Refuge Management Actions Database

Users Manual

USFWS Biological Monitoring Team
January 2009

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I. INTRODUCTION

This document provides instructions for the use of the Refuge Management Actions Database (RMAD), developed by the U.S. Fish and Wildlife Service (USFWS) for the documentation of management actions conducted on National Wildlife Refuges.

Specifically, RMAD provides a standardized web-based application with the capability to store, retrieve, query, sort, and deliver National Wildlife Refuge System (NWRS) management action information from a relational database. This improved documentation of and access to refuge management data will enable managers and biologists to link management action data with wildlife and habitat monitoring data to facilitate science-based management, and will support the development and evaluation of Annual Habitat Work Plans (AHWPs) and Habitat Management Plans (HMPs). As a centralized database, RMAD has the capability to be integrated with other systems (e.g., PUPS currently, landbird and marshbird survey databases in the future) for more comprehensive functionality.

The database was developed by the USFWS Division of Information Technology Management, Branch of Data and Systems Services, with the assistance of a User Acceptance Team (UAT) comprised of members from USFWS regions 3 and 5. Key points:

- Most of the common refuge management actions can be documented in RMAD
- The database incorporates lists of refuge-defined management units and target species.
- Many fields are presented as multiple choice "pick lists"
- Some fields will be entered automatically for you (e.g., data from the PUPS database)
- Throughout the database and this document, items labeled in **blue** with an asterisk (*****) are required data fields
- Active Directory authentication is required to log-in to the database at https://sdtapps.fws.gov/rmad/

II. HELP AND TRAINING

If you have any questions while using the database, please contact Jennifer Casey (Jennifer_Casey@fws.gov), who can assist you or put you in touch with the appropriate regional contact.

This user manual was written by Susan Talbott Guiteras and Jennifer Casey of Region 5, and is available electronically at the following web link:
http://www.fws.gov/bmt/database_rmad.htm

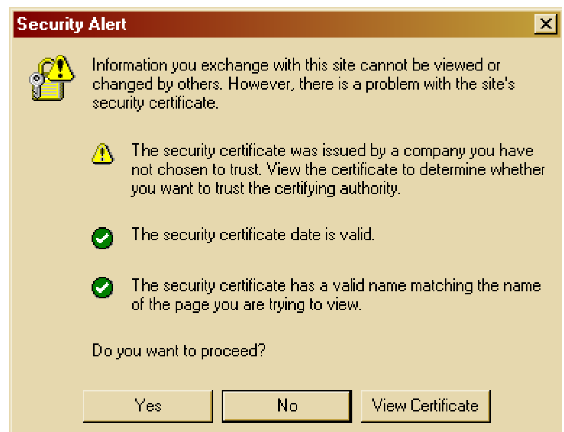
III. GETTING STARTED

The Refuge Management Action Database (RMAD) is accessed via the World Wide Web (www.). Open a web browser, such as Internet Explorer, and navigate to the following website:

https://sdtapps.fws.gov/rmad/

Note: Be sure to include the 's' in https, RMAD is a secure site.

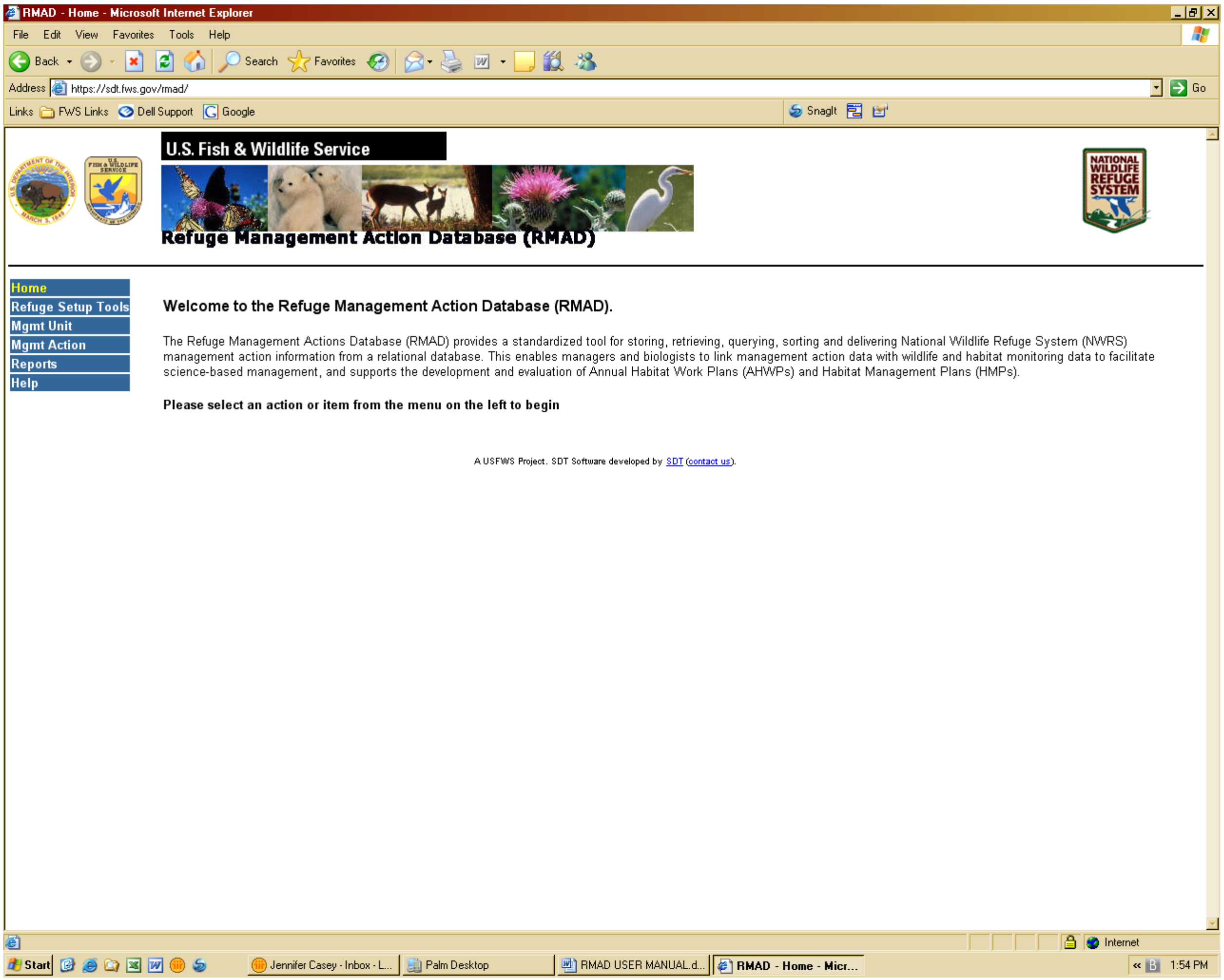
A Security Alert box will pop up, select Yes to proceed to the website.



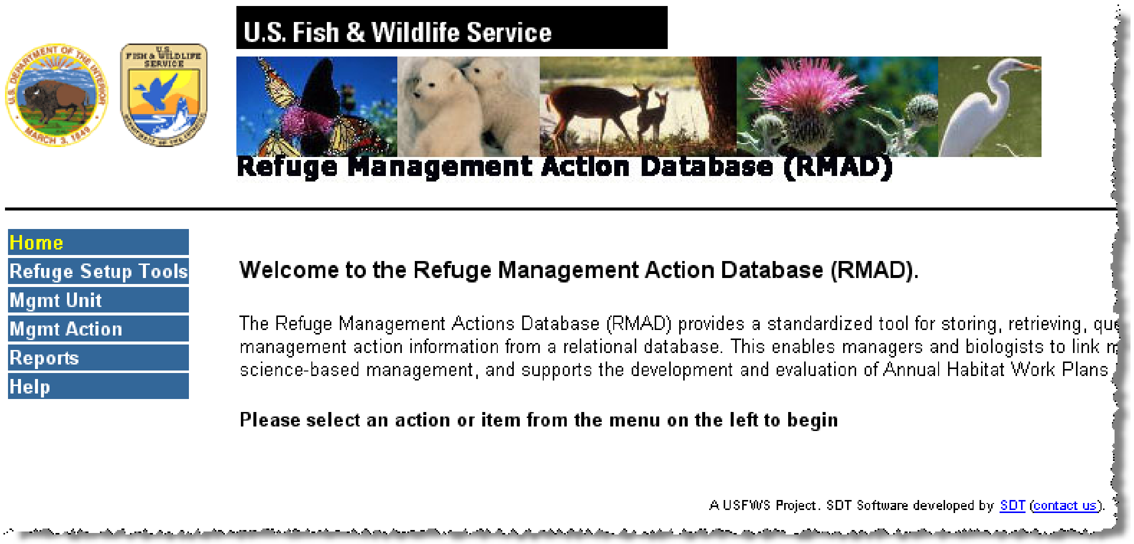
You will be prompted to log on with a User Name and Password. Use your full email address as your User Name and your Active Directory password.

Click **OK** to go to the RMAD Main Menu.

From the RMAD Home page, you can go to one of the 5 Main Menu options as described in the next section.



IV. MENU & MANAGEMENT ACTIONS OVERVIEW



1. Menu Overview

The following is a brief summary of the menu options and functions provided in RMAD, which are accessed from the Menu on the left side of the screen:

Home – From this page, users can link to various functions from the menu on the left.

Refuge Setup Tools – Allows the refuge to define two lists that are specific for that refuge. A list of RMAD users and the refuge taxonomic unit (species) list, both lists are necessary for the use of RMAD.

Management Unit (Mgmt Unit) – Management units are created and given a name along with their acreage, which can be edited as needed. Management units must be created prior to creating management actions.

Management Action (Mgmt Action) – Eight categories of management actions can be recorded as they are completed on the refuge. For each action (and variations of each action), basic data fields are required, and additional detailed fields are encouraged. Management actions can be searched based on various criteria (e.g., action, station, date range, etc). Three management action categories have placeholders in the database, but have not yet been fully developed and implemented.

Reports – This is where Users can access and export data about management actions based on a query.

Admin – This section is accessible only to Regional Administrators.

Help – This section contains links for several basic help options, including Contact information for the developers and administrators, a form for reporting system bugs, and applicable web and privacy policies.

2. Management Actions Overview

Currently Available

This is a summary of the management action categories that can currently be recorded in RMAD:

- **Agricultural Management** – Application of farming practices to refuge lands, either by the USFWS alone or with the assistance of a cooperative farmer.
- **Animal Control –** Purposeful removal of animals from refuge lands, such as pest species.
- **Consumptive and Non-consumptive Public Use** – Hunting, fishing, and permitting of uses such as hiking on refuge lands.
- **Fire Management** – Use/occurrence of prescribed fire, Wildland Urban Interface fire treatments, or wildfire on refuge lands.
- **Vegetation Manipulation and Removal** – Control or removal of vegetation from refuge lands, for various reasons, utilizing either manual, chemical, or biological means. This would include treatment of invasive plants with chemicals, mowing, haying, forest harvest, etc.
- **Vegetation Restoration** – The planting of vegetation for the restoration or other alteration of refuge habitat, whether herbaceous or woody, upland or wetland.
- **Wetland Management** – The drawdown, flood-up, or stable maintenance of water levels in impoundments, ponds, and other types of refuge lands.
- **Wildlife Structures** – The establishment of any type of wildlife structure for any wildlife species, for various purposes (feeding, hacking, nesting, etc).

Not Yet Implemented

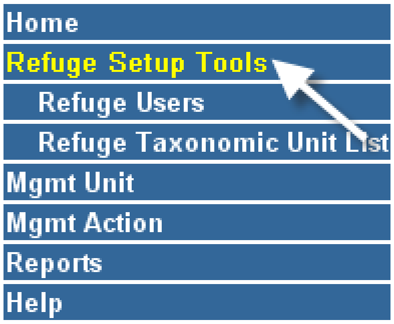
The following is a list of the management actions which have been identified for inclusion in RMAD, but which have **not** yet been implemented due to funding limitations. If resources become available, these management action categories will be fully developed in RMAD:

- Disease Management
- Grazing Management
- Monitoring Activities

The database has been designed to accommodate data that is commonly collected regarding management actions for all refuges. A refuge may not gather some of the detailed information for a particular management action. Record the information that is applicable to your refuge and skip over the data fields that are not used by your refuge.

Throughout the website, the items in blue text are required to be filled before you can move on to the next screen. The items in black text are not always collected by each refuge, but are important to some refuges. These items are optional and you can move to the next screen without adding data to them.

V. REFUGE SETUP TOOLS



1. Refuge Users

User Roles

Refuge users must be identified if they will be responsible for adding or modifying management action data in the system, although anyone in the FWS can search and view this data. There are three levels of RMAD user roles, with different rights, access privileges, and responsibilities.

The Administrator is responsible for activating a refuge in the RMAD system, and will designate one Refuge User for each refuge. The Administrator is generally someone in a regional position who will also assist the Refuge Users with any problems or questions they may have with the database.

The initial Refuge User is responsible for designating additional users for their refuge. It is up to refuge leadership to determine the appropriate staff members with access. A typical Refuge User list may include: the refuge manager, assistant managers, refuge biologists, and maintenance staff.

The FWS User is a general user. Anyone with an Active Directory password can access the database and review, query and export data. They can not add or delete data. These users might be refuge staff that may need to know information regarding the refuge's management actions, or they may be Regional or Washington office users that need to query information.

This table summarizes the tasks that users can access based on their assigned role:

	ADMINISTRATOR	REFUGE USER	FWS USER
Possible Examples:	Regional Contact	Refuge Biologist, Refuge Operating Specialist, Maintenance Staff	Any FWS staff not assigned as a Refuge User, e.g., LE or ORP
Refuge Setup Tasks			
Set up and Edit Refuge Taxonomic Unit List	X	X	
View Refuge Taxonomic Unit List	X	X	X
Add/Remove Additional Administrators	X		
Add/Remove Refuge Users	X	X	
View Refuge User List	X	X	X
Data Entry and Editing			
Add Mgmt Units	X	X	
Edit Mgmt Units	X	X	
Delete Mgmt Unit	X		
Add Mgmt Action	X	X	
Edit Mgmt Action	X	X	
Delete Mgmt Action	X		
Search, View, and Download Data			
Search/View Mgmt Units	X	X	X
Download Mgmt Unit Data	X	X	X
Search/View Mgmt Actions	X	X	X
Download Mgmt Action Data	X	X	X

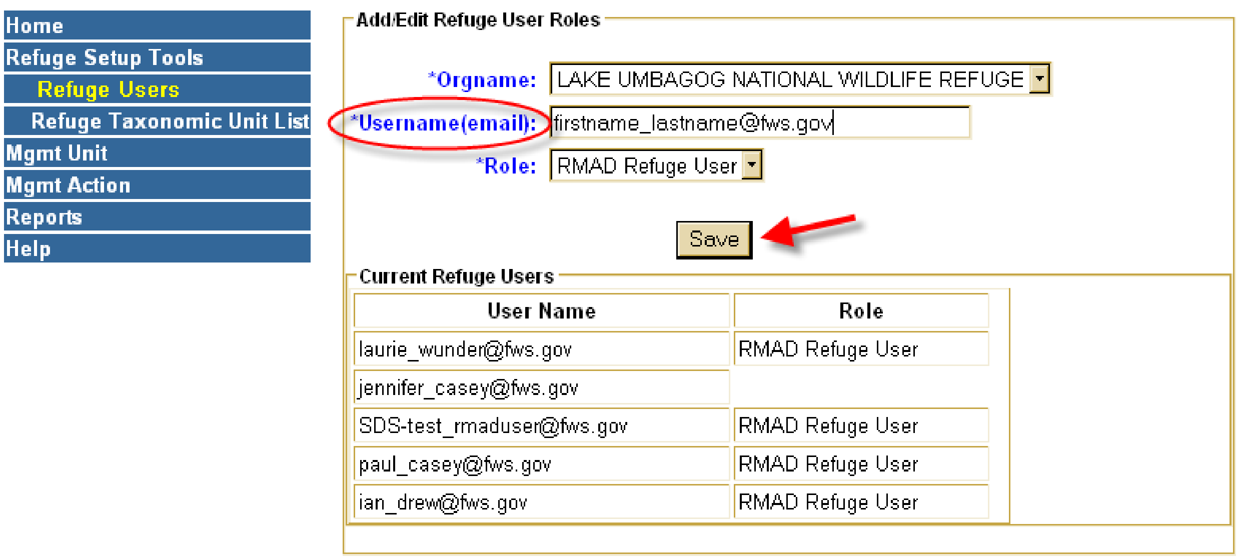
Adding a Refuge User

1. Click , ***Refuge Users*** under the Refuge Setup Tools menu.

2. Your refuge name should appear in the **Orgname** box. If you are associated with multiple refuges, such as a refuge complex, choose the refuge of interest from the dropdown box.

3. Enter the full email address of the user you wish to add in the **Username(email)** box (Firstname_Lastname@fws.gov). Be sure the spelling is correct!

4. Click ***Save***, and a message will appear indicating they are added to the Refuge User list.



2. Refuge Taxonomic Unit List

Why Create a Refuge Taxonomic Unit List?

The refuge taxonomic unit list enables quick selection of management targets throughout the database. Because it is impractical to provide the entire Integrated Taxonomic Information System (ITIS) list in all the species dropdown boxes, this function enables refuges to identify a shorter list appropriate for their refuge. This list must contain a species in order for it to be selected as a management target on the Management Actions screens. While adding a species you will be asked to assign associated management actions for that species, so that a tailored list of species is shown in the dropdown box for a particular management action. The refuge should begin their list with as many targets as they currently have. It is also possible to add a species to your Taxonomic Unit List from management actions screens, which is shown in the Create a Management Actions section.

Taxonomic List Planning Tips

- Multiple species from the Search Results can be added at one time, provided they will be assigned the same management action(s), thus it is helpful to think of species as groups which are targets of common management.

- Keep in mind that it is fine to choose species groups at higher taxonomic levels (e.g., entire genus or family) if a large number of species in the taxonomic group are the target of management, if specifying individual species is not useful or necessary, or if the species name you need is not found in the master taxonomic list (rare, but possible). This may be useful for groups such as shorebirds, dabbling ducks, etc.

- It is necessary to set up the initial taxonomic unit list prior to recording management action information in RMAD. However, additional species can be added at any time as needed.

The following summary will enable users to plan in advance for the development of their refuge taxonomic unit list by grouping species by associated management action (Management actions not listed below do not involve indicating specific target species).

- *Animal Control* – Any species which is the target of animal control (e.g., nuisance species, exotic species); Any species which serves as a biological agent of animal control .

- *Consumptive and Non-consumptive Public Use* - Any big game species which is hunted on the refuge (small game and trapped species need not be specified).

- *Vegetation Manipulation and Removal* – Any woody or herbaceous species (or a higher taxonomic group, e.g., *Pinus*) manipulated/removed through mechanical, chemical, or biological means*; Any species which serves as a biological agent* of vegetation control.
  [*When first launched, RMAD will not yet provide an option for biological control of vegetation, but it will be modified to provide this option.]

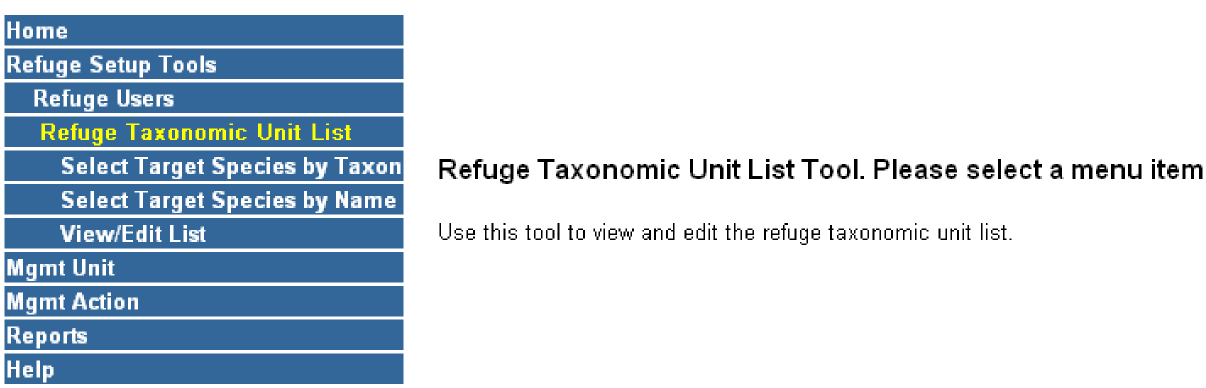
- *Vegetation Restoration* – Any woody or herbaceous species (or a higher taxonomic group, e.g., Poaceae) planted during vegetation/habitat restoration efforts.

- *Wildlife Structures* – Any wildlife species (or a higher taxonomic group) for which any type of wildlife structure(nesting, hacking, feeding, fish ladder, etc) is provided.

Adding Species to the Taxonomic Unit List

1. Click, **Refuge Taxonomic Unit List** menu item.

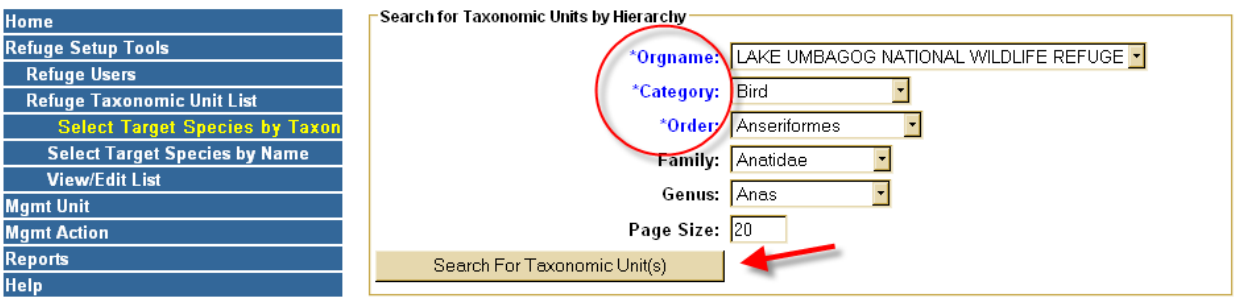
2. You can locate a species or species group by filtering through the hierarchy of taxonomic levels (Select Target Species by Taxon) or by common name (Select Target Species by Name).



Select Target Species by Taxon

1. Your refuge name should appear in the **Orgname** box. If you are associated with multiple refuges, such as a refuge complex, choose the refuge of interest from the dropdown box.

2. Choose a **Category** (Mammal, Bird, Fish, Reptile, etc.) and an **Order**. As you continue to choose, Order, Family, and/or Genus, all the species in that group will appear in the Results window.

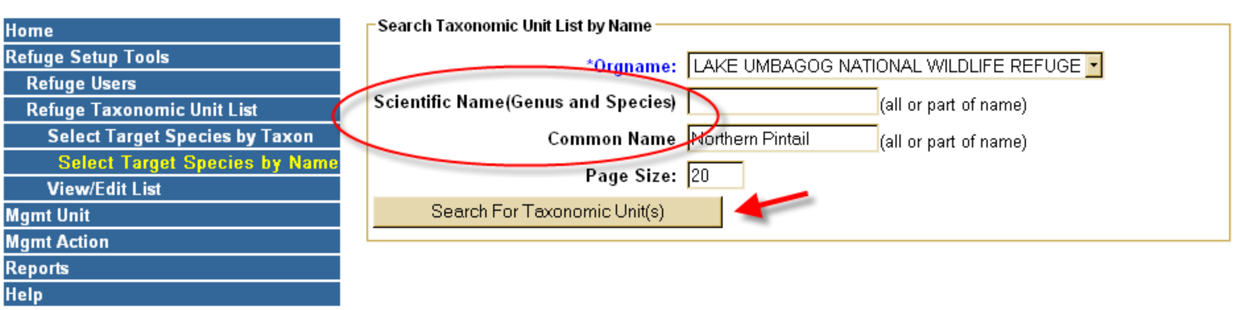


3. Click on **Search for Taxonomic Unit(s)** and all potential matches will be displayed.

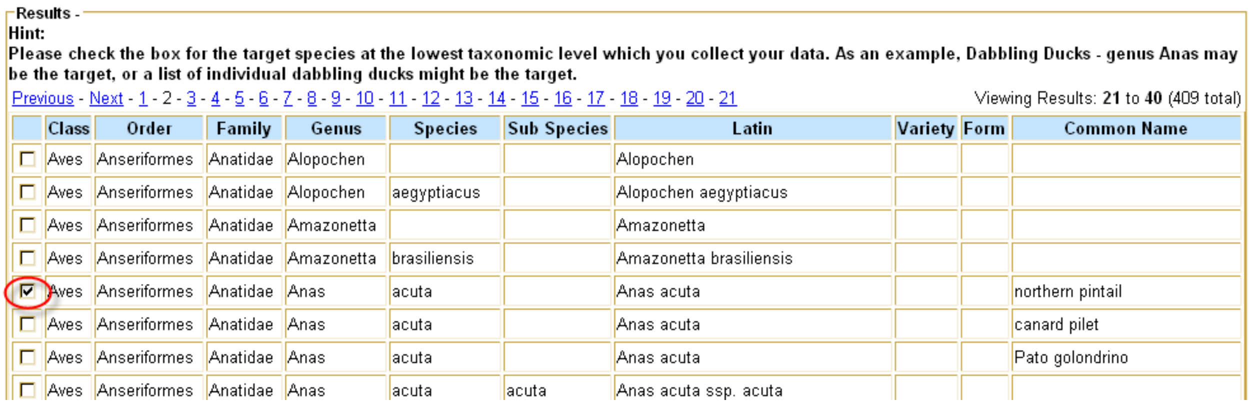
Select Target Species by Name

1. Your refuge name should appear in the Orgname box. If you are associated with multiple refuges, such as a refuge complex, choose the refuge of interest from the dropdown box.

2. Enter either the Scientific Name or Common Name for a species. You can search using all or part of the species name. Remember that sometimes common names vary, or can be assigned to more than one species. Use or double-check scientific names just to be certain.



3. Click on **Search for Taxonomic Unit(s)** and all potential matches will be displayed.



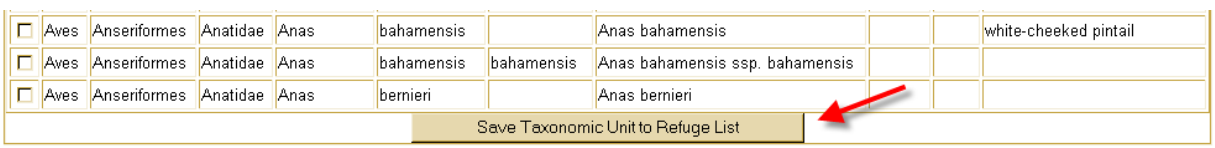
Results -
Hint:
Please check the box for the target species at the lowest taxonomic level which you collect your data. As an example, Dabbling Ducks - genus Anas may be the target, or a list of individual dabbling ducks might be the target.

Previous - Next - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21   Viewing Results: **21** to **40** (409 total)

	Class	Order	Family	Genus	Species	Sub Species	Latin	Variety	Form	Common Name
☐	Aves	Anseriformes	Anatidae	Alopochen			Alopochen			
☐	Aves	Anseriformes	Anatidae	Alopochen	aegyptiacus		Alopochen aegyptiacus			
☐	Aves	Anseriformes	Anatidae	Amazonetta			Amazonetta			
☐	Aves	Anseriformes	Anatidae	Amazonetta	brasiliensis		Amazonetta brasiliensis			
☑	Aves	Anseriformes	Anatidae	Anas	acuta		Anas acuta			northern pintail
☐	Aves	Anseriformes	Anatidae	Anas	acuta		Anas acuta			canard pilet
☐	Aves	Anseriformes	Anatidae	Anas	acuta		Anas acuta			Pato golondrino
☐	Aves	Anseriformes	Anatidae	Anas	acuta	acuta	Anas acuta ssp. acuta			

4. Place a check in the box next to the species or species group (genus, order, etc) that you wish to choose. You can make as many selections as you wish.

5. Once you have selected the species or species groups of interest, click **Save Taxonomic Unit to Refuge List**.



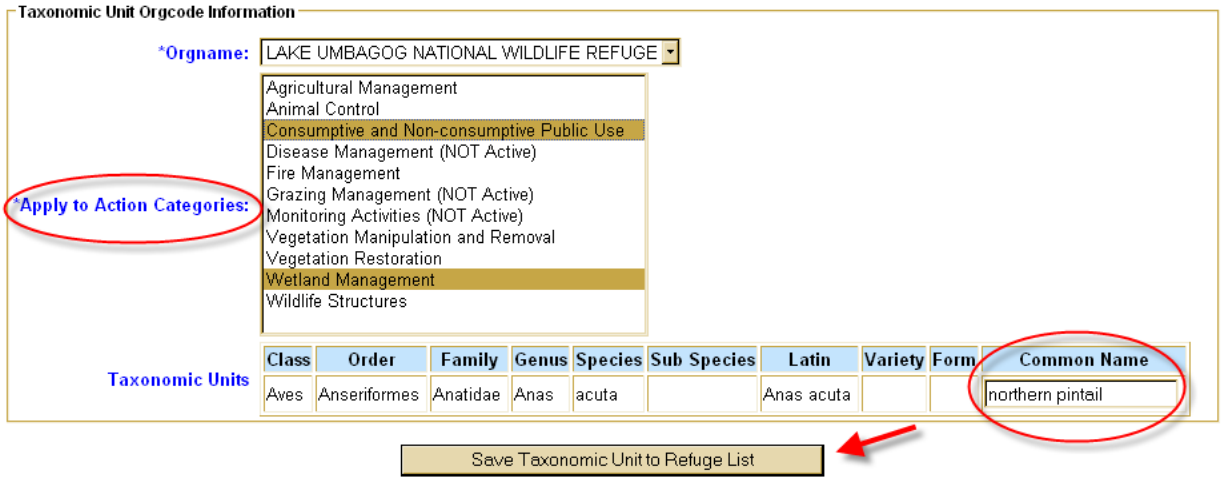
☐	Aves	Anseriformes	Anatidae	Anas	bahamensis		Anas bahamensis			white-cheeked pintail
☐	Aves	Anseriformes	Anatidae	Anas	bahamensis	bahamensis	Anas bahamensis ssp. bahamensis			
☐	Aves	Anseriformes	Anatidae	Anas	bernieri		Anas bernieri			

Save Taxonomic Unit to Refuge List

6. On the next screen, you will see a summary of the selected species.

7. You will be asked to choose the management action(s) that all the selected species are associated with, and you must choose at least one. You can choose more than one action, (by holding down the Ctrl key when selecting) but it will be assigned to all the species selected. If a species is associated with more than one management action and the rest of the group is not, that species will need to be added separately. All the management actions that are associated with a species need to be added at this time. If a management action is conducted for a species after the list has been developed, that species needs to be deleted and re-added to allow you to associated it with the new and old management actions.

8. At this screen, you can alter the common name if there is a local or shorter name you would prefer to have appear in dropdown lists, or if no common name existed in the database.



9. Once this is completed, again click **Save Taxonomic Unit to Refuge List**.

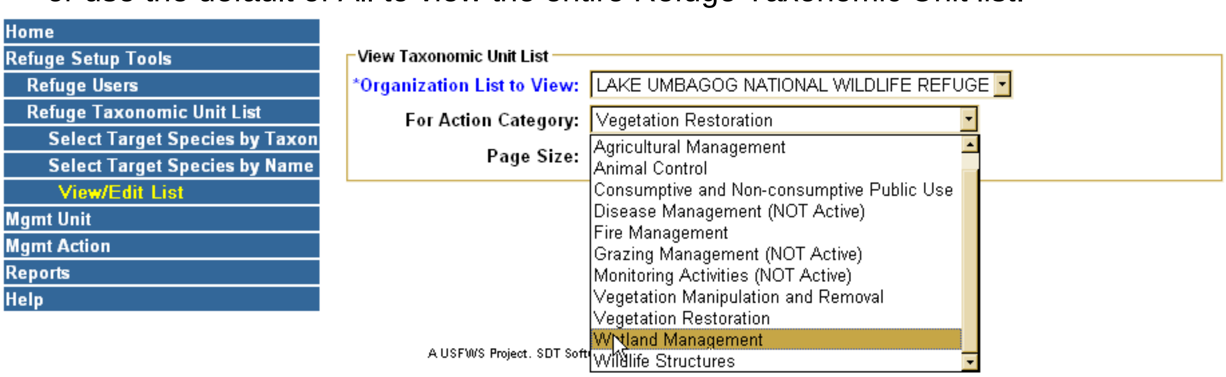
10. You will be returned to your previous screen, and can begin a new species search.

Removing Species from the Taxonomic Unit List

1. Click on the **Refuge Taxonomic Unit List** menu item.

2. Click on **View/Edit List** under the Taxonomic Unit List menu. Your refuge should appear in the Organization List to View field. If you are associated with multiple refuges, choose the refuge of interest from the dropdown box.

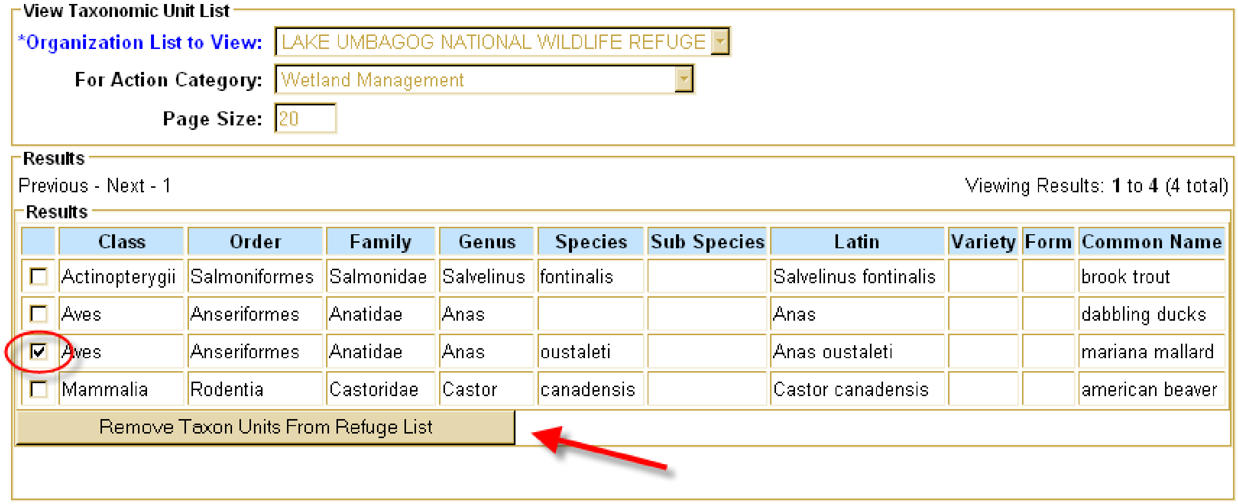
3. You can choose to view the taxonomic list only for a selected management action, or use the default of All to view the entire Refuge Taxonomic Unit list.



4. The Page Size can also be changed. It defaults to 20 entries per page (screen view), this can be changed to whatever you'd like.

5. Click **Submit**, and the list you specified will appear.

6. Place a check box next to the species you wish to delete from the list, and click **Remove Taxon Units** from Refuge List.



View Taxonomic Unit List

*Organization List to View: LAKE UMBAGOG NATIONAL WILDLIFE REFUGE

For Action Category: Wetland Management

Page Size: 20

Results

Previous - Next - 1

Viewing Results: **1** to **4** (4 total)

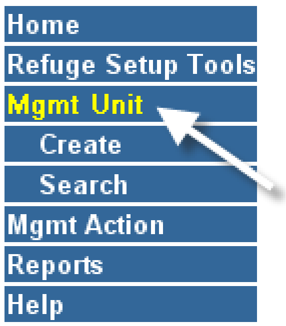
Results

	Class	Order	Family	Genus	Species	Sub Species	Latin	Variety	Form	Common Name
☐	Actinopterygii	Salmoniformes	Salmonidae	Salvelinus	fontinalis		Salvelinus fontinalis			brook trout
☐	Aves	Anseriformes	Anatidae	Anas			Anas			dabbling ducks
☑	Aves	Anseriformes	Anatidae	Anas	oustaleti		Anas oustaleti			mariana mallard
☐	Mammalia	Rodentia	Castoridae	Castor	canadensis		Castor canadensis			american beaver

Remove Taxon Units From Refuge List

7. The only way to Edit specific details for an individual species (e.g., which management actions a species is associated with, or the common name) is to delete the species and repeat the steps outlined above for adding species to the list, making needed changes to the actions or name.

VI. MANAGEMENT UNITS



In order to record management action information in RMAD, refuges must first define the refuge management units. There is no single definition of how to delineate a "management unit" for a refuge. A management unit is any meaningful division within the refuge, which is the target of management of any kind, biological surveys, or any human activity. It is very important that units be named consistently, to match existing management unit names in other databases.

Management units are not necessarily mutually exclusive. For example, a "Deer Hunt" unit might include all of the forests and fields, or perhaps even the entire refuge. Agricultural management units might be defined as each individual field (e.g., "Field 1"). Then, one management action (e.g., Consumptive Public Use – Large Game Hunting) might be applied to the entire "Deer Hunt" unit, whereas units contained within it, such as "Field 1," also receive specific management actions (e.g., Agricultural Management). Some planning and organization ahead of time will help the refuge to delineate management units pertinent to all the various management actions and enter them into RMAD to begin recording management action data.

make/show an example of management units map

Refuges are encouraged to maintain spatial (GIS) data representing their management units. The boundaries of various types of management units often remain static over time, and storing them in a GIS layer will permit users to join data about management actions to the spatial locations, utilizing a few basic GIS steps. **It is important that management unit names entered into RMAD are identical to the management unit names assigned in the attribute table of the GIS data.** It is also helpful if the management unit names are consistent with other refuge reporting venues and planning documents to alleviate confusion.

1. Creating a Management Unit

Use this function to create new management units, which will be available for assigning management actions throughout the database. Your refuge should appear in the Orgname box.

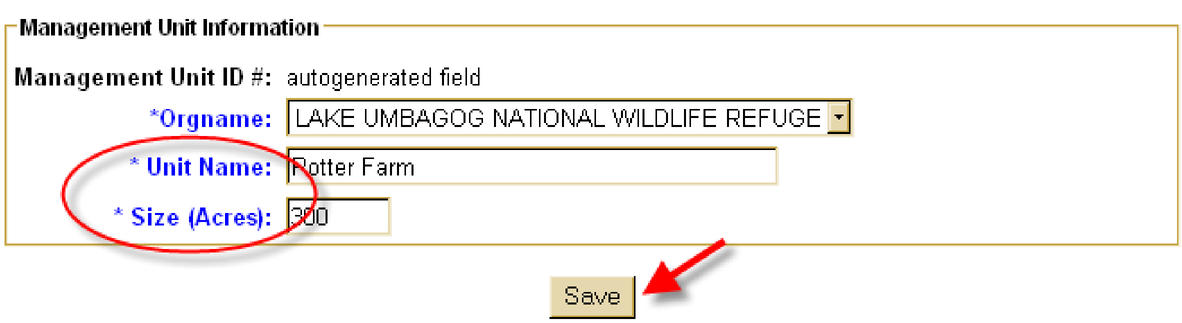
If you are associated with multiple refuges, choose the refuge of interest from the dropdown box. Be aware that after you have created and saved a management unit, and return to Create another unit, the Orgname defaults to an alphabetized refuge list. You will need to select the refuge you are creating units for. It will not return to the last refuge you worked on.

1. Click **Mgmt Unit** in the menu, then click **Create**; You will be brought to a data entry form.

2. Management Unit ID# is auto-generated by the database, and used internally to link management units and actions. You will see it after the unit information is saved.

3. As stated above, the management unit name you choose should be the same management unit names specified in other existing databases/documents, and be used in any future databases.

4. Enter the ***Unit Name** and the number of ***Acres** and click **Save**.



5. If you enter a name that has already been created, you will receive a warning and be asked to specify a new management unit name. To edit names of units, see below, Searching Management Units step 7.

6. After saving, you will see a summary of the Management Units created.

2. Searching Management Units

You can use this function to view, edit, and download management unit information.

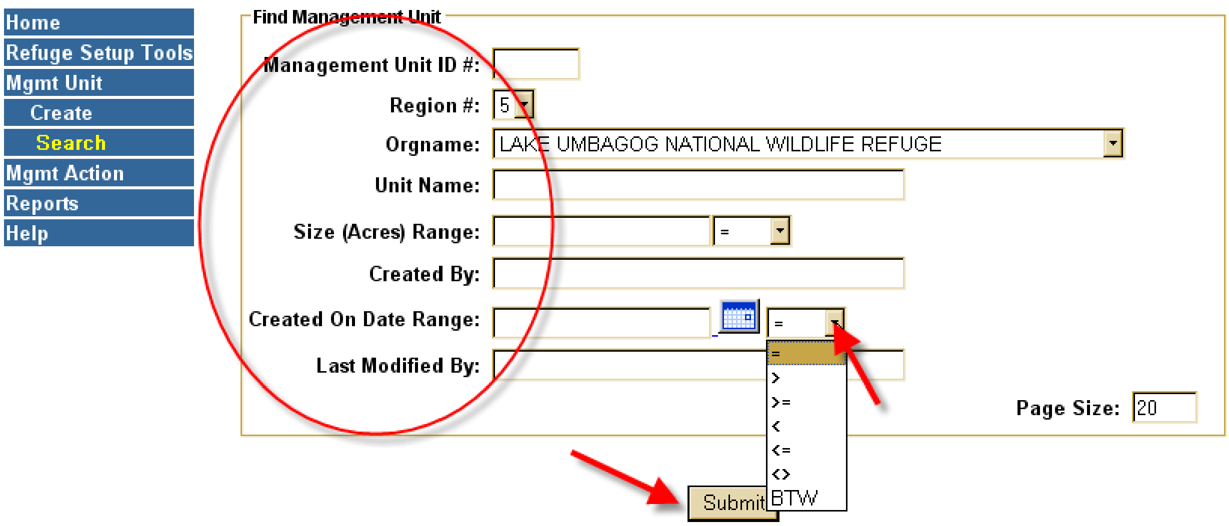
1. Click **Mgmt Unit** menu item, then click **Search**. You will be brought to a Search screen.

2. You can search for management units using any one or combination of the following fields:

   Management Unit ID#, Region, Station Name (Orgname), Unit Name, Size, the person who created it (Created By), the date or range of dates it was created (Created On Date Range), or the by the name of the person who last modified it (Last Modified By).

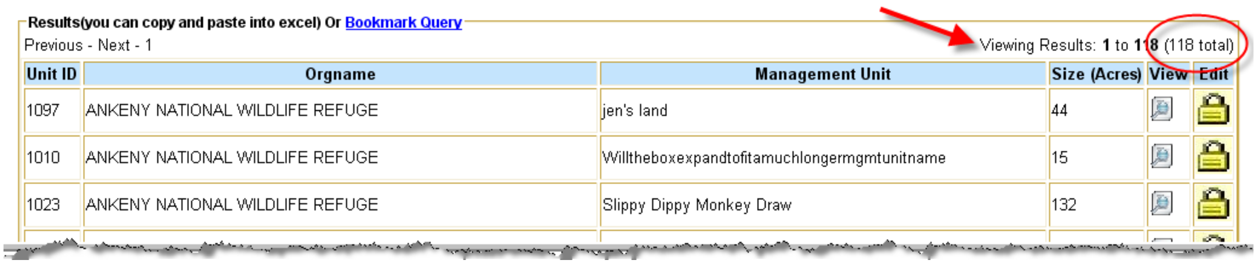
3. To search for a specific unit size, leave the default "=" operator chosen. To specify a size range (greater than, less than, or between two bounds), choose one of the other operators (e.g., >, <, BTW) and specify the bounding value(s).

4. Similarly, you can search a specific creation date, or a range of creation dates, choosing the appropriate operator in the same manner, and specifying the bounding date(s)



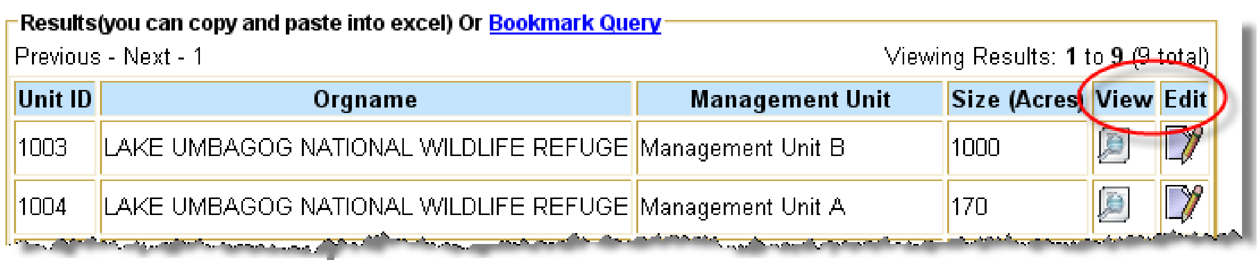
5. Once your search criteria are specified, click **Submit** to view the results on the screen.

6. A **Download** button will appear above the results box. Clicking this button will download the data automatically and open Excel with the data in a spreadsheet. Only the data that is shown on the screen will be downloaded. If you have more results than can fit within the default page size of 20, increase the page size to accommodate all your results. Page size can be over 1,000. You can determine the necessary page length by looking at 'Viewing Results:'

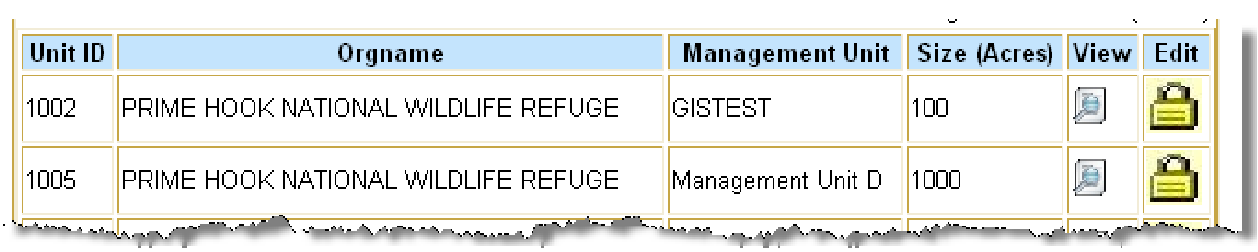


NOTE: When saving a download to your PC for use with ArcGIS, do not use the default XLS extension (.xls). Instead, you must save the file using a TAB extension (.tab). If you don't use this extension, you will not be able to add the file in ArcMap or view it in ArcCatalog.

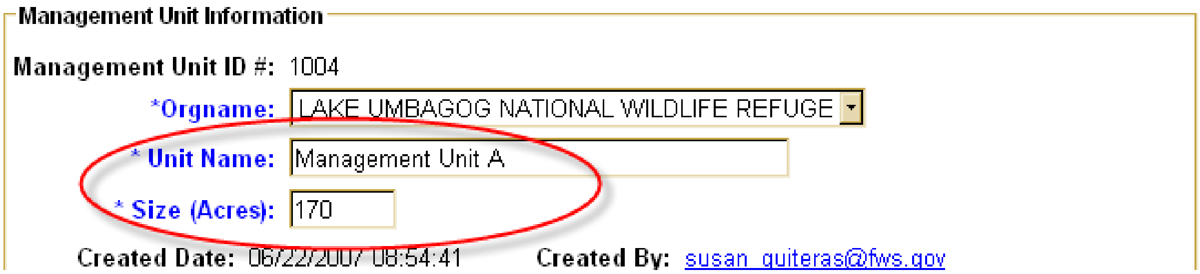
7. If you wish to Edit a Management Unit presented in the search results, click the Edit icon.  You can only edit the management units for your refuge.



8. If you conducted a search of another refuge's management units, the Edit icon will show as a yellow paddle lock, you can only View those records.



9. After selecting Edit, you will be able to change the Unit Name or Acreage of the Management Unit, and click Save. Remember that it is important to keep management unit names consistent with names used in other aspects of refuge management. Keep in mind that if management actions are linked to a management unit record, they will remain associated with it even if the management unit name changes. You may need to update acreage information if boundaries change and/or spatial calculations improve the accuracy of such information.



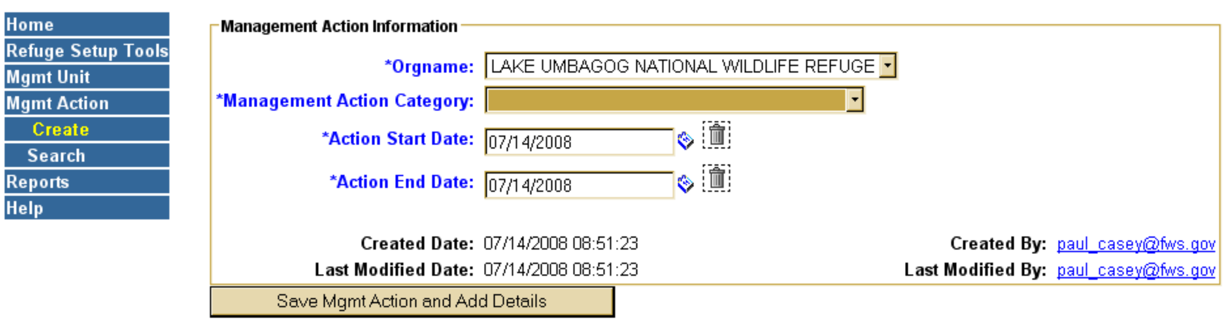
10. Deleting a management unit can only be done by the Administrator, to avoid the risk of deleting units with historic management actions associated with them. Contact your regional Administrator to delete a management unit.

VII. MANAGEMENT ACTIONS

The majority of management actions that occur on a refuge can be grouped into similar themes. As discussed in the Overview section, RMAD has been developed to document eight of the eleven categories of management actions that field representatives identified:

Agricultural Management
Animal Control
Consumptive/Non-consumptive Public Use
Disease Management (not operational)
Fire
Grazing (not operational)
Monitoring Activities (not operational)
Vegetation Manipulation and Removal
Vegetation Restoration
Wetland Management
Wildlife Structures

1. Creating a Management Action



For each management action there is an initial screen of data that is requested for all management actions, followed by screens of addition fields to document the details associated with a particular management action. Fields that are required for an action are indicated in ***blue** (with an asterisk), fields that are optional have **black** text, with no asterisk. Refuges are encouraged to document as much of the optional information as is available. Although the data is optional, field representatives felt it would be valuable for future management planning, comparisons, and summaries.

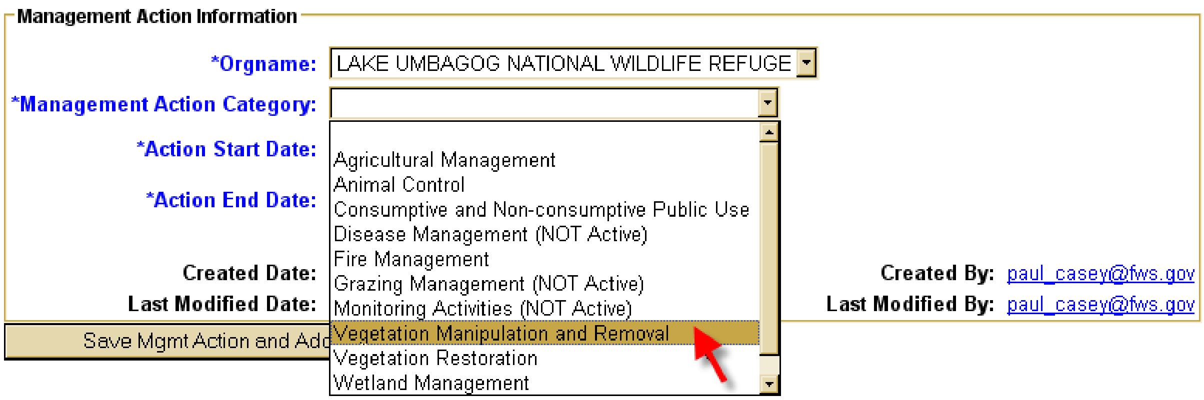
Initiating a Management Action Record (First Steps)

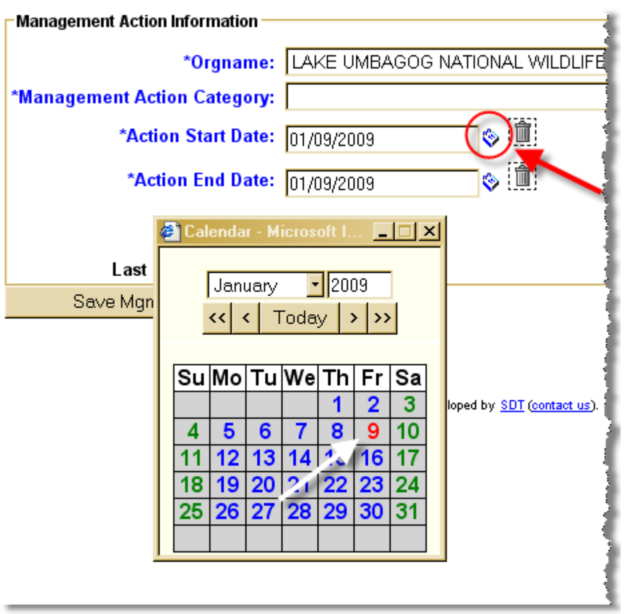
1. Click **Mgmt Action** in the menu, then choose **Create.**

2. An initial data entry form will appear, and you begin entering data that is requested for all management action categories:

   - ***Orgname** – This will default to the station to which you are assigned. People assigned to more than one station, as is the case for refuge complexes, must choose the refuge that the management action occurred on from their dropdown list.

   - ***Management Action Category** – Choose the management action being documented.

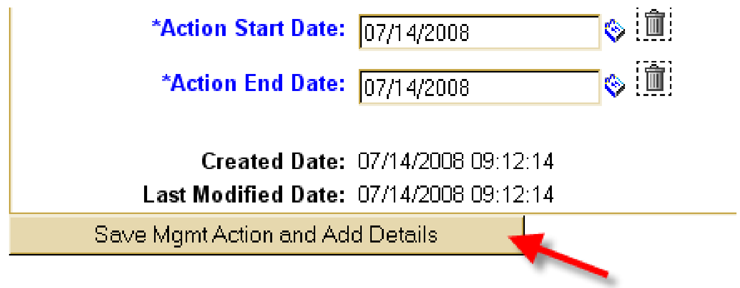




   - ***Action Start Date** – The Start Date defaults to the current day to make data entry easier. It is beneficial to enter your actions on the day they are conducted. You can use the calendar icon to choose a different starting date for the action (this can be past, current, or future). You must choose the date from the calendar, rather than type it in manually. If you choose the wrong date, use the calendar to choose another or use the Trash Can icon to clear the field.

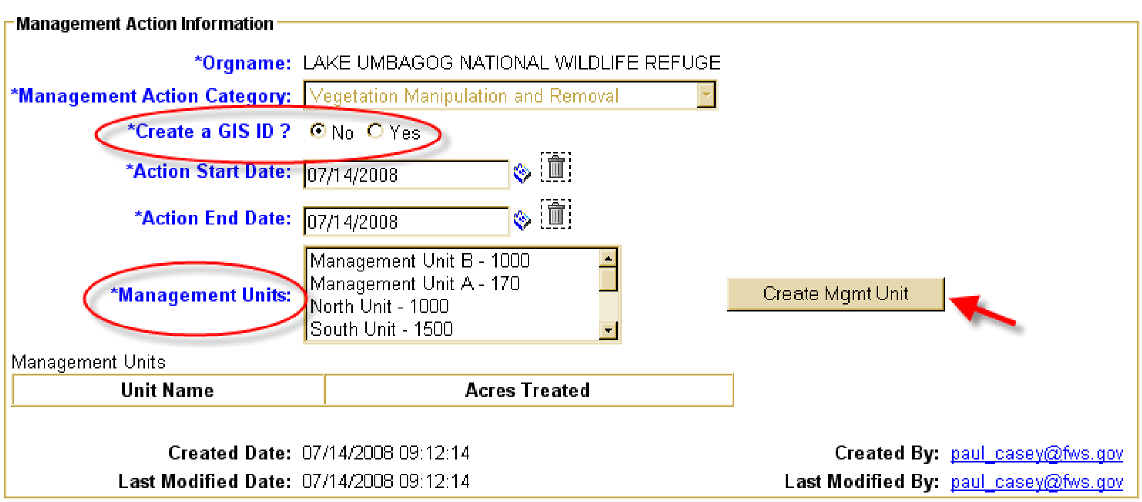
- ***Action End Date** – The End Date defaults to the current day to make data entry easier. You can also use the calendar icon to specify the ending date for the action. This field is required in order to proceed. Therefore, if the action is ongoing, you can choose the current date as the placeholder and Edit the action later once it is completed. Or, you can indicate a date in the future if you know the expected action end date.

3. Click **Save Mgmt Action and Add Details**



Management Action Information

The screens that follow the initial Management Action Information will appear different for each management action category. Refer to the individual management action section for a description and explanation of the data that is specific to each management action. ***However, the following fields in the Management Action Information box are the same for all categories, and are required:***



4. ***Create a GIS ID? –** Choose the 'Yes' or 'No' radio button. The GIS ID field provides a mechanism for linking management actions to the portion of the refuge where the action took place. Management Unit name can also be used for this purpose, in situations where the action was conducted on the entire management unit. If an action is conducted on only a portion of a management unit, and that area is

recorded spatially in GIS (using a GPS unit or digitizing on the screen), add the GIS ID associated with the action to the attribute table of the GIS data, following these guidelines:

- When a management action is created, a portion of the GIS ID field **will populate automatically.**

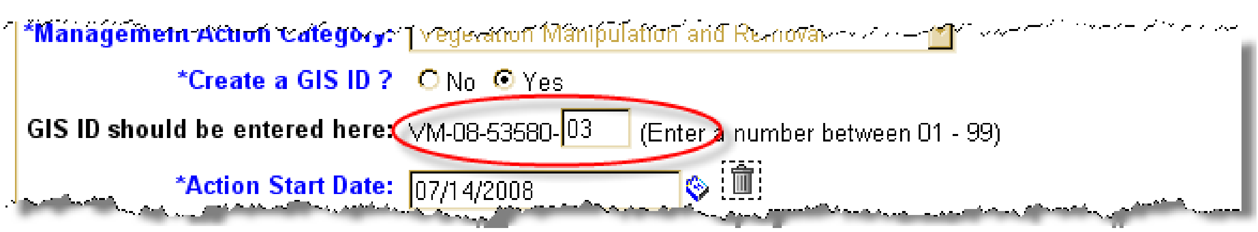
- The **GIS ID format includes** is **MA-YEAR-REF-###**, where MA is a code indicating the action type, YEAR is the four digit year of the action start date, REF is the refuge literal, and ### is a sequential 3-digit number.

  For example, **AC-2007-PMH-001** would represent the first Animal Control action entered in the year 2007 for Prime Hook NWR.

  The Management Action (MA) codes that the system will assign are as follows:

Agricultural **M**anagement	AM
Animal **C**ontrol	AC
Consumptive/Non-consumptive **P**ublic **U**se	PU
Disease **M**anagement (Once available)	DM
Fire	FI
Grazing (Once available)	GR
Monitoring Activities (Once available)	MO
Vegetation **M**anipulation and Removal	VM
Vegetation **R**estoration	VR
Wetland **M**anagement	WM
Wildlife **S**tructures	WS

- A portion of the GIS ID is created automatically, based on the information that has been entered, the user assigns the last two digits. Using this naming convention, you can have up to 99 management actions for each type of action category in any given year. Sequential numbering of your actions is recommended but not required. You must ensure the number is unique as the system does not let you know if a duplicate number is entered.

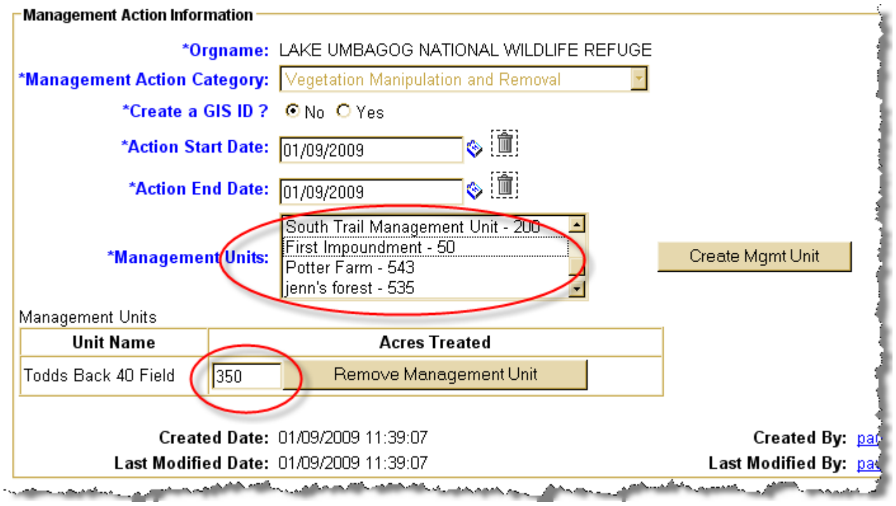


- The sequential number CAN be changed, but the other components can not.

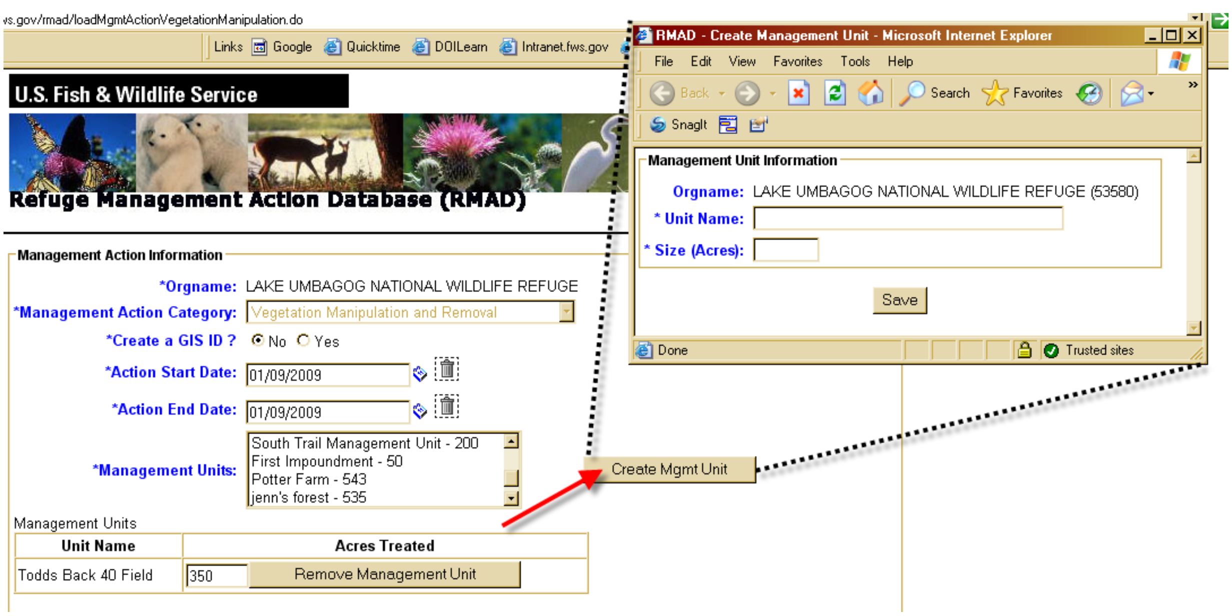
- If data is collected in the field (e.g., using a GPS, as the action occurs), a GIS ID can be assigned in the field, and that ID can be entered into RMAD (i.e., changing the sequential number if necessary, to ensure a match)

5. ***Management Unit** – Choose the target management unit or units from the list of management units you have already defined in the system.

6. **Acres Treated** – The full acreage of the unit will appear by default, but this can be changed if, for example, only a portion of the unit actually received the treatment.



If the management action has taken place in a management unit that has not been created yet, click on the **Create Mgmt Unit** button. This will take you to the Create screen of Mgmt Unit menu and allow you to add a new unit and return to the management action screen you're working on.



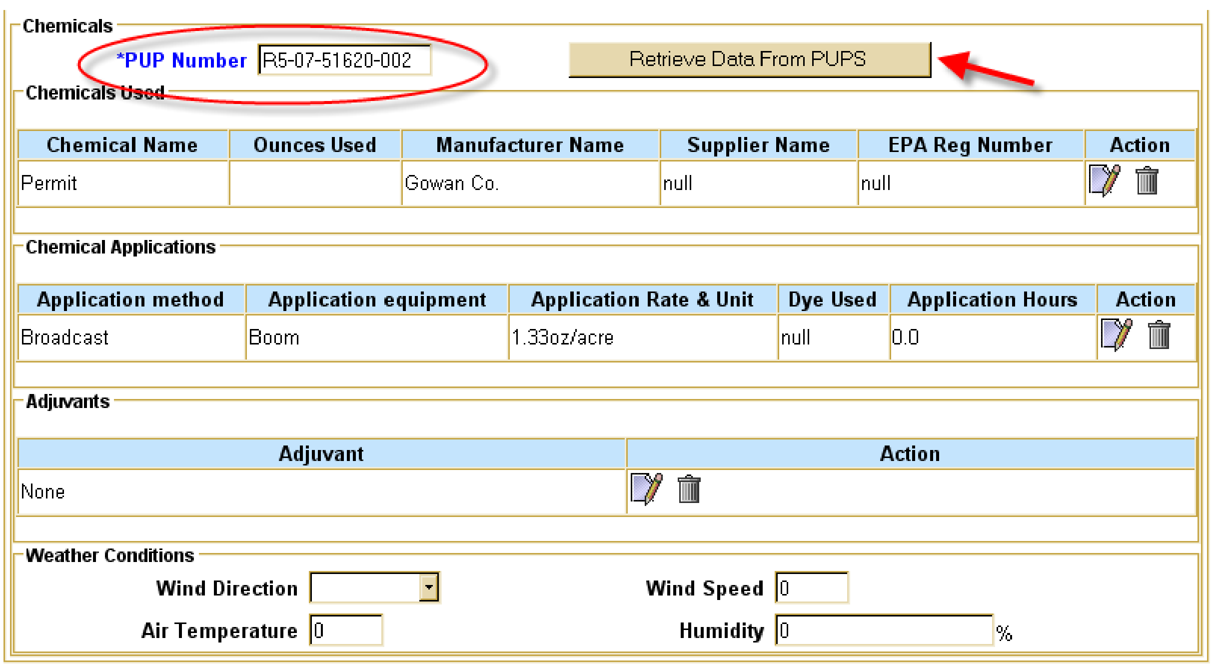
7. You can remove a management unit from the action after you have added it by clicking the **Remove Management Unit** button.

Pesticide Application Data

Within several management actions (Agricultural Management, Animal Control, Vegetation Manipulation and Removal, Vegetation Restoration), you will be asked to enter data about the pesticides used during the execution of that action, if applicable. Data from the online PUPS (Pesticide Use Proposal) database will be retrieved automatically, requiring only that you check and clarify actual application values vs. proposed application values (e.g., application rate, total used), thus simplifying data entry.

These management actions will require a Yes or No answer indicating whether or not Chemicals were used. When Yes is chosen, the following fields will appear. The blue text fields will be filled automatically by entering the PUP number associated with the pesticide application, but should be checked to ensure values proposed match what was actually used:

- ***PUP Number** – This field is required, and you may need to check the PUPS database or your files for the number. It must be entered in the proper format (R#-CY-ORGCODE-##, where R refers to the region number and CY refers to the last two digits of the calendar year for the PUP; For example, R5-07-51560-01). Then click Retrieve Data From PUPS and additional data will be retrieved automatically from the PUPS database.



Chemicals

*PUP Number R5-07-51620-002 Retrieve Data From PUPS

Chemicals Used

Chemical Name	Ounces Used	Manufacturer Name	Supplier Name	EPA Reg Number	Action
Permit		Gowan Co.	null	null	

Chemical Applications

Application method	Application equipment	Application Rate & Unit	Dye Used	Application Hours	Action
Broadcast	Boom	1.33oz/acre	null	0.0	

Adjuvants

Adjuvant	Action
None	

Weather Conditions

Wind Direction | Wind Speed 0

Air Temperature 0 | Humidity 0 %

Chemicals Used:

- ***Chemical Name** – *Retrieved from PUPS automatically*; Common (brand) name of the pesticide used.
- ***Ounces Used** – *Retrieved from PUPS automatically*; The amount of chemical used.
- ***Manufacturer Name** – *Retrieved from PUPS automatically*; Name of the manufacturer of the pesticide used.
- **Supplier Name** – Name of the supplier that provided the pesticide.
- ***EPA Reg Number** – *Retrieved from PUPS automatically*; EPA Registration number of the pesticide used.
- **Action** – Clicking on the edit icon allows you to edit the Chemical Used information. The trash can allows you to delete the information.

Chemical Applications:

- ***Application Method** – *Retrieved from PUPS automatically*; Basic method of pesticide application employed.
- ***Application Equipment** – *Retrieved from PUPS automatically*; Application equipment used in application of the pesticide.
- ***Application Rate & Unit** – *Retrieved from PUPS automatically, but represents proposed rate and must be checked and adjusted if applied rate differs.*; The application rate at which the pesticide was applied.
- **Dye Used** – Provide the name of any dye used during application of the pesticide.
- **Application Hours** – The length of time it took for the pesticide applications (Hours X Number of People).
- **Action** – Clicking on the edit icon allows you to edit the Chemical Application information. The trash can allows you to delete the information.

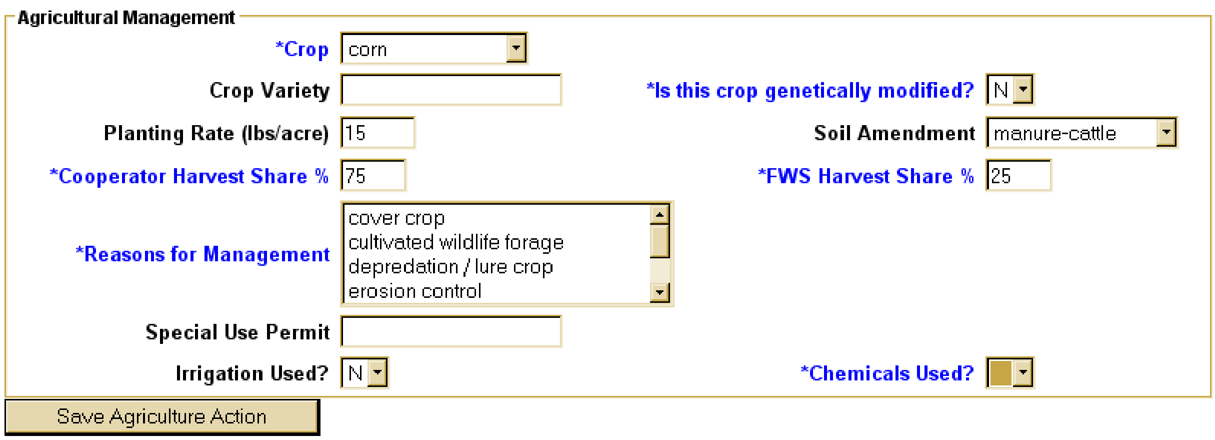
Adjuvants:

- ***Adjuvant** – *Retrieved from PUPS automatically*; Indicate the adjuvant used, or None.
- **Action** – Clicking on the edit icon allows you to edit the Adjuvant information. The trash can allows you to delete the information.

Weather Conditions: *Optional*

- **Wind Direction** – Direction of the wind during pesticide application from the drop down list.
- **Wind Speed** – Speed of the wind during pesticide application.
- **Air Temperature** – Air temperature during pesticide application.
- **Humidity** – % humidity during pesticide application.

2. Agricultural Management Action



1. ***Crop** – Choose the planted crop from the dropdown list.

2. **Crop Variety** – Specify the specific crop variety, if applicable.

3. ***Is this Crop Genetically Modified? –** Specify **Y**es or **N**o.

4. **Planting Rate (lbs/acre)** – Indicate the planting rate of the crop.

5. **Soil Amendment** – If applicable, choose an amendment that was used from the list.

6. ***Cooperator Harvest Share %** – The percent of the crop harvest that the cooperator receives.

7. ***FWS Harvest Share %** – The percent of the crop harvest that the FWS retains.

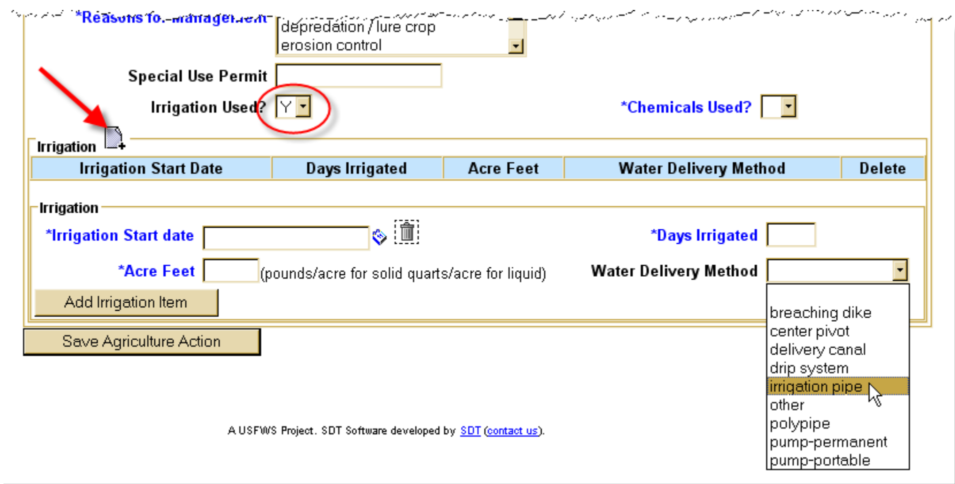
8. ***Reasons for Management** – Choose one or more reasons for the management action. To select more than one Reason, hold down the Crtl key while selecting with the mouse.

9. **Special Use Permit** – If applicable, list the special use permit number or details.

10. **Irrigation Used?** – Indicate whether or not irrigation was used (Y or N)

a) If Yes is chosen, a box entitled Irrigation will appear.

b) Click the **Add** icon to add irrigation details.



c) ***Irrigation Start date*** – Use the Calendar tool to select the date irrigation began.

d) ***Days Irrigated*** – Indicate the number of day irrigation occurred.

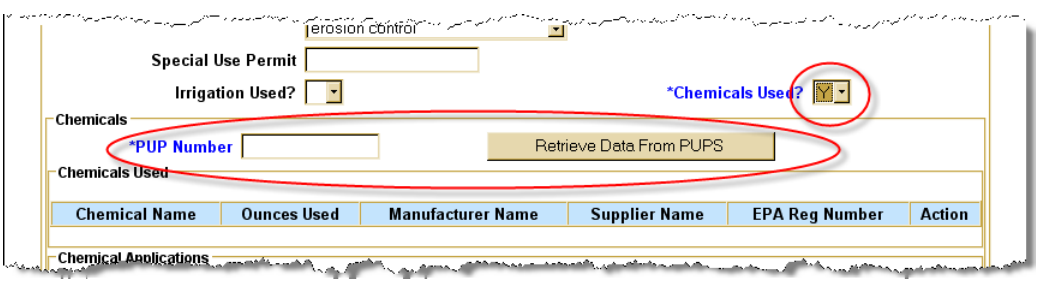
e) ***Acre Feet*** – Indicate the amount of water that was applied (pounds/acre for solid quarts/acre for liquid)

f) **Water Delivery Method** – Choose the primary method of delivering water.

g) Click **Add Irrigation Item .**

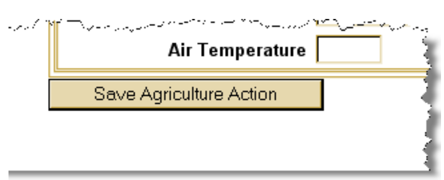
11. ***Chemicals Used?*** – Indicate whether or not chemicals were used (Y or N).

a) If Yes (Y) is chosen, the Chemical Use fields will appear.



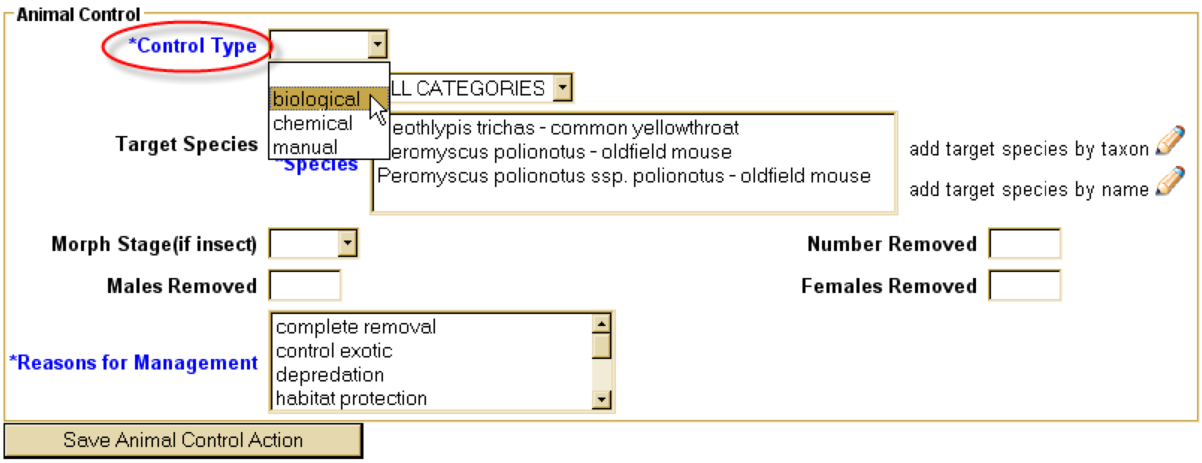
b) ***PUP Number*** – enter the PUP number and click on **Retrieve Data From PUPS** button. Continue as outlined in the Pesticide Application Data section (PG # 34).

12. Click **Save Agricultural Action**

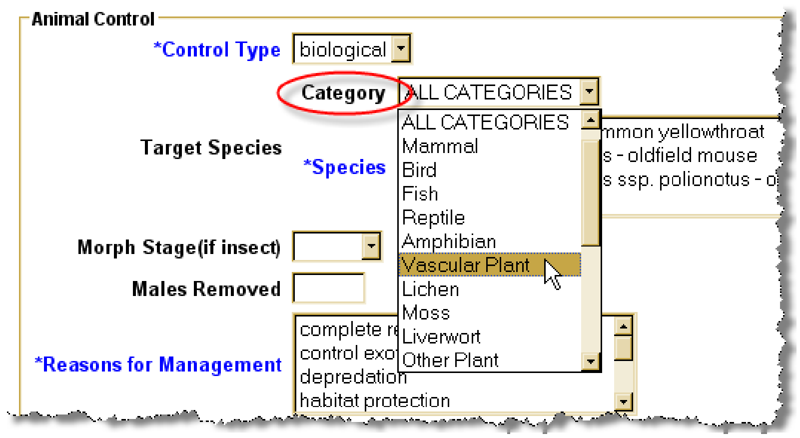


3. Animal Control Action

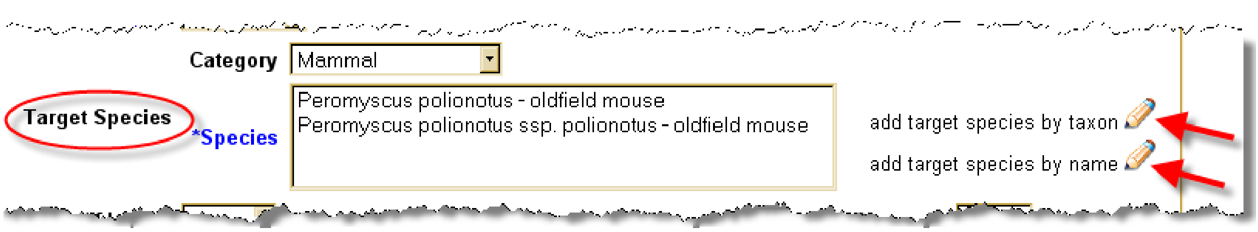
1. ***Control Type** – Indicate the type of control employed – *biological, chemical, or manual*. Depending on your choice, a second box of data requests will drop down below the Animal Control box specific to that type of control. These fields are described below for **A. Biological, B. Chemical and C. Manual**.



2. **Category** – To facilitate selecting the Target Species, you can narrow your refuge's species list by selecting a taxonomic group such as mammal, bird, fish, etc.



3. ***Target Species** – Specify the target species for control. If you are targeting a species that has not been added to your refuge's taxonomic list, click on the **add target species by taxon** or **add target species by name** icon . This will open up a new window to allow you to Search Taxonomic Unit List by Name or Taxon, add a species, close the window and return to the Animal Control screen.



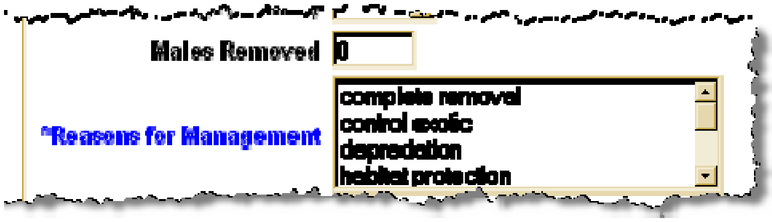
4. **Morph Stage (if insect)** – Choose the morphological stage of the species, if it is an insect.

5. **Number Removed** – Indicate the number of individuals removed as accurately as possible.

6. **Males Removed** – Indicate the number of males of the species removed.

7. **Females Removed** – Indicate the number of females of the species removed.

8. ***Reasons for Management** – Choose one or more reasons for the management action. To select more than on Reason, hold down the Crtl key while selecting with the mouse.



A. Biological Control Agent:

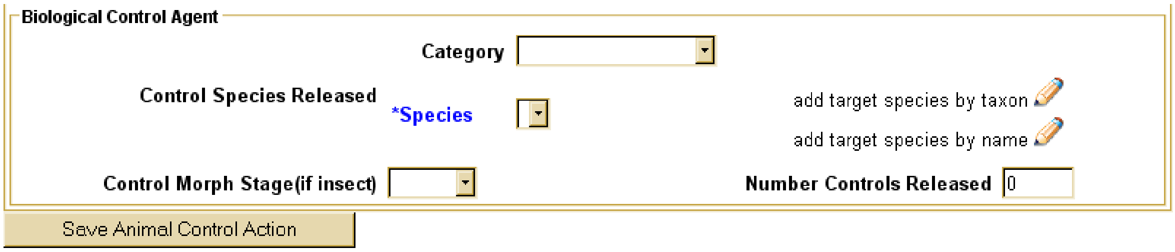
1. **Category** – To facilitate selecting the Species, you can narrow your refuge's species list by selecting a taxonomic group such as mammal, bird, fish, etc.

2. *** Species –** Specify the **Control Species Released** as a biological control agent. You can add a target species using the **add target** icons, as described above.

3. **Control Morph Stage (if insect)** – Choose the morphological stage of the biological control species, if it is an insect.

4. **Number Controls Released** – The number of individuals released for biological control.

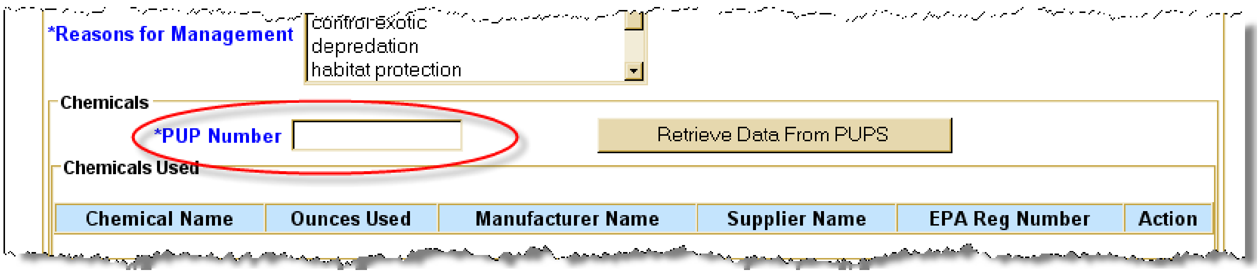
5. Click **Save Animal Control Action**



B. Chemical Control:

1. *PUP Number – enter the PUP number and click on Retrieve Data From PUPS button. Continue as outlined in the Pesticide Application Data section (PG# 34).

2. Click **Save Animal Control Action**

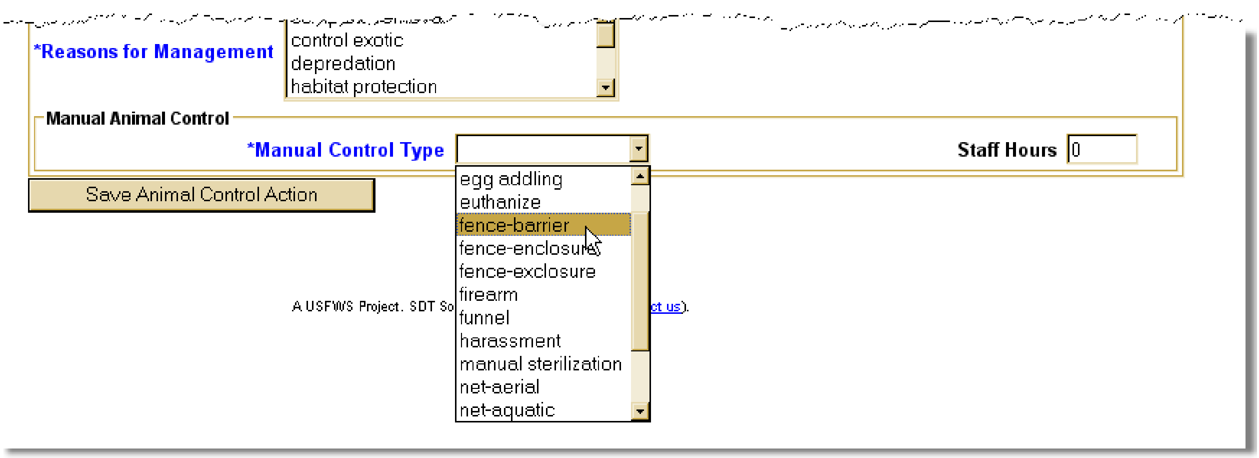


C. Manual Control:

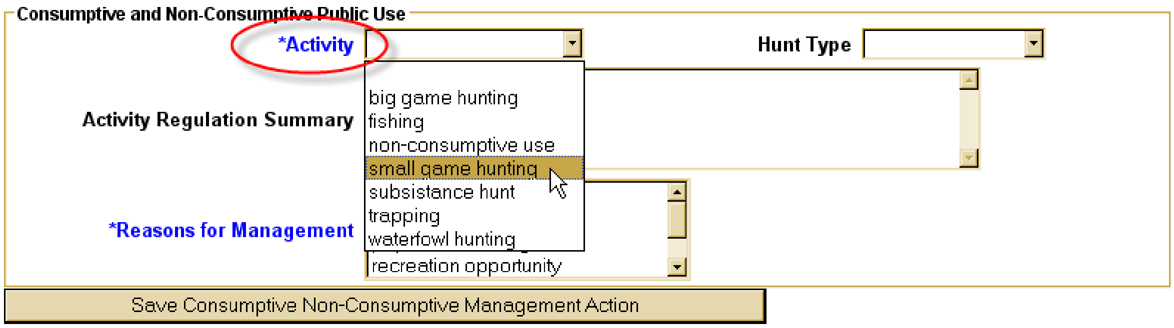
1. **Manual Control Type** – Indicate the method of manual control. If you select exclosure, harassment, manual sterilization or trap, one or two additional questions will be asked.

2. **Staff Hours** – The number of staff hours (Hours X Number of people) spent on control.

3. Click **Save Animal Control Action**



4. *Consumptive and Non-consumptive Public Use Action*



1. ***Activity** – Specify the public use activity being used/permitted. Based on the activity chosen, additional fields might appear below the Consumptive and Non-Consumptive Public Use box. The addition fields for **A. Big Game, B. Non-consumptive Public Use, C. Small Game, and D. Waterfowl**, are described below.

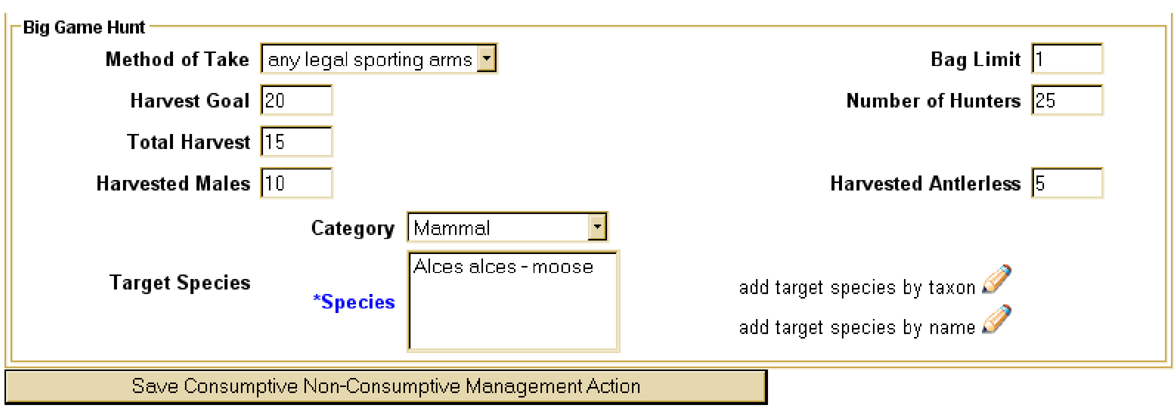
2. **Hunt Type** – For hunting activities, specify which kind of hunt applies (general, mobility impaired, special hunt, vision impaired, youth).

3. **Activity Regulation Summary** – In the space provided, you can describe regulations or other details of the activity (e.g., hunting regulations, public use limitations, etc).

4. ***Reasons for Management** – Choose one or more reasons for the management action.

Activities with additional fields of information:

A. Big Game:



1. **Method of Take** – Indicate the weapon type permitted during the hunt.

2. **Bag Limit** – Indicate the bag limit associated with the hunt.

3. **Harvest Goal** – Specify any harvest goal the refuge has set for the hunt.

4. **Number of Hunters** – Provide the number of hunters that participated in the hunt.

5. **Total Harvest** – Record the total number of animals harvested.

6. **Harvested Males** – Record the total number of male animals harvested.

7. **Harvested Antlerless** – Record the total number of antlerless animals harvested.

8. **Category** – To facilitate selecting the Species, you can narrow your refuge's species list by selecting a taxonomic group such as mammal, bird, fish, etc.

9. ***Target Species** – Specify the hunted species. You can add a target species using the **add target** icons, as described in Animal Control section (PG # 39).

10. Click **Save Consumptive Non-Consumptive Management Action**

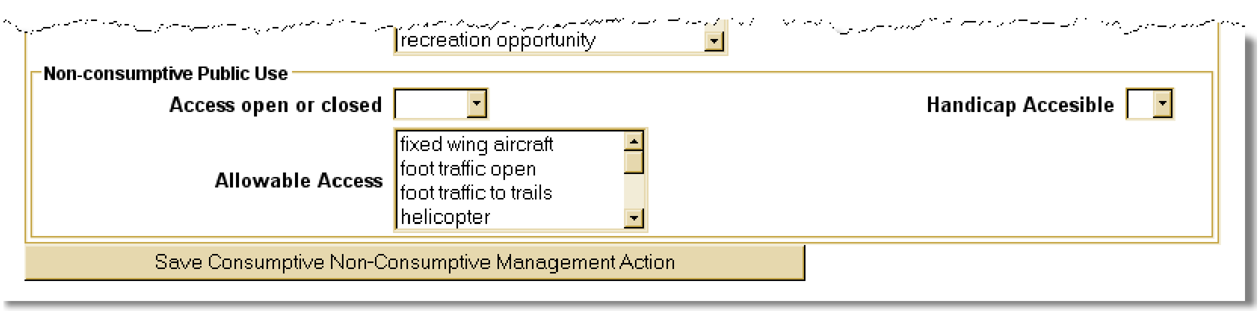
B. Non-consumptive Public Use:

1. **Access open or closed** – Indicate if the public use activity took place in an open or closed area of the refuge.

2. **Handicap Accessible** – Specify whether or not the activity was handicap-accessible.

3. **Allowable Access** – Choose the method(s) of access that are permitted for the activity.

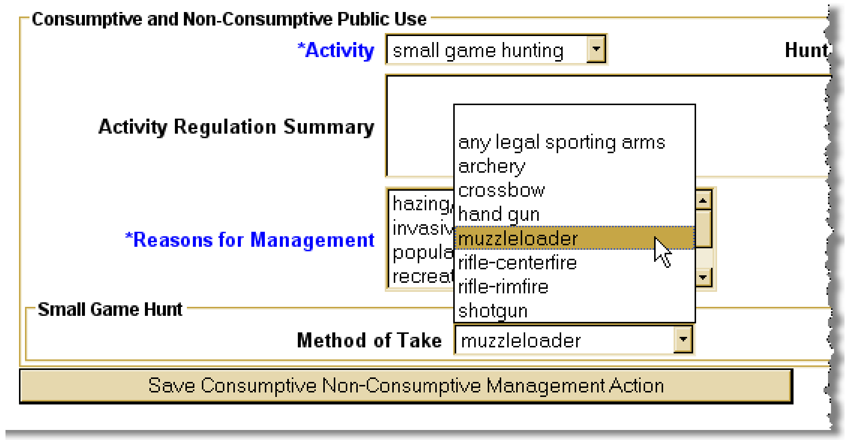
4. Click **Save Consumptive Non-consumptive Management Action**



C. Small Game:

1. **Method of Take** – Indicate the weapon type permitted during the hunt.

2. Click **Save Consumptive Non-consumptive Management Action**

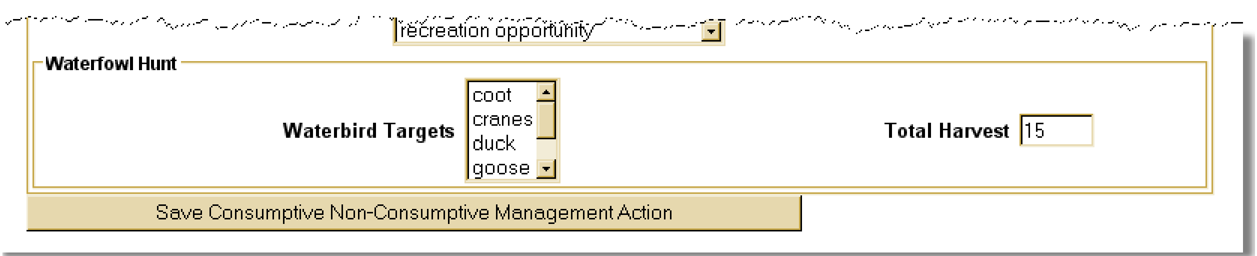


D. Waterfowl:

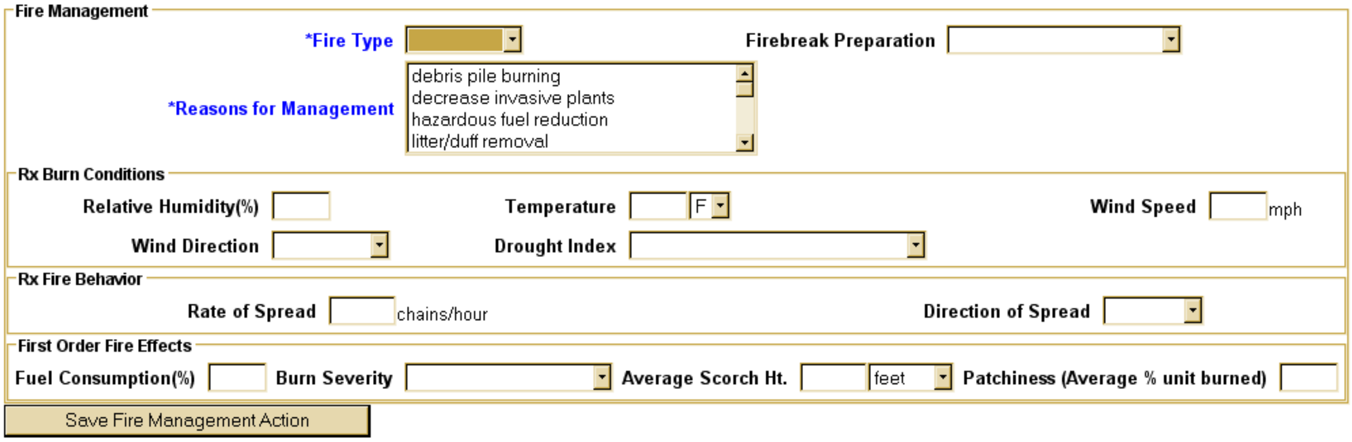
1. **Waterbird Targets** – Choose which waterbird group(s) are the target of the hunting (e.g., ducks, geese, rails, etc.)

2. **Total Harvest** – Record the total number of birds harvested.

3. **Save Consumptive Non-consumptive Management Action**



5. *Fire Management Action*



1. ***Fire Type** – Indicate if the fire is prescribed, wildland, or Wildland Urban Interface

2. **Firebreak Preparation** – Choose the one primary method of firebreak preparation.

3. ***Reasons for Management** – Choose one or more reasons for the management action.

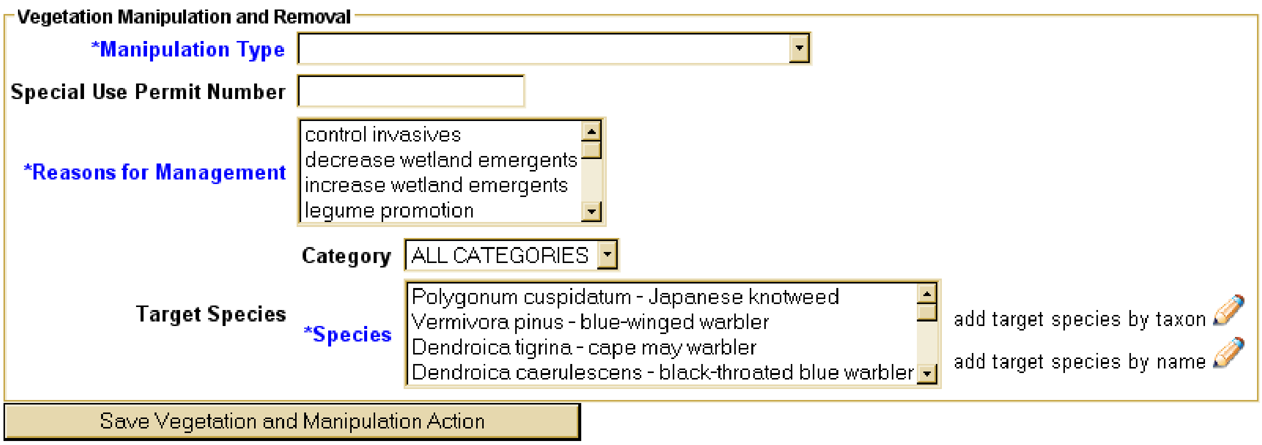
4. Describe **Rx Burn Conditions:**
   - **Relative Humidity %**
   - **Temperature** – Specify, and choose “F” (Fahrenheit) or “C” (Celsius) units
   - **Wind Speed** (mph)
   - **Wind Direction** – Choose from the list.
   - **Drought Index** – Choose from the list.

5. Describe **Rx Fire Behavior:**
   - **Rate of Spread** (chains/hour)
   - **Direction of Spread** – Choose backing, flanking, or heading

6. Describe **First Order Fire Effects:**
   - **Fuel Consumption (%)** – Estimate the amount of fuel consumed in the treatment area.
   - **Burn Severity** – Describe the burn severity choosing a category from 0 – 5.
   - **Average Scorch Height** – Provide the average height of scorched vegetation, and choose the height in feet or meters.
   - **Patchiness (Average % of unit burned)** – Enter the combined amount of the area that burned by a percentage of the unit: 100 for a complete burn; 50 if half of the unit burned or small areas add up to approximately 50%; etc. check with Laura in this

7. Click **Save the Fire Management Action**

6. Vegetation Manipulation and Removal Action



1. ***Manipulation Type** – Specify the general manipulation/removal type (mechanical removal/cutting of herbaceous plants, mechanical removal/cutting of woody vegetation, or use of herbicides to kill or defoliate vegetation). Based on the manipulation type chosen, additional fields will appear below the Vegetation Manipulation and Removal box, specific to that type. The fields for each type are described in: **A. Mechanical removal of herbaceous plants, B. Mechanical removal of woody vegetation and for C. Herbicides to kill or defoliate vegetation**.

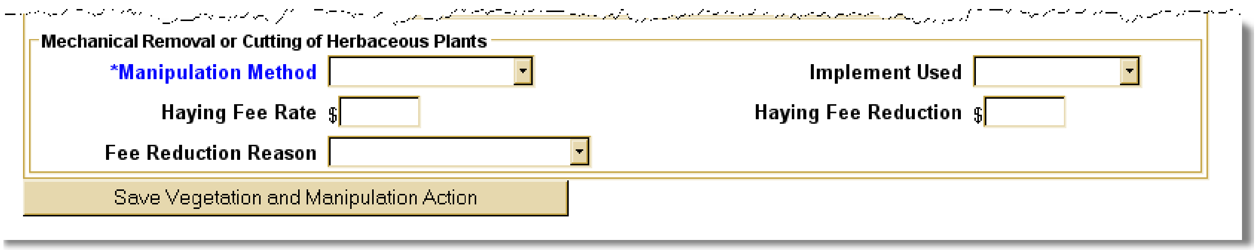
2. **Special Use Permit Number** – If applicable, enter an associated special use permit number.

3. ***Reasons for Management** – Choose one or more reasons for the management action.

4. **Category** - To facilitate selecting the Species, you can narrow your refuge's species list by selecting a taxonomic group such as mammal, bird, fish, etc.

5. ***Target Species** - Specify the plant species targeted for manipulation and/or removal. You can add a target species using the **add target** icons, as described in the Animal Control section (PG #39).

A. Mechanical Removal or Cutting of Herbaceous Plants:



1. ***Manipulation Method** – Choose the primary manipulation method utilized.

2. **Implement Used** – Choose the primary implement used for manipulation from the list.

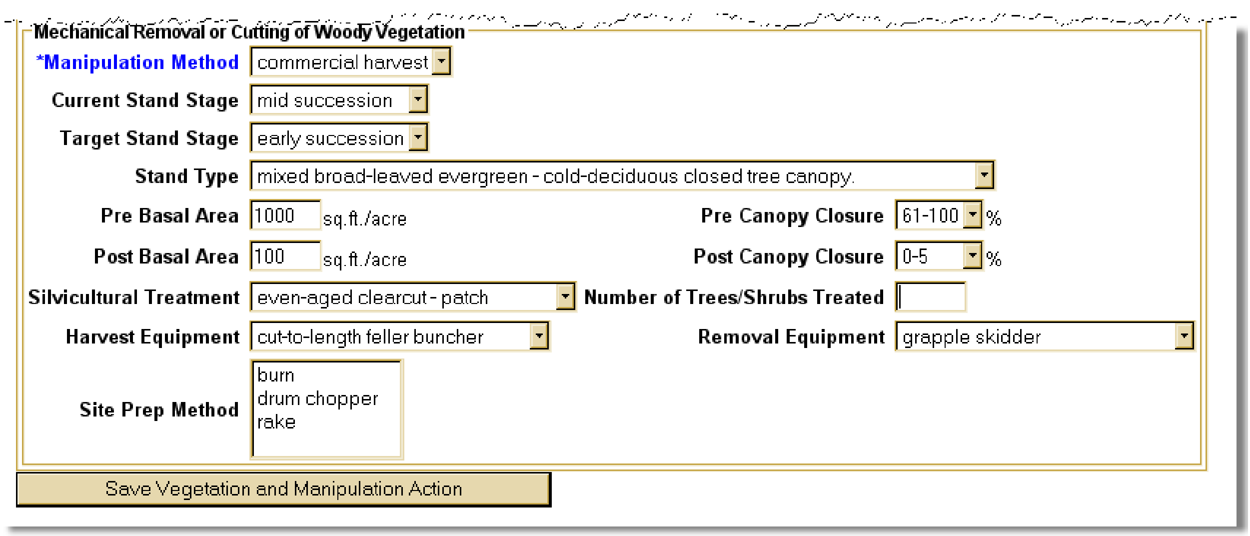
3. **Haying Fee Rate ($)** – If applicable, indicate the haying fee charged per acre.

4. **Haying Fee Reduction ($)** – If applicable, indicate the fee reduction applied per acre.

5. **Reason for Fee Reduction** – If applicable, choose the reason for haying fee reduction.

6. Click **Save Vegetation and Manipulation Action**

B. Mechanical Removal or Cutting of Woody Vegetation:



1. ***Manipulation Method** – Choose the primary manipulation method utilized.

2. **Current Stand Age** – Choose the current stand age (early, mid, or late succession).

3. **Target Stand Age** – If applicable to the action, choose the target stand age.

4. **Stand Type** – Choose the appropriate stand type from the list, which is equivalent to the National Vegetation Classification System (NVCS) Group level.

5. **Pre Basal Area (sq ft/acre)** – Indicate the pre-treatment basal area of the treatment area.

6. **Post Basal Area (sq ft/acre)** – Indicate the post-treatment basal area.

7. **Pre Canopy Closure (%)** – Choose the pre-treatment canopy closure category.

8. **Post Canopy Closure (%)** – Choose the post-treatment canopy closure category.

9. **Silvicultural Treatment** – If applicable, choose the primary silvicultural treatment utilized from the list.

10. **Number of Trees/Shrubs Treated** – If applicable, indicate the number of trees/shrubs treated or removed.

11. **Harvest Equipment** – If applicable, specify the harvest equipment used.

12. **Removal Equipment** – If applicable, specify the equipment used to remove the trees.

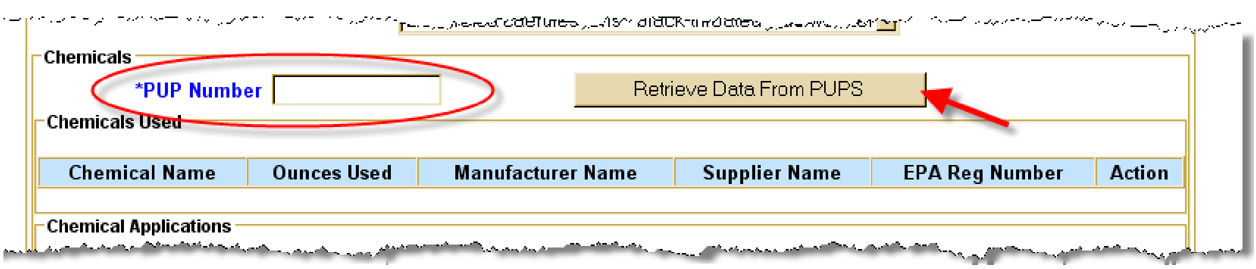
13. **Site Prep Method** – If applicable, indicate any method(s) used to prepare the site for planting or reforestation.

14. Click **Save Vegetation and Manipulation Action**

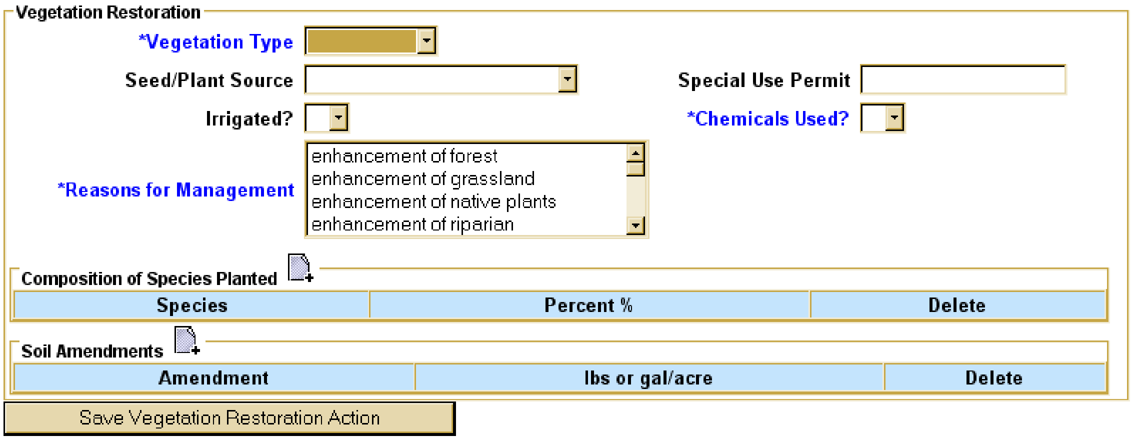
C. <u>Use of Herbicides to Kill or Defoliate Vegetation</u>:

1. *PUP Number – enter the PUP number and click on Retrieve Data From PUPS button. Continue as outlined in the Pesticide Application Data section (PG #34).

2. Click **Save Vegetation and Manipulation Action**



7. Vegetation Restoration Action



1. ***Vegetation Type** – Choose the general vegetation type being restored (herbaceous or woody). Based on the type chosen, additional fields will appear below the Vegetation Restoration box, specific to that type. The additional fields are described below in **A. Herbaceous vegetation and B. Woody vegetation**.

2. **Seed/Plant Source** – Specify the source of the seeds/plants (commercial, local ecotype, etc.).

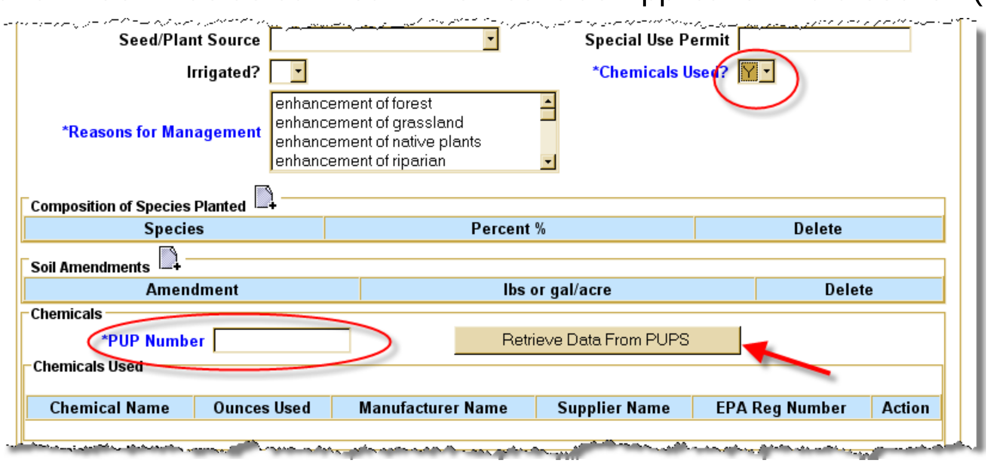
3. **Special Use Permit Number** – If applicable, enter a special use permit number.

4. **Irrigation?** – Indicate whether or not irrigation was used (Y or N).

5. ***Chemicals Used? –** Indicate whether or not chemicals were used (Y or N)

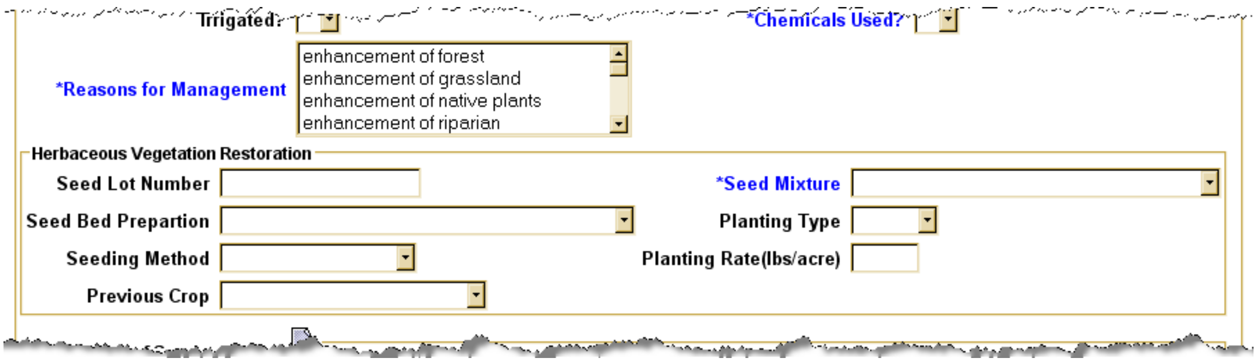
   - If Yes (Y) is chosen, the Chemical Use fields will appear below the other fields.

   - ***PUP Number** – enter the PUP number and click on **Retrieve Data From PUPS** button. Continue as outlined in the Pesticide Application Data section (PG #34).



6. ***Reasons for Management*** – Choose one or more reasons for the management action.

A. <u>Herbaceous Vegetation Restoration</u>:



1. **Seed Lot Number** – Enter the seed lot number.

2. ***Seed Mixture –*** Choose the appropriate seed mixture description (e.g., native, introduced, cool- or warm-season, grass and/or forbs).

3. **Seed Bed Preparation** – Choose the primary method of seedbed preparation, if any.

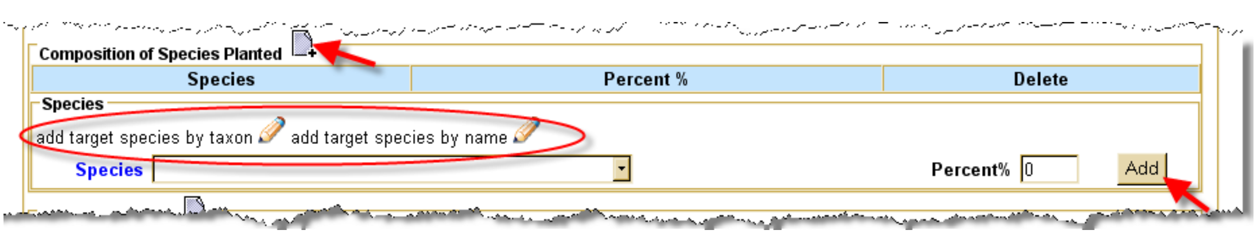
4. **Planting Type** – Choose the plant form utilized (e.g., plug, seed, etc).

5. **Seeding Method** – Choose the primary seeding method utilized, if applicable.

6. **Planting Rate (lbs/acres)** – Specify the planting rate utilized, if applicable.

7. **Previous Crop** – Choose the dominant previous crop, if any.

8. **Composition of Species Planted** - To describe the composition of the seed mixture, click on the **Add** icon. This will allow you to list the species of plants being planted.



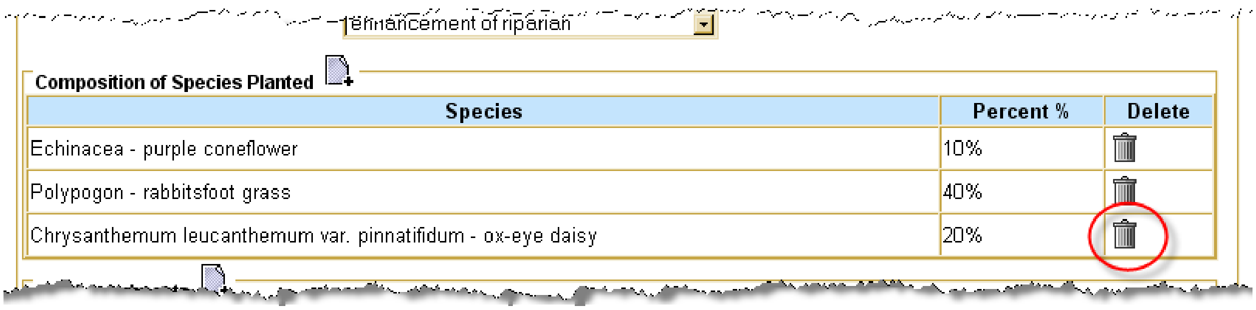
a) ***Species** – Select the species from the refuge taxonomic list. You can add a target species using the **add target** icons, as described in the Animal Control section (PG #39).

b) **Percent%** - Indicate the percent of the planting composition the species contributes. The percentages should add to 100%.

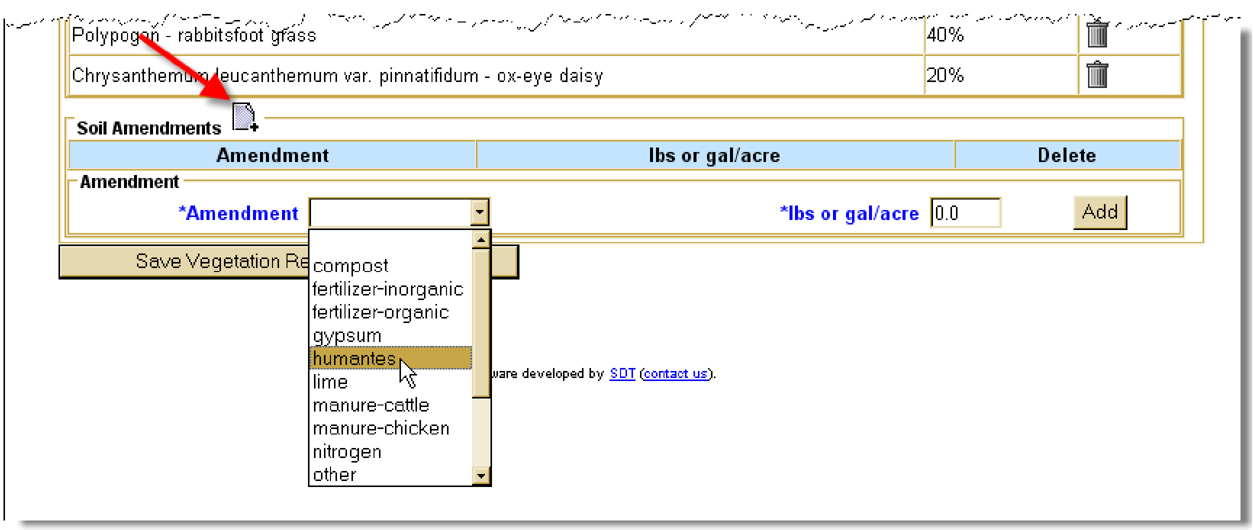
c) Click the Add button to insert the plant species into the **Composition of Species Planted** table.

d) To add another plant species, click on the icon again.

e) Use the delete icon to remove a species from the table.



9. **Soil Amendments** - If applicable, click on the **Add** icon to allow you to enter soil amendment information.

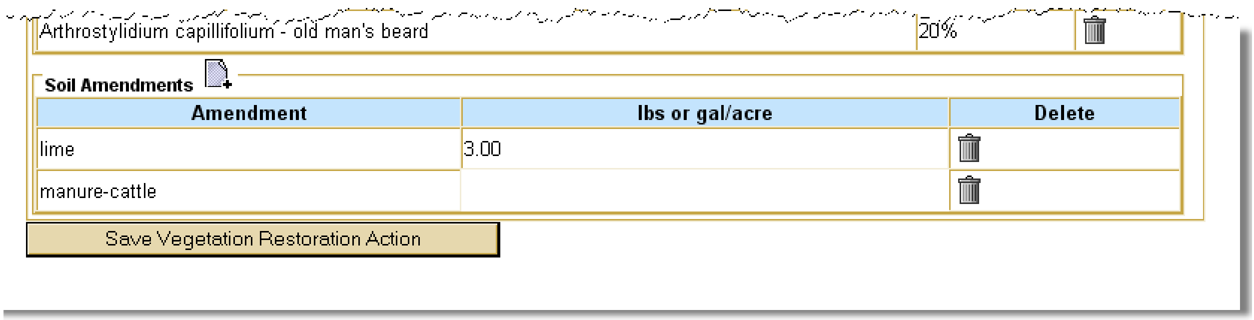


a) **Amendment** – Choose an amendment from the list.

b) **lbs or gal/acre** – Specify the pounds (lbs) or gallons per acre that were applied.

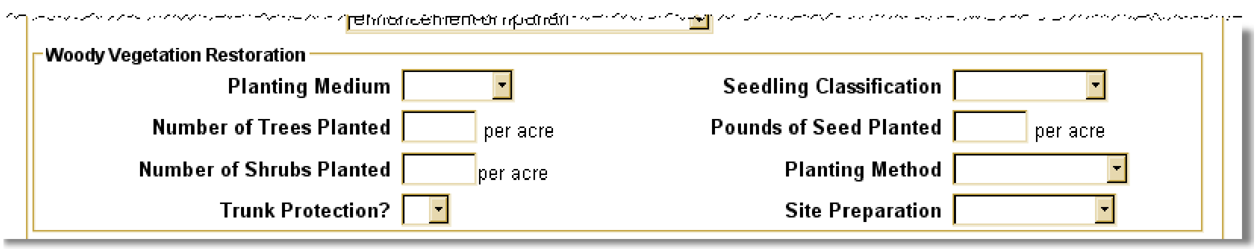
c) Click the Add button to insert the plant species into the **Soil Amendments** table.

d) Use the delete icon to remove a species from the table.



10. Click **Save Vegetation Restoration Action**

B. <u>Woody Vegetation Restoration</u>:



1. **Planting Medium** – Choose the form of plant utilized (e.g., seedling, sapling, etc).

2. **Seedling Classification** – If applicable, specify if seedlings are bare root or containerized.

3. **Number of Trees Planted (per acre)** – Specify the number of trees, if applicable.

4. **Pounds of Seed Planted (per acre)** – Specify the pounds of seed planted, if applicable.

5. **Number of Shrubs Planted (per acre)** – Specify the number of shrubs, if applicable.

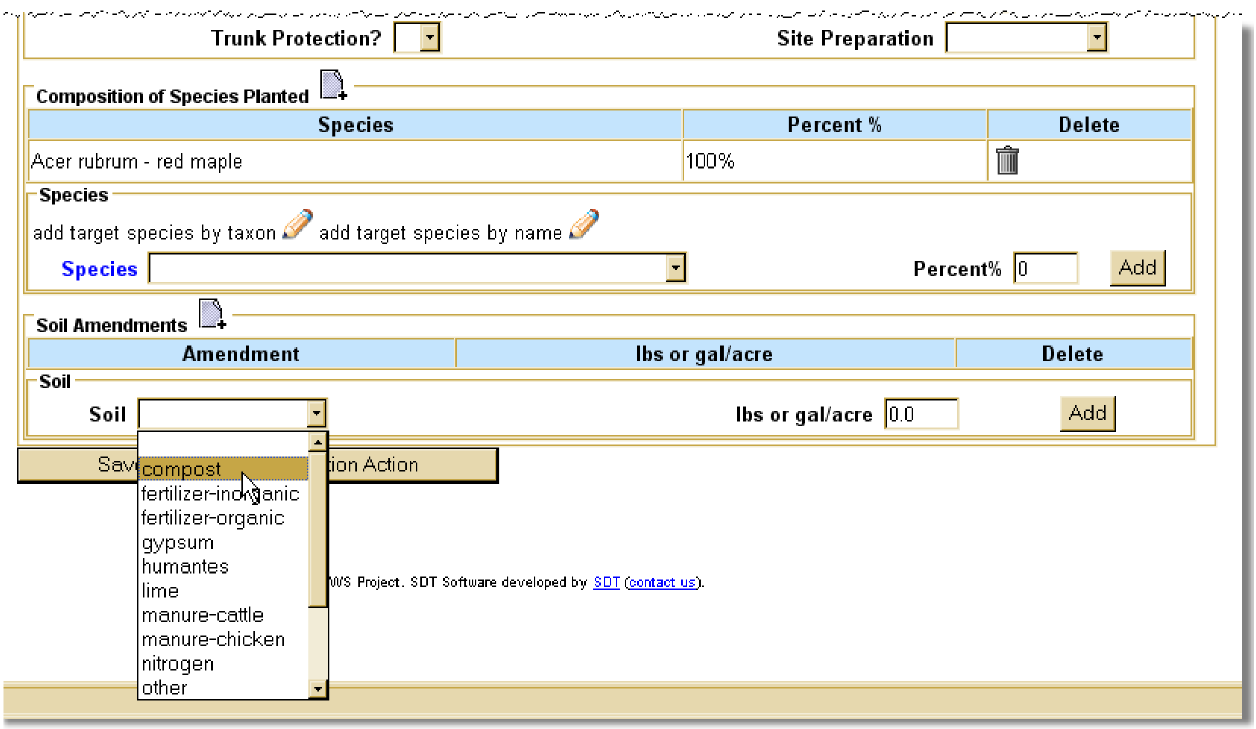
6. **Planting Method** – Specify the method utilized (manual, mechanical, natural seed fall).

7. **Trunk Protection** – If applicable, indicate if trunk protection was provided by selecting **Y**es or **N**o.

8. **Site Preparation** – Choose the primary method of site preparation, if any.

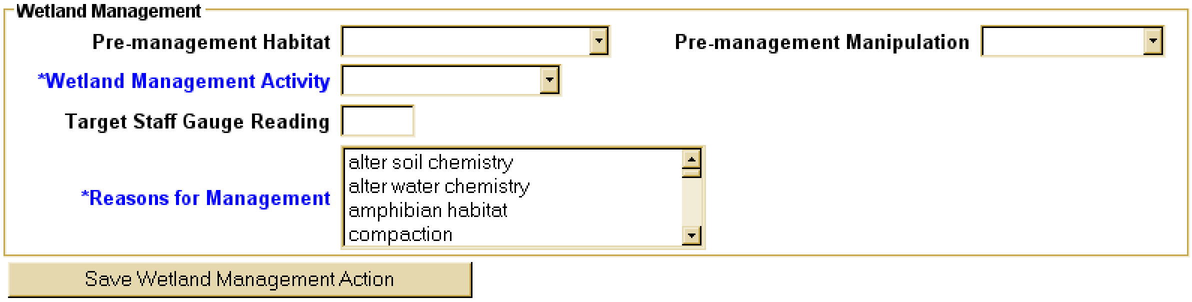
9. **Composition of Species Planted** – follow steps as described above for Herbaceous vegetation restoration in Step # 8.

10. **Soil Amendments** – Follow steps as described above for Herbaceous vegetation restoration in Step # 9.



11. Click **Save Vegetation Restoration Action.**

8. Wetland Management Action



1. **Pre-management Habitat** – Choose a description of the pre-management habitat.

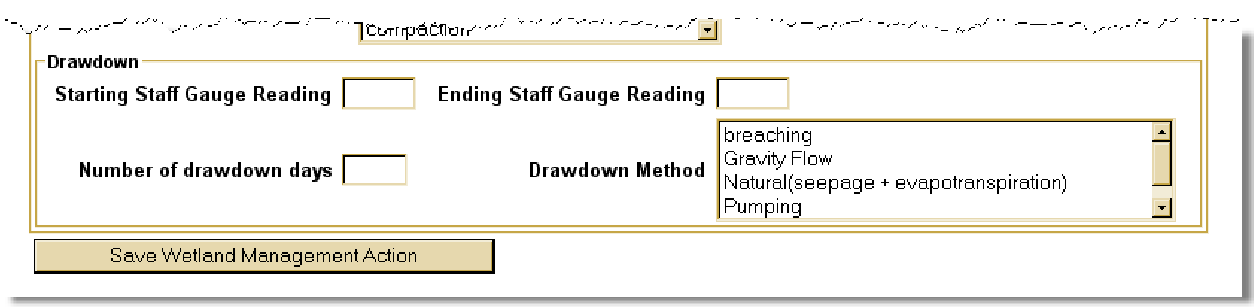
2. **Pre-management Manipulation** – Choose any one primary pre-management habitat manipulation method from the list.

3. ***Wetland Management Activity** – Choose drawdown, flood-up, or maintain water level. Based on the Activity chosen, additional fields will appear below the Wetland Management box, specific to that Activity. These fields are described below: **A. Drawdown, B. Flood-up and C. Maintain water level**.

4. **Target Staff Gauge Reading** – Specify your target staff gauge reading for the mgmt unit.

5. ***Reasons for Management** – Choose one or more reasons for the management action.

<u>Drawdown:</u>



1. **Starting Staff Gauge Reading** – Indicate the water staff gauge reading before the drawdown begins.

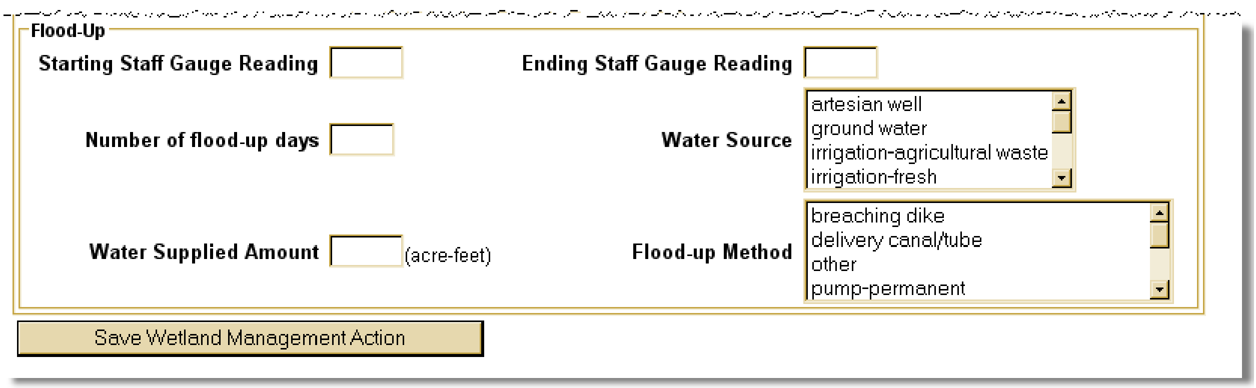
2. **Ending Staff Gauge Reading** – Indicate the water staff gauge reading at the completion of the drawdown.

3. **Number of Drawdown Days** – Indicate the number of days, start to end, the drawdown occurred.

4. **Drawdown Method** – Choose one or more from the list.

5. Click **Save Wetland Management Action**

<u>Flood-up</u>:



1. **Starting Staff Gauge Reading** – Indicate the water staff gauge reading before the flooding begins.

2. **Ending Staff Gauge Reading -** Indicate the water staff gauge reading at the completion of the flood-up.

3. **Number of Flood-up Days -** Indicate the number of days, start to end, the drawdown occurred.

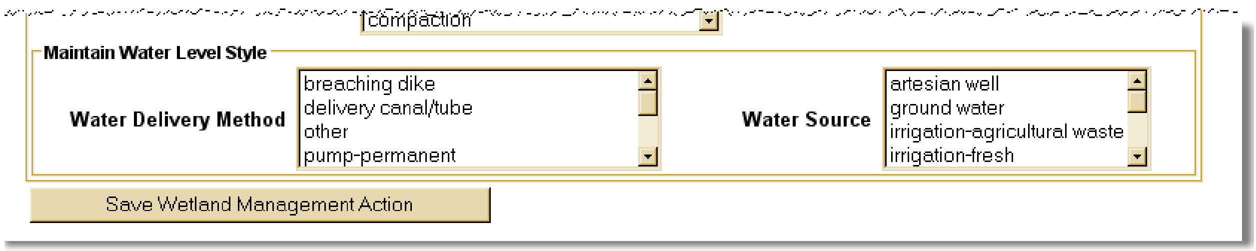
4. **Water Source** – Choose one or more water sources, if applicable.

5. **Water Supplied Amount (acre-feet)** - Indicate the total amount of water used for the flood-up.

6. **Flood-up Method** – Choose one or more flood-up methods, if applicable.

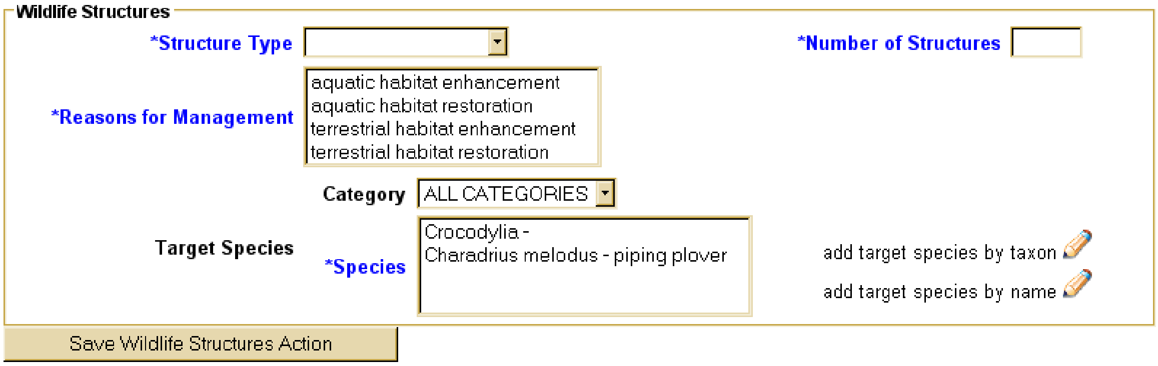
7. Click **Save Wetland Management Action**

Maintain Water Level:



1. **Water Delivery Method** – Choose the primary method for delivering water.
2. **Water Source** – Choose the primary source of water.
3. Click **Save Wetland Management Action**

9. Wildlife Structures Action



1. ***Structure Type** – Choose the type of wildlife structure being erected or established.

2. ***Number of Structures** – Indicate how many structures are being erected or established.

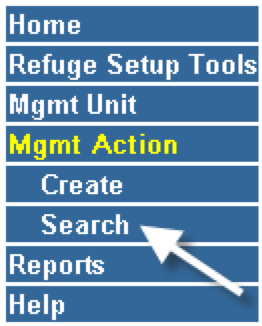
3. ***Reasons for Management** – Choose one or more reasons for the management action.

4. **Category** - To facilitate selecting the Species, you can narrow your refuge's species list by selecting a taxonomic group such as mammal, bird, fish, etc.

5. ***Target Species** – Specify the species for which the structures are being erected or established. You can add a target species using the **add target species** icons, as described in the Animal Control section (PG # 39).

6. Click **Save Wildlife Structures Action**

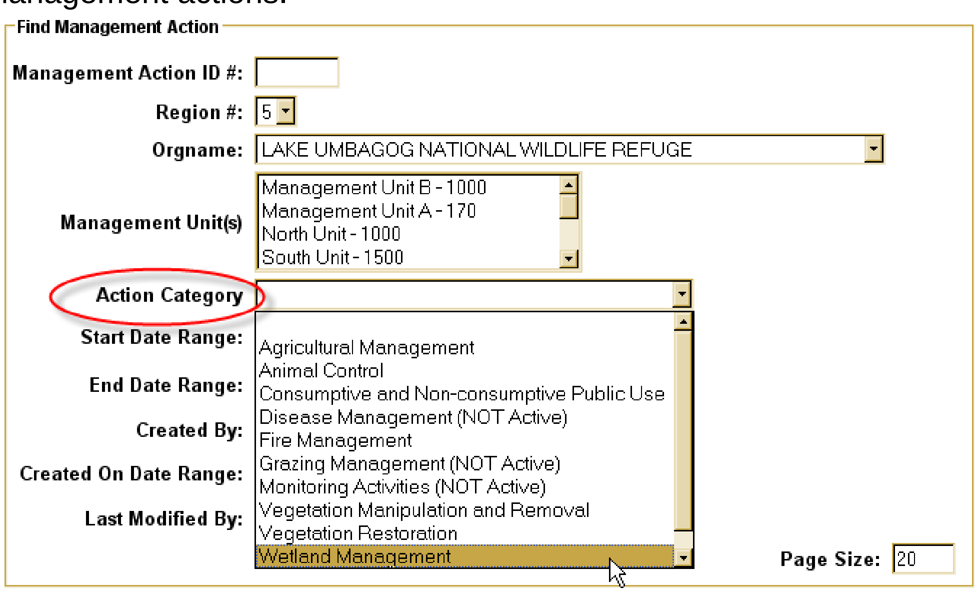
10. Search Management Action



1. Click **Mgmt Action** menu item, then click **Search**. You will be brought to a Search screen.

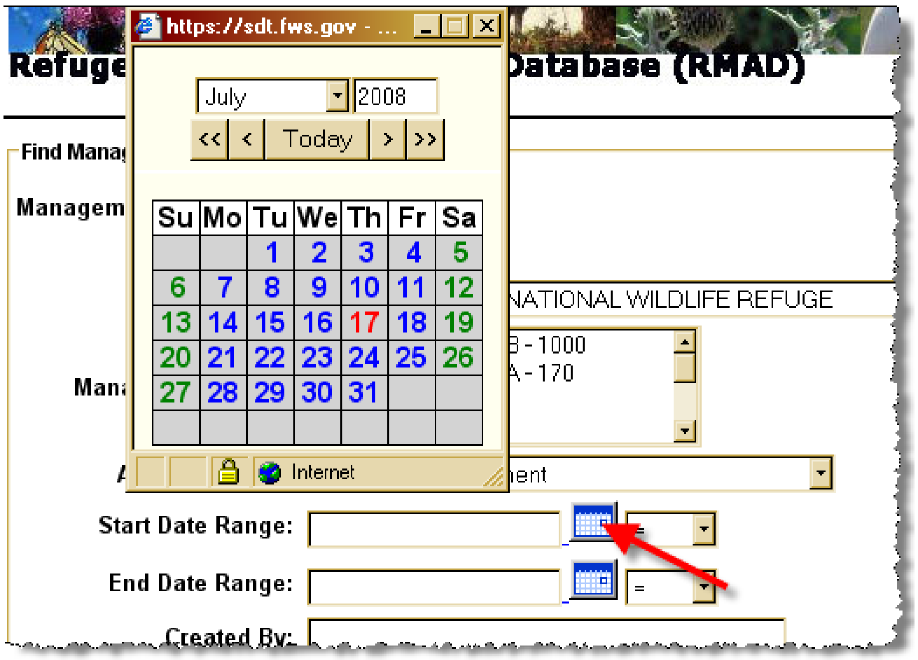
You can search for management actions using any one or combination of the following fields:

2. **Management Action ID#** - Enter a specific ID#. Results for one specific management action will be returned.
3. **Region #** - Select a Region. Results for all refuges in one Region will be returned, or it will allow you to choose a refuge from another Region.
4. **Orgname** – The screen defaults to the users Station name. You can select another refuge from your region, or from another region (specified in Region #). Results for one refuge will be returned or, if you do not select a refuge (leave it blank) results for all the refuges within the Region specified above will be returned.
5. **Management Unit** – Select a management unit. Results for that unit will be returned, or if you do not select a management unit, results for all management units will be returned.
6. **Action Category** – Select an Action Category. Results for the Management Action Category you select will return, or if left blank, will result in all the management actions.



7. **Start Date Range** – Use the calendar tool  and the default "=" operator to choose one date. To search for actions that occurred between a range of dates specify the bounding value(s): before >, after <, or between two bounds BTW. Results for Management Actions that were started on a specified date, or for a range of dates will be returned.

8. **End Date Range** – Same as Start Date Range.

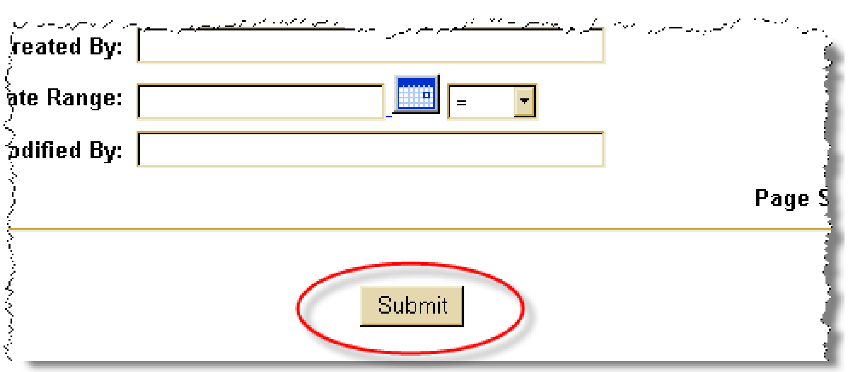


9. **Created By** – Enter a person's email address. Results for all the actions created by one individual will be returned.

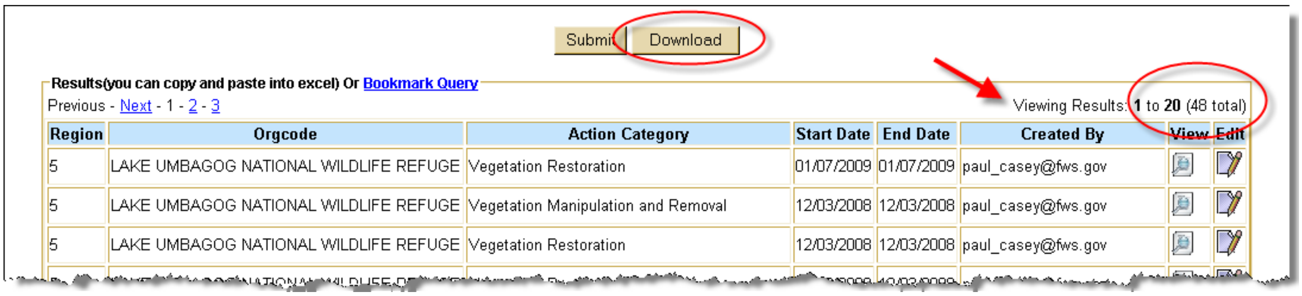
10. **Created On Date Range** – Same as Start Date Range.

11. **Last Modified By** – Enter a person's email address. Results for all the actions modified by one individual will be returned.

12. Once your search criteria are specified, click **Submit** to view the results on the screen.

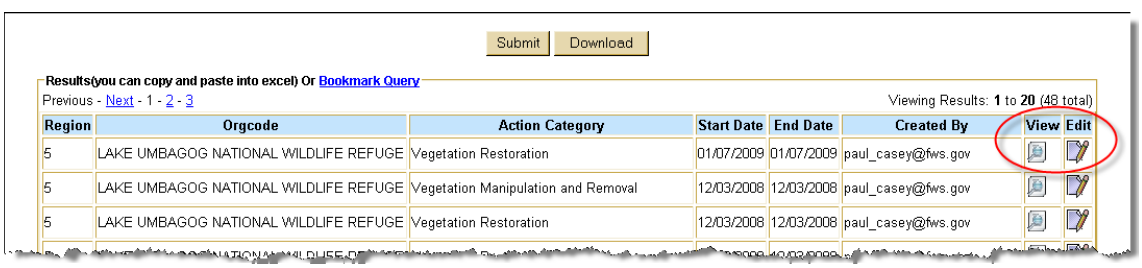


13. A **Download** button will appear above the results box. Clicking this button will download the data automatically and open Excel with the data in a spreadsheet. Only the data that is shown on the screen will be downloaded. If you have more results than can fit within the default page size of 20, increase the page size to accommodate all your results. Page size can be over 1,000. You can determine the necessary page length by looking at 'Viewing Results:'

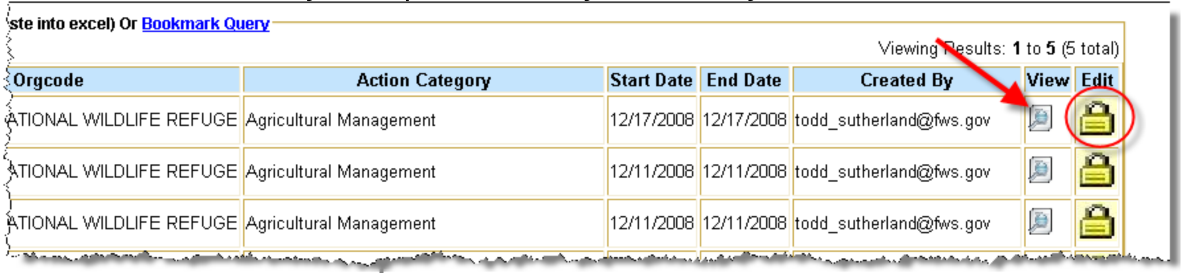


NOTE: When saving a download to your PC for use with ArcGIS, do not use the default XLS extension (.xls). Instead, you must save the file using a TAB extension (.tab). If you don't use this extension, you will not be able to add the file in ArcMap or view it in ArcCatalog.

14. If you wish to Edit a Management Unit presented in the search results, click the Edit icon.  You can only edit the management units for your refuge.



15. If you conducted a search of another refuge's management units, the Edit icon will show as a yellow paddle lock, you can only View those records.



16. After selecting Edit, you will be able to change the data associated with that action, and click Save.

17. Deleting a management action can only be done by the Administrator, to avoid the risk of accidental deletion. Contact your regional Administrator to delete a management action

VIII. REPORTS

By conducting a simple query, management actions data can be downloaded into an Excel file.

1. Export Management Actions

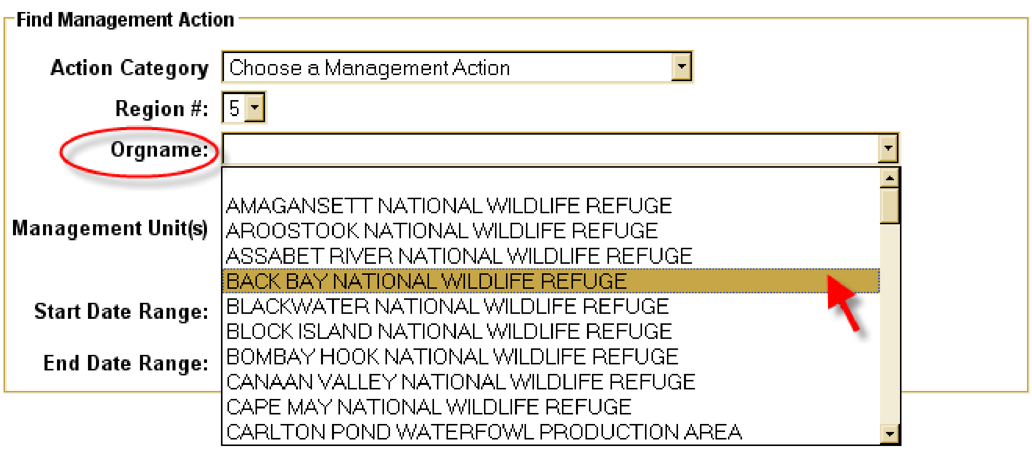
1. Click the **Reports** menu item, then click Export Mgmt **Actions**. You will be brought to a Search screen.

You can search for management actions using any one or combination of the following fields:

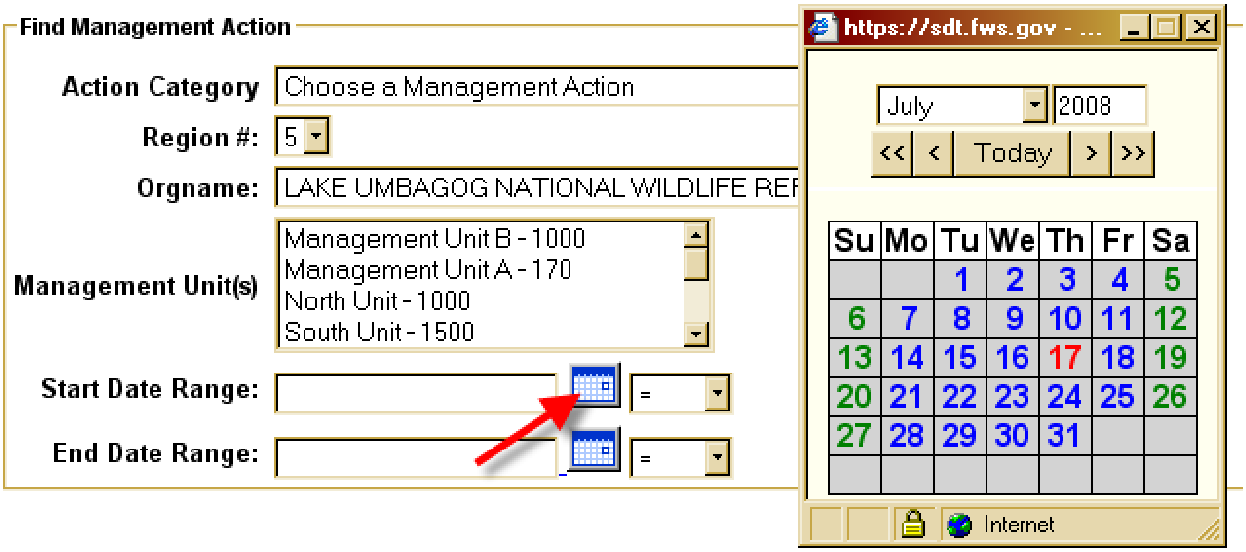
2. **Action Category** – Select an Action Category. Results for the Management Action Category you select will be returned.

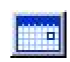
3. **Region #** - Select a Region. Results for all refuges in one Region will be returned, or it will allow you to choose a refuge from another Region.

4. **Orgname** – The screen defaults to the users Station name. You can select another refuge from your region, or from another region (specified in Region #). Results for one refuge will be returned or, if you do not select a refuge (leave it blank) results for all the refuges within the Region specified above will be returned.



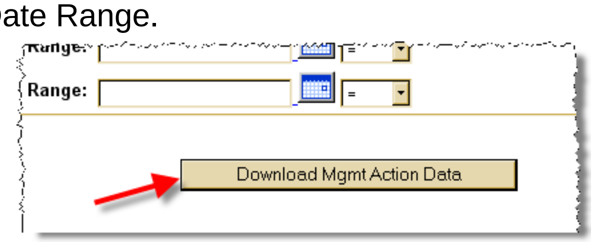
5. **Management Unit** – Select a management unit. Results for that unit will be returned, or if you do not select a management unit, results for all management units will be returned.



6. **Start Date Range** – Use the calendar tool  and the default "=" operator to choose one date. To specify a range of dates specify the bounding value(s): before >, after <, or between two bounds BTW. Results for Management Actions that were started on a specified date, or for a range of dates will be returned.

7. **End Date Range** – Same as for Start Date Range.

8. Click **Download Mgmt Action Data**



The download will automatically open up into an Excel spreadsheet. You can then use other software to further query or conduct summaries, tables, reports, etc.

- NOTE: When saving a download to your PC for use with ArcGIS, do not use the default XLS extension (.xls). Instead, you must save the file using a TAB extension (.tab). If you don't use this extension, you will not be able to add the file in ArcMap or view it in ArcCatalog.

2. Linking RMAD exports to ArcGIS

There are currently two ways to approach linking RMAD exports with your GIS data. The method you adopt will probably depend on your preferred workflow and preferences for maintaining unique management action ID values. The first method involves using the GIS_ID field as your linking field and recommends delineating your features in ArcGIS before populating RMAD. In this method, the user must ensure and maintain the unique IDs for linking with GIS features.

The second method involves using the RMAD management action ID as your linking field and recommends populating RMAD first. In this method, RMAD maintains the unique ID used for the linking with GIS features. However, this method will require an additional step if you wish to update acreage values obtained from the GIS.

NOTE: Due to the way “one to many” relationships are written to the RMAD output file, the use of “relates” instead of “joins” should be used when querying your exported RMAD tables in ArcGIS.

Method 1: Using GIS_ID field for linking RMAD attributes with your spatial features in ArcGIS

Suggested field to be added to your GIS layer
Name: RMAD_GIS_ID
Type: Text
Length: 14

Step 1: Record your management actions in the field onto field data sheets. Ensure you assign a unique GIS_ID to each action.

Step 2: Delineate your action in the GIS, calculate acreages and assign the GIS_ID field from value on field data sheets.

Step 3: Use RMAD to populate the required fields using the acreage values obtained from you GIS. Ensure you populate the GIS_ID field with the value you assigned in ArcGIS.

Step 4: When you need to perform a query in GIS using the data stored in RMAD, export the management action from RMAD. Ensure you save the output file using TAB extension.

Step 5: Establish relate in ArcGIS and query the exported RMAD table. Relate the results to your features.

Method 2: Using RMAD Management Action ID for linking RMAD attributes with your spatial features in ArcGIS.

Suggested field to be added to your GIS layer
Name: RMAD_MgmtID
Type: Long Integer
Length: n/a

Step 1: Record your management actions in the field onto field data sheets.

Step 2: Use RMAD to populate the required fields. Record the Mgmt_Action_ID onto the field data sheet after saving your management action in RMAD.

Step 3: Delineate your action in the GIS, calculate acreages and assign management action ID.

Step 4: Use RMAD and update the management action acreages obtained from your GIS.

Step 5: When you need to perform a query in GIS using the data stored in RMAD, export the management action from RMAD. Ensure you save the output file using TAB extension.

Step 6: Establish relate in ArcGIS and query the exported RMAD table.   Relate the results to your features.