Bolboschoenus maritimus	Cosmopolitan Bulrush

Species Number	Scientific Name	Common Name
	<i>Borreria alata</i> (Aubl.) DC.	Buttonweed
	<i>Brachypodium sylvaticum</i> (Huds.) P. Beauv.	False brome
3885	<i>Brassica arvensis</i> (L.) Rabenh., nom. illeg., non <i>Brassica arvensis</i> L.	Wild mustard
	<i>Brassica kaber</i> (DC.) L.C. Wheeler var. <i>pinnatifida</i> (Stokes) L.C. Wheeler	Wild mustard
4169	<i>Brassica</i> L.	Mustard
3242	<i>Brassica rapa</i>	Bird Rape
3251	<i>Bromus catharticus</i>	Rescuegrass
3244	<i>Bromus commutatus</i> Schrad.	Cheat, chess
	<i>Bromus racemosus</i> L.	
3248	<i>Bromus secalinus</i> L.	Cheat, chess
3250	<i>Bromus tectorum</i> L.	Drooping brome-grass
	<i>Bryonia alba</i> L.	White bryony
3254	<i>Buchloe dactyloides</i>	Buffalograss
16612	<i>Buddleja davidii</i>	Butterfly Bush
	<i>Butomus umbellatus</i> L.	Flowering rush
20075	<i>Cabomba caroliniana</i> A. Gray	Carolina fanwort, fanwort
25063	<i>Calandrinia ciliata</i>	Desert Rockpurslane
2244	<i>Callitriche stagnalis</i> Scop.	Pond water-starwort
	<i>Calonyction muricatum</i> (L.) G. Don	Purple moonflower
4301	<i>Calystegia sepium</i> (L.) R. Br.	Hedge bindweed
27804	<i>Calystegia sepium</i> (L.) R. Br. ssp. <i>sepium</i>	Hedge False Bindweed
3271	<i>Cannabis sativa</i>	Marijuana
4145	<i>Capsella bursa-pastoris</i>	Shepherd'S-Purse
24962	<i>Cardamine hirsute</i>	Hairy Bittercress
	<i>Cardamine impatiens</i> L.	Narrowleaf bittercress
4147	<i>Cardaria chalepensis</i> (L.) Hand.-Maz.	Lens podded hoary cress
8713	<i>Cardaria pubescens</i> (C.A. Mey.) Jarmolenko	Hoary cress, whitetop
24917	<i>Cardiospermum halicacabum</i> L.	balloon vine
17791	<i>Carduus acanthoides</i>	Plumeless Thistle
	<i>Carduus crispus</i> L.	curled thistle
18122	<i>Carduus</i> sp. L.	Thistle
4096	<i>Carduus nutans</i> L.	musk thistle, musk thistle, nodding thistle
	<i>Carduus pycnocephalus</i> L.	Italian thistle
	<i>Carduus tenuiflorus</i> W. Curtis	slenderflower thistle
33247	<i>Carex kobomugi</i> Ohwi	Japanese sedge, Asiatic sand sedge
41798	<i>Carrichtera annua</i>	Ward's Weed
	<i>Carthamus baeticus</i> (Boiss. & Reut.) Nyman	smooth distaff thistle
42871	<i>Carthamus lanatus</i> L.	woolly distaff thistle

Species Number	Scientific Name	Common Name
	<i>Carthamus lanatus</i> L. ssp. <i>creticus</i> (L.) Holmboe	
	<i>Carthamus leucocaulos</i> Sm.	whitestem distaff thistle
	<i>Carthamus oxyacantha</i> M. Bieb., orth. var.	wild safflower
	<i>Carthamus oxyacanthus</i> M. Bieb.	jeweled distaff thistle
30721	<i>Carum carvi</i> L.	wild caraway
3293	<i>Celastrus orbiculatus</i> Thunb.	Oriental bittersweet, Asian or Asiatic bittersweet
3297	<i>Cenchrus echinatus</i> L.	southern sandbur
	<i>Cenchrus esculentus</i>	
4084	<i>Cenchrus incertus</i> M.A. Curtis	field sandbur
27810	<i>Cenchrus longispinus</i> (Hack.) Fernald	longspine sandbur
25980	<i>Cenchrus purpureus</i>	Elephant Grass
29222	<i>Cenchrus spinifex</i> Cav.	
27125	<i>Centaurea biebersteinii</i> DC.	spotted knapweed
	<i>Centaurea calcitrapa</i> L.	purple starthistle
	<i>Centaurea diffusa</i> Lam.	diffuse knapweed
	<i>Centaurea iberica</i> Trevir. ex Spreng.	Iberian starthistle
5128	<i>Centaurea jacea</i> L.	brown knapweed, brown knapweed, rayed knapweed, brown centaury, horse-knobs, hardheads
	<i>Centaurea macrocephala</i> Puschk. ex Willd.	bighead knapweed
32770	<i>Centaurea maculosa</i> auct. non Lam.	spotted knapweed
33346	<i>Centaurea melitensis</i> L.	Malta starthistle
32353	<i>Centaurea nigra</i> L.	black knapweed
	<i>Centaurea nigrescens</i> Willd.	Vochin knapweed
	<i>Centaurea pratensis</i> Thuill., nom. illeg., non Salisb.	meadow knapweed
8561	<i>Centaurea repens</i> L.	Russian knapweed
19468	<i>Centaurea solstitialis</i> L.	yellow starthistle, yellow starthistle, St. Barnaby's thistle
33566	<i>Centaurea squarrosa</i> Willd.	squarrose knapweed
	<i>Centaurea stoebe</i> L. ssp. <i>micranthos</i> (Gugler) Hayek	
	<i>Centaurea sulphurea</i> Willd.	Sicilian starthistle
33615	<i>Centaurea virgata</i> Lam.	squarrose knapweed
33566	<i>Centaurea virgata</i> Lam. ssp. <i>squarrosa</i> (Willd.) Gugler	
33566	<i>Centaurea virgata</i> Lam. var. <i>squarrosa</i> (Willd.) Boiss.	squarrose knapweed
	<i>Centromadia pungens</i> (Hook. & Arn.) Greene ssp. <i>Pungens</i>	
7909	<i>Cerastium fontanum</i>	Mouse-Ear Chickweed
	<i>Cereus hildmannianus</i> K. Schum.	
	<i>Chaenorhinum minus</i> (L.) Lange	dwarf snapdragon

Species Number	Scientific Name	Common Name
3307	<i>Chenopodium album</i>	Lamb's-Quarters
3308	<i>Chenopodium ambrosioides</i>	Mexican Tea
4290	<i>Chenopodium giganteum</i>	White Goosefoot Lambsquarters
4291	<i>Chenopodium murale</i>	Neetleaf Goosefoot
3312	<i>Chondrilla juncea</i>	Rush Skeletonweed
32771	<i>Chorisporea tenella</i> (Pall.) DC.	purple mustard
28765	<i>Chromolaena odorata</i> (L.) King & H. Rob.	siamweed, bitterbush
5133	<i>Chrysanthemum leucanthemum</i> L.	oxeye daisy
5133	<i>Chrysanthemum leucanthemum</i> L. var. <i>pinnatifidum</i> Lecoq & Lamotte	ox-eye daisy
	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	golden false beardgrass
3320	** <i>Cichorium intybus</i>	Chicory
4028	<i>Cirsium arvense</i> (L.) Scop.	Canadian thistle
8768	<i>Cirsium horridulum</i>	Yellow thistle
31954	<i>Cirsium japonicum</i> Fisch. ex DC.	Japanese thistle
22657	<i>Cirsium</i> Mill.	Thistle
31955	<i>Cirsium ochrocentrum</i> A. Gray	yellowspine thistle
31956	<i>Cirsium undulatum</i> (Nutt.) Spreng.	wavyleaf thistle
4100	<i>Cirsium vulgare</i> (Savi) Ten.	bull thistle, spear thistle
3328	<i>Citrus reticulata</i> Blanco ssp. <i>unshiu</i> (Marcow.) D.Rivera Núñez et al.	Unshu orange
	<i>Clematis orientalis</i> L.	Chinese clematis
27926	<i>Clematis vitalba</i> L.	old man's beard
4283	<i>Cleome gynandra</i>	Spider Whisp
	<i>Clidemia hirta</i> (L.) D. Don var. <i>hirta</i>	Koster's curse
	<i>Cnicus benedictus</i> L.	blessed thistle
	<i>Coccinia grandis</i> (L.) Voigt	ivy gourd
4297	<i>Commelina benghalensis</i> L.	tropical spiderwort
4298	<i>Commelina communis</i>	Dayflower
3342	<i>Convolvulus arvensis</i> L.	European morning glory, field bindweed
27804	<i>Convolvulus sepium</i> L.	hedge bindweed
23498	<i>Conyza</i> sp.	Horseweed
5129	<i>Conyza bonariensis</i>	Flaxleaved Fleabane
4101	<i>Conyza canadensis</i>	Butterweed
8805	<i>Corchorus olitorius</i>	Nalta Jute
3351	<i>Coronilla varia</i>	Crownvetch
8808	<i>Coronopus didymus</i>	Cress, Twin
8429	<i>Coronopus</i> sp.	Swine Cress
	<i>Cortaderia jubata</i> (Lem.) Stapf	
40652	<i>Crassula helmsii</i> A. Berger	Australian swamp stonecrop
24327	<i>Crotalaria</i> L.	Crotalaria

Species Number	Scientific Name	Common Name
26855	<i>Croton bonplandianus</i>	Croton
4130	<i>Croton capitatus</i>	Woolly Croton
26428	<i>Croton glandulosus</i>	Tropic Croton
39487	<i>Croton glandulosus</i> var. <i>septrionalis</i>	Vente Conmigo
32339	<i>Crupina vulgaris</i> Cass.	common crupina
3368	** <i>Cucumis melo</i>	Honeydew
3368	** <i>Cucumis melo</i> L. var. <i>dudaim</i> (L.) Naud.	dudaim melon, Queen Anne's melon (Synonym of <i>Cucumis melo</i> - 3368)
18698	** <i>Cucumis melo</i> var. <i>cantalupensis</i>	North American Cantaloupe
	<i>Cucumis myriocarpus</i> E. Mey. ex Naud.	paddy melon
	<i>Cupaniopsis anacardioides</i> (A. Rich.) Radlk.	Carrotwood
	<i>Cuscuta approximata</i> Bab.	smoothseed alfalfa dodder
30961	<i>Cuscuta campestris</i>	Field Dodder
32437	<i>Cuscuta chinensis</i>	Dodder
	<i>Cuscuta epithymum</i>	
4304	<i>Cuscuta gronovii</i>	Swamp Dodder
8837	<i>Cuscuta indecora</i>	Largeseed Dodder
	<i>Cuscuta japonica</i> Choisy	Japanese dodder
4303	<i>Cuscuta pentagona</i>	Bush-Clover Dodder
23125	<i>Cuscuta</i> sp. L.	Dodder
25797	<i>Cuscuta reflexa</i>	Giant Dodder
3960	<i>Cyanthillium cinereum</i>	Little Ironweed
40393	<i>Cyclospermum leptophyllum</i>	Marsh Parsley
	<i>Cymbopogon refractus</i> (R. Br.) A. Camus	barbwire grass
	<i>Cynanchum louiseae</i> Kartesz & Gandhi	black swallow-wort, Louise's swallow-wort
	<i>Cynanchum nigrum</i> (L.) Pers., non Cav.	black swallow-wort
	<i>Cynanchum rossicum</i> (Kleopow) Borhidi	European swallow-wort, pale swallow-wort
	<i>Cynanchum vincetoxicum</i> (L.) Pers.	
3380	<i>Cynara cardunculus</i> L.	artichoke thistle
8841	<i>Cynodon bradleyi</i>	Cynodon
3382	<i>Cynodon dactylon</i>	Bermudagrass
4179	<i>Cynodon</i> sp.	Bermudagrass
8842	<i>Cynodon magennisii</i>	Magennis Dogtooth Grass
3383	<i>Cynodon transvaalensis</i>	Bermudagrass
	<i>Cynoglossum officinale</i> L.	houndstongue
33456	<i>Cyperus acuminatus</i>	Tapertip Flatsedge
31691	<i>Cyperus aromaticus</i>	Navua Sedge
8843	<i>Cyperus compressus</i>	Poorland Flatsedge

Species Number	Scientific Name	Common Name
8845	<i>Cyperus difformis</i>	Variable Flatsedge
8847	<i>Cyperus erythrorhizos</i>	Redroot Nutgrass
3384	<i>Cyperus esculentus</i>	Yellow Nutsedge
30995	<i>Cyperus haspan</i>	Haspan Flatsedge
30157	<i>Cyperus involucratus</i>	Umbrella Flatsedge
8848	<i>Cyperus iria</i>	Flatsedge, Rice Field
42138	<i>Cyperus microiria</i>	Asian Flatsedge
8850	<i>Cyperus odoratus</i>	Rusty Flat Sedge
5220	<i>Cyperus rotundus</i>	Purple Nutsedge
3385	<i>Cytisus scoparius</i> (L.) Link	Scotch broom
31799	<i>Cytisus scoparius</i> (L.) Link var. <i>andrianus</i> (Puis.) Dippel	Scotch broom
31800	<i>Cytisus scoparius</i> (L.) Link var. <i>scoparius</i>	Scotch broom
31781	<i>Cytisus striatus</i> (Hill) Rothm.	Portugese broom
3387	<i>Dactyloctenium aegyptium</i>	Crowfoot Grass
3392	<i>Datura stramonium</i>	Jimsonweed
22361	<i>Descurainia</i> sp.	Tansy Mustard
29355	<i>Descurainia pinnata</i>	Pinnate Tansymustard
3400	<i>Descurainia sophia</i>	Flixweed
3401	<i>Desmodium tortuosum</i>	Dixie Ticktrefoil
4021	<i>Dichrostachys cinerea</i>	Aroma
4021	<i>Dichrostachys nutans</i> Benth.	marabu
4260	<i>Digitaria</i> sp.	Crabgrasss
29430	<i>Digitaria abyssinica</i> (Hochst. ex A. Rich.) Stapf	African couch grass
3409	<i>Digitaria ciliaris</i>	Smooth Crabgrass
24608	<i>Digitaria cognata</i>	Carolina crabgrass
3558	<i>Digitaria cognata</i> var. <i>cognata</i>	Carolina crabgrass
3410	<i>Digitaria horizontalis</i>	Jamaican crabgrass
3411	<i>Digitaria ischaemum</i>	Smooth crabgrass
3412	<i>Digitaria longiflora</i>	Indian Crabgrass
33201	<i>Digitaria nuda</i>	Naked crabgrass
8874	<i>Digitaria radicata</i>	Trailing crabgrass
3413	<i>Digitaria sanguinalis</i>	Purple Crabgrass
26453	<i>Digitaria scalarum</i> (Schweinf.) Chiov.	African couch grass
24651	<i>Digitaria swazilandensis</i>	Swazi grass
	<i>Digitaria velutina</i> (Forssk.) P. Beauv.	velvet fingergrass, annual couchgrass
34653	<i>Dioscorea alata</i> L.	white yam
	<i>Dioscorea bulbifera</i> L.	air-potato
19815	<i>Dipsacus fullonum</i>	Common Teasel
39157	<i>Dipsacus laciniatus</i> L.	Cutleaf Teasel
	<i>Dipsacus sativus</i> (L.) Honck.	Teasel

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	<i>Drymaria arenarioides</i> Humb. & Bonpl. ex Schult. [excluded]	lightning weed
28038	<i>Drymaria cordata</i>	Chickweed
3421	<i>Echinochloa colona</i>	Junglerice, Shama, Millet
1358	<i>Echinochloa crus-galli</i>	Barnyard Grass
3423	<i>Echium plantagineum</i> L.	Paterson's curse
	<i>Echium vulgare</i> L.	blueweed, blueweed, blue thistle, blue devil, viper's bugloss, snake flower
10647	<i>Eclipta prostrata</i>	False Daisy
655	<i>Egeria densa</i> Planch.	Brazilian water-weed
41799	<i>Ehrharta calycina</i>	Perennial Veldt Grass
5382	<i>Eleocharis acicularis</i>	Sedge
26133	<i>Eleocharis palustris</i>	Spikesedge
43316	<i>Elephantopus mollis</i> Kunth	elephantopus, elephant's foot
3427	<i>Eleusine indica</i>	Goose Grass
	<i>Elsholtzia ciliata</i> (Thunb.) Hyl.	crested late-summer mint
8126	<i>Elymus repens</i> (L.) Gould	
8126	<i>Elytrigia repens</i> (L.) Desv. ex Nevski	quackgrass
8903	<i>Emex australis</i>	Three-Cornered Jack
26373	<i>Emex spinosa</i> (L.) Campd.	devil's thorn
3429	<i>Emilia sonchifolia</i>	Red Tassel Flower
5287	<i>Epilobium hirsutum</i> L.	hairy willow-herb, codlins and cream
8914	<i>Equisetum arvense</i>	Field Horsetail
26136	<i>Equisetum palustre</i>	Marsh Horsetail
31015	<i>Equisetum telmateia</i> Ehrh.	giant horsetail
3713	<i>Eragrostis cilianensis</i>	Stinkgrass
	<i>Eragrostis pilosa</i>	
	<i>Eriocereus martinii</i> (Labour.) Riccob.	moon cactus
3433	<i>Eriochloa villosa</i>	Hairy Cupgrass
3434	<i>Erodium cicutarium</i> (L.) L'Hér. ex Aiton	redstem filaree
	<i>Euphorbia cyparissias</i> L.	cypress spurge
28749	<i>Euphorbia dentata</i>	Toothed Spurge
3456	<i>Euphorbia esula</i> L.	leafy spurge, wolf's milk
	<i>Euphorbia esula</i> L. var. <i>esula</i>	
3458	<i>Euphorbia helioscopia</i>	Madwoman's Milk
3459	<i>Euphorbia heterophylla</i> L.	
26856	<i>Euphorbia hirta</i>	pillpod sandmat
10159	<i>Euphorbia maculata</i>	Spotted Sandmat
	<i>Euphorbia myrsinites</i> L.	myrtle spurge
	<i>Euphorbia oblongata</i> Griseb.	oblong spurge
3459	<i>Euphorbia prunifolia</i> Jacq.	painted euphorbia
	<i>Euphorbia pseudovirgata</i> (Schur) Soó	leafy spurge
	<i>Euphorbia serrata</i> L.	serrate spurge

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	<i>Euphorbia terracina</i> L.	Geraldton carnation spurge
7675	<i>Fallopia convolvulus</i>	Black Bindweed
31020	<i>Fallopia japonica</i> (Houtt.) Ronse Decr.	Japanese knotweed
9283	<i>Fallopia japonica</i> var. <i>japonica</i> (Houtt.) Ronse Decr.	Japanese Knotweed
31005	<i>Fallopia sachalinensis</i>	Giant Knotweed
31974	<i>Fallopia X bohemica</i>	Bohemian Knotweed
	<i>Fatoua villosa</i> (Thunb.) Nakai	hairy crabgrass, mulberry weed
	<i>Festuca filiformis</i> Pourr.	gair fescue, fineleaf sheep fescue
31016	<i>Fimbristylis dichotoma</i>	Forked Fimbry
26853	<i>Fimbristylis bengalensis</i>	Fimbry
	<i>Franseria discolor</i> Nutt.	skeletonleaf bursage
	<i>Froelichia gracilis</i> (Hook.) Moq.	slender snake cotton
4008	<i>Fumaria vaillantii</i>	Earthsmoke
	<i>Galega officinalis</i> L.	goats rue
8985	<i>Galeopsis tetrahit</i> L.	Hempnettle
4106	<i>Galinsoga parviflora</i> Cav.	Galinsoga
4107	<i>Galinsoga quadriradiata</i>	Shaggy-Soldier
4079	<i>Galium aparine</i>	Catchweed Bedstraw
30444	<i>Galium tricornutum</i>	Roughfruit Corn Bedstraw
8990	<i>Gaura coccinea</i> Nutt. ex Pursh	scarlet gaura
	<i>Gaura drummondii</i> (Spach) Torr. & A. Gray	Drummond's gaura
	<i>Gaura sinuata</i> Nutt. ex Ser.	wavy-leaved gaura
31802	<i>Genista monspessulana</i> (L.) L.A.S. Johnson	French broom
28729	<i>Geranium robertianum</i> L.	herb Robert
44404	<i>Glaucium corniculatum</i>	Blackspot Hornpoppy
27352	<i>Glaucium flavum</i> Crantz	sea or horned poppy, yellow horn poppy
8999	<i>Glechoma hederacea</i> L.	ground ivy
	<i>Glossostigma diandrum</i> (L.) Kunze	mud mat
25248	<i>Glyceria maxima</i> (Hartm.) Holmb.	tall mannagrass, reed mannagrass
23111	<i>Gnaphalium</i> sp.	Cudweed
	<i>Grevillea banksii</i> R. Br.	kahiliflower, Bank's grevillia
15852	<i>Gypsophila paniculata</i>	Baby's Breath
	<i>Halogeton glomeratus</i> (M. Bieb.) C.A. Mey.	halogeton
	<i>Harrisia martinii</i> (Labour.) Britton	
4193	<i>Hedera helix</i>	English Ivy
	<i>Hedera hibernica</i> (G. Kirchn.) Bean2	English ivy
3714	** <i>Helianthus annuus</i> L.	wild sunflower
4110	<i>Helianthus ciliaris</i> DC.	Texas blueweed
31019	<i>Heliotropium europaeum</i>	European Heliotrope

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3485	<i>Heliotropium indicum</i>	Alacrancillo
	<i>Hemizonia pungens</i> (Hook. & Arn.) Torr. & A. Gray	spikeweed
31908	<i>Heracleum mantegazzianum</i> Sommier & Levier	giant hogweed, giant hogweed, giant cow parsnip
33622	<i>Hesperis matronalis</i> L.	dame's rocket
40683	<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roem. & Schult.	tanglehead
3494	<i>Hibiscus trionum</i> L.	Venice mallow, flower-of-an-hour, bladder ketmia, modesty, shoo-fly
	<i>Hieracium xfloribundum</i> Wimm. & Grab. (pro sp.) [caespitosum x lactucella]	meadow hawkweed
	<i>Hieracium atratum</i> Fr.	polar hawkweed
	<i>Hieracium aurantiacum</i> L.	orange hawkweed, orange hawkweed, orange paintbrush, red daisy flameweed, devil's weed, grim-the-coller
	<i>Hieracium caespitosum</i> Dumort.	yellow hawkweed, yellow hawkweed, yellow paintbrush, devil's paintbrush, yellow devil, field hawkweed, king devil
	<i>Hieracium glomeratum</i> Froel.	queen-devil hawkweed
31625	<i>Hieracium</i> sp. L.	hawkweed
	<i>Hieracium laevigatum</i> Willd.	smooth hawkweed
31623	<i>Hieracium pilosella</i> L.	mouse ear hawkweed
	<i>Hieracium piloselloides</i> Vill.	meadow hawkweed
	<i>Hieracium pratense</i> Tausch	meadow hawkweed
	<i>Hoffmannseggia densiflora</i> Benth.	Pignut
	<i>Hoffmannseggia glauca</i> (Ortega) Eifert	
	<i>Homeria</i> Vent.	Cape tulip
4073	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Leporinum Barley
3500	<i>Hordeum jubatum</i>	Foxtail Barley
	<i>Humulus japonicus</i> Siebold & Zucc.	Japanese hops
	<i>Hydrocharis morsus-ranae</i> L.	European frog-bit
20292	<i>Hyoscyamus niger</i>	Black Henbane
16937	<i>Hypericum perforatum</i>	St. Johnswort
17294	<i>Hypochaeris radicata</i> L.	common catsear
	<i>Hyptis pectinata</i> (L.) Poit.	comb hyptis
38645	<i>Hyptis suaveolens</i> (L.) Poit.	wild spikenard
9032	<i>Impatiens glandulifera</i>	Ornamental Jewelweed
41652	<i>Imperata brasiliensis</i> Trin.	Brazilian satintail
	<i>Imperata brevifolia</i> Vasey	satintail
3519	<i>Imperata cylindrica</i>	Cogon Grass
25641	<i>Indigofera hirsute</i>	Roughhairy Indigo
5353	<i>Ipomoea aquatica</i>	Swamp Morning Glory

Species Number	Scientific Name	Common Name
9040	<i>Ipomoea cairica</i>	Mile a Minute Vine
24580	<i>Ipomoea carnea</i>	Gloria de la Manana
4300	<i>Ipomoea carnea</i> Jacq. ssp. <i>fistulosa</i>	Shrubby Morningglory
3522	<i>Ipomoea coccinea</i>	Red Morning Glory
4198	<i>Ipomoea</i> L.	morning glory
3522	<i>Ipomoea hederacea</i>	Ivy Leaf Morning Glory
38646	<i>Ipomoea hederifolia</i>	Scarlet Creeper
34207	<i>Ipomoea indica</i>	Ocean Blue Morning Glory
3524	<i>Ipomoea lacunosa</i>	Whitestar
9225	<i>Ipomoea nil</i>	Whiteedge Morningglory
3525	<i>Ipomoea purpurea</i>	Common Morning Glory
9041	<i>Ipomoea quamoclit</i>	Cypressvine
3526	<i>Ipomoea triloba</i> L.	three-cornered morning glory, three-lobed morning glory
9044	<i>Ipomoea wrightii</i>	Wright's Morning-Glory
	<i>Ipomoea turbinata</i> Lag.	
38656	<i>Ipomoea x leucantha</i>	Morning Glory)
	<i>Iris douglasiana</i> Herb.	Douglas iris
	<i>Iris missouriensis</i> Nutt.	western blue flag
5297	<i>Iris pseudacorus</i> L.	iris, yellow flag iris
	<i>Isatis tinctoria</i> L.	dyers woad, dyers' woad
26851	<i>Ischaemum rugosum</i> Salisb.	ribbed murainagrass
	<i>Iva axillaris</i> Pursh	Povertyweed
15893	<i>Jacquemontia tamnifolia</i>	Smallflower Morning Glory
5299	<i>Juncus effuses</i>	Rush 06.14.17
3539	<i>Kochia scoparia</i>	Mexican Fireweed
15867	<i>Kyllinga brevifolia</i>	Shorleaf Spikesedge
3540	<i>Kummerowia striata</i>	Annual Lespedeza
3543	<i>Lactuca serriola</i>	Prickly Lettuce
	<i>Lactuca pulchella</i> (Pursh) DC.	blue-flowering lettuce
	<i>Lactuca tatarica</i> (L.) C.A. Mey. var. <i>pulchella</i> (Pursh) Breitung	
9070	<i>Lagascea mollis</i> Cav.	Acuate
3545	<i>Lamium amplexicaule</i>	Common Henbit
3546	<i>Lamium purpureum</i>	Purple Deadnettle
19828	<i>Landoltia punctata</i> (G. Mey.) D.H. Les & D.J. Crawford	
4280	<i>Lantana camara</i>	Largeleaf Lantana
29031	<i>Leersia hexandra</i>	Southern Cutgrass
30880	<i>Lepidium coronopus</i>	Greater Swinecress
4146	<i>Lepidium draba</i> L.	perennial pepper-grass
31837	<i>Lepidium latifolium</i> L.	broad-leafed pepperweed, tall pepperweed
3556	<i>Lepidium virginicum</i>	Peppergrass

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29333	Leptochloa chinensis (L.) Nees [excluded]	Chinese sprangletop
4000	Leptochloa panacea	Mucronate Sprangletop
9084	Leptochloa panicoides	Amazon Sprangletop
	Lepyrodiclis holosteoides (C.A. Mey.) Fenzl ex Fisch. & C.A. Mey.	Lepyrodiclis
33194	Lespedeza cuneata (Dum. Cours.) G. Don	sericea lespedeza
5133	Leucanthemum vulgare Lam.	ox-eye daisy, oxeye daisy, white daisy, whiteweed, field daisy, marguerite, poorland flower
	Limnophila indica (L.) Druce	ambulia
19117	Limnophila sessiliflora (Vahl) Blume	ambulia, limnophila, ambulia
	Linaria dalmatica (L.) Mill.	broad-leaved Dalmatian toadflax
	Linaria dalmatica (L.) Mill. ssp. dalmatica	Dalmatian toadflax
	Linaria genistifolia (L.) Mill.	narrow-leaved Dalmatian toadflax
	Linaria genistifolia (L.) Mill. ssp. dalmatica (L.) Maire & Petitm.	Dalmatian toadflax
9095	Linaria vulgaris Mill.	yellow toadflax
11226	Lolium perenne ssp. multiflorum	Perennial Rye Grass
18145	Lolium temulentum L.	Darnel
41642	Lonicera morrowii	Morrow's Honeysuckle
4206	Lotus corniculatus	Birdsfoot Trefoil
	Ludwigia ascendens	
28563	Ludwigia hyssopifolia	Seedbox
43201	Ludwigia otovalis	
5302	Lychnis flos-cuculi L.	ragged robin
	Lygodium flexuosum (L.) Sw.	maidenhair creeper
32947	Lygodium japonicum (Thunb.) Sw.	Japanese climbing fern
27094	Lygodium microphyllum	Old World Climbing Fern
5278	Lysimachia nummularia L.	creeping jenny, moneywort
5303	Lysimachia vulgaris L.	garden loosestrife
24483	Lythrum L.	purple loosestrife
5304	Lythrum salicaria L.	purple loosestrife
	Lythrum virgatum L.	European wand loosestrife
	Malachra alceifolia Jacq.	malachra
	Malvella leprosa (Ortega) Krapov.	alkali mallow
9128	Matricaria sp.	Mayweed
4113	Matricaria chamomilla	German Chamomile
4112	Matricaria discoidea	Pineapple-Weed
	Matricaria perforata Mérat	scentless chamomile
4112	Matricaria scabra	Pineapple-Weed
10381	Medicago polymorpha	Burclover
	Medinilla venosa (Blume) Blume	

Species Number	Scientific Name	Common Name
3671	Megathyrsus maximus	Guineagrass
17165	Melaleuca quinquenervia (Cav.) S.F. Blake	melaleuca
22146	Melastoma L.	Melastoma
3616	Melastoma malabathricum L.	Banks melastoma, melastoma
10337	Melilotus alba	White Sweetclover
5135	Melilotus indicus	Sourclover
28824	Melochia corchorifolia	Chocolateweed
3619	Mentha arvensis	Wild Mint
38799	Mentha x piperita	Peppermint
21113	Miconia Ruiz & Pav.	Miconia
28816	Microstegium vimineum (Trin.) A. Camus	Japanese stilt grass, Nepalese browntop
	Mikania cordata (Burm. f.) B.L. Rob. [excluded]	African mile-a-minute
29038	Mikania micrantha Kunth	Bittervine
4114	Mikania scandens	Climbing Hempweed
	Milium vernale M. Bieb.	Milium
	Mimosa diplotricha C. Wright	giant false sensitive plant
33211	Mimosa aculeaticarpa	Catclaw mimosa
33185	Mimosa aculeaticarpa var. biuncifera	Catclaw mimosa
	Mimosa invisa Mart., non Mart. ex Colla	giant sensitive plant
	Mimosa pellita Kunth ex Willd.	lollipop mimosa
24598	Mimosa pigra auct. non L.	giant sensitive plant, cat's claw
20179	Mimosa pigra var. pigra	Black Mimosa
3623	Mimosa pudica	Sensitive-Plant
	Mirabilis nyctaginea (Michx.) MacMill.	wild four o'clock, wild four o'clock, umbrella-wort
	Miscanthus floridulus (Labill.) Warb. ex K. Schum. & Lauterb.	miscanthus, Japanese silvergrass
	Miscanthus sacchariflorus (Maxim.) Franch.	plume grass, Amur silvergrass
	Miscanthus sinensis Andersson	Eulalia
28820	Miscanthus X giganteus	Giant Miscanthus
22512	Mollugo sp.	Carpetweed
4042	Mollugo verticillata	Carpetweed
9119	**Momordica charantia	Balsampear
	Monochoria hastata (L.) Solms [excluded]	arrow-leaved monochoria, arrowleaf monochoria
9144	Monochoria vaginalis	Pickereel Weed
	Montanoa hibiscifolia (Benth.) Standl.	tree daisy
	Morella faya (Aiton) Wilbur	
3629	Muhlenbergia schreberi J.F. Gmel.	nimblewill
32221	Murdannia keisak (Hassk.) Hand.-Maz.	marsh dew flower, Asian spiderwort
8797	Murdannia nudiflora	Nakedstem Dewflower

Species Number	Scientific Name	Common Name
38574	<i>Myosotis scorpioides</i> L.	forget-me-not
19886	<i>Nardus stricta</i>	Matgrass
27136	<i>Nassella trichotoma</i> (Nees) Hack.	serrated tussock
	<i>Nasturtium microphyllum</i> Boenn. ex Rchb.	
3636	<i>Nasturtium officinale</i> W.T. Aiton	
	<i>Nechamandra alternifolia</i> (Roxb.) Thw.	
	<i>Neyraudia reynaudiana</i> (Kunth) Keng ex Hitchc.	Burma reed
3640	<i>Nicandra physalodes</i>	Apple-Of-Peru
	<i>Nothoscordum inodorum</i> (Aiton) G. Nicholson	false garlic
26138	<i>Oenothera biennis</i>	Common Evening Primrose
9160	<i>Oenothera laciniata</i>	Cutleaf Evening Primrose
	<i>Ononis alopecuroides</i> L.	foxtail restharrow
	<i>Onopordum acanthium</i> L.	Scotch thistle
	<i>Onopordum illyricum</i> L.	Illyrian thistle
	<i>Onopordum</i> L.	Thistle
	<i>Onopordum tauricum</i> Willd.	Scotch thistle
	<i>Opuntia aurantiaca</i> Lindl.	jointed prickly pear
28207	<i>Ornithogalum umbellatum</i> L.	star-of-bethlehem
	<i>Orobanche cooperi</i> (A. Gray) A. Heller	Cooper's broomrape
24009	<i>Orobanche</i> L.	broomrape
17842	<i>Orobanche minor</i> Sm.	small broomrape
26815	<i>Orobanche ramosa</i> L.	branched broomrape
	<i>Oryza longistaminata</i> A. Chev. & Roehr.	red rice
8335	<i>Oryza punctata</i> Kotzchy ex Steud.	wild red rice
	<i>Oryza rufipogon</i> Griffiths	perennial wild red rice, red rice
3662	<i>Oxalis corniculata</i>	Creeping Oxalis
9175	<i>Oxalis latifolia</i>	Broadleaf Woodsorrel
3663	<i>Oxalis stricta</i>	Sheep Sorrel
	<i>Oxyspora paniculata</i> (D. Don) DC.	
28464	<i>Packera glabella</i> (Poir.) C. Jeffrey	
	<i>Paederia cruddasiana</i> Prain	sewer-vine
	<i>Paederia foetida</i> L.	skunk vine
	<i>Panicum antidotale</i> Retz.	blue panicgrass
3667	<i>Panicum capillare</i>	Witchgrass
3669	<i>Panicum dichotomiflorum</i>	Western Witchgrass
3672	** <i>Panicum miliaceum</i> L.	wild proso millet
29332	<i>Panicum miliaceum</i> L. ssp. <i>ruderales</i>	Broomcorn Millet (Previously on list – author unknown)
3673	<i>Panicum repens</i>	Torpedo Grass
3675	<i>Panicum virgatum</i>	Old Switch Panic Grass

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3677	<i>Papaver rhoeas</i>	Corn Poppy
3678	<i>Papaver somniferum</i>	Opium Poppy
4364	<i>Parthenium hysterophorus</i>	Santa Maria Feverfew
26270	<i>Parietaria floridana</i>	Florida Pellitory
3680	<i>Paspalum conjugatum</i>	Sour Grass
3681	<i>Paspalum dilatatum</i>	Dallisgrass
3682	<i>Paspalum distichum</i>	Knotgrass
3686	<i>Paspalum scrobiculatum</i> L.	ricegrass paspalum
	<i>Passiflora bicornis</i> Mill.	
15863	<i>Passiflora foetida</i>	Fetid Passionflower
	<i>Passiflora mollissima</i> (Kunth) L.H. Bailey	banana passionfruit, banaba poka
	<i>Passiflora pulchella</i> Kunth	wingleaf passionfruit
	<i>Passiflora tripartita</i> (Juss.) Poir. var. <i>mollissima</i> (Kunth) Holm-Niesen & P.M. Jørg.	
3691	<i>Pastinaca sativa</i> L.	wild parship
31774	<i>Peganum harmala</i> L.	African rue, Syrian rue
3296	<i>Pennisetum ciliare</i>	Buffelgrass
3694	<i>Pennisetum clandestinum</i> Hochst. ex Chiov.	Whittet Kikuyu grass, kikuyugrass
	<i>Pennisetum macrourum</i> Trin.	African feathergrass
	<i>Pennisetum pedicellatum</i> Trin.	Kyasumagrass
	<i>Pennisetum polystachion</i> (L.) Schult.	Missiongrass
	<i>Pennisetum polystachyon</i> (L.) Schult., orth. var.	missiongrass, thin napiergrass
24972	<i>Pennisetum setaceum</i> (Forssk.) Chiov.	Fountaingrass
31965	<i>Persicaria perfoliata</i>	Asiatic Tearthumb or Mile-A-Minute Weed
31968	<i>Persicaria posumbu</i>	Oriental Lady's Thumb
31010	<i>Persicaria wallichii</i> var. <i>wallichii</i>	Cultivated Knotweed
4083	<i>Phalaris aquatica</i>	Bulbous Canarygrass
3702	<i>Phalaris arundinacea</i>	Reed Canarygrass
3704	<i>Phalaris minor</i>	Canarygrass
5307	<i>Phragmites australis</i>	Common Reed
3719	<i>Phyllanthus niruri</i>	Niruri
29376	<i>Phyllanthus tenellus</i> Roxb.	Mascarene Island Leaf-Flower
27350	<i>Phyllanthus urinaria</i> L.	chamberbitter, niuri
28416	<i>Phyllostachys aurea</i>	Golden Bamboo
30845	<i>Physalis acutifolia</i>	Sharpleaf Groundcherry
28727	<i>Physalis angulata</i>	Cutleaf Groundcherry
9249	<i>Physalis heterophylla</i>	Clammy Ground-
28003	<i>Physalis longifolia</i> Nutt.	long-leaf groundcherry
30789	<i>Physalis subglabrata</i>	Longleaf Groundcherry

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31001	<i>Physalis viscosa</i> L.	grape groundcherry
17845	<i>Picris hieracioides</i> L.	hawkweed oxtongue
	<i>Piper aduncum</i> L.	spiked pepper
3750	<i>Plantago aristata</i> Michx.	bracted plantain
3751	<i>Plantago lanceolata</i> L.	buckhorn plantain
3752	<i>Plantago major</i>	Rippleseed Plantain
3755	<i>Poa annua</i>	Annual Bluegrass
25065	<i>Poa bulbosa</i>	Bulbous Bluegrass
9917	<i>Poa compressa</i>	Canada Bluegrass
3756	<i>Poa pratensis</i>	Kentucky Bluegrass
3758	<i>Poa trivialis</i>	Rough Bluegrass
19484	<i>Polygonum amphibium</i>	Water Smartweed
3760	<i>Polygonum aviculare</i>	Yard Knotweed
16803	<i>Polygonum hydropiper</i>	Annual Smartweed
9284	<i>Polygonum lapathifolium</i>	Smartweed
5221	<i>Polygonum pensylvanicum</i>	Pennsylvania Smartweed
3762	<i>Polygonum persicaria</i>	Smartweed
3773	<i>Portulaca oleracea</i> L.	common purslane
502	<i>Potamogeton crispus</i>	Curled Pondweed
	<i>Proboscidea louisianica</i> (Mill.) Thell.	unicorn-plant
4336	<i>Pteridium aquilinum</i>	Bracken
4360	<i>Pueraria lobata</i> (Willd.) Ohwi	kudzu-vine
4359	<i>Pueraria montana</i> var. <i>montana</i>	Taiwan Kadzu
24631	<i>Pueraria montana</i>	Kudzu
3798	<i>Pueraria phaseoloides</i>	Tropical Kudzu
4360	<i>Pueraria thunbergiana</i> (Siebold & Zucc.) Benth.	Kudzu
26863	<i>Ranunculus acris</i> L.	tall buttercup
31039	<i>Ranunculus ficaria</i> L.	fig buttercup
3817	<i>Ranunculus repens</i>	Creeping Buttercup
3819	<i>Raphanus raphanistrum</i>	Jointed Charlock
8561	<i>Rhaponticum repens</i>	Knapweed
9359	<i>Rhus toxicodendron</i> L.	poison ivy
3838	<i>Richardia scabra</i>	Rough Mexican Clover
3839	<i>Ricinus communis</i>	Castorbean
	<i>Rorippa amphibia</i> (L.) Besser	water yellowcress, great yellowcress
	<i>Rorippa austriaca</i> (Crantz) Besser	Austrian field cress
	<i>Rorippa microphylla</i> (Boenn. ex Rchb.) Hyl. ex Å. Löve & D. Löve	onerow yellowcress
30663	<i>Rorippa sylvestris</i> (L.) Besser	creeping yellow field cress
4278	<i>Rottboellia cochinchinensis</i> (Lour.) W.D. Clayton	itchgrass, corngrass, raoulgrass
24002	<i>Rottboellia</i> sp.	Itchgrass

Species Number	Scientific Name	Common Name
5393	Rumex acetosa	Garden Sorrel
3852	Rumex acetosella L.	sheep sorrel
	Rumex altissimus Alph. Wood	smooth dock
3853	Rumex crispus L.	sour dock
26670	Rumex dentatus	Toothed Dock
3854	Rumex obtusifolius	Bluntleaf Dock
4315	Rumex sp.	Dock
30910	Saccharum spontaneum L.	wild sugarcane
	Salsola collina Pall.	spineless Russianthistle
4272	Salsola kali L.	Russian thistle
	Salsola kali L. ssp. tenuifolia Moq.	Russian thistle
22401	Salsola sp. L.	Thistle
	Salsola paulsenii Litv.	barbwire Russianthistle
27480	Salsola tragus L.	common Russianthistle
28019	Salsola vermiculata L.	wormleaf salsola, wormleaf saltwort
20598	Salvia aethiopis	Mediterranean Sage
2863	Salvinia molesta	Giant Salvinia
41108	Salvia pratensis L.	meadow clary
5702	Salvia sclarea L.	clary sage
20603	Salvia virgata Jacq.	southern meadow sage
3864	Saponaria officinalis L.	Bouncingbet
3464	Schedonorus arundinaceus	Tall Fescue
9585	Schoenoplectus mucronatus (L.) Palla	Bog Bulrush
	Scolymus hispanicus L.	golden thistle
	Scolymus L.	Thistle
3870	Secale cereale L.	cereal rye
33773	Senecio glabellus Poir.	creasleaf groundsel
	Senecio inaequidens DC.	South African ragwort
4119	Senecio jacobaea L.	tansy ragwort, stinking Willie
	Senecio madagascariensis Poir.	Fireweed
	Senecio squalidus L.	Oxford ragwort
3872	Senecio vulgaris	Common Groundsel
4019	Senna obtusifolia	Sicklepod
4020	Senna occidentalis	Coffee Senna
3876	Sesbania exaltata (Raf.) Rydb. ex A.W. Hill	tall indigo, coffee bean
3876	Sesbania herbacea (Mill.) McVaugh	
16614	Setaria adhaerens	Bristlegrass
4085	Setaria faberi Herrm.	giant foxtail
3878	Setaria italica	Foxtail Millet
33047	Setaria longiseta	Bristlegrass
3879	Setaria macrostachys	Plains Bristlegrass

Species Number	Scientific Name	Common Name
29409	<i>Setaria parviflora</i>	Knotroot Bristlegrass
34503	<i>Setaria pallidifusca</i> (Schumach.) Stapf & C.E. Hubbard, orth. var.	cattail grass
27936	<i>Setaria pumila</i>	Yellow Foxtail
	<i>Setaria pumila</i> ssp. <i>pallidifusca</i>	
4234	<i>Setaria</i> sp.	Bristlegrass
34408	<i>Setaria sphacelata</i>	African Bristlegrass
3880	<i>Setaria verticillata</i>	Bristly Foxtail
3881	<i>Setaria viridis</i>	Green Foxtail
27924	<i>Setaria viridis</i> var. <i>major</i>	Green Bristlegrass
15866	<i>Sibara virginica</i>	Virginia Winged Rockcress
9427	<i>Sicyos angulatus</i> L.	Burcucumber
	<i>Sida acuta</i>	
26272	<i>Sida rhombifolia</i>	Arrowleaf Sida
3883	<i>Sida spinosa</i>	Prickly Mallow
24692	<i>Silene latifolia</i>	Bladder Campion
4368	<i>Silene latifolia</i> Poir. ssp. <i>alba</i> (Mill.) Greuter & Burdet	white cockle
	<i>Silphium perfoliatum</i> L.	cup plant
29474	<i>Silybum Adans.</i>	Thistle
29290	<i>Silybum marianum</i> (L.) Gaertn.	milk thistle
3884	<i>Sinapis alba</i>	White Mustard
3885	<i>Sinapis arvensis</i> L.	Wild Mustard
3885	<i>Sinapis arvensis</i> L. ssp. <i>arvensis</i>	Wild Mustard
24308	<i>Sinapis</i> L.	Mustard
3886	<i>Sisymbrium altissimum</i>	Tumble Mustard
41800	<i>Sisymbrium erysimoides</i>	Mediterranean Rocket
3887	<i>Sisymbrium officinale</i>	Hedge Mustard
25392	<i>Sisymbrium orientale</i>	Indian Hedge-mustard 06.13.17
4029	<i>Solanum americanum</i>	American Black Nightshade
32103	<i>Solanum cardiophyllum</i> Lindl.	heartleaf nightshade
4031	<i>Solanum carolinense</i> L.	Carolina horsenettle
32104	<i>Solanum dimidiatum</i> Raf.	Torrey's nightshade
4041	<i>Solanum dulcamara</i> L.	bittersweet nightshade
9433	<i>Solanum elaeagnifolium</i> Cav.	silverleaf nightshade
32107	<i>Solanum lanceolatum</i> Cav.	lanceleaf nightshade
32108	<i>Solanum marginatum</i> L. f.	white-margined nightshade
4274	<i>Solanum nigrum</i>	Black Nightshade
4060	<i>Solanum physalifolium</i>	Ground-Cherry
9437	<i>Solanum ptycanthum</i> Dunal	black nightshade
32109	<i>Solanum robustum</i> Wendl.	Shrubby Nightshade
32110	<i>Solanum rostratum</i> Dunal	buffalobur, buffaloburr
4044	<i>Solanum torvum</i> Sw.	turkeyberry, terongan

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33480	<i>Solanum triflorum</i>	Cutleaf Nightshade
9442	<i>Solanum viarum</i> Dunal	tropical soda apple
24679	<i>Solidago Canadensis</i>	Canada Goldenrod
9445	<i>Soliva sessilis</i> Ruiz & Pav.	Lawnweed
9447	<i>Soliva</i> sp.	Burrweed
3889	<i>Sonchus arvensis</i>	Perennial Sow Thistle
3890	<i>Sonchus asper</i>	Spiny Sow Thistle
3891	<i>Sonchus oleraceus</i>	Annual Sow Thistle
	<i>Sorghum alnum</i> Parodi	perennial sorghum
3895	** <i>Sorghum bicolor</i> (L.) Moench	shatter cane, wild cane
10080	** <i>Sorghum bicolor</i> ssp. <i>bicolor</i>	Broomcorn
3897	<i>Sorghum halepense</i>	Johnson Grass
	<i>Sorghum propinquum</i> (Kunth) Hitchc.	Sorghum
17976	<i>Sparganium erectum</i> L.	exotic bur-reed
17976	<i>Sparganium erectum</i> L.	branched burreed, exotic bur reed
	<i>Spartium junceum</i> L.	Spanish broom
3899	<i>Spergula arvensis</i>	Corn Spurrey
	<i>Spermacoce alata</i> Aubl. [excluded]	winged false buttonweed
3900	<i>Sphaerophysa salsula</i> (Pall.) DC.	Austrian peaweed
	<i>Sphenoclea zelanica</i>	
31809	<i>Sporobolus indicus</i> var. <i>indicus</i>	Smutgrass
27882	<i>Stachys floridana</i>	Florida Betony
3905	<i>Stachytarpheta jamaicensis</i>	Light-Blue Snakeweed
4289	<i>Stellaria media</i>	Chickweed
	<i>Stipa brachychaeta</i> Godr.	puna grass
	<i>Stipa trichotoma</i> Nees	nasella tussock
4064	<i>Striga asiatica</i>	Witchweed
9643	<i>Striga</i> Lour.	Witchweed
	<i>Symphytum asperum</i> Lepechin	rough comfrey
9466	<i>Synedrella nodiflora</i>	Nodeweed
3916	<i>Taeniatherum caput-medusae</i>	Medusahead Rye
15817	<i>Tagetes minuta</i> L.	wild marigold
3991	<i>Tamarix ramosissima</i>	Saltcedar
41101	<i>Tanacetum vulgare</i> L.	common tansy
4010	<i>Taraxacum officinale</i>	Common Dandelion
	<i>Themeda villosa</i> (Poir.) A. Camus	Lyon's grass
4150	<i>Thlaspi arvense</i>	Field Pennycress
	<i>Thymelaea passerina</i> (L.) Coss. & Germ.	spurge flax
	<i>Tibouchina</i> Aubl.	Tibouchina
38733	<i>Torilis arvensis</i> (Huds.) Link	Hedgeparsley
9359	<i>Toxicodendron pubescens</i> Mill.	

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4053	Toxicodendron radicans (L.) Kuntze	poison ivy
	Toxicodendron vernix (L.) Kuntze	poison sumac
31907	Triadica sebifera (L.) Small	Chinese Tallow Tree
9498	Trianthema portulacastrum	Horse Purslane
42236	Tribulus cistoides	
40343	Tribulus terrestris L.	Puncturevine
3924	Tridax procumbens L.	coatbuttons, tridax daisy
4241	Trifolium incarnatum	Crimsom Clover
4242	Trifolium pretense	Red Clover
4243	Trifolium repens	Dutch Clover
4111	Tripleurospermum inodorum	Scentless False Mayweed
4111	Tripleurospermum perforatum	Scentless False Mayweed
	Triumfetta rhomboidea Jacq.	paroquet bur
	Triumfetta semitriloba Jacq.	Sacramento bur
	Tussilago farfara L.	Coltsfoot
5275	Typha latifolia	Cattail
3940	Ulex europaeus L.	gorse, gorse, furze
	Urena lobata L.	Caesarweed
9184	Urochloa fuscata	Browntop Signalgrass
3225	Urochloa mutica	Para Grass
27949	Urochloa panicoides	Liverseed Grass
7870	Urochloa platyphylla	Broadleaf Signalgrass
3674	Urochloa texana	Texas Signalgrass
4051	Urtica urens	Burning Nettle
5322	Valeriana officinalis L.	garden heliotrope
	Verbascum blattaria L.	moth mullein
32432	Verbascum thapsus L.	common mullein
4015	Veronica arvensis	Corn Speedwell
31593	Veronica peregrina	Purslane Speedwell
4017	Veronica persica	Persian Speedwell
4250	Vicia cracca	Cow Vetch
4252	Vicia sativa	Garden Vetch
4254	Vicia villosa	Hairy Vetch
	Vincetoxicum hirundinaria Medik.	pale swallow-wort
	Vincetoxicum nigrum (L.) Moench	black swallow-wort
3974	Viola arvensis	European Field Pansy
	Viscum album L.	European mistletoe
	Vossia cuspidata Griff.	hippo grass
3980	Vulpia myuros	Foxtail Fescue
3983	Xanthium commune Britton	Cocklebur
9546	Xanthium L.	Cocklebur
	Xanthium spinosum L.	spiny cocklebur

Species Number	Scientific Name	Common Name
3983	Xanthium strumarium	Common Cocklebur
4121	Xanthium strumarium L. var. canadense (Mill.) Torr. & A. Gray	Canada Cocklebur
	Zygophyllum fabago L.	Syrian bean-caper, Syrian beancaper

Table 3: Butterfly and Beetle Species Not Coded (Pests): The following species are not coded when the chemical use is insecticides (the primary source is the NAPIS Pest tracker list located at: <http://pest.ceris.purdue.edu>) (Added August 2012). A secondary source of pests compiled by The Plant Management Network which is located at: <http://www.plantmanagementnetwork.org/pub/trial/amt30/Text/Other/Indexes/spestindex.html> (Added 04/14)

Species Number	Scientific Name	Common Name
28555	Acalolepta sp.	Beetle
28490	Acalolepta vastator	Fig Longicorn Beetle
22640	Acalymma sp.	Leaf Beetle
25910	Acalymma trivittatum	Western Striped Cucumber Beetle
18954	Acalymma vittatum	Striped Cucumber Beetle
16287	Acanthoscelides obtectus	Bean Weevil
28311	Achaea janata	Croton Caterpillar
28222	Acherontia styx	Death's-head Hawkmoth
40361	Acleris sp.	Tortricid Moth
42087	Acleris fimbriana	Yellow Tortrix Moth
32169	Acleris gloverana	Western Black-headed Budworm
42815	Acrobasis caryae	Hickory Shoot Borer Moth
19701	Acrobasis nuxvorella	Pecan Nut Casebearer
25464	Acrobasis vaccinii	Cranberry Fruitworm
	Acrolepiopsis assectella	Leek Moth
16853	Adoxophyes orana	Tortrix Moth
30280	Aetherastis circulate	Bark Feeding Caterpillar
	Aeolesthes sarta	Quetta Borer
41919	Aegorhinus sp.	Weevil
41887	Aegorhinus superciliosus	Raspberry Weevil
29931	Aethina sp.	Beetle
29925	Aethina tumida	Small Hive Beetle
	Agrilus anxius	Bronze Birch Borer
	Agrilus auroguttatus	Goldspotted Oak Borer
	Agrilus biguttatus	Oak Splendour Beetle
	Agrilus hyperici	St. Johnswort Borer
26679	Agrilus planipennis	Emerald Ash Borer
32545	Agrilus ruficollis	Red-necked Cane Borer
	Agrilus sulcicollis	Jewel Beetle
33958	Agriotes brevis	
15978	Agriotes lineatus	Lined Click Beetle
11425	Agriotes obscurus	Wireworm
19036	Agriotes sp.	Wireworm
11424	Agriotes sputator	Wireworm
	Agriotes ustulatus	Wireworm
10382	Agrotis sp.	Cutworm

Species Number	Scientific Name	Common Name
30334	<i>Agrotis flammatra</i>	Gram Cutworm
25285	<i>Agrotis gladiaria</i>	Claybacked Cutworm
10384	<i>Agrotis ipsilon</i>	Cutworm
19697	<i>Agrotis orthogonia</i>	Pale Western Cutworm
29131	<i>Agrotis palustris</i>	Cutworm
15975	<i>Agrotis segetum</i>	Cutworm
32632	<i>Agrotis tenuis</i>	Cutworm
18175	<i>Agrotis ypsilon</i>	Greasy Cutworm
25083	<i>Alabama</i> sp.	Leafworm
25084	<i>Alabama argillacea</i>	Cotton Leafworm
20561	<i>Alphitobius diaperinus</i>	Lesser Mealworm
40345	<i>Alsophila pometaria</i>	Fall Cankerworm Moth
19723	<i>Altica sylvia</i>	Blueberry Flea Beetle
38999	<i>Amorbia cuneana</i>	Western Avocado Leafroller
31450	<i>Amphimallon majale</i>	European Chafer
31455	<i>Amphimallon</i> sp.	European Chafer
38870	<i>Amsacta albistriga</i>	Red Hairy Caterpillar
25339	<i>Amyelois transitella</i>	Navel Orangeworm
18920	<i>Anadevidia peponis</i>	Moth
27694	<i>Anarsia lineatella</i>	Peach Twig Borer
32638	<i>Ancylis comptana</i>	Strawberry Leafroller
	<i>Anisandrus maiche</i>	Ambrosia Beetle
29521	<i>Anobium</i> sp.	Beetle
25922	<i>Anobium punctatum</i>	Furniture Beetle
22938	<i>Anomala</i> sp.	Scarab Beetle
27788	<i>Anomala cuprea</i>	Cupreous Chafer
40277	<i>Anomala dimidiata</i>	Green Beetle
31531	<i>Anomala obscuripes</i>	Beetle
19710	<i>Anomala orientalis</i>	Oriental Beetle
27187	<i>Anomala rufocuprea</i>	Soybean Beetle
25140	<i>Anomis flava</i>	Cotton Looper
38891	<i>Anomis sabulifera</i>	Jute Semilooper
	<i>Anoplophora chinensis</i>	Citrus Longhorned Beetle
27436	<i>Anoplophora glabripennis</i>	Asian Long-horned Beetle
27515	<i>Anoplophora</i> sp.	Long-horned Beetle
20098	<i>Anthonomus eugenii</i>	Pepper Weevil
16553	<i>Anthonomus grandis</i>	Boll Weevil
17702	<i>Anthonomus grandis</i> ssp. <i>grandis</i>	Boll Weevil
19588	<i>Anthonomus pomorum</i>	Apple Blossom Weevil
19020	<i>Anthonomus rubi</i>	Strawberry Blossom Weevil
25709	<i>Anthrenus flavipes</i>	Furniture Carpet Beetle
20472	<i>Anthrenus Verbasci</i>	Varied Carpet Beetle
17373	<i>Anticarsia gemmatilis</i>	Velvetbean Caterpillar

Species Number	Scientific Name	Common Name
17532	Antigastra catalaunalis	Capsule Borer
28309	Aphthona euphorbiae	Flea Beetle
18909	Aproaerema modicella	Groundnut Leafminer
21726	Aproaerema sp.	Leafminer
42401	Aproaerema simplexella	Soybean Moth
29199	Archips argyrospila	Fruit Tree Leafroller
5423	Archips fumiferana Syn (Choristoneura fumiferana)	Spruce Budworm
	Archips fuscocupreanus	Apple Tortrix
	Archips podana	Fruit Tree Tortrix
31716	Archips rosana	European Leafroller
	Archips xylosteanus	Variegated Golden Tortrix
16828	Argyrotaenia velutinana	Red Banded Leaf Roller
26015	Aroga trialbamuclella	Red-striped Fireworm
	Argyresthia pruniella	Cherry Blossom Moth
	Aromia bungii	Red Neck Longhorn Beetle
38942	Astylus sp.	Beetle
27791	Astylus atomaculatus	Spotted Maize Beetle
11404	Ataenius sp	Beetle
17324	Ataenius spretulus	Scarab
16652	Attagenus unicolor	Cigarette Beetle
28072	Aulacophora sp.	Leaf Beetle
41537	Aulacophora nigripennis	Leaf Beetle
25118	Autographa sp.	Semilooper
25119	Autographa nigrisigna	Asiatic Common Looper
27632	Aulacophora foveicollis	Red Pumpkin Beetle
28500	Autographa californica	Alfalfa Looper
	Autographa gamma	Silver Y Moth
18885	Blastobasis sp.	Litchi Nut Borer
	Blosyrus asellus	Rough Sweetpotato Weevil
31482	Bothynus sp.	Beetle
28283	Brahmina coriacea	Beetle
28487	Bruchus lentis	Lentil Weevil
25450	Bruchus pisorum	Pea Weevil
25046	Bruchus sp.	Leaf Beetle
31406	Cactoblastis cactorum	Cactus Moth
19742	Cadra cautella	Almond Moth
	Callidiellum rufipenne	Japanese Cedar Longhorn Beetle
	Callidiellum villosulum	Brown Fir Longhorned Beetle
25623	Callosobruchus analis	Graham Bean Weevil
16685	Callosobruchus chinensis	Cowpea Weevil
18273	Callosobruchus maculatus	Cowpea Weevil
30359	Cameraria sp.	Gracillariid Moth

Species Number	Scientific Name	Common Name
20504	<i>Calomycterus setarius</i>	Longhorned Weevil
30260	<i>Cameraria caryaefoliella</i>	Pecan Leafminer Moth
39481	<i>Cameraria ohridella</i>	Chestnut Leafminer Moth
22877	<i>Carpophilus</i> sp.	Sap Beetle
19498	<i>Carpophilus hemipterus</i>	Dried Fruit Beetle
20521	<i>Carpophilus lugubris</i>	Dusky Sap Beetle
25374	<i>Carpophilus mutilatus</i>	Confused Sap Beetle
19914	<i>Caryedon serratus</i>	Peanut Bruchid Beetle
18126	<i>Cerotoma trifurcata</i>	Bean Leaf Beetle
16020	<i>Ceutorhynchus assimilis</i>	Cabbage seedpod weevil
28653	<i>Ceutorhynchus napi</i>	Rape Stem Weevil
28656	<i>Ceutorhynchus obstrictus</i>	Cabbage Seedpod Weevil
28654	<i>Ceutorhynchus quadridens</i>	Cabbage Stem Weevil
21257	<i>Ceutorhynchus</i> sp.	Weevil
18873	<i>Chaetocnema</i> sp.	Flea Beetle
33420	<i>Chaetocnema concinna</i>	Beet Flea Beetle
28062	<i>Chaetocnema confinis</i>	Sweetpotato Flea Beetle
28583	<i>Chaetocnema costulata</i>	Flea Beetle
28584	<i>Chaetocnema pulicaria</i>	Corn Flea Beetle
26003	<i>Chalcodermus aeneus</i>	Cowpea Curculio
	<i>Chilecomadia valdiviana</i>	Carpenter Worm
32000	<i>Chilo agamemnon</i>	Oriental Corn Borer
38474	<i>Chilo auricilius</i>	Sugarcane Stalk Borer
30003	<i>Chilo infuscatellus</i>	Stem boring moth
10378	<i>Chilo partellus</i>	Sorghum Stem Borer
32151	<i>Chilo plejadellus</i>	S Rice Stalk Borer
22869	<i>Chilo</i> sp.	Stemborer Moths
16869	<i>Chilo suppressalis</i>	Striped Riceborer
	<i>Chilocorus kuwanae</i>	Ladybird Beetle Scale Predator
18907	<i>Chiloloba acuta</i>	Green Scarab Beetle
	<i>Chlorophorus annularis</i>	Bamboo Borer
	<i>Chlorophorus strobilicola</i>	Slender-Banded Pinecone Longhorn Beetle
32635	<i>Choristoneura conflictana</i>	Large Aspen Tortrix Moth
32673	<i>Choristoneura lambertiana</i>	Sugar Pine Tortrix Moth
32636	<i>Choristoneura lambertiana</i> ssp. <i>Ponderosana</i>	Tortrix Moth
18655	<i>Choristoneura occidentalis</i>	Western Spruce Budworm
27635	<i>Choristoneura pinus</i>	Jack Pine Budworm Moth
16829	<i>Choristoneura rosaceana</i>	Oblique Banded Leaf Roller
42419	<i>Choristoneura orae</i>	Spruce Budworm
22184	<i>Choristoneura</i> sp.	Tortrix Moths
32634	<i>Choristoneura vviridis</i>	Modoc Budworm
29134	<i>Chrysobothris femorata</i>	Flatheaded Appletree Borer

Species Number	Scientific Name	Common Name
29759	Chrysochus auratus	Dogbane Beetle
28380	Chrysodeixis sp.	Noctuidae Moth
28249	Chrysodeixis acuta	Tomato Looper
39658	Chrysodeixis eriosoma	Green Garden Looper
39471	Chrysodeixis includes	Soybean Looper
34578	Chrysodeixis chalcites	Golden Twin Spot Tomato Looper
28331	Chrysomela scripta	Cottonwood Leaf Beetle
40337	Chrysomela sp.	Leaf Beetle
24492	Cnaphalocrocis sp.	Grass Moths
16141	Cnaphalocrocis medinalis	Rice Leaf Folder Moth
	Cnestus mutilatus	Camphor Shot Borer
16835	Coleomegilla maculata	Ladybird Beetle
20477	Coleomegilla maculata ssp. lengi	Ladybird Beetle
27701	Conoderus sp.	Wireworm
25356	Conoderus amplicollis	Gulf Wireworm
33466	Conoderus exsul	Pasture Wireworm
25354	Conoderus falli	Southern Potato Wireworm
31298	Conoderus scissus	Wireworm
30927	Conoderus vespertinus	Tobacco Wireworm
27490	Conogethes punctiferalis	Yellow Peach Moth
32080	Conophthorus monticolae	Mountain Pine Cone Beetle
28351	Conophthorus ponderosae	Pine Cone Beetle
25096	Conophthorus resinosae	Red Pine Cone
25095	Conophthorus sp.	Weevil
18526	Conotrachelus nenuphar	Plum Curculio
	Copitarsia sp./spp.	Noctuid Moth
16682	Corcyra cephalonica	Rice Moth
18893	Costelytra zealandica	Grass Grub
17213	Cotinis nitida	Green June Beetle
20460	Crioceris asparagi	Common Asparagus Beetle
25127	Crocidolomia binotalis	Large Cabbage-heart Caterpillar
	Crociosema aporema	Bud Borer; Bean Shoot Moth
17097	Cryptolestes ferrugineus	Rusty Grain Beetle
29614	Cryptolestes minutus	Beetle
25403	Cryptolestes pusillus	Flat Grain Beetle
23323	Cryptolestes sp.	Beetle
25472	Cryptolestes turcicus	Flourmill Beetle
24390	Ctenicera sp.	Wireworm
24614	Ctenicera aeripennis	Prairie Grain Wireworm
19509	Ctenicera aeripennis ssp. destructor	Prairie Grain Wireworm
19510	Ctenicera destructor	Prairie Grain Wireworm
19679	Ctenicera pruinina	Great Basin Wireworm
29271	Curculio sp.	Weevil

Species Number	Scientific Name	Common Name
25359	<i>Curculio caryae</i>	Pecan Weevil
	<i>Curculio elephas</i>	European Chestnut Weevil
17212	<i>Cyclocephala borealis</i>	Northern Masked Chafer
29086	<i>Cyclocephala comata</i>	Beetle
34010	<i>Cyclocephala hirta</i>	Western Masked
20248	<i>Cyclocephala immaculata</i>	Southern Masked Chafer
31072	<i>Cyclocephala parallela</i>	Beetle
23184	<i>Cyclocephala</i> sp.	Scarab Beetle
20562	<i>Cydia caryana</i>	Hickory Shuckworm
20326	<i>Cydia nigricana</i>	Pea Moth
16657	<i>Cydia pomonella</i>	Coddling Moth
25732	<i>Cydia strobilella</i>	Spruce Cone Moth
18910	<i>Cylas formicarius</i>	Sweetpotato Weevil
16051	<i>Cylas formicarius</i> ssp. <i>elengantul</i>	Sweetpotato Weevil
	<i>Darna pallivitta</i>	Nettle Caterpillar
28661	<i>Dectes</i> sp.	Stem Borer
28648	<i>Dectes texanus</i>	Soybean Stem Borer
24446	<i>Dendroctonus</i> sp.	Beetle
27573	<i>Dendroctonus adjunctus</i>	Roundheaded Pine Beetle
29105	<i>Dendroctonus brevicomis</i>	Western Pine Beetle
20444	<i>Dendroctonus frontalis</i>	Southern Pine Beetle
	<i>Dendroctonus micans</i>	Great Spruce Bark Beetle
18136	<i>Dendroctonus ponderosae</i>	Mountain Pine Beetle
26600	<i>Dendroctonus pseudotsugae</i>	Douglas-fir Beetle
19044	<i>Dendroctonus rufipennis</i>	Spruce Beetle
32710	<i>Dendroctonus tenebrans</i>	Black Turpentine Beetle (2/8/16)
20088	<i>Dendroctonus valens</i>	Red Turpentine Beetle
34572	<i>Dendrolimus pini</i>	Pine-tree Lappet
	<i>Dendrolimus superans</i>	Sakhalin Silk Moth
25683	<i>Dermestes maculatus</i>	Hide Beetle
20516	<i>Diabrotica balteata</i>	Banded Cucumber Beetle
16625	<i>Diabrotica barberi</i>	Northern Corn Rootworm
18540	<i>Diabrotica longicornis</i>	Northern Corn Rootworm
16615	<i>Diabrotica</i> sp.	Corn Rootworm
39525	<i>Diabrotica speciosa</i>	Cucurbit Beetle
24620	<i>Diabrotica undecimpunctata</i>	Spotted Cucumber Beetle
15987	<i>Diabrotica undecimpunctata</i> ssp. <i>Howardi</i>	Southern Corn Rootworm
19720	<i>Diabrotica undecimpunctata undecimpunctata</i>	Western Spotted Cucumber Beetle
19699	<i>Diabrotica virgifera</i>	Leaf Beetle
16782	<i>Diabrotica virgifera</i> ssp. <i>virgifera</i>	Western Corn Rootworm
19698	<i>Diabrotica vittata</i>	Striped Cucumber Beetle
22043	<i>Diacrisia</i> sp.	Moth

Species Number	Scientific Name	Common Name
18834	<i>Diacrisia oblique</i>	Bihar Hairy Moth
28569	<i>Diacrisia virginica</i>	Moth
22724	<i>Diaphania</i> sp.	Moth
19689	<i>Diaphania hyalinata</i>	Melonworm Moth
29101	<i>Diaphania indica</i>	Cucumber Moth
17206	<i>Diaphania nitidalis</i>	Pickleworm
19647	<i>Diaprepes abbreviatus</i>	Root Weevil
38881	<i>Diatraea crambidoides</i>	Southern Cornstalk Borer
16825	<i>Diatraea grandiosella</i>	Southwest Corn Borer
20300	<i>Diatraea saccharalis</i>	Sugarcane Borer
18925	<i>Dicladispa armigera</i>	Rice Hispa
28314	<i>Dinoderus brevis</i>	Auger Beetle
25075	<i>Dinoderus minutus</i>	Bamboo Powderpost Beetle
32821	<i>Dinoderus ocellaris</i>	Auger Beetle
25074	<i>Dinoderus</i> sp.	Auger Beetle
24761	<i>Diorhabda elongata</i>	Tamarisk Leaf Beetle
24760	<i>Diorhabda</i> sp.	Leaf Beetle
40165	<i>Diorhabda sublineata</i>	Subtropical Tamarisk Beetle
33153	<i>Dioryctria abietella</i>	Spruce Coneworm
27574	<i>Dioryctria abietivorella</i>	Fir Coneworm
19750	<i>Dioryctria amatella</i>	Southern Pine Coneworm
27555	<i>Dioryctria mutata</i>	Moth
19004	<i>Dioryctria reniculelloides</i>	Spruce Coneworm
20453	<i>Dioryctria</i> sp.	Moth
27669	<i>Dioryctria tumicoella</i>	Pine Coneworm
25456	<i>Dioryctria zimmermani</i>	Zimmerman Pine Moth
	<i>Duponchelia fovealis</i>	Pyralid Moth
18373	<i>Earias</i> sp.	Spiny Bollworm
18938	<i>Earias insulana</i>	Egyptian Stem-borer
17175	<i>Earias vittella</i>	Rough Bollworm
34472	<i>Echinocnemus oryzae</i>	Paddy Root Weevil
30261	<i>Eucosma sonomana</i>	Western Pine Shoot Borer
21218	<i>Elasmopalpus</i> sp.	Snout Moth
19693	<i>Elasmopalpus lignosellus</i>	Lesser Cornstalk Borer
41978	<i>Eldana saccharina</i>	African Sugarcane Borer
41964	<i>Eleodes longicollis</i>	Desert Stink Beetle
41967	<i>Eleodes</i> sp.	Darkling Beetle
	<i>Enarmonia formosana</i>	Cherry Bark Tortrix (CBT)
18824	<i>Ennomos subsignaria</i>	Snow-White Linden
16833	<i>Eoreuma loftini</i>	Mexican Rice Borer
23209	<i>Ephestia</i> sp.	Moth
25327	<i>Ephestia cautella</i>	Dried Current Moth
25544	<i>Ephestia elutella</i>	Tobacco Moth

Species Number	Scientific Name	Common Name
18151	<i>Ephestia kuehniella</i>	Mediterranean Flour Moth
23569	<i>Epicauta</i> sp.	Beetle
17245	<i>Epilachna ocellata</i>	Hadda Beetle
16124	<i>Epilachna varivestis</i>	Mexican Bean Beetle
20073	<i>Epiphyas postvittana</i>	Lightbrown Apple Moth
24047	<i>Epitrix</i> sp.	Flea Beetle
25101	<i>Epitrix cucumeris</i>	Potato Flea Beetle
28582	<i>Epitrix fuscata</i>	Eggplant Flea Beetle
17269	<i>Epitrix hirtipennis</i>	Tobacco Flea Beetle
19756	<i>Epitrix tuberosa</i>	Tuber Flea
	<i>Erannis defoliaria</i>	Mottled Umber Moth
28378	<i>Euchrysops</i> sp.	Moth
28247	<i>Euchrysops cnejus</i>	Five-spotted Pea-blue
3061	<i>Eucosma sonomana</i>	Western Pine Shoot Borer
	<i>Eudocima fullonia</i>	Fruit Piercing Moth
18651	<i>Eutheola humilis</i>	Sugarcane Beetle
	<i>Eupoecilia ambiguella</i>	European Grape Berry Moth
18992	<i>Euproctis subnotata</i>	Hairy Caterpillar
19796	<i>Euxoa auxiliaris</i>	Army Cutworm
	<i>Euwallacea fornicatus</i>	Tea Shot-hole Borer
18352	<i>Euxoa messoria</i>	Darksided Cutworm
28332	<i>Euzophera semifuneralis</i>	American Plum Borer)
22736	<i>Evergestis</i> sp.	Cabbageworm
18921	<i>Evergestis forficata</i>	Garden Pebble Moth
25137	<i>Evergestis rimosalis</i>	Cross-striped Cabbageworm
26006	<i>Exelastis atomosa</i>	Plume Moth
27537	<i>Galerucella birmanica</i>	Singhara Beetle
38981	<i>Gesonia</i> sp	Noctuid
38937	<i>Gesonia gemma</i>	Grey Semilooper
29967	<i>Glischrochilus fasciatus</i>	Sap Beetle
25120	<i>Glischrochilus quadrisignatus</i>	Four-spotted Sap Beetle
32203	<i>Glyphidocera</i> sp.	Moth
32181	<i>Glyphidocera juniperella</i>	Juniper Tip Moth
40642	<i>Gonipterus scutellatus</i>	Eucalyptus Snout Beetle
	<i>Grapholita funebrana</i>	Plum Fruit Moth
16860	<i>Grapholita molesta</i>	Oriental Fruit Moth
34235	<i>Grapholita packardii</i>	Cherry Fruitworm
18511	<i>Grapholita prunivora</i>	Lesser Appleworm
21788	<i>Grapholita</i> sp.	Tortrix Moths
	<i>Gypsonoma aceriana</i>	European Poplar Shoot Borer
16831	<i>Harmonia axyridis</i>	Asian Lady Beetle
5203	<i>Harpalus pensylvanicus</i>	Carabid Beetle
38890	<i>Harrisina brillians</i>	Western Grapeleaf Skeletonizer

Species Number	Scientific Name	Common Name
16846	<i>Helicoverpa armigera</i>	Old World Bollworm
29617	<i>Helicoverpa punctigera</i>	Australian Bollworm
28250	<i>Helicoverpa assulta</i>	Oriental Tobacco Budworm
16855	<i>Helicoverpa</i> sp.	Bud Worm
18123	<i>Helicoverpa virescens</i>	Tobacco Budworm
15908	<i>Helicoverpa zea</i>	Corn Earworm
18374	<i>Heliothis armigera</i>	Bollworm
28251	<i>Heliothis peltigera</i>	Bordered Straw
17698	<i>Heliothis</i> sp.	Budworm
16679	<i>Heliothis virescens</i>	Budworm
	<i>Heteronychus arator</i>	Black Maize Beetle
16827	<i>Hellula phidilealis</i>	Cabbage Webworm
30455	<i>Hellula rogatalis</i>	Cabbage Webworm
22204	<i>Hellula</i> sp.	Cabbage Webworm
33092	<i>Hellula undalis</i>	Cabbage Webworm
18883	<i>Henosepilachna</i> sp.	Ladybird Beetle
28044	<i>Henosepilachna ocellata</i>	Ladybird Beetle
18874	<i>Henosepilachna virgintioctopunctata</i>	Twentysix-Spotted Potato Ladybird Beetle
39336	<i>Herpetogramma phaeopteralis</i>	Tropical Sod Webworm
41829	<i>Heterocampa</i> sp.	Moth
41828	<i>Heterocampa guttivitta</i>	Saddled Prominent Moth
38965	<i>Heteronychus arator</i>	Black Maize Beetle
23272	<i>Holotrichia</i> sp.	Beetle
16672	<i>Holotrichia consanguinea</i>	Beetle
31451	<i>Holotrichia longipennis</i>	Cockchafer
39199	<i>Holotrichia parallela</i>	Large Black Chafer Beetle
19748	<i>Homoeosoma electellum</i>	Sunflower Moth
16870	<i>Homona magnanima</i>	Oriental Tea Tortrix
21170	<i>Hylobius</i> sp.	Weevil
20074	<i>Hylobius pales</i>	Pales Weevil
27660	<i>Hylobius radicis</i>	Pine Root Collar Weevil
20559	<i>Hylobius abietis</i>	Pine Weevil
	<i>Hylobius transversovittus</i>	Loosestrife Root Weevil
33342	<i>Hylotrupes</i> sp.	Longhorn Beetle
33408	<i>Hylotrupes bajulus</i>	Old House Borer
	<i>Hylurgops palliatus</i>	Lesser Spruce Shoot Beetle
29135	<i>Hylurgopinus rufipes</i>	Native Elm Barm Beetle
	<i>Hylurgus ligniperda</i>	Redhaired Pine Bark Beetle
25068	<i>Hypera brunniipennis</i>	Egyptian Alfalfa Weevil
32057	<i>Hypera meleus</i>	Clover Head Weevil
29762	<i>Hypera nigrirostris</i>	Black-beaked Green Weevil
16733	<i>Hypera postica</i>	Weevil
19538	<i>Hypera punctata</i>	Clover Leaf Weevil

Species Number	Scientific Name	Common Name
23795	Hyper asp.	Weevil
19700	Hyphantria cunea	Fall Webworm
29150	Hypocryphalus mangiferae	Mango Bark Beetle
29152	Hypocryphalus sp.	Bark Beetle
42002	Hyposidra infixaria	Tea Looper Caterpillar (India)
25221	Indarbela sp.	Carpenter Moth
34489	Indarbela quadrinotata	Bark Eating Caterpillar
29098	Ips avulses	Small Southern Pine Engraver
27795	Ips calligraphus	Coarsewriting Engraver
25332	Ips concinnus	Bark Beetle
29106	Ips confusus	Pinyon Ips Beetle
16684	Ips grandicollis	Southern Pine Engraver
20089	Ips latidens	Western Pine Engraver
25331	Ips perturbatus	Engraver Beetle
16027	Ips pini	Pine Engraver
23710	Ips sp.	Engraver Beetle
	Ips sexdentatus	Sixtoothed Bark Beetle
	Ips subelongatus	Scolytid Beetle
27636	Ips typographus	European Spruce Bark Beetle
22458	Hypothenemus sp.	Beetle
20038	Hypothenemus eruditus	Bark Beetle
18912	Hypothenemus hampei	Coffee Borer Beetle
20037	Hypothenemus obscurus	Apple Twig Beetle
	Ischnopterapion virens	White Clover Weevil
25451	Itame argillacearia	Blueberry Spanworm
16876	Keiferia lycopersicella	Tomato Pinworm
16865	Lacanobia subjuncta	Speckled Cutworm Moth
25089	Lambdina sp.	Moth
41920	Lambdina athasaria	Spring Hemlock Looper
25090	Lambdina fiscellaria	Hemlock Looper
33279	Lambdina fiscellaria lugubrosus	Western Hemlock Lopper
21102	Lasioderma sp	Beetle
16647	Lasioderma serricorne	Cigarette Beetle
25520	Latheticus oryzae	Longheaded Flour Beetle
28652	Lema sp.	Leaf Beetle
29756	Lema daturaphila	Three Lined Potato Beetle
	Leguminivora glycinivorella	Soybean Pod Borer
16058	Leptinotarsa decemlineata	Colorado Potato Beetle
16620	Leucinodes orbonalis	Fruit Borer
	Leucoma salicis	Satin Moth
	Leucoptera malifoliella	Pear Leaf Blister Moth
	Lilioceris lili	Lily Leaf Beetle
24404	Limonius sp.	Wireworm

Species Number	Scientific Name	Common Name
29109	<i>Limonius californicus</i>	Sugarbeet Wireworm
19678	<i>Limonius canus</i>	Pacific Coast Wireworm
32119	<i>Limonius dubitans</i>	Wireworm
42773	<i>Limonius ectypus</i>	Western Field Wireworm
5775	<i>Lissorhoptrus oryzophilus</i>	Rice Water Weevil
30278	<i>Listroderes costirostris</i> ssp. <i>obliquus</i>	Vegetable Weevil
21329	<i>Listronotus</i> sp.	Weevil genus
1541	<i>Listronotus appendiculatus</i>	Weevil
16624	<i>Listronotus bonariensis</i>	Argentine Stem Weevil
26930	<i>Listronotus maculicollis</i>	Bluegrass Weevil
19694	<i>Listronotus montanus</i>	Weevil
20473	<i>Listronotus oregonensis</i>	Carrot Weevil
28326	<i>Listronotus texanus</i>	Carrot Weevil
30263	<i>Lithocolletis</i> sp.	Gracillariid Moth
28334	<i>Lobesia botrana</i>	European Grapevine Moth
27607	<i>Longitarsus nigripennis</i>	Pollu Beetle
43087	<i>Longitarsus parvulus</i>	Flax Flea Beetle
38442	<i>Lophocampa argentata</i>	Silverspotted Tiger Moth
43088	<i>Loxagrotis albicosta</i> – syn of <i>Striacosta albicosta</i>	Western Bean Cutworm
28319	<i>Lyctus africanus</i>	African Powderpost Beetle
16106	<i>Lymantria dispar</i>	European Gypsy Moth
	<i>Lymantria dispar asiatica</i>	Asian Gypsy Moth
41534	<i>Lymantria dispar</i> ssp. <i>japonica</i>	Japanese Gypsy Moth
	<i>Lymantria mathura</i>	Rosy Moth
39210	<i>Lymantria monacha</i>	Nun Moth
25079	<i>Macrodactylus subspinosus</i>	Rose Chafer
	<i>Macronoctua onusta</i>	Iris Borer
22133	<i>Malacosoma</i> sp.	Tent Caterpillar
26372	<i>Malacosoma americanum</i>	Eastern Tent Caterpillar
18918	<i>Malacosoma indica</i>	Forest Tent Caterpillar
17621	<i>Malacosoma disstria</i>	Forest Tent Caterpillar
42175	<i>Malacosoma neustria</i>	Lackey Moth
42166	<i>Malacosoma neustria</i> ssp. <i>testacea</i>	Tent Caterpillar
19724	<i>Maladera castanea</i>	Asiatic Garden Beetle
24064	<i>Mamestra</i> sp.	Moth
11529	<i>Mamestra brassicae</i>	Cabbage Moth
188891	<i>Mamestra configurata</i>	Bertha Armyworm
29505	<i>Marmara gulosa</i>	Citrus Peelminer
44354	<i>Marmara salictella</i>	Citrus Peelminer
29841	<i>Marmara</i> sp.	Gracillariid Moth
22822	<i>Manduca</i> sp.	Moth
19522	<i>Manduca quinquemaculata</i>	Tomato Hornworm
17047	<i>Manduca sexta</i>	Hawk Moth

Species Number	Scientific Name	Common Name
28379	Marasmarcha sp.	Moth
28246	Marasmarcha liophanes	Plume Moth
30474	Marasmia sp.	Moth
28262	Marasmia trapezalis	Maize Webworm
18896	Maruca testulalis	Bean Pod Borer
16862	Maruca vitrata	Bean Pod Borer
	Melanophila fulvoguttata	Hemlock Borer
42281	Melanitis leda ssp. Ismene	Common Evening Brown Butterfly
22465	Melanotus sp	Click Beetle
30877	Melanotus communis	Click Beetle
19692	Melanotus depressus	Wireworm
11463	Melanotus rufipes	Beetle
29676	Melanotus similis	Click Beetle
25080	Melittia cucurbitae	Squash Vine Borer
16173	Melittia satyriniformis	Squash Vine Borer
19747	Mesomorphus villiger	Tobacco Ground Beetle
34222	Metamasius hemipterus	Weevil
34220	Metamasius hemipterus sericeus	Silky Cane Weevil
20452	Microtheca ochroloma	Yellow Margined Leaf Beetle
39567	Monochamus alternatus	Japanese Pine Sawyer Beetle
	Monochamus saltuarius	Sakhalin Pine Sawyer
	Monochamus scutellatus	Whitespotted Sawyer
39294	Monochamus sp./spp.	Cerambycid Sawyer Beetle
	Monochamus sutor	Small White-Marmorated Longhorned Beetle
41886	Mussidia nigrivenella	Maize Cob Borer
30550	Mylabris sp.	Blister Beetle
25621	Mylabris phalerata	Blister Beetle
28225	Mylabris pustulata	Orange Blister Beetle
28226	Mylabris thunbergii	Blister Beetle
20474	Myllocerus undecimpustulatus	Cotton Grey Weevil
25136	Mythimna convecta	Common Armyworm
16802	Mythimna separata	Oriental Armyworm
	Naupactus leucoloma	Whitefringed Weevil
25446	Naupactus sp.	White-fringed Weevil
	Neoleucinodes elegantalis	Small Tomato Borer
18978	Nisotra sp.	Flea Beetle
30746	Nisotra orbiculata	Mesta Flea Beetle
32793	Oberea perspicillata	Raspberry Cane Borer
41840	Odoiporus longicollis	Banana Stem Weevil
	Odontota dorsalis	Locust Leafminer
25171	Oides scutellata	Grapevine Beetle
	Operophtera bruceata	Bruce Spanworm
18927	Operophtera brumata	European Winter Moth

Species Number	Scientific Name	Common Name
	<i>Opogona sacchari</i>	Banana Moth
	<i>Orchestes alni</i>	European Elm Flea Weevil
	<i>Orthotomicus erosus</i>	Mediterranean Pine Engraver
34757	<i>Oryctes rhinoceros</i>	Coconut Rhinoceros Beetle
39211	<i>Orgyia antiqua</i>	Rusty Tussock Moth
25088	<i>Orgyia leucostigma</i>	White-marked Tussock Moth
20547	<i>Orgyia pseudotsugata</i>	Douglas-Fir Tussock Moth
16895	<i>Oryzaephilus surinamensis</i>	Flat Bark Beetle
28474	<i>Ostrinia furnacalis</i>	Asian Corn Borer
15979	<i>Ostrinia nubilalis</i>	European Corn Borer
32298	<i>Otiorhynchus dieckmanni</i>	Wingless Weevil
32296	<i>Otiorhynchus ligustici</i>	Alfalfa Snout Beetle
18167	<i>Otiorhynchus sulcatus</i>	Black Vine Weevil
17266	<i>Oulema melanopus</i>	Cereal Leaf Beetle
27585	<i>Paederus fuscipes</i>	Rove Beetle
16847	<i>Pandemis pyrusana</i>	Pandemis Leafroller
	<i>Paleacrita vernata</i>	Spring Cankerworm
16847	<i>Pandemis pyrusana</i>	Pandemis Leafroller
42158	<i>Pantomorus</i> sp.	Weevil
42152	<i>Pantomorus cervinus</i>	Fuller's Rose Beetle
20546	<i>Papaipema nebris</i>	Stalk Borer
25637	<i>Papilio demoleus</i>	Lime Swallowtail
29978	<i>Paralobesia</i> sp.	Moth
29977	<i>Paralobesia viteana</i>	Grape Berry Moth
16692	<i>Pectinophora gossypiella</i>	Pink Bollworm
19680	<i>Pennisetia marginata</i>	Blackberry Clearwing Borer Raspberry Crown Borer
21949	<i>Pennisetia</i> sp.	Moth
	<i>Pericyma cruegeri</i>	Poinciana Looper
10622	<i>Peridroma saucia</i>	Variegated Cutworm
25135	<i>Persectania ewingii</i>	Southern Armyworm
18743	<i>Phthorimaea operculella</i>	Potato Tuberworm
42131	<i>Phryganidia</i> sp.	Moth
40346	<i>Phryganidia californica</i>	California Oakworm Moth
18937	<i>Phyllocnistis citrella</i>	Citrus Leafminer
17373	<i>Phyllonorycter blancardella</i>	Spotted Tentiform Leafminer
28067	<i>Phyllonorycter elmaella</i>	Western Tentiform Leafminer
21517	<i>Phyllophaga</i> sp.	Scarab Beetle
18455	<i>Phyllophaga anxia</i>	White Cranberry
19664	<i>Phyllophaga crinita</i>	June Beetle
16732	<i>Phyllotreta cruciferae</i>	Crucifer Flea Beetle
25104	<i>Phyllotreta pusilla</i>	Western Black Flea Beetle
18680	<i>Phyllotreta</i> sp.	Flea Beetle

EFED: Chemical Verification, Literature Searching and Application of EFED Criteria

Species Number	Scientific Name	Common Name
17271	Phyllotreta striolata	Striped Flea Beetle
28567	Phyllotreta undulata	Striped Flea Beetle
38989	Phyllotreta vittata	Wavy Striped Flea Beetle
11530	Pieris brassicae	Large White Butterfly
10655	Pieris rapae	Cabbage White
46775	Pissodes approximatus	Northern Pine Weevil
	Pityogenes chalcographus	Sixtoothed Spruce Bark Beetle
38946	Pityophthorus juglandis	Walnut Twig Beetle
32676	Planotortrix excessana	Greenheaded Leafroller
15931	Platynota idaeusalis	Tufted Apple Bud Moth
18125	Plathypena scabra	Green Cloverworm
	Platypus quercivorus	Oak Ambrosia Beetle
40193	Plectrodera scalator	Cottonwood Borer
40194	Plectrodera sp.	Longhorned Beetle
31077	Pleocomma sp.	Rain Beetle
16854	Plodia interpunctella	Indian Meal Moth
11531	Plutella xylostella	Diamondback Moth
18939	Podagrica sp.	Flea Beetle
42182	Podagrica puncticollis	Cotton Flea Beetle
28650	Podagrica sjostedti	Flea Beetle
28651	Podagrica uniforma	Flea Beetle
10913	Popillia japonica	Japanese Beetle
22950	Popillia sp./spp.	Popillia beetles
23708	Prays sp.	Moth
41888	Prays citri	Citrus Blossom Moth
28669	Prays endocarpa	Citrus Pock Caterpillar
20152	Prays oleae	Olive Moth
	Prionus laticollis	Broadnecked Root Borer
42418	Pristiphora geniculata	Mountain-ash Sawfly
20520	Prostephanus truncatus	Larger Grain Borer
32704	Psalis pennatula	Yellow Hairy Caterpillar
18712	Pseudaletia unipuncta	Armyworm
	Pseudocneorhinus bifasciatus	Twobanded Japanese Weevil
16864	Pseudoplusia includens	Soybean Looper
30965	Pterohelaeus alternates	False Wireworm (Australia)
40130	Pyrrhalta sp.	Leaf Beetle
40111	Pyrrhalta viburni	Viburnum Leaf Beetle
27664	Rhizotrogus majalis	European Chafer
44367	Rhopobota naevana	Holly Tortrix Moth
	Rhyacionia buoliana	European Pine Shoot Moth(EPsM)
42370	Rhyssomatus subtilis	Black Soybean Weevil
17945	Rhyacionia frustrana	Nantucket Pinetip Moth
17604	Rhyacionia neomexicana	Southwestern Pine Tip Moth

Species Number	Scientific Name	Common Name
24189	Rhyacionia sp.	Moth
31027	Rhynchophorus ferrugineus	Red Palm Weevil
31022	Rhynchophorus palmarum	South American Palm Weevil
22432	Rhyzopertha sp.	Grain Borer
16255	Rhyzopertha dominica	Lesser Grain Borer
18922	Rivula sp.	Grey Semilooper
	Saperda calcarata	Poplar Borer
40224	Saperda sp.	Long-horned Beetle
40197	Saperda vestita	Linden Borer
	Sasajiscymnus tsugae	Hemlock Woolly Adelgid Lady Beetle
27606	Sceliodes cordalis	Eggfruit Caterpillar
17560	Scirpophaga incertulas	Rice Stem Borer
27620	Scirpophaga innotata	Rice White Stem-borer
	Scolytus intricatus	European Oak Bark Beetle
25115	Scolytus multistriatus	European Elm Bark Beetle
	Scolytus schevyrewi	Banded Elm Bark Beetle
	Scolytus scolytus	European Elm Bark Beetle
28372	Scrobipalpa sp	Moth
27627	Scrobipalpa heliopa	Tobacco Stem Borer
29559	Scyphophorus acupunctatus	Agave Snout Weevil
21630	Sesamia sp	Corn Borer
38915	Sesamia cretica	Corn Stem Borer
17567	Sesamia inferens	Pink Stem Borer
15976	Sesamia nonagrioides	Corn Borer
16995	Sitophilus granarius	Granary Weevil
16640	Sitona lineatus	Pea and Bean Weevil
16748	Sitophilus oryzae	Rice Weevil
16741	Sitophilus zeamais	Weevil
18152	Sitotroga cerealella	Angoumois Grain Moth
28637	Smicronyx fulvus	Red Sunflower Seed Weevil
43231	Smicronyx sordidus	Grey Sunflower Seed Weevil
28660	Smicronyx sp.	Weevil
24160	Sphenophorus sp.	Weevil
19767	Sphenophorus callosus	Corn Billbug
19120	Sphenophorus parvulus	Bluegrass Billbug
29270	Sphenophorus venatus	Billbug)
29174	Sphenophorus venatus ssp. Vestitus	Hunting Billbug
18919	Spilarctia obliqua	Moth
18900	Spilosoma obliqua	Bihar Hairy Caterpillar
23539	Spilosoma sp.	Moth
28569	Spilosoma virginica	Yellow Woolly Bear
16824	Spodoptera eridania	Southern Army Worm
28488	Spodoptera exempta	African Armyworm

Species Number	Scientific Name	Common Name
16837	Spodoptera exigua	Beet Armyworm
16735	Spodoptera frugiperda	Fall Armyworm
11533	Spodoptera littoralis	Egyptian Cotton Leafworm
16175	Spodoptera litura	Common Cutworm
28342	Spodoptera ornithogalli	Yellowstripe Armyworm
16823	Spodoptera sp.	Army Worm
27489	Stathmopoda masinissa	Persimmon Fruit Moth
23077	Stegobium sp.	Beetle
17507	Stegobium paniceum	Drugstore Beetle
29147	Stelidota geminata	
28242	Sternochetus frigidus	
27615	Sternochetus mangiferae	Mango Seed Weevil
30639	Stethopachys Formosa	Orchid Beetle
43088	Western Bean Cutworm	Western Bean Cutworm
28240	Sylepta derogata	Cotton Leaf Roller
21636	Synanthedon sp.	Moth
40280	Synanthedon acerni	Maple Borer
28343	Synanthedon exitiosa	Peachtree Borer
43319	Synanthedon myopaeformis	Red-Belted Clearwing
28328	Synanthedon pictipes	Lesser Peachtree Borer
16859	Synanthedon scitula	Dogwood Borer
	Synanthedon myopaeformis	Apple Clearwing Moth
32160	Synanthedon tipuliformis	Currant and Gooseberry Borer
42400	Systema sp.	Flea Beetle
5097	Tenebrio molitor	Yellow Mealworm
	Tetropium castaneum	Black Spruce Beetle
	Tetropium fuscum	Brown Spruce Longhorned Beetle
29979	Thaumaotibia sp.	Moth
	Thaumatotibia leucotreta	False Codling Moth
41845	Thaumetopoea pityocampa	Pine Processionary Moth
	Thaumetopoea processionea	Oak Processionary Moth
24549	Thyridopteryx sp.	Bagworm Moths
19704	Thyridopteryx ephemeraeformis	Bagworm
20457	Tineola bisselliella	Common Clothes Moth
	Tomicus destruens	Pine Shoot Beetle
	Tomicus minor	Lesser Pine Shoot Beetle
20079	Tomicus piniperda	Pine Shoot Beetle
	Tortrix viridana	Green Oak Tortrix
23105	Tribolium sp.	Flour Beetle
5098	Tribolium castaneum	Rust-Red Flour Beetle
16654	Tribolium confusum	Confused Flour Beetle
26113	Tribolium freemani	Kashmir Flour Beetle
	Trichoferus campestris	Chinese Longhorned Beetle

Species Number	Scientific Name	Common Name
16838	Trichoplusia ni	Cabbage Looper
18155	Trogoderma granarium	Skin Beetle
18528	Trogoderma Variabile	Warehouse Beetle
	Trypodendron domesticum	Eur. Hardwood Ambrosia Beetle
27645	Tuta absoluta	Tomato Leaf Miner
34264	Uraba lugens	Gum-Leaf Skeletoniser
34269	Uraba sp.	Moth
27580	Virachola sp.	Butterfly
27579	Virachola Isocrates	Pomegranate Butterfly
28066	Xanthogaleruca luteola	Elm Leaf Beetle
29587	Xestia sp.	Noctuid Moth
20042	Xyleborus affinis	Sugarcane Shot Hole Borer
20040	Xyleborus catulus	Bark Beetle
	Xyleborus dispar	Pear Blight Beetle
18755	Xyleborus ferrugineus	Black Twig Borer
29267	Xyleborus glabratus	Redbay Ambrosia Beetle
19201	Xyleborus perforans	Island Pinhole Borer
22720	Xyleborus sp.	Beetle
20041	Xyleborus spinulosus	Bark Beetle
29140	Xyleborus volvulus	Ambrosia Beetle
21395	Xylosandrus sp.	Bark Beetle
29139	Xylosandrus crassiusculus	Asian Ambrosia Beetle
39315	Xylosandrus germanus	Black Stem Borer
	Xylotrechus chinensis	Mulberry Borer
	Xylotrechus colonus	Rustic Borer
	Xylotrechus pyrrhoderus	Longhorned Beetle
	Xylotrechus quadripes	Coffee White Stem Borer Beetle
39317	Xylotrechus sp./spp.	Cerambycid Beetle
	Yponomeuta malinellus	Apple Ermine Moth (AEM)
27505	Zabrotes sp.	Leaf Beetle
26092	Zabrotes subfasciatus	Mexican Bean Weevil
21880	Zygogramma sp.	Beetle
18870	Zygogramma exclamtionis	Sunflower Beetle

APPENDIX C: EXAMPLE OF CHEMICAL/RELATED CHEMICAL DOCUMENT

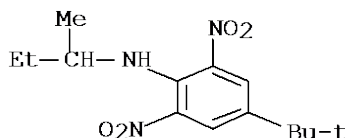
Butralin and Related Chemicals

*Related chemicals (as noted) taken from the PFATE data file or from the EPA's Reregistration Eligibility Decision (RED) for Butralin:

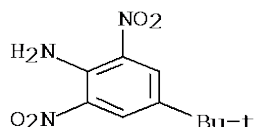
<https://archive.epa.gov/pesticides/reregistration/web/pdf/2075red.pdf>

*Structures from STN Express. Computer Software. Vers. 8.6

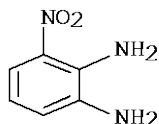
Butralin - CAS # 33629-47-9 – Parent chemical, EFED Chemical



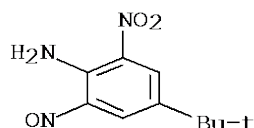
4-tert-Butyl-2,6-dinitroaniline – CAS # 22503-16-8 – Related chemical (PFATE and RED)



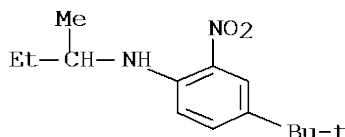
3-Nitro-1,2-phenylenediamine – CAS # 3694-52-8 – Related chemical (RED)



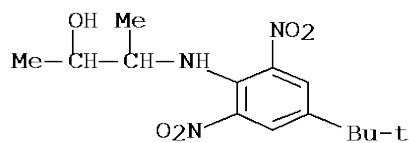
4-tert-Butyl-2-nitro-6-nitrosoaniline – CAS # 53413-13-1 – Related chemical (RED)



N-sec-Butyl-4-tert-butyl-2-nitroaniline – CAS # 60145-73-5 – Related chemical (PFATE)



3-(4-tert-Butyl-2,6-dinitroanilino)-2-butanol – CAS # 53552-04-8 – Related chemical (RED)



CAS number unavailable and will not be included (all from RED)

4-tert-Butyl-2,6-dinitroacetanilide

N-Isopropyl-2-amino-4-tert-butyl-6-nitroaniline

N-Ethyl-2-nitroso-4-tertiary-butyl-6-nitroaniline

APPENDIX D: SAN FRANCISCO BAY AREA ENDANGERED SPECIES LITIGATION CHEMICALS

This appendix is for historical documentation for the chemical reports delivered between 05/2007 to 7/2015. Beetle and butterfly data was included for the insecticide data reports.

Chemical from <https://www.epa.gov/endangered-species/san-francisco-bay-area-endangered-species-litigation-center-biological-diversity>

Pesticides Named in Lawsuit (Active 05/2007 to 7/2015)

Table 1. The 75 pesticide active ingredients identified in the lawsuit are:

2,4-D	acephate	acrolein	alachlor
aldicarb	aluminum phosphide	atrazine	azinphos-methyl*
bensulide	beta-cyfluthrin	bifenthrin	brodifacoum
bromadiolone	bromethalin	carbaryl	carbofuran*
chlorophacinone	chlorothalonil	cholecalciferol	chlorpyrifos
cyfluthrin	cyhalothrin (lambda)	cypermethrin [#]	deltamethrin
diazinon	difenacoum	difethialone	dimethoate [#]
diphacinone	disulfoton*	diquat dibromide	endosulfan
EPTC (eptam)	esfenvalerate [#]	ethoprop [#]	fenpropathrin [#]
fipronil [#]	fluvalinate [#]	imidacloprid [#]	magnesium phosphide
malathion	maneb	mancozeb	metam sodium
methamidophos	methidathion	methomyl	methoprene
methyl bromide	metolachlor	naled	oryzalin
oxydemeton-methyl	oxyfluorfen [#]	PCNB	pendimethalin
permethrin	phenothrin [#]	phosmet	phorate
potassium nitrate	propargite [#]	resmethrin [#]	s-metolachlor
simazine	sodium cyanide [#]	sodium nitrate	strychnine [#]
tetramethrin	thiobencarb	tralomethrin [#]	trifluralin
warfarin	zeta-cypermethrin [#]	zinc phosphide	

*Because the chemical was cancelled, a “No Effect” determination was made.

[#]These chemicals were not completed under the San Francisco litigation. Under an amended agreement, once EPA completes effects determinations on atrazine, propazine, simazine and glyphosate, its obligation to complete effects determinations for these 16 pesticides is discharged, and the interim measures for these pesticides will be removed.

Table 2: Additional Species to be assessed with California (San Francisco) Red-Legged From Lawsuit Chemicals (active 5/2007 to 7/2015) (chemical list found at Contractor site (Chemicals\EFED Schedules tabs SFB List A and SFB Lists B)) See Appendix D for chemical list.

Common Name	Scientific Name	Species Group	UNIFY Species
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Common Name	Scientific Name	Species Group	UNIFY Species
Alameda whipsnake	<i>Coluber lateralis euryxanthus</i>	HERP	NO
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	INSECT (Nymphalidae)	NO
California clapper rail	<i>Rallus longirostris obsoletus</i>	AVIAN	Not subspecies
California freshwater shrimp	<i>Syncaris pacifica</i>	INVERT (Decapoda)	NO
California tiger salamander	<i>Ambystoma californiense</i>	HERP	NO
Delta smelt	<i>Hypomesus transpacificus</i>	FISH	NO
Salt marsh harvest mouse	<i>Reithrodontomys raviventris</i>	MAMMAL	NO
San Francisco garter snake	<i>Thamnophis sirtalis tetrataenia</i>	HERP	Not subspecies
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	MAMMAL	Not subspecies
Tidewater goby	<i>Eucyclogobius newberryi</i>	FISH	NO
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	INSECT (Coleoptera: Cerambycidae)	NO

Table 3: Litigation Exceptions are the species groups encoded with the associated Pesticide type (active 5/2007 to 7/2015)

PESTICIDE TYPE	TARGET TAXA	LITIGATION EXCEPTIONS
Insecticide	Terrestrial insects and mites	Bees, Spider and Mite Orders Amblypigi, Araneae, Hydrachnellae, Opiliones, Palpigradi, Pseudoscorpionida, Ricinulei, Sarcoptiformes, Scorpiones, Solpugida, Uropygi; and Coleoptera and Lepidoptera not on Appendix B Table 3 PESTS LIST
Herbicide (includes Defoliant)	Terrestrial plants	All plants not on Appendix B (TARGET2012/WEED LISTS)*
Plant Growth Regulator	Terrestrial plants	All plants not on Appendix B (TARGET2012/WEED LISTS)*
Fungicide	Terrestrial Fungi	None
Rodenticide	Terrestrial rodents	Wild Rodents
Fumigant	Terrestrial fungi, insects, mites, and nematodes	Bees, Spider and Mite Orders Amblypigi, Araneae, Hydrachnellae, Opiliones, Palpigradi, Pseudoscorpionida, Ricinulei, Sarcoptiformes, Scorpiones, Solpugida, Uropygi; and Coleoptera and Lepidoptera not on Appendix B Table 3 PESTS LIST
Insect Growth Regulator	Terrestrial insects and mites	Bees, Spider and Mite Orders Amblypigi, Araneae, Hydrachnellae, Opiliones, Palpigradi,

PESTICIDE TYPE	TARGET TAXA	LITIGATION EXCEPTIONS
		Pseudoscorpionida, Ricinulei, Sarcoptiformes, Scorpiones, Solpugida, Uropygi; and Coleoptera and Lepidoptera not on Appendix B Table 3 PESTS LIST
Algaecide	Terrestrial algae	None
Piscicide	None	None
Microbiocide	Terrestrial Fungi	None
Nematocide	Terrestrial nematodes	None
Deer Repellant	None	None
Molluscicide	Terrestrial mollusks	None
Wood Preservative	None	None

Note: All aquatic species are coded. For terrestrial species, if a target species appears in a paper with a non-target species, all species are coded.

*Plants with Latin names that apply to wild and agricultural specimens, such as *Daucus carota* (Carrot or Queen-Anne's Lace), or *Vaccinium* sp (Blueberry, wild or cultivated) are coded when the study tests the wild species.

APPENDIX E: BENEFICIAL INSECT SPECIES TO CODE

Table 1 identifies beneficial insects such as bees, spiders, beetles, butterflies and some mites that are not pest species to code when the chemical use is as an Insecticide.

Beneficial insect species are not considered a target species for insecticidal exposures.

Beneficial insects include insects that:

1. prey on pest insects, e.g. spiders, beetles, lacewings, etc.
2. parasitize pest insects, e.g. wasps
3. pollinate plants, e.g. native bees, honeybees, butterflies, moths, etc.

Table 1: Beneficial Insect Species to Code

Species Number	Genus Species Name	Common Name
16705	Amblyseius cucumeris	Predatory Mite
43339	Amblyseius degenerans	Predatory Mite
32652	Amblyseius largoensis	Predatory Mite
44060	Amblyseius swirskii	Predatory Mite
28400	Aphidius colemani	Braconid Wasp
19053	Aphidoletes aphidimyza	Gall Midge
5569	Arachnida	Spider/Mite Class
5201	Coccinellidae	Ladybird Beetle Family
16306	Creontiades sp.	Mirid
43340	Dacnusa sibirica	Braconid Wasp
22284	Chrysoperla sp.	Green Lacewing
43315	Deraeocoris signatus	Mirid Bug, Brown Smudge Bug
16290	Encarsia formosa	Parasitic Wasp
32429	Eriopis connexa	Ladybird Beetle
43314	Euseius gallicus	Predatory Mite
23316	Galendromus sp.	Predatory Mite
5202	Geocoris sp.	Big-Eye Bug
44443	Floracarus perrepae	Eriophyid Mite
44067	Heterotoma planicornis	Mirid Bug
28277	Hippodamia variegata	Black-spotted Lady Beetle
43086	Iphiseius degenerans	Predatory Mite
43317	Macrolophus basicornis	Mirid Bug
39158	Macrolophus pygmaeus	Mirid Bug
38934	Neoseiulus baraki	Predatory Mite
28401	Neoseiulus californicus	Predatory Mite
16705	Neoseiulus cucumeris	Predatory Mite
16059	Neoseiulus fallacis	Predatory Mite
43074	Neoseiulus womersleyi	Predatory Mite

Species Number	Genus Species Name	Common Name
38869	Nesidiocoris tenuis	Mirid Bug
19681	Orius sp.	Minute Pirate Bug
46348	Orius albidipennis	Minute Pirate Bug
16704	Orius insidiosus	Minute Pirate Bug
17435	Orius laevigatus	Predatory Bug
44068	Pilophorus perplexus	Mirid Bug
33849	Phytoseiulus macropilis	Predatory Mite
18446	Phytoseiulus persimilis	Chilean Predatory Mite
43678	Phytoseius plumifer	Predatory Mite
41358	Platynus assimilis	Ground Beetle
44062	Scolothrips longicornis	Predatory Thrip
44061	Typhlodromips montdorensis	Predatory Mite

APPENDIX F: EXAMPLE OF CHEMICAL REPORT DOCUMENTATION

July 10, 2017

MEMORANDUM

Subject: WO001 EFED Chemical Verification and Related Chemical Search for Prodiamine (PRM)

To: (EPA Contact Name), EPA

From: (Chemical Lead Name), CSRA

CC: (Project Manager Name), CSRA

This memo documents the Prodiamine chemical terms information to be used for the EFED Literature Acquisition process.

A. Chemical verification process for Chemicals of Concern

1. Verify the chemical of concern provided using chemical verification sources as noted in the *ECOTOX Chemical Verification and Entry Procedure* (<https://cfpub.epa.gov/ecotox/help.cfm?helptabs=tab4>)

Chemical verification ensures that the chemical name and CAS Number for the chemical of concern are linked and correct. Chemical verification sources are searched by the name and/or CAS Number and are cross-checked to ensure the chemical name - CAS Number relationship is valid. Additional information including synonyms and molecular formulas are also located in the verification sources. Once the name and CAS Number have been verified, they are entered into the U.S.EPA's ECOTOX chemical file for use. The primary source for chemical verification is STN International, <http://www.stn-international.com> (operated by Chemical Abstract Services) and contains information on all classes of chemicals, organic, pesticides, inerts, solvents, etc. The chemical verification sources include:

- Online Databases, e.g. STN International (<http://www.stn-international.com>)
 - Chemical Compendiums, e.g. Dictionary of Organic Chemicals, Registry of Toxic Effects of Chemical Substances
 - Chemical Catalogs, e.g. Sigma-Aldrich (<https://www.sigmaaldrich.com>)
 - Internet websites, e.g. company websites displaying chemical MSDS and label Information
2. Find related chemicals that may be of interest to the Chemical of Concern (the relationship of the chemicals are noted in Table 1, column headed Relationship, e.g., Parent (is the chemical of concern requested), degradates (chemicals formed as the chemical of concern is degraded), and related compounds (similar in structure to the chemical of concern requested, e.g. isomers), if located. Synonym names and trade names to include in the literature search strategy are also located. Sources for related chemicals and synonym chemical names are at:

- **PAN:** The Pesticide Action Network (<http://www.pesticideinfo.org>) is a site that provides information about pesticides and also includes inerts and solvents used in chemical formulations. After entering a name or CAS number into the search field, choose the chemical of interest from the search results and scroll down to the bottom of the page. Related chemicals will be listed here along with a reason. Parent chemicals, derivatives, and degradates/metabolites can be found here.
- **PFATE:** EPA's Pesticide Fate Database (Located at the contractor's site) is a database that provides degradates for chemicals, mostly pesticides. Searching on a chemical name returns associated degradates.
- **DOC:** Dictionary of Chemical Names and Synonyms for synonym names. STN should also be used for the synonym search if a search was conducted to verify the chemical.
- **ECOTOX:** Search the U.S. EPA's ECOTOX chemical database for chemical synonyms and related chemicals. (www.epa.gov/ecotox)
- Additional chemical verification sources, if needed from Appendix A from the *ECOTOX Chemical Verification and Entry Procedure* (<https://cfpub.epa.gov/ecotox/help.cfm?helptabs=tab4>) contains a list of approved sources of verification for chemical names and structures. Common sources searched may include:
 - Registry of Toxic Effects of Chemical Substances
 - TSCA Chemical Substances Inventory
 - Compendium of Pesticide Common Names
 - California Department of Pesticide Regulation
- If the chemical cannot be found on these websites or any other approved sources, an Internet search is performed to locate additional information.

B. UNIFY Chemical Report Setup Worksheet

Step 1. Identifying the chemical name(s), CAS number(s), and related compounds.

Related chemicals are added to Table 1, if located.

Chemical of Concern requested: Prodiamine

STN International (STN) - <http://www.stn-international.com>

CAS # 29091-21-2

1,3-Benzenediamine, 2,6-dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-
2,6-Dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-1,3-benzenediamine
Toluene-2,4-diamine, α,α,α -trifluoro-3,5-dinitro-N4,N4-dipropyl- (8Cl)
Barricade
Barricade (herbicide)
Endurance
Endurance (herbicide)
Factor
Kusablock
N3,N3-Dipropyl-2,4-dinitro-6-trifluoromethyl-1,3-phenylenediamine
Prodiamine

Related Compound Search

One additional chemical located: Prodiamine calcium salt

=> e prodiamine/cn

E1	1	PRODIABET/CN
E2	1	PRODIAME/CN
E3	1 -->	<u>PRODIAMINE/CN</u>
E4	1	<u>PRODIAMINE CALCIUM SALT/CN</u>
E5	1	PRODIAMINE-FLUMIOXAZIN MIXT./CN
E6	1	PRODIAMINE-METOLACHLOR MIXT./CN
E7	1	PRODIAMINE-METRIBUZIN MIXT./CN
E8	1	PRODIAMINE-SULFENTRAZONE MIXT./CN
E9	1	PRODIAZEPAM/CN
E10	1	PRODIET 85B/CN
E11	1	PRODIET F 240/CN
E12	1	PRODIF/CN

=> e Dinitramine/cn

E1	1	DINITRAMIDE ANION/CN
E2	1	DINITRAMIDE ION/CN
E3	1 -->	<u>DINITRAMINE/CN</u>
E4	1	DINITRAMINE-DIURON MIXT./CN
E5	1	DINITRAMINE-METRIBUZIN MIXT./CN
E6	1	DINITRAMINIC ACID/CN
E7	1	DINITRANILINE ORANGE/CN
E8	1	DINITRANYL/CN
E9	1	DINITRATE/CN
E10	1	DINITRATE COBALT HEXAHYDRATE/CN
E11	1	DINITRATEDIOXOBIS(TRIETHYL PHOSPHATE)URANIUM/CN
E12	1	DINITRATO O-PHENYLENEDIAMINE PLATINUM(II)/CN

=> e 1,3-Benzenediamine, 2,6-dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-/cn

E1	1	1,3-BENZENEDIAMINE, 2,6-DIMETHYL-4-(4-(1-(6-OXIDO-6H-DIBENZ(C,E)(1,2)OXAPHOSPHORIN-6-YL)-1-METHYLETHYL)PHENOXY)-/CN
E2	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DI-2-PROPEN-1-YL-4-(TRIFLUOROMETHYL)-/CN
E3	1 -->	<u>1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-4-(TRIFLUOROMETHYL)-/CN</u>
E4	1	<u>1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-4-(TRIFLUOROMETHYL)-, CALCIUM SALT (2:1)/CN</u>
E5	15	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-4-(TRIFLUOROMETHYL)-, MIXT. CONTG./CN
E6	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-4-(TRIFLUOROMETHYL)-, MIXT. WITH 1-METHYLCYCLOPROPENE/CN
E7	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-4-(TRIFLUOROMETHYL)-, MIXT. WITH 2-CHLORO-1-(3-ETHOXY-4-NITROPHENOXY)-4-(TRIFLUOROMETHYL)BENZENE/CN
E8	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1,N1-DIPROPYL-N3-2-PROPYN-1-YL-4-(TRIFLUOROMETHYL)-/CN
E9	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1-1-PIPERIDINYL-4-(TRIFLUOROMETHYL)-/CN
E10	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1-2-PROPEN-1-YL-4-(TRIFLUOROMETHYL)-/CN
E11	1	1,3-BENZENEDIAMINE, 2,6-DINITRO-N1-PENTYL-4-(TRIFLUOROMETHYL)-/CN

E12 1 1,3-BENZENEDIAMINE, 2,6-DINITRO-N1-PROPYL-N1-((TETRAHYDRO-2-FURANYL)METHYL)-4-(TRIFLUOROMETHYL)-/CN

Pesticide Action Network (PAN) - <http://www.pesticideinfo.org/>

Prodiamine – 29091-21-2 (Parent)

Chemical Uses: PAN – Herbicide

(US EPA PC Code) , (US EPA PC Code) , 1,3-Benzenediamine, 2,6-dinitro-N1,N1-dipropyl-4-(trifluoromethyl)- , 110201 (US EPA PC Code Text) , 2,4-Dinitro-N3,N3-dipropyl-6-(trifluoromethyl)-1,3-benzenediamine (Note: N3 = N superscript 3) , 2,6-Dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-1,3-benzenediamine , 2,6-dinitro-N1,N1-dipropyl-4-trifluoromethyl-m-phenylenediamine , 2236 (CA DPR Chem Code) , 29091-21-2 (CAS number) , 29091212 , 29091212 (CAS number without hyphens) , 391200 (Old US EPA PC Code) , 391200 (US EPA PC Code Text) , CN-11-2936 , Endurance , m-Phenylenediamine, 2,4-dinitro-N(sup 3),N(sup 3)-dipropyl-6-(trifluoromethyl)- , N(sup 3),N(sup 3)-Dipropyl-2,4-dinitro-6-(trifluoromethyl)-1.3--phenylenediamine , N(sup 3),N(sup 3)-Dipropyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine , Prodiamine , Prodiamine (ANSI) , PRODIAMINE (CA DPR Chem Code Text) , Prodiamine (Rydex) , Rydex , SAN 745H , Toluene-2,4-diamine, alpha,alpha,alpha-trifluoro-3,5-dinitro-N4,N4-dipropyl- , USB 3153 , Use code no. 110201

PFATE

No additional or related chemical information located.

ECOTOX Chemical database

Contains “Prodiamine”

No additional forms in Unify.

Table 1. Chemical(s) located for requested Chemical of Concern

Chemical Name	CAS #	Relationship (Parent, Related, Degradate) and Source	Report Name in UNIFY	Chemical Group Codes	Project	Uses	Added as Degradate to Parent?
Prodiamine	29091-21-2	Parent (PAN)	Prodiamine	PRM	EFED	Herb	N/A
Dinitramine	29091-05-2	Related (PAN)	Dinitramine	DNM	EFED	Herb	NO
Prodiamine calcium salt	1334-11-8	Related (STN)	Prodiamine calcium salt	PRMca	EFED	Herb	NO

RELATED CHEMICALS (If related chemicals are located, add a line to the table above.)

No additional or related chemical information located for Chemical.

Step 2. Create a unique list of Chemical Search Terms

From the searches conducted in Step 1, chemical terms from searches are listed below, create a unique list of chemical terms to be used for the Chemical of Concern literature search. Non-English, long scientific chemical names and terms documented to cause false hits are not used and are not in bold. Note that if one term is part of another term, e.g. Tetrachloromethane and 1,1,1,1-Tetrachloromethane, only the first term is used, e.g. Tetrachloromethane. Terms used to generate the final list of chemical terms are in **BOLD**.

1. **STN**

29091-21-2

1,3-Benzenediamine, 2,6-dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-
2,6-Dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-1,3-benzenediamine
Toluene-2,4-diamine, α,α,α -trifluoro-3,5-dinitro-N4,N4-dipropyl- (8Cl)
Barricade
Barricade (herbicide)
Endurance
Endurance (herbicide)
Factor

Kusablock

N3,N3-Dipropyl-2,4-dinitro-6-trifluoromethyl-1,3-phenylenediamine

Prodiamine

29091-05-2

1,3-Benzenediamine, N1,N1-diethyl-2,6-dinitro-4-(trifluoromethyl)-
N1,N1-Diethyl-2,6-dinitro-4-(trifluoromethyl)-1,3-benzenediamine
Toluene-2,4-diamine, N4,N4-diethyl- α,α,α -trifluoro-3,5-dinitro- (8Cl)

Cobex

Cobex (herbicide)

Dinitramine

Kobex

N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-1,3-phenylenediamine

N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine

USB 3584

1334-11-8

1,3-Benzenediamine, N1,N1-diethyl-2,6-dinitro-4-(trifluoromethyl)-
N1,N1-Diethyl-2,6-dinitro-4-(trifluoromethyl)-1,3-benzenediamine
Toluene-2,4-diamine, N4,N4-diethyl- α,α,α -trifluoro-3,5-dinitro- (8Cl)

Cobex

Cobex (herbicide)

Dinitramine

Kobex

N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-1,3-phenylenediamine

N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine

USB 3584

2. **PAN**

29091-21-2

(US EPA PC Code) , (US EPA PC Code) , 1,3-Benzenediamine, 2,6-dinitro-N1,N1-dipropyl-4-(trifluoromethyl)- , 110201 (US EPA PC Code Text) , 2,4-Dinitro-N3,N3-dipropyl-6-(trifluoromethyl)-1,3-benzenediamine (Note: N3 = N superscript 3) , 2,6-Dinitro-N1,N1-dipropyl-4-(trifluoromethyl)-1,3-benzenediamine , 2,6-dinitro-N1,N1-dipropyl-4-trifluoromethyl-m-phenylenediamine , 2236 (CA DPR Chem Code)) , 29091-21-2 (CAS number) , 29091212 , 29091212 (CAS number without hyphens) , 391200 (Old US EPA PC Code) , 391200 (US EPA PC Code Text) , CN-11-2936 , Endurance , m-Phenylenediamine, 2,4-dinitro-N(sup 3),N(sup 3)-dipropyl-6-(trifluoromethyl)- , N(sup 3),N(sup 3)-Dipropyl-2,4-dinitro-6-(trifluoromethyl)-1.3--

phenylenediamine , N(sup 3),N(sup 3)-Dipropyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine , Prodiamine , Prodiamine (ANSI) , PRODIAMINE (CA DPR Chem Code Text) , Prodiamine (Rydex) , **Rydex** , **SAN 745H** , Toluene-2,4-diamine, alpha,alpha,alpha-trifluoro-3,5-dinitro-N4,N4-dipropyl- , **USB 3153** , Use code no. 110201

29091-05-2

(US EPA PC Code) , 1,3-Benzenediamine, N3,N3-diethyl-2,4-dinitro-6-(trifluoromethyl)- , 102301 (US EPA PC Code Text) , 1683 (CA DPR Chem Code) , 29091-05-2 (CAS number) , 29091052 , 29091052 (CAS number without hyphens) , Cobex , Diethamine , Dinitramine , Dinitramine (ANSI) , DINITRAMINE (CA DPR Chem Code Text) , N1,N1-Diethyl-2,6-dinitro-4-(trifluoromethyl)-1,3-benzenediamine , N1,N1-diethyl-2,6-dinitro-4-trifluoromethyl-m-phenylenediamine , N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-1,3-benzenediamine , N3,N3-Diethyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine (Note: N3 = N superscript 3) , N4,N4-Diethyl-.alpha.,.alpha.,.alpha.-trifluoro-3,5-dinitrotoluene-2,4-diamine , USB 3584

1334-11-8

No entry in PAN

Final chemical terms to use for the Chemical of Concern Literature search derived from the chemical lists above.

CAS Number(s):

29091-21-2

29091-05-2

1334-11-8

Chemical Names:

Cobex

Dinitramine

Kobex

Kusablock

Prodiamine

Rydex

SAN 745H

USB 3153

USB 3584

APPENDIX G: EXAMPLE OF A LITERATURE SEARCH MEMO

[Month day, year]

MEMORANDUM

Subject: WOxxx [project] Literature Search for [chemical]

To: Colleen Elonen, EPA

From: [name of chemical lead], CSRA

CC: XXXX XXXX, CSRA

GENERAL: *These are the search terms compiled from the Chemical Report for [name of chemical] to be used in the search strategies for each of the databases listed below.*

1-Amino-2,4-dimethylbenzene OR 2,4-Dimethylaniline OR 2,4-Dimethylbenzenamine OR 2,4-Dimethylformanilide OR 2,4-Dimethylphenylamine OR 2,4-Dimethylphenylformamide OR 2,4-Xylidine OR 2,4-Xylylamine OR 4-Amino-1,3-dimethylbenzene OR 4-Amino-1,3-xylene OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR BTS 27271 OR BTS 27271 hydrochloride OR BTS 27419 OR BTS 27919 OR BTS-27271 OR BTS-27419 OR BTS-27919 OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR ENT 27967 OR ENT-27967 OR Fumilat A OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR m-Xylidine OR N-Formyl-2,4-dimethylaniline OR NSC 324552 OR NSC 363957 OR NSC 406488 OR NSC 7640 OR NSC-324552 OR NSC-363957 OR NSC-406488 OR NSC-7640 OR o,p-Dimethylformanilide OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR SN 49844 OR SN-49844 OR Taktic OR Triatix OR Triazid OR U 36059 OR U 40481 OR U 40481A OR U-36059 OR U-40481 OR U-40481A OR UK 16353 OR UK-16353 OR Varamit

Based upon the online search manuals for the respective databases below, it was necessary to construct searches as follows:

SCIENCE DIRECT: (www.sciencedirect.com) *General Search Terms applied to the search strategy for Science Direct*

Date Searched: 07-26-2017

Date Range of Search: 2013 to Present

N = 168

Tak("1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR "2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride" OR "BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR "Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552" OR "NSC 363957" OR "NSC 406488"

OR "NSC 7640" OR "NSC-324552" OR "NSC-363957" OR "NSC-406488" OR "NSC-7640"
OR "o,p-Dimethylformanilide" OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR "SN
49844" OR "SN-49844" OR Taktic OR Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U
40481A" OR "U-36059" OR "U-40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR
Varamit) AND NOT key(human* or child* or occupat* OR infant* OR homind* OR woman
OR women OR patient* OR OSHA OR chromatograph* OR Spectrometr* OR pediatric*)

Search results: 168

AGRICOLA: (www.nal.usda.gov) *General Search Terms applied to the search strategy for Agricola. The Agricola database contains a significant amount of gray literature including proceedings, symposia, and progress reports from government and educational institutions. This database categorizes literature as an "article" or a "book."*

Agricola limits the search to 383 characters and therefore it is searched in sections as needed to cover all of the compiled General Terms.

Date Searched: 07-26-2017

Date Range of Search: 2013 to the Present

N = 455

Articles01:

"1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR
"2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-
Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-
dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR
Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride"

Displaying 1 through 100 of 416 entries.

Articles02:

"BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR
Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR
"Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR
Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552"
OR "NSC 363957" OR "NSC 406488" OR "NSC 7640" OR "NSC-324552"

Displaying 1 through 11 of 11 entries.

Articles03:

"NSC-363957" OR "NSC-406488" OR "NSC-7640" OR "o,p-Dimethylformanilide" OR Ovasyn
OR Parsec OR Preventic OR Semiamitraz OR "SN 49844" OR "SN-49844" OR Taktic OR
Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U 40481A" OR "U-36059" OR "U-
40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR Varamit

Displaying 1 through 20 of 20 entries.

Books01:

"1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR "2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride"

Displaying 1 through 8 of 8 entries.

Books02:

"BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR "Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552" OR "NSC 363957" OR "NSC 406488" OR "NSC 7640" OR "NSC-324552"

Your search resulted in no hits.

Books03:

"NSC-363957" OR "NSC-406488" OR "NSC-7640" OR "o,p-Dimethylformanilide" OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR "SN 49844" OR "SN-49844" OR Taktic OR Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U 40481A" OR "U-36059" OR "U-40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR Varamit

Your search resulted in no hits.

TOXNET: (toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TOXLINE) *General Search Terms applied to the search strategy for TOXNET.*

Date Searched: 07-26-2017

Date Range of Search: 2013 to Present

N = 847

33089-61-1 OR 95-68-1 OR 60397-77-5 OR 33089-74-6 OR 51550-40-4

SearchDatabaseQueryTimeResult# 1toxline((amitraz OR "amitraz usan usp inn ban " OR taktic OR mitaban OR 33089-61-1 [rn]) OR ("2 4 xylidine" OR "2 4 dimethylaniline" OR "m 4 xylidine" OR "4 methyl o toluidine" OR "4 amino 3 methyltoluene" OR "2 methyl p toluidine" OR "2 4 dimethylbenzenamine" OR 95-68-1 [rn]) OR ("n 2 4 dimethylphenyl formamide" OR "n 2 4 dimethylphenyl formamide" OR "unii x81g373yur" OR "ai3 03667" OR 60397-77-5 [rn]) OR ("u 40481" OR "u 40481a" OR "bts 27271" OR 33089-74-6 [rn]) OR ("semiamitraz hydrochloride" OR "unii 43d0u6y04m" OR 51550-40-4 [rn])) AND (eng [la]) AND (BIOSIS [org] OR NTIS [org] OR PESTAB [org] OR PubMed [org] OR TSCATS [org])10:10:21[847](#)

PROQUEST CSA: (www.csa.com) *General Search Terms applied to the search strategy for ProQuest CSA.*

Date Searched: 07-26-2017

Date Range of Search: 2013 to Present

N = 104

ALL("1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR "2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride" OR "BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR "Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552" OR "NSC 363957" OR "NSC 406488" OR "NSC 7640" OR "NSC-324552" OR "NSC-363957" OR "NSC-406488" OR "NSC-7640" OR "o,p-Dimethylformanilide" OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR "SN 49844" OR "SN-49844" OR Taktic OR Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U 40481A" OR "U-36059" OR "U-40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR Varamit) AND(su(toxicity OR toxicology OR bioassay* or lethal OR bioaccum*) OR cc(01504 or 08504 or "D 047*" or "X 241*")) OR (LC NEAR/3 50)) AND STYPE("Scholarly Journals" OR Reports OR Thesis OR "Government Documents") AND(su(toxicity OR toxicology OR bioassay* or lethal OR bioaccum*) OR cc(01504 or 08504 or "D 047*" or "X 241*")) OR (LC NEAR/3 50)) NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

104 results

PROQUEST DISSABS: (search.proquest.com) *General Search Terms applied to the search strategy for ProQuest DISSABS.*

Date Searched: 07-26-2017

Date Range of Search: 2013 to Present

N = 41

ALL("1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR "2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride" OR "BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR "Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552" OR "NSC 363957" OR "NSC 406488" OR "NSC 7640" OR "NSC-324552" OR "NSC-363957" OR "NSC-406488" OR "NSC-7640" OR "o,p-Dimethylformanilide" OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR "SN 49844" OR "SN-49844" OR Taktic OR Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U 40481A" OR "U-36059" OR "U-40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR

Varamit) NOT IF(m?n or human* or child* or occupant* or infant* or wom?n or patient* or pediatric) AND LA(ENG)

41 results

CURRENT CONTENTS: (access.webofknowledge.com) *General Search Terms applied to the search strategy for Current Contents.*

Date Searched: 07-26-2017

Date Range of Search: 2013 to Present

N = 574

TS=("1-Amino-2,4-dimethylbenzene" OR "2,4-Dimethylaniline" OR "2,4-Dimethylbenzenamine" OR "2,4-Dimethylformanilide" OR "2,4-Dimethylphenylamine" OR "2,4-Dimethylphenylformamide" OR "2,4-Xylidine" OR "2,4-Xylylamine" OR "4-Amino-1,3-dimethylbenzene" OR "4-Amino-1,3-xylene" OR Amigard OR Amitraz OR ApiVar OR Azaform OR Bovitraz OR "BTS 27271" OR "BTS 27271 hydrochloride" OR "BTS 27419" OR "BTS 27919" OR "BTS-27271" OR "BTS-27419" OR "BTS-27919" OR Danjiami OR Ectodex OR Edrizar OR Ektodex OR "ENT 27967" OR "ENT-27967" OR "Fumilat A" OR Kortraz OR Maitac OR Mitaban OR Mitac OR Monoamitraz OR Monocarboxoldehyde OR "m-Xylidine" OR "N-Formyl-2,4-dimethylaniline" OR "NSC 324552" OR "NSC 363957" OR "NSC 406488" OR "NSC 7640" OR "NSC-324552" OR "NSC-363957" OR "NSC-406488" OR "NSC-7640" OR "o,p-Dimethylformanilide" OR Ovasyn OR Parsec OR Preventic OR Semiamitraz OR "SN 49844" OR "SN-49844" OR Taktic OR Triatix OR Triazid OR "U 36059" OR "U 40481" OR "U 40481A" OR "U-36059" OR "U-40481" OR "U-40481A" OR "UK 16353" OR "UK-16353" OR Varamit)

Results: 574

ECOTOX Unify: *This website is not accessible to the public. Results from the ECOTOX Unify search strategy.*

Date Searched:

Date Range of Search: 2013 to the present

N = 33

The two sources listed below are used if very few articles are identified in the searches above. The two sources listed below have very high non-applicability rates and are not cost effective in most cases.

SCIFINDER: (www.cas.org/)

SciFinder search was not needed.

PUB MED: (www.ncbi.nlm.nih.gov/PubMed/)

PubMed search was not needed.

Miscellaneous:

Chemical Name (COC)	Number of Citations Downloaded						ECOTOX Citations	TOTAL Transferred	Order/Recall Status (# and date)
	ProQuest/ CSA	Science Direct	Toxline	Diss. Abstr	Agricola/ Current Contents	SciFinder			Orders, Recalls , Commercial
Amitraz (Refresh)(A MZ, 24DMA, 24DMPF, SAMZ, SAMZCI)	104	168	847	41	455/574	NA	33		