

Alaska Exotic Plant Information Clearinghouse (AKEPIC) Database User Manual

Updated April 16, 2010

AKEPIC is a Cooperative Project among the U.S. Forest Service,
National Park Service, Agricultural Research Service, U.S. Geological Survey,
University of Alaska (Fairbanks and Anchorage), Alaska Natural Heritage Program,
Cooperative Extension Service, Bureau of Land Management, and Alaska Division of Forestry

This manual can be downloaded from: <http://akweeds.uaa.alaska.edu>

Table of Contents

1.	Introduction.....	3
2.	Important Changes to the AKEPIC Database and Manual in 2008.....	4
2.1.	Three important changes to the AKEPIC database.....	4
2.2.	Changes Coming to the AKEPIC Database.....	4
	<i>Improved Data Serving</i>	4
	<i>Website Redevelopment</i>	4
3.	Alaska Exotic Plant Information Clearinghouse Database Overview.....	4
3.1.	AKEPIC Goals and Applications.....	4
3.2.	How to Become an AKEPIC Data Contributor.....	4
3.3.	AKEPIC Database Administrator Role.....	5
3.4.	Stabilization and Sharing of Funding.....	5
3.5.	Forms and Information Available on the AKEPIC Website.....	5
4.	Field Data Collection.....	5
4.1.	Sampling Design.....	5
4.2.	Determining the Site's Location.....	6
4.3.	Data Collection Protocol.....	6
4.4.	Which Species to Record.....	6
4.5.	What is an Infestation?.....	6
4.6.	Revisiting Infestations.....	7
5.	Data collection materials.....	7
5.1.	AKEPIC Field Data Sheet (2008).....	7
5.2.	Instructions on How to Complete the AKEPIC Data Entry Forms.....	7
	<i>General Information</i>	7
	(A) <i>Site Information</i>	8
	(B) <i>Location Information</i>	9
	(C) <i>Plant Information</i>	10
5.3.	Data dictionary for the AKEPIC database project.....	13
6.	Compiling the Database.....	17
6.1.	Submitting Data to the AKEPIC database.....	17
6.2.	Pre-Existing Data.....	18
6.3.	Data Quality Controls.....	18
7.	Using the Database.....	18
7.1.	Database Publication.....	18
7.2.	Downloading AKEPIC Data.....	18
8.	How to Cite this Manual.....	19
9.	References.....	19
10.	Appendix I - AKEPIC Mapping Project Inventory Field Data Sheet.....	20
11.	Appendix II - Site Vegetation Classification Codes.....	22

1. Introduction

The Alaska Exotic Plant Information Clearinghouse (AKEPIC) Database was initiated in 2002 as a shared idea among the Alaska Natural Heritage Program, U.S. Forest Service, National Park Service, Bureau of Land Management, and U.S. Geological Survey.

In its first year, the AKEPIC database accumulated nearly 2,600 entries. As of April 2010, 17 different organizations have contributed over **95,000** non-native plant species records. On average, 15,000-20,000 records have been submitted every year from 2004 to 2008.

This makes AKEPIC one of the **largest and most comprehensive** non-native plant species databases in the US. AKEPIC even surpasses some states with long histories of invasive species work, like Florida (C. Barger pers. comm. 2008)

The objectives of AKEPIC are to:

1. Maintain and develop the AKEPIC database and website services
2. Facilitate collaborative partnerships among federal, tribal, state, borough, municipal, and private land managers to continue to expand the AKEPIC database
3. Develop widespread local participation in the project

This manual provides information on four critical components of the AKEPIC database:

1. Changes to the AKEPIC manual and database administration
2. Instructions on how to collect field data

that can then be uploaded to the AKEPIC database

3. Instructions on how to submit non-native plant inventory data to AKEPIC
4. Instructions on how to use the database

The manual describes the roles of the AKEPIC database administrator and data contributors, and provides detailed instructions for collecting and submitting field data for inclusion into the AKEPIC database. **We recommend that all users read through the entire manual for a project overview before proceeding to the detailed instructions.**

The success of the AKEPIC database project depends on the participation of and interaction among its users. A sub-committee of the Alaska Committee for Noxious and Invasive Plant Management (Alaska CNIPM) oversees changes and updates to the database, and we welcome ideas on how to make the database work better.

If you have comments, suggestions or questions, please contact Lindsey Flagstad, at anlaf@uaa.alaska.edu (907-257-2786) or the database administrator KC Santosh, at ayanhp@uaa.alaska.edu (907-257-2781).

2. Important Changes to the AKEPIC Database and Manual in 2008

2.1. Three important changes to the AKEPIC database

- All records are now submitted and served using the 1983 North American Datum (NAD 83).
- AKEPIC records can now be downloaded from the [AKEPIC website](#) as a single Excel spreadsheet.
- Species distribution maps are now available from the University of Georgia's Center for Invasive Species and Ecosystem Health or Early Detection and Distribution Mapping System (EDDMapS)
<http://www.eddmaps.org/alaska/>

2.2. Changes Coming to the AKEPIC Database

Improved Data Serving

In 2010, the Alaska Natural Heritage Program will serve data through a real-time, inter-operable portal. When this system is fully functional, users will be able to query AKEPIC data by any combination of attributes collected (e.g. species, survey date, disturbance type) and select records by location by drawing a box or polygon, or by uploading a shapefile defining the area of interest. Users will also be able to select additional attributes from a number of layers describing characters of the site (e.g. hydrology, topography, geology, and infrastructure). The final selection of records and attributes will be available for download in textual (e.g. comma separated value text file), tabular (e.g. Excel file) and spatial (e.g. shapefile) formats. We expect this portal to

greatly improve the utility of the database.

Website Redevelopment

As part of improving our data serving capacity, the AKEPIC website will be redeveloped to provide a more intuitive user interface.

3. Alaska Exotic Plant Information Clearinghouse Database Overview

3.1. AKEPIC Goals and Applications

The Alaska Exotic Plant Information Clearinghouse (AKEPIC) database is a collaborative effort to compile inventory data (mainly distribution and abundance) of non-native plant species in Alaska, and make it publicly accessible to all users.

This dataset allows users to find non-native plant infestation locations and data associated with the population and site for any part of the state, it provides point data that can be used to build maps, and it promotes information sharing. Among other applications, it can be used to develop non-native plant management plans at the state and local level, conduct scientific research on the spread and ecology of invasive plants in Alaska, and develop priorities for Early Detection Rapid Response (EDRR) projects.

3.2. How to Become an AKEPIC Data Contributor

The AKEPIC project is carried out by a network of data contributors who collect non-native plant species field data, perform the initial organization of the data, and submit the data to the [AKEPIC database administrator](#). Users may include state and

federal agencies, tribal governments, universities, private consulting firms, individuals and other non-government organizations.

We encourage any interested party to contribute to the expansion of the AKEPIC database by collecting and submitting non-native plant data. To participate in this project, contact the database administrator either before or as early in the field season as possible.

3.3. AKEPIC Database Administrator Role

The AKEPIC database administrator is responsible for receiving the results of field surveys from contributors, working with organization representatives to resolve any questions about submitted data, and uploading these data into the database. The Administrator also provides information about the project.

3.4. Stabilization and Sharing of Funding

In an effort to secure a permanent funding system to cover the data quality control, data bulk upload, and website services currently provided by the Alaska Natural Heritage Program (AKNHP). The Alaska CNIPM AKEPIC sub-committee developed the following funding mechanism:

1. Records are submitted to the AKEPIC Administrator by April 1 of each year; these records are uploaded to the database by April 20.
2. AKNHP provides an annual estimate to collaborating agencies/groups of the cost of quality controlling and bulk uploading the records received. The current estimated cost is \$1.10 per record.
3. Collaborating agencies and organizations agree on a specific amount

of money that each group will route to AKNHP as a series of purchase orders. All groups (including AKNHP) will contribute the same amount of funds.

4. AKNHP uses the funds received to (a) update the documents posted on the Alaska weeds website (e.g. the non-native plants list, the User Manual, etc.), and (b) run quality checks on the data submitted that year and upload as many records as possible.
5. If there are not enough funds available, a backlog of data is created. These records will be prioritized for uploading when additional funds become available.

3.5. Forms and Information Available on the AKEPIC Website

The following information is available and can be downloaded from the AKEPIC website (<http://akweeds.uaa.alaska.edu>):

1. the AKEPIC dataset, which can be downloaded as an Excel spreadsheet
2. AKEPIC batch data entry forms
3. A data dictionary that lists all the database field headings and summarizes the contents and format for each field
4. The AKEPIC user manual (this document)
5. A list of the non-native plants that occur in Alaska generated from the records submitted by AKEPIC data contributors, and updated yearly
6. Invasiveness ranking for non-native plants in Alaska
7. A list of AKEPIC data contributors
8. A list of AKEPIC funders

4. Field Data Collection

4.1. Sampling Design

Field data collection is generally designed to

meet each user's research objectives. AKEPIC has no specific recommendations for sampling design at this time. However, we recommend that potential contributors review the fields that are marked "required" on the AKEPIC datasheet prior to beginning field work, as records for which required fields are not populated cannot be added to the AKEPIC database.

4.2. Determining the Site's Location

Determining the geographic position (georeferencing) of an infestation site accurately is critically important. Accurate georeferencing enables land managers to relocate a given site to implement control measures and/or monitor the site. Sites can be georeferenced directly using a hand-held global positioning system (GPS) unit, the preferred method, or indirectly using orienteering techniques and topographic maps.

When using GPS, AKEPIC data contributors should set the datum before going in the field to **North American Datum (NAD) 83**. In addition, accuracy and elevation data should be recorded in feet, and geographic coordinates should be in **Decimal Degrees** format.

4.3. Data Collection Protocol

The data collected at each field location is the foundation of the AKEPIC database. A standard field data sheet has been developed for field data collection. A blank copy of the AKEPIC field data sheet is available at the end of this manual ([Appendix I](#)), and instructions on how to complete this form are provided in the '[Data Collection Materials](#)' section.

The data must be submitted by using the

downloadable [data upload form](#). The data entry form contains both required and optional fields. Collaborators may tailor this structure by including additional items to meet their specific research needs. However, **all the required fields must be completed**. See '[Submitting Data to the AKEPIC Database](#)' for more details.

4.4. Which Species to Record

Each year, the database administrator will post an updated list of non-native plant species that have been reported for Alaska by AKEPIC data contributors. This list will be posted on the website: akweeds.uaa.alaska.edu. At this time, records must be submitted in accordance with their plant species code (adopted from the NRCS PLANTS database, <http://plants.usda.gov>), which is an alpha-numeric code comprised of the first two letters of the genus name and the first two letters of the species name, with numbers added for identical four-letter combinations. If you have collected data for a species that is not found on the non-native plants list, please contact the database administrator prior to submitting the data.

The accurate identification of plant species is critical. Records should not be submitted to AKEPIC unless you are confident of your ability to accurately identify the species in question. For help with plant identification, contact the Alaska Cooperative Extension Service (907-786-6309).

4.5. What is an Infestation?

We consider an infestation to be any area that contains one or more non-native plant species.

Generally multiple species or infestations occurring within a 50 meter radius are

collectively considered to be one site, such that all species occurring within the 50 meter radius are entered on one site form, and assigned the same unique site code. If, on the other hand, an area contains multiple non-native plant species that are separated by more than 50 meters, these areas are considered distinct sites, each requiring a separate form and separate site codes.

However, this is not a hard and fast rule; your study objectives might be different. For instance, if you find a few random locations of spotted knapweed all within 50 meters of each other you might want to assign each infestation a unique site code, to ensure that the next person that will be monitoring the population will be able to find all the different small infestations.

Within the landscape, infestations occur as patches of variable shapes. Each site in AKEPIC, however, corresponds to a single geographic point with an associated area surveyed and area of infestation. On the data sheet, this point is represented by a single pair of coordinates (latitude and longitude) obtained in the field. The point should lie as close to the center of the infestation as possible for easier relocation. Linear features greater than 100 meters in length may be represented in the database by multiple sites. Some collaborators map the actual boundaries of each infestation, resulting in polygons representing infestation sizes and shapes. These polygons are represented in the AKEPIC database by a single point at the polygon center. Each mapped infestation should be documented with a field data sheet and assigned a site code.

4.6. Revisiting Infestations

The AKEPIC database treats initial and

subsequent site visits as separate records. Sites are often revisited to evaluate the status of infestations and/or to determine the effectiveness of control efforts. When recording "revisits" it is important that the geographic coordinates of the initial visit are used and that the record is indicated as a revisit by selecting "Yes" in the "Revisit" data field.

To relocate an infestation site, we recommend a rigorous method of determining the geographic coordinates. A good approach for attaining this objective includes the use of a GPS unit with differential correction, permanent demarcation of the site, and a thorough description of the site in the "Notes" field of the data sheet. Employing these methods will greatly increase the chance of correctly relocating the site.

5. Data collection materials

5.1. AKEPIC Field Data Sheet (2008)

See [Appendix I](#).

5.2. Instructions on How to Complete the AKEPIC Data Entry Forms

These instructions should accompany field personnel when conducting field surveys for non-native plants and should be referred to when filling out the field data sheet and the online and batch-upload data submission forms.

General Information

Survey Date: ([required](#)) Date of survey, the month/day/year when the infestation was recorded. For example: 05/11/2002.

Project Name: (optional) This field is provided for collaborators that have a specific name for the project they collected data for that they wish to enter into the AKEPIC system.

Observers: ([required](#)) This represents the individual(s) who collected the field data. This should be recorded as last name, first name initial (e.g. Densmore, R.). Use a semicolon to separate multiple observers (for example: Smith, J.; Williams, R.; Black, E.). If multiple observers are listed, please list first the name of the person who can act as the primary point of contact for questions on the site, location, and type of infestation (e.g.: survey protocols used, aggressiveness of the infestation, resources used for plant identification, etc.).

Affiliation: ([optional but STRONGLY recommended](#)) AKEPIC tracks each observer's affiliation. Please choose the correct affiliation from the dropdown list. If your Affiliation is not listed, either select 'Other' and specify the observer's affiliation in 'Project Descriptions' or contact the database administrator to have your affiliation added to the dropdown list.

Second Affiliation: (optional) This field is provided for use in the event that more than one agency is represented.

(A) Site Information

Site Code: ([required](#)) The site code is an alpha-numeric sequence assigned by the collector to each geographic locality containing an invasive alien plant infestation. A **suggested** site code might be TONFO2-0001, where the first four letters of the site code are an abbreviation of the collaborating entity, in this case Tongass National Forest. This abbreviation is

followed by a two-digit year prefix (02 for year 2002) and a hyphen. Following the hyphen is the actual site code. It consists of four numbers and is assigned to sites sequentially (e.g., TONF02-0001, TONF02-0002, TONF02-0003, etc). Each site code must be unique.

Original Site Code: [required if](#) the entry is for a revisited site (see below).

Visit Type: (optional) Indicate if the visit's main purpose was for reconnaissance, monitoring, control, or research. The default is reconnaissance.

Revisit: ([optional but STRONGLY recommended](#)) It is VERY important to note if the site is a revisit. If the site is a revisit, enter the original site code and geographic coordinates that were initially assigned to the site.

If a new site code is allocated for a site revisit, we will not know it is a revisit. As a result these data may be incorrectly represented as a new site and the information to be gained from tracking the site will be lost. Use of the original site code will facilitate linking the revisit with the original observation.

Area Surveyed: ([optional but STRONGLY recommended](#)) Enter the approximate acreage surveyed. Generally, the smallest area of land will be 1/10th of an acre. If an investigator covers a four acre area and then records a half-acre that was actually infested, the area surveyed is recorded as 4 acres. This field is critical for annual summary reports. The default is 1/10th of an acre.

Area surveyed	Radius of area surveyed (ft)	Radius of area surveyed (m)
1/10 acre (default)	37 ft	~ 11 m
1/2 acre	83 ft	~ 25 m
1 acre	118 ft	~ 36 m

Study Type: ([required](#)) There are three choices to best describe the type of survey performed:

- Exhaustive species inventory
- Highest priority species
- Single species study

Site Vegetation Community Type: (optional) Please note the site's vegetation community type, preferably based on a Level IV class from the Alaska Vegetation Classification (Viereck *et al.* 1992, see [Appendix II](#)). An online copy of the report is available from:

http://www.fs.fed.us/pnw/publications/pnw_gtr286/pnw_gtr286a.pdf

Disturbance Type/Land Use: (optional) Enter the appropriate disturbance type/land use code. These values are available in the data entry form as a dropdown list.

Anthropogenic disturbances

- Abandoned Homesite
- Fill Importation (e.g., Road or Railroad Grade)
- Grazing
- Handtool Substrate Alteration Or Removal
- Herbicide Application
- Logging
- Material Extraction (e.g., Rock Quarry or Gravel Pit)
- Mechanical Brush/Tree Cutting
- Mining
- Mowing

- Off-Road Vehicle Disturbance (ORV)
- Other Mechanical Substrate Alteration or Removal
- Plowing
- Trampling

Natural disturbances

- Caribou/moose/animal related disturbed site
- Coastal/Beach
- Forest Fire
- Glaciation
- Land Slide/Avalanche
- River Action (i.e., Flooding, Erosion-Ice Scour, Deposition of New Substrates)
- Stream Action
- Thermal Disturbance (Solifluction, Thermokarst, Permafrost Melt, etc.)
- Volcanic Action
- Wind Erosion/Deposition
- Windthrow (trees uprooted or broken by wind)

(B) Location Information

Proper georeferencing is required to develop maps of infestations. Sites must be georeferenced using either a handheld global positioning system (GPS) unit with no less than 100-meter accuracy (the preferred method) or estimated from topographic maps.

Coordinate System: The geographic coordinates should be recorded in **Decimal Degrees** (i.e. -154.0000). If you discover that you collected GPS data in another format use your GPS to covert to Decimal Degrees **before** downloading the GPS data into Excel.

Datum: geographic coordinates should be recorded in **NAD 83 Alaska**. If you accidentally used a different datum (e.g. NAD 27 or WGS 84) use your GPS unit to

convert to NAD 83 Alaska, and THEN enter them into the Excel spreadsheet. To avoid datum conflicts, **set your GPS to NAD83 before collecting data** in the field. Data contributors are responsible for the accuracy of the data they supply.

Latitude: ([required](#)) Enter the latitude geographic coordinate in **decimal degrees**, which should reflect the approximate center of the non-native plant infestation. This field accepts up to nine decimal places. The Datum used for AKEPIC coordinates is now NAD 83.

Longitude: ([required](#)) Enter the longitude geographic coordinate in **decimal degrees**, which should reflect the approximate center of the non-native plant infestation. This field accepts up to nine decimal places. The Datum used for AKEPIC coordinates is now NAD 83.

Elevation: (optional) Enter the elevation in **feet** above mean sea level, which should reflect the approximate center of the non-native plant infestation.

Quad Name and Quad Number: (optional) If the location information is from USGS 15-minute topographic maps, provide the quad name and number (e.g. Talkeetna A-1; Healy C-1; Kodiak B-5; etc.).

Collection Method: ([required](#)) Indicates how the coordinates for each site were acquired/determined. Sources of coordinates include: topographic maps, aerial photos, GPS units, road maps, or other sources.

Precision: ([required](#)) If a GPS unit is used, specify the precision/accuracy error with which the data was collected (in **feet**). If USGS 15-minute topographic maps are used, use the largest accuracy rating

available (1000+ ft.). These codes appear below the data entry box on the field data sheet.

Accuracy error readings should fall into one the following five value ranges:

Accuracy error (feet)	Equivalencies in meters
0-5	~ 0-2
0-30	~ 0-9
0-100	~ 0-30
0-1000	~ 0-305
1000+	~ 305+

Map source/Map scale/Map date: (optional) If the location information is from a digitized map or aerial photography, please indicate map/image scale, source, and date.

Location Notes: (optional) This section is one of two notes sections and is intended for location information such as street name, mile marker, ownership etc. (The other 'notes' field is under the plant section for plant related information). The field accepts up to 255 characters of text. Notes sections are quite helpful, please use them and be complete and concise!

(C) Plant Information

Using the guidelines provided in this section, collaborators should enter as many records as non-native plant infestations were recorded at a given site.

Plant Species Code: ([required](#)) Enter the appropriate species code from the dropdown list provided or by determining the correct code from the AKEPIC non-native plant species tracking list available at akweeds.uaa.alaska.edu. These codes are adapted from the USDA PLANTS database

(<http://plants.usda.gov/>).

If your species is not on this list contact us or use the **XXXX** code (for unknown) and put the name or code for the plant in Species Notes. The default value is 'NONE', which indicates that no non-native plants were found at the site. Submitting records for sites at which no non-native plants were present provides a valuable record of negative data.

The Genus, Species, Intraspecific Name, Authority and Common Name will be automatically loaded once the data are uploaded into the database.

As mentioned previously, if there are multiple invasive species within a 50 meter radius collaborators should enter as many records as non-native plant species were observed retaining the same site code and locality information.

Infested Area: (required) The infested area of land is defined by drawing a line around the actual perimeter of the infestation as defined by the canopy cover of the plant.

Generally, the smallest area of land will be 1/1000th of an acre. Completely fill out this section for each species present. If a surveyor searches for a given species at a revisit, but that species was not discovered, enter N/A in the data area.

Infestation area	Radius of infestation area (ft)	Radius of infestation area (m)
1/1,000 th acre	3.7 ft	± 1 m
1/100 th acre	12 ft	± 4 m
1/10 th acre	37 ft	± 11 m
½ acre	83 ft	± 25 m
1 acre	118 ft	± 36 m
N/A (revisit only)	0 ft	0 m

Percent Cover: (required) Percent cover will be estimated as a percentage of the ground that is covered by the foliage of a particular non-native species. Recommended codes are: 1%, 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, or 100%. If this is a revisit and the target species is no longer present enter 0% for absent.

Stem Count: (optional) Provide an estimate of the number of stems of each non-native species using the following value ranges:

- 1-5
- 6-25
- 26-50
- 51-150
- 151-500
- 500+
- N/A –default value

(The Excel Batch Data Entry Form has a drop-down list.)

Disturbance Age: (optional) Provide an estimate of how many years have passed since the site was disturbed, unless it is ongoing. This information provides a measure of the ability for a non-native species to enter or persist in an area after the disturbance has ceased. This is a **numerical field** and will not accept values like < 1 yr.

Herbarium: (required) If a herbarium specimen was collected, enter the code for the herbarium to which the specimen was sent. If the herbarium is not listed, please select 'Other' and specify the location of curation in the 'Notes' field.

See the following website for plant collection and herbarium specimen preparation protocols:

<http://www.uaf.edu/museum/collections/herbar/projects/reports/instructions-for-plant-co/>

Control Action: (optional) This field allows the user to specify whether or not the infestation was controlled, and what control methods were used.

- Aerial Herbicide: large area applications often made by helicopter or plane from 60-100 feet above the target area, e.g. crop-dusting.
- Broadcast Herbicide: the application of herbicide over all plants in a unit area.
- Covering: smothering plants using plastic, mulch, or similar materials.
- Herbicide Injection: physical injection of herbicide into soil or directly into individual plants.
- Spot Herbicide: application of herbicide to single plants or small groups of plants, and is generally used either where discrete plants are targeted or where broadcast application is not possible; typically involves foliar spray on individual plants.
- Manual (Pull/Dig)
- Mechanical (Mowing/Weedwacking)

- Multiple Actions- any combination of control methods.
- None
- Other

Aggressiveness: (optional) If this species has spread beyond the “disturbance footprint” enter the approximate level of aggressiveness: low, medium or high. This information will be used to determine the [invasiveness rank](#) of non-native species in Alaska.

Notes: (optional) This section is a text field (up to 255 characters), which allows observers to make additional comments concerning characteristics of the non-native species, surrounding vegetation, if and when a site needs to be revisited, and/or whether a past control action(s) was effective. The recorder may also include notes on photographs taken, plant voucher specimens collected, or general site characteristics observed.

5.3. Data dictionary for the AKEPIC database project

Field name	Required	Contents and format
Survey Date	✓	Format: MM/DD/YYYY e.g.: 05/11/2002
Project Name	optional	Enter the name of the project/contract that data was collected for, making it as informational as possible e.g.: ‘Anchorage Municipality Trail Surveys’ (indicates survey area and funding group)
Observers	✓	Format: Last Name, First Initial. e.g.: Densmore, R. Format: Last Name, First Initial.; Last Name, First Initial.; Last Name, First Initial.; ...etc. e.g.: Smith, J.; Williams, R.; Black, E. The first observer listed will act as the primary contact.
Affiliation	STRONGLY recommended	Observer’s affiliation , e.g. ‘NPS’ if the observer is a National Park Service employee The Excel Batch Data Entry Form has a drop-down list. If affiliation is not listed, select ‘Other’ and specify organization’s name in ‘Project Description’
Secondary Affiliation	optional	2 nd , 3 rd observers’ affiliations

Field name	Required	Contents and format
Site Code	STRONGLY recommended ✓	Alpha-numeric sequence assigned to each infestation site e.g.: TONFO2-0001 (Survey area-Survey Year-Site code). Reminder: infestations found within a 50 meter radius are assigned the same site code
Original Site Code	✓	Required if the entry is for a revisited site
Visit Type	optional	control monitoring (includes at least one revisit) reconnaissance (inventory, initial visit)** research
Revisit?	STRONGLY recommended	Select 'Yes' If this is a revisit Reminder: enter the original site code in the "Original Site Code" field.
Area Surveyed	STRONGLY recommended	Approximate acreage surveyed (not necessarily the area infested!) 1/10 acre = 37ft radius = ~11 m radius ** 1/2 acre = 83 ft radius = ~ 25 m radius 1 acre = 118ft radius = ~ 36 m radius
Study Type	✓	Exhaustive species inventory Highest priority species Single species study
Site Vegetation Community Description	optional	Based on a Level IV class from The Alaska Vegetation Classification (Viereck <i>et al.</i> 1992). Vegetation classes are listed in Appendix II of the Database Users Manual.
Disturbance Type	optional	Select an appropriate value from the dropdown list Disturbance classes are listed in Appendix I of the Database Users Manual.

** Default value

Field name	Required	Contents and format
Latitude	✓	Units: decimal degrees (up to 9 decimal spaces) e.g. 61.201530000 Reminder: Datum NAD83
Longitude	✓	Units: decimal degrees (up to 9 decimal spaces) e.g. -149.953980000 Reminder: Datum NAD83
Elevation	recommended	Units: feet
Quad Name	optional	e.g. Talkeetna
Quad Number	optional	e.g. A-1
Collection Method	✓	e.g.: GPS unit, quad map, aerial photography, etc.
Precision	✓	Accuracy error (feet) for geographic coordinates data GPS data: 0-5 ft, 0-30 ft, 0-100 ft, 0-1,000 ft, 1,000+ ft USGS 15-minute topographic map data: 1000+ ft
Map Source Map Scale Map Date	optional	For locality data derived from a digitized map or photography
Location Notes	optional	e.g.: street name, mile marker, ownership, etc. (max. 255 text characters)

Field name	Required	Contents and format
Plant Species Code	✓	e.g. CRTE3 (<i>Crepis tectorum</i>) See USDA PLANTS database http://plants.usda.gov/ for Plant Species Codes Note: use "NONE" if non-native species were not detected at the site Note: use "XXXX" and indicate the scientific name of the species in the 'Notes' field to record species not listed in the drop-down list
Infested Area (acres)	✓	Area defined by the non-native species' foliar cover : 0.001 acres = 3.7 ft radius ~ 1 m 0.01 acres = 12 ft radius ~ 4 m 0.1 acres = 37 ft radius ~ 11 m ½ acre = 83 ft radius ~ 25 m 1 acre = 118 ft radius ~ 36 m Revisits: 0 if species is no longer there
Percent Cover	✓	(e.g. 1, 5, 10 etc.) Non-native species' percent foliar cover within plot. Revisits: enter "0" if species is no longer there
Stem Count	optional	Approximate number of stems per infestation: 1-5; 6-25; 26-50; 51-150; 151-500; 500+; N/A**
Disturbance Age (years)	optional	How many years since the site was disturbed (numerical data only)
Herbarium	✓	Indicate whether a specimen was collected and where it is housed (herbarium code, etc.)
Control Action	optional	Select an appropriate value from the dropdown list Control actions are listed in Appendix I of the Database Users Manual
Aggressiveness	optional	Rank the extent to which the non-native species is spreading beyond the "disturbance footprint" as: - High aggressiveness - Medium aggressiveness - Low aggressiveness
Notes	optional	Comments concerning the infestation or surrounding vegetation. e.g.: does site need to be revisited? When? Were control action(s) effective? Were any photographs taken? (etc.)

** Default value

6. Compiling the Database

6.1. Submitting Data to the AKEPIC database

After field data collection is complete, we request you enter the field sheets into digital format. The AKEPIC mapping team is not funded to maintain your local records of infestation sites. If your participation in the project is restricted because of the inability to enter the raw data into a spreadsheet, contact us.

There are two ways to submit data to the AKEPIC database:

1. Data can be entered manually to the database from the website (akweeds.uaa.alaska.edu). Access this form through the link "[Login and Submit data to the AKEPIC Inventory](#)". A username and password are required to use the form. Please contact the [AKEPIC database administrator](#) for a username and password. Once the online form is submitted, the data is entered directly into AKEPIC. **Please be aware that the single record, web input system is not yet suitable for use with Mac® computers.** If you are currently a Mac® user you will need to find a PC or use a hardcopy datasheet to submit data using the online form.
2. For large amounts of data there is a formatted Excel spreadsheet (enable macros) that a user can populate and email to the [AKEPIC database administrator](#), who will then perform a quality control check prior to uploading the records. To obtain a copy of the Batch Data Entry Form go to

(akweeds.alaska.edu). Click on "[Download the Batch Data Entry Form](#)". Save the file (.xls) to your computer, and **enable macros** before loading the data into the spreadsheet.

The only acceptable file format is the Batch Data Entry Form. This is an **MS Excel spreadsheet** that has been specially programmed according to the database requirements (be sure to enable the macros), and it should be downloaded periodically from the website to guarantee having the most recently updated form (field values in the drop-down menus are frequently added, removed, modified).

Collaborators may tailor the structure of the batch form by including additional items to meet their specific research needs. However, **the spreadsheet submitted to the AKEPIC team must not be altered from the original design**, and all **required items must be completed** and submitted using the downloaded Batch Data Entry Form format to allow incorporation into the database.

The completed Data Batch Entry sheet can be sent or emailed to:

Julia Lenz
Database administrator
Alaska Natural Heritage Program,
University of Alaska Anchorage
707 A Street, Suite 103
Anchorage, Alaska 99501
Email: ayanhp@uaa.alaska.edu
Phone: (907)257-2781

Fields in the online form and spreadsheet

closely match the fields described in the previous section ([‘Instructions on how to complete the AKEPIC field data and data entry forms’](#)). Please **follow the data structure requirements** provided in the **previous section** of this manual to guide the data entry process, and contact the AKEPIC database administrator with any questions or if additional information is needed.

There are two ways to submit data to the AKEPIC database. For a small number of entries (five or less), it is possible to enter them one at a time on the AKEPIC website (<http://akweeds.uaa.alaska.edu>). The second way to submit data was developed with larger datasets in mind, and requires downloading the digital Batch Data Entry Form from the AKEPIC website. Please follow the data structure requirements provided later in the manual ([Data Collection Materials](#) and [Preparing Data for AKEPIC Submission](#)) to guide the data entry process, and contact the [AKEPIC database administrator](#) if additional information is needed.

6.2. Pre-Existing Data

If you have pre-existing data and would like to incorporate your data into the AKEPIC database, please contact the [AKEPIC database administrator](#).

6.3. Data Quality Controls

We expect data contributors to conduct quality checks prior to submitting data. The correctness of the **species identity** rests **entirely** on the field observer and the data contributor representative. Make sure that all **required data fields are complete** when transferred from your field data sheets to the batch upload digital file. One site code should exist for each infestation. Each species at an infestation site should have a

separate record line with each line identified by the site code for that infested area.

Before submitted data are entered into the database, the AKEPIC database administrator performs a series of **quality checks for completeness** and logical consistency. If problems are discovered that cannot be rectified by the AKEPIC database administrator, the **problem records will be returned to the contributor** for correction.

7. Using the Database

7.1. Database Publication

An updated version of the AKEPIC database is posted online every year, along with a user manual explaining the database fields, categories, and associated information. Depending on the number of records received in a given year, and the amount of time and funds available to quality control and upload them, interim versions of the database may be made available prior to publishing the final version for each year. Each publication of the database will be cumulative from the year before, comprising all data points collected in previous years or submitted to AKEPIC as pre-existing data.

7.2. Downloading AKEPIC Data

The AKEPIC database is available for download as Excel spreadsheets. To retrieve a copy of the data:

1. Visit <http://akweeds.uaa.alaska.edu>.
2. To get data from 2006 or earlier click on “Download AKEPIC Inventory 1997-2006”
3. To get data from 2007 and 2008 click on “Download AKEPIC Inventory 2007-2008”

4. Save the file(s) to a directory on your computer.

For a quick summary on upcoming changes to the way in which AKEPIC data will be served, please see Section 2 of this manual ([“Important changes to the AKEPIC database and manual in 2008”](#)).

8. How to Cite this Manual

The suggested citation for the 2008 AKEPIC User Manual is:

In text – (AKEPIC database 2008)

AKEPIC database. 2008. Alaska Exotic Plant Information Clearinghouse Database. Available at: <http://akweeds.uaa.alaska.edu>. Retrieved xx/xx/xxxx.

9. References

- Barger, C.T. 2008. **Personal communication**. Center for Invasive Species and Ecosystem Health. University of Georgia, US.
- Barger, C.T. and Moorhead, D.J. 2007. **EDDMapS- Early Detection and Distribution Mapping System for the Southeast Exotic Pest Plant Council**. Wildland Weeds. Vol. 10(4):4-8. Url: <http://www.eddmaps.org/EDDMapS.pdf>
- Viereck, L.A., Dyrness, C.T., Batten, A.R., and Wenzlick, K.J. 1992. **The Alaska Vegetation Classification**. Gen. Tech. Rep. PNW-GTR-286. Portland, OR: US Department of Ag., Forest Service, Pacific Northwest Research Station. 278p.

10. Appendix I - AKEPIC Mapping Project Inventory Field Data Sheet

****Required Field**

****Survey Date:** ____/____/____ ****Observers:** _____
mm / dd / yyyy Last Name, First Name Initial. (e.g.: Smith, J.; Williams, R.)

Observers Affiliation (*circle one*):

AKNHP ARS BLM CES CWMA DOD DOWL HDR NPS PMC SCS TECI UAF USFS USFWS USGS Other

A. Site Information

**** Site Code:** _____
 Visit Type (*circle one*): Reconnaissance Monitoring Research Control
 Is this a Revisit (*circle one*): Yes No
**** Study Type (*circle one*):** Exhaustive species Inventory Highest priority species Single species study
**** Area Surveyed:** _____ (acres)
 (Note: 1/10 acre = 37ft radius, 1/2 acre = 83ft radius, 1 acre = 118ft radius)
 Site Vegetation Community Description (level IV Viereck et al. 1992): _____
 Disturbance Type (see instructions below): _____

B. Location Information

**** Latitude:** _____ (Decimal Degrees, NAD83)
**** Longitude:** _____ (Decimal Degrees, NAD83)
 Elevation: _____ (ft)
**** Collection Method (*circle one*):** GPS Topographic Map Aerial Photo
**** GPS precision** _____ (ft; 0-5, 0-30, 0-100, 0-1000, 1000+)
 Topographic Map Source: _____ Scale: _____ Date: _____
 Quad name: _____ Quad number: _____ (i.e. A1, B2, C3, D4)
 Notes (location): _____

C. Survey Information

** Plant Species Code <i>(see below)</i>	** Infested Area (acres) <i>(see below)</i>	** Canopy Cover (% cover) <i>(see below)</i>	Disturbance Age (yrs.)	Stem Count <i>(see below)</i>	** Herbarium <i>(see below)</i>	Control Action <i>(see below)</i>	Aggressiveness <i>(see below)</i>

D. Notes (species):

Disturbance Type:

- Fill Importation (e.g., Road or Railroad Grade)
- Material Extraction (e.g., Rock Quarry or Gravel Pit)
- ORV Disturbance
- Mowing
- Trampling
- Logging
- Mining
- Grazing
- Plowing
- Mechanical Brush/Tree Cutting
- Herbicide Application
- Other Mechanical Substrate Alteration or Removal
- Abandoned Homesite
- River Action (i.e., Flooding,/Erosion-Ice Scour/Deposition)
- Stream Action
- Forest Fire
- Land Slide/Avalanche
- Caribou/moose/animal related disturbed site
- Windthrow
- Wind Erosion/Deposition
- Thermal Disturbance (Solifluction, Thermokarst, Permafrost Melt, etc.)
- Glaciation
- Volcanic Action
- Coastal/Beach

Plant Species Code: use the USDA alphanumeric (<http://plants.usda.gov/>, or find it at <http://akweeds.uaa.alaska.edu>)

Infested Area:

- 0.001 acre (3.7 ft or ~1 m radius)
- 0.01 acre (12 ft or ~4 m radius)
- 0.1 acre (37 ft or ~11 m radius)
- 0.5 acre (83 ft or ~25 m radius)
- 1 acre (118 ft or ~36 m radius)

Canopy Cover: recommended breaks 1%, 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 100%

Stem Count: 1-5, 6-25, 26-50, 51-150, 151-500, 500+

Collection Location: ALA, TNF,S UAA, Not Collected, Not Curated, Other, None

Control Action:

- Manual (Pulling/Digging)
- Mechanical (Mowing/Weedwacking)
- Broadcast Herbicide
- Spot Herbicide
- Aerial Herbicide
- Herbicide Injection
- Covering
- Multiple Actions
- Other
- None

Aggressiveness: Low, Medium, High

11. Appendix II - Site Vegetation Classification Codes

Adapted from Viereck *et al.* (1992).

Additional codes have been added to describe the range of anthropogenic plant communities that may be encountered during invasive plant surveys. These codes (III.G through III.J.) follow the same general format as the original classification.

VIERECK CODE	VIERECK CLASS NAME
I.	Forest
I.A.	Needleleaf Forest
I.A.1.	Closed Needleleaf Forest
I.A.1.a.	Closed Sitka Spruce Forest
I.A.1.b.	Closed Western Hemlock Forest
I.A.1.c.	Closed Sitka Spruce-Western Hemlock Forest
I.A.1.d.	Closed Western Hemlock-Sitka Spruce-(Western Redcedar) Forest
I.A.1.e.	Closed Western Hemlock-Alaska-Cedar
I.A.1.f.	Closed Mountain Hemlock Forest
I.A.1.g.	Closed Western Hemlock-Western Redcedar Forest
I.A.1.h.	Closed Silver Fir-Western Hemlock Forest
I.A.1.i.	Closed Subalpine Fir Forest
I.A.1.j.	Closed White Spruce Forest
I.A.1.k.	Closed Black Spruce Forest
I.A.1.l.	Closed Black Spruce-White Spruce Forest

VIERECK CODE	VIERECK CLASS NAME
I.A.2.	Open Needleleaf forest
I.A.2.a.	Open Sitka Spruce Forest
I.A.2.b.	Open Western Hemlock-Sitka Spruce Forest
I.A.2.c.	Open Mountain Hemlock Forest
I.A.2.d.	Open Mixed Conifer Forest
I.A.2.e.	Open White Spruce Forest
I.A.2.f.	Open Black Spruce Forest
I.A.2.g.	Open Black Spruce-White Spruce Forest
I.A.2.h.	Open Black Spruce-Tamarack Forest
I.A.3.	Needleleaf Woodland
I.A.3.a.	Lodgepole Pine Woodland
I.A.3.b.	Sitka Spruce Woodland
I.A.3.c.	White Spruce Woodland
I.A.3.d.	Black Spruce Woodland
I.A.3.e.	Black Spruce-White Spruce Woodland

VIERECK CODE	VIERECK CLASS NAME
I.B.	Broadleaf Forest
I.B.1.	Closed Broadleaf Forest
I.B.1.a.	Closed Red Alder Forest
I.B.1.b.	Closed Black Cottonwood Forest
I.B.1.c.	Closed Balsam Poplar Forest
I.B.1.d.	Closed Paper Birch Forest
I.B.1.e.	Closed Quaking Aspen Forest
I.B.1.f.	Closed Paper Birch-Quaking Aspen Forest
I.B.1.g.	Closed Quaking Aspen-Balsam Poplar Forest
I.B.2.	Open Broadleaf Forest
I.B.2.a.	Open Paper Birch Forest
I.B.2.b.	Open Quaking Aspen Forest
I.B.2.c.	Open Balsam Poplar (Black Cottonwood) Forest
I.B.3.	Broadleaf Woodland

VIERECK CODE	VIERECK CLASS NAME
I.B.3.a.	Paper Birch Woodland
I.B.3.b.	Balsam Poplar Woodland
I.B.3.c.	Paper Birch-Balsam Poplar Woodland
I.C.	Mixed Forest
I.C.1.	Closed Mixed Forest
I.C.1.a.	Closed Spruce-Paper Birch Forest
I.C.1.b.	Closed White Spruce-Paper Birch-Balsam Poplar (Black Cottonwood)
I.C.1.c.	Closed Spruce-Paper Birch-Quaking Aspen Forest
I.C.1.d.	Closed Quaking Aspen-Spruce Forest
I.C.1.e.	Closed Balsam Poplar-White Spruce Forest
I.C.2.	Open Mixed Forest
I.C.2.a.	Open Spruce-Paper Birch Forest
I.C.2.b.	Open Quaking Aspen-Spruce Forest
I.C.2.c.	Open Paper Birch-Balsam Poplar-Spruce Forest
I.C.2.d.	Open Spruce-Balsam Poplar Forest
I.C.3.	Mixed Woodland
I.C.3.a.	Spruce-Paper Birch Woodland

VIERECK CODE	VIERECK CLASS NAME
II.	Scrub
II.A.	Dwarf Tree Scrub
II.A.1.	Closed Dwarf Tree Scrub
II.A.1.a	Closed Mountain Hemlock Dwarf Tree Scrub
II.A.1.b	Closed Subalpine Fir Dwarf Tree Scrub
II.A.2.	Open Dwarf Tree Scrub
II.A.2.a	Open Black Spruce Dwarf Tree Scrub
II.A.2.b	Open Mountain Hemlock Dwarf Tree Scrub
II.A.3.a	Black Spruce Dwarf Tree Woodland

VIERECK CODE	VIERECK CLASS NAME
II.B.	Tall Scrub
II.B.1.	Closed Tall Scrub
II.B.1.a	Closed Tall Willow Shrub
II.B.1.b	Closed Tall Alder Shrub
II.B.1.c	Closed Tall Shrub Birch Shrub
II.B.1.d	Closed Tall Alder-Willow Shrub
II.B.1.e	Closed Tall Shrub Birch-Willow Shrub
II.B.1.f	Closed Tall Shrub Swamp
II.B.2.	Open Tall Scrub
II.B.2.a	Open Tall Willow Shrub
II.B.2.b	Open Tall Alder Shrub
II.B.2.c	Open Tall Shrub Birch Shrub
II.B.2.d	Open Tall Alder-Willow Shrub
II.B.2.e	Open Tall Shrub Birch-Willow Shrub
II.B.2.f	Open Tall Shrub Swamp
II.C.	Low Scrub
II.C.1.	Closed Low Scrub
II.C.1.a	Closed Low Shrub Birch Shrub
II.C.1.b	Closed Low Willow Shrub
II.C.1.c	Closed Low Shrub Birch-Willow Shrub
II.C.1.d	Closed Low Ericaceous Shrub
II.C.1.e	Closed Low Alder-Willow Shrub

AKEPIC DATABASE DATA DICTIONARY

VIERECK CODE	VIERECK CLASS NAME
II.C.2.	Open Low Scrub
II.C.2.a	Open Low Mixed Shrub-Sedge Tussock Tundra
II.C.2.b	Open Low Mixed Shrub-Sedge Tussock Bog
II.C.2.c	Open Low Mesic Shrub Birch-Ericaceous Shrub
II.C.2.d	Open Low Shrub Birch-Ericaceous Shrub Bog
II.C.2.e	Open Low Ericaceous Shrub Bog
II.C.2.f	Open Low Shrub Birch-Willow Shrub
II.C.2.g	Open Low Willow Shrub
II.C.2.h	Open Low Willow -Sedge Shrub Tundra Shrub Tundra
II.C.2.i	Open Low Willow-Graminoid Shrub Bog
II.C.2.j	Open Low Sweetgale-Graminoid Bog
II.C.2.k	Open Low Alder-Willow Shrub
II.C.2.l	Open Low Alder Shrub
II.C.2.m	Sagebrush-Juniper
II.C.2.n	Sagebrush-Grass
II.D.	Dwarf Scrub
II.D.1.	Dryas Dwarf Scrub
II.D.1.a	Dryas Dwarf Shrub Tundra
II.D.1.b	Dryas-Sedge Dwarf Shrub Tundra
II.D.1.c	Dryas-Lichen Dwarf Shrub Tundra
II.D.2.	Ericaceous Dwarf Scrub
II.D.2.a	Bearberry Dwarf Shrub Tundra
II.D.2.b	Vaccinium Dwarf Shrub Tundra
II.D.2.c	Crowberry Dwarf Shrub Tundra
II.D.2.d	Mountain-Heath Dwarf Shrub Tundra
II.D.2.e	Cassiope Dwarf Shrub Tundra
II.D.3.	Willow Dwarf Scrub
II.D.3.a	Willow Dwarf Shrub Tundra

VIERECK CODE	VIERECK CLASS NAME
III.	Herbaceous
III.A.	Graminoid Herbaceous
III.A.1.	Dry Graminoid Herbaceous
III.A.1.a	Elymus
III.A.1.b	Dry Fescue
III.A.1.c	Midgrass-Shrub
III.A.1.d	Midgrass-Herb
III.A.1.e	Hair-Grass
III.A.2.	Mesic Graminoid Herbaceous
III.A.2.a	Bluejoint Meadow
III.A.2.b	Bluejoint-Herb
III.A.2.c	Bluejoint-Shrub
III.A.2.d	Tussock Tundra
III.A.2.e	Mesic Sedge-Grass Meadow Tundra
III.A.2.f	Mesic Sedge-Herb Meadow Tundra
III.A.2.g	Mesic Grass-Herb Meadow Tundra
III.A.2.h	Sedge-Willow Tundra
III.A.2.i	Sedge-Birch Tundra
III.A.2.j	Sedge-Dryas Tundra
III.A.3.	Wet Graminoid Herbaceous
III.A.3.a	Wet Sedge Meadow Tundra
III.A.3.b	Wet Sedge-Grass Meadow Tundra
III.A.3.c	Wet Sedge-Herb Meadow Tundra
III.A.3.d	Fresh Sedge Marsh
III.A.3.e	Fresh Grass Marsh
III.A.3.f	Subarctic Lowland Sedge Wet Meadow
III.A.3.g	Subarctic Lowland Sedge-Shrub Wet Meadow
III.A.3.h	Halophytic Grass Wet Meadow
III.A.3.i	Halophytic Sedge Wet Meadow
III.A.3.j	Subarctic Lowland Sedge-Bog Meadow
III.A.3.k	Subarctic Lowland Sedge-Moss Bog Meadow

VIERECK CODE	VIERECK CLASS NAME
III.B.	Forb Herbaceous
III.B.1.	Dry Forb Herbaceous
III.B.1.a	Seral Herbs
III.B.1.b	Alpine Herb-Sedge (Snowbed)
III.B.1.c	Alpine Herbs
III.B.2.	Mesic Forb Herbaceous
III.B.2.a	Mixed Herbs
III.B.2.b	Fireweed
III.B.2.c	Large Umbel
III.B.2.d	Ferns
III.B.3.	Wet Forb Herbaceous
III.B.3.a	Fresh Herb Marsh
III.B.3.b	Subarctic Lowland Herb Wet Meadow
III.B.3.c	Subarctic Lowland Herb Bog Meadow
III.B.3.d	Halophytic Herb Wet Meadow
III.C.	Bryoid
III.C.1.	Bryophyte
III.C.1.a	Wet Bryophyte
III.C.1.b	Dry Bryophyte
III.C.2.	Lichen
III.C.2.a	Crustose Lichen
III.C.2.b	Foliose and Fruticose Lichen
III.D.	Aquatic Herbaceous
III.D.1.	Freshwater Aquatic Herbaceous
III.D.1.a	Pondlily
III.D.1.b	Common Marestail
III.D.1.c	Aquatic Buttercup
III.D.1.d	Burreed
III.D.1.e	Water Milfoil
III.D.1.f	Fresh Pondweed
III.D.1.g	Water Star-Wort
III.D.1.h	Aquatic Cryptogam
III.D.2.	Brackish Water Aquatic Herbaceous
III.D.2.a	Four-Leaf Marestail
III.D.2.b	Brackish Pondweed
III.D.3.	Marine Aquatic Herbaceous
III.D.3.a	Eelgrass
III.D.3.b	Marine Algae

NEW CODES FOR ANTHROPOGENIC PLANT COMMUNITIES
III.G. Roadside and Pipeline Habitats (includes all habitats on roadbed materials and adjacent habitats formerly disturbed by heavy equipment)
III.G.1. Early Seral-Herbaceous, Roadside/Lot
III.G.2. Graminoid Roadside/Lot
III.G.3. Forb Roadside/Lot
III.G.4. Forb-Graminoid Roadside/Lot
III.G.5. Alder and/or Willow Roadside/Lot
III.G.6. Mixed Herbaceous-Shrub Roadside/Lot
III.G.7. Open Forest Roadside/Lot
III.G.8. Closed Forest Roadside/Lot
III.G.9. Wet Forb-Aquatic Roadside/Drainage Ditch
III.H. Trailside Habitats (ATV, Horse, Foot: these are habitats that are influenced by trampling and compaction, but heavy equipment and imported substrates use are uncommon)
III.H.1. Early Seral-Herbaceous, Trailside
III.H.2. Graminoid Trailside
III.H.3. Forb Trailside
III.H.4. Forb-Graminoid Trailside
III.H.5. Alder and/or Willow Trailside
III.H.6. Mixed Herbaceous-Shrub Trailside
III.H.7. Open Forest Trailside
III.H.8. Closed Forest Trailside
III.H.9. Wet Forb-Aquatic Trailside/Drainage Ditch
III.I. Mined Habitats
III.I.1. Early Seral-Herbaceous, Mined
III.I.2. Graminoid, Mined
III.I.3. Forb, Mined
III.I.4. Forb-Graminoid, Mined
III.I.5. Alder and/or Willow, Mined
III.I.6. Mixed Herbaceous-Shrub, Mined
III.I.7. Open Forest, Mined
III.I.8. Closed Forest, Mined
III.J. Logged Habitats
III.J.1. Early Seral-Herbaceous, Logged
III.J.2. Graminoid, Logged
III.J.3. Forb, Logged
III.J.4. Forb-Graminoid, Logged
III.J.5. Alder and/or Willow, Logged
III.J.6. Mixed Herbaceous-Shrub, Logged
III.J.7. Shrubland, Logged
III.J.8. Open Forest, Logged
III.J.9. Closed Forest, Logged